STORMWATER REPORT

# Submarine Cable Factory

## Brayton Point Road
## Somerset, Massachusetts

PREPARED FOR

Prysmian Group

Prysmian Cables and Systems USA, LLC
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Highland Heights, Kentucky 410763

PREPARED BY

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October 2022

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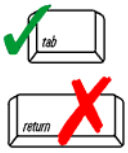
# Checklist for Stormwater Report

**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.

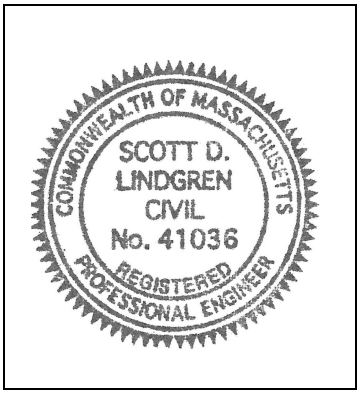
*Note:* Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that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




10-28-2022

Signature and Date

## Checklist

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

☐ New development

☐ Redevelopment

☒ Mix of New Development and Redevelopment

(Onsite) (Offsite)

# Checklist for Stormwater Report

## Checklist (continued)

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

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

**Standard 1: No New Untreated Discharges**

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

# Checklist for Stormwater Report

## Checklist (continued)

### Standard 2: Peak Rate Attenuation

- [X] 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

- [X] 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.
- [X] Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:
  - [X] Site is comprised solely of C and D soils and/or bedrock at the land surface
  - [ ] M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
  - [ ] Solid Waste Landfill pursuant to 310 CMR 19.000
  - [ ] Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.
- [ ] Calculations showing that the infiltration BMPs will drain in 72 hours are provided.
- [ ] Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

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

# Checklist for Stormwater Report

## Checklist (continued)

**Standard 3: Recharge** (continued)

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

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

**Standard 4: Water Quality**

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

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

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

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

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

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

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

# Checklist for Stormwater Report

## Checklist (continued)

**Standard 4: Water Quality** (continued)

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

- ☐ The ½" or 1" Water Quality Volume or 1.7" Water Quality Volume
- ☐ 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. Shellfish growing area

# 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.

# Stormwater Report Narrative

This Stormwater Report has been prepared to demonstrate compliance with the Massachusetts Stormwater Management Standards in accordance with the Massachusetts Wetlands Protection Act Regulations (310 CMR 10.00) and Water Quality Certification Regulations (314 CMR 9.00). This report also demonstrates compliance with the Town of Somerset, Stormwater Management Regulations, dated June 8, 2021 for stormwater design and mitigation.

## Project Description

The Applicant, Prysmian Cables and Systems USA, LLC, is proposing to construct a new state-of-the-art submarine cable manufacturing plant ("the Project"). As proposed, the Project consists of 800,000± square feet of building footprint, ancillary landscape improvements, an offshore pier, parking spaces, and utility infrastructure improvements to support this use. Additionally, offsite improvements will be made to realign/redevelop the primary access to the project site and to extend utilities down Brayton Point Road for connections to the Municipal systems ("Offsite Improvements").

## Site Description

The Project Site is a 47-acre parcel of land (the Site) located at the former Brayton Point Power Station in Somerset, Massachusetts (see Figure 1). The Site lies within the surface watershed of Mount Hope Bay and is bounded by the former Brayton Point Power Station and National Grid substations to the north, Mount Hope Bay to the south, the Taunton River to the east, and the Lee River to the west. See Figure 1, Site Location Map.

There are wetland resource areas on the Site and the Project will include work within areas regulated by the Wetlands Protect Act. According to the National Resources Conservation Service (NRCS), surface soils on the Site are solely Urban land without a Hydrologic Soil Group classification. Based on the soil evaluation and NRCS soil mapping included in the Appendix, on-site soils are classified as Hydrologic Soil Groups (HSG) C and D with bedrock prevalent throughout. The Site is not considered to be within an area of rapid infiltration (soils with a saturated hydraulic conductivity greater than 2.4 inches per hour).

# Existing Drainage Conditions

Under existing conditions, the Site has generally flat topography and is comprised of crushed concrete and other debris from the decommissioning and demolition of the Brayton Point Power Station. Although all structures have been removed, the Site has some remaining utility infrastructure and partially constructed stormwater BMPs that were designed as part of the interim phase of the Site's redevelopment. Figure 2 illustrates the existing drainage patterns on the Site. Currently, the Site is divided into 16 drainage areas as stormwater runoff flows to 5 Design Points, which have been identified as DP1 - Taunton River, DP2 – Existing Channel, DP3 – Lower Supply Basin, DP5 Taunton River (offsite), and DP5 – Mount Hope Bay. The Site is separated from the Lee River by a constructed discharge channel associated with the previous development on the site, which intercepts discharge from the western portion of the Site and outlets to Mount Hope Bay.

# Proposed Drainage Conditions

Figure 3 illustrates the proposed post-construction drainage conditions for the project. As shown, the Site will be divided into 16 drainage areas that discharge treated stormwater to the Taunton River, the Existing Channel, the Lower Supply Basin, or Mount Hope Bay. The project proposes the repurposing of three existing drainage outfalls on the Site; two that discharge directly to Taunton River, and one that discharges to the existing constructed drainage Channel. One additional outfall is proposed that also discharges treated water to the existing drainage Channel.

The site design integrates a comprehensive stormwater management system that has been developed in accordance with the Massachusetts Stormwater Handbook and the Town of Somerset Stormwater Management Regulations. The Project includes the storage and maintenance of industrial machinery and equipment and is therefore considered a Land Use with Higher Potential Pollutant Loads (LUHPPL). Because the Project is considered a LUHPPL, the proposed stormwater management system has been designed to treat the 1.7 inch Water Quality Volume. While the Massachusetts Stormwater Handbook only requires a 1 inch Water Quality Volume, additional water quality treatment has been provided to satisfy the towns requirement of 60% phosphorous removal.

## Environmentally Sensitive and Low Impact Development (LID) Techniques

Low Impact Development (LID) techniques and stormwater Best Management Practices (BMPs) implemented into the site design include minimized disturbance to existing trees and vegetation. The project proposes the repurposing of three existing drainage outfalls on the Site to reduce impact to coastal resources. The majority of stormwater from the proposed impervious surfaces is captured in deep-sump and hooded catch basins, piped to a sediment forebay, and treated through a surface sand filter or direct to a precast subsurface sand filter prior to discharge from the Site. Please refer to the TSS removal worksheets in the Appendix for the full water quality treatment train. Also provided are details of the proposed water quality BMPs.

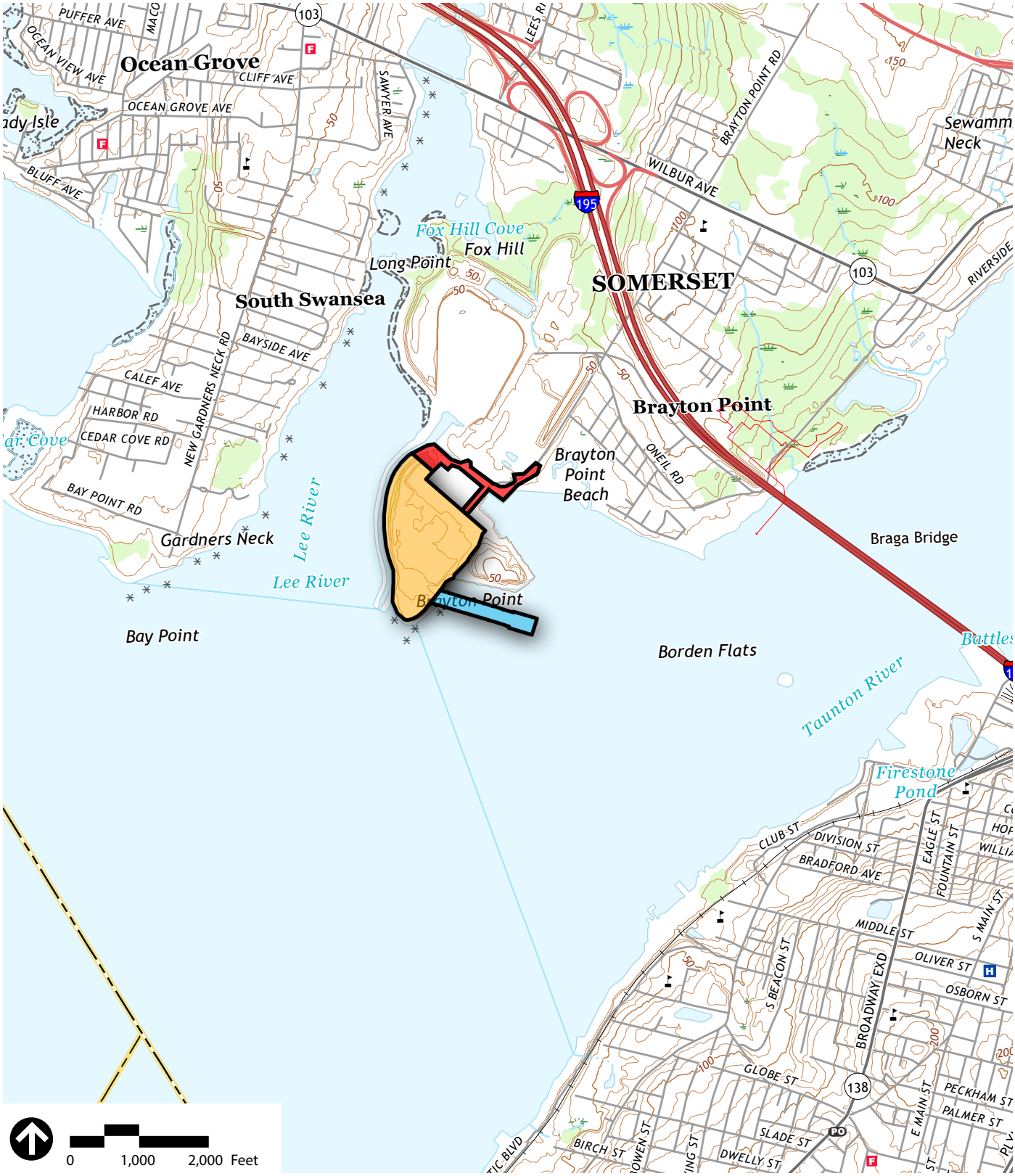
## Adaptation and Resiliency

The Applicant has considered climate change adaptation and resiliency strategies in planning for and designing the Project. The Project has been designed in consultation with the Massachusetts Resilient MA Action Team (RMAT) Climate Resilience Design Standards Tool (version 1.1). The RMAT Tool Project Report has been provided in Appendix G.

The Project will be built to be resilient to future climate conditions consistent with the recommendations provided in the RMAT Tool for medium/high critical assets, including:

- The proposed grading of the Project Site will range on average from 21 to 25 NAVD88 so that the Project Site is likely to remain dry during future low-probability coastal flood events.
- The first-floor elevation of the Manufacturing/Office Building, Employee Support Building, Cable Storage Buildings, Test Lab Facilities, and Material Storage Facility will all be set at elevation 25 NAVD88.
- Critical utility infrastructure, (sanitary pump station, water tank and booster pump station, and electrical substation will be set at or above elevations 21.5 NAVD88.
- The proposed docking facility inshore platform and pier will be set at elevation 22.5 NAVD88.
- Stormwater Systems have been designed to accommodate future increases to peak precipitation storm events.

## Figure 1 Site Location Map




Source: USGS topo (Fall River 2021 quadrangle)

Project Site

Adjacent In-Water Area

Offsite Improvements

Figure 1.1

Site Location

**Prysmian Brayton Point**
**Somerset, Massachusetts**

**Figure 2 Existing Drainage Area**


# Legend

## SYMBOLS

- DESIGN POINT
- DRAINAGE AREA DESIGNATION
- POND

## LINETYPES

- DRAINAGE AREA BOUNDARY
- TIME OF CONCENTRATION FLOW LINE
- SOIL TYPE BOUNDARY

## SCS SOIL CLASSIFICATIONS

| | |
|---|---|
| 61A | PAWCATUCK AND IPSWICH PEATS, 0 TO 2 PERCENT SLOPES, EXTREMELY FREQUENTLY FLOODED, HSG A |
| 71A | RIDGEBURY FINE SANDY LOAM, 0 TO 3 PERCENT SLOPES, EXTREMLY STONY, HSG D |
| 602 | URBAN LAND |
| 606 | MISCELLANEOUS WATER |
| 607 | WATER, SALINE |
| 608 | WATER, OCEAN |

Existing Drainage Conditions

Prysmian Brayton Point
Somerset, MA

**Figure 2**

October 2022

## Figure 3 Proposed Drainage Area

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# Legend

## SYMBOLS

- DESIGN POINT
- DRAINAGE AREA DESIGNATION
- POND

## LINETYPES

- DRAINAGE AREA BOUNDARY
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| 602 | URBAN LAND |
| 606 | MISCELLANEOUS WATER |
| 607 | WATER, SALINE |
| 608 | WATER, OCEAN |

Proposed Drainage Conditions

**Figure 3**

Prysmian Brayton Point
Somerset, MA

October 2022

# Regulatory Compliance

## Massachusetts Department of Environmental Protection (DEP) – Stormwater Management Standards

As demonstrated below, the proposed Project fully complies with the DEP Stormwater Management Standards.

### Standard 1: No New Untreated Discharges or Erosion to Wetlands

The Project has been designed to comply with Standard 1.

The Best Management Practices (BMPs) included in the proposed stormwater management system have been designed in accordance with the Massachusetts Stormwater Handbook. Supporting information and computations demonstrating that no new untreated discharges will result from the Project are presented through compliance with Standards 4 through 6.

All proposed Project stormwater outlets and conveyances have been designed to not cause erosion or scour to wetlands or receiving waters. Outlets from closed drainage systems have been designed with flared end sections and stone protection to dissipate discharge velocities. Overflows from BMP's that impound stormwater have been designed with stone to protect downgradient areas from erosion.

Computations and supporting information for the sizing and selection of materials used to protect from scour and erosion are included in Appendix A.

### Standard 2: Peak Rate Attenuation

The Project's peak rate attenuation and volume control requirements are waived per the MA Stormwater Handbook Volume 1, Chapter 1 as the Project is located on land subject to coastal storm flowage.

Although the Project's compliance with Standard 2 is waived, an analysis of existing and proposed conditions was evaluated for storm events with recurrence intervals of 2, 10, and 100-years. Rainfall distributions used for this analysis were based on the Natural Resources Conservation Service (NRCS) Type III, 24-hour storm and NOAA Atlas 14 precipitation depths for the site: 3.4, 5.04, and 7.66 inches, respectively. As discussed in the report Narrative the project has considered climate change adaptation and resiliency strategies in the design of the site and stormwater infrastructure. Future increased precipitation depths for the 100-year 2070 storm event (10.4 inches) has been analyzed for the project.

Runoff coefficients for the pre- and post-development conditions were determined using NRCS Technical Release 55 (TR-55) methodology as provided in HydroCAD. Drainage areas used in the analyses were described in previous sections and shown on Figures 2 and 3. The HydroCAD

model is based on the NRCS Technical Release 20 (TR-20) Model for Project Formulation Hydrology.

The results of the analysis, as summarized in Table 1 below, and indicate that there is no increase in peak discharge rates between the existing and proposed conditions to the Taunton River, Existing Channel or as a project total to Mount Hope Bay for the current 2-, 10- and 100-year storm events, and additionally during the projected 100-year 2070 storm event.

Computations and supporting information regarding the hydrologic modeling are included in Appendix B.

**Table 1 Peak Discharge Rates (cfs*)**

| Discharge Location | 2-year | 10-year | 100-year | 100-year (2070) |
|---|---|---|---|---|
| **Design Point: DP1+DP4 (Taunton River)** | | | | |
| Existing | 89.90 | 143.60 | 229.70 | 319.10 |
| Proposed | 33.20 | 81.70 | 109.90 | 140.60 |
| **Design Point: DP2 (Existing Channel)** | | | | |
| Existing | 5.80 | 12.30 | 23.80 | 36.20 |
| Proposed | 5.60 | 12.20 | 23.80 | 36.50 |
| **Design Point: DP3 (Lower Supply Basin)** | | | | |
| Existing | 36.90 | 57.20 | 89.40 | 122.80 |
| Proposed | 8.60 | 13.50 | 21.20 | 29.20 |
| | | | | |
| **Design Point: DP5 (Mount Hope Bay)** | | | | |
| Existing | 99.20 | 161.90 | 263.50 | 369.70 |
| Proposed | 56.70 | 165.80 | 228.50 | 290.70 |

## Standard 3: Stormwater Recharge

The Project has been designed to comply with Standard 3 to the maximum extent practicable because the site is comprised of wholly Hydrologic Soil Group C and D soils and bedrock at the land surface. Computations and supporting information are included in Appendix C.

## Standard 4: Water Quality

The proposed stormwater management system implements a treatment train of BMPs that has been designed to provide 80% TSS removal of stormwater runoff from all proposed impervious surfaces.

Computations and supporting information, including the Long-Term Pollution Prevention Plan, are included in Appendix D.

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

The Project is considered a LUHPPL and therefore has been designed with suitable BMPs sized to treat the 1.7-inch Water Quality Volume. Proposed source controls and pollution prevention measures have been identified in the Long-Term Pollution Prevention Plan included in Appendix D.

For computations and supporting information regarding the sizing of BMPs suitable for treatment of runoff from LUHPPLs, see Appendix D. The Project will be covered by the NPDES Multi-Sector General Permit. A SWPPP will be submitted prior to the discharge of stormwater to the post-construction stormwater BMPs.

## Standard 6: Critical Areas

The Project will discharge treated storm water near/to a critical area and therefore has been designed with suitable BMPs sized to treat the 1.7-inch Water Quality Volume and provide the pretreatment requirement of 44% TSS removal prior to infiltration. Proposed source controls and pollution prevention measures have been identified in the Long-Term Pollution Prevention Plan included in Appendix D.

## Standard 7: Redevelopments and Other Projects Subject to the Standards only to the Maximum Extent Practicable

Although this Site was previously developed as the Brayton Point Power Plant, that development has since been demolished and this project is being designed as a new development. The Project has been designed to comply with Stormwater Management Standard 3 to the maximum extent practicable. The remaining Standards will be met fully. Refer directly to each Standard for applicable computations and supporting information demonstrating compliance with each.

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

The Project will disturb more than 1-acre of land and is therefore required to obtain coverage under the Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) Construction General Permit. As required under this permit, a Stormwater Pollution Prevention Plan (SWPPP) will be developed and submitted before land disturbance begins. Recommended construction period pollution prevention and erosion and sedimentation controls to be finalized in the SWPPP are included in Appendix E.

## Standard 9: Operation and Maintenance Plan

In compliance with Standard 9, a Post Construction Stormwater Operation and Maintenance (O&M) Plan has been developed for the Project. The O&M Plan is included in Appendix D as part of the Long-Term Pollution Prevention Plan.

## Standard 10: Prohibition of Illicit Discharges

Sanitary sewer and storm drainage structures remaining from previous development which are part of the redevelopment area will be removed or will be incorporated into updated sanitary sewer and separate stormwater sewer systems. The Site will be designed so that the components included therein are in full compliance with current standards. No statement is made with regard to the drainage system in portions of the site not included in the redevelopment project area. The Long-Term Pollution Prevention Plan will include measures to prevent illicit discharges.

# Appendix A: Standard 1 Computations and Supporting Information

**NOAA Atlas 14, Volume 10, Version 3**
**Location name: Somerset, Massachusetts, USA***
**Latitude: 41.7111°, Longitude: -71.1914°**
**Elevation: 13.72 ft****
* source: ESRI Maps
** source: USGS

**POINT PRECIPITATION FREQUENCY ESTIMATES**

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

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

## PF tabular

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

| Duration | Average recurrence interval (years) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 5 | 10 | 25 | 50 | 100 | 200 | 500 | 1000 |
| 5-min | **3.66** (2.90-4.51) | **4.52** (3.59-5.59) | **5.95** (4.70-7.38) | **7.14** (5.60-8.89) | **8.77** (6.65-11.4) | **9.98** (7.42-13.3) | **11.3** (8.15-15.6) | **12.8** (8.66-17.9) | **15.1** (9.82-21.8) | **17.1** (10.8-25.0) |
| 10-min | **2.59** (2.05-3.20) | **3.21** (2.54-3.97) | **4.22** (3.34-5.23) | **5.06** (3.97-6.30) | **6.21** (4.71-8.09) | **7.07** (5.26-9.40) | **7.99** (5.77-11.0) | **9.08** (6.14-12.7) | **10.7** (6.95-15.4) | **12.1** (7.66-17.7) |
| 15-min | **2.03** (1.61-2.51) | **2.52** (1.99-3.11) | **3.31** (2.61-4.10) | **3.97** (3.11-4.94) | **4.87** (3.70-6.34) | **5.54** (4.12-7.37) | **6.27** (4.53-8.65) | **7.12** (4.82-9.94) | **8.40** (5.46-12.1) | **9.49** (6.00-13.9) |
| 30-min | **1.42** (1.13-1.76) | **1.77** (1.40-2.18) | **2.33** (1.83-2.88) | **2.79** (2.19-3.48) | **3.43** (2.60-4.47) | **3.91** (2.91-5.20) | **4.42** (3.19-6.10) | **5.02** (3.40-7.01) | **5.93** (3.85-8.53) | **6.69** (4.24-9.80) |
| 60-min | **0.916** (0.726-1.13) | **1.14** (0.901-1.41) | **1.50** (1.18-1.86) | **1.80** (1.41-2.24) | **2.22** (1.68-2.88) | **2.52** (1.87-3.35) | **2.85** (2.06-3.94) | **3.24** (2.19-4.53) | **3.83** (2.48-5.51) | **4.32** (2.74-6.33) |
| 2-hr | **0.598** (0.478-0.734) | **0.751** (0.598-0.922) | **1.00** (0.794-1.23) | **1.21** (0.953-1.49) | **1.49** (1.14-1.93) | **1.70** (1.28-2.25) | **1.93** (1.41-2.65) | **2.20** (1.50-3.05) | **2.62** (1.71-3.73) | **2.97** (1.89-4.30) |
| 3-hr | **0.466** (0.373-0.569) | **0.584** (0.467-0.714) | **0.777** (0.620-0.953) | **0.937** (0.743-1.16) | **1.16** (0.888-1.49) | **1.32** (0.994-1.74) | **1.50** (1.10-2.04) | **1.71** (1.17-2.35) | **2.03** (1.33-2.87) | **2.30** (1.47-3.31) |
| 6-hr | **0.306** (0.246-0.371) | **0.377** (0.304-0.458) | **0.494** (0.396-0.601) | **0.591** (0.471-0.723) | **0.724** (0.559-0.923) | **0.823** (0.623-1.07) | **0.930** (0.684-1.25) | **1.06** (0.728-1.44) | **1.24** (0.822-1.74) | **1.40** (0.904-1.99) |
| 12-hr | **0.196** (0.159-0.236) | **0.236** (0.191-0.284) | **0.301** (0.243-0.364) | **0.355** (0.285-0.432) | **0.430** (0.334-0.542) | **0.486** (0.370-0.624) | **0.545** (0.402-0.723) | **0.612** (0.426-0.824) | **0.709** (0.474-0.982) | **0.789** (0.515-1.11) |
| 24-hr | **0.119** (0.097-0.142) | **0.141** (0.115-0.169) | **0.179** (0.146-0.215) | **0.210** (0.170-0.253) | **0.253** (0.198-0.316) | **0.285** (0.218-0.363) | **0.319** (0.237-0.418) | **0.357** (0.251-0.475) | **0.411** (0.277-0.563) | **0.455** (0.299-0.634) |
| 2-day | **0.067** (0.055-0.080) | **0.081** (0.066-0.096) | **0.103** (0.084-0.122) | **0.121** (0.098-0.145) | **0.146** (0.115-0.181) | **0.165** (0.127-0.209) | **0.185** (0.139-0.241) | **0.208** (0.147-0.274) | **0.241** (0.164-0.327) | **0.268** (0.178-0.369) |
| 3-day | **0.049** (0.040-0.058) | **0.058** (0.048-0.069) | **0.074** (0.061-0.088) | **0.087** (0.071-0.104) | **0.105** (0.083-0.129) | **0.118** (0.091-0.148) | **0.132** (0.099-0.171) | **0.148** (0.105-0.194) | **0.171** (0.117-0.231) | **0.191** (0.127-0.261) |
| 4-day | **0.039** (0.033-0.046) | **0.047** (0.039-0.055) | **0.059** (0.048-0.069) | **0.069** (0.056-0.082) | **0.082** (0.065-0.101) | **0.093** (0.072-0.116) | **0.104** (0.078-0.133) | **0.116** (0.083-0.151) | **0.133** (0.092-0.179) | **0.148** (0.099-0.201) |
| 7-day | **0.027** (0.022-0.031) | **0.031** (0.026-0.037) | **0.038** (0.032-0.045) | **0.044** (0.037-0.052) | **0.053** (0.042-0.064) | **0.059** (0.046-0.073) | **0.065** (0.049-0.083) | **0.072** (0.052-0.094) | **0.082** (0.057-0.109) | **0.090** (0.061-0.122) |
| 10-day | **0.022** (0.018-0.025) | **0.025** (0.021-0.029) | **0.030** (0.025-0.035) | **0.034** (0.028-0.040) | **0.040** (0.032-0.049) | **0.045** (0.035-0.055) | **0.049** (0.037-0.062) | **0.054** (0.039-0.070) | **0.061** (0.042-0.081) | **0.066** (0.045-0.089) |
| 20-day | **0.015** (0.013-0.018) | **0.017** (0.014-0.020) | **0.020** (0.016-0.023) | **0.022** (0.018-0.026) | **0.025** (0.020-0.030) | **0.028** (0.022-0.033) | **0.030** (0.023-0.037) | **0.032** (0.024-0.041) | **0.035** (0.025-0.046) | **0.037** (0.026-0.050) |
| 30-day | **0.012** (0.011-0.014) | **0.014** (0.012-0.016) | **0.016** (0.013-0.018) | **0.017** (0.014-0.020) | **0.020** (0.016-0.023) | **0.021** (0.017-0.026) | **0.023** (0.017-0.028) | **0.025** (0.018-0.031) | **0.026** (0.019-0.034) | **0.028** (0.019-0.036) |
| 45-day | **0.010** (0.009-0.012) | **0.011** (0.009-0.013) | **0.013** (0.011-0.015) | **0.014** (0.012-0.016) | **0.015** (0.012-0.018) | **0.017** (0.013-0.020) | **0.018** (0.014-0.022) | **0.019** (0.014-0.024) | **0.020** (0.014-0.026) | **0.021** (0.014-0.027) |
| 60-day | **0.009** (0.008-0.010) | **0.010** (0.008-0.011) | **0.011** (0.009-0.012) | **0.012** (0.010-0.014) | **0.013** (0.011-0.015) | **0.014** (0.011-0.017) | **0.015** (0.012-0.018) | **0.016** (0.012-0.020) | **0.017** (0.012-0.021) | **0.017** (0.012-0.023) |

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

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

Please refer to NOAA Atlas 14 document for more information.

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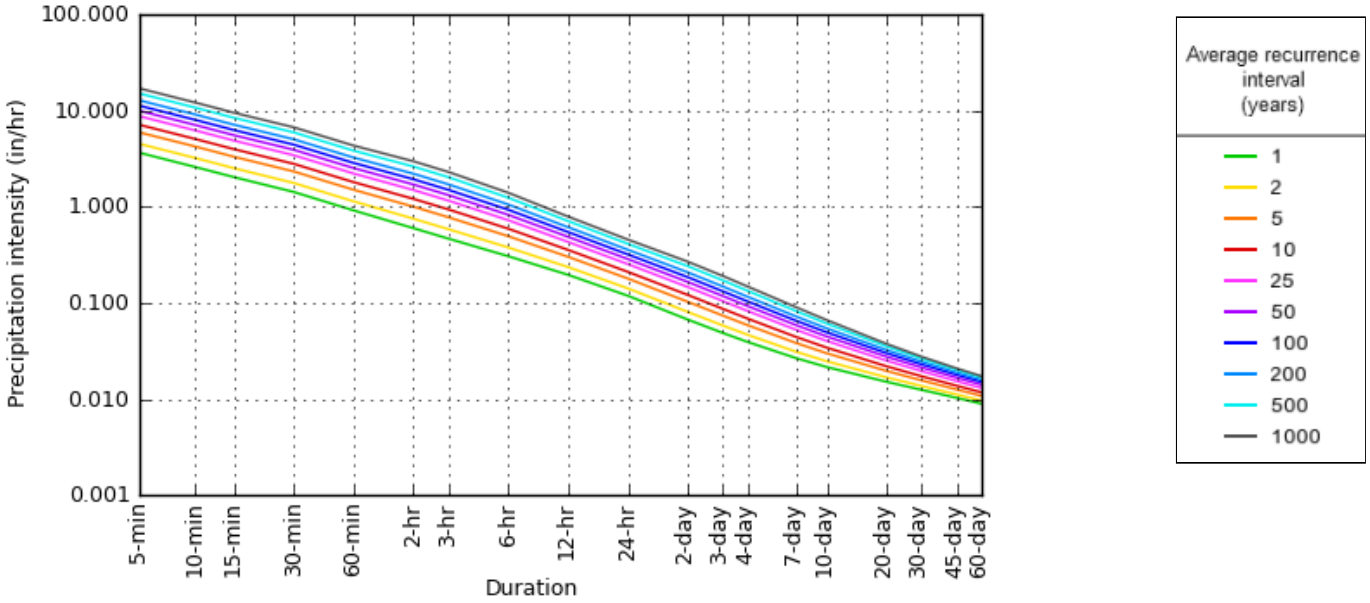
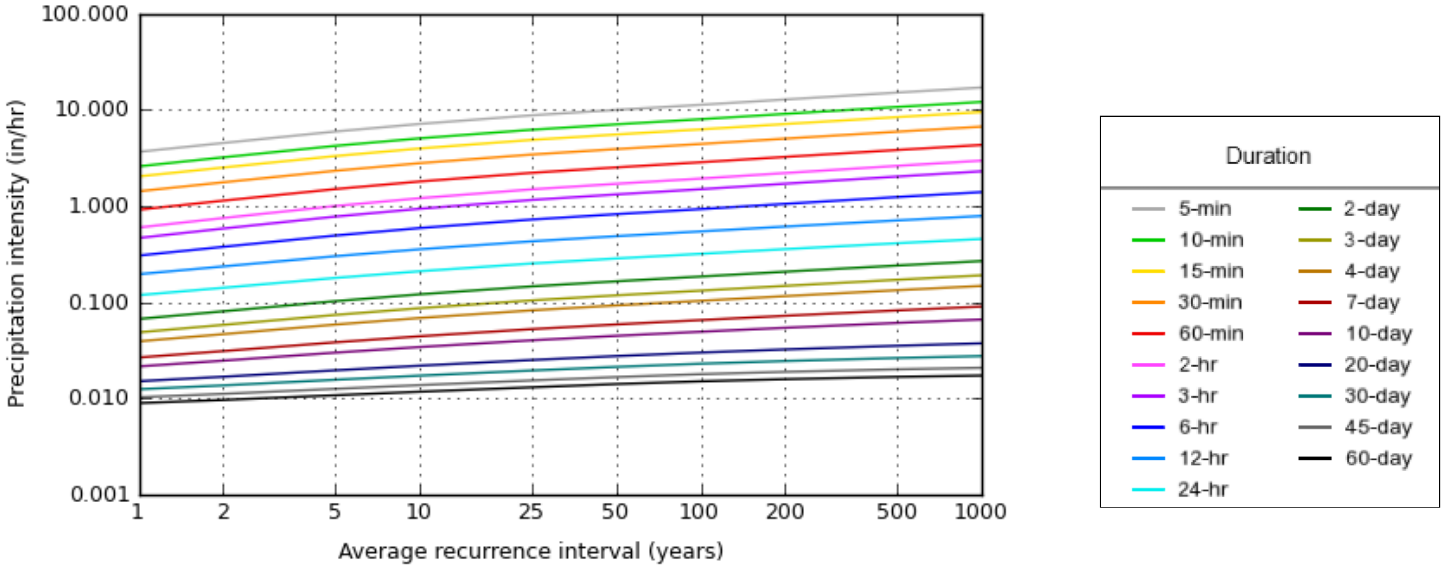
## PF graphical

PDS-based intensity-duration-frequency (IDF) curves
Latitude: 41.7111°, Longitude: -71.1914°

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Created (GMT): Mon Sep 19 13:48:02 2022

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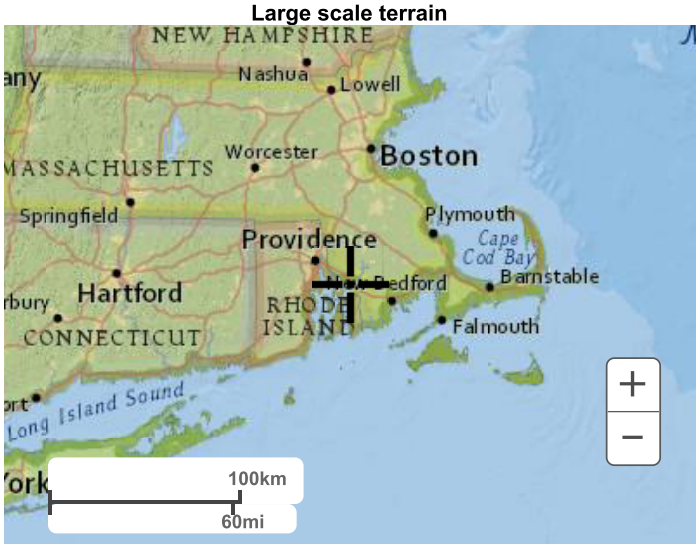
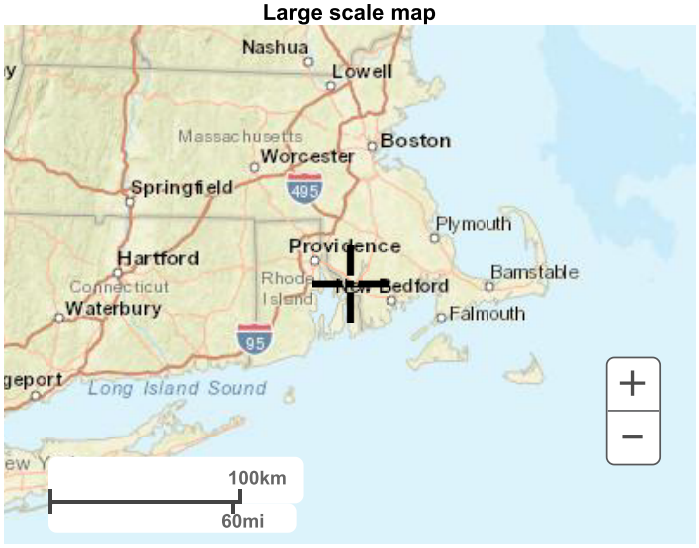
## Maps & aerials

**Small scale terrain**

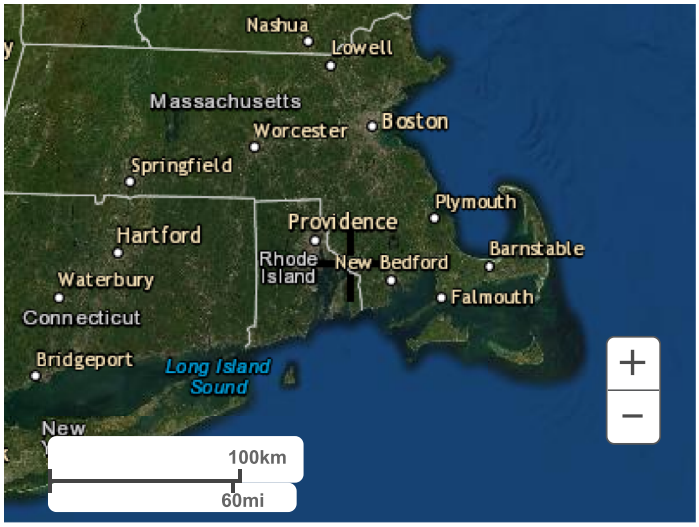

**Large scale terrain**




**Large scale map**




**Large scale aerial**

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National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
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Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

# Pipe Sizing Calculations

Drainage pipes were sized for the 25-year storm event using Manning's Equation and the Rational Method. Additionally, the performance of the system was analyzed using StormCAD, a HEC-22 based program.

# Stormcad Conduit Output Table - Hydraulic Pipe Analysis

| | | | |
|---|---|---|---|
| **Project** | Submarine Cable Factory | **Project #** | 15542 |
| **Calculated by** | EOB | **Date** | Oct. 2022 |
| **Checked by** | KC | **Date** | Oct. 2022 |

| Upstream Structure | Downstream Structure | Upstream Inlet Area (acres) | Upstream Inlet C | System CA | Time of Conc. (min) | Intensity (in/hr) | Pipe Size (in) | Material | Manning's "n" | Slope (ft/ft) | Length (ft) | Capacity - Full Flow (cfs) | Capacity - Design (cfs) | Velocity (ft/s) | Rim -Upper (ft) | Hydraulic Grade Line In (ft) | Rim - Lower (ft | Hydraulic Grade Line Out (ft) | Invert - Upper (ft) | Invert - Lower (ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 98 | 99 | 0.64 | 0.83 | 0.531 | 5 | 8.75 | 15 | HDPE Pipe | 0.012 | 0.01 | 20.9 | 6.85 | 4.69 | 6.01 | 20.1 | 17.68 | 21 | 17.38 | 16.8 | 16.6 |
| 99 | 102 | 0.64 | (N/A) | 0.531 | 0 | 8.72 | 15 | HDPE Pipe | 0.012 | 0.01 | 20.4 | 6.93 | 4.67 | 6.06 | 21 | 17.48 | 20.99 | 17.49 | 16.6 | 16.4 |
| 100 | 101 | 0.64 | 0.83 | 0.531 | 5 | 8.75 | 15 | HDPE Pipe | 0.012 | 0.012 | 16.2 | 7.78 | 4.69 | 6.63 | 20.3 | 17.58 | 20.9 | 17.54 | 16.7 | 16.5 |
| 101 | 102 | 0.64 | (N/A) | 0.531 | 0 | 8.73 | 15 | HDPE Pipe | 0.012 | 0.006 | 17.3 | 5.32 | 4.67 | 4.89 | 20.9 | 17.54 | 20.99 | 17.49 | 16.5 | 16.4 |
| 102 | 105 | 1.28 | (N/A) | 1.062 | 0 | 8.69 | 24 | HDPE Pipe | 0.012 | 0.005 | 152.9 | 16.58 | 9.31 | 5.43 | 20.99 | 17.49 | 22.07 | 17.06 | 16.4 | 15.7 |
| 103 | 105 | 0.024 | 0.79 | 0.019 | 5 | 8.75 | 12 | HDPE Pipe | 0.012 | 0.014 | 28.4 | 4.58 | 0.17 | 2.76 | 22.83 | 17.05 | 22.07 | 17.06 | 16.8 | 16.4 |
| 104 | 105 | 0.099 | 0.76 | 0.075 | 5 | 8.75 | 12 | HDPE Pipe | 0.012 | 0.011 | 26.9 | 4.08 | 0.66 | 3.82 | 21.74 | 19.34 | 22.07 | 18.97 | 19 | 18.7 |
| 105 | 107 | 1.403 | (N/A) | 1.156 | 0 | 8.46 | 24 | HDPE Pipe | 0.012 | 0.005 | 109.8 | 18.12 | 9.87 | 5.89 | 22.07 | 17.06 | 19.9 | 17 | 15.7 | 15.1 |
| 106 | 107 | 0.134 | 0.79 | 0.106 | 5 | 8.75 | 12 | HDPE Pipe | 0.012 | 0.011 | 8.8 | 4.11 | 0.93 | 4.24 | 19.81 | 17.71 | 19.9 | 17.54 | 17.3 | 17.2 |
| 107 | 110 | 1.537 | (N/A) | 1.262 | 0 | 8.31 | 24 | HDPE Pipe | 0.012 | 0.005 | 101 | 17.25 | 10.57 | 5.77 | 19.9 | 17 | 18.29 | 16.83 | 15.1 | 14.6 |
| 108 | 110 | 0.28 | 0.75 | 0.21 | 5 | 8.75 | 12 | HDPE Pipe | 0.012 | 0.011 | 26.3 | 4.12 | 1.85 | 2.35 | 18.8 | 16.89 | 18.29 | 16.83 | 14.9 | 14.6 |
| 109 | 110 | 0.553 | 0.63 | 0.348 | 5 | 8.75 | 15 | HDPE Pipe | 0.012 | 0.01 | 10 | 7 | 3.07 | 2.5 | 18.14 | 16.84 | 18.29 | 16.83 | 14.7 | 14.6 |
| 110 | 114 | 2.369 | (N/A) | 1.82 | 0 | 8.17 | 24 | HDPE Pipe | 0.012 | 0.007 | 87 | 20.35 | 14.99 | 4.77 | 18.29 | 16.83 | 17.5 | 16.5 | 14.6 | 14 |
| 111 | 112 | 0.403 | 0.66 | 0.266 | 5 | 8.75 | 12 | HDPE Pipe | 0.012 | 0.011 | 54 | 4.07 | 2.34 | 2.98 | 19.94 | 16.96 | 20.9 | 16.76 | 15.4 | 14.8 |
| 112 | 113 | 0.403 | (N/A) | 0.266 | 0 | 8.60 | 12 | HDPE Pipe | 0.012 | 0.011 | 73.5 | 4.03 | 2.3 | 2.93 | 20.9 | 16.76 | 17.5 | 16.5 | 14.8 | 14 |
| 201 | 202 | 0.459 | 0.4 | 0.184 | 5 | 8.75 | 12 | HDPE Pipe | 0.012 | 0.028 | 49.5 | 6.49 | 1.62 | 6.86 | 21.99 | 18.54 | 19.7 | 16.94 | 18 | 16.6 |
| 202 | 205 | 0.466 | 0.9 | 0.19 | 5 | 8.69 | 12 | HDPE Pipe | 0.012 | 0.027 | 81.4 | 6.34 | 1.67 | 6.81 | 19.7 | 17.05 | 17.41 | 16.48 | 16.5 | 14.3 |
| 203 | 205 | 0.219 | 0.75 | 0.164 | 5 | 8.75 | 12 | HDPE Pipe | 0.012 | 0.017 | 42 | 4.98 | 1.45 | 1.85 | 18.09 | 16.53 | 17.41 | 16.48 | 15 | 14.3 |
| 204 | 205 | 0.041 | 0.77 | 0.031 | 5 | 8.75 | 12 | HDPE Pipe | 0.012 | 0.006 | 46.6 | 3.1 | 0.28 | 0.35 | 17.29 | 16.48 | 17.41 | 16.48 | 14.6 | 14.3 |
| 205 | 206 | 0.726 | (N/A) | 0.386 | 0 | 7.66 | 12 | HDPE Pipe | 0.012 | 0.009 | 21.1 | 3.76 | 2.98 | 3.79 | 17.41 | 16.48 | 17.5 | 16.35 | 14.2 | 14 |
| 207 | 208 | 0 | (N/A) | 0 | 0 | 8.75 | 24 | HDPE Pipe | 0.012 | 0.008 | 75 | 21.91 | 16.2 | 7.63 | 17.5 | 11.45 | 16.5 | 10.68 | 10 | 9.4 |
| 208 | 210 | 0 | (N/A) | 0 | 0 | 11.12 | 24 | HDPE Pipe | 0.012 | 0.006 | 80.5 | 19.31 | 16.2 | 6.89 | 16.5 | 10.85 | 16 | 10.3 | 9.4 | 8.9 |
| 210 | 211 | 0 | (N/A) | 0 | 0 | 11.03 | 30 | HDPE Pipe | 0.012 | 0.017 | 83 | 58.73 | 13.6 | 9.74 | 16 | 6.04 | 15 | 4.19 | 4.8 | 3.35 |
| 211 | 212 | 0 | (N/A) | 0 | 0 | 10.96 | 30 | HDPE Pipe | 0.012 | 0.018 | 75 | 59.61 | 13.6 | 9.84 | 15 | 4.59 | 9 | 4 | 3.35 | 2 |
| 301 | 303 | 0.395 | 0.9 | 0.356 | 5 | 8.75 | 15 | HDPE Pipe | 0.012 | 0.005 | 82 | 4.89 | 3.14 | 4.23 | 24.6 | 22.43 | 24.63 | 22.06 | 21.7 | 21.3 |
| 302 | 303 | 0.129 | 0.78 | 0.101 | 5 | 8.75 | 12 | HDPE Pipe | 0.012 | 0.007 | 28.2 | 3.25 | 0.89 | 3.52 | 24 | 22.06 | 24.63 | 22.06 | 21.5 | 21.3 |
| 303 | 305 | 0.524 | (N/A) | 0.457 | 0 | 8.59 | 18 | HDPE Pipe | 0.012 | 0.005 | 65.6 | 7.69 | 3.95 | 4.38 | 24.63 | 22.06 | 24.64 | 21.83 | 21.3 | 21 |
| 304 | 305 | 0.117 | 0.8 | 0.094 | 5 | 8.75 | 12 | HDPE Pipe | 0.012 | 0.011 | 28.2 | 3.98 | 0.83 | 4 | 24 | 21.81 | 24.64 | 21.83 | 21.3 | 21 |
| 305 | 308 | 0.642 | (N/A) | 0.55 | 0 | 8.47 | 18 | HDPE Pipe | 0.012 | 0.006 | 52.4 | 8.61 | 4.7 | 4.98 | 24.64 | 21.83 | 24.58 | 21.63 | 21 | 20.7 |
| 306 | 307.5 | 0.077 | 0.9 | 0.07 | 5 | 8.75 | 12 | HDPE Pipe | 0.012 | 0.006 | 52.7 | 2.91 | 0.61 | 2.94 | 23.94 | 21.63 | 24.48 | 21.63 | 21.2 | 20.9 |
| 307 | 307.5 | 0.07 | 0.9 | 0.063 | 5 | 8.75 | 12 | HDPE Pipe | 0.012 | 0.007 | 13.5 | 3.32 | 0.56 | 3.14 | 24.1 | 21.91 | 24.48 | 21.78 | 21.6 | 21.5 |
| 307.5 | 308 | 0.147 | (N/A) | 0.133 | 0 | 8.60 | 12 | HDPE Pipe | 0.012 | 0.009 | 22 | 3.68 | 1.15 | 4.15 | 24.48 | 21.63 | 24.58 | 21.63 | 20.9 | 20.7 |
| 308 | 310 | 0.789 | (N/A) | 0.683 | 0 | 8.38 | 18 | HDPE Pipe | 0.012 | 0.005 | 55.4 | 8.37 | 5.77 | 5.11 | 24.58 | 21.63 | 24.62 | 21.46 | 20.7 | 20.4 |
| 309 | 310 | 0.087 | 0.9 | 0.078 | 5 | 8.75 | 12 | HDPE Pipe | 0.012 | 0.007 | 29.2 | 3.2 | 0.69 | 3.24 | 24.1 | 21.46 | 24.62 | 21.46 | 20.6 | 20.4 |
| 310 | 312 | 1.198 | 0.9 | 1.051 | 5 | 8.30 | 24 | HDPE Pipe | 0.012 | 0.006 | 49.1 | 19.15 | 8.79 | 5.97 | 24.62 | 21.46 | 24.59 | 21.2 | 20.4 | 20.1 |
| 311 | 312 | 0.091 | 0.9 | 0.082 | 5 | 8.75 | 12 | HDPE Pipe | 0.012 | 0.008 | 25.1 | 3.45 | 0.72 | 3.47 | 24.11 | 21.2 | 24.59 | 21.2 | 20.3 | 20.1 |
| 312 | 313.5 | 1.289 | (N/A) | 1.133 | 0 | 8.23 | 24 | HDPE Pipe | 0.012 | 0.006 | 32.3 | 18.8 | 9.39 | 5.98 | 24.59 | 21.2 | 24.65 | 21.13 | 20.1 | 19.91 |

# Stormcad Conduit Output Table - Hydraulic Pipe Analysis

| | | | |
|---|---|---|---|
| **Project** | Submarine Cable Factory | **Project #** | 15542 |
| **Calculated by** | EOB | **Date** | Oct. 2022 |
| **Checked by** | KC | **Date** | Oct. 2022 |

| Upstream Structure | Downstream Structure | Upstream Inlet Area (acres) | Upstream Inlet C | System CA | Time of Conc. (min) | Intensity (in/hr) | Pipe Size (in) | Material | Manning's "n" | Slope (ft/ft) | Length (ft) | Capacity - Full Flow (cfs) | Capacity - Design (cfs) | Velocity (ft/s) | Rim -Upper (ft) | Hydraulic Grade Line In (ft) | Rim - Lower (ft | Hydraulic Grade Line Out (ft) | Invert - Upper (ft) | Invert - Lower (ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 313 | 314 | 0.09 | 0.9 | 0.081 | 5 | 8.75 | 12 | HDPE Pipe | 0.012 | 0.008 | 26.5 | 3.35 | 0.71 | 0.91 | 24.1 | 21.17 | 24.64 | 21.16 | 20 | 19.8 |
| 313.5 | 314 | 1.479 | 0.9 | 1.304 | 5 | 8.18 | 24 | HDPE Pipe | 0.012 | 0.005 | 20 | 18.17 | 10.76 | 6.03 | 24.65 | 21.13 | 24.64 | 21.16 | 19.91 | 19.8 |
| 314 | 324 | 1.891 | 0.9 | 1.675 | 5 | 8.16 | 24 | HDPE Pipe | 0.012 | 0.005 | 103.5 | 17.04 | 13.77 | 6.04 | 24.64 | 21.16 | 24.62 | 20.78 | 19.8 | 19.3 |
| 315 | 316 | 0.059 | 0.9 | 0.053 | 5 | 8.75 | 12 | HDPE Pipe | 0.012 | 0.008 | 25.9 | 3.39 | 0.47 | 3.03 | 24.69 | 21.58 | 24.9 | 21.35 | 21.3 | 21.1 |
| 316 | 320 | 0.059 | (N/A) | 0.053 | 0 | 8.68 | 12 | HDPE Pipe | 0.012 | 0.005 | 110.6 | 2.84 | 0.46 | 2.66 | 24.9 | 21.28 | 24.82 | 20.8 | 21 | 20.4 |
| 320 | 321 | 0.059 | (N/A) | 0.053 | 0 | 8.34 | 12 | HDPE Pipe | 0.012 | 0.005 | 93.7 | 2.82 | 0.44 | 2.62 | 24.82 | 20.8 | 24.73 | 20.79 | 20.4 | 19.9 |
| 321 | 323 | 0.059 | (N/A) | 0.053 | 0 | 8.05 | 15 | HDPE Pipe | 0.012 | 0.005 | 59.9 | 4.95 | 0.43 | 2.47 | 24.73 | 20.79 | 23.98 | 20.79 | 19.9 | 19.6 |
| 322 | 323 | 0.444 | 0.9 | 0.399 | 5 | 8.75 | 15 | HDPE Pipe | 0.012 | 0.01 | 19.9 | 7.02 | 3.52 | 5.72 | 23.6 | 20.79 | 23.98 | 20.79 | 19.8 | 19.6 |
| 323 | 324 | 0.503 | (N/A) | 0.452 | 0 | 7.85 | 18 | HDPE Pipe | 0.012 | 0.007 | 41.3 | 9.7 | 3.58 | 5.07 | 23.98 | 20.79 | 24.62 | 20.78 | 19.6 | 19.3 |
| 324 | 330 | 2.716 | 0.9 | 2.417 | 5 | 7.78 | 30 | HDPE Pipe | 0.012 | 0.005 | 94.2 | 32.37 | 18.96 | 6.86 | 24.62 | 20.78 | 24.58 | 20.4 | 19.3 | 18.8 |
| 325 | 330 | 0.056 | 0.9 | 0.05 | 5 | 8.75 | 12 | HDPE Pipe | 0.012 | 0.01 | 9.6 | 3.94 | 0.44 | 3.32 | 24.47 | 22.28 | 24.58 | 22.13 | 22 | 21.9 |
| 326 | 327 | 0.07 | 0.9 | 0.063 | 5 | 8.75 | 12 | HDPE Pipe | 0.012 | 0.01 | 9.5 | 3.95 | 0.56 | 3.56 | 24.42 | 20.71 | 24.62 | 20.71 | 20.4 | 20.3 |
| 327 | 329 | 0.171 | 0.9 | 0.154 | 5 | 8.73 | 12 | HDPE Pipe | 0.012 | 0.005 | 65.6 | 2.61 | 1.35 | 3.35 | 24.62 | 20.71 | 24.6 | 20.49 | 20.2 | 19.9 |
| 328 | 329 | 0.072 | 0.9 | 0.065 | 5 | 8.75 | 12 | HDPE Pipe | 0.012 | 0.01 | 9.7 | 3.91 | 0.57 | 3.56 | 24.39 | 20.72 | 24.6 | 20.56 | 20.4 | 20.3 |
| 329 | 330 | 0.243 | (N/A) | 0.219 | 0 | 8.57 | 12 | HDPE Pipe | 0.012 | 0.006 | 46.7 | 3.09 | 1.89 | 4.13 | 24.6 | 20.49 | 24.58 | 20.4 | 19.9 | 19.6 |
| 330 | 332 | 3.219 | 0.9 | 2.87 | 5 | 7.67 | 30 | HDPE Pipe | 0.012 | 0.005 | 58.1 | 31.92 | 22.19 | 7.03 | 24.58 | 20.4 | 24.63 | 20.14 | 18.8 | 18.5 |
| 331 | 332 | 0.076 | 0.9 | 0.068 | 5 | 8.75 | 12 | HDPE Pipe | 0.012 | 0.01 | 9.6 | 3.95 | 0.6 | 3.63 | 24.51 | 22.32 | 24.63 | 22.17 | 22 | 21.9 |
| 332 | 332.5 | 3.395 | 0.9 | 3.028 | 5 | 7.60 | 30 | HDPE Pipe | 0.012 | 0.005 | 116.7 | 31.86 | 23.21 | 7.08 | 24.63 | 20.14 | 24.19 | 19.79 | 18.5 | 17.9 |
| 332.5 | 342 | 3.626 | 0.9 | 3.236 | 5 | 7.47 | 30 | HDPE Pipe | 0.012 | 0.006 | 104.5 | 33.67 | 24.37 | 7.47 | 24.19 | 19.79 | 23.75 | 19.67 | 17.9 | 17.3 |
| 333 | 334 | 0.466 | 0.71 | 0.331 | 5 | 8.75 | 12 | HDPE Pipe | 0.012 | 0.012 | 17 | 4.19 | 2.92 | 5.76 | 22.85 | 20.93 | 23 | 20.63 | 20.2 | 20 |
| 334 | 335 | 0.466 | (N/A) | 0.331 | 0 | 8.73 | 15 | HDPE Pipe | 0.012 | 0.005 | 226.9 | 5.09 | 2.91 | 4.29 | 23 | 20.69 | 24.75 | 19.92 | 20 | 18.8 |
| 335 | 337 | 0.466 | (N/A) | 0.331 | 0 | 8.29 | 15 | HDPE Pipe | 0.012 | 0.005 | 62.2 | 4.86 | 2.76 | 4.09 | 24.75 | 19.92 | 23.84 | 19.84 | 18.8 | 18.5 |
| 336 | 337 | 0.256 | 0.81 | 0.207 | 5 | 8.75 | 12 | HDPE Pipe | 0.012 | 0.02 | 9.8 | 5.5 | 1.83 | 6.3 | 23.74 | 20.28 | 23.84 | 19.94 | 19.7 | 19.5 |
| 337 | 339 | 0.722 | (N/A) | 0.538 | 0 | 8.17 | 18 | HDPE Pipe | 0.012 | 0.005 | 98.8 | 8.09 | 4.43 | 4.68 | 23.84 | 19.84 | 22.76 | 19.71 | 18.5 | 18 |
| 338 | 339 | 0.207 | 0.68 | 0.141 | 5 | 8.75 | 12 | HDPE Pipe | 0.012 | 0.018 | 11.2 | 5.17 | 1.24 | 5.42 | 22.61 | 20.27 | 22.76 | 19.96 | 19.8 | 19.6 |
| 339 | 341 | 0.929 | (N/A) | 0.679 | 0 | 8.00 | 24 | HDPE Pipe | 0.012 | 0.007 | 69.1 | 20.85 | 5.47 | 5.59 | 22.76 | 19.71 | 23.4 | 19.68 | 18 | 17.5 |
| 340 | 341 | 0.992 | 0.73 | 0.724 | 5 | 8.75 | 15 | HDPE Pipe | 0.012 | 0.04 | 20 | 14.01 | 6.39 | 11.15 | 23.5 | 20.52 | 23.4 | 19.39 | 19.5 | 18.7 |
| 341 | 342 | 1.92 | (N/A) | 1.403 | 0 | 7.90 | 30 | HDPE Pipe | 0.012 | 0.006 | 33.5 | 34.33 | 11.16 | 6.25 | 23.4 | 19.68 | 23.75 | 19.67 | 17.5 | 17.3 |
| 342 | 343 | 5.547 | (N/A) | 4.639 | 0 | 7.36 | 36 | HDPE Pipe | 0.012 | 0.005 | 179.8 | 51.12 | 34.4 | 7.76 | 23.75 | 19.67 | 23.38 | 19.43 | 17.3 | 16.4 |
| 342.5 | 343 | 0.545 | 0.57 | 0.311 | 5 | 8.75 | 12 | HDPE Pipe | 0.012 | 0.01 | 10.5 | 3.77 | 2.74 | 5.23 | 23.3 | 21.51 | 23.38 | 21.35 | 20.8 | 20.7 |
| 343 | 345 | 7.046 | (N/A) | 5.75 | 0 | 7.17 | 36 | HDPE Pipe | 0.012 | 0.005 | 140.8 | 50.94 | 41.53 | 5.88 | 23.38 | 19.43 | 23.87 | 18.97 | 16.4 | 15.7 |
| 344 | 345 | 0.162 | 0.87 | 0.141 | 5 | 8.75 | 12 | HDPE Pipe | 0.012 | 0.008 | 48.2 | 3.52 | 1.24 | 4.09 | 22.8 | 19.27 | 23.87 | 18.97 | 18.8 | 18.4 |
| 345 | 347 | 7.208 | (N/A) | 5.891 | 0 | 6.97 | 36 | HDPE Pipe | 0.012 | 0.005 | 76.8 | 52.14 | 41.39 | 5.85 | 23.87 | 18.97 | 23.22 | 18.71 | 15.7 | 15.3 |
| 346 | 347 | 0.261 | 0.64 | 0.167 | 5 | 8.75 | 12 | HDPE Pipe | 0.012 | 0.008 | 12.1 | 3.5 | 1.48 | 4.27 | 23.15 | 19.61 | 23.22 | 19.46 | 19.1 | 19 |
| 347 | 356 | 7.47 | (N/A) | 6.058 | 0 | 6.86 | 42 | HDPE Pipe | 0.012 | 0.006 | 48.7 | 85.52 | 41.91 | 8.84 | 23.22 | 18.71 | 23.59 | 18.65 | 15.3 | 15 |
| 348 | 356 | 0.351 | 0.83 | 0.291 | 5 | 8.75 | 15 | HDPE Pipe | 0.012 | 0.015 | 19.6 | 8.66 | 2.57 | 6.15 | 23.28 | 19.94 | 23.59 | 19.49 | 19.3 | 19 |

# Stormcad Conduit Output Table - Hydraulic Pipe Analysis

| | | | |
|---|---|---|---|
| **Project** | Submarine Cable Factory | **Project #** | 15542 |
| **Calculated by** | EOB | **Date** | Oct. 2022 |
| **Checked by** | KC | **Date** | Oct. 2022 |

| Upstream Structure | Downstream Structure | Upstream Inlet Area (acres) | Upstream Inlet C | System CA | Time of Conc. (min) | Intensity (in/hr) | Pipe Size (in) | Material | Manning's "n" | Slope (ft/ft) | Length (ft) | Capacity - Full Flow (cfs) | Capacity - Design (cfs) | Velocity (ft/s) | Rim -Upper (ft) | Hydraulic Grade Line In (ft) | Rim - Lower (ft | Hydraulic Grade Line Out (ft) | Invert - Upper (ft) | Invert - Lower (ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 349 | 349.5 | 0.115 | 0.9 | 0.103 | 5 | 8.75 | 12 | HDPE Pipe | 0.012 | 0.012 | 16.2 | 4.29 | 0.91 | 4.34 | 24.31 | 21 | 24.35 | 21.01 | 20.3 | 20.1 |
| 349.5 | 351 | 0.784 | 0.9 | 0.706 | 5 | 8.72 | 15 | HDPE Pipe | 0.012 | 0.021 | 65.3 | 10.25 | 6.21 | 8.75 | 24.35 | 21.01 | 24.47 | 19.96 | 20 | 18.6 |
| 350 | 351 | 0.278 | 0.74 | 0.205 | 5 | 8.75 | 12 | HDPE Pipe | 0.012 | 0.015 | 19.6 | 4.77 | 1.81 | 5.66 | 24 | 21.07 | 24.47 | 20.64 | 20.5 | 20.2 |
| 350.5 | 351 | 0.721 | 0.9 | 0.623 | 5 | 8.67 | 15 | HDPE Pipe | 0.012 | 0.025 | 64.9 | 10.99 | 5.44 | 8.93 | 24.88 | 21.15 | 24.47 | 19.96 | 20.2 | 18.6 |
| 351 | 353 | 1.783 | (N/A) | 1.534 | 0 | 8.61 | 18 | HDPE Pipe | 0.012 | 0.014 | 92.3 | 13.5 | 13.31 | 8.71 | 24.47 | 19.96 | 24.43 | 18.79 | 18.6 | 17.3 |
| 351.5 | 350.5 | 0.052 | 0.4 | 0.021 | 5 | 8.75 | 12 | HDPE Pipe | 0.012 | 0.011 | 26.4 | 4.11 | 0.18 | 2.64 | 24.63 | 21.14 | 24.88 | 21.15 | 20.6 | 20.3 |
| 352 | 353 | 0.069 | 0.73 | 0.05 | 5 | 8.75 | 12 | HDPE Pipe | 0.012 | 0.009 | 11.5 | 3.6 | 0.45 | 3.12 | 24.3 | 20.58 | 24.43 | 20.44 | 20.3 | 20.2 |
| 353 | 355 | 1.852 | (N/A) | 1.585 | 0 | 8.52 | 24 | HDPE Pipe | 0.012 | 0.011 | 65.9 | 25.27 | 13.61 | 8.19 | 24.43 | 18.79 | 23.67 | 18.76 | 17.3 | 16.6 |
| 354 | 355 | 0.088 | 0.9 | 0.079 | 5 | 8.75 | 12 | HDPE Pipe | 0.012 | 0.011 | 108.7 | 4.05 | 0.7 | 3.86 | 24.17 | 20.55 | 23.67 | 19.28 | 20.2 | 19 |
| 355 | 356 | 1.94 | (N/A) | 1.663 | 0 | 8.46 | 24 | HDPE Pipe | 0.012 | 0.012 | 32.8 | 27.07 | 14.18 | 4.51 | 23.67 | 18.76 | 23.59 | 18.65 | 16.6 | 16.2 |
| 356 | 358 | 9.76 | (N/A) | 8.012 | 0 | 6.82 | 42 | HDPE Pipe | 0.012 | 0.005 | 132 | 79.37 | 55.06 | 5.72 | 23.59 | 18.65 | 23.64 | 18.31 | 15 | 14.3 |
| 357 | 358 | 0.248 | 0.87 | 0.216 | 5 | 8.75 | 15 | HDPE Pipe | 0.012 | 0.016 | 18.2 | 8.98 | 1.9 | 5.81 | 23.86 | 20.35 | 23.64 | 19.91 | 19.8 | 19.5 |
| 358 | 363 | 10.008 | (N/A) | 8.228 | 0 | 6.63 | 42 | HDPE Pipe | 0.012 | 0.005 | 57.7 | 78.59 | 54.98 | 5.71 | 23.64 | 18.31 | 23.19 | 18.16 | 14.3 | 14 |
| 359 | 360 | 0.169 | 0.9 | 0.153 | 5 | 8.75 | 12 | HDPE Pipe | 0.012 | 0.009 | 31.9 | 3.74 | 1.35 | 4.38 | 24.16 | 20.75 | 24.78 | 20.75 | 20.1 | 19.8 |
| 360 | 362 | 0.77 | 0.9 | 0.693 | 5 | 8.69 | 18 | HDPE Pipe | 0.012 | 0.006 | 95.7 | 9.01 | 6.07 | 5.47 | 24.78 | 20.75 | 24.56 | 20.5 | 19.8 | 19.2 |
| 361 | 362 | 0.118 | 0.9 | 0.106 | 5 | 8.75 | 15 | HDPE Pipe | 0.012 | 0.009 | 21.7 | 6.72 | 0.94 | 3.86 | 24.1 | 21.38 | 24.56 | 21.12 | 21 | 20.8 |
| 362 | 364 | 1.489 | 0.9 | 1.34 | 5 | 8.55 | 18 | HDPE Pipe | 0.012 | 0.013 | 181.6 | 13.08 | 11.55 | 8.36 | 24.56 | 20.5 | 23.12 | 18.1 | 19.2 | 16.8 |
| 363 | 364 | 10.008 | (N/A) | 8.228 | 0 | 6.55 | 42 | HDPE Pipe | 0.012 | 0.008 | 25.8 | 95.96 | 54.3 | 5.64 | 23.19 | 18.16 | 23.12 | 18.1 | 14 | 13.8 |
| 363.5 | 364 | 0.42 | 0.63 | 0.265 | 5 | 8.75 | 12 | HDPE Pipe | 0.012 | 0.021 | 9.6 | 5.57 | 2.33 | 6.77 | 22.96 | 20.15 | 23.12 | 19.81 | 19.5 | 19.3 |
| 364 | 365 | 11.917 | (N/A) | 9.833 | 0 | 6.51 | 42 | HDPE Pipe | 0.012 | 0.005 | 149.6 | 79.7 | 64.52 | 6.71 | 23.12 | 18.1 | 23.21 | 17.58 | 13.8 | 13 |
| 365 | 366 | 11.917 | (N/A) | 9.833 | 0 | 6.33 | 42 | HDPE Pipe | 0.012 | 0.006 | 83.4 | 84.37 | 62.71 | 6.52 | 23.21 | 17.58 | 20 | 17.3 | 13 | 12.5 |
| 370 | 343 | 0.954 | (N/A) | 0.8 | 0 | 8.67 | 15 | HDPE Pipe | 0.012 | 0.032 | 81.3 | 12.51 | 6.98 | 10.48 | 24.41 | 22.06 | 23.38 | 19.07 | 21 | 18.4 |
| 371 | 370 | 0.522 | (N/A) | 0.411 | 5 | 8.75 | 12 | HDPE Pipe | 0.012 | 0.018 | 22.5 | 5.15 | 3.62 | 7.1 | 23.98 | 22.21 | 24.41 | 22.06 | 21.4 | 21 |
| 372 | 370 | 0.432 | 0.9 | 0.389 | 5 | 8.75 | 12 | HDPE Pipe | 0.012 | 0.013 | 63.1 | 4.35 | 3.43 | 6.13 | 24.87 | 22.59 | 24.41 | 22.06 | 21.8 | 21 |
| 401 | 402 | 0.082 | 0.9 | 0.074 | 5 | 8.75 | 12 | HDPE Pipe | 0.012 | 0.023 | 13 | 5.87 | 0.65 | 4.92 | 24.57 | 22.53 | 24.8 | 22.55 | 22 | 21.7 |
| 402 | 404 | 0.613 | 0.9 | 0.551 | 5 | 8.73 | 18 | HDPE Pipe | 0.012 | 0.005 | 78.3 | 8.13 | 4.85 | 4.8 | 24.8 | 22.55 | 24.78 | 22.46 | 21.7 | 21.3 |
| 403 | 404 | 0.07 | 0.9 | 0.063 | 5 | 8.75 | 12 | HDPE Pipe | 0.012 | 0.01 | 9.6 | 3.93 | 0.55 | 0.71 | 24.58 | 22.46 | 24.78 | 22.46 | 21.4 | 21.3 |
| 404 | 406 | 1.142 | 0.9 | 1.028 | 5 | 8.60 | 18 | HDPE Pipe | 0.012 | 0.007 | 82.7 | 9.69 | 8.91 | 6.22 | 24.78 | 22.46 | 24.78 | 21.97 | 21.3 | 20.7 |
| 405 | 406 | 0.064 | 0.9 | 0.057 | 5 | 8.75 | 12 | HDPE Pipe | 0.012 | 0.01 | 9.6 | 3.93 | 0.5 | 3.44 | 24.57 | 21.97 | 24.78 | 21.97 | 21.5 | 21.4 |
| 406 | 408 | 1.625 | 0.9 | 1.463 | 5 | 8.49 | 24 | HDPE Pipe | 0.012 | 0.007 | 82.7 | 20.88 | 12.51 | 6.94 | 24.78 | 21.97 | 24.78 | 21.56 | 20.7 | 20.1 |
| 407 | 408 | 0.068 | 0.9 | 0.062 | 5 | 8.75 | 12 | HDPE Pipe | 0.012 | 0.01 | 9.6 | 3.93 | 0.54 | 3.52 | 24.58 | 21.81 | 24.78 | 21.66 | 21.5 | 21.4 |
| 408 | 409 | 2.144 | 0.9 | 1.93 | 5 | 8.39 | 24 | HDPE Pipe | 0.012 | 0.012 | 67.8 | 26.63 | 16.32 | 8.9 | 24.78 | 21.56 | 24.58 | 20.46 | 20.1 | 19.3 |
| 409 | 411 | 2.144 | (N/A) | 1.93 | 0 | 8.33 | 24 | HDPE Pipe | 0.012 | 0.01 | 223.8 | 24.84 | 16.2 | 8.42 | 24.58 | 20.75 | 21.89 | 18.75 | 19.3 | 17 |
| 410 | 411 | 0.339 | 0.64 | 0.217 | 5 | 8.75 | 12 | HDPE Pipe | 0.012 | 0.009 | 10.7 | 3.73 | 1.91 | 4.78 | 21.91 | 19.89 | 21.89 | 19.72 | 19.3 | 19.2 |
| 411 | 411.5 | 3.685 | 0.9 | 3.228 | 5 | 8.11 | 30 | HDPE Pipe | 0.012 | 0.013 | 99.9 | 50.69 | 26.39 | 10.43 | 21.89 | 18.75 | 20.95 | 17.81 | 17 | 15.7 |
| 411.5 | 413 | 3.685 | (N/A) | 3.228 | 0 | 8.03 | 30 | HDPE Pipe | 0.012 | 0.017 | 28.8 | 58.51 | 26.14 | 11.58 | 20.95 | 17.81 | 20.8 | 17.82 | 15.7 | 15.2 |

# Stormcad Conduit Output Table - Hydraulic Pipe Analysis

| | | | |
|---|---|---|---|
| **Project** | Submarine Cable Factory | **Project #** | 15542 |
| **Calculated by** | EOB | **Date** | Oct. 2022 |
| **Checked by** | KC | **Date** | Oct. 2022 |

| Upstream Structure | Downstream Structure | Upstream Inlet Area (acres) | Upstream Inlet C | System CA | Time of Conc. (min) | Intensity (in/hr) | Pipe Size (in) | Material | Manning's "n" | Slope (ft/ft) | Length (ft) | Capacity - Full Flow (cfs) | Capacity - Design (cfs) | Velocity (ft/s) | Rim -Upper (ft) | Hydraulic Grade Line In (ft) | Rim - Lower (ft | Hydraulic Grade Line Out (ft) | Invert - Upper (ft) | Invert - Lower (ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 412 | 413 | 0.729 | 0.7 | 0.51 | 5 | 8.75 | 15 | HDPE Pipe | 0.012 | 0.018 | 11.3 | 9.31 | 4.5 | 7.53 | 20.88 | 17.78 | 20.8 | 17.82 | 16.8 | 16.6 |
| 413 | 414 | 4.414 | (N/A) | 3.739 | 0 | 8.01 | 30 | HDPE Pipe | 0.012 | 0.006 | 112.6 | 35.03 | 30.19 | 6.15 | 20.8 | 17.82 | 20 | 17.3 | 15.2 | 14.5 |
| 501 | 502 | 0.795 | 0.64 | 0.509 | 5 | 8.75 | 15 | HDPE Pipe | 0.012 | 0.007 | 14.3 | 5.85 | 4.49 | 3.66 | 22 | 21.14 | 22.1 | 21.08 | 19 | 18.9 |
| 502 | 504 | 0.795 | (N/A) | 0.509 | 0 | 8.72 | 18 | HDPE Pipe | 0.012 | 0.006 | 215.5 | 8.84 | 4.47 | 2.53 | 22.1 | 21.08 | 24.06 | 20.75 | 18.8 | 17.5 |
| 504 | 506 | 0.795 | (N/A) | 0.509 | 0 | 8.02 | 18 | HDPE Pipe | 0.012 | 0.005 | 288 | 8.21 | 4.12 | 2.33 | 24.06 | 20.75 | 22.2 | 20.37 | 17.5 | 16 |
| 505 | 506 | 1.478 | 0.52 | 0.769 | 5 | 8.75 | 15 | HDPE Pipe | 0.012 | 0.08 | 10 | 19.79 | 6.78 | 5.52 | 21.05 | 20.47 | 22.2 | 20.37 | 17.8 | 17 |
| 506 | 507 | 2.274 | (N/A) | 1.278 | 0 | 7.01 | 24 | HDPE Pipe | 0.012 | 0.01 | 52.5 | 23.92 | 9.03 | 2.87 | 22.2 | 20.37 | 23 | 20.3 | 16 | 15.5 |
| 601 | 602 | 8.838 | 0.9 | 7.954 | 5 | 8.75 | 36 | HDPE Pipe | 0.012 | 0.014 | 36.9 | 84.11 | 70.16 | 9.93 | 24.24 | 20.65 | 23 | 20.3 | 16 | 15.5 |
| 603 | 604 | 0.465 | 0.87 | 0.405 | 5 | 8.75 | 12 | HDPE Pipe | 0.012 | 0.012 | 16.1 | 4.31 | 3.57 | 4.54 | 22.66 | 21.68 | 22.87 | 21.54 | 20.1 | 19.9 |
| 604 | 606 | 0.465 | (N/A) | 0.405 | 0 | 8.72 | 15 | HDPE Pipe | 0.012 | 0.005 | 142.2 | 5.08 | 3.56 | 2.9 | 22.87 | 21.54 | 22.7 | 21.17 | 19.9 | 19.15 |
| 605 | 606 | 0.444 | 0.85 | 0.377 | 5 | 8.75 | 12 | HDPE Pipe | 0.012 | 0.021 | 14.4 | 5.56 | 3.33 | 4.24 | 22.49 | 21.28 | 22.7 | 21.17 | 19.7 | 19.4 |
| 606 | 608 | 0.909 | (N/A) | 0.782 | 0 | 8.32 | 24 | HDPE Pipe | 0.012 | 0.005 | 134.4 | 17.04 | 6.56 | 2.09 | 22.7 | 21.17 | 22.7 | 21.08 | 19.15 | 18.5 |
| 607 | 608 | 0.52 | 0.82 | 0.427 | 5 | 8.75 | 12 | HDPE Pipe | 0.012 | 0.012 | 16.2 | 4.29 | 3.76 | 4.79 | 22.49 | 21.23 | 22.7 | 21.08 | 19.4 | 19.2 |
| 608 | 609 | 1.429 | (N/A) | 1.209 | 0 | 7.79 | 24 | HDPE Pipe | 0.012 | 0.006 | 50.3 | 18.93 | 9.5 | 3.02 | 22.7 | 21.08 | 23.22 | 21 | 18.5 | 18.2 |
| 609 | 610 | 1.429 | (N/A) | 1.209 | 0 | 7.66 | 24 | HDPE Pipe | 0.012 | 0.005 | 56.9 | 17.8 | 9.33 | 2.97 | 23.22 | 21 | 24.44 | 20.92 | 18.2 | 17.9 |
| 610 | 611 | 1.429 | (N/A) | 1.209 | 0 | 7.50 | 24 | HDPE Pipe | 0.012 | 0.005 | 387.4 | 17.61 | 9.14 | 2.91 | 24.44 | 20.92 | 24.07 | 20.38 | 17.9 | 15.9 |
| 611 | 612 | 1.429 | (N/A) | 1.209 | 0 | 6.41 | 24 | HDPE Pipe | 0.012 | 0.005 | 79.7 | 17.36 | 7.81 | 2.49 | 24.07 | 20.38 | 23 | 20.3 | 15.9 | 15.5 |
| 701 | 702 | 1.18 | 0.65 | 0.767 | 5 | 8.75 | 12 | HDPE Pipe | 0.012 | 0.018 | 20.3 | 5.13 | 6.77 | 8.61 | 15.64 | 8.22 | 16.16 | 7.6 | 6.76 | 6.41 |
| 702 | PR-P1B | 1.18 | (N/A) | 0.767 | 0 | 8.73 | 12 | HDPE Pipe | 0.012 | 0.005 | 7.8 | 2.73 | 6.75 | 8.6 | 16.16 | 7.6 | 7.42 | 7.34 | 6.41 | 6.37 |
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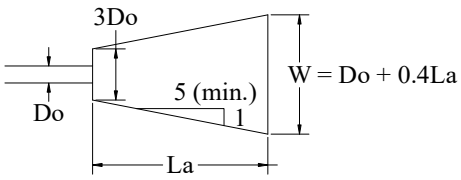
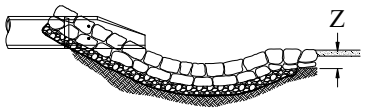
# Outfall Riprap Sizing and Velocity Calculations

# Outfall Riprap Sizing and Velocity Calculations

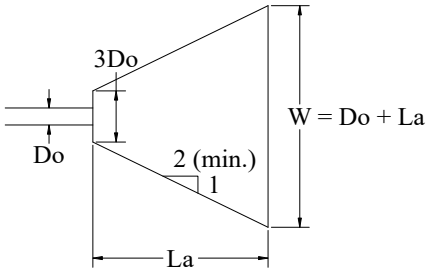
| | | | |
|---|---|---|---|
| **Project** | | **Project #** | |
| **Calculated by** | | **Date** | |
| **Checked by** | | **Date** | |

Tw ≥ 0.5Do




Tw < 0.5Do




| **OUTLET DESCRIPTION:** | | **113** | **114** | **206** | **366** | **414** |
|---|---|---|---|---|---|---|
| Design Storm | (yr) | 25 | 25 | 25 | 25 | 25 |
| Flow / Discharge (Q) | (cfs) | 2.3 | 15.0 | 3.0 | 56.0 | 29.3 |
| Defined Channel ? | - | NO | NO | NO | NO | NO |
| Defined Channel Width | (ft) | 0 | 0 | 0 | 0 | 0 |
| Outlet Pipe Diameter ($D_O$) | (in) | 12 | 24 | 12 | 42 | 30 |
| Tailwater Condition ($T_W$) | (ft) | TW ≥ 0.5D | TW ≥ 0.5D | TW ≥ 0.5D | TW ≥ 0.5D | TW ≥ 0.5D |
| Apron Length ($L_A$) | (ft) | 9 | 9 | 4 | 15 | 11 |
| Apron Width at Outlet ($3D_O$) | (ft) | 3 | 6 | 3 | 10.5 | 7.5 |
| Apron Width at End (W) | (ft) | 6.6 | 9.6 | 4.6 | 16.5 | 11.9 |
| Median Stone Diameter ($d_{50}$) | (in) | 6 | 6 | 6 | 6 | 6 |
| Largest Stone Diameter | (in) | 9 | 9 | 9 | 9 | 9 |
| Apron Depth (Z) | (in) | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 |

*Apron Length ($L_A$):*
*Length = From Virginia DCR Handbook - Plate 3.18-3* *if $T_W$ < 0.5D*
*Length = From Virginia DCR Handbook - Plate 3.18-4* *if $T_W$ ≥ 0.5D*

*Apron Width at Outlet ($3D_O$):*
*Width = 3 x pipe dia. (or width of channel)*

*Apron Width at End (W):*
*Width = dia. + apron length* *if $T_W$ < 0.5D*
*Width = dia. + 0.4 x apron length* *if $T_W$ ≥ 0.5D*
*or apron width = channel width if a well defined channel exists*

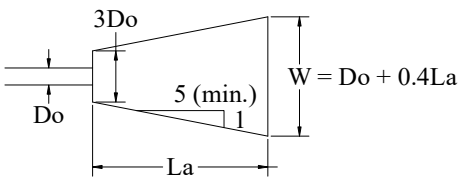
*Rock Riprap:*
*Median Diameter ($d_{50}$) = From Virginia DCR Handbook - Plate 3.18-3 or 4*
*Largest stone dia = 1.5 x $d_{50}$*

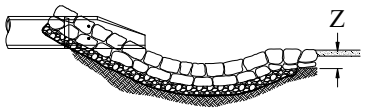
*Apron Depth (Z):*
*6" or 1.5 x largest stone dia*

# Outfall Riprap Sizing and Velocity Calculations

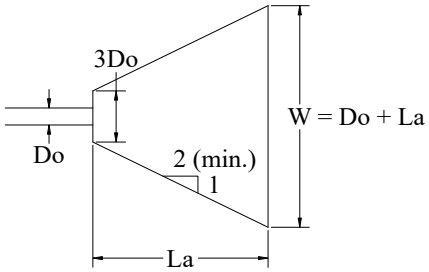
| | | | |
|---|---|---|---|
| **Project** | | **Project #** | |
| **Calculated by** | | **Date** | |
| **Checked by** | | **Date** | |

Tw ≥ 0.5Do




Tw < 0.5Do




| **OUTLET DESCRIPTION:** | | **507** | **602** | **612** | **813** | **913** |
|---|---|---|---|---|---|---|
| Design Storm | (yr) | 25 | 25 | 25 | 25 | 25 |
| Flow / Discharge (Q) | (cfs) | 15.5 | 69.9 | 7.8 | 41.2 | 44.0 |
| Defined Channel ? | - | NO | NO | NO | NO | NO |
| Defined Channel Width | (ft) | 0 | 0 | 0 | 0 | 0 |
| Outlet Pipe Diameter ($D_O$) | (in) | 18 | 36 | 24 | 30 | 30 |
| Tailwater Condition ($T_W$) | (ft) | TW ≥ 0.5D | TW ≥ 0.5D | TW ≥ 0.5D | TW ≥ 0.5D | TW ≥ 0.5D |
| Apron Length ($L_A$) | (ft) | 23 | 30 | 9 | 20 | 21 |
| Apron Width at Outlet ($3D_O$) | (ft) | 4.5 | 9 | 6 | 7.5 | 7.5 |
| Apron Width at End (W) | (ft) | 13.7 | 21 | 9.6 | 15.5 | 15.9 |
| Median Stone Diameter ($d_{50}$) | (in) | 6 | 6 | 6 | 6 | 6 |
| Largest Stone Diameter | (in) | 9 | 9 | 9 | 9 | 9 |
| Apron Depth (Z) | (in) | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 |

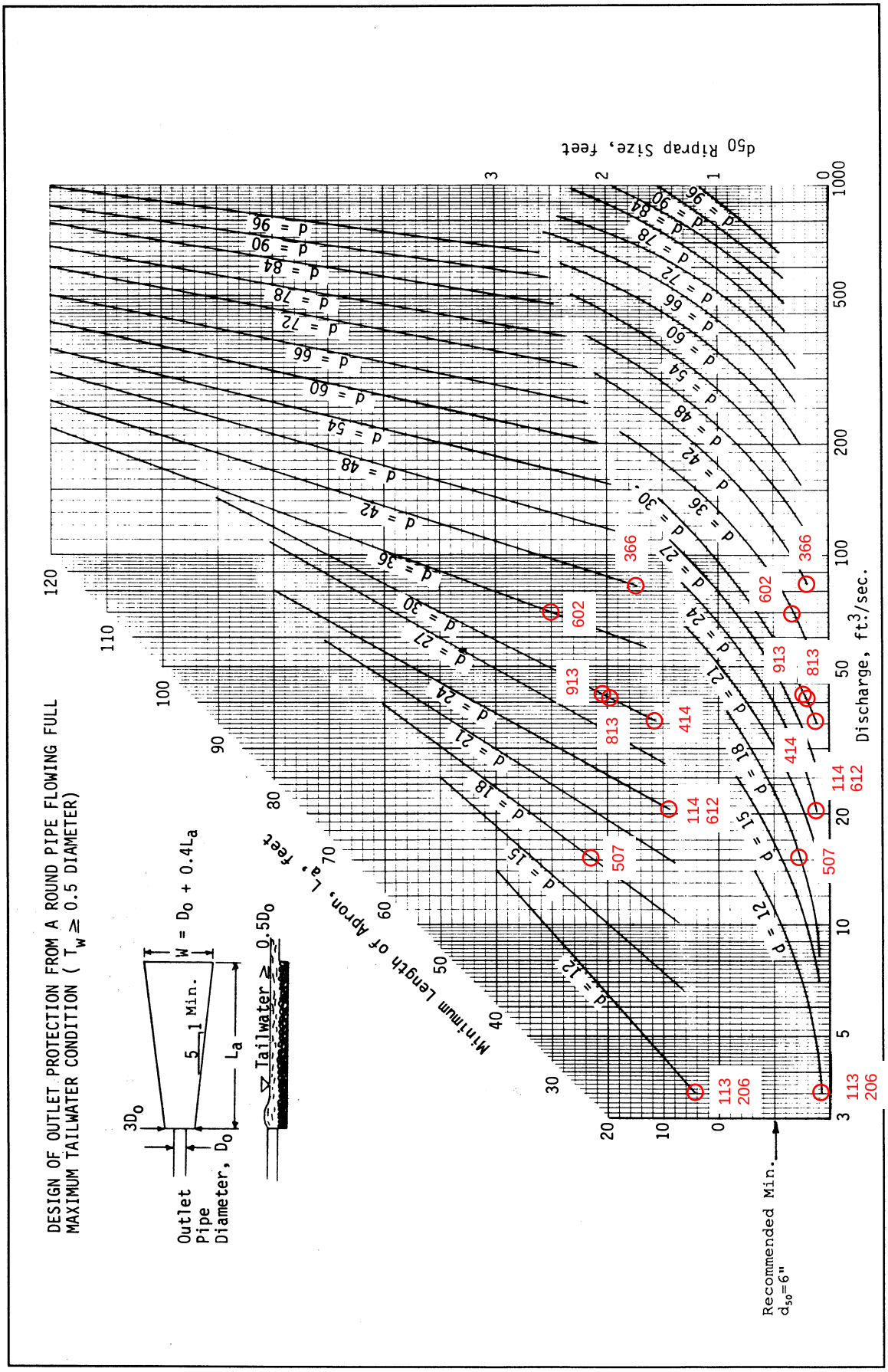
*Apron Length ($L_A$):*
*Length = From Virginia DCR Handbook - Plate 3.18-3* *if $T_W$ < 0.5D*
*Length = From Virginia DCR Handbook - Plate 3.18-4* *if $T_W$ ≥ 0.5D*

*Apron Width at Outlet ($3D_O$):*
*Width = 3 x pipe dia. (or width of channel)*

*Apron Width at End (W):*
*Width = dia. + apron length* *if $T_W$ < 0.5D*
*Width = dia. + 0.4 x apron length* *if $T_W$ ≥ 0.5D*
*or apron width = channel width if a well defined channel exists*

*Rock Riprap:*
*Median Diameter ($d_{50}$) = From Virginia DCR Handbook - Plate 3.18-3 or 4*
*Largest stone dia = 1.5 x $d_{50}$*

*Apron Depth (Z):*
*6" or 1.5 x largest stone dia*




Source: USDA-SCS Plate 3.18-4

# Appendix B: Standard 2 Computations and Supporting Information

## Standard 2 - Peak Rate Attenuation

The rainfall-runoff response of the Site under existing and proposed conditions was evaluated for storm events with recurrence intervals of 2, 10, and 100-years. Rainfall volumes used for this analysis were based on the Natural Resources Conservation Service (NRCS) Type III, 24-hour storm and NOAA Atlas 14 precipitation depths for the site. Runoff coefficients for the pre- and post-development conditions were determined using NRCS Technical Release 55 (TR-55) methodology as provided in HydroCAD. Drainage areas used in the analyses were described in previous sections and shown on Figures 2 and 3. The HydroCAD model is based on the NRCS Technical Release 20 (TR-20) Model for Project Formulation Hydrology.

The Project's peak rate attenuation and volume control requirements are waived per the MA Stormwater Handbook Volume 1, Chapter 1 as the Project is located on land subject to coastal storm flowage.

**NOAA Atlas 14, Volume 10, Version 3**
**Location name: Somerset, Massachusetts, USA***
**Latitude: 41.7151°, Longitude: -71.1857°**
**Elevation: 21.44 ft****
* source: ESRI Maps
** source: USGS

**POINT PRECIPITATION FREQUENCY ESTIMATES**

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

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

## PF tabular

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

| Duration | Average recurrence interval (years) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 5 | 10 | 25 | 50 | 100 | 200 | 500 | 1000 |
| 5-min | **0.304** (0.241-0.376) | **0.377** (0.298-0.466) | **0.496** (0.390-0.615) | **0.594** (0.465-0.743) | **0.730** (0.553-0.952) | **0.831** (0.617-1.11) | **0.939** (0.678-1.30) | **1.07** (0.721-1.49) | **1.26** (0.817-1.81) | **1.42** (0.901-2.08) |
| 10-min | **0.431** (0.341-0.533) | **0.534** (0.422-0.661) | **0.702** (0.553-0.872) | **0.842** (0.659-1.05) | **1.03** (0.784-1.35) | **1.18** (0.874-1.57) | **1.33** (0.960-1.84) | **1.51** (1.02-2.11) | **1.79** (1.16-2.57) | **2.02** (1.28-2.95) |
| 15-min | **0.507** (0.401-0.627) | **0.628** (0.497-0.777) | **0.826** (0.651-1.03) | **0.991** (0.776-1.24) | **1.22** (0.922-1.59) | **1.39** (1.03-1.84) | **1.57** (1.13-2.16) | **1.78** (1.20-2.48) | **2.10** (1.36-3.02) | **2.37** (1.50-3.47) |
| 30-min | **0.711** (0.563-0.879) | **0.882** (0.698-1.09) | **1.16** (0.916-1.44) | **1.40** (1.09-1.74) | **1.72** (1.30-2.24) | **1.95** (1.45-2.60) | **2.21** (1.60-3.05) | **2.51** (1.70-3.50) | **2.97** (1.92-4.26) | **3.35** (2.12-4.90) |
| 60-min | **0.915** (0.724-1.13) | **1.14** (0.899-1.41) | **1.50** (1.18-1.86) | **1.80** (1.41-2.25) | **2.22** (1.68-2.89) | **2.52** (1.87-3.36) | **2.85** (2.06-3.94) | **3.24** (2.19-4.53) | **3.83** (2.49-5.51) | **4.33** (2.74-6.33) |
| 2-hr | **1.20** (0.953-1.47) | **1.50** (1.20-1.85) | **2.00** (1.59-2.47) | **2.42** (1.90-2.99) | **2.99** (2.28-3.87) | **3.41** (2.55-4.51) | **3.87** (2.82-5.31) | **4.41** (3.00-6.10) | **5.24** (3.43-7.46) | **5.95** (3.80-8.61) |
| 3-hr | **1.40** (1.12-1.71) | **1.75** (1.40-2.15) | **2.33** (1.86-2.87) | **2.82** (2.23-3.47) | **3.48** (2.67-4.48) | **3.97** (2.98-5.22) | **4.50** (3.29-6.14) | **5.14** (3.51-7.06) | **6.10** (4.01-8.63) | **6.92** (4.44-9.95) |
| 6-hr | **1.83** (1.47-2.22) | **2.26** (1.82-2.75) | **2.96** (2.37-3.61) | **3.54** (2.82-4.34) | **4.34** (3.35-5.54) | **4.93** (3.73-6.42) | **5.57** (4.10-7.51) | **6.32** (4.36-8.60) | **7.44** (4.93-10.4) | **8.39** (5.43-11.9) |
| 12-hr | **2.36** (1.91-2.85) | **2.84** (2.30-3.43) | **3.63** (2.93-4.40) | **4.28** (3.43-5.21) | **5.18** (4.02-6.55) | **5.86** (4.45-7.53) | **6.57** (4.84-8.72) | **7.38** (5.14-9.94) | **8.56** (5.72-11.9) | **9.53** (6.21-13.4) |
| 24-hr | **2.84** (2.32-3.41) | **3.40** (2.77-4.07) | **4.30** (3.49-5.17) | **5.04** (4.07-6.09) | **6.07** (4.74-7.60) | **6.85** (5.23-8.72) | **7.66** (5.68-10.0) | **8.57** (6.01-11.4) | **9.87** (6.65-13.5) | **10.9** (7.19-15.2) |
| 2-day | **3.22** (2.64-3.83) | **3.87** (3.17-4.61) | **4.93** (4.03-5.89) | **5.81** (4.72-6.97) | **7.02** (5.53-8.73) | **7.93** (6.11-10.0) | **8.89** (6.66-11.6) | **9.99** (7.06-13.2) | **11.6** (7.87-15.7) | **12.9** (8.55-17.8) |
| 3-day | **3.51** (2.89-4.16) | **4.19** (3.45-4.98) | **5.32** (4.37-6.33) | **6.25** (5.10-7.47) | **7.54** (5.95-9.32) | **8.50** (6.58-10.7) | **9.52** (7.15-12.3) | **10.7** (7.58-14.0) | **12.3** (8.44-16.6) | **13.7** (9.16-18.8) |
| 4-day | **3.77** (3.12-4.45) | **4.47** (3.70-5.30) | **5.63** (4.64-6.68) | **6.59** (5.39-7.85) | **7.91** (6.27-9.75) | **8.91** (6.91-11.2) | **9.95** (7.50-12.8) | **11.1** (7.94-14.5) | **12.8** (8.79-17.2) | **14.2** (9.51-19.4) |
| 7-day | **4.48** (3.73-5.27) | **5.22** (4.34-6.15) | **6.44** (5.33-7.59) | **7.45** (6.13-8.82) | **8.84** (7.03-10.8) | **9.89** (7.70-12.3) | **11.0** (8.29-14.0) | **12.2** (8.74-15.7) | **13.8** (9.55-18.4) | **15.2** (10.2-20.5) |
| 10-day | **5.17** (4.31-6.05) | **5.93** (4.95-6.96) | **7.19** (5.97-8.44) | **8.23** (6.79-9.70) | **9.65** (7.71-11.7) | **10.7** (8.39-13.2) | **11.9** (8.97-15.0) | **13.0** (9.41-16.8) | **14.6** (10.2-19.3) | **15.9** (10.8-21.3) |
| 20-day | **7.26** (6.10-8.44) | **8.07** (6.78-9.40) | **9.41** (7.87-11.0) | **10.5** (8.75-12.3) | **12.1** (9.68-14.4) | **13.2** (10.4-16.1) | **14.4** (10.9-17.8) | **15.5** (11.3-19.8) | **17.0** (11.9-22.1) | **18.0** (12.3-23.8) |
| 30-day | **8.99** (7.58-10.4) | **9.85** (8.30-11.4) | **11.3** (9.47-13.1) | **12.5** (10.4-14.5) | **14.1** (11.3-16.7) | **15.4** (12.1-18.5) | **16.6** (12.6-20.3) | **17.7** (13.0-22.3) | **19.0** (13.4-24.6) | **19.9** (13.7-26.2) |
| 45-day | **11.1** (9.42-12.8) | **12.1** (10.2-13.9) | **13.6** (11.5-15.7) | **14.9** (12.5-17.3) | **16.6** (13.5-19.7) | **18.0** (14.2-21.6) | **19.3** (14.7-23.5) | **20.4** (15.1-25.7) | **21.7** (15.4-28.0) | **22.5** (15.6-29.5) |
| 60-day | **12.9** (10.9-14.8) | **13.9** (11.8-16.0) | **15.6** (13.2-17.9) | **16.9** (14.2-19.6) | **18.8** (15.3-22.2) | **20.3** (16.1-24.2) | **21.7** (16.6-26.2) | **22.9** (16.9-28.6) | **24.2** (17.2-31.0) | **25.0** (17.3-32.5) |

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

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

Please refer to NOAA Atlas 14 document for more information.

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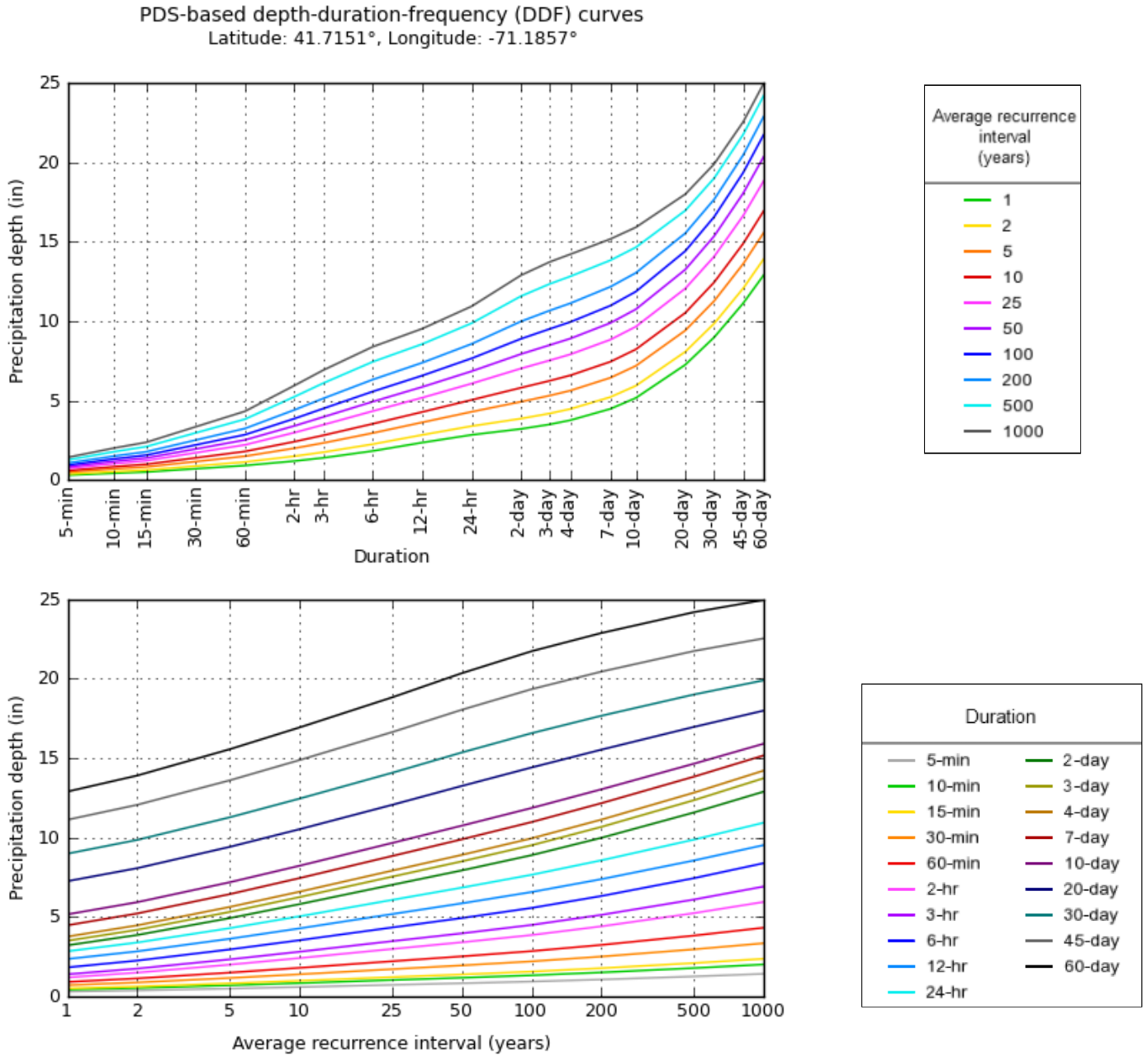
## PF graphical




NOAA Atlas 14, Volume 10, Version 3

Created (GMT): Fri Jun 24 18:51:51 2022

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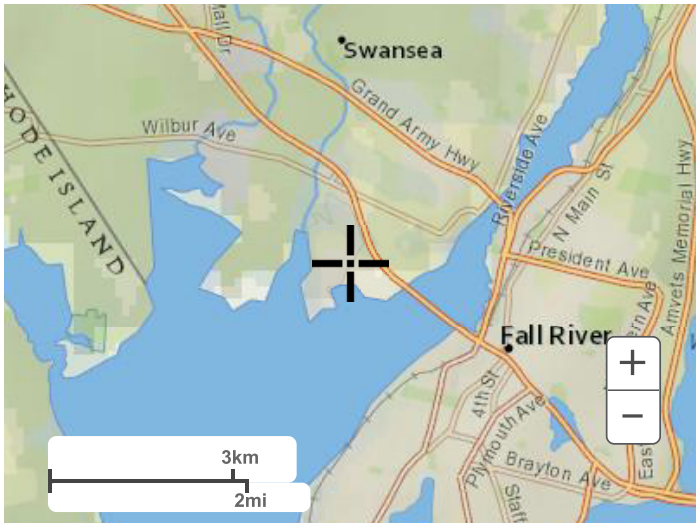
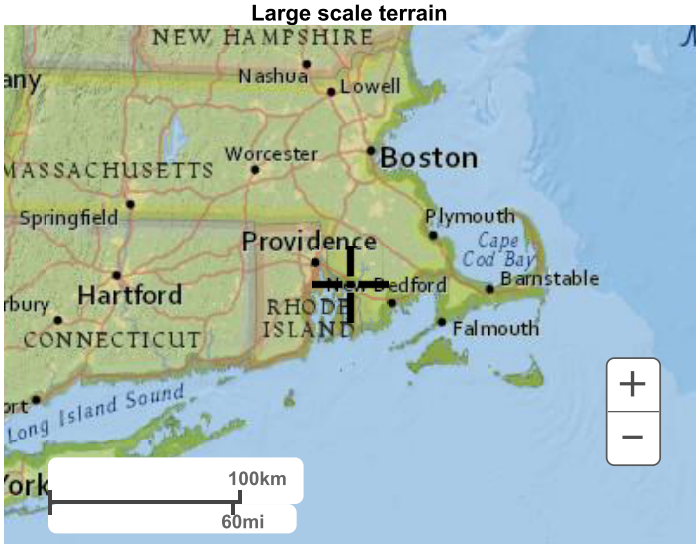
## Maps & aerials

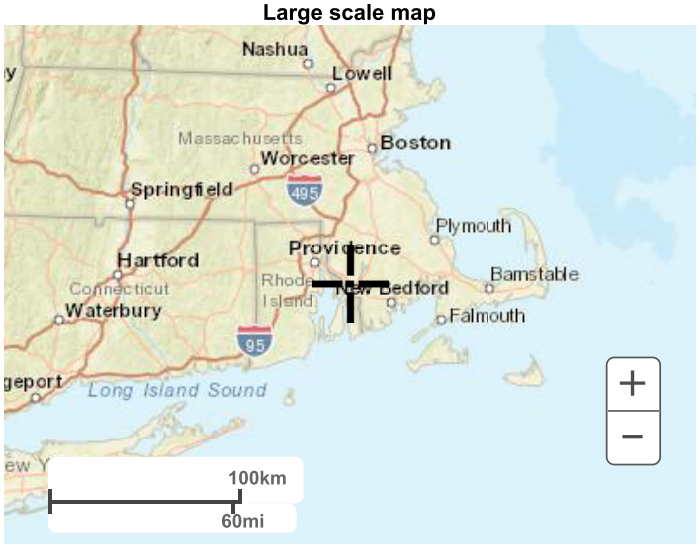
**Small scale terrain**



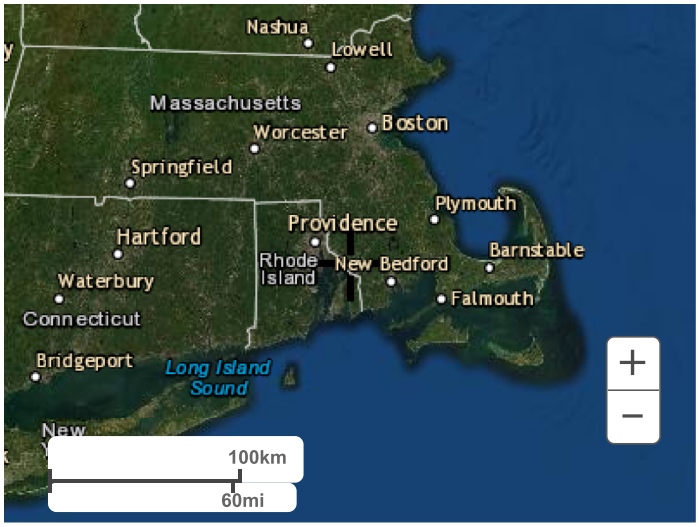

**Large scale terrain**




**Large scale map**




**Large scale aerial**

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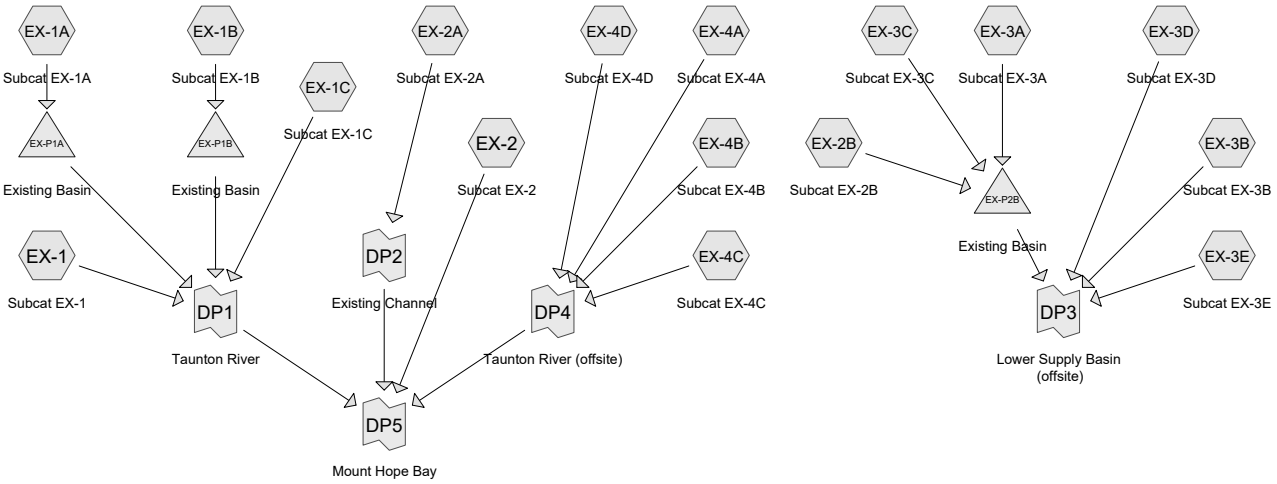
US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

# HydroCAD Analysis: Existing Conditions




Subcat Reach Pond Link

**Routing Diagram for 15542.00-EX**
Prepared by VHB, Printed 10/21/2022

## Rainfall Events Listing (selected events)

| Event# | Event Name | Storm Type | Curve | Mode | Duration (hours) | B/B | Depth (inches) | AMC |
|---|---|---|---|---|---|---|---|---|
| 1 | 2-year | Type III 24-hr | | Default | 24.00 | 1 | 3.40 | 2 |
| 2 | 10-year | Type III 24-hr | | Default | 24.00 | 1 | 5.04 | 2 |
| 3 | 100-year | Type III 24-hr | | Default | 24.00 | 1 | 7.66 | 2 |
| 4 | 2070 100-Year | Type III 24-hr | | Default | 24.00 | 1 | 10.40 | 2 |

## Area Listing (all nodes)

| Area (acres) | CN | Description (subcatchment-numbers) |
|---|---|---|
| 7.02 | 74 | >75% Grass cover, Good, HSG C (EX-1, EX-1A, EX-1B, EX-1C, EX-2, EX-2B, EX-4A, EX-4B) |
| 33.04 | 96 | Gravel surface, HSG C (EX-1, EX-1A, EX-1B, EX-1C, EX-2, EX-2A, EX-2B, EX-3A, EX-3B, EX-3C, EX-3D, EX-3E, EX-4A, EX-4B, EX-4C, EX-4D) |
| 0.89 | 98 | Roofs, HSG C (EX-1B, EX-1C, EX-2B, EX-3C, EX-3E, EX-4A, EX-4B, EX-4C, EX-4D) |
| 6.91 | 98 | Unconnected pavement, HSG C (EX-2, EX-2B, EX-3A, EX-3B, EX-3C, EX-3E, EX-4A, EX-4B, EX-4C, EX-4D) |
| 1.52 | 98 | Water Surface, HSG C (EX-1, EX-2, EX-3B, EX-3C, EX-3D) |
| 7.85 | 72 | Woods/grass comb., Good, HSG C (EX-1, EX-1A, EX-2, EX-2A, EX-2B, EX-3D, EX-3E, EX-4B) |
| **57.23** | **90** | **TOTAL AREA** |

## Soil Listing (all nodes)

| Area (acres) | Soil Group | Subcatchment Numbers |
|---|---|---|
| 0.00 | HSG A | |
| 0.00 | HSG B | |
| 57.23 | HSG C | EX-1, EX-1A, EX-1B, EX-1C, EX-2, EX-2A, EX-2B, EX-3A, EX-3B, EX-3C, EX-3D, EX-3E, EX-4A, EX-4B, EX-4C, EX-4D |
| 0.00 | HSG D | |
| 0.00 | Other | |
| **57.23** | | **TOTAL AREA** |

## Ground Covers (all nodes)

| HSG-A (acres) | HSG-B (acres) | HSG-C (acres) | HSG-D (acres) | Other (acres) | Total (acres) | Ground Cover | Subcatchment Numbers |
|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 7.02 | 0.00 | 0.00 | 7.02 | >75% Grass cover, Good | EX-1, EX-1A, EX-1B, EX-1C, EX-2, EX-2B, EX-4A, EX-4B |
| 0.00 | 0.00 | 33.04 | 0.00 | 0.00 | 33.04 | Gravel surface | EX-1, EX-1A, EX-1B, EX-1C, EX-2, EX-2A, EX-2B, EX-3A, EX-3B, EX-3C, EX-3D, EX-3E, EX-4A, EX-4B, EX-4C, EX-4D |
| 0.00 | 0.00 | 0.89 | 0.00 | 0.00 | 0.89 | Roofs | EX-1B, EX-1C, EX-2B, EX-3C, EX-3E, EX-4A, EX-4B, EX-4C, EX-4D |
| 0.00 | 0.00 | 6.91 | 0.00 | 0.00 | 6.91 | Unconnected pavement | EX-2, EX-2B, EX-3A, EX-3B, EX-3C, EX-3E, EX-4A, EX-4B, EX-4C, EX-4D |
| 0.00 | 0.00 | 1.52 | 0.00 | 0.00 | 1.52 | Water Surface | EX-1, EX-2, EX-3B, EX-3C, EX-3D |
| 0.00 | 0.00 | 7.85 | 0.00 | 0.00 | 7.85 | Woods/grass comb., Good | EX-1, EX-1A, EX-2, EX-2A, EX-2B, EX-3D, EX-3E, EX-4B |

## Ground Covers (all nodes) (continued)

| HSG-A (acres) | HSG-B (acres) | HSG-C (acres) | HSG-D (acres) | Other (acres) | Total (acres) | Ground Cover | Subcatchment Numbers |
|---|---|---|---|---|---|---|---|
| **0.00** | **0.00** | **57.23** | **0.00** | **0.00** | **57.23** | **TOTAL AREA** | |

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment EX-1: Subcat EX-1** Runoff Area=3.47 ac 20.33% Impervious Runoff Depth=1.83"
Flow Length=395' Tc=6.0 min CN=79/98 Runoff=7.0 cfs 0.530 af

**Subcatchment EX-1A: Subcat EX-1A** Runoff Area=8.12 ac 0.00% Impervious Runoff Depth=1.93"
Flow Length=815' Tc=9.2 min CN=85/0 Runoff=16.2 cfs 1.306 af

**Subcatchment EX-1B: Subcat EX-1B** Runoff Area=6.04 ac 3.00% Impervious Runoff Depth=2.65"
Flow Length=778' Tc=8.3 min CN=93/98 Runoff=16.5 cfs 1.335 af

**Subcatchment EX-1C: Subcat EX-1C** Runoff Area=10.44 ac 1.83% Impervious Runoff Depth=2.85"
Flow Length=530' Tc=6.0 min CN=95/98 Runoff=32.0 cfs 2.476 af

**Subcatchment EX-2: Subcat EX-2** Runoff Area=1.61 ac 25.74% Impervious Runoff Depth=2.08"
Flow Length=225' Tc=6.0 min CN=82/98 Runoff=3.7 cfs 0.278 af

**Subcatchment EX-2A: Subcat EX-2A** Runoff Area=4.52 ac 0.00% Impervious Runoff Depth=1.17"
Flow Length=175' Tc=6.3 min CN=74/0 Runoff=5.8 cfs 0.441 af

**Subcatchment EX-2B: Subcat EX-2B** Runoff Area=12.45 ac 17.14% Impervious Runoff Depth=2.73"
Flow Length=1,150' Tc=14.4 min CN=93/98 Runoff=29.1 cfs 2.832 af

**Subcatchment EX-3A: Subcat EX-3A** Runoff Area=1.11 ac 5.10% Impervious Runoff Depth=2.96"
Tc=6.0 min CN=96/98 Runoff=3.5 cfs 0.274 af

**Subcatchment EX-3B: Subcat EX-3B** Runoff Area=0.55 ac 52.69% Impervious Runoff Depth=3.06"
Tc=6.0 min CN=96/98 Runoff=1.8 cfs 0.142 af

**Subcatchment EX-3C: Subcat EX-3C** Runoff Area=0.75 ac 66.30% Impervious Runoff Depth=3.09"
Tc=6.0 min CN=96/98 Runoff=2.4 cfs 0.193 af

**Subcatchment EX-3D: Subcat EX-3D** Runoff Area=0.71 ac 56.22% Impervious Runoff Depth=2.98"
Tc=6.0 min CN=94/98 Runoff=2.2 cfs 0.175 af

**Subcatchment EX-3E: Subcat EX-3E** Runoff Area=0.80 ac 35.10% Impervious Runoff Depth=1.95"
Tc=6.0 min CN=76/98 Runoff=1.7 cfs 0.130 af

**Subcatchment EX-4A: Subcat EX-4A** Runoff Area=2.89 ac 96.00% Impervious Runoff Depth=3.13"
Tc=6.0 min CN=90/98 Runoff=9.3 cfs 0.754 af

**Subcatchment EX-4B: Subcat EX-4B** Runoff Area=1.44 ac 17.83% Impervious Runoff Depth=1.68"
Tc=6.0 min CN=77/98 Runoff=2.6 cfs 0.202 af

**Subcatchment EX-4C: Subcat EX-4C** Runoff Area=1.14 ac 72.98% Impervious Runoff Depth=3.11"
Tc=6.0 min CN=96/98 Runoff=3.6 cfs 0.294 af

**Subcatchment EX-4D: Subcat EX-4D** Runoff Area=1.19 ac 25.91% Impervious Runoff Depth=3.00"
Tc=6.0 min CN=96/98 Runoff=3.8 cfs 0.299 af

**Pond EX-P1A: Existing Basin** Inflow=16.2 cfs 1.306 af
Primary=16.2 cfs 1.306 af

**Pond EX-P1B: Existing Basin** Inflow=16.5 cfs 1.335 af
Primary=16.5 cfs 1.335 af

**Pond EX-P2B: Existing Basin** Inflow=32.8 cfs 3.300 af
Primary=32.8 cfs 3.300 af

**Link DP1: Taunton River** Inflow=70.6 cfs 5.647 af
Primary=70.6 cfs 5.647 af

**Link DP2: Existing Channel** Inflow=5.8 cfs 0.441 af
Primary=5.8 cfs 0.441 af

**Link DP3: Lower Supply Basin (offsite)** Inflow=36.9 cfs 3.746 af
Primary=36.9 cfs 3.746 af

**Link DP4: Taunton River (offsite)** Inflow=19.3 cfs 1.549 af
Primary=19.3 cfs 1.549 af

**Link DP5: Mount Hope Bay** Inflow=99.2 cfs 7.916 af
Primary=99.2 cfs 7.916 af

**Total Runoff Area = 57.23 ac Runoff Volume = 11.662 af Average Runoff Depth = 2.45"**
**83.72% Pervious = 47.91 ac 16.28% Impervious = 9.32 ac**

## Summary for Subcatchment EX-1: Subcat EX-1

Runoff = 7.0 cfs @ 12.09 hrs, Volume= 0.530 af, Depth= 1.83"
Routed to Link DP1 : Taunton River

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.40"

| Area (ac) | CN | Description |
|---|---|---|
| 1.31 | 74 | >75% Grass cover, Good, HSG C |
| 0.74 | 96 | Gravel surface, HSG C |
| 0.71 | 98 | Water Surface, HSG C |
| 0.71 | 72 | Woods/grass comb., Good, HSG C |
| 3.47 | 83 | Weighted Average |
| 2.77 | 79 | 79.67% Pervious Area |
| 0.71 | 98 | 20.33% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 1.0 | 50 | 0.0080 | 0.86 | | **Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40" |
| 1.9 | 215 | 0.0140 | 1.90 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 0.4 | 130 | 0.1400 | 6.02 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 3.3 | 395 | Total, Increased to minimum Tc = 6.0 min | | | |

## Summary for Subcatchment EX-1A: Subcat EX-1A

Runoff = 16.2 cfs @ 12.13 hrs, Volume= 1.306 af, Depth= 1.93"
Routed to Pond EX-P1A : Existing Basin

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.40"

| Area (ac) | CN | Description |
|---|---|---|
| 3.47 | 74 | >75% Grass cover, Good, HSG C |
| 3.98 | 96 | Gravel surface, HSG C |
| 0.67 | 72 | Woods/grass comb., Good, HSG C |
| 8.12 | 85 | Weighted Average |
| 8.12 | 85 | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 1.3 | 50 | 0.0040 | 0.65 | | **Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40" |
| 7.9 | 765 | 0.0100 | 1.61 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 9.2 | 815 | Total | | | |

## Summary for Subcatchment EX-1B: Subcat EX-1B

Runoff = 16.5 cfs @ 12.11 hrs, Volume= 1.335 af, Depth= 2.65"
Routed to Pond EX-P1B : Existing Basin

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.40"

| Area (ac) | CN | Description |
|---|---|---|
| 0.86 | 74 | >75% Grass cover, Good, HSG C |
| 4.99 | 96 | Gravel surface, HSG C |
| 0.18 | 98 | Roofs, HSG C |
| 6.04 | 93 | Weighted Average |
| 5.86 | 93 | 97.00% Pervious Area |
| 0.18 | 98 | 3.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 1.7 | 50 | 0.0020 | 0.49 | | **Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40" |
| 6.6 | 728 | 0.0130 | 1.84 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 8.3 | 778 | Total | | | |

## Summary for Subcatchment EX-1C: Subcat EX-1C

Runoff = 32.0 cfs @ 12.09 hrs, Volume= 2.476 af, Depth= 2.85"
Routed to Link DP1 : Taunton River

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.40"

| Area (ac) | CN | Description |
|---|---|---|
| 0.50 | 74 | >75% Grass cover, Good, HSG C |
| 9.74 | 96 | Gravel surface, HSG C |
| 0.19 | 98 | Roofs, HSG C |
| 10.44 | 95 | Weighted Average |
| 10.24 | 95 | 98.17% Pervious Area |
| 0.19 | 98 | 1.83% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 0.9 | 50 | 0.0100 | 0.94 | | **Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40" |
| 4.4 | 480 | 0.0130 | 1.84 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 5.3 | 530 | Total, Increased to minimum Tc = 6.0 min | | | |

## Summary for Subcatchment EX-2: Subcat EX-2

Runoff = 3.7 cfs @ 12.09 hrs, Volume= 0.278 af, Depth= 2.08"
Routed to Link DP5 : Mount Hope Bay

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.40"

| Area (ac) | CN | Description |
|---|---|---|
| 0.14 | 74 | >75% Grass cover, Good, HSG C |
| 0.50 | 96 | Gravel surface, HSG C |
| 0.00 | 98 | Unconnected pavement, HSG C |
| 0.41 | 98 | Water Surface, HSG C |
| 0.56 | 72 | Woods/grass comb., Good, HSG C |
| 1.61 | 86 | Weighted Average |
| 1.19 | 82 | 74.26% Pervious Area |
| 0.41 | 98 | 25.74% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 0.4 | 50 | 0.1000 | 2.35 | | **Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40" |
| 0.7 | 175 | 0.0750 | 4.41 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 1.1 | 225 | Total, Increased to minimum Tc = 6.0 min | | | |

## Summary for Subcatchment EX-2A: Subcat EX-2A

Runoff = 5.8 cfs @ 12.10 hrs, Volume= 0.441 af, Depth= 1.17"
Routed to Link DP2 : Existing Channel

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.40"

| Area (ac) | CN | Description |
|---|---|---|
| 0.45 | 96 | Gravel surface, HSG C |
| 4.07 | 72 | Woods/grass comb., Good, HSG C |
| 4.52 | 74 | Weighted Average |
| 4.52 | 74 | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 0.3 | 25 | 0.0300 | 1.26 | | **Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40" |
| 5.8 | 25 | 0.0300 | 0.07 | | **Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40" |
| 0.2 | 125 | 0.2800 | 8.52 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 6.3 | 175 | Total | | | |

## Summary for Subcatchment EX-2B: Subcat EX-2B

Runoff = 29.1 cfs @ 12.19 hrs, Volume= 2.832 af, Depth= 2.73"
Routed to Pond EX-P2B : Existing Basin

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.40"

| Area (ac) | CN | Description |
|---|---|---|
| 0.38 | 74 | >75% Grass cover, Good, HSG C |
| 9.16 | 96 | Gravel surface, HSG C |
| 0.28 | 98 | Roofs, HSG C |
| 1.85 | 98 | Unconnected pavement, HSG C |
| 0.78 | 72 | Woods/grass comb., Good, HSG C |
| 12.45 | 94 | Weighted Average |
| 10.32 | 93 | 82.86% Pervious Area |
| 2.13 | 98 | 17.14% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 1.7 | 50 | 0.0020 | 0.49 | | **Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40" |
| 12.7 | 1,100 | 0.0080 | 1.44 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 14.4 | 1,150 | Total | | | |

## Summary for Subcatchment EX-3A: Subcat EX-3A

Runoff = 3.5 cfs @ 12.09 hrs, Volume= 0.274 af, Depth= 2.96"
Routed to Pond EX-P2B : Existing Basin

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.40"

| Area (ac) | CN | Description |
|---|---|---|
| 1.05 | 96 | Gravel surface, HSG C |
| 0.06 | 98 | Unconnected pavement, HSG C |
| 1.11 | 96 | Weighted Average |
| 1.05 | 96 | 94.90% Pervious Area |
| 0.06 | 98 | 5.10% Impervious Area |

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

## Summary for Subcatchment EX-3B: Subcat EX-3B

Runoff = 1.8 cfs @ 12.09 hrs, Volume= 0.142 af, Depth= 3.06"
Routed to Link DP3 : Lower Supply Basin (offsite)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.40"

| Area (ac) | CN | Description |
|---|---|---|
| 0.26 | 96 | Gravel surface, HSG C |
| 0.29 | 98 | Unconnected pavement, HSG C |
| 0.00 | 98 | Water Surface, HSG C |
| 0.55 | 97 | Weighted Average |
| 0.26 | 96 | 47.31% Pervious Area |
| 0.29 | 98 | 52.69% Impervious Area |

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

## Summary for Subcatchment EX-3C: Subcat EX-3C

Runoff = 2.4 cfs @ 12.09 hrs, Volume= 0.193 af, Depth= 3.09"
Routed to Pond EX-P2B : Existing Basin

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.40"

| Area (ac) | CN | Description |
|---|---|---|
| 0.25 | 96 | Gravel surface, HSG C |
| 0.03 | 98 | Roofs, HSG C |
| 0.47 | 98 | Unconnected pavement, HSG C |
| 0.00 | 98 | Water Surface, HSG C |
| 0.75 | 97 | Weighted Average |
| 0.25 | 96 | 33.70% Pervious Area |
| 0.50 | 98 | 66.30% Impervious Area |

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

## Summary for Subcatchment EX-3D: Subcat EX-3D

Runoff = 2.2 cfs @ 12.09 hrs, Volume= 0.175 af, Depth= 2.98"
Routed to Link DP3 : Lower Supply Basin (offsite)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.40"

| Area (ac) | CN | Description |
|---|---|---|
| 0.29 | 96 | Gravel surface, HSG C |
| 0.40 | 98 | Water Surface, HSG C |
| 0.02 | 72 | Woods/grass comb., Good, HSG C |
| 0.71 | 96 | Weighted Average |
| 0.31 | 94 | 43.78% Pervious Area |
| 0.40 | 98 | 56.22% Impervious Area |

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

## Summary for Subcatchment EX-3E: Subcat EX-3E

Runoff = 1.7 cfs @ 12.09 hrs, Volume= 0.130 af, Depth= 1.95"
Routed to Link DP3 : Lower Supply Basin (offsite)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.40"

| Area (ac) | CN | Description |
|---|---|---|
| 0.09 | 96 | Gravel surface, HSG C |
| 0.04 | 98 | Roofs, HSG C |
| 0.24 | 98 | Unconnected pavement, HSG C |
| 0.42 | 72 | Woods/grass comb., Good, HSG C |
| 0.80 | 84 | Weighted Average |
| 0.52 | 76 | 64.90% Pervious Area |
| 0.28 | 98 | 35.10% Impervious Area |

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

## Summary for Subcatchment EX-4A: Subcat EX-4A

Runoff = 9.3 cfs @ 12.09 hrs, Volume= 0.754 af, Depth= 3.13"
Routed to Link DP4 : Taunton River (offsite)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.40"

| Area (ac) | CN | Description |
|---|---|---|
| 0.03 | 74 | >75% Grass cover, Good, HSG C |
| 0.08 | 96 | Gravel surface, HSG C |
| 0.05 | 98 | Roofs, HSG C |
| 2.72 | 98 | Unconnected pavement, HSG C |
| 2.89 | 98 | Weighted Average |
| 0.12 | 90 | 4.00% Pervious Area |
| 2.77 | 98 | 96.00% Impervious Area |

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

## Summary for Subcatchment EX-4B: Subcat EX-4B

Runoff = 2.6 cfs @ 12.09 hrs, Volume= 0.202 af, Depth= 1.68"
Routed to Link DP4 : Taunton River (offsite)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.40"

| Area (ac) | CN | Description |
|---|---|---|
| 0.32 | 74 | >75% Grass cover, Good, HSG C |
| 0.24 | 96 | Gravel surface, HSG C |
| 0.00 | 98 | Roofs, HSG C |
| 0.25 | 98 | Unconnected pavement, HSG C |
| 0.63 | 72 | Woods/grass comb., Good, HSG C |
| 1.44 | 81 | Weighted Average |
| 1.18 | 77 | 82.17% Pervious Area |
| 0.26 | 98 | 17.83% Impervious Area |

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

## Summary for Subcatchment EX-4C: Subcat EX-4C

Runoff = 3.6 cfs @ 12.09 hrs, Volume= 0.294 af, Depth= 3.11"
Routed to Link DP4 : Taunton River (offsite)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.40"

| Area (ac) | CN | Description |
|---|---|---|
| 0.31 | 96 | Gravel surface, HSG C |
| 0.04 | 98 | Roofs, HSG C |
| 0.79 | 98 | Unconnected pavement, HSG C |
| 1.14 | 97 | Weighted Average |
| 0.31 | 96 | 27.02% Pervious Area |
| 0.83 | 98 | 72.98% Impervious Area |

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

## Summary for Subcatchment EX-4D: Subcat EX-4D

Runoff = 3.8 cfs @ 12.09 hrs, Volume= 0.299 af, Depth= 3.00"
Routed to Link DP4 : Taunton River (offsite)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.40"

| Area (ac) | CN | Description |
|---|---|---|
| 0.88 | 96 | Gravel surface, HSG C |
| 0.06 | 98 | Roofs, HSG C |
| 0.25 | 98 | Unconnected pavement, HSG C |
| 1.19 | 97 | Weighted Average |
| 0.88 | 96 | 74.09% Pervious Area |
| 0.31 | 98 | 25.91% Impervious Area |

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

## Summary for Pond EX-P1A: Existing Basin

Inflow Area = 8.12 ac, 0.00% Impervious, Inflow Depth = 1.93" for 2-year event
Inflow = 16.2 cfs @ 12.13 hrs, Volume= 1.306 af
Primary = 16.2 cfs @ 12.13 hrs, Volume= 1.306 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP1 : Taunton River

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Pond EX-P1B: Existing Basin

Inflow Area = 6.04 ac, 3.00% Impervious, Inflow Depth = 2.65" for 2-year event
Inflow = 16.5 cfs @ 12.11 hrs, Volume= 1.335 af
Primary = 16.5 cfs @ 12.11 hrs, Volume= 1.335 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP1 : Taunton River

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Pond EX-P2B: Existing Basin

Inflow Area = 14.32 ac, 18.78% Impervious, Inflow Depth = 2.77" for 2-year event
Inflow = 32.8 cfs @ 12.18 hrs, Volume= 3.300 af
Primary = 32.8 cfs @ 12.18 hrs, Volume= 3.300 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP3 : Lower Supply Basin (offsite)

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Link DP1: Taunton River

Inflow Area = 28.07 ac, 3.84% Impervious, Inflow Depth = 2.41" for 2-year event
Inflow = 70.6 cfs @ 12.10 hrs, Volume= 5.647 af
Primary = 70.6 cfs @ 12.10 hrs, Volume= 5.647 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP5 : Mount Hope Bay

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Link DP2: Existing Channel

Inflow Area = 4.52 ac, 0.00% Impervious, Inflow Depth = 1.17" for 2-year event
Inflow = 5.8 cfs @ 12.10 hrs, Volume= 0.441 af
Primary = 5.8 cfs @ 12.10 hrs, Volume= 0.441 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP5 : Mount Hope Bay

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Link DP3: Lower Supply Basin (offsite)

Inflow Area = 16.37 ac, 22.34% Impervious, Inflow Depth = 2.75" for 2-year event
Inflow = 36.9 cfs @ 12.16 hrs, Volume= 3.746 af
Primary = 36.9 cfs @ 12.16 hrs, Volume= 3.746 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Link DP4: Taunton River (offsite)

Inflow Area = 6.66 ac, 62.58% Impervious, Inflow Depth = 2.79" for 2-year event
Inflow = 19.3 cfs @ 12.09 hrs, Volume= 1.549 af
Primary = 19.3 cfs @ 12.09 hrs, Volume= 1.549 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP5 : Mount Hope Bay

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Link DP5: Mount Hope Bay

Inflow Area = 40.86 ac, 13.85% Impervious, Inflow Depth = 2.32" for 2-year event
Inflow = 99.2 cfs @ 12.10 hrs, Volume= 7.916 af
Primary = 99.2 cfs @ 12.10 hrs, Volume= 7.916 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment EX-1: Subcat EX-1** Runoff Area=3.47 ac 20.33% Impervious Runoff Depth=3.24"
Flow Length=395' Tc=6.0 min CN=79/98 Runoff=12.4 cfs 0.937 af

**Subcatchment EX-1A: Subcat EX-1A** Runoff Area=8.12 ac 0.00% Impervious Runoff Depth=3.41"
Flow Length=815' Tc=9.2 min CN=85/0 Runoff=28.3 cfs 2.305 af

**Subcatchment EX-1B: Subcat EX-1B** Runoff Area=6.04 ac 3.00% Impervious Runoff Depth=4.25"
Flow Length=778' Tc=8.3 min CN=93/98 Runoff=25.8 cfs 2.140 af

**Subcatchment EX-1C: Subcat EX-1C** Runoff Area=10.44 ac 1.83% Impervious Runoff Depth=4.47"
Flow Length=530' Tc=6.0 min CN=95/98 Runoff=48.9 cfs 3.883 af

**Subcatchment EX-2: Subcat EX-2** Runoff Area=1.61 ac 25.74% Impervious Runoff Depth=3.55"
Flow Length=225' Tc=6.0 min CN=82/98 Runoff=6.2 cfs 0.476 af

**Subcatchment EX-2A: Subcat EX-2A** Runoff Area=4.52 ac 0.00% Impervious Runoff Depth=2.40"
Flow Length=175' Tc=6.3 min CN=74/0 Runoff=12.3 cfs 0.903 af

**Subcatchment EX-2B: Subcat EX-2B** Runoff Area=12.45 ac 17.14% Impervious Runoff Depth=4.33"
Flow Length=1,150' Tc=14.4 min CN=93/98 Runoff=45.1 cfs 4.498 af

**Subcatchment EX-3A: Subcat EX-3A** Runoff Area=1.11 ac 5.10% Impervious Runoff Depth=4.58"
Tc=6.0 min CN=96/98 Runoff=5.3 cfs 0.425 af

**Subcatchment EX-3B: Subcat EX-3B** Runoff Area=0.55 ac 52.69% Impervious Runoff Depth=4.69"
Tc=6.0 min CN=96/98 Runoff=2.6 cfs 0.217 af

**Subcatchment EX-3C: Subcat EX-3C** Runoff Area=0.75 ac 66.30% Impervious Runoff Depth=4.73"
Tc=6.0 min CN=96/98 Runoff=3.6 cfs 0.296 af

**Subcatchment EX-3D: Subcat EX-3D** Runoff Area=0.71 ac 56.22% Impervious Runoff Depth=4.60"
Tc=6.0 min CN=94/98 Runoff=3.3 cfs 0.271 af

**Subcatchment EX-3E: Subcat EX-3E** Runoff Area=0.80 ac 35.10% Impervious Runoff Depth=3.35"
Tc=6.0 min CN=76/98 Runoff=2.9 cfs 0.223 af

**Subcatchment EX-4A: Subcat EX-4A** Runoff Area=2.89 ac 96.00% Impervious Runoff Depth=4.77"
Tc=6.0 min CN=90/98 Runoff=13.8 cfs 1.147 af

**Subcatchment EX-4B: Subcat EX-4B** Runoff Area=1.44 ac 17.83% Impervious Runoff Depth=3.04"
Tc=6.0 min CN=77/98 Runoff=4.9 cfs 0.365 af

**Subcatchment EX-4C: Subcat EX-4C** Runoff Area=1.14 ac 72.98% Impervious Runoff Depth=4.74"
Tc=6.0 min CN=96/98 Runoff=5.4 cfs 0.449 af

**Subcatchment EX-4D: Subcat EX-4D** Runoff Area=1.19 ac 25.91% Impervious Runoff Depth=4.63"
Tc=6.0 min CN=96/98 Runoff=5.7 cfs 0.461 af

**Pond EX-P1A: Existing Basin** Inflow=28.3 cfs 2.305 af
Primary=28.3 cfs 2.305 af

**Pond EX-P1B: Existing Basin** Inflow=25.8 cfs 2.140 af
Primary=25.8 cfs 2.140 af

**Pond EX-P2B: Existing Basin** Inflow=50.7 cfs 5.218 af
Primary=50.7 cfs 5.218 af

**Link DP1: Taunton River** Inflow=113.8 cfs 9.265 af
Primary=113.8 cfs 9.265 af

**Link DP2: Existing Channel** Inflow=12.3 cfs 0.903 af
Primary=12.3 cfs 0.903 af

**Link DP3: Lower Supply Basin (offsite)** Inflow=57.2 cfs 5.929 af
Primary=57.2 cfs 5.929 af

**Link DP4: Taunton River (offsite)** Inflow=29.8 cfs 2.422 af
Primary=29.8 cfs 2.422 af

**Link DP5: Mount Hope Bay** Inflow=161.9 cfs 13.066 af
Primary=161.9 cfs 13.066 af

**Total Runoff Area = 57.23 ac Runoff Volume = 18.995 af Average Runoff Depth = 3.98"**
**83.72% Pervious = 47.91 ac 16.28% Impervious = 9.32 ac**

## Summary for Subcatchment EX-1: Subcat EX-1

Runoff = 12.4 cfs @ 12.09 hrs, Volume= 0.937 af, Depth= 3.24"
Routed to Link DP1 : Taunton River

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.04"

| Area (ac) | CN | Description |
|---|---|---|
| 1.31 | 74 | >75% Grass cover, Good, HSG C |
| 0.74 | 96 | Gravel surface, HSG C |
| 0.71 | 98 | Water Surface, HSG C |
| 0.71 | 72 | Woods/grass comb., Good, HSG C |
| 3.47 | 83 | Weighted Average |
| 2.77 | 79 | 79.67% Pervious Area |
| 0.71 | 98 | 20.33% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 1.0 | 50 | 0.0080 | 0.86 | | **Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40" |
| 1.9 | 215 | 0.0140 | 1.90 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 0.4 | 130 | 0.1400 | 6.02 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 3.3 | 395 | Total, Increased to minimum Tc = 6.0 min | | | |

## Summary for Subcatchment EX-1A: Subcat EX-1A

Runoff = 28.3 cfs @ 12.13 hrs, Volume= 2.305 af, Depth= 3.41"
Routed to Pond EX-P1A : Existing Basin

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.04"

| Area (ac) | CN | Description |
|---|---|---|
| 3.47 | 74 | >75% Grass cover, Good, HSG C |
| 3.98 | 96 | Gravel surface, HSG C |
| 0.67 | 72 | Woods/grass comb., Good, HSG C |
| 8.12 | 85 | Weighted Average |
| 8.12 | 85 | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 1.3 | 50 | 0.0040 | 0.65 | | **Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40" |
| 7.9 | 765 | 0.0100 | 1.61 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 9.2 | 815 | Total | | | |

## Summary for Subcatchment EX-1B: Subcat EX-1B

Runoff = 25.8 cfs @ 12.11 hrs, Volume= 2.140 af, Depth= 4.25"
Routed to Pond EX-P1B : Existing Basin

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.04"

| Area (ac) | CN | Description |
|---|---|---|
| 0.86 | 74 | >75% Grass cover, Good, HSG C |
| 4.99 | 96 | Gravel surface, HSG C |
| 0.18 | 98 | Roofs, HSG C |
| 6.04 | 93 | Weighted Average |
| 5.86 | 93 | 97.00% Pervious Area |
| 0.18 | 98 | 3.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 1.7 | 50 | 0.0020 | 0.49 | | **Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40" |
| 6.6 | 728 | 0.0130 | 1.84 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 8.3 | 778 | Total | | | |

## Summary for Subcatchment EX-1C: Subcat EX-1C

Runoff = 48.9 cfs @ 12.09 hrs, Volume= 3.883 af, Depth= 4.47"
Routed to Link DP1 : Taunton River

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.04"

| Area (ac) | CN | Description |
|---|---|---|
| 0.50 | 74 | >75% Grass cover, Good, HSG C |
| 9.74 | 96 | Gravel surface, HSG C |
| 0.19 | 98 | Roofs, HSG C |
| 10.44 | 95 | Weighted Average |
| 10.24 | 95 | 98.17% Pervious Area |
| 0.19 | 98 | 1.83% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 0.9 | 50 | 0.0100 | 0.94 | | **Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40" |
| 4.4 | 480 | 0.0130 | 1.84 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 5.3 | 530 | Total, Increased to minimum Tc = 6.0 min | | | |

## Summary for Subcatchment EX-2: Subcat EX-2

Runoff = 6.2 cfs @ 12.09 hrs, Volume= 0.476 af, Depth= 3.55"
Routed to Link DP5 : Mount Hope Bay

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.04"

| Area (ac) | CN | Description |
|---|---|---|
| 0.14 | 74 | >75% Grass cover, Good, HSG C |
| 0.50 | 96 | Gravel surface, HSG C |
| 0.00 | 98 | Unconnected pavement, HSG C |
| 0.41 | 98 | Water Surface, HSG C |
| 0.56 | 72 | Woods/grass comb., Good, HSG C |
| 1.61 | 86 | Weighted Average |
| 1.19 | 82 | 74.26% Pervious Area |
| 0.41 | 98 | 25.74% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 0.4 | 50 | 0.1000 | 2.35 | | **Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40" |
| 0.7 | 175 | 0.0750 | 4.41 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 1.1 | 225 | Total, Increased to minimum Tc = 6.0 min | | | |

## Summary for Subcatchment EX-2A: Subcat EX-2A

Runoff = 12.3 cfs @ 12.10 hrs, Volume= 0.903 af, Depth= 2.40"
Routed to Link DP2 : Existing Channel

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.04"

| Area (ac) | CN | Description |
|---|---|---|
| 0.45 | 96 | Gravel surface, HSG C |
| 4.07 | 72 | Woods/grass comb., Good, HSG C |
| 4.52 | 74 | Weighted Average |
| 4.52 | 74 | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 0.3 | 25 | 0.0300 | 1.26 | | **Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40" |
| 5.8 | 25 | 0.0300 | 0.07 | | **Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40" |
| 0.2 | 125 | 0.2800 | 8.52 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 6.3 | 175 | Total | | | |

## Summary for Subcatchment EX-2B: Subcat EX-2B

Runoff = 45.1 cfs @ 12.19 hrs, Volume= 4.498 af, Depth= 4.33"
Routed to Pond EX-P2B : Existing Basin

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.04"

| Area (ac) | CN | Description |
|---|---|---|
| 0.38 | 74 | >75% Grass cover, Good, HSG C |
| 9.16 | 96 | Gravel surface, HSG C |
| 0.28 | 98 | Roofs, HSG C |
| 1.85 | 98 | Unconnected pavement, HSG C |
| 0.78 | 72 | Woods/grass comb., Good, HSG C |
| 12.45 | 94 | Weighted Average |
| 10.32 | 93 | 82.86% Pervious Area |
| 2.13 | 98 | 17.14% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 1.7 | 50 | 0.0020 | 0.49 | | **Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40" |
| 12.7 | 1,100 | 0.0080 | 1.44 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 14.4 | 1,150 | Total | | | |

## Summary for Subcatchment EX-3A: Subcat EX-3A

Runoff = 5.3 cfs @ 12.09 hrs, Volume= 0.425 af, Depth= 4.58"
Routed to Pond EX-P2B : Existing Basin

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.04"

| Area (ac) | CN | Description |
|---|---|---|
| 1.05 | 96 | Gravel surface, HSG C |
| 0.06 | 98 | Unconnected pavement, HSG C |
| 1.11 | 96 | Weighted Average |
| 1.05 | 96 | 94.90% Pervious Area |
| 0.06 | 98 | 5.10% Impervious Area |

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

## Summary for Subcatchment EX-3B: Subcat EX-3B

Runoff = 2.6 cfs @ 12.09 hrs, Volume= 0.217 af, Depth= 4.69"
Routed to Link DP3 : Lower Supply Basin (offsite)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.04"

| Area (ac) | CN | Description |
|---|---|---|
| 0.26 | 96 | Gravel surface, HSG C |
| 0.29 | 98 | Unconnected pavement, HSG C |
| 0.00 | 98 | Water Surface, HSG C |
| 0.55 | 97 | Weighted Average |
| 0.26 | 96 | 47.31% Pervious Area |
| 0.29 | 98 | 52.69% Impervious Area |

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

## Summary for Subcatchment EX-3C: Subcat EX-3C

Runoff = 3.6 cfs @ 12.09 hrs, Volume= 0.296 af, Depth= 4.73"
Routed to Pond EX-P2B : Existing Basin

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.04"

| Area (ac) | CN | Description |
|---|---|---|
| 0.25 | 96 | Gravel surface, HSG C |
| 0.03 | 98 | Roofs, HSG C |
| 0.47 | 98 | Unconnected pavement, HSG C |
| 0.00 | 98 | Water Surface, HSG C |
| 0.75 | 97 | Weighted Average |
| 0.25 | 96 | 33.70% Pervious Area |
| 0.50 | 98 | 66.30% Impervious Area |

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

## Summary for Subcatchment EX-3D: Subcat EX-3D

Runoff = 3.3 cfs @ 12.09 hrs, Volume= 0.271 af, Depth= 4.60"
Routed to Link DP3 : Lower Supply Basin (offsite)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.04"

| Area (ac) | CN | Description |
|---|---|---|
| 0.29 | 96 | Gravel surface, HSG C |
| 0.40 | 98 | Water Surface, HSG C |
| 0.02 | 72 | Woods/grass comb., Good, HSG C |
| 0.71 | 96 | Weighted Average |
| 0.31 | 94 | 43.78% Pervious Area |
| 0.40 | 98 | 56.22% Impervious Area |

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

## Summary for Subcatchment EX-3E: Subcat EX-3E

Runoff = 2.9 cfs @ 12.09 hrs, Volume= 0.223 af, Depth= 3.35"
Routed to Link DP3 : Lower Supply Basin (offsite)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.04"

| Area (ac) | CN | Description |
|---|---|---|
| 0.09 | 96 | Gravel surface, HSG C |
| 0.04 | 98 | Roofs, HSG C |
| 0.24 | 98 | Unconnected pavement, HSG C |
| 0.42 | 72 | Woods/grass comb., Good, HSG C |
| 0.80 | 84 | Weighted Average |
| 0.52 | 76 | 64.90% Pervious Area |
| 0.28 | 98 | 35.10% Impervious Area |

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

## Summary for Subcatchment EX-4A: Subcat EX-4A

Runoff = 13.8 cfs @ 12.09 hrs, Volume= 1.147 af, Depth= 4.77"
Routed to Link DP4 : Taunton River (offsite)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.04"

| Area (ac) | CN | Description |
|---|---|---|
| 0.03 | 74 | >75% Grass cover, Good, HSG C |
| 0.08 | 96 | Gravel surface, HSG C |
| 0.05 | 98 | Roofs, HSG C |
| 2.72 | 98 | Unconnected pavement, HSG C |
| 2.89 | 98 | Weighted Average |
| 0.12 | 90 | 4.00% Pervious Area |
| 2.77 | 98 | 96.00% Impervious Area |

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

## Summary for Subcatchment EX-4B: Subcat EX-4B

Runoff = 4.9 cfs @ 12.09 hrs, Volume= 0.365 af, Depth= 3.04"
Routed to Link DP4 : Taunton River (offsite)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.04"

| Area (ac) | CN | Description |
|---|---|---|
| 0.32 | 74 | >75% Grass cover, Good, HSG C |
| 0.24 | 96 | Gravel surface, HSG C |
| 0.00 | 98 | Roofs, HSG C |
| 0.25 | 98 | Unconnected pavement, HSG C |
| 0.63 | 72 | Woods/grass comb., Good, HSG C |
| 1.44 | 81 | Weighted Average |
| 1.18 | 77 | 82.17% Pervious Area |
| 0.26 | 98 | 17.83% Impervious Area |

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

## Summary for Subcatchment EX-4C: Subcat EX-4C

Runoff = 5.4 cfs @ 12.09 hrs, Volume= 0.449 af, Depth= 4.74"
Routed to Link DP4 : Taunton River (offsite)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.04"

| Area (ac) | CN | Description |
|---|---|---|
| 0.31 | 96 | Gravel surface, HSG C |
| 0.04 | 98 | Roofs, HSG C |
| 0.79 | 98 | Unconnected pavement, HSG C |
| 1.14 | 97 | Weighted Average |
| 0.31 | 96 | 27.02% Pervious Area |
| 0.83 | 98 | 72.98% Impervious Area |

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

## Summary for Subcatchment EX-4D: Subcat EX-4D

Runoff = 5.7 cfs @ 12.09 hrs, Volume= 0.461 af, Depth= 4.63"
Routed to Link DP4 : Taunton River (offsite)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.04"

| Area (ac) | CN | Description |
|---|---|---|
| 0.88 | 96 | Gravel surface, HSG C |
| 0.06 | 98 | Roofs, HSG C |
| 0.25 | 98 | Unconnected pavement, HSG C |
| 1.19 | 97 | Weighted Average |
| 0.88 | 96 | 74.09% Pervious Area |
| 0.31 | 98 | 25.91% Impervious Area |

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

## Summary for Pond EX-P1A: Existing Basin

Inflow Area = 8.12 ac, 0.00% Impervious, Inflow Depth = 3.41" for 10-year event
Inflow = 28.3 cfs @ 12.13 hrs, Volume= 2.305 af
Primary = 28.3 cfs @ 12.13 hrs, Volume= 2.305 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP1 : Taunton River

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Pond EX-P1B: Existing Basin

Inflow Area = 6.04 ac, 3.00% Impervious, Inflow Depth = 4.25" for 10-year event
Inflow = 25.8 cfs @ 12.11 hrs, Volume= 2.140 af
Primary = 25.8 cfs @ 12.11 hrs, Volume= 2.140 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP1 : Taunton River

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Pond EX-P2B: Existing Basin

Inflow Area = 14.32 ac, 18.78% Impervious, Inflow Depth = 4.37" for 10-year event
Inflow = 50.7 cfs @ 12.18 hrs, Volume= 5.218 af
Primary = 50.7 cfs @ 12.18 hrs, Volume= 5.218 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP3 : Lower Supply Basin (offsite)

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Link DP1: Taunton River

Inflow Area = 28.07 ac, 3.84% Impervious, Inflow Depth = 3.96" for 10-year event
Inflow = 113.8 cfs @ 12.10 hrs, Volume= 9.265 af
Primary = 113.8 cfs @ 12.10 hrs, Volume= 9.265 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP5 : Mount Hope Bay

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Link DP2: Existing Channel

Inflow Area = 4.52 ac, 0.00% Impervious, Inflow Depth = 2.40" for 10-year event
Inflow = 12.3 cfs @ 12.10 hrs, Volume= 0.903 af
Primary = 12.3 cfs @ 12.10 hrs, Volume= 0.903 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP5 : Mount Hope Bay

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Link DP3: Lower Supply Basin (offsite)

Inflow Area = 16.37 ac, 22.34% Impervious, Inflow Depth = 4.35" for 10-year event
Inflow = 57.2 cfs @ 12.16 hrs, Volume= 5.929 af
Primary = 57.2 cfs @ 12.16 hrs, Volume= 5.929 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Link DP4: Taunton River (offsite)

Inflow Area = 6.66 ac, 62.58% Impervious, Inflow Depth = 4.36" for 10-year event
Inflow = 29.8 cfs @ 12.09 hrs, Volume= 2.422 af
Primary = 29.8 cfs @ 12.09 hrs, Volume= 2.422 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP5 : Mount Hope Bay

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Link DP5: Mount Hope Bay

Inflow Area = 40.86 ac, 13.85% Impervious, Inflow Depth = 3.84" for 10-year event
Inflow = 161.9 cfs @ 12.10 hrs, Volume= 13.066 af
Primary = 161.9 cfs @ 12.10 hrs, Volume= 13.066 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment EX-1: Subcat EX-1** Runoff Area=3.47 ac 20.33% Impervious Runoff Depth=5.65"
Flow Length=395' Tc=6.0 min CN=79/98 Runoff=21.5 cfs 1.634 af

**Subcatchment EX-1A: Subcat EX-1A** Runoff Area=8.12 ac 0.00% Impervious Runoff Depth=5.89"
Flow Length=815' Tc=9.2 min CN=85/0 Runoff=47.7 cfs 3.984 af

**Subcatchment EX-1B: Subcat EX-1B** Runoff Area=6.04 ac 3.00% Impervious Runoff Depth=6.84"
Flow Length=778' Tc=8.3 min CN=93/98 Runoff=40.4 cfs 3.443 af

**Subcatchment EX-1C: Subcat EX-1C** Runoff Area=10.44 ac 1.83% Impervious Runoff Depth=7.07"
Flow Length=530' Tc=6.0 min CN=95/98 Runoff=75.6 cfs 6.148 af

**Subcatchment EX-2: Subcat EX-2** Runoff Area=1.61 ac 25.74% Impervious Runoff Depth=6.02"
Flow Length=225' Tc=6.0 min CN=82/98 Runoff=10.5 cfs 0.807 af

**Subcatchment EX-2A: Subcat EX-2A** Runoff Area=4.52 ac 0.00% Impervious Runoff Depth=4.62"
Flow Length=175' Tc=6.3 min CN=74/0 Runoff=23.8 cfs 1.741 af

**Subcatchment EX-2B: Subcat EX-2B** Runoff Area=12.45 ac 17.14% Impervious Runoff Depth=6.93"
Flow Length=1,150' Tc=14.4 min CN=93/98 Runoff=70.5 cfs 7.189 af

**Subcatchment EX-3A: Subcat EX-3A** Runoff Area=1.11 ac 5.10% Impervious Runoff Depth=7.19"
Tc=6.0 min CN=96/98 Runoff=8.1 cfs 0.666 af

**Subcatchment EX-3B: Subcat EX-3B** Runoff Area=0.55 ac 52.69% Impervious Runoff Depth=7.31"
Tc=6.0 min CN=96/98 Runoff=4.1 cfs 0.338 af

**Subcatchment EX-3C: Subcat EX-3C** Runoff Area=0.75 ac 66.30% Impervious Runoff Depth=7.34"
Tc=6.0 min CN=96/98 Runoff=5.5 cfs 0.459 af

**Subcatchment EX-3D: Subcat EX-3D** Runoff Area=0.71 ac 56.22% Impervious Runoff Depth=7.21"
Tc=6.0 min CN=94/98 Runoff=5.1 cfs 0.425 af

**Subcatchment EX-3E: Subcat EX-3E** Runoff Area=0.80 ac 35.10% Impervious Runoff Depth=5.75"
Tc=6.0 min CN=76/98 Runoff=4.9 cfs 0.382 af

**Subcatchment EX-4A: Subcat EX-4A** Runoff Area=2.89 ac 96.00% Impervious Runoff Depth=7.38"
Tc=6.0 min CN=90/98 Runoff=21.2 cfs 1.777 af

**Subcatchment EX-4B: Subcat EX-4B** Runoff Area=1.44 ac 17.83% Impervious Runoff Depth=5.40"
Tc=6.0 min CN=77/98 Runoff=8.6 cfs 0.649 af

**Subcatchment EX-4C: Subcat EX-4C** Runoff Area=1.14 ac 72.98% Impervious Runoff Depth=7.36"
Tc=6.0 min CN=96/98 Runoff=8.3 cfs 0.697 af

**Subcatchment EX-4D: Subcat EX-4D** Runoff Area=1.19 ac 25.91% Impervious Runoff Depth=7.24"
Tc=6.0 min CN=96/98 Runoff=8.7 cfs 0.721 af

**Pond EX-P1A: Existing Basin** Inflow=47.7 cfs 3.984 af
Primary=47.7 cfs 3.984 af

**Pond EX-P1B: Existing Basin** Inflow=40.4 cfs 3.443 af
Primary=40.4 cfs 3.443 af

**Pond EX-P2B: Existing Basin** Inflow=79.2 cfs 8.315 af
Primary=79.2 cfs 8.315 af

**Link DP1: Taunton River** Inflow=182.9 cfs 15.208 af
Primary=182.9 cfs 15.208 af

**Link DP2: Existing Channel** Inflow=23.8 cfs 1.741 af
Primary=23.8 cfs 1.741 af

**Link DP3: Lower Supply Basin (offsite)** Inflow=89.4 cfs 9.459 af
Primary=89.4 cfs 9.459 af

**Link DP4: Taunton River (offsite)** Inflow=46.8 cfs 3.843 af
Primary=46.8 cfs 3.843 af

**Link DP5: Mount Hope Bay** Inflow=263.5 cfs 21.600 af
Primary=263.5 cfs 21.600 af

**Total Runoff Area = 57.23 ac Runoff Volume = 31.059 af Average Runoff Depth = 6.51"**
**83.72% Pervious = 47.91 ac 16.28% Impervious = 9.32 ac**

## Summary for Subcatchment EX-1: Subcat EX-1

Runoff = 21.5 cfs @ 12.09 hrs, Volume= 1.634 af, Depth= 5.65"
Routed to Link DP1 : Taunton River

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.66"

| Area (ac) | CN | Description |
|---|---|---|
| 1.31 | 74 | >75% Grass cover, Good, HSG C |
| 0.74 | 96 | Gravel surface, HSG C |
| 0.71 | 98 | Water Surface, HSG C |
| 0.71 | 72 | Woods/grass comb., Good, HSG C |
| 3.47 | 83 | Weighted Average |
| 2.77 | 79 | 79.67% Pervious Area |
| 0.71 | 98 | 20.33% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 1.0 | 50 | 0.0080 | 0.86 | | **Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40" |
| 1.9 | 215 | 0.0140 | 1.90 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 0.4 | 130 | 0.1400 | 6.02 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 3.3 | 395 | Total, Increased to minimum Tc = 6.0 min | | | |

## Summary for Subcatchment EX-1A: Subcat EX-1A

Runoff = 47.7 cfs @ 12.13 hrs, Volume= 3.984 af, Depth= 5.89"
Routed to Pond EX-P1A : Existing Basin

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.66"

| Area (ac) | CN | Description |
|---|---|---|
| 3.47 | 74 | >75% Grass cover, Good, HSG C |
| 3.98 | 96 | Gravel surface, HSG C |
| 0.67 | 72 | Woods/grass comb., Good, HSG C |
| 8.12 | 85 | Weighted Average |
| 8.12 | 85 | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 1.3 | 50 | 0.0040 | 0.65 | | **Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40" |
| 7.9 | 765 | 0.0100 | 1.61 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 9.2 | 815 | Total | | | |

## Summary for Subcatchment EX-1B: Subcat EX-1B

Runoff = 40.4 cfs @ 12.11 hrs, Volume= 3.443 af, Depth= 6.84"
Routed to Pond EX-P1B : Existing Basin

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.66"

| Area (ac) | CN | Description |
|---|---|---|
| 0.86 | 74 | >75% Grass cover, Good, HSG C |
| 4.99 | 96 | Gravel surface, HSG C |
| 0.18 | 98 | Roofs, HSG C |
| 6.04 | 93 | Weighted Average |
| 5.86 | 93 | 97.00% Pervious Area |
| 0.18 | 98 | 3.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 1.7 | 50 | 0.0020 | 0.49 | | **Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40" |
| 6.6 | 728 | 0.0130 | 1.84 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 8.3 | 778 | Total | | | |

## Summary for Subcatchment EX-1C: Subcat EX-1C

Runoff = 75.6 cfs @ 12.09 hrs, Volume= 6.148 af, Depth= 7.07"
Routed to Link DP1 : Taunton River

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.66"

| Area (ac) | CN | Description |
|---|---|---|
| 0.50 | 74 | >75% Grass cover, Good, HSG C |
| 9.74 | 96 | Gravel surface, HSG C |
| 0.19 | 98 | Roofs, HSG C |
| 10.44 | 95 | Weighted Average |
| 10.24 | 95 | 98.17% Pervious Area |
| 0.19 | 98 | 1.83% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 0.9 | 50 | 0.0100 | 0.94 | | **Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40" |
| 4.4 | 480 | 0.0130 | 1.84 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 5.3 | 530 | Total, Increased to minimum Tc = 6.0 min | | | |

## Summary for Subcatchment EX-2: Subcat EX-2

Runoff = 10.5 cfs @ 12.09 hrs, Volume= 0.807 af, Depth= 6.02"
Routed to Link DP5 : Mount Hope Bay

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.66"

| Area (ac) | CN | Description |
|---|---|---|
| 0.14 | 74 | >75% Grass cover, Good, HSG C |
| 0.50 | 96 | Gravel surface, HSG C |
| 0.00 | 98 | Unconnected pavement, HSG C |
| 0.41 | 98 | Water Surface, HSG C |
| 0.56 | 72 | Woods/grass comb., Good, HSG C |
| 1.61 | 86 | Weighted Average |
| 1.19 | 82 | 74.26% Pervious Area |
| 0.41 | 98 | 25.74% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 0.4 | 50 | 0.1000 | 2.35 | | **Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40" |
| 0.7 | 175 | 0.0750 | 4.41 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 1.1 | 225 | Total, Increased to minimum Tc = 6.0 min | | | |

## Summary for Subcatchment EX-2A: Subcat EX-2A

Runoff = 23.8 cfs @ 12.10 hrs, Volume= 1.741 af, Depth= 4.62"
Routed to Link DP2 : Existing Channel

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.66"

| Area (ac) | CN | Description |
|---|---|---|
| 0.45 | 96 | Gravel surface, HSG C |
| 4.07 | 72 | Woods/grass comb., Good, HSG C |
| 4.52 | 74 | Weighted Average |
| 4.52 | 74 | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 0.3 | 25 | 0.0300 | 1.26 | | **Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40" |
| 5.8 | 25 | 0.0300 | 0.07 | | **Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40" |
| 0.2 | 125 | 0.2800 | 8.52 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 6.3 | 175 | Total | | | |

## Summary for Subcatchment EX-2B: Subcat EX-2B

Runoff = 70.5 cfs @ 12.19 hrs, Volume= 7.189 af, Depth= 6.93"
Routed to Pond EX-P2B : Existing Basin

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.66"

| Area (ac) | CN | Description |
|---|---|---|
| 0.38 | 74 | >75% Grass cover, Good, HSG C |
| 9.16 | 96 | Gravel surface, HSG C |
| 0.28 | 98 | Roofs, HSG C |
| 1.85 | 98 | Unconnected pavement, HSG C |
| 0.78 | 72 | Woods/grass comb., Good, HSG C |
| 12.45 | 94 | Weighted Average |
| 10.32 | 93 | 82.86% Pervious Area |
| 2.13 | 98 | 17.14% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 1.7 | 50 | 0.0020 | 0.49 | | **Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40" |
| 12.7 | 1,100 | 0.0080 | 1.44 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 14.4 | 1,150 | Total | | | |

## Summary for Subcatchment EX-3A: Subcat EX-3A

Runoff = 8.1 cfs @ 12.09 hrs, Volume= 0.666 af, Depth= 7.19"
Routed to Pond EX-P2B : Existing Basin

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.66"

| Area (ac) | CN | Description |
|---|---|---|
| 1.05 | 96 | Gravel surface, HSG C |
| 0.06 | 98 | Unconnected pavement, HSG C |
| 1.11 | 96 | Weighted Average |
| 1.05 | 96 | 94.90% Pervious Area |
| 0.06 | 98 | 5.10% Impervious Area |

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

## Summary for Subcatchment EX-3B: Subcat EX-3B

Runoff = 4.1 cfs @ 12.09 hrs, Volume= 0.338 af, Depth= 7.31"
Routed to Link DP3 : Lower Supply Basin (offsite)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.66"

| Area (ac) | CN | Description |
|---|---|---|
| 0.26 | 96 | Gravel surface, HSG C |
| 0.29 | 98 | Unconnected pavement, HSG C |
| 0.00 | 98 | Water Surface, HSG C |
| 0.55 | 97 | Weighted Average |
| 0.26 | 96 | 47.31% Pervious Area |
| 0.29 | 98 | 52.69% Impervious Area |

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

## Summary for Subcatchment EX-3C: Subcat EX-3C

Runoff = 5.5 cfs @ 12.09 hrs, Volume= 0.459 af, Depth= 7.34"
Routed to Pond EX-P2B : Existing Basin

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.66"

| Area (ac) | CN | Description |
|---|---|---|
| 0.25 | 96 | Gravel surface, HSG C |
| 0.03 | 98 | Roofs, HSG C |
| 0.47 | 98 | Unconnected pavement, HSG C |
| 0.00 | 98 | Water Surface, HSG C |
| 0.75 | 97 | Weighted Average |
| 0.25 | 96 | 33.70% Pervious Area |
| 0.50 | 98 | 66.30% Impervious Area |

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

## Summary for Subcatchment EX-3D: Subcat EX-3D

Runoff = 5.1 cfs @ 12.09 hrs, Volume= 0.425 af, Depth= 7.21"
Routed to Link DP3 : Lower Supply Basin (offsite)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.66"

| Area (ac) | CN | Description |
|---|---|---|
| 0.29 | 96 | Gravel surface, HSG C |
| 0.40 | 98 | Water Surface, HSG C |
| 0.02 | 72 | Woods/grass comb., Good, HSG C |
| 0.71 | 96 | Weighted Average |
| 0.31 | 94 | 43.78% Pervious Area |
| 0.40 | 98 | 56.22% Impervious Area |

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

## Summary for Subcatchment EX-3E: Subcat EX-3E

Runoff = 4.9 cfs @ 12.09 hrs, Volume= 0.382 af, Depth= 5.75"
Routed to Link DP3 : Lower Supply Basin (offsite)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.66"

| Area (ac) | CN | Description |
|---|---|---|
| 0.09 | 96 | Gravel surface, HSG C |
| 0.04 | 98 | Roofs, HSG C |
| 0.24 | 98 | Unconnected pavement, HSG C |
| 0.42 | 72 | Woods/grass comb., Good, HSG C |
| 0.80 | 84 | Weighted Average |
| 0.52 | 76 | 64.90% Pervious Area |
| 0.28 | 98 | 35.10% Impervious Area |

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

## Summary for Subcatchment EX-4A: Subcat EX-4A

Runoff = 21.2 cfs @ 12.09 hrs, Volume= 1.777 af, Depth= 7.38"
Routed to Link DP4 : Taunton River (offsite)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.66"

| Area (ac) | CN | Description |
|---|---|---|
| 0.03 | 74 | >75% Grass cover, Good, HSG C |
| 0.08 | 96 | Gravel surface, HSG C |
| 0.05 | 98 | Roofs, HSG C |
| 2.72 | 98 | Unconnected pavement, HSG C |
| 2.89 | 98 | Weighted Average |
| 0.12 | 90 | 4.00% Pervious Area |
| 2.77 | 98 | 96.00% Impervious Area |

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

## Summary for Subcatchment EX-4B: Subcat EX-4B

Runoff = 8.6 cfs @ 12.09 hrs, Volume= 0.649 af, Depth= 5.40"
Routed to Link DP4 : Taunton River (offsite)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.66"

| Area (ac) | CN | Description |
|---|---|---|
| 0.32 | 74 | >75% Grass cover, Good, HSG C |
| 0.24 | 96 | Gravel surface, HSG C |
| 0.00 | 98 | Roofs, HSG C |
| 0.25 | 98 | Unconnected pavement, HSG C |
| 0.63 | 72 | Woods/grass comb., Good, HSG C |
| 1.44 | 81 | Weighted Average |
| 1.18 | 77 | 82.17% Pervious Area |
| 0.26 | 98 | 17.83% Impervious Area |

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

## Summary for Subcatchment EX-4C: Subcat EX-4C

Runoff = 8.3 cfs @ 12.09 hrs, Volume= 0.697 af, Depth= 7.36"
Routed to Link DP4 : Taunton River (offsite)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.66"

| Area (ac) | CN | Description |
|---|---|---|
| 0.31 | 96 | Gravel surface, HSG C |
| 0.04 | 98 | Roofs, HSG C |
| 0.79 | 98 | Unconnected pavement, HSG C |
| 1.14 | 97 | Weighted Average |
| 0.31 | 96 | 27.02% Pervious Area |
| 0.83 | 98 | 72.98% Impervious Area |

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

## Summary for Subcatchment EX-4D: Subcat EX-4D

Runoff = 8.7 cfs @ 12.09 hrs, Volume= 0.721 af, Depth= 7.24"
Routed to Link DP4 : Taunton River (offsite)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.66"

| Area (ac) | CN | Description |
|---|---|---|
| 0.88 | 96 | Gravel surface, HSG C |
| 0.06 | 98 | Roofs, HSG C |
| 0.25 | 98 | Unconnected pavement, HSG C |
| 1.19 | 97 | Weighted Average |
| 0.88 | 96 | 74.09% Pervious Area |
| 0.31 | 98 | 25.91% Impervious Area |

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

## Summary for Pond EX-P1A: Existing Basin

Inflow Area = 8.12 ac, 0.00% Impervious, Inflow Depth = 5.89" for 100-year event
Inflow = 47.7 cfs @ 12.13 hrs, Volume= 3.984 af
Primary = 47.7 cfs @ 12.13 hrs, Volume= 3.984 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP1 : Taunton River

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Pond EX-P1B: Existing Basin

Inflow Area = 6.04 ac, 3.00% Impervious, Inflow Depth = 6.84" for 100-year event
Inflow = 40.4 cfs @ 12.11 hrs, Volume= 3.443 af
Primary = 40.4 cfs @ 12.11 hrs, Volume= 3.443 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP1 : Taunton River

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Pond EX-P2B: Existing Basin

Inflow Area = 14.32 ac, 18.78% Impervious, Inflow Depth = 6.97" for 100-year event
Inflow = 79.2 cfs @ 12.17 hrs, Volume= 8.315 af
Primary = 79.2 cfs @ 12.17 hrs, Volume= 8.315 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP3 : Lower Supply Basin (offsite)

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Link DP1: Taunton River

Inflow Area = 28.07 ac, 3.84% Impervious, Inflow Depth = 6.50" for 100-year event
Inflow = 182.9 cfs @ 12.10 hrs, Volume= 15.208 af
Primary = 182.9 cfs @ 12.10 hrs, Volume= 15.208 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP5 : Mount Hope Bay

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Link DP2: Existing Channel

Inflow Area = 4.52 ac, 0.00% Impervious, Inflow Depth = 4.62" for 100-year event
Inflow = 23.8 cfs @ 12.10 hrs, Volume= 1.741 af
Primary = 23.8 cfs @ 12.10 hrs, Volume= 1.741 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP5 : Mount Hope Bay

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Link DP3: Lower Supply Basin (offsite)

Inflow Area = 16.37 ac, 22.34% Impervious, Inflow Depth = 6.93" for 100-year event
Inflow = 89.4 cfs @ 12.16 hrs, Volume= 9.459 af
Primary = 89.4 cfs @ 12.16 hrs, Volume= 9.459 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Link DP4: Taunton River (offsite)

Inflow Area = 6.66 ac, 62.58% Impervious, Inflow Depth = 6.92" for 100-year event
Inflow = 46.8 cfs @ 12.09 hrs, Volume= 3.843 af
Primary = 46.8 cfs @ 12.09 hrs, Volume= 3.843 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP5 : Mount Hope Bay

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Link DP5: Mount Hope Bay

Inflow Area = 40.86 ac, 13.85% Impervious, Inflow Depth = 6.34" for 100-year event
Inflow = 263.5 cfs @ 12.10 hrs, Volume= 21.600 af
Primary = 263.5 cfs @ 12.10 hrs, Volume= 21.600 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment EX-1: Subcat EX-1** Runoff Area=3.47 ac 20.33% Impervious Runoff Depth=8.26"
Flow Length=395' Tc=6.0 min CN=79/98 Runoff=31.1 cfs 2.391 af

**Subcatchment EX-1A: Subcat EX-1A** Runoff Area=8.12 ac 0.00% Impervious Runoff Depth=8.55"
Flow Length=815' Tc=9.2 min CN=85/0 Runoff=68.0 cfs 5.784 af

**Subcatchment EX-1B: Subcat EX-1B** Runoff Area=6.04 ac 3.00% Impervious Runoff Depth=9.57"
Flow Length=778' Tc=8.3 min CN=93/98 Runoff=55.6 cfs 4.813 af

**Subcatchment EX-1C: Subcat EX-1C** Runoff Area=10.44 ac 1.83% Impervious Runoff Depth=9.80"
Flow Length=530' Tc=6.0 min CN=95/98 Runoff=103.4 cfs 8.523 af

**Subcatchment EX-2: Subcat EX-2** Runoff Area=1.61 ac 25.74% Impervious Runoff Depth=8.68"
Flow Length=225' Tc=6.0 min CN=82/98 Runoff=14.9 cfs 1.163 af

**Subcatchment EX-2A: Subcat EX-2A** Runoff Area=4.52 ac 0.00% Impervious Runoff Depth=7.12"
Flow Length=175' Tc=6.3 min CN=74/0 Runoff=36.2 cfs 2.681 af

**Subcatchment EX-2B: Subcat EX-2B** Runoff Area=12.45 ac 17.14% Impervious Runoff Depth=9.65"
Flow Length=1,150' Tc=14.4 min CN=93/98 Runoff=96.8 cfs 10.018 af

**Subcatchment EX-3A: Subcat EX-3A** Runoff Area=1.11 ac 5.10% Impervious Runoff Depth=9.93"
Tc=6.0 min CN=96/98 Runoff=11.0 cfs 0.920 af

**Subcatchment EX-3B: Subcat EX-3B** Runoff Area=0.55 ac 52.69% Impervious Runoff Depth=10.04"
Tc=6.0 min CN=96/98 Runoff=5.5 cfs 0.464 af

**Subcatchment EX-3C: Subcat EX-3C** Runoff Area=0.75 ac 66.30% Impervious Runoff Depth=10.08"
Tc=6.0 min CN=96/98 Runoff=7.5 cfs 0.630 af

**Subcatchment EX-3D: Subcat EX-3D** Runoff Area=0.71 ac 56.22% Impervious Runoff Depth=9.95"
Tc=6.0 min CN=94/98 Runoff=7.0 cfs 0.585 af

**Subcatchment EX-3E: Subcat EX-3E** Runoff Area=0.80 ac 35.10% Impervious Runoff Depth=8.36"
Tc=6.0 min CN=76/98 Runoff=7.1 cfs 0.555 af

**Subcatchment EX-4A: Subcat EX-4A** Runoff Area=2.89 ac 96.00% Impervious Runoff Depth=10.12"
Tc=6.0 min CN=90/98 Runoff=28.8 cfs 2.435 af

**Subcatchment EX-4B: Subcat EX-4B** Runoff Area=1.44 ac 17.83% Impervious Runoff Depth=7.99"
Tc=6.0 min CN=77/98 Runoff=12.6 cfs 0.959 af

**Subcatchment EX-4C: Subcat EX-4C** Runoff Area=1.14 ac 72.98% Impervious Runoff Depth=10.09"
Tc=6.0 min CN=96/98 Runoff=11.3 cfs 0.956 af

**Subcatchment EX-4D: Subcat EX-4D** Runoff Area=1.19 ac 25.91% Impervious Runoff Depth=9.98"
Tc=6.0 min CN=96/98 Runoff=11.9 cfs 0.993 af

**Pond EX-P1A: Existing Basin** Inflow=68.0 cfs 5.784 af
Primary=68.0 cfs 5.784 af

**Pond EX-P1B: Existing Basin** Inflow=55.6 cfs 4.813 af
Primary=55.6 cfs 4.813 af

**Pond EX-P2B: Existing Basin** Inflow=108.7 cfs 11.568 af
Primary=108.7 cfs 11.568 af

**Link DP1: Taunton River** Inflow=254.7 cfs 21.511 af
Primary=254.7 cfs 21.511 af

**Link DP2: Existing Channel** Inflow=36.2 cfs 2.681 af
Primary=36.2 cfs 2.681 af

**Link DP3: Lower Supply Basin (offsite)** Inflow=122.8 cfs 13.173 af
Primary=122.8 cfs 13.173 af

**Link DP4: Taunton River (offsite)** Inflow=64.6 cfs 5.344 af
Primary=64.6 cfs 5.344 af

**Link DP5: Mount Hope Bay** Inflow=369.7 cfs 30.699 af
Primary=369.7 cfs 30.699 af

**Total Runoff Area = 57.23 ac Runoff Volume = 43.872 af Average Runoff Depth = 9.20"**
**83.72% Pervious = 47.91 ac 16.28% Impervious = 9.32 ac**

## Summary for Subcatchment EX-1: Subcat EX-1

Runoff = 31.1 cfs @ 12.09 hrs, Volume= 2.391 af, Depth= 8.26"
Routed to Link DP1 : Taunton River

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2070 100-Year Rainfall=10.40"

| Area (ac) | CN | Description |
|---|---|---|
| 1.31 | 74 | >75% Grass cover, Good, HSG C |
| 0.74 | 96 | Gravel surface, HSG C |
| 0.71 | 98 | Water Surface, HSG C |
| 0.71 | 72 | Woods/grass comb., Good, HSG C |
| 3.47 | 83 | Weighted Average |
| 2.77 | 79 | 79.67% Pervious Area |
| 0.71 | 98 | 20.33% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 1.0 | 50 | 0.0080 | 0.86 | | **Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40" |
| 1.9 | 215 | 0.0140 | 1.90 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 0.4 | 130 | 0.1400 | 6.02 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 3.3 | 395 | Total, Increased to minimum Tc = 6.0 min | | | |

## Summary for Subcatchment EX-1A: Subcat EX-1A

Runoff = 68.0 cfs @ 12.13 hrs, Volume= 5.784 af, Depth= 8.55"
Routed to Pond EX-P1A : Existing Basin

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2070 100-Year Rainfall=10.40"

| Area (ac) | CN | Description |
|---|---|---|
| 3.47 | 74 | >75% Grass cover, Good, HSG C |
| 3.98 | 96 | Gravel surface, HSG C |
| 0.67 | 72 | Woods/grass comb., Good, HSG C |
| 8.12 | 85 | Weighted Average |
| 8.12 | 85 | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 1.3 | 50 | 0.0040 | 0.65 | | **Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40" |
| 7.9 | 765 | 0.0100 | 1.61 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 9.2 | 815 | Total | | | |

## Summary for Subcatchment EX-1B: Subcat EX-1B

Runoff = 55.6 cfs @ 12.11 hrs, Volume= 4.813 af, Depth= 9.57"
Routed to Pond EX-P1B : Existing Basin

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2070 100-Year Rainfall=10.40"

| Area (ac) | CN | Description |
|---|---|---|
| 0.86 | 74 | >75% Grass cover, Good, HSG C |
| 4.99 | 96 | Gravel surface, HSG C |
| 0.18 | 98 | Roofs, HSG C |
| 6.04 | 93 | Weighted Average |
| 5.86 | 93 | 97.00% Pervious Area |
| 0.18 | 98 | 3.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 1.7 | 50 | 0.0020 | 0.49 | | **Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40" |
| 6.6 | 728 | 0.0130 | 1.84 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 8.3 | 778 | Total | | | |

## Summary for Subcatchment EX-1C: Subcat EX-1C

Runoff = 103.4 cfs @ 12.09 hrs, Volume= 8.523 af, Depth= 9.80"
Routed to Link DP1 : Taunton River

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2070 100-Year Rainfall=10.40"

| Area (ac) | CN | Description |
|---|---|---|
| 0.50 | 74 | >75% Grass cover, Good, HSG C |
| 9.74 | 96 | Gravel surface, HSG C |
| 0.19 | 98 | Roofs, HSG C |
| 10.44 | 95 | Weighted Average |
| 10.24 | 95 | 98.17% Pervious Area |
| 0.19 | 98 | 1.83% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 0.9 | 50 | 0.0100 | 0.94 | | **Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40" |
| 4.4 | 480 | 0.0130 | 1.84 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 5.3 | 530 | Total, Increased to minimum Tc = 6.0 min | | | |

## Summary for Subcatchment EX-2: Subcat EX-2

Runoff = 14.9 cfs @ 12.09 hrs, Volume= 1.163 af, Depth= 8.68"
Routed to Link DP5 : Mount Hope Bay

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2070 100-Year Rainfall=10.40"

| Area (ac) | CN | Description |
|---|---|---|
| 0.14 | 74 | >75% Grass cover, Good, HSG C |
| 0.50 | 96 | Gravel surface, HSG C |
| 0.00 | 98 | Unconnected pavement, HSG C |
| 0.41 | 98 | Water Surface, HSG C |
| 0.56 | 72 | Woods/grass comb., Good, HSG C |
| 1.61 | 86 | Weighted Average |
| 1.19 | 82 | 74.26% Pervious Area |
| 0.41 | 98 | 25.74% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 0.4 | 50 | 0.1000 | 2.35 | | **Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40" |
| 0.7 | 175 | 0.0750 | 4.41 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 1.1 | 225 | Total, Increased to minimum Tc = 6.0 min | | | |

## Summary for Subcatchment EX-2A: Subcat EX-2A

Runoff = 36.2 cfs @ 12.09 hrs, Volume= 2.681 af, Depth= 7.12"
Routed to Link DP2 : Existing Channel

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2070 100-Year Rainfall=10.40"

| Area (ac) | CN | Description |
|---|---|---|
| 0.45 | 96 | Gravel surface, HSG C |
| 4.07 | 72 | Woods/grass comb., Good, HSG C |
| 4.52 | 74 | Weighted Average |
| 4.52 | 74 | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 0.3 | 25 | 0.0300 | 1.26 | | **Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40" |
| 5.8 | 25 | 0.0300 | 0.07 | | **Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40" |
| 0.2 | 125 | 0.2800 | 8.52 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 6.3 | 175 | Total | | | |

## Summary for Subcatchment EX-2B: Subcat EX-2B

Runoff = 96.8 cfs @ 12.19 hrs, Volume= 10.018 af, Depth= 9.65"
Routed to Pond EX-P2B : Existing Basin

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2070 100-Year Rainfall=10.40"

| Area (ac) | CN | Description |
|---|---|---|
| 0.38 | 74 | >75% Grass cover, Good, HSG C |
| 9.16 | 96 | Gravel surface, HSG C |
| 0.28 | 98 | Roofs, HSG C |
| 1.85 | 98 | Unconnected pavement, HSG C |
| 0.78 | 72 | Woods/grass comb., Good, HSG C |
| 12.45 | 94 | Weighted Average |
| 10.32 | 93 | 82.86% Pervious Area |
| 2.13 | 98 | 17.14% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 1.7 | 50 | 0.0020 | 0.49 | | **Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40" |
| 12.7 | 1,100 | 0.0080 | 1.44 | | **Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps |
| 14.4 | 1,150 | Total | | | |

## Summary for Subcatchment EX-3A: Subcat EX-3A

Runoff = 11.0 cfs @ 12.09 hrs, Volume= 0.920 af, Depth= 9.93"
Routed to Pond EX-P2B : Existing Basin

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2070 100-Year Rainfall=10.40"

| Area (ac) | CN | Description |
|---|---|---|
| 1.05 | 96 | Gravel surface, HSG C |
| 0.06 | 98 | Unconnected pavement, HSG C |
| 1.11 | 96 | Weighted Average |
| 1.05 | 96 | 94.90% Pervious Area |
| 0.06 | 98 | 5.10% Impervious Area |

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

## Summary for Subcatchment EX-3B: Subcat EX-3B

Runoff = 5.5 cfs @ 12.09 hrs, Volume= 0.464 af, Depth=10.04"
Routed to Link DP3 : Lower Supply Basin (offsite)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2070 100-Year Rainfall=10.40"

| Area (ac) | CN | Description |
|---|---|---|
| 0.26 | 96 | Gravel surface, HSG C |
| 0.29 | 98 | Unconnected pavement, HSG C |
| 0.00 | 98 | Water Surface, HSG C |
| 0.55 | 97 | Weighted Average |
| 0.26 | 96 | 47.31% Pervious Area |
| 0.29 | 98 | 52.69% Impervious Area |

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

## Summary for Subcatchment EX-3C: Subcat EX-3C

Runoff = 7.5 cfs @ 12.09 hrs, Volume= 0.630 af, Depth=10.08"
Routed to Pond EX-P2B : Existing Basin

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2070 100-Year Rainfall=10.40"

| Area (ac) | CN | Description |
|---|---|---|
| 0.25 | 96 | Gravel surface, HSG C |
| 0.03 | 98 | Roofs, HSG C |
| 0.47 | 98 | Unconnected pavement, HSG C |
| 0.00 | 98 | Water Surface, HSG C |
| 0.75 | 97 | Weighted Average |
| 0.25 | 96 | 33.70% Pervious Area |
| 0.50 | 98 | 66.30% Impervious Area |

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

## Summary for Subcatchment EX-3D: Subcat EX-3D

Runoff = 7.0 cfs @ 12.09 hrs, Volume= 0.585 af, Depth= 9.95"
Routed to Link DP3 : Lower Supply Basin (offsite)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2070 100-Year Rainfall=10.40"

| Area (ac) | CN | Description |
|---|---|---|
| 0.29 | 96 | Gravel surface, HSG C |
| 0.40 | 98 | Water Surface, HSG C |
| 0.02 | 72 | Woods/grass comb., Good, HSG C |
| 0.71 | 96 | Weighted Average |
| 0.31 | 94 | 43.78% Pervious Area |
| 0.40 | 98 | 56.22% Impervious Area |

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

## Summary for Subcatchment EX-3E: Subcat EX-3E

Runoff = 7.1 cfs @ 12.09 hrs, Volume= 0.555 af, Depth= 8.36"
Routed to Link DP3 : Lower Supply Basin (offsite)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2070 100-Year Rainfall=10.40"

| Area (ac) | CN | Description |
|---|---|---|
| 0.09 | 96 | Gravel surface, HSG C |
| 0.04 | 98 | Roofs, HSG C |
| 0.24 | 98 | Unconnected pavement, HSG C |
| 0.42 | 72 | Woods/grass comb., Good, HSG C |
| 0.80 | 84 | Weighted Average |
| 0.52 | 76 | 64.90% Pervious Area |
| 0.28 | 98 | 35.10% Impervious Area |

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

## Summary for Subcatchment EX-4A: Subcat EX-4A

Runoff = 28.8 cfs @ 12.09 hrs, Volume= 2.435 af, Depth=10.12"
Routed to Link DP4 : Taunton River (offsite)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2070 100-Year Rainfall=10.40"

| Area (ac) | CN | Description |
|---|---|---|
| 0.03 | 74 | >75% Grass cover, Good, HSG C |
| 0.08 | 96 | Gravel surface, HSG C |
| 0.05 | 98 | Roofs, HSG C |
| 2.72 | 98 | Unconnected pavement, HSG C |
| 2.89 | 98 | Weighted Average |
| 0.12 | 90 | 4.00% Pervious Area |
| 2.77 | 98 | 96.00% Impervious Area |

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

## Summary for Subcatchment EX-4B: Subcat EX-4B

Runoff = 12.6 cfs @ 12.09 hrs, Volume= 0.959 af, Depth= 7.99"
Routed to Link DP4 : Taunton River (offsite)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2070 100-Year Rainfall=10.40"

| Area (ac) | CN | Description |
|---|---|---|
| 0.32 | 74 | >75% Grass cover, Good, HSG C |
| 0.24 | 96 | Gravel surface, HSG C |
| 0.00 | 98 | Roofs, HSG C |
| 0.25 | 98 | Unconnected pavement, HSG C |
| 0.63 | 72 | Woods/grass comb., Good, HSG C |
| 1.44 | 81 | Weighted Average |
| 1.18 | 77 | 82.17% Pervious Area |
| 0.26 | 98 | 17.83% Impervious Area |

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

## Summary for Subcatchment EX-4C: Subcat EX-4C

Runoff = 11.3 cfs @ 12.09 hrs, Volume= 0.956 af, Depth=10.09"
Routed to Link DP4 : Taunton River (offsite)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2070 100-Year Rainfall=10.40"

| Area (ac) | CN | Description |
|---|---|---|
| 0.31 | 96 | Gravel surface, HSG C |
| 0.04 | 98 | Roofs, HSG C |
| 0.79 | 98 | Unconnected pavement, HSG C |
| 1.14 | 97 | Weighted Average |
| 0.31 | 96 | 27.02% Pervious Area |
| 0.83 | 98 | 72.98% Impervious Area |

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

## Summary for Subcatchment EX-4D: Subcat EX-4D

Runoff = 11.9 cfs @ 12.09 hrs, Volume= 0.993 af, Depth= 9.98"
Routed to Link DP4 : Taunton River (offsite)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2070 100-Year Rainfall=10.40"

| Area (ac) | CN | Description |
|---|---|---|
| 0.88 | 96 | Gravel surface, HSG C |
| 0.06 | 98 | Roofs, HSG C |
| 0.25 | 98 | Unconnected pavement, HSG C |
| 1.19 | 97 | Weighted Average |
| 0.88 | 96 | 74.09% Pervious Area |
| 0.31 | 98 | 25.91% Impervious Area |

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

## Summary for Pond EX-P1A: Existing Basin

Inflow Area = 8.12 ac, 0.00% Impervious, Inflow Depth = 8.55" for 2070 100-Year event
Inflow = 68.0 cfs @ 12.13 hrs, Volume= 5.784 af
Primary = 68.0 cfs @ 12.13 hrs, Volume= 5.784 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP1 : Taunton River

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Pond EX-P1B: Existing Basin

Inflow Area = 6.04 ac, 3.00% Impervious, Inflow Depth = 9.57" for 2070 100-Year event
Inflow = 55.6 cfs @ 12.11 hrs, Volume= 4.813 af
Primary = 55.6 cfs @ 12.11 hrs, Volume= 4.813 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP1 : Taunton River

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Pond EX-P2B: Existing Basin

Inflow Area = 14.32 ac, 18.78% Impervious, Inflow Depth = 9.70" for 2070 100-Year event
Inflow = 108.7 cfs @ 12.17 hrs, Volume= 11.568 af
Primary = 108.7 cfs @ 12.17 hrs, Volume= 11.568 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP3 : Lower Supply Basin (offsite)

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Link DP1: Taunton River

Inflow Area = 28.07 ac, 3.84% Impervious, Inflow Depth = 9.20" for 2070 100-Year event
Inflow = 254.7 cfs @ 12.10 hrs, Volume= 21.511 af
Primary = 254.7 cfs @ 12.10 hrs, Volume= 21.511 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP5 : Mount Hope Bay

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Link DP2: Existing Channel

Inflow Area = 4.52 ac, 0.00% Impervious, Inflow Depth = 7.12" for 2070 100-Year event
Inflow = 36.2 cfs @ 12.09 hrs, Volume= 2.681 af
Primary = 36.2 cfs @ 12.09 hrs, Volume= 2.681 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP5 : Mount Hope Bay

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Link DP3: Lower Supply Basin (offsite)

Inflow Area = 16.37 ac, 22.34% Impervious, Inflow Depth = 9.65" for 2070 100-Year event
Inflow = 122.8 cfs @ 12.16 hrs, Volume= 13.173 af
Primary = 122.8 cfs @ 12.16 hrs, Volume= 13.173 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Link DP4: Taunton River (offsite)

Inflow Area = 6.66 ac, 62.58% Impervious, Inflow Depth = 9.63" for 2070 100-Year event
Inflow = 64.6 cfs @ 12.09 hrs, Volume= 5.344 af
Primary = 64.6 cfs @ 12.09 hrs, Volume= 5.344 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP5 : Mount Hope Bay

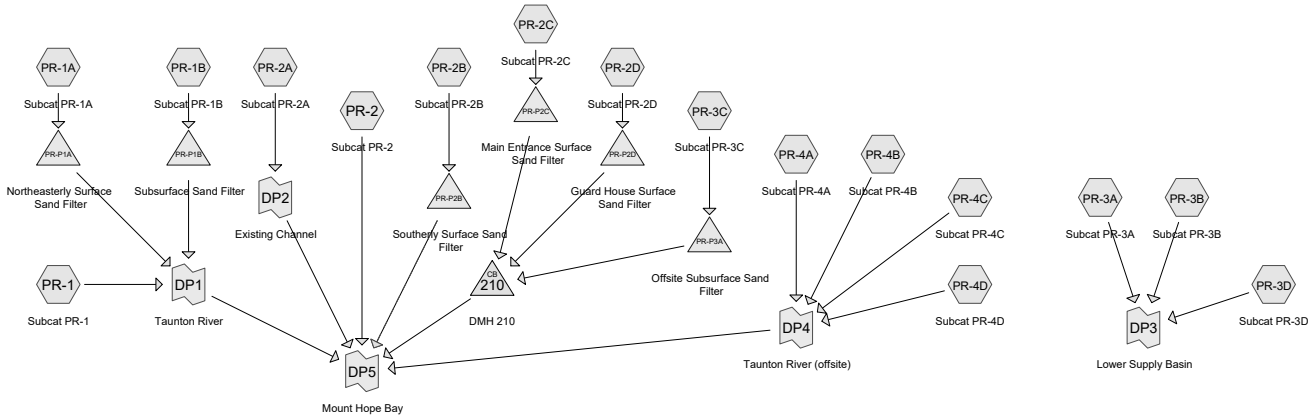
Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Link DP5: Mount Hope Bay

Inflow Area = 40.86 ac, 13.85% Impervious, Inflow Depth = 9.02" for 2070 100-Year event
Inflow = 369.7 cfs @ 12.10 hrs, Volume= 30.699 af
Primary = 369.7 cfs @ 12.10 hrs, Volume= 30.699 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

# HydroCAD Analysis: Proposed Conditions




Subcat Reach Pond Link

**Routing Diagram for 15542.00-PR**
Prepared by VHB, Printed 10/21/2022

## Rainfall Events Listing (selected events)

| Event# | Event Name | Storm Type | Curve | Mode | Duration (hours) | B/B | Depth (inches) | AMC |
|---|---|---|---|---|---|---|---|---|
| 1 | 2-year | Type III 24-hr | | Default | 24.00 | 1 | 3.40 | 2 |
| 2 | 10-year | Type III 24-hr | | Default | 24.00 | 1 | 5.04 | 2 |
| 3 | 100-year | Type III 24-hr | | Default | 24.00 | 1 | 7.66 | 2 |
| 4 | 2070 100-year | Type III 24-hr | | Default | 24.00 | 1 | 10.40 | 2 |

## Area Listing (all nodes)

| Area (acres) | CN | Description (subcatchment-numbers) |
|---|---|---|
| 11.09 | 74 | >75% Grass cover, Good, HSG C (PR-1, PR-1A, PR-1B, PR-2, PR-2A, PR-2B, PR-2C, PR-2D, PR-4A, PR-4B) |
| 6.10 | 96 | Gravel surface, HSG C (PR-1, PR-1A, PR-1B, PR-2, PR-2A, PR-2C, PR-2D, PR-3A, PR-3B, PR-3C, PR-3D, PR-4A, PR-4B, PR-4C, PR-4D) |
| 18.10 | 98 | Roofs, HSG C (PR-1A, PR-2B, PR-2D, PR-4A, PR-4B, PR-4C, PR-4D) |
| 13.54 | 98 | Unconnected pavement, HSG C (PR-1, PR-1A, PR-1B, PR-2B, PR-2C, PR-2D, PR-3B, PR-3C, PR-3D, PR-4A, PR-4B, PR-4C, PR-4D) |
| 1.12 | 98 | Water Surface, HSG C (PR-1, PR-2, PR-3B) |
| 6.96 | 72 | Woods/grass comb., Good, HSG C (PR-1, PR-2, PR-2A, PR-2B, PR-2C, PR-2D, PR-3D, PR-4B) |
| **56.92** | **90** | **TOTAL AREA** |

## Soil Listing (all nodes)

| Area (acres) | Soil Group | Subcatchment Numbers |
|---|---|---|
| 0.00 | HSG A | |
| 0.00 | HSG B | |
| 56.92 | HSG C | PR-1, PR-1A, PR-1B, PR-2, PR-2A, PR-2B, PR-2C, PR-2D, PR-3A, PR-3B, PR-3C, PR-3D, PR-4A, PR-4B, PR-4C, PR-4D |
| 0.00 | HSG D | |
| 0.00 | Other | |
| **56.92** | | **TOTAL AREA** |

## Ground Covers (all nodes)

| HSG-A (acres) | HSG-B (acres) | HSG-C (acres) | HSG-D (acres) | Other (acres) | Total (acres) | Ground Cover | Subcatchment Numbers |
|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 11.09 | 0.00 | 0.00 | 11.09 | >75% Grass cover, Good | PR-1, PR-1A, PR-1B, PR-2, PR-2A, PR-2B, PR-2C, PR-2D, PR-4A, PR-4B |
| 0.00 | 0.00 | 6.10 | 0.00 | 0.00 | 6.10 | Gravel surface | PR-1, PR-1A, PR-1B, PR-2, PR-2A, PR-2C, PR-2D, PR-3A, PR-3B, PR-3C, PR-3D, PR-4A, PR-4B, PR-4C, PR-4D |
| 0.00 | 0.00 | 18.10 | 0.00 | 0.00 | 18.10 | Roofs | PR-1A, PR-2B, PR-2D, PR-4A, PR-4B, PR-4C, PR-4D |
| 0.00 | 0.00 | 13.54 | 0.00 | 0.00 | 13.54 | Unconnected pavement | PR-1, PR-1A, PR-1B, PR-2B, PR-2C, PR-2D, PR-3B, PR-3C, PR-3D, PR-4A, PR-4B, PR-4C, PR-4D |
| 0.00 | 0.00 | 1.12 | 0.00 | 0.00 | 1.12 | Water Surface | PR-1, PR-2, PR-3B |
| 0.00 | 0.00 | 6.96 | 0.00 | 0.00 | 6.96 | Woods/grass comb., Good | PR-1, PR-2, PR-2A, PR-2B, PR-2C, PR-2D, PR-3D, PR-4B |

## Ground Covers (all nodes) (continued)

| HSG-A (acres) | HSG-B (acres) | HSG-C (acres) | HSG-D (acres) | Other (acres) | Total (acres) | Ground Cover | Subcatchment Numbers |
|---|---|---|---|---|---|---|---|
| **0.00** | **0.00** | **56.92** | **0.00** | **0.00** | **56.92** | **TOTAL AREA** | |

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment PR-1: Subcat PR-1** Runoff Area=3.02 ac 23.38% Impervious Runoff Depth=1.83"
Tc=6.0 min CN=78/98 Runoff=6.0 cfs 0.461 af

**Subcatchment PR-1A: Subcat PR-1A** Runoff Area=12.97 ac 83.74% Impervious Runoff Depth=2.84"
Tc=6.0 min CN=74/98 Runoff=37.7 cfs 3.071 af

**Subcatchment PR-1B: Subcat PR-1B** Runoff Area=1.07 ac 45.74% Impervious Runoff Depth=2.08"
Tc=6.0 min CN=74/98 Runoff=2.3 cfs 0.185 af

**Subcatchment PR-2: Subcat PR-2** Runoff Area=1.96 ac 21.04% Impervious Runoff Depth=1.79"
Tc=6.0 min CN=78/98 Runoff=3.8 cfs 0.293 af

**Subcatchment PR-2A: Subcat PR-2A** Runoff Area=4.60 ac 0.00% Impervious Runoff Depth=1.11"
Tc=6.0 min CN=73/0 Runoff=5.6 cfs 0.427 af

**Subcatchment PR-2B: Subcat PR-2B** Runoff Area=18.06 ac 78.04% Impervious Runoff Depth=2.73"
Tc=6.0 min CN=74/98 Runoff=50.6 cfs 4.107 af

**Subcatchment PR-2C: Subcat PR-2C** Runoff Area=3.34 ac 60.07% Impervious Runoff Depth=2.37"
Tc=6.0 min CN=74/98 Runoff=8.2 cfs 0.660 af

**Subcatchment PR-2D: Subcat PR-2D** Runoff Area=1.63 ac 16.21% Impervious Runoff Depth=1.88"
Tc=6.0 min CN=81/98 Runoff=3.4 cfs 0.255 af

**Subcatchment PR-3A: Subcat PR-3A** Runoff Area=1.03 ac 0.00% Impervious Runoff Depth=2.95"
Tc=6.0 min CN=96/0 Runoff=3.2 cfs 0.253 af

**Subcatchment PR-3B: Subcat PR-3B** Runoff Area=0.69 ac 55.07% Impervious Runoff Depth=3.07"
Tc=6.0 min CN=96/98 Runoff=2.2 cfs 0.176 af

**Subcatchment PR-3C: Subcat PR-3C** Runoff Area=1.04 ac 41.72% Impervious Runoff Depth=3.04"
Tc=6.0 min CN=96/98 Runoff=3.3 cfs 0.264 af

**Subcatchment PR-3D: Subcat PR-3D** Runoff Area=1.28 ac 0.56% Impervious Runoff Depth=2.18"
Tc=6.0 min CN=88/98 Runoff=3.2 cfs 0.232 af

**Subcatchment PR-4A: Subcat PR-4A** Runoff Area=2.42 ac 85.04% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=74/98 Runoff=7.1 cfs 0.579 af

**Subcatchment PR-4B: Subcat PR-4B** Runoff Area=1.44 ac 20.34% Impervious Runoff Depth=1.78"
Tc=6.0 min CN=78/98 Runoff=2.8 cfs 0.214 af

**Subcatchment PR-4C: Subcat PR-4C** Runoff Area=1.13 ac 63.59% Impervious Runoff Depth=3.09"
Tc=6.0 min CN=96/98 Runoff=3.6 cfs 0.291 af

**Subcatchment PR-4D: Subcat PR-4D** Runoff Area=1.23 ac 2.91% Impervious Runoff Depth=2.95"
Tc=6.0 min CN=96/98 Runoff=3.9 cfs 0.303 af

**Pond 210: DMH 210** Peak Elev=6.07' Inflow=9.6 cfs 1.179 af
30.0" Round Culvert n=0.012 L=175.0' S=0.0160 '/' Outflow=9.6 cfs 1.179 af

**Pond PR-P1A: Northeasterly Surface Sand** Peak Elev=19.48' Storage=64,095 cf Inflow=37.7 cfs 3.071 af
Outflow=12.5 cfs 3.071 af

**Pond PR-P1B: Subsurface Sand Filter** Peak Elev=11.61' Storage=1,681 cf Inflow=2.3 cfs 0.185 af
Outflow=2.3 cfs 0.185 af

**Pond PR-P2B: Southerly Surface Sand Filter** Peak Elev=16.05' Storage=76,441 cf Inflow=50.6 cfs 4.107 af
Primary=25.3 cfs 4.107 af Secondary=0.0 cfs 0.000 af Outflow=25.3 cfs 4.107 af

**Pond PR-P2C: Main Entrance Surface Sand** Peak Elev=16.36' Storage=10,446 cf Inflow=8.2 cfs 0.660 af
Outflow=5.4 cfs 0.660 af

**Pond PR-P2D: Guard House Surface Sand** Peak Elev=16.19' Storage=1,784 cf Inflow=3.4 cfs 0.255 af
Outflow=3.4 cfs 0.255 af

**Pond PR-P3A: Offsite Subsurface Sand Filter** Peak Elev=8.80' Storage=1,744 cf Inflow=3.3 cfs 0.264 af
Outflow=3.3 cfs 0.264 af

**Link DP1: Taunton River** Inflow=15.8 cfs 3.717 af
Primary=15.8 cfs 3.717 af

**Link DP2: Existing Channel** Inflow=5.6 cfs 0.427 af
Primary=5.6 cfs 0.427 af

**Link DP3: Lower Supply Basin** Inflow=8.6 cfs 0.661 af
Primary=8.6 cfs 0.661 af

**Link DP4: Taunton River (offsite)** Inflow=17.4 cfs 1.387 af
Primary=17.4 cfs 1.387 af

**Link DP5: Mount Hope Bay** Inflow=56.7 cfs 11.110 af
Primary=56.7 cfs 11.110 af

**Total Runoff Area = 56.92 ac Runoff Volume = 11.770 af Average Runoff Depth = 2.48"**
**42.44% Pervious = 24.15 ac 57.56% Impervious = 32.76 ac**

## Summary for Subcatchment PR-1: Subcat PR-1

Runoff = 6.0 cfs @ 12.09 hrs, Volume= 0.461 af, Depth= 1.83"
Routed to Link DP1 : Taunton River

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.40"

| Area (ac) | CN | Description |
|---|---|---|
| 1.19 | 74 | >75% Grass cover, Good, HSG C |
| 0.50 | 96 | Gravel surface, HSG C |
| 0.00 | 98 | Unconnected pavement, HSG C |
| 0.71 | 98 | Water Surface, HSG C |
| 0.63 | 72 | Woods/grass comb., Good, HSG C |
| 3.02 | 83 | Weighted Average |
| 2.31 | 78 | 76.62% Pervious Area |
| 0.71 | 98 | 23.38% Impervious Area |

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

## Summary for Subcatchment PR-1A: Subcat PR-1A

Runoff = 37.7 cfs @ 12.09 hrs, Volume= 3.071 af, Depth= 2.84"
Routed to Pond PR-P1A : Northeasterly Surface Sand Filter

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.40"

| Area (ac) | CN | Description |
|---|---|---|
| 2.11 | 74 | >75% Grass cover, Good, HSG C |
| 0.00 | 96 | Gravel surface, HSG C |
| 8.84 | 98 | Roofs, HSG C |
| 2.02 | 98 | Unconnected pavement, HSG C |
| 12.97 | 94 | Weighted Average |
| 2.11 | 74 | 16.26% Pervious Area |
| 10.86 | 98 | 83.74% Impervious Area |

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

## Summary for Subcatchment PR-1B: Subcat PR-1B

Runoff = 2.3 cfs @ 12.09 hrs, Volume= 0.185 af, Depth= 2.08"
Routed to Pond PR-P1B : Subsurface Sand Filter

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.40"

| Area (ac) | CN | Description |
|---|---|---|
| 0.58 | 74 | >75% Grass cover, Good, HSG C |
| 0.00 | 96 | Gravel surface, HSG C |
| 0.49 | 98 | Unconnected pavement, HSG C |
| 1.07 | 85 | Weighted Average |
| 0.58 | 74 | 54.26% Pervious Area |
| 0.49 | 98 | 45.74% Impervious Area |

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

## Summary for Subcatchment PR-2: Subcat PR-2

Runoff = 3.8 cfs @ 12.09 hrs, Volume= 0.293 af, Depth= 1.79"
Routed to Link DP5 : Mount Hope Bay

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.40"

| Area (ac) | CN | Description |
|---|---|---|
| 0.68 | 74 | >75% Grass cover, Good, HSG C |
| 0.31 | 96 | Gravel surface, HSG C |
| 0.41 | 98 | Water Surface, HSG C |
| 0.56 | 72 | Woods/grass comb., Good, HSG C |
| 1.96 | 82 | Weighted Average |
| 1.55 | 78 | 78.96% Pervious Area |
| 0.41 | 98 | 21.04% Impervious Area |

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

## Summary for Subcatchment PR-2A: Subcat PR-2A

Runoff = 5.6 cfs @ 12.10 hrs, Volume= 0.427 af, Depth= 1.11"
Routed to Link DP2 : Existing Channel

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.40"

| Area (ac) | CN | Description |
|---|---|---|
| 0.36 | 74 | >75% Grass cover, Good, HSG C |
| 0.21 | 96 | Gravel surface, HSG C |
| 4.03 | 72 | Woods/grass comb., Good, HSG C |
| 4.60 | 73 | Weighted Average |
| 4.60 | 73 | 100.00% Pervious Area |

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

## Summary for Subcatchment PR-2B: Subcat PR-2B

Runoff = 50.6 cfs @ 12.09 hrs, Volume= 4.107 af, Depth= 2.73"
Routed to Pond PR-P2B : Southerly Surface Sand Filter

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.40"

| Area (ac) | CN | Description |
|---|---|---|
| 3.81 | 74 | >75% Grass cover, Good, HSG C |
| 9.15 | 98 | Roofs, HSG C |
| 4.95 | 98 | Unconnected pavement, HSG C |
| 0.16 | 72 | Woods/grass comb., Good, HSG C |
| 18.06 | 93 | Weighted Average |
| 3.97 | 74 | 21.96% Pervious Area |
| 14.10 | 98 | 78.04% Impervious Area |

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

## Summary for Subcatchment PR-2C: Subcat PR-2C

Runoff = 8.2 cfs @ 12.09 hrs, Volume= 0.660 af, Depth= 2.37"
Routed to Pond PR-P2C : Main Entrance Surface Sand Filter

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.40"

| Area (ac) | CN | Description |
|---|---|---|
| 1.32 | 74 | >75% Grass cover, Good, HSG C |
| 0.00 | 96 | Gravel surface, HSG C |
| 2.01 | 98 | Unconnected pavement, HSG C |
| 0.02 | 72 | Woods/grass comb., Good, HSG C |
| 3.34 | 88 | Weighted Average |
| 1.33 | 74 | 39.93% Pervious Area |
| 2.01 | 98 | 60.07% Impervious Area |

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

## Summary for Subcatchment PR-2D: Subcat PR-2D

Runoff = 3.4 cfs @ 12.09 hrs, Volume= 0.255 af, Depth= 1.88"
Routed to Pond PR-P2D : Guard House Surface Sand Filter

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.40"

| Area (ac) | CN | Description |
|---|---|---|
| 0.38 | 74 | >75% Grass cover, Good, HSG C |
| 0.46 | 96 | Gravel surface, HSG C |
| 0.01 | 98 | Roofs, HSG C |
| 0.26 | 98 | Unconnected pavement, HSG C |
| 0.52 | 72 | Woods/grass comb., Good, HSG C |
| 1.63 | 83 | Weighted Average |
| 1.37 | 81 | 83.79% Pervious Area |
| 0.26 | 98 | 16.21% Impervious Area |

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

## Summary for Subcatchment PR-3A: Subcat PR-3A

Runoff = 3.2 cfs @ 12.09 hrs, Volume= 0.253 af, Depth= 2.95"
Routed to Link DP3 : Lower Supply Basin

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.40"

| Area (ac) | CN | Description |
|---|---|---|
| 1.03 | 96 | Gravel surface, HSG C |
| 1.03 | 96 | 100.00% Pervious Area |

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

## Summary for Subcatchment PR-3B: Subcat PR-3B

Runoff = 2.2 cfs @ 12.09 hrs, Volume= 0.176 af, Depth= 3.07"
Routed to Link DP3 : Lower Supply Basin

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.40"

| Area (ac) | CN | Description |
|---|---|---|
| 0.31 | 96 | Gravel surface, HSG C |
| 0.38 | 98 | Unconnected pavement, HSG C |
| 0.00 | 98 | Water Surface, HSG C |
| 0.69 | 97 | Weighted Average |
| 0.31 | 96 | 44.93% Pervious Area |
| 0.38 | 98 | 55.07% Impervious Area |

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

## Summary for Subcatchment PR-3C: Subcat PR-3C

Runoff = 3.3 cfs @ 12.09 hrs, Volume= 0.264 af, Depth= 3.04"
Routed to Pond PR-P3A : Offsite Subsurface Sand Filter

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.40"

| Area (ac) | CN | Description |
|---|---|---|
| 0.61 | 96 | Gravel surface, HSG C |
| 0.44 | 98 | Unconnected pavement, HSG C |
| 1.04 | 97 | Weighted Average |
| 0.61 | 96 | 58.28% Pervious Area |
| 0.44 | 98 | 41.72% Impervious Area |

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

## Summary for Subcatchment PR-3D: Subcat PR-3D

Runoff = 3.2 cfs @ 12.09 hrs, Volume= 0.232 af, Depth= 2.18"
Routed to Link DP3 : Lower Supply Basin

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.40"

| Area (ac) | CN | Description |
|---|---|---|
| 0.82 | 96 | Gravel surface, HSG C |
| 0.01 | 98 | Unconnected pavement, HSG C |
| 0.44 | 72 | Woods/grass comb., Good, HSG C |
| 1.28 | 88 | Weighted Average |
| 1.27 | 88 | 99.44% Pervious Area |
| 0.01 | 98 | 0.56% Impervious Area |

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

## Summary for Subcatchment PR-4A: Subcat PR-4A

Runoff = 7.1 cfs @ 12.09 hrs, Volume= 0.579 af, Depth= 2.87"
Routed to Link DP4 : Taunton River (offsite)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.40"

| Area (ac) | CN | Description |
|---|---|---|
| 0.36 | 74 | >75% Grass cover, Good, HSG C |
| 0.00 | 96 | Gravel surface, HSG C |
| 0.05 | 98 | Roofs, HSG C |
| 2.01 | 98 | Unconnected pavement, HSG C |
| 2.42 | 94 | Weighted Average |
| 0.36 | 74 | 14.96% Pervious Area |
| 2.06 | 98 | 85.04% Impervious Area |

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

## Summary for Subcatchment PR-4B: Subcat PR-4B

Runoff = 2.8 cfs @ 12.09 hrs, Volume= 0.214 af, Depth= 1.78"
Routed to Link DP4 : Taunton River (offsite)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.40"

| Area (ac) | CN | Description |
|---|---|---|
| 0.31 | 74 | >75% Grass cover, Good, HSG C |
| 0.25 | 96 | Gravel surface, HSG C |
| 0.00 | 98 | Roofs, HSG C |
| 0.29 | 98 | Unconnected pavement, HSG C |
| 0.59 | 72 | Woods/grass comb., Good, HSG C |
| 1.44 | 82 | Weighted Average |
| 1.15 | 78 | 79.66% Pervious Area |
| 0.29 | 98 | 20.34% Impervious Area |

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

## Summary for Subcatchment PR-4C: Subcat PR-4C

Runoff = 3.6 cfs @ 12.09 hrs, Volume= 0.291 af, Depth= 3.09"
Routed to Link DP4 : Taunton River (offsite)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.40"

| Area (ac) | CN | Description |
|---|---|---|
| 0.41 | 96 | Gravel surface, HSG C |
| 0.04 | 98 | Roofs, HSG C |
| 0.68 | 98 | Unconnected pavement, HSG C |
| 1.13 | 97 | Weighted Average |
| 0.41 | 96 | 36.41% Pervious Area |
| 0.72 | 98 | 63.59% Impervious Area |

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

## Summary for Subcatchment PR-4D: Subcat PR-4D

Runoff = 3.9 cfs @ 12.09 hrs, Volume= 0.303 af, Depth= 2.95"
Routed to Link DP4 : Taunton River (offsite)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.40"

| Area (ac) | CN | Description |
|---|---|---|
| 1.20 | 96 | Gravel surface, HSG C |
| 0.01 | 98 | Roofs, HSG C |
| 0.02 | 98 | Unconnected pavement, HSG C |
| 1.23 | 96 | Weighted Average |
| 1.20 | 96 | 97.09% Pervious Area |
| 0.04 | 98 | 2.91% Impervious Area |

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

## Summary for Pond 210: DMH 210

Inflow Area = 6.01 ac, 44.99% Impervious, Inflow Depth = 2.35" for 2-year event
Inflow = 9.6 cfs @ 12.20 hrs, Volume= 1.179 af
Outflow = 9.6 cfs @ 12.20 hrs, Volume= 1.179 af, Atten= 0%, Lag= 0.0 min
Primary = 9.6 cfs @ 12.20 hrs, Volume= 1.179 af
Routed to Link DP5 : Mount Hope Bay

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Peak Elev= 6.07' @ 12.20 hrs

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 4.80' | **30.0" Round Culvert**<br>L= 175.0' CPP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 4.80' / 2.00' S= 0.0160 '/' Cc= 0.900<br>n= 0.012, Flow Area= 4.91 sf |

**Primary OutFlow** Max=9.6 cfs @ 12.20 hrs HW=6.07' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 9.6 cfs @ 3.84 fps)

## Summary for Pond PR-P1A: Northeasterly Surface Sand Filter

Inflow Area = 12.97 ac, 83.74% Impervious, Inflow Depth = 2.84" for 2-year event
Inflow = 37.7 cfs @ 12.09 hrs, Volume= 3.071 af
Outflow = 12.5 cfs @ 12.38 hrs, Volume= 3.071 af, Atten= 67%, Lag= 17.8 min
Primary = 12.5 cfs @ 12.38 hrs, Volume= 3.071 af
Routed to Link DP1 : Taunton River

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 19.48' @ 12.38 hrs Surf.Area= 8,990 sf Storage= 64,095 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 867.1 min ( 1,629.2 - 762.1 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 13.00' | 7,192 cf | **Sand Filter (Irregular)**Listed below (Recalc)<br>17,980 cf Overall x 40.0% Voids |
| #2 | 15.00' | 128,738 cf | **Pond (Irregular)**Listed below (Recalc) -Impervious |
| | | 135,930 cf | Total Available Storage |

| Elevation (feet) | Surf.Area (sq-ft) | Perim. (feet) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) | Wet.Area (sq-ft) |
|---|---|---|---|---|---|
| 13.00 | 8,990 | 399.0 | 0 | 0 | 8,990 |
| 15.00 | 8,990 | 399.0 | 17,980 | 17,980 | 9,788 |

| Elevation (feet) | Surf.Area (sq-ft) | Perim. (feet) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) | Wet.Area (sq-ft) |
|---|---|---|---|---|---|
| 15.00 | 8,990 | 399.0 | 0 | 0 | 8,990 |
| 16.00 | 10,213 | 418.0 | 9,595 | 9,595 | 10,291 |
| 17.00 | 11,496 | 437.0 | 10,848 | 20,443 | 11,653 |
| 18.00 | 14,330 | 562.0 | 12,887 | 33,330 | 21,602 |
| 19.00 | 16,583 | 542.0 | 15,443 | 48,773 | 23,444 |
| 20.00 | 18,267 | 561.0 | 17,418 | 66,191 | 25,201 |
| 21.00 | 19,948 | 580.0 | 19,101 | 85,293 | 27,018 |
| 22.00 | 21,715 | 598.0 | 20,825 | 106,118 | 28,805 |
| 23.00 | 23,538 | 617.0 | 22,620 | 128,738 | 30,740 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 12.00' | **30.0" Round Culvert**<br>L= 890.0' CPP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 12.00' / 7.00' S= 0.0056 '/' Cc= 0.900<br>n= 0.012, Flow Area= 4.91 sf |
| #2 | Device 1 | 13.00' | **2.000 in/hr Exfiltration over Surface area** |
| #3 | Device 1 | 13.30' | **30.0" Round Culvert**<br>L= 93.0' CPP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 13.30' / 12.00' S= 0.0140 '/' Cc= 0.900<br>n= 0.012, Flow Area= 4.91 sf |
| #4 | Device 5 | 19.20' | **48.0" Horiz. Orifice/Grate X 2.00** C= 0.600<br>Limited to weir flow at low heads |
| #5 | Device 3 | 14.00' | **18.0" Round Culvert X 2.00**<br>L= 27.0' CPP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 14.00' / 13.80' S= 0.0074 '/' Cc= 0.900<br>n= 0.012, Flow Area= 1.77 sf |

**Primary OutFlow** Max=12.4 cfs @ 12.38 hrs HW=19.48' TW=0.00' (Dynamic Tailwater)
- **1=Culvert** (Passes 12.4 cfs of 42.6 cfs potential flow)
  - **2=Exfiltration** (Exfiltration Controls 0.4 cfs)
  - **3=Culvert** (Passes 12.0 cfs of 52.5 cfs potential flow)
    - **5=Culvert** (Passes 12.0 cfs of 37.0 cfs potential flow)
      - **4=Orifice/Grate** (Weir Controls 12.0 cfs @ 1.72 fps)

## Summary for Pond PR-P1B: Subsurface Sand Filter

Inflow Area = 1.07 ac, 45.74% Impervious, Inflow Depth = 2.08" for 2-year event
Inflow = 2.3 cfs @ 12.09 hrs, Volume= 0.185 af
Outflow = 2.3 cfs @ 12.11 hrs, Volume= 0.185 af, Atten= 2%, Lag= 1.1 min
Primary = 2.3 cfs @ 12.11 hrs, Volume= 0.185 af
Routed to Link DP1 : Taunton River

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 11.61' @ 12.11 hrs Surf.Area= 790 sf Storage= 1,681 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 197.1 min ( 983.7 - 786.6 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 12.30' | 9 cf | **2.00'D x 1.50'H Vertical Cone/Cylinder**x 2 |
| #2A | 8.30' | 474 cf | **13.79'W x 57.25'L x 4.17'H Field A**<br>3,290 cf Overall - 2,106 cf Embedded = 1,184 cf x 40.0% Voids |
| #3A | 9.80' | 1,332 cf | **StormTrap ST1 SingleTrap 2-0**x 8 Inside #2<br>Inside= 82.7"W x 24.0"H => 11.84 sf x 14.06'L = 166.5 cf<br>Outside= 82.7"W x 32.0"H => 18.39 sf x 14.06'L = 258.6 cf<br>8 Chambers in 2 Rows<br>13.79' x 56.25' Core + 0.00' x 0.50' Border = 13.79' x 57.25' System |
| | | 1,815 cf | Total Available Storage |

Storage Group A created with Chamber Wizard

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Device 2 | 8.30' | **2.000 in/hr Exfiltration over Surface area** |
| #2 | Primary | 7.80' | **18.0" Round Culvert**<br>L= 228.0' CPP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 7.80' / 6.90' S= 0.0039 '/' Cc= 0.900<br>n= 0.012, Flow Area= 1.77 sf |
| #3 | Device 2 | 11.30' | **4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) |

**Primary OutFlow** Max=2.2 cfs @ 12.11 hrs HW=11.61' TW=0.00' (Dynamic Tailwater)
└─**2=Culvert** (Passes 2.2 cfs of 11.3 cfs potential flow)
  ├─**1=Exfiltration** (Exfiltration Controls 0.0 cfs)
  └─**3=Sharp-Crested Rectangular Weir** (Weir Controls 2.2 cfs @ 1.81 fps)

## Summary for Pond PR-P2B: Southerly Surface Sand Filter

Inflow Area = 18.06 ac, 78.04% Impervious, Inflow Depth = 2.73" for 2-year event
Inflow = 50.6 cfs @ 12.09 hrs, Volume= 4.107 af
Outflow = 25.3 cfs @ 12.25 hrs, Volume= 4.107 af, Atten= 50%, Lag= 9.8 min
Primary = 25.3 cfs @ 12.25 hrs, Volume= 4.107 af
Routed to Link DP5 : Mount Hope Bay
Secondary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link DP5 : Mount Hope Bay

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 16.05' @ 12.25 hrs Surf.Area= 8,946 sf Storage= 76,441 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 787.8 min ( 1,552.6 - 764.9 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 10.50' | 5,368 cf | **Sand filter (Irregular)** Listed below (Recalc)<br>13,419 cf Overall x 40.0% Voids |
| #2 | 12.00' | 187,031 cf | **Pond (Irregular)** Listed below (Recalc) -Impervious |
| | | 192,399 cf | Total Available Storage |

| Elevation (feet) | Surf.Area (sq-ft) | Perim. (feet) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) | Wet.Area (sq-ft) |
|---|---|---|---|---|---|
| 10.50 | 8,946 | 353.0 | 0 | 0 | 8,946 |
| 12.00 | 8,946 | 353.0 | 13,419 | 13,419 | 9,476 |

| Elevation (feet) | Surf.Area (sq-ft) | Perim. (feet) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) | Wet.Area (sq-ft) |
|---|---|---|---|---|---|
| 12.00 | 8,946 | 353.0 | 0 | 0 | 8,946 |
| 13.00 | 15,516 | 457.0 | 12,081 | 12,081 | 15,662 |
| 14.00 | 16,915 | 476.0 | 16,210 | 28,292 | 17,148 |
| 15.00 | 21,436 | 663.0 | 19,131 | 47,423 | 34,107 |
| 16.00 | 23,469 | 583.0 | 22,445 | 69,867 | 42,063 |
| 17.00 | 32,735 | 667.0 | 27,974 | 97,841 | 50,442 |
| 18.00 | 27,680 | 497.0 | 30,172 | 128,013 | 66,200 |
| 19.00 | 29,500 | 616.0 | 28,585 | 156,599 | 76,754 |
| 20.00 | 31,375 | 635.0 | 30,433 | 187,031 | 78,747 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 8.90' | **30.0" Round Culvert**<br>L= 724.0' CPP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 8.90' / 5.70' S= 0.0044 '/' Cc= 0.900<br>n= 0.012, Flow Area= 4.91 sf |
| #2 | Device 1 | 10.50' | **2.000 in/hr Exfiltration over Horizontal area** |
| #3 | Secondary | 18.50' | **30.0' long x 55.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60<br>Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63 |
| #4 | Device 1 | 10.50' | **24.0" Round Culvert X 2.00**<br>L= 70.0' CPP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 10.50' / 8.90' S= 0.0229 '/' Cc= 0.900<br>n= 0.012, Flow Area= 3.14 sf |
| #5 | Device 4 | 15.60' | **48.0" Horiz. Orifice/Grate X 2.00** C= 0.600<br>Limited to weir flow at low heads |

**Primary OutFlow** Max=25.3 cfs @ 12.25 hrs HW=16.05' TW=0.00' (Dynamic Tailwater)
- **1=Culvert** (Passes 25.3 cfs of 41.1 cfs potential flow)
  - **2=Exfiltration** (Exfiltration Controls 0.4 cfs)
  - **4=Culvert** (Passes 24.9 cfs of 64.5 cfs potential flow)
    - **5=Orifice/Grate** (Weir Controls 24.9 cfs @ 2.20 fps)

**Secondary OutFlow** Max=0.0 cfs @ 0.00 hrs HW=10.50' TW=0.00' (Dynamic Tailwater)
- **3=Broad-Crested Rectangular Weir** ( Controls 0.0 cfs)

## Summary for Pond PR-P2C: Main Entrance Surface Sand Filter

Inflow Area = 3.34 ac, 60.07% Impervious, Inflow Depth = 2.37" for 2-year event
Inflow = 8.2 cfs @ 12.09 hrs, Volume= 0.660 af
Outflow = 5.4 cfs @ 12.22 hrs, Volume= 0.660 af, Atten= 34%, Lag= 7.6 min
Primary = 5.4 cfs @ 12.22 hrs, Volume= 0.660 af
Routed to Pond 210 : DMH 210

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 16.36' @ 12.22 hrs Surf.Area= 2,470 sf Storage= 10,446 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 485.7 min ( 1,261.2 - 775.5 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 12.00' | 1,976 cf | **Sand Filter (Irregular)** Listed below (Recalc)<br>4,940 cf Overall x 40.0% Voids |
| #2 | 14.00' | 15,635 cf | **Pond (Irregular)** Listed below (Recalc) -Impervious |
| | | 17,611 cf | Total Available Storage |

| Elevation (feet) | Surf.Area (sq-ft) | Perim. (feet) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) | Wet.Area (sq-ft) |
|---|---|---|---|---|---|
| 12.00 | 2,470 | 294.0 | 0 | 0 | 2,470 |
| 14.00 | 2,470 | 294.0 | 4,940 | 4,940 | 3,058 |

| Elevation (feet) | Surf.Area (sq-ft) | Perim. (feet) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) | Wet.Area (sq-ft) |
|---|---|---|---|---|---|
| 14.00 | 2,470 | 294.0 | 0 | 0 | 2,470 |
| 15.00 | 3,380 | 312.0 | 2,913 | 2,913 | 3,389 |
| 16.00 | 4,345 | 331.0 | 3,852 | 6,766 | 4,413 |
| 17.00 | 6,594 | 374.0 | 5,431 | 12,196 | 6,851 |
| 17.50 | 7,166 | 383.0 | 3,439 | 15,635 | 7,426 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 10.00' | **24.0" Round Culvert**<br>L= 155.0' CPP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 10.00' / 8.90' S= 0.0071 '/' Cc= 0.900<br>n= 0.012, Flow Area= 3.14 sf |
| #2 | Device 1 | 12.00' | **2.000 in/hr Exfiltration over Surface area** |
| #3 | Device 1 | 11.00' | **18.0" Round Culvert**<br>L= 75.0' CPP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 11.00' / 10.00' S= 0.0133 '/' Cc= 0.900<br>n= 0.012, Flow Area= 1.77 sf |
| #4 | Device 1 | 10.20' | **18.0" Round Culvert**<br>L= 13.0' CPP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 10.20' / 10.00' S= 0.0154 '/' Cc= 0.900<br>n= 0.012, Flow Area= 1.77 sf |
| #5 | Device 3 | 16.20' | **48.0" Horiz. Orifice/Grate** C= 0.600<br>Limited to weir flow at low heads |
| #6 | Device 4 | 16.20' | **48.0" Horiz. Orifice/Grate** C= 0.600<br>Limited to weir flow at low heads |

**Primary OutFlow** Max=5.0 cfs @ 12.22 hrs HW=16.35' TW=6.03' (Dynamic Tailwater)
- **1=Culvert** (Passes 5.0 cfs of 33.2 cfs potential flow)
  - **2=Exfiltration** (Exfiltration Controls 0.1 cfs)
  - **3=Culvert** (Passes 2.4 cfs of 18.3 cfs potential flow)
    - **5=Orifice/Grate** (Weir Controls 2.4 cfs @ 1.27 fps)
  - **4=Culvert** (Passes 2.4 cfs of 19.8 cfs potential flow)
    - **6=Orifice/Grate** (Weir Controls 2.4 cfs @ 1.27 fps)

## Summary for Pond PR-P2D: Guard House Surface Sand Filter

Inflow Area = 1.63 ac, 16.21% Impervious, Inflow Depth = 1.88" for 2-year event
Inflow = 3.4 cfs @ 12.09 hrs, Volume= 0.255 af
Outflow = 3.4 cfs @ 12.11 hrs, Volume= 0.255 af, Atten= 1%, Lag= 0.9 min
Primary = 3.4 cfs @ 12.11 hrs, Volume= 0.255 af
Routed to Pond 210 : DMH 210

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 16.19' @ 12.11 hrs Surf.Area= 267 sf Storage= 1,784 cf

Plug-Flow detention time= 249.6 min calculated for 0.255 af (100% of inflow)
Center-of-Mass det. time= 250.9 min ( 1,065.2 - 814.3 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 12.50' | 160 cf | **Sand Filter (Irregular)**Listed below (Recalc)<br>401 cf Overall x 40.0% Voids |
| #2 | 14.00' | 4,061 cf | **Pond (Irregular)**Listed below (Recalc) -Impervious |
| | | 4,221 cf | Total Available Storage |

| Elevation (feet) | Surf.Area (sq-ft) | Perim. (feet) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) | Wet.Area (sq-ft) |
|---|---|---|---|---|---|
| 12.50 | 267 | 99.0 | 0 | 0 | 267 |
| 14.00 | 267 | 99.0 | 401 | 401 | 416 |

| Elevation (feet) | Surf.Area (sq-ft) | Perim. (feet) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) | Wet.Area (sq-ft) |
|---|---|---|---|---|---|
| 14.00 | 267 | 99.0 | 0 | 0 | 267 |
| 15.00 | 591 | 117.0 | 418 | 418 | 595 |
| 16.00 | 1,345 | 188.0 | 943 | 1,361 | 2,325 |
| 17.00 | 1,961 | 201.0 | 1,643 | 3,004 | 2,772 |
| 17.50 | 2,270 | 211.0 | 1,057 | 4,061 | 3,115 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 9.30' | **15.0" Round Culvert**<br>L= 27.0' CPP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 9.30' / 8.90' S= 0.0148 '/' Cc= 0.900<br>n= 0.012, Flow Area= 1.23 sf |
| #2 | Device 1 | 12.50' | **2.000 in/hr Exfiltration over Surface area** |
| #3 | Device 1 | 16.00' | **48.0" Horiz. Orifice/Grate** C= 0.600<br>Limited to weir flow at low heads |

**Primary OutFlow** Max=3.3 cfs @ 12.11 hrs HW=16.19' TW=5.86' (Dynamic Tailwater)
└─**1=Culvert** (Passes 3.3 cfs of 14.8 cfs potential flow)
  ├─**2=Exfiltration** (Exfiltration Controls 0.0 cfs)
  └─**3=Orifice/Grate** (Weir Controls 3.3 cfs @ 1.41 fps)

## Summary for Pond PR-P3A: Offsite Subsurface Sand Filter

Inflow Area = 1.04 ac, 41.72% Impervious, Inflow Depth = 3.04" for 2-year event
Inflow = 3.3 cfs @ 12.09 hrs, Volume= 0.264 af
Outflow = 3.3 cfs @ 12.10 hrs, Volume= 0.264 af, Atten= 1%, Lag= 1.0 min
Primary = 3.3 cfs @ 12.10 hrs, Volume= 0.264 af
Routed to Pond 210 : DMH 210

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 8.80' @ 12.10 hrs Surf.Area= 790 sf Storage= 1,744 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 152.1 min ( 917.0 - 764.9 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 11.40' | 19 cf | **2.00'D x 3.00'H Vertical Cone/Cylinder** x 2 |
| #2A | 5.40' | 474 cf | **13.79'W x 57.25'L x 6.17'H Field A**<br>4,869 cf Overall - 3,685 cf Embedded = 1,184 cf x 40.0% Voids |
| #3A | 6.90' | 2,676 cf | **StormTrap ST1 SingleTrap 4-0** x 8 Inside #2<br>Inside= 82.7"W x 48.0"H => 23.79 sf x 14.06'L = 334.5 cf<br>Outside= 82.7"W x 56.0"H => 32.18 sf x 14.06'L = 452.5 cf<br>8 Chambers in 2 Rows<br>13.79' x 56.25' Core + 0.00' x 0.50' Border = 13.79' x 57.25' System |
| | | 3,169 cf | Total Available Storage |

Storage Group A created with Chamber Wizard

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Device 2 | 5.40' | **2.000 in/hr Exfiltration over Surface area** |
| #2 | Primary | 4.90' | **30.0" Round Culvert**<br>L= 11.0' CPP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 4.90' / 4.80' S= 0.0091 '/' Cc= 0.900<br>n= 0.012, Flow Area= 4.91 sf |
| #3 | Device 2 | 8.40' | **4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) |

**Primary OutFlow** Max=3.2 cfs @ 12.10 hrs HW=8.80' TW=5.85' (Dynamic Tailwater)
└─**2=Culvert** (Passes 3.2 cfs of 38.3 cfs potential flow)
  ├─**1=Exfiltration** (Exfiltration Controls 0.0 cfs)
  └─**3=Sharp-Crested Rectangular Weir** (Weir Controls 3.2 cfs @ 2.06 fps)

## Summary for Link DP1: Taunton River

Inflow Area = 17.05 ac, 70.67% Impervious, Inflow Depth = 2.62" for 2-year event
Inflow = 15.8 cfs @ 12.37 hrs, Volume= 3.717 af
Primary = 15.8 cfs @ 12.37 hrs, Volume= 3.717 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP5 : Mount Hope Bay

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Link DP2: Existing Channel

Inflow Area = 4.60 ac, 0.00% Impervious, Inflow Depth = 1.11" for 2-year event
Inflow = 5.6 cfs @ 12.10 hrs, Volume= 0.427 af
Primary = 5.6 cfs @ 12.10 hrs, Volume= 0.427 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP5 : Mount Hope Bay

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Link DP3: Lower Supply Basin

Inflow Area = 2.99 ac, 12.92% Impervious, Inflow Depth = 2.65" for 2-year event
Inflow = 8.6 cfs @ 12.09 hrs, Volume= 0.661 af
Primary = 8.6 cfs @ 12.09 hrs, Volume= 0.661 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Link DP4: Taunton River (offsite)

Inflow Area = 6.23 ac, 49.91% Impervious, Inflow Depth = 2.67" for 2-year event
Inflow = 17.4 cfs @ 12.09 hrs, Volume= 1.387 af
Primary = 17.4 cfs @ 12.09 hrs, Volume= 1.387 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP5 : Mount Hope Bay

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Link DP5: Mount Hope Bay

Inflow Area = 53.92 ac, 60.04% Impervious, Inflow Depth = 2.47" for 2-year event
Inflow = 56.7 cfs @ 12.28 hrs, Volume= 11.110 af
Primary = 56.7 cfs @ 12.28 hrs, Volume= 11.110 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment PR-1: Subcat PR-1** Runoff Area=3.02 ac 23.38% Impervious Runoff Depth=3.23"
Tc=6.0 min CN=78/98 Runoff=10.7 cfs 0.812 af

**Subcatchment PR-1A: Subcat PR-1A** Runoff Area=12.97 ac 83.74% Impervious Runoff Depth=4.41"
Tc=6.0 min CN=74/98 Runoff=58.0 cfs 4.767 af

**Subcatchment PR-1B: Subcat PR-1B** Runoff Area=1.07 ac 45.74% Impervious Runoff Depth=3.50"
Tc=6.0 min CN=74/98 Runoff=3.9 cfs 0.311 af

**Subcatchment PR-2: Subcat PR-2** Runoff Area=1.96 ac 21.04% Impervious Runoff Depth=3.18"
Tc=6.0 min CN=78/98 Runoff=6.9 cfs 0.520 af

**Subcatchment PR-2A: Subcat PR-2A** Runoff Area=4.60 ac 0.00% Impervious Runoff Depth=2.31"
Tc=6.0 min CN=73/0 Runoff=12.2 cfs 0.886 af

**Subcatchment PR-2B: Subcat PR-2B** Runoff Area=18.06 ac 78.04% Impervious Runoff Depth=4.27"
Tc=6.0 min CN=74/98 Runoff=78.7 cfs 6.434 af

**Subcatchment PR-2C: Subcat PR-2C** Runoff Area=3.34 ac 60.07% Impervious Runoff Depth=3.84"
Tc=6.0 min CN=74/98 Runoff=13.3 cfs 1.070 af

**Subcatchment PR-2D: Subcat PR-2D** Runoff Area=1.63 ac 16.21% Impervious Runoff Depth=3.31"
Tc=6.0 min CN=81/98 Runoff=6.0 cfs 0.450 af

**Subcatchment PR-3A: Subcat PR-3A** Runoff Area=1.03 ac 0.00% Impervious Runoff Depth=4.57"
Tc=6.0 min CN=96/0 Runoff=4.9 cfs 0.392 af

**Subcatchment PR-3B: Subcat PR-3B** Runoff Area=0.69 ac 55.07% Impervious Runoff Depth=4.70"
Tc=6.0 min CN=96/98 Runoff=3.3 cfs 0.270 af

**Subcatchment PR-3C: Subcat PR-3C** Runoff Area=1.04 ac 41.72% Impervious Runoff Depth=4.67"
Tc=6.0 min CN=96/98 Runoff=5.0 cfs 0.406 af

**Subcatchment PR-3D: Subcat PR-3D** Runoff Area=1.28 ac 0.56% Impervious Runoff Depth=3.71"
Tc=6.0 min CN=88/98 Runoff=5.3 cfs 0.395 af

**Subcatchment PR-4A: Subcat PR-4A** Runoff Area=2.42 ac 85.04% Impervious Runoff Depth=4.44"
Tc=6.0 min CN=74/98 Runoff=10.9 cfs 0.897 af

**Subcatchment PR-4B: Subcat PR-4B** Runoff Area=1.44 ac 20.34% Impervious Runoff Depth=3.16"
Tc=6.0 min CN=78/98 Runoff=5.0 cfs 0.381 af

**Subcatchment PR-4C: Subcat PR-4C** Runoff Area=1.13 ac 63.59% Impervious Runoff Depth=4.72"
Tc=6.0 min CN=96/98 Runoff=5.4 cfs 0.445 af

**Subcatchment PR-4D: Subcat PR-4D** Runoff Area=1.23 ac 2.91% Impervious Runoff Depth=4.58"
Tc=6.0 min CN=96/98 Runoff=5.8 cfs 0.470 af

**Pond 210: DMH 210** Peak Elev=7.05' Inflow=23.8 cfs 1.925 af
30.0" Round Culvert n=0.012 L=175.0' S=0.0160 '/' Outflow=23.8 cfs 1.925 af

**Pond PR-P1A: Northeasterly Surface Sand** Peak Elev=20.04' Storage=74,203 cf Inflow=58.0 cfs 4.767 af
Outflow=39.5 cfs 4.767 af

**Pond PR-P1B: Subsurface Sand Filter** Peak Elev=11.75' Storage=1,772 cf Inflow=3.9 cfs 0.311 af
Outflow=3.9 cfs 0.311 af

**Pond PR-P2B: Southerly Surface Sand Filter** Peak Elev=16.77' Storage=95,924 cf Inflow=78.7 cfs 6.434 af
Primary=42.9 cfs 6.435 af Secondary=0.0 cfs 0.000 af Outflow=42.9 cfs 6.435 af

**Pond PR-P2C: Main Entrance Surface Sand** Peak Elev=16.49' Storage=11,117 cf Inflow=13.3 cfs 1.070 af
Outflow=12.9 cfs 1.070 af

**Pond PR-P2D: Guard House Surface Sand** Peak Elev=16.28' Storage=1,914 cf Inflow=6.0 cfs 0.450 af
Outflow=6.0 cfs 0.450 af

**Pond PR-P3A: Offsite Subsurface Sand Filter** Peak Elev=8.93' Storage=1,831 cf Inflow=5.0 cfs 0.406 af
Outflow=4.9 cfs 0.406 af

**Link DP1: Taunton River** Inflow=54.5 cfs 5.890 af
Primary=54.5 cfs 5.890 af

**Link DP2: Existing Channel** Inflow=12.2 cfs 0.886 af
Primary=12.2 cfs 0.886 af

**Link DP3: Lower Supply Basin** Inflow=13.5 cfs 1.056 af
Primary=13.5 cfs 1.056 af

**Link DP4: Taunton River (offsite)** Inflow=27.2 cfs 2.192 af
Primary=27.2 cfs 2.192 af

**Link DP5: Mount Hope Bay** Inflow=165.8 cfs 17.849 af
Primary=165.8 cfs 17.849 af

**Total Runoff Area = 56.92 ac Runoff Volume = 18.905 af Average Runoff Depth = 3.99"**
**42.44% Pervious = 24.15 ac 57.56% Impervious = 32.76 ac**

## Summary for Subcatchment PR-1: Subcat PR-1

Runoff = 10.7 cfs @ 12.09 hrs, Volume= 0.812 af, Depth= 3.23"
Routed to Link DP1 : Taunton River

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.04"

| Area (ac) | CN | Description |
|---|---|---|
| 1.19 | 74 | >75% Grass cover, Good, HSG C |
| 0.50 | 96 | Gravel surface, HSG C |
| 0.00 | 98 | Unconnected pavement, HSG C |
| 0.71 | 98 | Water Surface, HSG C |
| 0.63 | 72 | Woods/grass comb., Good, HSG C |
| 3.02 | 83 | Weighted Average |
| 2.31 | 78 | 76.62% Pervious Area |
| 0.71 | 98 | 23.38% Impervious Area |

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

## Summary for Subcatchment PR-1A: Subcat PR-1A

Runoff = 58.0 cfs @ 12.09 hrs, Volume= 4.767 af, Depth= 4.41"
Routed to Pond PR-P1A : Northeasterly Surface Sand Filter

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.04"

| Area (ac) | CN | Description |
|---|---|---|
| 2.11 | 74 | >75% Grass cover, Good, HSG C |
| 0.00 | 96 | Gravel surface, HSG C |
| 8.84 | 98 | Roofs, HSG C |
| 2.02 | 98 | Unconnected pavement, HSG C |
| 12.97 | 94 | Weighted Average |
| 2.11 | 74 | 16.26% Pervious Area |
| 10.86 | 98 | 83.74% Impervious Area |

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

## Summary for Subcatchment PR-1B: Subcat PR-1B

Runoff = 3.9 cfs @ 12.09 hrs, Volume= 0.311 af, Depth= 3.50"
Routed to Pond PR-P1B : Subsurface Sand Filter

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.04"

| Area (ac) | CN | Description |
|---|---|---|
| 0.58 | 74 | >75% Grass cover, Good, HSG C |
| 0.00 | 96 | Gravel surface, HSG C |
| 0.49 | 98 | Unconnected pavement, HSG C |
| 1.07 | 85 | Weighted Average |
| 0.58 | 74 | 54.26% Pervious Area |
| 0.49 | 98 | 45.74% Impervious Area |

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

## Summary for Subcatchment PR-2: Subcat PR-2

Runoff = 6.9 cfs @ 12.09 hrs, Volume= 0.520 af, Depth= 3.18"
Routed to Link DP5 : Mount Hope Bay

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.04"

| Area (ac) | CN | Description |
|---|---|---|
| 0.68 | 74 | >75% Grass cover, Good, HSG C |
| 0.31 | 96 | Gravel surface, HSG C |
| 0.41 | 98 | Water Surface, HSG C |
| 0.56 | 72 | Woods/grass comb., Good, HSG C |
| 1.96 | 82 | Weighted Average |
| 1.55 | 78 | 78.96% Pervious Area |
| 0.41 | 98 | 21.04% Impervious Area |

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

## Summary for Subcatchment PR-2A: Subcat PR-2A

Runoff = 12.2 cfs @ 12.10 hrs, Volume= 0.886 af, Depth= 2.31"
Routed to Link DP2 : Existing Channel

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.04"

| Area (ac) | CN | Description |
|---|---|---|
| 0.36 | 74 | >75% Grass cover, Good, HSG C |
| 0.21 | 96 | Gravel surface, HSG C |
| 4.03 | 72 | Woods/grass comb., Good, HSG C |
| 4.60 | 73 | Weighted Average |
| 4.60 | 73 | 100.00% Pervious Area |

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

## Summary for Subcatchment PR-2B: Subcat PR-2B

Runoff = 78.7 cfs @ 12.09 hrs, Volume= 6.434 af, Depth= 4.27"
Routed to Pond PR-P2B : Southerly Surface Sand Filter

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.04"

| Area (ac) | CN | Description |
|---|---|---|
| 3.81 | 74 | >75% Grass cover, Good, HSG C |
| 9.15 | 98 | Roofs, HSG C |
| 4.95 | 98 | Unconnected pavement, HSG C |
| 0.16 | 72 | Woods/grass comb., Good, HSG C |
| 18.06 | 93 | Weighted Average |
| 3.97 | 74 | 21.96% Pervious Area |
| 14.10 | 98 | 78.04% Impervious Area |

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

## Summary for Subcatchment PR-2C: Subcat PR-2C

Runoff = 13.3 cfs @ 12.09 hrs, Volume= 1.070 af, Depth= 3.84"
Routed to Pond PR-P2C : Main Entrance Surface Sand Filter

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.04"

| Area (ac) | CN | Description |
|---|---|---|
| 1.32 | 74 | >75% Grass cover, Good, HSG C |
| 0.00 | 96 | Gravel surface, HSG C |
| 2.01 | 98 | Unconnected pavement, HSG C |
| 0.02 | 72 | Woods/grass comb., Good, HSG C |
| 3.34 | 88 | Weighted Average |
| 1.33 | 74 | 39.93% Pervious Area |
| 2.01 | 98 | 60.07% Impervious Area |

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

## Summary for Subcatchment PR-2D: Subcat PR-2D

Runoff = 6.0 cfs @ 12.09 hrs, Volume= 0.450 af, Depth= 3.31"
Routed to Pond PR-P2D : Guard House Surface Sand Filter

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.04"

| Area (ac) | CN | Description |
|---|---|---|
| 0.38 | 74 | >75% Grass cover, Good, HSG C |
| 0.46 | 96 | Gravel surface, HSG C |
| 0.01 | 98 | Roofs, HSG C |
| 0.26 | 98 | Unconnected pavement, HSG C |
| 0.52 | 72 | Woods/grass comb., Good, HSG C |
| 1.63 | 83 | Weighted Average |
| 1.37 | 81 | 83.79% Pervious Area |
| 0.26 | 98 | 16.21% Impervious Area |

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

## Summary for Subcatchment PR-3A: Subcat PR-3A

Runoff = 4.9 cfs @ 12.09 hrs, Volume= 0.392 af, Depth= 4.57"
Routed to Link DP3 : Lower Supply Basin

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.04"

| Area (ac) | CN | Description |
|---|---|---|
| 1.03 | 96 | Gravel surface, HSG C |
| 1.03 | 96 | 100.00% Pervious Area |

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

## Summary for Subcatchment PR-3B: Subcat PR-3B

Runoff = 3.3 cfs @ 12.09 hrs, Volume= 0.270 af, Depth= 4.70"
Routed to Link DP3 : Lower Supply Basin

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.04"

| Area (ac) | CN | Description |
|---|---|---|
| 0.31 | 96 | Gravel surface, HSG C |
| 0.38 | 98 | Unconnected pavement, HSG C |
| 0.00 | 98 | Water Surface, HSG C |
| 0.69 | 97 | Weighted Average |
| 0.31 | 96 | 44.93% Pervious Area |
| 0.38 | 98 | 55.07% Impervious Area |

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

## Summary for Subcatchment PR-3C: Subcat PR-3C

Runoff = 5.0 cfs @ 12.09 hrs, Volume= 0.406 af, Depth= 4.67"
Routed to Pond PR-P3A : Offsite Subsurface Sand Filter

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.04"

| Area (ac) | CN | Description |
|---|---|---|
| 0.61 | 96 | Gravel surface, HSG C |
| 0.44 | 98 | Unconnected pavement, HSG C |
| 1.04 | 97 | Weighted Average |
| 0.61 | 96 | 58.28% Pervious Area |
| 0.44 | 98 | 41.72% Impervious Area |

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

## Summary for Subcatchment PR-3D: Subcat PR-3D

Runoff = 5.3 cfs @ 12.09 hrs, Volume= 0.395 af, Depth= 3.71"
Routed to Link DP3 : Lower Supply Basin

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.04"

| Area (ac) | CN | Description |
|---|---|---|
| 0.82 | 96 | Gravel surface, HSG C |
| 0.01 | 98 | Unconnected pavement, HSG C |
| 0.44 | 72 | Woods/grass comb., Good, HSG C |
| 1.28 | 88 | Weighted Average |
| 1.27 | 88 | 99.44% Pervious Area |
| 0.01 | 98 | 0.56% Impervious Area |

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

## Summary for Subcatchment PR-4A: Subcat PR-4A

Runoff = 10.9 cfs @ 12.09 hrs, Volume= 0.897 af, Depth= 4.44"
Routed to Link DP4 : Taunton River (offsite)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.04"

| Area (ac) | CN | Description |
|---|---|---|
| 0.36 | 74 | >75% Grass cover, Good, HSG C |
| 0.00 | 96 | Gravel surface, HSG C |
| 0.05 | 98 | Roofs, HSG C |
| 2.01 | 98 | Unconnected pavement, HSG C |
| 2.42 | 94 | Weighted Average |
| 0.36 | 74 | 14.96% Pervious Area |
| 2.06 | 98 | 85.04% Impervious Area |

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

## Summary for Subcatchment PR-4B: Subcat PR-4B

Runoff = 5.0 cfs @ 12.09 hrs, Volume= 0.381 af, Depth= 3.16"
Routed to Link DP4 : Taunton River (offsite)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.04"

| Area (ac) | CN | Description |
|---|---|---|
| 0.31 | 74 | >75% Grass cover, Good, HSG C |
| 0.25 | 96 | Gravel surface, HSG C |
| 0.00 | 98 | Roofs, HSG C |
| 0.29 | 98 | Unconnected pavement, HSG C |
| 0.59 | 72 | Woods/grass comb., Good, HSG C |
| 1.44 | 82 | Weighted Average |
| 1.15 | 78 | 79.66% Pervious Area |
| 0.29 | 98 | 20.34% Impervious Area |

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

## Summary for Subcatchment PR-4C: Subcat PR-4C

Runoff = 5.4 cfs @ 12.09 hrs, Volume= 0.445 af, Depth= 4.72"
Routed to Link DP4 : Taunton River (offsite)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.04"

| Area (ac) | CN | Description |
|---|---|---|
| 0.41 | 96 | Gravel surface, HSG C |
| 0.04 | 98 | Roofs, HSG C |
| 0.68 | 98 | Unconnected pavement, HSG C |
| 1.13 | 97 | Weighted Average |
| 0.41 | 96 | 36.41% Pervious Area |
| 0.72 | 98 | 63.59% Impervious Area |

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

## Summary for Subcatchment PR-4D: Subcat PR-4D

Runoff = 5.8 cfs @ 12.09 hrs, Volume= 0.470 af, Depth= 4.58"
Routed to Link DP4 : Taunton River (offsite)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=5.04"

| Area (ac) | CN | Description |
|---|---|---|
| 1.20 | 96 | Gravel surface, HSG C |
| 0.01 | 98 | Roofs, HSG C |
| 0.02 | 98 | Unconnected pavement, HSG C |
| 1.23 | 96 | Weighted Average |
| 1.20 | 96 | 97.09% Pervious Area |
| 0.04 | 98 | 2.91% Impervious Area |

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

## Summary for Pond 210: DMH 210

Inflow Area = 6.01 ac, 44.99% Impervious, Inflow Depth = 3.84" for 10-year event
Inflow = 23.8 cfs @ 12.11 hrs, Volume= 1.925 af
Outflow = 23.8 cfs @ 12.11 hrs, Volume= 1.925 af, Atten= 0%, Lag= 0.0 min
Primary = 23.8 cfs @ 12.11 hrs, Volume= 1.925 af
Routed to Link DP5 : Mount Hope Bay

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Peak Elev= 7.05' @ 12.11 hrs

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 4.80' | **30.0" Round Culvert**<br>L= 175.0' CPP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 4.80' / 2.00' S= 0.0160 '/' Cc= 0.900<br>n= 0.012, Flow Area= 4.91 sf |

**Primary OutFlow** Max=23.4 cfs @ 12.11 hrs HW=7.02' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 23.4 cfs @ 5.07 fps)

## Summary for Pond PR-P1A: Northeasterly Surface Sand Filter

Inflow Area = 12.97 ac, 83.74% Impervious, Inflow Depth = 4.41" for 10-year event
Inflow = 58.0 cfs @ 12.09 hrs, Volume= 4.767 af
Outflow = 39.5 cfs @ 12.15 hrs, Volume= 4.767 af, Atten= 32%, Lag= 3.8 min
Primary = 39.5 cfs @ 12.15 hrs, Volume= 4.767 af
Routed to Link DP1 : Taunton River

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 20.04' @ 12.17 hrs Surf.Area= 8,990 sf Storage= 74,203 cf

Plug-Flow detention time= 578.3 min calculated for 4.763 af (100% of inflow)
Center-of-Mass det. time= 579.6 min ( 1,335.4 - 755.8 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 13.00' | 7,192 cf | **Sand Filter (Irregular)**Listed below (Recalc)<br>17,980 cf Overall x 40.0% Voids |
| #2 | 15.00' | 128,738 cf | **Pond (Irregular)**Listed below (Recalc) -Impervious |
| | | 135,930 cf | Total Available Storage |

| Elevation (feet) | Surf.Area (sq-ft) | Perim. (feet) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) | Wet.Area (sq-ft) |
|---|---|---|---|---|---|
| 13.00 | 8,990 | 399.0 | 0 | 0 | 8,990 |
| 15.00 | 8,990 | 399.0 | 17,980 | 17,980 | 9,788 |

| Elevation (feet) | Surf.Area (sq-ft) | Perim. (feet) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) | Wet.Area (sq-ft) |
|---|---|---|---|---|---|
| 15.00 | 8,990 | 399.0 | 0 | 0 | 8,990 |
| 16.00 | 10,213 | 418.0 | 9,595 | 9,595 | 10,291 |
| 17.00 | 11,496 | 437.0 | 10,848 | 20,443 | 11,653 |
| 18.00 | 14,330 | 562.0 | 12,887 | 33,330 | 21,602 |
| 19.00 | 16,583 | 542.0 | 15,443 | 48,773 | 23,444 |
| 20.00 | 18,267 | 561.0 | 17,418 | 66,191 | 25,201 |
| 21.00 | 19,948 | 580.0 | 19,101 | 85,293 | 27,018 |
| 22.00 | 21,715 | 598.0 | 20,825 | 106,118 | 28,805 |
| 23.00 | 23,538 | 617.0 | 22,620 | 128,738 | 30,740 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 12.00' | **30.0" Round Culvert**<br>L= 890.0' CPP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 12.00' / 7.00' S= 0.0056 '/' Cc= 0.900<br>n= 0.012, Flow Area= 4.91 sf |
| #2 | Device 1 | 13.00' | **2.000 in/hr Exfiltration over Surface area** |
| #3 | Device 1 | 13.30' | **30.0" Round Culvert**<br>L= 93.0' CPP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 13.30' / 12.00' S= 0.0140 '/' Cc= 0.900<br>n= 0.012, Flow Area= 4.91 sf |
| #4 | Device 5 | 19.20' | **48.0" Horiz. Orifice/Grate X 2.00** C= 0.600<br>Limited to weir flow at low heads |
| #5 | Device 3 | 14.00' | **18.0" Round Culvert X 2.00**<br>L= 27.0' CPP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 14.00' / 13.80' S= 0.0074 '/' Cc= 0.900<br>n= 0.012, Flow Area= 1.77 sf |

**Primary OutFlow** Max=39.5 cfs @ 12.15 hrs HW=20.03' TW=0.00' (Dynamic Tailwater)
- **1=Culvert** (Passes 39.5 cfs of 43.8 cfs potential flow)
  - **2=Exfiltration** (Exfiltration Controls 0.4 cfs)
  - **3=Culvert** (Passes 39.1 cfs of 55.3 cfs potential flow)
    - **5=Culvert** (Inlet Controls 39.1 cfs @ 11.06 fps)
      - **4=Orifice/Grate** (Passes 39.1 cfs of 62.1 cfs potential flow)

## Summary for Pond PR-P1B: Subsurface Sand Filter

Inflow Area = 1.07 ac, 45.74% Impervious, Inflow Depth = 3.50" for 10-year event
Inflow = 3.9 cfs @ 12.09 hrs, Volume= 0.311 af
Outflow = 3.9 cfs @ 12.11 hrs, Volume= 0.311 af, Atten= 1%, Lag= 0.9 min
Primary = 3.9 cfs @ 12.11 hrs, Volume= 0.311 af
Routed to Link DP1 : Taunton River

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 11.75' @ 12.11 hrs Surf.Area= 790 sf Storage= 1,772 cf

Plug-Flow detention time= 127.8 min calculated for 0.311 af (100% of inflow)
Center-of-Mass det. time= 128.2 min ( 909.3 - 781.0 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 12.30' | 9 cf | **2.00'D x 1.50'H Vertical Cone/Cylinder**x 2 |
| #2A | 8.30' | 474 cf | **13.79'W x 57.25'L x 4.17'H Field A**<br>3,290 cf Overall - 2,106 cf Embedded = 1,184 cf x 40.0% Voids |
| #3A | 9.80' | 1,332 cf | **StormTrap ST1 SingleTrap 2-0**x 8 Inside #2<br>Inside= 82.7"W x 24.0"H => 11.84 sf x 14.06'L = 166.5 cf<br>Outside= 82.7"W x 32.0"H => 18.39 sf x 14.06'L = 258.6 cf<br>8 Chambers in 2 Rows<br>13.79' x 56.25' Core + 0.00' x 0.50' Border = 13.79' x 57.25' System |
| | | 1,815 cf | Total Available Storage |

Storage Group A created with Chamber Wizard

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Device 2 | 8.30' | **2.000 in/hr Exfiltration over Surface area** |
| #2 | Primary | 7.80' | **18.0" Round Culvert**<br>L= 228.0' CPP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 7.80' / 6.90' S= 0.0039 '/' Cc= 0.900<br>n= 0.012, Flow Area= 1.77 sf |
| #3 | Device 2 | 11.30' | **4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) |

**Primary OutFlow** Max=3.8 cfs @ 12.11 hrs HW=11.75' TW=0.00' (Dynamic Tailwater)
└─**2=Culvert** (Passes 3.8 cfs of 11.5 cfs potential flow)
  ├─**1=Exfiltration** (Exfiltration Controls 0.0 cfs)
  └─**3=Sharp-Crested Rectangular Weir** (Weir Controls 3.8 cfs @ 2.18 fps)

## Summary for Pond PR-P2B: Southerly Surface Sand Filter

Inflow Area = 18.06 ac, 78.04% Impervious, Inflow Depth = 4.27" for 10-year event
Inflow = 78.7 cfs @ 12.09 hrs, Volume= 6.434 af
Outflow = 42.9 cfs @ 12.22 hrs, Volume= 6.435 af, Atten= 45%, Lag= 7.9 min
Primary = 42.9 cfs @ 12.22 hrs, Volume= 6.435 af
Routed to Link DP5 : Mount Hope Bay
Secondary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link DP5 : Mount Hope Bay

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 16.77' @ 12.22 hrs Surf.Area= 8,946 sf Storage= 95,924 cf

Plug-Flow detention time= 522.5 min calculated for 6.430 af (100% of inflow)
Center-of-Mass det. time= 524.0 min ( 1,282.9 - 758.9 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 10.50' | 5,368 cf | **Sand filter (Irregular)** Listed below (Recalc)<br>13,419 cf Overall x 40.0% Voids |
| #2 | 12.00' | 187,031 cf | **Pond (Irregular)** Listed below (Recalc) -Impervious |
| | | 192,399 cf | Total Available Storage |

| Elevation (feet) | Surf.Area (sq-ft) | Perim. (feet) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) | Wet.Area (sq-ft) |
|---|---|---|---|---|---|
| 10.50 | 8,946 | 353.0 | 0 | 0 | 8,946 |
| 12.00 | 8,946 | 353.0 | 13,419 | 13,419 | 9,476 |

| Elevation (feet) | Surf.Area (sq-ft) | Perim. (feet) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) | Wet.Area (sq-ft) |
|---|---|---|---|---|---|
| 12.00 | 8,946 | 353.0 | 0 | 0 | 8,946 |
| 13.00 | 15,516 | 457.0 | 12,081 | 12,081 | 15,662 |
| 14.00 | 16,915 | 476.0 | 16,210 | 28,292 | 17,148 |
| 15.00 | 21,436 | 663.0 | 19,131 | 47,423 | 34,107 |
| 16.00 | 23,469 | 583.0 | 22,445 | 69,867 | 42,063 |
| 17.00 | 32,735 | 667.0 | 27,974 | 97,841 | 50,442 |
| 18.00 | 27,680 | 497.0 | 30,172 | 128,013 | 66,200 |
| 19.00 | 29,500 | 616.0 | 28,585 | 156,599 | 76,754 |
| 20.00 | 31,375 | 635.0 | 30,433 | 187,031 | 78,747 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 8.90' | **30.0" Round Culvert**<br>L= 724.0' CPP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 8.90' / 5.70' S= 0.0044 '/' Cc= 0.900<br>n= 0.012, Flow Area= 4.91 sf |
| #2 | Device 1 | 10.50' | **2.000 in/hr Exfiltration over Horizontal area** |
| #3 | Secondary | 18.50' | **30.0' long x 55.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60<br>Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63 |
| #4 | Device 1 | 10.50' | **24.0" Round Culvert X 2.00**<br>L= 70.0' CPP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 10.50' / 8.90' S= 0.0229 '/' Cc= 0.900<br>n= 0.012, Flow Area= 3.14 sf |
| #5 | Device 4 | 15.60' | **48.0" Horiz. Orifice/Grate X 2.00** C= 0.600<br>Limited to weir flow at low heads |

**Primary OutFlow** Max=42.9 cfs @ 12.22 hrs HW=16.76' TW=0.00' (Dynamic Tailwater)
- **1=Culvert** (Barrel Controls 42.9 cfs @ 8.74 fps)
  - **2=Exfiltration** (Passes < 0.4 cfs potential flow)
  - **4=Culvert** (Passes < 69.4 cfs potential flow)
    - **5=Orifice/Grate** (Passes < 102.8 cfs potential flow)

**Secondary OutFlow** Max=0.0 cfs @ 0.00 hrs HW=10.50' TW=0.00' (Dynamic Tailwater)
- **3=Broad-Crested Rectangular Weir** ( Controls 0.0 cfs)

## Summary for Pond PR-P2C: Main Entrance Surface Sand Filter

Inflow Area = 3.34 ac, 60.07% Impervious, Inflow Depth = 3.84" for 10-year event
Inflow = 13.3 cfs @ 12.09 hrs, Volume= 1.070 af
Outflow = 12.9 cfs @ 12.11 hrs, Volume= 1.070 af, Atten= 3%, Lag= 1.3 min
Primary = 12.9 cfs @ 12.11 hrs, Volume= 1.070 af
Routed to Pond 210 : DMH 210

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 16.49' @ 12.11 hrs Surf.Area= 2,470 sf Storage= 11,117 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 315.5 min ( 1,085.6 - 770.1 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 12.00' | 1,976 cf | **Sand Filter (Irregular)** Listed below (Recalc)<br>4,940 cf Overall x 40.0% Voids |
| #2 | 14.00' | 15,635 cf | **Pond (Irregular)** Listed below (Recalc) -Impervious |
| | | 17,611 cf | Total Available Storage |

| Elevation (feet) | Surf.Area (sq-ft) | Perim. (feet) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) | Wet.Area (sq-ft) |
|---|---|---|---|---|---|
| 12.00 | 2,470 | 294.0 | 0 | 0 | 2,470 |
| 14.00 | 2,470 | 294.0 | 4,940 | 4,940 | 3,058 |

| Elevation (feet) | Surf.Area (sq-ft) | Perim. (feet) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) | Wet.Area (sq-ft) |
|---|---|---|---|---|---|
| 14.00 | 2,470 | 294.0 | 0 | 0 | 2,470 |
| 15.00 | 3,380 | 312.0 | 2,913 | 2,913 | 3,389 |
| 16.00 | 4,345 | 331.0 | 3,852 | 6,766 | 4,413 |
| 17.00 | 6,594 | 374.0 | 5,431 | 12,196 | 6,851 |
| 17.50 | 7,166 | 383.0 | 3,439 | 15,635 | 7,426 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 10.00' | **24.0" Round Culvert**<br>L= 155.0' CPP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 10.00' / 8.90' S= 0.0071 '/' Cc= 0.900<br>n= 0.012, Flow Area= 3.14 sf |
| #2 | Device 1 | 12.00' | **2.000 in/hr Exfiltration over Surface area** |
| #3 | Device 1 | 11.00' | **18.0" Round Culvert**<br>L= 75.0' CPP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 11.00' / 10.00' S= 0.0133 '/' Cc= 0.900<br>n= 0.012, Flow Area= 1.77 sf |
| #4 | Device 1 | 10.20' | **18.0" Round Culvert**<br>L= 13.0' CPP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 10.20' / 10.00' S= 0.0154 '/' Cc= 0.900<br>n= 0.012, Flow Area= 1.77 sf |
| #5 | Device 3 | 16.20' | **48.0" Horiz. Orifice/Grate** C= 0.600<br>Limited to weir flow at low heads |
| #6 | Device 4 | 16.20' | **48.0" Horiz. Orifice/Grate** C= 0.600<br>Limited to weir flow at low heads |

**Primary OutFlow** Max=12.6 cfs @ 12.11 hrs HW=16.48' TW=7.01' (Dynamic Tailwater)
- **1=Culvert** (Passes 12.6 cfs of 33.6 cfs potential flow)
  - **2=Exfiltration** (Exfiltration Controls 0.1 cfs)
  - **3=Culvert** (Passes 6.2 cfs of 18.5 cfs potential flow)
    - **5=Orifice/Grate** (Weir Controls 6.2 cfs @ 1.74 fps)
  - **4=Culvert** (Passes 6.2 cfs of 20.0 cfs potential flow)
    - **6=Orifice/Grate** (Weir Controls 6.2 cfs @ 1.74 fps)

## Summary for Pond PR-P2D: Guard House Surface Sand Filter

Inflow Area = 1.63 ac, 16.21% Impervious, Inflow Depth = 3.31" for 10-year event
Inflow = 6.0 cfs @ 12.09 hrs, Volume= 0.450 af
Outflow = 6.0 cfs @ 12.10 hrs, Volume= 0.450 af, Atten= 1%, Lag= 0.8 min
Primary = 6.0 cfs @ 12.10 hrs, Volume= 0.450 af
Routed to Pond 210 : DMH 210

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 16.28' @ 12.10 hrs Surf.Area= 267 sf Storage= 1,914 cf

Plug-Flow detention time= 148.0 min calculated for 0.450 af (100% of inflow)
Center-of-Mass det. time= 149.3 min ( 951.4 - 802.1 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 12.50' | 160 cf | **Sand Filter (Irregular)**Listed below (Recalc)<br>401 cf Overall x 40.0% Voids |
| #2 | 14.00' | 4,061 cf | **Pond (Irregular)**Listed below (Recalc) -Impervious |
| | | 4,221 cf | Total Available Storage |

| Elevation (feet) | Surf.Area (sq-ft) | Perim. (feet) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) | Wet.Area (sq-ft) |
|---|---|---|---|---|---|
| 12.50 | 267 | 99.0 | 0 | 0 | 267 |
| 14.00 | 267 | 99.0 | 401 | 401 | 416 |

| Elevation (feet) | Surf.Area (sq-ft) | Perim. (feet) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) | Wet.Area (sq-ft) |
|---|---|---|---|---|---|
| 14.00 | 267 | 99.0 | 0 | 0 | 267 |
| 15.00 | 591 | 117.0 | 418 | 418 | 595 |
| 16.00 | 1,345 | 188.0 | 943 | 1,361 | 2,325 |
| 17.00 | 1,961 | 201.0 | 1,643 | 3,004 | 2,772 |
| 17.50 | 2,270 | 211.0 | 1,057 | 4,061 | 3,115 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 9.30' | **15.0" Round Culvert**<br>L= 27.0' CPP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 9.30' / 8.90' S= 0.0148 '/' Cc= 0.900<br>n= 0.012, Flow Area= 1.23 sf |
| #2 | Device 1 | 12.50' | **2.000 in/hr Exfiltration over Surface area** |
| #3 | Device 1 | 16.00' | **48.0" Horiz. Orifice/Grate** C= 0.600<br>Limited to weir flow at low heads |

**Primary OutFlow** Max=5.9 cfs @ 12.10 hrs HW=16.27' TW=7.03' (Dynamic Tailwater)
└─**1=Culvert** (Passes 5.9 cfs of 14.9 cfs potential flow)
  ├─**2=Exfiltration** (Exfiltration Controls 0.0 cfs)
  └─**3=Orifice/Grate** (Weir Controls 5.9 cfs @ 1.71 fps)

## Summary for Pond PR-P3A: Offsite Subsurface Sand Filter

Inflow Area = 1.04 ac, 41.72% Impervious, Inflow Depth = 4.67" for 10-year event
Inflow = 5.0 cfs @ 12.09 hrs, Volume= 0.406 af
Outflow = 4.9 cfs @ 12.10 hrs, Volume= 0.406 af, Atten= 1%, Lag= 0.9 min
Primary = 4.9 cfs @ 12.10 hrs, Volume= 0.406 af
Routed to Pond 210 : DMH 210

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 8.93' @ 12.10 hrs Surf.Area= 790 sf Storage= 1,831 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 108.6 min ( 864.6 - 756.1 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 11.40' | 19 cf | **2.00'D x 3.00'H Vertical Cone/Cylinder**x 2 |
| #2A | 5.40' | 474 cf | **13.79'W x 57.25'L x 6.17'H Field A**<br>4,869 cf Overall - 3,685 cf Embedded = 1,184 cf x 40.0% Voids |
| #3A | 6.90' | 2,676 cf | **StormTrap ST1 SingleTrap 4-0**x 8 Inside #2<br>Inside= 82.7"W x 48.0"H => 23.79 sf x 14.06'L = 334.5 cf<br>Outside= 82.7"W x 56.0"H => 32.18 sf x 14.06'L = 452.5 cf<br>8 Chambers in 2 Rows<br>13.79' x 56.25' Core + 0.00' x 0.50' Border = 13.79' x 57.25' System |
| | | 3,169 cf | Total Available Storage |

Storage Group A created with Chamber Wizard

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Device 2 | 5.40' | **2.000 in/hr Exfiltration over Surface area** |
| #2 | Primary | 4.90' | **30.0" Round Culvert**<br>L= 11.0' CPP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 4.90' / 4.80' S= 0.0091 '/' Cc= 0.900<br>n= 0.012, Flow Area= 4.91 sf |
| #3 | Device 2 | 8.40' | **4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) |

**Primary OutFlow** Max=4.9 cfs @ 12.10 hrs HW=8.93' TW=7.04' (Dynamic Tailwater)
└─**2=Culvert** (Passes 4.9 cfs of 32.5 cfs potential flow)
  ├─**1=Exfiltration** (Exfiltration Controls 0.0 cfs)
  └─**3=Sharp-Crested Rectangular Weir** (Weir Controls 4.9 cfs @ 2.38 fps)

## Summary for Link DP1: Taunton River

Inflow Area = 17.05 ac, 70.67% Impervious, Inflow Depth = 4.14" for 10-year event
Inflow = 54.5 cfs @ 12.12 hrs, Volume= 5.890 af
Primary = 54.5 cfs @ 12.12 hrs, Volume= 5.890 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP5 : Mount Hope Bay

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Link DP2: Existing Channel

Inflow Area = 4.60 ac, 0.00% Impervious, Inflow Depth = 2.31" for 10-year event
Inflow = 12.2 cfs @ 12.10 hrs, Volume= 0.886 af
Primary = 12.2 cfs @ 12.10 hrs, Volume= 0.886 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP5 : Mount Hope Bay

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Link DP3: Lower Supply Basin

Inflow Area = 2.99 ac, 12.92% Impervious, Inflow Depth = 4.24" for 10-year event
Inflow = 13.5 cfs @ 12.09 hrs, Volume= 1.056 af
Primary = 13.5 cfs @ 12.09 hrs, Volume= 1.056 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Link DP4: Taunton River (offsite)

Inflow Area = 6.23 ac, 49.91% Impervious, Inflow Depth = 4.22" for 10-year event
Inflow = 27.2 cfs @ 12.09 hrs, Volume= 2.192 af
Primary = 27.2 cfs @ 12.09 hrs, Volume= 2.192 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP5 : Mount Hope Bay

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Link DP5: Mount Hope Bay

Inflow Area = 53.92 ac, 60.04% Impervious, Inflow Depth = 3.97" for 10-year event
Inflow = 165.8 cfs @ 12.11 hrs, Volume= 17.849 af
Primary = 165.8 cfs @ 12.11 hrs, Volume= 17.849 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment PR-1: Subcat PR-1** Runoff Area=3.02 ac 23.38% Impervious Runoff Depth=5.63"
Tc=6.0 min CN=78/98 Runoff=18.6 cfs 1.416 af

**Subcatchment PR-1A: Subcat PR-1A** Runoff Area=12.97 ac 83.74% Impervious Runoff Depth=6.97"
Tc=6.0 min CN=74/98 Runoff=90.9 cfs 7.526 af

**Subcatchment PR-1B: Subcat PR-1B** Runoff Area=1.07 ac 45.74% Impervious Runoff Depth=5.90"
Tc=6.0 min CN=74/98 Runoff=6.7 cfs 0.525 af

**Subcatchment PR-2: Subcat PR-2** Runoff Area=1.96 ac 21.04% Impervious Runoff Depth=5.57"
Tc=6.0 min CN=78/98 Runoff=12.0 cfs 0.911 af

**Subcatchment PR-2A: Subcat PR-2A** Runoff Area=4.60 ac 0.00% Impervious Runoff Depth=4.51"
Tc=6.0 min CN=73/0 Runoff=23.8 cfs 1.729 af

**Subcatchment PR-2B: Subcat PR-2B** Runoff Area=18.06 ac 78.04% Impervious Runoff Depth=6.81"
Tc=6.0 min CN=74/98 Runoff=124.5 cfs 10.245 af

**Subcatchment PR-2C: Subcat PR-2C** Runoff Area=3.34 ac 60.07% Impervious Runoff Depth=6.30"
Tc=6.0 min CN=74/98 Runoff=21.8 cfs 1.755 af

**Subcatchment PR-2D: Subcat PR-2D** Runoff Area=1.63 ac 16.21% Impervious Runoff Depth=5.75"
Tc=6.0 min CN=81/98 Runoff=10.3 cfs 0.781 af

**Subcatchment PR-3A: Subcat PR-3A** Runoff Area=1.03 ac 0.00% Impervious Runoff Depth=7.18"
Tc=6.0 min CN=96/0 Runoff=7.5 cfs 0.615 af

**Subcatchment PR-3B: Subcat PR-3B** Runoff Area=0.69 ac 55.07% Impervious Runoff Depth=7.31"
Tc=6.0 min CN=96/98 Runoff=5.0 cfs 0.420 af

**Subcatchment PR-3C: Subcat PR-3C** Runoff Area=1.04 ac 41.72% Impervious Runoff Depth=7.28"
Tc=6.0 min CN=96/98 Runoff=7.6 cfs 0.633 af

**Subcatchment PR-3D: Subcat PR-3D** Runoff Area=1.28 ac 0.56% Impervious Runoff Depth=6.24"
Tc=6.0 min CN=88/98 Runoff=8.7 cfs 0.663 af

**Subcatchment PR-4A: Subcat PR-4A** Runoff Area=2.42 ac 85.04% Impervious Runoff Depth=7.00"
Tc=6.0 min CN=74/98 Runoff=17.0 cfs 1.413 af

**Subcatchment PR-4B: Subcat PR-4B** Runoff Area=1.44 ac 20.34% Impervious Runoff Depth=5.55"
Tc=6.0 min CN=78/98 Runoff=8.8 cfs 0.668 af

**Subcatchment PR-4C: Subcat PR-4C** Runoff Area=1.13 ac 63.59% Impervious Runoff Depth=7.33"
Tc=6.0 min CN=96/98 Runoff=8.3 cfs 0.691 af

**Subcatchment PR-4D: Subcat PR-4D** Runoff Area=1.23 ac 2.91% Impervious Runoff Depth=7.19"
Tc=6.0 min CN=96/98 Runoff=9.0 cfs 0.737 af

**Pond 210: DMH 210** Peak Elev=8.78' Inflow=39.1 cfs 3.169 af
30.0" Round Culvert n=0.012 L=175.0' S=0.0160 '/' Outflow=39.1 cfs 3.169 af

**Pond PR-P1A: Northeasterly Surface Sand** Peak Elev=21.20' Storage=96,561 cf Inflow=90.9 cfs 7.526 af
Outflow=43.6 cfs 7.526 af

**Pond PR-P1B: Subsurface Sand Filter** Peak Elev=11.95' Storage=1,806 cf Inflow=6.7 cfs 0.525 af
Outflow=6.7 cfs 0.525 af

**Pond PR-P2B: Southerly Surface Sand** Peak Elev=18.08' Storage=135,619 cf Inflow=124.5 cfs 10.245 af
Primary=46.1 cfs 10.246 af Secondary=0.0 cfs 0.000 af Outflow=46.1 cfs 10.246 af

**Pond PR-P2C: Main Entrance Surface Sand** Peak Elev=16.60' Storage=11,754 cf Inflow=21.8 cfs 1.755 af
Outflow=21.3 cfs 1.755 af

**Pond PR-P2D: Guard House Surface Sand** Peak Elev=16.40' Storage=2,099 cf Inflow=10.3 cfs 0.781 af
Outflow=10.3 cfs 0.781 af

**Pond PR-P3A: Offsite Subsurface Sand Filter** Peak Elev=9.12' Storage=1,956 cf Inflow=7.6 cfs 0.633 af
Outflow=7.6 cfs 0.633 af

**Link DP1: Taunton River** Inflow=66.8 cfs 9.467 af
Primary=66.8 cfs 9.467 af

**Link DP2: Existing Channel** Inflow=23.8 cfs 1.729 af
Primary=23.8 cfs 1.729 af

**Link DP3: Lower Supply Basin** Inflow=21.2 cfs 1.699 af
Primary=21.2 cfs 1.699 af

**Link DP4: Taunton River (offsite)** Inflow=43.1 cfs 3.511 af
Primary=43.1 cfs 3.511 af

**Link DP5: Mount Hope Bay** Inflow=228.5 cfs 29.033 af
Primary=228.5 cfs 29.033 af

**Total Runoff Area = 56.92 ac Runoff Volume = 30.730 af Average Runoff Depth = 6.48"**
**42.44% Pervious = 24.15 ac 57.56% Impervious = 32.76 ac**

## Summary for Subcatchment PR-1: Subcat PR-1

Runoff = 18.6 cfs @ 12.09 hrs, Volume= 1.416 af, Depth= 5.63"
Routed to Link DP1 : Taunton River

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.66"

| Area (ac) | CN | Description |
|---|---|---|
| 1.19 | 74 | >75% Grass cover, Good, HSG C |
| 0.50 | 96 | Gravel surface, HSG C |
| 0.00 | 98 | Unconnected pavement, HSG C |
| 0.71 | 98 | Water Surface, HSG C |
| 0.63 | 72 | Woods/grass comb., Good, HSG C |
| 3.02 | 83 | Weighted Average |
| 2.31 | 78 | 76.62% Pervious Area |
| 0.71 | 98 | 23.38% Impervious Area |

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

## Summary for Subcatchment PR-1A: Subcat PR-1A

Runoff = 90.9 cfs @ 12.09 hrs, Volume= 7.526 af, Depth= 6.97"
Routed to Pond PR-P1A : Northeasterly Surface Sand Filter

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.66"

| Area (ac) | CN | Description |
|---|---|---|
| 2.11 | 74 | >75% Grass cover, Good, HSG C |
| 0.00 | 96 | Gravel surface, HSG C |
| 8.84 | 98 | Roofs, HSG C |
| 2.02 | 98 | Unconnected pavement, HSG C |
| 12.97 | 94 | Weighted Average |
| 2.11 | 74 | 16.26% Pervious Area |
| 10.86 | 98 | 83.74% Impervious Area |

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

## Summary for Subcatchment PR-1B: Subcat PR-1B

Runoff = 6.7 cfs @ 12.09 hrs, Volume= 0.525 af, Depth= 5.90"
Routed to Pond PR-P1B : Subsurface Sand Filter

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.66"

| Area (ac) | CN | Description |
|---|---|---|
| 0.58 | 74 | >75% Grass cover, Good, HSG C |
| 0.00 | 96 | Gravel surface, HSG C |
| 0.49 | 98 | Unconnected pavement, HSG C |
| 1.07 | 85 | Weighted Average |
| 0.58 | 74 | 54.26% Pervious Area |
| 0.49 | 98 | 45.74% Impervious Area |

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

## Summary for Subcatchment PR-2: Subcat PR-2

Runoff = 12.0 cfs @ 12.09 hrs, Volume= 0.911 af, Depth= 5.57"
Routed to Link DP5 : Mount Hope Bay

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.66"

| Area (ac) | CN | Description |
|---|---|---|
| 0.68 | 74 | >75% Grass cover, Good, HSG C |
| 0.31 | 96 | Gravel surface, HSG C |
| 0.41 | 98 | Water Surface, HSG C |
| 0.56 | 72 | Woods/grass comb., Good, HSG C |
| 1.96 | 82 | Weighted Average |
| 1.55 | 78 | 78.96% Pervious Area |
| 0.41 | 98 | 21.04% Impervious Area |

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

## Summary for Subcatchment PR-2A: Subcat PR-2A

Runoff = 23.8 cfs @ 12.09 hrs, Volume= 1.729 af, Depth= 4.51"
Routed to Link DP2 : Existing Channel

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.66"

| Area (ac) | CN | Description |
|---|---|---|
| 0.36 | 74 | >75% Grass cover, Good, HSG C |
| 0.21 | 96 | Gravel surface, HSG C |
| 4.03 | 72 | Woods/grass comb., Good, HSG C |
| 4.60 | 73 | Weighted Average |
| 4.60 | 73 | 100.00% Pervious Area |

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

## Summary for Subcatchment PR-2B: Subcat PR-2B

Runoff = 124.5 cfs @ 12.09 hrs, Volume= 10.245 af, Depth= 6.81"
Routed to Pond PR-P2B : Southerly Surface Sand Filter

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.66"

| Area (ac) | CN | Description |
|---|---|---|
| 3.81 | 74 | >75% Grass cover, Good, HSG C |
| 9.15 | 98 | Roofs, HSG C |
| 4.95 | 98 | Unconnected pavement, HSG C |
| 0.16 | 72 | Woods/grass comb., Good, HSG C |
| 18.06 | 93 | Weighted Average |
| 3.97 | 74 | 21.96% Pervious Area |
| 14.10 | 98 | 78.04% Impervious Area |

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

## Summary for Subcatchment PR-2C: Subcat PR-2C

Runoff = 21.8 cfs @ 12.09 hrs, Volume= 1.755 af, Depth= 6.30"
Routed to Pond PR-P2C : Main Entrance Surface Sand Filter

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.66"

| Area (ac) | CN | Description |
|---|---|---|
| 1.32 | 74 | >75% Grass cover, Good, HSG C |
| 0.00 | 96 | Gravel surface, HSG C |
| 2.01 | 98 | Unconnected pavement, HSG C |
| 0.02 | 72 | Woods/grass comb., Good, HSG C |
| 3.34 | 88 | Weighted Average |
| 1.33 | 74 | 39.93% Pervious Area |
| 2.01 | 98 | 60.07% Impervious Area |

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

## Summary for Subcatchment PR-2D: Subcat PR-2D

Runoff = 10.3 cfs @ 12.09 hrs, Volume= 0.781 af, Depth= 5.75"
Routed to Pond PR-P2D : Guard House Surface Sand Filter

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.66"

| Area (ac) | CN | Description |
|---|---|---|
| 0.38 | 74 | >75% Grass cover, Good, HSG C |
| 0.46 | 96 | Gravel surface, HSG C |
| 0.01 | 98 | Roofs, HSG C |
| 0.26 | 98 | Unconnected pavement, HSG C |
| 0.52 | 72 | Woods/grass comb., Good, HSG C |
| 1.63 | 83 | Weighted Average |
| 1.37 | 81 | 83.79% Pervious Area |
| 0.26 | 98 | 16.21% Impervious Area |

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

## Summary for Subcatchment PR-3A: Subcat PR-3A

Runoff = 7.5 cfs @ 12.09 hrs, Volume= 0.615 af, Depth= 7.18"
Routed to Link DP3 : Lower Supply Basin

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.66"

| Area (ac) | CN | Description |
|---|---|---|
| 1.03 | 96 | Gravel surface, HSG C |
| 1.03 | 96 | 100.00% Pervious Area |

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

## Summary for Subcatchment PR-3B: Subcat PR-3B

Runoff = 5.0 cfs @ 12.09 hrs, Volume= 0.420 af, Depth= 7.31"
Routed to Link DP3 : Lower Supply Basin

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.66"

| Area (ac) | CN | Description |
|---|---|---|
| 0.31 | 96 | Gravel surface, HSG C |
| 0.38 | 98 | Unconnected pavement, HSG C |
| 0.00 | 98 | Water Surface, HSG C |
| 0.69 | 97 | Weighted Average |
| 0.31 | 96 | 44.93% Pervious Area |
| 0.38 | 98 | 55.07% Impervious Area |

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

## Summary for Subcatchment PR-3C: Subcat PR-3C

Runoff = 7.6 cfs @ 12.09 hrs, Volume= 0.633 af, Depth= 7.28"
Routed to Pond PR-P3A : Offsite Subsurface Sand Filter

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.66"

| Area (ac) | CN | Description |
|---|---|---|
| 0.61 | 96 | Gravel surface, HSG C |
| 0.44 | 98 | Unconnected pavement, HSG C |
| 1.04 | 97 | Weighted Average |
| 0.61 | 96 | 58.28% Pervious Area |
| 0.44 | 98 | 41.72% Impervious Area |

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

## Summary for Subcatchment PR-3D: Subcat PR-3D

Runoff = 8.7 cfs @ 12.09 hrs, Volume= 0.663 af, Depth= 6.24"
Routed to Link DP3 : Lower Supply Basin

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.66"

| Area (ac) | CN | Description |
|---|---|---|
| 0.82 | 96 | Gravel surface, HSG C |
| 0.01 | 98 | Unconnected pavement, HSG C |
| 0.44 | 72 | Woods/grass comb., Good, HSG C |
| 1.28 | 88 | Weighted Average |
| 1.27 | 88 | 99.44% Pervious Area |
| 0.01 | 98 | 0.56% Impervious Area |

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

## Summary for Subcatchment PR-4A: Subcat PR-4A

Runoff = 17.0 cfs @ 12.09 hrs, Volume= 1.413 af, Depth= 7.00"
Routed to Link DP4 : Taunton River (offsite)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.66"

| Area (ac) | CN | Description |
|---|---|---|
| 0.36 | 74 | >75% Grass cover, Good, HSG C |
| 0.00 | 96 | Gravel surface, HSG C |
| 0.05 | 98 | Roofs, HSG C |
| 2.01 | 98 | Unconnected pavement, HSG C |
| 2.42 | 94 | Weighted Average |
| 0.36 | 74 | 14.96% Pervious Area |
| 2.06 | 98 | 85.04% Impervious Area |

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

## Summary for Subcatchment PR-4B: Subcat PR-4B

Runoff = 8.8 cfs @ 12.09 hrs, Volume= 0.668 af, Depth= 5.55"
Routed to Link DP4 : Taunton River (offsite)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.66"

| Area (ac) | CN | Description |
|---|---|---|
| 0.31 | 74 | >75% Grass cover, Good, HSG C |
| 0.25 | 96 | Gravel surface, HSG C |
| 0.00 | 98 | Roofs, HSG C |
| 0.29 | 98 | Unconnected pavement, HSG C |
| 0.59 | 72 | Woods/grass comb., Good, HSG C |
| 1.44 | 82 | Weighted Average |
| 1.15 | 78 | 79.66% Pervious Area |
| 0.29 | 98 | 20.34% Impervious Area |

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

## Summary for Subcatchment PR-4C: Subcat PR-4C

Runoff = 8.3 cfs @ 12.09 hrs, Volume= 0.691 af, Depth= 7.33"
Routed to Link DP4 : Taunton River (offsite)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.66"

| Area (ac) | CN | Description |
|---|---|---|
| 0.41 | 96 | Gravel surface, HSG C |
| 0.04 | 98 | Roofs, HSG C |
| 0.68 | 98 | Unconnected pavement, HSG C |
| 1.13 | 97 | Weighted Average |
| 0.41 | 96 | 36.41% Pervious Area |
| 0.72 | 98 | 63.59% Impervious Area |

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

## Summary for Subcatchment PR-4D: Subcat PR-4D

Runoff = 9.0 cfs @ 12.09 hrs, Volume= 0.737 af, Depth= 7.19"
Routed to Link DP4 : Taunton River (offsite)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=7.66"

| Area (ac) | CN | Description |
|---|---|---|
| 1.20 | 96 | Gravel surface, HSG C |
| 0.01 | 98 | Roofs, HSG C |
| 0.02 | 98 | Unconnected pavement, HSG C |
| 1.23 | 96 | Weighted Average |
| 1.20 | 96 | 97.09% Pervious Area |
| 0.04 | 98 | 2.91% Impervious Area |

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

## Summary for Pond 210: DMH 210

Inflow Area = 6.01 ac, 44.99% Impervious, Inflow Depth = 6.32" for 100-year event
Inflow = 39.1 cfs @ 12.10 hrs, Volume= 3.169 af
Outflow = 39.1 cfs @ 12.10 hrs, Volume= 3.169 af, Atten= 0%, Lag= 0.0 min
Primary = 39.1 cfs @ 12.10 hrs, Volume= 3.169 af
Routed to Link DP5 : Mount Hope Bay

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Peak Elev= 8.78' @ 12.10 hrs

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 4.80' | **30.0" Round Culvert**<br>L= 175.0' CPP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 4.80' / 2.00' S= 0.0160 '/' Cc= 0.900<br>n= 0.012, Flow Area= 4.91 sf |

**Primary OutFlow** Max=38.7 cfs @ 12.10 hrs HW=8.73' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 38.7 cfs @ 7.89 fps)

## Summary for Pond PR-P1A: Northeasterly Surface Sand Filter

Inflow Area = 12.97 ac, 83.74% Impervious, Inflow Depth = 6.97" for 100-year event
Inflow = 90.9 cfs @ 12.09 hrs, Volume= 7.526 af
Outflow = 43.6 cfs @ 12.25 hrs, Volume= 7.526 af, Atten= 52%, Lag= 9.8 min
Primary = 43.6 cfs @ 12.25 hrs, Volume= 7.526 af
Routed to Link DP1 : Taunton River

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 21.20' @ 12.25 hrs Surf.Area= 8,990 sf Storage= 96,561 cf

Plug-Flow detention time= 387.5 min calculated for 7.521 af (100% of inflow)
Center-of-Mass det. time= 388.9 min ( 1,138.9 - 750.0 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 13.00' | 7,192 cf | **Sand Filter (Irregular)**Listed below (Recalc)<br>17,980 cf Overall x 40.0% Voids |
| #2 | 15.00' | 128,738 cf | **Pond (Irregular)**Listed below (Recalc) -Impervious |
| | | 135,930 cf | Total Available Storage |

| Elevation (feet) | Surf.Area (sq-ft) | Perim. (feet) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) | Wet.Area (sq-ft) |
|---|---|---|---|---|---|
| 13.00 | 8,990 | 399.0 | 0 | 0 | 8,990 |
| 15.00 | 8,990 | 399.0 | 17,980 | 17,980 | 9,788 |

| Elevation (feet) | Surf.Area (sq-ft) | Perim. (feet) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) | Wet.Area (sq-ft) |
|---|---|---|---|---|---|
| 15.00 | 8,990 | 399.0 | 0 | 0 | 8,990 |
| 16.00 | 10,213 | 418.0 | 9,595 | 9,595 | 10,291 |
| 17.00 | 11,496 | 437.0 | 10,848 | 20,443 | 11,653 |
| 18.00 | 14,330 | 562.0 | 12,887 | 33,330 | 21,602 |
| 19.00 | 16,583 | 542.0 | 15,443 | 48,773 | 23,444 |
| 20.00 | 18,267 | 561.0 | 17,418 | 66,191 | 25,201 |
| 21.00 | 19,948 | 580.0 | 19,101 | 85,293 | 27,018 |
| 22.00 | 21,715 | 598.0 | 20,825 | 106,118 | 28,805 |
| 23.00 | 23,538 | 617.0 | 22,620 | 128,738 | 30,740 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 12.00' | **30.0" Round Culvert**<br>L= 890.0' CPP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 12.00' / 7.00' S= 0.0056 '/' Cc= 0.900<br>n= 0.012, Flow Area= 4.91 sf |
| #2 | Device 1 | 13.00' | **2.000 in/hr Exfiltration over Surface area** |
| #3 | Device 1 | 13.30' | **30.0" Round Culvert**<br>L= 93.0' CPP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 13.30' / 12.00' S= 0.0140 '/' Cc= 0.900<br>n= 0.012, Flow Area= 4.91 sf |
| #4 | Device 5 | 19.20' | **48.0" Horiz. Orifice/Grate X 2.00** C= 0.600<br>Limited to weir flow at low heads |
| #5 | Device 3 | 14.00' | **18.0" Round Culvert X 2.00**<br>L= 27.0' CPP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 14.00' / 13.80' S= 0.0074 '/' Cc= 0.900<br>n= 0.012, Flow Area= 1.77 sf |

**Primary OutFlow** Max=43.6 cfs @ 12.25 hrs HW=21.20' TW=0.00' (Dynamic Tailwater)
- **1=Culvert** (Passes 43.6 cfs of 46.2 cfs potential flow)
  - **2=Exfiltration** (Exfiltration Controls 0.4 cfs)
  - **3=Culvert** (Passes 43.2 cfs of 61.0 cfs potential flow)
    - **5=Culvert** (Inlet Controls 43.2 cfs @ 12.23 fps)
      - **4=Orifice/Grate** (Passes 43.2 cfs of 171.2 cfs potential flow)

## Summary for Pond PR-P1B: Subsurface Sand Filter

Inflow Area = 1.07 ac, 45.74% Impervious, Inflow Depth = 5.90" for 100-year event
Inflow = 6.7 cfs @ 12.09 hrs, Volume= 0.525 af
Outflow = 6.7 cfs @ 12.09 hrs, Volume= 0.525 af, Atten= 0%, Lag= 0.0 min
Primary = 6.7 cfs @ 12.09 hrs, Volume= 0.525 af
Routed to Link DP1 : Taunton River

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 11.95' @ 12.09 hrs Surf.Area= 790 sf Storage= 1,806 cf

Plug-Flow detention time= 82.8 min calculated for 0.525 af (100% of inflow)
Center-of-Mass det. time= 83.3 min ( 857.5 - 774.2 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 12.30' | 9 cf | **2.00'D x 1.50'H Vertical Cone/Cylinder**x 2 |
| #2A | 8.30' | 474 cf | **13.79'W x 57.25'L x 4.17'H Field A**<br>3,290 cf Overall - 2,106 cf Embedded = 1,184 cf x 40.0% Voids |
| #3A | 9.80' | 1,332 cf | **StormTrap ST1 SingleTrap 2-0**x 8 Inside #2<br>Inside= 82.7"W x 24.0"H => 11.84 sf x 14.06'L = 166.5 cf<br>Outside= 82.7"W x 32.0"H => 18.39 sf x 14.06'L = 258.6 cf<br>8 Chambers in 2 Rows<br>13.79' x 56.25' Core + 0.00' x 0.50' Border = 13.79' x 57.25' System |
| | | 1,815 cf | Total Available Storage |

Storage Group A created with Chamber Wizard

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Device 2 | 8.30' | **2.000 in/hr Exfiltration over Surface area** |
| #2 | Primary | 7.80' | **18.0" Round Culvert**<br>L= 228.0' CPP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 7.80' / 6.90' S= 0.0039 '/' Cc= 0.900<br>n= 0.012, Flow Area= 1.77 sf |
| #3 | Device 2 | 11.30' | **4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) |

**Primary OutFlow** Max=6.5 cfs @ 12.09 hrs HW=11.94' TW=0.00' (Dynamic Tailwater)
└─**2=Culvert** (Passes 6.5 cfs of 11.9 cfs potential flow)
  ├─**1=Exfiltration** (Exfiltration Controls 0.0 cfs)
  └─**3=Sharp-Crested Rectangular Weir** (Weir Controls 6.5 cfs @ 2.61 fps)

## Summary for Pond PR-P2B: Southerly Surface Sand Filter

Inflow Area = 18.06 ac, 78.04% Impervious, Inflow Depth = 6.81" for 100-year event
Inflow = 124.5 cfs @ 12.09 hrs, Volume= 10.245 af
Outflow = 46.1 cfs @ 12.34 hrs, Volume= 10.246 af, Atten= 63%, Lag= 15.0 min
Primary = 46.1 cfs @ 12.34 hrs, Volume= 10.246 af
Routed to Link DP5 : Mount Hope Bay
Secondary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link DP5 : Mount Hope Bay

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 18.08' @ 12.34 hrs Surf.Area= 8,946 sf Storage= 135,619 cf

Plug-Flow detention time= 350.2 min calculated for 10.239 af (100% of inflow)
Center-of-Mass det. time= 351.9 min ( 1,105.0 - 753.1 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 10.50' | 5,368 cf | **Sand filter (Irregular)** Listed below (Recalc)<br>13,419 cf Overall x 40.0% Voids |
| #2 | 12.00' | 187,031 cf | **Pond (Irregular)** Listed below (Recalc) -Impervious |
| | | 192,399 cf | Total Available Storage |

| Elevation (feet) | Surf.Area (sq-ft) | Perim. (feet) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) | Wet.Area (sq-ft) |
|---|---|---|---|---|---|
| 10.50 | 8,946 | 353.0 | 0 | 0 | 8,946 |
| 12.00 | 8,946 | 353.0 | 13,419 | 13,419 | 9,476 |

| Elevation (feet) | Surf.Area (sq-ft) | Perim. (feet) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) | Wet.Area (sq-ft) |
|---|---|---|---|---|---|
| 12.00 | 8,946 | 353.0 | 0 | 0 | 8,946 |
| 13.00 | 15,516 | 457.0 | 12,081 | 12,081 | 15,662 |
| 14.00 | 16,915 | 476.0 | 16,210 | 28,292 | 17,148 |
| 15.00 | 21,436 | 663.0 | 19,131 | 47,423 | 34,107 |
| 16.00 | 23,469 | 583.0 | 22,445 | 69,867 | 42,063 |
| 17.00 | 32,735 | 667.0 | 27,974 | 97,841 | 50,442 |
| 18.00 | 27,680 | 497.0 | 30,172 | 128,013 | 66,200 |
| 19.00 | 29,500 | 616.0 | 28,585 | 156,599 | 76,754 |
| 20.00 | 31,375 | 635.0 | 30,433 | 187,031 | 78,747 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 8.90' | **30.0" Round Culvert**<br>L= 724.0' CPP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 8.90' / 5.70' S= 0.0044 '/' Cc= 0.900<br>n= 0.012, Flow Area= 4.91 sf |
| #2 | Device 1 | 10.50' | **2.000 in/hr Exfiltration over Horizontal area** |
| #3 | Secondary | 18.50' | **30.0' long x 55.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60<br>Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63 |
| #4 | Device 1 | 10.50' | **24.0" Round Culvert X 2.00**<br>L= 70.0' CPP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 10.50' / 8.90' S= 0.0229 '/' Cc= 0.900<br>n= 0.012, Flow Area= 3.14 sf |
| #5 | Device 4 | 15.60' | **48.0" Horiz. Orifice/Grate X 2.00** C= 0.600<br>Limited to weir flow at low heads |

**Primary OutFlow** Max=46.1 cfs @ 12.34 hrs HW=18.08' TW=0.00' (Dynamic Tailwater)
- **1=Culvert** (Barrel Controls 46.1 cfs @ 9.39 fps)
  - **2=Exfiltration** (Passes < 0.4 cfs potential flow)
  - **4=Culvert** (Passes < 77.6 cfs potential flow)
    - **5=Orifice/Grate** (Passes < 190.5 cfs potential flow)

**Secondary OutFlow** Max=0.0 cfs @ 0.00 hrs HW=10.50' TW=0.00' (Dynamic Tailwater)
- **3=Broad-Crested Rectangular Weir**( Controls 0.0 cfs)

## Summary for Pond PR-P2C: Main Entrance Surface Sand Filter

Inflow Area = 3.34 ac, 60.07% Impervious, Inflow Depth = 6.30" for 100-year event
Inflow = 21.8 cfs @ 12.09 hrs, Volume= 1.755 af
Outflow = 21.3 cfs @ 12.11 hrs, Volume= 1.755 af, Atten= 2%, Lag= 1.2 min
Primary = 21.3 cfs @ 12.11 hrs, Volume= 1.755 af
Routed to Pond 210 : DMH 210

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 16.60' @ 12.11 hrs Surf.Area= 2,470 sf Storage= 11,754 cf

Plug-Flow detention time= 204.7 min calculated for 1.754 af (100% of inflow)
Center-of-Mass det. time= 205.6 min ( 969.8 - 764.1 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 12.00' | 1,976 cf | **Sand Filter (Irregular)**Listed below (Recalc)<br>4,940 cf Overall x 40.0% Voids |
| #2 | 14.00' | 15,635 cf | **Pond (Irregular)**Listed below (Recalc) -Impervious |
| | | 17,611 cf | Total Available Storage |

| Elevation (feet) | Surf.Area (sq-ft) | Perim. (feet) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) | Wet.Area (sq-ft) |
|---|---|---|---|---|---|
| 12.00 | 2,470 | 294.0 | 0 | 0 | 2,470 |
| 14.00 | 2,470 | 294.0 | 4,940 | 4,940 | 3,058 |

| Elevation (feet) | Surf.Area (sq-ft) | Perim. (feet) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) | Wet.Area (sq-ft) |
|---|---|---|---|---|---|
| 14.00 | 2,470 | 294.0 | 0 | 0 | 2,470 |
| 15.00 | 3,380 | 312.0 | 2,913 | 2,913 | 3,389 |
| 16.00 | 4,345 | 331.0 | 3,852 | 6,766 | 4,413 |
| 17.00 | 6,594 | 374.0 | 5,431 | 12,196 | 6,851 |
| 17.50 | 7,166 | 383.0 | 3,439 | 15,635 | 7,426 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 10.00' | **24.0" Round Culvert**<br>L= 155.0' CPP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 10.00' / 8.90' S= 0.0071 '/' Cc= 0.900<br>n= 0.012, Flow Area= 3.14 sf |
| #2 | Device 1 | 12.00' | **2.000 in/hr Exfiltration over Surface area** |
| #3 | Device 1 | 11.00' | **18.0" Round Culvert**<br>L= 75.0' CPP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 11.00' / 10.00' S= 0.0133 '/' Cc= 0.900<br>n= 0.012, Flow Area= 1.77 sf |
| #4 | Device 1 | 10.20' | **18.0" Round Culvert**<br>L= 13.0' CPP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 10.20' / 10.00' S= 0.0154 '/' Cc= 0.900<br>n= 0.012, Flow Area= 1.77 sf |
| #5 | Device 3 | 16.20' | **48.0" Horiz. Orifice/Grate** C= 0.600<br>Limited to weir flow at low heads |
| #6 | Device 4 | 16.20' | **48.0" Horiz. Orifice/Grate** C= 0.600<br>Limited to weir flow at low heads |

**Primary OutFlow** Max=20.9 cfs @ 12.11 hrs HW=16.60' TW=8.67' (Dynamic Tailwater)
- **1=Culvert** (Passes 20.9 cfs of 33.9 cfs potential flow)
  - **2=Exfiltration** (Exfiltration Controls 0.1 cfs)
  - **3=Culvert** (Passes 10.4 cfs of 18.7 cfs potential flow)
    - **5=Orifice/Grate** (Weir Controls 10.4 cfs @ 2.07 fps)
  - **4=Culvert** (Passes 10.4 cfs of 20.2 cfs potential flow)
    - **6=Orifice/Grate** (Weir Controls 10.4 cfs @ 2.07 fps)

## Summary for Pond PR-P2D: Guard House Surface Sand Filter

Inflow Area = 1.63 ac, 16.21% Impervious, Inflow Depth = 5.75" for 100-year event
Inflow = 10.3 cfs @ 12.09 hrs, Volume= 0.781 af
Outflow = 10.3 cfs @ 12.10 hrs, Volume= 0.781 af, Atten= 0%, Lag= 0.7 min
Primary = 10.3 cfs @ 12.10 hrs, Volume= 0.781 af
Routed to Pond 210 : DMH 210

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 16.40' @ 12.10 hrs Surf.Area= 267 sf Storage= 2,099 cf

Plug-Flow detention time= 90.1 min calculated for 0.781 af (100% of inflow)
Center-of-Mass det. time= 91.5 min ( 881.0 - 789.5 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 12.50' | 160 cf | **Sand Filter (Irregular)**Listed below (Recalc)<br>401 cf Overall x 40.0% Voids |
| #2 | 14.00' | 4,061 cf | **Pond (Irregular)**Listed below (Recalc) -Impervious |
| | | 4,221 cf | Total Available Storage |

| Elevation (feet) | Surf.Area (sq-ft) | Perim. (feet) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) | Wet.Area (sq-ft) |
|---|---|---|---|---|---|
| 12.50 | 267 | 99.0 | 0 | 0 | 267 |
| 14.00 | 267 | 99.0 | 401 | 401 | 416 |

| Elevation (feet) | Surf.Area (sq-ft) | Perim. (feet) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) | Wet.Area (sq-ft) |
|---|---|---|---|---|---|
| 14.00 | 267 | 99.0 | 0 | 0 | 267 |
| 15.00 | 591 | 117.0 | 418 | 418 | 595 |
| 16.00 | 1,345 | 188.0 | 943 | 1,361 | 2,325 |
| 17.00 | 1,961 | 201.0 | 1,643 | 3,004 | 2,772 |
| 17.50 | 2,270 | 211.0 | 1,057 | 4,061 | 3,115 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 9.30' | **15.0" Round Culvert**<br>L= 27.0' CPP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 9.30' / 8.90' S= 0.0148 '/' Cc= 0.900<br>n= 0.012, Flow Area= 1.23 sf |
| #2 | Device 1 | 12.50' | **2.000 in/hr Exfiltration over Surface area** |
| #3 | Device 1 | 16.00' | **48.0" Horiz. Orifice/Grate** C= 0.600<br>Limited to weir flow at low heads |

**Primary OutFlow** Max=10.2 cfs @ 12.10 hrs HW=16.40' TW=8.76' (Dynamic Tailwater)
└─**1=Culvert** (Passes 10.2 cfs of 15.0 cfs potential flow)
  ├─**2=Exfiltration** (Exfiltration Controls 0.0 cfs)
  └─**3=Orifice/Grate** (Weir Controls 10.2 cfs @ 2.06 fps)

## Summary for Pond PR-P3A: Offsite Subsurface Sand Filter

Inflow Area = 1.04 ac, 41.72% Impervious, Inflow Depth = 7.28" for 100-year event
Inflow = 7.6 cfs @ 12.09 hrs, Volume= 0.633 af
Outflow = 7.6 cfs @ 12.10 hrs, Volume= 0.633 af, Atten= 0%, Lag= 0.6 min
Primary = 7.6 cfs @ 12.10 hrs, Volume= 0.633 af
Routed to Pond 210 : DMH 210

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 9.12' @ 12.12 hrs Surf.Area= 790 sf Storage= 1,956 cf

Plug-Flow detention time= 76.4 min calculated for 0.633 af (100% of inflow)
Center-of-Mass det. time= 76.9 min ( 825.3 - 748.3 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 11.40' | 19 cf | **2.00'D x 3.00'H Vertical Cone/Cylinder** x 2 |
| #2A | 5.40' | 474 cf | **13.79'W x 57.25'L x 6.17'H Field A**<br>4,869 cf Overall - 3,685 cf Embedded = 1,184 cf x 40.0% Voids |
| #3A | 6.90' | 2,676 cf | **StormTrap ST1 SingleTrap 4-0** x 8 Inside #2<br>Inside= 82.7"W x 48.0"H => 23.79 sf x 14.06'L = 334.5 cf<br>Outside= 82.7"W x 56.0"H => 32.18 sf x 14.06'L = 452.5 cf<br>8 Chambers in 2 Rows<br>13.79' x 56.25' Core + 0.00' x 0.50' Border = 13.79' x 57.25' System |
| | | 3,169 cf | Total Available Storage |

Storage Group A created with Chamber Wizard

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Device 2 | 5.40' | **2.000 in/hr Exfiltration over Surface area** |
| #2 | Primary | 4.90' | **30.0" Round Culvert**<br>L= 11.0' CPP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 4.90' / 4.80' S= 0.0091 '/' Cc= 0.900<br>n= 0.012, Flow Area= 4.91 sf |
| #3 | Device 2 | 8.40' | **4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) |

**Primary OutFlow** Max=6.6 cfs @ 12.10 hrs HW=9.10' TW=8.70' (Dynamic Tailwater)
└─**2=Culvert** (Passes 6.6 cfs of 14.9 cfs potential flow)
  ├─**1=Exfiltration** (Exfiltration Controls 0.0 cfs)
  └─**3=Sharp-Crested Rectangular Weir** (Weir Controls 6.6 cfs @ 2.41 fps)

## Summary for Link DP1: Taunton River

Inflow Area = 17.05 ac, 70.67% Impervious, Inflow Depth = 6.66" for 100-year event
Inflow = 66.8 cfs @ 12.10 hrs, Volume= 9.467 af
Primary = 66.8 cfs @ 12.10 hrs, Volume= 9.467 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP5 : Mount Hope Bay

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Link DP2: Existing Channel

Inflow Area = 4.60 ac, 0.00% Impervious, Inflow Depth = 4.51" for 100-year event
Inflow = 23.8 cfs @ 12.09 hrs, Volume= 1.729 af
Primary = 23.8 cfs @ 12.09 hrs, Volume= 1.729 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP5 : Mount Hope Bay

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Link DP3: Lower Supply Basin

Inflow Area = 2.99 ac, 12.92% Impervious, Inflow Depth = 6.81" for 100-year event
Inflow = 21.2 cfs @ 12.09 hrs, Volume= 1.699 af
Primary = 21.2 cfs @ 12.09 hrs, Volume= 1.699 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Link DP4: Taunton River (offsite)

Inflow Area = 6.23 ac, 49.91% Impervious, Inflow Depth = 6.76" for 100-year event
Inflow = 43.1 cfs @ 12.09 hrs, Volume= 3.511 af
Primary = 43.1 cfs @ 12.09 hrs, Volume= 3.511 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP5 : Mount Hope Bay

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Link DP5: Mount Hope Bay

Inflow Area = 53.92 ac, 60.04% Impervious, Inflow Depth = 6.46" for 100-year event
Inflow = 228.5 cfs @ 12.10 hrs, Volume= 29.033 af
Primary = 228.5 cfs @ 12.10 hrs, Volume= 29.033 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment PR-1: Subcat PR-1** Runoff Area=3.02 ac 23.38% Impervious Runoff Depth=8.23"
Tc=6.0 min CN=78/98 Runoff=26.9 cfs 2.072 af

**Subcatchment PR-1A: Subcat PR-1A** Runoff Area=12.97 ac 83.74% Impervious Runoff Depth=9.66"
Tc=6.0 min CN=74/98 Runoff=125.3 cfs 10.442 af

**Subcatchment PR-1B: Subcat PR-1B** Runoff Area=1.07 ac 45.74% Impervious Runoff Depth=8.51"
Tc=6.0 min CN=74/98 Runoff=9.5 cfs 0.757 af

**Subcatchment PR-2: Subcat PR-2** Runoff Area=1.96 ac 21.04% Impervious Runoff Depth=8.17"
Tc=6.0 min CN=78/98 Runoff=17.4 cfs 1.337 af

**Subcatchment PR-2A: Subcat PR-2A** Runoff Area=4.60 ac 0.00% Impervious Runoff Depth=6.99"
Tc=6.0 min CN=73/0 Runoff=36.5 cfs 2.678 af

**Subcatchment PR-2B: Subcat PR-2B** Runoff Area=18.06 ac 78.04% Impervious Runoff Depth=9.49"
Tc=6.0 min CN=74/98 Runoff=172.7 cfs 14.287 af

**Subcatchment PR-2C: Subcat PR-2C** Runoff Area=3.34 ac 60.07% Impervious Runoff Depth=8.94"
Tc=6.0 min CN=74/98 Runoff=30.8 cfs 2.490 af

**Subcatchment PR-2D: Subcat PR-2D** Runoff Area=1.63 ac 16.21% Impervious Runoff Depth=8.38"
Tc=6.0 min CN=81/98 Runoff=14.8 cfs 1.139 af

**Subcatchment PR-3A: Subcat PR-3A** Runoff Area=1.03 ac 0.00% Impervious Runoff Depth=9.92"
Tc=6.0 min CN=96/0 Runoff=10.2 cfs 0.850 af

**Subcatchment PR-3B: Subcat PR-3B** Runoff Area=0.69 ac 55.07% Impervious Runoff Depth=10.05"
Tc=6.0 min CN=96/98 Runoff=6.9 cfs 0.577 af

**Subcatchment PR-3C: Subcat PR-3C** Runoff Area=1.04 ac 41.72% Impervious Runoff Depth=10.02"
Tc=6.0 min CN=96/98 Runoff=10.4 cfs 0.871 af

**Subcatchment PR-3D: Subcat PR-3D** Runoff Area=1.28 ac 0.56% Impervious Runoff Depth=8.93"
Tc=6.0 min CN=88/98 Runoff=12.1 cfs 0.949 af

**Subcatchment PR-4A: Subcat PR-4A** Runoff Area=2.42 ac 85.04% Impervious Runoff Depth=9.70"
Tc=6.0 min CN=74/98 Runoff=23.5 cfs 1.959 af

**Subcatchment PR-4B: Subcat PR-4B** Runoff Area=1.44 ac 20.34% Impervious Runoff Depth=8.16"
Tc=6.0 min CN=78/98 Runoff=12.8 cfs 0.981 af

**Subcatchment PR-4C: Subcat PR-4C** Runoff Area=1.13 ac 63.59% Impervious Runoff Depth=10.07"
Tc=6.0 min CN=96/98 Runoff=11.3 cfs 0.949 af

**Subcatchment PR-4D: Subcat PR-4D** Runoff Area=1.23 ac 2.91% Impervious Runoff Depth=9.92"
Tc=6.0 min CN=96/98 Runoff=12.2 cfs 1.018 af

**Pond 210: DMH 210** Peak Elev=10.58' Inflow=50.3 cfs 4.500 af
30.0" Round Culvert n=0.012 L=175.0' S=0.0160 '/' Outflow=50.3 cfs 4.500 af

**Pond PR-P1A: Northeasterly Surface** Peak Elev=22.60' Storage=126,627 cf Inflow=125.3 cfs 10.442 af
Outflow=48.1 cfs 10.443 af

**Pond PR-P1B: Subsurface Sand Filter** Peak Elev=12.13' Storage=1,806 cf Inflow=9.5 cfs 0.757 af
Outflow=9.5 cfs 0.757 af

**Pond PR-P2B: Southerly Surface Sand** Peak Elev=19.14' Storage=166,107 cf Inflow=172.7 cfs 14.287 af
Primary=48.5 cfs 13.440 af Secondary=41.3 cfs 0.847 af Outflow=89.8 cfs 14.287 af

**Pond PR-P2C: Main Entrance Surface Sand** Peak Elev=16.71' Storage=12,370 cf Inflow=30.8 cfs 2.490 af
Outflow=30.2 cfs 2.490 af

**Pond PR-P2D: Guard House Surface Sand** Peak Elev=16.50' Storage=2,274 cf Inflow=14.8 cfs 1.139 af
Outflow=14.8 cfs 1.139 af

**Pond PR-P3A: Offsite Subsurface Sand Filter** Peak Elev=10.68' Storage=3,005 cf Inflow=10.4 cfs 0.871 af
Outflow=10.3 cfs 0.871 af

**Link DP1: Taunton River** Inflow=80.8 cfs 13.272 af
Primary=80.8 cfs 13.272 af

**Link DP2: Existing Channel** Inflow=36.5 cfs 2.678 af
Primary=36.5 cfs 2.678 af

**Link DP3: Lower Supply Basin** Inflow=29.2 cfs 2.376 af
Primary=29.2 cfs 2.376 af

**Link DP4: Taunton River (offsite)** Inflow=59.8 cfs 4.908 af
Primary=59.8 cfs 4.908 af

**Link DP5: Mount Hope Bay** Inflow=290.7 cfs 40.981 af
Primary=290.7 cfs 40.981 af

**Total Runoff Area = 56.92 ac Runoff Volume = 43.357 af Average Runoff Depth = 9.14"**
**42.44% Pervious = 24.15 ac 57.56% Impervious = 32.76 ac**

## Summary for Subcatchment PR-1: Subcat PR-1

Runoff = 26.9 cfs @ 12.09 hrs, Volume= 2.072 af, Depth= 8.23"
Routed to Link DP1 : Taunton River

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2070 100-year Rainfall=10.40"

| Area (ac) | CN | Description |
|---|---|---|
| 1.19 | 74 | >75% Grass cover, Good, HSG C |
| 0.50 | 96 | Gravel surface, HSG C |
| 0.00 | 98 | Unconnected pavement, HSG C |
| 0.71 | 98 | Water Surface, HSG C |
| 0.63 | 72 | Woods/grass comb., Good, HSG C |
| 3.02 | 83 | Weighted Average |
| 2.31 | 78 | 76.62% Pervious Area |
| 0.71 | 98 | 23.38% Impervious Area |

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

## Summary for Subcatchment PR-1A: Subcat PR-1A

Runoff = 125.3 cfs @ 12.09 hrs, Volume= 10.442 af, Depth= 9.66"
Routed to Pond PR-P1A : Northeasterly Surface Sand Filter

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2070 100-year Rainfall=10.40"

| Area (ac) | CN | Description |
|---|---|---|
| 2.11 | 74 | >75% Grass cover, Good, HSG C |
| 0.00 | 96 | Gravel surface, HSG C |
| 8.84 | 98 | Roofs, HSG C |
| 2.02 | 98 | Unconnected pavement, HSG C |
| 12.97 | 94 | Weighted Average |
| 2.11 | 74 | 16.26% Pervious Area |
| 10.86 | 98 | 83.74% Impervious Area |

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

## Summary for Subcatchment PR-1B: Subcat PR-1B

Runoff = 9.5 cfs @ 12.09 hrs, Volume= 0.757 af, Depth= 8.51"
Routed to Pond PR-P1B : Subsurface Sand Filter

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2070 100-year Rainfall=10.40"

| Area (ac) | CN | Description |
|---|---|---|
| 0.58 | 74 | >75% Grass cover, Good, HSG C |
| 0.00 | 96 | Gravel surface, HSG C |
| 0.49 | 98 | Unconnected pavement, HSG C |
| 1.07 | 85 | Weighted Average |
| 0.58 | 74 | 54.26% Pervious Area |
| 0.49 | 98 | 45.74% Impervious Area |

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

## Summary for Subcatchment PR-2: Subcat PR-2

Runoff = 17.4 cfs @ 12.09 hrs, Volume= 1.337 af, Depth= 8.17"
Routed to Link DP5 : Mount Hope Bay

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2070 100-year Rainfall=10.40"

| Area (ac) | CN | Description |
|---|---|---|
| 0.68 | 74 | >75% Grass cover, Good, HSG C |
| 0.31 | 96 | Gravel surface, HSG C |
| 0.41 | 98 | Water Surface, HSG C |
| 0.56 | 72 | Woods/grass comb., Good, HSG C |
| 1.96 | 82 | Weighted Average |
| 1.55 | 78 | 78.96% Pervious Area |
| 0.41 | 98 | 21.04% Impervious Area |

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

## Summary for Subcatchment PR-2A: Subcat PR-2A

Runoff = 36.5 cfs @ 12.09 hrs, Volume= 2.678 af, Depth= 6.99"
Routed to Link DP2 : Existing Channel

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2070 100-year Rainfall=10.40"

| Area (ac) | CN | Description |
|---|---|---|
| 0.36 | 74 | >75% Grass cover, Good, HSG C |
| 0.21 | 96 | Gravel surface, HSG C |
| 4.03 | 72 | Woods/grass comb., Good, HSG C |
| 4.60 | 73 | Weighted Average |
| 4.60 | 73 | 100.00% Pervious Area |

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

## Summary for Subcatchment PR-2B: Subcat PR-2B

Runoff = 172.7 cfs @ 12.09 hrs, Volume= 14.287 af, Depth= 9.49"
Routed to Pond PR-P2B : Southerly Surface Sand Filter

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2070 100-year Rainfall=10.40"

| Area (ac) | CN | Description |
|---|---|---|
| 3.81 | 74 | >75% Grass cover, Good, HSG C |
| 9.15 | 98 | Roofs, HSG C |
| 4.95 | 98 | Unconnected pavement, HSG C |
| 0.16 | 72 | Woods/grass comb., Good, HSG C |
| 18.06 | 93 | Weighted Average |
| 3.97 | 74 | 21.96% Pervious Area |
| 14.10 | 98 | 78.04% Impervious Area |

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

## Summary for Subcatchment PR-2C: Subcat PR-2C

Runoff = 30.8 cfs @ 12.09 hrs, Volume= 2.490 af, Depth= 8.94"
Routed to Pond PR-P2C : Main Entrance Surface Sand Filter

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2070 100-year Rainfall=10.40"

| Area (ac) | CN | Description |
|---|---|---|
| 1.32 | 74 | >75% Grass cover, Good, HSG C |
| 0.00 | 96 | Gravel surface, HSG C |
| 2.01 | 98 | Unconnected pavement, HSG C |
| 0.02 | 72 | Woods/grass comb., Good, HSG C |
| 3.34 | 88 | Weighted Average |
| 1.33 | 74 | 39.93% Pervious Area |
| 2.01 | 98 | 60.07% Impervious Area |

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

## Summary for Subcatchment PR-2D: Subcat PR-2D

Runoff = 14.8 cfs @ 12.09 hrs, Volume= 1.139 af, Depth= 8.38"
Routed to Pond PR-P2D : Guard House Surface Sand Filter

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2070 100-year Rainfall=10.40"

| Area (ac) | CN | Description |
|---|---|---|
| 0.38 | 74 | >75% Grass cover, Good, HSG C |
| 0.46 | 96 | Gravel surface, HSG C |
| 0.01 | 98 | Roofs, HSG C |
| 0.26 | 98 | Unconnected pavement, HSG C |
| 0.52 | 72 | Woods/grass comb., Good, HSG C |
| 1.63 | 83 | Weighted Average |
| 1.37 | 81 | 83.79% Pervious Area |
| 0.26 | 98 | 16.21% Impervious Area |

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

## Summary for Subcatchment PR-3A: Subcat PR-3A

Runoff = 10.2 cfs @ 12.09 hrs, Volume= 0.850 af, Depth= 9.92"
Routed to Link DP3 : Lower Supply Basin

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2070 100-year Rainfall=10.40"

| Area (ac) | CN | Description |
|---|---|---|
| 1.03 | 96 | Gravel surface, HSG C |
| 1.03 | 96 | 100.00% Pervious Area |

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

## Summary for Subcatchment PR-3B: Subcat PR-3B

Runoff = 6.9 cfs @ 12.09 hrs, Volume= 0.577 af, Depth=10.05"
Routed to Link DP3 : Lower Supply Basin

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2070 100-year Rainfall=10.40"

| Area (ac) | CN | Description |
|---|---|---|
| 0.31 | 96 | Gravel surface, HSG C |
| 0.38 | 98 | Unconnected pavement, HSG C |
| 0.00 | 98 | Water Surface, HSG C |
| 0.69 | 97 | Weighted Average |
| 0.31 | 96 | 44.93% Pervious Area |
| 0.38 | 98 | 55.07% Impervious Area |

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

## Summary for Subcatchment PR-3C: Subcat PR-3C

Runoff = 10.4 cfs @ 12.09 hrs, Volume= 0.871 af, Depth=10.02"
Routed to Pond PR-P3A : Offsite Subsurface Sand Filter

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2070 100-year Rainfall=10.40"

| Area (ac) | CN | Description |
|---|---|---|
| 0.61 | 96 | Gravel surface, HSG C |
| 0.44 | 98 | Unconnected pavement, HSG C |
| 1.04 | 97 | Weighted Average |
| 0.61 | 96 | 58.28% Pervious Area |
| 0.44 | 98 | 41.72% Impervious Area |

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

## Summary for Subcatchment PR-3D: Subcat PR-3D

Runoff = 12.1 cfs @ 12.09 hrs, Volume= 0.949 af, Depth= 8.93"
Routed to Link DP3 : Lower Supply Basin

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2070 100-year Rainfall=10.40"

| Area (ac) | CN | Description |
|---|---|---|
| 0.82 | 96 | Gravel surface, HSG C |
| 0.01 | 98 | Unconnected pavement, HSG C |
| 0.44 | 72 | Woods/grass comb., Good, HSG C |
| 1.28 | 88 | Weighted Average |
| 1.27 | 88 | 99.44% Pervious Area |
| 0.01 | 98 | 0.56% Impervious Area |

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

## Summary for Subcatchment PR-4A: Subcat PR-4A

Runoff = 23.5 cfs @ 12.09 hrs, Volume= 1.959 af, Depth= 9.70"
Routed to Link DP4 : Taunton River (offsite)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2070 100-year Rainfall=10.40"

| Area (ac) | CN | Description |
|---|---|---|
| 0.36 | 74 | >75% Grass cover, Good, HSG C |
| 0.00 | 96 | Gravel surface, HSG C |
| 0.05 | 98 | Roofs, HSG C |
| 2.01 | 98 | Unconnected pavement, HSG C |
| 2.42 | 94 | Weighted Average |
| 0.36 | 74 | 14.96% Pervious Area |
| 2.06 | 98 | 85.04% Impervious Area |

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

## Summary for Subcatchment PR-4B: Subcat PR-4B

Runoff = 12.8 cfs @ 12.09 hrs, Volume= 0.981 af, Depth= 8.16"
Routed to Link DP4 : Taunton River (offsite)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2070 100-year Rainfall=10.40"

| Area (ac) | CN | Description |
|---|---|---|
| 0.31 | 74 | >75% Grass cover, Good, HSG C |
| 0.25 | 96 | Gravel surface, HSG C |
| 0.00 | 98 | Roofs, HSG C |
| 0.29 | 98 | Unconnected pavement, HSG C |
| 0.59 | 72 | Woods/grass comb., Good, HSG C |
| 1.44 | 82 | Weighted Average |
| 1.15 | 78 | 79.66% Pervious Area |
| 0.29 | 98 | 20.34% Impervious Area |

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

## Summary for Subcatchment PR-4C: Subcat PR-4C

Runoff = 11.3 cfs @ 12.09 hrs, Volume= 0.949 af, Depth=10.07"
Routed to Link DP4 : Taunton River (offsite)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2070 100-year Rainfall=10.40"

| Area (ac) | CN | Description |
|---|---|---|
| 0.41 | 96 | Gravel surface, HSG C |
| 0.04 | 98 | Roofs, HSG C |
| 0.68 | 98 | Unconnected pavement, HSG C |
| 1.13 | 97 | Weighted Average |
| 0.41 | 96 | 36.41% Pervious Area |
| 0.72 | 98 | 63.59% Impervious Area |

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

## Summary for Subcatchment PR-4D: Subcat PR-4D

Runoff = 12.2 cfs @ 12.09 hrs, Volume= 1.018 af, Depth= 9.92"
Routed to Link DP4 : Taunton River (offsite)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2070 100-year Rainfall=10.40"

| Area (ac) | CN | Description |
|---|---|---|
| 1.20 | 96 | Gravel surface, HSG C |
| 0.01 | 98 | Roofs, HSG C |
| 0.02 | 98 | Unconnected pavement, HSG C |
| 1.23 | 96 | Weighted Average |
| 1.20 | 96 | 97.09% Pervious Area |
| 0.04 | 98 | 2.91% Impervious Area |

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

## Summary for Pond 210: DMH 210

Inflow Area = 6.01 ac, 44.99% Impervious, Inflow Depth = 8.98" for 2070 100-year event
Inflow = 50.3 cfs @ 12.10 hrs, Volume= 4.500 af
Outflow = 50.3 cfs @ 12.10 hrs, Volume= 4.500 af, Atten= 0%, Lag= 0.0 min
Primary = 50.3 cfs @ 12.10 hrs, Volume= 4.500 af
Routed to Link DP5 : Mount Hope Bay

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Peak Elev= 10.58' @ 12.10 hrs

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 4.80' | **30.0" Round Culvert**<br>L= 175.0' CPP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 4.80' / 2.00' S= 0.0160 '/' Cc= 0.900<br>n= 0.012, Flow Area= 4.91 sf |

**Primary OutFlow** Max=50.2 cfs @ 12.10 hrs HW=10.56' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 50.2 cfs @ 10.22 fps)

## Summary for Pond PR-P1A: Northeasterly Surface Sand Filter

Inflow Area = 12.97 ac, 83.74% Impervious, Inflow Depth = 9.66" for 2070 100-year event
Inflow = 125.3 cfs @ 12.09 hrs, Volume= 10.442 af
Outflow = 48.1 cfs @ 12.32 hrs, Volume= 10.443 af, Atten= 62%, Lag= 14.1 min
Primary = 48.1 cfs @ 12.32 hrs, Volume= 10.443 af
Routed to Link DP1 : Taunton River

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 22.60' @ 12.32 hrs Surf.Area= 8,990 sf Storage= 126,627 cf

Plug-Flow detention time= 294.6 min calculated for 10.435 af (100% of inflow)
Center-of-Mass det. time= 296.1 min ( 1,042.4 - 746.3 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 13.00' | 7,192 cf | **Sand Filter (Irregular)**Listed below (Recalc)<br>17,980 cf Overall x 40.0% Voids |
| #2 | 15.00' | 128,738 cf | **Pond (Irregular)**Listed below (Recalc) -Impervious |
| | | 135,930 cf | Total Available Storage |

| Elevation (feet) | Surf.Area (sq-ft) | Perim. (feet) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) | Wet.Area (sq-ft) |
|---|---|---|---|---|---|
| 13.00 | 8,990 | 399.0 | 0 | 0 | 8,990 |
| 15.00 | 8,990 | 399.0 | 17,980 | 17,980 | 9,788 |

| Elevation (feet) | Surf.Area (sq-ft) | Perim. (feet) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) | Wet.Area (sq-ft) |
|---|---|---|---|---|---|
| 15.00 | 8,990 | 399.0 | 0 | 0 | 8,990 |
| 16.00 | 10,213 | 418.0 | 9,595 | 9,595 | 10,291 |
| 17.00 | 11,496 | 437.0 | 10,848 | 20,443 | 11,653 |
| 18.00 | 14,330 | 562.0 | 12,887 | 33,330 | 21,602 |
| 19.00 | 16,583 | 542.0 | 15,443 | 48,773 | 23,444 |
| 20.00 | 18,267 | 561.0 | 17,418 | 66,191 | 25,201 |
| 21.00 | 19,948 | 580.0 | 19,101 | 85,293 | 27,018 |
| 22.00 | 21,715 | 598.0 | 20,825 | 106,118 | 28,805 |
| 23.00 | 23,538 | 617.0 | 22,620 | 128,738 | 30,740 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 12.00' | **30.0" Round Culvert**<br>L= 890.0' CPP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 12.00' / 7.00' S= 0.0056 '/' Cc= 0.900<br>n= 0.012, Flow Area= 4.91 sf |
| #2 | Device 1 | 13.00' | **2.000 in/hr Exfiltration over Surface area** |
| #3 | Device 1 | 13.30' | **30.0" Round Culvert**<br>L= 93.0' CPP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 13.30' / 12.00' S= 0.0140 '/' Cc= 0.900<br>n= 0.012, Flow Area= 4.91 sf |
| #4 | Device 5 | 19.20' | **48.0" Horiz. Orifice/Grate X 2.00** C= 0.600<br>Limited to weir flow at low heads |
| #5 | Device 3 | 14.00' | **18.0" Round Culvert X 2.00**<br>L= 27.0' CPP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 14.00' / 13.80' S= 0.0074 '/' Cc= 0.900<br>n= 0.012, Flow Area= 1.77 sf |

**Primary OutFlow** Max=48.1 cfs @ 12.32 hrs HW=22.59' TW=0.00' (Dynamic Tailwater)
- **1=Culvert** (Passes 48.1 cfs of 48.8 cfs potential flow)
  - **2=Exfiltration** (Exfiltration Controls 0.4 cfs)
  - **3=Culvert** (Passes 47.7 cfs of 67.0 cfs potential flow)
    - **5=Culvert** (Inlet Controls 47.7 cfs @ 13.48 fps)
      - **4=Orifice/Grate** (Passes 47.7 cfs of 222.9 cfs potential flow)

## Summary for Pond PR-P1B: Subsurface Sand Filter

Inflow Area = 1.07 ac, 45.74% Impervious, Inflow Depth = 8.51" for 2070 100-year event
Inflow = 9.5 cfs @ 12.09 hrs, Volume= 0.757 af
Outflow = 9.5 cfs @ 12.09 hrs, Volume= 0.757 af, Atten= 0%, Lag= 0.0 min
Primary = 9.5 cfs @ 12.09 hrs, Volume= 0.757 af
Routed to Link DP1 : Taunton River

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 12.13' @ 12.09 hrs Surf.Area= 790 sf Storage= 1,806 cf

Plug-Flow detention time= 61.8 min calculated for 0.756 af (100% of inflow)
Center-of-Mass det. time= 62.3 min ( 831.2 - 768.9 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 12.30' | 9 cf | **2.00'D x 1.50'H Vertical Cone/Cylinder**x 2 |
| #2A | 8.30' | 474 cf | **13.79'W x 57.25'L x 4.17'H Field A**<br>3,290 cf Overall - 2,106 cf Embedded = 1,184 cf x 40.0% Voids |
| #3A | 9.80' | 1,332 cf | **StormTrap ST1 SingleTrap 2-0**x 8 Inside #2<br>Inside= 82.7"W x 24.0"H => 11.84 sf x 14.06'L = 166.5 cf<br>Outside= 82.7"W x 32.0"H => 18.39 sf x 14.06'L = 258.6 cf<br>8 Chambers in 2 Rows<br>13.79' x 56.25' Core + 0.00' x 0.50' Border = 13.79' x 57.25' System |
| | | 1,815 cf | Total Available Storage |

Storage Group A created with Chamber Wizard

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Device 2 | 8.30' | **2.000 in/hr Exfiltration over Surface area** |
| #2 | Primary | 7.80' | **18.0" Round Culvert**<br>L= 228.0' CPP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 7.80' / 6.90' S= 0.0039 '/' Cc= 0.900<br>n= 0.012, Flow Area= 1.77 sf |
| #3 | Device 2 | 11.30' | **4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) |

**Primary OutFlow** Max=9.3 cfs @ 12.09 hrs HW=12.12' TW=0.00' (Dynamic Tailwater)
└─**2=Culvert** (Passes 9.3 cfs of 12.2 cfs potential flow)
  ├─**1=Exfiltration** (Exfiltration Controls 0.0 cfs)
  └─**3=Sharp-Crested Rectangular Weir** (Weir Controls 9.2 cfs @ 2.95 fps)

## Summary for Pond PR-P2B: Southerly Surface Sand Filter

Inflow Area = 18.06 ac, 78.04% Impervious, Inflow Depth = 9.49" for 2070 100-year event
Inflow = 172.7 cfs @ 12.09 hrs, Volume= 14.287 af
Outflow = 89.8 cfs @ 12.23 hrs, Volume= 14.287 af, Atten= 48%, Lag= 8.7 min
Primary = 48.5 cfs @ 12.23 hrs, Volume= 13.440 af
Routed to Link DP5 : Mount Hope Bay
Secondary = 41.3 cfs @ 12.23 hrs, Volume= 0.847 af
Routed to Link DP5 : Mount Hope Bay

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 19.14' @ 12.23 hrs Surf.Area= 8,946 sf Storage= 166,107 cf

Plug-Flow detention time= 264.2 min calculated for 14.277 af (100% of inflow)
Center-of-Mass det. time= 265.9 min ( 1,015.2 - 749.4 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 10.50' | 5,368 cf | **Sand filter (Irregular)** Listed below (Recalc)<br>13,419 cf Overall x 40.0% Voids |
| #2 | 12.00' | 187,031 cf | **Pond (Irregular)** Listed below (Recalc) -Impervious |
| | | 192,399 cf | Total Available Storage |

| Elevation (feet) | Surf.Area (sq-ft) | Perim. (feet) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) | Wet.Area (sq-ft) |
|---|---|---|---|---|---|
| 10.50 | 8,946 | 353.0 | 0 | 0 | 8,946 |
| 12.00 | 8,946 | 353.0 | 13,419 | 13,419 | 9,476 |

| Elevation (feet) | Surf.Area (sq-ft) | Perim. (feet) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) | Wet.Area (sq-ft) |
|---|---|---|---|---|---|
| 12.00 | 8,946 | 353.0 | 0 | 0 | 8,946 |
| 13.00 | 15,516 | 457.0 | 12,081 | 12,081 | 15,662 |
| 14.00 | 16,915 | 476.0 | 16,210 | 28,292 | 17,148 |
| 15.00 | 21,436 | 663.0 | 19,131 | 47,423 | 34,107 |
| 16.00 | 23,469 | 583.0 | 22,445 | 69,867 | 42,063 |
| 17.00 | 32,735 | 667.0 | 27,974 | 97,841 | 50,442 |
| 18.00 | 27,680 | 497.0 | 30,172 | 128,013 | 66,200 |
| 19.00 | 29,500 | 616.0 | 28,585 | 156,599 | 76,754 |
| 20.00 | 31,375 | 635.0 | 30,433 | 187,031 | 78,747 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 8.90' | **30.0" Round Culvert**<br>L= 724.0' CPP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 8.90' / 5.70' S= 0.0044 '/' Cc= 0.900<br>n= 0.012, Flow Area= 4.91 sf |
| #2 | Device 1 | 10.50' | **2.000 in/hr Exfiltration over Horizontal area** |
| #3 | Secondary | 18.50' | **30.0' long x 55.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60<br>Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63 |
| #4 | Device 1 | 10.50' | **24.0" Round Culvert X 2.00**<br>L= 70.0' CPP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 10.50' / 8.90' S= 0.0229 '/' Cc= 0.900<br>n= 0.012, Flow Area= 3.14 sf |
| #5 | Device 4 | 15.60' | **48.0" Horiz. Orifice/Grate X 2.00** C= 0.600<br>Limited to weir flow at low heads |

**Primary OutFlow** Max=48.5 cfs @ 12.23 hrs HW=19.13' TW=0.00' (Dynamic Tailwater)
- **1=Culvert** (Barrel Controls 48.5 cfs @ 9.88 fps)
  - **2=Exfiltration** (Passes < 0.4 cfs potential flow)
  - **4=Culvert** (Passes < 83.6 cfs potential flow)
    - **5=Orifice/Grate** (Passes < 227.4 cfs potential flow)

**Secondary OutFlow** Max=40.5 cfs @ 12.23 hrs HW=19.13' TW=0.00' (Dynamic Tailwater)
- **3=Broad-Crested Rectangular Weir** (Weir Controls 40.5 cfs @ 2.14 fps)

## Summary for Pond PR-P2C: Main Entrance Surface Sand Filter

Inflow Area = 3.34 ac, 60.07% Impervious, Inflow Depth = 8.94" for 2070 100-year event
Inflow = 30.8 cfs @ 12.09 hrs, Volume= 2.490 af
Outflow = 30.2 cfs @ 12.11 hrs, Volume= 2.490 af, Atten= 2%, Lag= 1.1 min
Primary = 30.2 cfs @ 12.11 hrs, Volume= 2.490 af
Routed to Pond 210 : DMH 210

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 16.71' @ 12.11 hrs Surf.Area= 2,470 sf Storage= 12,370 cf

Plug-Flow detention time= 152.3 min calculated for 2.488 af (100% of inflow)
Center-of-Mass det. time= 153.1 min ( 912.9 - 759.7 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 12.00' | 1,976 cf | **Sand Filter (Irregular)** Listed below (Recalc)<br>4,940 cf Overall x 40.0% Voids |
| #2 | 14.00' | 15,635 cf | **Pond (Irregular)** Listed below (Recalc) -Impervious |
| | | 17,611 cf | Total Available Storage |

| Elevation (feet) | Surf.Area (sq-ft) | Perim. (feet) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) | Wet.Area (sq-ft) |
|---|---|---|---|---|---|
| 12.00 | 2,470 | 294.0 | 0 | 0 | 2,470 |
| 14.00 | 2,470 | 294.0 | 4,940 | 4,940 | 3,058 |

| Elevation (feet) | Surf.Area (sq-ft) | Perim. (feet) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) | Wet.Area (sq-ft) |
|---|---|---|---|---|---|
| 14.00 | 2,470 | 294.0 | 0 | 0 | 2,470 |
| 15.00 | 3,380 | 312.0 | 2,913 | 2,913 | 3,389 |
| 16.00 | 4,345 | 331.0 | 3,852 | 6,766 | 4,413 |
| 17.00 | 6,594 | 374.0 | 5,431 | 12,196 | 6,851 |
| 17.50 | 7,166 | 383.0 | 3,439 | 15,635 | 7,426 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 10.00' | **24.0" Round Culvert**<br>L= 155.0' CPP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 10.00' / 8.90' S= 0.0071 '/' Cc= 0.900<br>n= 0.012, Flow Area= 3.14 sf |
| #2 | Device 1 | 12.00' | **2.000 in/hr Exfiltration over Surface area** |
| #3 | Device 1 | 11.00' | **18.0" Round Culvert**<br>L= 75.0' CPP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 11.00' / 10.00' S= 0.0133 '/' Cc= 0.900<br>n= 0.012, Flow Area= 1.77 sf |
| #4 | Device 1 | 10.20' | **18.0" Round Culvert**<br>L= 13.0' CPP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 10.20' / 10.00' S= 0.0154 '/' Cc= 0.900<br>n= 0.012, Flow Area= 1.77 sf |
| #5 | Device 3 | 16.20' | **48.0" Horiz. Orifice/Grate** C= 0.600<br>Limited to weir flow at low heads |
| #6 | Device 4 | 16.20' | **48.0" Horiz. Orifice/Grate** C= 0.600<br>Limited to weir flow at low heads |

**Primary OutFlow** Max=29.7 cfs @ 12.11 hrs HW=16.71' TW=10.50' (Dynamic Tailwater)
- **1=Culvert** (Passes 29.7 cfs of 34.2 cfs potential flow)
  - **2=Exfiltration** (Exfiltration Controls 0.1 cfs)
  - **3=Culvert** (Passes 14.8 cfs of 18.9 cfs potential flow)
    - **5=Orifice/Grate** (Weir Controls 14.8 cfs @ 2.33 fps)
  - **4=Culvert** (Passes 14.8 cfs of 20.4 cfs potential flow)
    - **6=Orifice/Grate** (Weir Controls 14.8 cfs @ 2.33 fps)

## Summary for Pond PR-P2D: Guard House Surface Sand Filter

Inflow Area = 1.63 ac, 16.21% Impervious, Inflow Depth = 8.38" for 2070 100-year event
Inflow = 14.8 cfs @ 12.09 hrs, Volume= 1.139 af
Outflow = 14.8 cfs @ 12.10 hrs, Volume= 1.139 af, Atten= 0%, Lag= 0.7 min
Primary = 14.8 cfs @ 12.10 hrs, Volume= 1.139 af
Routed to Pond 210 : DMH 210

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 16.50' @ 12.10 hrs Surf.Area= 267 sf Storage= 2,274 cf

Plug-Flow detention time= 64.4 min calculated for 1.138 af (100% of inflow)
Center-of-Mass det. time= 65.8 min ( 846.6 - 780.8 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 12.50' | 160 cf | **Sand Filter (Irregular)**Listed below (Recalc)<br>401 cf Overall x 40.0% Voids |
| #2 | 14.00' | 4,061 cf | **Pond (Irregular)**Listed below (Recalc) -Impervious |
| | | 4,221 cf | Total Available Storage |

| Elevation (feet) | Surf.Area (sq-ft) | Perim. (feet) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) | Wet.Area (sq-ft) |
|---|---|---|---|---|---|
| 12.50 | 267 | 99.0 | 0 | 0 | 267 |
| 14.00 | 267 | 99.0 | 401 | 401 | 416 |

| Elevation (feet) | Surf.Area (sq-ft) | Perim. (feet) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) | Wet.Area (sq-ft) |
|---|---|---|---|---|---|
| 14.00 | 267 | 99.0 | 0 | 0 | 267 |
| 15.00 | 591 | 117.0 | 418 | 418 | 595 |
| 16.00 | 1,345 | 188.0 | 943 | 1,361 | 2,325 |
| 17.00 | 1,961 | 201.0 | 1,643 | 3,004 | 2,772 |
| 17.50 | 2,270 | 211.0 | 1,057 | 4,061 | 3,115 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 9.30' | **15.0" Round Culvert**<br>L= 27.0' CPP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 9.30' / 8.90' S= 0.0148 '/' Cc= 0.900<br>n= 0.012, Flow Area= 1.23 sf |
| #2 | Device 1 | 12.50' | **2.000 in/hr Exfiltration over Surface area** |
| #3 | Device 1 | 16.00' | **48.0" Horiz. Orifice/Grate** C= 0.600<br>Limited to weir flow at low heads |

**Primary OutFlow** Max=14.4 cfs @ 12.10 hrs HW=16.50' TW=10.57' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 14.4 cfs @ 11.73 fps)
  ├─**2=Exfiltration** (Passes < 0.0 cfs potential flow)
  └─**3=Orifice/Grate** (Passes < 14.7 cfs potential flow)

## Summary for Pond PR-P3A: Offsite Subsurface Sand Filter

Inflow Area = 1.04 ac, 41.72% Impervious, Inflow Depth = 10.02" for 2070 100-year event
Inflow = 10.4 cfs @ 12.09 hrs, Volume= 0.871 af
Outflow = 10.3 cfs @ 12.20 hrs, Volume= 0.871 af, Atten= 1%, Lag= 6.8 min
Primary = 10.3 cfs @ 12.20 hrs, Volume= 0.871 af
Routed to Pond 210 : DMH 210

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 10.68' @ 12.15 hrs Surf.Area= 790 sf Storage= 3,005 cf

Plug-Flow detention time= 59.6 min calculated for 0.870 af (100% of inflow)
Center-of-Mass det. time= 60.0 min ( 803.7 - 743.7 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 11.40' | 19 cf | **2.00'D x 3.00'H Vertical Cone/Cylinder** x 2 |
| #2A | 5.40' | 474 cf | **13.79'W x 57.25'L x 6.17'H Field A**<br>4,869 cf Overall - 3,685 cf Embedded = 1,184 cf x 40.0% Voids |
| #3A | 6.90' | 2,676 cf | **StormTrap ST1 SingleTrap 4-0** x 8 Inside #2<br>Inside= 82.7"W x 48.0"H => 23.79 sf x 14.06'L = 334.5 cf<br>Outside= 82.7"W x 56.0"H => 32.18 sf x 14.06'L = 452.5 cf<br>8 Chambers in 2 Rows<br>13.79' x 56.25' Core + 0.00' x 0.50' Border = 13.79' x 57.25' System |
| | | 3,169 cf | Total Available Storage |

Storage Group A created with Chamber Wizard

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Device 2 | 5.40' | **2.000 in/hr Exfiltration over Surface area** |
| #2 | Primary | 4.90' | **30.0" Round Culvert**<br>L= 11.0' CPP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 4.90' / 4.80' S= 0.0091 '/' Cc= 0.900<br>n= 0.012, Flow Area= 4.91 sf |
| #3 | Device 2 | 8.40' | **4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) |

**Primary OutFlow** Max=26.5 cfs @ 12.20 hrs HW=10.17' TW=8.88' (Dynamic Tailwater)
↑**2=Culvert** (Passes 26.5 cfs of 26.8 cfs potential flow)
↑**1=Exfiltration** (Exfiltration Controls 0.0 cfs)
**3=Sharp-Crested Rectangular Weir** (Weir Controls 26.5 cfs @ 4.10 fps)

## Summary for Link DP1: Taunton River

Inflow Area = 17.05 ac, 70.67% Impervious, Inflow Depth = 9.34" for 2070 100-year event
Inflow = 80.8 cfs @ 12.10 hrs, Volume= 13.272 af
Primary = 80.8 cfs @ 12.10 hrs, Volume= 13.272 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP5 : Mount Hope Bay

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Link DP2: Existing Channel

Inflow Area = 4.60 ac, 0.00% Impervious, Inflow Depth = 6.99" for 2070 100-year event
Inflow = 36.5 cfs @ 12.09 hrs, Volume= 2.678 af
Primary = 36.5 cfs @ 12.09 hrs, Volume= 2.678 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP5 : Mount Hope Bay

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Link DP3: Lower Supply Basin

Inflow Area = 2.99 ac, 12.92% Impervious, Inflow Depth = 9.53" for 2070 100-year event
Inflow = 29.2 cfs @ 12.09 hrs, Volume= 2.376 af
Primary = 29.2 cfs @ 12.09 hrs, Volume= 2.376 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Link DP4: Taunton River (offsite)

Inflow Area = 6.23 ac, 49.91% Impervious, Inflow Depth = 9.46" for 2070 100-year event
Inflow = 59.8 cfs @ 12.09 hrs, Volume= 4.908 af
Primary = 59.8 cfs @ 12.09 hrs, Volume= 4.908 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP5 : Mount Hope Bay

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

## Summary for Link DP5: Mount Hope Bay

Inflow Area = 53.92 ac, 60.04% Impervious, Inflow Depth = 9.12" for 2070 100-year event
Inflow = 290.7 cfs @ 12.11 hrs, Volume= 40.981 af
Primary = 290.7 cfs @ 12.11 hrs, Volume= 40.981 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

# Appendix C: Standard 3 Computations and Supporting Documentation

## Standard 3 - Stormwater Recharge

The Project has been designed to comply with Standard 3 to the maximum extent practicable because the site is comprised of wholly Hydrologic Soil Group C and D soils and bedrock at the land surface.

# Soil Evaluation and Analysis

Hydrologic Soil Group—Bristol County, Massachusetts, Southern Part
(Brayton Point)


Map Scale: 1:9,880 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 100 200 400 600

Feet
0 450 900 1800 2700

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

## MAP LEGEND

**Area of Interest (AOI)**

- Area of Interest (AOI)

**Soils**

**Soil Rating Polygons**

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

**Soil Rating Lines**

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

**Soil Rating Points**

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

**Water Features**

- Streams and Canals

**Transportation**

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

**Background**

- Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

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: Bristol County, Massachusetts, Southern Part
Survey Area Data: Version 15, Sep 2, 2021

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

Date(s) aerial images were photographed: Jul 8, 2019—Jul 16, 2019

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

# Hydrologic Soil Group

| Map unit symbol | Map unit name | Rating | Acres in AOI | Percent of AOI |
|---|---|---|---|---|
| 61A | Pawcatuck and Ipswich peats, 0 to 2 percent slopes, very frequently flooded | A/D | 14.5 | 3.9% |
| 71A | Ridgebury fine sandy loam, 0 to 3 percent slopes, extremely stony | D | 10.2 | 2.8% |
| 325B | Newport loam, 3 to 8 percent slopes | B | 8.0 | 2.2% |
| 346B | Pittstown loam, 0 to 8 percent slopes, very stony | C | 2.6 | 0.7% |
| 602 | Urban land | | 126.6 | 34.4% |
| 606 | Miscellaneous water | | 19.4 | 5.3% |
| 607 | Water, saline | | 6.4 | 1.7% |
| 608 | Water, ocean | | 121.5 | 33.0% |
| 651 | Udorthents, smoothed | A | 59.0 | 16.0% |
| **Totals for Area of Interest** | | | **368.2** | **100.0%** |

## Description

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

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

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

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

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

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

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

## Rating Options

*Aggregation Method:* Dominant Condition

*Component Percent Cutoff: None Specified*

*Tie-break Rule:* Higher

RAMBOLL

ENVIRONMENT
& HEALTH

# MEMO

| | |
|---|---|
| Project name | **Phase III ESA – Brayton Point** |
| Project no. | **330003274** |
| Client | **Prysmian Cables and Systems USA, LLC** |
| Memo no. | **01** |
| Version | **02** |
| To | **Scott Lindgren** |
| From | **Victor Warner** |
| Copy to | **Dave Farber**<br>**Bill Monette**<br>**Jason Currier**<br>**Chris Norton** |
| Prepared by | **Victor Warner** |
| Checked by | **Dave Farber** |
| Approved by | **Bill Monette** |

Date July 12, 2022

## 1 Introduction

This memorandum summarizes the results of a subsurface investigation and evaluation completed by Ramboll Americas Engineering Solutions, Inc. (Ramboll) in connection with the stormwater design for Prysmian S.p.A (Prysmian) proposed manufacturing facility to be located at the Brayton Point property located at One Brayton Point, Somerset, Massachusetts (the "Site").

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## 2 Background

The Site is the location of the former Brayton Point Power Station ("the Power Station"), a 1,600 MW coal-fired power plant that operated from 1963 until its retirement in June of 2017. In 2018, the Power Station was purchased by Commercial Development Company, Inc. (CDC) who began the process of demolishing the Power Station to accommodate future industrial use on the property. The demolition began in September 2018 and culminated in the implosion of the Power Station's 500-foot-tall cooling towers in April 2019.

The Site includes approximately 47 acres of the 300-acre overall property formerly occupied by the Power Station and associated infrastructure. The Site is located at the southern end of Brayton Point and is bounded on the west by the Lee River, on the south by Mount Hope Bay, on the east by the Taunton River, and on the north by the remainder of the former Power Station property. The future Prysmian Brayton Point Project would include a new marine terminal, which would consist of an in-water cable-delivery system (i.e., a pier structure) that would allow sub-sea power cable to be transferred to a cable laying vessel for delivery and installation.

## 3 Subsurface Investigation

The subsurface conditions at the Site where stormwater storage and/or treatment structures are proposed were evaluated based on an investigation program conducted from June 23, 2022, through June 27, 2022. The subsurface investigation consisted of 31 test pits completed by Terracon Consultants, Inc (Terracon) at the locations indicated on the figure titled Geotechnical Surveys, attached as Appendix 1.

The test pits were excavated utilizing a CAT E-695 excavator. A representative from Ramboll was on-site to observe the test pit activities and log the subsurface conditions at each test pit location. All soils were visually classified utilizing the Unified Soil Classification System. No soil samples were collected, and no percolation tests were performed as part of this investigation. The test pit logs are provided as Appendix 2.

## 4 Subsurface Conditions

The subsurface conditions at the site generally consisted of approximately 2 to 3 feet of loose to medium dense fill consisting primarily of silty sand (SM) with little to some gravel. Below the fill the soils generally consisted of a dense sandy silt (SM-ML) with varying amounts of gravel or weathered shale. Bedrock was encountered in 30 of the 31 test pit locations at depths ranging from 10 inches to 11 feet 6 inches below ground surface (bgs), with an average depth of approximately 5.0 feet bgs. The bedrock depth for each is summarized below in Table 1. Test pit location TP-4.6 was terminated before encountering bedrock as two unmarked steel utility pipes were encountered at approximately 8 feet below grade.

During test pitting, several of the test pits were relocated due to the presence of underground pavement or concrete slabs. Several underground utilities were encountered throughout the subsurface investigation. The test pit logs included as Appendix 2 detail the approximate relocation and structures encountered as noted.

Groundwater was not observed in any of the test pit locations. Based on these observations and our understanding of the proposed work, it is not anticipated that groundwater will be encountered during construction. Fluctuations in groundwater level may occur due to seasonal variations in rainfall amount, runoff, and other factors and should be considered at the time of construction.

**Table 1: Depth to Bedrock Summary**

| Test Pit ID | Approximate Depth to Bedrock BGS | Test Pit ID | Approximate Depth to Bedrock BGS |
|---|---|---|---|
| 1.1 | 4’2” | 5.1 | 7'10" |
| 1.2 | 4’2” | 5.2 | 6'8" |
| 1.3 | 5’2” | 5.3 | 3'4" |
| 2.1 | 5’0” | 5.4 | 6'6" |
| 2.2 | 1’3” | 5.5 | 5'3" |

| | | | |
|---|---|---|---|
| 2.3 | 1’10” | 5.6 | 7'0" |
| 2.4 | 1’8” | 5.7 | 6'4" |
| 2.5 | 10” | 5.8 | 5'0" |
| 4.1 | 4’8” | 5.9 | 7'10" |
| 4.2 | 8’8” | 6.1 | 4'0" |
| 4.3 | 5’2” | 6.2 | 1'2" |
| 4.4 | 11’6” | 6.3 | 1'8" |
| 4.5 | 8’5” | 7.1 | 3'8" |
| 4.6 | BNE | 7.2 | 3'6" |
| 4.7 | 5’9” | 7.3 | 5'7" |
| 4.8 | 6'8" | | |

Notes:
1 – Bedrock Not Encountered (BNE)

## 5 Summary of Results

Based on the subsurface conditions observed and detailed above in the test pits, and the Hydraulic Soil Group definitions detailed in Chapter 7 *Hydrologic Soil Groups* of the United States Department of Agriculture (USDA) Part 360 Hydrology National Engineering Handbook, the soils at the site would generally be categorized as soil group B or C. Ramboll recommends that the soils be classified as Soil Group C.

According to Table 7-1 and 7-2 of Chapter 7 *Hydrologic Soil Groups* of the United States Department of Agriculture (USDA) Part 360 Hydrology National Engineering Handbook, the saturated hydraulic conductivity for hydraulic soil group C soils depending on the depth to a water impermeable layer and high-water table is summarized in Table 2.

**Table 2: Criteria for Hydraulic Soil Group C Soils**

| Depth to Water Impermeable Layer (in) | Depth to High Water Table (in) | Saturated Hydraulic Conductivity of the Least Transmissive Layer (in/hr) |
|---|---|---|
| 20 to 40 | 24 to 40 | <1.42 to >0.14 |
| Greater than 40 | Greater than 40 | <0.57 to >0.06 |

Alternatively, Table 2.3.3 of the Massachusetts Stormwater Handbook Volume 3: Documenting Compliance with the Massachusetts Stormwater Management Standard (Massachusetts Stormwater

Handbook) provides infiltration rates based on the soil texture class and the corresponding hydrologic soil group. Based on the soil definitions provided in the USDA Soil Mechanics Level I Module USDA Textural Classification Study Guide and the soil descriptions provided in the test pit logs, the soils would generally be defined as a sandy loam to a silty loam. Ramboll recommends utilizing the values specified for the silty loam soil type. Based on Table 2.3.3 of the Massachusetts Stormwater Handbook, this would result in the soils being categorized as Type C soils, with an infiltration rate of 0.27 inches per hour.

It is recommended that the saturated hydraulic conductivity or infiltration rate should be selected based on the select location and the corresponding depth to bedrock. Also, while no groundwater was encountered during the subsurface investigation, actual subsurface conditions may vary from those anticipated based on the test pits.

## APPENDIX 1
## GEOTECHNICAL SURVEY LOCATIONS


**NOTES:**
Basemap: MA Gov Aerial 2021
Coordinate System: NAD 83

# GEOTECHNICAL SITE ASSESSMENT FOR STORMWATER MANAGEMENT

**Brayton Point, Somerset Massachusetts**

# TEST PITS LOCATIONS

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# APPENDIX 2
# TEST PIT LOGS

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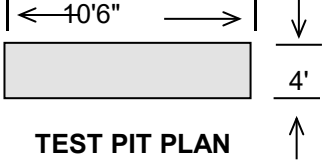
# TEST PIT LOG

TEST PIT TP-1.1

| | | | |
|---|---|---|---|
| PROJECT: Phase III ESA - Brayton Point, Somerset MA | | | JOB NO.: 330003274□ |
| CLIENT: Prysmian Cables and Systems USA, LLC | | | GROUND ELEV.: |
| CONTRACTOR: Terracon | | | DATUM: |
| EQUIPMENT: Cat E-695 | | | GROUND WATER DEPTH: NE |
| OPERATOR: John Riendeau | TIME STARTED: | 2:02p.m. | DATE STARTED: 6-24-22 |
| INSPECTOR: Chris Norton | TIME FINISHED: | 2:20p.m. | DATE FINISHED: 6-24-22 |

| Depth Ft. | Sample # | Unified Classification | GEOLOGIC DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 1 | | SM | Light brown/grey loose cmf sand and gravel fill, little silt, dry | |
| 2 | | SM | Light brown/grey medium dense sand and gravel fill, little silt, dry | |
| 3 | | SM-ML | Dark brown/black dense sandy silt, some shale fragments, little clay,moist. | |
| 4 | | SM-ML | Dark brown/black dense sandy silt, some shale fragments, little clay,moist. | |
| 4'2" | | SM-ML | Dark brown/black dense sandy silt with weathered shale, little clay,moist. Test pit terminated at top of rock. | |
| 5 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |

**TEST PIT LOCATION AND NOTES:**
Test pit terminated at 4'2". No water table encountered. Test pit moved 5' north of original location. Corrugated steel pipe uncovered during test pit. Not damaged and filled back in.




**TEST PIT PLAN**

**NORTH**

RAMBOLL

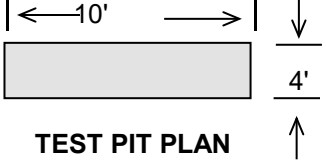
# TEST PIT LOG

TEST PIT TP-1.2

| | | | |
|---|---|---|---|
| PROJECT: Phase III ESA - Brayton Point, Somerset MA | | | JOB NO.: 330003274□ |
| CLIENT: Prysmian Cables and Systems USA, LLC | | | GROUND ELEV.: |
| CONTRACTOR: Terracon | | | DATUM: |
| EQUIPMENT: Cat E-695 | | | GROUND WATER DEPTH: NE |
| OPERATOR: John Riendeau | TIME STARTED: 1:50p.m. | | DATE STARTED: 6-24-22 |
| INSPECTOR: Chris Norton | TIME FINISHED: 2:00p.m. | | DATE FINISHED: 6-24-22 |

| Depth Ft. | Sample # | Unified Classification | GEOLOGIC DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 1 | | SM | Light brown loose silty cmf sand fill, some gravel, dry | |
| 2 | | SM | Light brown loose silty cmf sand fill, some gravel, dry | |
| 3 | | SM | Light brown loose silty cmf sand fill, some gravel, dry | |
| 4 | | SM-ML | Dark brown/black dense sandy silt with weathered shale, little clay,moist. | |
| 4'2" | | SM-ML | Dark brown/black dense sandy silt with weathered shale, little clay,moist. Test pit terminated at top of rock. | |
| 5 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |

**TEST PIT LOCATION AND NOTES:**
Test pit terminated at 4'2". No water table encountered. Test pit moved 5' north of original location.




**TEST PIT PLAN**

**NORTH**

RAMBOLL

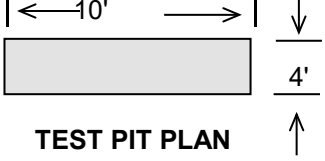
# TEST PIT LOG

TEST PIT TP-1.3

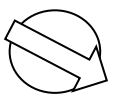
| | | | |
|---|---|---|---|
| PROJECT: Phase III ESA - Brayton Point, Somerset MA | | | JOB NO.: 330003274□ |
| CLIENT: Prysmian Cables and Systems USA, LLC | | | GROUND ELEV.: |
| CONTRACTOR: Terracon | | | DATUM: |
| EQUIPMENT: Cat E-695 | | | GROUND WATER DEPTH: NE |
| OPERATOR: John Riendeau | TIME STARTED: 1:25p.m | | DATE STARTED: 6-24-22 |
| INSPECTOR: Chris Norton | TIME FINISHED: 1:45p.m. | | DATE FINISHED: 6-24-22 |

| Depth Ft. | Sample # | Unified Classification | GEOLOGIC DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 1 | | SM-ML | Brown/grey medium dense sandy silt fill, little clay, little gravel, moist | |
| 2 | | SM-ML | Brown/grey medium dense sandy silt fill, little clay, little gravel, moist | |
| 3 | | SM-ML | Dark brown/black dense sandy silt, some gravel,moist | |
| 4 | | SM-ML | Dark brown/black dense sandy silt, some gravel,moist | |
| 5 | | SM-ML | Dark brown/black dense sandy silt, some gravel,moist | |
| 5'2" | | SM-ML | Dark brown/black dense sandy silt with weathered shale, little clay,moist. Test pit terminated at top of rock. | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |

**TEST PIT LOCATION AND NOTES:**
Test pit terminated at 5"". No water table encountered. Test pit moved 5' north of original location.




**TEST PIT PLAN**



**NORTH**

RAMBOLL

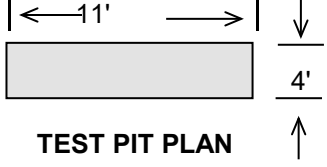
# TEST PIT LOG

TEST PIT TP-2.1

| | | | |
|---|---|---|---|
| PROJECT: Phase III ESA - Brayton Point, Somerset MA | | | JOB NO.: 330003274□ |
| CLIENT: Prysmian Cables and Systems USA, LLC | | | GROUND ELEV.: |
| CONTRACTOR: Terracon | | | DATUM: |
| EQUIPMENT: Cat E-695 | | | GROUND WATER DEPTH: NE |
| OPERATOR: John Riendeau | TIME STARTED: | 11:02a.m. | DATE STARTED: 6-24-22 |
| INSPECTOR: Chris Norton | TIME FINISHED: | 11:18a.m. | DATE FINISHED: 6-24-22 |

| Depth Ft. | Sample # | Unified Classification | GEOLOGIC DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 1 | | SM-ML | 2" of light brown sand and gravel at grade. Dark brown/black dense sandy silt, some gravel,moist | |
| 2 | | SM-ML | Dark brown/black dense sandy silt, some gravel, some shale fragments, moist | |
| 3 | | SM-ML | Dark brown/black dense sandy silt with weathered shale, little clay,moist. | |
| 4 | | SM-ML | Dark brown/black dense sandy silt with weathered shale, little clay,moist. | |
| 5 | | SM-ML | Dark brown/black dense sandy silt with weathered shale, little clay,moist. Test pit terminated at top of rock. | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |

**TEST PIT LOCATION AND NOTES:**
Test pit terminated at 5'0". No water table encountered




**TEST PIT PLAN**

**NORTH**

RAMBOLL

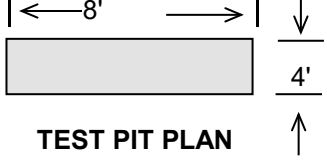
# TEST PIT LOG

TEST PIT TP-2.2

| | | | |
|---|---|---|---|
| PROJECT: Phase III ESA - Brayton Point, Somerset MA | | | JOB NO.: 330003274□ |
| CLIENT: Prysmian Cables and Systems USA, LLC | | | GROUND ELEV.: |
| CONTRACTOR: Terracon | | | DATUM: |
| EQUIPMENT: Cat E-695 | | | GROUND WATER DEPTH: NE |
| OPERATOR: John Riendeau | TIME STARTED: 11:20a.m. | | DATE STARTED: 6-24-22 |
| INSPECTOR: Chris Norton | TIME FINISHED: 11:30a.m. | | DATE FINISHED: 6-24-22 |

| Depth Ft. | Sample # | Unified Classification | GEOLOGIC DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 1 | | SM | Light brown loose fine sand with silt, some gravel dry. | |
| 1'3" | | SM-ML | Light brown medium dense sand with silt and weathered shale, dry Test pit terminated at top of rock. | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |

**TEST PIT LOCATION AND NOTES:**
Test pit terminated at 1'3". No water table encountered




**TEST PIT PLAN**

**NORTH**

RAMBOLL

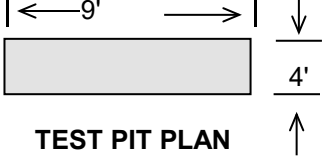
# TEST PIT LOG

TEST PIT TP-2.3

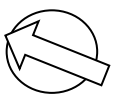
| | | | |
|---|---|---|---|
| PROJECT: Phase III ESA - Brayton Point, Somerset MA | | | JOB NO.: 330003274□ |
| CLIENT: Prysmian Cables and Systems USA, LLC | | | GROUND ELEV.: |
| CONTRACTOR: Terracon | | | DATUM: |
| EQUIPMENT: Cat E-695 | | | GROUND WATER DEPTH: NE |
| OPERATOR: John Riendeau | TIME STARTED: 11:30a.m. | | DATE STARTED: 6-24-22 |
| INSPECTOR: Chris Norton | TIME FINISHED: 11:42a.m. | | DATE FINISHED: 6-24-22 |

| Depth Ft. | Sample # | Unified Classification | GEOLOGIC DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 1 | | SM | Light brown loose fine sand with silt, some gravel dry. | |
| 1'10" | | SM-ML | Light brown medium dense sand with silt and weathered shale, dry Test pit terminated at top of rock. | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |

**TEST PIT LOCATION AND NOTES:**
Test pit terminated at 1'10". No water table encountered




**TEST PIT PLAN**



**NORTH**

RAMBOLL

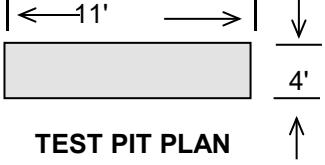
# TEST PIT LOG

TEST PIT TP-2.4

| | | | |
|---|---|---|---|
| PROJECT: Phase III ESA - Brayton Point, Somerset MA | | | JOB NO.: 330003274□ |
| CLIENT: Prysmian Cables and Systems USA, LLC | | | GROUND ELEV.: |
| CONTRACTOR: Terracon | | | DATUM: |
| EQUIPMENT: Cat E-695 | | | GROUND WATER DEPTH: NE |
| OPERATOR: John Riendeau | TIME STARTED: 12:50p.m. | | DATE STARTED: 6-24-22 |
| INSPECTOR: Chris Norton | TIME FINISHED: 1:15p.m. | | DATE FINISHED: 6-24-22 |

| Depth Ft. | Sample # | Unified Classification | GEOLOGIC DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 1 | | SM | Light brown loose fine sand with silt, some gravel dry. | |
| 1'8" | | SM-ML | Light brown medium dense sand with silt and weathered shale, dry Test pit terminated at top of rock. | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |

**TEST PIT LOCATION AND NOTES:**
Test pit terminated at 1'8". No water table encountered. Test pit moved approximately 25' south east from original location to avoid asphalt and concrete slab.




**TEST PIT PLAN** **NORTH**

RAMBOLL

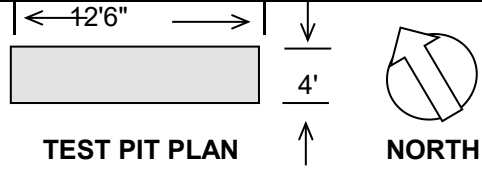
# TEST PIT LOG

TEST PIT NO. TP-2.5

| | | | |
|---|---|---|---|
| PROJECT: | Phase III ESA - Brayton Point, Somerset MA | | JOB NO.: 330003274□ |
| CLIENT: | Prysmian Cables and Systems USA, LLC | | GROUND ELEV.: |
| CONTRACTOR: | Terracon | | DATUM: |
| EQUIPMENT: | Cat E-695 | | GROUND WATER DEPTH: NE |
| OPERATOR: | John Riendeau | TIME STARTED: 1:11p.m. | DATE STARTED: 6-24-22 |
| INSPECTOR: | Chris Norton | TIME FINISHED: 1:25p.m | DATE FINISHED: 6-24-22 |

| Depth Ft. | Sample # | Unified Classification | GEOLOGIC DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 10"-15" | | SM | Light brown medium dense sand with silt and weathered shale, dry Test pit terminated at top of rock. Bed rock depth varied with varying grade change through test pit. Depth 10"-15". | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |

**TEST PIT LOCATION AND NOTES:**
Test pit terminated at 10"-15" No water table encountered. Test pit moved approximately 15' east from original location to avoid asphalt and concrete slab.



RAMBOLL

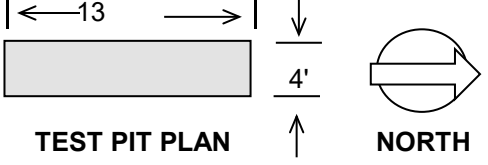
# TEST PIT LOG

TEST PIT TP-4.1

| | | | |
|---|---|---|---|
| PROJECT: Phase III ESA - Brayton Point, Somerset MA | | | JOB NO.: 330003274□ |
| CLIENT: Prysmian Cables and Systems USA, LLC | | | GROUND ELEV.: |
| CONTRACTOR: Terracon | | | DATUM: |
| EQUIPMENT: Cat E-695 | | | GROUND WATER DEPTH: NE |
| OPERATOR: John Riendeau | TIME STARTED: 7:20a.m. | | DATE STARTED: 6-24-22 |
| INSPECTOR: Chris Norton | TIME FINISHED: 7:45a.m. | | DATE FINISHED: 6-24-22 |

| Depth Ft. | Sample # | Unified Classification | GEOLOGIC DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 1 | | SM-ML | Brown loose sandy silt fill, little clay, little gravel, moist | |
| 2 | | SM-ML | 3" Brown loose sandy silt fill, little clay, little gravel, moist. 3" light brown loose sand lense. 6" Dark brown/black dense sandy silt with weathered shale, little clay,moist. | |
| 3 | | SM-ML | Dark brown/black dense sandy silt with weathered shale, little clay,moist. | |
| 4 | | SM-ML | Dark brown/black dense sandy silt with weathered shale, little clay,moist. | |
| 4'8" | | SM-ML | Dark brown/black dense sandy silt with weathered shale, little clay,moist. Test pit terminated at top of rock. | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |

**TEST PIT LOCATION AND NOTES:**
Test pit terminated at 4'8". No water table encountered. Test pit relocated 30' east of original location outside limits of concrete and aspalt.




**TEST PIT PLAN** **NORTH**

RAMBOLL

# TEST PIT LOG

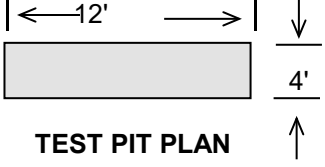
TEST PIT TP-4.2

| | | | |
|---|---|---|---|
| PROJECT: Phase III ESA - Brayton Point, Somerset MA | | | JOB NO.: 330003274□ |
| CLIENT: Prysmian Cables and Systems USA, LLC | | | GROUND ELEV.: |
| CONTRACTOR: Terracon | | | DATUM: |
| EQUIPMENT: Cat E-695 | | | GROUND WATER DEPTH: NE |
| OPERATOR: John Riendeau | TIME STARTED: 8:10a.m. | | DATE STARTED: 6-27-22 |
| INSPECTOR: Chris Norton | TIME FINISHED: 8:40a.m. | | DATE FINISHED: 6-27-22 |

| Depth Ft. | Sample # | Unified Classification | GEOLOGIC DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 1 | | SM | Grey loose gravel and sand with brick and other misc. fill, dry | |
| 2 | | SM-ML | Brown/grey medium dense silty sand fill, little clay, little gravel, moist | |
| 3 | | SM-ML | Brown/grey medium dense silty sand fill, little clay, little gravel, moist | |
| 4 | | SM | Light brown medium dense mf sand little silt, moist | |
| 5 | | SM | Light brown medium dense mf sand little silt, moist | |
| 6 | | SM | Light brown medium dense mf sand little silt, moist | |
| 7 | | SM | Light brown medium dense mf sand little silt, moist | |
| 8 | | SM | Light brown medium dense mf sand little silt, moist | |
| 8'8" | | SM-ML | Dark brown/black dense sandy silt with weathered shale, little clay,moist. Test pit terminated at top of rock. | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |

**TEST PIT LOCATION AND NOTES:**

Test pit terminated at 6'8". No water table encountered. 4" pipe uncovered in south part of test pit, damaged but abandoned hydrant line left in place, some residual water. Pit continued further north to avoid.




**TEST PIT PLAN** **NORTH**

RAMBOLL

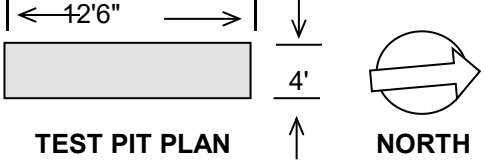
# TEST PIT LOG

TEST PIT TP-4.3

| | | | |
|---|---|---|---|
| PROJECT: Phase III ESA - Brayton Point, Somerset MA | | | JOB NO.: 330003274□ |
| CLIENT: Prysmian Cables and Systems USA, LLC | | | GROUND ELEV.: |
| CONTRACTOR: Terracon | | | DATUM: |
| EQUIPMENT: Cat E-695 | | | GROUND WATER DEPTH: NE |
| OPERATOR: John Riendeau | TIME STARTED: 8:11a.m. | | DATE STARTED: 6-24-22 |
| INSPECTOR: Chris Norton | TIME FINISHED: 8:30a.m. | | DATE FINISHED: 6-24-22 |

| Depth Ft. | Sample # | Unified Classification | GEOLOGIC DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 1 | | SM-ML | Brown loose sandy silt fill, little clay, little gravel, moist | |
| 2 | | SM-ML | Brown medium dense silty sand fill, little clay, little gravel, moist | |
| 3 | | SM-ML | Dark brown/black dense sandy silt, some gravel,moist | |
| 4 | | SM-ML | Dark brown/black dense sandy silt, some gravel,moist | |
| 5 | | SM-ML | Dark brown/black dense sandy silt, some gravel,moist | |
| 5'2" | | SM-ML | Dark brown/black dense sandy silt with weathered shale, little clay,moist. Test pit terminated at top of rock. | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |

**TEST PIT LOCATION AND NOTES:**
Test pit terminated at 5'2". No water table encountered



RAMBOLL

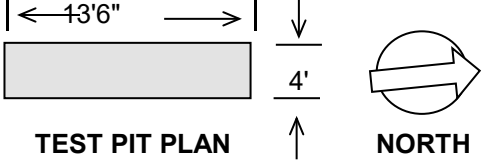
# TEST PIT LOG

TEST PIT TP-4.4

| | | | |
|---|---|---|---|
| PROJECT: Phase III ESA - Brayton Point, Somerset MA | | | JOB NO.: 330003274□ |
| CLIENT: Prysmian Cables and Systems USA, LLC | | | GROUND ELEV.: |
| CONTRACTOR: Terracon | | | DATUM: |
| EQUIPMENT: Cat E-695 | | | GROUND WATER DEPTH: NE |
| OPERATOR: John Riendeau | TIME STARTED: 8:25a.m. | | DATE STARTED: 6-24-22 |
| INSPECTOR: Chris Norton | TIME FINISHED: 8:57a.m | | DATE FINISHED: 6-24-22 |

| Depth Ft. | Sample # | Unified Classification | GEOLOGIC DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 1 | | SM | 3" gravel stones then Brown cmf sand fill with silt,some gravel,dry | |
| 2 | | SM-ML | Brown medium dense silty sand fill, little clay, little gravel, moist | |
| 3 | | SM-ML | Dark brown/black dense sandy silt, some gravel,moist | |
| 4 | | SM-ML | Dark brown/black dense sandy silt, some gravel,moist | |
| 5 | | SM | Brown loose cmf sand, some silt,trace gravel, dry | |
| 6 | | SM-ML | Dark brown/black dense sandy silt, some gravel,moist | |
| 7 | | SM-ML | Dark brown/black dense sandy silt, some gravel,moist | |
| 8 | | SM | Dark brown dense cmf sand some silt, little gravel, moist | |
| 9 | | SM | Dark brown dense cmf sand some silt, little gravel, moist | |
| 10 | | SM | Dark brown dense cmf sand some silt, little gravel, moist | |
| 11 | | SM-ML | Dark brown/black dense sandy silt with weathered shale, little clay,moist. | |
| 11'6" | | SM-ML | Dark brown/black dense sandy silt with weathered shale, little clay,moist. Test pit terminated at top of rock. | |
| 13 | | | | |
| 14 | | | | |

**TEST PIT LOCATION AND NOTES:**
Test pit terminated at 11'6". No water table encountered




**TEST PIT PLAN** **NORTH**

RAMBOLL

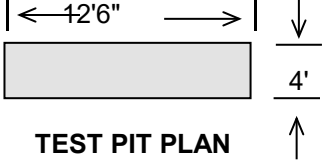
# TEST PIT LOG

TEST PIT TP-4.5

| | | | |
|---|---|---|---|
| PROJECT: Phase III ESA - Brayton Point, Somerset MA | | | JOB NO.: 330003274□ |
| CLIENT: Prysmian Cables and Systems USA, LLC | | | GROUND ELEV.: |
| CONTRACTOR: Terracon | | | DATUM: |
| EQUIPMENT: Cat E-695 | | | GROUND WATER DEPTH: NE |
| OPERATOR: John Riendeau | TIME STARTED: 2:30p.m. | | DATE STARTED: 6-24-22 |
| INSPECTOR: Chris Norton | TIME FINISHED: 2:50p.m. | | DATE FINISHED: 6-24-22 |

| Depth Ft. | Sample # | Unified Classification | GEOLOGIC DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 1 | | SM | 3" gravel stones then Brown cmf sand fill with silt,some gravel,dry | |
| 2 | | SM-ML | Brown medium dense silty sand fill, little clay, little gravel, moist | |
| 3 | | SM-ML | Dark brown/black dense sandy silt, some gravel,moist | |
| 4 | | SM-ML | Dark brown/black dense sandy silt, some gravel,moist | |
| 5 | | SM-ML | Dark brown/black dense sandy silt, some gravel,moist | |
| 6 | | SM-ML | Dark brown/black dense sandy silt, some gravel,moist | |
| 7 | | SM-ML | Dark brown/black dense sandy silt, some gravel,moist | |
| 8 | | SM-ML | Dark brown/black dense sandy silt, some shale fragments, little clay,moist. | |
| 8'5" | | SM-ML | Dark brown/black dense sandy silt with weathered shale, little clay,moist. Test pit terminated at top of rock. | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |

**TEST PIT LOCATION AND NOTES:**
4 unmarked yellow covered steel utility pipes uncovered 7' below grade at original location. Test pit mover approximately 23' north of original location.Test pit terminated at top of shale 8'5" below grade.




**TEST PIT PLAN**

**NORTH**

RAMBOLL

# TEST PIT LOG

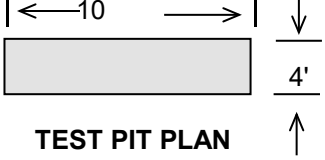
TEST PIT TP-4.6

| | | | |
|---|---|---|---|
| PROJECT: Phase III ESA - Brayton Point, Somerset MA | | JOB NO.: | 330003274□ |
| CLIENT: Prysmian Cables and Systems USA, LLC | | GROUND ELEV.: | |
| CONTRACTOR: Terracon | | DATUM: | |
| EQUIPMENT: Cat E-695 | | GROUND WATER DEPTH: | NE |
| OPERATOR: John Riendeau | TIME STARTED: 9:35a.m. | DATE STARTED: | 6-24-22 |
| INSPECTOR: Chris Norton | TIME FINISHED: 10:15a.m. | DATE FINISHED: | 6-24-22 |

| Depth Ft. | Sample # | Unified Classification | GEOLOGIC DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 1 | | SM | 3" gravel stones then Brown cmf sand fill with silt,some gravel,dry | |
| 2 | | SM-ML | Brown medium dense silty sand fill, little clay, little gravel, moist | |
| 3 | | SM-ML | Dark brown/black dense sandy silt, some gravel,moist | |
| 4 | | SM-ML | Dark brown/black dense sandy silt, some gravel,cobbles in layer,moist | |
| 5 | | SM-ML | Dark brown/black dense sandy silt, some gravel,moist | |
| 6 | | SM-ML | Dark brown/black dense sandy silt, some gravel,moist | |
| 7 | | SM-ML | Dark brown/black dense sandy silt, some gravel,moist | |
| 8 | | SM-ML | Dark brown/black dense sandy silt, some gravel,moist. Test pit terminated at 8' due to uncovering of two steel yellow pipes. No utilities marked in area. | |
| 9 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |

**TEST PIT LOCATION AND NOTES:**

2 unmarked yellow covered steel utility pipes uncovered 8' below grade at original location. Based on TP-4.5, pipes should be set 6" above shale. Shale approximately 8.75'-9' below grade.




**TEST PIT PLAN**

**NORTH**

RAMBOLL

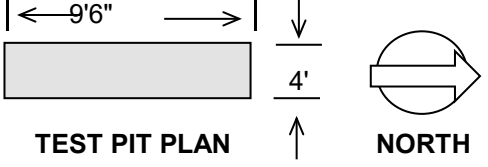
# TEST PIT LOG

TEST PIT TP-4.7

| | | | |
|---|---|---|---|
| PROJECT: Phase III ESA - Brayton Point, Somerset MA | | | JOB NO.: 330003274□ |
| CLIENT: Prysmian Cables and Systems USA, LLC | | | GROUND ELEV.: |
| CONTRACTOR: Terracon | | | DATUM: |
| EQUIPMENT: Cat E-695 | | | GROUND WATER DEPTH: NE |
| OPERATOR: John Riendeau | TIME STARTED: 8:50a.m. | | DATE STARTED: 6-27-22 |
| INSPECTOR: Chris Norton | TIME FINISHED: 9:25a.m. | | DATE FINISHED: 6-27-22 |

| Depth Ft. | Sample # | Unified Classification | GEOLOGIC DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 1 | | SM | Grey loose gravel and sand and other misc. fill, dry | |
| 2 | | SM-ML | Brown/grey medium dense silty sand fill, little clay, little gravel, moist | |
| 3 | | SM | Light brown medium dense mf sand little silt, moist | |
| 4 | | SM | Light brown medium dense mf sand little silt, moist | |
| 5 | | SM-ML | Dark brown/black dense sandy silt, some gravel,moist | |
| 5'9" | | SM-ML | Dark brown/black dense sandy silt with weathered shale, little clay,moist. Test pit terminated at top of rock. | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |

**TEST PIT LOCATION AND NOTES:**
Test pit terminated at 5'9" No water table encountered.



RAMBOLL

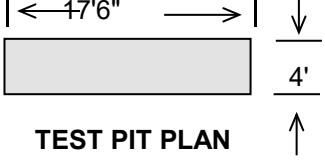
# TEST PIT LOG

TEST PIT TP-4.8

| | | | |
|---|---|---|---|
| PROJECT: Phase III ESA - Brayton Point, Somerset MA | | | JOB NO.: 330003274□ |
| CLIENT: Prysmian Cables and Systems USA, LLC | | | GROUND ELEV.: |
| CONTRACTOR: Terracon | | | DATUM: |
| EQUIPMENT: Cat E-695 | | | GROUND WATER DEPTH: NE |
| OPERATOR: John Riendeau | TIME STARTED: 7:30a.m. | | DATE STARTED: 6-27-22 |
| INSPECTOR: Chris Norton | TIME FINISHED: 8:00a.m. | | DATE FINISHED: 6-27-22 |

| Depth Ft. | Sample # | Unified Classification | GEOLOGIC DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 1 | | SM | 3" gravel stones then Brown cmf sand fill with silt,some gravel,dry | |
| 2 | | SM-ML | Brown medium dense silty sand fill, little clay, little gravel, moist | |
| 3 | | SM-ML | Dark brown/black dense sandy silt, some gravel, trace cobble,moist | |
| 4 | | SM-ML | Dark brown/black dense sandy silt, some gravel,moist | |
| 5 | | SM-ML | Dark brown/black dense sandy silt, some gravel,moist | |
| 6 | | SM-ML | Dark brown/black dense sandy silt, some gravel,moist | |
| 6'8" | | SM-ML | Dark brown/black dense sandy silt with weathered shale, little clay,moist. Test pit terminated at top of rock. | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |

**TEST PIT LOCATION AND NOTES:**
Test pit terminated at 6'8". No water table encountered. 18" pipe uncovered in north part of test pit, not damaged. Pit continued further south to avoid.




**TEST PIT PLAN** **NORTH**

RAMBOLL

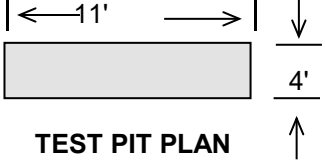
# TEST PIT LOG

TEST PIT TP-5.1

| | | | |
|---|---|---|---|
| PROJECT: Phase III ESA - Brayton Point, Somerset MA | | | JOB NO.: 330003274□ |
| CLIENT: Prysmian Cables and Systems USA, LLC | | | GROUND ELEV.: |
| CONTRACTOR: Terracon | | | DATUM: |
| EQUIPMENT: Cat E-695 | | | GROUND WATER DEPTH: NE |
| OPERATOR: John Riendeau | TIME STARTED: | 2:00p.m. | DATE STARTED: 6-23-22 |
| INSPECTOR: Chris Norton | TIME FINISHED: | 2:20p.m. | DATE FINISHED: 6-23-22 |

| Depth Ft. | Sample # | Unified Classification | GEOLOGIC DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 1 | | SM-ML | Light brown loose sand fill 3" gravel at surface, some silt, dry | |
| 2 | | SM-ML | Brown medium dense sandy silt fill, little clay, little gravel, moist | |
| 3 | | SM-ML | Dark brown/black dense sandy silt, some gravel,moist | |
| 4 | | SM-ML | Dark brown/black dense sandy silt, some gravel,moist | |
| 5 | | SM-ML | Dark brown/black dense sandy silt, some gravel,moist | |
| 6 | | SM-ML | Dark brown/black dense sandy silt, some gravel,moist | |
| 7 | | SM-ML | Dark brown/black dense sandy silt with weathered shale, little clay,moist. | |
| 7'10" | | SM-ML | Dark brown/black dense sandy silt with weathered shale, little clay,moist. Test pit terminated at top of rock. | |
| 9 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |

**TEST PIT LOCATION AND NOTES:**
Test pit terminated at 7'10". No water table encountered




**TEST PIT PLAN**

**NORTH**

RAMBOLL

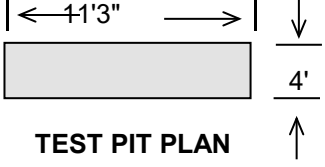
# TEST PIT LOG

TEST PIT TP-5.2

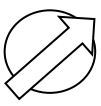
| | | | |
|---|---|---|---|
| PROJECT: Phase III ESA - Brayton Point, Somerset MA | | | JOB NO.: 330003274□ |
| CLIENT: Prysmian Cables and Systems USA, LLC | | | GROUND ELEV.: |
| CONTRACTOR: Terracon | | | DATUM: |
| EQUIPMENT: Cat E-695 | | | GROUND WATER DEPTH: NE |
| OPERATOR: John Riendeau | TIME STARTED: 1:25p.m. | | DATE STARTED: 6-23-22 |
| INSPECTOR: Chris Norton | TIME FINISHED: 1:50p.m. | | DATE FINISHED: 6-23-22 |

| Depth Ft. | Sample # | Unified Classification | GEOLOGIC DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 1 | | SM-ML | Light brown loose sand fill 3" gravel at surface, some silt, dry | |
| 2 | | SM-ML | Brown medium dense sandy silt fill, little clay, little gravel, moist | |
| 3 | | SM-ML | Dark brown/black dense sandy silt, some gravel,moist | |
| 4 | | SM-ML | Dark brown/black dense sandy silt, some gravel,moist | |
| 5 | | SM-ML | Dark brown/black dense sandy silt with shale, little clay,moist. | |
| 6 | | SM-ML | Dark brown/black dense sandy silt with weathered shale, little clay,moist. | |
| 6'8" | | SM-ML | Dark brown/black dense sandy silt with weathered shale, little clay,moist. Test pit terminated at top of rock. | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |

**TEST PIT LOCATION AND NOTES:**
Test pit terminated at 6'8". No water table encountered




**TEST PIT PLAN**



**NORTH**

RAMBOLL

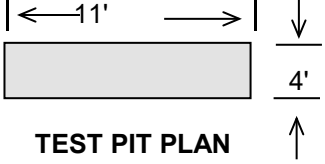
# TEST PIT LOG

TEST PIT TP-5.3

| | | | |
|---|---|---|---|
| PROJECT: Phase III ESA - Brayton Point, Somerset MA | | | JOB NO.: 330003274□ |
| CLIENT: Prysmian Cables and Systems USA, LLC | | | GROUND ELEV.: |
| CONTRACTOR: Terracon | | | DATUM: |
| EQUIPMENT: Cat E-695 | | | GROUND WATER DEPTH: NE |
| OPERATOR: John Riendeau | TIME STARTED: 11:20a.m. | | DATE STARTED: 6-23-22 |
| INSPECTOR: Chris Norton | TIME FINISHED: 11:36 a.m. | | DATE FINISHED: 6-23-22 |

| Depth Ft. | Sample # | Unified Classification | GEOLOGIC DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 1 | | SM-ML | Brown medium dense sandy silt fill, little clay, little gravel, moist | |
| 2 | | SM-ML | Brown medium dense sandy silt fill, little clay, little gravel, moist | |
| 3 | | SM-ML | Dark brown/black dense sandy silt with weathered shale, little clay,moist. | |
| 3'4" | | SM-ML | Dark brown/black dense sandy silt with weathered shale, little clay,moist. Test pit terminated at top of rock. | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |

**TEST PIT LOCATION AND NOTES:**
Test pit terminated at 3'4"". No water table encountered




**TEST PIT PLAN**

**NORTH**

RAMBOLL

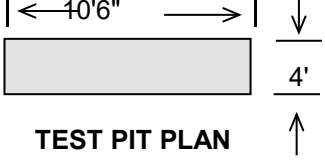
# TEST PIT LOG

TEST PIT TP-5.4

| | | | |
|---|---|---|---|
| PROJECT: Phase III ESA - Brayton Point, Somerset MA | | | JOB NO.: 330003274□ |
| CLIENT: Prysmian Cables and Systems USA, LLC | | | GROUND ELEV.: |
| CONTRACTOR: Terracon | | | DATUM: |
| EQUIPMENT: Cat E-695 | | | GROUND WATER DEPTH: NE |
| OPERATOR: John Riendeau | TIME STARTED: 10:50 | | DATE STARTED: 6-23-22 |
| INSPECTOR: Chris Norton | TIME FINISHED: 11:10 | | DATE FINISHED: 6-23-22 |

| Depth Ft. | Sample # | Unified Classification | GEOLOGIC DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 1 | | SM-ML | Brown loose sandy silt fill, little clay, little gravel, moist | |
| 2 | | SM-ML | Brown loose sandy silt fill, little clay, little gravel, moist | |
| 3 | | SM-ML | Brown medium dense sandy silt fill, little clay, little gravel, moist | |
| 4 | | SM-ML | Dark brown/black dense sandy silt, some gravel, some shale fragments, moist | |
| 5 | | SM-ML | Dark brown/black dense sandy silt with weathered shale, little clay,moist. | |
| 6 | | SM-ML | Dark brown/black dense sandy silt with weathered shale, little clay,moist. | |
| 6'6" | | SM-ML | Dark brown/black dense sandy silt with weathered shale, little clay,moist. Test pit terminated at top of rock. | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |

**TEST PIT LOCATION AND NOTES:**
Test pit terminated at 6'6"". No water table encountered




**TEST PIT PLAN**

**NORTH**

RAMBOLL

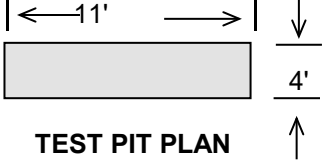
# TEST PIT LOG

TEST PIT TP-5.5

| | | | |
|---|---|---|---|
| PROJECT: Phase III ESA - Brayton Point, Somerset MA | | | JOB NO.: 330003274□ |
| CLIENT: Prysmian Cables and Systems USA, LLC | | | GROUND ELEV.: |
| CONTRACTOR: Terracon | | | DATUM: |
| EQUIPMENT: Cat E-695 | | | GROUND WATER DEPTH: NE |
| OPERATOR: John Riendeau | TIME STARTED: 12:40p.m. | | DATE STARTED: 6-23-22 |
| INSPECTOR: Chris Norton | TIME FINISHED: 1:10p.m. | | DATE FINISHED: 6-23-22 |

| Depth Ft. | Sample # | Unified Classification | GEOLOGIC DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 1 | | SM-ML | Brown loose sandy silt fill, little clay, gravel for first 2", moist | |
| 2 | | SM-ML | Dark brown/black dense sandy silt, some gravel, some shale fragments, moist | |
| 3 | | SM-ML | Dark brown/black dense sandy silt, some gravel, some shale fragments, moist | |
| 4 | | SM-ML | Dark brown/black dense sandy silt with weathered shale, little clay,moist. | |
| 5 | | SM-ML | Dark brown/black dense sandy silt with weathered shale, little clay,moist. | |
| 5'3" | | SM-ML | Dark brown/black dense sandy silt with weathered shale, little clay,moist. Test pit terminated at top of rock. | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |

**TEST PIT LOCATION AND NOTES:**
Test pit terminated at 5'3". No water table encountered




**TEST PIT PLAN**

**NORTH**

RAMBOLL

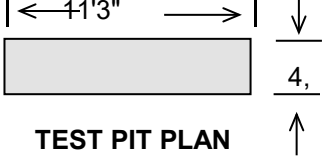
# TEST PIT LOG

TEST PIT TP-5.6

| | | | |
|---|---|---|---|
| PROJECT: Phase III ESA - Brayton Point, Somerset MA | | | JOB NO.: 330003274□ |
| CLIENT: Prysmian Cables and Systems USA, LLC | | | GROUND ELEV.: |
| CONTRACTOR: Terracon | | | DATUM: |
| EQUIPMENT: Cat E-695 | | | GROUND WATER DEPTH: NE |
| OPERATOR: John Riendeau | TIME STARTED: 11:30a.m. | | DATE STARTED: 6-23-22 |
| INSPECTOR: Chris Norton | TIME FINISHED: 11:50a.m. | | DATE FINISHED: 6-23-22 |

| Depth Ft. | Sample # | Unified Classification | GEOLOGIC DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 1 | | SM-ML | Brown loose sandy silt fill, little clay, little gravel, moist | |
| 2 | | SM-ML | Brown medium dense sandy silt fill, little clay, little gravel, moist | |
| 3 | | SM-ML | Brown medium dense sandy silt fill, little clay, little gravel, moist | |
| 4 | | SM-ML | Dark brown/black dense sandy silt, some gravel, some shale fragments, moist | |
| 5 | | SM-ML | Dark brown/black dense sandy silt with weathered shale, little clay,moist. | |
| 6 | | SM-ML | Dark brown/black dense sandy silt with weathered shale, little clay,moist. | |
| 7 | | SM-ML | Dark brown/black dense sandy silt with weathered shale, little clay,moist. Test pit terminated at top of rock at 7'0". | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |

**TEST PIT LOCATION AND NOTES:**
Test pit terminated at 7'0". No water table encountered




**TEST PIT PLAN**

**NORTH**

RAMBOLL

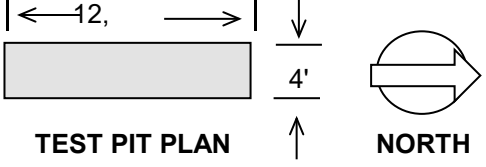
# TEST PIT LOG

TEST PIT TP-5.7

| | | | |
|---|---|---|---|
| PROJECT: Phase III ESA - Brayton Point, Somerset MA | | | JOB NO.: 330003274□ |
| CLIENT: Prysmian Cables and Systems USA, LLC | | | GROUND ELEV.: |
| CONTRACTOR: Terracon | | | DATUM: |
| EQUIPMENT: Cat E-695 | | | GROUND WATER DEPTH: NE |
| OPERATOR: John Riendeau | TIME STARTED: 10:30 a.m. | | DATE STARTED: 6-23-22 |
| INSPECTOR: Chris Norton | TIME FINISHED: 10:50 a.m. | | DATE FINISHED: 6-23-22 |

| Depth Ft. | Sample # | Unified Classification | GEOLOGIC DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 1 | | SM-ML | Brown loose sandy silt fill, little clay, little gravel, moist | |
| 2 | | SM-ML | Brown loose sandy silt fill, little clay, little gravel, moist | |
| 3 | | SM | Dark brown dense silty sand and gravel, trace clay, moist | |
| 4 | | SM-ML | Dark brown/black dense sandy silt, some gravel, some shale fragments, moist | |
| 5 | | SM-ML | Dark brown/black dense sandy silt, some gravel, some shale fragments, moist | |
| 6 | | SM-ML | Dark brown/black dense sandy silt with weathered shale, little clay,moist. | |
| 6'4" | | SM-ML | Dark brown/black dense sandy silt with weathered shale, little clay,moist. Test pit terminated at top of rock. | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |

**TEST PIT LOCATION AND NOTES:**
Test pit terminated at 6'4". No water table encountered



RAMBOLL

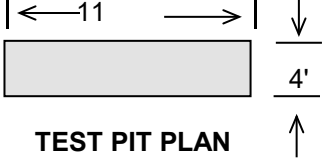
# TEST PIT LOG

TEST PIT TP-5.8

| | | | |
|---|---|---|---|
| PROJECT: Phase III ESA - Brayton Point, Somerset MA | | JOB NO.: | 330003274□ |
| CLIENT: Prysmian Cables and Systems USA, LLC | | GROUND ELEV.: | |
| CONTRACTOR: Terracon | | DATUM: | |
| EQUIPMENT: Cat E-695 | | GROUND WATER DEPTH: | NE |
| OPERATOR: John Riendeau | TIME STARTED: 12:30 p.m. | DATE STARTED: | 6-23-22 |
| INSPECTOR: Chris Norton | TIME FINISHED: 1:00 p.m. | DATE FINISHED: | 6-23-22 |

| Depth Ft. | Sample # | Unified Classification | GEOLOGIC DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 1 | | SM | Light brown loose sand fill some gravel, some silt, dry | |
| 2 | | SM-ML | Brown medium dense sandy silt fill, little clay, little gravel, moist | |
| 3 | | SM-ML | Dark brown/black dense sandy silt, some gravel, some shale fragments, moist | |
| 4 | | SM-ML | Dark brown/black dense sandy silt with weathered shale, little clay,moist. | |
| 5 | | SM-ML | Dark brown/black dense sandy silt with weathered shale, little clay,moist. Test pit terminated at top of rock. | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |

**TEST PIT LOCATION AND NOTES:**
Test pit terminated at 5'0". No water table encountered




**TEST PIT PLAN**

**NORTH**

RAMBOLL

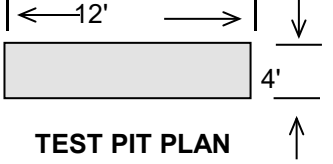
# TEST PIT LOG

TEST PIT TP-5.9

| | | | |
|---|---|---|---|
| PROJECT: Phase III ESA - Brayton Point, Somerset MA | | | JOB NO.: 330003274□ |
| CLIENT: Prysmian Cables and Systems USA, LLC | | | GROUND ELEV.: |
| CONTRACTOR: Terracon | | | DATUM: |
| EQUIPMENT: Cat E-695 | | | GROUND WATER DEPTH: NE |
| OPERATOR: John Riendeau | TIME STARTED: 9:28 a.m. | | DATE STARTED: 6-23-22 |
| INSPECTOR: Chris Norton | TIME FINISHED: 10:00 a.m. | | DATE FINISHED: 6-23-22 |

| Depth Ft. | Sample # | Unified Classification | GEOLOGIC DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 1 | | SM-ML | Brown loose sandy silt fill, little clay, little gravel, moist | |
| 2 | | SM-ML | Brown loose sandy silt fill, little clay, little gravel, moist | |
| 3 | | SM-ML | Brown loose sandy silt fill, little clay, little gravel, moist | |
| 4 | | SM | Light brown cmf sand some silt, dry | |
| 5 | | SM-ML | Dark brown/black dense sandy silt, some gravel, some shale fragments, moist | |
| 6 | | SM-ML | Dark brown/black dense sandy silt, some gravel, some shale fragments, moist | |
| 7 | | SM-ML | Dark brown/black dense sandy silt, some gravel, some shale fragments, moist | |
| 7'10" | | SM-ML | Dark brown/black dense sandy silt with weathered shale, little clay,moist. Test pit terminated at top of rock. | |
| 9 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |

**TEST PIT LOCATION AND NOTES:**
Test pit terminated at shale bedrock 7'10". No water table encountered.




**TEST PIT PLAN**

**NORTH**

RAMBOLL

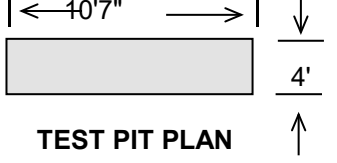
# TEST PIT LOG

TEST PIT TP-6.1

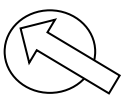
| | | | |
|---|---|---|---|
| PROJECT: Phase III ESA - Brayton Point, Somerset MA | | | JOB NO.: 330003274□ |
| CLIENT: Prysmian Cables and Systems USA, LLC | | | GROUND ELEV.: |
| CONTRACTOR: Terracon | | | DATUM: |
| EQUIPMENT: Cat E-695 | | | GROUND WATER DEPTH: NE |
| OPERATOR: John Riendeau | TIME STARTED: 2:50p.m. | | DATE STARTED: 6-23-22 |
| INSPECTOR: Chris Norton | TIME FINISHED: 3:00 p.m. | | DATE FINISHED: 6-23-22 |

| Depth Ft. | Sample # | Unified Classification | GEOLOGIC DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 1 | | SM | 3" gravel stones then Brown cmf sand fill with silt,some gravel,dry | |
| 2 | | SM | Brown medium dense silty sand fill, little clay, little gravel, moist | |
| 3 | | SM-ML | Dark brown/black dense sandy silt, some gravel, some shale fragments, moist | |
| 4 | | SM-ML | Dark brown/black dense sandy silt with weathered shale, little clay,moist. Test pit terminated at top of rock. | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |

**TEST PIT LOCATION AND NOTES:**
Test pit terminated at 4'0". No water table encountered




**TEST PIT PLAN**



**NORTH**

RAMBOLL

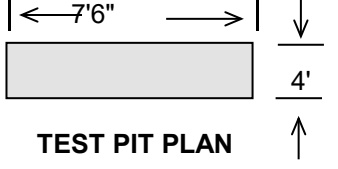
# TEST PIT LOG

TEST PIT TP-6.2

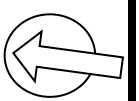
| | | | |
|---|---|---|---|
| PROJECT: Phase III ESA - Brayton Point, Somerset MA | | | JOB NO.: 330003274□ |
| CLIENT: Prysmian Cables and Systems USA, LLC | | | GROUND ELEV.: |
| CONTRACTOR: Terracon | | | DATUM: |
| EQUIPMENT: Cat E-695 | | | GROUND WATER DEPTH: NE |
| OPERATOR: John Riendeau | TIME STARTED: | 2:37p.m. | DATE STARTED: 6-23-22 |
| INSPECTOR: Chris Norton | TIME FINISHED: | 2:50p.m. | DATE FINISHED: 6-23-22 |

| Depth Ft. | Sample # | Unified Classification | GEOLOGIC DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 1 | | SM | 3" gravel stones then Brown cmf sand fill with silt,some gravel,dry | |
| 1'2" | | SM | Brown cmf sand fill with silt,some gravel,dry. Test pit terminated at top of shale bedrock. | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |

**TEST PIT LOCATION AND NOTES:**
Test pit terminated at 1'2". No water table encountered




**TEST PIT PLAN**



**NORTH**

RAMBOLL

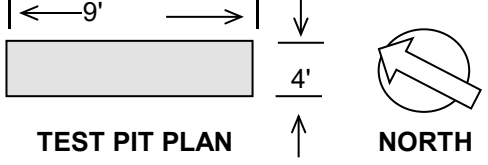
# TEST PIT LOG

TEST PIT TP-6.3

| | | | |
|---|---|---|---|
| PROJECT: Phase III ESA - Brayton Point, Somerset MA | | | JOB NO.: 330003274□ |
| CLIENT: Prysmian Cables and Systems USA, LLC | | | GROUND ELEV.: |
| CONTRACTOR: Terracon | | | DATUM: |
| EQUIPMENT: Cat E-695 | | | GROUND WATER DEPTH: NE |
| OPERATOR: John Riendeau | TIME STARTED: 2:31p.m. | | DATE STARTED: 6-23-22 |
| INSPECTOR: Chris Norton | TIME FINISHED: 2:37p.m. | | DATE FINISHED: 6-23-22 |

| Depth Ft. | Sample # | Unified Classification | GEOLOGIC DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 1 | | SM | 3" gravel stones then Brown cmf sand fill with silt,some gravel,dry | |
| 1'8" | | SM | Brown cmf sand fill with silt,some gravel,dry. Test pit terminated at top of shale bedrock. | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |

**TEST PIT LOCATION AND NOTES:**
Test pit terminated at 1'8". No water table encountered




**TEST PIT PLAN** **NORTH**

RAMBOLL

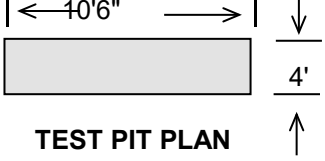
# TEST PIT LOG

TEST PIT TP-7.1

| | | | |
|---|---|---|---|
| PROJECT: Phase III ESA - Brayton Point, Somerset MA | | | JOB NO.: 330003274□ |
| CLIENT: Prysmian Cables and Systems USA, LLC | | | GROUND ELEV.: |
| CONTRACTOR: Terracon | | | DATUM: |
| EQUIPMENT: Cat E-695 | | | GROUND WATER DEPTH: NE |
| OPERATOR: John Riendeau | TIME STARTED: 10:20a.m. | | DATE STARTED: 6-24-22 |
| INSPECTOR: Chris Norton | TIME FINISHED: 10:40a.m. | | DATE FINISHED: 6-24-22 |

| Depth Ft. | Sample # | Unified Classification | GEOLOGIC DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 1 | | SM-ML | 2" of grey sand and gravel at grade. Dark brown/black dense sandy silt, some gravel,moist | |
| 2 | | SM-ML | Dark brown/black dense sandy silt, some gravel,moist | |
| 3 | | SM-ML | Dark brown/black dense sandy silt, some gravel, some shale fragments, moist | |
| 3'8" | | SM-ML | Dark brown/black dense sandy silt with weathered shale, little clay,moist. Test pit terminated at top of rock. | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |

**TEST PIT LOCATION AND NOTES:**
Test pit terminated at 3'8". No water table encountered




**TEST PIT PLAN**

**NORTH**

RAMBOLL

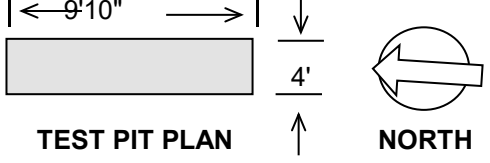
# TEST PIT LOG

TEST PIT TP-7.2

| | | | |
|---|---|---|---|
| PROJECT: Phase III ESA - Brayton Point, Somerset MA | | | JOB NO.: 330003274□ |
| CLIENT: Prysmian Cables and Systems USA, LLC | | | GROUND ELEV.: |
| CONTRACTOR: Terracon | | | DATUM: |
| EQUIPMENT: Cat E-695 | | | GROUND WATER DEPTH: NE |
| OPERATOR: John Riendeau | TIME STARTED: | 10:37a.m | DATE STARTED: 6-24-22 |
| INSPECTOR: Chris Norton | TIME FINISHED: | 10:51a.m. | DATE FINISHED: 6-24-22 |

| Depth Ft. | Sample # | Unified Classification | GEOLOGIC DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 1 | | SM-ML | 2" of grey sand and gravel at grade. Dark brown/black dense sandy silt, some gravel,moist | |
| 2 | | SM-ML | Dark brown/black dense sandy silt, some gravel, some shale fragments, moist | |
| 3 | | SM-ML | Dark brown/black dense sandy silt with weathered shale, little clay,moist. | |
| 3'6" | | SM-ML | Dark brown/black dense sandy silt with weathered shale, little clay,moist. Test pit terminated at top of rock. | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |

**TEST PIT LOCATION AND NOTES:**
Test pit terminated at 3'6". No water table encountered



RAMBOLL

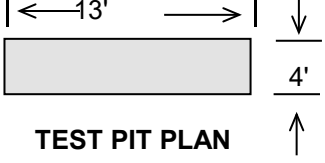
# TEST PIT LOG

TEST PIT TP-7.3

| | | | |
|---|---|---|---|
| PROJECT: Phase III ESA - Brayton Point, Somerset MA | | | JOB NO.: 330003274□ |
| CLIENT: Prysmian Cables and Systems USA, LLC | | | GROUND ELEV.: |
| CONTRACTOR: Terracon | | | DATUM: |
| EQUIPMENT: Cat E-695 | | | GROUND WATER DEPTH: NE |
| OPERATOR: John Riendeau | TIME STARTED: 10:45a.m. | | DATE STARTED: 6-24-22 |
| INSPECTOR: Chris Norton | TIME FINISHED: 11:05a.m. | | DATE FINISHED: 6-24-22 |

| Depth Ft. | Sample # | Unified Classification | GEOLOGIC DESCRIPTION | REMARKS |
|---|---|---|---|---|
| 1 | | SM-ML | 3" gravel stones then Brown cmf sand fill with silt,some gravel,dry | |
| 2 | | SM-ML | Dark brown/black dense sandy silt, some gravel, some shale fragments, moist | |
| 3 | | SM-ML | Dark brown/black dense sandy silt, some gravel, some shale fragments, moist | |
| 4 | | SM-ML | Dark brown/black dense sandy silt, some gravel, some shale fragments, moist | |
| 5 | | SM-ML | Dark brown/black dense sandy silt with weathered shale, little clay,moist. | |
| 5'7" | | SM-ML | Dark brown/black dense sandy silt with weathered shale, little clay,moist. Test pit terminated at top of rock. | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |

**TEST PIT LOCATION AND NOTES:**
Test pit terminated at 5'7". No water table encountered




**TEST PIT PLAN** **NORTH**

# Appendix D: Standards 4 & 9 Computations and Supporting Information

# Operations and Maintenance Plan

# Submarine Cable Factory

## Somerset, Massachusetts

PREPARED FOR

Prysmian Group

Prysmian Projects North America, LLC
4 Tesseneer Road
Highland Heights, Kentucky 410763

PREPARED BY

1 Cedar Street
Suite 400
Providence, RI 02903
401.272.8100

October 2022

# Table of Contents

# Project Information

## Site

Submarine Cable Factory
Brayton Point Road
Somerset, MA

## Developer

Prysmian Projects North America, LLC
4 Tesseneer Road
Highland Heights, Kentucky 410763
Client Phone Number

## Site Supervisor

Site Manager Name
Site Manager Address
Site Manager City, State Zip
Site Manager Phone Number

## Site Contact

Name: _____

Telephone: _____

Cell phone: _____

Email: _____

# Section A: Source Control

# A Source Control

A comprehensive source control program will be implemented at the Submarine Cable Factory, Brayton Point Road, Somerset, MA (the Project), which includes the following components:

- Regular pavement sweeping in the public way
- Catch basin cleaning
- Clearing litter from the parking area, islands, and perimeter landscape areas
- Enclosure and regular maintenance of all dumpsters
- Spill Prevention training

# Section B: Spill Prevention

# B Spill Prevention

Spill prevention equipment and training will be provided by the property management company.

## B.1 Initial Notification

In the event of a spill the facility and/or construction manager or supervisor will be notified immediately.

Facility Manager (name): _____

Facility Manager (phone): _____

Construction Manager (name) : _____

Construction Manager (phone): _____

The supervisor will first contact the Fire Department and then notify the Police Department, the Public Health Commission and the Conservation Commission. The Fire Department is ultimately responsible for matters of public health and safety and should be notified immediately.

## B.2 Further Notification

Based on the assessment from the Fire Chief, additional notification to a cleanup contractor may be made. The Massachusetts Department of Environmental Protection DEP and the EPA may be notified depending upon the nature and severity of the spill. The Fire Chief will be responsible for determining the level of cleanup and notification required. The attached list of emergency phone numbers shall be posted in the main construction/facility office and readily accessible to all employees. A hazardous waste spill report shall be completed as necessary using the attached form.

## Emergency Notification Phone Numbers

| | | | |
|---|---|---|---|
| **1.** | **FACILITY MANAGER** | | |
| | Name: | Phone: | |
| | | Beeper/Cell: | |
| | | Home Phone: | |
| | Alternate Contact: | Phone: | |
| | | Beeper/Cell: | |
| | | Home Phone: | |
| **2.** | **FIRE & POLICE DEPARTMENT** | Emergency: | 911 |
| **3.** | **CLEANUP CONTRACTOR** | | |
| | Address: | Phone: | |
| **4.** | **STATE DEPARTMENT OF ENVIRONMENTAL PROTECTION (DEP)** | Emergency: | (800) 340-1133 |
| **5.** | **NATIONAL RESPONSE CENTER** | Phone: | (800) 424-8802 |
| | Alternate: U.S. Environmental Protection Agency | Emergency: | (800) 424-8802 |
| | | Business: | (800) 424-8802 |
| **6.** | **MUNICIPAL HEALTH DEPARTMENT** | Phone: | (508) 646-2804 |
| | Municipal Conservation Commission: | Phone: | (508) 646-2804 |

## Hazardous Waste & Oil Spill Report

**Date:** _____ **Time:** _____ **AM / PM**

**Exact location (Transformer #):** _____

**Type of equipment:** _____ **Make:** _____ **Size:** _____

**S / N:** _____ **Weather Conditions:** _____

**On or near water?** ☐ Yes ☐ No **If yes, name of body of water:** _____

**Type of chemical / oil spilled:** _____

**Amount of chemical / oil spilled:** _____

**Cause of spill:** _____

**Measures taken to contain or clean up spill:** _____

**Amount of chemical / oil recovered:** _____ **Method:** _____

**Material collected as a result of cleanup:**

_____ drums containing _____

_____ drums containing _____

_____ drums containing _____

**Location and method of debris disposal:** _____

**Name and address of any person, firm, or corporation suffering charges:** _____

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

**Spill reported by General Office by:** _____ **Time:** _____ **AM / PM**

**Spill reported to DEP / National Response Center by:** _____

**DEP Date:** _____ **Time:** _____ **AM / PM** **Inspector:** _____

**NRC Date:** _____ **Time:** _____ **AM / PM** **Inspector:** _____

**Additional comments:** _____

## B.3 Assessment – Initial Containment

The supervisor or manager will assess the incident and initiate containment control measures with the appropriate spill containment equipment included in the spill kit kept on-site. A list of recommended spill equipment to be kept on site is included on the following page.

**Fire / Police Department:** 911

**Municipality Health Department** **(508) 646-2804**

**Municipality Conservation Commission:** **(508) 646-2804**

### Emergency Response Equipment

The following equipment and materials shall be maintained at all times and stored in a secure area for long-term emergency response need.

| Supplies | Quantity | Recommended Suppliers |
|---|---|---|
| › Sorbent Pillows/"Pigs" | 2 | http://www.newpig.com<br>Item # KIT276 — mobile container with two pigs |
| › Sorbent Boom/Sock | 25 feet | http://www.forestry-suppliers.com |
| › Sorbent Pads | 50 | |
| › Lite-Dri® Absorbent | 5 pounds | |
| › Shovel | 1 | Item # 33934 — Shovel (or equivalent) |
| › Pry Bar | 1 | Item # 43210 — Manhole cover pick (or equivalent) |
| › Goggles | 1 pair | Item # 23334 — Goggles (or equivalent) |
| › Gloves – Heavy | 1 pair | Item # 90926 — Gloves (or equivalent) |

# Section C: Snow Management

# C Snow Management

Snow storage areas are shown on the attached Map.

- Snow storage areas will be managed to prevent blockage of storm drain catch basins and stormwater drainage swales. Snow combined with sand and debris may block a storm drainage system, diminishing the infiltration capacity of the system and causing localized flooding.
- Sand and debris deposited on vegetated or paved areas shall be cleared from the site and properly disposed of at the end of the snow season, no later than May 15.
- Snow shall not be dumped into any waterbody, pond, or wetland resource area.

# Section D: Maintenance of Stormwater Management Systems

# D Maintenance of Stormwater Management Systems

## D.1 Pavement Systems

### D.1.1 Standard Asphalt Pavement

- Sweep or vacuum standard asphalt pavement areas at least four times per year with a rotary brush sweeper and properly dispose of removed material.
- Recommended sweeping schedule:
- Oct/Nov
- Feb/Mar
- Apr/May
- Aug/Sep
- More frequent sweeping of paved surfaces will result in less accumulation in catch basins, less cleaning of subsurface structures, and less disposal costs.
- Check loading docks and dumpster areas frequently for spillage and/or pavement staining and clean as necessary.

### D.1.2 Catch Basins

The proper removal of sediments and associated pollutants and trash occurs only when catch basin inlets and sumps are cleaned out regularly. The more frequent the cleaning, the less likely sediments will be re-suspended and subsequently discharged. In addition, frequent cleaning also results in more volume available for future deposition and enhances the overall performance. As noted in the pavement Operation and Maintenance (O&M) section, more frequent sweeping of paved surfaces will result in less accumulation in catch basins, less cleaning of subsurface structures, and less disposal costs.

There are several catch basins at the Project. These catch basins are constructed with sumps (minimum 4 feet) and hooded outlets to trap debris, sediments, and floating contaminants. Disposal of all sediments must be in accordance with applicable local, state, and federal guidelines. A map of the catch basin locations is included in Section E.5 Maintenance Checklists and Device Location Maps.

### Inspections and Cleaning

- All catch basins shall be inspected at least four times per year and cleaned a minimum of at least once per year.
- Sediment (if more than six inches deep) and/or floatable pollutants shall be pumped from the basin and disposed of at an approved offsite facility in accordance with all applicable regulations.
- Any structural damage or other indication of malfunction will be reported to the site manager and repaired as necessary
- During colder periods, the catch basin grates must be kept free of snow and ice.
- During warmer periods, the catch basin grates must be kept free of leaves, litter, sand, and debris.

## D.1.3 Stormwater Outfalls

The stormwater drainage system has several outfall locations where treated stormwater is discharged to adjacent waterbodies. A map of these locations is included in Section E.5 Maintenance Checklists and Device Location Maps. See p. E7 (pdf p. 241 (list) & p. E9.5 (pdf 244) (device map)

- Inspect outfall locations monthly for the first three months after construction to ensure proper functioning and correct any areas that have settled or experienced washouts.
- Inspect outfalls annually after initial three-month period.
- Annual inspections should be supplemented after large storms, when washouts may occur.
- Maintain vegetation around outfalls to prevent blockages at the outfall.
- Maintain rip rap pad below each outfall and replace any washouts.
- Remove and dispose of any trash or debris at the outfall.

## D.1.4 Roof Drain Leader

Roof runoff from the buildings are directed to the stormwater management system.

- Perform routine roof inspections quarterly.
- Keep roofs clean and free of debris.
- Keep roof drainage systems clear.
- Keep roof access limited to authorized personnel.
- Clean inlets twice per year or as necessary.

# D.2 Vegetated Stormwater Management Devices

## D.2.1 Surface and SubsurfaceSand Filters

There are four (4) surface sand filters and one (1) subsurface sand filter proposed on site.

- Inspect after every major storm for the first year and at least twice a year thereafter by removing the manhole/access port covers.
- Check the filter bed for standing water or other evidence of clogging, such as discolored or accumulated sediments. Sediment should be removed from the filter bed when the accumulations exceed one inch or when there is evidence that the capacity of the filter bed has been significantly reduced (i.e. drawdown time exceeds 36 to 48 hours). The material should be removed with rakes to avoid compaction of the filter bed.
- Check the forebay/sedimentation chamber for sediment accumulations, trash and debris. Sediment should be removed from the forebay/sedimentation chamber when it accumulates to a depth of more than 12 inches or 10 percent of the pretreatment volume.
- Check inlets, outlets, underdrain and overflow weirs annually for blockage.

### D.2.2 Vegetated Areas Maintenance

Although not a structural component of the drainage system, the maintenance of vegetated areas may affect the functioning of the stormwater management system. This includes the health/density of vegetative cover and activities such as the application and disposal of lawn and garden care products, disposal of leaves and yard trimmings and proper aeration of soils.

- Inspect planted areas on a semi-annual basis and remove any litter.
- Maintain planted areas adjacent to pavement to prevent soil washout.
- Immediately clean any soil deposited on pavement.
- Re-seed bare areas; install appropriate erosion control measures when native soil is exposed or erosion channels are forming.
- Plant alternative mixture of grass species in the event of unsuccessful establishment.
- The grass vegetation should be cut to a height between three and four inches.
- Pesticide/Herbicide Usage – No pesticides are to be used unless a single spot treatment is required for a specific control application.
- Fertilizer usage should be avoided. If deemed necessary, slow release fertilizer should be used. Fertilizer may be used to begin the establishment of vegetation in bare or damaged areas, but should not be applied on a regular basis unless necessary.
- Annual application of compost amendments and aeration are recommended.

# Section E: Operations and Maintenance Plan Summary

# E Operations and Maintenance Plan Summary

This Operation and Maintenance Plan has been prepared in accordance with the Massachusetts Wetlands Protection Act Regulations (310 CMR 10.00) and Water Quality Certificcation Regulations (314 CMR 9.00). This Operation and Maintenance Plan also demonstrates compliance with the Town of Somerset, Stormwater Management Regulations, dated June 8, 2021 for stormwater design and mitigation. It specifies operational practices and drainage system maintenance requirements for the Project. Requirements should be adjusted by the site manager as necessary to ensure successful functioning of system components.

## E.1 Routine Maintenance Checklists

Routine required maintenance is described in Sections A – D. The following checklists are to be used by the property manager to implement and document the required maintenance and inspection tasks.

## E.2 Reporting and Documentation

The site supervisor shall be responsible for ensuring that the scheduled tasks as described in this plan are appropriately completed and recorded in the Maintenance Log. Accurate records of all inspections, routine maintenance and repairs shall be documented and these records shall be documented and records shall be maintained on site.

The Maintenance Log shall:

- Document the completion of required maintenance tasks.
- Identify the person responsible for the completion of tasks.
- Identify any outstanding problems, malfunctions or inconsistencies identified during the course of routine maintenance.
- Document specific repairs or replacements.

## E.3 Construction Practices Maintenance/ Evaluation Checklist

### Project Name – City, State

| Best Management Practice | Inspection Frequency | Date Inspected | Inspector Initials | Minimum Maintenance and Key Items to Check | Cleaning or Repair Needed ☐Yes/No (List Items) | Date of Cleaning or Repair | Performed by: |
|---|---|---|---|---|---|---|---|
| Hay Bales/ Silt Fencing | Weekly and after any rainfall | | | Sediment build up, broken bales or stakes | | | |
| Gravel Construction Entrance | Weekly and after any rainfall | | | Filled voids, runoff/sediments into street | | | |
| Catch Basin Protection | Weekly and after any rainfall | | | Clogged or sediment build-up at surface or in basin | | | |
| Diversion Channels | Weekly and after any rainfall | | | Maintained, moved as necessary to correct locations, Check for erosion or breakout | | | |
| Temporary Sedimentation Basins | Weekly and after any rainfall | | | Cracking, erosion, breakout, sediment buildup, contaminants | | | |

Stormwater Control Manager: _____

## E.4 Long-term Maintenance/Evaluation Checklist

### Project Name – City, State

| Best Management Practice | Minimum Maintenance and Key Items to Check | Inspection Frequency | Date Inspected | Inspector Initials | Cleaning Frequency | Cleaning or Repair Needed ☐Yes/No | Date of Cleaning or Repair | Performed by: |
|---|---|---|---|---|---|---|---|---|
| Street Sweeping | Vacuum sweeper | 4X per year | | | 4X per year* minimum | | | |
| Outfall Structures | Remove debris and excess vegetation, replace any dislodged riprap | 1X per year | | | 1X per year | | | |
| Surface/ Subsurface Sand Filter | Remove sediment 1X per year or if >12 inches | 1X per year | | | 1X per year | | | |
| Roof Drains | Remove debris, clean inlets draining to subsurface bed | 4x per year roof inspection | | | 2x per year inlet cleaning, roof debris as necessary | | | |

* Recommend sweeping Oct/Nov, Feb/Mar, Apr/May Jul/Aug with late winter most important

Stormwater Control Manager: _____

## E.5 Maintenance Checklists and Device Location Maps

These checklists are provided for the maintenance crew to photocopy and use when conducting inspections and cleaning activities to the stormwater management systems.

**Catchbasins – Inspect 4 times per year, clean when sediment depth >6 inches or at least once per year.**

| Catch Basin | Inspected (Y/N) | Sediment Depth (inches) | Cleaning needed (Y/N) | Date Cleaned | Comments (Trash, Oil, Pet waste, Lawn Debris, Damage) |
|---|---|---|---|---|---|
| CB 98 | | | | / / | |
| CB 100 | | | | / / | |
| CB 103 | | | | / / | |
| CB 104 | | | | / / | |
| CB 106 | | | | / / | |
| CB 108 | | | | / / | |
| CB 109 | | | | / / | |
| CB 109* | | | | / / | |
| CB 111 | | | | / / | |
| CB 113 | | | | / / | |
| CB 114 | | | | / / | |
| CB 201 | | | | / / | |
| CB 203 | | | | / / | |
| CB 204 | | | | / / | |
| CB 209 | | | | / / | |
| CB 302 | | | | / / | |
| CB 304 | | | | / / | |
| CB 306 | | | | / / | |
| CB 307 | | | | / / | |
| CB 309 | | | | / / | |
| CB 311 | | | | / / | |
| CB 313 | | | | / / | |
| CB 315 | | | | / / | |
| CB 317 | | | | / / | |
| CB 318 | | | | / / | |
| CB 319 | | | | / / | |
| CB 322 | | | | / / | |
| CB 325 | | | | / / | |
| CB 326 | | | | / / | |
| CB 328 | | | | / / | |
| CB 331 | | | | / / | |
| CB 333 | | | | / / | |
| CB 336 | | | | / / | |
| CB 338 | | | | / / | |
| CB 340 | | | | / / | |
| CB 342.5 | | | | / / | |

| | |
|---|---|
| CB 344 | / / |
| CB 346 | / / |
| CB 348 | / / |
| CB 349 | / / |
| CB 350 | / / |
| CB 351.5 | / / |
| CB 352 | / / |
| CB 354 | / / |
| CB 359 | / / |
| CB 357 | / / |
| CB 361 | / / |
| CB 363.5 | / / |
| CB 371 | / / |
| CB 401 | / / |
| CB 403 | / / |
| CB 405 | / / |
| CB 407 | / / |
| CB 410 | / / |
| CB 412 | / / |
| CB 501 | / / |
| CB 505 | / / |
| CB 603 | / / |
| CB 605 | / / |
| CB 607 | / / |
| CB 701 | / / |
| CB 801 | / / |
| CB 802 | / / |
| CB 804 | / / |
| CB 806 | / / |
| CB 901 | / / |
| CB 902 | / / |
| OSCB 24 | / / |

**Outfalls – Inspect 4 times per year, replace any dislodged rip-rap, remove excess vegetation, remove any debris.**

| Outfall | Inspected (Y/N) | Sediment Depth (inches) | Cleaning needed (Y/N) | Date Cleaned | Comments (Trash, Oil, Pet waste, Lawn Debris, Damage) |
|---|---|---|---|---|---|
| FES-206 | | | | / / | |
| FES-212 | | | | / / | |
| FES-366 | | | | / / | |
| FES-414 | | | | / / | |
| FES-507 | | | | / / | |
| FES-602 | | | | / / | |
| FES-612 | | | | / / | |

**Sand Filters – Inspect once per year, remove sediment if more than 12 inches has accumulated in sediment forebay or sedimentation chamber.**

| Basin | Inspected (Y/N) | Sediment Depth (inches) | Cleaning needed (Y/N) | Date Cleaned | Comments (Trash, Oil, Pet waste, Lawn Debris, Damage) |
|---|---|---|---|---|---|
| PR-P1A | | | | / / | |
| FB-P1A | | | | / / | |
| PR-P1B | | | | / / | |
| PR-P2B | | | | / / | |
| FB-P2B | | | | / / | |
| PR-P2C | | | | / / | |
| FB-P2C | | | | / / | |
| PR-P2D | | | | / / | |
| FB-P2D | | | | / / | |

**Roof Runoff Downspouts – Inspect roof drains monthly, clean inlets draining to the subsurface bed twice per year.**

| Bldg # | Inspected (Y/N) | Sediment Depth (inches) | Cleaning needed (Y/N) | Date Cleaned | Comments (Trash, Oil, Pet waste, Lawn Debris, Damage) |
|---|---|---|---|---|---|
| RD 202 | | | | / / | |
| RD 301 | | | | / / | |
| RD 310 | | | | / / | |
| RD 313.5A | | | | / / | |
| RD 313.5B | | | | / / | |
| RD 314 | | | | / / | |
| RD 324 | | | | / / | |
| RD 327 | | | | / / | |
| RD 330 | | | | / / | |
| RD 332.5 | | | | / / | |
| RD 349.5 | | | | / / | |
| RD 350.5 | | | | / / | |
| RD 350.5O | | | | / / | |
| RD 360 | | | | / / | |
| RD 362 | | | | / / | |
| RD 370 | | | | / / | |
| RD 372 | | | | / / | |
| RD 372O | | | | / / | |
| RD 402 | | | | / / | |
| RD 404 | | | | / / | |
| RD 406 | | | | / / | |
| RD 408 | | | | / / | |
| RD 411A | | | | / / | |
| RD 411B | | | | / / | |
| RD 601 | | | | | |

# Device Location Maps

# Legend

| LEGEND | |
|---|---|
| CB | CATCH BASIN |
| OSCB | OFF SITE CATCH BASIN |
| PR | SAND FILTER |
| FES | FLARED END SECTION |
| FB | SEDIMENT FORBAY |

Guard House
315± SF
FFE = 21.2

Substation Building
400± SF
FFE = 21.5

Impulse and Routine Test Lab
8,747± SF
FFE = 25.0

Fire Pump
200± SF
FFE = 25.0

Fixed Cable Storage Buildings
19,532± SF
FFE = 24.3

Raw Material Storage Building
42,070± SF
FFE = 25.0

Employee Support Facility
8,306± SF

Offices

Prequalification and Test Lab
17,227± SF
FFE = 25.0

Manufacturing Building and Office
579,700± SF
FFE = 25.0

Cable Storage Building
104,706± SF
FFE = 25.0

Marine Terminal
640± SF

FES-212
CB-209
CB-203
PR-P2D
FB-P2D
FES-206
CB-204
CB-109
OSCB-24
CB-108
CB-109
CB-106
CB-333
CB-201
CB-114
CB-103
CB-113
CB-104
CB-111
CB-100
PR-P2C
FB-P2C
CB-336
CB-338
CB-98
CB-326
CB-328
CB-313
CB-302
CB-603
CB-304
CB-311
CB-340
CB-342.5
CB-371
CB-344
CB-346
CB-348
CB-331
CB-325
CB-322
CB-307
CB-309
CB-306
CB-315
CB-317
CB-318
CB-319
CB-361
CB-357
CB-363.5
YD-351.5
CB-350
CB-352
CB-349
CB-354
CB-359
CB-401
CB-403
CB-405
CB-407
CB-902
CB-901
PR-P2B
FES-366
FB-P2B
FES-414
CB-412
CB-410
CB-602
CB-501
PR-P1A
FB-P1A
CB-605
CB-607
CB-701
PR-P1B
CB-612
FES-507
CB-505
CB-801
CB-802
CB-804

this FES leads south to Lindgren's manhandled turnstile to the Bay

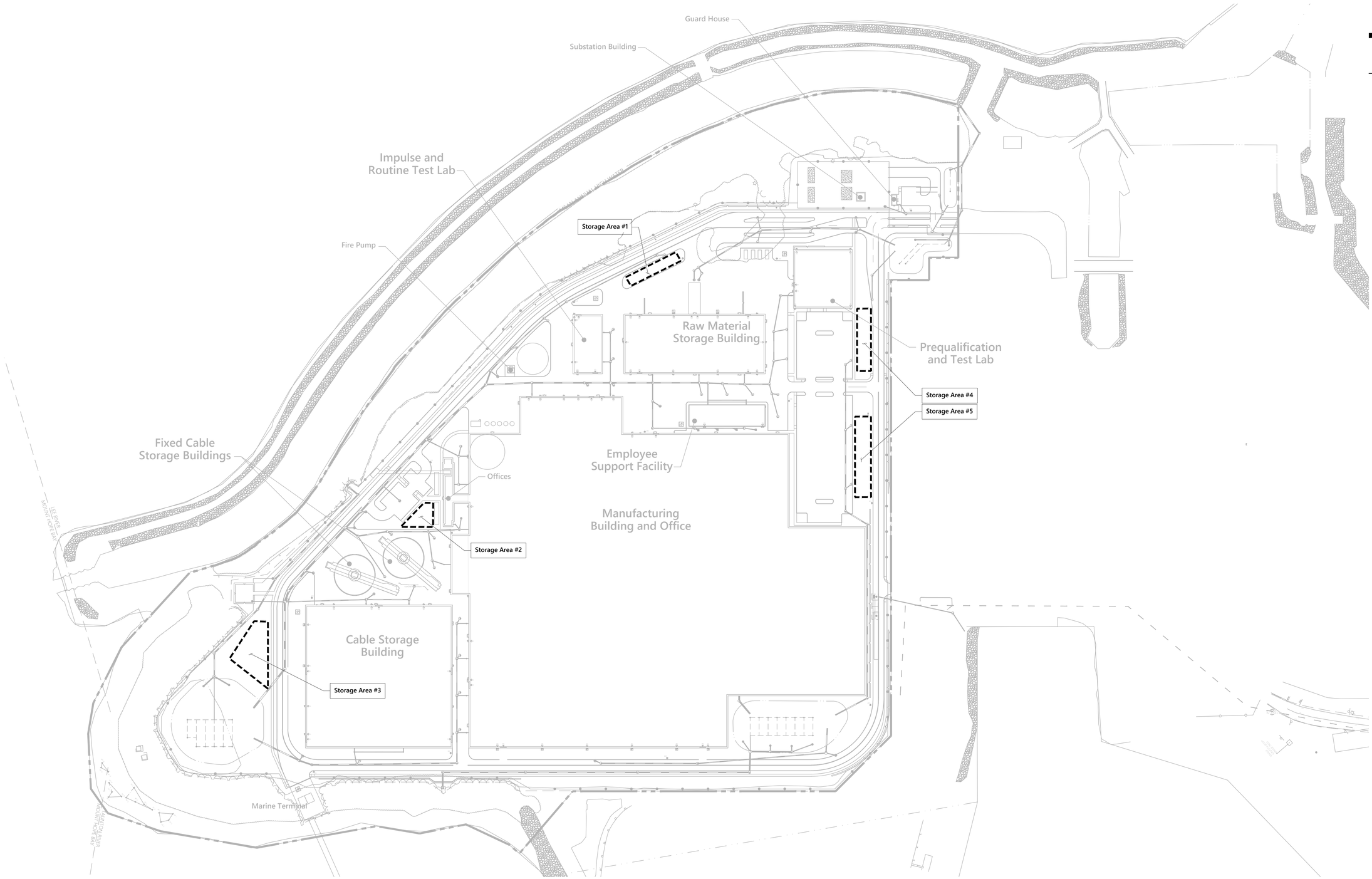


Operations and Maintenance Plan
Prysmian Brayton Point
Somerset, MA

**Figure 3**

October 2022

# Snow Storage Areas Map




## Legend

SNOW STORAGE AREAS

vhb

Operations and Maintenance
Snow Storage Plan
Prysmian Brayton Point
Somerset, MA

**O&M**

October 2022

# Section F: Product Literature

MAINTENANCE PROCEDURE

THE FOLLOWING PROCEDURES ARE FOR THE MAINTENANCE OF STORMTRAP AS SUGGESTED BY STORMTRAP, LLC. ALL REGULATIONS SET BY GOVERNING BODIES RETAIN PRECEDENCE OVER THE SUBSEQUENT INSTRUCTIONS.

DO NOT ENTER STORMTRAP UNLESS PROPERLY TRAINED, EQUIPPED, AND QUALIFIED TO ENTER A CONFINED SPACE AS IDENTIFIED BY LOCAL OCCUPATIONAL SAFETY AND HEALTH REGULATIONS.

STORMTRAP RECOMMENDS AN ANNUAL INSPECTION. FREQUENCY OF CLEANING WILL VARY DUE TO SITE CONDITIONS AND STORAGE CAPACITY. MAINTENANCE IS REQUIRED EVERY 3 TO 5 YEARS OR WHEN SEDIMENT OCCUPIES MORE THAN ONE-TENTH OF THE SYSTEM'S VOLUME. INSPECTIONS SHOULD BE PART OF STANDARD OPERATING PROCEDURE.

MAINTENANCE IS PERFORMED USING A VACUUM TRUCK. REMOVE COVER FROM UNIT AT GRADE AND LOWER HOSE INTO STORMTRAP SYSTEM. VACUUM TRUCKS ARE ABLE TO REMOVE MATERIAL FROM A MAXIMUM DISTANCE OF THIRTY-TWO FEET BELOW GRADE. SEDIMENT MAY BE FLUSHED TOWARD A SPECIFIC POINT OR AREA OF THE STORMTRAP SYSTEM AT THE DISCRETION OF THE OWNER (PREFERABLY DIRECTLY BELOW AN ACCESS OPENING FOR EASE OF REMOVAL).

# Water Quality Volume Calculations

# Water Quality Volume Calculations

| | | | |
|---|---|---|---|
| **Project** | Submarine Cable Factory | **Project #** | 15542 |
| **Calculated by** | EOB | **Date** | Oct. 2022 |
| **Checked by** | KC | **Date** | Oct. 2022 |

## BASIN #PR-P2B - Southerly Surface Sand Filter

Runoff from subcatchment areas PR-2B

| | | |
|---|---|---|
| Water Quality Storm Runoff Depth | (in) | 1.7 |
| Total Roof Area | (ac) | 9.15 |
| Total Pavement Area | (ac) | 4.95 |

**SEDIMENT FOREBAY WQV:**

| Required Volume*: | Runoff Depth to be Treated (in) | Required Volume ($ft^3$) |
|---|---|---|
| | 0.1 | **1,797** |

| Provided Volume: | Elevation | Area ($ft^2$) | Cumulative Volume ($ft^3$) |
|---|---|---|---|
| | 12.0 | 1,170 | 0 |
| | 13.0 | 1,695 | 1,433 |
| | 14.0 | 2,275 | **3,418** |

**BASIN WQV:**

| Required Volume**: | Runoff Depth to be Treated (in) | | Required Volume ($ft^3$) |
|---|---|---|---|
| | 1.7 | | 87,011 |
| | | 75% WQV: | **65,258** |

| Provided Volume: | Elevation | Area ($ft^2$) | Cumulative Volume ($ft^3$) |
|---|---|---|---|
| | 10.5 | 8,946 | 0 |
| | 12.0 | 8,946 | 6,133 |
| | 16.0 | 23,469 | **75,235** |

**FREEBOARD CHECK:**

| | | |
|---|---|---|
| 100-YR Peak Elevation: | | 18.2 |
| Maximum Basin Elevation: | | 20.0 |
| Basin Freeboard: | | **1.8** |

** Per MassDEP Treatment Requirement*

** Per Massachusetts Stormwater Handbook Volume 2 Chapter 2, design of Sand Filter references Georgia Stormwater Management Manual. As described the Georgia Stormwater Management Manual, "the entire treatment system ... must temporarily hold at least 75% of the (water quality volume)". The total volume below the outfall weir must be equal to at least 75% of the required WQV.*

# Water Quality Volume Calculations

| | | | |
|---|---|---|---|
| **Project** | Submarine Cable Factory | **Project #** | 15542 |
| **Calculated by** | EOB | **Date** | Oct. 2022 |
| **Checked by** | KC | **Date** | Oct. 2022 |

## BASIN #PR-P1A - Northeasterly Surface Sand Filter

Runoff from subcatchment areas PR-1A

| | | |
|---|---|---|
| Water Quality Storm Runoff Depth | (in) | 2.0 |
| Total Roof Area | (ac) | 8.84 |
| Total Pavement Area | (ac) | 2.02 |

**SEDIMENT FOREBAY WQV:**

| **Required Volume*:** | **Runoff Depth to be Treated (in)** | **Required Volume ($ft^3$)** |
|---|---|---|
| | 0.1 | **733** |

| **Provided Volume:** | **Elevation** | **Area ($ft^2$)** | **Cumulative Volume ($ft^3$)** |
|---|---|---|---|
| | 15.0 | 396 | 0 |
| | 16.0 | 672 | 534 |
| | 17.0 | 1,004 | **1,372** |

**BASIN WQV:**

| **Required Volume**:** | **Runoff Depth to be Treated (in)** | **Required Volume ($ft^3$)** |
|---|---|---|
| | 2.0 | 78,844 |
| | 75% WQV: | **59,133** |

| **Provided Volume:** | **Elevation** | **Area ($ft^2$)** | **Cumulative Volume ($ft^3$)** |
|---|---|---|---|
| | 13.0 | 8,990 | 0 |
| | 15.0 | 8,990 | 7,192 |
| | 19.2 | 16,909 | **59,315** |
| | | 100-YR Peak Elevation: | 20.9 |
| | | Maximum Basin Elevation: | 23.0 |
| | | Basin Freeboard: | **2.1** |

** Per MassDEP Treatment Requirement*

** Per Massachusetts Stormwater Handbook Volume 2 Chapter 2, design of Sand Filter references Georgia Stormwater Management Manual. As described the Georgia Stormwater Management Manual, "the entire treatment system ... must temporarily hold at least 75% of the (water quality volume)". The total volume below the outfall weir must be equal to at least 75% of the required WQV.*

# Water Quality Volume Calculations

| | | | |
|---|---|---|---|
| **Project** | Submarine Cable Factory | **Project #** | 15542 |
| **Calculated by** | EOB | **Date** | Oct. 2022 |
| **Checked by** | KC | **Date** | Oct. 2022 |

**BASIN #PR-P2C - Main Entrance Surface Sand Filter**

Runoff from subcatchment areas PR-2C & PR-2E

| | | |
|---|---|---|
| Water Quality Storm Runoff Depth | (in) | 1.7 |
| Total Roof Area | (ac) | 0.00 |
| Total Pavement Area | (ac) | 2.01 |

**SEDIMENT FOREBAY WQV:**

| Required Volume*: | Runoff Depth to be Treated (in) | Required Volume ($ft^3$) |
|---|---|---|
| | 0.1 | **730** |

| Provided Volume: | Elevation | Area ($ft^2$) | Cumulative Volume ($ft^3$) |
|---|---|---|---|
| | 14.0 | 189 | 0 |
| | 15.0 | 404 | 297 |
| | 16.0 | 708 | **853** |

**BASIN WQV:**

| Required Volume**: | Runoff Depth to be Treated (in) | | Required Volume ($ft^3$) |
|---|---|---|---|
| | 1.7 | | 12,404 |
| | | 75% WQV: | **9,303** |

| Provided Volume: | Elevation | Area ($ft^2$) | Cumulative Volume ($ft^3$) |
|---|---|---|---|
| | 12.0 | 2,470 | 0 |
| | 14.0 | 2,470 | 1,976 |

**FREEBOARD CHECK:**

| | |
|---|---|
| 100-YR Peak Elevation: | 16.5 |
| Maximum Basin Elevation: | 17.5 |
| Basin Freeboard: | **1.0** |

** Per MassDEP Treatment Requirement*

** Per Massachusetts Stormwater Handbook Volume 2 Chapter 2, design of Sand Filter references Georgia Stormwater Management Manual. As described the Georgia Stormwater Management Manual, "the entire treatment system ... must temporarily hold at least 75% of the (water quality volume)". The total volume below the outfall weir must be equal to at least 75% of the required WQV.*

# Water Quality Volume Calculations

| | | | |
|---|---|---|---|
| **Project** | Submarine Cable Factory | **Project #** | 15542 |
| **Calculated by** | EOB | **Date** | Oct. 2022 |
| **Checked by** | KC | **Date** | Oct. 2022 |

## BASIN #PR-P2D - Guard House Surface Sand Filter

Runoff from subcatchment areas PR-2D

| | | |
|---|---|---|
| Water Quality Storm Runoff Depth | (in) | 2.0 |
| Total Roof Area | (ac) | 0.01 |
| Total Pavement Area | (ac) | 0.26 |

**SEDIMENT FOREBAY WQV:**

| **Required Volume*:** | **Runoff Depth to be Treated (in)** | **Required Volume ($ft^3$)** |
|---|---|---|
| | 0.1 | **94** |

| **Provided Volume:** | **Elevation** | **Area ($ft^2$)** | **Cumulative Volume ($ft^3$)** |
|---|---|---|---|
| | 14.0 | 116 | 0 |
| | 15.0 | 266 | 191 |
| | 15.5 | 486 | **363** |

**BASIN WQV:**

| **Required Volume:** | **Runoff Depth to be Treated (in)** | **Required Volume ($ft^3$)** |
|---|---|---|
| | 2.0 | 1,960 |
| | 75% WQV: | **1,470** |

| **Provided Volume:** | **Elevation** | **Area ($ft^2$)** | **Cumulative Volume ($ft^3$)** |
|---|---|---|---|
| | 12.5 | 267 | 0 |
| | 14.0 | 267 | 160 |
| | 16.0 | 1,345 | **1,521** |

**FREEBOARD CHECK:**

| | |
|---|---|
| 100-YR Peak Elevation: | 16.4 |
| Maximum Basin Elevation: | 17.5 |
| Basin Freeboard: | **1.1** |

** Per MassDEP Treatment Requirement*

** Per Massachusetts Stormwater Handbook Volume 2 Chapter 2, design of Sand Filter references Georgia Stormwater Management Manual. As described the Georgia Stormwater Management Manual, "the entire treatment system ... must temporarily hold at least 75% of the (water quality volume)". The total volume below the outfall weir must be equal to at least 75% of the required WQV.*

# Water Quality Volume Calculations

| | | | |
|---|---|---|---|
| **Project** | Submarine Cable Factory | **Project #** | 15542 |
| **Calculated by** | EOB | **Date** | Oct. 2022 |
| **Checked by** | KC | **Date** | Oct. 2022 |

**BASIN #PR-P1B - Subsurface Sand Filter**

Runoff from subcatchment areas PR-1B

| | | |
|---|---|---|
| Water Quality Storm Runoff Depth | (in) | 1.0 |
| Total Roof Area | (ac) | 0.00 |
| Total Pavement Area | (ac) | 0.49 |

**SEDIMENT FOREBAY WQV:**

| **Required Volume*:** | **Runoff Depth to be Treated (in)** | **Required Volume ($ft^3$)** |
|---|---|---|
| | 0.1 | **178** |

| **Provided Volume:** | **Elevation** | **Area ($ft^2$)** | **Cumulative Volume ($ft^3$)** |
|---|---|---|---|
| | 7.8 | 104 | 0 |
| | 9 | 104 | 100 |
| | 10 | 104 | **184** |

**BASIN WQV:**

| **Required Volume:** | **Runoff Depth to be Treated (in)** | **Required Volume ($ft^3$)** |
|---|---|---|
| | 1.0 | 1,779 |
| | 75% WQV: | **1,334** |

| **Provided Volume:** | **Elevation** | **Area ($ft^2$)** | **Cumulative Volume ($ft^3$)** |
|---|---|---|---|
| | 7.8 | 790 | 0 |
| | 10.0 | 790 | 607 |
| | 11.3 | 790 | **1,473** |

**FREEBOARD CHECK:**

| | |
|---|---|
| 100-YR Peak Elevation: | 12.0 |
| Maximum Basin Elevation: | 13.8 |
| Basin Freeboard: | **1.8** |

** Per MassDEP Treatment Requirement*

** Per Massachusetts Stormwater Handbook Volume 2 Chapter 2, design of Sand Filter references Georgia Stormwater Management Manual. As described the Georgia Stormwater Management Manual, "the entire treatment system ... must temporarily hold at least 75% of the (water quality volume)". The total volume below the outfall weir must be equal to at least 75% of the required WQV.*

# Water Quality Volume Calculations

| | | | |
|---|---|---|---|
| **Project** | Submarine Cable Factory | **Project #** | 15542 |
| **Calculated by** | EOB | **Date** | Oct. 2022 |
| **Checked by** | KC | **Date** | Oct. 2022 |

## BASIN #PR-P3A - Offsite Subsurface Sand Filter

Runoff from subcatchment areas PR-3C

| | | |
|---|---|---|
| Water Quality Storm Runoff Depth | (in) | 1.0 |
| Total Roof Area | (ac) | 0.00 |
| Total Pavement Area | (ac) | 0.44 |

**SEDIMENT FOREBAY WQV:**

| Required Volume*: | Runoff Depth to be Treated (in) | Required Volume ($ft^3$) |
|---|---|---|
| | 0.1 | **160** |

| Provided Volume: | Elevation | Area ($ft^2$) | Cumulative Volume ($ft^3$) |
|---|---|---|---|
| | 5.75 | 104 | 0 |
| | 6.95 | 104 | 100 |
| | 7.95 | 104 | **184** |

**BASIN WQV:**

| Required Volume: | Runoff Depth to be Treated (in) | | Required Volume ($ft^3$) |
|---|---|---|---|
| | 1.0 | | 1,597 |
| | | 75% WQV: | **1,198** |

| Provided Volume: | Elevation | Area ($ft^2$) | Cumulative Volume ($ft^3$) |
|---|---|---|---|
| | 5.75 | 790 | 0 |
| | 7.95 | 790 | 608 |
| | 9.25 | 790 | **1,477** |

**FREEBOARD CHECK:**

| | | |
|---|---|---|
| | 100-YR Peak Elevation: | 9.4 |
| | Maximum Basin Elevation: | 13.5 |
| | Basin Freeboard: | **4.1** |

** Per MassDEP Treatment Requirement*

** Per Massachusetts Stormwater Handbook Volume 2 Chapter 2, design of Sand Filter references Georgia Stormwater Management Manual. As described the Georgia Stormwater Management Manual, "the entire treatment system ... must temporarily hold at least 75% of the (water quality volume)". The total volume below the outfall weir must be equal to at least 75% of the required WQV.*

# Phosphorus Loading Calculations

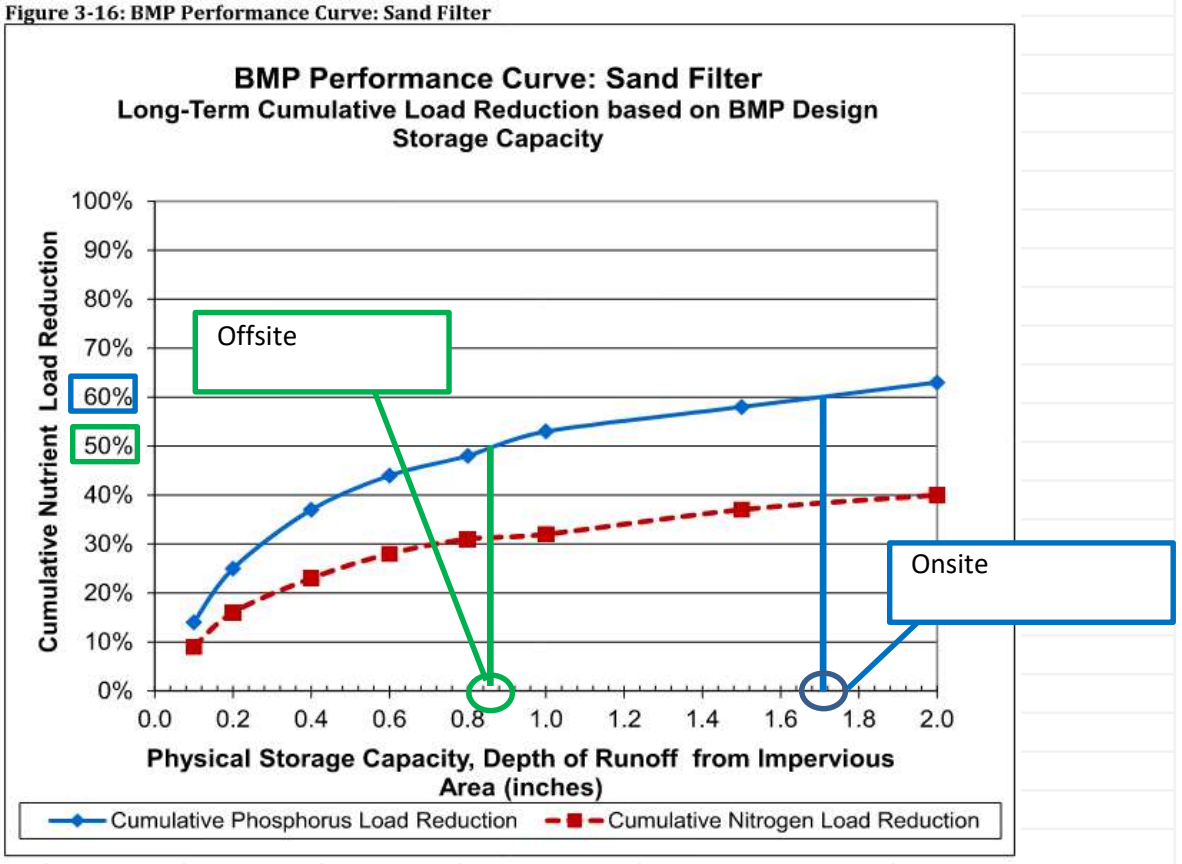
| | | | |
|---|---|---|---|
| **Project** | Submarine Cable Factory | **Project #** | 15542 |
| **Calculated by** | EOB | **Date** | Oct. 2022 |
| **Checked by** | KC | **Date** | Oct. 2022 |

## Phosphorus Reduction

Per MA General MS4 Permit and Somerset Stormwater Ordinance

**Per MA MS4 General Permit Appendix F Attachment 3 Table 3-21**

**Figure 3-16: BMP Performance Curve: Sand Filter**




Site Phosphorus Mass Loading

| Stormwater Treatment BMP | Contributing Impervious | Percent of Total Impervious | Water Quality Volume Depth |
|---|---|---|---|
| BASIN #PR-P2B - Southerly Surface Sand Filter | 14.1 | 50.85 | 1.7 |
| BASIN #PR-P1A - Northeasterly Surface Sand Filter | 10.86 | 39.16 | 2 |
| BASIN #PR-P2C - Main Entrance Surface Sand Filter | 2.01 | 7.25 | 1.7 |
| BASIN #PR-P2D - Guard House Surface Sand Filter | 0.27 | 0.97 | 2 |
| BASIN #PR-P1B - Subsurface Sand Filter | 0.49 | 1.77 | 1 |
| Total Impervious: | 27.73 | | |

| | | |
|---|---|---|
| Average WQV Depth (Onsite) | **1.81** | ( > required 1.7 in) |
| WQV Depth (Offsite) | **1.00** | ( > required 0.9 in) |

# Computations

| | | | |
|---|---|---|---|
| Project: | Submarine Cable Factory | Project # | 15542.00 |
| Location: | Somerset, MA | Sheet | 1 of 1 |
| Calculated by: | EOB | Date: | Oct. 2022 |
| Checked by: | KC | Date: | Oct. 2022 |
| Title | Sand Filter Area Sizing Calculations | | |
| | BASIN #PR-P2B - Southerly Surface Sand Filter | | |

## Sedimentation Basin Sizing

$A_s$ = -Q/W ln (1-E)

$A_s$ = sedimentation surface area ($ft^2$)
Q = discharge rate from drainage area ($ft^3/s$) = WQV/24hr
W = particle settling velocity (0.0004 ft/s recommended for silt)
E = sediment removal efficiency (assume 0.9 or 90%)

| | | |
|---|---|---|
| WQV = | 1,797 | $ft^3$ |
| Q = | 0.021 | $ft^3/s$ |
| W= | 0.0004 | ft/s |
| E= | 0.9 | |
| **$A_s$=** | **119.7** | **$ft^2$** |

**$A_s$ Provided =** **1,170** **$ft^2$**

## Filter Bed Sizing (Sand Filter)

$A_f$ =(WQV x d)/kt(h+d)

$A_f$ = filter bed surface area ($ft^2$)
WQV = water quality volume ($ft^3$)
d = filter bed depth (ft)
k = hydraulic conductivity of filter media (ft/day) Typically 4 ft/day
t = time of water quality volume to drain from system (24 hours)
h = average height of water above filter bed during water quality design storm

| | | |
|---|---|---|
| WQV = | 87,011 | $ft^3$ |
| d = | 1.5 | ft |
| k = | 4 | ft/day |
| t = | 1 | day |
| h = | 4.00 | ft |
| **$A_f$ =** | **5,933** | **$ft^2$** |
| **$A_f$ Provided =** | **8,946** | **$ft^2$** |

# Computations

| | | | |
|---|---|---|---|
| Project: | Submarine Cable Factory | Project # | 15542.00 |
| Location: | Somerset, MA | Sheet | 1 of 1 |
| Calculated by: | EOB | Date: | Oct. 2022 |
| Checked by: | KC | Date: | Oct. 2022 |
| Title | Sand Filter Area Sizing Calculations | | |
| | BASIN #PR-P1A - Northeasterly Surface Sand Filter | | |

## Sedimentation Basin Sizing

$A_s$ = -Q/W ln (1-E)

$A_s$ = sedimentation surface area ($ft^2$)
Q = discharge rate from drainage area ($ft^3/s$) = WQV/24hr
W = particle settling velocity (0.0004 ft/s recommended for silt)
E = sediment removal efficiency (assume 0.9 or 90%)

| | | |
|---|---|---|
| WQV = | 733 | $ft^3$ |
| Q = | 0.008 | $ft^3/s$ |
| W= | 0.0004 | ft/s |
| E= | 0.9 | |
| **$A_s$=** | **48.9** | **$ft^2$** |

**$A_s$ Provided =** 396 **$ft^2$**

## Filter Bed Sizing (Sand Filter)

$A_f$ =(WQV x d)/kt(h+d)

$A_f$ = filter bed surface area ($ft^2$)
WQV = water quality volume ($ft^3$)
d = filter bed depth (ft)
k = hydraulic conductivity of filter media (ft/day) Typically 4 ft/day
t = time of water quality volume to drain from system (24 hours)
h = average height of water above filter bed during water quality design storm

| | | | |
|---|---|---|---|
| WQV = | 78,844 | $ft^3$ | |
| d = | 2 | ft | can be greater than 18" |
| k = | 4 | ft/day | |
| t = | 1 | day | |
| h = | 4.00 | ft | 4 or higher |
| **$A_f$ =** | **6,570** | **$ft^2$** | |
| **$A_f$ Provided =** | **8,990** | **$ft^2$** | |

# Computations

| | | | |
|---|---|---|---|
| Project: | Submarine Cable Factory | Project # | 15542.00 |
| Location: | Somerset, MA | Sheet | 1 of 1 |
| Calculated by: | EOB | Date: | Oct. 2022 |
| Checked by: | KC | Date: | Oct. 2022 |
| Title | Sand Filter Area Sizing Calculations | | |
| | BASIN #PR-P2C - Main Entrance Surface Sand Filter | | |

## Sedimentation Basin Sizing

$A_s$ = -Q/W ln (1-E)

$A_s$ = sedimentation surface area ($ft^2$)
Q = discharge rate from drainage area ($ft^3/s$) = WQV/24hr
W = particle settling velocity (0.0004 ft/s recommended for silt)
E = sediment removal efficiency (assume 0.9 or 90%)

| | | |
|---|---|---|
| WQV = | 730 | $ft^3$ |
| Q = | 0.008 | $ft^3/s$ |
| W= | 0.0004 | ft/s |
| E= | 0.9 | |
| **$A_s$=** | **48.6** | **$ft^2$** |

**$A_s$ Provided =** **189** **$ft^2$**

## Filter Bed Sizing (Sand Filter)

$A_f$ =(WQV x d)/kt(h+d)

$A_f$ = filter bed surface area ($ft^2$)
WQV = water quality volume ($ft^3$)
d = filter bed depth (ft)
k = hydraulic conductivity of filter media (ft/day) Typically 4 ft/day
t = time of water quality volume to drain from system (24 hours)
h = average height of water above filter bed during water quality design storm

| | | |
|---|---|---|
| WQV = | 12,404 | $ft^3$ |
| d = | 2 | ft |
| k = | 4 | ft/day |
| t = | 1 | day |
| h = | 3.00 | ft |
| **$A_f$ =** | **1,240** | **$ft^2$** |
| **$A_f$ Provided =** | **2,470** | **$ft^2$** |

# Computations

| | | | |
|---|---|---|---|
| Project: | Submarine Cable Factory | Project # | 15542.00 |
| Location: | Somerset, MA | Sheet | 1 of 1 |
| Calculated by: | EOB | Date: | Oct. 2022 |
| Checked by: | KC | Date: | Oct. 2022 |
| Title | Sand Filter Area Sizing Calculations | | |
| | BASIN #PR-P2D - Guard House Surface Sand Filter | | |

## Sedimentation Basin Sizing

$A_s$ = -Q/W ln (1-E)

$A_s$ = sedimentation surface area ($ft^2$)
Q = discharge rate from drainage area ($ft^3/s$) = WQV/24hr
W = particle settling velocity (0.0004 ft/s recommended for silt)
E = sediment removal efficiency (assume 0.9 or 90%)

| | | |
|---|---|---|
| WQV = | 94 | $ft^3$ |
| Q = | 0.001 | $ft^3/s$ |
| W= | 0.0004 | ft/s |
| E= | 0.9 | |
| **$A_s$=** | **6.3** | **$ft^2$** |
| **$A_s$ Provided =** | 116 | **$ft^2$** |

## Filter Bed Sizing (Sand Filter)

$A_f$ =(WQV x d)/kt(h+d)

$A_f$ = filter bed surface area ($ft^2$)
WQV = water quality volume ($ft^3$)
d = filter bed depth (ft)
k = hydraulic conductivity of filter media (ft/day) Typically 4 ft/day
t = time of water quality volume to drain from system (24 hours)
h = average height of water above filter bed during water quality design storm

| | | |
|---|---|---|
| WQV = | 1,960 | $ft^3$ |
| d = | 1.5 | ft |
| k = | 4 | ft/day |
| t = | 1 | day |
| h = | 2.00 | ft |
| **$A_f$ =** | **210** | **$ft^2$** |
| **$A_f$ Provided =** | **267** | **$ft^2$** |

# Computations

| | | | |
|---|---|---|---|
| Project: | Submarine Cable Factory | Project # | 15542.00 |
| Location: | Somerset, MA | Sheet | 1 of 1 |
| Calculated by: | EOB | Date: | Oct. 2022 |
| Checked by: | KC | Date: | Oct. 2022 |
| Title | Sand Filter Area Sizing Calculations | | |
| | BASIN #PR-P1B - Subsurface Sand Filter | | |

## Sedimentation Basin Sizing

$A_s$ = -Q/W ln (1-E)

$A_s$ = sedimentation surface area ($ft^2$)
Q = discharge rate from drainage area ($ft^3/s$) = WQV/24hr
W = particle settling velocity (0.0004 ft/s recommended for silt)
E = sediment removal efficiency (assume 0.9 or 90%)

| | | |
|---|---|---|
| WQV = | 178 | $ft^3$ |
| Q = | 0.002 | $ft^3/s$ |
| W= | 0.0004 | ft/s |
| E= | 0.9 | |
| **$A_s$=** | **11.9** | **$ft^2$** |

**$A_s$ Provided =** 104 **$ft^2$**

## Filter Bed Sizing (Sand Filter)

$A_f$ =(WQV x d)/kt(h+d)

$A_f$ = filter bed surface area ($ft^2$)
WQV = water quality volume ($ft^3$)
d = filter bed depth (ft)
k = hydraulic conductivity of filter media (ft/day) Typically 4 ft/day
t = time of water quality volume to drain from system (24 hours)
h = average height of water above filter bed during water quality design storm

| | | |
|---|---|---|
| WQV = | 1,334 | $ft^3$ |
| d = | 2 | ft |
| k = | 4 | ft/day |
| t = | 1 | day |
| h = | 2.00 | ft |
| **$A_f$ =** | **167** | **$ft^2$** |
| **$A_f$ Provided =** | **790** | **$ft^2$** |

# Computations

| | | | |
|---|---|---|---|
| Project: | Submarine Cable Factory | Project # | 15542.00 |
| Location: | Somerset, MA | Sheet | 1 of 1 |
| Calculated by: | EOB | Date: | Oct. 2022 |
| Checked by: | KC | Date: | Oct. 2022 |
| Title | Sand Filter Area Sizing Calculations | | |
| | BASIN #PR-P3A - Subsurface Sand Filter | | |

## Sedimentation Basin Sizing

$A_s$ = -Q/W ln (1-E)

$A_s$ = sedimentation surface area ($ft^2$)
Q = discharge rate from drainage area ($ft^3/s$) = WQV/24hr
W = particle settling velocity (0.0004 ft/s recommended for silt)
E = sediment removal efficiency (assume 0.9 or 90%)

| | | |
|---|---|---|
| WQV = | 160 | $ft^3$ |
| Q = | 0.002 | $ft^3/s$ |
| W= | 0.0004 | ft/s |
| E= | 0.9 | |
| **$A_s$=** | **10.6** | **$ft^2$** |

**$A_s$ Provided =** 104 **$ft^2$**

## Filter Bed Sizing (Sand Filter)

$A_f$ =(WQV x d)/kt(h+d)

$A_f$ = filter bed surface area ($ft^2$)
WQV = water quality volume ($ft^3$)
d = filter bed depth (ft)
k = hydraulic conductivity of filter media (ft/day) Typically 4 ft/day
t = time of water quality volume to drain from system (24 hours)
h = average height of water above filter bed during water quality design storm

| | | |
|---|---|---|
| WQV = | 1,334 | $ft^3$ |
| d = | 2 | ft |
| k = | 4 | ft/day |
| t = | 1 | day |
| h = | 2.00 | ft |
| **$A_f$ =** | **167** | **$ft^2$** |
| **$A_f$ Provided =** | **790** | **$ft^2$** |

# TSS Removal Worksheets

# TSS Removal Calculation Worksheet

101 Walnut Street
Post Office Box 9151
Watertown, MA 02471
P 617.924.1770

| | | | |
|---|---|---|---|
| Project Name: | **Submarine Cable Factory** | Sheet: | **1 of 1** |
| Project Number: | **15542.00** | Date: | **Oct. 2022** |
| Location: | **Somerset, MA** | Computed by: | **EOB** |
| Discharge Point: | **DP1, DP2, DP3** | Checked by: | |
| Drainage Area(s): | **All** | | |

## 1. Pre-Treatment prior to Infiltration

| BMP* | TSS Removal Rate* | Starting TSS Load** | Amount Removed (C*D) | Remaining Load (D-E) |
|---|---|---|---|---|
| **Deep Sump and Hooded Catch Basin** | **25%** | **100%** | **25%** | **75%** |
| **Sediment Forebay** | **25%** | **75%** | **19%** | **56%** |
| | **0%** | **56%** | **0%** | **56%** |

**Pre-Treatment TSS Removal =** **44%**

## 2. Total TSS Removal including Pretreatment 1.

| BMP* | TSS Removal Rate* | Starting TSS Load** | Amount Removed (C*D) | Remaining Load (D-E) |
|---|---|---|---|---|
| **Deep Sump and Hooded Catch Basin** | **25%** | **100%** | **25%** | **75%** |
| **Sediment Forebay** | **25%** | **75%** | **19%** | **56%** |
| **Sand Filter** | **80%** | **56%** | **45%** | **11%** |
| | **0%** | **11%** | **0%** | **11%** |

* BMP and TSS Removal Rate Values from the MassDEP Stormwater Handbook Vol. 1. Removal rates for proprietary devices are from approved studies and/or manufacturer data (attach study or data source, or remove this sentence if not applicable).

** Equals remaining load from previous BMP (E)

*** Stormceptor sizing calculation gives a TSS removal rate of 87%. To be conservative, 80% removal is used for this calculation (Change name of device and the claimed removal rate shown on the calc. sheet. Remove this sentence if

**Treatment Train TSS Removal =** **89%**

# Appendix E: Standard 8 Supporting Information

# Recommended Construction Period Pollution Prevention and Erosion and Sedimentation Controls

# Section A: Erosion and Sedimentation Control Measures

As part of the Notice of Intent process, an erosion and sedimentation control plan will be developed, and will include measures such as those described below.

# Erosion and Sedimentation Control Measures

The following erosion and sedimentation controls are for use during the earthwork and construction phases of the project. The following controls are provided as recommendations for the site contractor and do not constitute or replace the final Stormwater Pollution Prevention Plan that must be fully implemented by the Contractor and owner in Compliance with EPA NPDES regulations.

## Siltsocks / Hay Bale Barriers

Siltsocks and/or hay bale barriers will be placed to trap sediment transported by runoff before it reaches the drainage system or leaves the construction site. Bales will be set at least four inches into the existing ground to minimize undercutting by runoff.

## Silt Fencing

In areas where high runoff velocities or high sediment loads are expected, hay bale barriers will be backed up with silt fencing. This semi-permeable barrier made of a synthetic porous fabric will provide additional protection. The silt fences and hay bale barrier will be replaced as determined by periodic field inspections.

## Catch Basin Protection

Newly constructed and existing catch basins will be protected with hay bale barriers (where appropriate) or silt sacks throughout construction.

## Gravel and Construction Entrance/Exit

A temporary crushed-stone construction entrance/exit will be constructed. A cross slope will be placed in the entrance to direct runoff to a protected catch basin inlet or settling area. If deemed necessary after construction begins, a wash pad may be included to wash off vehicle wheels before leaving the project site.

## Diversion Channels

Diversion channels will be used to collect runoff from construction areas and discharge to either sedimentation basins or protected catch basin inlets.

## Temporary Sediment Basins

Temporary sediment basins will be designed either as excavations or bermed stormwater detention structures (depending on grading) that will retain runoff for a sufficient period of time to allow suspended soil particles to settle out prior to discharge. These temporary basins will be located based on construction needs as determined by the contractor and outlet devices will be designed to control velocity and sediment. Points of discharge from sediment basins will be stabilized to minimize erosion.

## Vegetative Slope Stabilization

Stabilization of open soil surfaces will be implemented within 14 days after grading or construction activities have temporarily or permanently ceased, unless there is sufficient snow cover to prohibit implementation. Vegetative slope stabilization will be used to minimize erosion on slopes of 3:1 or flatter. Annual grasses, such as annual rye, will be used to ensure rapid germination and production of root mass. Permanent stabilization will be completed with the planting of perennial grasses or legumes. Establishment of temporary and permanent vegetative cover may be established by hydro-seeding or sodding. A suitable topsoil, good seedbed preparation, and adequate lime, fertilizer and water will be provided for effective establishment of these vegetative stabilization methods. Mulch will also be used after permanent seeding to protect soil from the impact of falling rain and to increase the capacity of the soil to absorb water.

## Maintenance

- The contractor or subcontractor will be responsible for implementing each control shown on the Sedimentation and Erosion Control Plan. In accordance with EPA regulations, the contractor must sign a copy of a certification to verify that a plan has been prepared and that permit regulations are understood.

- The on-site contractor will inspect all sediment and erosion control structures periodically and after each rainfall event. Records of the inspections will be prepared and maintained on-site by the contractor.

- Silt shall be removed from behind barriers if greater than 6-inches deep or as needed.

- Damaged or deteriorated items will be repaired immediately after identification.

- The underside of hay bales should be kept in close contact with the earth and reset as necessary.

- Sediment that is collected in structures shall be disposed of properly and covered if stored on-site.

- Erosion control structures shall remain in place until all disturbed earth has been securely stabilized. After removal of structures, disturbed areas shall be regraded and stabilized as necessary.

The sedimentation and erosion control plan is included in project plan set.

# Construction Practices Maintenance/ Evaluation Checklist

## Project Name – City, State

| Best Management Practice | Inspection Frequency | Date Inspected | Inspector Initials | Minimum Maintenance and Key Items to Check | Cleaning or Repair Needed ☐Yes/No (List Items) | Date of Cleaning or Repair | Performed by: |
|---|---|---|---|---|---|---|---|
| Hay Bales/ Siltsock/ Silt Fencing | Weekly and after any rainfall | | | Sediment build up, broken bales or stakes | | | |
| Gravel Construction Entrance | Weekly and after any rainfall | | | Filled voids, runoff/sediments into street | | | |
| Catch Basin Protection | Weekly and after any rainfall | | | Clogged or sediment build-up at surface or in basin | | | |
| Diversion Channels | Weekly and after any rainfall | | | Maintained, moved as necessary to correct locations, Check for erosion or breakout | | | |
| Temporary Sedimentation Basins | Weekly and after any rainfall | | | Cracking, erosion, breakout, sediment buildup, contaminants | | | |

Stormwater Control Manager: _____

# Section B: Construction Spill Prevention & Response

# Construction Phase Spill Prevention

Spill prevention equipment and training will be provided by TBD.

## Initial Notification

In the event of a spill the facility and/or construction manager or supervisor will be notified immediately.

| | |
|---|---|
| Facility Manager (name): | TBD |
| Facility Manager (phone): | TBD |
| Construction Manager (name) : | TBD |
| Construction Manager (phone): | TBD |

The supervisor will first contact the Fire Department and then notify the Police Department, the Public Health Commission and the Conservation Commission. The Fire Department is ultimately responsible for matters of public health and safety and should be notified immediately.

## Further Notification

Based on the assessment from the Fire Chief, additional notification to a cleanup contractor may be made. The Massachusetts Department of Environmental Protection (MassDEP) and the EPA may be notified depending upon the nature and severity of the spill. The Fire Chief will be responsible for determining the level of cleanup and notification required. The attached list of emergency phone numbers shall be posted in the main construction/facility office and readily accessible to all employees. A hazardous waste spill report shall be completed as necessary using the attached form.

## Emergency Notification Phone Numbers

**1. FACILITY MANAGER**

Name: _____ Phone: _____

Beeper/Cell: _____

Home Phone: _____

Alternate Contact: _____ Phone: _____

Beeper/Cell: _____

Home Phone: _____

**2. FIRE & POLICE DEPARTMENT** Emergency: 911

**3. CLEANUP CONTRACTOR**

Address: _____ Phone: _____

**4. MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION (DEP)** Emergency: (508) 946-2700

**5. NATIONAL RESPONSE CENTER** Phone: (800) 424-8802

Alternate: U.S. Environmental Protection Agency Emergency: (###) ###-####

Business: (###) ###-####

**6. Somerset Board of Health** Phone: (508) 646-2804

Municipal Conservation Commission: Phone: (###) ###-####

## Hazardous Waste & Oil Spill Report

**Date:** _____ **Time:** _____ **AM / PM**

**Exact location (Transformer #):** _____

**Type of equipment:** _____ **Make:** _____ **Size:** _____

**S / N:** _____ **Weather Conditions:** _____

**On or near water?** ☐ Yes ☐ No **If yes, name of body of water:** _____

**Type of chemical / oil spilled:** _____

**Amount of chemical / oil spilled:** _____

**Cause of spill:** _____

**Measures taken to contain or clean up spill:** _____

**Amount of chemical / oil recovered:** _____ **Method:** _____

**Material collected as a result of cleanup:**

_____ drums containing _____

_____ drums containing _____

_____ drums containing _____

**Location and method of debris disposal:** _____

**Name and address of any person, firm, or corporation suffering charges:** _____

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

**Spill reported by General Office by:** _____ **Time:** _____ **AM / PM**

**Spill reported to DEP / National Response Center by:** _____

**DEP Date:** _____ **Time:** _____ **AM / PM** **Inspector:** _____

**NRC Date:** _____ **Time:** _____ **AM / PM** **Inspector:** _____

**Additional comments:** _____

## Assessment – Initial Containment

The supervisor or manager will assess the incident and initiate containment control measures with the appropriate spill containment equipment included in the spill kit kept on-site. A list of recommended spill equipment to be kept on site is included on the following page.

| | |
|---|---|
| **Fire / Police Department:** | 911 |
| **Somerset Board of Health:** | (508) 646-2804 |
| **Somerset Conservation Commission:** | (508) 646-2804 |

### Emergency Response Equipment

The following equipment and materials shall be maintained at all times and stored in a secure area for long-term emergency response need.

| Supplies | Quantity | Recommended Suppliers |
|---|---|---|
| Sorbent Pillows/"Pigs" | 2 | http://www.newpig.com<br>Item # KIT276 — mobile container with two pigs |
| Sorbent Boom/Sock | 25 feet | http://www.forestry-suppliers.com |
| Sorbent Pads | 50 | |
| Lite-Dri® Absorbent | 5 pounds | |
| Shovel | 1 | Item # 33934 — Shovel (or equivalent) |
| Pry Bar | 1 | Item # 43210 — Manhole cover pick (or equivalent) |
| Goggles | 1 pair | Item # 23334 — Goggles (or equivalent) |
| Gloves – Heavy | 1 pair | Item # 90926 — Gloves (or equivalent) |

# Appendix F: FEMA Map

# National Flood Hazard Layer FIRMette

FEMA

41°42'47.26"N

71°11'54.78"W


71°11'17.32"W

41°42'20.41"N

Feet 1:6,000

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

## Legend

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

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

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

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

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

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

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

N

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 3/1/2018 at 4:34:20 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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

# Appendix G: RMAT Report

# RMAT Climate Resilience Design Standards Tool Project Report

**Prysmian Brayton Point**
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## Project Summary

Link to Project

Estimated Construction Cost: $250000000.00
End of Life Year: 2100
Project within mapped Environmental Justice neighborhood: No

| Ecosystem Benefits | Scores |
|---|---|
| Project Score | Low |
| **Exposure** | **Scores** |
| Sea Level Rise/Storm Surge | High Exposure |
| Extreme Precipitation - Urban Flooding | High Exposure |
| Extreme Precipitation - Riverine Flooding | Not Exposed |
| Extreme Heat | High Exposure |


## Asset Summary

Number of Assets: 1

| Asset Risk | Sea Level Rise/Storm Surge | Extreme Precipitation - Urban Flooding | Extreme Precipitation - Riverine Flooding | Extreme Heat |
|---|---|---|---|---|
| Cable Manufacturing Facility | High Risk | High Risk | Low Risk | High Risk |

## Project Outputs

| | Target Planning Horizon | Intermediate Planning Horizon | Percentile | Return Period | Tier |
|---|---|---|---|---|---|
| **Sea Level Rise/Storm Surge** | | | | | |
| Cable Manufacturing Facility | 2070 | 2050 | | 200-yr (0.5%) | Tier 3 |
| **Extreme Precipitation** | | | | | |
| Cable Manufacturing Facility | 2070 | | | 100-yr (1%) | Tier 3 |
| **Extreme Heat** | | | | | |
| Cable Manufacturing Facility | 2070 | | 90th | | Tier 3 |

## Scoring Rationale - Exposure

### Sea Level Rise/Storm Surge

This project received a "High Exposure" because of the following:

- Located within the predicted mean high water shoreline by 2030
- Exposed to the 1% annual coastal flood event as early as 2030
- Located within the 0.1% annual coastal flood event within the project's useful life

### Extreme Precipitation - Urban Flooding

This project received a "High Exposure" because of the following:

- Maximum annual daily rainfall exceeds 10 inches within the overall project's useful life
- Existing impervious area of the project site is greater than 50%
- No historic flooding at project site

- No increase to impervious area

**Extreme Precipitation - Riverine Flooding**

This project received a "Not Exposed" because of the following:

- No historic riverine flooding at project site
- The project is not within a mapped FEMA floodplain [outside of the Massachusetts Coast Flood Risk Model (MC-FRM)]
- Project is more than 500ft from a waterbody
- Project is not likely susceptible to riverine erosion

**Extreme Heat**

This project received a "High Exposure" because of the following:

- 30+ days increase in days over 90 deg. F within project's useful life
- Existing impervious area of the project site is greater than 50%
- Located within 100 ft of existing water body
- No increase to the impervious area of the project site
- No tree removal

## Scoring Rationale - Asset Risk Scoring

**Asset - Cable Manufacturing Facility**
Primary asset criticality factors influencing risk ratings for this asset:

- Asset can be inaccessible/inoperable more than a week after natural hazard event without consequences
- Loss/inoperability of the asset would have impacts limited to the site only
- Inoperability of the asset would not be expected to result in injuries
- Cost to replace is greater than $100 million
- Spills and/or releases of hazardous materials would be relatively easy to clean up

## Project Design Standards Output

Asset: Cable Manufacturing Facility — Building/Facility

**Sea Level Rise/Storm Surge** — High Risk

Target Planning Horizon: 2070
Intermediate Planning Horizon: 2050
Return Period: 200-yr (0.5%)

**Applicable Design Criteria**

**Tiered Methodology:** Tier 3

**Projected Tidal Datums:** Yes

| Planning Horizon | MHHW | MHW | MTL | MLW | MLLW |
|---|---|---|---|---|---|
| | (ft-NAVD88) | | | | |
| 2050 | 5 | 4.8 | 2.6 | 0.4 | 0.3 |
| 2070 | 6.8 | 6.6 | 4.4 | 2.3 | 2.2 |

*Limitations*: Tidal datums are recommended based on the user drawn polygon, user responses to the useful life of the selected asset, and intersection of the project polygon with the mean high water (MHW) polygon for 2030. Tidal datum values provided are based on the MC-FRM, developed by Woods Hole Group in coordination with UMass Boston. For additional information on how these values were generated, review the link here. The values provided within should be used to inform design, but they do not provide guarantees for resilience. The guidance provided within is general and people are encouraged to do their own due diligence as part of planning and design.

**Projected Water Surface Elevation:** Yes

| Asset Name | Recommmended Planning Horizon | Recommmended Return Period | Max | Min | Area Weighted Average |
|---|---|---|---|---|---|
| | | | (ft - NAVD88) | | |
| Cable Manufacturing Facility | 2050 | 0.5% (200-Year) | 17.7 | 17.4 | 17.5 |
| | 2070 | | 20.4 | 20.2 | 20.2 |

*Limitations*: Projected water surface elevations are recommended based on the user drawn polygon, and user responses to the useful life of the selected asset. The projected water surface elevation values provided are based on the MC-FRM, developed by Woods Hole Group in coordination with UMass

Boston. For additional information on how these values were generated, review the link here. The values provided within should be used to inform design, but they do not provide guarantees for resilience. The guidance provided within is general and people are encouraged to do their own due diligence as part of planning and design.

**Projected Wave Action Water Elevation:** Yes

| Asset Name | Recommmended Planning Horizon | Recommmended Return Period | Max | Min | Area Weighted Average |
|---|---|---|---|---|---|
| | | | (ft - NAVD88) | | |
| Cable Manufacturing Facility | 2050 | 0.5% (200-Year) | 24.3 | 17.4 | 18.8 |
| | 2070 | | 27.7 | 20.2 | 21.9 |

*Limitations*: Projected dynamic flood elevations are recommended based on the user drawn polygon, and user responses to the useful life of the selected asset. The projected dynamic flood elevation values provided are based on the MC-FRM, developed by Woods Hole Group in coordination with UMass Boston. For additional information on how these values were generated, review the link here. The values provided within should be used to inform design, but they do not provide guarantees for resilience. The guidance provided within is general and people are encouraged to do their own due diligence as part of planning and design.

**Projected Wave Heights:** Yes

| Asset Name | Recommmended Planning Horizon | Recommmended Return Period | Max | Min | Area Weighted Average |
|---|---|---|---|---|---|
| | | | (Feet) | | |
| Cable Manufacturing Facility | 2050 | 0.5% (200-Year) | 11 | 0 | 1.9 |
| | 2070 | | 11.5 | 0 | 2.4 |

*Limitations*: Projected wave heights are recommended based on the user drawn polygon, and user responses to the useful life of the selected asset. The projected wave height values provided are based on the MC-FRM, developed by Woods Hole Group in coordination with UMass Boston. For additional information on how these values were generated, review the link here. The values provided within should be used to inform design, but they do not provide guarantees for resilience. The guidance provided within is general and people are encouraged to do their own due diligence as part of planning and design.

**Projected Duration of Flooding:** Yes
**Projected Design Flood Velocity:** Yes
**Projected Scour & Erosion:** No

## Extreme Precipitation — High Risk

Target Planning Horizon: 2070
Return Period: 100-yr (1%)

**Applicable Design Criteria**

**Tiered Methodology:** Tier 3

**Projected Total Precipitation Depth & Peak Intensity for 24-hr Design Storms:** Yes

| Asset Name | Recommended Planning Horizon | Recommended Return Period (Design Storm) | Projected 24-hr Total Precipitation Depth (inches) | Step-by-Step Methodology for Peak Intensity |
|---|---|---|---|---|
| Cable Manufacturing Facility | 2070 | 100-Year (1%) | 10.4 | Downloadable Methodology PDF |

*Limitations*: While precipitation depth is useful for project planning and design, rainfall distribution and peak intensity of the design storm is recommended to also be considered. Lower-intensity, longer-duration storms allow time for infiltration and reduce the load on the infrastructure system over the duration of the storm. Higher-intensity, shorter-duration storms often have higher runoff volumes because the water does not have enough time to infiltrate and infrastructure systems (e.g., catch basins) and may overflow or back up during such storms. In the Northeast, short -duration high intensity rain events are becoming more frequent, and there is often little early warning for these events, making it difficult to plan operationally. These events can result in the rapid inundation of the asset project location. Design should consider both short- and long-duration precipitation events and how they may impact the asset.

The precipitation values provided by this Tool (version 1) are recommended to inform planning and design, but they do not guarantee that the asset will be protected from or be able to withstand an extreme precipitation event. The planning, design, and review guidance accompanying these values is general and projects are encouraged to do their own due diligence to understand the vulnerability of their asset.

**Projected Riverine Peak Discharge & Peak Flood Elevation:** No

## Extreme Heat — High Risk

Target Planning Horizon: 2070
Percentile: 90th Percentile

**Applicable Design Criteria**

**Tiered Methodology:** Tier 3

**Projected Annual/Summer/Winter Average Temperatures:** Yes
**Projected Heat Index:** Yes
**Projected Growing Degree Days:** No

**Projected Days Per Year With Max Temp > 95°F, >90°F, <32°F:** Yes
**Projected Number of Heat Waves Per Year & Average Heat Wave Duration:** Yes
**Projected Cooling Degree Days & Heating Degree Days (base = 65°F):** Yes

## Report Comments

N/A