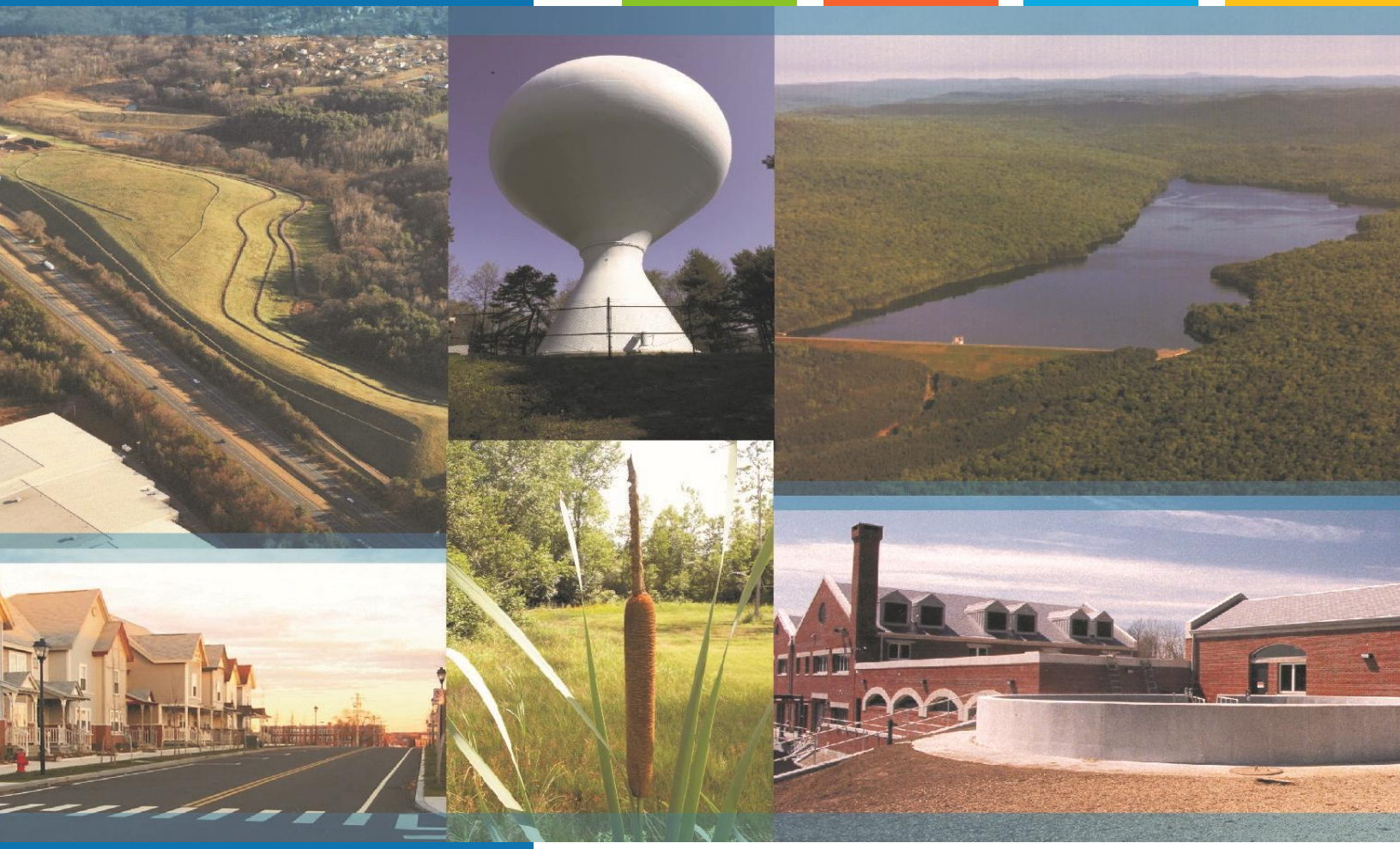


Weaver's Cove Industrial Park
Fall River, Massachusetts

STORMWATER MANAGEMENT REPORT

Weaver's Cove Industrial Park, LLC

April 2026

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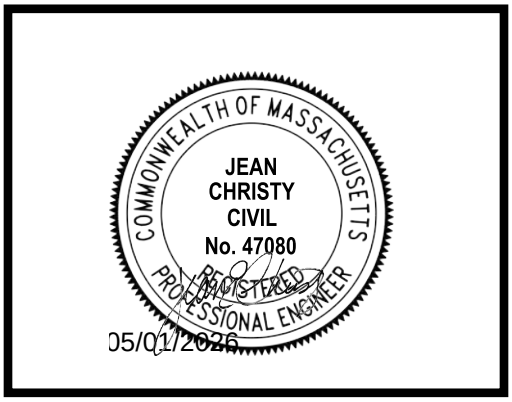
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SECTION 1

Section 1
Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the computations, published soil information, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan, the Long-term Post-Construction Operation and Maintenance Plan and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Massachusetts Department of Environmental Protection (MassDEP) Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist, provided in Appendix A, 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



5/1/2026
Date

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SECTION 2

Section 2
Project Description

2.1 Project Introduction

On behalf of Weavers Cove Industrial Park LLC, (the "Applicant"), Tighe & Bond has prepared the following Stormwater Management Report to support permitting efforts for the Weaver's Cove Industrial Park Project located at 1 New Street in Fall River, Massachusetts (the Site).

Historically, the Site served as a Shell petroleum terminal before it was decommissioned in the 1990s. Presently, the Site consists of approximately 50 acres of developed land and has been used for heavy construction equipment storage and metals fabrication storage since the petroleum terminal's decommissioning. While the majority of the site is vacant, portions of infrastructure from the former terminal remain. The Site was issued MassDEP Release Tracking Number (RTN) 4-0749 for concentrations of petroleum constituents in soil and groundwater exceeding applicable Reportable Concentrations from the former Shell operations. Response actions by others at the Site are currently on-going and are being performed under a Remedy Operation Status (ROS) under the Massachusetts Contingency Plan (MCP). In general, the on-going remedial actions include the passive removal of petroleum related light non-aqueous phase liquids (LNAPL).

Weaver's Cove Industrial Park, LLC is seeking to improve the Site by implementing an Administrative Consent Order (ACO) such that clean soil, that meets DEP standards under the MassDEP COMM 15-01 policy, will be imported for use as reclamation fill. Additionally, the proposed project consists of site preparation activities in anticipation of potential future commercial development. The proposed site preparation on the subject parcel involves the following activities:

- The removal of remnants of the former petroleum storage and transfer terminal, including any remaining piping, small concrete retaining walls, interior earthen containment dykes, buildings, and other structures and appurtenances that are no longer functional or required,
- The installation of site-wide construction-period stormwater runoff controls during site preparation activities, and
- Extensive site grading and stabilization in order to create a uniform surface which will be suitable for future development. This portion of the project is separated into two (2) phases, where "Phase I" includes grading, site preparation, and stabilization of the southern portion of the site, while "Phase II" includes grading, site preparation, and stabilization of the northern portion of the site.

A United States Geological Survey (USGS) Site Location figure, Orthophotograph, and Priority Resource figure of the Project site are provided in Appendix B as Figures 1-3 (respectively). Project plans are provided separately.

2.2 Existing Conditions

The Natural Resources Conservation Service (NRCS) soil data was obtained through the Web Soil Survey portal on the United States Department of Agriculture (USDA) NRCS website. The areas surrounding the property were queried for soil types according to the record soil survey maps maintained by NRCS. Soils within the project area, as published in the USDA Soil Survey for Bristol County, Version 18, dated August 27, 2024, include the Paxton association, as well as Urban Land and Udorthents. The NRCS Soils Mapping is provided in Appendix C. Additional description for each soil association is presented in Table 2.1 below.

Table 2.1
Soil Descriptions

Soil Map Designation	Soil Name	Hydrologic Soil Group (HSG)
602	Urban Land	-
656	Udorthents – Urban land complex	-

Soils on the project site are classified as urban land and udorthents. Because of the long-spanning history of development on the site, and the site's historic industrial uses, soils in the area are heavily disturbed and cannot be assigned a hydrologic soil group designation (HSG). It is assumed that, due to the site's history of industrial development and use for the storage of heavy machinery, soils throughout the project site are highly compacted under existing conditions. NRCS Soils Mapping is provided in Appendix C.

The site is bisected by Peat Street, which separates the site into a "northern" and "southern" portion. On the northern portion of the project site, stormwater runoff flows from east to west, toward the Taunton River, following existing topography.

On the southern portion of the site, stormwater runoff flows from east to west, following existing topography. An existing perimeter berm runs along the edge of the disturbed soil area, preventing runoff from entering the Taunton River. An existing detention basin is located in the southern-most portion of the site, bordering Route 29. Drainage infrastructure located throughout the project site conveys runoff to one of two historical discharge points along the Taunton River.

The runoff curve numbers (CN) used in the calculation of the composite CN for each drainage area is based on the values provided in TR-55, Urban Hydrology for Small Watersheds. CN values vary depending on the type of ground cover and soil HSG. Existing Conditions Drainage Areas were delineated based on topography and stormwater discharge location. A summary of each existing conditions drainage area, including sizing, CN and time of concentration calculations, are provided in the HydroCAD reports in Appendix D. Existing Conditions Drainage Area Maps are provided as Figures 4.1-4.3 in Appendix B.

2.3 Floodplain Management

The Federal Emergency Management Agency's Flood Insurance Rate Map (FIRM) Community Panel Number 25005C0332G, effective July 16, 2014 shows portions of the project site located within a Zone AE and Zone X. The area located within Zone AE is defined a area with a base flood elevation (BFE) established. The BFE for the portions of the project site located within Zone AE is 15 feet. The areas located within Zone X on the project site are defined as areas with a 1% annual chance of flooding with average depths less than one foot. FEMA mapping is as attached in Appendix B.

2.4 Proposed Improvements

The proposed site development involves site preparation activities in anticipation of potential future development. The site preparation activities include the removal of remnants of the former petroleum storage and transfer terminal, including above ground storage tanks and piping, small concrete retaining walls, interior earthen containment dykes, buildings, other structures and appurtenances that are no longer functional. The project proposes the abandonment of most of the remaining utilities throughout the site, as well as the installation of site-wide construction-period stormwater controls that will be in place during site preparation. Utilities to remain on the site post-construction include a large, city-owned drainage culvert beneath Peat Street. It is understood that this culvert connects to the city-owned drainage system outside of the project site boundaries. Site-wide grading efforts are proposed in order to level-off the site and create a relatively flat, uniform surface, and will be undertaken in two (2) phases.

Under proposed conditions, stormwater runoff patterns will be largely maintained, with runoff continuing to flow from east to west toward the Taunton River. The perimeter berm along the edge of the southern portion of the site will be removed, allowing stormwater runoff to flow into the Taunton River. Stabilization measures proposed at the site include the application of an aggregate base-course material (crushed asphalt brick and concrete, "ABC", that meets MassDEP's ABC policy) over the entire prepared surface, and are anticipated to improve the overall quality of stormwater runoff by reducing runoff exposure to TSS loading. The finished surface is not anticipated to be highly compacted as to allow for a degree of stormwater runoff infiltration.

A summary of each proposed condition drainage area, including sizing, RCN and time of concentration calculations, are provided in the HydroCAD reports in Appendix D. Proposed Conditions Drainage Area Maps are provided as Figures 5.1-5.3 in Appendix B.

2.5 Method of Hydrologic and Hydraulic Analysis

The following storm drainage design criteria were used for all hydrologic and hydraulic analyses:

- Minimum time of concentration = 6 minutes.
- For SCS peak flow calculations, Curve Number were as follows:
    - Woods, grass comb, Good = 32
    - >75% Grass Cover, Good = 39
    - Dirt = 72

  - Gravel = 76
  - Crushed Stone = 85
  - Compacted Dirt = 90
  - Impervious (Paved) = 98
- Watershed areas delineated using polylines in AutoCAD Civil 3D 2022.
- Comparative hydrology analyzed using HydroCAD Stormwater Modeling software Version 10.20-4c.

A comparative hydrologic analysis of the pre-development and post-development site was performed to determine the impacts of the proposed project to peak discharge rates and stormwater runoff volumes. HydroCAD Release 10.20-4c is a hydrology and hydraulics software using Technical Release (TR) 20 and TR-55 methodologies for the determination of stormwater runoff quantities. The HydroCAD Report for both pre- and post-development conditions for each storm event is provided in Appendix D. Table 2.2 below presents the design rainfall depths for the storm events evaluated, as provided by the National Oceanic and Atmospheric Administration's (NOAA) National Weather Service Atlas 14 PLUS.

Table 2.2
Design Rainfall Depths

Storm Event	Rainfall Depth (inches)
2-Year	3.40
10-Year	5.05
25-Year	6.08
100-Year	7.67

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SECTION 3

Section 3
Regulatory Compliance

The project is required to comply with the ten MassDEP Massachusetts Stormwater Management Standards (Standards) under the Massachusetts Wetlands Protection Act. The Massachusetts Stormwater Checklist is provided in Appendix A.

3.1 LID Measures

MassDEP allows for reductions in structural stormwater Best Management Practice (BMP) requirements for water quantity and quality when certain criteria are met. The proposed project considered environmentally sensitive site design and low impact development techniques to the maximum extent practicable; however, the applicant is not requesting credit for LID measures.

3.2 Standard 1: No New Untreated Discharges

The project will not result in any new stormwater conveyance discharging untreated stormwater directly to the Waters of the Commonwealth. When site preparation is complete, stormwater runoff will continue to flow in an easterly to westerly direction and discharge through overland flow into the Taunton River, as under existing conditions. No impervious surfaces are proposed as part of the project and all surfaces will be stabilized with suitable aggregate.

3.3 Standard 2: Peak Discharge Rate Attenuation

Although the proposed project alters existing drainage patterns, peak rate attenuation is not required as the project site is located within land subject to coastal storm flowage, as defined in 310 CMR 10.04 as land subject to any inundation caused by coastal storms up to and including that caused by the 100-year storm.

3.4 Standard 3: Groundwater Recharge

The proposed project complies with Standard 3 to the maximum extent practicable. As a redevelopment, the project does not propose new impervious area. The required recharge volume is a function of the proposed impervious area for the project. Because the project does not propose any impervious surfaces, infiltration of stormwater runoff from the proposed project prior to discharge is not required. Additionally, the presence of contaminated soils at the project site precludes the incorporation of infiltration practices into the stormwater management design.

3.5 Standard 4: Water Quality

Standard 4 of the Massachusetts Stormwater Standards addresses stormwater quality requirements. This standard requires that new stormwater management systems be designed to achieve an 80% Total Suspended Solids (TSS) removal rate prior to discharge.

As a redevelopment, the project does not propose new impervious area, and stabilized surfaces within the project area will not be subject to TSS loading. TSS removal is not required.

Additionally, this standard addresses the required volume of stormwater runoff that is to be treated by the BMPs, as well as components of a long-term source control and pollution prevention plan. The water quality volume is a function of the proposed impervious area for the project. Because the proposed project does not propose any impervious surfaces, treatment of stormwater runoff from the proposed project prior to discharge is not required.

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

The proposed use is not considered a LUHPPL. Therefore, compliance with the additional requirements of Standard 5 is not required.

3.7 Standard 6: Critical Areas

The site discharges stormwater runoff to the Taunton River, which discharges to Mount Hope Bay. The Taunton River, specifically segment MA62-04, is listed as a Category 5 Water, which requires a Total Maximum Daily Load (TMDL) as listed in the Massachusetts Year 2022 Integrated List of Waters. The impairments listed for this segment of the Taunton River include Dissolved Oxygen, Enterococcus, Fecal Coliform, Fish Bioassessments, and Total Nitrogen. Mount Hope Bay, specifically segment MA61-06, is also listed as a Category 5 Water, requiring a TMDL. The impairments listed for this segment of Mount Hope Bay include Chlorophyll-a, Dissolved Oxygen, Enterococcus, Fecal Coliform, Fish Bioassessments, and Total Nitrogen.

The proposed project will provide an improvement in stormwater runoff quality as compared to existing conditions through site stabilization post-construction, reducing the overall exposure of stormwater runoff to TSS. The project is located outside of any MassDEP Wellhead Protection Areas, including Zones I, II, and any Interim Wellhead Protection Areas.

Other Critical Areas, as defined in the Massachusetts Stormwater Handbook, are shown on Figure 2 in Appendix B.

3.8 Standard 7: Redevelopment Projects

The project is considered a redevelopment; therefore, the project has been designed to comply to the maximum extent practicable with Standards 2, 3, 4, and 6. The project has been designed to fully comply with the remaining Standards.

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

A construction period Soil Erosion and Sediment Control Plan (SESCP) is provided in Appendix E. The SESCP presents the minimum soil erosion a sediment control practices

to be used during construction. General soil erosion and sedimentation control BMPs are indicated on the Site Plans.

Additionally, there will be more than one acre of land disturbed as a result of this project, therefore construction will be required to comply with the Environmental Policy Act (EPA) National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP). Coverage under the CGP will be obtained before construction commenced by the Contractor. The Contractor will be required file a Notice of Intent with the EPA and to implement a Stormwater Pollution Prevention Plan (SWPPP) prior to construction. A SWPPP was not prepared as part of this report.

3.10 Standard 9: Long-Term Operation and Maintenance Plan

A Long-Term Stormwater Operations and Maintenance Plan is included in Appendix F of this report. The O&M plan indicates the responsible parties for the project, routine and non-routine maintenance tasks and inspection criteria. The O&M Plan also provides guidance on long-term pollution prevention practices for the project site.

3.11 Standard 10: Prohibition of Illicit Discharges

Illicit discharges to the stormwater management system are discharges that are not entirely comprised of stormwater. Illicit discharge does not include discharges from the following activities or facilities: firefighting, water line flushing, landscape irrigation, uncontaminated groundwater, potable water sources, foundation drains, air conditioning condensation, footing drains, individual resident car washing, flows from riparian habitats and wetlands, dechlorinated water from swimming pools, water used for street washing, and water used to clean residential buildings without detergents. A signed Illicit Discharge will be provided prior to construction.

3.12 Local Regulatory Requirements

The City of Fall River maintains regulatory standards for stormwater management systems as outlined in Section 150 of Chapter 74 in the Fall River Municipal Code. The standards and requirements for proposed systems reference those outlined in the Handbook, and project compliance with the Standards is outlined above.

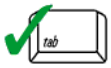
APPENDIX A

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.

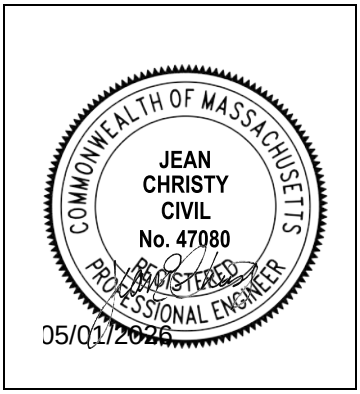
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the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



Jean E. Christy 5/1/2026

Checklist

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

☐ New development

☒ Redevelopment

☐ Mix of New Development and Redevelopment

Checklist for Stormwater Report

Checklist (continued)

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

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

Standard 1: No New Untreated Discharges

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

Checklist for Stormwater Report

Checklist (continued)

Standard 2: Peak Rate Attenuation

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

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

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

Standard 3: Recharge

☒ Soil Analysis provided.

☐ Required Recharge Volume calculation provided.

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

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

☐ Static ☐ Simple Dynamic ☐ Dynamic Field[1]

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

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

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

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

☐ Site is comprised solely of C and D soils and/or bedrock at the land surface

☐ M.G.L. c. 21E sites pursuant to 310 CMR 40.0000

☐ Solid Waste Landfill pursuant to 310 CMR 19.000

☒ Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.

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

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

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

Checklist for Stormwater Report

Checklist (continued)

Standard 3: Recharge (continued)

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

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

Standard 4: Water Quality

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

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

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

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

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

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

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

Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

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

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

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

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

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

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

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

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

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

☐ All exposure has been eliminated.

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

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

Standard 6: Critical Areas

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

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

Checklist for Stormwater Report

Checklist (continued)

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

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

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

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

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

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

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

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

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

Checklist for Stormwater Report

Checklist (continued)

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

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

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

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

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

Standard 9: Operation and Maintenance Plan

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

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

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

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

Standard 10: Prohibition of Illicit Discharges

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

☐ An Illicit Discharge Compliance Statement is attached;

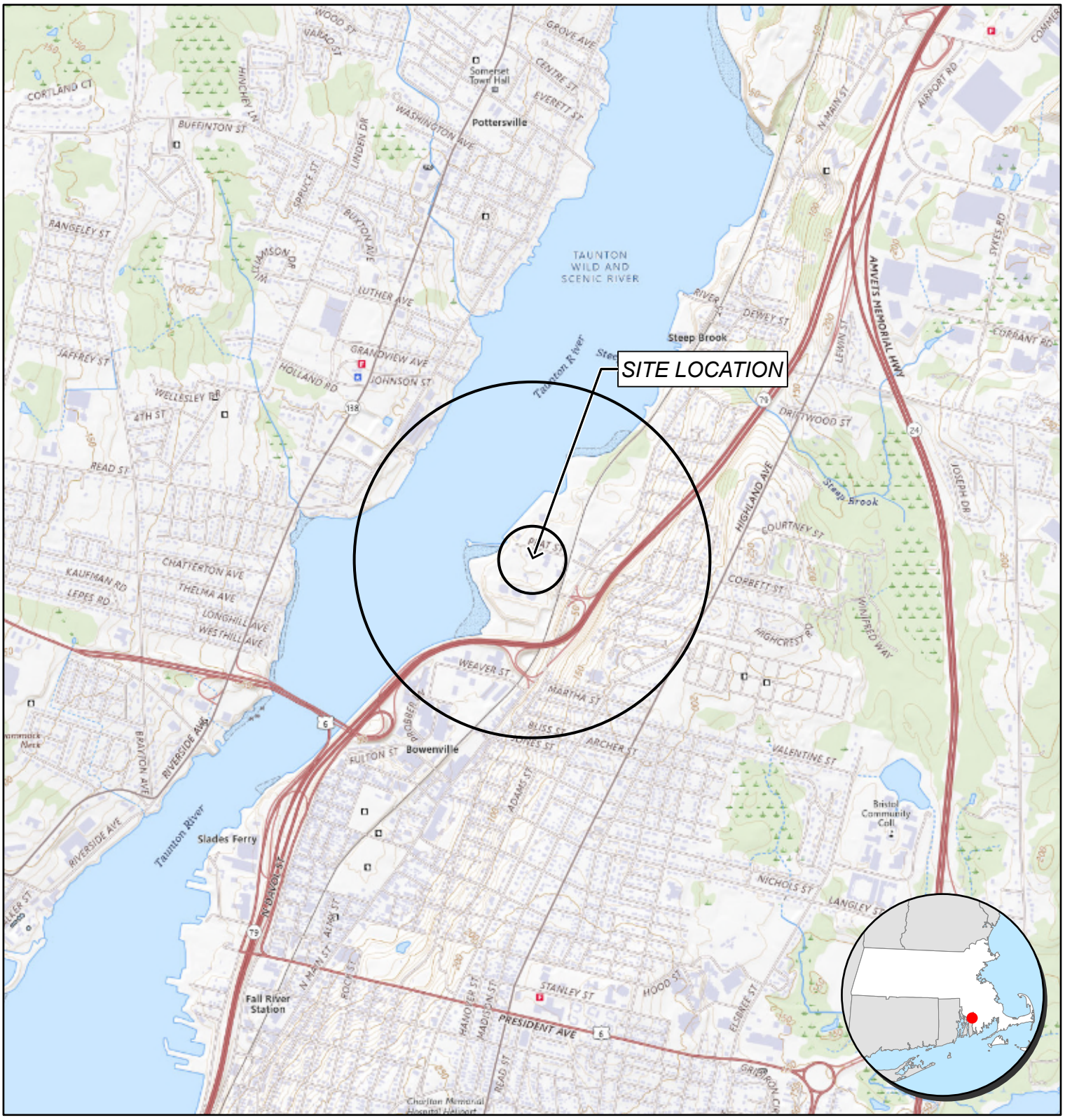
☒ NO Illicit Discharge Compliance Statement is attached but will be submitted ***prior to*** the discharge of any stormwater to post-construction BMPs.

Tighe&Bond

APPENDIX B

FIGURE 1
SITE LOCATION
January 2025

Weaver's Cove Industrial Park
1 New Street
Fall River, Massachusetts



Tighe&Bond

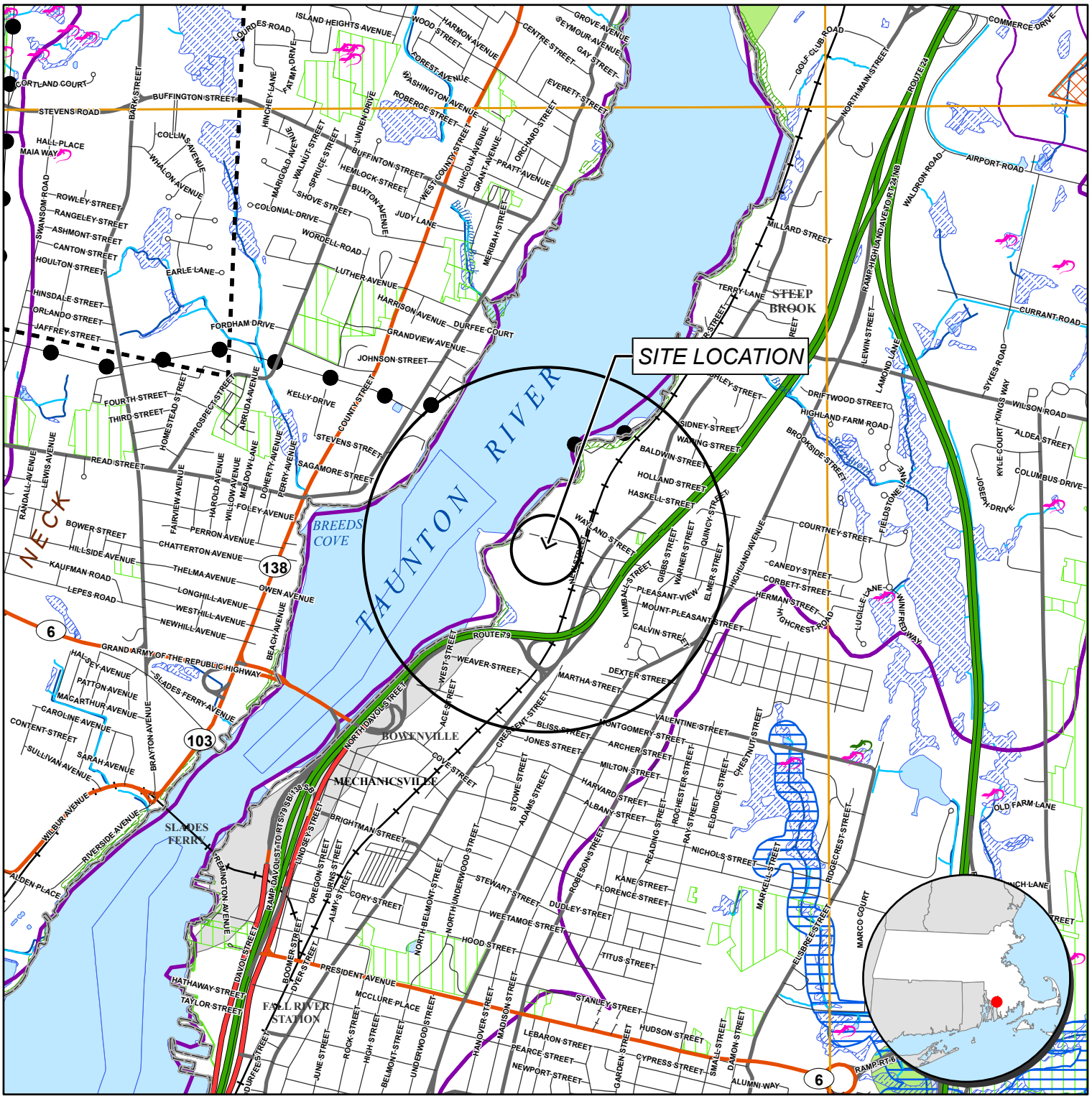
Based on USGS The National Map Topo Basemap.
Contour Interval Equals 10-Feet.
Circles indicate 500-foot and half-mile radii.

N

1:24,000
0 1,000 2,000
Feet

FIGURE 2
PRIORITY RESOURCE
January 2025

Weaver's Cove Industrial Park
1 New Street
Fall River, Massachusetts



NHESP Certified Vernal Pools
NHESP Potential Vernal Pools
Non-Landfill Solid Waste Sites
Proposed Well
Emergency Surface Water
Community Public Water Supply - Surface Water
Community Public Water Supply - Groundwater
Non-Community Non-Transient Public Water Supply
Non-Community Transient Public Water Supply
Limited Access Highway
Multi-Lane Highway, NOT Limited Access
Other Numbered Route
Major Road - Arterials and Collectors
Minor Street or Road
Aqueducts
Hydrologic Connections
Stream/Intermittent Stream
Powerline
Pipeline
Track or Trail
Trains
Public Surface Water Supply Protection Area (Zone A)
DEP Approved Wellhead Protection Area (Zone I)
DEP Approved Wellhead Protection Area (Zone II)
DEP Interim Wellhead Protection Area (IWPA)
Protected and Recreational Open Space
Solid Waste Landfill
Area of Critical Environmental Concern (ACEC)
NHESP Priority Habitats for Rare Species
NHESP Estimated Habitats for Rare Wildlife
EPA Designated Sole Source Aquifer
Major Drainage Basin
Sub Drainage Basin
MassDEP Inland Wetlands
MassDEP Coastal Wetlands
MassDEP Not Interpreted Wetlands
Public Surface Water Supply (PSWS)
Water Bodies
Non-Potential Drinking Water Source Area - High Yield
Non-Potential Drinking Water Source Area - Medium Yield
Potentially Productive Medium Yield Aquifer
Potentially Productive High Yield Aquifer
County Boundary
Municipal Boundary
USGS Quadrangle Sheet Boundary

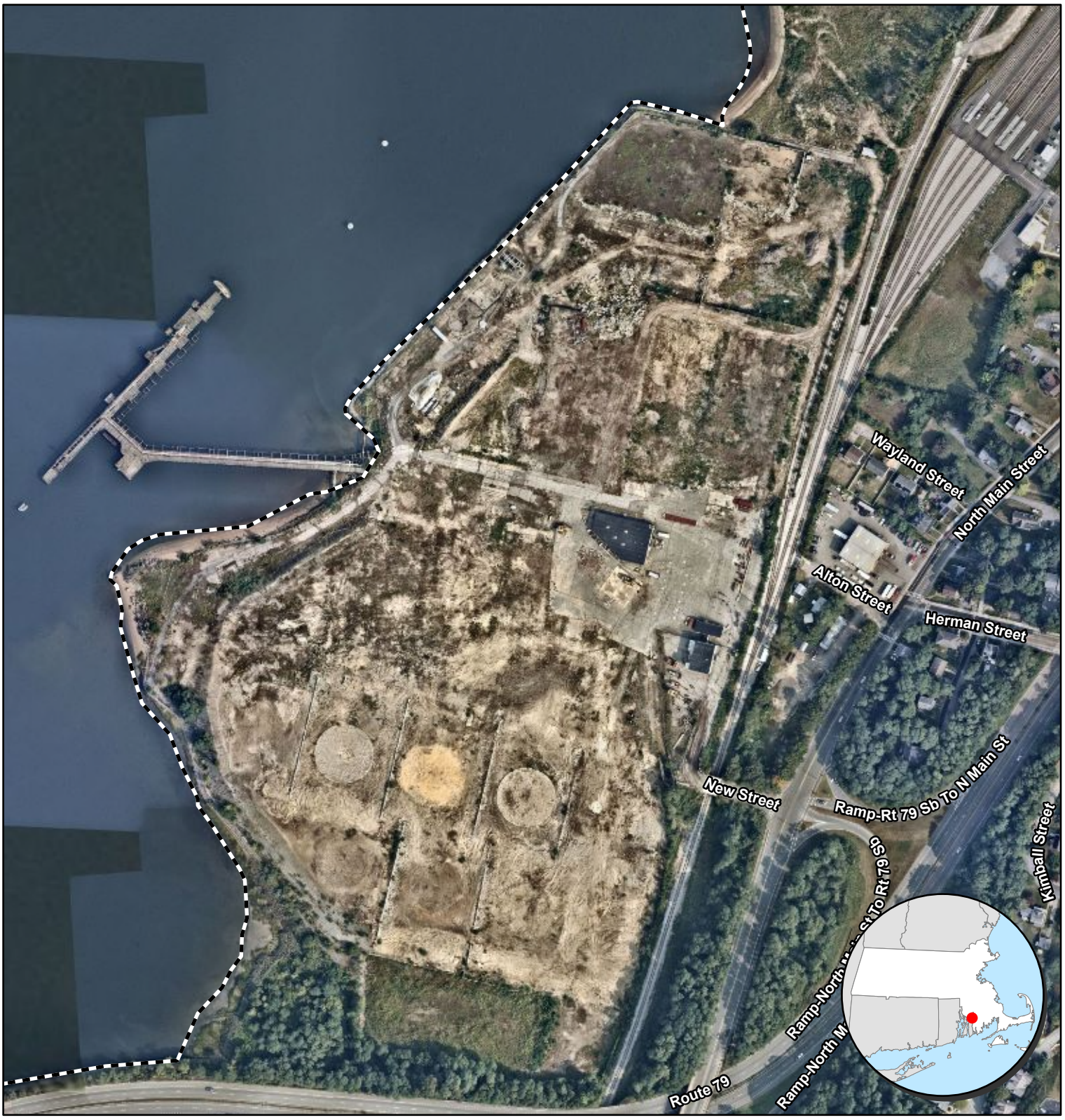
Tighe&Bond

Data source: Bureau of Geographic Information (MassGIS), Commonwealth of Massachusetts, Executive Office of Technology
Circles indicate 500-foot and half-mile radii.
Data valid as of January 2025.

N
1:24,000
0 1,000 2,000
Feet

FIGURE 3
AERIAL
January 2025

Weaver's Cove Industrial Park
1 New Street
Fall River, Massachusetts



--- Municipal Boundary

Tighe&Bond

Based on latest Nearmap Imagery.

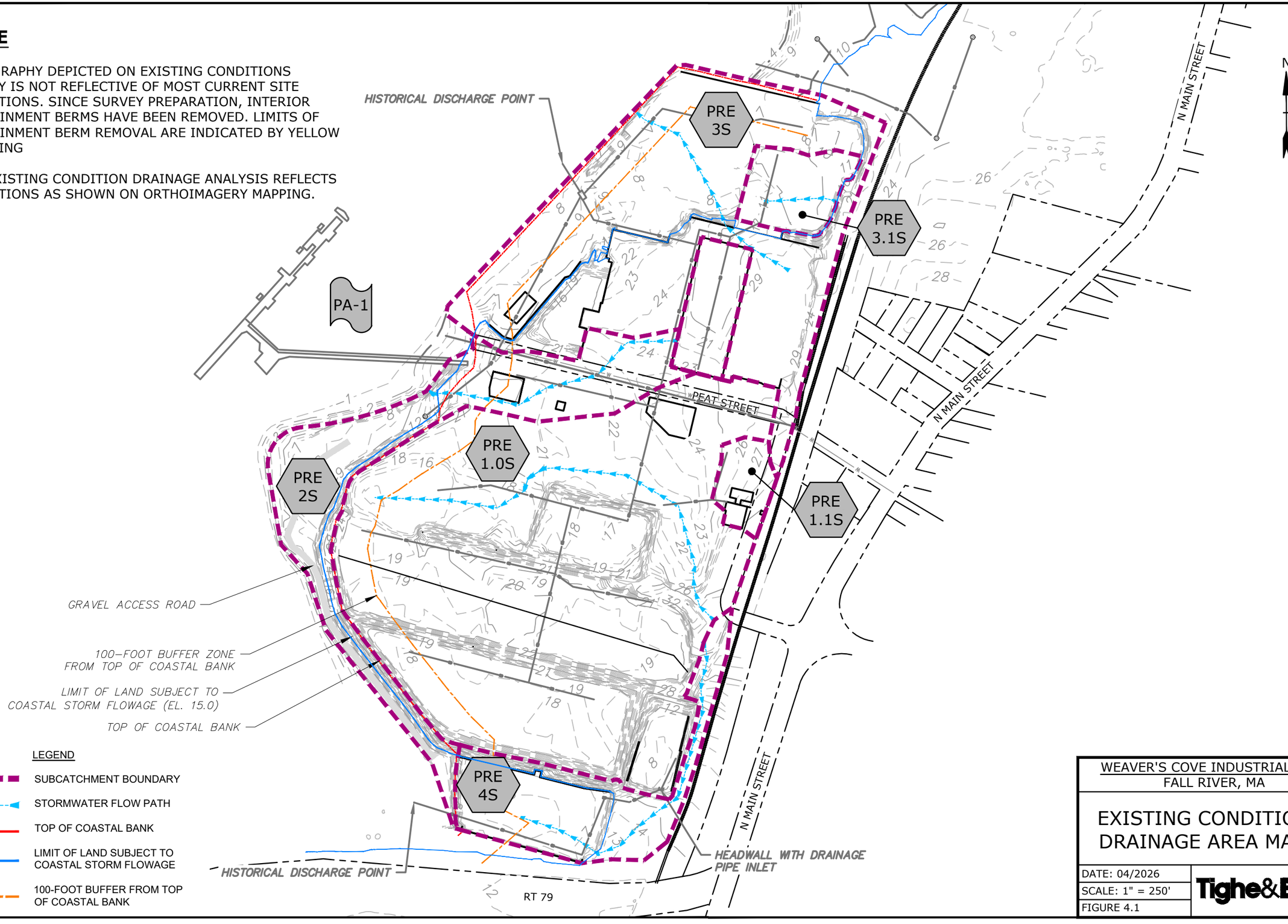
N

1:3,600
0 150 300
Feet

NOTE

TOPOGRAPHY DEPICTED ON EXISTING CONDITIONS SURVEY IS NOT REFLECTIVE OF MOST CURRENT SITE CONDITIONS. SINCE SURVEY PREPARATION, INTERIOR CONTAINMENT BERMS HAVE BEEN REMOVED. LIMITS OF CONTAINMENT BERM REMOVAL ARE INDICATED BY YELLOW HATCHING

THE EXISTING CONDITION DRAINAGE ANALYSIS REFLECTS CONDITIONS AS SHOWN ON ORTHOIMAGERY MAPPING.



WEAVER'S COVE INDUSTRIAL PARK
FALL RIVER, MA

EXISTING CONDITIONS DRAINAGE AREA MAP 1

DATE: 04/2026
SCALE: 1" = 250'
FIGURE 4.1

Tighe&Bond

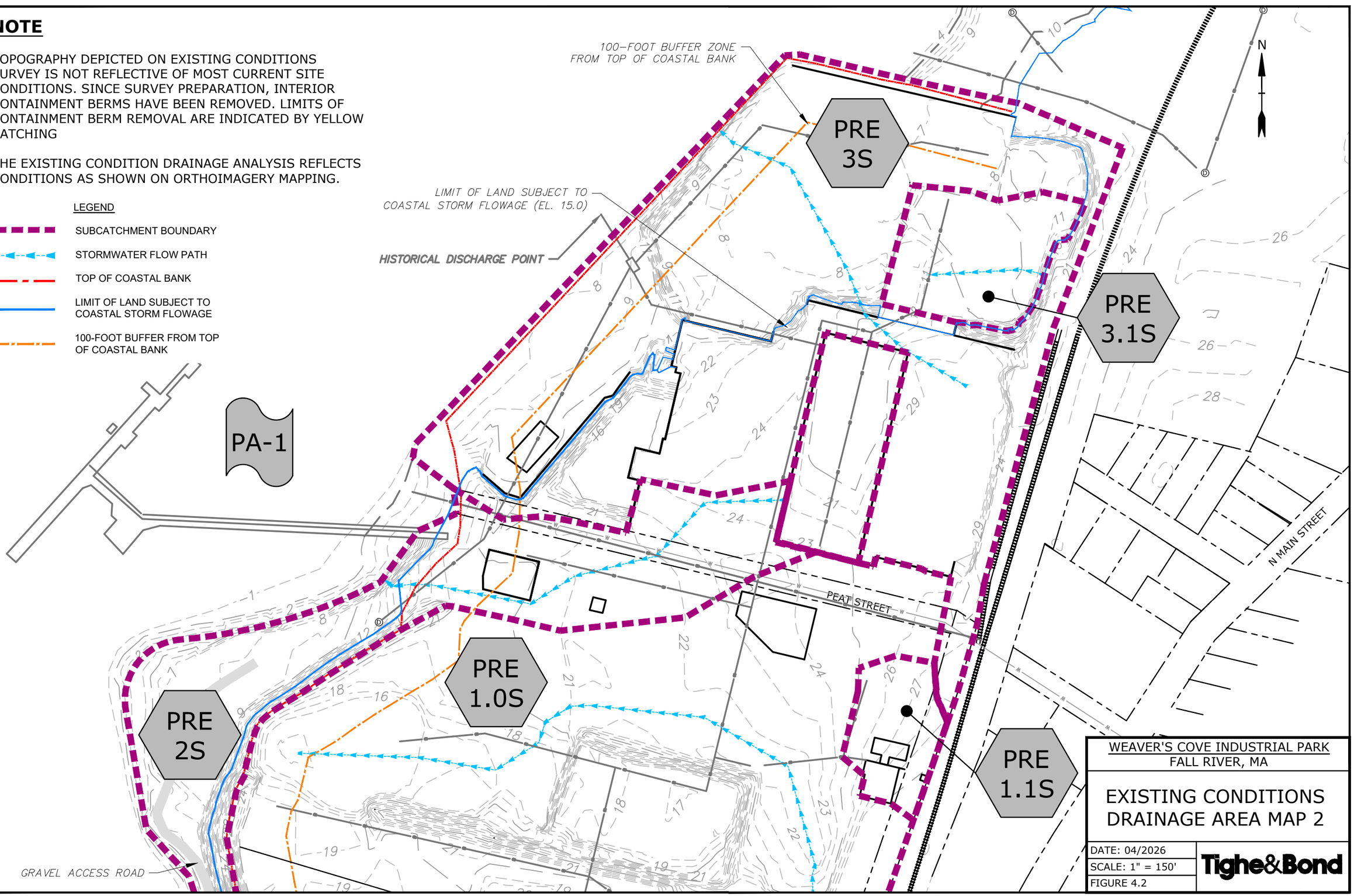
NOTE

TOPOGRAPHY DEPICTED ON EXISTING CONDITIONS SURVEY IS NOT REFLECTIVE OF MOST CURRENT SITE CONDITIONS. SINCE SURVEY PREPARATION, INTERIOR CONTAINMENT BERMS HAVE BEEN REMOVED. LIMITS OF CONTAINMENT BERM REMOVAL ARE INDICATED BY YELLOW HATCHING

THE EXISTING CONDITION DRAINAGE ANALYSIS REFLECTS CONDITIONS AS SHOWN ON ORTHOIMAGERY MAPPING.

LEGEND

- SUBCATCHMENT BOUNDARY
- STORMWATER FLOW PATH
- TOP OF COASTAL BANK
- LIMIT OF LAND SUBJECT TO COASTAL STORM FLOWAGE
- 100-FOOT BUFFER FROM TOP OF COASTAL BANK



WEAVER'S COVE INDUSTRIAL PARK
FALL RIVER, MA

EXISTING CONDITIONS DRAINAGE AREA MAP 2

DATE: 04/2026
SCALE: 1" = 150'
FIGURE 4.2

Tighe&Bond

PRE 2S

PRE 1.0S

PRE 1.1S

PRE 4S

PEAT STREET

N MAIN STREET

GRAVEL ACCESS ROAD

100–FOOT BUFFER ZONE FROM TOP OF COASTAL BANK

LIMIT OF LAND SUBJECT TO COASTAL STORM FLOWAGE (EL. 15.0)

TOP OF COASTAL BANK

HISTORICAL DISCHARGE POINT

HEADWALL WITH DRAINAGE PIPE INLET

N

LEGEND

- SUBCATCHMENT BOUNDARY
- STORMWATER FLOW PATH
- TOP OF COASTAL BANK
- LIMIT OF LAND SUBJECT TO COASTAL STORM FLOWAGE
- 100-FOOT BUFFER FROM TOP OF COASTAL BANK

NOTE

TOPOGRAPHY DEPICTED ON EXISTING CONDITIONS SURVEY IS NOT REFLECTIVE OF MOST CURRENT SITE CONDITIONS. SINCE SURVEY PREPARATION, INTERIOR CONTAINMENT BERMS HAVE BEEN REMOVED. LIMITS OF CONTAINMENT BERM REMOVAL ARE INDICATED BY YELLOW HATCHING

THE EXISTING CONDITION DRAINAGE ANALYSIS REFLECTS CONDITIONS AS SHOWN ON ORTHOIMAGERY MAPPING.

WEAVER'S COVE INDUSTRIAL PARK
FALL RIVER, MA

EXISTING CONDITIONS DRAINAGE AREA MAP 3

DATE: 04/2026
SCALE: 1" = 150'
FIGURE 4.3

Tighe&Bond

PA-1

POST 2S

POST 1S

PEAT STREET

N MAIN STREET

N MAIN STREET

N MAIN STREET

RT 79

GRAVEL ACCESS ROAD

100-FOOT BUFFER ZONE FROM TOP OF COASTAL BANK

LIMIT OF LAND SUBJECT TO COASTAL STORM FLOWAGE (EL. 15.0)

TOP OF COASTAL BANK

LEGEND

- SUBCATCHMENT BOUNDARY
- STORMWATER FLOW PATH
- TOP OF COASTAL BANK
- LIMIT OF LAND SUBJECT TO COASTAL STORM FLOWAGE
- 100-FOOT BUFFER FROM TOP OF COASTAL BANK

N

WEAVER'S COVE INDUSTRIAL PARK
FALL RIVER, MA

PROPOSED CONDITIONS DRAINAGE AREA MAP 1

DATE: 04/2026
SCALE: 1" = 250'
FIGURE 4.1

Tighe&Bond

LEGEND

- SUBCATCHMENT BOUNDARY
- STORMWATER FLOW PATH
- TOP OF COASTAL BANK
- LIMIT OF LAND SUBJECT TO COASTAL STORM FLOWAGE
- 100-FOOT BUFFER FROM TOP OF COASTAL BANK

100–FOOT BUFFER ZONE FROM TOP OF COASTAL BANK

LIMIT OF LAND SUBJECT TO COASTAL STORM FLOWAGE (EL. 15.0)

PA-1

POST 2S

POST 1S

PEAT STREET

N MAIN STREET

GRAVEL ACCESS ROAD

N

WEAVER'S COVE INDUSTRIAL PARK
FALL RIVER, MA

PROPOSED CONDITIONS DRAINAGE AREA MAP 2

DATE: 04/2026
SCALE: 1" = 150'
FIGURE 4.2

Tighe&Bond

POST 1S

PEAT STREET

GRAVEL ACCESS ROAD

100-FOOT BUFFER ZONE FROM TOP OF COASTAL BANK

LIMIT OF LAND SUBJECT TO COASTAL STORM FLOWAGE (EL. 15.0)

TOP OF COASTAL BANK

ROUTE 79 RAMPS

N MAIN STREET

N

LEGEND

- SUBCATCHMENT BOUNDARY
- STORMWATER FLOW PATH
- TOP OF COASTAL BANK
- LIMIT OF LAND SUBJECT TO COASTAL STORM FLOWAGE
- 100-FOOT BUFFER FROM TOP OF COASTAL BANK

WEAVER'S COVE INDUSTRIAL PARK
FALL RIVER, MA

PROPOSED CONDITIONS DRAINAGE AREA MAP 3

DATE: 04/2026
SCALE: 1" = 150'
FIGURE 4.3

Tighe&Bond

National Flood Hazard Layer FIRMette

FEMA

71°8'41"W 41°44'11"N



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

1:6,000

71°8'3"W 41°43'44"N

Basemap Imagery Source: USGS National Map 2023

Legend

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

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

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

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

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

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

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

N

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

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 1/14/2025 at 2:51 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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

Tighe&Bond

APPENDIX C



Map Scale: 1:4,230 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 200 400 800 1200

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 18, Aug 27, 2024

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

Date(s) aerial images were photographed: Jun 14, 2022—Jul 1, 2022

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

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
602	Urban land		47.6	89.6%
607	Water, saline		0.6	1.1%
651	Udorthents, smoothed	A	0.2	0.4%
656	Udorthents - Urban land complex		4.7	8.9%
Totals for Area of Interest			**53.1**	**100.0%**

Description

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

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

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

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

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

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

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

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

APPENDIX D

PRECIPITATION DATA

NOAA Atlas 14, Volume 10, Version 3
Location name: Fall River, Massachusetts, USA*
Latitude: 41.7325°, Longitude: -71.1395°
Elevation: 21 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	0.302 (0.238-0.375)	0.375 (0.295-0.465)	0.494 (0.388-0.616)	0.592 (0.462-0.741)	0.727 (0.550-0.950)	0.828 (0.614-1.10)	0.936 (0.675-1.29)	1.06 (0.720-1.48)	1.26 (0.817-1.80)	1.42 (0.903-2.08)
10-min	0.428 (0.338-0.531)	0.531 (0.418-0.659)	0.699 (0.549-0.871)	0.838 (0.654-1.05)	1.03 (0.779-1.34)	1.17 (0.869-1.56)	1.33 (0.957-1.83)	1.51 (1.02-2.10)	1.78 (1.16-2.56)	2.02 (1.28-2.94)
15-min	0.503 (0.397-0.625)	0.624 (0.492-0.776)	0.822 (0.645-1.02)	0.986 (0.769-1.23)	1.21 (0.916-1.58)	1.38 (1.02-1.84)	1.56 (1.12-2.16)	1.78 (1.20-2.47)	2.10 (1.36-3.01)	2.38 (1.50-3.46)
30-min	0.708 (0.559-0.879)	0.880 (0.693-1.09)	1.16 (0.911-1.45)	1.39 (1.09-1.74)	1.71 (1.30-2.24)	1.95 (1.44-2.60)	2.21 (1.59-3.05)	2.51 (1.70-3.49)	2.97 (1.93-4.26)	3.36 (2.13-4.90)
60-min	0.913 (0.720-1.13)	1.14 (0.894-1.41)	1.50 (1.18-1.87)	1.80 (1.40-2.25)	2.21 (1.67-2.89)	2.52 (1.87-3.36)	2.85 (2.06-3.94)	3.25 (2.19-4.52)	3.84 (2.49-5.50)	4.35 (2.76-6.33)
2-hr	1.20 (0.949-1.47)	1.50 (1.19-1.85)	2.00 (1.58-2.48)	2.42 (1.90-3.01)	2.99 (2.28-3.88)	3.41 (2.55-4.52)	3.87 (2.82-5.32)	4.43 (3.01-6.10)	5.27 (3.45-7.48)	5.99 (3.83-8.64)
3-hr	1.40 (1.12-1.72)	1.76 (1.40-2.16)	2.34 (1.85-2.88)	2.82 (2.22-3.49)	3.48 (2.67-4.50)	3.98 (2.98-5.24)	4.51 (3.30-6.16)	5.16 (3.52-7.07)	6.14 (4.03-8.66)	6.97 (4.48-9.99)
6-hr	1.83 (1.47-2.23)	2.26 (1.81-2.76)	2.96 (2.37-3.63)	3.55 (2.82-4.36)	4.35 (3.35-5.57)	4.94 (3.73-6.45)	5.58 (4.10-7.54)	6.35 (4.37-8.62)	7.49 (4.96-10.5)	8.46 (5.47-12.0)
12-hr	2.36 (1.90-2.86)	2.84 (2.29-3.45)	3.63 (2.92-4.42)	4.29 (3.43-5.24)	5.19 (4.02-6.57)	5.87 (4.45-7.56)	6.58 (4.85-8.75)	7.40 (5.15-9.96)	8.60 (5.75-11.9)	9.59 (6.26-13.5)
24-hr	2.84 (2.31-3.42)	3.40 (2.76-4.09)	4.30 (3.48-5.19)	5.05 (4.06-6.12)	6.08 (4.73-7.63)	6.86 (5.23-8.74)	7.67 (5.68-10.1)	8.58 (6.02-11.4)	9.90 (6.68-13.5)	11.0 (7.22-15.2)
2-day	3.22 (2.64-3.85)	3.87 (3.17-4.63)	4.94 (4.02-5.92)	5.82 (4.71-7.01)	7.03 (5.52-8.76)	7.94 (6.11-10.1)	8.90 (6.65-11.6)	10.0 (7.06-13.2)	11.6 (7.88-15.7)	12.9 (8.56-17.7)
3-day	3.51 (2.88-4.18)	4.20 (3.45-5.00)	5.32 (4.36-6.36)	6.26 (5.09-7.51)	7.54 (5.94-9.35)	8.51 (6.57-10.7)	9.52 (7.15-12.3)	10.7 (7.58-14.0)	12.3 (8.44-16.6)	13.7 (9.16-18.7)
4-day	3.78 (3.11-4.48)	4.48 (3.69-5.33)	5.64 (4.62-6.72)	6.60 (5.38-7.89)	7.92 (6.25-9.78)	8.91 (6.90-11.2)	9.95 (7.48-12.8)	11.1 (7.93-14.5)	12.8 (8.78-17.2)	14.2 (9.50-19.3)
7-day	4.49 (3.72-5.30)	5.23 (4.33-6.18)	6.44 (5.31-7.63)	7.45 (6.10-8.85)	8.83 (7.01-10.8)	9.88 (7.68-12.3)	11.0 (8.26-14.0)	12.1 (8.72-15.7)	13.8 (9.53-18.3)	15.1 (10.2-20.4)
10-day	5.17 (4.30-6.09)	5.94 (4.93-6.99)	7.19 (5.95-8.48)	8.22 (6.76-9.74)	9.65 (7.68-11.7)	10.7 (8.36-13.2)	11.8 (8.94-15.0)	13.0 (9.39-16.8)	14.6 (10.1-19.3)	15.8 (10.7-21.2)
20-day	7.25 (6.07-8.48)	8.07 (6.75-9.44)	9.41 (7.84-11.0)	10.5 (8.72-12.4)	12.0 (9.65-14.5)	13.2 (10.4-16.1)	14.4 (10.9-17.9)	15.5 (11.3-19.8)	16.9 (11.9-22.1)	18.0 (12.3-23.8)
30-day	8.98 (7.54-10.4)	9.85 (8.27-11.5)	11.3 (9.43-13.2)	12.4 (10.4-14.6)	14.1 (11.3-16.8)	15.4 (12.1-18.5)	16.6 (12.5-20.3)	17.7 (12.9-22.4)	19.0 (13.4-24.7)	19.9 (13.7-26.2)
45-day	11.1 (9.38-12.9)	12.1 (10.2-14.0)	13.6 (11.4-15.8)	14.9 (12.4-17.3)	16.6 (13.4-19.8)	18.1 (14.2-21.6)	19.4 (14.7-23.6)	20.5 (15.1-25.8)	21.8 (15.4-28.1)	22.6 (15.6-29.6)
60-day	12.9 (10.9-14.9)	13.9 (11.7-16.1)	15.6 (13.1-18.0)	16.9 (14.2-19.7)	18.8 (15.2-22.3)	20.4 (16.1-24.3)	21.8 (16.5-26.4)	22.9 (16.9-28.7)	24.2 (17.3-31.1)	25.0 (17.4-32.6)

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

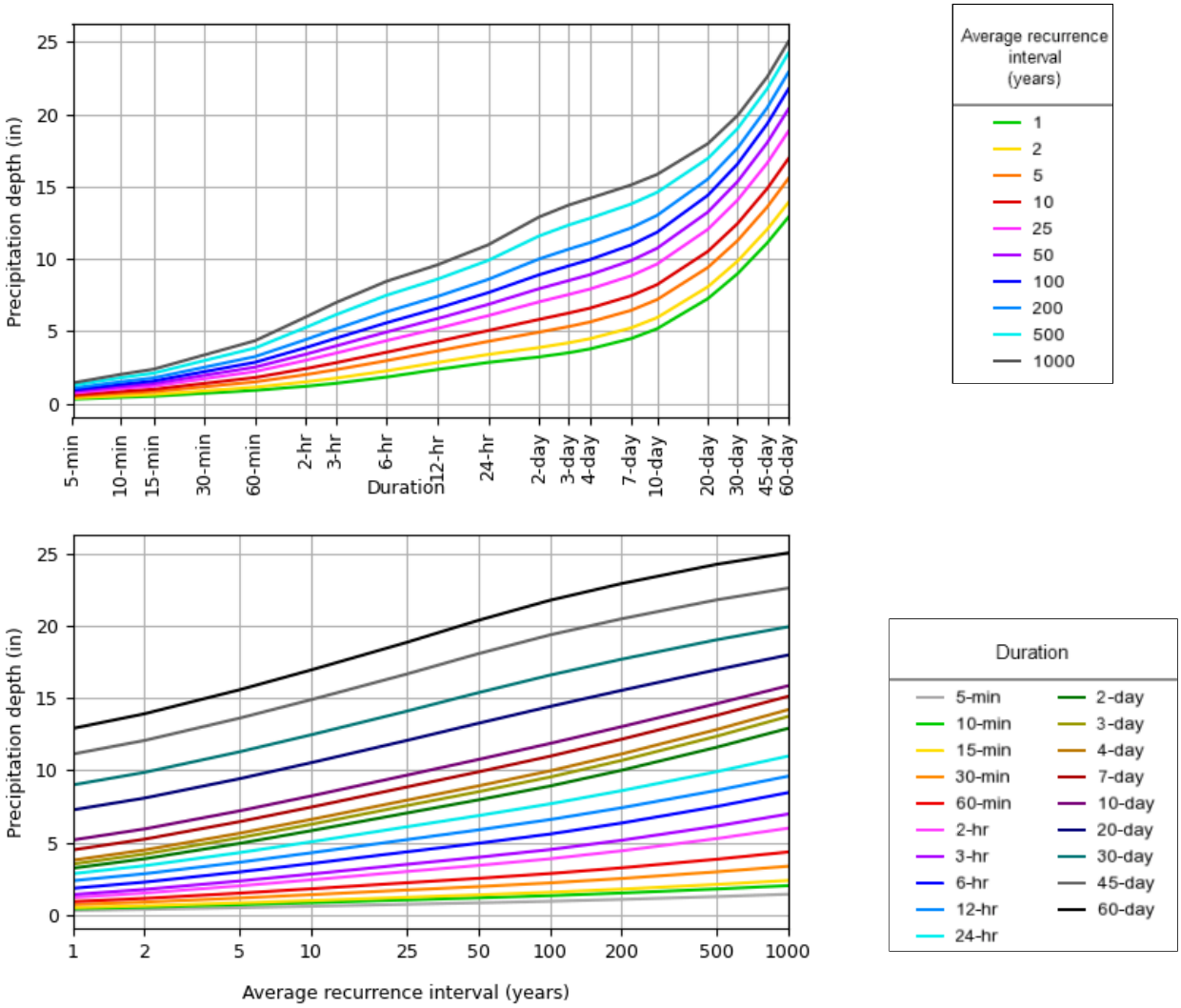
Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper 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 depth-duration-frequency (DDF) curves
Latitude: 41.7325°, Longitude: -71.1395°

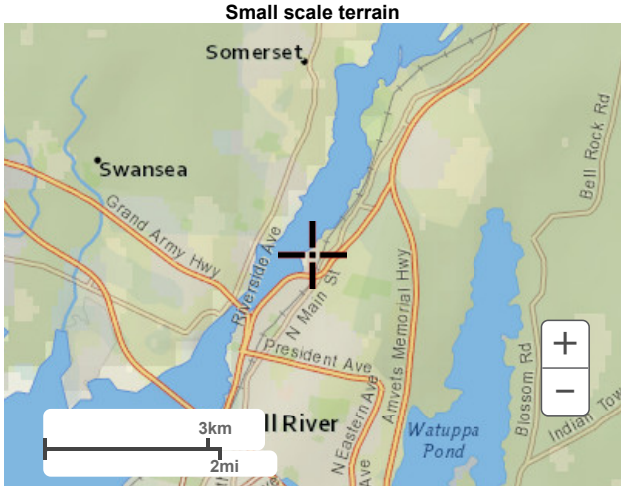


NOAA Atlas 14, Volume 10, Version 3 Created (GMT): Wed Jan 15 18:36:16 2025

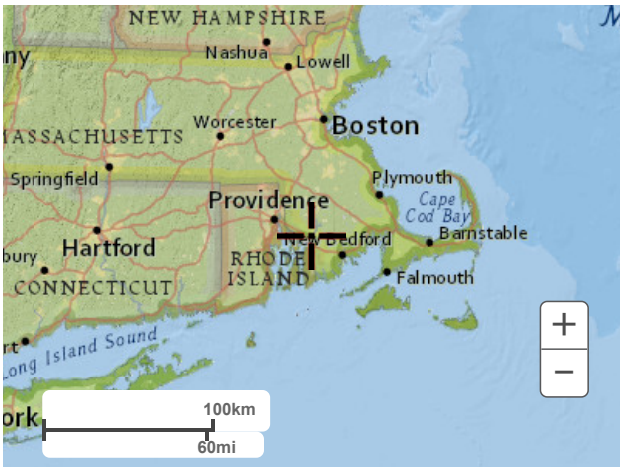
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Maps & aerials

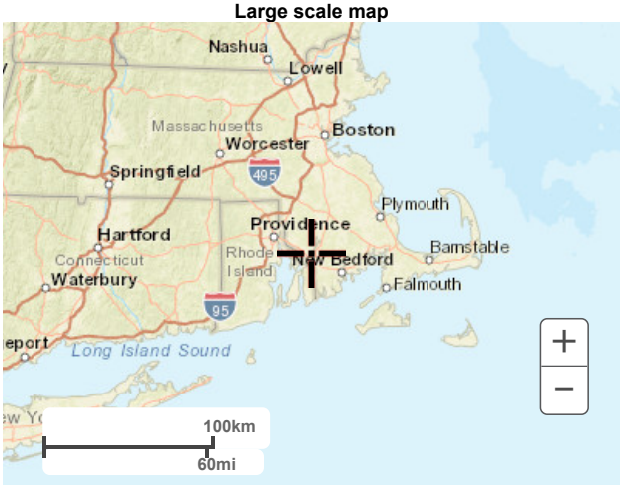
Small scale terrain



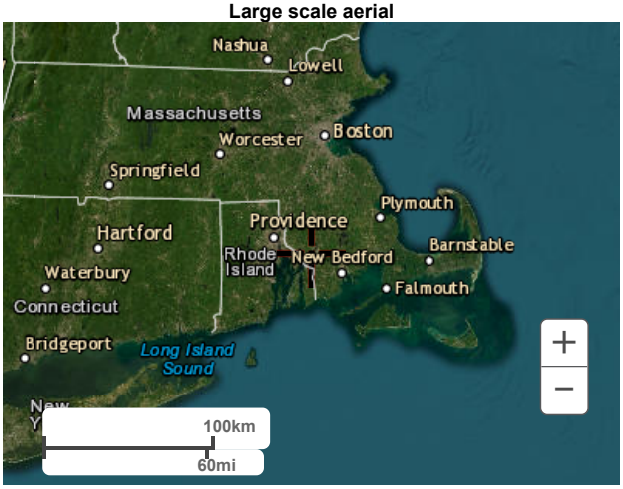
Large scale terrain



Large scale map



Large scale aerial

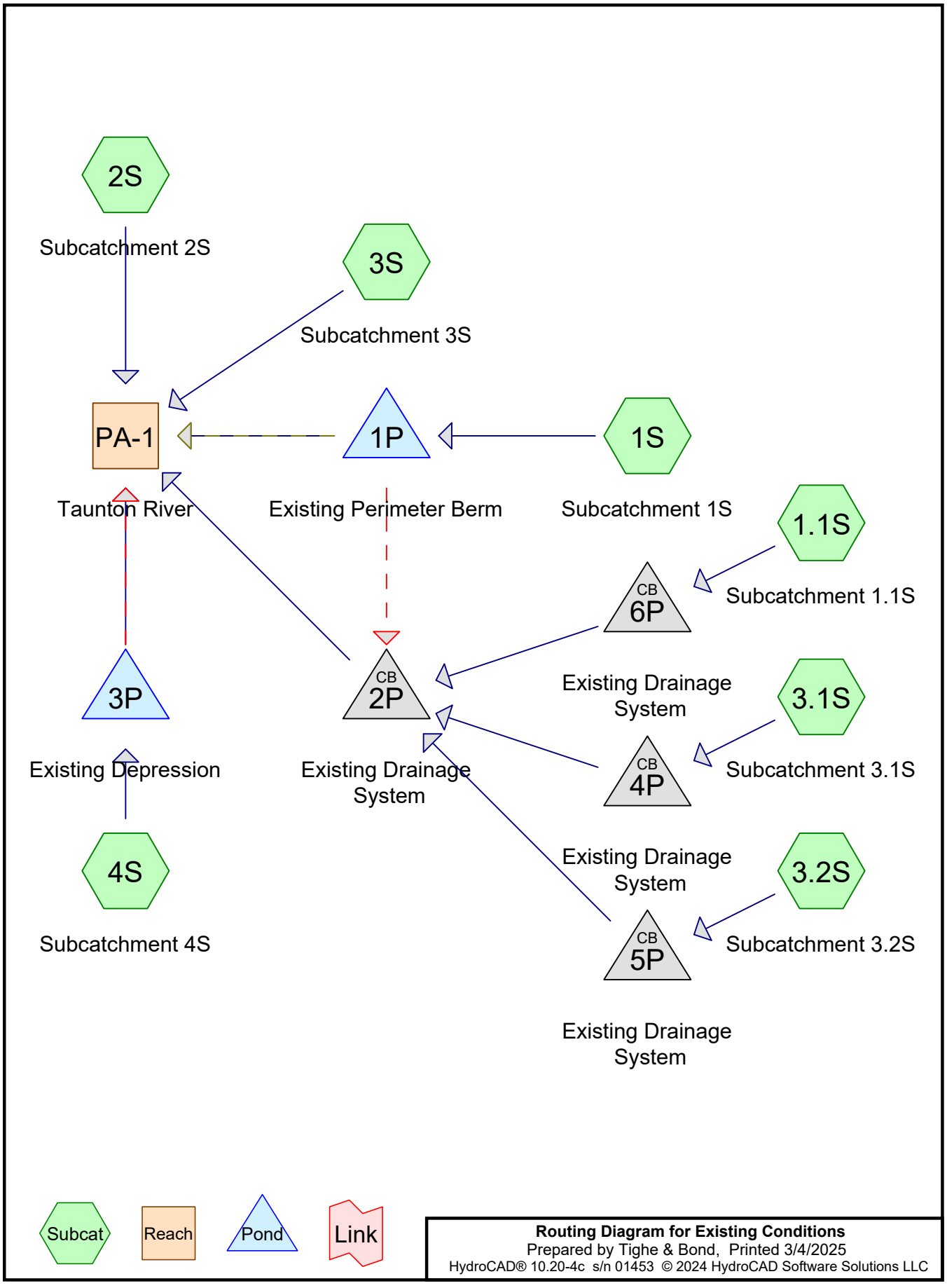


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Disclaimer

EXISTING HYDROLOGY



Routing Diagram for Existing Conditions
Prepared by Tighe & Bond, Printed 3/4/2025
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Rainfall Events Listing

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	5.05	2
3	25 Year	Type III 24-hr		Default	24.00	1	6.08	2
4	100 Year	Type III 24-hr		Default	24.00	1	7.67	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.880	39	>75% Grass cover, Good (1S, 2S)
37.657	90	Compacted dirt (1S, 2S, 3.1S, 3.2S, 3S, 4S)
0.396	76	Gravel (2S)
5.022	98	Paved (1.1S, 1S, 2S, 3S)
2.986	32	Woods/grass comb., Good (3S, 4S)
46.941	**86**	**TOTAL AREA**

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1.1S: Subcatchment1.1S Runoff Area=33,459 sf 100.00% Impervious Runoff Depth=3.17"
Tc=6.0 min CN=98 Runoff=2.48 cfs 0.203 af

Subcatchment1S: Subcatchment1S Runoff Area=942,299 sf 14.15% Impervious Runoff Depth=2.45"
Flow Length=1,070' Tc=14.2 min CN=91 Runoff=46.87 cfs 4.410 af

Subcatchment2S: Subcatchment2S Runoff Area=264,505 sf 15.70% Impervious Runoff Depth=1.93"
Flow Length=702' Tc=10.2 min CN=85 Runoff=11.80 cfs 0.976 af

Subcatchment3.1S: Subcatchment3.1S Runoff Area=58,228 sf 0.00% Impervious Runoff Depth=2.35"
Tc=6.0 min CN=90 Runoff=3.56 cfs 0.262 af

Subcatchment3.2S: Subcatchment3.2S Runoff Area=52,605 sf 0.00% Impervious Runoff Depth=2.35"
Tc=6.0 min CN=90 Runoff=3.22 cfs 0.237 af

Subcatchment3S: Subcatchment3S Runoff Area=538,483 sf 1.94% Impervious Runoff Depth=2.01"
Flow Length=1,434' Tc=25.0 min CN=86 Runoff=17.82 cfs 2.071 af

Subcatchment4S: Subcatchment4S Runoff Area=155,177 sf 0.00% Impervious Runoff Depth=0.31"
Tc=6.0 min CN=55 Runoff=0.51 cfs 0.093 af

Reach PA-1: Taunton River Inflow=59.08 cfs 8.238 af
Outflow=59.08 cfs 8.238 af

Pond 1P: Existing Perimeter Berm Peak Elev=16.96' Storage=42,403 cf Inflow=46.87 cfs 4.410 af
Primary=6.27 cfs 0.938 af Secondary=24.90 cfs 3.469 af Tertiary=0.00 cfs 0.000 af Outflow=31.17 cfs 4.407 af

Pond 2P: Existing Drainage System Peak Elev=32.77' Inflow=28.25 cfs 4.171 af
24.0" Round Culvert n=0.012 L=1,894.0' S=0.0053 '/' Outflow=28.25 cfs 4.171 af

Pond 3P: Existing Depression Peak Elev=6.11' Storage=2,400 cf Inflow=0.51 cfs 0.093 af
Primary=0.05 cfs 0.081 af Secondary=0.00 cfs 0.000 af Outflow=0.05 cfs 0.081 af

Pond 4P: Existing Drainage System Peak Elev=10.84' Inflow=3.56 cfs 0.262 af
24.0" Round Culvert n=0.012 L=411.0' S=0.0049 '/' Outflow=3.56 cfs 0.262 af

Pond 5P: Existing Drainage System Peak Elev=16.67' Inflow=3.22 cfs 0.237 af
24.0" Round Culvert n=0.012 L=371.0' S=0.0108 '/' Outflow=3.22 cfs 0.237 af

Pond 6P: Existing Drainage System Peak Elev=20.78' Inflow=2.48 cfs 0.203 af
12.0" Round Culvert n=0.012 L=173.0' S=0.0578 '/' Outflow=2.48 cfs 0.203 af

Total Runoff Area = 46.941 ac Runoff Volume = 8.252 af Average Runoff Depth = 2.11"
89.30% Pervious = 41.919 ac 10.70% Impervious = 5.022 ac

Summary for Subcatchment 1.1S: Subcatchment 1.1S

Runoff = 2.48 cfs @ 12.09 hrs, Volume= 0.203 af, Depth= 3.17"
Routed to Pond 6P : Existing Drainage System

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

	Area (sf)	CN	Description
*	33,459	98	Paved
	33,459		100.00% Impervious Area

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

Summary for Subcatchment 1S: Subcatchment 1S

Runoff = 46.87 cfs @ 12.19 hrs, Volume= 4.410 af, Depth= 2.45"
Routed to Pond 1P : Existing Perimeter Berm

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

	Area (sf)	CN	Description
*	133,335	98	Paved
*	799,182	90	Compacted dirt
*	9,782	39	>75% Grass cover, Good
	942,299	91	Weighted Average
	808,964		85.85% Pervious Area
	133,335		14.15% Impervious 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"
0.0	8	0.1250	5.69		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	27	0.0370	3.10		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	11	0.2727	10.60		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.2	68	0.0588	4.92		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.3	169	0.0018	0.86		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
4.4	226	0.0018	0.86		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.5	88	0.0342	2.98		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
4.4	423	0.0097	1.59		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
14.2	1,070	Total			

Summary for Subcatchment 2S: Subcatchment 2S

Runoff = 11.80 cfs @ 12.15 hrs, Volume= 0.976 af, Depth= 1.93"
Routed to Reach PA-1 : Taunton River

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

	Area (sf)	CN	Description
*	41,521	98	Paved
*	177,163	90	Compacted dirt
*	28,572	39	>75% Grass cover, Good
*	17,249	76	Gravel
	264,505	85	Weighted Average
	222,984		84.30% Pervious Area
	41,521		15.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.0040	0.19		**Sheet Flow,** Fallow n= 0.050 P2= 3.40"
1.5	94	0.0042	1.04		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.6	79	0.0177	2.14		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	34	0.0189	2.79		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.7	80	0.0083	1.85		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.5	282	0.0083	1.85		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.2	35	0.0529	3.70		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	35	0.0529	4.67		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	13	0.0529	3.70		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
10.2	702	Total			

Summary for Subcatchment 3.1S: Subcatchment 3.1S

Runoff = 3.56 cfs @ 12.09 hrs, Volume= 0.262 af, Depth= 2.35"
Routed to Pond 4P : Existing Drainage System

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

	Area (sf)	CN	Description
*	58,228	90	Compacted dirt
	58,228		100.00% Pervious Area

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

Summary for Subcatchment 3.2S: Subcatchment 3.2S

Runoff = 3.22 cfs @ 12.09 hrs, Volume= 0.237 af, Depth= 2.35"
Routed to Pond 5P : Existing Drainage System

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

	Area (sf)	CN	Description
*	52,605	90	Compacted dirt
	52,605		100.00% Pervious Area

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

Summary for Subcatchment 3S: Subcatchment 3S

Runoff = 17.82 cfs @ 12.35 hrs, Volume= 2.071 af, Depth= 2.01"
Routed to Reach PA-1 : Taunton River

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

	Area (sf)	CN	Description
*	10,429	98	Paved
*	492,846	90	Compacted dirt
*	35,208	32	Woods/grass comb., Good
	538,483	86	Weighted Average
	528,054		98.06% Pervious Area
	10,429		1.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	50	0.0160	0.34		**Sheet Flow,** Fallow n= 0.050 P2= 3.40"
1.9	155	0.0068	1.33		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.1	128	0.0156	2.01		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
8.2	500	0.0040	1.02		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	27	0.0371	3.10		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	30	0.3356	9.33		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.9	91	0.0109	1.68		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
10.2	453	0.0021	0.74		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
25.0	1,434	Total			

Summary for Subcatchment 4S: Subcatchment 4S

Runoff = 0.51 cfs @ 12.29 hrs, Volume= 0.093 af, Depth= 0.31"
Routed to Pond 3P : Existing Depression

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

	Area (sf)	CN	Description
*	60,320	90	Compacted dirt
*	94,857	32	Woods/grass comb., Good
	155,177	55	Weighted Average
	155,177		100.00% Pervious Area

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

Summary for Reach PA-1: Taunton River

Inflow Area = 46.941 ac, 10.70% Impervious, Inflow Depth = 2.11" for 2 Year event
Inflow = 59.08 cfs @ 12.32 hrs, Volume= 8.238 af
Outflow = 59.08 cfs @ 12.32 hrs, Volume= 8.238 af, Atten= 0%, Lag= 0.0 min

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

Summary for Pond 1P: Existing Perimeter Berm

Inflow Area = 21.632 ac, 14.15% Impervious, Inflow Depth = 2.45" for 2 Year event
Inflow = 46.87 cfs @ 12.19 hrs, Volume= 4.410 af
Outflow = 31.17 cfs @ 12.37 hrs, Volume= 4.407 af, Atten= 34%, Lag= 10.5 min
Primary = 6.27 cfs @ 12.37 hrs, Volume= 0.938 af
Routed to Reach PA-1 : Taunton River
Secondary = 24.90 cfs @ 12.37 hrs, Volume= 3.469 af
Routed to Pond 2P : Existing Drainage System
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach PA-1 : Taunton River

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 16.96' @ 12.37 hrs Surf.Area= 50,659 sf Storage= 42,403 cf

Plug-Flow detention time= 59.3 min calculated for 4.404 af (100% of inflow)
Center-of-Mass det. time= 60.5 min (868.3 - 807.8)

Volume	Invert	Avail.Storage	Storage Description
#1	16.00'	108,965 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
16.00	37,553	749.0	0	0	37,553
17.00	51,172	1,030.0	44,187	44,187	77,344
18.00	79,413	1,355.0	64,777	108,965	139,038

Device	Routing	Invert	Outlet Devices
#1	Tertiary	17.99'	**50.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Primary	16.00'	**24.0" Round Culvert** L= 772.0' RCP, groove end w/headwall, Ke= 0.200 Inlet / Outlet Invert= 16.00' / 0.00' S= 0.0207 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf
#3	Secondary	16.00'	**24.0" Round Culvert** L= 373.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 16.00' / 14.00' S= 0.0054 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf
#4	Secondary	16.00'	**24.0" Round Culvert** L= 336.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 16.00' / 14.00' S= 0.0060 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf
#5	Secondary	16.00'	**24.0" Round Culvert** L= 184.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 16.00' / 14.00' S= 0.0109 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf
#6	Secondary	16.00'	**24.0" Round Culvert** L= 542.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 16.00' / 14.00' S= 0.0037 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf
#7	Secondary	16.00'	**24.0" Round Culvert** L= 390.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 16.00' / 14.00' S= 0.0051 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf

Primary OutFlow Max=6.25 cfs @ 12.37 hrs HW=16.96' (Free Discharge)
└**2=Culvert** (Inlet Controls 6.25 cfs @ 4.18 fps)

Secondary OutFlow Max=24.80 cfs @ 12.37 hrs HW=16.96' (Free Discharge)
├**3=Culvert** (Barrel Controls 4.78 cfs @ 4.68 fps)
├**4=Culvert** (Barrel Controls 4.99 cfs @ 4.88 fps)
├**5=Culvert** (Barrel Controls 6.25 cfs @ 6.11 fps)
├**6=Culvert** (Barrel Controls 4.08 cfs @ 3.99 fps)
└**7=Culvert** (Barrel Controls 4.69 cfs @ 4.59 fps)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=16.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 2P: Existing Drainage System

Inflow Area = 3.312 ac, 23.19% Impervious, Inflow Depth = 15.11" for 2 Year event
Inflow = 28.25 cfs @ 12.34 hrs, Volume= 4.171 af
Outflow = 28.25 cfs @ 12.34 hrs, Volume= 4.171 af, Atten= 0%, Lag= 0.0 min
Primary = 28.25 cfs @ 12.34 hrs, Volume= 4.171 af
Routed to Reach PA-1 : Taunton River

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

Peak Elev= 32.77' @ 12.34 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	14.00'	**24.0" Round Culvert** L= 1,894.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 14.00' / 4.00' S= 0.0053 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf

Primary OutFlow Max=28.20 cfs @ 12.34 hrs HW=32.66' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 28.20 cfs @ 8.97 fps)

Summary for Pond 3P: Existing Depression

Inflow Area = 3.562 ac, 0.00% Impervious, Inflow Depth = 0.31" for 2 Year event
Inflow = 0.51 cfs @ 12.29 hrs, Volume= 0.093 af
Outflow = 0.05 cfs @ 19.43 hrs, Volume= 0.081 af, Atten= 90%, Lag= 428.0 min
Primary = 0.05 cfs @ 19.43 hrs, Volume= 0.081 af
Routed to Reach PA-1 : Taunton River
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach PA-1 : Taunton River

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 6.11' @ 19.43 hrs Surf.Area= 24,339 sf Storage= 2,400 cf

Plug-Flow detention time= 794.7 min calculated for 0.081 af (88% of inflow)
Center-of-Mass det. time= 739.8 min (1,683.2 - 943.4)

Volume	Invert	Avail.Storage	Storage Description
#1	6.00'	184,765 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
6.00	20,813	637.0	0	0	20,813
7.00	64,833	836.0	40,793	40,793	44,151
8.00	73,661	1,135.0	69,200	109,993	91,059
9.00	75,887	1,176.0	74,771	184,765	98,687

Device	Routing	Invert	Outlet Devices
#1	Secondary	9.00'	**200.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#2	Primary	6.00'	**12.0" Round Culvert** L= 600.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 6.00' / 0.00' S= 0.0100 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.05 cfs @ 19.43 hrs HW=6.11' (Free Discharge)
└**2=Culvert** (Barrel Controls 0.05 cfs @ 1.70 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=6.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir**(Controls 0.00 cfs)

Summary for Pond 4P: Existing Drainage System

Inflow Area = 1.337 ac, 0.00% Impervious, Inflow Depth = 2.35" for 2 Year event
Inflow = 3.56 cfs @ 12.09 hrs, Volume= 0.262 af
Outflow = 3.56 cfs @ 12.09 hrs, Volume= 0.262 af, Atten= 0%, Lag= 0.0 min
Primary = 3.56 cfs @ 12.09 hrs, Volume= 0.262 af
Routed to Pond 2P : Existing Drainage System

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 10.84' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	10.00'	**24.0" Round Culvert** L= 411.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.00' / 8.00' S= 0.0049 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf

Primary OutFlow Max=3.48 cfs @ 12.09 hrs HW=10.83' (Free Discharge)
└**1=Culvert** (Barrel Controls 3.48 cfs @ 4.17 fps)

Summary for Pond 5P: Existing Drainage System

Inflow Area = 1.208 ac, 0.00% Impervious, Inflow Depth = 2.35" for 2 Year event
Inflow = 3.22 cfs @ 12.09 hrs, Volume= 0.237 af
Outflow = 3.22 cfs @ 12.09 hrs, Volume= 0.237 af, Atten= 0%, Lag= 0.0 min
Primary = 3.22 cfs @ 12.09 hrs, Volume= 0.237 af
Routed to Pond 2P : Existing Drainage System

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 16.67' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	16.00'	**24.0" Round Culvert** L= 371.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 16.00' / 12.00' S= 0.0108 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf

Primary OutFlow Max=3.14 cfs @ 12.09 hrs HW=16.66' (Free Discharge)
└**1=Culvert** (Inlet Controls 3.14 cfs @ 3.46 fps)

Summary for Pond 6P: Existing Drainage System

Inflow Area = 0.768 ac,100.00% Impervious, Inflow Depth = 3.17" for 2 Year event
Inflow = 2.48 cfs @ 12.09 hrs, Volume= 0.203 af
Outflow = 2.48 cfs @ 12.09 hrs, Volume= 0.203 af, Atten= 0%, Lag= 0.0 min
Primary = 2.48 cfs @ 12.09 hrs, Volume= 0.203 af
Routed to Pond 2P : Existing Drainage System

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 20.78' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	20.00'	**12.0" Round Culvert** L= 173.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 20.00' / 10.00' S= 0.0578 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=2.41 cfs @ 12.09 hrs HW=20.77' (Free Discharge)
1=Culvert (Inlet Controls 2.41 cfs @ 3.73 fps)

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1.1S: Subcatchment1.1S Runoff Area=33,459 sf 100.00% Impervious Runoff Depth=4.81"
Tc=6.0 min CN=98 Runoff=3.71 cfs 0.308 af

Subcatchment1S: Subcatchment1S Runoff Area=942,299 sf 14.15% Impervious Runoff Depth=4.03"
Flow Length=1,070' Tc=14.2 min CN=91 Runoff=75.48 cfs 7.266 af

Subcatchment2S: Subcatchment2S Runoff Area=264,505 sf 15.70% Impervious Runoff Depth=3.41"
Flow Length=702' Tc=10.2 min CN=85 Runoff=20.67 cfs 1.728 af

Subcatchment3.1S: Subcatchment3.1S Runoff Area=58,228 sf 0.00% Impervious Runoff Depth=3.92"
Tc=6.0 min CN=90 Runoff=5.80 cfs 0.437 af

Subcatchment3.2S: Subcatchment3.2S Runoff Area=52,605 sf 0.00% Impervious Runoff Depth=3.92"
Tc=6.0 min CN=90 Runoff=5.24 cfs 0.395 af

Subcatchment3S: Subcatchment3S Runoff Area=538,483 sf 1.94% Impervious Runoff Depth=3.51"
Flow Length=1,434' Tc=25.0 min CN=86 Runoff=30.83 cfs 3.620 af

Subcatchment4S: Subcatchment4S Runoff Area=155,177 sf 0.00% Impervious Runoff Depth=1.00"
Tc=6.0 min CN=55 Runoff=3.34 cfs 0.298 af

Reach PA-1: Taunton River Inflow=100.58 cfs 14.036 af
Outflow=100.58 cfs 14.036 af

Pond 1P: Existing Perimeter Berm Peak Elev=17.30' Storage=60,495 cf Inflow=75.48 cfs 7.266 af
Primary=10.44 cfs 1.522 af Secondary=41.78 cfs 5.741 af Tertiary=0.00 cfs 0.000 af Outflow=52.22 cfs 7.263 af

Pond 2P: Existing Drainage System Peak Elev=81.15' Inflow=47.34 cfs 6.881 af
24.0" Round Culvert n=0.012 L=1,894.0' S=0.0053 '/' Outflow=47.34 cfs 6.881 af

Pond 3P: Existing Depression Peak Elev=6.25' Storage=6,127 cf Inflow=3.34 cfs 0.298 af
Primary=0.28 cfs 0.286 af Secondary=0.00 cfs 0.000 af Outflow=0.28 cfs 0.286 af

Pond 4P: Existing Drainage System Peak Elev=11.09' Inflow=5.80 cfs 0.437 af
24.0" Round Culvert n=0.012 L=411.0' S=0.0049 '/' Outflow=5.80 cfs 0.437 af

Pond 5P: Existing Drainage System Peak Elev=16.87' Inflow=5.24 cfs 0.395 af
24.0" Round Culvert n=0.012 L=371.0' S=0.0108 '/' Outflow=5.24 cfs 0.395 af

Pond 6P: Existing Drainage System Peak Elev=21.11' Inflow=3.71 cfs 0.308 af
12.0" Round Culvert n=0.012 L=173.0' S=0.0578 '/' Outflow=3.71 cfs 0.308 af

Total Runoff Area = 46.941 ac Runoff Volume = 14.052 af Average Runoff Depth = 3.59"
89.30% Pervious = 41.919 ac 10.70% Impervious = 5.022 ac

Summary for Subcatchment 1.1S: Subcatchment 1.1S

Runoff = 3.71 cfs @ 12.09 hrs, Volume= 0.308 af, Depth= 4.81"
Routed to Pond 6P : Existing Drainage System

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Rainfall=5.05"

	Area (sf)	CN	Description
*	33,459	98	Paved
	33,459		100.00% Impervious Area

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

Summary for Subcatchment 1S: Subcatchment 1S

Runoff = 75.48 cfs @ 12.19 hrs, Volume= 7.266 af, Depth= 4.03"
Routed to Pond 1P : Existing Perimeter Berm

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Rainfall=5.05"

	Area (sf)	CN	Description
*	133,335	98	Paved
*	799,182	90	Compacted dirt
*	9,782	39	>75% Grass cover, Good
	942,299	91	Weighted Average
	808,964		85.85% Pervious Area
	133,335		14.15% Impervious 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"
0.0	8	0.1250	5.69		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	27	0.0370	3.10		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	11	0.2727	10.60		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.2	68	0.0588	4.92		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.3	169	0.0018	0.86		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
4.4	226	0.0018	0.86		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.5	88	0.0342	2.98		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
4.4	423	0.0097	1.59		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
14.2	1,070	Total			

Summary for Subcatchment 2S: Subcatchment 2S

Runoff = 20.67 cfs @ 12.14 hrs, Volume= 1.728 af, Depth= 3.41"
Routed to Reach PA-1 : Taunton River

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Rainfall=5.05"

	Area (sf)	CN	Description
*	41,521	98	Paved
*	177,163	90	Compacted dirt
*	28,572	39	>75% Grass cover, Good
*	17,249	76	Gravel
	264,505	85	Weighted Average
	222,984		84.30% Pervious Area
	41,521		15.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.0040	0.19		**Sheet Flow,** Fallow n= 0.050 P2= 3.40"
1.5	94	0.0042	1.04		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.6	79	0.0177	2.14		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	34	0.0189	2.79		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.7	80	0.0083	1.85		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.5	282	0.0083	1.85		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.2	35	0.0529	3.70		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	35	0.0529	4.67		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	13	0.0529	3.70		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
10.2	702	Total			

Summary for Subcatchment 3.1S: Subcatchment 3.1S

Runoff = 5.80 cfs @ 12.09 hrs, Volume= 0.437 af, Depth= 3.92"
Routed to Pond 4P : Existing Drainage System

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Rainfall=5.05"

	Area (sf)	CN	Description
*	58,228	90	Compacted dirt
	58,228		100.00% Pervious Area

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

Summary for Subcatchment 3.2S: Subcatchment 3.2S

Runoff = 5.24 cfs @ 12.09 hrs, Volume= 0.395 af, Depth= 3.92"
Routed to Pond 5P : Existing Drainage System

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Rainfall=5.05"

	Area (sf)	CN	Description
*	52,605	90	Compacted dirt
	52,605		100.00% Pervious Area

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

Summary for Subcatchment 3S: Subcatchment 3S

Runoff = 30.83 cfs @ 12.34 hrs, Volume= 3.620 af, Depth= 3.51"
Routed to Reach PA-1 : Taunton River

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Rainfall=5.05"

	Area (sf)	CN	Description
*	10,429	98	Paved
*	492,846	90	Compacted dirt
*	35,208	32	Woods/grass comb., Good
	538,483	86	Weighted Average
	528,054		98.06% Pervious Area
	10,429		1.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	50	0.0160	0.34		**Sheet Flow,** Fallow n= 0.050 P2= 3.40"
1.9	155	0.0068	1.33		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.1	128	0.0156	2.01		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
8.2	500	0.0040	1.02		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	27	0.0371	3.10		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	30	0.3356	9.33		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.9	91	0.0109	1.68		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
10.2	453	0.0021	0.74		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
25.0	1,434	Total			

Summary for Subcatchment 4S: Subcatchment 4S

Runoff = 3.34 cfs @ 12.11 hrs, Volume= 0.298 af, Depth= 1.00"
Routed to Pond 3P : Existing Depression

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Rainfall=5.05"

	Area (sf)	CN	Description
*	60,320	90	Compacted dirt
*	94,857	32	Woods/grass comb., Good
	155,177	55	Weighted Average
	155,177		100.00% Pervious Area

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

Summary for Reach PA-1: Taunton River

Inflow Area = 46.941 ac, 10.70% Impervious, Inflow Depth = 3.59" for 10 Year event
Inflow = 100.58 cfs @ 12.30 hrs, Volume= 14.036 af
Outflow = 100.58 cfs @ 12.30 hrs, Volume= 14.036 af, Atten= 0%, Lag= 0.0 min

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

Summary for Pond 1P: Existing Perimeter Berm

Inflow Area = 21.632 ac, 14.15% Impervious, Inflow Depth = 4.03" for 10 Year event
Inflow = 75.48 cfs @ 12.19 hrs, Volume= 7.266 af
Outflow = 52.22 cfs @ 12.35 hrs, Volume= 7.263 af, Atten= 31%, Lag= 9.6 min
Primary = 10.44 cfs @ 12.35 hrs, Volume= 1.522 af
Routed to Reach PA-1 : Taunton River
Secondary = 41.78 cfs @ 12.35 hrs, Volume= 5.741 af
Routed to Pond 2P : Existing Drainage System
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach PA-1 : Taunton River

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 17.30' @ 12.35 hrs Surf.Area= 58,902 sf Storage= 60,495 cf

Plug-Flow detention time= 47.1 min calculated for 7.258 af (100% of inflow)
Center-of-Mass det. time= 48.3 min (842.4 - 794.1)

Volume	Invert	Avail.Storage	Storage Description
#1	16.00'	108,965 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
16.00	37,553	749.0	0	0	37,553
17.00	51,172	1,030.0	44,187	44,187	77,344
18.00	79,413	1,355.0	64,777	108,965	139,038

Device	Routing	Invert	Outlet Devices
#1	Tertiary	17.99'	**50.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Primary	16.00'	**24.0" Round Culvert** L= 772.0' RCP, groove end w/headwall, Ke= 0.200 Inlet / Outlet Invert= 16.00' / 0.00' S= 0.0207 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf
#3	Secondary	16.00'	**24.0" Round Culvert** L= 373.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 16.00' / 14.00' S= 0.0054 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf
#4	Secondary	16.00'	**24.0" Round Culvert** L= 336.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 16.00' / 14.00' S= 0.0060 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf
#5	Secondary	16.00'	**24.0" Round Culvert** L= 184.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 16.00' / 14.00' S= 0.0109 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf
#6	Secondary	16.00'	**24.0" Round Culvert** L= 542.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 16.00' / 14.00' S= 0.0037 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf
#7	Secondary	16.00'	**24.0" Round Culvert** L= 390.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 16.00' / 14.00' S= 0.0051 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf

Primary OutFlow Max=10.44 cfs @ 12.35 hrs HW=17.30' (Free Discharge)
└**2=Culvert** (Inlet Controls 10.44 cfs @ 4.85 fps)

Secondary OutFlow Max=41.75 cfs @ 12.35 hrs HW=17.30' (Free Discharge)
├**3=Culvert** (Barrel Controls 8.08 cfs @ 5.34 fps)
├**4=Culvert** (Barrel Controls 8.41 cfs @ 5.55 fps)
├**5=Culvert** (Barrel Controls 10.36 cfs @ 6.84 fps)
├**6=Culvert** (Barrel Controls 6.96 cfs @ 4.59 fps)
└**7=Culvert** (Barrel Controls 7.94 cfs @ 5.24 fps)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=16.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 2P: Existing Drainage System

Inflow Area = 3.312 ac, 23.19% Impervious, Inflow Depth = 24.93" for 10 Year event
Inflow = 47.34 cfs @ 12.32 hrs, Volume= 6.881 af
Outflow = 47.34 cfs @ 12.32 hrs, Volume= 6.881 af, Atten= 0%, Lag= 0.0 min
Primary = 47.34 cfs @ 12.32 hrs, Volume= 6.881 af
Routed to Reach PA-1 : Taunton River

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

Peak Elev= 81.15' @ 12.32 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	14.00'	**24.0" Round Culvert** L= 1,894.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 14.00' / 4.00' S= 0.0053 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf

Primary OutFlow Max=47.14 cfs @ 12.32 hrs HW=80.53' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 47.14 cfs @ 15.01 fps)

Summary for Pond 3P: Existing Depression

Inflow Area = 3.562 ac, 0.00% Impervious, Inflow Depth = 1.00" for 10 Year event
Inflow = 3.34 cfs @ 12.11 hrs, Volume= 0.298 af
Outflow = 0.28 cfs @ 15.23 hrs, Volume= 0.286 af, Atten= 92%, Lag= 187.1 min
Primary = 0.28 cfs @ 15.23 hrs, Volume= 0.286 af
Routed to Reach PA-1 : Taunton River
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach PA-1 : Taunton River

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 6.25' @ 15.23 hrs Surf.Area= 29,361 sf Storage= 6,127 cf

Plug-Flow detention time= 459.5 min calculated for 0.285 af (96% of inflow)
Center-of-Mass det. time= 439.1 min (1,330.8 - 891.7)

Volume	Invert	Avail.Storage	Storage Description
#1	6.00'	184,765 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
6.00	20,813	637.0	0	0	20,813
7.00	64,833	836.0	40,793	40,793	44,151
8.00	73,661	1,135.0	69,200	109,993	91,059
9.00	75,887	1,176.0	74,771	184,765	98,687

Device	Routing	Invert	Outlet Devices
#1	Secondary	9.00'	**200.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#2	Primary	6.00'	**12.0" Round Culvert** L= 600.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 6.00' / 0.00' S= 0.0100 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.28 cfs @ 15.23 hrs HW=6.25' (Free Discharge)
└**2=Culvert** (Barrel Controls 0.28 cfs @ 2.85 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=6.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir**(Controls 0.00 cfs)

Summary for Pond 4P: Existing Drainage System

Inflow Area = 1.337 ac, 0.00% Impervious, Inflow Depth = 3.92" for 10 Year event
Inflow = 5.80 cfs @ 12.09 hrs, Volume= 0.437 af
Outflow = 5.80 cfs @ 12.09 hrs, Volume= 0.437 af, Atten= 0%, Lag= 0.0 min
Primary = 5.80 cfs @ 12.09 hrs, Volume= 0.437 af
Routed to Pond 2P : Existing Drainage System

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 11.09' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	10.00'	**24.0" Round Culvert** L= 411.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.00' / 8.00' S= 0.0049 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf

Primary OutFlow Max=5.65 cfs @ 12.09 hrs HW=11.08' (Free Discharge)
└**1=Culvert** (Barrel Controls 5.65 cfs @ 4.74 fps)

Summary for Pond 5P: Existing Drainage System

Inflow Area = 1.208 ac, 0.00% Impervious, Inflow Depth = 3.92" for 10 Year event
Inflow = 5.24 cfs @ 12.09 hrs, Volume= 0.395 af
Outflow = 5.24 cfs @ 12.09 hrs, Volume= 0.395 af, Atten= 0%, Lag= 0.0 min
Primary = 5.24 cfs @ 12.09 hrs, Volume= 0.395 af
Routed to Pond 2P : Existing Drainage System

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 16.87' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	16.00'	**24.0" Round Culvert** L= 371.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 16.00' / 12.00' S= 0.0108 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf

Primary OutFlow Max=5.11 cfs @ 12.09 hrs HW=16.86' (Free Discharge)
└**1=Culvert** (Inlet Controls 5.11 cfs @ 3.95 fps)

Summary for Pond 6P: Existing Drainage System

Inflow Area = 0.768 ac,100.00% Impervious, Inflow Depth = 4.81" for 10 Year event
Inflow = 3.71 cfs @ 12.09 hrs, Volume= 0.308 af
Outflow = 3.71 cfs @ 12.09 hrs, Volume= 0.308 af, Atten= 0%, Lag= 0.0 min
Primary = 3.71 cfs @ 12.09 hrs, Volume= 0.308 af
Routed to Pond 2P : Existing Drainage System

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 21.11' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	20.00'	**12.0" Round Culvert** L= 173.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 20.00' / 10.00' S= 0.0578 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=3.61 cfs @ 12.09 hrs HW=21.08' (Free Discharge)
1=Culvert (Inlet Controls 3.61 cfs @ 4.59 fps)

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1.1S: Subcatchment1.1S Runoff Area=33,459 sf 100.00% Impervious Runoff Depth=5.84"
Tc=6.0 min CN=98 Runoff=4.47 cfs 0.374 af

Subcatchment1S: Subcatchment1S Runoff Area=942,299 sf 14.15% Impervious Runoff Depth=5.04"
Flow Length=1,070' Tc=14.2 min CN=91 Runoff=93.18 cfs 9.077 af

Subcatchment2S: Subcatchment2S Runoff Area=264,505 sf 15.70% Impervious Runoff Depth=4.38"
Flow Length=702' Tc=10.2 min CN=85 Runoff=26.27 cfs 2.215 af

Subcatchment3.1S: Subcatchment3.1S Runoff Area=58,228 sf 0.00% Impervious Runoff Depth=4.92"
Tc=6.0 min CN=90 Runoff=7.18 cfs 0.548 af

Subcatchment3.2S: Subcatchment3.2S Runoff Area=52,605 sf 0.00% Impervious Runoff Depth=4.92"
Tc=6.0 min CN=90 Runoff=6.49 cfs 0.496 af

Subcatchment3S: Subcatchment3S Runoff Area=538,483 sf 1.94% Impervious Runoff Depth=4.49"
Flow Length=1,434' Tc=25.0 min CN=86 Runoff=39.02 cfs 4.621 af

Subcatchment4S: Subcatchment4S Runoff Area=155,177 sf 0.00% Impervious Runoff Depth=1.56"
Tc=6.0 min CN=55 Runoff=5.75 cfs 0.464 af

Reach PA-1: Taunton River Inflow=125.84 cfs 17.779 af
Outflow=125.84 cfs 17.779 af

Pond 1P: Existing Perimeter Berm Peak Elev=17.48' Storage=71,615 cf Inflow=93.18 cfs 9.077 af
Primary=12.87 cfs 1.890 af Secondary=51.72 cfs 7.184 af Tertiary=0.00 cfs 0.000 af Outflow=64.59 cfs 9.074 af

Pond 2P: Existing Drainage System Peak Elev=121.06' Inflow=58.58 cfs 8.602 af
24.0" Round Culvert n=0.012 L=1,894.0' S=0.0053 '/' Outflow=58.58 cfs 8.602 af

Pond 3P: Existing Depression Peak Elev=6.34' Storage=8,990 cf Inflow=5.75 cfs 0.464 af
Primary=0.54 cfs 0.451 af Secondary=0.00 cfs 0.000 af Outflow=0.54 cfs 0.451 af

Pond 4P: Existing Drainage System Peak Elev=11.24' Inflow=7.18 cfs 0.548 af
24.0" Round Culvert n=0.012 L=411.0' S=0.0049 '/' Outflow=7.18 cfs 0.548 af

Pond 5P: Existing Drainage System Peak Elev=16.98' Inflow=6.49 cfs 0.496 af
24.0" Round Culvert n=0.012 L=371.0' S=0.0108 '/' Outflow=6.49 cfs 0.496 af

Pond 6P: Existing Drainage System Peak Elev=21.39' Inflow=4.47 cfs 0.374 af
12.0" Round Culvert n=0.012 L=173.0' S=0.0578 '/' Outflow=4.47 cfs 0.374 af

Total Runoff Area = 46.941 ac Runoff Volume = 17.796 af Average Runoff Depth = 4.55"
89.30% Pervious = 41.919 ac 10.70% Impervious = 5.022 ac

Summary for Subcatchment 1.1S: Subcatchment 1.1S

Runoff = 4.47 cfs @ 12.09 hrs, Volume= 0.374 af, Depth= 5.84"
Routed to Pond 6P : Existing Drainage System

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year Rainfall=6.08"

	Area (sf)	CN	Description
*	33,459	98	Paved
	33,459		100.00% Impervious Area

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

Summary for Subcatchment 1S: Subcatchment 1S

Runoff = 93.18 cfs @ 12.19 hrs, Volume= 9.077 af, Depth= 5.04"
Routed to Pond 1P : Existing Perimeter Berm

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year Rainfall=6.08"

	Area (sf)	CN	Description
*	133,335	98	Paved
*	799,182	90	Compacted dirt
*	9,782	39	>75% Grass cover, Good
	942,299	91	Weighted Average
	808,964		85.85% Pervious Area
	133,335		14.15% Impervious 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"
0.0	8	0.1250	5.69		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	27	0.0370	3.10		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	11	0.2727	10.60		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.2	68	0.0588	4.92		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.3	169	0.0018	0.86		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
4.4	226	0.0018	0.86		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.5	88	0.0342	2.98		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
4.4	423	0.0097	1.59		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
14.2	1,070	Total			

Summary for Subcatchment 2S: Subcatchment 2S

Runoff = 26.27 cfs @ 12.14 hrs, Volume= 2.215 af, Depth= 4.38"
Routed to Reach PA-1 : Taunton River

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year Rainfall=6.08"

	Area (sf)	CN	Description
*	41,521	98	Paved
*	177,163	90	Compacted dirt
*	28,572	39	>75% Grass cover, Good
*	17,249	76	Gravel
	264,505	85	Weighted Average
	222,984		84.30% Pervious Area
	41,521		15.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.0040	0.19		**Sheet Flow,** Fallow n= 0.050 P2= 3.40"
1.5	94	0.0042	1.04		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.6	79	0.0177	2.14		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	34	0.0189	2.79		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.7	80	0.0083	1.85		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.5	282	0.0083	1.85		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.2	35	0.0529	3.70		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	35	0.0529	4.67		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	13	0.0529	3.70		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
10.2	702	Total			

Summary for Subcatchment 3.1S: Subcatchment 3.1S

Runoff = 7.18 cfs @ 12.09 hrs, Volume= 0.548 af, Depth= 4.92"
Routed to Pond 4P : Existing Drainage System

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year Rainfall=6.08"

	Area (sf)	CN	Description
*	58,228	90	Compacted dirt
	58,228		100.00% Pervious Area

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

Summary for Subcatchment 3.2S: Subcatchment 3.2S

Runoff = 6.49 cfs @ 12.09 hrs, Volume= 0.496 af, Depth= 4.92"
Routed to Pond 5P : Existing Drainage System

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year Rainfall=6.08"

	Area (sf)	CN	Description
*	52,605	90	Compacted dirt
	52,605		100.00% Pervious Area

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

Summary for Subcatchment 3S: Subcatchment 3S

Runoff = 39.02 cfs @ 12.34 hrs, Volume= 4.621 af, Depth= 4.49"
Routed to Reach PA-1 : Taunton River

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year Rainfall=6.08"

	Area (sf)	CN	Description
*	10,429	98	Paved
*	492,846	90	Compacted dirt
*	35,208	32	Woods/grass comb., Good
	538,483	86	Weighted Average
	528,054		98.06% Pervious Area
	10,429		1.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	50	0.0160	0.34		**Sheet Flow,** Fallow n= 0.050 P2= 3.40"
1.9	155	0.0068	1.33		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.1	128	0.0156	2.01		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
8.2	500	0.0040	1.02		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	27	0.0371	3.10		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	30	0.3356	9.33		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.9	91	0.0109	1.68		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
10.2	453	0.0021	0.74		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
25.0	1,434	Total			

Summary for Subcatchment 4S: Subcatchment 4S

Runoff = 5.75 cfs @ 12.10 hrs, Volume= 0.464 af, Depth= 1.56"
Routed to Pond 3P : Existing Depression

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year Rainfall=6.08"

	Area (sf)	CN	Description
*	60,320	90	Compacted dirt
*	94,857	32	Woods/grass comb., Good
	155,177	55	Weighted Average
	155,177		100.00% Pervious Area

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

Summary for Reach PA-1: Taunton River

Inflow Area = 46.941 ac, 10.70% Impervious, Inflow Depth = 4.55" for 25 Year event
Inflow = 125.84 cfs @ 12.30 hrs, Volume= 17.779 af
Outflow = 125.84 cfs @ 12.30 hrs, Volume= 17.779 af, Atten= 0%, Lag= 0.0 min

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

Summary for Pond 1P: Existing Perimeter Berm

Inflow Area = 21.632 ac, 14.15% Impervious, Inflow Depth = 5.04" for 25 Year event
Inflow = 93.18 cfs @ 12.19 hrs, Volume= 9.077 af
Outflow = 64.59 cfs @ 12.35 hrs, Volume= 9.074 af, Atten= 31%, Lag= 9.5 min
Primary = 12.87 cfs @ 12.35 hrs, Volume= 1.890 af
Routed to Reach PA-1 : Taunton River
Secondary = 51.72 cfs @ 12.35 hrs, Volume= 7.184 af
Routed to Pond 2P : Existing Drainage System
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach PA-1 : Taunton River

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 17.48' @ 12.35 hrs Surf.Area= 63,892 sf Storage= 71,615 cf

Plug-Flow detention time= 42.8 min calculated for 9.068 af (100% of inflow)
Center-of-Mass det. time= 44.0 min (832.2 - 788.2)

Volume	Invert	Avail.Storage	Storage Description
#1	16.00'	108,965 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
16.00	37,553	749.0	0	0	37,553
17.00	51,172	1,030.0	44,187	44,187	77,344
18.00	79,413	1,355.0	64,777	108,965	139,038

Device	Routing	Invert	Outlet Devices
#1	Tertiary	17.99'	**50.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Primary	16.00'	**24.0" Round Culvert** L= 772.0' RCP, groove end w/headwall, Ke= 0.200 Inlet / Outlet Invert= 16.00' / 0.00' S= 0.0207 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf
#3	Secondary	16.00'	**24.0" Round Culvert** L= 373.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 16.00' / 14.00' S= 0.0054 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf
#4	Secondary	16.00'	**24.0" Round Culvert** L= 336.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 16.00' / 14.00' S= 0.0060 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf
#5	Secondary	16.00'	**24.0" Round Culvert** L= 184.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 16.00' / 14.00' S= 0.0109 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf
#6	Secondary	16.00'	**24.0" Round Culvert** L= 542.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 16.00' / 14.00' S= 0.0037 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf
#7	Secondary	16.00'	**24.0" Round Culvert** L= 390.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 16.00' / 14.00' S= 0.0051 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf

Primary OutFlow Max=12.87 cfs @ 12.35 hrs HW=17.48' (Free Discharge)
└**2=Culvert** (Inlet Controls 12.87 cfs @ 5.17 fps)

Secondary OutFlow Max=51.71 cfs @ 12.35 hrs HW=17.48' (Free Discharge)
├**3=Culvert** (Barrel Controls 10.03 cfs @ 5.61 fps)
├**4=Culvert** (Barrel Controls 10.42 cfs @ 5.83 fps)
├**5=Culvert** (Barrel Controls 12.74 cfs @ 7.13 fps)
├**6=Culvert** (Barrel Controls 8.66 cfs @ 4.85 fps)
└**7=Culvert** (Barrel Controls 9.86 cfs @ 5.52 fps)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=16.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 2P: Existing Drainage System

Inflow Area = 3.312 ac, 23.19% Impervious, Inflow Depth = 31.16" for 25 Year event
Inflow = 58.58 cfs @ 12.32 hrs, Volume= 8.602 af
Outflow = 58.58 cfs @ 12.32 hrs, Volume= 8.602 af, Atten= 0%, Lag= 0.0 min
Primary = 58.58 cfs @ 12.32 hrs, Volume= 8.602 af
Routed to Reach PA-1 : Taunton River

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

Peak Elev= 121.06' @ 12.32 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	14.00'	**24.0" Round Culvert** L= 1,894.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 14.00' / 4.00' S= 0.0053 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf

Primary OutFlow Max=58.36 cfs @ 12.32 hrs HW=120.20' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 58.36 cfs @ 18.58 fps)

Summary for Pond 3P: Existing Depression

Inflow Area = 3.562 ac, 0.00% Impervious, Inflow Depth = 1.56" for 25 Year event
Inflow = 5.75 cfs @ 12.10 hrs, Volume= 0.464 af
Outflow = 0.54 cfs @ 14.06 hrs, Volume= 0.451 af, Atten= 91%, Lag= 117.2 min
Primary = 0.54 cfs @ 14.06 hrs, Volume= 0.451 af
Routed to Reach PA-1 : Taunton River
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach PA-1 : Taunton River

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 6.34' @ 14.06 hrs Surf.Area= 32,942 sf Storage= 8,990 cf

Plug-Flow detention time= 373.2 min calculated for 0.451 af (97% of inflow)
Center-of-Mass det. time= 359.7 min (1,235.8 - 876.1)

Volume	Invert	Avail.Storage	Storage Description
#1	6.00'	184,765 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
6.00	20,813	637.0	0	0	20,813
7.00	64,833	836.0	40,793	40,793	44,151
8.00	73,661	1,135.0	69,200	109,993	91,059
9.00	75,887	1,176.0	74,771	184,765	98,687

Device	Routing	Invert	Outlet Devices
#1	Secondary	9.00'	**200.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#2	Primary	6.00'	**12.0" Round Culvert** L= 600.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 6.00' / 0.00' S= 0.0100 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.53 cfs @ 14.06 hrs HW=6.34' (Free Discharge)
└**2=Culvert** (Barrel Controls 0.53 cfs @ 3.42 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=6.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir**(Controls 0.00 cfs)

Summary for Pond 4P: Existing Drainage System

Inflow Area = 1.337 ac, 0.00% Impervious, Inflow Depth = 4.92" for 25 Year event
Inflow = 7.18 cfs @ 12.09 hrs, Volume= 0.548 af
Outflow = 7.18 cfs @ 12.09 hrs, Volume= 0.548 af, Atten= 0%, Lag= 0.0 min
Primary = 7.18 cfs @ 12.09 hrs, Volume= 0.548 af
Routed to Pond 2P : Existing Drainage System

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 11.24' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	10.00'	**24.0" Round Culvert** L= 411.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.00' / 8.00' S= 0.0049 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf

Primary OutFlow Max=7.00 cfs @ 12.09 hrs HW=11.22' (Free Discharge)
└**1=Culvert** (Barrel Controls 7.00 cfs @ 5.00 fps)

Summary for Pond 5P: Existing Drainage System

Inflow Area = 1.208 ac, 0.00% Impervious, Inflow Depth = 4.92" for 25 Year event
Inflow = 6.49 cfs @ 12.09 hrs, Volume= 0.496 af
Outflow = 6.49 cfs @ 12.09 hrs, Volume= 0.496 af, Atten= 0%, Lag= 0.0 min
Primary = 6.49 cfs @ 12.09 hrs, Volume= 0.496 af
Routed to Pond 2P : Existing Drainage System

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 16.98' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	16.00'	**24.0" Round Culvert** L= 371.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 16.00' / 12.00' S= 0.0108 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf

Primary OutFlow Max=6.32 cfs @ 12.09 hrs HW=16.97' (Free Discharge)
└**1=Culvert** (Inlet Controls 6.32 cfs @ 4.19 fps)

Summary for Pond 6P: Existing Drainage System

Inflow Area = 0.768 ac,100.00% Impervious, Inflow Depth = 5.84" for 25 Year event
Inflow = 4.47 cfs @ 12.09 hrs, Volume= 0.374 af
Outflow = 4.47 cfs @ 12.09 hrs, Volume= 0.374 af, Atten= 0%, Lag= 0.0 min
Primary = 4.47 cfs @ 12.09 hrs, Volume= 0.374 af
Routed to Pond 2P : Existing Drainage System

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 21.39' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	20.00'	**12.0" Round Culvert** L= 173.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 20.00' / 10.00' S= 0.0578 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=4.35 cfs @ 12.09 hrs HW=21.35' (Free Discharge)
1=Culvert (Inlet Controls 4.35 cfs @ 5.54 fps)

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1.1S: Subcatchment1.1S Runoff Area=33,459 sf 100.00% Impervious Runoff Depth=7.43"
Tc=6.0 min CN=98 Runoff=5.65 cfs 0.476 af

Subcatchment1S: Subcatchment1S Runoff Area=942,299 sf 14.15% Impervious Runoff Depth=6.60"
Flow Length=1,070' Tc=14.2 min CN=91 Runoff=120.31 cfs 11.896 af

Subcatchment2S: Subcatchment2S Runoff Area=264,505 sf 15.70% Impervious Runoff Depth=5.90"
Flow Length=702' Tc=10.2 min CN=85 Runoff=34.90 cfs 2.983 af

Subcatchment3.1S: Subcatchment3.1S Runoff Area=58,228 sf 0.00% Impervious Runoff Depth=6.48"
Tc=6.0 min CN=90 Runoff=9.30 cfs 0.722 af

Subcatchment3.2S: Subcatchment3.2S Runoff Area=52,605 sf 0.00% Impervious Runoff Depth=6.48"
Tc=6.0 min CN=90 Runoff=8.40 cfs 0.652 af

Subcatchment3S: Subcatchment3S Runoff Area=538,483 sf 1.94% Impervious Runoff Depth=6.01"
Flow Length=1,434' Tc=25.0 min CN=86 Runoff=51.64 cfs 6.193 af

Subcatchment4S: Subcatchment4S Runoff Area=155,177 sf 0.00% Impervious Runoff Depth=2.56"
Tc=6.0 min CN=55 Runoff=10.03 cfs 0.760 af

Reach PA-1: Taunton River Inflow=163.50 cfs 23.665 af
Outflow=163.50 cfs 23.665 af

Pond 1P: Existing Perimeter Berm Peak Elev=17.74' Storage=89,169 cf Inflow=120.31 cfs 11.896 af
Primary=16.26 cfs 2.457 af Secondary=66.07 cfs 9.435 af Tertiary=0.00 cfs 0.000 af Outflow=82.33 cfs 11.892 af

Pond 2P: Existing Drainage System Peak Elev=193.72' Inflow=74.82 cfs 11.285 af
24.0" Round Culvert n=0.012 L=1,894.0' S=0.0053 '/' Outflow=74.82 cfs 11.285 af

Pond 3P: Existing Depression Peak Elev=6.49' Storage=14,454 cf Inflow=10.03 cfs 0.760 af
Primary=1.09 cfs 0.747 af Secondary=0.00 cfs 0.000 af Outflow=1.09 cfs 0.747 af

Pond 4P: Existing Drainage System Peak Elev=11.44' Inflow=9.30 cfs 0.722 af
24.0" Round Culvert n=0.012 L=411.0' S=0.0049 '/' Outflow=9.30 cfs 0.722 af

Pond 5P: Existing Drainage System Peak Elev=17.14' Inflow=8.40 cfs 0.652 af
24.0" Round Culvert n=0.012 L=371.0' S=0.0108 '/' Outflow=8.40 cfs 0.652 af

Pond 6P: Existing Drainage System Peak Elev=21.92' Inflow=5.65 cfs 0.476 af
12.0" Round Culvert n=0.012 L=173.0' S=0.0578 '/' Outflow=5.65 cfs 0.476 af

Total Runoff Area = 46.941 ac Runoff Volume = 23.682 af Average Runoff Depth = 6.05"
89.30% Pervious = 41.919 ac 10.70% Impervious = 5.022 ac

Summary for Subcatchment 1.1S: Subcatchment 1.1S

Runoff = 5.65 cfs @ 12.09 hrs, Volume= 0.476 af, Depth= 7.43"
Routed to Pond 6P : Existing Drainage System

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Rainfall=7.67"

	Area (sf)	CN	Description
*	33,459	98	Paved
	33,459		100.00% Impervious Area

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

Summary for Subcatchment 1S: Subcatchment 1S

Runoff = 120.31 cfs @ 12.19 hrs, Volume= 11.896 af, Depth= 6.60"
Routed to Pond 1P : Existing Perimeter Berm

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Rainfall=7.67"

	Area (sf)	CN	Description
*	133,335	98	Paved
*	799,182	90	Compacted dirt
*	9,782	39	>75% Grass cover, Good
	942,299	91	Weighted Average
	808,964		85.85% Pervious Area
	133,335		14.15% Impervious 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"
0.0	8	0.1250	5.69		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	27	0.0370	3.10		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	11	0.2727	10.60		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.2	68	0.0588	4.92		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.3	169	0.0018	0.86		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
4.4	226	0.0018	0.86		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.5	88	0.0342	2.98		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
4.4	423	0.0097	1.59		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
14.2	1,070	Total			

Summary for Subcatchment 2S: Subcatchment 2S

Runoff = 34.90 cfs @ 12.14 hrs, Volume= 2.983 af, Depth= 5.90"
Routed to Reach PA-1 : Taunton River

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Rainfall=7.67"

	Area (sf)	CN	Description
*	41,521	98	Paved
*	177,163	90	Compacted dirt
*	28,572	39	>75% Grass cover, Good
*	17,249	76	Gravel
	264,505	85	Weighted Average
	222,984		84.30% Pervious Area
	41,521		15.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.0040	0.19		**Sheet Flow,** Fallow n= 0.050 P2= 3.40"
1.5	94	0.0042	1.04		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.6	79	0.0177	2.14		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	34	0.0189	2.79		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.7	80	0.0083	1.85		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.5	282	0.0083	1.85		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.2	35	0.0529	3.70		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	35	0.0529	4.67		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	13	0.0529	3.70		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
10.2	702	Total			

Summary for Subcatchment 3.1S: Subcatchment 3.1S

Runoff = 9.30 cfs @ 12.09 hrs, Volume= 0.722 af, Depth= 6.48"
Routed to Pond 4P : Existing Drainage System

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Rainfall=7.67"

	Area (sf)	CN	Description
*	58,228	90	Compacted dirt
	58,228		100.00% Pervious Area

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

Summary for Subcatchment 3.2S: Subcatchment 3.2S

Runoff = 8.40 cfs @ 12.09 hrs, Volume= 0.652 af, Depth= 6.48"
Routed to Pond 5P : Existing Drainage System

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Rainfall=7.67"

	Area (sf)	CN	Description
*	52,605	90	Compacted dirt
	52,605		100.00% Pervious Area

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

Summary for Subcatchment 3S: Subcatchment 3S

Runoff = 51.64 cfs @ 12.33 hrs, Volume= 6.193 af, Depth= 6.01"
Routed to Reach PA-1 : Taunton River

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Rainfall=7.67"

	Area (sf)	CN	Description
*	10,429	98	Paved
*	492,846	90	Compacted dirt
*	35,208	32	Woods/grass comb., Good
	538,483	86	Weighted Average
	528,054		98.06% Pervious Area
	10,429		1.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	50	0.0160	0.34		**Sheet Flow,** Fallow n= 0.050 P2= 3.40"
1.9	155	0.0068	1.33		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.1	128	0.0156	2.01		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
8.2	500	0.0040	1.02		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	27	0.0371	3.10		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	30	0.3356	9.33		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.9	91	0.0109	1.68		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
10.2	453	0.0021	0.74		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
25.0	1,434	Total			

Summary for Subcatchment 4S: Subcatchment 4S

Runoff = 10.03 cfs @ 12.10 hrs, Volume= 0.760 af, Depth= 2.56"
Routed to Pond 3P : Existing Depression

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Rainfall=7.67"

	Area (sf)	CN	Description
*	60,320	90	Compacted dirt
*	94,857	32	Woods/grass comb., Good
	155,177	55	Weighted Average
	155,177		100.00% Pervious Area

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

Summary for Reach PA-1: Taunton River

Inflow Area = 46.941 ac, 10.70% Impervious, Inflow Depth = 6.05" for 100 Year event
Inflow = 163.50 cfs @ 12.29 hrs, Volume= 23.665 af
Outflow = 163.50 cfs @ 12.29 hrs, Volume= 23.665 af, Atten= 0%, Lag= 0.0 min

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

Summary for Pond 1P: Existing Perimeter Berm

Inflow Area = 21.632 ac, 14.15% Impervious, Inflow Depth = 6.60" for 100 Year event
Inflow = 120.31 cfs @ 12.19 hrs, Volume= 11.896 af
Outflow = 82.33 cfs @ 12.35 hrs, Volume= 11.892 af, Atten= 32%, Lag= 9.7 min
Primary = 16.26 cfs @ 12.35 hrs, Volume= 2.457 af
Routed to Reach PA-1 : Taunton River
Secondary = 66.07 cfs @ 12.35 hrs, Volume= 9.435 af
Routed to Pond 2P : Existing Drainage System
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach PA-1 : Taunton River

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 17.74' @ 12.35 hrs Surf.Area= 71,397 sf Storage= 89,169 cf

Plug-Flow detention time= 39.7 min calculated for 11.892 af (100% of inflow)
Center-of-Mass det. time= 39.4 min (820.8 - 781.4)

Volume	Invert	Avail.Storage	Storage Description
#1	16.00'	108,965 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
16.00	37,553	749.0	0	0	37,553
17.00	51,172	1,030.0	44,187	44,187	77,344
18.00	79,413	1,355.0	64,777	108,965	139,038

Device	Routing	Invert	Outlet Devices
#1	Tertiary	17.99'	**50.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Primary	16.00'	**24.0" Round Culvert** L= 772.0' RCP, groove end w/headwall, Ke= 0.200 Inlet / Outlet Invert= 16.00' / 0.00' S= 0.0207 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf
#3	Secondary	16.00'	**24.0" Round Culvert** L= 373.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 16.00' / 14.00' S= 0.0054 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf
#4	Secondary	16.00'	**24.0" Round Culvert** L= 336.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 16.00' / 14.00' S= 0.0060 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf
#5	Secondary	16.00'	**24.0" Round Culvert** L= 184.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 16.00' / 14.00' S= 0.0109 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf
#6	Secondary	16.00'	**24.0" Round Culvert** L= 542.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 16.00' / 14.00' S= 0.0037 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf
#7	Secondary	16.00'	**24.0" Round Culvert** L= 390.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 16.00' / 14.00' S= 0.0051 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf

Primary OutFlow Max=16.25 cfs @ 12.35 hrs HW=17.74' (Free Discharge)
└**2=Culvert** (Inlet Controls 16.25 cfs @ 5.61 fps)

Secondary OutFlow Max=66.04 cfs @ 12.35 hrs HW=17.74' (Free Discharge)
├**3=Culvert** (Barrel Controls 12.82 cfs @ 5.92 fps)
├**4=Culvert** (Barrel Controls 13.32 cfs @ 6.15 fps)
├**5=Culvert** (Barrel Controls 16.17 cfs @ 7.46 fps)
├**6=Culvert** (Barrel Controls 11.11 cfs @ 5.13 fps)
└**7=Culvert** (Barrel Controls 12.62 cfs @ 5.82 fps)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=16.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 2P: Existing Drainage System

Inflow Area = 3.312 ac, 23.19% Impervious, Inflow Depth = 40.88" for 100 Year event
Inflow = 74.82 cfs @ 12.32 hrs, Volume= 11.285 af
Outflow = 74.82 cfs @ 12.32 hrs, Volume= 11.285 af, Atten= 0%, Lag= 0.0 min
Primary = 74.82 cfs @ 12.32 hrs, Volume= 11.285 af
Routed to Reach PA-1 : Taunton River

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

Peak Elev= 193.72' @ 12.32 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	14.00'	**24.0" Round Culvert** L= 1,894.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 14.00' / 4.00' S= 0.0053 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf

Primary OutFlow Max=74.58 cfs @ 12.32 hrs HW=192.51' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 74.58 cfs @ 23.74 fps)

Summary for Pond 3P: Existing Depression

Inflow Area = 3.562 ac, 0.00% Impervious, Inflow Depth = 2.56" for 100 Year event
Inflow = 10.03 cfs @ 12.10 hrs, Volume= 0.760 af
Outflow = 1.09 cfs @ 13.21 hrs, Volume= 0.747 af, Atten= 89%, Lag= 66.7 min
Primary = 1.09 cfs @ 13.21 hrs, Volume= 0.747 af
Routed to Reach PA-1 : Taunton River
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach PA-1 : Taunton River

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 6.49' @ 13.21 hrs Surf.Area= 39,290 sf Storage= 14,454 cf

Plug-Flow detention time= 301.1 min calculated for 0.746 af (98% of inflow)
Center-of-Mass det. time= 293.0 min (1,153.2 - 860.3)

Volume	Invert	Avail.Storage	Storage Description
#1	6.00'	184,765 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
6.00	20,813	637.0	0	0	20,813
7.00	64,833	836.0	40,793	40,793	44,151
8.00	73,661	1,135.0	69,200	109,993	91,059
9.00	75,887	1,176.0	74,771	184,765	98,687

Device	Routing	Invert	Outlet Devices
#1	Secondary	9.00'	**200.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#2	Primary	6.00'	**12.0" Round Culvert** L= 600.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 6.00' / 0.00' S= 0.0100 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=1.09 cfs @ 13.21 hrs HW=6.49' (Free Discharge)
└**2=Culvert** (Barrel Controls 1.09 cfs @ 4.17 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=6.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir**(Controls 0.00 cfs)

Summary for Pond 4P: Existing Drainage System

Inflow Area = 1.337 ac, 0.00% Impervious, Inflow Depth = 6.48" for 100 Year event
Inflow = 9.30 cfs @ 12.09 hrs, Volume= 0.722 af
Outflow = 9.30 cfs @ 12.09 hrs, Volume= 0.722 af, Atten= 0%, Lag= 0.0 min
Primary = 9.30 cfs @ 12.09 hrs, Volume= 0.722 af
Routed to Pond 2P : Existing Drainage System

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 11.44' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	10.00'	**24.0" Round Culvert** L= 411.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.00' / 8.00' S= 0.0049 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf

Primary OutFlow Max=9.06 cfs @ 12.09 hrs HW=11.42' (Free Discharge)
└**1=Culvert** (Barrel Controls 9.06 cfs @ 5.33 fps)

Summary for Pond 5P: Existing Drainage System

Inflow Area = 1.208 ac, 0.00% Impervious, Inflow Depth = 6.48" for 100 Year event
Inflow = 8.40 cfs @ 12.09 hrs, Volume= 0.652 af
Outflow = 8.40 cfs @ 12.09 hrs, Volume= 0.652 af, Atten= 0%, Lag= 0.0 min
Primary = 8.40 cfs @ 12.09 hrs, Volume= 0.652 af
Routed to Pond 2P : Existing Drainage System

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 17.14' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	16.00'	**24.0" Round Culvert** L= 371.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 16.00' / 12.00' S= 0.0108 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf

Primary OutFlow Max=8.19 cfs @ 12.09 hrs HW=17.12' (Free Discharge)
└**1=Culvert** (Inlet Controls 8.19 cfs @ 4.51 fps)

Summary for Pond 6P: Existing Drainage System

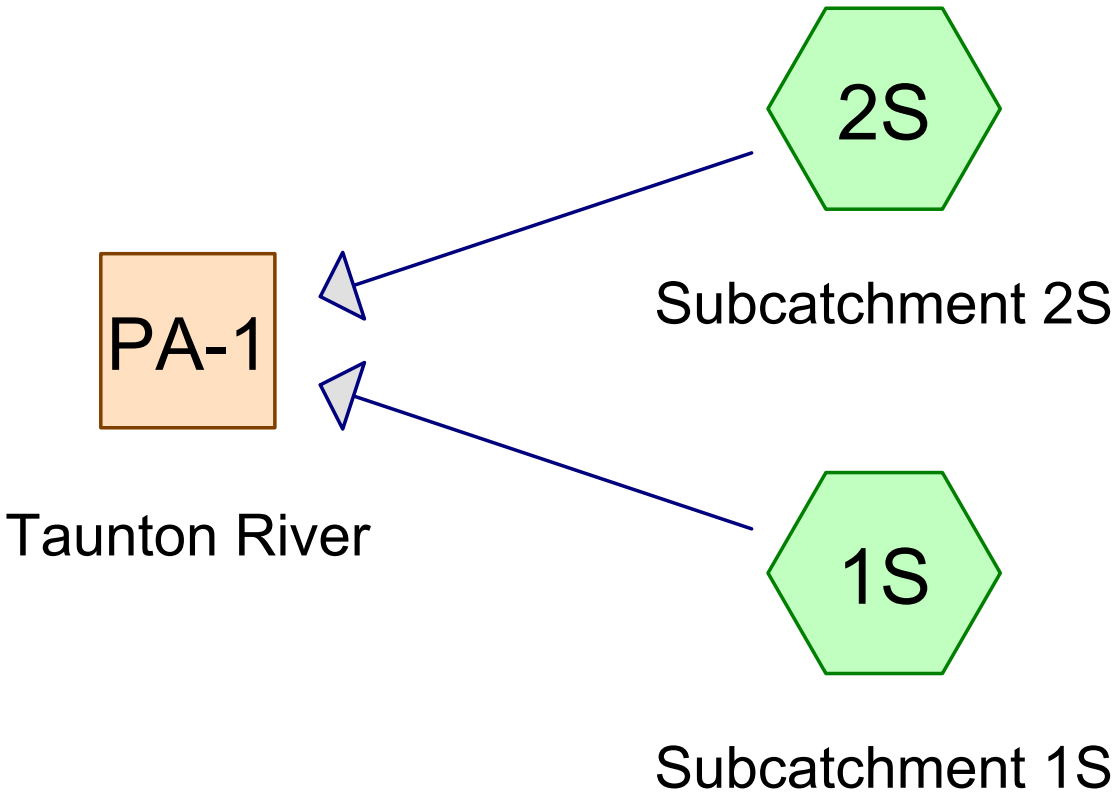
Inflow Area = 0.768 ac,100.00% Impervious, Inflow Depth = 7.43" for 100 Year event
Inflow = 5.65 cfs @ 12.09 hrs, Volume= 0.476 af
Outflow = 5.65 cfs @ 12.09 hrs, Volume= 0.476 af, Atten= 0%, Lag= 0.0 min
Primary = 5.65 cfs @ 12.09 hrs, Volume= 0.476 af
Routed to Pond 2P : Existing Drainage System

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 21.92' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	20.00'	**12.0" Round Culvert** L= 173.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 20.00' / 10.00' S= 0.0578 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=5.50 cfs @ 12.09 hrs HW=21.85' (Free Discharge)
1=Culvert (Inlet Controls 5.50 cfs @ 7.00 fps)

PROPOSED HYDROLOGY



Subcat Reach Pond Link

Routing Diagram for Proposed Conditions
Prepared by Tighe & Bond, Printed 3/6/2025
HydroCAD® 10.20-4c s/n 01453 © 2024 HydroCAD Software Solutions LLC

Rainfall Events Listing

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	5.05	2
3	25 Year	Type III 24-hr		Default	24.00	1	6.08	2
4	100 Year	Type III 24-hr		Default	24.00	1	7.67	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.763	39	>75% Grass cover, Good (1S)
31.717	84	Crushed Stone (1S, 2S)
10.169	72	Dirt (1S, 2S)
0.396	76	Gravel (1S)
3.415	98	Paved (1S, 2S)
0.481	32	Woods/grass comb., Good (1S)
46.941	**81**	**TOTAL AREA**

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Subcatchment1S Runoff Area=1,366,192 sf 9.69% Impervious Runoff Depth=1.70"
Flow Length=1,282' Tc=21.3 min CN=82 Runoff=40.80 cfs 4.444 af

Subcatchment2S: Subcatchment2S Runoff Area=678,558 sf 2.41% Impervious Runoff Depth=1.49"
Flow Length=993' Tc=15.2 min CN=79 Runoff=20.12 cfs 1.933 af

Reach PA-1: Taunton River Inflow=59.44 cfs 6.377 af
Outflow=59.44 cfs 6.377 af

Total Runoff Area = 46.941 ac Runoff Volume = 6.377 af Average Runoff Depth = 1.63"
92.72% Pervious = 43.526 ac 7.28% Impervious = 3.415 ac

Summary for Subcatchment 1S: Subcatchment 1S

Runoff = 40.80 cfs @ 12.30 hrs, Volume= 4.444 af, Depth= 1.70"
Routed to Reach PA-1 : Taunton River

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

	Area (sf)	CN	Description
*	132,422	98	Paved
*	140,921	72	Dirt
*	33,232	39	>75% Grass cover, Good
*	20,949	32	Woods/grass comb., Good
*	17,249	76	Gravel
*	1,021,419	84	Crushed Stone
	1,366,192	82	Weighted Average
	1,233,770		90.31% Pervious Area
	132,422		9.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	100	0.0100	0.38		**Sheet Flow, Crushed Stone Surface** n= 0.040 P2= 3.40"
16.0	962	0.0100	1.00		**Shallow Concentrated Flow, Crushed Stone Surface** Kv= 10.0 fps
0.2	70	0.3182	5.64		**Shallow Concentrated Flow, Crushed Stone Surface** Kv= 10.0 fps
0.7	150	0.0506	3.62		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
21.3	1,282	Total			

Summary for Subcatchment 2S: Subcatchment 2S

Runoff = 20.12 cfs @ 12.22 hrs, Volume= 1.933 af, Depth= 1.49"
Routed to Reach PA-1 : Taunton River

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.40"

	Area (sf)	CN	Description
*	16,352	98	Paved
*	302,027	72	Dirt
*	360,179	84	Crushed Stone
	678,558	79	Weighted Average
	662,206		97.59% Pervious Area
	16,352		2.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	100	0.0100	0.38		**Sheet Flow, Crushed Stone Surface** n= 0.040 P2= 3.40"
8.2	493	0.0100	1.00		**Shallow Concentrated Flow, Crushed Stone Surface** Kv= 10.0 fps
0.1	35	0.3333	5.77		**Shallow Concentrated Flow, Crushed Stone Surface** Kv= 10.0 fps
2.5	365	0.0231	2.45		**Shallow Concentrated Flow, Unpaved** Unpaved Kv= 16.1 fps
15.2	993	Total			

Summary for Reach PA-1: Taunton River

Inflow Area = 46.941 ac, 7.28% Impervious, Inflow Depth = 1.63" for 2 Year event
Inflow = 59.44 cfs @ 12.27 hrs, Volume= 6.377 af
Outflow = 59.44 cfs @ 12.27 hrs, Volume= 6.377 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, 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, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Subcatchment1S Runoff Area=1,366,192 sf 9.69% Impervious Runoff Depth=3.12"
Flow Length=1,282' Tc=21.3 min CN=82 Runoff=75.11 cfs 8.165 af

Subcatchment2S: Subcatchment2S Runoff Area=678,558 sf 2.41% Impervious Runoff Depth=2.84"
Flow Length=993' Tc=15.2 min CN=79 Runoff=38.99 cfs 3.693 af

Reach PA-1: Taunton River Inflow=111.29 cfs 11.857 af
Outflow=111.29 cfs 11.857 af

Total Runoff Area = 46.941 ac Runoff Volume = 11.857 af Average Runoff Depth = 3.03"
92.72% Pervious = 43.526 ac 7.28% Impervious = 3.415 ac

Summary for Subcatchment 1S: Subcatchment 1S

Runoff = 75.11 cfs @ 12.29 hrs, Volume= 8.165 af, Depth= 3.12"
Routed to Reach PA-1 : Taunton River

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Rainfall=5.05"

	Area (sf)	CN	Description
*	132,422	98	Paved
*	140,921	72	Dirt
*	33,232	39	>75% Grass cover, Good
*	20,949	32	Woods/grass comb., Good
*	17,249	76	Gravel
*	1,021,419	84	Crushed Stone
	1,366,192	82	Weighted Average
	1,233,770		90.31% Pervious Area
	132,422		9.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	100	0.0100	0.38		**Sheet Flow, Crushed Stone Surface** n= 0.040 P2= 3.40"
16.0	962	0.0100	1.00		**Shallow Concentrated Flow, Crushed Stone Surface** Kv= 10.0 fps
0.2	70	0.3182	5.64		**Shallow Concentrated Flow, Crushed Stone Surface** Kv= 10.0 fps
0.7	150	0.0506	3.62		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
21.3	1,282	Total			

Summary for Subcatchment 2S: Subcatchment 2S

Runoff = 38.99 cfs @ 12.21 hrs, Volume= 3.693 af, Depth= 2.84"
Routed to Reach PA-1 : Taunton River

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Rainfall=5.05"

	Area (sf)	CN	Description
*	16,352	98	Paved
*	302,027	72	Dirt
*	360,179	84	Crushed Stone
	678,558	79	Weighted Average
	662,206		97.59% Pervious Area
	16,352		2.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	100	0.0100	0.38		**Sheet Flow, Crushed Stone Surface** n= 0.040 P2= 3.40"
8.2	493	0.0100	1.00		**Shallow Concentrated Flow, Crushed Stone Surface** Kv= 10.0 fps
0.1	35	0.3333	5.77		**Shallow Concentrated Flow, Crushed Stone Surface** Kv= 10.0 fps
2.5	365	0.0231	2.45		**Shallow Concentrated Flow, Unpaved** Unpaved Kv= 16.1 fps
15.2	993	Total			

Summary for Reach PA-1: Taunton River

Inflow Area = 46.941 ac, 7.28% Impervious, Inflow Depth = 3.03" for 10 Year event
Inflow = 111.29 cfs @ 12.26 hrs, Volume= 11.857 af
Outflow = 111.29 cfs @ 12.26 hrs, Volume= 11.857 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, 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, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Subcatchment1S Runoff Area=1,366,192 sf 9.69% Impervious Runoff Depth=4.06"
Flow Length=1,282' Tc=21.3 min CN=82 Runoff=97.16 cfs 10.613 af

Subcatchment2S: Subcatchment2S Runoff Area=678,558 sf 2.41% Impervious Runoff Depth=3.75"
Flow Length=993' Tc=15.2 min CN=79 Runoff=51.33 cfs 4.869 af

Reach PA-1: Taunton River Inflow=144.81 cfs 15.483 af
Outflow=144.81 cfs 15.483 af

Total Runoff Area = 46.941 ac Runoff Volume = 15.483 af Average Runoff Depth = 3.96"
92.72% Pervious = 43.526 ac 7.28% Impervious = 3.415 ac

Summary for Subcatchment 1S: Subcatchment 1S

Runoff = 97.16 cfs @ 12.29 hrs, Volume= 10.613 af, Depth= 4.06"
Routed to Reach PA-1 : Taunton River

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year Rainfall=6.08"

	Area (sf)	CN	Description
*	132,422	98	Paved
*	140,921	72	Dirt
*	33,232	39	>75% Grass cover, Good
*	20,949	32	Woods/grass comb., Good
*	17,249	76	Gravel
*	1,021,419	84	Crushed Stone
	1,366,192	82	Weighted Average
	1,233,770		90.31% Pervious Area
	132,422		9.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	100	0.0100	0.38		**Sheet Flow, Crushed Stone Surface** n= 0.040 P2= 3.40"
16.0	962	0.0100	1.00		**Shallow Concentrated Flow, Crushed Stone Surface** Kv= 10.0 fps
0.2	70	0.3182	5.64		**Shallow Concentrated Flow, Crushed Stone Surface** Kv= 10.0 fps
0.7	150	0.0506	3.62		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
21.3	1,282	Total			

Summary for Subcatchment 2S: Subcatchment 2S

Runoff = 51.33 cfs @ 12.21 hrs, Volume= 4.869 af, Depth= 3.75"
Routed to Reach PA-1 : Taunton River

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year Rainfall=6.08"

	Area (sf)	CN	Description
*	16,352	98	Paved
*	302,027	72	Dirt
*	360,179	84	Crushed Stone
	678,558	79	Weighted Average
	662,206		97.59% Pervious Area
	16,352		2.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	100	0.0100	0.38		**Sheet Flow, Crushed Stone Surface** n= 0.040 P2= 3.40"
8.2	493	0.0100	1.00		**Shallow Concentrated Flow, Crushed Stone Surface** Kv= 10.0 fps
0.1	35	0.3333	5.77		**Shallow Concentrated Flow, Crushed Stone Surface** Kv= 10.0 fps
2.5	365	0.0231	2.45		**Shallow Concentrated Flow, Unpaved** Unpaved Kv= 16.1 fps
15.2	993	Total			

Summary for Reach PA-1: Taunton River

Inflow Area = 46.941 ac, 7.28% Impervious, Inflow Depth = 3.96" for 25 Year event
Inflow = 144.81 cfs @ 12.26 hrs, Volume= 15.483 af
Outflow = 144.81 cfs @ 12.26 hrs, Volume= 15.483 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, 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, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Subcatchment1S Runoff Area=1,366,192 sf 9.69% Impervious Runoff Depth=5.55"
Flow Length=1,282' Tc=21.3 min CN=82 Runoff=131.44 cfs 14.498 af

Subcatchment2S: Subcatchment2S Runoff Area=678,558 sf 2.41% Impervious Runoff Depth=5.20"
Flow Length=993' Tc=15.2 min CN=79 Runoff=70.68 cfs 6.752 af

Reach PA-1: Taunton River Inflow=197.11 cfs 21.250 af
Outflow=197.11 cfs 21.250 af

Total Runoff Area = 46.941 ac Runoff Volume = 21.250 af Average Runoff Depth = 5.43"
92.72% Pervious = 43.526 ac 7.28% Impervious = 3.415 ac

Summary for Subcatchment 1S: Subcatchment 1S

Runoff = 131.44 cfs @ 12.29 hrs, Volume= 14.498 af, Depth= 5.55"
Routed to Reach PA-1 : Taunton River

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Rainfall=7.67"

	Area (sf)	CN	Description
*	132,422	98	Paved
*	140,921	72	Dirt
*	33,232	39	>75% Grass cover, Good
*	20,949	32	Woods/grass comb., Good
*	17,249	76	Gravel
*	1,021,419	84	Crushed Stone
	1,366,192	82	Weighted Average
	1,233,770		90.31% Pervious Area
	132,422		9.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	100	0.0100	0.38		**Sheet Flow, Crushed Stone Surface** n= 0.040 P2= 3.40"
16.0	962	0.0100	1.00		**Shallow Concentrated Flow, Crushed Stone Surface** Kv= 10.0 fps
0.2	70	0.3182	5.64		**Shallow Concentrated Flow, Crushed Stone Surface** Kv= 10.0 fps
0.7	150	0.0506	3.62		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
21.3	1,282	Total			

Summary for Subcatchment 2S: Subcatchment 2S

Runoff = 70.68 cfs @ 12.21 hrs, Volume= 6.752 af, Depth= 5.20"
Routed to Reach PA-1 : Taunton River

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Rainfall=7.67"

	Area (sf)	CN	Description
*	16,352	98	Paved
*	302,027	72	Dirt
*	360,179	84	Crushed Stone
	678,558	79	Weighted Average
	662,206		97.59% Pervious Area
	16,352		2.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	100	0.0100	0.38		**Sheet Flow, Crushed Stone Surface** n= 0.040 P2= 3.40"
8.2	493	0.0100	1.00		**Shallow Concentrated Flow, Crushed Stone Surface** Kv= 10.0 fps
0.1	35	0.3333	5.77		**Shallow Concentrated Flow, Crushed Stone Surface** Kv= 10.0 fps
2.5	365	0.0231	2.45		**Shallow Concentrated Flow, Unpaved** Unpaved Kv= 16.1 fps
15.2	993	Total			

Summary for Reach PA-1: Taunton River

Inflow Area = 46.941 ac, 7.28% Impervious, Inflow Depth = 5.43" for 100 Year event
Inflow = 197.11 cfs @ 12.25 hrs, Volume= 21.250 af
Outflow = 197.11 cfs @ 12.25 hrs, Volume= 21.250 af, Atten= 0%, Lag= 0.0 min

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

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APPENDIX E

CONSTRUCTION PERIOD EROSION AND SEDIMENTATION CONTROL PLAN

WEAVER'S COVE INDUSTRIAL PARK
FALL RIVER, MASSCAHUSETTS

February 2026

Prepared for:

WEAVER'S COVE INDUSTRIAL PARK, LLC

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\\Tighebond.com\data\Data\Projects\W\W5148 Weavers Cove Industrial Park LLC\Weaver's Cove\Permitting\Stormwater\Appendix E - Construction Period LTPPP and Erosion Controls\Construction Period PPP and Erosion and Sediment Controls.doc

Section 1
Introduction

Stormwater runoff from construction activities can have a significant impact on water quality. As stormwater flows over a construction site, it can pick up pollutants like sediment, debris, and chemicals and transport these to a nearby storm sewer system or directly to a river, lake, or coastal water. Polluted stormwater runoff can harm or kill fish and other wildlife. Sedimentation can destroy aquatic habitat, and high volumes of runoff can cause stream bank erosion. Debris can clog waterways and potentially reach the ocean where it can kill marine wildlife and impact habitat.

Standard 8 of the Massachusetts Stormwater Standards requires:

> "a plan to control construction-related impacts including erosion, sedimentation and other pollutant sources during construction and land disturbance activities (construction period erosion, sedimentation, and pollution prevention plan) shall be developed and implemented".

The following Construction Period Pollution Prevention Plan (PPP) identifies the requirements to comply with Standard 8.

Section 2
Project Information

2.1 Plan Contents

This PPP was developed for the Weaver's Cove Industrial Park Project in Fall River, Massachusetts. This PPP provides permit-related information to satisfy the requirements of Standard 8 of the Massachusetts Stormwater Handbook.

2.2 Project/ Site Information

Project Name and Address

Project/Site Name:	Weaver's Cove Industrial Park
Project Street/Location:	1 New Street
City:	Fall River
State:	Massachusetts
ZIP Code:	02720
County or Similar Subdivision:	Bristol County

2.3 Nature of the Construction Activity

General Description of Project

The proposed project consists of site preparation activities at the former Fall River Marine Terminal property, located at 1 New Street, in anticipation of potential future commercial development. The proposed site preparation on the subject parcel involve the following activities:

- The removal of remnants of the former petroleum storage and transfer terminal, including any remaining piping, small concrete retaining walls, interior earthen containment dykes, buildings, and other structures and appurtenances that are no longer functional or required,
- The installation of establish site-wide construction-period stormwater runoff controls during site preparation activities, and
- Extensive site grading and stabilization in order to create a uniform surface which will be suitable for future development.

The Site has experienced numerous reported releases of Oil and Hazardous Materials (OHM) for which the former owner, Shell Oil Company, is undertaking ongoing remedial activities. A major objective of the proposed project is to provide clean soil cover and separation over the existing contaminated soils.

Size of Construction Project

Total size of the property: 53.8 acre

Total area expected to be disturbed by the construction activities: 31.6

The maximum area expected to be disturbed at any one time (in acres): 23.4

TABLE 2-4
Pollutant-Generating Activities

Pollutant-Generating Activity	Pollutants or Pollutant Constituents (that could be discharged if exposed to stormwater)
Site work	Soil particles and fines
Construction areas	Petroleum, concrete, vehicle fluids, paints, solvents
Concrete construction	Concrete
Solid waste storage	Construction debris, trash
Equipment use	Hydraulic Oils/fluids
Equipment use	Antifreeze/coolant
Portable toilets	Sewage
Staging areas	Sediment, gasoline, fuel oil, concrete, vehicle fluids, paints, solvents, fertilizers, adhesives, antifreeze/coolant, hydraulic oil/fluid, etc.

2.4 Sequence and Estimated Dates of Construction Activities

The following is an anticipated construction sequence identifying the major components of construction for the project.

2.4.1 Phase I

Estimated Start Date of Construction Activities for this Phase	Spring 2025
Estimated End Date of Construction Activities for this Phase	Summer 2025
Estimated Date(s) of Application of Stabilization Measures for Areas of the Site Required to be Stabilized	Summer 2025
Estimated Date(s) when Stormwater Controls will be Removed	Upon Site Stabilization

2.4.2 Phase II

Estimated Start Date of Construction Activities for this Phase	TBD
Estimated End Date of Construction Activities for this Phase	TBD
Estimated Date(s) of Application of Stabilization Measures for Areas of the Site Required to be Stabilized	TBD
Estimated Date(s) when Stormwater Controls will be Removed	Upon Site Stabilization

2.5 Allowable Non-Stormwater Discharges

Water from non-stormwater sources are allowed when properly managed. The following identifies discharge sources anticipated with the project.

TABLE 2-5

List of Allowable Non-Stormwater Discharges Present at the Site

Type of Allowable Non-Stormwater Discharge	Likely to be Present at Your Site?	Location on Site
Discharges from emergency fire-fighting activities	☐ YES ☒ NO	
Fire hydrant flushings	☐ YES ☒ NO	
Landscape irrigation	☐ YES ☒ NO	
Waters used to wash vehicles and equipment[1]	☐ YES ☒ NO	
Water used to control dust	☒ YES ☐ NO	Throughout site
Potable water including uncontaminated water line flushings	☐ YES ☒ NO	
External building wash down, provided soaps, solvents, and detergents are not used, and external surfaces do not contain hazardous substances (e.g. see Appendix A) (e.g. paint or caulk containing PCBs)	☐ YES ☒ NO	
Pavement wash waters[2]	☐ YES ☒ NO	
Uncontaminated air conditioning or compressor condensate	☐ YES ☒ NO	
Uncontaminated, non-turbid discharges of ground water or spring water	☐ YES ☒ NO	
Foundation or footing drains[3]	☐ YES ☒ NO	
Construction dewatering water[4]	☐ YES ☒ NO	

[1]provided that there is no discharge of soaps, solvents, or detergents used for such purposes

[2]provided spills or leaks of toxic or hazardous substances have not occurred (unless all spill material has been removed) and where soaps, solvents, and detergents are not used. You are prohibited from directing pavement wash waters directly into any water of the U.S., storm drain inlet, or stormwater conveyance, unless the conveyance is connected to a sediment basin, sediment trap, or similarly effective control;

[3]where flows are not contaminated with process materials sucks as solvents or contaminated ground water

[4]discharged in accordance with applicable regulations

2.6 Site Maps

An Erosion and Sediment Control Plan (ESCP) has been prepared to provide the Contractor will the minimum requirements for the prevention of erosion and sedimentation due to consruction impacts. The ESCP is provided in Appendix A. The ESCP provides locations of perimeter erosion controls, inlet controls, and construction-period stormwter management features such as sediment traps. Computations for sizing of control practices are provided in Appendix B.

Section 3
Erosion and Sediment Controls

The Contractor must implement erosion and sediment controls in accordance with the following requirements to minimize the discharge of pollutants in stormwater from construction activities. This project also includes site specific controls and permit conditions which may take precedent and are not included in the following descriptions. The Contractor shall also comply with the requirements in the project's permits.

3.1 Perimeter Controls

Provide perimeter controls to prevent sediment from entering and compromising the adjacent storm drain system.

General

Roadways and storm drainage components adjacent to the proposed project area will be protected by a row of erosion control barriers. The erosion control barriers will consist of straw wattles or mulch-filled tubes (e.g. compost filter tubes/socks) and siltation fencing placed in a fashion that restricts the contractor(s) to the areas necessary to conduct the work and will generally define the limits of work. The locations of these barriers are shown on the project drawings.

Specific Perimeter Controls

Perimeter Control Description

- Perimeter controls include the installation of a straw wattle or mulch log barrier and siltation fence system around the perimeter of the site. Perform work in accordance with the ESCP.

Installation

- Temporary erosion control measures shall be installed prior to the start of any earth disturbing activities.
- Erosion control barriers shall not be removed until their removal is approved by the Engineer.

Maintenance Requirements

- The contractor(s) will be required to maintain a reserve supply of erosion control barriers on-site to make repairs, as necessary.
- Perimeter control shall be inspected immediately after each rainfall and at least daily during prolonged rainfall. They shall be repaired if there are any signs of erosion or sedimentation below them, any repairs shall be made immediately. If there are signs of undercutting at the center or the edges, or impounding of large volumes of water behind them, sediment barriers shall be replaced with a temporary check dam.
- Should the fabric on a barrier decompose or become ineffective prior to the end of the expected usable life and the barrier still is necessary, the fabric shall be replaced promptly.
- Sediment deposits should be removed after each storm event. They must be removed when deposits reach approximated 1/3 the height of the barrier.

At the conclusion of the project, the erosion control barriers will be removed and properly disposed off-site following the stabilization of disturbed areas.

3.2 Sediment Track-Out

General

It is the Contractor's responsibility to take measures to prevent tracking of sediment from the project site. It is also the Contractor's responsibility to take measures to prevent tracking of sediment from any staging and material storage area. A stone tracking pad and street sweeping apparatus shall be used as necessary to minimize the track-out of sediment onto adjacent streets, other paved areas, and sidewalks from vehicles exiting the construction site.

Specific Track-Out Controls

Track-Out Controls Description

- Stone aggregate tracking pad
- Street sweeping

Installation

- Sediment track out controls to be installed by the Contractor include a stone aggregate tracking pad with an underlying geotextile fabric. The pad shall be constructed in accordance with the ESCP.

Maintenance Requirements

- The site exit shall be maintained in a condition which will prevent tracking of sediment onto public right-of-way. When washing is required, it shall be done in an area stabilized with aggregate which drains into a sediment trapping controls.
- If sediment is tracked out from the site to the surface of off-site streets, other paved areas, and sidewalks, the Contractor shall remove the deposited sediment by the end of the same work day in which the track-out occurs.

3.3 Stockpiled Sediment or Soil

General

Temporary soil stockpiles shall be surrounded by hay bales or silt fence and shall be stabilized by covering or temporary erosion control seeding. Stockpiles are to be located as far as possible from any surface water.

Specific Stockpile Controls

Description

- Temporary stockpiles of excavated soil may be present at the site as construction progresses.

Installation

- Install a sediment barrier consisting of silt fencing or straw bales along downgradient perimeter areas of stockpiles.

- For piles that will be unused for 14 or more days, temporary stabilization with erosion control seeding shall be used if perimeter controls and/or temporary covering are not sufficient to prevent sediment migration.

Maintenance Requirements

- Do not hose down or sweep soil or sediment accumulated on pavement or other impervious surfaces into any stormwater conveyance (unless connected to a sediment basin, sediment trap, or similarly effective control), storm drain inlet, or surface water.

3.4 Minimize Dust

General

The Contactor shall be responsible for the control of dust throughout the construction period. Dust control methods shall include, but be not limited to, sprinkling water or calcium chloride on exposed areas, covering loaded dump trucks leaving the site, and temporary mulching exposed soil areas. Dust control measures shall be utilized to prevent the migration of dust from the site to abutting areas.

Specific Dust Controls

Description

- Prevent dust from becoming a nuisance or hazard. During construction, excavated material and open or stripped areas are to be policed and controlled to prevent spreading of the material.
- Dust control measures shall be utilized to prevent the migration of dust from the site to abutting areas.
- Ensure that the existing equipment, facilities, and occupied space adjacent to or nearby areas of the work do not come in contact with dust or debris as a result of concrete demolition, excavation or surface preparation.

Installation

- Dust control methods shall include, but be not limited to, sprinkling water on exposed areas, using calcium chloride, covering loaded dump trucks leaving the site, and temporary mulching.
- Use a mechanical street sweeper daily.

Maintenance Requirements

- During the work on-site, daily all paved road and driveway surfaces shall be scraped and broomed free of excavated materials on a daily basis. Prior to sweeping, or as needed during the work day, the surfaces shall be hosed down or otherwise treated to eliminate active or potential dust conditions and the natural road or wearing surface shall be exposed.

3.5 Minimize the Disturbance of Steep Slopes

General

All slopes greater than 15% during the regular construction season are to have slope stabilization measures. This applies to all slopes greater than 8% after October 1st.

Specific Steep Slope Controls

- Where slopes greater than 3:1 will be created, synthetic erosion control fabric is to be utilized in these areas to prevent erosion until permanent vegetation is established.

3.6 Topsoil/Loam Areas

General

All areas not to be paved or otherwise treated shall receive 4-inch loam and seed. The salvaging of existing loam and topsoil is not anticipated due to the urban nature of the site.

Specific Topsoil/Loam Area Controls

Description

- Erosion of topsoil/ loam areas will be controlled by providing temporary and perminant grass cover.
- Where slopes greater than 3:1 will be created, synthetic erosion control fabric will be utilized to prevent erosion until permanent vegetation is established.

Installation

- Temporary vegetative cover shall be provided to stabilize the site in areas where additional construction activity will not occur for more than 14 calendar days.

Maintenance Requirements

- Seeding shall be inspected periodically and at a minimum 95% of the soil surface should be covered by vegetation. If any evidence of erosion is apparent, repairs shall be made and additional measures shall be used to prevent further erosion.
- Straw mulch, wood fiber mulch, or erosion control blankets shall be applied immediately after seeding.

3.7 Soil Compaction

General

In areas where final vegetative stabilization is proposed, the Contractor shall prevent excessive compaction by:

- Restricting vehicle and equipment use in these locations to avoid excessive soil compaction; or
- Prior to seeding or planting areas of exposed soil that have been compacted, use techniques that aerates the soils resulting in conditions that will support vegetative growith.

3.8 Storm Drain Inlets

General

Provide catch basin inlet protection as per construction drawings and specifications in all catch basins within the vicinity of the earth disturbing activities to protect the

stormwater management system from high sediment loads and high velocities, while disturbance due to construction is occurring in the drainage area.

Specific Storm Drain Inlet Controls

Description

- Storm Drain Inlet Controls include the installation of Silt Sacks
- Refer to the ESCP for inlet control locations.

Installation

- Refer to manufacturer recommended specifications and instillation instructions.

Maintenance Requirements

- Silt sacks shall be inspected immediately after each rainfall and at least daily during prolonged rainfall. They shall be repaired or replaced as needed immediately.
- Sediment deposits should be removed after each storm event. They must be cleaned when deposits reach approximated 1/3 the height of the barrier.
- The Contractor shall remove the deposited sediment and make any repairs by the end of the same work day in which the sediment is observed or by the end of the next work day if observation occurs on a non-work day.

3.9 Sediment Traps

General

Permanent sediment basins are not proposed as part of the final stormwater management system, however, temporary sediment basins or sediment traps may be used during construction to retain runoff and settle out particles prior to discharge from the site.

Specific Sediment Basin/Sediment Trap Controls

Description

- Temporary sediment basins or sediment traps may be excavations or bermed detention areas on site with stabilized discharges.

Installation

- As required due to site conditions and activities.

Maintenance Requirements

- Contractor shall periodically remove sediments and dispose of them in an appropriate location. Discharge locations shall be inspected regularly and stabilized as necessary.

3.10 Site Stabilization

General

Initiate site stabilization measures immediately whenever earth-disturbing activities have permanently ceased or will be temporarily suspended on any portion of the site for more than 14 days.

Complete the stabilization activities within 14 days after the permanent or temporary cessation of earth-disturbing activities. Temporary paving of disturbed areas of existing roads should be completed at a minimum at the end of each week.

Use the following stabilization practices to protect exposed soil from erosion and prevent sediment movement.

3.10.1 Seeding

Installation

- When construction has temporarily or permanently ceased, seeding shall occur immediately in accordance with the project specifications.

Maintenance Requirements

- Periodic inspections shall occur once a week and after every rainstorm of 0.25 inches or greater until a minimum of 70% of the soil surface is covered by vegetation.

3.10.2 Mulching

Installation

- When construction has temprorarily or permanently ceased, mulching shall occur immediately, as required, for erosion control while vegetation is being established.

Maintenance Requirements

- Periodic inspections shall occur once a week and after every rainstorm 0.25 inches or greater.

3.10.3 Erosion Control Mats or Blankets

Installation

- When construction has temprorarily or permanently ceased, erosion control blanket installation shall occur immediately on slopes greater than 3:1, or as required, for erosion control while vegetation is being established.

Maintenance Requirements

- Periodic inspections shall occur once a week and after every rainstorm 0.25 inches or greater.

Section 4
Pollution Prevention Standards

A clean and orderly construction site will reduce the opportunity for pollutants to enter the stormwater runoff stream. The following identifies sources of pollution anticipated on a typical construction site and preventative measures to avoid pollution.

4.1 Potential Sources of Pollution

TABLE 4-1

Construction Site Pollutants

Pollutant-Generating Activity	Pollutants or Pollutant Constituents	Location on Site
Site work	Soil particles and fines	Where disturbance is proposed
Construction areas	Petroleum, concrete, vehicle fluids, paints, solvents	Where construction is proposed
Concrete construction	Concrete	Where concrete is proposed
Pavement marking	Paint	Where pavement markings are proposed
Solid waste storage	Construction debris, trash	In dumpster locations
Equipment use	Hydraulic Oils/fluids	Leaks/broken hoses from equipment
Equipment use	Antifreeze/coolant	Leaks/broken hoses from equipment
Portable toilets	Sewage	Where portable toilets are located
Staging areas	Sediment, gasoline, fuel oil, concrete, vehicle fluids, paints, solvents, fertilizers, adhesives, antifreeze/coolant, hydraulic oil/fluid, etc.	

4.2 Spill Prevention and Response

- Manufacturer's recommended methods for cleanup will be clearly posted and site personnel will be made aware of the procedures and the location of the information and clean up supplies.
- Materials and equipment necessary for spill cleanup will be kept in the material storage areas on site. Equipment and materials will include but not be limited to brooms, dustpans, mops, rags, gloves, goggles, kitty litter, sand, sawdust and plastic or metal trash containers specifically for this purpose.
- All spills will be cleaned up immediately after discovery.

- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with hazardous substances.
- Spills of toxic or hazardous material will be reported to the appropriate state or local government agency regardless of size.
- The Spill Prevention Plan will be adjusted to include measures to prevent this type of spill from recurring and how to cleanup the spill if it recurs. A description of the spill, its cause and the cleanup measures will be included.
- The site superintendent responsible for day to day operations will be the Spill Response Coordinator (SRC). The SRC is responsible for decisive actions in the event of a spill at the facility. The SRC will supervise efforts to provide immediate containment of the spill to prevent a more difficult cleanup situation. Cleanup crews will utilize proper spill cleanup materials and employ safe work practices.

4.2.1 Federal and State Spill Notification

In accordance with 310 CMR 40.0333, the SRC shall notify the Massachusetts Department of Environmental Protection (Southeast Region) - (508)-946-2700, the Local Emergency Planning Committee (LEPC) and any other authorities or agencies within two hours if an accident or other type of incident results in a release to:

- Land
  - 10 Gallons for more Oils (PCB<500 ppm)
  - 1 Gallon or more Oils (PCB ≥500 ppm)
- Waterways
  - Any quantity of Oils
- Or, triggers the exposure to toxic chemical levels as listed in 301 CMR 40.1600, Revised Massachusetts Contingency Plan

The SRC shall notify the National Response Center (NRC) at **(800) 424-8802** where a leak, spill, or other release containing a hazardous substance or oil in an amount equal to or in excess of a reportable quantity consistent with Part 2.3.3.4c and established under either 40 CFR Part 110, 40 CFR Part 117, or 40 CFR Part 302, occurs during a 24-hour period.

In either event, the SRC will work with state and federal agencies to ensure that all appropriate forms and reports are submitted in a timely manner.

- Note: Trigger volumes for other chemical spills vary. Contact the DEP or a Licensed Site Professional (LSP) for specific guidance on reporting thresholds and requirements for other chemicals.

4.2.2 Local Notification

The following local agencies will be called to provide emergency assistance at the facility on the judgment of the SRC:

TABLE 4-2

Emergency Assistance Notification

Fire Department 911 or (508) 324-2740	Police Department 911 or (508) 676-8511
Hospital: Charlton Memorial Hospital (508) 679-3131	Department of Public Works: (508) 324-2584

4.3 Fueling and Maintenance of Equipment or Vehicles

General

Efforts shall be made to perform equipment/vehicle fueling and maintenance off-site. If fueling and/or maintenance of equipment of vehicles is performed on site, the following pollution prevention practices must be provided.

Specific Pollution Prevention Practices

- Site contractor/project manager shall provide an onsite vehicle fueling and maintenance area that is clean and dry.
- If possible keep area covered.
- Keep a spill kit at the fueling and maintenance area.
- Vehicles shall be inspected regularly for leaks and damage.
- Use drip pans, drip cloths or absorbent pads when replacing spent fluid.

4.4 Washing of Equipment and Vehicles

General

Efforts shall be made to perform equipment/vehicle washing and maintenance off-site. If washing of equipment and vehicles is performed on site, the following pollution prevention practices must be provided to minimize the discharge of pollutants.

Specific Pollution Prevention Practices

- Site contractor/project manager shall provide a proper washing area.
- Discharges from washing areas shall be infiltrated or diverted into sanitary sewer system unless no soaps or detergents are used.
- If soaps, detergents or solvents are stored onsite over must be provided to prevent these detergents from coming into contact with rainwater.

4.5 Storage, Handling, and Disposal of Construction Products, Materials, and Wastes

4.5.1 Building Products

- Site contractor/project manager shall designate a waste collection area on the site that does not receive a substantial amount of runoff from upland areas and does not drain directly to a water body.
- Ensure that containers have lids so they can be covered before periods of rain, and keep containers in a covered area whenever possible.
- Schedule waste collection to prevent the containers from overfilling.
- Clean up spills immediately. For hazardous materials, follow cleanup instructions on the package. Use an absorbent material such as sawdust or kitty litter to contain the spill.
- During the demolition phase of construction, provide extra containers and schedule more frequent pickups.
- Collect, remove, and dispose of all construction site wastes at authorized disposal areas.

4.5.2 Pesticides, Herbicides, Insecticides, Fertilizers, and Landscaping Materials

- Store new and used materials in a neat, orderly manner in their appropriate containers in a covered area. If storage in a covered area is not possible, the materials shall be covered with polyethylene or polypropylene sheeting to protect them from the elements.
- Storage area should include precautions to contain any potential spills.
- Immediately contain and clean up any spills with absorbent materials.

4.5.3 Diesel Fuel, Oil, Hydraulic Fluids, Other Petroleum Products, and Other Chemicals

- Store new and used petroleum products for vehicles in a neat, orderly manner in their appropriate containers in a covered area. If storage in a covered area is not possible, the materials shall be covered with polyethylene or polypropylene sheeting to protect them from the elements.
- Storage area should include precautions to contain any potential spills.
- Immediately contain and clean up any spills with absorbent material.
- Have equipment available in fuel storage areas and in vehicles to contain and clean up any spills that occur.

4.5.4 Hazardous or Toxic Waste

- Store new and used materials in a neat, orderly manner in their appropriate containers in a covered area. If storage in a covered area is not possible, the materials shall be covered with polyethylene or polypropylene sheeting to protect them from the elements.
- Storage areas should include precautions to contain any potential spills.

- Immediately contain and clean up any spills with absorbent materials.
- Have equipment available in fuel storage areas and in vehicles to contain and clean up any spills that occur.
- To prevent leaks, empty and clean hazerdous waste containers before disposing of them.
- Never remove the original product label from the container because it contains important safety information. Follow the manufacturer's recommended method of disposal, which should be printed on the label.
- Never mix excess products when disposing of them, unless specifically recommended by the manufacturer.

4.5.5 Construction and Domestic Waste

- All materials shall be collected and stored in securely lidded receptacles, no construction waste materials will be buried. Clean up immediately if containers overflow.

4.5.6 Sanitary Waste

- Portable sanitary units will be provided throughout the course of the project for use by the site contractor/project manager's employees. A licensed sanitary waste management contractor will regularly collect all sanitary waste from the portable units. Position portable toilets so that they are secure and will not be tipped or knocked over.

4.6 Washing of Applicators and Containers used for Paint, Concrete or Other Materials

- The contractors should be encouraged where possible, to use washout facilities at their own plant or dispatch facility from stucco, paint, concrete, form release oils, curing compounds, and other construction materials.
- If washout of these materials in done on site:
    - Direct all washwater into a leak-proof container or leak-proof pit. The container or pit must be designed so that no overflows can occur due to inadequate sizing or precipitation.
    - Handle washout or cleanout wastes as follows:
        - Do not dump liquid wastes in the storm sewers
        - Dispose of liquid wastes in accordance with applicable regulations
        - Remove and dispose of hardened concrete waste consistent with your handling of other construction wastes in Section 5.5.
    - Attempts should be made to locate washout area as far away as possible from surface waters and storwmater inlets or conveyances, and to the extend practicable, designate areas to buse for these activities and conduct such activities only in these areas.
- Inspect washout facilities daily to detect leaks or tears and to identify when materials need to be removed.

4.7 Fertilizers

If fertilizers are to be used on site, the following requirements shall be followed:

- Store new and used materials in a neat, orderly manner in their appropriate containers in a covered area. If storage in a covered area is not possible, the materials shall be covered with polyethylene or polypropylene sheeting to protect them from the elements.
- Storage area should include precautions to contain any potential spills.
- Immediately contain and clean up any spills with absorbent materials.
- Apply at a rate and in amounts consistent with manufacturer's specifications, or document departures from the manufacturer's specifications.
- Apply at the appropriate time of year for the site, and preferably timed to coincide as closely as possible to the period of maximum vegetation uptake and growth
- Avoid applying before heavy rains that could cause excessive nutrients to be discharged
- Never apply to frozen ground
- Never apply to stormwater conveyance channels with flowing water
- Follow all federal, state, tribal, and local requirements regarding fertilizer application.

APPENDIX A
CONTROL MEASURE SIZING

Project Name: **Weaver's Cove Industrial Park**
Project Location: **Fall River, MA**
Description: **Construction Period Erosion & Sediment Control Sizing**
Prepared By: **TAL** Date: **February 2025**

Construction Period Erosion & Sediment Control Sizing Calculations

Sediment Basin

Design Recommendations:

The sediment basin should have a minimum volume of ½ inch of storage for each acre of drainage area
Total capacity - 10-year peak flow with 1 foot of freeboard

Southern Basin

Contributory Area = 954,980 sqft
21.9 ac

Recommended Capacity = 0.5" * Contributory Area
= 39,791 cubic feet

Design Capacity = 364,515 cubic feet

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.00	14,597	544.0	0	0
8.00	59,343	1,017.0	68,915	68,915
10.00	77,974	1,219.0	136,894	205,808
12.00	80,741	1,275.0	158,707	364,515

Northern Basin

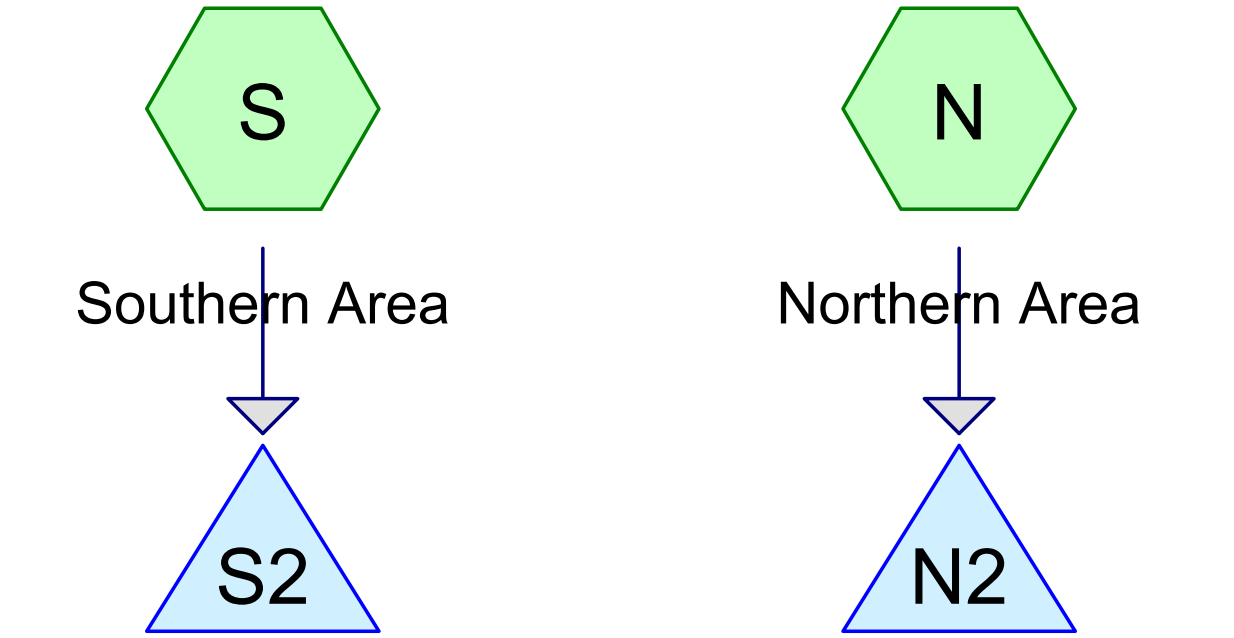
Contributory Area = 293,015 sqft
6.7 ac

Recommended Capacity = 0.5" * Contributory Area
= 12,209 cubic feet

Design Capacity = 379,270 cubic feet

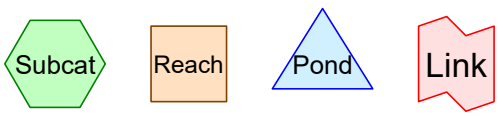
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
10.00	18,021	902.0	0	0
12.00	69,851	1,071.0	82,234	82,234
14.00	74,264	1,100.0	144,092	226,327
16.00	78,701	1,128.0	152,944	379,270

Calculated in accordance with the Massachusetts Erosion and Sediment Control Guidelines for Urban and Suburban Areas.



Temporary Sedimentation Basin

Temporary Sedimentation Basin



Routing Diagram for Construction-Period Controls
Prepared by Tighe & Bond, Printed 2/3/2025
HydroCAD® 10.20-4c s/n 01453 © 2024 HydroCAD Software Solutions LLC

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	10 Year	Type III 24-hr		Default	24.00	1	5.05	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
28.650	72	Dirt, HSG A (N, S)

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment N: Northern Area Runoff Area=293,015 sf 0.00% Impervious Runoff Depth=2.24"
Tc=6.0 min CN=72 Runoff=17.15 cfs 1.254 af

Subcatchment S: Southern Area Runoff Area=954,980 sf 0.00% Impervious Runoff Depth=2.24"
Tc=6.0 min CN=72 Runoff=55.91 cfs 4.086 af

Pond N2: Temporary Sedimentation Basin Peak Elev=11.56' Storage=54,608 cf Inflow=17.15 cfs 1.254 af
Outflow=0.00 cfs 0.000 af

Pond S2: Temporary Sedimentation Basin Peak Elev=9.63' Storage=177,976 cf Inflow=55.91 cfs 4.086 af
Outflow=0.00 cfs 0.000 af

Summary for Subcatchment N: Northern Area

Runoff = 17.15 cfs @ 12.10 hrs, Volume= 1.254 af, Depth= 2.24"
Routed to Pond N2 : Temporary Sedimentation Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Rainfall=5.05"

	Area (sf)	CN	Description
*	293,015	72	Dirt, HSG A
	293,015		100.00% Pervious Area

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

Summary for Subcatchment S: Southern Area

Runoff = 55.91 cfs @ 12.10 hrs, Volume= 4.086 af, Depth= 2.24"
Routed to Pond S2 : Temporary Sedimentation Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Rainfall=5.05"

	Area (sf)	CN	Description
*	954,980	72	Dirt, HSG A
	954,980		100.00% Pervious Area

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

Summary for Pond N2: Temporary Sedimentation Basin

Inflow Area = 6.727 ac, 0.00% Impervious, Inflow Depth = 2.24" for 10 Year event
Inflow = 17.15 cfs @ 12.10 hrs, Volume= 1.254 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 11.56' @ 24.40 hrs Surf.Area= 55,491 sf Storage= 54,608 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	10.00'	379,270 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
10.00	18,021	902.0	0	0	18,021
12.00	69,851	1,071.0	82,234	82,234	44,628
14.00	74,264	1,100.0	144,092	226,327	50,089
16.00	78,701	1,128.0	152,944	379,270	55,530

Device	Routing	Invert	Outlet Devices
#1	Primary	16.00'	**390.0' long x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=10.00' (Free Discharge)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond S2: Temporary Sedimentation Basin

Inflow Area = 21.923 ac, 0.00% Impervious, Inflow Depth = 2.24" for 10 Year event
Inflow = 55.91 cfs @ 12.10 hrs, Volume= 4.086 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 9.63' @ 24.40 hrs Surf.Area= 74,381 sf Storage= 177,976 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	6.00'	364,515 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
6.00	14,597	544.0	0	0	14,597
8.00	59,343	1,017.0	68,915	68,915	73,374
10.00	77,974	1,219.0	136,894	205,808	109,386
12.00	80,741	1,275.0	158,707	364,515	120,777

Device	Routing	Invert	Outlet Devices
#1	Primary	11.99'	**200.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=6.00' (Free Discharge)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

NORTH FILL SITE PREPARATION

PERIMETER BERMS TO BE CONSTRUCTED OF ON-SITE GRANULAR SOILS OBTAINED FROM THE REMOVAL OF THE INTERIOR CONTAINMENT BERMS OR WITH THE IMPORTED FILL AS NEEDED. REFER TO DRAWING C-301, DEMOLITION SITE PLAN.

DURING FILLING OPERATIONS ALL STORMWATER TO BE DIRECTED SOUTHERLY TOWARDS AND THROUGH THE SEDIMENT DIKE

PREVIOUS LOCATION OF INTERIOR BERM (REMOVED AS PART OF SITE PREPARATION ACTIVITIES)

SEDIMENT DIKE (SEE DETAIL C/C-301)

PERIMETER EROSION SEDIMENT CONTROL TO BE INSTALLED PRIOR TO ANY FILLING AT THE SITE. SEE DETAIL SHEET C-301

CB 1
RIM = 19.0
INV OUT=15.00 S

121.2 LF 18" HDPE @ 1.65%

DOGHOUSE MANHOLE 1
RIM = 15.0
INV IN=13.00 N
INV OUT = TO BE COORDINATED IN FIELD BY OWNER

WATERWAY LICENSE #62
DEED BOOK 274 PAGE 526
PILE SUPPORTED WHARF

WATERWAY LICENSE #6053
DEED BOOK 1071 PAGE 153
BUILD PIPE TRESTLE

PUMPING RECOVERY WELL

LICENSE #4047
287 PAGE 86
MOORING DOLPHIN

LIMIT OF COASTAL BEACH

FEMA ZONE VE
(EL.17.0)

MEAN HIGH WATER EL.3.1

LIMIT OF 25' WIDE RIVERFRONT AREA

SALT MARSH

TOP OF COASTAL BANK

LIMIT OF LAND SUBJECT TO COASTAL STORM FLOWAGE (EL.15.0)

TOP OF COASTAL BANK

100-FOOT BUFFER ZONE (FROM TOP OF COASTAL BANK)

LIMIT OF 100' BUFFER ZONE (TOP OF COASTAL BANK)

APPROXIMATE LOCATION OF EXISTING STORMWATER DISCHARGE (CURRENT NPDES PERMIT)

SALT MARSH

COASTAL BEACH

FEMA ZONE VE
(EL.17.0)

BORDERING VEGETATED WETLAND

HISTORIC DISCHARGE POINT

FEMA ZONE VE
(EL.17.0)

TOP OF COASTAL BANK

LAND SUBJECT TO COASTAL STORM FLOWAGE EL.15.0

PERIMETER ROAD

FEMA ZONE AE
(EL.15.0)

FEMA ZONE X

WAREHOUSE

LOADING RACKS

OIL/WATER SEPARATOR

PUMPING STATION

OFFICE

OIL/WATER SEPARATOR (DISCONNECTED)

FEMA ZONE AE
(EL.15.0)

WAYLAND STREET

ALTON STREET

HERMAN STREET

ROUTE 79

ROUTE 79 RAMPS

0 80' 160'
SCALE: 1" = 80'

Tighe&Bond

DRAFT

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Project Plan Update

Weaver's Cove Industrial Park, LLC

Fall River, Massachusetts

MARK	DATE	DESCRIPTION
2	4/1/2026	DAM EDITS
1	2/17/2026	DAM EDITS

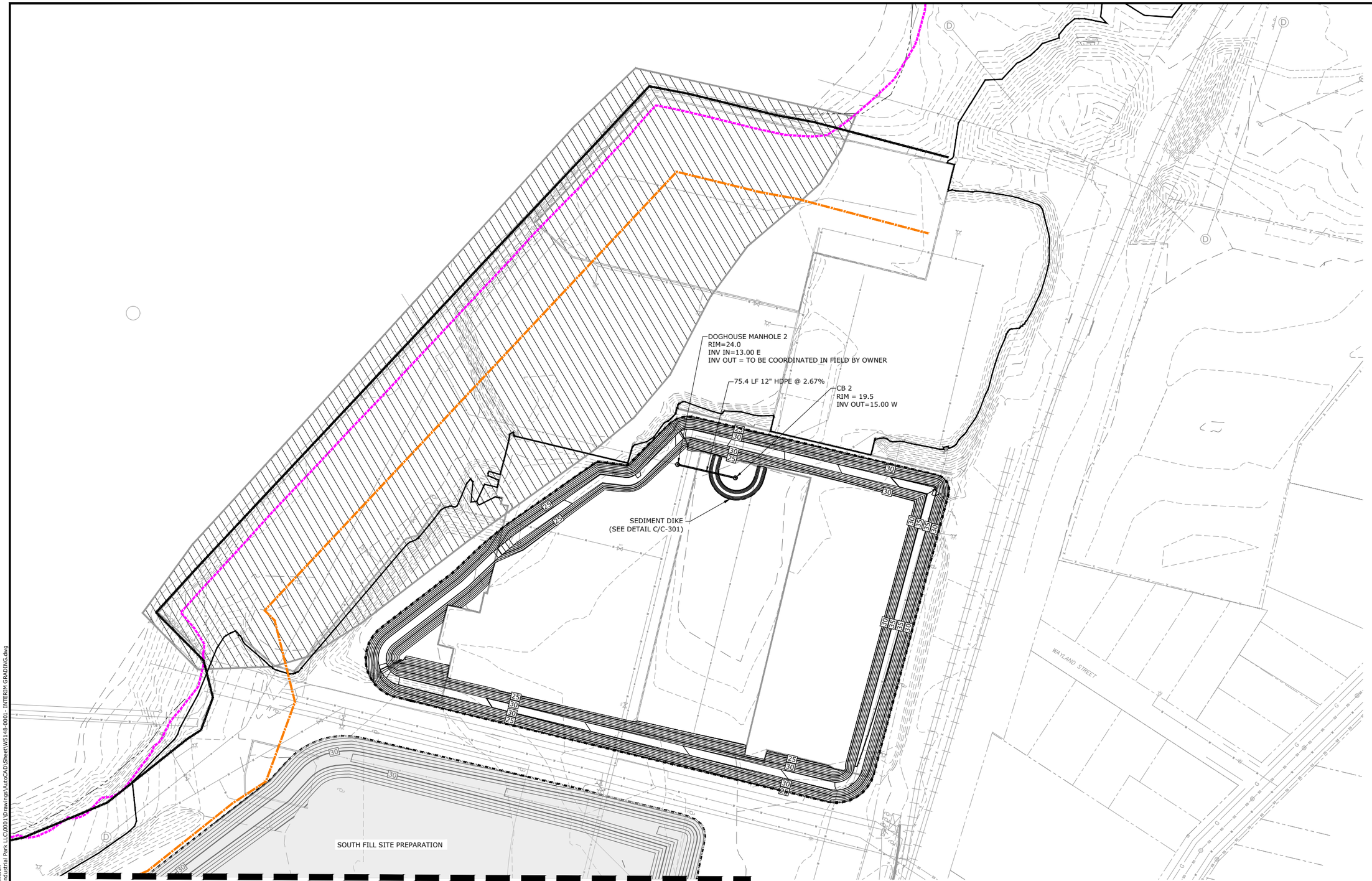
PROJECT NO:	W5148-0001
DATE:	02/2025
FILE:	W5148-0001- INTERIM GRADING.dwg
DRAWN BY:	ASC
DESIGNED/CHECKED BY:	DGM
APPROVED BY:	

SOUTH FILL INTERIM GRADING CONDITIONS

SCALE: 1" = 150'

C-101
SHEET 07 OF 12

Last Saved: 4/1/2026
Plotted: Apr 01, 2026 12:58pm By: ACameron
Tighe & Bond J:\W\W5148 Weavers Cove Industrial Park LLC\0001\Drawings\AutoCAD\Sheet\W5148-0001- INTERIM GRADING.dwg



NOTES:
1. NORTH FILL PERIMETER CONTAINMENT BERM TO BE CONSTRUCTED WITH STORMWATER CONTROLS PRIOR TO FILLING INTERIOR.
2. EXTERIOR SIDESLOPES AND TOPO TO BE STABILIZED WITH 8" OF RECYCLED ASPHALT, BRICK, AND CONCRETE MEETING DEP ABC POLICY.

0 80' 160'
SCALE: 1" = 80'

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Project Plan Update

Weaver's Cove Industrial Park, LLC

Fall River, Massachusetts

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APPROVED BY:	

NORTH FILL INTERIM GRADING CONDITIONS

SCALE: 1" = 150'

C-102
SHEET 08 OF 12

Last Saved: 4/1/2026
Printed: Oct 01, 2026-12:58pm By: ACameron
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APPENDIX F

LONG-TERM POLLUTION PREVENTION AND STORMWATER MANAGEMENT SYSTEM OPERATION AND MAINTENANCE PLAN

WEAVER'S COVE INDUSTRIAL PARK
FALL RIVER, MASSACHUSETTS

February 2026

Prepared for:

WEAVER'S COVE INDUSTRIAL PARK, LLC

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Section 2 Responsible Parties

Section 3 Long Term Pollution Prevention Plan

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Section 1
Introduction and Purpose

The following Long-Term Pollution Prevention and Stormwater Operations and Maintenance (O&M) Plan has been prepared for the stormwater management system at the proposed Weaver's Cove Industrial Park project in Fall River, Massachusetts. The purpose of the plan is to provide guidance and procedures for proper pollution prevention and stormwater management system maintenance following construction completion.

The proposed project has been designed in compliance with the Massachusetts Department of Environmental Protection (MassDEP) Stormwater Handbook to maintain or improve stormwater runoff quality. The stormwater management system components shall be maintained as recommended in the Massachusetts Stormwater Handbook.

Section 2
Responsible Parties

Weaver's Cove Industrial Park, LLC is responsible for maintaining and servicing the site driveway, buildings, paved and unpaved parking and storage areas, landscaping, and utility infrastructure post-construction. The property is owned by Weaver's Cove Industrial Park, LLC.

Property Owner:

Weaver's Cove Industrial Park, LLC
84-87 Boston Street
Everett, Massachusetts 02149

Owner Signature, date: _____

Maintenance Contact:

William J. Thibeault
84-87 Boston Street
Everett, Massachusetts 02149

Maintenance Contact
Signature, date: _____

Section 3
Long Term Pollution Prevention Plan

3.1 Good Housekeeping

The goal of the good housekeeping policy is to keep the site in a clean and orderly condition. A disorderly site can lead to improper materials management and can reduce the efficiency of any response to potential pollution problems.

The following good housekeeping measures will be followed at the site to aid in pollution prevention:

- Promptly clean and remove any spills or contamination from vehicles or other services.
- Perform preventative maintenance on the structural components of the stormwater system.
- Properly dispose of refuse.

3.2 Potential Sources of Pollution

The following sources of pollution are anticipated as part of the long-term use of the project.

Pollutant-Generating Activity	**Pollutants or Pollutant Constituents** (that could be discharged if exposed to stormwater)
Vehicular Access	Petroleum, concrete, vehicle fluids, paints, solvents
Solid waste storage	Construction debris, trash
Equipment use	Hydraulic oils, fluids, antifreeze, coolant

3.3 General Spill Prevention and Response

In the event of a spill, the following procedures shall be followed by the Maintenance Contact or their authorized representative:

- Manufacturer's recommended methods for cleanup will be clearly posted and facility personnel will be made aware of the procedures and the location of the information and clean up supplies.
- Materials and equipment necessary for spill cleanup will be kept in the material storage areas at the facility. Equipment and materials will include but not be limited to brooms, dustpans, mops, rags, gloves, goggles, kitty litter, sand, sawdust and plastic or metal trash containers specifically for this purpose.
- All spills will be cleaned up immediately after discovery.
- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with hazardous substances.

- Spills of toxic or hazardous material will be reported to the appropriate state or local government agency regardless of size.
- The Spill Prevention Plan will be adjusted to include measures to prevent this type of spill from recurring and how to cleanup the spill if it recurs. A description of the spill, its cause and the cleanup measures will be included.
- The Maintenance Contact is responsible for day to day operations will be the spill prevention and cleanup coordinator.

3.3.1 Federal and State Spill Notification

In accordance with 310 CMR 40.0333, the Maintenance Contact shall notify the Massachusetts Department of Environmental Protection (Southeast Region) - (508)-946-2700 the Local Emergency Planning Committee (LEPC) (if applicable) and any other authorities or agencies within two hours if an accident or other type of incident results in a release to:

- land
  - 10 Gallons for more Oils (PCB<500 ppm)
  - 1 Gallon or more Oils (PCB ≥500 ppm)
- waterways
  - Any quantity of Oils
- Or, triggers the exposure to toxic chemical levels as listed in 301 CMR 40.1600, Revised Massachusetts Contingency Plan (MPC)

The Maintenance Contact shall notify the National Response Center (NRC) at **(800) 424-8802** where a leak, spill, or other release containing a hazardous substance or oil in an amount equal to or in excess of a reportable quantity consistent with Part 2.3.3.4c and established under either 40 CFR Part 110, 40 CFR Part 117, or 40 CFR Part 302, occurs during a 24-hour period.

In either event, the Maintenance Contact will work with state and federal agencies to ensure that all appropriate forms and reports are submitted in a timely manner.

- Note: Trigger volumes for other chemical spills vary. Contact the MassDEP or a Licensed Site Professional (LSP) for specific guidance on reporting thresholds and requirements for other chemicals.

3.3.2 Local Notification

The following local agencies will be called to provide emergency assistance at the facility on the judgment of the Maintenance Contact:

Fire Department 911 or (508) 324-2740	Police Department 911 or (508) 676-8511
Hospital: Charlton Memorial Hospital (508) 679-3131	Department of Public Works: (508) 324-2584

3.4 Storage, Handling, and Disposal of Materials and Wastes

The following procedures shall be followed throughout the facility when storing, handling and disposing of various materials.

3.4.1 Pesticides, Herbicides, Insecticides, Fertilizers, and Landscaping Materials

- Store new and used materials in a neat, orderly manner in their appropriate containers in a covered area. If storage in a covered area is not possible, the materials shall be covered with polyethylene or polypropylene sheeting to protect them from the elements.
- Storage area should include precautions to contain any potential spills.
- Immediately contain and clean up any spills with absorbent materials.
- Apply at a rate and in amounts consistent with manufacturer's specifications, or document departures from the manufacturer's specifications.
- Apply at the appropriate time of year for the site, and preferably timed to coincide as closely as possible to the period of maximum vegetation uptake and growth
- Avoid applying before heavy rains that could cause excessive nutrients to be discharged
- Never apply to frozen ground
- Never apply to stormwater conveyance channels with flowing water
- Follow all federal, state, tribal, and local requirements regarding fertilizer application.

3.4.2 Hazardous or Toxic Waste

- Store new and used materials in a neat, orderly manner in their appropriate containers in a covered area. If storage in a covered area is not possible, the materials shall be covered with polyethylene or polypropylene sheeting to protect them from the elements.
- Storage areas should include precautions to contain any potential spills.
- Immediately contain and clean up any spills with absorbent materials.
- Have equipment available in fuel storage areas and in vehicles to contain and clean up any spills that occur.
- To prevent leaks, empty and clean hazerdous waste containers before disposing of them.
- Never remove the original product label from the container because it contains important safety information. Follow the manufacturer's recommended method of disposal, which should be printed on the label.
- Never mix excess products when disposing of them, unless specifically recommended by the manufacturer.

3.4.3 Domestic Waste

- Site property manager shall designate a waste collection area on the site that does not receive a substantial amount of runoff from upland areas and does not drain directly to a water body.
- Ensure that containers have lids so they can be covered before periods of rain and keep containers in a covered area whenever possible.
- Schedule waste collection to prevent the containers from overfilling.
- Clean up spills immediately. For hazardous materials, follow cleanup instructions on the package. Use an absorbent material such as sawdust or kitty litter to contain the spill.

Section 4
Stormwater Management System

4.1 Inspections

Inspections will be performed in accordance with the Massachusetts Department of Environmental Protection (MassDEP) Stormwater Handbook. All inspections should be logged using the Inspection Forms provided in Section 5.

The following stormwater management features will be evaluated during each inspection:

4.1.1 Vegetated Surfaces

Inspection Frequency: Bi-annually in Summer and Winter

Special Inspection Event(s): Spring Snow Melt

All vegetative surfaces will be observed to identify locations of settlement, erosion and other impacts from the proposed redevelopment. Areas of settlement and erosion that may result in a discharge of sediment into Waters of the Commonwealth shall be repaired and restored to a vegetated condition.

4.1.2 Access Road Sweeping

Inspection Frequency: Quarterly

Special Inspection Event(s): Spring Snow Melt

All pavement surfaces should be inspected annually for deterioration or spalling. Additionally, the pavement surface should be regularly monitored to make sure it drains properly after storms. Cleanings should be conducted on a quarterly basis to prevent clogging. For best management practices, high-efficiency vacuum sweeping machines should be used to clean and maintain the surface.

Section 5 Operation and Maintenance Log Form

Date: _____

Person conducting Inspection: _____

Reason for Inspection (Routine / Significant Rainfall): _____

Stormwater Management System Components:

Vegetated Surface

Component inspected during this inspection _____

Any Repair Necessary _____

Other Comments _____

Access Road Sweeping

Component inspected during this inspection _____

Any Repair Necessary _____

Other Comments _____

Any Repair Necessary _____

Other Comments _____

Section 6
Snow Management & De-Icing

Snow removal will occur along New Street and Peat Street. Snow storage should not be in or adjacent to wetland areas.

Applications of chemical de-icing may be applied along with sand for the roads, main entrances, stop sign areas, and sidewalks. Apply only as needed using minimum quantities. Small quantities of deicers may be mixed with sand or sprayed on hard to maintain areas.

Sweep or clean up accumulated sand, sidewalks, steps, and roads as soon as possible after the road surface clears.

Section 7
Estimated O&M Budget

The following estimated O&M Budget includes the inspections and maintenance activities previously described on an annual basis.

Maintenance Component	Quantity	Frequency (per year)	Unit Cost	Annual Cost
Vegetated Surfaces	-	4	$100	$400
Access Road Sweeping	-	4	$250	$1,000
			Total Annual Estimated Budget	**$1,400**

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