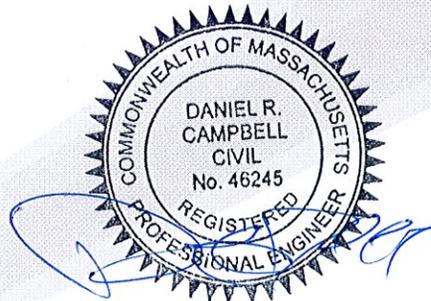


STORMWATER REPORT
FOR
FACTORY SQUARE
3, 5 & 7 FISHER STREET
FRANKLIN, MASSACHUSETTS



JULY 1, 2021

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LDG Project No.:
1899.00

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HYDROLOGIC SUMMARY

METHODOLOGY

The HydroCAD computer program (HydroCAD) was used to model the existing and proposed hydrology of the site and design a stormwater management system. HydroCAD generates flood hydrographs dependent upon the type of land use, vegetation, soil types, land slope, watershed areas and rainfall data. HydroCAD also takes into account the antecedent moisture condition of the soil. The peak rate of runoff and volume of runoff are projected for the input storm frequency events (design storms).

Rainfall data was obtained from the Northeast Regional Climate Center and are based on Extreme Precipitation Events for the 2” Storm Event and the 2-, 10-, 25- and 100-year return periods Plainville, Massachusetts. A 24-hour type III rainfall distribution was used in the HydroCAD analysis as prescribed for New England by the Northeast Regional Climate Center. A copy of the precipitation table is included herein.

PRE-DEVELOPMENT CONDITIONS

The existing site is located at 3, 5 & 7 Fisher Street in Franklin, MA. The majority of the site is developed with old factory and mixed use buildings. A small area of the site to the south east is undeveloped but is landscaped with grass and existing mature trees. The Site is bounded by West Central Street to the north, Fisher Street to the east, Hayward Street to the south and an existing BVW to the west. The adjacent properties to the roadways are residential with exception toward the southwest are more commercial facilities. The development site is approximately 14.7 ± Acres with approximately 85% of the existing property being developed with various sized and use buildings, pavement and utilities. Existing ground cover of the site includes the asphalt pavement and building footprint. The existing site does contain a formal stormwater management system which ultimately drains to the Bordering Vegetated Wetlands to the West.

The majority of the site is defined as redevelopment. The existing stormwater system serves the existing building and pavement and will be utilized to the maximum extent feasible for the redevelopment project. Approximately 10,000 s.f. of pavement and roof area will be removed and replaced with green space. This reduction in impervious area will cause runoff to be reduced for the redevelopment portion of the site. Due to the complexity of the existing utility systems the applicant is proposing to re-use the current configuration where feasible. Modified piping and drainage where necessary in the redevelopment area is shown on the site plans. The redevelopment area has not been

modeled for pre- and post- runoff due to the reduction of impervious area and the implied reduction of runoff to the same drainage point (the westerly BVW system).

The on-site soils as classified by the Soil Survey for Norfolk County Massachusetts, the redevelopment portion of the site area is classified as Urban Land. The new construction area of new parking is located in an area of Udorthents sandy, Hydrologic Soil Group A which are soils having a high infiltration rate (low runoff potential) when thoroughly wet. These soils consist mainly of deep, well drained to excessively drained sands or gravelly sands. Based on test pits done by Level Design Group, LLC parent material of the area for new construction is a Medium Gravelly Sand with a classification of HSG A. Please see the SCS soils documentation attached herein.

POST-DEVELOPMENT CONDITIONS

The Applicant is proposing to redevelop the site and renovate and rehab the existing buildings for a mixed-use development. A portion of the existing buildings will be demolished and replaced with parking, patios and green space. The existing catch basins and drainage in those area will be re-used to capture the runoff from the reconfigured impervious areas. Impervious areas will be reduced for the redevelopment areas and due to the complexity of the site the existing drainage will stay in place to the maximum extent feasible and no additional calculations will be provided for the existing system. During construction, if it is determined that a portion of the existing system is failing or inadequate, the engineer shall be consulted and a replacement or redesign of those components will be considered.

A new fully compliant stormwater management system has been designed to support the area of new construction in the southeast corner of the property. The newly designed parking lot will collect the runoff, treat it, and infiltrated the runoff into a subsurface infiltration system. Deep sump catch basins will capture the runoff, then it will be routed through proprietary treatment structures, then infiltrated after pretreatment has been achieved. Runoff from the impervious areas and building rooftops will be directed to two infiltrating BMPs.

A fully compliant stormwater management system for the new construction portion of the site addressing compliance with the 10 MADEP Stormwater Standards will be part of the site redevelopment. Site improvement have been made to the maximum extent practicable in accordance with MADEP Stormwater Regulations.

STANDARD 1: Untreated Discharges

Stormwater Management Standard 1 requires that, “No new stormwater conveyances (e.g. outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth”.

This standard is met by the proposed redevelopment not creating any new non-treated stormwater discharges and the new construction portion of the site (no parking area) being in full compliance with the stormwater management standards. All surface runoff from the proposed impervious surfaces is collected by the proposed stormwater management practices, treated for suspended solids removal, infiltrated for groundwater recharge and detained for peak flow mitigation prior to discharge to

designated areas which mimic existing drainage flow patterns. The redevelopment portion of the site is a minor improvement to the existing conditions by reducing impervious areas and introducing additional treatment in areas where new deep sump catch basins are required to support the new site configuration.

STANDARD 2: Peak Rate Control and Flood Prevention

Stormwater Management Standard 2 requires that, “Stormwater management systems must be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates. This Standard may be waived for land subject to coastal storm flowage.”

This standard is met by the proposed redevelopment by reducing impervious area and the runoff from those areas for the portion of the site that is re-development. The BVW at the westerly side of the property is the final drain point of the redevelopment portion of the site. Pre- and Post- development calculations have not been provided due to the complexity of the piping system but it is assumed that the post development runoff is decreased due to the reduced impervious area.

The other control point on site is the area of the new parking lot (new construction) at the southeasterly end of the site. This entire area will be a new paved parking lot with associated landscape islands and drainage system. The runoff from this entire parking area is routed into a subsurface drainage system that is designed to infiltrate up to the 100-year storm event. The proposed system is also designed with an overflow structure in the event of a larger storm event. Runoff from this catchment area is reduced to zero as a result of the new proposed system. Pre- and Post- drainage calculations are not provided for this area as the Post- peak flow and runoff volume is reduced to zero.

The net peak discharge and volume is controlled and does not increase at either of the two design areas.

STANDARD 3: Recharge to Groundwater

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

This standard is fulfilled by directing all surface from the new parking lot to the new infiltration basin. The systems is designed to fully infiltrate less intense storm events. In the case of a high intensity storm event, the systems is fitted with an overflow which will convey the excess stormwater into the existing drainage system. The redevelopment portion of the site will have a slight improvement for groundwater recharge by introducing more green space and landscape islands. Below is a detailed calculation demonstrating full compliance with the recharge to groundwater requirements.

GROUND WATER RECHARGE

The on-site soils Soil Survey for Norfolk County Massachusetts, Southern Part are documented as HSG A. Based on test pits done by Level Design Group, LLC the parent material is a Medium Gravelly Sand with a hydrologic soil group classification of HSG A. Based on test pit data an infiltration rate of 8.27 inches per hour was used based on the Rawls Rates for the soils identified in the test pits (MADEP Stormwater Handbook Volume 3, Chapter 1, Page 22).

The total new construction pavement/ impervious area totals 70,278 ± s.f. The required recharge volume is calculated as follows.

Required Recharge Volume for the Development = (70,278 ± s.f of impervious area) x (0.60 in of runoff for hydrologic soil group A) x (1 ft./12 in.)= ± **3,513cu. ft. required.**

The subsurface system **provides 13,796 cu. ft.** of storage at approximately the 100-year elevation prior to any overflow discharge. Recharge OK

Water used to satisfy the recharge to groundwater standard is collected from the impervious pavement surfaces, pre-treated and then discharged to the infiltration BMP's. The Static Method of Recharge Volume was utilized to calculate recharged groundwater.

STANDARD 4: 80% TSS Removal

Stormwater Management Standard 4 requires that, "Stormwater management systems must be designed to remove 80% of the average annual post-construction of Total Suspended Solids (TSS). This standard is met when:

- a. Suitable practices for source control and pollution prevention are identified in a long-term pollution prevention plan and thereafter are implemented and maintained;
- b. Stormwater BMPs are sized to capture the required water quality volume determined in accordance with the Massachusetts Stormwater Handbook and;
- c. Pretreatment is provided in accordance with the Massachusetts Stormwater Handbook"

This standard is met by collecting all surface runoff from all paved areas with deep sump and hooded catch basins. This flow is then treated by a Hydro International First Defense Treatment Units prior to discharge to a subsurface infiltration basin, providing greater than the required 80% TSS removal as detailed in the attached MADEP TSS Removal Calculation Sheets.

Water Quality Calculations:

The volume of stormwater runoff to be treated for water quality, for discharges to "critical areas", is calculated as one inch times the total post-development impervious area of the site. The water quality volume calculation is detailed below.

Total Site Imperious Area= 70,278 s.f
1.0 inch x 1 foot/12 inches= 0.0833 feet
0.0833 feet x 70,278± s.f = ± 5,854 cu.ft.

Total Volume to be treated for Water Quality= 13,796 ± cu.ft.

As detailed above, the infiltration basin provides a total volume of 13,796 ± cu.ft. below the outlet satisfying the water quality standard. To achieve the required 44% TSS removal prior to flow being infiltrated within a Groundwater Protection District a variety of structural practices area utilized. A MADEP TSS Removal Sheet is included herein for the subsurface infiltration system. The impervious area includes the new construction area consisting of the new parking lot at the south easterly portion of the site. 44% TSS removal is achieved for each system prior to flows being infiltrated.

STANDARD 5: Higher Potential Pollutant Loads

Stormwater Management Standard 5 requires that, “For land uses with higher potential pollutant loads, source control and pollution prevention shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable. If through source control and/or pollution prevention, all land uses with higher potential pollutant loads cannot be completely protected from exposure to rain, snow, snow melt and stormwater runoff, the proponent shall use the specific stormwater BMPs determined by the Department to be suitable for such use as provided in the Massachusetts Stormwater Handbook. Stormwater discharges from land uses with higher potential pollutant loads shall also comply with the requirements of the Massachusetts Clean Waters Act, M.G.L. c. 2,§26-53, and the regulations promulgated thereunder at 314 CMF 3.00, 314 CMR 4.00 and 314 CMR 5.00.”

The proposed redevelopment of the site does not fall under the classification of a land use with higher potential pollutant loads.

STANDARD 6: Critical Areas

Stormwater Management Standard 6 requires that Stormwater discharge to a Zone II Interim Wellhead Protection Area of a public water supply and stormwater discharges near any other critical area require the use of specific source control and pollution prevention measures and the specific stormwater best management practices determined by the Department to be suitable for managing discharges to such area, as provided in the Massachusetts Stormwater Handbook. A discharge near a critical area, if there is a strong likelihood of a significant impact occurring to said area, taking into account site-specific factors. Stormwater discharges to Outstanding Resource Waters or Special Resource Waters shall be set back from the receiving water and receive the highest and best practical method of treatment. A “stormwater discharge,” as defined in 314 CMR 3.04(2)(a)1. or (b), to an Outstanding Resource Waters or Special Resource Waters shall comply with 314 CMF 3.00 and 314 CMR 4.00. Stormwater discharges to a Zone I or Zone A area prohibited unless essential to the operation of the public water supply.”

The entire site is not located within a Zone II or other critical area.

STANDARD 7: Redevelopment and Other Projects Subject to the Standards only to the Maximum Extent Practicable

The definition of a Redevelopment Project under the definition provided in the MADEP Stormwater Handbook for Standard 7 is listed below:

“Development rehabilitation, expansion and phased projected on previously developed sites, provided that redevelopment results in no next increase in impervious area.”

The proposed development is a combination of a redevelopment and new development as classified by Standard 7. The redevelopment portion of the site is a complex area of existing buildings and the existing systems will be re-used to the extent feasible. A net decrease of impervious cover is proposed for the redevelopment area. Where needed a number of deep sump catch basins are added to increase treatment and to collect runoff in reconfigured areas as needed. The proposed project is in full compliance with the Stormwater Management Standards is detailed in the Stormwater Management Report.

STANDARD 8: Erosion and Sediment Control

Stormwater Management Standard 8 requires that, “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), must be developed and implemented.”

This standard is met by including erosion and sediment controls within the design plans. A gravel construction entrance is proposed at the access point to the site once the pavement is removed from that area of the site. Siltation control fence with straw wattle is proposed at the limits of all site related construction activities. Silt sacks are also proposed to be installed at all of the existing catch basins within the area of the proposed site disturbance. A Construction Period Pollution and Erosion & Sedimentation Control Plan has also been prepared for and is included as part of the Stormwater Report.

STANDARD 9: Operation and Maintenance

Stormwater Management Standard 9 requires that, “A long-term operation and maintenance plan must be developed and implemented to ensure that stormwater management systems function as designed”.

This standard is fully met with development and implementation of an Operation and Maintenance Plan is included in Stormwater Management Report.

STANDARD 10: Illicit Discharges

Stormwater Management Standard 10 requires that, “All illicit discharges to the stormwater management system are prohibited”.

This standard is fully met with development and implementation of a Long Term Pollution Prevention which is included in the Stormwater Management Report. The Owner will have a Spill Prevention, Control, and Countermeasure (SPCC) Plan prepared for the Franklin location which will outline all potential pollution sources and the appropriate measures to be taken should a spill or discharge occur. An Illicit Discharge statement has been prepared and is included herein.

CONCLUSION

The proposed redevelopment of this parcel will be a significant improvement to the area and to the community as a whole as well as providing adequate stormwater management for the property. For years the site has been underutilized and will be redeveloped as a mix use development for the community. The proposed redevelopment and new construction areas meet or exceed the current MADEP Stormwater Management Standards and Guidelines and provides a stormwater management system that will maintain water quality while attenuating peak rates of runoff for the site. This was achieved by reducing impervious areas for the redevelopment portion of the site and using pretreatment BMPs and directing the stormwater runoff to a subsurface infiltration basin which attenuates peak flows while maximizing groundwater recharge and providing high a level of TSS removal. An Operation and Maintenance Plan for post-construction maintenance of the Stormwater Management System has been developed and is included with this report.



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 8²
- 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.



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.

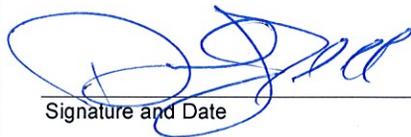
A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

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



 7/6/21
Signature and Date

Checklist

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

- New development
- Redevelopment
- Mix of New Development and Redevelopment



Checklist for Stormwater Report

Checklist (continued)

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

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

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 Field¹
- 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.

To be completed at the end of permitting for review by the Town selected review Engineer



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.

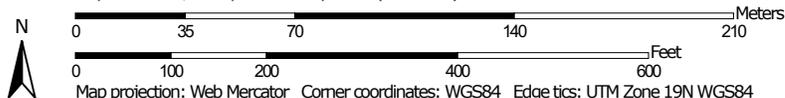


Hydrologic Soil group Survey

Soil Map—Norfolk and Suffolk Counties, Massachusetts
(5 FISHER REDEVELOPMENT)



Map Scale: 1:2,400 if printed on A portrait (8.5" x 11") sheet.



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



Soil Map—Norfolk and Suffolk Counties, Massachusetts
(5 FISHER REDEVELOPMENT)

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Norfolk and Suffolk Counties, Massachusetts
Survey Area Data: Version 16, Jun 11, 2020

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

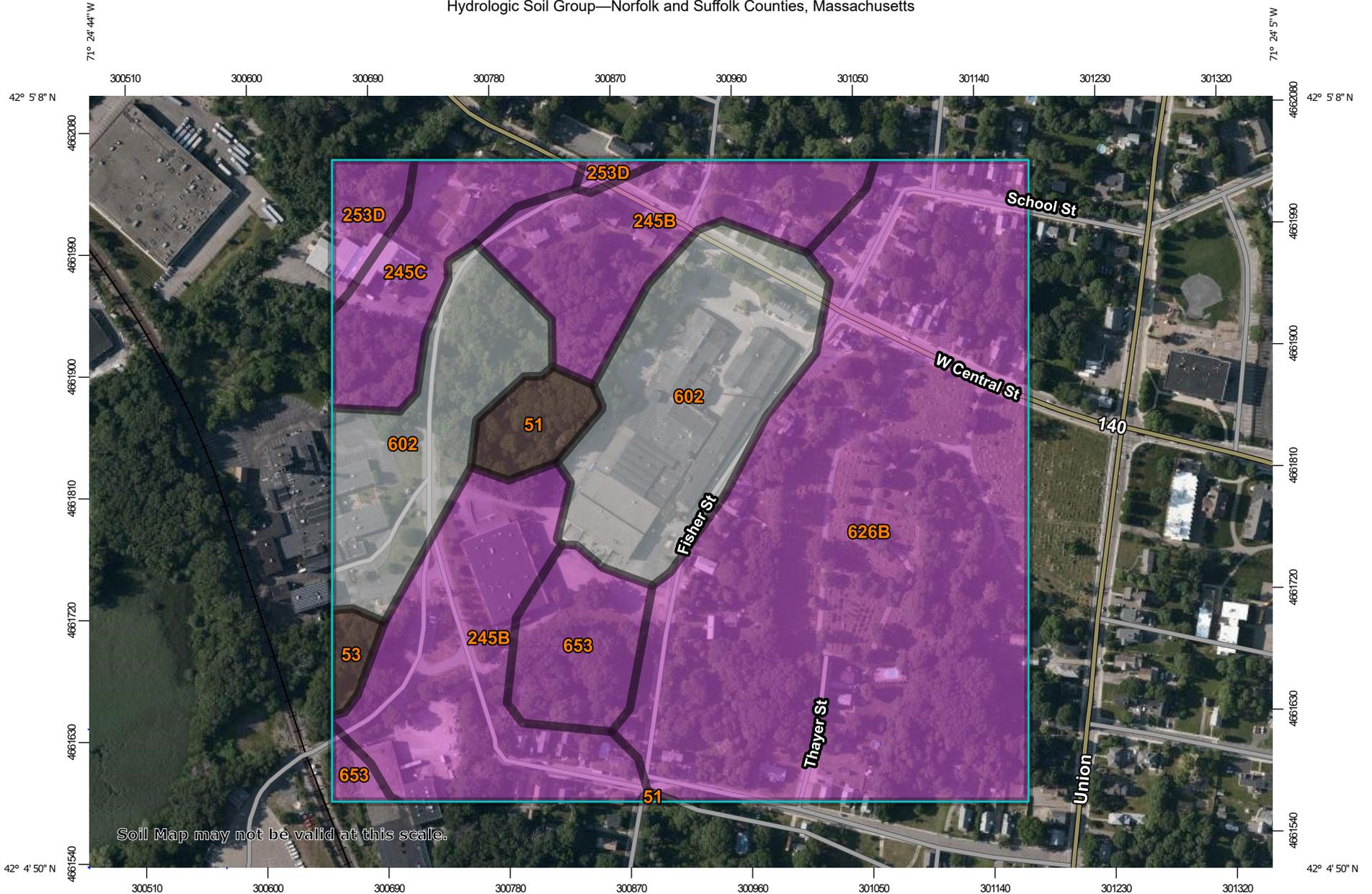
Date(s) aerial images were photographed: Jul 5, 2019—Jul 8, 2019

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

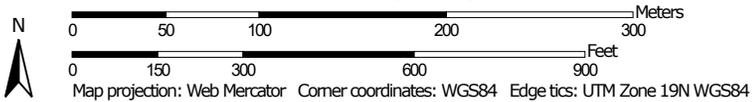
Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
51	Swansea muck, 0 to 1 percent slopes	1.3	7.4%
245B	Hinckley loamy sand, 3 to 8 percent slopes	3.4	19.7%
602	Urban land, 0 to 15 percent slopes	8.9	51.6%
626B	Merrimac-Urban land complex, 0 to 8 percent slopes	1.0	5.7%
653	Udorthents, sandy	2.7	15.6%
Totals for Area of Interest		17.3	100.0%

Hydrologic Soil Group—Norfolk and Suffolk Counties, Massachusetts



Map Scale: 1:4,020 if printed on A landscape (11" x 8.5") sheet.



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 1:25,000.

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

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

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

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

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

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

Soil Survey Area: Norfolk and Suffolk Counties, Massachusetts
 Survey Area Data: Version 16, Jun 11, 2020

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

Date(s) aerial images were photographed: Jul 5, 2019—Jul 8, 2019

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

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
51	Swansea muck, 0 to 1 percent slopes	B/D	1.3	2.2%
53	Freetown muck, ponded, 0 to 1 percent slopes	B/D	0.5	0.8%
245B	Hinckley loamy sand, 3 to 8 percent slopes	A	12.5	20.6%
245C	Hinckley loamy sand, 8 to 15 percent slopes	A	3.5	5.8%
253D	Hinckley loamy sand, 15 to 35 percent slopes	A	1.3	2.1%
602	Urban land, 0 to 15 percent slopes		12.8	21.1%
626B	Merrimac-Urban land complex, 0 to 8 percent slopes	A	25.8	42.4%
653	Udorthents, sandy	A	3.1	5.0%
Totals for Area of Interest			60.9	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.

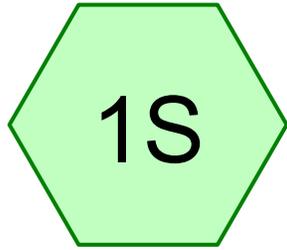
Rating Options

Aggregation Method: Dominant Condition

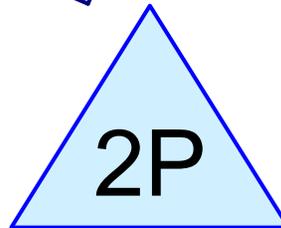
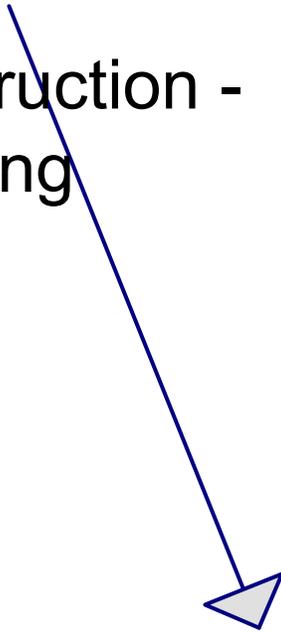
Component Percent Cutoff: None Specified

Tie-break Rule: Higher

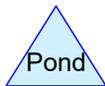
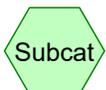
HydroCAD Calculations



New Construction -
Parking



Subsurface System



Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.142	39	>75% Grass cover, Good, HSG A (1S)
1.613	98	Paved parking and Roof, HSG A (1S)
1.756		TOTAL AREA

Soil Listing (all nodes)

Area (acres)	Soil Goup	Subcatchment Numbers
1.756	HSG A	1S
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.000	Other	
1.756		TOTAL AREA

fisher

Prepared by CAI

HydroCAD® 9.00 s/n 06155 © 2009 HydroCAD Software Solutions LLC

Type III 24-hr 100-Yr Rainfall=7.20"

Printed 7/5/2021

Page 4

Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: New Construction -

Runoff Area=76,475 sf 91.90% Impervious Runoff Depth=6.37"

Tc=6.0 min CN=93 Runoff=11.75 cfs 0.932 af

Pond 2P: Subsurface System

Peak Elev=22.34' Storage=13,638 cf Inflow=11.75 cfs 0.932 af

Outflow=1.24 cfs 0.932 af

Total Runoff Area = 1.756 ac Runoff Volume = 0.932 af Average Runoff Depth = 6.37"
8.10% Pervious = 0.142 ac 91.90% Impervious = 1.613 ac

Summary for Subcatchment 1S: New Construction - Parking

Runoff = 11.75 cfs @ 12.09 hrs, Volume= 0.932 af, Depth= 6.37"

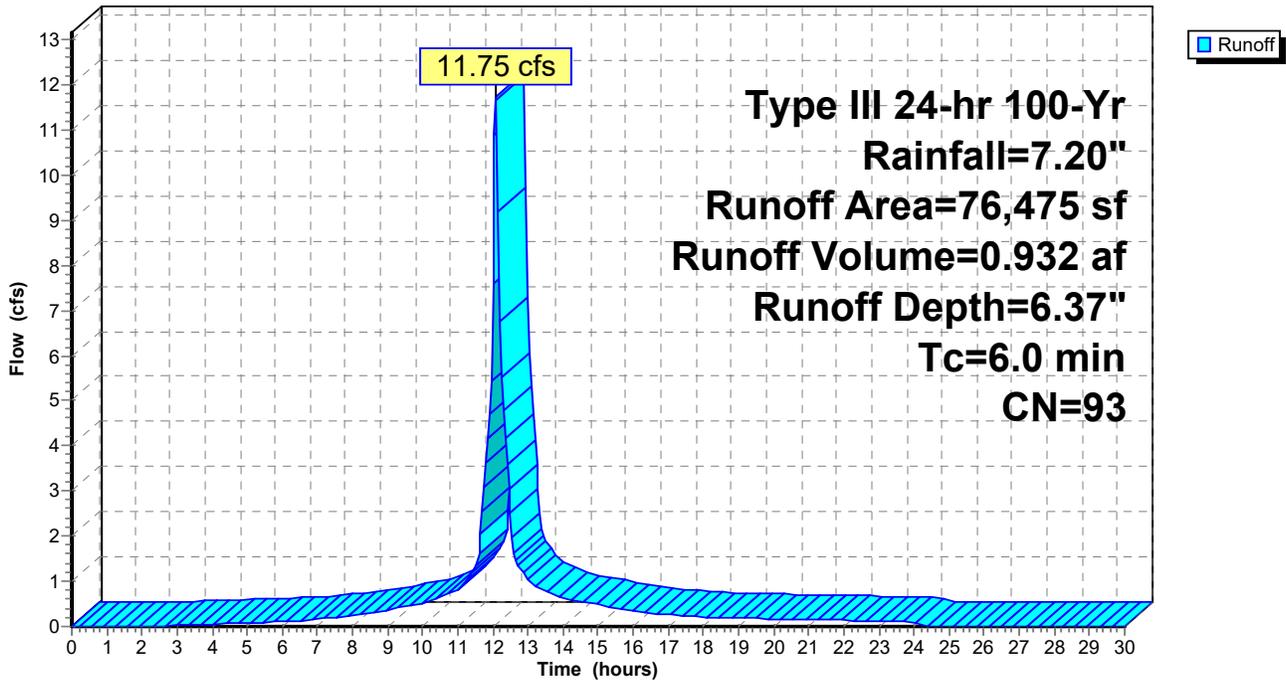
Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-Yr Rainfall=7.20"

Area (sf)	CN	Description
* 70,278	98	Paved parking and Roof, HSG A
6,197	39	>75% Grass cover, Good, HSG A
76,475	93	Weighted Average
6,197		8.10% Pervious Area
70,278		91.90% Impervious Area

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

Subcatchment 1S: New Construction - Parking

Hydrograph



Summary for Pond 2P: Subsurface System

Inflow Area = 1.756 ac, 91.90% Impervious, Inflow Depth = 6.37" for 100-Yr event
 Inflow = 11.75 cfs @ 12.09 hrs, Volume= 0.932 af
 Outflow = 1.24 cfs @ 11.50 hrs, Volume= 0.932 af, Atten= 89%, Lag= 0.0 min
 Discarded = 1.24 cfs @ 11.50 hrs, Volume= 0.932 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 22.34' @ 12.81 hrs Surf.Area= 6,456 sf Storage= 13,638 cf

Plug-Flow detention time= 75.2 min calculated for 0.930 af (100% of inflow)
 Center-of-Mass det. time= 75.1 min (843.1 - 768.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	19.00'	5,694 cf	65.50'W x 98.56'L x 3.50'H Field A 22,595 cf Overall - 8,361 cf Embedded = 14,234 cf x 40.0% Voids
#2A	19.50'	8,361 cf	StormTech SC-740 x 182 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
		14,055 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	19.00'	8.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=1.24 cfs @ 11.50 hrs HW=19.04' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 1.24 cfs)

Pond 2P: Subsurface System - Chamber Wizard Field A

Chamber Model = StormTech SC-740

Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf

Overall Size= 51.0"W x 30.0"H x 7.56"L with 0.44' Overlap

51.0" Wide + 0.0" Spacing = 51.0" C-C

13 Chambers/Row x 7.12' Long = 92.56' + 36.0" End Stone x 2 = 98.56' Base Length

14 Rows x 51.0" Wide + 36.0" Side Stone x 2 = 65.50' Base Width

6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

182 Chambers x 45.9 cf = 8,361.1 cf Chamber Storage

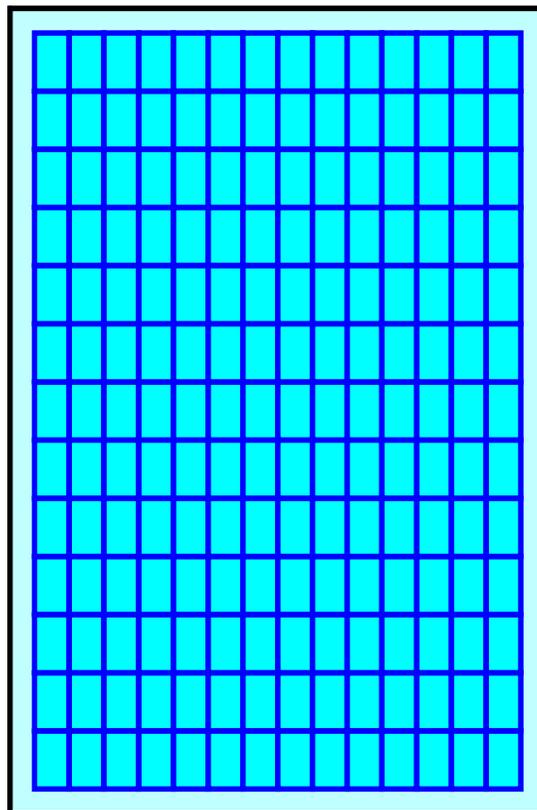
22,594.9 cf Field - 8,361.1 cf Chambers = 14,233.8 cf Stone x 40.0% Voids = 5,693.5 cf Stone Storage

Stone + Chamber Storage = 14,054.6 cf = 0.323 af

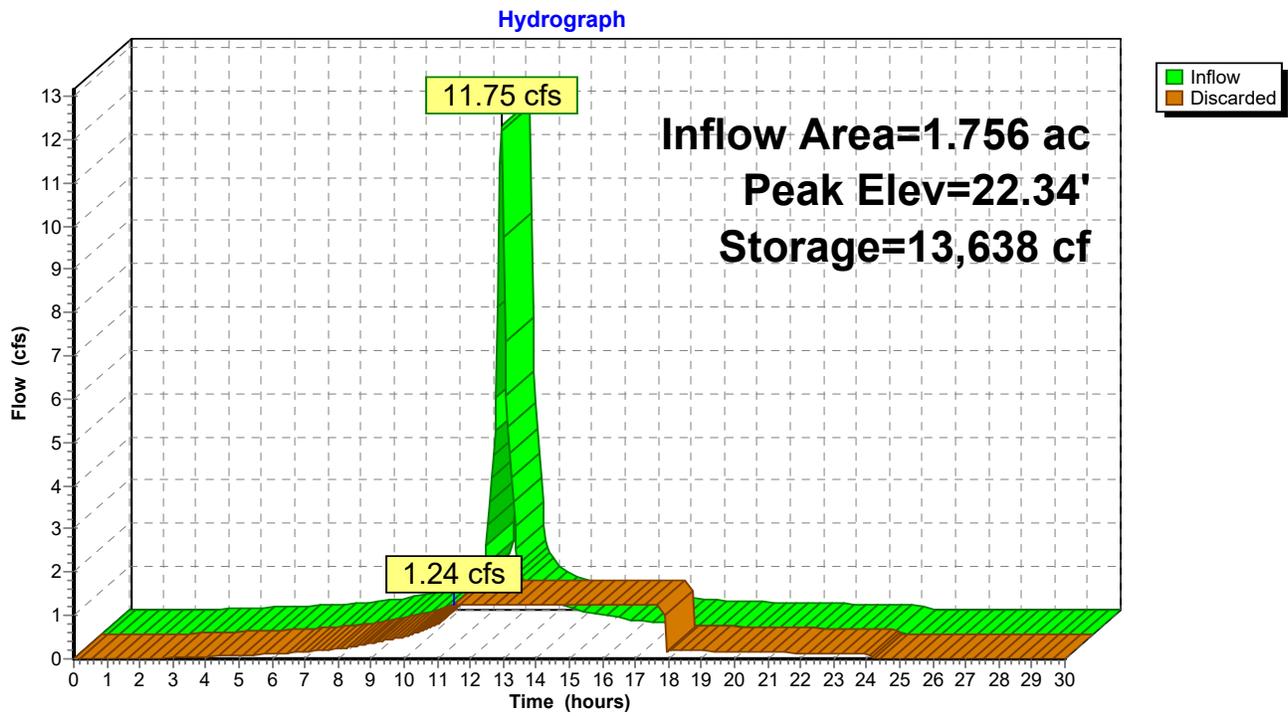
182 Chambers

836.8 cy Field

527.2 cy Stone

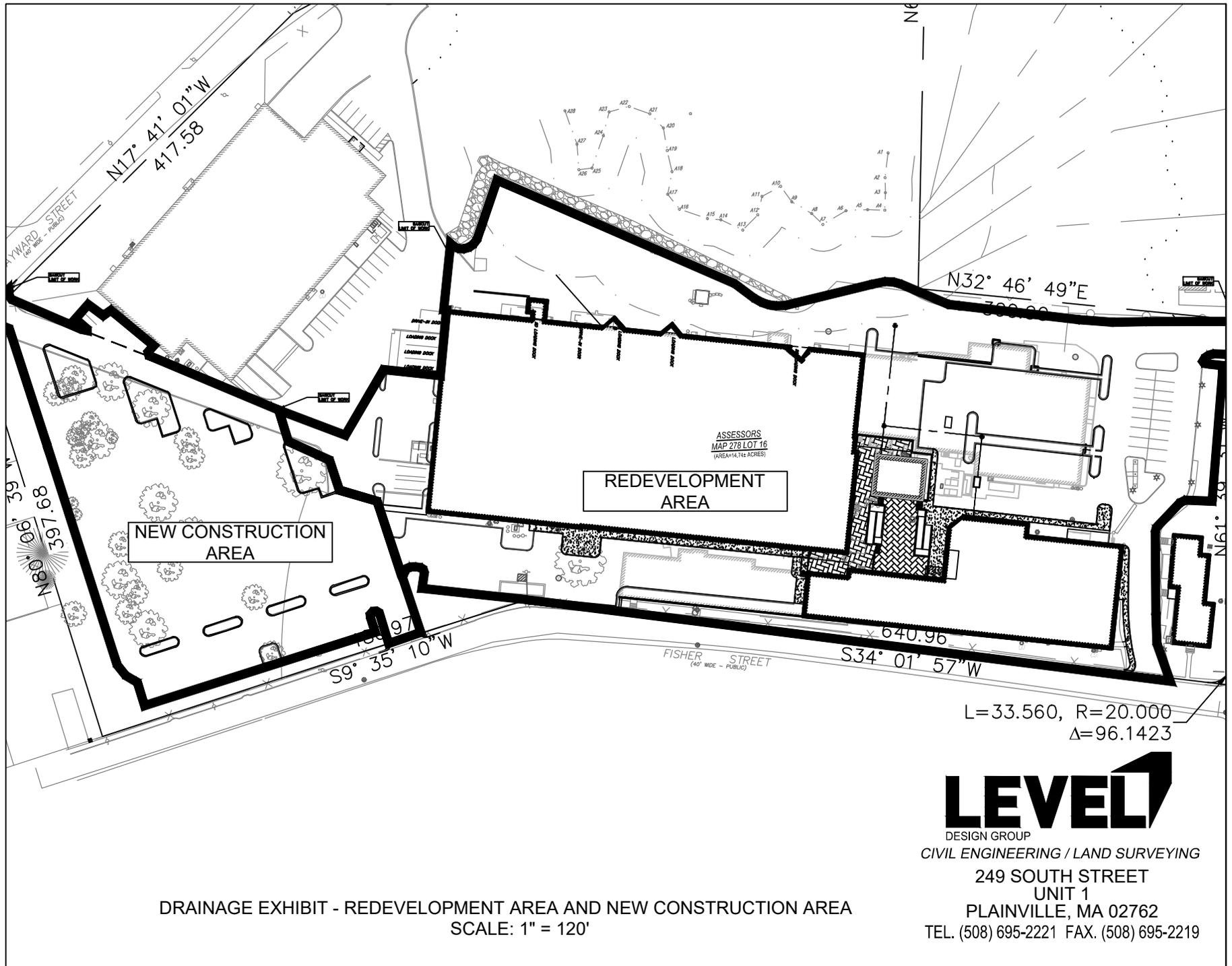


Pond 2P: Subsurface System





Drainage Area plan - Redevelopment and New Construction Areas



DRAINAGE EXHIBIT - REDEVELOPMENT AREA AND NEW CONSTRUCTION AREA
SCALE: 1" = 120'

LEVEL
DESIGN GROUP
CIVIL ENGINEERING / LAND SURVEYING
249 SOUTH STREET
UNIT 1
PLAINVILLE, MA 02762
TEL. (508) 695-2221 FAX. (508) 695-2219

TSS Removal Worksheet

INSTRUCTIONS:

Non-automated: Mar. 4, 2008

1. Sheet is nonautomated. Print sheet and complete using hand calculations. Column A and B: See MassDEP Structural BMP Table
2. The calculations must be completed using the Column Headings specified in Chart and Not the Excel Column Headings
3. To complete Chart Column D, multiple Column B value within Row x Column C value within Row
4. To complete Chart Column E value, subtract Column D value within Row from Column C within Row
5. Total TSS Removal = Sum All Values in Column D

Location:

TSS Removal Calculation Worksheet

A BMP ¹	B TSS Removal Rate ¹	C Starting TSS Load*	D Amount Removed (B*C)	E Remaining Load (C-D)
Deep Sump CB	0.25	1.00	0.25	0.75
Proprietary Treatment	0.30	0.75	0.22	0.53
Subsurface	0.80	0.53	0.42	0.11
Infiltration				

Total TSS Removal =

Separate Form Needs to be Completed for Each Outlet or BMP Train

Project:
 Prepared By:
 Date:

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

Illicit Discharge Statement

For
FACTORY SQUARE
3, 5 & 7 FISHER STREET
(AM 278 PARCEL 16)
FRANKLIN, MASSACHUSETTS

All illicit discharges to the Stormwater Management System are prohibited. The Stormwater Management System is the system for conveying, treating, and infiltrating stormwater. Illicit discharges to Stormwater Management Systems are discharges that are not entirely comprised of stormwater, but do not include discharges from the following activities or facilities:

- Firefighting
- Water Line Flushing
- Potable Water Sources
- Landscape Irrigation
- Potable Water Sources
- Uncontaminated Groundwater
- Air-conditioning Condensation
- Dechlorinated Water from Swimming Pools
- Water used for street washing
- Water used for clean residential buildings without detergents
- Foundation Drains

The site will be operated and maintained in accordance with the Operation and Maintenance Plan dated July 5, 2021 prepared by Level Design Group, LLC.

I, _____ (*Applicant*) do hereby agree to comply with requirements set forth within the Illicit Discharge Statement and will not knowingly discharge illicit materials to the stormwater management system once it is brought online **upon** completion of construction.

Signature: _____

Date: _____

OPERATION AND MAINTENANCE PLAN

FOR
FACTORY SQUARE
3, 5 & 7 FISHER STREET
(AM 278 PARCEL 16)
FRANKLIN, MASSACHUSETTS

JULY 1, 2021

Prepared By:
Level Design Group, L.L.C.
249 South Street, Unit 1
Plainville, MA 02762

Prepared For:
K Fisher Street LLC
1 Fisher Street
Franklin, MA 02052

LDG Project No.:
1899.00

The proposed Stormwater Management System is designed to function properly provided that routine maintenance is performed. It is the responsibility during construction and until final development of the site and/or property and the formation of an Association to be formed that the Owner and Developer, Rick Kaplan (or any other future Owner/Developer), shall be responsible for the long-term maintenance to provide the required maintenance outlined in this plan for the site infiltration systems as well as the remainder of the on-site storm drainage system.

Upon completion of construction and the formation of the Association, maintenance of driveways, catch basins, and the stormwater appurtenances required to ensure that sedimentation and pollution is controlled and that storm water detention and infiltration capacity is sustained are the on-going responsibility of the Association to ensure the proper functioning of these facilities. The connection point of the site drainage system is a Town Drainage system which is currently to be maintained by the Town of Franklin to maintain flow from Alpine Row. The following maintenance practices will be used:

DRIVEWAYS & PARKING AREAS

Spring Maintenance

Driveways and Parking Areas are to be swept monthly to remove sand which has accumulated. Sand shall be removed from the site and legally disposed of.

Summer & Fall Maintenance

Leaves and debris which accumulates within the Driveways and Parking Areas during the summer and fall shall be collected and legally disposed of.

Winter Maintenance & Snow Removal

Snow removal within Driveways and Parking Area shall be stockpiled in the designated Snow Stockpile Areas outside of the traveled driveways. These areas should be located within or adjacent to the parking surface and should drain to the stormwater management system. Under no circumstances shall snow be directed onto abutting parcels or into the on-site resource areas (wetlands, wetland buffer zone, and riverfront areas).

Estimated Yearly Cost \$1,000.00 (not including cost for snow plowing)

GUTTERS AND DOWNSPOUTS

Summer & Fall Maintenance

Leaves and debris which accumulates within the gutters during the summer and fall shall be collected and legally disposed of. Excessive water shall not be introduced to clean the gutters and the downspouts, and materials shall be collected so as not to clog the subsurface basin.

Estimated Yearly Cost \$500.00

CATCH BASINS

Catch basins shall be inspected and cleaned four times per year or when the sumps are 50% full.

Spring Maintenance

Catch basins require the removal of sediment each spring. This procedure is comprised of removing the catch basin grate followed by removal of sediment trapped in the structure with a clamshell shovel. The outlet pipe from the catch basin shall be inspected and any obstructions are to be removed. The sediment and debris removed from the catch basin shall be legally disposed of.

Fall Maintenance

Catch basin grates shall be cleared of leaves and debris so they may function properly.

Estimated Yearly Cost \$2,000.00

CDS and VortSentry Stormwater Treatment Units or approved equal

The Units should be inspected at regular intervals and maintained when necessary to ensure optimum performance. The rate at which the system collects pollutants will depend more heavily on site activities than the size of the unit, i.e., unstable soils or heavy winter sanding will cause the treatment chamber to fill more quickly, but regular sweeping will slow accumulation.

Inspection

Inspection is the key to effective maintenance and is easily performed. Pollutant deposition and transport may vary from year to year and regular inspections will help ensure that the system is cleaned out at the appropriate time. At a minimum, inspections should be performed twice per year (i.e. spring and fall) however more frequent inspections may be necessary in equipment washdown areas and in climates where winter sanding operations may lead to rapid accumulations of a large volume of sediment. It is useful and often required as part of a permit to keep a record of each inspection. A simple inspection and maintenance log form for doing so is available for download at www.ContechES.com/stormwater

The Units should be cleaned when the sediment has accumulated to a depth of two feet in the treatment chamber. This determination can be made by taking two measurements with a stadia rod or similar measuring device; one measurement from the manhole opening to the top of the sediment pile and the other from the manhole opening to the water surface. If the difference between these measurements is less than the distance given in Table 2, the Units should be maintained to ensure effective treatment.

Cleaning

Cleaning of the Units should be done during dry weather conditions when no flow is entering the system. Cleanout of the Units with a vacuum truck is generally the most effective and convenient method of excavating pollutants from the system. Simply remove the manhole cover and insert the vacuum hose into the sump. All pollutants can be removed from this one access point from the surface with no requirements for Confined Space Entry. In installations where the risk of petroleum spills is

small, liquid contaminants may not accumulate as quickly as sediment. However, an oil or gasoline spill should be cleaned out immediately. Motor oil and other hydrocarbons that accumulate on a more routine basis should be removed when an appreciable layer has been captured. To remove these pollutants, it may be preferable to use adsorbent pads, which solidify the oils. These are usually much easier to remove from the unit individually, and less expensive to dispose than the oil/water emulsion that may be created by vacuuming the oily layer. Floating trash can be netted out if you wish to separate it from the other pollutants. Manhole covers should be securely seated following cleaning activities to prevent leakage of runoff into the system from above and also to ensure proper safety precautions. If anyone physically enters the unit, Confined Space Entry procedures need to be followed. Disposal of all material removed from the CDS Units should be done in accordance with local regulations. In many locations, disposal of evacuated sediments may be handled in the same manner as disposal of sediments removed from catch basins or deep sump manholes. Check your local regulations for specific requirements on disposal.

SUBSURFACE INFILTRATION SYSTEM

Once the system has gone online, inspections should occur after every storm event accumulating greater than 1 inch of rainfall for the first year to ensure proper stabilization and function. Attention should be paid to how long water remains standing in the chambers after a storm. Thereafter, the system should be inspected at least twice per year. Observations and measurements shall be made from the observation ports provided. Important items to check for include: differential settlement, cracking, erosion or leakage. If the system appears to be clogged or not functioning properly at any time, the system is to be flushed in accordance with the 10 year maintenance procedure listed below. Sediment should be removed from the system as necessary. Removal procedures should not take place until the pipes in the system are thoroughly dry. A vacuum truck is usually the most effective and convenient method. If the sediment has traveled past the reach of the vacuum truck the system shall be thoroughly flushed with water, a fire hose or the like is typically the most effective method of flushing. The manhole downstream of this process shall be plugged and sediment collected at this point.

If inspection of the inflow point indicates sediments are accumulating, removal of sediment within the basin may be required. Remove sediments from the catch basin discharge pipes which outlet into the basin. Sediment shall be flushed from the basin at least once every 10 years. Sediments should be flushed and captured on the outlet side of the basin prior to discharge. If the sediment has traveled past the reach of a vacuum truck the system shall be thoroughly flushed with water, a fire hose or the like is typically the most effective method of flushing. The manhole downstream of this process shall be plugged and sediment collected at this point. Sediment which is removed shall be legally disposed of.

The system shall be monitored at several intervals during and after a small and large rainfall event to ensure runoff is detained. Inlet and outlet pipes shall be kept free of obstructions. Any material obstructing the pipes shall be removed and legally disposed of.

Estimated Yearly Cost \$1,000.00

PUBLIC SAFETY FEATURES

Many of the Public Safety Features of the Stormwater Management System are incorporated into its design. The infiltration basins are located below the surface which provides a greater level of safety over surface basins.

Despite all the well-designed safety features within the Stormwater Management System all components of the system must be properly maintained to be effective. All maintenance procedures detailed above must be done on schedule and documented. Standing or stagnant water provides mosquito-breeding habitat and increases the potential for disease transmission. The basins are designed to fully infiltrate within 72 hours after a storm even which will prevent standing water from becoming a safety hazard. Routine monitoring for and management of mosquito-breeding conditions by qualified maintenance staff is required during the peak breeding season between April and September ensure that unforeseen conditions do not develop.

While risks can be mitigated through proper design and maintenance, it is impossible to entirely eliminate risk. Therefore, education regarding stormwater management facilities and their inherent risks is valuable and should be a part of every community's activities. Employees and tenants of the adult retirement community shall be given an overview of the Stormwater System and which areas to avoid. Public participation also increases the level of maintenance as community members can notify staff if a component of the stormwater system is not functioning properly.

STORMWATER MANAGEMENT OPERATIONS AND MAINTENANCE LOG

It is the responsibility of the site operator, Property Owner and/or Association to provide the maintenance of the Stormwater Management System Maintenance in accordance with any and all permits issued by the Town of Franklin. The log form below is a template and shall be reproduced as needed. Copies of all log forms shall be kept on file for a minimum of three years from the date of inspection.

Name of Inspector:
Date and Time of Inspection:
Weather Conditions:

Stormwater BMP	Observations	Action Required

LONG TERM POLLUTION PREVENTION PLAN

FOR
FACTORY SQUARE
3, 5 & 7 FISHER STREET
(AM 278 PARCEL 16)
FRANKLIN, MASSACHUSETTS

JULY 1, 2021

Prepared By:
Level Design Group, L.L.C.
249 South Street, Unit 1
Plainville, MA 02762

Prepared For:
K Fisher Street LLC
1 Fisher Street
Franklin, MA 02052

LDG Project No.:
1899.00

GOOD HOUSEKEEPING PRACTICES

It is the responsibility of the Owner/Developer, Rick Kaplan (or any other future Owner/Developer), to provide for maintenance of the parking areas and the storm drainage system until the site. The responsible party shall utilize good housekeeping practices as outlined in the Operation and Maintenance Plan required for the maintenance of the Stormwater Management System.

PROVISIONS FOR STORAGE OF MATERIALS AND WASTE PRODUCTS INSIDE OR UNDER COVER

The storage of hazardous materials and waste is prohibited from being stored outdoor at the site. Any hazardous materials shall be stored under cover.

VEHICLE WASHING CONTROLS

Outdoor vehicle washing is allowed only for occupants of the condominium development for non-commercial vehicles owned by the residents of the units. No commercial vehicle washing operations is allowed in this area.

REQUIREMENTS FOR ROUTINE INSPECTION AND MAINTENANCE OF STORMWATER BMPs

The Owner / Operator shall keep a Maintenance Log Sheets of scheduled tasks outlined Operation and Maintenance Plan.

SPILL PREVENTION AND RESPONSE PLANS

The risk of significant spills requiring action at this site is limited and will most likely be associated with motor vehicle use or maintenance. In the event of a significant spill contact:

Massachusetts Department of Environmental Protection 24-hour emergency response notification line – (888) 304-1133

PROVISIONS FOR MAINTENANCE OF LAWNS, GARDENS, AND OTHER LANDSCAPED AREAS

The use of chemical fertilizers shall not be used on-site. If chemical fertilizers are required to be used, the fertilizers must be worked into the soil to prevent washouts and stormwater contamination of fertilizers.

REQUIREMENTS FOR STORAGE AND USE OF FERTILIZERS, HERBICIDES, AND PESTICIDES

If fertilizers, herbicides, and pesticides are to be used and stored on site they are to be stored in their original containers and keep in a dry, safe area where children do not have access to.

REQUIREMENTS FOR SNOW PLOWING AND STORAGE

Snow plowing within the site shall be performed by a licensed contractor. Snow is to be directed to identify snow storage areas as detailed in the Operation and Maintenance Plan. Under no circumstance shall snow be pushed into or dumped into the on-site wetland and pond areas.

PROVISIONS SOLID WASTE MANAGEMENT

Solid waste and recycling is to be disposed in designated areas in enclosed receptacles with covers and hauled by private certified waste management service operators. Solid waste management systems shall be inspected and maintained in accordance with state, local, and federal solid waste management regulations.

EMERGENCY AND REGULATORY CONTACTS

Franklin Fire Department:	911 / (508) 528-2323
Franklin Police Department:	911 / (508) 528-1212
Massachusetts Department of Environmental Protection – Southeast Regional Office:	(508) 946-2700
United State Environmental Protection Agency:	(617) 918-1111