

Town of Upton, MA

Stormwater Management Program (SWMP): Volume 1

*NPDES Phase II Small MS4 General Permit
September 2019*

STORMWATER MANAGEMENT PLAN



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Stormwater Management Program (SWMP): Volume 1

Town of Upton, MA

NPDES Phase II Small MS4 General Permit

STORMWATER MANAGEMENT PLAN

Prepared by: **BETA GROUP, INC.**
Prepared for: Town of Upton

September 2019

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Certification:

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

Signature:  Date: 9/28/19

Printed Name: Dennis Westgate Title: Director of Public Works

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1.0 EXECUTIVE SUMMARY

Each community with a municipal separate storm sewer system (MS4) in designated urbanized areas must develop a Stormwater Management Program (SWMP) that will guide its activities under the 2016 MS4 general permit. This SWMP was developed by the Town of Upton to protect water quality and reduce the discharge of pollutants from the municipality's storm sewer system to the maximum extent practicable (MEP) as described herein.

The SWMP is comprised of four volumes. This report is Volume 1 of 4.

- SWMP Volume 1 – Stormwater Management Plan
- SWMP Volume 2 – Illicit Discharge Detection and Elimination (IDDE) Plan
- SWMP Volume 3 – Good Housekeeping and Pollution Prevention (O&M) Plan
- SWMP Volume 4 – Annual Reporting

Written plans for SWMP Volumes 1 and 2 are required to be completed by the end of year 1 of the permit term (June 30, 2019). Written plan for Volume 3 is required to be completed by the end of year 2 of the permit term (June 30, 2020). Volume 4 compiles the documentation required over each reporting period (July 1 to June 30) for assembly of annual reports due September 30th each year.

Documents are available for review and comment on the Town of Upton Website as follows:

Town of Upton Stormwater Webpage is located here:

<https://www.uptonma.gov/conservation-commission/pages/stormwater-management>

Town of Upton Stormwater Bylaw is located here:

https://www.uptonma.gov/sites/uptonma/files/uploads/upton_stormwater_management_bylaw.pdf

Town of Upton Stormwater Regulations are located here:

https://www.uptonma.gov/sites/uptonma/files/uploads/stormwater_regulations.pdf

2.0 INTRODUCTION & BACKGROUND

2.1 STORMWATER REGULATION

The Stormwater Phase II Final Rule was promulgated in 1999 and was the next step after the 1987 Phase I Rule in EPA's effort to preserve, protect, and improve the Nation's water resources from polluted stormwater runoff. The Phase II program expands the Phase I program by requiring additional operators of MS4s in urbanized areas and operators of small construction sites, through the use of NPDES permits, to implement programs and practices to control polluted stormwater runoff. Phase II is intended to further reduce adverse impacts to water quality and aquatic habitat by instituting the use of controls on the unregulated sources of stormwater discharges that have the greatest likelihood of causing continued environmental degradation. Under the Phase II rule all MS4s with stormwater discharges from Census designated Urbanized Areas are required to seek NPDES permit coverage for those stormwater discharges.

2.2 PERMIT PROGRAM BACKGROUND

On May 1, 2003, EPA Region I issued its Final General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4-2003 permit) consistent with the Phase II rule. The MS4-2003 permit covered "traditional" (i.e., cities and towns) and "non-traditional" (i.e., Federal and state agencies) MS4 Operators located in the states of Massachusetts and New Hampshire. This permit expired on May 1, 2008 but remained in effect until operators were authorized under the 2016 MS4 general permit, hereinafter referred to as the Permit, which became effective on July 1, 2018.

2.3 TOWN SPECIFIC MS4 BACKGROUND

Eligibility for MS4 permit coverage is identified by EPA as an urbanized area determined by the latest Decennial Census or a geographic area designated by EPA. The entire Town of Upton is not covered under this permit, only approximately 2,658 acres (19% of the total area) with limits as identified in Appendix A. All references to the stormwater system as mentioned in this report fall within the regulated area.

Upton has nine (9) water body segments that receive flow from the MS4 area, three of which are designated as Category 5 Waters as listed in the proposed Massachusetts Year 2016 Integrated List of Waters. West River (MA51-12) is impaired for chloride and various metals (Cadmium, Copper, Lead). Mill River (MA51-35) is impaired for PCB in Fish Tissue and other unspecified metals. The West River discharges outside of Town limits to the Blackstone River (MA51-05) which is impaired for phosphorous among other things. The permit requires that the tributaries of phosphorus impaired waters, in this case the West River in Upton, must meet the requirements related to Phosphorus impairments. There are no requirements in the permit for tributaries to meet additional requirements for any other impairments of downstream waters at this time. Additional impairments and required actions are described in detail in Section 5.0 of this report.

Upton's MS4 is composed of pipes, catch basins, manholes, culverts, swales and outfalls discharging to streams and rivers. A GIS database has been established which contains Town-wide information for all of the drainage structures including:

- 209 outfalls total
 - 77 of which are subject to MS4 permit
 - 132 of which are not subject to MS4 permit
- 949 catch basins total
 - 858 Town-owned catch basins
 - 565 within MS4 area (474 subject to permit)
 - 91 State-owned catch basins (located within a State Road)
- 469 stormwater drain manholes
 - 430 Town-owned stormwater drain manholes
 - 311 within MS4 area (272 subject to permit)
 - 39 State-owned stormwater drain manholes (located within a State Road)

A stormwater system map is included as part of the Illicit Discharge Detection and Elimination (IDDE) report, which is located within SWMP Volume 2. The map includes stormwater system structures and identifies the impaired water bodies and the MS4 areas tributary to each.

Massachusetts Department of Transportation (MassDOT) owns and maintains Route 140 and is required to have their own NPDES MS4 Permit for their properties, which are therefore not the responsibility of the Town and not included in this plan.

2.4 STORMWATER MANAGEMENT PROGRAM (SWMP)

The Town was previously authorized by the MS4-2003 permit which had established six minimum control measures, Best Management Practice (BMPs) and measurable goals to meet the terms and conditions of that permit. This SWMP is a modification and update to the previous plan and efforts.

The SWMP describes and details the activities and measures that will be implemented to meet the terms and conditions of the Permit. The SWMP accurately describes the Town's plans and activities. The document will be updated and/or modified during the Permit term as the permittee's activities are modified, changed or updated to meet Permit conditions during the Permit term. The main elements of the stormwater management program are (1) a public education program in order to change public behavior causing stormwater pollution, (2) an opportunity for the public to participate in and provide comments on the stormwater program, (3) a program to effectively find and eliminate illicit discharges within the MS4, (4) a program to effectively control construction site stormwater discharges to the MS4, (5) a program to ensure that stormwater from development projects entering the MS4 is adequately controlled by the construction of stormwater controls, and (6) a good housekeeping program to ensure that stormwater pollution sources on municipal properties and from municipal operations are minimized.

This document will be made available at the office of the Department of Public Works and on the Town website. The Permit covers the following which are included in this SWMP Plan:

- Identification of Responsible Parties
- Endangered and Threatened Species and Historic Properties Protection
- Increased Discharges and Discharges to Waters with TMDLs or Subject to Additional Requirements
- Implementation of Six Minimum Control Measures
- Sanitary Sewer Overflow Inventory
- Surface Drinking Water Supply Protection
- Annual Program Evaluation

2.5 IMPLEMENTATION SCHEDULE AND STATUS

MS4 General Permit implementation timeline and current status is shown in Figure 2-1.

Figure 2-1: Town of Upton MS4 Permit Compliance Schedule

3.0 SMALL MS4 AUTHORIZATION

The Notice of Intent (NOI) containing the information in Appendix E of the Permit was submitted to EPA prior to September 30, 2018.

EPA has completed its review of the NOI and it has been posted on the following website:
<https://www.epa.gov/npdes-permits/regulated-ms4-massachusetts-communities>

The Town received its authorization to discharge under the Permit in a written notice from EPA dated February 14, 2019 following a 30-day public review and comment. The authorization letter and responses to comments received are posted to the above website.

4.0 IDENTIFICATION OF RESPONSIBLE PARTIES FOR IMPLEMENTATION OF PROGRAM

The implementation and coordination of this program is the responsibility of Upton Department of Public Works, specifically the DPW Director.

SWMP Team Coordinator

Name:	Dennis E. Westgate, Jr.	Title:	Director	Department:	Public Works
Phone:	508-529-3067	Email:	Dwestgate@uptonma.gov		
Responsibilities: MS4 Coordinator, IDDE Program, Good Housekeeping, Reporting & Record Keeping					

SWMP Team

Name:	Dennis E. Westgate, Jr.	Title:	Director	Department:	Public Works
Phone:	508-529-3067	Email:	Dwestgate@uptonma.gov		
Responsibilities: Public Education & Outreach, Public Participation, Stormwater Bylaw/Regulations, Good housekeeping, O&M of facilities, SWPPP					

Name:	David Pickart	Title:	Conservation Agent	Department:	Conservation Commission
Phone:	508-529-6286	Email:	Dpickart@uptonma.gov		
Responsibilities: Stormwater Bylaw/Regulations, Construction Site SW Control, Post Construction SWM, Plan Review, Inspection					

Name:		Title:		Department:	
Phone:		Email:			
Responsibilities:					

Name:		Title:		Department:	
Phone:		Email:			
Responsibilities:					

5.0 RESOURCE PROTECTION

5.1 ENDANGERED AND THREATENED SPECIES

The Permit requires applicants to assess the impacts of their stormwater discharges and discharge related activities on federally listed endangered and threatened species and designated critical habitat.

The NOI submitted in September of 2018 for coverage under the Permit identified one federally listed endangered species of concern, the Northern Long-eared Bat, and determined eligibility for Endangered Species Act (ESA) under Criteria C. An ESA section 7 consultation was provided for the NOI certifying the activities under the Permit, and as described in this SWMP, will not adversely affect the Northern Long-eared Bat. There is no reason to believe that the stormwater discharges, allowable non-stormwater discharges and discharge related activities will have any effect on this or any other listed species or critical habitat. This is based on the following:

1. All stormwater discharges are pre-existing or previously permitted by EPA;
2. Any planned operations and maintenance work covered by this permit will only affect previously disturbed areas where stormwater controls are already installed. In these situations, the chance of encountering the subject species is discountable;
3. The project implements EPA MS4 Best Management Practices (BMPs) and meets Clean Water Act and Massachusetts Water Quality Standards. Although permitted discharges may reach the environment used by these species, BMPs reduce pollutants to the extent that discharges are not known to have measurable impacts on these species or their habitat;
4. No new construction or structural BMPs are proposed under this permit at this time; and
5. It is agreed that if, during the course of the permit term, it is planned to install a structural BMP not identified in the Notice of Intent (NOI), the Town will re-initiate with the U.S. Fish and Wildlife Services as necessary.

The aforementioned requirements are all met under this Permit and as such there is no reason to believe that the stormwater discharges, allowable non-stormwater discharges and discharge related activities will have any adverse effect on any listed species or critical habitat. If any future stormwater projects or activities are proposed the Town acknowledges that they will have to re-initiate either informal or formal consultation with USFWS as required under the MA MS4 General Permit Appendix C: Step 2(5).

The Overview Map in Appendix A includes Natural Heritage and Endangered Species Program (NHESP) estimated habitats of rare wildlife, priority habitats of rare species, certified vernal pools and wetlands. Future stormwater projects and activities proposed within these areas will require review for compliance with the Massachusetts ESA and the Wetlands Protection Act.

5.2 HISTORIC PROPERTIES

The MS4 Permit requires applicants to take into account the effects of Federal undertakings on historical properties that are either listed on or eligible for listing on the National Register of Historic Places. The NOI identified eligibility for National Historic Preservation Act under Criteria A. The proposed BMPs outlined in this program have no potential to affect any historic properties because no changes are proposed to the existing MS4 infrastructure.

The Overview Map in Appendix A includes the Massachusetts Historical Commission's (MHC) inventory of historic points and areas. Future stormwater projects and activities proposed in and around these properties should be referenced against this map as well as the state register. The state register provides an up to date comprehensive listing of buildings, structures objects and sites that have received local, state or national designations based on their historical or archaeological significance.

5.3 SUMMARY OF RECEIVING WATERS AND IMPAIRMENTS

Surface Water Quality Standards (SWQS) are provided by the Massachusetts Department of Environmental Protection (DEP). They are determined for a water body's designated use. The SWQS designate the uses that surface waters are protected for, and an assessment is performed to determine if the designated uses are met by the water bodies. The use is not assessed in instances when there is insufficient data or information. Assessment information is maintained by the DEP in the Water Body System (WBS) database, which is updated every two years. Designated uses include:

- Aquatic Life
- Fish Consumption
- Primary Contact Recreation (Swimming)
- Secondary Contact Recreation (Boating)
- Aesthetics

The aquatic life use is supported when suitable habitat is available in the water body to sustain a native and diverse aquatic environment. Impairments to the aquatic life use can result from anthropogenic sources of pollution. Organic enrichment, flow and habitat alteration, sedimentation (habitat destruction), and whole effluent toxicity are potential causes of water body impairment for this use.

The fish consumption use is met when pollutant concentrations are acceptable for edible marketable fish or shellfish or for the use of recreationally caught fish or other aquatic life for human ingestion.

The primary contact recreational use is any activity that involves prolonged contact with the water with a significant risk of ingestion. Activities include swimming, diving, water skiing, and wading, among others. The secondary contact recreational use includes any activity with incidental water contact including boating, fishing, and other activities.

The aesthetic use is supported when water bodies do not contain objectionable deposits, floating debris, scum, or other matter, which produces offensive odors, colors, taste or turbidity or produces noxious aquatic life.

Total Maximum Daily Loads (TMDLs) are the amount of a pollutant allowed to be discharged into a water body per day to assure attainment of the SWQS. The sum total of all pollutant load allocations cannot exceed the total maximum allowable pollutant load calculated for the water body.

Impaired water bodies are those that are not expected to meet the SWQS due to specific pollutants or stressors. However, numerical data is not available for every pollution indicator, so best available guidance in the literature may be applied. Not all water bodies are assessed; many small and/or unnamed water bodies are currently not assessed.

According to the Massachusetts Year 2014/2016 Integrated List of Waters, there are five categories for water quality assessment.

- Category 1 — Waters attaining all designated uses
- Category 2 — Attaining some uses; other uses not assessed
- Category 3 — No uses assessed
- Category 4A — TMDL is completed
- Category 4B — Impairment controlled by alternative pollution control requirements
- Category 4C — Impairment not caused by a pollutant – TMDL not required
- Category 5 — Waters requiring a TMDL (i.e. the 303(d) List)

Within the designated MS4 area, Upton has nine (9) water body segments that receive flow from the MS4 with that are on the Massachusetts Integrated List of Waters. Table 5-1 summarizes these water bodies and the associated impairments and TMDLs requiring action as described in the Permit and this SWMP based on the approved Massachusetts Year 2014 Integrated List of Waters and the proposed Massachusetts Year 2016 Integrated List of Waters.

These impaired water bodies and the MS4 areas tributary to them can be found on the storm sewer system map included as part of the IDDE report, which is located within SWMP Volume 2.

Appendix H of the Permit identifies specific requirements for water bodies that are Water Quality Limited in five categories of impairments (Nitrogen, Phosphorus, Bacteria/Pathogens, Chloride and Solids, Metals or Oil and Grease). These requirements apply to water bodies and their tributaries that do not meet applicable water quality standards, including but not limited to waters listed in category 5 and waters without an EPA approved TMDL.

Upton WOLW Impairment(s)
Metals (Cadmium, Copper, Lead)
Chloride
Phosphorus

Upton TMDL(s)
None at this time

5.4 REQUIREMENTS TO ADDRESS IMPAIRMENTS

The requirements specific to impairments and TMDLs of Upton's MS4 area receiving waters are summarized as follows:

Table 5-1: MS4 Listed Water Bodies and their Impairments

NAME	CATEGORY	SEGMENT ID	IMPAIRMENT CAUSE (EPA TMDL No.)
West River	5	MA51-11	(Non-Native Aquatic Plants*) pH, Low
West River	5	MA51-12	Aquatic Plants (Macrophytes) ¹ Cadmium (WQLW) Chloride (WQLW) Copper (WQLW) Lead (WQLW) (Non-Native Aquatic Plants*) Nutrient/Eutrophication Biological Indicators pH, Low
Mill River	5	MA51-35	Aquatic Plants (Macrophytes) (Non-Native Aquatic Plants*) Other (Unspecified Metals) PCB in Fish Tissue
Mill Pond	4C	MA51104	(Non-Native Aquatic Plants*)
North Pond	4C	MA51112	(Non-Native Aquatic Plants*)
Pratt Pond	4C	MA51123	(Non-Native Aquatic Plants*)
Taft Pond	4C	MA51165	(Non-Native Aquatic Plants*)
Taft Pond Brook	2	MA51-26	
Center Brook	2	MA51-34	

Table 5-1 NOTE: Table Based on the proposed Massachusetts Year 2016 Integrated List of Waters with exceptions/clarifications where 2014 Integrated List of Waters (ILW) are more stringent as noted below. Impairments in Italics are proposed to be removed if 2016 ILW is approved. Certain Pollutants (in BOLD) result in Total Maximum Daily Load (TMDL) or Water Quality Limited Water Bodies (WQLW) requirements defined in Appendix H & F of the Permit.

1. 2016 ILW proposes to remove Aquatic Plants (Macrophytes) due to WQS attained according to new assessment method for West River.
2. 2016 ILW proposes to add (Aquatic Plants (Macrophytes)) and (Non-Native Aquatic Plants) as impairments based on new data/assessment for Blackstone River.

Table 5-1: Town Impaired Water Bodies (Cont.)

Waterbodies/Segments outside of Upton, who's watersheds extend into Upton:			
NAME	CATEGORY	SEGMENT ID	IMPAIRMENT CAUSE (EPA TMDL No.)
Blackstone River* (West River in Upton is Tributary to)	5	MA51-05	(Other flow regime alterations*) Aquatic Plants (Macrophytes)* (Non-Native Aquatic Plants*) Aquatic Macroinvertebrate Bioassessments Cadmium Copper Escherichia coli Excess Algal Growth Lead Nutrient/Eutrophication Biological Indicators Phosphorus (Total) Polychlorinated biphenyls Taste and Odor Total Suspended Solids (TSS) Turbidity

Table 5-1 (Cont.) NOTE: The West River discharges outside of Town limits to the Blackstone River (MA51-05) which is impaired for phosphorous among other things. The permit requires that the tributaries of phosphorus impaired waters, in this case the West River in Upton, must meet the requirements related to Phosphorus WQLW. There are no requirements in the permit for tributaries to meet additional requirements for any other impairments of downstream waters at this time.

Phosphorus WQLW Requirements

Applicable Receiving Waters: West River (51-12) as a tributary to Blackstone River (MA51-05)

Requirement: Any catchment area that discharges to a water body impaired for phosphorus or its tributary must comply with enhanced BMPs in addition to the requirements to reduce pollutants to the maximum extent practicable outlined in Section 2.3 of the Permit and covered in Section 7.0 of this report. Required additional and enhanced BMPs include:

Public education and outreach: Supplement Residential and Business/Commercial/Institution program with annual timed messages on specific topics. Distribute an annual message in the spring (March/April/May) timeframe that encourages the proper use and disposal of grass clippings and encourages the proper use of slow-release fertilizers. Distribute an annual message in the summer (June/July) timeframe encouraging the proper management of pet waste, including noting any existing ordinances where appropriate. Distribute an annual message in the fall (August/September/October) timeframe encouraging the proper disposal of leaf litter. Deliver an annual message on each of these topics, unless the Town determines that one or more of these issues is not a significant contributor of phosphorus to discharges from the MS4 and the Town retains documentation of this finding in the SWMP.

Stormwater Management in New Development and Redevelopment: Adoption/amendment of the Town's ordinance or other regulatory mechanism shall include a requirement that new development and redevelopment stormwater management BMPs be optimized for phosphorus removal; retrofit inventory and priority ranking under 2.3.6.1.b shall include consideration of BMPs that infiltrate stormwater where feasible.

Good Housekeeping and Pollution Prevention for Permittee Owned Operations: Permittee Owned Operations: Establish procedures to properly manage grass cuttings and leaf litter on permittee property, including prohibiting blowing organic waste materials onto adjacent impervious surfaces; increased street sweeping frequency of all municipal owned streets and parking lots subject to Permit part 2.3.7.a.iii.(c) to a minimum of two times per year, once in the spring (following winter activities such as sanding) and at least once in the fall (Sept 1 – Dec 1; following leaf fall).

Phosphorus Source Identification Report: Within four years of the Permit effective date the Town shall complete a Phosphorus Source Identification Report. The report shall include the following elements:

1. Calculation of total MS4 area draining to the water quality limited receiving water segments or their tributaries, incorporating updated mapping of the MS4 and catchment delineations produced pursuant to part 2.3.4.6,
2. All screening and monitoring results pursuant to part 2.3.4.7.d., targeting the receiving water segment(s)
3. Impervious area and DCIA for the target catchment
4. Identification, delineation and prioritization of potential catchments with high phosphorus loading
5. Identification of potential retrofit opportunities or opportunities for the installation of structural BMPs during redevelopment, including the removal of impervious area

The final Phosphorus Source Identification Report shall be submitted to EPA as part of the year 4 annual report.

Potential Structural BMPs: Within five years of the permit effective date, the permittee shall evaluate all permittee-owned properties identified as presenting retrofit opportunities or areas for structural BMP installation under permit part 2.3.6.d.ii or identified in the Phosphorus Source Identification Report that are within the drainage area of the water quality limited water or its tributaries. The evaluation shall include:

1. The next planned infrastructure, resurfacing or redevelopment activity planned for the property (if applicable) OR planned retrofit date;
2. The estimated cost of redevelopment or retrofit BMPs; and
3. The engineering and regulatory feasibility of redevelopment or retrofit BMPs.

The Town shall provide a listing of planned structural BMPs and a plan and schedule for implementation in the year 5 annual report. The Town shall plan and install a minimum of one structural BMP as a demonstration project within the drainage area of the water quality limited water or its tributaries within six years of the permit effective date. The demonstration project shall be installed targeting a catchment with high phosphorus load potential. The Town shall install the remainder of the structural BMPs in accordance with the plan and schedule provided in the year 5 annual report.

Any structural BMPs installed in the regulated area by the permittee or its agents shall be tracked, and the permittee shall estimate the phosphorus removal by the BMP consistent with Attachment 3 to Appendix F. The permittee shall document the BMP type, total area treated by the BMP, the design storage volume of the BMP and the estimated phosphorus removed in mass per year by the BMP in each annual report.

Status: The Town has incorporated these enhancements into the BMPs in Section 7.0 of this report.

Solids (turbidity), Oil and Grease (hydrocarbons) or Metals WQLW Requirements

Applicable Receiving Waters: West River (MA51-12)

Requirement: Any catchment area that discharges to a water body impaired for solids, oil and grease or metals must comply with enhanced BMPs in addition to the requirements to reduce pollutants to the maximum extent practicable outlined in Section 2.3 of the permit and covered in Section 7.0 of this report.

Stormwater Management in New Development and Redevelopment: stormwater management systems designed on commercial and industrial land use area draining to the water quality limited waterbody shall incorporate designs that allow for shutdown and containment where appropriate to isolate the system in the event of an emergency spill or other unexpected event. EPA also encourages the permittee to require any stormwater management system designed to infiltrate stormwater on commercial or industrial sites to provide the level of pollutant removal equal to or greater than the level of pollutant removal provided through the use of biofiltration of the same volume of runoff to be infiltrated, prior to infiltration.

Good House Keeping and Pollution Prevention for Permittee Owned Operations: increased street sweeping frequency of all municipal owned streets and parking lots to a schedule determined by the permittee to target areas with potential for high pollutant loads. This may include, but is not limited to, increased street sweeping frequency in commercial areas and high-density residential areas, or drainage areas with a large amount of impervious area. Prioritize inspection and maintenance for catch basins to ensure that no sump shall be more than 50 percent full. Clean catch basins more frequently if inspection and maintenance activities indicate

excessive sediment or debris loadings. Each annual report shall include the street sweeping schedule determined by the permittee to target high pollutant loads.

Status: The Town has incorporated these enhancements into the BMPs in Section 7.0 of this report.

Chloride TMDL Requirements

Applicable Receiving Waters: West River (MA51-12)

Requirement: Permittees that discharge to waterbodies that are water quality limited due to chloride, without an EPA approved TDML, are subject to the following additional requirements to address chloride in their stormwater discharges in addition to the requirements to reduce pollutants to the maximum extent practicable outlined in Section 2.3 of the permit and covered in Section 7.0 of this report.

Salt Reduction Plan: A Salt Reduction Plan shall be completed within three years of effective date of the permit and fully implemented 5 years after the effective date of the permit. The completed Salt Reduction Plan shall be submitted to EPA along with the annual report following the Salt Reduction Plan's completion. The permittee shall submit data to EPA that accurately characterizes the concentration of chloride in their discharge during the deicing season (November – March). The characterization shall include water quality and flow data sufficient to accurately assess the concentration of chloride in the deicing season during storm events of multiple sizes and for the duration of the storm events including the first flush, peak storm flow and return to baseflow and include samples collected during deicing activities. For more information regarding the Report and when the permittee becomes relieved of the additional requirements, go to Appendix H within the MA MS4 General Permit.

Municipally Maintained Surfaces: Tracking of the types and amount of salt applied to all permittee owned and maintained surfaces and reporting of salt use beginning in the year of the completion of the Salt Reduction Plan in the permittee's annual reports. The planned activities can include, but not limited to (unless determined inapplicable by permittee):

- Operational changes such as pre-wetting, pre-treating the salt stockpile, increasing plowing prior to deicing, monitoring of road surface temperature, etc.
- Implementation of new or modified equipment providing pre-wetting capability, better calibration rates, or other capability for minimizing salt use
- Training for municipal staff and/or contractors engaged in winter maintenance activities
- Adoption of guidelines for application rates for roads and parking lots (see Winter Parking Lot and Sidewalk Maintenance Manual (Revised edition June 2008) for examples)
 - <http://www.pca.state.mn.us/publications/parkinglotmanual.pdf>
- Regular calibration of spreading equipment
- Designation of no-salt and/or low salt zones
- Measures to prevent exposure of salt stockpiles (if any) to precipitation and runoff
- An estimation of the total tonnage of salt reduction expected by each activity

Privately Maintained Facilities that Discharge to the MS4: Establish an ordinance, bylaw, or other regulatory mechanism requiring measures to prevent exposure of any salt stockpiles to precipitation and runoff at all commercial and industrial properties within the regulated area.

Public education and outreach: Supplement Residential and Commercial/Industrial education program with annual timed messages to private road salt applicators and commercial and industrial site owners on the proper storage and application rates of winter deicing material. The educational materials shall be disseminated in the November/December timeframe and shall describe steps that can be taken to minimize salt use and protect local waterbodies.

Stormwater Management in New Development and Redevelopment: Establish procedures and requirements to minimize salt usage and require the use of salt alternatives where the permittee deems necessary.

Status: The Town has incorporated these enhancements into the BMPs in Section 7.0 of this report.

Relief of Requirements to Address Impairments

The permit states that at any time during the permit term the permittee may be relieved of additional requirements in Appendix F and H as follows:

TMDLs (Appendix F):

- a. The permittee is relieved of its additional requirements as of the date when the following conditions are met:
 - i. The applicable TMDL has been modified, revised or withdrawn and EPA has approved a new TMDL applicable for the receiving water that indicates that no additional stormwater controls for the pollutant causing the impairment are necessary for the permittee's discharge based on wasteload allocations in the newly approved TMDL.
- b. In such a case, the permittee shall document the date of the approved TMDL in its SWMP and is relieved of any remaining requirements of Appendix F as of that date and the permittee shall comply with the following:
 - i. The permittee shall identify in its SWMP all activities implemented in accordance with the requirements of Appendix F to date to reduce the pollutant load in their discharges including implementation schedules for non-structural BMPs and any maintenance requirements for structural BMPs.
 - ii. The permittee shall continue to implement all requirements of Appendix F required to be implemented prior to the date of the newly approved TMDL, including ongoing implementation of identified non-structural BMPs and routine maintenance and replacement of all structural BMPs in accordance with manufacturer or design specifications.

Water Quality Limited Waterbodies (Appendix H):

- a. The permittee is relieved of its additional requirements as of the date when one of the following criteria are met:
 - i. The receiving water and all downstream segments are determined to no longer be impaired due to the named pollutant by MassDEP and EPA concurs with such determination.
 - ii. An EPA approved TMDL for the receiving water or downstream receiving water indicates that no additional stormwater controls for the control of said pollutant are necessary for the permittee's discharge based on wasteload allocations as part of the approved TMDL.
- b. In such a case, the permittee shall document the date of the determination provided for in the paragraph above or the approved TMDL date in its SWMP and is relieved of any additional requirements of Appendix H as of the applicable date and the permittee shall comply with the following:
 - i. The permittee shall identify in its SWMP all activities that have been implemented in accordance with the requirements of Appendix H as of the applicable date to reduce the pollutant in its discharges, including implementation schedules for non-structural BMPs and any maintenance requirements for structural BMPs
 - ii. The permittee shall continue to implement all requirements of Appendix H required to be done prior to the date of determination or the date of the approved TMDL, including ongoing implementation of identified nonstructural BMPs and routine maintenance and replacement of all structural BMPs in accordance with manufacturer or design specifications.

6.0 DISCHARGES

EPA has written the Permit to meet Massachusetts state water quality standards. Antidegradation provisions at 314 CMR § 4.04 are part of the current EPA-approved water quality standards for Massachusetts. As such, the Permit requires compliance with 314 CMR § 4.04 and increased discharges from MS4s remain subject to 314 CMR § 4.04.

6.1 INCREASED DISCHARGES AUTHORIZATION

The Massachusetts Stormwater Management regulations, current site development review practices and the Town's Stormwater Bylaw prohibit increased discharges. They all require that any new development or re-development (including new impervious area) is subject to the Post-Construction Stormwater Management requirements, which include infiltration standards that are intended to mimic pre-development conditions. New impervious areas require the implementation of best management practices (BMPs). In a case where these conditions cannot be met, authorization for an increased discharge may be required.

As noted in Table 5-1, three water bodies in Town are identified as impaired waters. As discussed in Section 5.4, this SWMP incorporates the required actions outlined in Appendix F and H of the Permit aimed at decreasing pollutants causing impairments to those water bodies. These actions combined with the implementation of post construction stormwater requirements will decrease the overall pollutant loading to all receiving waters over time. Town compliance with these requirements of the Permit, including all reporting and documentation, demonstrates no net increase in pollutant loading from the MS4.

6.2 DISCHARGES TO TMDL OR WATER QUALITY LIMITED WATERS

As previously noted, some discharges in Town are to either TMDL or Water Quality Limited Waters. Table 5-1 highlights the TMDL(s) and/or Water Quality Limitations for each of Upton's listed water bodies. The MS4 area tributary to each water body is subject to the TMDL and/or Water Quality Limited Waters requirements (described in Section 5.4) based on that water body's stormwater related impairments. A map of the MS4 discharge locations (i.e. outfalls and interconnections), the MS4 area tributary to each receiving water and the TMDL and/or Water Quality Limitation triggering additional requirements to reduce pollutant loading and protect water quality can be found in the IDDE report, which is located in SWMP Volume 2.

7.0 IMPLEMENTATION OF MINIMUM CONTROL MEASURES

The 2016 MS4 Permit states that the permittee shall continue to implement their 2003 MS4 SWMP while updating it pursuant to meet the requirements of the new permit. Upon adoption, this new SWMP supersedes the 2003 SWMP and all related deadlines and expectations. As indicated in the 2003 and 2016 MS4 permits, the permittee shall reduce the discharge of pollutants from the MS4 to the maximum extent practicable (MEP) using these 6 minimum control measures (MCM):

1. Public Education and Outreach
2. Public Involvement and Participation
3. Illicit Discharge Detection and Elimination (IDDE) Program
4. Construction Site Stormwater Runoff Control
5. Stormwater Management in New Development and Redevelopment (Post-Construction Stormwater Management)
6. Good House Keeping and Pollution Prevention for Permittee Owned Operations

7.1 PUBLIC EDUCATION AND OUTREACH (MCM 1)

The DPW Director is responsible for ensuring the implementation of the public education and outreach program including measurable goals and reporting. Assisting departments for specific BMPs are listed below.

Public education and outreach materials can be found on the Town's stormwater webpage as referenced in the Executive Summary of this report.

Reporting forms and logs to document public education and outreach efforts can be found in Appendix B. Requirements and documentation measures for specific BMPs are identified below and annual reporting requirements are described in Section 10.

Objective and Requirements

The main objective of this control measure is to implement an education program that includes education goals based on stormwater issues of significance within the MS4 area. The ultimate objective of a public education program is to increase knowledge and change behavior of the public so that pollutants in stormwater are reduced.

The minimum requirements specified in section 2.3.2 of the Permit are as follows:

1. Distribute at a minimum two (2) educational messages over the five (5) year Permit term to each of the following audiences: (1) residents, (2) businesses, institutions (churches, hospitals), and commercial facilities, (3) developers (construction), and (4) industrial facilities. Message shall focus on topics most relevant to the community.
2. Document in each annual report the message for each audience, method of distribution, the measures/methods used to assess the effectiveness of the messages, and the method/measures used to assess the overall effectiveness of the education program.
3. Comply with enhanced requirements related to WQLW Impairment for Phosphorus which includes:
 - Supplement Residential and Business/Commercial/Institution program with annual timed messages on specific topics

In Upton, this applies to West River as a tributary to Blackstone River (MA51-05).

Best Management Practices and Measurable Goals

BMP-1.1. Educate Residents I

Distribute first education message targeted to residents within the Town's MS4 area.

Media/Location:	Mailing, website, event, phone contact, site visit, and/or other means
Responsible Party:	DPW Director/ CMRSWC
Measurable Goal(s):	<ul style="list-style-type: none"> Distribute message to all residents within the Town's MS4 area. Record number of hard copies distributed, locations posted, attendance, webpage hits, etc. as applicable. Complete within 2 years of effective date of Permit

BMP-1.2. Educate Businesses, Institutions, and Commercial Facilities I

Distribute first education message targeted to business, institution, and commercial facility property owners within the Town's MS4 area.

Media/Location:	Mailing, website, event, phone contact, site visit, and/or other means
Responsible Party:	DPW Director/ CMRSWC
Measurable Goal(s):	<ul style="list-style-type: none"> Distribute message to all business, institution, and commercial facility property owners within the Town's MS4 area. Record number of hard copies distributed, locations posted, attendance, webpage hits, etc. as applicable. Complete within 2 years of effective date of Permit

BMP-1.3. Educate Developers and Contractors I

Distribute first education message targeted to developers and contractors within the Town's MS4 area.

Media/Location:	Mailing, website, event, phone contact, site visit, and/or other means
Responsible Party:	DPW Director/ CMRSWC
Measurable Goal(s):	<ul style="list-style-type: none">• Distribute message to all developers and contractors with active projects within the Town's MS4 area.• Record number of hard copies distributed, locations posted, attendance, webpage hits, etc. as applicable.• Complete within 3 years of effective date of Permit

BMP-1.4. Educate Industrial Facility Owners I

Distribute first education message targeted to industrial property owners within the Town's MS4 area.

Media/Location:	Mailing, website, event, phone contact, site visit, and/or other means
Responsible Party:	DPW Director/ CMRSWC
Measurable Goal(s):	<ul style="list-style-type: none">• Distribute message to all industrial property owners within the Town's MS4 area.• Record number of hard copies distributed, locations posted, attendance, webpage hits, etc. as applicable.• Complete within 3 years of effective date of Permit

BMP-1.5. Educate Residents II

Distribute second education message targeted to residents within the Town's MS4 area.

Media/Location:	Mailing, website, event, phone contact, site visit, and/or other means
Responsible Party:	DPW Director/ CMRSWC
Measurable Goal(s):	<ul style="list-style-type: none">• Distribute message to all residents within the Town's MS4 area.• Record number of hard copies distributed, locations posted, attendance, webpage hits, etc. as applicable.• Complete within 4 years of effective date of Permit

BMP-1.6. Educate Businesses, Institutions, and Commercial Facilities II

Distribute second education message targeted to business, institution, and commercial facility property owners within the Town's MS4 area.

Media/Location:	Mailing, website, event, phone contact, site visit, and/or other means
Responsible Party:	DPW Director/ CMRSWC
Measurable Goal(s):	<ul style="list-style-type: none"> Distribute message to all business, institution, and commercial facility property owners within the Town's MS4 area. Record number of hard copies distributed, locations posted, attendance, webpage hits, etc. as applicable. Complete within 4 years of effective date of Permit

BMP-1.7. Educate Developers and Contractors II

Distribute second education message targeted to developers and contractors within the Town's MS4 area.

Media/Location:	Mailing, website, event, phone contact, site visit, and/or other means
Responsible Party:	DPW Director/ CMRSWC
Measurable Goal(s):	<ul style="list-style-type: none"> Distribute message to all developers and contractors with active projects within the Town's MS4 area. Record number of hard copies distributed, locations posted, attendance, webpage hits, etc. as applicable. Complete within 5 years of effective date of Permit

BMP-1.8. Educate Industrial Facility Owners II

Distribute second education message targeted to industrial property owners within the Town's MS4 area.

Media/Location:	Mailing, website, event, phone contact, site visit, and/or other means
Responsible Party:	DPW Director/ CMRSWC
Measurable Goal(s):	<ul style="list-style-type: none"> Distribute message to all industrial property owners within the Town's MS4 area. Record number of hard copies distributed, locations posted, attendance, webpage hits, etc. as applicable. Complete within 5 years of effective date of Permit

Appendix H of the Permit requires implementation of the following BMPs due to Phosphorus WQLW:

BMP-1.9. Educate Residents, Businesses, Institutions, and Commercial Audiences Annually on Proper Lawn Care

Distribute annual spring education message regarding proper use and disposal of lawn clippings and proper use of slow-release fertilizers targeted to Residents, Businesses, Institutions, and Commercial Facilities in watershed areas with a phosphorus TMDL or impairment.

Media/Location:	Brochures or pamphlets by mail and/or posted to website
Responsible Party:	DPW Director/ CMRSWC
Measurable Goal(s):	<ul style="list-style-type: none">Distribute message to all residents in watershed areas with a phosphorus TMDL or impairment in the spring (March/April/May).Record number of hard copies distributed and locations posted.

BMP-1.10. Educate Residents, Businesses, Institutions, and Commercial Audiences Annually on Proper Management of Pet Waste

Distribute annual summer education message regarding proper management of pet waste with regulation cited targeted to Residents, Businesses, Institutions, and Commercial Facilities in watershed areas with a phosphorus TMDL or impairment.

Media/Location:	Brochures or pamphlets by mail and/or posted to website; DPW FAQ on Town website
Responsible Party:	DPW Director/ CMRSWC
Measurable Goal(s):	<ul style="list-style-type: none">Distribute message in watershed areas with a phosphorus TMDL or impairment in the summer (June/July).Record locations posted and number of hits on website.

BMP-1.11. Educate Residents, Businesses, Institutions, and Commercial Audiences Annually on Proper Disposal of Leaf Litter

Distribute annual fall education message targeted to Residents, Businesses, Institutions, and Commercial Facilities in watershed areas with a phosphorus TMDL or impairment.

Media/Location:	Brochures or pamphlets by mail and/or posted to website
Responsible Party:	DPW Director/ CMRSWC
Measurable Goal(s):	<ul style="list-style-type: none"> • Distribute message in watershed areas with a phosphorus TMDL or impairment in the Fall (Aug/Sept/Oct) • Record number of hard copies distributed and locations posted.

BMP-1.12. Educate Residents, Businesses, Institutions, and Commercial Audiences Annually on Proper Storage and Application Rates of Winter Deicing Material

Supplement the Commercial/Industrial education program with an annual message to private rad salt applicators and commercial and industrial site owners on the proper storage and application rates of winter deicing material.

Media/Location:	Brochures or pamphlets by mail and/or posted to website
Responsible Party:	DPW Director/ CMRSWC
Measurable Goal(s):	<ul style="list-style-type: none"> • Distribute message in watershed areas with a chloride impairment in the Winter (Nov/Dec) • Record number of hard copies distributed and locations posted.

7.2 PUBLIC INVOLVEMENT AND PARTICIPATION (MCM 2)

The DPW Director is responsible for ensuring the implementation of proposed BMPs including measurable goals and reporting. Assisting departments for particular BMPs are listed below.

Reporting forms and logs to document public involvement and participation efforts can be found in Appendix B. Web Links, posting locations, requirements and documentation measures for specific BMPs are identified below and annual reporting requirements are described in Section 10.

Objective and Requirements

The main objective of this control measure is for the Town to provide opportunities to engage the public to participate in the review and implementation of the Town's Stormwater Management Program (SWMP).

The minimum requirements specified in section 2.3.3 of the Permit are as follows:

1. Public involvement activities shall comply with state notice requirements (MGL Chapter 30A, Section 18-25 effective 7/10/2010). The SWMP and all annual reports shall be available to the public.
2. Annually provide the public an opportunity to participate in the review and implementation of the SWMP. Public participation opportunities may include, but are not limited to, websites; hotlines; clean-up teams; monitoring teams; or an advisory committee.
3. Report on the activities undertaken to provide public participation opportunities including compliance with state public notice requirements referenced above.

Best Management Practices and Measurable Goals

BMP-2.1. Public Review of Stormwater Management Program
Make SWMP available to review by Town residents.

Media/Location:	Town Stormwater Website
Responsible Party:	DPW Director
Measurable Goal(s):	<ul style="list-style-type: none"> Provide opportunity for residents to view the SWMP online and provide public access to the printed document. Record web page hits and requests to view printed document. Update posted plan annually

BMP-2.2. Public Participation and Comment of Stormwater Management Program
Record and review comments received by residents upon review of SWMP.

Media/Location:	Email address provided on website for public comment.
Responsible Party:	DPW Director
Measurable Goal(s):	<ul style="list-style-type: none"> Keep a log of comments for review and consideration when annually updating the SWMP. Include comment log in the annual report.

BMP-2.3. Public Participation Activities

Public participation activities may include meetings, cleanup teams, monitoring teams, hazmat drop off events, watershed organization events, hotlines, or an advisory committee.

Media/Location:	Public participation activities are advertised on Town Website.
Responsible Party:	DPW Director
Measurable Goal(s):	<ul style="list-style-type: none"> Advertise at least one activity per year. Record method of advertising. Record the number of attendees and/or quantity of cleanup achieved. Record compliance with state public notice requirements where applicable.

7.3 ILLICIT DISCHARGE DETECTION AND ELIMINATION (IDDE) PROGRAM (MCM 3)

The Department of Public Works is responsible for ensuring the implementation of proposed BMPs including measurable goals and reporting. Assisting departments for particular BMPs are listed below.

Reporting forms and logs to document IDDE efforts can be found in Appendix B and are expanded on in SWMP Volume 2. Requirements and documentation measures for specific BMPs are identified below and annual reporting requirements are described in Section 10.

Objective and Requirements

The main objective of this control measure is to systematically find and eliminate illicit sources of non-stormwater discharge to its municipal storm sewer system and implement procedures to prevent such discharges.

The minimum requirements specified in section 2.3.4 of the Permit are as follows:

1. Develop and implement a regulatory mechanism to provide adequate legal authority to the Town to implement and enforce the Illicit Discharge Detection and Elimination (IDDE) Program.
2. Develop an SSO inventory covering the previous five (5) years within one (1) year of the effective date of the Permit.
3. Update storm sewer system map for Phase I mapping requirements within two (2) years of the effective date of the Permit, annually update the mapping as new information is discovered, and develop a system wide storm sewer system map for Phase II mapping requirements within ten (10) years of Permit effective date.
4. Develop an IDDE Program within one (1) year of the effective date of the Permit.
5. Develop an initial inventory and a priority ranking of outfalls/interconnections within one (1) year of the effective date of the Permit and update annually.
6. Develop a catchment investigation program within 18 months of the effective date of the Permit and implement according to the IDDE program.
7. Record and report in each annual report about the IDDE program progress and overall effectiveness.
8. Ongoing screening plan of outfalls once every five years.
9. Provide training to employees involved in the IDDE program annually. The training frequency and type shall be reported in the annual report.

Best Management Practices and Measurable Goals

BMP-3.1. IDDE Legal Authority

The IDDE Legal Authority was established in "Town of Upton Stormwater Bylaw Chapter 7.0 – Illicit Discharge" with the authorized enforcement agency identified as the Upton Conservation Commission.

Media/Location:	Town of Upton Stormwater Bylaw Chapter 7.0, Town Website
Responsible Party:	Conservation Commission
Measurable Goal(s):	<ul style="list-style-type: none">• Bylaw Adopted

BMP-3.2. Sanitary Sewer Overflow (SSO) Inventory

Develop and maintain an SSO inventory that covers the previous five years in accordance of Permit conditions.

Media/Location:	The inventory is included as Appendix G of the SWMP Volume 2: IDDE Plan.
Responsible Party:	DPW Director
Measurable Goal(s):	<ul style="list-style-type: none">• Inventory completed (by year 1).• In the event of an overflow or bypass, provide notification with 24 hours to MassDEP & EPA followed by a written report within 5 calendar days.• Update annually.

BMP-3.3. Storm Sewer System Map

Update storm sewer system map in accordance with Permit mapping requirements.

Media/Location:	The map is included as Appendix A of the SWMP Volume 2: IDDE Plan. Town website
Responsible Party:	DPW Director
Measurable Goal(s):	<ul style="list-style-type: none">• Update map within 2 years of effective date of Permit for Phase 1 mapping• Update annually as new/corrected information is discovered.• Complete full system map (Phase 2) within 10 years of effective date of Permit

BMP-3.4. Written IDDE program
Develop/update written IDDE program.

Media/Location:	SWMP Volume 2: IDDE Plan. Town website
Responsible Party:	DPW Director
Measurable Goal(s):	<ul style="list-style-type: none">Written program completed (by year 1).Update as required.

BMP-3.5. Implement IDDE Program

Implement catchment investigations according to IDDE program and Permit conditions and based on the outfall/interconnection inventory, initial ranking and dry weather outfall and interconnection screening and sampling results.

Media/Location:	SWMP Volume 2: IDDE Plan. Town website
Responsible Party:	DPW Director
Measurable Goal(s):	<ul style="list-style-type: none">Conduct 100% of catchment investigations for "Problem" outfalls within 7 years of effective date of Permit.Conduct 100% of catchment investigations for all outfalls within 10 years of effective date of Permit.Report results and progress in annual report.

BMP-3.6. Employee Training

Provide annual training on IDDE implementation in accordance with IDDE program.

Media/Location:	SWMP Volume 2: IDDE Plan. Town Website
Responsible Party:	DPW Director
Measurable Goal(s):	<ul style="list-style-type: none">Conduct annual IDDE trainingProvide record of training and attendance in annual report.

BMP-3.7. Dry Weather Screening and Sampling

Conduct dry outfall screening and sampling of outfalls/interconnections in MS4 area in accordance IDDE program

Media/Location:	SWMP Volume 2: IDDE Plan. Town website
Responsible Party:	DPW Director
Measurable Goal(s):	<ul style="list-style-type: none">Complete dry outfall screening and sampling within 3 years of effective date of Permit.Report results and progress in annual report.

BMP-3.8. Wet Weather Sampling of Outfalls

Conduct wet weather outfall sampling in accordance with IDDE program. This sampling can be done upon completion of any dry weather investigation but must be completed before the catchment investigation is marked as complete.

Media/Location:	SWMP Volume 2: IDDE Plan. Town website
Responsible Party:	DPW Director
Measurable Goal(s):	<ul style="list-style-type: none">• Complete wet weather outfall sampling of "Problem" outfalls within 7 years of effective date of Permit• Complete wet weather outfall sampling of all outfalls within 10 years of effective date of Permit.• Report results and progress in annual report.

BMP-3.9. Ongoing Screening

Conduct ongoing dry weather and wet weather screening and sampling (as necessary) of outfalls in accordance with IDDE program.

Media/Location:	SWMP Volume 2: IDDE Plan. Town website
Responsible Party:	DPW Director
Measurable Goal(s):	<ul style="list-style-type: none">• Complete ongoing outfall screening within 5 years of completing catchment investigations.• Report results and progress in annual report.

7.4 CONSTRUCTION SITE STORMWATER RUNOFF CONTROL (MCM 4)

The Department of Public Works are responsible for ensuring the implementation of proposed BMPs and measurable goals. Assisting departments for particular BMPs are listed below.

Regulations, requirements and guidance on construction site stormwater runoff control can be found on the Town's stormwater webpage and at Town Hall. Web Links and locations for specific BMPs identified below are listed in the Executive Summary.

Reporting forms and logs to document these efforts can be found in Appendix B. Reporting measures for specific BMPs are identified below and reporting requirements are described in Section 10.

Objective and Requirements

The objective of this construction stormwater runoff control program is to minimize or eliminate erosion and maintain sediments on site so that it is not transported in stormwater and allowed to discharge to a water of the U.S through the Town's MS4.

The minimum Permit requirements in accordance to MS4-2016 section 2.3.5 are as follow:

1. Implement and enforce a program to reduce pollutants in stormwater runoff discharge to the MS4 from all construction activities that result in land disturbance greater than or equal to one acre within regulated area.
2. Develop and implement a construction site runoff control program with written procedures and a regulatory mechanism for site plan review and enforcement within one (1) year from effective date of the Permit. Program must include the following elements for sediment and erosion control:
 - a. Regulatory mechanism that requires the use of sediment and erosion control practices at construction sites including controls for other wastes on construction sites
 - b. Written procedures for site inspection and enforcement
 - c. Sediment and erosion control requirements for construction site operators performing land disturbance activities
 - d. Requirements to control waste from construction sites
 - e. Written procedures for site plan review and inspection and enforcement

Best Management Practices and Measurable Goals

BMP-4.1. Sediment and Erosion Control Regulation

A bylaw/regulation is necessary to meet Permit requirements for sediment and erosion control practices. The Town requires the use of sediment and erosion control practices at construction sites through their Stormwater Bylaw.

Media/Location:	Town of Upton Stormwater Bylaw Chapter 6.0, Town Website
Responsible Party:	Conservation Commission & Planning Board
Measurable Goal(s):	<ul style="list-style-type: none">• Ordinance Adopted• Implement for 100% of applicable projects

BMP-4.2. Site Inspections and Enforcement of Erosion and Sediment Control Measures.
Provide/update written requirements for site inspections and enforcement procedures.

Media/Location:	SWMP Volume 1: Appendix B. Town website
Responsible Party:	Conservation Commission & Planning Board
Measurable Goal(s):	<ul style="list-style-type: none"> Written procedures completed (by year 1) Implement for 100% of applicable projects. Conduct construction site inspections consistent with the written procedures. Keep records of inspections.

BMP-4.3. Site Plan Review
Provide/update written procedures for site plan review and begin implementation.

Media/Location:	SWMP Volume 1: Appendix B. Town website
Responsible Party:	Conservation Commission & Planning Board
Measurable Goal(s):	<ul style="list-style-type: none"> Written procedures completed (by year 1) Implement for 100% of applicable projects. Keep records of projects submitted for site plan review.

BMP-4.4. Construction Site Operators Erosion and Sediment Control Program
Provide/update written requirements for construction operators to implement a sediment and erosion control program. The Town requires this through their Stormwater Bylaw.

Media/Location:	SWMP Volume 1: Appendix B. Town website
Responsible Party:	Conservation Commission & Planning Board
Measurable Goal(s):	<ul style="list-style-type: none"> Written procedures completed (by year 1) Implement for 100% of applicable projects. During construction site inspections review for erosion controls and make note of compliance status. Keep records of inspections.

BMP-4.5. Construction Waste Control
Adopt requirements to control wastes, including but not limited to, discarded building materials, concrete truck wash out, chemicals, litter, and sanitary wastes

Media/Location:	Stormwater Regulations and SWMP Volume 1: Appendix B. Town website
Responsible Party:	Conservation Commission & Planning Board
Measurable Goal(s):	<ul style="list-style-type: none"> Written procedures completed (by year 1) Implement for 100% of applicable projects. During construction site inspections review for waste control and make note of compliance status. Keep records of inspections.

7.5 STORMWATER MANAGEMENT IN NEW DEVELOPMENT AND REDEVELOPMENT (POST CONSTRUCTION STORMWATER MANAGEMENT) (MCM 5)

The Department of Public Works are responsible for ensuring the implementation of proposed BMPs and measurable goals. Assisting departments for particular BMPs are listed below.

Regulations, requirements and guidance on post construction stormwater management can be found on the Town's stormwater webpage and at Town Hall. Web Links and locations for specific BMPs identified below are listed in the Executive Summary.

Reporting forms and logs to document these efforts can be found in Appendix B. Reporting measures for specific BMPs are identified below and reporting requirements are described in Section 10.

Objective and Requirements

The objective of an effective post construction stormwater management program is to reduce the discharge of pollutants found in stormwater to the MS4 through the retention or treatment of stormwater after construction on new or redeveloped sites and to ensure proper maintenance of installed stormwater controls.

The minimum Permit requirements in accordance to MS4-2016 section 2.3.6 are as follow:

1. Develop, implement, and enforce a program to address post-construction stormwater runoff from all new development and redevelopment sites that disturb one or more acres and discharge into the permittees MS4 at a minimum.
 - Update Permit requirement and regulations to require for development projects the use of LID techniques to the maximum extent feasible
 - Develop/update Permit requirements and stormwater regulations to meet new development and redevelopment design requirements of Permit
 - Update Permit requirement and regulations to require submission of as-built drawings and ensure long term operation and maintenance will be a part of the SWMP
2. Develop a report assessing current street design and parking lot guidelines and other local requirements that affect the creation of impervious cover within four (4) years from effective date of the Permit.
3. Develop a report assessing existing local regulation to determine if green infrastructures are allowable when appropriate site conditions exist. This report shall be completed within four (4) years from the effective date of the Permit.
4. Identify within four (4) years from the effective date of the Permit a minimum of 5 permittee-owned properties that could potentially be modify or retrofitted with BMPs.
5. Comply with enhanced requirements related to WQLW Impairment Requirements for Phosphorus which includes:
 - Adopt/amend the Town's ordinance or other regulatory mechanism to include a requirement that new development and redevelopment stormwater management BMPs be optimized for phosphorus removal
 - Include consideration of BMPs that infiltrate stormwater where feasible to reduce phosphorus discharges in retrofit inventory and priority ranking of permittee-owned properties

In Upton, this applies to the West River as tributary to the Blackstone River (MA51-05).

6. Comply with enhanced requirements related to WQLW Impairment Requirements for Chloride which includes:

- For Privately Maintained Facilities that Discharge to the MS4, establish procedures and requirements to minimize salt usage and require the use of salt alternatives
- For Privately Maintained Facilities that Discharge to the MS4, establish an ordinance, bylaw, or other regulatory mechanism requiring measures to prevent exposure of any salt stockpiles to precipitation and runoff at all commercial and industrial properties within the regulated area.

In Upton, this applies to the West River (MA51-12).

7. Comply with enhanced requirements related to Solids (turbidity), Oil and Grease (hydrocarbons) and Metals WQLW Impairment Requirements which includes:

- Adopt/amend the Town's ordinance or other regulatory mechanism to include a requirement that new development and redevelopment stormwater management systems designed on commercial and industrial land use area draining to the water quality limited waterbody shall incorporate designs that allow for shutdown and containment where appropriate to isolate the system in the event of an emergency spill or other unexpected event. EPA also encourages the Town to require any stormwater management system designed to infiltrate stormwater on commercial or industrial sites to provide the level of pollutant removal equal to or greater than the level of pollutant removal provided through the use of biofiltration of the same volume of runoff to be infiltrated, prior to infiltration.
- EPA also encourages the Town to require any stormwater management system designed to infiltrate stormwater on commercial or industrial sites to provide the level of pollutant removal equal to or greater than the level of pollutant removal provided through the use of biofiltration of the same volume of runoff to be infiltrated, prior to infiltration.

In Upton, this applies to the West River (MA51-12).

Best Management Practices and Measurable Goals

BMP-5.1. Low Impact Development (LID) Techniques

Update Permit requirement and regulations to require for development projects the use of LID techniques to the maximum extent feasible.

Media/Location:	Stormwater Regulations and SWMP Volume 1: Appendix B. Town website
Responsible Party:	DPW Director
Measurable Goal(s):	<ul style="list-style-type: none">• Complete within 2 years of the effective date of Permit.• Implement for 100% of applicable projects.• Keep records of development projects approved with LIDs.

BMP-5.2. New Development and Redevelopment (Post-Construction) Design Regulations
Develop/update Permit requirements and stormwater regulations to meet new development and redevelopment design requirements of Permit. This should include a requirement that new development and redevelopment stormwater management BMPs be optimized for phosphorus removal. This should also include requiring pollutant containment and removal requirements for commercial and industrial land use areas draining to the water quality limited waterbodies to address Solids (turbidity), Oil and Grease (hydrocarbons) and Metals WQLW. For chloride impaired waterbodies, include required measures to prevent exposure of any salt stockpiles to precipitation and runoff at all commercial and industrial properties within the regulated area and establish procedures and requirements to minimize salt usage and require the use of salt alternatives where the Town deems necessary.

Media/Location:	Stormwater Regulations and SWMP Volume 1: Appendix B. Town website
Responsible Party:	DPW Director
Measurable Goal(s):	<ul style="list-style-type: none">• Complete within 2 years of the effective date of Permit.• Implement for 100% of applicable projects.• Keep records of development projects approved to meet regulations.

BMP-5.3. As-Built Plans

Update Permit requirement and regulations to require submission of as-built drawings and ensure long term operation and maintenance will be a part of the SWMP.

Media/Location:	Stormwater Regulations and SWMP Volume 1: Appendix B. Town website
Responsible Party:	DPW Director
Measurable Goal(s):	<ul style="list-style-type: none">• Complete within 2 years of the effective date of Permit.• Implement for 100% of applicable projects.• Keep records of projects requiring and fulfilling as-built and O&M requirements.

BMP-5.4. Street Design and Parking Lot Guidelines Report

Develop a report assessing requirements that affect the creation of impervious cover. The assessment will help determine if changes to design standards for streets and parking lots can be modified to support low impact design options.

Media/Location:	SWMP Volume 1: updates; DPW FAQ on Town website
Responsible Party:	Conservation Commission & Planning Board
Measurable Goal(s):	<ul style="list-style-type: none">• Complete within 4 year of the effective date of Permit.• Implement recommendations of the report.• Report progress of implementation annually.

BMP-5.5. Green Infrastructure Report

Develop a report assessing local regulations to determine feasibility of allowing green roofs, raingardens, water harvesting and other similar practices.

Media/Location:	SWMP Volume 1 updates
Responsible Party:	DPW Director
Measurable Goal(s):	<ul style="list-style-type: none">• Complete within 4 year of the effective date of Permit.• Implement recommendations of the report.• Report progress of implementation annually.

BMP-5.6. List of 5 properties to Provide (effective) Reduction of Impervious area

Identify and maintain a list of at least 5 permittee-owned properties that could be modified or retrofitted with BMPs to reduce impervious areas and update annually.

Media/Location:	DPW Office
Responsible Party:	DPW Director
Measurable Goal(s):	<ul style="list-style-type: none">• Complete list within 4 year of the effective date of Permit.• Update list as needed and report annually on retrofitted properties.

7.6 GOOD HOUSEKEEPING AND POLLUTION PREVENTION FOR PERMITTEE OWNED OPERATIONS (MCM 6)

The Department of Public Works is responsible for ensuring the implementation of proposed BMPs and measurable goals. Assisting departments for particular BMPs are listed below.

Reporting forms and logs to document these efforts can be found in Appendix B and are to be expanded upon in SWMP Volume 3. Reporting measures for specific BMPs are identified below and reporting requirements are described in Section 10.

Objective and Requirements

The Town will implement an operations and maintenance program for permittee-owned operations that has a goal of preventing or reducing pollutant runoff and protecting water quality from all Town-owned operations.

The minimum Permit requirements in accordance to MS4-2016 section 2.3.7 are as follow:

1. Develop an Operations and Maintenance (O&M) Program for Town-owned facilities within two (2) years from effective date of the Permit.
2. Inventory of all Town owned facilities within two (2) years from the effective date of the Permit.
3. Develop an Infrastructure Operations and Maintenance Program within two (2) years from the effective date of the Permit.
4. Optimize routine inspections, cleaning and maintenance of catch basins.
5. Establish and implement procedures for sweeping and/or cleaning streets and Town-owned parking lots.
6. Ensure proper storage of catch basins cleanings and street sweepings prior to disposal.
7. Establish and implement procedures for winter road maintenance.
8. Establish and implement inspections and maintenance of stormwater treatment structures.
9. Develop Stormwater Pollution Prevention Plans (SWPPPs) for Town-owned or -operated facilities within two (2) years from effective date of the Permit.
10. Comply with enhanced requirements related to WQLW Impairment requirements for phosphorus which includes:
 - Establish requirements for use of slow release fertilizers on Town owned property currently using fertilizer
 - Reduce and manage fertilizer use
 - Establish procedures to properly manage grass cuttings and leaf litter on Town property
 - Prohibit blowing organic waste materials onto adjacent impervious surfaces
 - Increase street sweeping frequency of all municipal owned streets and parking
 - Complete a Phosphorus Identification Report
 - Identify and implement a structural BMP for Phosphorus reduction demonstration project

In Upton, this applies to West River as a tributary to the Blackstone River (MA51-05).

11. Comply with enhanced requirements related to WQLW Impairment Requirements for Chloride which includes:
 - Develop a Salt Reduction Plan for Municipally Maintained Surfaces which shall be completed within three years of effective date of the permit and fully implemented 5 years after the effective date of the permit.

In Upton, this applies to the West River (MA51-12).

12. Comply with enhanced requirements related to Solids (turbidity), Oil and Grease (hydrocarbon) and Metals WQLW Impairment Requirements which includes:

- Increased street sweeping frequency of all municipal owned streets and parking lots to a schedule determined by the Town to target areas with potential for high pollutant loads. This may include, but is not limited to, increased street sweeping frequency in commercial areas and high-density residential areas, or drainage areas with a large amount of impervious area.
- Prioritize inspection and maintenance for catch basins to target high pollutant loads and to ensure that no sump shall be more than 50 percent full. Clean catch basins more frequently if inspection and maintenance activities indicate excessive sediment or debris loadings.

In Upton, this applies to the West River (MA51-12).

Best Management Practices and Measurable Goals

BMP-6.1. Parks and Open Space Operations and Maintenance Procedures

Create written O&M procedures including all requirements of the Permit for Town owned parks and open spaces.

Media/Location:	SWMP Volume 3: O&M Plan
Responsible Party:	DPW Director
Measurable Goal(s):	<ul style="list-style-type: none">• Complete within 2 years of effective date of Permit.• Implement on 100% of Town owned parks and open spaces.• Keep records of O&M performed and report annually.

BMP-6.2. Buildings and Facilities Operations and Maintenance Procedures

Create written O&M procedures including all requirements of the Permit for Town owned buildings and facilities. Include all requirements contained in 2.3.7.a.ii.

Media/Location:	SWMP Volume 3: O&M Plan
Responsible Party:	DPW Director
Measurable Goal(s):	<ul style="list-style-type: none">• Complete within 2 years of effective date of Permit.• Implement on 100% of Town owned buildings and facilities.• Keep records of O&M performed and report annually.

BMP-6.3. Vehicles and Equipment Operations and Maintenance Procedures

Create written O&M procedures including all requirements of the Permit for Town owned vehicles and equipment. Include all requirements contained in 2.3.7.a.ii.

Media/Location:	SWMP Volume 3: O&M Plan
Responsible Party:	DPW Director
Measurable Goal(s):	<ul style="list-style-type: none"> • Complete within 2 years of effective date of Permit. • Implement on 100% of Town owned vehicles and equipment. • Keep records of O&M performed and report annually.

BMP-6.4. Inventory all Permittee-Owned Parks and Open Spaces, Buildings and Facilities, and Vehicles and Equipment

Create an inventory of Town owned parks and open spaces, buildings and facilities, and vehicles and equipment facilities for implementation of O&M Plan.

Media/Location:	SWMP Volume 3: O&M Plan, Town website
Responsible Party:	DPW Director
Measurable Goal(s):	<ul style="list-style-type: none"> • Complete within 2 years of effective date of Permit. • Update inventory annually.

BMP-6.5. Municipal Infrastructure Operation and Maintenance Program

Develop and implement program to ensure proper function of the MS4 stormwater infrastructure.

Media/Location:	SWMP Volume 3: O&M Plan, Town website
Responsible Party:	DPW Director
Measurable Goal(s):	<ul style="list-style-type: none"> • Complete within 2 years of effective date of Permit. • Implement so that 100% of infrastructure is maintained and functioning properly. • Keep records of O&M performed and report annually.

BMP-6.6. Catch Basin Cleaning Program

Develop written program for catch basin cleaning with a goal that each catch basin sump is no more than 50% full at any given time. In the tributary areas of West River (MA51-12), prioritize inspection and maintenance for catch basins to target high pollutant load areas to address solids, oil and grease, and metals impairments.

Media/Location:	SWMP Volume 1: Appendix B. Town website
Responsible Party:	DPW Director
Measurable Goal(s):	<ul style="list-style-type: none"> • Written program complete (by year 1). • Clean catch basins on established schedule. • Report number of catch basins cleaned and volume of material moved annually.

BMP-6.7. Street Sweeping Program

Develop and implement a street sweeping program so that all streets and municipal parking lots are swept in accordance with Permit conditions. In the tributary areas of West River (MA51-12), street sweeping is increased to twice per year (Spring & Fall) due to phosphorus impairment. Street sweeping frequency is to be increased for all municipal owned streets and parking lots to a schedule determined by the town to target areas with potential for high pollutant loads to address solids and metals impairments.

Media/Location:	SWMP Volume 1: Appendix B. Town website
Responsible Party:	DPW Director
Measurable Goal(s):	<ul style="list-style-type: none">• Written program complete (by year 1).• Sweep all streets and municipal parking lots in accordance with established schedule.• Keep records of sweeping performed and report annually.

BMP-6.8. Winter Road Maintenance Program

Develop and implement a program to manage storage and use of road salt. Include additional/enhanced best management practices identified in Appendix H of the permit to address the impairment of Chloride in the West River (MA51-12).

Media/Location:	SWMP Volume 1: Appendix B. Town website
Responsible Party:	DPW Director
Measurable Goal(s):	<ul style="list-style-type: none">• Written program complete (by year 1).• Implement program as necessary.• Evaluate at least one salt/chloride alternative for use in the Town.• Track types and amounts of salt applied and report in the annual report salt use beginning in the year of completion of the Salt Reduction Plan.

BMP-6.9. Stormwater Treatment Structures Inspections and Maintenance Procedures
Develop and implement inspection and maintenance procedures and frequencies for Town-owner stormwater BMPs (excluding catch basins).

Media/Location:	SWMP Volume 1: Appendix B. Town website
Responsible Party:	DPW Director
Measurable Goal(s):	<ul style="list-style-type: none"> Written procedures complete (by year 1). Inspect and maintain 100% of BMPs treatment structures at least annually. Keep records of inspection and maintenance performed and report annually.

BMP-6.10. Stormwater pollution prevention plan (SWPPP)
Develop and implement SWPPPs for maintenance garages, transfer stations, and other waste-handling facilities.

Media/Location:	SWMP Volume 3: O&M Plan
Responsible Party:	DPW Director
Measurable Goal(s):	<ul style="list-style-type: none"> Develop and implement SWPPPs within 2 years of effective date of Permit. Keep records of inspection and maintenance performed and report as required in the SWPPPs.

BMP-6.11. Salt Reduction Plan
Develop and implement a Salt Reduction Plan for Municipally Maintained Surfaces.
Include all requirements contained in Appendix H of the permit to address the impairment of Chloride in the West River (MA51-12).

Media/Location:	DPW Office
Responsible Party:	DPW Director
Measurable Goal(s):	<ul style="list-style-type: none"> Develop Plan within 3 years of effective date of Permit. Implement Plan within 5 years of effective date of Permit. Keep records of inspection and maintenance performed and report as required in the SWPPPs.

BMP-6.12. Phosphorus Source Identification Report

Develop and implement a Phosphorus Source Identification Report in accordance with Appendix H of the permit to address the impairment of Phosphorus in the West River (MA51-12) as a tributary to the Blackstone River. Include evaluation of potential structural BMPs targeting phosphorus removal and implement in accordance with the plan.

Media/Location:	DPW Office
Responsible Party:	DPW Director
Measurable Goal(s):	<ul style="list-style-type: none">• Develop Plan within 4 years of effective date of Permit.• Submit Plan as part of year 4 annual report.• Provide listing of structural BMPs and plan and schedule for implementation in year 5 annual report.• Implement a demonstration project within 6 years of permit effective date.• Implement remainder of the plan according to plan schedule.

8.0 SANITARY SEWER OVERFLOWS INVENTORY

The Town has identified and inventoried all known locations where SSOs have discharged to the MS4 within the previous five (5) years. This inventory is provided and maintained as part of SWMP Volume 2: IDDE Plan.

9.0 SURFACE DRINKING WATER SUPPLY SOURCES

Section 3.0 of the Permit addresses requirements for MS4 systems that discharge to public surface drinking water supply sources (Class A and Class B surface waters used for drinking water) or their tributaries.

According to 314 CMR 4.00, Massachusetts Surface Water Quality Standards, 4.05: Classes and Criteria and 4.06: Basin Classification and Maps, within the MS4 regulated area, Upton has no public surface drinking water supply protection zones.

10.0 ANNUAL PROGRAM EVALUATION

Program evaluation, record keeping, and reporting are required annually to document what the Town has done during the previous reporting period, judge compliance with Permit provisions, and to verify that efforts are resulting in an improvement to the stormwater, and ultimately the receiving water's quality.

The Town is required to submit annual reports each year of the Permit term. The reporting period is a one- year period commencing on the Permit effective date (July 1, 2018) and each anniversary thereafter. The exception is that the first annual report will also include the period from May 1, 2018 to June 30, 2019. Annual reports are due ninety days from the close of the reporting period (September 30). The annual reports will review compliance with the Permit terms and conditions including assessment of selected BMPs, status and progress assessment of planned activities, description of IDDE and O&M program activities, evaluation of construction and post construction stormwater management, and the method/measures used to assess the overall effectiveness of the education program. Description of activities for the next reporting cycle and any changes in identified BMPs or measurable goals will be included. The following data will be collected and reported by the Town using the reporting forms in Appendix B to support the ongoing efforts mandated by the Permit:

- Public education and outreach materials with dated distribution/attendance list(s)
- Public involvement and participation materials with dated distribution/attendance list(s)
- Data related to Implementation of the IDDE Program including:
 - SSO reporting forms and updated inventory table
 - Illicit discharge reporting forms and inventory table
 - Outfall screening and sampling data
 - Record of mapping updates
 - Inventory of catchment investigations, data collected, and illicit connections removed
 - Outfall and catchment ranking and assessment updates (Updated Matrix)
 - IDDE program training attendance log
- Inventory of construction runoff management including number of projects reviewed, inspected and enforcement actions
- Inventory of site plan review and BMP implementation for new/re-development projects
- O&M inspection and maintenance forms and logs including:
 - Catch basin cleaning and activities
 - Street sweeping and parking lot sweeping logs
 - MS4 infrastructure BMP inspection forms and logs
 - Town facilities inspection forms and logs
 - SWPPP inspection reports


EPA has indicated they are developing an annual report template for MS4s which will populate information from the NOI and be in the form of an electronic fillable .pdf. When it is available, the Town will review the annual report template to determine the best method for data management to be compatible.

APPENDIX A

- Environmental Overview Map

Town of Upton, Massachusetts

MS4 Environmental Overview Map



APPENDIX B

MCM Procedures, Inspection Forms, & Reporting Logs

Index

MCM Procedures, Inspection Forms, & Reporting Logs

- MCM 1: Public Education and Outreach
 - Reporting Log
- MCM 2: Public Involvement & Participation
 - Reporting Log
- MCM 3: IDDE Program
 - Reporting Summary Logs
- MCM 4: Construction Site Runoff Control
 - Site Inspection Log
 - Site Inspection Form
 - Stormwater Site Plan Review
- MCM 6: Good Housekeeping
 - Catch Basin Cleaning
 - Street and Parking Lot Sweeping
 - Winter Road Maintenance Procedure
 - Stormwater Treatment Structures Inspection & Maintenance
 - Stormwater BMP Inspection Form – Surface Structures
 - Stormwater BMP Inspection Form – Subsurface Structures

MCM 1: PUBLIC EDUCATION AND OUTREACH LOG

Reporting Period: _____ - _____

BMP #	Title/Description	Audience	Responsible Party	Method of Delivery	Date	Record of Measurable Goal*
1.9	Management of Pet Waste: Dog License	Residents	DPW Director/CMRSWC	Distributed with Dog Licenses		
1.10	Lawn Care: grass clippings & fertilizer	Residents & Bus/Inst/Com	DPW Director/CMRSWC	Mail and post to website		
1.11	Management of Pet Waste	Residents & Bus/Inst/Com	DPW Director/CMRSWC	Post to website		
1.12	Disposal of Leaf Litter	Residents & Bus/Inst/Com	DPW Director/CMRSWC	Mail and post to website		

*May include: # distributed, attendees, web page hits, social media likes, etc.

Note: See section 7.1 of SWMP for BMP reporting descriptions and requirements.

MCM 2: PUBLIC INVOLVEMENT & PARTICIPATION LOG

Reporting Period: _____ - _____

RECORD OF SWMP AND ANNUAL REPORT POSTING FOR PUBLIC REVIEW

Date	Responsible Party	Public Notice Provided	Location of Posting	Record of Measurable Goal*

*May include: web page hits, requests to view printed document, # of comments received

RECORD OF PUBLIC COMMENTS

Date	Comment From	Received Via	Comment

RECORD OF PUBLIC PARTICIPATION ACTIVITIES

Date	Responsible Party	Public Notice Provided	Activity	Record of Measurable Goal*

*May include: # of participants, attendees, and/or quantity of cleanup achieved

Note: See section 7.2 of SWMP for BMP reporting descriptions and requirements.

MCM 3: IDDE PROGRAM REPORTING SUMMARY LOG

The Town has completed a written IDDE Plan which includes detailed reporting forms to document IDDE efforts. These can be found in Storm Water Management Plan Volume 2. The Town will keep a summary log for annual reporting as follows:

Reporting Period: _____ - _____

EMPLOYEE TRAINING

Date	# of Attendees	Location	Presenter	Topic/Discussion Items

SSO INVENTORY

Report #	Date	Reporter	Location	Status & Comments

ILICIT DISCHARGE INVENTORY

Report #	Date	Reporter	Location	Status & Comments

STORM SEWER MAPPING UPDATES

Type	Date	Updated by	Location	Description

OUTFALL SCREENING AND SAMPLING

Dry/Wet	Date(s)	Inspector	Location(s)	Comments

CATCHMENT INVESTIGATIONS

Category	Date(s)	Inspector	Location	Description/Results

Note: See section 7.3 of SWMP for BMP reporting descriptions and requirements.

MCM 4: CONSTRUCTION SITE RUNOFF CONTROL - INSPECTION

The Town has developed a Stormwater Bylaw and accompanying Stormwater Management Regulations that require site inspections of all projects that cause disturbance of more than 5,000 square feet up to 1 acre (43,560 square feet) of land. Inspections will be recorded using the Construction Site Inspection Form (attached). The Town will keep a log of all inspections and enforcement actions for annual reporting as follows:

CONSTRUCTION SITE INSPECTION LOG

Reporting Period: _____ - _____

Note: See section 7.4 of SWMP for BMP reporting descriptions and requirements.

CONSTRUCTION SITE ENFORCEMENT ACTION LOG

Reporting Period: _____ - _____

Note: See section 7.4 of SWMP for BMP reporting descriptions and requirements.

MCM 4: CONSTRUCTION SITE INSPECTION FORM

Report No. _____

The Town has developed a Stormwater Bylaw and accompanying Stormwater Management Regulations that require site inspections of all projects that cause disturbance of more than 5,000 square feet up to 1 acre (43,560 square feet) of land. Record all inspections using this form and provide an entry in site inspection log (and enforcement action log if applicable) for annual reporting.

Project:			Date:		Last Insp:	
Location:			Arrive:		Leave:	
Operator:			Site Rep:			
Inspector:						
Type	<input type="checkbox"/> Regular	<input type="checkbox"/> Pre-Storm	<input type="checkbox"/> During Storm	<input type="checkbox"/> Post Storm		
Recent Rainfall:			Current Weather:			
Description of Current Site Work:						
Add. Info:						

EROSION AND SEDIMENT CONTROL MAINTENANCE/ACTION REQUIRED: YES NO
(Inspect for all applicable controls listed – ECB = Erosion Control Barrier)

Control	Condition	Required Action	Completed (by)	Date
<input type="checkbox"/> SWPPP Report(s)			<input type="checkbox"/>	
<input type="checkbox"/> Adjacent Street			<input type="checkbox"/>	
<input type="checkbox"/> Const. Access Dr.			<input type="checkbox"/>	
<input type="checkbox"/> Perimeter ECB			<input type="checkbox"/>	
<input type="checkbox"/> Outside ECB			<input type="checkbox"/>	
<input type="checkbox"/> Sediment Basin(s)			<input type="checkbox"/>	
<input type="checkbox"/> CB Protection			<input type="checkbox"/>	
<input type="checkbox"/> Stockpiles			<input type="checkbox"/>	
<input type="checkbox"/> Exposed Soils			<input type="checkbox"/>	
<input type="checkbox"/> Exposed Slopes			<input type="checkbox"/>	
<input type="checkbox"/> Outlet(s)			<input type="checkbox"/>	
<input type="checkbox"/> Receiving Waters			<input type="checkbox"/>	
<input type="checkbox"/> Other			<input type="checkbox"/>	

CONSTRUCTION WASTE CONTROL MAINTENANCE/ACTION REQUIRED: YES NO
(Inspect for all applicable controls listed)

Control	Condition	Required Action	Completed (by)	Date
<input type="checkbox"/> Trash/Litter			<input type="checkbox"/>	
<input type="checkbox"/> Dumpsters			<input type="checkbox"/>	
<input type="checkbox"/> Fueling Areas			<input type="checkbox"/>	
<input type="checkbox"/> Sanitary Facilities			<input type="checkbox"/>	
<input type="checkbox"/> Dewatering			<input type="checkbox"/>	
<input type="checkbox"/> Haz Mat Storage			<input type="checkbox"/>	

SITE PHOTOS

MCM 4: CONSTRUCTION SITE RUNOFF CONTROL - STORMWATER SITE PLAN REVIEW

The Town has developed a Stormwater Bylaw and accompanying Stormwater Management Regulations to address post-construction stormwater runoff from all new development and redevelopment sites of all projects that disturb more than 5,000 square feet up to 1 acre (43,560 square feet) of land. Site plans will be reviewed for compliance with the Ordinance and regulations based on the attached checklist. The Town will keep record of site plan reviews in each annual report as follows:

SITE PLAN REVIEW LOG

Reporting Period: _____ - _____

Project/Location	Filing Date	Reviewer	Requirements Met	Project Status
			<input type="checkbox"/> LIDs <input type="checkbox"/> SW Design Regs <input type="checkbox"/> As-built <input type="checkbox"/> Long-term O&M	
Description/Comments:				
			<input type="checkbox"/> LIDs <input type="checkbox"/> SW Design Regs <input type="checkbox"/> As-built <input type="checkbox"/> Long-term O&M	
Description/Comments:				
			<input type="checkbox"/> LIDs <input type="checkbox"/> SW Design Regs <input type="checkbox"/> As-built <input type="checkbox"/> Long-term O&M	
Description/Comments:				
			<input type="checkbox"/> LIDs <input type="checkbox"/> SW Design Regs <input type="checkbox"/> As-built <input type="checkbox"/> Long-term O&M	
Description/Comments:				
			<input type="checkbox"/> LIDs <input type="checkbox"/> SW Design Regs <input type="checkbox"/> As-built <input type="checkbox"/> Long-term O&M	
Description/Comments:				
			<input type="checkbox"/> LIDs <input type="checkbox"/> SW Design Regs <input type="checkbox"/> As-built <input type="checkbox"/> Long-term O&M	
Description/Comments:				

Note: See section 7.4 of SWMP for BMP reporting descriptions and requirements

STORMWATER SITE PLAN REVIEW CHECKLIST

SUBMISSION REQUIREMENTS LAND DISTURBANCE REVIEW (10,000 SF – ½ ACRE (21,780 SF)

- Completed application form with original signature of all owners
- Narrative describing proposed work including existing site conditions, proposed work, and methods to mitigate stormwater impacts
- Payment of application and review fees
- One 24x36, one half size, and electronic PDF of plans including:
 - Existing features
 - Proposed work & limits of disturbance
 - Erosion & sediment controls
 - Illicit discharge compliance statement

SUBMISSION REQUIREMENTS LAND DISTURBANCE PERMIT (>1/2 ACRE) OR HIGHER POTENTIAL POLLUTANT LOAD

- Complete application with owners signature
- List of Abutters within 300' certified by the Assessor's Office
- Narrative describing proposed work including existing site conditions, proposed work, and methods to mitigate stormwater impacts
- Generic legal ad (in Word format) soliciting public comments with instructions
- Payment of application and review fees
- One (1) copy of each application form and the list of abutters filed with the Town Clerk
- One 24x36, one half size, and electronic PDF of:
 - Existing features
 - Proposed work & limits of disturbance
 - Stormwater Management Plan
 - Erosion & sediment control plan (3 copies)
 - Operation & maintenance plan
 - Illicit discharge compliance statement

STORMWATER MANAGEMENT PLAN

- MassDEP Stormwater checklist with supporting calculations meeting standards
- Stamped and Signed by MA P.E.
- Identify TMDLs/ Impairments
- Soil mapping and test data
- Existing & proposed uses and conditions
- Wetland resources/proposed impervious area/aquifer protection zones/earthwork within 4' of seasonal high groundwater
- Drain pipes/catch basins/easements
- LID/BMP techniques
- No adverse downgradient impacts

EROSION & SEDIMENT CONTROL PLAN

- Minimize/phase clearing
- Perimeter barrier controls
- Slope controls as necessary
- Stone construction entrance
- Stockpile areas
- Protection of infiltration basins/systems
- Catch basin protection
- List of easements
- SWPPP if > 1 acres

OPERATION & MAINTENANCE PLAN

- Follows MassDEP Stormwater checklist & standard

PERFORMANCE & DESIGN STANDARDS

- 1" (.8" Redevelopment) runoff retained and/or;
- 90% (80% Redevelopment) TSS removal
- 60% (50% Redevelopment) Phosphorus removal
- Offsite Mitigation (if necessary)
- Hydraulic calculations TR-55 and TR-20
- 24 hour rainfall from NRCS
- Drain pipes to accommodate 25 year storm
- Pipe velocities 3-10 ft/sec
- Culverts 50-year storm
- Deep sump/offline catch basins
- Stormwater basins to accommodate 100 year storm w/ 1' freeboard
- Swale velocities < 5fps
- Access for maintenance
- Minimize area of disturbance

MCM 5: POST CONSTRUCTION STORMWATER MANAGEMENT IMPLEMENTATION LOG

Reporting Period: _____ - _____

Project/Location	Filing Date	Reviewer	Requirements Met	Project Status
			<input type="checkbox"/> LIDs <input type="checkbox"/> SW Design Regs <input type="checkbox"/> As-built <input type="checkbox"/> Long-term O&M	
Description/Comments:				
			<input type="checkbox"/> LIDs <input type="checkbox"/> SW Design Regs <input type="checkbox"/> As-built <input type="checkbox"/> Long-term O&M	
Description/Comments:				
			<input type="checkbox"/> LIDs <input type="checkbox"/> SW Design Regs <input type="checkbox"/> As-built <input type="checkbox"/> Long-term O&M	
Description/Comments:				
			<input type="checkbox"/> LIDs <input type="checkbox"/> SW Design Regs <input type="checkbox"/> As-built <input type="checkbox"/> Long-term O&M	
Description/Comments:				
			<input type="checkbox"/> LIDs <input type="checkbox"/> SW Design Regs <input type="checkbox"/> As-built <input type="checkbox"/> Long-term O&M	
Description/Comments:				
			<input type="checkbox"/> LIDs <input type="checkbox"/> SW Design Regs <input type="checkbox"/> As-built <input type="checkbox"/> Long-term O&M	
Description/Comments:				
			<input type="checkbox"/> LIDs <input type="checkbox"/> SW Design Regs <input type="checkbox"/> As-built <input type="checkbox"/> Long-term O&M	

Note: See section 7.4 of SWMP for BMP reporting descriptions and requirements.

MCM 6: GOOD HOUSEKEEPING - CATCH BASIN CLEANING

Purpose

The purpose of this procedure is to optimize routine inspections, cleaning and maintenance of catch basins with a goal that the frequency of routine cleaning will ensure that no catch basin at any time will be more than 50 percent full.

According to the Permit an excessive sediment or debris loading is a catch basin sump more than 50 percent full. A catch basin sump is more than 50 percent full if the contents within the sump exceed one half the distance between the bottom interior of the catch basin to the invert of the deepest outlet of the catch basin.

Procedure:

As part of routine inspections/cleaning events, debris levels in catch basins will be recorded if the basin is found to be more than 50% full—See tracking form on page 2.

Records from consecutive inspections/cleaning events will be compared to identify basins that may need to be cleaned more or less frequently than once per year.

Inspection and maintenance for catch basins located near construction activities (roadway construction, residential, commercial, or industrial development or redevelopment) will be prioritized. Clean catch basins in such areas more frequently if inspection and maintenance activities indicate excessive sediment or debris loadings.

If a catch basin sump is more than 50 percent full during two consecutive cleanings the Town will investigate the contributing drainage area for sources of excessive sediment loading, and address the source or clean the catch basin more frequently. Actions taken will be described in the annual report.

In cases where a catch basin inspection or cleaning reveals abnormal, non-natural discoloration or detection of petroleum and/or chemical odors, the crew performing the inspection and cleaning shall notify supervisors for proper handling of hazardous materials and the Town should implement protocols outlined in their Illicit Discharge Detection & Elimination (IDDE) Plan.

The Town will ensure proper storage of catch basin cleanings prior to disposal or reuse such that they do not discharge to receiving waters. These materials should be managed in compliance with current MassDEP policies: <http://www.mass.gov/eea/agencies/massdep/recycle/regulations/management-of-catch-basin-cleanings.html>

Record Keeping

The Town keeps records of catch basin cleaning performed and report annually as follows:

CATCH BASIN CLEANING LOG

Reporting Period: _____ – _____

Date Range	Location(s)	# CBs Cleaned	Volume of Cleaning

RECORD OF CATCH BASINS FOUND TO BE MORE THAN 50% FULL AT CLEANING

Reporting Period: _____ - _____

Inspector: _____

Sheet _____ of _____

MCM 6: GOOD HOUSEKEEPING - STREET AND PARKING LOT SWEEPING

Purpose

The purpose of this procedure is to ensure that all municipal streets and parking lots are swept in accordance with Permit conditions.

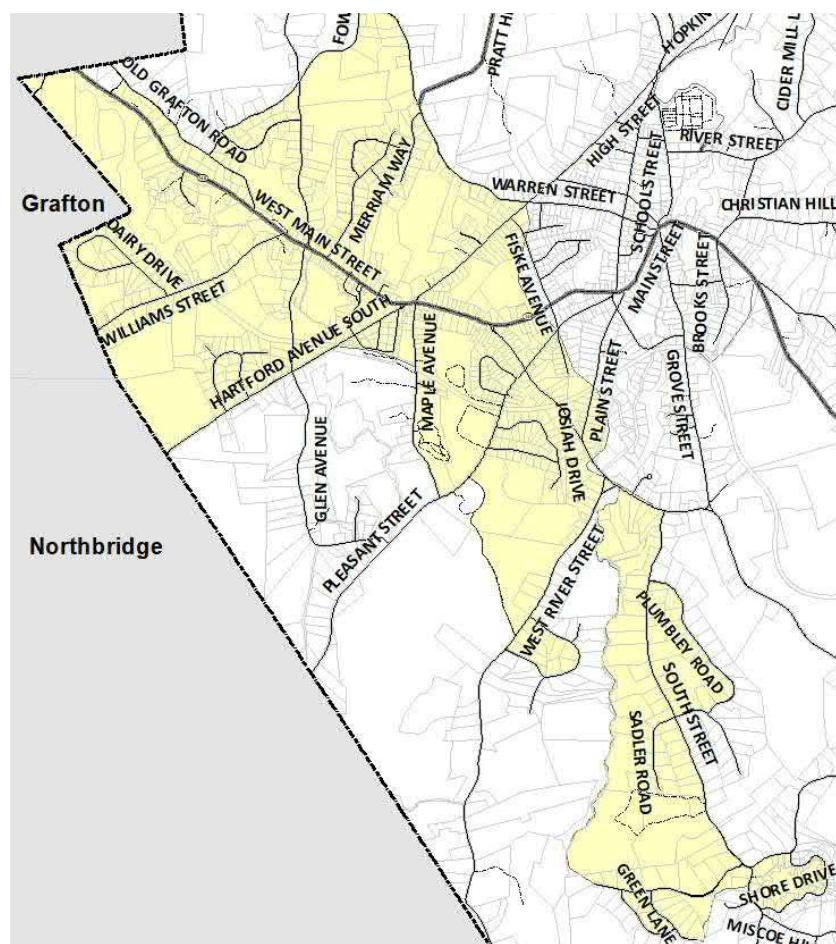
Procedure

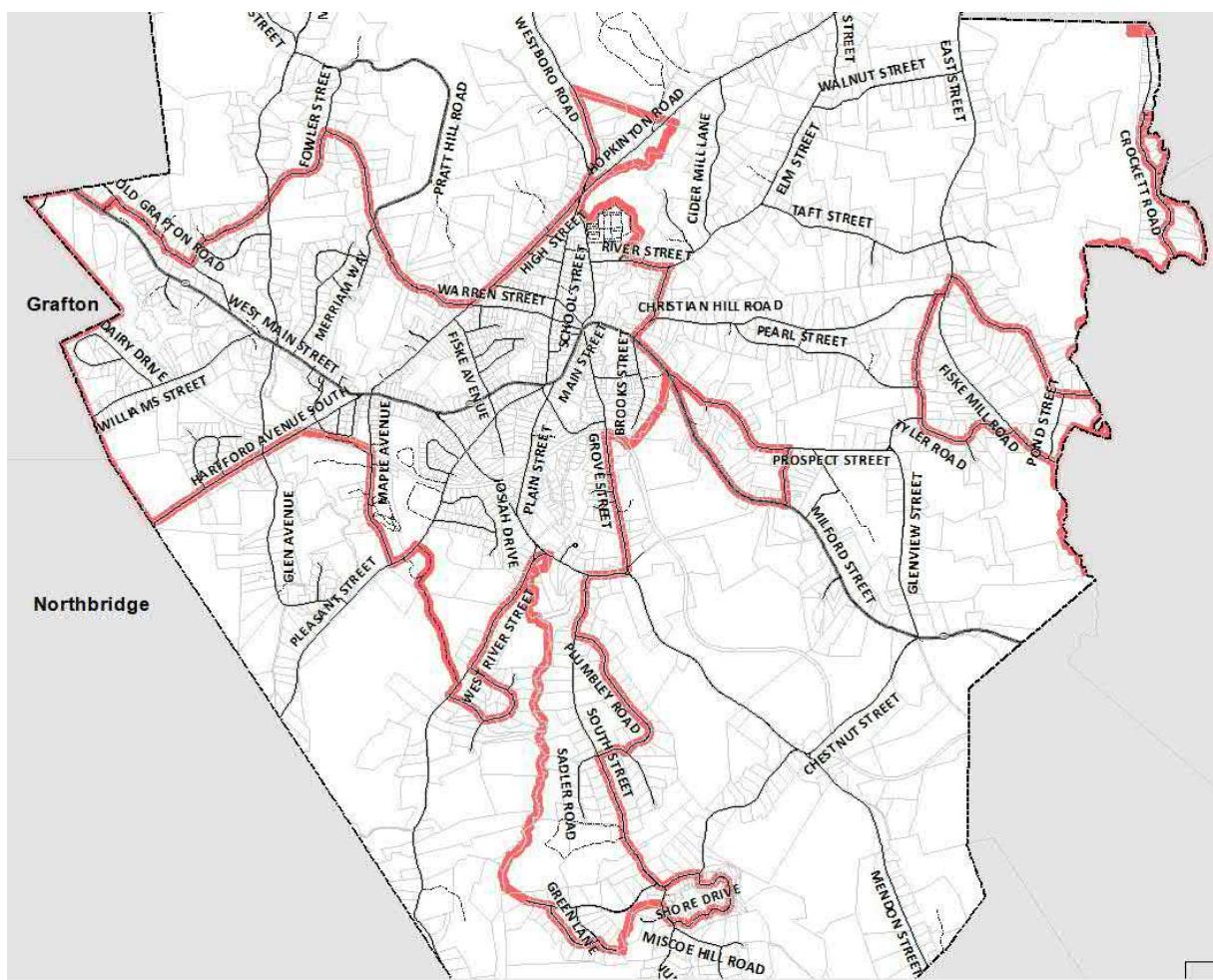
All streets within the MS4 area shall be swept and/or cleaned a minimum of once per year in the spring (following winter activities such as sanding), with the exception of rural uncurbed roads with no catch basins or high speed limited access highways. Sweeping frequency is to be increased as necessary to target areas with potential for high pollutant loads for solids, oil and grease, and metals. See Map of MS4 area requiring once/year sweeping outlined in red (next page).

In areas that discharge to certain nutrient-impaired waters, sweeping must be performed a minimum of two times per year, once in the spring (following winter activities such as sanding) and at least once in the fall (Sept 1 – Dec 1; following leaf fall). In Upton this applies to tributary areas of the West River (MA51-11 & MA51-12) due to phosphorus impairment. The West River is a tributary to the Blackstone River. See Map of area requiring twice/year sweeping in yellow (below).

The Town will ensure proper storage of street sweepings prior to disposal or reuse such that they do not discharge to receiving waters. These materials should be managed in compliance with current MassDEP policies:

<http://www.mass.gov/eea/agencies/massdep/recycle/regulations/management-of-catch-basin-cleanings.html>





Record Keeping

The Town keeps records of sweeping performed and report annually as follows:

SPRING

Date Range	Area	Volume of Cleaning	# lots

FALL

Date Range	Area	Volume of Cleaning	# lots

OTHER

Date Range	Area	Volume of Cleaning	# lots

MCM 6: GOOD HOUSEKEEPING - WINTER ROAD MAINTENANCE PROCEDURE

Purpose

The purpose of this policy is to provide information to meet MS4 Permit requirements on the procedures followed by the Highway Division during any snow or ice event throughout the winter season on Town owned roads. The DPW reserves the right to modify any plan as needed to adjust to various circumstances that a storm might present and provides detailed plowing information and snowstorm procedures on their website. The DPW Director will be responsible for carrying out this policy to satisfy the Permit. Parking during snow removal shall comply with Upton's winter parking ban as referenced and described on the Highway Division website.

Priorities

1. The first priority is to ensure that police, fire and medical emergency equipment can move safely on Town streets.
2. The second priority is to open main and secondary roads for use by the public.
3. The third priority is to open residential streets.
4. The fourth priority is to open all schools, public facilities, and clear sidewalks used to walk to schools/businesses/public transportation.

Materials Used

With safety as the priority, the Town's goal is to minimize the use of salt and sand through optimization of application. This is achieved through the use, where practicable, of automated application equipment, anti-icing and pre-wetting techniques, implementation of pavement management systems, and alternate chemicals. The types of materials used by the DPW are detailed below.

- Rock Salt (Sodium Chloride): Salt is used to expedite the melting of snow and ice from the street surface and also to keep the ice from forming a bond to the street surface.
- Sand: Sand is used as an abrasive for traction on slick roadways.
- Other Materials: The Town may choose to use alternative chloride-containing materials used to treat paved surfaces for deicing, including sodium chloride, calcium chloride, magnesium chloride, and brine solutions.

Materials Storage

All salt, sand and deicing compounds are properly stored under cover to ensure they are not exposed to precipitation or otherwise carried to a catch basin, resource area or waterbodies. Diversion berms and good housekeeping practices shall be used to minimize runoff from storage areas.

Application and Equipment Calibration

Each piece of application equipment owned by the Town is calibrated prior to the winter season. Salt application shall be calibrated to dispense at minimum rates while maintaining safety rates (EPA guidance recommends 200 pounds per mile lane). Trucks equipped with pre-wetting brine tanks are calibrated to dispense at minimum rates while maintaining safety rates (EPA guidance recommends 8 gallons of pre-wet liquid to 1 ton of salt, to be varied based on temperature).

Snow Disposal

The MS4 Permit prohibits snow disposal into waters of the United States. Snow disposal activities, including selection of appropriate snow disposal sites, will adhere to the Massachusetts Department of Environmental Protection Snow Disposal Guidance, Guideline No. BWR G2015-01 (Effective Date: December 21, 2015).

Record Keeping

The Town maintains records of prioritized plow routes, miles of roads plowed annually, the quantity of salt and other materials used annually, and equipment calibration records.

MCM 6: GOOD HOUSEKEEPING - STORMWATER TREATMENT STRUCTURES INSPECTION & MAINTENANCE

Purpose

The following establishes inspection and maintenance frequencies and actions for permittee-owned stormwater treatment structures (excluding catch basins) which shall be inspected annually at a minimum.

Procedure

BMP Description	Required Action
Water Quality Unit (Oil/Grit Separator)	Remove accumulated oils, grease and sediments
Proprietary Separator	Inspect and clean units according to manufacturers' recommendations
	Remove sediments & debris
Leaching Catch Basin	Remove sediments & debris
	Rehabilitate the basin if it fails due to clogging
Bio-retention Areas & Rain Garden	Remove sediments & debris
	Mow and/or mulch
	Replace vegetation if needed
	Remove Invasive species as needed
Extended Dry Detention Basin	Inspect outlets
	Mow upper stage, sides slopes, embankment & spillway
	Remove trash and debris
	Remove sediments from basin
Water Quality Swale	Make sure vegetation is adequate and slopes are not eroding, check for rilling and gullying, ponding and sedimentation
	Mow 3"-6"
	Remove sediments & debris
	Repair eroded areas if needed
	Re-seed as necessary
Infiltration Basin	Inspection for settlement, erosion, tree growth on embankments, condition of riprap and turf, ponding and sedimentation
	Mow the buffer area, side slopes, and basin bottom if grassed floor
	Inspect and clean pretreatment devices associated with the basin
	Remove sediments & debris
Infiltration Trench	Inspect the trench 24 hours or several days after a rain event
	Mow top of trench if is grassed
	Inspect and clean pretreatment BMPs, check inlets and outlets for clogging
	Remove sediments & debris
Infiltration Chamber	Inspect Inlets
	Remove sediment from pretreatment BMPs
	Remove sediments & debris
Porous Pavement	Vacuum sweep or Power wash surface

Record Keeping

Inspection and maintenance of municipal stormwater structures will be recorded using the Stormwater BMP Inspection Form (attached). The Town will keep a log of inspects and report on the condition and maintenance performed in each annual report as follows:

STORMWATER TREATMENT STRUCTURE (BMP) INSPECTION LOG

Reporting Period: _____ - _____

STORMWATER BMP INSPECTION FORM – SURFACE STRUCTURES

BMP ID:					
Location:			Length	±ft.	Depth
Description:			Top Width	±ft.	Bot Width
Type:	<input type="checkbox"/> Detention	<input type="checkbox"/> Retention	<input type="checkbox"/> Infiltration	<input type="checkbox"/> Bioretention	
	<input type="checkbox"/> Swale	<input type="checkbox"/> Infiltration Trench	<input type="checkbox"/> Other		
Inspector:				Date:	
Recent Rainfall:					
Notes:					

LOCATION MAP



MAINTENANCE REQUIRED: YES NO
(Inspect for all problems listed – provide information for required maintenance only)

Problem	Description	Quantity (±)	Completed (personnel)	Date
<input type="checkbox"/> Sediment/Debris			<input type="checkbox"/>	
<input type="checkbox"/> Vegetation			<input type="checkbox"/>	
<input type="checkbox"/> Erosion			<input type="checkbox"/>	
<input type="checkbox"/> Water Pond			<input type="checkbox"/>	
<input type="checkbox"/> Sediment Forebay			<input type="checkbox"/>	
<input type="checkbox"/> Outlet Struct			<input type="checkbox"/>	
<input type="checkbox"/> Intlet			<input type="checkbox"/>	
<input type="checkbox"/> Outlet			<input type="checkbox"/>	
<input type="checkbox"/> Riprap			<input type="checkbox"/>	
<input type="checkbox"/> Check Dam			<input type="checkbox"/>	
<input type="checkbox"/> Access			<input type="checkbox"/>	
<input type="checkbox"/> Fence			<input type="checkbox"/>	
<input type="checkbox"/> Other			<input type="checkbox"/>	

BMP PHOTOS

STORMWATER BMP INSPECTION FORM – SUBSURFACE STRUCTURES

BMP ID:					
Location:			Cover/Grate size	±ft.	Cover/Grate shape
Description:			Structure Diameter	±ft.	Depth
			Structure Material		
Type:	<input type="checkbox"/> Oil-Grit Separator	<input type="checkbox"/> Proprietary Structure	<input type="checkbox"/> Leaching CB		
	<input type="checkbox"/> Infiltration Chamber/Pipe		<input type="checkbox"/> Sand Filter	<input type="checkbox"/> Other	
Inspector:				Date:	
Recent Rainfall:					
Add. Info:					

LOCATION MAP



MAINTENANCE REQUIRED: YES NO
(Inspect for all problems listed – provide information for required maintenance only)

Problem	Description	Quantity (±)	Completed (personnel)	Date
<input type="checkbox"/> Grate/Cover			<input type="checkbox"/>	
<input type="checkbox"/> Structure			<input type="checkbox"/>	
<input type="checkbox"/> Hood/Trap/Insert			<input type="checkbox"/>	
<input type="checkbox"/> Pipes & Joints			<input type="checkbox"/>	
<input type="checkbox"/> Ladder			<input type="checkbox"/>	
<input type="checkbox"/> Sediment/Debris			<input type="checkbox"/>	
<input type="checkbox"/> Vegetation/Roots			<input type="checkbox"/>	
<input type="checkbox"/> Contaminants/Pollution			<input type="checkbox"/>	
<input type="checkbox"/> Infiltration Capability			<input type="checkbox"/>	
<input type="checkbox"/> Discharge			<input type="checkbox"/>	
<input type="checkbox"/> Fence			<input type="checkbox"/>	
<input type="checkbox"/> Access			<input type="checkbox"/>	
<input type="checkbox"/> Other			<input type="checkbox"/>	

BMP PHOTOS