Town of Norwell, MA

Stormwater Management Program (SWMP): Volume 1

NPDES Phase II Small MS4 General Permit

June 2019

STORMWATER MANAGEMENT PLAN

BETA

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Stormwater Management Program (SWMP): Volume 1

Town of Norwell, MA

NPDES Phase II Small MS4 General Permit

STORMWATER MANAGEMENT PLAN

Prepared by: BETA GROUP, INC.
Prepared for: Town of Norwell

May 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: 6/26/19

Printed Name: GLENN FERGUSON Title: DIRECTOR

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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 Norwell 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.

All documents are available for review and comment on the Town of Norwell Stormwater Website as follows:

Stormwater Education Webpage is located here:
http://norwelldpw.com/storm-water

Townwide MS4 Compliance Webpage is located here:
http://norwelldpw.com/engineering-projects/townwide-ms4-compliance

Stormwater Bylaw and Regulations are located here:
TBD

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

Approximately 80% of the Town of Norwell is designated as urbanized area by the 2010 census. This area regulated under the MS4 permit is highlighted on the MS4 Overview Map in **Appendix A**. The northwest area and southeast section of the Town not identified as urbanized, is not subject to the requirements of the permit.

Within the designated MS4 area, Norwell has eight water body segments that receive flow from the MS4 with three designated as Category 5 Waters in either the Massachusetts approved 2014 or proposed 2016 Integrated List of Waters. These Integrated Waters Listings include impairments for Fecal Coliform in the North River, Second Herring Brook and Third Herring Brook, and Mercury in Fish Tissue for North River. The majority of the Town also falls within the South Coastal Watershed with has an approved Pathogen TMDL. Additional impairments and required actions are described in detail in **Section 5.0** of this report.

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

- 1939 catch basins
  - 1,588 Town-owned
  - 351 State-owned (located within State Roadway)
- 188 outfalls (129 subject to MS4 Permit)
- 987 storm drain manholes

A storm sewer system map is included as part of the Illicit Discharge Detection and Elimination (IDDE) report, which is located in **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) has two roadways within Norwell MS4 regulated area including Route 3 (Pilgrim Highway) and Route 53 (Washington Street). MassDOT is required to have their own NPDES MS4 Permit for their properties, which are therefore not the responsibility of the Town.

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 Highway Department 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 Norwell MS4 Permit Compliance Schedule

CM	Task	Date Required	Complete During/By Year (Yr 1 is July 2018- June 2019)									
			1	2	3	4	5	6	7	8	9	10
	Notice of Intent (NOI)	9/30/2018										
	Stormwater Management Plan - SWMP (update/develop)	6/30/2019										
	SWMP update	Annually										
MINIMUM CONTROL MEASURES												
1	**Public Education and Outreach Messages***											
	Residents - 2 messages	By yr 5, min. 1 year apart										
	Businesses & Institutions- 2 messages	By yr 5, min. 1 year apart										
	Developers - 2 messages	By yr 5, min. 1 year apart										
	Industrial Facilities - 2 messages	By yr 5, min. 1 year apart										
2	**Public Involvement and Participation**											
	Public Review of SWMP & Annual Report	Annually										
	Opportunities for Public Participation	Annually										
3	**Illicit Discharge Detection & Eliminiation (IDDE)***											
	Sanitary Sewer Overflows Inventory	6/30/2019										
	System Mapping - Phase 1, inc. catchment delineations	6/30/2020										
	System Mapping - Phase 2	Update Annually										
	Written IDDE Program	6/30/2019										
	Outfall/Interconnects Inventory & Initial Catchment Ranking*	6/30/2019										
	Outfall/Interconnects Catchment Ranking Updates	Update Annually										
	Dry Weather Screening & Sampling	By yr 3 & every 5 yrs										
	Catchment Investigations Procedures	12/30/2019										
	Catchment Investigations Problem Outfalls	6/30/2025										
	Catchment Investigations All Outfalls	6/30/2028										
	Wet Weather Sampling	part of catchment invest.										
	Illicit Discharge Elimination (Locate & Remove)	60 Days from source ID										
	Confirmatory Dry Weather Screening	1 yr after removal										
	Training	annually										
4	**Construction Site Runoff Control**											
	Construction Site Inspections & Enforcement Proceedures	6/30/2019										
	Site Plan Review Procedures	6/30/2019										
	Requirement for Construction Site Erosion Controls	6/30/2019										
	Construction Site Waste Control Requirements	6/30/2019										
5	**New Development and Redevelopment***											
	Update Regulations - Retention/Treatment	6/30/2020										
	Assess Street Design & Parking Guidelines	6/30/2022										
	Assess Regulations to allow Green Infrastructure	6/30/2022										
	Locate 5 Properties for Impervious Area Reduction	6/30/2022										
6	**Good Housekeeping***											
	Winter Road Maintenance Procedures	6/30/2019										
	O&M, SWPPP & Infrastructure Program	6/30/2020										
	Training for O&M and SWPPP Program Activities	Regularly/As Needed										
	Catchbasin Cleaning Schedule	6/30/2019										
	Catchbasin Cleaning	when 50% full										
	Street Sweeping	Spring										
	Inspections for SWPPP	Quarterly										
	Inspection of Structural BMPs	Annually										
	Maintenance of Structural BMPs	as needed										
Annual Reports		by 9/30 annually										
	*There may be supplemental requirements for receiving water impairments and TMDLs		Due 6/30/2019			Future Yr Task				Complete		

3.0 SMALL MS4 AUTHORIZATION

The Notice of Intent (NOI) containing the information in Appendix E of the Permit was submitted to EPA on or prior to September 29, 2018.

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

The Town will be authorized to discharge under the Permit upon receipt of written notice from EPA following a 30 day public review and comment. Responses to comments received and the authorization letter will also be 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 Norwell Highway Department, specifically the Highway Department Director.

SWMP Team Coordinator

Name:	**Glenn Ferguson**	Title:	**Director**	Department:	**Highway Department**
Phone:	**781-659-8009**	Email:	**Glenn.Ferguson@townofnorwell.net**		
Responsibilities: **MS4 Coordinator, IDDE Program, Good Housekeeping, Reporting & Record Keeping**					

SWMP Team

Name:	**Nancy Hemingway**	Title:	**Agent**	Department:	**Conservation Commission**
Phone:	**508-646-2809**	Email:	**nhemingway@townofnorwell.net**		
Responsibilities: **Public Education and Outreach, Public Participation, Stormwater Bylaw/Regulations, Construction Site SW Control, Post Construction SWM, Plan Review, Inspection**					

Name:	**R. Benjamin Margro**	Title:	**Health Agent**	Department:	**Board of Health**
Phone:	**781-659-8016**	Email:	**bmargro@townofnorwell.net**		
Responsibilities: **Public Education and Outreach, Stormwater Bylaw/Regulations, IDDE**					

Name:	**Ken Kirkland**	Title:	**Town Planner**	Department:	**Planning**
Phone:	**781-659-8021**	Email:	**kkirkland@townofnorwell.net**		
Responsibilities: **Construction Site SW Control, Post Construction SWM, Plan Review, Inspection**					

Name:	**Joe Conlon**	Title:	**Assist. Director**	Department:	**Highway Department**
Phone:	**781-659-8042**	Email:	**jconlon@townofnorwell.net**		
Responsibilities: **Good housekeeping, O&M of facilities, SWPPP**					

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 two threatened and one endangered federally listed species of concern. Threatened species included the Northern Long-eared Bat, a mammal and the Red Knot, a bird. The endangered species is the Roseate Tern, a bird. According to guidance provided in Appendix C of the Permit and the IPaC report, the project meets eligibility for Endangered Species Act (ESA) under U.S. Fish and Wildlife Service (USFWS) Criteria B. Based on correspondence with USFWS the determination of "no effect" was found to be appropriate for Norwell given the lack of coastline. As requested by USFWS, a "no species present" letter was provided with the NOI to complete the ESA determination. As described in this SWMP, there is no reason to believe that the stormwater discharges, allowable non-stormwater discharges and discharge related activities will have any effect on the identified species 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 and of the subject species is discountable;
3. The project implements EPA MS4 Best Mangement 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 habita;
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 the aforementioned species or any other 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 Environmental 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

Within the designated MS4 area, Norwell has nine water body segments within the Town that receive flow from the MS4 with three designated as Category 5 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 in **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.

Norwell WQLW Impairment(s)
Bacteria and Pathogens

Appendix F of the Permit identifies specific requirements for discharges to impaired waters or their tributaries with an approved TMDL.

Norwell TMDL(s)
Bacteria and Pathogens

5.4 REQUIREMENTS TO ADDRESS IMPAIRMENTS

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

Table 5-1: Town Water Bodies and Impairments

Water Bodies Receiving Flow from Norwell MS4 Regulated Area			
NAME	**CATEGORY**	**SEGMENT ID**	**IMPAIRMENT CAUSE (EPA TMDL No.)**
North River	5	MA94-05	Mercury in Fish Tissue **Fecal Coliform (61725)** [1]
First Herring Brook	2	MA94-36[3]	
Second Herring Brook	2	MA94-26	
Second Herring Brook	5	MA94-31	**Fecal Coliform (61725)**
Third Herring Brook	*2(5)* [2]	MA94-27	***Fecal Coliform(WQLW)*** [2]
Accord Pond	3	MA74030	Non-Native Aquatic Plants
Jacobs Pond	4C	MA62-50	Non-Native Aquatic Plants
Torrey Pond	4C	MA62174	Non-Native Aquatic Plants
Long Water Brook[4]	5	MA94-39	**Escherichia Coli**
South Coastal Watershed (SCW)	-	-	**Pathogen (TMDL)**
Town Water Bodies Outside of MS4 Regulated Area			
NAME	**CATEGORY**	**SEGMENT ID**	**IMPAIRMENT CAUSE (EPA TMDL No.)**
Bound Brook Pond	3	MA94017	

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 new TMDL for Fecal Coliform for North River (MA94-05).
2. 2016 ILW proposes to remove Fecal Coliform impairment from Third Herring Brook (MA94-27) based on WQS being attained due to change in WQS and revise from category 5 to category 2.
3. 2016 ILW updated Segment ID for First Herring Brook from MA94-25 to MA94-36.
4. 2016 ILW proposes a new segment, Long Water Brook (MA94-39), with an impairment for Escherichia coli and designated Category 5.

Bacteria and Pathogen TMDL Requirements

Applicable Norwell Receiving Waters: North River (MA94-05), Second Herring Brook (MA94-31), Third Herring Brook (MA94-27) and the South Coastal Watershed

Requirement: Any catchment area that discharges to a water body impaired for bacteria or pathogens 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 enhancement of BMPs include:

> **Public Education** – Supplement residential program with an annual message encouraging proper management of pet waste, distribute education materials to dog owners at the time of licensing and provide information to owners of septic systems about proper maintenance.
>
> **Illicit Discharge** – Automatic designation of either "Problem Catchment" or "HIGH Priority" in the implementation of the IDDE program.

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

Mercury TMDL Requirements

Applicable Receiving Waters: North River (MA94-05)

Requirement: No requirements related to this TMDL are imposed on MS4 discharges under this part. The Northeast Regional Mercury TDML does not specify a wasteload allocation or other requirements either individually or categorically for MS4 discharges and specifies that load reductions are to be achieved though reduction in atmospheric deposition sources.

If it is identified that an MS4 discharge is causing or contributing to such impairment to an extent that cannot be explained by atmospheric deposition, the Town shall comply with the requirements outlined in part 2.1.1.d and 2.3.4 of the Permit.

Status: No further action required at this time.

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 control said pollutant 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 and the Town's current site development review practices 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.

Multiple listed water bodies in Town are identified as impaired waters on the proposed Massachusetts Year 2016 and approved 2014 Integrated List of 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, there are discharges in Town to waterbodies with either TMDL or Water Quality Limited impairments. **Table 5-1** highlights the TMDL(s) and/or Water Quality Limitations for each of Norwell'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**). 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 SWMP Team is responsible for ensuring the implementation of the public education and outreach program including measurable goals and reporting. Assisting departments for particular BMPs are listed below.

The Town is a member of the North and South Rivers Watershed Association (NSRWA) who helps communities meet both the MS4 and Water Management Act education requirements through their WaterSmart program. The Town is working with NSRWA to meet the public education and outreach requirements of the Permit. Public education and outreach materials can be found on the Town's website and at Town Hall. Web Links are listed in the Executive Summary of this document.

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 approved TMDL for bacteria and pathogens which include:
    - Supplementing residential education program with an annual message encouraging proper management of pet waste.

- Distributing education materials to dog owners at the time of licensing.
- Providing information to owners of septic systems about proper maintenance.

In Norwell, this includes North River (MA94-05), Second Herring Brook (MA94-31), Third Herring Brook (MA94-27) and the South Coastal Watershed.

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:	Press release, social media post, web page and/or brochure
Responsible Party:	SWMP Team with NSRWA WaterSmart Regional Program
Measureable Goal(s):	• 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:	Press release, social media post, web page and/or brochure
Responsible Party:	SWMP Team with NSRWA WaterSmart Regional Program
Measureable Goal(s):	• 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:	Press release, social media post, web page and/or brochure
Responsible Party:	SWMP Team with NSRWA WaterSmart Regional Program
Measureable Goal(s):	• 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:	Press release, social media post, web page and/or brochure
Responsible Party:	SWMP Team with NSRWA WaterSmart Regional Program
Measureable Goal(s):	• 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:	Press release, social media post, web page and/or brochure
Responsible Party:	SWMP Team with NSRWA WaterSmart Regional Program
Measureable Goal(s):	• 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:	Press release, social media post, web page and/or brochure
Responsible Party:	SWMP Team with NSRWA WaterSmart Regional Program
Measureable Goal(s):	• 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:	Press release, social media post, web page and/or brochure
Responsible Party:	SWMP Team with NSRWA WaterSmart Regional Program
Measureable Goal(s):	• 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:	Press release, social media post, web page and/or brochure
Responsible Party:	SWMP Team with NSRWA WaterSmart Regional Program
Measureable Goal(s):	• 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 F & H of the Permit requires implementation of the following BMPs due to Bacteria and Pathogen WQLW and TMDL Requirements:

BMP-1.9. Educate Residents Annually on Proper Management of Pet Waste with Dog License Applications

Distribute annual education message targeted to pet owners in watershed areas with bacteria/pathogens TMDL or impairments.

Media/Location:	Brochures or pamphlets distributed with dog license
Responsible Party:	Town Clerk & SWMP Team
Measureable Goal(s):	• Distribute message to all residents when they (re)apply for a dog license. • Record number of hard copies distributed and locations posted. • Complete annually

BMP-1.10. Educate Residents Annually on Proper Management of Septic Systems

Distribute annual education message targeted to septic system owners in watershed areas with bacteria/pathogens TMDL or impairments.

Media/Location:	Brochures or pamphlets by mail and/or posted to website
Responsible Party:	SWMP Team with NSRWA WaterSmart Regional Program
Measureable Goal(s):	• Distribute message to all residents who have septic systems. • Record number of hard copies distributed and locations posted. • Complete annually

7.2 PUBLIC INVOLVEMENT AND PARTICIPATION (MCM 2)

The Town Highway 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 and locations for specific BMPs identified below are listed in the Executive Summary 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:	Website and at Highway Department
Responsible Party:	Highway Director
Measureable Goal(s):	• 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 with SWMP posting and at Highway Department
Responsible Party:	Highway Director
Measureable Goal(s):	• 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:	Website and at Highway Department
Responsible Party:	Board of Health
Measureable Goal(s):	• 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 Highway Department 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.
10. Comply with enhanced requirements as specified in the appendix F and H of the Permit regarding Impaired Waters and TMDL requirements as follows:
    - Automatic designation of either "Problem Catchment" or "High Priority" in the implementation of the IDDE program for catchments discharging to waters where illicit discharges have potential to contain pollutant identified as the cause of the water quality impairment.

    In Norwell, this includes North River (MA94-05), Second Herring Brook (MA94-31), Third Herring Brook (MA94-27) and the South Coastal Watershed for bacteria and pathogens.
11. Comply with additional requirements specified in Section 3.0 of the Permit for discharges to surface drinking water supplies and their tributaries including the following:
    - Automatic designation of "High Priority" in the implementation of the IDDE program for catchments discharging to public surface drinking water supply sources and their tributaries.

    In Norwell, this includes First Herring Brook (MA94-36) and all other unnamed tributaries to Aaron Reservoir in Cohasset which is designated as a Class A surface water for public water supply.

Best Management Practices and Measurable Goals

BMP-3.1. IDDE Legal Authority

An IDDE Legal Authority must be adopted with the authorized enforcement agency identified.

Media/Location:	Bylaw and Regulations on Website
Responsible Party:	SWMP Team
Measureable Goal(s):	• Regulation Adopted (TBD)

BMP-3.2. Sanitary Sewer Overflow (SSO) Inventory

The Town does not have a municipal sanitary sewer system and therefore is not applicable at this time.

Media/Location:	The inventory is included as Appendix G of the SWMP Volume 2: IDDE Plan. Website & Highway Department
Responsible Party:	Highway Department
Measureable Goal(s):	• Inventory completed (by year 1). • In the event of an overflow or bypass, provide notification with 24 hrs to MassDEP & EPA followed by a written report within 5 calendar days. • Update annually if becomes applicable.

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. Website & Highway Dept.
Responsible Party:	Highway Department
Measureable Goal(s):	• 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. Website & Highway Dept.
Responsible Party:	Highway Department
Measureable Goal(s):	• 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. Website & Highway Dept.
Responsible Party:	Highway Department
Measureable Goal(s):	• 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. Website & Highway Dept.
Responsible Party:	Highway Department
Measureable Goal(s):	• Conduct annual IDDE training • Provide 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. Website & Highway Dept.
Responsible Party:	Highway Department
Measureable Goal(s):	• 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. Website & Highway Dept.
Responsible Party:	Highway Department
Measureable Goal(s):	• 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. Website & Highway Dept.
Responsible Party:	Highway Department
Measureable Goal(s):	• 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 SWMP Team is 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 webpage and at the Highway Department. 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
3. Comply with additional requirements for discharges to surface drinking water supplies and their tributaries include the following:
    - Pretreatment and spill control measures shall be provided to the extent feasible to stormwater discharges to public drinking water supply sources or their tributaries.
    - Direct discharges to Class A waters should be avoided to the extent feasible.

    In Norwell, this includes First Herring Brook (MA94-36) and all other unnamed tributaries to Aaron Reservoir in Cohasset which is designated as a Class A surface water for public water supply.

Best Management Practices and Measurable Goals

BMP-4.1. Sediment and Erosion Control Regulation

A bylaw/regulations is necessary to meet Permit requirements for sediment and erosion control practices

Media/Location:	Bylaw and Regulations on Website
Responsible Party:	SWMP Team
Measureable Goal(s):	• Regulation Adopted (TBD) • 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. Website & Highway Dept.
Responsible Party:	SWMP Team
Measureable Goal(s):	• 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. Website & Highway Dept.
Responsible Party:	SWMP Team
Measureable Goal(s):	• 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.

Media/Location:	SWMP Volume 1: Appendix B. Website & Highway Dept.
Responsible Party:	SWMP Team
Measureable Goal(s):	• 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:	SWMP Volume 1: Appendix B. Website & Highway Dept.
Responsible Party:	SWMP Team
Measureable Goal(s):	• 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 SWMP Team is 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 webpage and Highway Department. Web Links and locations for specific BMPs are listed in the executive summary of this document.

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 permitee-owned properties that could potentially be modify or retrofitted with BMPs.
5. Comply with additional requirements specified in Section 3.0 of the Permit for discharges to surface drinking water supplies and their tributaries include the following:
    - Pretreatment and spill control measures shall be provided to the extent feasible to stormwater discharges to public drinking water supply sources or their tributaries.
    - Direct discharges to Class A waters should be avoided to the extent feasible.

    In Norwell, this includes First Herring Brook (MA94-36) and all other unnamed tributaries to Aaron Reservoir in Cohasset which is designated as a Class A surface water for public water supply.

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:	Website & Highway Dept.
Responsible Party:	SWMP Team
Measureable Goal(s):	• 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

Media/Location:	Bylaw and Regulations on Website
Responsible Party:	SWMP Team
Measureable Goal(s):	• 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:	Bylaw and Regulations on Website
Responsible Party:	SWMP Team
Measureable Goal(s):	• 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:	Website & Highway Dept.
Responsible Party:	SWMP Team
Measureable Goal(s):	• 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:	Website & Highway Dept.
Responsible Party:	SWMP Team
Measureable Goal(s):	• 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:	Highway Dept.
Responsible Party:	SWMP Team
Measureable Goal(s):	• 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 SWMP Team 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 additional requirements specified in Section 3.0 of the Permit for discharges to surface drinking water supplies and their tributaries including the following:
    - Pretreatment and spill control measures shall be provided to the extent feasible to stormwater discharges to public drinking water supply sources or their tributaries.
    - Direct discharges to Class A waters should be avoided to the extent feasible.

    In Norwell, this includes First Herring Brook (MA94-36) and all other unnamed tributaries to Aaron Reservoir in Cohasset which is designated as a Class A surface water for public water supply.

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:	Highway Department
Measureable Goal(s):	• 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.

Media/Location:	SWMP Volume 3: O&M Plan.
Responsible Parties:	Highway Department with assistance from Schools & Facilities
Measureable Goal(s):	• 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.

Media/Location:	SWMP Volume 3: O&M Plan.
Responsible Parties:	Highway Department, Police, Fire
Measureable Goal(s):	• 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
Responsible Parties:	Highway Department with assistance from Schools & Facilities
Measureable Goal(s):	• 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
Responsible Party:	Highway Department
Measureable Goal(s):	• 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 is no more than 50% full at any given time.

Media/Location:	SWMP Volume 1: Appendix B
Responsible Party:	Highway Department
Measureable Goal(s):	• 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.

Media/Location:	SWMP Volume 1: Appendix B
Responsible Party:	Highway Department
Measureable Goal(s):	• Written program complete (by year 1). • Annually sweep all streets and municipal parking lots in accordance with established schedule. • Keep records of sweeping and report annually.

BMP-6.8. Winter Road Maintenance Program

Develop and implement a program to manage storage and use of road salt.

Media/Location:	SWMP Volume 1: Appendix B. Website
Responsible Party:	Highway Department
Measureable Goal(s):	• Written program complete (by year 1). • Implement program as necessary. • Evaluate at least one salt/chloride alternative

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
Responsible Party:	Highway Department
Measureable Goal(s):	• 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:	Highway Department
Measureable Goal(s):	• 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.

8.0 SANITARY SEWER OVERFLOWS INVENTORY

The Town does not have municipal sanitary sewer service and relies solely on septic.

Should the town install municipal sewer and discovers a sanitary sewer overflow (SSO) to the MS4, an inventory will be 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, Norwell includes watershed tributary to Aaron Reservoir in Cohasset which is designated as a Class A surface water for public water supply. First Herring Brook (MA94-36) as well as watershed area from Burnt Plain Swamp, Valley Swamp, Accord Pond and Hatch Pond are designated as surface water supply watershed as shown on the storm sewer system map included as part of the IDDE report, which is located in **SWMP Volume 2**. The Town has incorporated these requirements into the BMPs in **Section 5.0** of this report.

Additional Requirements

Additional requirements for discharges to surface drinking water supplies and their tributaries include the following:

1. Public surface drinking water supply sources and their tributaries should be considered a priority in the implementation of the SWMP.
2. Pretreatment and spill control measures shall be provided to the extent feasible to stormwater discharges to public drinking water supply sources or their tributaries
3. Direct discharges to Class A waters should be avoided to the extent feasible.

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

- **MS4 Overview Map**

Town of Norwell, Massachusetts

MS4 Overview Map

MA 4020
Accord Pond
Non-Native Aquatic Plants

Weir River Watershed

MA 94-36
First Herring Brook (2):
(formerly reported as portion of segment MA94-25)

MA 94157
Torrey Pond (4C):
Non-Native Aquatic Plants

MA 94-39
Longwater Brook (5):
Escheria Coli (TMDL)

MA 94077
Jacobs Pond
Non-Native Aquatic Plants

MA 94-26
Second Herring Brook (2):

MA 94-31
Second Herring Brook (4A):
Fecal Coliform (TMDL)

MA 94-27
Third Herring Brook (*5) (2):
*Fecal Coliform (WQLW)

MA 94-05
North River (5):
Fecal Coliform (TMDL)
Mercury in Fish Tissue

South Coastal Watershed
Pathogen (TMDL)

ACCORD POND
HATCH\POND
VALLEY SWAMP
BOUND BROOK\POND
FLAT SWAMP
SOUTH SWAMP
BLACK POND\SWAMP
BLACK\POND
TORREY\POND
BLANEY PLAIN\SWAMP
HOOP POLE SWAMP
JACOBS POND
PETERSON\POND
MILL\POND
OLD POND\MEADOWS
HELL SWAMP
SHINGLEMILL\POND
HACKETT\POND
PINE ISLAND SWAMP
PEG\SWAMP
WAMPUM\SWAMP
MOUNCE\POND
HATCH POND
OAKMAN\POND
MAGOUN\POND
LONGWATER BROOK
First Herring Brook
Third Herring Brook
Second Herring Brook
North River
Cove Brook
Shinglemill Brook
Longwater Brook
Drinkwater River
Mollys Brook

Map Legend

Catch Basins
- Town Owned Catch Basin
- State Owned Catch Basin
- Private Owned Catch Basin
- Drain Inlet

Manhole Owner
- Town
- State
- Private

Conveyance
- Pipe (Flow Direction)

Hydrography
- Hydrologic Connection
- Open Water
- Wetland
- Major Watershed Boundary

MassDEP Surface Water Supplies
- Surface Water Protection Area - Zone A
- Surface Water Protection Area - Zone B
- Surface Water Supply Watershed

***MassDEP 2014 Integrated List of Waters**
- Rivers: Category 4A
- Lakes, Estuaries: Category 4A
- Rivers: Category 4C
- Lakes, Estuaries: Category 4C
- Rivers: Category 5
- Lakes, Estuaries: Category 5

Regulated Areas
- MA MS4 Urban Area

Roadway Owner
- State
- Town
- Other
- Private

Conservation
- NHESP Certified Vernal Pools
- NHESP Estimated Habitats of Rare Wildlife
- NHESP Priority Habitats of Rare Species

MHC Historic Inventory
- Historic - Point
- Historic - Area

Outfall Ranking Priority
- Outfall to Waterbody within MS4 Area (130 Total Outfalls)
- Outfall to Upland Area (>100' from wetland, >200' from waterbody, 59 Total Outfalls)

Category 1: Attaining all designated uses.
Category 2: Attaining some of the designated uses and insufficient or no data and information is available to determine if the remaining uses are attained.
Category 3: Insufficient or no data and information to determine if any designated uses are attained.
Category 4A: Impaired for one or more designated uses but does not require the development of a TMDL: TMDL has been completed.
Category 4B: Impaired for one or more designated uses but does not require the development of a TMDL: Other pollution control requirements are reasonably expected to result in the attainment of designated uses.
Category 4C: Impaired for one or more designated uses but does not require the development of a TMDL: Impairment is not caused by a pollutant.
Category 5: Impaired for one or more designated uses, requires the development of a TMDL: Impairment is caused by a pollutant.

NOTE:
Call outs based on the Proposed Massachusetts year 2016 Integrated List of waters with exceptions/ clarifications where 2014 Integrated List of waters (LIW) are more stringent as noted below.

A Star (*) indicates impairments proposed to be removed if 2016 ILW is approved.
See IDDE table 11-1 for more details on 2014 & 2016 impairments

Data Source: Town of Norwell, EPG Drainage Data and MassGIS

HINGHAM
SCITUATE
ROCKLAND
HANOVER
MARSHFIELD
PEMBROKE

Issue Date: May 22, 2019
This Map is Intended for Planning Purposes Only

BETA

0 0.175 0.35 Miles

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	SWMP Team with NSRWA	Distributed with Dog Licenses		
1.10	Lawn Care: grass clippings & fertilizer	Residents & Bus/Inst/Com	SWMP Team with NSRWA	Mail and post to website		
1.11	Management of Pet Waste	Residents & Bus/Inst/Com	SWMP Team with NSRWA	Post to website		
1.12	Disposal of Leaf Litter	Residents & Bus/Inst/Com	SWMP Team with NSRWA	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

Illicit 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 Management Bylaw and accompanying Stormwater Management Regulations that require site inspections of all projects that disturb greater than _____ 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: _____ – _____

Report #	Date	Inspector	Project/Location	Status & Comments

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

CONSTRUCTION SITE ENFORCEMENT ACTION LOG

Reporting Period: _____ – _____

Project/Location	Date	Action Taken	Status & Comments

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

Report No. _____

MCM 4: CONSTRUCTION SITE INSPECTION FORM

The Town has developed a Stormwater Management Bylaw and accompanying Stormwater Management Regulations that require site inspections of all projects that disturb greater than _____ 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	☐ Regular	☐ Pre-Storm	☐ During Storm		☐ 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
☐ SWPPP Report(s)			☐	
☐ Adjacent Street			☐	
☐ Const. Access Dr.			☐	
☐ Perimeter ECB			☐	
☐ Outside ECB			☐	
☐ Sediment Basin(s)			☐	
☐ CB Protection			☐	
☐ Stockpiles			☐	
☐ Exposed Soils			☐	
☐ Exposed Slopes			☐	
☐ Outlet(s)			☐	
☐ Receiving Waters			☐	
☐ Other			☐	

CONSTRUCTION WASTE CONTROL MAINTENANCE/ACTION REQUIRED: ☐ YES ☐ NO

(Inspect for all applicable controls listed)

Control	Condition	Required Action	Completed (by)	Date
☐ Trash/Litter			☐	
☐ Dumpsters			☐	
☐ Fueling Areas			☐	
☐ Sanitary Facilities			☐	
☐ Dewatering			☐	
☐ Haz Mat Storage			☐	

SITE PHOTOS

MCM 4: Construction Site Runoff Control - Stormwater Site Plan Review

The Town has developed a Stormwater Management Bylaw and accompanying Stormwater Management Regulations to address post-construction stormwater runoff from all new development and redevelopment sites of all projects that disturb greater than _____ 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
			☐ LIDs ☐ SW Design Regs ☐ As-built ☐ Long-term O&M	
Description/Comments:				
			☐ LIDs ☐ SW Design Regs ☐ As-built ☐ Long-term O&M	
Description/Comments:				
			☐ LIDs ☐ SW Design Regs ☐ As-built ☐ Long-term O&M	
Description/Comments:				
			☐ LIDs ☐ SW Design Regs ☐ As-built ☐ Long-term O&M	
Description/Comments:				
			☐ LIDs ☐ SW Design Regs ☐ As-built ☐ Long-term O&M	
Description/Comments:				
			☐ LIDs ☐ SW Design Regs ☐ As-built ☐ 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 (_____ 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 6: GOOD HOUSEKEEPING - CATCH BASIN CLEANING

Purpose

The purpose of this this procedure 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 _____

CB ID	Date	Address	Location Description

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

The Town of Norwell does not have nutrient-impaired waters and therefore is required to sweep all municipal streets and lots the minimum once per year in the spring (following winter activities such as sanding).

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 reports annually as follows:

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 Department during any snow or ice event throughout the winter season on approximately 80 miles of Town owned roads. The Highway Department reserves the right to modify any plan as needed to adjust to various circumstances that a storm might present and provides detailed winter road maintenance and snow storm procedures on their website. The Highway Department Director and the Highway Superintendent will be responsible for carrying out this policy to satisfy the Permit. Parking during snow removal shall comply with Article X Sec. 11 & 12 of the Town By-Laws as referenced on the Highway website.

Priorities

1. The **first priority** is to ensure that police, fire and medical emergency equipment can move safely on 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 Highway Department 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

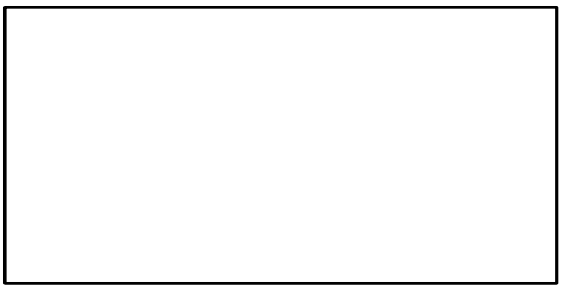
Reporting Period: _____ – _____

Report #	Date	Inspector	BMP/Location	Status & Comments

STORMWATER BMP INSPECTION FORM – SURFACE STRUCTURES

BMP ID:						
Location:			Length	**±ft.**	Depth	**±ft.**
Description:			Top Width	**±ft.**	Bot Width	**±ft.**
Type:	☐ **Detention**	☐ **Retention**	☐ **Infiltration**	☐ **Bioretention**		
	☐ **Swale**	☐ **Infiltration Trench**	☐ **Other**			
Inspector:				Date:		
Recent Rainfall:						
Notes:						

LOCATION MAP



MAINTENANCE REQUIRED: ☐ ▯▯▯ ☐ ▯▯

(Inspect for all problems listed – provide information for required maintenance only)

Problem	Description	Quantity (±)	Completed (personnel)	Date
☐ Sediment/Debris			☐	
☐ Vegetation			☐	
☐ Erosion			☐	
☐ Water Pond			☐	
☐ Sediment Forebay			☐	
☐ Outlet Struct			☐	
☐ Intlet			☐	
☐ Outlet			☐	
☐ Riprap			☐	
☐ Check Dam			☐	
☐ Access			☐	
☐ Fence			☐	
☐ Other			☐	

BMP PHOTOS

STORMWATER BMP INSPECTION FORM – SUBSURFACE STRUCTURES

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

LOCATION MAP

MAINTENANCE REQUIRED: ☐ ▯▯▯ ☐ ▯▯

(Inspect for all problems listed – provide information for required maintenance only)

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

BMP PHOTOS