Stormwater Management Program (SWMP) Plan

Town of Sandown, New Hampshire

Prepared June 30, 2019
Revised June 30, 2022

Prepared For:

Town of Sandown
P.O. Box 1756
#320 Main Street
Sandown, NH 03873

Prepared By:

Comprehensive Environmental Inc.
21 Depot Street
Merrimack, NH 03054

Stormwater Management Program (SWMP) Plan Revision Log

Revision Date	Section(s) Revised	Revisions Made	Revisions Made by
June 30, 2019	All	Original SWMP Plan prepared.	Comprehensive Environmental Inc.
June 30, 2021	All	SWMP Plan amended to document work completed during Permit Year 2 and Permit Year 3.	Comprehensive Environmental Inc.
June 30, 2022	2.4, 7.3.4, 7.3.5, and appendices	Updated TMDL and impaired waterbodies/status, regulatory LID, GI, and impervious cover update, municipal BMP retrofit inventory	Comprehensive Environmental Inc.

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Stormwater Management Program (SWMP) Plan 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, I certify that the information submitted is, to 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.

Name: _____ Title: _____

Signature: _____ Date: _____

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1 Introduction

Sandown is one of many New Hampshire communities regulated under the Environmental Protection Agency's (USEPA) National Pollutant Discharge Elimination System (NPDES) Phase II rule (40 CFR 122). The rule requires regulated operators of municipal separate storm sewer systems (MS4) to develop a Stormwater Management Program (SWMP) and Best Management Practices (BMPs) to reduce the impacts of stormwater discharges. The requirements are outlined in the NPDES General Permits for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems in New Hampshire, which was signed on January 18, 2017, with an effective date of July 1, 2018, hereinafter referred to as the 2017 MS4 Permit.

This SWMP Plan describes and details the activities and measures that are being implemented to meet the terms and conditions of the permit.

1.1 Regulatory Background

The Stormwater Phase II Final Rule was promulgated in 1999 and was the next step after the 1987 Phase I Rule in the United States Environmental Protection Agency'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 operators of Small Municipal Separate Storm Sewer Systems in urbanized areas, through the use of National Pollutant Discharge Elimination System 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 Area are required to seek NPDES permit coverage for those stormwater discharges.

On May 1, 2003, EPA Region 1 issued its Final General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (2003 MS4 Permit) consistent with the Phase II rule. The 2003 MS4 Permit covered "traditional" (i.e., cities and towns) and "non-traditional" (i.e., certain Federal and state agencies and/or facilities) MS4 Operators located in the states of New Hampshire and Massachusetts. This permit expired on May 1, 2008 but remained in effect until operators were authorized under the USEPA's 2017 NPDES General Permit for Stormwater Discharges from MS4 in New Hampshire, hereafter referred to as the "2017 New Hampshire MS4 Permit", "2017 Permit", "MS4 Permit, and/or "2017 MS4 Permit" which replaces the 2003 MS4 Permit. The 2017 New Hampshire MS4 Permit was signed on January 18, 2017 with an original effective date of July 1, 2018. After several years of litigation, the permit was updated with a revised effective date of January 18, 2021. Authorization to discharge expires on July 1, 2023.

The following sections outline how the Town of Sandown is meeting Phase II regulatory and schedule requirements.

1.2 MS4 Program

As required by the 2017 MS4 Permit, The Town of Sandown submitted a Notice of Intent (NOI) and required accompanying information, including endangered species, historic preservation, and an outfall map to EPA Region 1 by the September 28, 2018 deadline (**Appendix A**) requesting authorization to discharge under the new permit. Sandown received official authorization to discharge stormwater from its MS4 on March 18, 2019 as per the letter provided in **Appendix A**. Authorization to discharge expires on June 30, 2023.

This Stormwater Management Program Plan has been developed by the Town of Sandown to address the requirements of the 2017 MS4 Permit as a follow-up to the NOI. This SWMP Plan documents the Town of Sandown's program, including Best Management Practices, plans, activities, and measures that have been implemented to date, those that are ongoing, and those proposed for the future to comply with the 2017 NH MS4 Permit. This is a "living" document and should be updated and/or modified as required during the permit term as the permittee's activities are modified, changed or updated to meet permit conditions during the permit term.

This permit in part requires that each permittee, or regulated community, address 6 Minimum Control Measures. These measures include the following:

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

In addition to the 6 MCMs above, permittees must also address water quality impacts from waterbodies with approved Total Maximum Daily Loads (TMDLs) and certain impairments, generally known as water quality limited waterbodies.

1.3 Regulated Area

Requirements of the 2017 MS4 Permit are limited to a regulated area, defined as the Town's Urbanized Areas (UAs) which generally constitute the largest and most dense areas of settlement in a region. The Bureau of the Census determines UAs by applying a detailed set of published UA criteria to the latest decennial census data. Although the full UA definition is complex, the Bureau of the Census' general definition of a UA, based on population and population density, is provided below:

> *"An urbanized area (UA) is a densely settled core of census tracts and/or census blocks that have population of at least 50,000, along with adjacent territory containing non-residential urban land uses as well as territory with low population density included to link outlying densely settled territory with the densely settled core. It is a calculation used by the Bureau of the Census to determine the*

geographic boundaries of the most heavily developed and dense urban areas."

The most recent UA map is based on the 2010 Census. **Figure 1-1** shows the UA in the Town of Sandown which generally covers the majority of the northern limits of the town, the southern third of the town, and most of area that runs along Route 121A. Per the most recent census data, the Town's UA covers 4,291 people out of a total 5,986, or approximately 72% of the population. The UA area increased slightly since the 2000 Census, generally expanding the area covered along the northern end of town and along Route 121A. The UA is subject to change every 10 years based on the application of the Census definition, thus a larger area may be covered in the future.

1.4 How to Use this Plan

For the purposes of the 2017 MS4 Permit and ease of use, the Town's SWMP encompasses four separate written documents:

1. SWMP Plan (this document);
2. Illicit Discharge Detection and Elimination (IDDE) Plan (standalone document);
3. Operation and Maintenance (O&M) Plan (standalone document);
4. Nutrient Impairment Plan (standalone document that covers both TMDL and impaired waters requirements. See Section 9.)

This SWMP Plan is divided into several sections and includes the following components:

Section 2 **Town Characteristics** – Section 2 provides an overview of relevant characteristics, focusing on those aspects related to stormwater runoff and the water quality of surface waters.

Section 3 **MCM 1: Public Education and Outreach** – regulated operators of MS4s are required to implement a public education program. Section 3 discusses activities to comply with this measure.

Section 4 **MCM 2: Public Participation and Involvement** – regulated MS4s are required to obtain public participation throughout the stormwater management program. Section 4 discusses activities to comply with this measure.

Section 5 **MCM 3: Illicit Discharge, Detection, and Elimination** – regulated MS4s must develop and implement an illicit discharge detection and elimination program and develop a regulation to prohibit illicit discharges to the storm drain system. Section 5 discusses activities to comply with this measure.

Section 6 **MCM 4: Construction Site Stormwater Runoff Control** – regulated MS4s are required to implement and enforce a program to reduce pollutants in stormwater runoff from construction activities that disturb 1 or more acres. This requires the development of a local regulation

requiring implementation of proper erosion and sediment controls. Permittees are also responsible for inspections and enforcement. Section 6 discusses activities to comply with this measure.

Section 7 **MCM 5: Stormwater Management in New Development and Redevelopment** – regulated MS4s are required to develop and enforce a regulation requiring implementation of post-construction runoff controls at sites where construction activities disturb 1 or more acres. The controls must be designed to treat stormwater runoff from post-development sites and must be maintained over the long-term. Section 7 discusses activities to comply with this measure.

Section 8 **MCM 6: Good Housekeeping and Pollution Prevention** – regulated MS4s must review their operations at specific facilities and those that occur throughout the Town (i.e., catch basin cleaning and street sweeping) and make improvements where needed to minimize pollution to stormwater runoff. Staff involved in these operations must also be trained on appropriate operations and maintenance techniques. Section 8 discusses activities to comply with this measure.

Section 9 **TMDL and Impaired Waters Controls** – regulated MS4s are required to evaluate and address stormwater contributions to impaired waters. Section 9 discusses activities to comply with this measure.

Section 10 **Annual Reporting** – Section 10 provides a summary of annual reporting requirements in order to meet the 2017 MS4 Permit.

Section 11 **Implementation of Best Management Practices** – Section 11 provides a summary of BMPs outlined in Sections 3 through 9 in a concise plan for easy reference.

1.5 Program Responsibilities

This plan is intended to be used by Town of Sandown staff whose job involves administering the MS4 permit and associated requirements. The Town's MS4 program is headed by the following personnel:

Table 1-1. MS4 Responsible Personnel

Name	Title, Department	Contact
Ms. Lynne Blaisdell	Town Administrator	(603) 887-3646 lblaisdell@sandown.us

The Town of Sandown has nine departments responsible for implementing portions of its MS4 program as identified in the NOI. Therefore, due to the extensive number of departments involved as part of the Town's MS4 program, it is not feasible to list names and titles of responsible personnel for each one, as the information within this plan would be

frequently out of date. However, **Table 1-2** provides a list of responsible departments and their general responsibilities within the MS4 program. The responsible person is the most senior person within each department listed below.

Table 1-2. Program Responsibilities

Department / Division	General Responsibilities
Building Department	As-built submittal
Conservation Commission	Regulation development; TMDL and water quality limited requirements
Department of Public Works	IDDE program creation and implementation; IDDE training; target properties to reduce impervious areas and for BMP retrofit; develop operation and maintenance procedures; inventory buildings and facilities; SWPPP development and implementation; catch basin cleaning and street sweeping; road salt optimization program; BMP inspections and maintenance; TMDL and water quality limited requirements
Facilities Managers	Target properties to reduce impervious areas and for BMP retrofit
Planning Board	Ordinance and regulation development; site plan review procedures; site inspections and procedures; as-built submittal
Road Agent	Target properties to reduce impervious areas and for BMP retrofit
Select Board	Public participation; IDDE program creation and implementation; IDDE training
Town Administrator	Information distribution for public education; public participation
Town Engineer	Target properties to reduce impervious areas and for BMP retrofit; ordinance and regulation development; develop operation and maintenance procedures; inventory buildings and facilities; SWPPP development and implementation

2 Town Characteristics

This section provides some background information on the Town of Sandown, New Hampshire, useful in understanding the Town's characteristics and resources to develop a tailored Stormwater Management Plan. Town characteristics are described below.

2.1 Community Information

Sandown is a small rural community in southern New Hampshire within Rockingham County. It is generally bordered by Chester to the west and north, Fremont to the northeast, Danville to the east, Hampstead to the south, and Derry to the southwest. Select relevant community profile information is provided below:

- Total Area = 14.4 square miles *(source: Wikipedia)*
- 2015 Population = 6,176 *(source: Economic and Labor Market Information Bureau)*
- Regulated Area Population = 4,291 *(source: EPA maps based on 2010 US Census)*
-

2.2 Land Use

The land uses within the regulated area of the Town of Sandown are shown on **Figure 2-1** and provided below. Impervious area is shown on **Figure 2-2**.

- Commercial 2%
- Forest 36%
- Industrial 0%
- Open Land and Agriculture 6%
- Residential 37%
- Transportation and Utilities 3%
- Wetlands 9%
- Water 7%

As per the above, Sandown has substantial forest, open land, and water/wetland area (approximately 58%), with much of the remaining consisting of residential development (approximately 37%). Remaining land use (approximately 5%) consists largely of roadways and commercial development. Note that the Town has minimal to no industrial development present within the urbanized area.

2.3 303(d) Impaired Waterbodies

The ultimate goal of this Stormwater Management Plan is to outline a program to effectively maintain the Town's stormwater infrastructure and to improve the water quality of receiving waters (waters which receive stormwater discharges from the MS4) in compliance with the 2017 MS4 Permit. 303(d) impaired waters are those surface waters identified by the New Hampshire Department of Environmental Services (NHDES) as priority waters that do not meet water quality criteria. As part of the 2017 MS4 Permit, communities must implement BMPs to address all 303(d) waters and specifically address those that have a completed

TMDL study for certain parameters. **Table 2-1** lists the "impaired waters" partially or wholly located within the boundaries of Sandown's regulated area based on the Final New Hampshire Integrated List of Waters produced by NHDES every 2 years[1]. These waters are shown in **Figure 2-3**. Sandown will review changes as new lists are published and update this plan as required.

Table 2-1. Impaired Waters

Waterbody ID	Waterbody Name	Impairment(s)	Category
NHIMP600030802-01	Exeter River - Denson Pond	Mercury	4A-M
NHIMP600030802-08	Unnamed Brook - Atkins Dam	Mercury	4A-M
NHIMP600030802-09	Unnamed Brook - Fire Hole Pond Dam	Mercury	4A-M
NHLAK600030802-01	Hunt Pond	pH	4A-M
		Mercury	4A-M
NHLAK600030802-02	Lily Pond	pH	5-M
		Mercury	4A-M
		Cyanobacteria	5-P
NHLAK600030802-03-01	Phillips Pond	Non-Native Aquatic Plants	4C-P
		Phosphorus (Total)	4A-M
		pH	5-M
		Mercury	4A-M
NHLAK600030802-03-02	Phillips Pond - Seeley Town Beach	Non-Native Aquatic Plants	4C-P
		Mercury	4A-M
NHLAK600030802-04	Showell Pond	Chlorophyll-a	4A-P
		Phosphorus (Total)	4A-P
		pH	5-M
		Mercury	4A-M
NHLAK700061403-01-01	Angle Pond	Chlorophyll-a	5-M
		Phosphorus (Total)	5-M
		pH	5-M
		Mercury	4A-M
		Cyanobacteria	5-M
NHLAK700061403-01-02	Angle Pond - Angle Pond Grove Beach	Mercury	4A-M
NHLAK700061403-04	Cub Pond	pH	5-M
		Mercury	4A-M
NHRIV700061403-05	Bartlett Brook – Colby Brook – Unnamed Brook	pH	5-M
		Dissolved Oxygen	5-M

[1]Note that at the time of preparation of this report (June 30, 2022), the 2018 303d list is the most up to date finalized 303d List.

Table 2-1 (continued). Impaired Waters

Waterbody ID	Waterbody Name	Impairment(s)	Category
NHLAK700061403-14	Punch Pond	Mercury	4A-M
NHRIV600030802-02	Showell Pond Outlet Brook - to Phillips Pond	Mercury	4A-M
NHRIV600030802-03	Exeter River	pH	5-M
		Mercury	4A-M
		Escherichia coli	4A-P
NHRIV600030802-04	Exeter River - Unnamed Brook	Mercury	4A-M
NHRIV600030802-12	Unnamed Brook - to Exeter River	Mercury	4A-M
NHRIV600030802-15	Unnamed Brook	Mercury	4A-M
NHRIV600030802-16	Unnamed Brook – to Southwest Inlet of Phillips Pond	pH	5-M
NHRIV600030802-17	Unnamed Brook	Mercury	4A-M
NHRIV600030802-19	Unnamed Brook	Mercury	4A-M
NHRIV600030802-20	Unnamed Brook	Mercury	4A-M
NHRIV600030802-21	Unnamed Brook	Mercury	4A-M
NHRIV600030802-26	Unnamed Brook	Mercury	4A-M
NHRIV600030802-27	Unnamed Brook	Mercury	4A-M
NHRIV600030802-29	Unnamed Brook	Mercury	4A-M
NHRIV600030802-31	Unnamed Brook	Mercury	4A-M
NHRIV600030802-32	Unnamed Brook	Mercury	4A-M
NHRIV600030802-35	Unnamed Brook	Mercury	4A-M
NHRIV600030802-36	Unnamed Brook	Mercury	4A-M
NHRIV600030802-37	Unnamed Brook	Mercury	4A-M
NHRIV700061403-01	Colby Brook	Mercury	4A-M
NHRIV700061403-21	Unnamed Brook - to Angel Pond through North Inlet	pH	5-M
		Mercury	4A-M
NHRIV700061403-22	Unnamed Brook - to Angel Pond through West Inlet	pH	5-M
		Mercury	4A-M
NHRIV700061403-25	Unnamed Brook	Mercury	4A-M
NHRIV700061403-26	Unnamed Brook	Mercury	4A-M
NHRIV700061403-36	Unnamed Brook	Mercury	4A-M

Category 4A-M –There is an impairment per the CALM by a parameter which is a pollutant and an EPA-approved TMDL has been completed. However, the impairment is relatively slight or marginal.
Category 4A-P – There is an impairment per the CALM by a parameter which is a pollutant and an EPA-approved TMDL has been completed. However, the impairment is more severe and causes poor water quality.
Category 4C-P – There is a parameter which is not considered a pollutant but is causing impairment per the CALM. The impairment is more severe and causes poor water quality defined in sub-category 4A-P above.
Category 5-M – There is an impairment per the CALM by a parameter which is a pollutant that requires a TMDL. The impairment is marginal as defined in DES sub-category 4A-M above.

Sandown is also subject to the Great Bay nitrogen impairment, as the Town discharges to the Squamscott River (NHEST600030806) via the Exeter River and then onto Great Bay. Note that although Sandown has a number of waterbodies listed as impaired, the 2017 MS4 Permit does not specific a wasteload allocation or other requirements for MS4 discharges for mercury, pH, non-native aquatic plants, chlorophyll-a, or cyanobacteria. Thus, there are no requirements for these pollutants under this Plan. Remaining requirements for TMDL and/or water quality limited waterbodies related to nitrogen, phosphorus, and bacteria are outlined further in **Section 9**.

2.4 Measures to Protect Surface Drinking Water Supplies

All drinking water is obtained from private wells and there are no public surface water supplies or tributaries within the Town. The town does not currently plan on using any surface waterbodies for public drinking water supplies in the near future and implementation of the SWMP helps protect water quality in all receiving waterbodies.

2.5 Endangered Species Act Determination

In order to be eligible to discharge stormwater under the 2017 MS4 Permit, the Town of Sandown must certify that its stormwater system is not impacting federally listed rare or endangered species habitat or other critical environmental locations. This was completed in the summer of 2018 as meeting "Criterion C" on the Notice of Intent with the results documented in **Appendix A**. The Northern Long-eared Bat *(Myotis septentrionalis)* was the only species identified as potentially being present within Sandown's regulated area. No critical habitats were identified.

2.6 National Historic Preservation Act Determination

Regulated MS4s must also evaluate whether its discharges have the potential to affect historic properties. The MS4 Permit typically authorizes discharges from existing facilities and requires control of the pollutants discharged from the facility, however, EPA does not anticipate effects on historic properties from the pollutants in the authorized discharges. Thus, to the extent EPA's issuance of the MS4 General Permit authorizes discharges of such constituents, confined to existing channels, outfalls or natural drainage areas, the permitting action does not have the potential to cause effects on historical properties. If there have been no relevant changes in operation of the MS4 since the 2003 MS4 General Permit, the discharge can still be considered to have no potential to have an effect on historic properties. This has been documented as "Criterion A" on the Notice of Intent (**Appendix A**) and thus no additional information is required for documentation.

Where there is disturbance of land through the construction and/or installation of control measures, there is a possibility that artifacts, records, or remains associated with historic properties could be impacted. In these cases, such as during future construction of structural stormwater BMPs, the Town will need to ensure that historic properties will not be impacted by their activities, or that they are in compliance with a written agreement with the State Historic Preservation Officer (SHPO) representative that outlines all measures the applicant will carry out to mitigate or prevent any adverse effects on historic properties. This will be completed as required during a later date(s).

3 MCM 1: Public Education and Outreach

3.1 Summary of Permit Requirements

3.1.1 Core Permit Requirements

Under MCM 1, permittees must develop an educational program, define educational goals, express specific messages, define the targeted audience for each message, and identify responsible parties for program implementation. At a minimum, the program must provide information concerning the impact of stormwater discharges on water bodies within the community, especially those waters that are impaired or identified as priority waters. The program must identify steps and/or activities that the public can take to reduce the pollutants in stormwater runoff and their impacts to the environment.

The Town must address 4 core target audiences, unless 1 of these audiences is not present in the MS4 community:

1. Residents;
2. Businesses, Institutions, and Commercial facilities;
3. Developers and Construction; and
4. Industrial facilities.

At least 2 educational messages must be distributed to audiences over the permit term spaced at least a year apart. See sections below for more information.

3.1.2 TMDL & Impaired Waters Requirements

Public education and outreach programs must also address impaired waterbodies or those identified as priority waters. In Sandown, the only waterbody impairments listed as having specific requirements under the 2017 MS4 Permit are bacterial, phosphorus and nitrogen. Priority waterbodies and impairments can be found in **Table 3-1**.

Table 3-1. Priority Waterbodies

Waterbody Name	Impairment
Exeter River	Escherichia Coli
Great Bay (via Exeter River)	Nitrogen
Angle Pond	Phosphorus
Phillips Pond	Phosphorus

Relevant public information on bacteria, phosphorus and nitrogen topics as outlined by the 2017 MS4 Permit is included with each of the 4 applicable target audiences as outlined below. As noted in Section 2.3, Sandown has a number of waterbodies with other impairments, however the 2017 MS4 Permit does not require specific public education and outreach requirements for these impairments.

3.2 Objectives and Goals

The Town of Sandown implements an education program that includes educational goals based on stormwater issues of significance within the MS4 area, increase knowledge, and change behavior of the public so that pollutants in stormwater are reduced.

3.3 Public Education Program

The following sections outline how Sandown is meeting the requirements of the 2017 MS4 Permit by completing targeted outreach to the 4 required audiences. Additionally, since the Town has waterbodies with TMDL and water quality impairments associated with bacteria, phosphorus and nitrogen, the program includes messages to help minimize contributions of these pollutants in accordance with the "Enhanced BMPs" requirements in Appendix F and Appendix H of the 2017 MS4 Permit.

3.3.1 Residential

Informational Topics
As required for all communities under the 2017 MS4 Permit, the following topics are addressed under the Residential public education and outreach program:

- Effects of outdoor activities such as lawn care (use of pesticides, herbicides, and fertilizers) on water quality;
- Benefits of appropriate on-site infiltration of stormwater;
- Effects of automotive work and car washing on water quality;
- Proper disposal of swimming pool water;
- Proper management of pet waste; and
- Maintenance of septic systems.

As required for waterbodies with bacteria and pathogen TMDLs requirements (Exeter River), the Town shall replace its Residential program with the following:

- An annual message encouraging the proper management of pet waste;
- Disseminate educational materials to dog owners at the time of issuance or renewal of a dog licenses;
- Describe detrimental impacts of improper management of pet waste, requirements for waste collection and disposal, and penalties for non-compliance; and
- Provide information to owners of septic systems about proper maintenance in any catchment that discharges to a water body impaired for bacteria or pathogens.

As required for waterbodies subject to nitrogen water quality limited waterbody requirements (Great Bay via the Exeter River), the Town shall replace its Residential program with the following annual messages encouraging:

- Spring (April-May): proper disposal of grass clippings and fertilizer usage;
- Summer (June-July): proper management of pet waste; and
- Fall (August-October): proper disposal of leaf litter.

As required for waterbodies subject to phosphorus water quality limited waterbody requirements (Phillips Pond and Angle Pond), the Town shall replace its Residential program with the following annual messages encouraging:

- Spring (April-May): proper disposal of grass clippings and use of slow-release and phosphorus-free fertilizers;
- Summer (June-July): proper management of pet waste; and
- Fall (August-October): proper disposal of leaf litter.

Although each of the above TMDL and water quality limited waterbody requirements are only required for each specific waterbody where impairments are present, Sandown implements public educational messages town-wide. Additionally, due to the similarities in public education requirements for nitrogen TMDL and phosphorus water quality limited waterbodies, requirements for the Exeter River, Phillips Pond, and Angle Pond have been combined. For more information, see Section 9.

Educational Message and Methods of Distribution

The following table shows the educational messages and methods of distribution for the above topics, along with responsible parties and measurable goals.

Table 3-2. BMP Description – Residential Outreach

BMP Description	Message	Method of Distribution	Responsible Parties	Measurable Goal
BMP 1-1: Residential Education Program	Brochures / handouts	Distribute flyers with pet registrations and renewals, with car registration renewals, and for download via the Town webpage	Town Administrator	Distribute flyers and brochures continually via each method of distribution
	Stormwater webpage	Provide relevant information and links for viewing and/or download from Town webpage	Town Administrator	Continue to update and maintain the websites to include relevant stormwater information

The following table lists which of the topics are covered under each educational message.

Table 3-3. Residential Public Outreach Topics and Message

Topics and Educational Message	Brochures / Handouts	Stormwater Webpage
General Topics		
Effects of outdoor activities such as lawn care (use of pesticides, herbicides, and fertilizers) on water quality	x	x
Benefits of appropriate on-site infiltration of stormwater	x	x
Effects of automotive work and car washing on water quality	x	x
Proper disposal of swimming pool water;	x	x
Proper management of pet waste	x	x
Maintenance of septic systems	x	x
Nitrogen and Phosphorus Impairment Topics		
Spring (March/April): encourage proper use and disposal of grass clippings and encourage the proper use of slow-release and phosphorus-free fertilizers	x	x
Summer (June/July): encourage proper management of pet waste, including noting any existing ordinances where appropriate	x	x
Fall (August/September/October): encourage the proper disposal of leaf litter	x	x
Bacteria TMDL Topics		
An annual message encouraging the proper management of pet waste, including noting any existing ordinances where appropriate	x	x
Disseminate educational materials to dog owners at the time of issuance or renewal of a dog license, or other appropriate time	x	x
Describe detrimental impacts of improper pet waste management, requirements for waste collection and disposal, and penalties for non-compliance	x	x
Provide information to owners of septic systems about proper maintenance in any catchment that discharges to a water body impaired for bacteria or pathogens	x	x

Schedule

Due to the importance of educating Town residents, many of the above topics are made available continuously via the website. Information pertaining to the nitrogen, phosphorus, and bacteria seasonal messages is made available on the website and informational brochures continuously with notes provided for the appropriate timeframes for implementing certain topics.

3.3.2 Businesses, Institutions, and Commercial Facilities

Informational Topics
As required for all communities under the 2017 MS4 Permit, the following topics are addressed under the Business, Institutions, and Commercial public education and outreach program:

- Proper lawn maintenance (use of pesticides, herbicides and fertilizer);
- Benefits of appropriate on-site infiltration of stormwater;
- Building maintenance and storage of materials;
- Proper use and storage of salt or other de-icing and anti-icing materials;
- Proper management of waste materials and dumpsters;
- Proper management of parking lot surfaces;
- Proper car care activities; and
- Proper disposal of swimming pool water by entities such as motels, hotels, and health and country clubs.

As required for waterbodies subject to nitrogen water quality limited waterbody requirements (Great Bay via the Exeter River), the Town shall replace its Business, Institutions, and Commercial program with the following annual messages encouraging:

- Spring (April-May): proper disposal of grass clippings and fertilizer usage;
- Summer (June-July): proper management of pet waste; and
- Fall (August-October): proper disposal of leaf litter.

As required for waterbodies subject to phosphorus water quality limited waterbody requirements (Phillips Pond and Angle Pond), the Town shall replace its Business, Institutions, and Commercial program with the following annual messages encouraging:

- Spring (April-May): proper disposal of grass clippings and use of slow-release and phosphorus-free fertilizers;
- Summer (June-July): proper management of pet waste; and
- Fall (August-October): proper disposal of leaf litter.

Although each of the above water quality limited waterbody requirements are only required for each specific waterbody where impairments are present, Sandown implements public educational messages town-wide. Additionally, due to the similarities in public education requirements for nitrogen TMDL and phosphorus water quality limited waterbodies, requirements for the Exeter River, Phillips Pond, and Angle Pond have been combined. For more information, see Section 9.

Educational Message and Methods of Distribution
The following table shows the educational messages and methods of distribution for the above topics, along with responsible parties and measurable goals. All informational topics are addressed on the Town's website.

Table 3-4. BMP Description – Businesses, Institutions, and Commercial Outreach

BMP Description	Message	Method of Distribution	Responsible Parties	Measurable Goal
BMP 1-2: Businesses, Institutions, and Commercial Education Program	Brochures/ handouts	Direct mailing to local businesses at least annually	Town Administrator	Provide relevant information to local businesses in town
	Stormwater webpage	Provide relevant information and links for viewing and/or download from Town webpage	Town Administrator	Continue to update and maintain the websites to include relevant stormwater information

Schedule
Information pertaining to the Business, Institutions, and Commercial public education and outreach program is made available continuously via the website.

3.3.3 Developers and Construction

Informational Topics
As required for all communities under the 2017 MS4 Permit, the following topics are addressed under the Developers and Construction public education and outreach program:

- Proper sediment and erosion control management practices;
- Information about Low Impact Development (LID) principles and technologies; and
- Information about EPA's construction general permit (CGP).

Educational Message and Methods of Distribution
The following table shows the educational messages and methods of distribution for the above topics, along with responsible parties and measurable goals. All informational topics are addressed on the Town's website and via erosion control and fact sheets provided to developers when applying for applicable permits.

Table 3-5. BMP Description – Developers and Construction Outreach

BMP Description	Message	Method of Distribution	Responsible Parties	Measurable Goal
BMP 1-3: Developers and Construction Education Program	Brochures / handouts	Distribute fact sheets or brochures on erosion and sediment control with permit applications.	Town Administrator	Provide information with all applications.
	Stormwater webpage	Provide relevant information and links for viewing and/or download from Town webpage	Town Administrator	Continue to update and maintain the websites

Schedule
Information pertaining to the Developers and Construction is made available continuously on the website.

3.3.4 Industrial

Informational Topics
As required for all communities under the 2017 MS4 Permit, the following topics are addressed under the Industrial public education and outreach program:

- Equipment inspection and maintenance;
- Proper storage of industrial materials and dumpster management;
- Proper management and disposal of wastes;
- Minimization of use and proper storage of salt or other de-icing/anti-icing materials;
- Benefits of on-site stormwater from areas with low exposure to industrial materials;
- Proper maintenance of parking lot surfaces; and
- Information about EPA's CGP.

Educational Message and Methods of Distribution
The following table shows the educational messages and methods of distribution for the above topics, along with responsible parties and measurable goals. All informational topics are addressed on the Town's website.

Table 3-6. BMP Description – Industrial Outreach

BMP Description	Message	Method of Distribution	Responsible Parties	Measurable Goal
BMP 1-4: Industrial Education Program	Brochures / handouts	Direct mailing to local businesses at least annually	Town Administrator	Provide relevant information to local businesses in town
	Stormwater webpage	Provide relevant information and links for viewing and/or download from Town webpage	Town Administrator	Continue to update and maintain the websites

Schedule
Information pertaining to the Industrial public education and outreach program is made available continuously on the website.

3.4 Measuring Public Education Program Effectiveness

During completion of the Town's annual report as detailed further under **Section 10**, Sandown reviews the effectiveness of each message and the Town's overall education program. Effectiveness is expected to vary by message, however is generally measured

based on quantities of materials distributed and feedback from town employees based on observations in their area of work. Educational messages and/or distribution techniques are modified as needed, should program managers determine that they are ineffective.

4 MCM 2: Public Participation & Involvement

4.1 Summary of Permit Requirements

Under MCM 2, permittees must provide annual opportunities for public participation in the review and implementation of the Town's SWMP as part of a public education and involvement program. All public involvement activities must comply with state public notice requirements. The SWMP and annual reports must also be made available so that the public has opportunities to review and comment.

4.2 Objectives and Goals

Sandown implements a public participation and involvement program that provides opportunities for review and implementation of the Town's SWMP. This helps support public education and outreach items under MCM 1.

4.3 Public Participation and Involvement Opportunities

The following outlines how Sandown is meeting permit requirements to provide the public with opportunities to participate in reviewing and implementing the SWMP.

4.3.1 Make Documents Publicly Available for Comment

Sandown makes this written SWMP Plan and annual reports available for review and comment via the Town's website, along with the name, email address and/or phone number of a contact person from the Town government to request additional information or submit comments. This allows the public to comment on the program at least once per year. An updated SWMP Plan is posted to the website annually as additional tasks are completed. The following table shows the BMP, responsible parties and measurable goals.

Table 4-1. BMP Description – Make Documents Publicly Available for Comment

BMP Description	Responsible Parties	Measurable Goal
BMP 2-1: Make SWMP Plan and Annual Report Publicly Available	Town Administrator or Select Board	Annual review of stormwater management plan; post SWMP on website, a printed copy is available at town hall for public comment.

5 MCM 3: Illicit Discharge, Detection, and Elimination

5.1 Summary of Permit Requirements

Under MCM 3, permittees must implement an IDDE program to systematically find and eliminate sources of non-stormwater discharges to its MS4 and implement procedures to prevent such discharges. A summary of the required IDDE activities and timelines are provided below. See sections below for more information.

5.1.1 Legal Authority

The IDDE program shall include adequate legal authority in the form of a currently effective ordinance, bylaw, or other regulatory mechanism to prohibit, investigate, and eliminate illicit discharges. For permittees authorized by the MS4-2003 permit such as Sandown, the ordinance, bylaw, or other regulatory mechanism was required to be effective by May 1, 2008.

5.1.2 Sanitary Sewer Overflow

Regulated communities must identify all known locations where sanitary sewer overflows (SSOs) have discharged to the MS4 during the previous 5-years and update it annually. Upon detection of an SSO, the permittee must eliminate it as quickly as possible and take interim mitigation measures to minimize or eliminate the discharge of pollutants until remediation work is complete.

5.1.3 System Mapping

Regulated communities must complete a comprehensive map of their stormwater system in 2 phases. Phase 1 must be completed within 2 years and include infrastructure such as outfalls and preliminary catchment delineations, waterbodies, open channel conveyances, interconnections with other MS4s, and structural stormwater BMPs. Phase 2 must be completed within 10 years and include information such as outfalls with high accuracy GPS location and refined catchment delineations, catch basins, manholes, pipe connectivity, and sanitary or combined sewer systems as available/applicable.

5.1.4 Illicit Discharge, Detection, and Elimination Program

The 2017 MS4 Permit requires preparation of a comprehensive written IDDE Program or IDDE Plan that provides detailed procedures for assessment and priority ranking of outfalls and interconnections, dry and wet weather outfall sampling, catchment investigation procedures, system vulnerability factor (SVF) assessment, identification of an illicit discharge, illicit discharge removal, and ongoing screening requirements. The written IDDE Program must be prepared as a standalone IDDE Plan separate from this SWMP Plan.

5.1.5 Annual IDDE Training

The 2017 MS4 Permit requires annual IDDE training to be provided to all employees involved in the IDDE program. Training must, at a minimum, include information on how to identify illicit discharges and SSOs and may also include additional training specific to the functions of particular personnel and their function within the framework of the IDDE program.

5.2 Objectives and Goals

The Town of Sandown implements an IDDE program to systematically find and eliminate sources of non-stormwater discharges to its MS4 and implement procedures to prevent such discharges. The ultimate goal is to remove sources of pollution and improve water quality in receiving waterbodies.

5.3 IDDE Program

The following sections outline how Sandown is meeting the requirements of the 2017 MS4 Permit to implement an IDDE program to locate, eliminate, and prohibit illicit discharges.

5.3.1 Establish Legal Authority

Requirements
Permittees must develop an ordinance, bylaw or regulatory mechanism to:

- Prohibit illicit discharges;
- Investigate suspected illicit discharges;
- Eliminate illicit discharges, including discharges from properties not owned by or controlled by the MS4 that discharge into the MS4 system; and
- Implement appropriate enforcement procedures and actions.

Work to be Performed
The Town of Sandown has established an Illicit Discharge Detection and Elimination Ordinance under the Zoning Ordinances as of March 12, 2019 to meet IDDE regulatory mechanism requirements, and is provided under **Appendix B**. This regulatory mechanism addresses all of the above legal requirements in order to create an IDDE program to satisfy the 2017 MS4 Permit. The following table shows the BMP, responsible parties and measurable goals.

Table 5-1. BMP Description – Establish IDDE Legal Authority

BMP Description	Responsible Parties	Measurable Goal
BMP 3-1: Enact and Enforce IDDE Ordinance	Public Works Department or Select Board	Regulatory mechanism in place within 1 year of the permit effective date.

5.3.2 Complete System Mapping

Requirements

The 2017 MS4 Permit requires the storm system map to be updated in 2 phases. Phase I mapping must be completed within 2 years of the effective date of the permit (July 1, 2020) and include the following information:

- Outfalls and receiving waters (previously required by the MS4-2003 permit);
- Open channel conveyances (swales, ditches, etc.);
- Interconnections with other MS4s and other storm sewer systems;
- Municipally owned stormwater treatment structures;
- Waterbodies identified by name with a list of impairments as identified on the most recent EPA approved New Hampshire Integrated List of Waters report; and
- Initial catchment delineations based on topography or contributing structures.

Phase II mapping must be completed within 10 years of the effective date of the permit (July 1, 2028) and include the following information:

- Outfall locations (latitude and longitude with a minimum accuracy of +/-30 feet);
- Pipe connectivity;
- Manholes;
- Catch basins;
- Refined catchment delineations based on updated mapping information;
- Municipal sanitary sewer system (note, not applicable); and
- Municipal combined sewer system (note, not applicable).

Work to be Performed

As noted previously, the Town of Sandown has mapped much of its stormwater system and current mapping status is shown provided in **Appendix C**. All information is incorporated into its GIS library and where applicable, GIS information can be exported into other formats. Where The Town of Sandown will continue to update its stormwater mapping by the required deadlines to include the above information. The following table shows the BMPs, responsible parties and measurable goals.

Table 5-2. BMP Description – Complete System Mapping

BMP Description	Responsible Parties	Measurable Goal
BMP 3-2: Phase I Storm Sewer System Map	Public Works Department or Select Board	Complete preliminary system map within 2 years of effective date of permit
BMP 3-3: Phase II Storm Sewer System Map	Public Works Department or Select Board	Complete full system map 10 years after effective date of permit

5.3.3 Complete Sanitary Sewer Overflow Inventory

The 2017 MS4 Permit requires municipalities to prohibit illicit discharges, including SSOs, to the separate storm sewer system. SSOs are discharges of untreated sanitary wastewater from a municipal sanitary sewer that can contaminate surface waters, cause serious water quality problems and property damage, and threaten public health. The Town of Sandown has no sanitary sewer system and thus has no SSOs. No further action is required.

5.3.4 Develop and Implement Written IDDE Program

Requirements

The Town of Sandown must develop an IDDE Program, the majority of which is contained in a written Illicit Discharge, Detection, and Elimination Plan, a standalone document separate from this SWMP Plan. The IDDE Plan must include a statement of responsibilities and detailed written procedures for the following:

- Assessment and priority ranking of outfalls and interconnections;
- Dry and wet weather outfall sampling;
- Catchment investigations procedures;
- System vulnerability factor (SVF) assessment;
- Identification of an illicit discharge;
- Illicit discharge removal; and
- Ongoing screening requirements.

Work to be Performed

Sandown has developed a written IDDE Plan as a separate standalone document to address the illicit discharge requirements of the 2017 MS4 Permit. Sandown is working towards implementing a comprehensive IDDE Plan and program, according to the schedule set forth in the permit. The following table shows the BMPs, responsible parties and measurable goals.

Table 5-3. BMP Description – Written IDDE Program and Program Implementation

BMP Description	Responsible Parties	Measurable Goal
BMP 3-4: Written IDDE Program	Public Works Department or Select Board	Create written IDDE program within 1 year of the effective date of the permit and update periodically
BMP 3-5: Outfall / Interconnection Inventory and Ranking	Public Works Department or Select Board	Classify and rank outfalls and interconnections within 1 year of the effective date of the permit.
BMP 3-6: Implement IDDE Program	Public Works Department or Select Board	Implement catchment investigations and complete within 10 years of the effective date of the permit

5.3.5 Perform Dry and Wet Weather Outfall Screening

Requirements

Outfalls and contributing catchment areas must be categorized into Problem, High, Low, and Excluded outfalls and then ranked within each category. Additionally, catchments draining to the Exeter River which is designated as impaired for pathogens must be classified as either "Problem Catchments" or "High" priority as outlined further in Section 9. The 2017 MS4 Permit then requires all outfalls classified as High and Low to be inspected for the presence of dry conditions within 3 years of the permit effective date. While completing screening, permittees must also document various physical indicators of the outfall and sample flowing outfalls. Additionally, outfalls with at least 1 SVF must also be sampled during wet weather. Depending on the results, additional screening and sampling may be required further up into the contributing catchment. Once dry and wet weather sampling is complete, additional ongoing screening shall be performed once every 5 years in accordance with the catchment prioritization and ranking. Both dry and wet weather outfall screening must be conducted in accordance with screening procedures outlined in the written IDDE Plan. All sampling results shall be reported in the permittee's annual report.

Work to be Performed

Sandown developed an outfall sampling program under the IDDE Plan which is being implemented moving forward according to the schedule outlined in the 2017 MS4 Permit. This includes dry and wet weather screening on Town outfalls, including those with SVFs where applicable. Known outfalls were evaluated during dry weather conditions during 2020 through 2022 and none of the sampling data collected from flowing outfalls met the Permit criteria as being highly likely to contain illicit discharges from sanitary sources. Results are documented in the standalone IDDE Plan.

Wet weather screening on Town outfalls, including those with SVFs, will be completed at a later date where applicable. The program will be performed in accordance with the written procedures and schedules in the IDDE Plan. Ongoing screening will also be performed after the conclusion of the initial sampling rounds. The following table shows the BMPs, responsible parties and measurable goals.

Table 5-4. BMP Description – Perform Dry and Wet Weather Outfall Screening

BMP Description	Responsible Parties	Measurable Goal
BMP 3-7: Dry Weather Screening	Public Works Department or Select Board	Complete in accordance with outfall screening procedure within 3 years of the effective permit date
BMP 3-8: Wet Weather Screening	Public Works Department or Select Board	Complete in accordance with outfall screening procedure within 10 years of the effective permit date
BMP 3-9: Ongoing Screening	Public Works Department or Select Board	Conduct ongoing dry and wet weather outfall screening upon completion of the IDDE program

5.3.6 Perform Annual IDDE Training

The 2017 MS4 Permit requires annual IDDE training to be provided to all employees involved in the IDDE program. Therefore, Sandown provides annual training that at a minimum includes information on how to identify illicit discharges and may also include additional training specific to the functions of particular personnel and their function within the framework of the IDDE program. Frequency and type(s) of training is included in the annual report. The following table shows the BMP, responsible parties and measurable goals.

Table 5-5. BMP Description – Perform Annual IDDE Training

BMP Description	Responsible Parties	Measurable Goal
BMP 3-10: Perform IDDE Training	Public Works Department or Select Board	Complete annual training

5.4 Measuring IDDE Program Effectiveness

The success of the IDDE Program is evaluated according to the following parameters:

- Storm system mapping progress;
- Number of illicit discharges identified and removed;
- Number and percent of total outfall catchments served by the MS4 evaluated using the catchment investigation procedures;
- Updated SVF and catchment inventory and ranking;
- Dry weather and wet weather screening and sampling results;
- Estimated volume or quantity of sewage removed; and
- Number of employees successfully trained on IDDE.

The above are tracked throughout the year and reported as part of each annual report submitted to EPA each year by September 28.

6 MCM 4: Construction Site Stormwater Runoff Control

6.1 Summary of Permit Requirements

Under MCM 4, permittees are required to implement and enforce a program to reduce pollutants in stormwater runoff discharged to the MS4 from all construction activities that result in a land disturbance of greater than or equal to 1 acre within the regulated area. This program shall also regulate disturbances less than 1 acre if they are part of a larger common plan of development or sale that would disturb 1 or more acres. A summary of the required Construction Site Stormwater Runoff Control Program activities and timelines are provided below:

6.1.1 Legal Authority

The Construction Site Stormwater Runoff Control Program shall include adequate legal authority in the form of a currently effective ordinance, bylaw, or other regulatory mechanism to:

- Require the use of sediment and erosion control practices at construction sites; and
- Include controls for other wastes on construction sites.

For permittees authorized by the MS4-2003 permit such as Sandown, the ordinance, bylaw, or other regulatory mechanism was required to be effective by May 1, 2008.

6.1.2 Construction Site Stormwater Runoff Control Program

The 2017 MS4 Permit requires preparation of a written Construction Site Stormwater Runoff Control Program procedures that includes pre-construction site plan review and onsite construction inspections. Permittees must also establish requirements for developers to implement a Sediment and Erosion Control Program as part of its Construction Site Stormwater Runoff Control Program that includes BMPs to reduce pollutant sources from construction sites. This program should also include requirements for controlling other wastes during construction.

6.2 Objectives and Goals

The Town of Sandown implements an effective construction stormwater runoff control program to minimize or eliminate erosion and maintain sediment onsite so that it is not transported in stormwater and allowed to discharge to a water of the U.S through the permittee's MS4.

6.3 Construction Site Stormwater Runoff Control Program

The following sections outline how Sandown is meeting the requirements of the 2017 MS4 Permit to establish a Construction Site Stormwater Runoff Control Program.

6.3.1 Establish Legal Authority

Requirements
Permittees must develop an ordinance, bylaw or regulatory mechanism to:

- Require the use of sediment and erosion control practices at construction sites;
- Include controls for other wastes on construction sites.

Work to be Performed
The Town of Sandown updated its existing Site Plan Review Regulations (adopted June 15, 2021) which regulates construction projects that disturb greater than 10,000 square feet and are provided under **Appendix B**. The regulations in part require use of soil erosion and sediment controls to stormwater runoff at construction sites, and also includes controls for other wastes at construction sites. The following table shows the BMP, responsible parties and measurable goals.

Table 6-1. BMP Description – Establish Construction Site Legal Authority

BMP Description	Responsible Parties	Measurable Goal
BMP 4-1: Develop and Enforce Construction Ordinance	Planning Board through a public hearing process	Complete ordinance within 1 year of the effective date of the permit

6.3.2 Establish Written Procedures for Site Plan Review

Requirements
The 2017 MS4 Permit requires establishing written procedures for pre-construction plan review of the site design, planned operations, planned BMPs during the construction phase, and planned BMPs to manage runoff after development that includes the following:

- Potential water quality impacts;
- Consideration of information submitted by the public; and
- Evaluation of opportunities for use of LID and green infrastructure (GI).

Work to be Performed
The Town of Sandown updated its existing Site Plan Review Regulations (adopted June 15, 2021) which regulates construction projects that disturb greater than 10,000 square feet and are provided under **Appendix B**. The regulations in part provide written procedures for reviewing plan submittals, including plans, calculations, and other items as required by the permit. The following table shows the BMP, responsible parties and measurable goals.

Table 6-2. BMP Description – Establish Site Plan Review Procedures

BMP Description	Responsible Parties	Measurable Goal
BMP 4-2: Develop Written Procedures for Site Plan Review	Planning Board through a public hearing process	Establish procedures for site plan review within 1 year of the effective date of the permit

6.3.3 Establish Procedures for Site Inspections and Enforcement

Requirements

The 2017 MS4 Permit requires the development of written procedures for site inspections and enforcement actions to take place both during construction of BMPs and after construction of BMPs is completed to ensure they are working as described in the approved plans. Procedures must define the following:

- Who is responsible for site inspections;
- Who has authority to implement enforcement procedures;
- Ability to impose sanctions to ensure program compliance; and
- How to track the number inspections and enforcement actions for reporting in the Annual Report.

Work to be Performed

The Town of Sandown updated its existing Site Plan Review Regulations (adopted June 15, 2021) which regulates construction projects that disturb greater than 10,000 square feet and are provided under **Appendix B**. The regulations in part provide written procedures for site inspections, enforcement actions, outlines qualified personnel, and a tracking methodology. The following table shows the BMP, responsible parties and measurable goals.

Table 6-3. BMP Description – Establish Site Inspections and Enforcement Procedures

BMP Description	Responsible Parties	Measurable Goal
BMP 4-3: Develop Written Procedures for Site Inspections and Enforcement	Planning Board through a public hearing process	Establish procedures for site inspections and enforcement within 1 year of the effective date of the permit

6.3.4 Establish a Sediment and Erosion Control Program

Requirements

Permittees must establish requirements for construction site operators performing land disturbance activities within the MS4 jurisdiction that result in stormwater discharges to the MS4 to implement a sediment and erosion control program that includes BMPs appropriate for the conditions at the construction site. Examples of sediment and erosion control measures for construction sites include local requirements to:

1. Minimize the amount of disturbed area and protect natural resources;
2. Stabilize sites when projects are complete or operations have temporarily ceased;

3. Protect slopes on the construction site;
5. Protect all storm drain inlets and armor all newly constructed outlets;
6. Use perimeter controls at the site;
7. Stabilize construction site entrances and exits to prevent off-site tracking;
8. Inspect stormwater controls at consistent intervals.

Work to be Performed

The Town of Sandown updated its existing Site Plan Review Regulations (adopted June 15, 2021) which regulates construction projects that disturb greater than 10,000 square feet and are provided under **Appendix B**. The regulations in part provide written procedures to prohibit illicit discharge of debris, truck wash-out, litter and sanitary waste control on constructions sites. The following table shows the BMPs, responsible parties and measurable goals.

Table 6-4. BMP Description – Develop an Erosion and Sediment Control Program

BMP Description	Responsible Parties	Measurable Goal
BMP 4-4: Establish a Sediment and Erosion Control Program	Planning Board through a public hearing process	Establish procedures for development of an erosion and sediment control program within 1 year of the effective date of the permit
BMP 4-5: Develop Procedures for Waste Control	Planning Board through a public hearing process	Establish requirements to control construction site wastes within 1 year of the effective date of the permit

7 MCM 5: Stormwater Management in New Development and Redevelopment

7.1 Summary of Permit Requirements

Under MCM 5, permittees shall develop, implement, and enforce a program to address post-construction stormwater runoff from new development and redevelopment sites that disturb 1 or more acres and discharge into an MS4 system. This program shall also regulate disturbances less than 1 acre if they are part of a larger common plan of development or sale that would disturb 1 or more acres. A summary of the required Stormwater Management in New Development and Redevelopment, also known as Post Construction Stormwater Management, activities and timelines are provided below:

7.1.1 Legal Authority

The Post Construction Stormwater Management Program shall include adequate legal authority in the form of a currently effective ordinance, bylaw, or other regulatory mechanism to:

- Require LID site planning and design strategies;
- Proper salt and snow storage;
- Incorporate runoff volume storage and/or pollutant removal requirements; and
- Meet additional requirements for TMDL and water quality limited waterbodies.

Updates must be made within 3 years of the effective permit date.

7.1.2 As-Built Submittals

The permittee must require the submission of as-built drawings within 3 years after completion of construction projects and include structural and non-structural controls.

7.1.3 Operation and Maintenance

The program must include procedures to ensure adequate long-term operation and maintenance of BMPs are established after completion of a construction project, along with a dedicated funding source within 3 years of the effective permit date.

7.1.4 Regulatory Assessment

The permittee must complete an assessment of existing regulations that could affect creation of impervious cover to determine if changes are required to support LID. Additionally, the permittee must assess current regulations to ensure that certain green infrastructure is allowable where feasible. Any required changes must be completed within 4 years of the effective permit date.

7.1.5 Inventory of Potential Retrofit Sites

The permittee must complete an inventory within 4 years of the effective permit date to determine permittee-owned properties that could be modified or retrofitted with stormwater BMP improvements.

7.2 Objectives and Goals

The Town of Sandown implements and enforces a program to reduce pollutants in stormwater runoff discharged to the MS4 from all construction activities that result in a land disturbance greater than or equal to 1 acre within the regulated area.

7.3 Post-Construction Stormwater Management Program

The following sections outline how Sandown is meeting the requirements of the 2017 MS4 Permit to establish a Post-Construction Stormwater Management Program.

7.3.1 Establish Legal Authority

Requirements
Under the 2017 MS4 Permit, permittees shall develop or modify an ordinance, bylaw, or other regulatory mechanism within 2 years of the effective date of the permit to contain provisions that are as least as stringent as the following:

1. Use LID site planning and design strategies to the maximum extent feasible;
2. Salt storage areas on commercial and industrial new and redevelopment sites shall be covered and loading/offloading areas shall be designed and maintained according to NHDES guidelines. Snow storage areas shall be located according to NHDES guidelines so that no untreated discharges reach receiving waterbodies. Runoff from snow and salt storage areas shall enter treatment areas as specified above before being discharged to receiving waters or allowed to infiltrate into the groundwater;
3. The selection and design of treatment and infiltration practices shall follow the guidance in Volume 2 of the New Hampshire Stormwater Manual, where applicable;
4. Post construction stormwater runoff from new development sites shall be controlled by:
    a) Retention or treatment of stormwater runoff to the MS4 by one of the following:
        a) Requiring BMPs be designed to retain the Water Quality Volume calculated in accordance with Env-Wq 1504.10; or
        b) Require BMPs that are designed to remove 90% of the average annual load of Total Suspended Solids (TSS) generated from the total post-construction impervious area AND 60% of the average annual load of Total Phosphorus (TP) generated from the total post-construction impervious area. Pollutant removal shall be evaluated consistent with Attachment 3 to Appendix F and the Stormwater BMP Performance

Analysis or other tools provided by EPA Region 1. If EPA Region 1 tools do not address the planned or installed BMP performance any federally or State approved BMP design guidance or performance standards (e.g. State stormwater handbooks and design guidance manuals) may be used to calculate BMP performance.

b) Implement long term maintenance practices of BMPs in accordance with N.H. Code Admin. R. Part Env-Wq 1507.08.

5. Post construction stormwater runoff from redevelopment sites shall be controlled by:
   a) Retention or treatment of stormwater runoff from the disturbed portion of the redevelopment site to the MS4 by one of the following:
      a) Requiring BMPs be designed to retain the Water Quality Volume calculated in accordance with Env-Wq 1504.10 and be designed to remove pollutants in accordance with N.H. Code Admin. R. Part Env-Wq 1507.03; or
      b) Require BMPs that are designed to remove 80% of the average annual load of Total Suspended Solids (TSS) generated from the total post-construction impervious area AND 50% of the average annual load of Total Phosphorus (TP) generated from the total post-construction impervious area. Pollutant removal shall be evaluated consistent with Attachment 3 to Appendix F and the Stormwater BMP Performance Analysis or other tools provided by EPA Region 1. If EPA Region 1 tools do not address the planned or installed BMP performance any federally or State approved BMP design guidance or performance standards (e.g. State stormwater handbooks and design guidance manuals) may be used to calculate BMP performance.
   b) Implement long term maintenance practices of BMPs in accordance with N.H. Code Admin. R. Part Env-Wq 1507.08.
   c) Offsite mitigation within the same USGS HUC10 or smaller watershed as the redevelopment site may be used to meet the pollutant removal equivalent and the equivalent groundwater recharge requirements above.
6. Redevelopment that disturbs greater than 1 acre and is exclusively maintenance and improvement of existing roadways shall be exempt from Part 5. above. Roadway maintenance or improvements that increase the amount of impervious area on the redevelopment site shall meet the requirements of Part 5. above fully.

Additionally, the ordinance must include requirements for stormwater structural BMPs proposed as part of new or redevelopment to be optimized for nitrogen removal for development within nitrogen-impaired waterbody watersheds (Exeter River) and for phosphorus removal within phosphorus-impaired waterbody watersheds (Phillips Pond, and Angle Pond) watershed. See Section 9 for more information.

Work to be Performed

The Town of Sandown updated its existing Site Plan Review Regulations (adopted June 15, 2021) which regulates construction projects that disturb greater than 10,000 square feet and are provided under **Appendix B**. The regulations in part require the use of LID techniques as feasible, as well as establishing stormwater standards for TSS and total phosphorus

removal for both new development and redevelopment. The following table shows the BMP, responsible parties and measurable goals.

Table 7-1. BMP Description – Establish Post-Construction Site Legal Authority

BMP Description	Responsible Parties	Measurable Goal
BMP 5-1: Develop and Enforce Post-Construction Ordinance	Planning Board through a public hearing process, Building Department	Complete ordinance within 2 years of the effective date of the permit

7.3.2 Require Submittal of As-Built Plans

The permittee must require the submission of as-built drawings that include structural and non-structural stormwater controls within 3 years after completion of construction projects. The Town of Sandown updated its existing Site Plan Review Regulations (adopted June 15, 2021) which regulates construction projects that disturb greater than 10,000 square feet and are provided under **Appendix B**. The regulations in part require the submittal of as-built plans prior to the completion of a project. The following table shows the BMPs, responsible parties and measurable goals.

Table 7-2. BMP Description – Require Submittal of As-Built Plans

BMP Description	Responsible Parties	Measurable Goal
BMP 5-2: Require Stormwater As-Built Plan Submittal	Planning Board through a public hearing process, Building Department	Require submittal of as-built plans for completed projects within 2 years of completion

7.3.3 Require Long Term Operation and Maintenance

As part of its Post Construction Stormwater Management Program, the Town of Sandown shall develop procedures to ensure that the adequate long-term operation and maintenance of BMPs is accounted for at the conclusion of a construction project, along with a dedicated funding source, within 3 years of the effective permit date. The permittee must require the submission of as-built drawings that include structural and non-structural stormwater controls within 3 years after completion of construction projects. The Town of Sandown updated its existing Site Plan Review Regulations (adopted June 15, 2021) which regulates construction projects that disturb greater than 10,000 square feet and are provided under **Appendix B**. The regulations in part require preparation of comprehensive operation and maintenance plans prior to the completion of a project. The following table shows the BMPs, responsible parties and measurable goals

Table 7-3. BMP Description – Require Long Term Operation and Maintenance Plans

BMP Description	Responsible Parties	Measurable Goal
BMP 5-3: Require Long Term Operation and Maintenance	Planning Board through a public hearing process, Building Department	Require submittal of operation and maintenance plans and dedicated funding to ensure long term maintenance within 2 years of the effective date of the permit

7.3.4 Complete Regulatory Assessment

Requirements

The 2017 MS4 permit requires permittees to complete a report that assesses current street design, parking lot guidelines, and other local requirements that could affect creation of impervious cover to determine if changes to existing design standards are required to support LID. If the assessment indicates that changes can be made, the assessment shall include recommendations and proposed schedules to incorporate policies and standards into relevant documents and procedures to minimize impervious cover. Any required changes to reduce mandatory creation of impervious cover in support of LID should be made within 4 years of the effective permit date.

Additionally, the permittee must complete a report that assesses current regulations to determine the feasibility of allowing green roofs, infiltration practices, porous/pervious pavement, and water harvesting/storage devices where feasible. The assessment must indicate if the practices are allowed in the MS4 area and under what circumstances they are allowed. If the practices are not allowed, the permittee shall determine what hinders the use of these practices, what changes in local regulations may be made to make them allowable, and provide a schedule for implementation of recommendations. Any required changes to allow for these BMPs must be completed within 4 years of the effective permit date.

Work to be Performed

The Town of Sandown completed a comprehensive review of its regulations to address the above requirements during Permit Year 4. A report (**Appendix D**) was developed that in part includes an assessment of requirements that affect creation of impervious cover, if design standards for streets and parking lots can be modified to better support LID options, and assesses the feasibility of making green infrastructure allowable when appropriate site conditions exist. Recommendations have been provided to the planning board, although no schedule has been developed to date. A detailed schedule is anticipated to be completed during Year 5 and beyond in cooperation with the Responsible Parties listed in the table below. The following table shows the BMPs, responsible parties and measurable goals.

Table 7-4. BMP Description – Complete LID and GI Regulatory Updates

BMP Description	Responsible Parties	Measurable Goal
BMP 5-4: Allow green infrastructure	Planning Board through a public hearing process, Building Department	Complete regulatory updates within 4 years of the effective date of the permit
BMP 5-5: Street design and parking lot guidelines	Planning Board through a public hearing process, Building Department	Complete regulatory updates within 4 years of the effective date of the permit

7.3.5 Complete Inventory of Potential BMP Retrofit Sites

Requirements

Permittees must complete an inventory of at least 5 existing permittee-owned properties that could be modified or retrofitted with structural stormwater BMP improvements to reduce the frequency, volume, and pollutant loads within 4 years of the effective permit date. The inventory provided in **Appendix E** should include municipal properties with significant impervious cover such as parking lots, buildings, and maintenance yards, along with infrastructure such as existing rights-of-way, outfalls and stormwater conveyances such as swales or detention practices. The permittee should address potential site constraints that could hinder BMP construction, such as subsurface conditions, depth to water table, and utility impacts, and should ideally allow opportunities for public education.

Additionally, retrofit opportunities must also consider the potential to reduce nitrogen discharges for properties within watersheds draining to nitrogen-impaired waterbody watersheds (Exeter River) and for phosphorus within phosphorus-impaired waterbody watersheds (Phillips Pond, and Angle Pond). See Section 9 for more information.

Beginning with the fifth annual report, should BMPs at 1 or more sites be constructed, the inventory should be updated so that it always contains at least 5 sites in the inventory for potential improvement. The permittee must report on all properties that have been modified or retrofitted to mitigate impervious area.

Work to be Performed

The Town of Sandown developed a comprehensive inventory and ranking (**Appendix E**) of all town-owned parcels within the regulated urbanized area that had impervious cover such as parking lots or buildings, or were located along/adjacent to roadways. This largely included all town-owned parcels present within the urbanized area with the exception of vacant conversation areas. The Town then conducted a desktop analysis of all parcels to assess them for potential BMP retrofit opportunities by reviewing relevant information such as available space, localized topography, soil types, opportunities to reroute existing drainage networks, etc. All properties were then evaluated in the field to further refine desktop assessments and were then ranked based on existing conditions and feasibility of retrofitting to improve water quality. The top sites for potential BMP retrofit were then identified and pre-conceptual designs with costs were prepared for top sites. This inventory will be updated continuously starting in Year 5 as necessary. The following table shows the BMP, responsible parties and measurable goals.

Table 7-5. BMP Description – Complete Inventory of Properties for BMP Retrofit

BMP Description	Responsible Parties	Measurable Goal
BMP 5-6: Target properties to reduce impervious areas	Planning Board through a public hearing process, Building Department	Complete inventory within 4 years of the effective date of the permit and update annually on retrofitted properties

8 MCM 6: Good Housekeeping and Pollution Prevention

8.1 Summary of Permit Requirements

Under MCM 6, permittees shall develop and implement an operations and maintenance program to reduce stormwater pollution from permittee activities. This includes optimizing existing activities related to parks and open space, buildings and facilities, vehicles and equipment, and stormwater infrastructure maintenance. A summary of the required Good Housekeeping and Pollution Prevention for Permittee Owned Operations activities and timelines is provided below.

8.1.1 Operations and Maintenance Programs

Permittees shall develop written operations and maintenance procedures for parks and open space, buildings and facilities, vehicles and equipment, winter road maintenance, stormwater infrastructure, and structural stormwater BMPs within 2 years of the effective permit date. This program shall also optimize catch basin cleaning and street sweeping, along with establishing proper storage techniques for cleaning residuals. All maintenance activities, inspections, and training shall be logged for annual reporting.

8.1.2 Stormwater Pollution Prevention Plans

Develop and implement Stormwater Pollution Prevention Plans (SWPPPs) for municipally-owned maintenance garages, public works yards, transfer stations within 2 years of the effective permit date.

8.2 Objectives and Goals

The Town of Sandown implements an effective good housekeeping, pollution prevention, and operation and maintenance program with a goal of preventing or reducing pollutant runoff, protecting water quality from municipal operations, and maintain its infrastructure in good working order.

8.3 Good Housekeeping and Pollution Prevention Program

The following sections outline how Sandown is meeting the requirements of the 2017 MS4 Permit to establish a Good Housekeeping and Pollution Prevention Program.

8.3.1 Complete Facilities O&M Procedures

Requirements

The permittee must complete an inventory of all parks and open space, buildings and facilities where pollutants are exposed to stormwater runoff, including those coming from vehicles and equipment, within 2 years of the permit effective date. The inventory must be reviewed annually and updated as necessary. Upon completion, the permittee must establish written procedures as part of an Operation and Maintenance Plan within 2 years of the permit effective date for the following items:

Parks and Open Space

- Proper use, storage, and disposal of pesticides, herbicides, and fertilizers;
- Lawn maintenance and landscaping activities to protect water quality, such as reducing chemical usage, lawn clippings handling, and use of native and drought-resistant plants;
- Pet waste handling collection and disposal locations at all locations where pets are permitted, including signage;
- Control of waterfowl in areas where they congregate to reduce waterfowl droppings from entering the MS4s;
- Management of trash containers; and
- Addressing erosion or poor vegetative cover, particularly near a surface waterbody.

Buildings and Facilities

- Use, storage, and disposal of petroleum products and other potential pollutants.
- Materials handling training to applicable employees;
- Ensuring that Spill Prevention, Control, and Countermeasures (SPCC) Plans are in place if needed (aboveground petroleum storage greater than 1,320 gallons or underground petroleum storage greater than 42,000 gallons);
- Dumpsters and other waste management equipment; and
- Sweeping parking lots and keeping facility areas clean to reduce pollutants in runoff.

Vehicles and Equipment

- Storage of vehicles to prevent fluid leaks to stormwater;
- Fueling area evaluation, including feasibility of fueling under cover; and
- Preventing vehicle wash waters from entering surface waters or the MS4.

Work to be Performed

The Town has prepared a comprehensive written O&M Plan, a standalone document separate from this SWMP Plan, that meets the above requirements. This document also includes the inventory of relevant Town-owned properties. Town's O&M Plan also established requirements for use of slow release fertilizers on permittee owned properties and establish procedures to manage grass cuttings and leaf litter on permittee property draining to the Exeter River, a waterbody impaired for nitrogen. In addition, the Town's

O&M Plan established requirements to manage grass cuttings and leaf litter, including prohibitions for blowing organic waste materials onto impervious surfaces for areas of town draining to Phillips Pond and Angle Pond, waterbodies impaired for phosphorus. The following table shows the BMP, responsible parties and measurable goals.

Table 8-1. BMP Description – Complete Written Facilities O&M Procedures

BMP Description	Responsible Parties	Measurable Goal
BMP 6-1: Inventory open spaces, buildings and facilities, and vehicles and equipment	Public Works Department with Town Engineer or consultant	Complete inventory of open spaces, buildings and facilities, and vehicles and equipment within 2 years of the effective date of the permit
BMP 6-2: Establish Operation and Maintenance Procedures	Public Works Department with Town Engineer or consultant	Create written O&M Plan for open spaces, buildings and facilities, and vehicles and equipment within 2 years of the effective date of the permit

8.3.2 Complete Infrastructure O&M Procedures

Requirements

The permittee must establish written procedures as part of an Operation and Maintenance Plan within 2 years of the permit effective date to ensure that MS4 infrastructure is maintained in a timely manner to reduce the discharge of pollutants from the MS4 for the following items:

Street Sweeping (**Appendix F**)

- Sweeping all streets and permittee-owed parking lots, with the exception of rural uncurbed roads with no catch basins or high-speed limited access highways at least 1 per year in the spring following winter sanding events;
- More frequent sweeping of targeted areas based on inspections, land use, or known water quality impacts;
- Increasing street sweeping frequency of all municipal owned streets and parking lots to a minimum of 2 times per year; once in the spring (following winter activities such as sanding) and at least once in the fall (Sept 1 – Dec 1; following leaf fall) for areas within the nitrogen-impaired Exeter River, Phillips Pond, and Angle Pond watersheds, or develop a leaf litter collection program to minimize leaf litter on impervious surfaces and in drainage structures; and
- For rural uncurbed roadways with no catch basins or limited access highways, either an evaluation to meet the minimum frequencies above or development and implementation of an inspection, documentation, and targeted sweeping plan within 2 years of the effective date and submitted with the Year 1 annual report.

Catch Basin Cleaning (**Appendix G**)

- Prioritization of catch basins located near construction activities for more frequent inspection and maintenance;

- Establishing a schedule with a goal that at the time of maintenance, no catch basin is more than 50% full;
- Prioritize a 50% full limit for catch basins within watersheds draining to waterbodies impaired for nitrogen and phosphorus;
- For catch basins that are more than 50% full during 2 consecutive inspections or cleaning events, methods for investigating the contributing drainage area for sources of excessive sediment loads; and
- Establishing a plan for optimizing catch basin cleaning, inspections, and documentation.

Catch Basin and Street Sweeping Residuals Management

- Ensure proper storage of catch basins cleanings and street sweepings prior to disposal or reuse such that they will not be discharged to receiving waters.

Winter Operation and Maintenance

- Establish and implement procedures for winter road maintenance including the use and storage of salt and sand
- Minimizing use of sodium chloride and other salts and evaluation of opportunities to use alternative materials; and
- Ensuring that snow disposal activities do not result in disposal of snow into waters of the United States.

Work to be Performed

The Town recently updated its existing street sweeping, catch basin cleaning, and winter O&M procedures in order to meet permit requirements. Street sweeping will continue under the existing Street Sweeping Prioritization Plan provided in **Appendix F** for at least several years, possibly expanded in Year 4 and beyond as a response to LPCP TMDL requirements as outlined further in Section 9. Catch basin prioritization will also continue for the next several years as catch basin inspections continue according to the methodology and schedule outlined in the Catch Basin Optimization Plan provided in **Appendix G**.

The town also previously completed a written "Winter Operations for Snow Removal and Ice Control Policy" that addresses winter road maintenance, including priority areas for plowing and salt/sand application, salt and sand usage and storage, low-salt application areas near sensitive resource areas and minimally traveled roadways, and snow disposal activities in order to minimize pollution to waterbodies. The Town has not formally investigated opportunities for using alternative materials, however the current program has proven adequate and budget restrictions prohibit use of more expensive materials.

The following table shows the BMP, responsible parties and measurable goals.

Table 8-2. BMP Description – Complete Written Infrastructure O&M Procedures

BMP Description	Responsible Parties	Measurable Goal
BMP 6-3: Review Infrastructure O&M Procedures	Public Works Department with Town Engineer or consultant	Create written O&M Plan for stormwater infrastructure within 2 years of the effective date of the permit
BMP 6-4: Catch Basin Cleaning	Public Works Department	Clean catch basins on established schedule and report number of catch basins cleaned and volume of material moved annually
BMP 6-5: Street Sweeping	Public Works Department	Sweep all streets and parking lots at least annually and sweep all streets within the Exeter River, Phillips Pond and Angle Pond watersheds twice per year, or develop a leaf litter collection program to minimize leaf litter on impervious surfaces and in drainage structures.
BMP 6-6: Road salt optimization program	Public Works Department	Implement salt use optimization during winter maintenance operations

8.3.3 Stormwater Pollution Prevention Plans

Requirements

The permittee must establish written Stormwater Pollution Prevention Plans for the following permittee-owned or operated facilities: maintenance garages, public works yards, transfer stations, and other waste handling facilities where pollutants are exposed to stormwater as determined by the permittee. SWPPPs must address a number of components, including the following:

- Pollution Prevention Team;
- Facility description, identification of potential pollutant sources, and identification of stormwater controls;
- Stormwater management practices, including measures to minimize or prevent exposure, good housekeeping and preventative maintenance, spill prevention and response, erosion and sediment control, management of runoff, salt storage, employee training, and control measure maintenance; and
- Procedures for site inspections and sampling.

Work to be Performed

The Town of Sandown has no standalone maintenance garage or other waste handling facility. The Town's Highway Garage and Transfer Station are located on adjacent parcels just outside the urbanized area and do not discharge to the Town's regulated MS4 area. Thus, the Town of Sandown has determined that no facilities meet 2017 Permit requirements for completion of a SWPPP. An exemption memo has been prepared for the

Highway Garage and Transfer Station and is provided in **Appendix H**. The following table shows the BMP, responsible parties and measurable goals.

Table 8-3. BMP Description – Prepare SWPPPs for Regulated Facilities

BMP Description	Responsible Parties	Measurable Goal
BMP 6-7: Assess regulated facilities to determine SWPPP eligibility	Public Works Department with Town Engineer or consultant	Complete facilities assessment within 2 years of the effective date of permit.
BMP 6-8: Develop SWPPPs for applicable facilities	Public Works Department with Town Engineer or consultant	Complete and implement within 2 years of the effective date of the permit

8.3.4 Structural Stormwater BMP Inspections

Requirements

The permittee must establish and implement written inspection and maintenance procedures and frequencies for all stormwater treatment structures, such as infiltration and detention basins, proprietary stormwater treatment structures, gravel wetlands, etc. at least annually.

Work to be Performed

The Town of Sandown currently has no Town-owned stormwater BMPs within the Town's regulated area. If required at a later date, the Town will complete an inventory (**Appendix I**) of structural stormwater BMPs. BMP inspection Standard Operating Procedures (SOPs) and logs for BMP inspection and maintenance are provided in the standalone O&M Plan. The following table shows the BMP, responsible parties and measurable goals.

Table 8-4. BMP Description – Inspect Structural BMPs Annually

BMP Description	Responsible Parties	Measurable Goal
BMP 6-9: Establish BMP O&M Procedures	Public Works Department	Create written O&M Plan for stormwater BMPs within 2 years of the effective date of the permit
BMP 6-10: Inspect and maintain stormwater BMPs	Public Works Department	Inspect and maintain treatment structures annually

9 TMDL and Impaired Waters Controls

9.1 Permit Requirements

The 2017 MS4 Permit requires regulated operators of MS4s to determine whether stormwater discharges from their MS4 contribute to any impaired waterbodies, including those subject to an approved TMDL and certain water quality limited waterbodies. Water quality limited waters are any waterbodies that do not meet applicable water quality standards, including waterbodies listed in categories "4A-P", and "5-M" on the New Hampshire Integrated List of Waters, also known as the "303(d) List". NHDES is responsible for preparing TMDLs for many of these listed waters to identify the problem pollutant and establish water quality goals. TMDLs are prepared based on the priority assigned to the waterbody and are completed over the course of several years.

As outlined in Section 2.3, the Town of Sandown is subject to the following TMDL and water quality limited waterbody requirements:

Table 9-1. TMDL and Impaired Waters Requirements

Waterbody Names	Waterbody ID	Impairment	2017 Permit Requirements
Exeter River	NHRIV600030802-03	Escherichia Coli	Appendix F, Part II
Showell Pond	NHLAK600030802-04	Phosphorus	Appendix F, Part III
Great Bay (via Exeter River)	NHRIV600030802-03	Nitrogen	Appendix H, Part I
Phillips Pond	NHLAK600030802-03-01	Phosphorus	Appendix H, Part II
Angle Pond	NHLAK700061403-01-01	Phosphorus	Appendix H, Part II

The Town of Sandown must implement control measures for discharges to approved TMDL and water quality limited waterbodies as summarized in the sections below. The Town reviews the most recent approved list of impaired waters as it is released and outlines any additional requirements associated with the most recent list. Progress towards meeting the TMDL and Impaired Waters requirements is documented in the standalone Nutrient Impairment Plan document.

9.2 Fecal Coliform TMDL Requirements

The Town of Sandown currently has one waterbody as outlined in Table 9-1 with an approved TMDL for E.coli. The Town is required to implement the following requirements as outlined under Appendix F, Part II of the 2017 Permit.

9.2.1 Additional or Enhanced BMPs

The Town of Sandown must include the following additional or enhanced BMPs, in addition to the 6 MCMs outlined previously:

- **Public Education** – supplement its Residential program with an annual message encouraging the proper management of pet waste and disseminate educational materials to dog owners at the time of issuance or renewal of a dog license. Education materials shall describe the detrimental impacts of improper management of pet waste, requirements for waste collection and disposal, and penalties for non-compliance. The Town also must provide information to owners of septic systems about proper maintenance in any catchment that discharges to a water body impaired for bacteria or pathogens.

- **Illicit Discharge, Detection, and Elimination** – designate catchments draining to pathogen impaired segments as "Problem Catchments" or "High" priority.

Work to be Performed
Public education requirements have been incorporated into public education outreach components as described in Section 3. IDDE requirements have been incorporated into Sandown's IDDE Plan. The following table shows the BMP, responsible parties and measurable goals.

Table 9-2. TMDL Requirements – Fecal Coliform

BMP Description	Responsible Parties	Measurable Goal
BMP 7-1: TMDL Requirements – Bacteria	Public Works Dept., Consultant, Conservation Commission	Adhere to requirements in Part II of Appendix F

9.3 Lake and Pond Phosphorus TMDL Requirements

To address the discharge of phosphorus from its MS4, the Town of Sandown must develop a Lake Phosphorus Control Plan (LPCP) designed to reduce the amount of phosphorus in stormwater discharges from its MS4 to the phosphorus-impaired waterbody. This Plan shall be completed and fully implemented as soon as possible but no later than 15 years after the permit effective date.

9.3.1 LPCP Requirements

The following provides a brief summary of permit requirements to be implemented:

Item 1 **Legal Analysis** – Identify regulatory mechanisms that may be necessary to implement the LPCP, complete a legal analysis within 2 years of the permit effective date, and adopt changes by the end of the permit term.

Item 2 **Funding Source Assessment** – Identify funding mechanisms that will be used to fund LPCP implementation, describe the steps to be taken in implementing the funding plan.

Item 3 **Define LPCP Scope, Baseline Load, Reduction Requirement, and Allowable Load** – Determine whether to implement the LPCP town wide or

only in the UA and calculate the corresponding Baseline Phosphorus Load, Stormwater Phosphorus Reduction Requirement and Allowable Phosphorus Load corresponding to the LPCP Area. Note that although the UA-Only option has a lower reduction requirement, there are also less options to implement BMPs as the available area of town is smaller. This requirement should be completed within 4 years of permit effective date

Item 4 **Non-Structural Controls** – Determine non-structural stormwater controls to help reduce phosphorus, including planned measures, areas where measures will be implemented, and expected annual phosphorus reductions within 6 years of effective permit date.

Item 5 **Structural Controls** – Priority rank areas and infrastructure where potential structural phosphorus controls could be implemented, including an assessment of site suitability for phosphorus control measures based on soil types and other factors. Determine where structural controls shall be implemented and annual phosphorus reductions provided by each.

Item 6 **Operation and Maintenance Program** – Establish an O&M Program for current and planned structural BMPs, including an inspection and maintenance schedule with program or department responsible.

Item 7 **Written Plan** – Develop a schedule that addresses the above items within 4 years of the effective permit date and prepare a written plan to determine implementation cost estimate within 5 years of the effective permit date. Provide an updated written LPCP within 10 years of the effective permit date.

Item 8 **Implementation and Performance Evaluation** – Evaluate LPCP effectiveness by tracking phosphorus reductions due to implementing structural BMPs annually, beginning 6 years after the effective date.

9.3.2 Reporting

The Town of Sandown shall include a progress report in each Annual Report on the planning and implementation of the LPCP. Once the LPCP has started implementation 5 years after the permit effective date, the Annual Report shall also include the following:

- Non-structural control measures implemented during the reporting year along with the calculated phosphorus reduction;
- Structural control measures implemented during the reporting year with location information, calculated phosphorus reduction, and date of last inspection and maintenance;
- Phosphorus load increases due to development; and
- Estimated yearly phosphorus export rate accounting for development and implementation of both non-structural and structural BMPs.

Work to be Performed
Requirements for meeting the Lake and Pond Phosphorus TMDL requirements are being performed according to the schedule in the 2017 MS4 Permit. Progress towards meeting the TMDL and Impaired Waters requirements is documented in the standalone Nutrient Impairment Plan document. The following table shows the BMP, responsible parties and measurable goals.

Table 9-3. Lake and Pond Phosphorus TMDL Requirements – Phosphorus

BMP Description	Responsible Parties	Measurable Goal
BMP 7-2: Lake and Pond Phosphorus TMDL Requirements – Phosphorus	Public Works Dept., Consultant, Conservation Commission	Adhere to requirements in Part III of Appendix F

9.4 Nitrogen Water Quality Limited Waterbody Requirements

The Town of Sandown is subject to the nitrogen water quality limited waterbody requirements for discharges to Great Bay via the Exeter River and is required to implement the following requirements as outlined under Appendix H, Part I of the 2017 Permit.

9.4.1 Additional or Enhanced BMPs

The Town of Sandown must include the following additional or enhanced BMPs, in addition to the 6 MCMs outlined previously:

- **Public Education** – supplement its Residential and Business/Commercial/Institution programs with additional annual messages as follows:
    - Spring (April-May): Proper use and disposal of grass clippings and use of slow-release fertilizers;
    - Summer (June-July): Proper management of pet waste; and
    - Fall (August-October): Proper disposal of leaf litter.

- **Stormwater Management in New Development and Redevelopment** – supplement standard permit ordinance requirements to also mandate the use of stormwater BMPs optimized for nitrogen removal as part of new development and redevelopment projects. Additionally, retrofit opportunities must consider opportunities for constructing infiltration BMPs for properties within the Exeter River watershed.

- **Good Housekeeping and Pollution Prevention** – establish requirements for reducing fertilizer usage and/or using slow release fertilizers on permittee owned properties, procedures for properly managing grass cuttings and leaf litter on permittee owned property, and prohibit blowing organic waste onto impervious surfaces. Additionally, street sweeping must be increased to at least twice per year, once in the spring and once in the fall, or develop a leaf litter collection program to minimize leaf litter on impervious surfaces and in drainage structures.

9.4.2 Nitrogen Source Identification Report

The Town of Sandown must also prepare a Nitrogen Source Identification Report that generally does the following:

- Identifies, delineates, and prioritizes areas of town at the catchment-level that have the highest nitrogen loading potential based on land use and other factors;
- Accounts for the urbanized area that discharges to the Exeter River watershed;
- Determines impervious area based on catchment delineations;
- Accounts for any screening results performed under MCM 3 when developing conclusions; and
- Identifies potential retrofit opportunities for installing structural BMPs during redevelopment.

This item must be completed by the end of Year 4.

9.4.3 Structural BMPs

Upon completion of the Nitrogen Source Identification Report, the Town must evaluate all properties identified under the report or using the procedures identified under Section 7.4.5 to complete a site-specific evaluation addressing the following:

- Identifies the next planned redevelopment activity or planned retrofit date;
- Determines an estimated cost of redevelopment or retrofit BMPs; and
- Determines the engineering and regulatory feasibility BMP installation.

Upon completion, the Town must provide a list of planned structural BMPs, along with a plan and schedule for implementation by the end of Year 5. At least 1 BMP must be designed and constructed as a demonstration project by the end of Year 6 that targets a catchment with a high nitrogen load potential. Remaining structural BMPs must be constructed according to the provided plan and schedule. Nitrogen removals must be tracked and reported annually.

Work to be Performed

Requirements for meeting the nitrogen water quality limited waterbody requirements are being performed according to the schedule in the 2017 Permit. Progress towards meeting the TMDL and Impaired Waters requirements is documented in the standalone Nutrient Impairment Plan document. The following table shows the BMP, responsible parties and measurable goals.

Table 9-4. Water Quality Limited Waterbody Requirements – Nitrogen

BMP Description	Responsible Parties	Measurable Goal
BMP 7-3: Water Quality Limited Waterbody Requirements – Nitrogen	Public Works Dept., Consultant, Conservation Commission	Adhere to requirements in Part I of Appendix H

9.5 Phosphorus Water Quality Limited Waterbody Requirements

The Town of Sandown is also subject to the phosphorus water quality limited waterbody requirements for discharges to Phillips Pond and Angle Pond and is required to implement the following requirements as outlined under Appendix H, Part II of the 2017 Permit.

9.5.1 Additional or Enhanced BMPs

The Town of Sandown must include the following additional or enhanced BMPs, in addition to the 6 MCMs outlined previously:

- **Public Education** – supplement its Residential and Business/Commercial/Institution programs with additional annual messages as follows:
    - Spring (April-May): Proper use and disposal of grass clippings and use of slow-release and phosphorus-free fertilizers;
    - Summer (June-July): Proper management of pet waste; and
    - Fall (August-October): Proper disposal of leaf litter.

- **Stormwater Management in New Development and Redevelopment** – supplement standard permit ordinance requirements to also mandate the use of stormwater BMPs optimized for phosphorus removal as part of new development and redevelopment projects. Additionally, retrofit opportunities must consider opportunities for constructing infiltration BMPs for properties within the Phillips Pond and Angle Pond watersheds.

- **Good Housekeeping and Pollution Prevention** – establish requirements for reducing fertilizer usage and/or using slow release fertilizers on permittee owned properties, procedures for properly managing grass cuttings and leaf litter on permittee owned property, and prohibit blowing organic waste onto impervious surfaces. Additionally, street sweeping must be increased to at least twice per year, once in the spring and once in the fall, or develop a leaf litter collection program to minimize leaf litter on impervious surfaces and in drainage structures.

9.5.2 Phosphorus Source Identification Report

The Town of Sandown must also prepare a Phosphorus Source Identification Report that generally does the following:

- Identifies, delineates, and prioritizes areas of town at the catchment-level that have the highest phosphorus loading potential based on land use and other factors;
- Accounts for the urbanized area that discharges to the Phillips Pond and Angle Pond watersheds;
- Determines impervious area based on catchment delineations;
- Accounts for any screening results performed under MCM 3 when developing conclusions; and

- Identifies potential retrofit opportunities for installing structural BMPs during redevelopment.

This item must be completed by the end of Year 4.

9.5.3 Structural BMPs

Upon completion of the Phosphorus Source Identification Report, the Town must evaluate all properties identified under the report or using the procedures identified under Section 7.4.5 to complete a site-specific evaluation addressing the following:

- Identifies the next planned redevelopment activity or planned retrofit date;
- Determines an estimated cost of redevelopment or retrofit BMPs; and
- Determines the engineering and regulatory feasibility BMP installation.

Upon completion, the Town must provide a list of planned structural BMPs, along with a plan and schedule for implementation by the end of Year 5. At least 1 BMP must be designed and constructed as a demonstration project by the end of Year 6 that targets a catchment with a high phosphorus load potential. Remaining structural BMPs must be constructed according to the provided plan and schedule. Phosphorus removals must be tracked and reported annually.

Work to be Performed
Requirements for meeting the phosphorous water quality limited waterbody requirements are being performed according to the schedule in the 2017 Permit. Progress towards meeting the TMDL and Impaired Waters requirements is documented in the standalone Nutrient Impairment Plan document. The following table shows the BMP, responsible parties and measurable goals.

Table 9-5. Water Quality Limited Waterbody Requirements – Phosphorus

BMP Description	Responsible Parties	Measurable Goal
BMP 7-4: Water Quality Limited Waterbody Requirements – Phosphorus	Public Works Dept., Consultant, Conservation Commission	Adhere to requirements in Part II of Appendix H

10 Annual Reporting

The permittee shall submit annual reports each year of the permit term. The reporting period is a one-year period commencing on the permit effective date, and subsequent anniversaries thereof, except that the first annual report under this permit shall also cover the period from May 1, 2018 to the permit effective date. The annual report is due 90 days from the close of each reporting period, or by September 28 of each year. The annual reports must contain the following relevant information which should be tracked throughout the year, and should be filed within **Appendix J**:

- A self-assessment review of compliance with the permit terms and conditions.
- An assessment of the appropriateness of the selected BMPs.
- The status of any plans or activities, including:
    - Identification of all discharges determined to be causing or contributing to an exceedance of water quality standards and description of response;
    - For discharges subject to TMDL or water quality limited waterbody requirements, identification of BMPs used to address the impairment and assessment of the BMPs effectiveness;
    - For discharges to water quality limited waters a description of each BMP and any deliverables required.
- An assessment of the progress towards achieving the measurable goals and objectives of each of the 6 minimum measures:
    - Evaluation of the public education program including a description of the targeted messages for each audience; method and dates of distribution; methods used to evaluate the program; and any changes to the program.
    - Description of the activities used to promote public participation including documentation of compliance with state public notice regulations.
    - Description of IDDE activities including: status of mapping and results of the ranking and assessment; identification of problem catchments; status of all IDDE Plan components; number and identifier of catchments evaluated; number and identifier of outfalls screened; number of illicit discharges located and removed; gallons of flow removed; identification of tracking indicators and measures of progress; and employee training.
    - Evaluation of construction runoff management including number of project plans reviewed; number of inspections; and number of enforcement actions.
    - Evaluation of stormwater management for new and redevelopment including status of ordinance development; review and status of the street design and barriers to green infrastructure assessment; and inventory status.
    - Status of the O&M Programs.
    - Status of SWPPPs, including inspection results.
- All outfall screening and monitoring data during the reporting period and cumulative for the permit term; and a description of any additional monitoring data received by the permittee during the reporting period.
- Description of activities for the next reporting cycle.
- Description of any changes in identified BMPs or measurable goals.
- Description of activities undertaken by any entity contracted for achieving any measurable goal or implementing any control measure.

11 Implementation of Best Management Practices

The Town of Sandown's Best Management Practices Plan as outlined in the Town's NOI (**Appendix A**) is summarized in **Table 11-1**.

For consistency with the 6 MCMs and impaired water requirements, the BMPs are broken down into 7 categories:

1. Public Education and Outreach;
2. Public Participation and Involvement;
3. Illicit Discharge Detection and Elimination;
4. Construction Site Stormwater Runoff Control;
5. Stormwater Management in New Development and Redevelopment;
6. Good Housekeeping and Pollution Prevention; and
7. TMDL and Water Quality Limited Waterbodies Controls

The BMP tables also outline the measurable goals for each BMP to gauge permit compliance, the responsible party(ies) for implementing each BMP, and an implementation schedule to be used throughout the permit period. In addition to the implementation activities outlined in this plan, the Town performs the following activities throughout the duration of the permit:

1. **Program Evaluation** – conduct annual evaluations of the Stormwater Management Program for compliance with permit conditions. The evaluation must include a determination of the appropriateness of the selected BMPs in efforts towards achieving the measurable goals outlined in **Table 11-1**.

2. **Record Keeping** – maintain records that pertain to the Stormwater Management Program for a period of at least 5 years. Records need to be made available to the public and the Town may charge a reasonable fee for copying. Records need not be submitted to EPA unless specifically requested.

3. **Reporting** – submit an annual report to EPA, including the information as noted in Section 10.

Refer to the following link for a copy of the 2017 NH MS4 Permit:
https://www.epa.gov/npdes-permits/new-hampshire-small-ms4-general-permit

Table 11-1. Proposed BMP Plan - Implementation of Phase II Activities												
						Year / Schedule						
						1	2	3	4	5	6+	
BMP ID	**BMP Description**	**Implementation**	**Responsible Dept./Person**	**Measurable Goal**	**Report Section**	**7/1/18-6/30/19**	**7/1/19-6/30/20**	**7/1/20-6/30/21**	**7/1/21-6/30/22**	**7/1/22-6/30/23**	**7/1/23-6/30/24**	
1. Public Education and Outreach												
1-1	**Residential Education Program**	1. Distribute fact sheets or brochures on pet waste pickup with dog licenses.	Town Administrator	Provide informational flyers with all applications and renewals.	3.4.1		*	*	*	*	*	
		2. Distribute flyers on proper vehicle maintenance with car registrations and renewals.	Town Administrator	Provide informational flyers with all registrations and renewals.		*	*	*	*	*	*	
		3. Provide web information on septic system maintenance, illicit discharges, pet waste disposal, lawn care, pesticide and fertilizer use, grass clippings and leaf litter disposal, car washing, and use of environmentally friendly products.	Town Administrator	Continue to update and maintain the websites.			*	*	*	*	*	
1-2	**Businesses, Institutions, and Commercial Education Program**	1. Provide web information on pesticide and fertilizer use, grass clippings and leaf litter disposal, building maintenance, salt usage, storage of materials and wastes, car washing, benefits of infiltration, and use of environmentally friendly products.	Town Administrator	Continue to update and maintain the websites.	3.4.2		*	*	*	*	*	
		2. Complete a direct mailing to local businesses annually.	Town Administrator	Complete annual mailing.		*	*	*	*	*	*	
1-3	**Developer and Construction Education Program**	1. Distribute fact sheets or brochures on erosion and sediment control with permit applications.	Town Administrator	Provide information with all applications.	3.4.3		*	*	*	*	*	
		2. Provide web information on erosion and sediment control, Low Impact Development, and the NPDES Construction General Permit.	Town Administrator	Continue to update and maintain the websites.			*	*	*	*	*	
1-4	**Industrial Education Program**	1. Provide web information on equipment maintenance and inspection, material storage, solid waste handling, salt usage, benefits of onsite infiltration, management of parking lot surfaces, and EPA's MSGP.	Town Administrator	Continue to update and maintain the websites.	3.4.4		*	*	*	*	*	
		2. Complete a direct mailing to local businesses annually.	Town Administrator	Complete annual mailing.		*	*	*	*	*	*	
2. Public Participation & Involvement												
2-1	**Make SWMP Publicly Available on Website**	1. Post SWMP Plan on Town website, along with contact name, email address and/or phone number of a contact person at the Town to contact for information or submit comments.	Town Administrator, Select Board	Annual review of stormwater management plan and posting on website.	4.4.1	*	*	*	*	*	*	
		2. Allow the public to request information or submit comments.		Allow public to comment on the plan at least annually.		*	*	*	*	*	*	

Table 11-1. Proposed BMP Plan - Implementation of Phase II Activities											
						Year / Schedule					
						1	2	3	4	5	6+
BMP ID	BMP Description	Implementation	Responsible Dept./Person	Measurable Goal	Report Section	7/1/18-6/30/19	7/1/19-6/30/20	7/1/20-6/30/21	7/1/21-6/30/22	7/1/22-6/30/23	7/1/23-6/30/24
3. Illicit Discharge Detection and Elimination											
3-1	**Enact and Enforce IDDE Ordinance**	1. Establish a legal authority in order to create an IDDE program to satisfy the 2016 MS4 Permit.	Public Works Department, Select Board	Regulatory mechanism in place within 1 year of the permit effective date.	5.4.1	*	*	*	*	*	*
3-2	**Phase I Storm Sewer System Map**	1. Delineate catchment areas based on topography for each MS4 outfall and map in GIS.	Public Works Department, Select Board	Updated map within 2 years of effective date of permit.	5.4.2	*					
		2. Update outfalls, conveyances receiving waters, interconnections, MS4-owned BMPs & initial catchment delineations.				*	*				
3-3	**Phase II Storm Sewer System Map**	1. Update outfall spatial location, pipe connectivity, manholes, catch basins, refined catchment delineations as new information becomes available.	Public Works Department, Select Board	Updated map within 10 years of effective date of permit.	5.4.2		*	*	*	*	*
3-4	**Written IDDE Program**	1. Prepare written IDDE Plan to include procedures on assessing and priority ranking outfalls and interconnections, dry and wet weather outfall sampling, catchment investigations, system vulnerability factor assessment, identification of an illicit discharge, illicit discharge removal, and ongoing screening requirements.	Public Works Department, Select Board	Complete within 1 year of the effective date of permit and update as required.	5.4.4	*					
3-5	**Outfall / Interconnection Inventory and Ranking**	1. Develop an outfall and interconnection inventory that identifies each outfall and interconnection discharging from the MS4, records its location and condition and provides a framework for tracking inspections, screenings and other activities under the IDDE program.	Public Works Department, Select Board	Identification of outfalls and initial ranking by July 1, 2019.	5.4.4	*					
		2. Classify/rank outfalls. Initial ranking by end of Year 1.				*					
		3. Update ranking annually with new information.					*	*	*	*	*
3-6	**Implement IDDE Program**	1. Inspect key catchment structures (manholes, catch basins) during dry weather conditions. Where flowing water is observed, collect samples for analysis.	Public Works Department, Select Board	Implement catchment investigations according to program and permit conditions (Problem Outfalls by July 1, 2025, all outfalls by July 1, 2028).	5.4.4				*	*	*
		2. Inspect key catchment structures (manholes, catch basins) in all catchments during dry weather conditions. Where flowing water is observed, collect samples for analysis.								*	*
3-7	**Dry Weather Screening**	1. Inspect drainage outfalls classified as High or Low priority during dry weather.	Public Works Department, Select Board	Complete in accordance with outfall screening procedure and permit conditions by July 1, 2021.	5.4.5		*	*			
		2. Investigate potential illicit discharges, if any.					*	*	*	*	*
		3. Enforce removal of illicit discharges, if any.					*	*	*	*	*
3-8	**Wet Weather Screening**	1. Sample select outfalls with System Vulnerability Factors under wet weather conditions. Sampling can be done upon completion of any dry weather investigation, but must be completed before catchment investigation is marked as complete.	Public Works Department, Select Board	Complete in accordance with outfall screening procedure within 10 years of the effective permit date.	5.4.5						*
3-9	**Ongoing Screening**	1. Upon completion of catchment investigations, reprioritize outfalls for ongoing screening.	Public Works Department, Select Board	Conduct ongoing dry and wet weather outfall screening upon completion of the IDDE program.	5.4.5						*
		2. Continue performing dry and wet weather sampling according to the new prioritization at least once every 5 years.									*
3-10	**Perform IDDE Training**	1. Provide annual training to employees involved in the IDDE program.	Public Works Department, Select Board	Train applicable employees annually.	5.4.6		*	*	*	*	*

Table 11-1. Proposed BMP Plan - Implementation of Phase II Activities												
						Year / Schedule						
						1	2	3	4	5	6+	
BMP ID	BMP Description	Implementation	Responsible Dept./Person	Measurable Goal	Report Section	7/1/18-6/30/19	7/1/19-6/30/20	7/1/20-6/30/21	7/1/21-6/30/22	7/1/22-6/30/23	7/1/23-6/30/24	
4. Construction Site Stormwater Runoff Control												
4-1	**Develop and Enforce Construction Ordinance**	1. Develop construction ordinance to address control of other wastes at construction sites.	Planning Board	Complete ordinance updates within 1 year of the permit effective date.	6.4.1	*						
		2. Enforce construction ordinance.				*	*	*	*	*	*	
4-2	**Develop Written Procedures for Site Plan Review**	1. Review and update existing requirements mandating site plan review and make changes as needed, such as incorporating additional information submitted by the public.	Planning Board	Establish procedures for site plan review within 1 year of the permit effective date.	6.4.2	*						
4-3	**Develop Written Procedures for Site Inspections and Enforcement**	1. Review and update existing requirements mandating site inspections, enforcement, and requirements for submittal of monthly inspection reports as needed.	Planning Board	Establish procedures for site inspections and enforcement within 1 year of the permit effective date.	6.4.3	*						
4-4	**Establish a Sediment and Erosion Control Program**	1. Establish procedures for development of an Erosion and Sediment Control Plan for construction site operators performing land disturbance activities.	Planning Board	Establish procedures for development of an erosion and sediment control program within 1 year of the permit effective date.	6.4.4	*						
4-5	**Develop Procedures for Waste Control**	1. Establish requirements to control construction site wastes within 1 year of the permit effective date.	Planning Board	Establish requirements to control other wastes at construction sites within 1 year of the permit effective date.	6.4.4	*						
5. Stormwater Management in New Development and Redevelopment												
5-1	**Develop and Enforce Post-Construction Ordinance**	1. Adopt a post-construction stormwater management ordinance that addresses 2016 MS4 Permit requirements. Include a requirement that stormwater management BMPs that ultimately discharge to a phosphorus impaired water body be optimized for phosphorus removal.	Planning Board, Building Department	Complete ordinance updates within 2 years of the permit effective date.	7.4.1		*					
		2. Enforce post-construction stormwater management ordinance.						*	*	*	*	
5-2	**Require Stormwater As-Built Plan Submittal**	1. Require submittal of as-built drawings for structural and non-structural stormwater controls.	Planning Board, Building Department	Require submittal of as-built plans for completed projects within 2 years of completion.	7.4.2	*	*					
5-3	**Require Long Term Operation and Maintenance**	1. Establish procedures to require long term operation and maintenance of BMPs, such as addressing funding sources.	Planning Board, Building Department	Require submittal of operation and maintenance plans to ensure long term maintenance within 2 years of the permit effective date.	7.4.3	*	*					
5-4	**Allow Green Infrastructure**	1. Review existing by-laws, regulations and guidance to determine the feasibility of making green practices allowable.	Planning Board, Building Department	Complete regulatory updates within 4 years of the permit effective date.	7.4.4		*	*				
		2. Prepare a report assessing existing local regulations to determine the feasibility of allowing green roofs, infiltration practices, and water harvesting devices.							*			
5-5	**Street Design and Parking Lot Guidelines**	1. Review existing by-laws, regulations and guidance pertaining to current street and parking lot design and all regulations for ability to incorporate LID into designs.	Planning Board, Building Department	Complete regulatory updates within 4 years of the permit effective date.	7.4.4		*	*				
		2. Prepare a report assessing whether existing street and parking lot design regulations allow for incorporation of LID practices and recommendations for changes.							*			
5-6	**Target Properties to Reduce Impervious Area**	1. Identify 5 properties for potential retrofits to stormwater impacts.	Planning Board, Building Department	Complete inventory within 4 years of the permit effective date and update annually on retrofitted properties.	7.4.5				*			
		2. Track and report annually properties that have been modified or retrofitted with BMPs.							*	*	*	

Table 11-1. Proposed BMP Plan - Implementation of Phase II Activities												
						Year / Schedule						
						1	2	3	4	5	6+	
BMP ID	**BMP Description**	**Implementation**	**Responsible Dept./Person**	**Measurable Goal**	**Report Section**	**7/1/18-6/30/19**	**7/1/19-6/30/20**	**7/1/20-6/30/21**	**7/1/21-6/30/22**	**7/1/22-6/30/23**	**7/1/23-6/30/24**	
6. Good Housekeeping and Pollution Prevention												
6-1	**Inventory Open Spaces, Buildings and Facilities, and Vehicles and Equipment**	1. Inventory all permittee-owned parks and open spaces, building and facilities (including storm drains), and vehicles and equipment in the regulated area.	Public Works Department, Town Engineer	Complete inventory of open spaces, buildings and facilities, and vehicles and equipment within 2 years of the permit effective date.	8.3.1		*					
6-2	**Establish Operation and Maintenance Procedures**	1. Evaluate practices at MS4 properties (parks and open spaces, building and facilities, vehicles and equipment) and develop written Facilities O&M Plan.	Public Works Department, Town Engineer	Create written O&M Plan for open spaces, buildings and facilities, and vehicles and equipment within 2 years of the permit effective date.	8.3.1		*					
		2. Distribute written O&M/SOPs as part of employee training.					*					
		3. Update inventory annually.					*	*	*	*	*	
6-3	**Review Infrastructure O&M Procedures**	1. Develop written O&M procedures or SOPs for the storm drain system, roadways and existing Town-owned BMPs (e.g., catch basin cleaning, street sweeping, winter road maintenance, stormwater BMPs).	Public Works Department, Town Engineer	Create written O&M Plan for stormwater system within 2 years of the permit effective date.	8.3.2		*					
		2. Distribute written O&M/SOPs as part of employee training.					*					
6-4	**Catch Basin Cleaning**	1. Establish a cleaning schedule with a goal of maintaining catch basins so that they remain less than 50% full of sediment.	Public Works Department	Clean catch basins on established schedule and report number of catch basins cleaned and volume of material moved annually.	8.3.2	*						
		2. Clean catch basins as needed according to schedule.				*	*	*	*	*	*	
		3. Properly manage storage of catch basin residuals.				*	*	*	*	*	*	
6-5	**Street Sweeping**	1. Develop street sweeping prioritization for high priority areas and areas subject to TMDL and/or water quality limited requirements.	Public Works Department	Sweep all streets and parking lots at least annually and sweep all streets twice a year if within nutrient-impaired waterbody watersheds.	8.3.2	*						
		1. Sweep streets once a year in spring and twice a year where drainage is to a nutrient-impaired water.				*	*	*	*	*	*	
		2. Properly manage storage of street sweeping residuals.				*	*	*	*	*	*	
6-6	**Road Salt Optimization Program**	1. Establish procedures for proper winter road maintenance, including use and storage of salt and sand, and procedures to minimize the use of road salt.	Public Works Department	Implement salt use optimization during winter maintenance operations.	8.3.2	*						
		2. Implement winter operation and maintenance items.				*	*	*	*	*	*	
6-7	**Assess Regulated Facilities to Determine SWPPP Eligibility**	1. Evaluate the need for SWPPPs for municipal maintenance garages, public works yards, transfer stations, and other waste handling facilities where pollutants are exposed to stormwater.	Public Works Department, Town Engineer	Document whether a SWPPP is needed and where required.	8.3.3		*					
6-8	**Develop SWPPPs for Applicable Facilities**	1. Complete SWPPP or document No Exposure as applicable.	Public Works Department, Town Engineer	Prepare SWPPP if needed by July 1, 2020.	8.3.3		*					
6-9	**Establish BMP O&M Procedures**	1. Establish written inspection and maintenance procedures and frequencies for inspection of all structural stormwater BMPs.	Public Works Department	Create written O&M Plan for stormwater BMPs within 2 years of the permit effective date.	8.3.4		*					
6-10	**Inspect and Maintain Stormwater BMPs**	1. Annually inspect MS4-owned stormwater treatment BMPs. Document inspections and maintenance performed.	Public Works Department	Inspect BMPs annually and maintain as needed.	8.3.4		*	*	*	*	*	

Table 11-1. Proposed BMP Plan - Implementation of Phase II Activities												
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						1	2	3	4	5	6+	
BMP ID	**BMP Description**	**Implementation**	**Responsible Dept./Person**	**Measurable Goal**	**Report Section**	**7/1/18-6/30/19**	**7/1/19-6/30/20**	**7/1/20-6/30/21**	**7/1/21-6/30/22**	**7/1/22-6/30/23**	**7/1/23-6/30/24**	
7. TMDL and Impaired Waters Controls												
7-1	**Discharges to Approved TMDL Waterbodies - Fecal Coliform (Exeter River)**	1. Enhanced BMPs - Public Education. Include management of pet waste and septic system maintenance with the Residential public education program.	Public Works Department, Conservation Commission	Distribute materials with Residential education program.	9.2.1		*	*	*	*	*	
		2. Enhanced BMPs - Illicit Discharge, Detection, and Elimination. Designate catchment draining to bacteria/pathogen impaired segments as "Problem Catchments" or "High" priority catchments in IDDE ranking.		Complete initial ranking within 1 year of the permit effective date.		*						
7-2	**Discharges to Approved TMDL Waterbodies - Lake and Pond Phosphorus (Showell Pond)**	1. Lake Phosphorus Control Plan (LPCP) - Legal Analysis. Identify regulatory mechanisms that may be necessary to implement the LPCP	Public Works Department, Conservation Commission	Complete a legal analysis within 2 years of the permit effective date, and adopt changes by the end of the permit term.	9.3.1	*						
		2. LPCP - Funding Source Assessment. Identify funding mechanisms that will be used to fund LPCP implementation.		Complete funding source assessment within 3 years of permit effective date.		*	*					
		3. LPCP - Define Scope and Requirements. Determine whether to implement the LPCP town wide or only in the UA and calculate the corresponding Baseline Phosphorus Load, Stormwater Phosphorus Reduction Requirement and Allowable Phosphorus Load corresponding to the LPCP Area.		Define LPCP area within 4 years of permit effective date.			*	*				
		4. LPCP - Non-Structural Controls. Determine non-structural stormwater controls to help reduce phosphorus, including planned measures, areas where measures will be implemented, and expected annual phosphorus reductions.		Determine non-structural controls within 5 years of permit effective date.				*	*			
		5. LPCP - Structural Controls. Priority rank areas and infrastructure where potential structural phosphorus controls could be implemented. Determine where structural controls shall be implemented and annual phosphorus reductions provided by each.		Determine structural controls within 5 years of permit effective date.				*	*			
		6. LPCP - Operation and Maintenance Program. Establish an O&M Program for current and planned structural BMPs, including an inspection and maintenance schedule with program or department responsible.		Establish O&M Program within 5 years of permit effective date.				*	*			
		7. LPCP - Written Plan. Develop a schedule that addresses the above items and prepare a written plan to determine implementation cost estimate.		Develop schedule within 4 years of permit effective date. Prepare implementation cost estimate within 5 years of permit effective date.			*	*	*			
		8. LPCP - Implementation and Performance Evaluation. Evaluate LPCP effectiveness by tracking phosphorus reductions due to implementing structural BMPs annually.		Begin tracking phosphorus reductions 6 years after the permit effective date						*	*	
		9. Annual Reporting. Include a progress report in each Annual Report on the planning and implementation of the LPCP.		Include LPCP progress report in each Annual Report.	9.3.2	*	*	*	*	*	*	
		10. Annual Reporting. Include non-structural control measures implemented, structural control measures implemented, phosphorus load increases due to development, and estimated yearly phosphorus export rate in each Annual Report.		Include additional LPCP progress once implementation has started, 5 years after permit effective date.						*	*	

Table 11-1. Proposed BMP Plan - Implementation of Phase II Activities												
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7-3	**Discharges to Water Quality Limited Waterbodies - Nitrogen (Great Bay via Exeter River)**	1. Enhanced BMPs - Public Education. Include fertilizer use, disposal of grass clippings and leaf litter, and pet waste management with the Residential and Commercial public education programs.	Department of Public Works, Conservation Commission	Distribute materials with Residential and Commercial education programs.	9.4.1		*	*	*	*	*	
		2. Enhanced BMPs - Stormwater Management in New Development and Redevelopment. Include a requirement in the regulatory mechanism that new development and redevelopment stormwater management BMPs be optimized for nitrogen removal.		Complete ordinance updates within 2 years of the permit effective date.			*					
		3. Enhanced BMPs - Consider BMPs to reduce nitrogen discharges when identifying MS4 properties for retrofits.		Evaluate stormwater BMPs for nitrogen removal during facility inventory within 2 years of the permit effective date.			*					
		4. Enhanced BMPs - Good Housekeeping and Pollution Prevention. Incorporate nitrogen reduction practices into Town good housekeeping practices such as fertilizer use and managing grass cuttings and leaf litter.		Create written O&M Plan for open spaces, buildings and facilities, and vehicles and equipment within 2 years of the permit effective date.			*					
		5. Enhanced BMPs - Good Housekeeping and Pollution Prevention. Increase street sweeping to twice per year (spring and fall) for catchment areas within nitrogen-impaired waterbody watersheds.		Sweep all streets and parking lots within nitrogen-impaired waterbody watersheds twice per year.			*	*	*	*	*	
		6. Prepare a nitrogen Source Identification Report to identify high priority areas within the community, determines impervious areas, evaluates results of screening activities performed under minimum measure 3, and outlines potential retrofit opportunities.		Complete Nitrogen Source Identification Report within 4 years of the permit effective date.	9.4.2					*		
		7. Evaluate municipal properties for potential BMPs to construct one that will treat nitrogen, determine estimated costs, and determines engineering and regulatory feasibility.		Evaluate municipal facilities within 5 years of the permit effective date to determine candidates for a nitrogen BMP.	9.4.3					*	*	
		8. Design and construct at least one BMP as a public demonstration project.		Installed BMP within 6 years of the permit effective date.						*	*	
		9. Track BMPs installed, including type, location, total area treated, design storage volume and estimated phosphorus removal and report annually.		Summary progress table.							*	

Table 11-1. Proposed BMP Plan - Implementation of Phase II Activities												
						Year / Schedule						
						1	2	3	4	5	6+	
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7 (continued). TMDL and Impaired Waters Controls												
7-4	**Discharges to Water Quality Limited Waterbodies - Phosphorus (Phillips Pond, Angle Pond)**	1. Enhanced BMPs - Public Education. Include fertilizer use, disposal of grass clippings and leaf litter, and pet waste management with the Residential and Commercial public education programs.	Public Works Department, Conservation Commission	Distribute materials with Residential and Commercial education programs.	9.5.1		*	*	*	*	*	
		2. Enhanced BMPs - Stormwater Management in New Development and Redevelopment. Include a requirement in the regulatory mechanism that new development and redevelopment stormwater management BMPs be optimized for phosphorus removal.		Complete ordinance updates within 2 years of the permit effective date.			*					
		3. Enhanced BMPs - Consider BMPs to reduce phosphorus discharges when identifying MS4 properties for retrofits within the Phillips Pond and Angle Pond watersheds.		Evaluate stormwater BMPs for phosphorus removal during facility inventory within 2 years of the permit effective date.			*					
		4. Enhanced BMPs - Good Housekeeping and Pollution Prevention. Incorporate phosphorus reduction practices into Town good housekeeping practices such as fertilizer use and managing grass cuttings and leaf litter.		Create written O&M Plan for open spaces, buildings and facilities, and vehicles and equipment within 2 years of the permit effective date.			*					
		5. Enhanced BMPs - Good Housekeeping and Pollution Prevention. Increase street sweeping to twice per year (spring and fall) for catchment areas within the Phillips Pond and Angle Pond watersheds.		Sweep all streets and parking lots within phosphorus-impaired waterbody watersheds twice per year.			*	*	*	*	*	
		6. Prepare a Phosphorus Source Identification Report to identify high priority areas within the community, determines impervious areas, evaluates results of screening activities performed under minimum measure 3, and outlines potential retrofit opportunities.		Complete Phosphorus Source Identification Report within 4 years of the permit effective date.	9.5.2					*		
		7. Evaluate municipal properties for potential BMPs to construct one that will treat phosphorus, determine estimated costs, and determines engineering and regulatory feasibility.		Evaluate municipal facilities within 5 years of the permit effective date to determine candidates for a phosphorus BMP.	9.5.3					*	*	
		8. Design and construct at least one BMP as a public demonstration project.		Installed BMP within 6 years of the permit effective date.						*	*	
		9. Track BMPs installed, including type, location, total area treated, design storage volume and estimated phosphorus removal and report annually.		Summary progress table.							*	

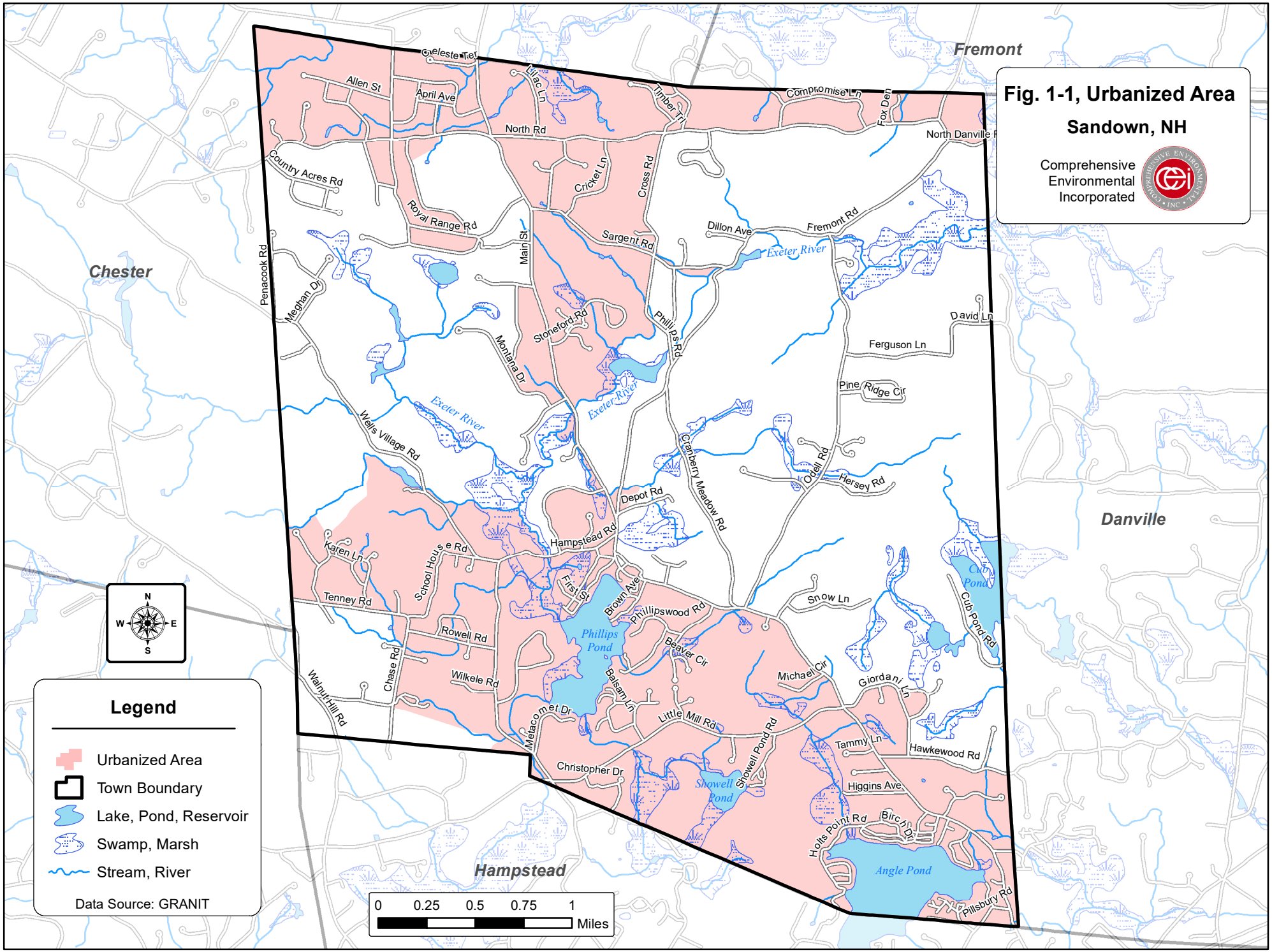
Fig. 1-1, Urbanized Area
Sandown, NH
Comprehensive Environmental Incorporated
Fremont
Chester
Danville
Hampstead
Celeste Tier
Allen St
April Ave
Lilac Ln
Timber Tri
Compromise Ln
Fox Den
North Rd
North Danville
Country Acres Rd
Cricket Ln
Cross Rd
Royal Range Rd
Main St
Sargent Rd
Dillon Ave
Fremont Rd
Exeter River
Penacook Rd
Meghan Dr
Stoneford Rd
Phillips Rd
David Ln
Ferguson Ln
Montana Dr
Pine Ridge Cir
Wells Village Rd
Cranberry Meadow Rd
Odell Rd
Hersey Rd
Depot Rd
Hampstead Rd
Karen Ln
School House Rd
First Ln
Brown Ave
Phillipswood Rd
Snow Ln
Cub Pond
Cub Pond Rd
Tenney Rd
Rowell Rd
Phillips Pond
Beaver Cir
Chase Rd
Wilkele Rd
Walnut Hill Rd
Balsam Ln
Michael Cir
Giordani Ln
Metacomet Dr
Little Mill Rd
Showell Pond Rd
Tammy Ln
Hawkewood Rd
Christopher Dr
Showell Pond
Higgins Ave
Holts Point Rd
Birch Dr
Angle Pond
Pillsbury Rd
N
W
E
S
Legend
Urbanized Area
Town Boundary
Lake, Pond, Reservoir
Swamp, Marsh
Stream, River
Data Source: GRANIT
0
0.25
0.5
0.75
1
Miles

04.03.19

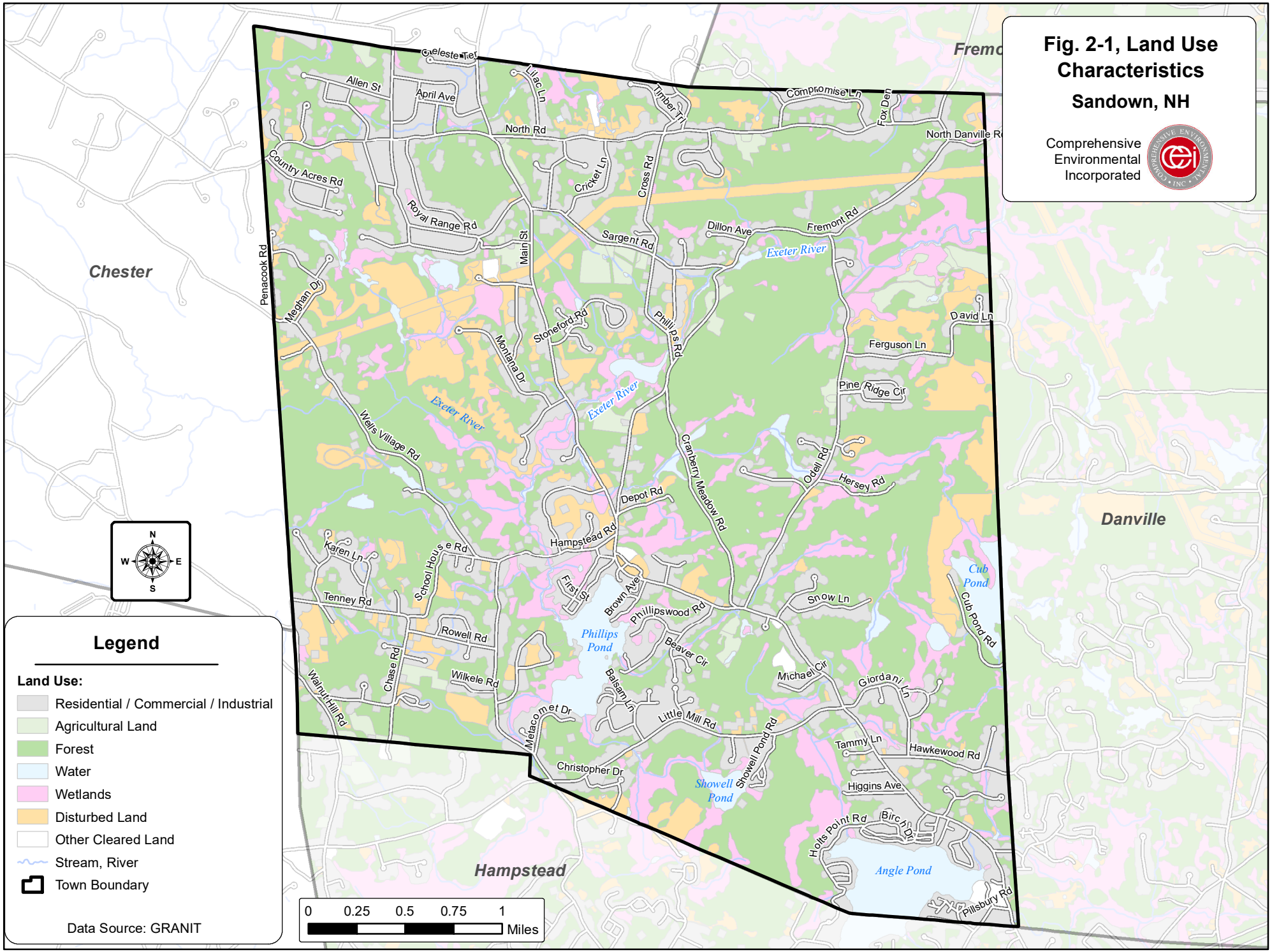
Fig. 2-1, Land Use Characteristics
Sandown, NH
Comprehensive Environmental Incorporated
Chester
Danville
Hampstead
Fremo
Exeter River
Phillips Pond
Showell Pond
Cub Pond
Angle Pond
Celeste Tel
Allen St
April Ave
Lilac Ln
Timber Tr
Compromise Ln
Fox Den
North Rd
North Danville Rd
Country Acres Rd
Cricket Ln
Cross Rd
Royal Range Rd
Main St
Sargent Rd
Dillon Ave
Fremont Rd
Penacook Rd
Meghan Dr
Stoneford Rd
Phillips Rd
David Ln
Ferguson Ln
Montana Dr
Pine Ridge Cir
Wells Village Rd
Cranberry Meadow Rd
Odell Rd
Hersey Rd
Depot Rd
Hampstead Rd
Karen Ln
School House Rd
First Lot
Brown Ave
Phillipswood Rd
Snow Ln
Cub Pond Rd
Tenney Rd
Rowell Rd
Beaver Cir
Chase Rd
Wilkele Rd
Balsam Ln
Michael Cir
Giordani Ln
Walnut Hill Rd
Metacomet Dr
Little Mill Rd
Showell Pond Rd
Tammy Ln
Hawkewood Rd
Christopher Dr
Higgins Ave
Holts Point Rd
Birch Dr
Pillsbury Rd
N
W
E
S
Legend
Land Use:
Residential / Commercial / Industrial
Agricultural Land
Forest
Water
Wetlands
Disturbed Land
Other Cleared Land
Stream, River
Town Boundary
Data Source: GRANIT
0
0.25
0.5
0.75
1
Miles

04.03.19

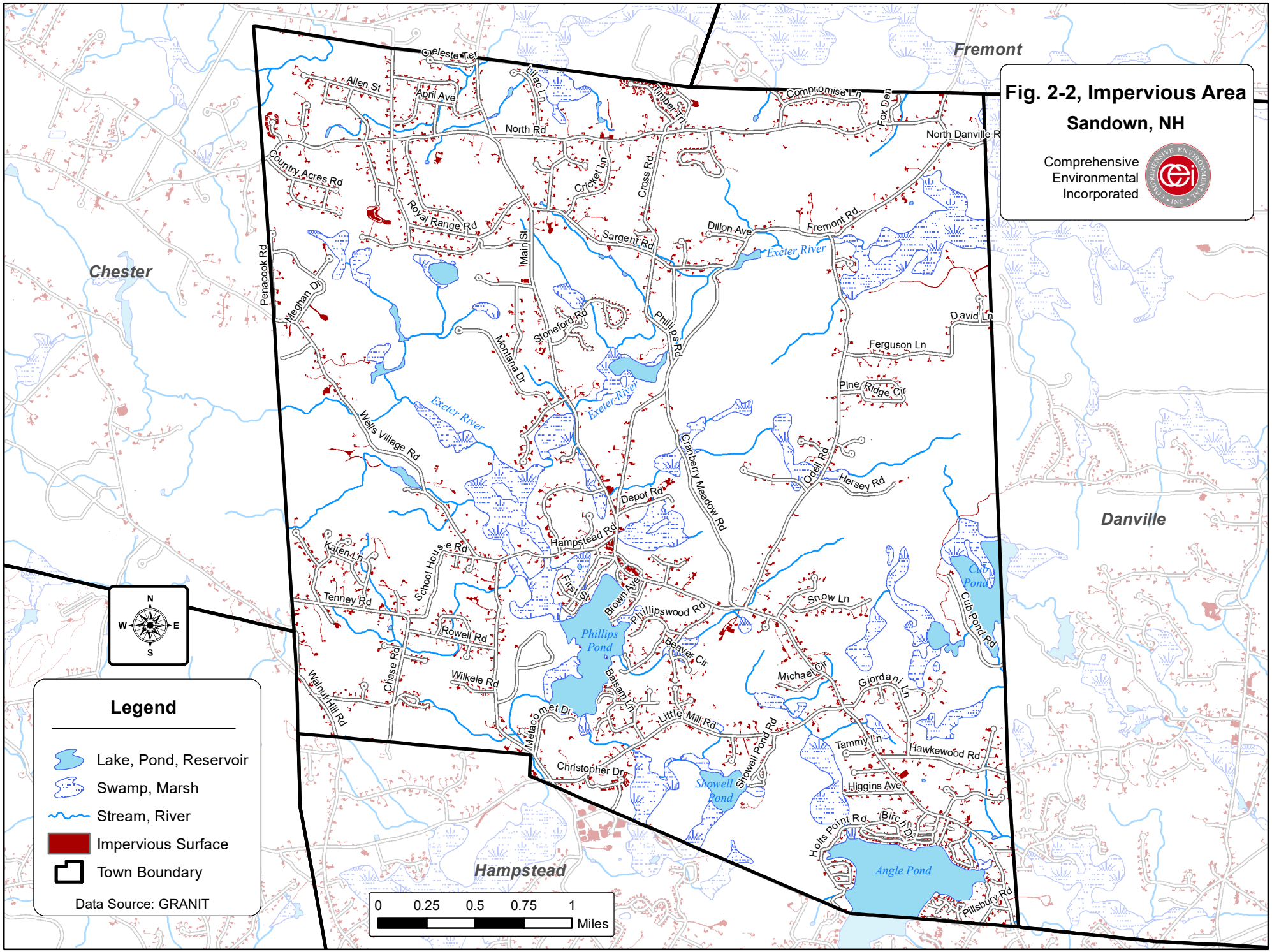
Fig. 2-2, Impervious Area
Sandown, NH
Comprehensive Environmental Incorporated
Fremont
Chester
Danville
Hampstead
Celeste Tef
Allen St
April Ave
Lilac Ln
Timber Ln
Compromise Ln
Fox Den
North Rd
North Danville R
Country Acres Rd
Cricket Ln
Cross Rd
Royal Range Rd
Sargent Rd
Dillon Ave
Fremont Rd
Exeter River
Main St
Pennacook Rd
Meghan Dr
Stoneford Rd
Phillips Rd
David Ln
Ferguson Ln
Montana Dr
Pine Ridge Cir
Wells Village Rd
Cranberry Meadow Rd
Odell Rd
Hersey Rd
Depot Rd
Hampstead Rd
Karen Ln
School House Rd
Tenney Rd
Brown Ave
Phillipswood Rd
Snow Ln
Cub Pond
Cub Pond Rd
Rowell Rd
Phillips Pond
Beaver Cir
Chase Rd
Wilkele Rd
Walnut Hill Rd
Balsam Ln
Michael Cir
Giordani Ln
Metacomet Dr
Little Mill Rd
Tammy Ln
Hawkewood Rd
Christopher Dr
Showell Pond Rd
Showell Pond
Higgins Ave
Holts Point Rd
Birch Dr
Angle Pond
Pillsbury Rd
N
W
E
S
Legend
Lake, Pond, Reservoir
Swamp, Marsh
Stream, River
Impervious Surface
Town Boundary
Data Source: GRANIT
0
0.25
0.5
0.75
1
Miles

04.03.19

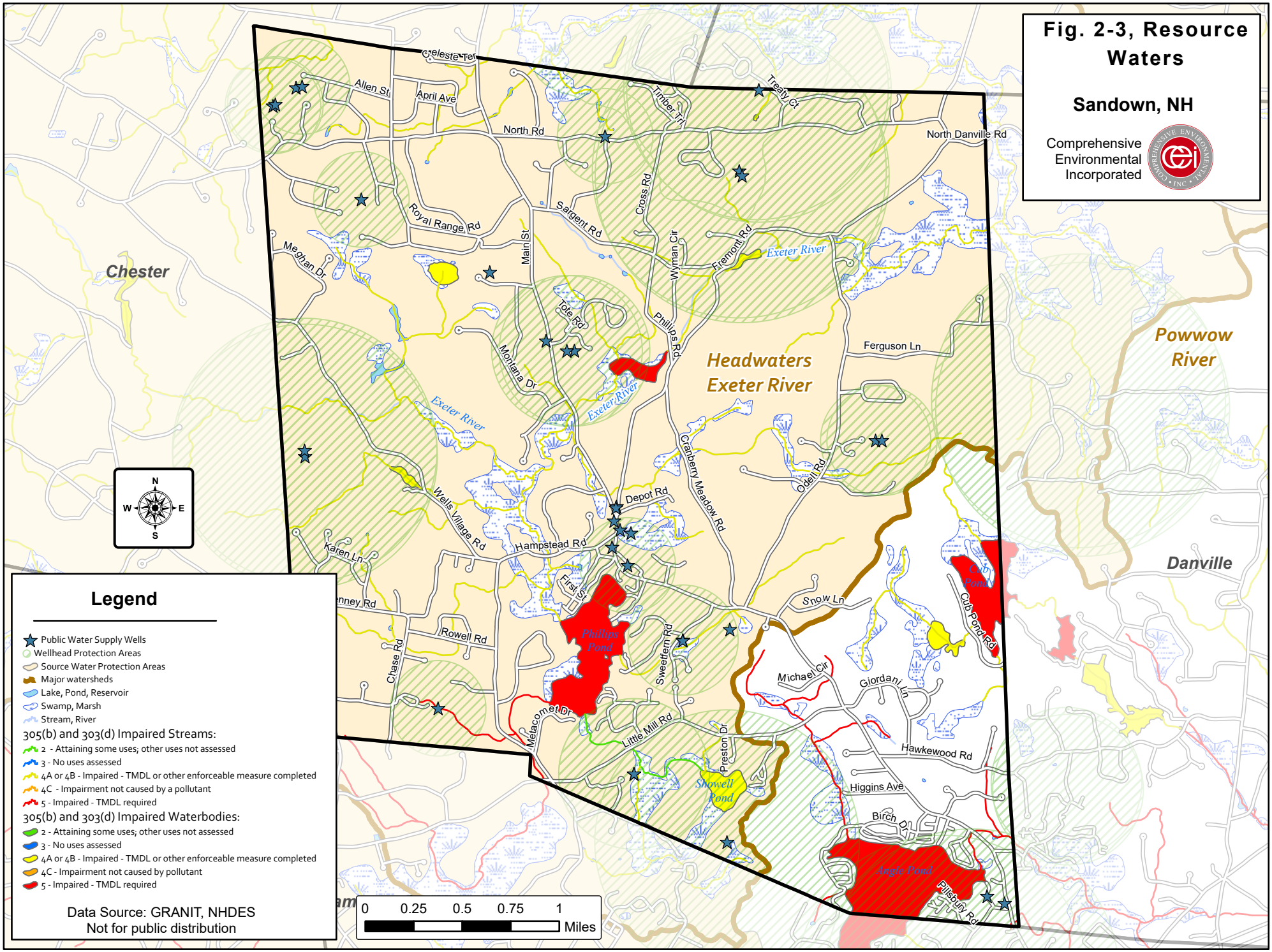
Fig. 2-3, Resource Waters
Sandown, NH
Comprehensive Environmental Incorporated
Headwaters Exeter River
Powwow River
Chester
Danville
Exeter River
Phillips Pond
Cub Pond
Angle Pond
Shiowell Pond
Celeste Ter
Allen St
April Ave
North Rd
Timber Trl
Treaty Ct
North Danville Rd
Cross Rd
Sargent Rd
Royal Range Rd
Meghan Dr
Main St
Wyman Cir
Fremont Rd
Tole Rd
Phillips Rd
Ferguson Ln
Montana Dr
Cranberry Meadow Rd
Odell Rd
Depot Rd
Wells Village Rd
Hampstead Rd
Karen Ln
First St
Snow Ln
Cub Pond Rd
Rowell Rd
Chase Rd
Sweetfern Rd
Michael Cir
Giordani Ln
Metacomet Dr
Little Mill Rd
Preston Dr
Hawkewood Rd
Higgins Ave
Birch Dr
Pillsbury Rd
N
W
E
S
Legend
Public Water Supply Wells
Wellhead Protection Areas
Source Water Protection Areas
Major watersheds
Lake, Pond, Reservoir
Swamp, Marsh
Stream, River
305(b) and 303(d) Impaired Streams:
2 - Attaining some uses; other uses not assessed
3 - No uses assessed
4A or 4B - Impaired - TMDL or other enforceable measure completed
4C - Impairment not caused by a pollutant
5 - Impaired - TMDL required
305(b) and 303(d) Impaired Waterbodies:
2 - Attaining some uses; other uses not assessed
3 - No uses assessed
4A or 4B - Impaired - TMDL or other enforceable measure completed
4C - Impairment not caused by pollutant
5 - Impaired - TMDL required
Data Source: GRANIT, NHDES
Not for public distribution
0 0.25 0.5 0.75 1 Miles

04.08.19

Appendix A

Notice of Intent and Authorization to Discharge

Notice of Intent (NOI) for coverage under Small MS4 General Permit

Revision -1

Part I: General Conditions

General Information

Name of Municipality or Organization: Town of Sandown, New Hampshire

State: NH

EPA NPDES Permit Number (if applicable): NHR041000

Primary MS4 Program Manager Contact Information

Name: Should be same as person certifying in Part V

Title:

Street Address Line 1: 320 Main Street

Street Address Line 2:

City: Sandown

State: NH

Zip Code: 03873

Email:

Phone Number: (603) 887-3646

Fax Number:

Other Information

Stormwater Management Program (SWMP) Location (web address or physical location, if already completed): Located at the Town Hall address above.

Eligibility Determination

Endangered Species Act (ESA) Determination Complete? Yes

Eligibility Criteria (check all that apply): ☐ A ☐ B ☒ C

National Historic Preservation Act (NHPA) Determination Complete? Yes

Eligibility Criteria (check all that apply): ☒ A ☒ B ☐ C ☐ D

☑ Check the box if your municipality or organization was covered under the 2003 MS4 General Permit

MS4 Infrastructure (if covered under the 2003 permit)

Estimated Percent of Outfall Map Complete? *(Part II, III, IV or V, Subpart B.3.(a.) of 2003 permit)*: 90%

If 100% of 2003 requirements not met, enter an estimated date of completion (MM/DD/YY): 06/30/19

Web address where MS4 map is published:

If outfall map is unavailable on the internet an electronic or paper copy of the outfall map must be included with NOI submission (see section V for submission options)

Outfall map is available on the town website at . A printed copy is available at the Sandown Town Hall at 320 Main Street.

Regulatory Authorities (if covered under the 2003 permit)

Illicit Discharge Detection and Elimination (IDDE) Authority Adopted? *(Part II, III, IV or V, Subpart B.3.(b.) of 2003 permit)*: No

Effective Date or Estimated Date of Adoption (MM/DD/YY): 06/30/19

Construction/Erosion and Sediment Control (ESC) Authority Adopted? *(Part II,III,IV or V, Subpart B.4.(a.) of 2003 permit)*: Yes

Effective Date or Estimated Date of Adoption (MM/DD/YY): 10/17/17

Post-Construction Stormwater Management Adopted? *(Part II, III, IV or V, Subpart B.5.(a.) of 2003 permit)*: Yes

Effective Date or Estimated Date of Adoption (MM/DD/YY): 10/17/17

Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part II: Summary of Receiving Waters

Please list the waterbody segments to which your MS4 discharges. For each waterbody segment, please report the number of outfalls discharging into it and, if applicable, any impairments.

New Hampshire list of impaired waters: http://des.nh.gov/organization/divisions/water/wmb/swqa/

Check off relevant pollutants for discharges to impaired waterbodies (see above 303(d) lists) without an approved TMDL in accordance with part 2.2.2 of the permit. List any other pollutants in the last column, if applicable.

Waterbody segment that receives flow from the MS4	Number of outfalls into receiving water segment	Chloride	Chlorophyll-a	Dissolved Oxygen/ DO Saturation	Nitrogen	Oil & Grease/ PAH	Phosphorus	Solids/ TSS/ Turbidity	E. coli	Enterococcus	Other pollutant(s) causing impairments
NHLAK600030802-02 Lilly Pond		☐	☐	☐	☐	☐	☐	☐	☐	☐	Mercury, pH
NHLAK600030802-03-01 Phillips Pond	6	☐	☒	☐	☐	☐	☒	☐	☐	☐	Cyanobacteria, Mercury, pH, non-native aquatic plants
NHLAK600030802-03-02 Phillips Pond-Seeley Town Beach		☐	☐	☐	☐	☐	☐	☐	☐	☐	Cyanobacteria, Mercury, non-native aquatic plants
NHLAK600030802-04 Showell Pond		☐	☒	☐	☐	☐	☒	☐	☐	☐	Cyanobacteria, Mercury, pH, non-native aquatic plants
NHLAK700061403-01-01 Angle Pond	5	☐	☒	☐	☐	☐	☒	☐	☐	☐	Cyanobacteria, Mercury, pH
NHRIV600030802-03 Exeter River	1	☐	☐	☐	☐	☐	☐	☐	☒	☐	Mercury, pH, non-native aquatic plants
NHRIV600030802-10 Towle Brook to Pandolpin Dam		☐	☐	☐	☐	☐	☐	☐	☒	☐	Mercury
NHRIV600030802-16 Unnamed Brook to southwest inlet of Phillips Pond		☐	☐	☐	☐	☐	☐	☐	☐	☐	Mercury, pH
NHRIV700061403-05 Bartlett Brook-Colby Brook-Unnamed Brook		☐	☐	☒	☐	☐	☐	☐	☐	☐	Mercury, pH
NHRIV700061403-21 Unnamed Brook to Angle Pond at north inlet		☐	☐	☐	☐	☐	☐	☐	☐	☐	Mercury, pH
NHRIV700061403-22Unnamed Brook to Angle Pond at west inlet		☐	☐	☐	☐	☐	☐	☐	☐	☐	Mercury pH
		☐	☐	☐	☐	☐	☐	☐	☐	☐	
		☐	☐	☐	☐	☐	☐	☐	☐	☐	
		☐	☐	☐	☐	☐	☐	☐	☐	☐	
		☐	☐	☐	☐	☐	☐	☐	☐	☐	
		☐	☐	☐	☐	☐	☐	☐	☐	☐	
		☐	☐	☐	☐	☐	☐	☐	☐	☐	
See Note 1 in Section IV		☐	☐	☐	☐	☐	☐	☐	☐	☐	

Click to lengthen table

Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary

Identify the Best Management Practices (BMPs) that will be employed to address each of the six Minimum Control Measures (MCMs).

For each MCM, list each existing or proposed BMP by category and provide a brief description, responsible parties/departments, measurable goals, and the year the BMP will be employed (public education and outreach BMPs also requires a target audience). **Use the drop-down menus in each table or enter your own text to override the drop down menu.**

MCM 1: Public Education and Outreach

BMP Media/Category (enter your own text to override the drop down menu)	**BMP Description**	**Targeted Audience**	**Responsible Department/Parties** (enter your own text to override the drop down menu)	**Measurable Goal**	**Beginning Year of BMP Imple-mentation**
Various delivery methods	Use outreach materials and guidance to implement outreach for relevant impairments (for example materials developed by the NH Seacoast Stormwater Coalition).	Residents - 2 Varied Messages will be (	Town Administrator	To be determined. Examples: 1) Increased awareness of proper fertilizer use. 2) Increased awareness of pet waste impacts to water quality. 3) Increased awareness of yard waste impacts to water quality. 4) Increased septic system testing.	Year 1
Various delivery methods	2 Varied Messages. Use outreach materials and guidance to implement outreach for relevant impairments (for example materials developed by the NH Seacoast Stormwater Coalition).	Businesses, Institutions and Commercial Facilities - 2 Varied Messages will be delivered	Town Administrator	To be determined.	Year 1

Various delivery methods	2 Varied Messages. Use outreach materials and guidance to implement outreach for relevant impairments (for example materials developed by the NH Seacoast Stormwater Coalition).	Developers (construction) - 2 Varied Messages will be delivered	Town Administrator	To be determined.	Year 2
Various delivery methods	2 Varied Messages. Use outreach materials and guidance to implement outreach for relevant impairments (for example materials developed by the NH Seacoast Stormwater Coalition).	Industrial - 2 Varied Messages will be delivered	Town Administrator	To be determined.	

Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary (continued)

MCM 2: Public Involvement and Participation

BMP Categorization	Brief BMP Description (enter your own text to override the drop down menu)	Responsible Department/Parties (enter your own text to override the drop down menu)	Additional Description/ Measurable Goal	Beginning Year of BMP Imple-mentation
Public Review	Make SWMP and annual reports available for public review.	Town Administrator or Select Board	Annual review of stormwater management plan; post SWMP on website, a printed copy is available at town hall for public comment	Year 2
Public Participation	Implement 1 or more public participation events/activities annually	Town Administrator or Select Board	Public participation event(s) conducted	Year 2
Public Participation	Annual Reporting	Town Administrator or Select Board	Annual reporting of public participation activity(ies) and public review/ comment on SWMP	Year 2

Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary (continued)

MCM 3: Illicit Discharge Detection and Elimination (IDDE)

BMP Categorization (enter your own text to override the drop down menu)	**BMP Description**	**Responsible Department/Parties** (enter your own text to override the drop down menu)	**Measurable Goal** (all text can be overwritten)
Sanitary Sewer Overflow (SSO) inventory (not applicable)	Town has no SSO infrastructure		
Storm sewer system map (not applicable)	Town has no Storm Sewer infrastructure		
Written Illicit Discharge and Detection Elimination (IDDE) program development	Create written IDDE program	Public Works Department or Select Board	Complete within 1 year of the effective date of permit and update as required under sections 2.3.4.6-11
Implement IDDE program	Implement catchment investigations according to program and permit conditions	Public Works Department or Select Board	Complete 10 years after effective date of permit
Implement employee training	Train employees in IDDE program implementation	Public Works Department or Select Board	Provide training annually
Conduct dry weather outfall screening and sampling	Conduct in accordance with outfall screening procedure and permit conditions in section 2.3.4.7.b	Public Works Department or Select Board	Complete 3 years after effective date of permit, update annually and based on results of dry weather screening
Conduct wet weather outfall screening and sampling	Conduct in accordance with outfall screening procedures in in section 2.3.4.7.b	Public Works Department or Select Board	Complete 10 years after effective date of permit
Ongoing outfall screening and sampling	Conduct dry weather and wet weather screening (as necessary)	Public Works Department or Select Board	Complete ongoing outfall screening on completion of IDDE program

Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary (continued)

MCM 4: Construction Site Stormwater Runoff Control

BMP Categorization (enter your own text to override the drop down menu or entered text)	**BMP Description**	**Responsible Department/Parties** (enter your own text to override the drop down menu)	**Measurable Goal** (all text can be overwritten)
Implement site inspection and enforcement of erosion and sediment (ESC) control measures	Enact ESC Regulations	Planning Board through a public hearing process	Complete within 1 year of the effective date of permit
Prepare Written Procedures for Site Plan Review	Document procedures in regulations and begin implementation	Planning Board through a public hearing process	Complete within 1 year of the effective date of permit
Erosion and Sediment Control	Enact requirements for construction operators to implement a sediment and erosion control program and plan	Planning Board through a public hearing process	Complete within 1 year of the effective date of permit
Construction and Site Waste Controls	Enact requirements to control wastes, including but not limited to, discarded building materials, concrete truck wash out, chemicals, litter, and sanitary wastes	Planning Board through a public hearing process	Complete within 1 year of the effective date of permit

Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary (continued)

MCM 5: Post-Construction Stormwater Management in New Development and Redevelopment

BMP Categorization (enter your own text to override the drop down menu or entered text)	**BMP Description**	**Responsible Department/Parties** (enter your own text to override the drop down menu)	**Measurable Goal** (all text can be overwritten)
As-built plans for on-site stormwater controls	Enact procedures to require submission of as-built plans and ensure long term operations and maintenance as part of the SWMP	Planning Board through a public hearing process, Building Department	Require submission of as-built plans for completed projects.
Target properties for reduction in impervious cover	Complete an inventory and priority ranking of permitee-owned property and existing infrastructure that could be retrofitted with BMPs designed to reduce the frequency, volume and pollutant loads of stormwater discharges to its MS4 through the mitigation of impervious area	Town Engineer/ Public Works Department/ Road Agent/Facilities Managers	Complete 4 years after effective date of permit and report annually on retrofitted properties
Determine feasibility and allow for green infrastructure implementation	Report assessing existing local regulations to determine the feasibility of making green infrastructure practices allowable when appropriate site conditions exist	Planning Board (lead), assistance from Town Enginer, Conservation Commission	Complete 4 years after effective date of permit and implement recomendations of report
Street design and parking lot guidelines	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.	Planning Board (lead) with assistance from Town Engineer or consultant	Complete 4 years after effective date of permit and implement recommendations of report

Ensure stormwater controls or management practices for new development and redevelopment meet the retention and treatment requirements of the permit and consistent with the Southeast Watershed Alliance Model Stormwater Standards for Coastal Watershed Communities (as amended)	Adoption, amendment or modification of a regulatory mechanism to meet permit requirements.	Planning Board/Town Engineer through a public hearing process	Complete 2 years after effective date of permit

Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary (continued)

MCM 6: Municipal Good Housekeeping and Pollution Prevention

BMP Categorization (enter your own text to override the drop down menu or entered text)	**BMP Description**	**Responsible Department/Parties** (enter your own text to override the drop down menu)	**Measurable Goal** (all text can be overwritten)	**Beginning Year of BMP Imple-mentation**
Operation and Maintenance (O&M) Procedures	Create written O&M procedures including all requirements contained in section 2.3.7.1 for parks and open spaces, buildings and facilities, and vehicles and equipment	Public Works Department with Town Engineer or consultant	Complete and implement 2 years after effective date of permit	Year 2
Inventory all permittee-owned parks and open spaces, buildings and facilities, and vehicles and equipment	Prepare inventory	Public Works Department with Town Engineer or consultant	Complete 2 years after effective date of permit and update inventory annually	Year 2
Infrastructure Operations and Maintenance	Establish and record annually implementation of program activities for maintenance, repair and rehabilitation of MS4 stormwater infrastructure	Public Works Department with Town Engineer or consultant	Complete 2 years after effective date of permit	Year 2
Stormwater Pollution Prevention Plan (SWPPP)	Create SWPPPs for municipal properties or individual facilities per requirements of section 2.3.7.2	Public Works Department with Town Engineer or consultant	Complete 2 years after effective date of permit	Year 2
Catch basin cleaning	Establish schedule for catch basin cleaning such that each catch basin is no more than 50% full and clean catch basins on that schedule, ensure proper storage of basin cleanings	Public Works Department	Clean catch basins on established schedule and report number of catch basins cleaned and volume of material moved annually	Year 1

Street sweeping program	Sweep all (curbed) streets and permitee-owned parking lots in accordance with permit conditions	Public Works Department	Sweep all streets and permitee-owned parking lots once per year in the spring	Year 1
Road salt use optimization and winter road maintenance program	Establish and implement a program to minimize the use of road salt and evaluate opportunities for use of alternative materials. Use Green SnowPro Program	Public Works Department	Implement salt use optimization program during deicing season	Year 2
Inspections and maintenance of stormwater treatment structures	Establish and implement inspection and maintenance procedures and frequencies	Public Works Department	Inspect and maintain treatment structures at least annually	Year 1

Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary (continued)

Actions for Meeting Total Maximum Daily Load (TMDL) Requirements

Use the drop-down menus to select the applicable TMDL, action description to meet the TMDL requirements, and the responsible department/parties. If no options are applicable, or more than one, **enter your own text to override drop-down menus.** If submitting a NHDES approved alternative reduction plan, attach and submit it with the NOI.

Applicable TMDL	Action Description	Responsible Department/Parties (enter your own text to override the drop down menu)
NHLAK600030802-04 - Showell Pond (phosphorus)	Adhere to requirements in Part III.1 of Appendix F	Public Works Dept., Consutlant , Conservation Commission
NHRIV600030802-03 - Exeter River	Adhere to requirements in Part II.2 of Appendix F	Public Works Dept., Consutlant , Conservation Commission
NHRIV600030802-10 - Towle Brook to Pandolphin Dam	Adhere to requirements in Part II.2 of Appendix F	Public Works Dept., Consutlant , Conservation Commission
NHRIV600030802-03-Exeter River	Adhere to requirements in Part II.1 of Appendix F	Public Works Dept., Consutlant , Conservation Commission
NHRIV600030802-10-Towle Brook	Adhere to requirements in Part II.1 of Appendix F	Public Works Dept., Consutlant , Conservation Commission

Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary (continued)

Actions for Meeting Requirements Related to Water Quality Limited Waters

Use the drop-down menus to select the pollutant causing the water quality limitation and enter the waterbody ID(s) experiencing excursions above water quality standards for that pollutant. Choose the action description from the dropdown menu and indicate the responsible party. If no options are applicable, or more than one, **enter your own text to override drop-down menus.**

Pollutant	Waterbody ID(s)	Action Description	Responsible Department/Parties (enter your own text to override the drop down menu)
Phosphorus	NHLAK600030802-03-01-Phillips Pond	Adhere to requirements in part II of Appendix H	Public Works Dept., Consutlant , Conservation Commission
	entry deleted	Adhere to requirements in part II of Appendix H	
	entry deleted	Adhere to requirements in part III of Appendix H	
	entry deleted	Adhere to requirements in part III of Appendix H	
Phosphorus	NHLAK700061403-01-01 Angle Pond (phosphorus)	Adhere to requirements in part II of Appendix H	Public Works Dept., Consutlant , Conservation Commission
Nitrogen	NHRIV600030802-03 - Exeter River	Adhere to requirements in part I of Appendix H	Public Works Dept., Consutlant , Conservation Commission

Part IV: Notes and additional information

Use the space below to indicate the part(s) of 2.2.2 that you have identified as not applicable to your MS4 and provide all supporting documentation below or attach additional documents if necessary.

Provide any additional information about your MS4 program below.

Note 1: See attached table for complete listing of all waterbodies found within municipal boundaries, impairment status, and listing of each waterbody impairment.

Note 2 - MCM 1 Public Outreach and Education requires a minimum of two messages to the four audiences listed for a total of eight messages over permit term. Additional messaging are required under Appendix H Parts II and III for Water Quality Limited Waterbodies for phosphorus and E.Coli

Note for Part I- MS4 Infrastructure: A draft IDDE ordinance is being reviewed by the Planning Board and will likely be adopted in 2019.

Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part V: 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 gathered and evaluated 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 have no personal knowledge that the information submitted is other than 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.

Name:	Lynne Blaisdell	Title:	Town Administrator
Signature:	Lynne Blaisdell	Date:	11/20/18

[To be signed according to Appendix B, Subparagraph B.11, Standard Conditions]

Revision - 1

Note: When prompted during signing, save the document under a new file name

Rockingham Planning Commission | IPaC: Explore Location

https://ecos.fws.gov/ipac/location/Z52LY5OP7JBVPHFBGYDVZ5LIXQ/resources

IPaC Information for Planning and Consultation

U.S. Fish & Wildlife Service
LOG IN

Resources

ENDANGERED SPECIES	1
MIGRATORY BIRDS	6
FACILITIES	
WETLANDS	✔

PRINT RESOURCE LIST

What's next?

Define a project at this location to evaluate potential impacts, get an official species list, and make species determinations.

DEFINE PROJECT

Endangered species

Listed species [1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries [2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

Additional information on endangered species data is provided below.

The following species are potentially affected by activities in this location:

THUMBNAILS LIST

Mammals

NAME	STATUS
Northern Long-eared Bat Myotis septentrionalis	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

11:00 AM
11/16/2018

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1
5 POST OFFICE SQUARE, SUITE 100
BOSTON, MA 02109-3912

VIA EMAIL

March 18, 2019

Lynne Blaisdell
Town Administrator
320 Main Street
Sandown, NH 03873
lblaisdell@sandown.us

Re: National Pollutant Discharge Elimination System (NPDES) Permit ID: NHR041032, Town of Sandown, NH

Dear Lynne Blaisdell:

Your Notice of Intent (NOI) for coverage under the 2017 NPDES General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems in New Hampshire (MS4 General Permit) has been reviewed by EPA and appears to be complete. You are hereby granted authorization by EPA to discharge stormwater from your MS4 in accordance with applicable terms and conditions of the MS4 General Permit, including all applicable Appendices. This authorization to discharge expires at midnight on **June 30, 2023.**

For those permittees that certified Endangered Species Act eligibility under Criterion C in their NOI, this authorization letter also serves as EPA's concurrence with your determination that your discharges will have no effect on the listed species present in your action area, based on the information provided in your NOI.

As a reminder, your first annual report is due by **September 30, 2019** for the reporting period from May 1, 2018 through June 30, 2019.

Information about the permit and available resources can be found on our website: https://www.epa.gov/npdes-permits/new-hampshire-small-ms4-general-permit. Should you have

any questions regarding this permit please contact Suzanne Warner at warner.suzanne@epa.gov or (617) 918-1383.

Sincerely,

Thelma Murphy, Chief
Stormwater and Construction Permits Section
Office of Ecosystem Protection
United States Environmental Protection Agency, Region 1

Appendix B

Stormwater Ordinances and Regulations

ZONING ORDINANCE
Sandown, NH

Adopted March 13, 1956 | Last Amended March 12, 2019

ARTICLE VII
ILLICIT DISCHARGE DETECTION AND ELIMINATION ORDINANCE

(Adopted March 12, 2019)

a. SECTION 1. PURPOSE AND INTENT

1. The purpose of this Illicit Discharge Detection and Elimination (IDDE) Ordinance is to provide for the health, safety and general welfare of the citizens of Sandown through the regulation of non-storm water discharges to the storm drainage system to the maximum extent practicable. The IDDE ordinance establishes methods for controlling the introduction of pollutants into the municipal separate storm sewer system (MS4) in order to comply with requirements of the National Pollutant Discharge Elimination System (NPDES) permit process. The objectives of this ordinance are to:

1. Regulate the contribution of pollutants to the MS4 by storm water discharges by any user.
2. Prohibit illicit connections and discharges to the MS4.
3. Establish legal authority to carry out all inspection, surveillance, monitoring, and enforcement procedures necessary to ensure compliance with this ordinance.

b. SECTION 2. DEFINITIONS

c. For the purposes of this Article VII of the Sandown Zoning Ordinance, the following words and terms shall mean:

d. Authorized Enforcement Agency. Employees or designees of the Town of Sandown designated to enforce this Ordinance.

e. Best Management Practices (BMPs). Schedules of activities, prohibitions of practices, general good housekeeping practices, pollution prevention and educational practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants directly or indirectly to storm water, receiving waters, or storm water conveyance systems. BMPs also include treatment practices, operating procedures, and practices to control site runoff, spillage or leaks, sludge or water disposal, or drainage from raw materials storage.

Illegal Discharge. Any direct or indirect non-storm water discharge to the storm drain system, unless otherwise exempted under the terms and conditions of this ordinance.

f. Illicit Connections. An illicit connection is defined as either of the following:

- Any drain or conveyance, whether on the surface or subsurface, which allows an illegal discharge to enter the storm drain system, including but not limited to any conveyances that allow any non-storm water discharge including sewage, process wastewater, and wash water to enter the storm drain system and any connections to the storm drain system from indoor drains and sinks, regardless of whether said drain or connection had been previously allowed, permitted, or approved; or

- Any drain or conveyance connected from a commercial or industrial land use to the storm drain system that has not been previously approved by the Town of Sandown or others of competent jurisdiction as applicable.

g. Industrial Activity. Activities subject to NPDES Industrial Storm Water Permits as defined in 40 CFR, Section 122.26 (b) (14).

h. Municipal Separate Storm Sewer System (MS4). The system of conveyances (including sidewalks, roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains) owned and operated by the Town of Sandown and designed or used for collecting or conveying storm water, and that is not used for collecting or conveying sewage.

i. National Pollutant Discharge Elimination System (NPDES) Storm Water Discharge Permit. means a permit issued by EPA (or by a State under authority delegated pursuant to 33 USC § 1342(b)) that authorizes the discharge of pollutants to Waters of the United States, whether the permit is applicable on an individual, group, or general area-wide basis.

j. Non-Storm Water Discharge. Any discharge to the storm drain system that is not composed entirely of storm water.

k. Person. Any individual, association, organization, partnership, firm, corporation or other entity recognized by law and acting as either the owner or as the owner's agent.

l. Pollutant. Anything which causes or contributes to pollution. Pollutants may include, but are not limited to: paints, varnishes, and solvents; oil and other automotive fluids; non-hazardous liquid and solid wastes and yard wastes; refuse, rubbish, garbage, litter, or other discarded or abandoned objects, ordinances, and accumulations, so that same may cause or contribute to pollution; floatables; pesticides, herbicides, and fertilizers; hazardous substances and wastes; sewage, fecal coliform and pathogens; dissolved and particulate metals; animal wastes; wastes and residues that result from constructing a building or structure; and noxious or offensive matter of any kind.

m. Premises. Any building, lot, parcel of land, or portion of land whether improved or unimproved including adjacent sidewalks and parking strips.

Storm Drainage System. Publicly-owned facilities by which storm water is collected and/or conveyed, including but not limited to any roads with drainage systems, municipal streets, gutters, curbs, inlets, piped storm drains, pumping facilities, retention and detention basins, natural and human-made or altered drainage channels, reservoirs, and other drainage structures.

Storm Water. Any surface flow, runoff, and drainage consisting entirely of water from any form of natural precipitation and resulting from such precipitation.

Storm Water Management Plan. A document which describes the Best Management Practices and activities to be implemented by a person or business to identify sources of pollution or contamination at a site and the actions to eliminate or reduce pollutant discharges to Storm Water, Storm Water Conveyance Systems, and/or Receiving Waters to the Maximum Extent Practicable.

Wastewater. Any water or other liquid, other than uncontaminated storm water, discharged from a facility.

n. **SECTION 3. APPLICABILITY**

This Ordinance shall apply to all water, pollutants or other substances entering the storm drain system generated on all lands unless explicitly permitted under the terms and conditions of this Ordinance.

o. **SECTION 4. COMPATIBILITY**

The requirements of this Ordinance are in addition to the requirements of any other ordinance, rule, regulation, or other provision of law, and where any provision of this Ordinance imposes restrictions different from those imposed by any other ordinance, rule, regulation, or other provision of law, whichever provision is more restrictive or imposes higher protective standards for human health or the environment shall control.

SECTION 5. INTERPRETATION

The standards set forth herein and promulgated pursuant to this Ordinance are minimum standards; therefore this Ordinance does not intend or imply that compliance by any person will ensure that there will be no contamination, pollution, or unauthorized discharge of pollutants.

SECTION 6. DISCHARGE PROHIBITIONS

p. **6.1. Prohibition of Illegal Discharges.**

q. No person shall throw, drain, or otherwise discharge, cause, or allow others under its control to throw, drain, or otherwise discharge into the MS4 any pollutants or waters containing any pollutants, other than storm water.

2. The commencement, conduct or continuance of any illegal discharge to the storm drain system is prohibited except as described as follows:

1. The following discharges are exempt from discharge prohibitions established by this ordinance: water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated ground water infiltration, uncontaminated pumped ground water, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, and street wash water.
2. Discharges or flow from firefighting and other discharges necessary to protect public health and safety.
3. Discharges associated with dye testing of public and private storm drains, flow testing of public and private water supply wells and similar activities which may, from time to time, be undertaken in order to lawfully construct and maintain public and private infrastructure and utility systems.
4. A non-storm water discharge permitted under an NPDES Permit, waiver, or waste discharge order issued to the discharger and administered under the authority of the United States Environmental Protection Agency (EPA).

6.2. Prohibition of Illicit Connections.

1. The construction, use, maintenance or continued existence of illicit connections to the storm drain system is prohibited. This prohibition expressly includes, without limitation, illicit connections made in the past, regardless of whether the connection was permissible under law or practices applicable or prevailing at the time of connection.
2. A person is considered to be in violation of this Ordinance if the person connects a line conveying sewage to the MS4, or allows such a connection to continue.
3. Improper connections in violation of this Ordinance must be disconnected and redirected, if necessary, to an approved onsite wastewater management system or alternate system accepted to the Town of Sandown.
4. Any drain or conveyance that has not been documented by plans, maps or equivalent, and which may be connected to the storm sewer system, shall be located by the owner or occupant of that property upon receipt of written notice of violation from the Town of Sandown requiring that such locating be completed. Such notice will specify a reasonable time period within which the location of the drain or conveyance is to be determined, that the drain or conveyance be identified as storm sewer, sanitary sewer or other, and that the outfall location or point of connection to the storm sewer system or other stormwater discharge point be identified. Results of these investigations are to be documented and provided to the Town of Sandown.

r. **SECTION 7. SURFACE WATER PROTECTION**

Every person owning property through which surface waters or a watercourse passes, or such person's lessee, shall keep and maintain that part of the surface waters or watercourse within the property free of trash, debris, excessive vegetation, and other obstacles that would pollute, contaminate, or significantly retard the flow of water through the watercourse. In addition, the owner or lessee shall maintain existing privately owned structures within or adjacent to a watercourse, so that such structures will not become a hazard to the use, function, or physical integrity of the watercourse.

SECTION 8. REQUIREMENT TO PREVENT, CONTROL, AND REDUCE STORM WATER POLLUTANTS BY THE USE OF BEST MANAGEMENT PRACTICES

The Town of Sandown may adopt regulations identifying Best Management Practices for any activity, operation, or facility which may cause or contribute to pollution or contamination of storm water, the storm drain system, or Waters of the United States.

s. **SECTION 9. NOTIFICATION OF SPILLS**

t. Notwithstanding other requirements of law, as soon as any person responsible for a facility or operation, or responsible for emergency response for a facility or operation has information of any known or suspected release of materials which are resulting or may result in illegal discharges or pollutants discharging into storm water, the storm drain system, or waters of the United States, said

person shall take all necessary steps to ensure the discovery, containment, and cleanup of such release. Failure to provide notification of a release as provided above is a violation of this Ordinance.

u. **SECTION 10. VIOLATIONS, ENFORCEMENT, AND PENALTIES**

v. **10.1. Violations.**

w. It shall be unlawful for any person to violate any provision or fail to comply with any of the requirements of this Ordinance. Any person who has violated or continues to violate the provisions of this Ordinance, may be subject to the enforcement actions outlined in this section or may be restrained by injunction or otherwise abated in a manner provided by law.

In the event the violation constitutes an immediate danger to public health or public safety, the Town of Sandown is authorized to enter upon the subject private property, without giving prior notice, to take any and all measures necessary to abate the violation and/or restore the property.

10.2. Warning Notice.

When the Town of Sandown finds that any person has violated, or continues to violate, any provision of this ordinance, or any order issued hereunder, the Town may serve upon that person a written Warning Notice, specifying the particular violation believed to have occurred and requesting the discharger to immediately investigate the matter and to seek a resolution whereby any offending discharge will cease. Investigation and/or resolution of the matter in response to the Warning Notice in no way relieves the alleged violator of liability for any violations occurring before or after receipt of the Warning Notice.

x. **10.3. Suspension of MS4 Access.**

y. 10.3.1. Emergency Cease and Desist Orders.

z. When the Town of Sandown finds that any person has violated, or continues to violate, any provision of this Ordinance, or any order issued hereunder, or that the person's past violations are likely to recur, and that the person's violation(s) has (have) caused or contributed to an actual or threatened discharge to the MS4 or Waters of the United States which reasonably appears to present an imminent or substantial endangerment to the health or welfare of persons or to the environment, the Town may issue an order to the violator directing it immediately to cease and desist all such violations.

10.3.2. Suspension Due to Illicit Discharges in Emergency Situations.

The Town of Sandown may, without prior notice, suspend MS4 discharge access to a person when such suspension is necessary to stop an actual or threatened discharge which presents or may present imminent and substantial danger to the environment, or to the health or welfare of persons, or to the MS4 or Waters of the United States. If the violator fails to comply with a suspension order issued in an emergency, the Town may take such steps as deemed necessary to prevent or minimize damage to the MS4 or Waters of the United States, or to minimize danger to persons.

10.3.3. Suspension Due to the Detection of Illicit Discharge.

aa. Any person discharging to the MS4 in violation of this Ordinance may have their MS4 access terminated if such termination would abate or reduce an illicit discharge. The Town of Sandown will notify a violator of the proposed termination of its MS4 access. The violator may petition the Board of Selectmen for a reconsideration and hearing.

A person commits an offense if the person reinstates MS4 access to premises terminated pursuant to this Section, without the prior approval of the Town of Sandown.

SITE PLAN REVIEW REGULATIONS

SANDOWN, NH

Adopted	January 16, 1990
Amended	April 16, 1991
Amended	May 21, 1991
Amended	November 19, 1991
Amended	May 21, 2002
Amended	January 20, 2015
Amended	October 17, 2017
Amended	June 15, 2021

Site Plan Review Regulations

Sandown, NH

I. Authority

Pursuant to the authority vested in the Town of Sandown Planning board at the March, 1984 Town Meeting in accordance with the provisions of Chapter 674:43, "New Hampshire Revised Statutes Annotated:, 1955 as amended, the Town of Sandown Planning Board adopts the following regulations governing the review of site plans for the development or change or expansion of use (April, 1988) of tracts for non-residential uses and for multi-family dwellings, whether or not such development includes subdivision or re-subdivision of the site. These regulations shall be entitled, "Site Plan Review Regulations, Town of Sandown, New Hampshire."

II. Purpose

The purposes of these Site Plan Review Regulations are to protect the public health, safety and welfare; to promote balanced growth; to prevent premature and uncoordinated development of land without the adequate provision of public services and facilities; to ensure sound site utilization; to avoid development which may result in adverse environmental impact; and to guide the character of development.

The Site Review Procedure in no way relieves an individual, developer or agent from compliance with the Sandown Zoning Ordinance, Sandown Subdivision Regulations or any other ordinance which pertains to the proposed development. No site plan shall be approved until it complies in all respects to any and all pertinent ordinances and regulations.

III. Procedures

Site Plan Review shall be conducted in accordance with the procedural requirements for review of plats contained in the Sandown Subdivision Regulations, Section 2, including the notice to abutters and a public hearing. The list of all abutters of the proposed site should be checked with records at the County Registry of Deeds and not obtained from the local tax rolls, as ownership may have changed since April 1st. All costs for notification of abutters shall be paid by the applicant. In addition, reasonable fees may be assessed the applicant to cover the Board's administrative expenses and costs may be required by particular applications. No building permit for a non-residential or multi-family use shall be issued until approval of the site plan by the Planning Board has been granted, and, where applicable, a special exception has been granted by the Sandown Board of Adjustment.

III.1 Fire Department Review of Applications

Prior to submission of an application for site plan approval an applicant is required to consult with the Sandown Fire Department, as authority having jurisdiction to review NFPA Code requirements specific to the planned use, occupancy and configuration of

any non-residential or multi-family site, to determine what, if any, fire protection measures may be warranted. Upon receipt of an application for review and possible approval of a site plan, the Planning Board shall promptly forward a copy of the same to the Sandown Fire Department for formal review and comment and shall carefully consider any written recommendations offered by the Fire Department when deliberating on the possible approval of that application. (Amended 12/16/14)

IV. Submission Requirements

A. Application for Site Plan Review is properly filled out.

B. Site Plan:

1. Sheet size: 22x 34 inch maximum.

2. Scale: Not less than 1 inch equals 100 feet.

3. Match lines when needed.

4. Original on mylar in permanent ink, to be retained by the Planning Board at its option.

5. Five (5) prints of each plan sheet, blue or black line, (to remain with the Board).

6. Date, title, scale, north arrow, location map.

7. Name and address of owner of record and abutters, and, where applicable, developer, designer or engineer.

8. Topographical plan with contour lines at two (2) foot vertical intervals. Benchmark from USGS datum.

9. High intensity soil map showing soil types and slopes. Mapping shall be conducted by a qualified soil scientists who is interpreted to mean a person qualified in soil classification and field analysis and who is recommended by the Rockingham County Conservation District Board of Supervisors.

10. Location of all easements and rights-of-way.

11. Name, license number and seal of the NH licensed land surveyor.

C. Separate list of current names and addresses of all abutters, plus owner(s) of record (and applicant, if different).

D. Abutter's notification fee (payable to the "Town of Sandown"), $1.75 per abutter, including the owner of record, and applicant, if different.

E. Application fee (payable to the "Town of Sandown"), $25.00 for non-residential use and $10.00 per unit for multi-family dwellings.

V. Required Exhibits and Data

The following are required on the site plan(s):

A. Plan of site showing existing natural features including water courses and water bodies, trees and other vegetation, topographical features, any other features which should be considered in the site design process.

B. Plan of all buildings with their type, size, location (set backs) and elevation of first floor slab indicated; (assume permanent on-site elevation).

C. An elevation view of all buildings indicating their height, bulk and surface treatment.

D. Location of off-street parking and loading spaces with a layout of the parking indicated.

E. The location, width, and type of access and egress ways, plus streets within and around proposed site.

F. The size and proposed location of water supply and sewage facilities and provisions for future expansion of sewage and water facilities, and all distances from existing water and sewage facilities on the site and on abutting properties to a distance of 200 feet.

G. The type and location of solid waste disposal facilities.

H. The location, elevation and layout of culverts and other surface water drainage features.

I. Existing and proposed contours and finished grade elevations; all contours shall be at a minimum of 2-foot intervals.

J. The type, extent and location of existing and proposed landscaping and open space areas indicating what existing landscaping and open space areas will be retained.

K. The location, size and design of proposed signs and other advertising or instructional devices.

L. The size and location of all public service connections – gas, power, telephone, fire alarm, overhead or underground.

M. The location and type of lighting for all outdoor facilities.

N. Lines of all existing adjoining streets.

O. Surveying property lines showing their deflection angles, distances, radii, lengths of arcs, control angles along property lines and monument locations and names of all abutters.

P. If a subdivision, then lines and names of all proposed streets, lanes, ways or easements intended to be dedicated for public use – all Sandown Subdivision Regulations shall apply.

Q. Any other exhibits or data that the Planning Board may require in order to adequately evaluate the proposed development for Site Review.

R. Requirements for site plans having land designated as "Special Flood Hazard Areas" by the National Flood Insurance Program (NFIP)

1. The Planning Board shall review the proposed development to assure that all necessary permits have been received from those governmental agencies from which approval is required by Federal or State law, including Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334.

2. The Planning Board shall require that all site plan proposals for developments greater than 50 lots or 5 acres, whichever is lesser, including within such proposals, Base Flood Elevation (BFE) data (i.e. floodplain boundary and 100 year flood elevation).

3. Sufficient evidence (construction drawings, grading, and land treatment plans) shall be submitted so as to allow a determination by the Planning Board that:

a. All such proposals are consistent with the need to minimize flood damage;

b. All public utilities and facilities, such as sewer, gas, electrical, and water systems are located and constructed to minimize or eliminate flood damage; and

c. Adequate drainage is provided so as to reduce exposure to flood hazards.

VI. General Standards

A. Design of development should fit the existing natural and man-made environments with the least stress:

1. Site preparation is to be conducted with minimal disturbance to existing vegetation. Stripped topsoil is to be piled and re-used on the site where needed. A minimum of 4 inches of topsoil is to be placed on the disturbed area. The site shall be adequately landscaped.

2. Landscape treatment shall consist of natural, undisturbed vegetation or features, or the additional planting of ground cover, shrubs or trees as appropriate.

3. Grading and filling must be conducted in order to minimize the alteration of surface and subsurface drainage to, toward or across abutting properties, unless the written consent of the abutting owner is obtained.

B. Appropriate buffers are to be maintained or installed to provide privacy and noise reduction to residential areas abutting non-residential sites:

1. Buffer strips must be maintained between non-residential use and residential uses. Buffer strips between non-residential and residential uses must contain vegetation which will screen non-residential uses from sight from residential areas suring winter months.

2. A landscaping plan must be submitted showing locations and types of vegetation to be retained or established.

   In accordance with USDA Soil Conservation Service recommendations, seeding shall be done during the following periods whenever possible:

   a. Second week in August through second week in September; or

   b. April through June. (Amended 12/19/89)

C. Screening must be provided to reduce visual pollution:

1. Storage areas must be fenced or screened from onsite or adjoining parking and neighboring properties.

2. Litter (garbage) collection areas must be screened.

3. The use of either fencing or hedges is permitted.

D. Parking and loading and pedestrian safety:

1. Sufficient off-street parking must be provided for the anticipated use to accommodate both employees and customers so that no parking is forced into public streets.

2. Sufficient off-street loading and/or unloading space must be provided, including off-street areas for maneuvering of anticipated trucks or other vehicles. Maneuvers for parking and/or loading or unloading must not take place from a public street.

3. Access, parking and loading areas are to be constructed so as to minimize dust, erosion and run-off conditions that would have a detrimental effect on abutting or neighboring properties.

    a. Permeable pavement may be used which might reduce the need for installation of drainage facilities to accommodate run-off; however,

    b. The Board may require that access, parking and loading areas be conventionally paved if appropriate or necessary. The cross section for such work shall be comprised of:

        - A 1-inch bituminous wearing course, underlain by;

        - A 2-inch bituminous base course, underlain by;

        - 6 inches of crushed gravel, underlain by;

        - 12 inches of bank run gravel.

    c. Sidewalks. Sidewalks shall be provided for pedestrian traffic to provide connection between the main entrances of business, housing or industrial establishments and parking areas. In the event that pedestrian shoppers or employers are reasonably anticipated, provision shall be made therefore by sidewalks running from the street line to the establishments. All such sidewalks shall be at least six (6) inches above grade and protected by curbing.

E. Erosion and Sedimentation Control Standards (Adopted October 17, 2017)

The purpose of these standards is to safeguard persons, protect property, prevent damage to the environment and promote the public welfare by controlling the design, construction, use, and maintenance of land during construction. These standards apply to projects approved by the Planning Board under Site Plan Review Regulations including any development or other activity which disturbs or breaks the topsoil or results in the disturbance of earth, excluding agriculture and forestry. An Erosion and Sediment Control Report and plans shall be submitted with the Site Plan Review Application, if applicable, and shall be prepared and certified by a licensed NH Professional Engineer. All erosion and sediment control plans shall comply with the following standards.

1. Apply best management practices that accommodate the increased runoff caused by changed soil and surface conditions during construction, including strong perimeter controls and soil stabilization methods. Sediment in stormwater runoff shall be contained by the use of sediment basins or other acceptable methods until the disturbed area is stabilized. Techniques that divert upland runoff away from disturbed slopes shall be used.

2. Identify, locate, and show elevation, grades and/or contours at intervals of not more than two (2) feet for the existing and proposed drainage ways, drainage easements, drainage structures, and any surface water bodies.

3. Identify and relatively locate and include drawings and specifications for each erosion and sediment control measure and structure proposed during construction, and noting those measures that will become permanent structures retained after construction. Erosion and sediment control measures and structures shall be designed in accordance with the New Hampshire Stormwater Manual Volume 3: Erosion and Sediment Controls During Construction (NH Department of Environmental Services, December 2008, as amended) or new standards and guidance as released or adopted by the NH Department of Environmental Services.

4. Include drawings, details and specifications for proposed flood hazard prevention measures and structures and for proposed temporary stormwater management facilities.

5. Ensure that disturbance to or removal of vegetation, grading or other construction will be done in such a way that will minimize soil erosion. Whenever practical, natural vegetation shall be retained, protected and supplemented to function as buffers.

6. Construction sites must be stabilized within *five days* of clearing or inactivity in construction. Temporary application of seed and/or mulch may be required by the Planning Board to protect exposed critical areas during development. Techniques shall be employed to prevent the blowing of dust or sediment from the site. In areas where final grading has not occurred, temporary stabilization measures should be in place within 7 days for exposed soil areas within 100 feet of a surface water body or wetland and no more than fourteen (14) days for all other areas. Permanent stabilization should be in place no more than 3 days following the completion of final grading of exposed soil areas. At the close of the construction season, the entire site must be stabilized, using a heavy mulch layer, or another method that does not require germination to control erosion.

7. The agent designated by the Planning Board shall make inspections as described below and shall either approve that portion of the work completed or shall notify the applicant/property owner and the Planning Board when and how the construction activity(s) fails to comply with the approved erosion and sediment control plan. All plans bearing the stamp of approval of the designated agent shall be maintained at the site during construction. In order to obtain inspections, the applicant/property owner shall notify the designated agent at least one week <u>before</u> the following required site inspections:

    a. Proposed erosion and sediment control measures are located and staked on the site before the start of construction.

b. Erosion and sediment control measures are in place and stabilized.
c. Site clearing and preparation has been completed.
d. Rough grading has been completed.
e. Final grading has been completed.
f. Close of the construction season.
g. Final landscaping has been completed.

F. Post-Contruction Stormwater Management Standards
(Adopted October 17, 2017)

1. Purpose and Goals

The purpose of post construction stormwater management standards is to provide reasonable guidance for the regulation of stormwater runoff to protect local natural resources from degradation and prevent adverse impacts to adjacent and downstream land, property, facilities and infrastructure. These standards regulate discharges from stormwater and runoff from land development projects and other construction activities to control and minimize increases in stormwater runoff rates and volumes, soil erosion, stream channel erosion, and nonpoint source pollution associated with stormwater runoff.

The goal of these standards is to establish minimum stormwater management requirements and controls to protect and safeguard the general health, safety, and welfare of the public in the Town of Sandown. This regulation seeks to meet that goal through the following objectives:

a. Minimize increases in stormwater runoff from any development to reduce flooding, siltation and streambank erosion and maintain the integrity of stream channels.
b. Minimize increases in nonpoint source pollution caused by stormwater runoff from development which would otherwise degrade local water quality.
c. Minimize the total volume of surface water runoff which flows from any specific site during and following development to not exceed the pre-development hydrologic condition to the maximum extent practicable as allowable by site conditions.
d. Reduce stormwater runoff rates and volumes, soil erosion and nonpoint source pollution, wherever possible, through stormwater management controls and to ensure that these management controls are properly maintained and pose no threat to public safety or cause excessive municipal expenditures.
e. Protect the quality of the Town's groundwater resources, surface water bodies and wetlands.

2. Minimum Thresholds for Applicability

a. The post-construction stormwater management standards apply to any development or redevelopment project, which are subject to Site Plan Review and

disturbs more than 10,000 square feet or disturbs more than 2,500 square feet within 100 feet of a surface water body (e.g. lake, pond, stream or river).

b. For sites that disturb less than 10,000 square feet, the Planning Board may grant an exemption if the amount of the total NEW site impervious cover created does not exceed 1,000 square feet. When an exemption is granted by the Planning Board, the following standards will be applied to these projects as conditions of approval.

   i. All runoff from new impervious surfaces and structures shall be directed to a subsurface filtration and/or infiltration device or properly discharged to a naturally occurring or fully replanted and vegetated area with slopes of 15 percent or less and with adequate controls to prevent soil erosion and concentrated flow.

   ii. Impervious surfaces for parking areas and roads shall be minimized to the extent possible (including minimum parking requirements for proposed uses).

   iii. All runoff generated from new impervious surfaces shall be retained on the development site and property.

   iv. Determination of compliance with standards (a.-c. above) will be made by the Planning Board on a case by case basis as site conditions and constraints will differ greatly between various development proposals.

   v. The following activities are considered exempt from preparing and submitting a stormwater management plan:

      1. Agricultural and forestry practices located outside wetlands and surface water setbacks and/or buffers.
      2. Resurfacing and routine maintenance of roads and parking lots.
      3. Exterior and interior alterations and maintenance to existing buildings and structures.

3. Stormwater Standards for New Development

   a. All proposed stormwater management practices and treatment systems shall meet the following performance standards.

      i. Stormwater management and erosion and sediment control practices shall be located outside any specified buffer zones unless otherwise approved by the Planning Board. Alternatives to stream and wetland crossings that eliminate or minimize environmental impacts shall be considered whenever possible.

      ii. Low Impact Development (LID) site planning and design strategies must be used to the maximum extent practicable (MEP to reduce stormwater runoff volumes, protect water quality, and maintain predevelopment site hydrology. Low Impact Development (LID) techniques with the goals of protecting water quality, maintaining predevelopment site hydrology. Low Impact Development (LID) techniques that preserve existing vegetation, reduce the development footprint, minimize or disconnect impervious area, and use enhanced stormwater BMP's (such as raingardens, bioretention systems, tree box filters, and similar stormwater management landscaping techniques) shall

be incorporated into landscaped areas with the goals of protecting water quality, maintaining predevelopment site hydrology. Capture and reuse of stormwater is strongly encouraged. The applicant must document in writing why LID strategies are not appropriate when not used to manage stormwater.

iii. All stormwater treatment areas shall be planted with native plantings appropriate for the site conditions: trees, grasses, shrubs and/or other native plants in sufficient numbers and density to prevent soil erosion and to achieve the water quality treatment requirements of this section.

iv. All stormwater installations and areas that receive rainfall runoff must be designed to drain within a maximum of 72 hours for vector control.

v. Salt storage areas shall be fully covered with permanent or semi-permanent measures and loading/offloading areas shall be located and designed to not drain directly to receiving waters and maintained with good housekeeping measures in accordance with NH DES published guidance. Runoff from snow and salt storage areas shall enter treatment areas as specified above before being discharged to receiving waters or allowed to infiltrate into the groundwater. See NHDES published guidance fact sheets on road salt and water quality, and snow disposal at http://des.nh.gov/organization/commissioner/pip/factsheets/wmb/index.htm.

vi. Surface runoff shall be directed into appropriate stormwater control measures designed for treatment and/or filtration to the maximum extent practicable and/or captured and reused onsite-.

vii. All newly generated stormwater from new development shall be treated on the development site. Runoff shall not be discharged from the development site to municipal drainage systems or privately owned drainage systems (whether enclosed or open drainage) or to surface water bodies and wetlands in volumes greater than discharged under existing conditions (developed condition or undeveloped condition). A development plan shall include provisions to retain stormwater on the site by using the natural flow patterns of the site.

viii. Runoff from impervious surfaces shall be treated to achieve at least 80% removal of Total Suspended Solids and at least 60% removal of both total nitrogen and total phosphorus using appropriate treatment measures, as specified in the NH Stormwater Manual. Volumes 1 and 2, December 2008, as amended (refer to Volume 2, page 6, Table 2.1 Summary of Design Criteria, Water Quality Volume for treatment criteria) or other equivalent means. Where practical, the use of natural, vegetated filtration and/or infiltration practices or subsurface gravel wetlands for water quality treatment is preferred given its relatively high nitrogen removal efficiency. All new impervious area draining to surface waters impaired by nitrogen, phosphorus or nutrients shall be treated with stormwater BMP's designed to optimize pollutant removal efficiencies based on design standards and performance data published by the UNH Stormwater Center and/or included in the latest version of the NH Stormwater Manual. Note: The Anti-Degradation provisions of the State Water Quality Standards require that runoff from new

development shall not contribute additional pollutant loads to existing water body impairments.

ix. Measures shall be taken to control the post-development peak rate runoff so that it does not exceed pre-development runoff. Drainage analyses shall include calculations comparing pre- and post-development stormwater runoff rates (cubic feet/second) and volumes (cubic feet) for the 1-inch rainstorm and the 2-year, 10-year, 25-year, and 50-year 24-hour storm events. Similar measures shall be taken to control the post-development runoff volume to infiltrate the groundwater recharge volume GR_V according to the following ratios of Hydrologic Soil Group (HSG) type versus infiltration rate multiplier: HSG-A: 0.4; HSG-B: 0.25; HSG-C: 0.1; HSG-D: 0.00. For sites where infiltration is limited or not practicable, the applicant must demonstrate that the project will not create or contribute to water quality impairment. Infiltration structures shall be in locations with the highest permeability on the site.

x. The design of the stormwater drainage systems shall provide for the disposal of stormwater without flooding or functional impairment to streets, adjacent properties, downstream properties, soils, or vegetation.

xi. The design of the stormwater management systems shall account for upstream and upgradient runoff that flows onto, over, or through the site to be developed or re-developed, and provide for this contribution of runoff.

xii. Whenever practicable, native site vegetation shall be retained, protected, or supplemented. Any stripping of vegetation shall be done in a manner that minimizes soil erosion.

4. Submission Requirements for Stormwater Management Report and Plans.

a. All applications shall include a comprehensive Stormwater Management Plan (SMP). The SMP shall include a narrative description and an Existing Conditions Site Plan showing all pre-development impervious surfaces, buildings and structures; surface water bodies and wetlands; drainage patterns, sub-catchment and watershed boundaries; building setbacks and buffers, locations of various hydrologic group soil types, mature vegetation, land topographic contours with minimum 2-foot intervals and spot grades where necessary for sites that are flat.

b. The SMP shall include a narrative description and a Proposed Conditions Site Plan showing all post-development proposed impervious surfaces, buildings and structures; temporary and permanent stormwater management elements and best management practices (BMP), including BMP GIS coordinates and GIS files; important hydrologic features created or preserved the site; drainage patterns, sub-catchment and watershed boundaries; building setbacks and buffers; proposed tree clearing and topographic contours with minimum 2-foot intervals. The plans shall provide calculations and identification of the total area of disturbance proposed on the site (and off site if applicable) and total area of new impervious surface created. A summary of the drainage analysis showing a comparison of the estimated peak flow and volumes for various design storms (see Table 1.

Stormwater Infrastructure Design Criteria) at each of the outlet locations shall be included.

c. The SMP shall describe the general approach and strategies implemented, and the facts relied upon, to meet the goals of Element A and Element C.: The SWP shall include design plans and/or graphical sketch(es) of all proposed above ground LID practices.

d. The SMP shall include calculations of the change in impervious area, pollution loading and removal volumes for each best management practice, and GIS files containing the coordinates of all stormwater infrastructure elements (e.g. catch basins, swales, detention/bioretention areas, piping).

e. The SMP shall include a description and a proposed Site Plan showing proposed erosion and sediment control measures, limits of disturbance, temporary and permanent soil stabilization measures in accordance with the NHDES Stormwater Manual Volume 3 (most recent version) as well as a construction site inspection plan including phased installation of best management practices and final inspection upon completion of construction.

f. The SMP shall include a long-term stormwater management BMP inspection and maintenance plan (see Element E) that describes the responsible parties and contact information for the qualified individuals who will perform future BMP inspections. The inspection frequency, maintenance and reporting protocols shall be included.

g. The SMP shall describe and identify locations of any proposed deicing chemical and/or snow storage areas. SMP will describe how deicing chemical use will be minimized or used most efficiently.

h. In urbanized areas that are subject to the EPA MS4 Stormwater Permit and will drain to chloride-impaired waters, any new developments and redevelopment projects shall submit a description of measures that will be used to minimize salt usage, and track and report amounts used using the UNH Technology Transfer Center online tool (http://www.roadsalt.unh.edu/Salt/) in accordance with Appendix H of the NH MS4 Permit.

5. General Performance Criteria for Stormwater Management Plans.

a. All applications shall apply site design practices to reduce the generation of stormwater in the post-developed condition, reduce overall impervious surface coverage, seek opportunities to capture and reuse and minimize and discharge of stormwater to the municipal stormwater management system.

b. Low Impact Development (LID) site planning and design strategies must be used to the maximum extent practicable (MEP) to reduce stormwater runoff volume, protect water quality, and maintaining predevelopment site hydrology. An applicant must document in writing why LID strategies are not appropriate when not used to manage stormwater.

c. Water Quality Protection.

i. All stormwater runoff generated from new development or redevelopment

shall not be discharged directly into a jurisdictional wetland or surface water body without adequate treatment.

ii. All developments shall provide adequate management of stormwater runoff and prevent discharge of stormwater runoff from creating or contributing to water quality impairment.

d. Onsite groundwater recharge rates shall be maintained by promoting infiltration through use of structural and non-structural methods. The annual recharge from the post development site shall maintain or exceed the annual recharge from pre-development site conditions. Capture and reuse of stormwater runoff is encouraged in instances where groundwater recharge is limited by site conditions All stormwater management practices shall be designed to convey stormwater to allow for maximum groundwater recharge. This shall include, but not be limited to:

i. Maximizing flow paths from collection points to outflow points.

ii. Use of multiple best management practices.

iii. Retention of and discharge to fully vegetated areas.

iv. Maximizing use of infiltration practices.

v. Stormwater System Design Performance Standards.

e. Stormwater system design, performance standards and protection criteria shall be provided as prescribed in Table 1 below. Calculations shall include sizing of all structures and best management practices, including sizing of emergency overflow structures based on assessment of the 100-year 24-hour frequency storm discharge rate.

f. The sizing and design of stormwater management practices shall utilize new precipitation data from the Northeast Region Climate Center (NRCC) or the most recent precipitation atlas published by the National Oceanic and Atmospheric Administration (NOAA) for the sizing and design of all stormwater management practices. See the NRCC website at http://precip.eas.cornell.edu/.

g. All stormwater management practices involving bioretention and vegetative cover as a key functional component must have a landscaping plan detailing both the type and quantities of plants and vegetation to be in used in the practice and how and who will manage and maintain this vegetation. The use of native plantings appropriate for site conditions is strongly encouraged for these types of stormwater treatment areas. The landscaping plan must be prepared by a registered landscape architect, soil conservation district office, or another qualified professional.

6. Spill Prevention, Control and Countermeasure (SPCC) Plan.

Any existing or otherwise permitted use or activity having regulated substances in amounts greater than five gallons, shall submit to the local official such as Fire Chief, Emergency Response Official a SPCC plan for review and approval. The Plan will include the following elements:

a. Disclosure statements describing the types, quantities, and storage locations of all regulated substances that will be part of the proposed use or activity.
b. Owner and spill response manager's contact information.
c. Location of all surface waters and drainage patterns.
d. A narrative describing the spill prevention practices to be employed when normally using regulated substances.
e. Containment controls, both structural and non-structural.
f. Spill reporting procedures, including a list of municipal personnel or agencies that will be contacted to assist in containing the spill, and the amount of a spill requiring outside assistance and response.
g. Name of a contractor available to assist in spill response, contaminant, and cleanup.
h. The list of available clean-up equipment with instructions available for use on-site and the names of employees with adequate training to implement containment and clean up response.

7. Stormwater Standards for Redevelopment

a. Redevelopment (as applicable to this stormwater regulation) means:
   i. Any construction, alteration, or improvement that disturbs existing impervious area (including demolition and removal of road/parking lot materials down to the erodible subbase) or expands existing impervious cover by any amount, where the existing land use is commercial, industrial, institutional, governmental, recreational, or multifamily residential.
   ii. Any redevelopment activity that results in improvements with no increase in impervious area shall be considered redevelopment activity under this regulation if capital cost of improvements is greater than 30% of the appraised property value.
   iii. Any new impervious area over portions of a site that are currently pervious.

   The following activities are not considered redevelopment:
   - Interior and exterior building renovation.
   - Resurfacing of an existing paved surface (e.g. parking lot, walkway or roadway).
   - Pavement excavation and patching that is incidental to the primary project purpose, such as replacement of a collapsed storm drain.

b. Redevelopment applications shall comply with the requirements of Sections F.4 Submission Requirements for Stormwater Management Report and Plans, F.5 General Performance Criteria for Stormwater Management Plans, and F.6 Spill Prevention, Control and Countermeasure (SPCC) Plan.
c. For sites meeting the definition of a redevelopment project and having less than 40% existing impervious surface coverage, the stormwater management requirements will be the same as other new development projects**.** The applicant must satisfactorily demonstrate that impervious area is minimized, and LID

practices have been implemented on-site to the maximum extent practicable.

d. For sites meeting the definition of a redevelopment project and having more than 60% existing impervious surface area, stormwater shall be managed for water quality in accordance with one or more of the following techniques, listed in order of preference:

   i. Implement measures onsite that result in disconnection or treatment of 100% of the additional proposed impervious surface area and at least 30% of the existing impervious area and pavement areas, preferably using filtration and/or infiltration practices.

   ii. If resulting in greater overall water quality improvement on the site, implement LID practices to the maximum extent practicable to provide treatment of runoff generated from at least 60% of the entire developed site area.~~5~~

e. Runoff from impervious surfaces shall be treated to achieve at least 80% removal of Total Suspended Solids and at least 60% removal of both total nitrogen and total phosphorus using appropriate treatment measures, as specified in the NH Stormwater Manual. Volumes 1 and 2, December 2008, as amended (refer to Volume 2, page 6, Table 2.1 Summary of Design Criteria, Water Quality Volume for treatment criteria) or other equivalent means. Where practical, the use of natural, vegetated filtration and/or infiltration practices or subsurface gravel wetlands for water quality treatment is preferred given its relatively high nitrogen removal efficiency. All new impervious area draining to surface waters impaired by nitrogen, phosphorus or nutrients shall be treated with stormwater BMP's designed to optimize pollutant removal efficiencies based on design standards and performance data published by the UNH Stormwater Center and/or included in the latest version of the NH Stormwater Manual. Note: The Anti-Degradation provisions of the State Water Quality Standards require that runoff from development shall not contribute additional pollutant loads to existing water body impairments.

f. Runoff shall not be discharged from a redevelopment site to municipal drainage systems or privately owned drainage systems (whether enclosed or open drainage) or to surface water bodies and wetlands in volumes greater than discharged under existing conditions (developed condition or undeveloped condition).

8. Stormwater Management Plan and Site Inspections

a. The applicant shall provide that all stormwater management and treatment practices have an enforceable operations and maintenance plan and agreement to ensure the system functions as designed. This agreement will include all maintenance easements required to access and inspect the stormwater treatment practices, and to perform routine maintenance as necessary to ensure proper functioning of the stormwater system. The operations and maintenance plan shall specify the parties responsible for the proper maintenance of all stormwater treatment practices. The operations and maintenance shall be provided to the Planning Board as part of the application prior to issuance of any local permits for

land disturbance and construction activities.

b. The applicant shall provide legally binding documents for filing with the registry of deeds which demonstrate that the obligation for maintenance of stormwater best management practices and infrastructure runs with the land and that the Town has legal access to inspect the property to ensure their proper function or maintain onsite stormwater infrastructure when necessary to address emergency situations or conditions.

c. The property owner shall bear responsibility for the installation, construction, inspection, and maintenance of all stormwater management and erosion control measures required by the provisions of these regulations and as approved by the Planning Board, including emergency repairs completed by the town.

9. Stormwater Management Plan Recordation

a. Stormwater management and sediment and erosion control plans shall be incorporated as part of any approved site plan. A Notice of Decision acknowledging the Planning Board approval of these plans shall be recorded at the Registry of Deeds. The Notice of Decision shall be referenced to the property deed (title/book/page number) and apply to all persons that may acquire any property subject to the approved stormwater management and sediment control plans. The Notice of Decision shall reference the requirements for maintenance pursuant to the stormwater management and erosion and sediment control plans as approved by the Planning Board.

b. The applicant shall submit as-built drawings of the constructed stormwater management system following construction.

10. Inspection and Maintenance Responsibility

a. Municipal staff or their designated agent shall have site access to complete routine inspections to ensure compliance with the approved stormwater management and sediment and erosion control plans. Such inspections shall be performed at a time agreed upon with the landowner.

i. If permission to inspect is denied by the landowner, municipal staff or their designated agent shall secure an administrative inspection warrant from the district or superior court under RSA 595-B Administrative Inspection Warrants. Expenses associated with inspections shall be the responsibility of the applicant/property owner.

ii. If violations or non-compliance with a condition(s) of approval are found on the site during routine inspections, the inspector (town engineer or other qualified agent of the town) shall provide a report to the Planning Board documenting these violations or non-compliance including recommend corrective actions. The Planning Board shall notify the property owner in writing of these violations or non-compliance and corrective actions necessary to bring the property into full compliance with the approved site plan (RSA 674:43 Power to Review Site Plans and 674:44 Site Plan Review Regulations). The Planning Board, at their discretion, may recommend to the Board of Selectmen to issue a stop work order if corrective actions are not

completed within 10 days.

iii. If corrective actions are not completed within a period of 30 days from the Planning Board or Board notification, the Planning Board may exercise their jurisdiction under RSA 676:4-a Revocation of Recorded Approval.

b. The applicant shall bear final responsibility for the installation, construction, inspection, and disposition of all stormwater management and erosion control measures required by the Planning Board. Site development shall not begin before the Stormwater Management Plan receives written approval by the Planning Board.

c. The municipality retains the right, though accepts no responsibility, to repair or maintain stormwater infrastructure if: a property is abandoned or becomes vacant; and in the event a property owner refuses to repair infrastructure that is damaged or is not functioning properly.

G. Illumination:

1. Outdoor lighting shall not glare on abutting properties or on public highways or streets.

2. Indirect lighting should be used on signs advertising goods or services offered on the premises. Moving, fluttering, blinking or flashing lights or signs are not permitted.

3. Outdoor lighting is restricted to that which is necessary for advertising and security of the development.

H. Access to Public Streets:

1. Access to public streets will meet the requirements of the New Hampshire Department of Transportation and/or the Town of Sandown as adopted and amended.

   The Planning Board may stipulate, as a condition precedent to the approval of the plat, the extent to which and the manner in which streets shall be graded and improved and to which water, sewer and other utility mains, piping, connections, or other facilities shall be required to be installed. Applicants shall be required to improve the roadway that fronts along their property, and/or a proportionate share of access roads leading to their property, in accordance with the New Hampshire Department of Public Works and Highways (now Department of Transportation) “Geometric & Structural Guides for Local Roads and Streets” dated January, 1984 (Appendix 9) and the Town of Sandown ordinances and regulations. This requirement applies to both Town and State highways (reference (Appendix 8). (Amended 4/16/91)

The proportionate share for both Town and State roads will be calculated in accordance with the method shown in Appendix 8. The calculation method may be adjusted by the Planning Board in particular cases where the configuration and/or size of; the proposed development would render strict application of the stated method unreasonable. In such cases, the Planning Board shall state, on the record, the particular and unique characteristics of the development that warrant the adjustment. (Amended 4/16/91)

2. Where possible, each site shall have only one driveway entrance; any additional entrances must be justified by the applicant. (Amended 12/19/89)

   a. Water supply and sewage disposal systems must be designed to adequately meet the needs of the proposed use under the regulations of the New Hampshire Water Supply and Pollution Control Commission and/or the Town of Sandown Subdivision Regulations. In areas not currently served by public sewers, it shall be the responsibility of the developer or his or her agent to provide adequate information to prove that the area of the lot is adequate to permit the installation and operation of an individual sewage disposal system (septic tank and tile field). The developer shall be required to provide the necessary percolation tests and submit such tests together with the proposed plan to the State of New Hampshire Water Supply and Pollution Control Commission for its consideration and approval. Such approval must be obtained before site plan approval can be given.

I. The Town Engineer, or in the absence of a Town Engineer, a registered engineer hired by the Town shall inspect all site improvements. The developer shall pay the cost of the Board's employment of said engineer and the cost of any inspection(s) and test(s) deemed necessary by the Board or the engineer. A letter certifying to the developer's concurrence to the employment of said engineer shall be filed with the Board as part of the site plan review. Engineer is defined as the duly designated engineer of the Town of Sandown, or other official, assigned by the Planning Board, who shall be a duly registered engineer.

J. The Planning Board may waive any requirements listed in the Site Plan Review Regulations, if it determines that such regulation does not apply to the proposed development.

K. The Planning Board may require that a performance bond, the amount to be determined by the Planning Board, in the form of a passbook savings deposit or a bond, be posted by the developer and held by the Town until the Town is satisfied that all conditions of the site plan approval and any other pertinent zoning ordinance(s), subdivision regulation(s) and building regulation(s) have been met. The bond may be released in part when the project is substantially completed, as determined by the Selectmen.

Additionally, for out-of-state banks, the following sentences shall be an integral part of the irrevocable letter of credit. "_____ (bank) hereby consents to the jurisdiction of the New Hampshire Court System for adjudication of any dispute arising form this letter of credit, and agrees that such litigation shall be maintained in the Rockingham County Superior Court. The parties agree that his letter of credit shall be interpreted under New Hampshire law." (Amended 12/19/89)

The applicant shall be required to submit three (3) copies of the "Street Improvement Guarantee Summary Sheet " prior to the Planning Board's acceptance of the bond amount. (Reference Appendix 4). (Amended 4/16/91)

L. At the discretion of the Planning Board, a hydrogeologic study, prepared by a qualified hydrogeologist, may include the following:

1. Groundwater monitoring wells to evaluate soil stratigraphy and groundwater flow;

2. Cumulative impact nitrogen loading analysis employing a saturation build-out model. The analysis shall include verification that the development will not cause the nitrate-nitrogen (NO3-N) concentration in the groundwater to exceed applicable drinking water standards (10mg/1 at present) or other appropriate water quality limitation;

3. Permeability testing;

4. Water quality sampling and analysis;

5. Water table contours and groundwater flow direction;

6. Phosphorus transport and breakthrough analysis;

7. Groundwater supply availability analysis; and

8. Groundwater mounding analysis beneath septic systems. (Adopted 12/19/89)

M. Once site plan approval has been obtained, the Site Plan Map, which shows, at a minimum, lot lines and proposed construction, roads, and other improvements, and Planning Board approval, must be recorded with the Registry of Deeds. Should the approval be subject to conditions, not apparent on the face of the map, such conditions shall be recorded as well with reference made to such recording on the face of the map.

APPLICATION FOR SITE PLAN REVIEW

(Appendix 1)

NOTE: See Section IV and Site Plan Application Checklist (Appendix 2) for required information.

1. Name, mailing address and telephone number of applicant (s)

   _____

   _____

   _____

2. Name, mailing address and telephone number of owner of record if other than applicant

3. _____

4. _____

5. _____

6. Location of proposed site plan _____

7. Town of Sandown Tax Map _____ Lot Number _____

8. Name of proposed site plan_____

9. Number of dwelling units for which approval is sought_____

10. Floor area if non-residential_____

11. Type(s) of buildings proposed in the site plan: (Check one or more than one)

    _____ Non-residential _____Multi-family

12. Name, mailing address and telephone number of surveyor and/or agent

    _____

    _____

13. Name, mailing address and telephone number of soil scientists

    _____

    _____

14. Abutters: Attach a separate sheet listing the Town of Sandown Tax Map, Lot number, name and mailing address of all abutters, including those across a street, brook, or stream. Names should be those of current owners as recorded in the Town of Sandown Tax records five (5) days prior to submission of this application.

15. Attach three (3) copies of the (Amended April, 1991) "Street Improvement Guarantee Work Sheet," (reference Appendix 3) properly filled out by the developer's engineer. Note Well: The Town Engineer is not responsible for figuring the road costs. Any incomplete or improperly filled out sheets shall be returned to the developer, and this may result in a delay in the Site Plan approval. All questions concerning this bond (Appendix 5) should be directed to the Board, not the Town Engineer. If the developer is required to improve portions of existing Town roads, a separate bond for those improvements must be prepared. (Appendix 8)

16. Note Well: No Site Plan hearing shall be scheduled for the next month's meeting unless the following is submitted to the Town Hall before the fourth Wednesday of the preceding month: (Amended 11/19/91)

    a. This application, correctly completed with the required attachments.(Appendix 2)
    b. Mylar and eight (8) copies of the final plan, including all pertinent information as required by the Site Plan Regulations, Sections IV and V.
    c. Updated road profile, if applicable (8 copies).
    d. Any additional information requested by the Board at a previous hearing necessary for final approval. (List below)

    _____

    _____

14. Fees (Amended December 7, 2010)(Amended December 2012)

Each lot/parcel or dwelling unit	$ 50.00
Application fee	$150.00
Handling Fee	$ 20.00
Abutter Notification ($10.00/each)	$_____
Amount Due: (Make check payable to "Town of Sandown, NH")	**$_____**
Proposed Road (per foot) _____ (Maximum of $4,000)	$_____
Advertising/posting costs	$200.00
For Site Plans without proposed roads, any engineering or professional costs.	$1,000.00
Recording Fees: $40 per plan sheet to be recorded, plus a separate check in the amount of $25.00 payable to the "Rockingham County Registry of Deeds" to cover the State's LCHIP surcharge fee collected by the Registry at the time of recording	$_____
Amount Due: (Make check payable to "Sandown PREA") (Amended October, 2002)	**$_____**

The applicant and/or owner, or agent, certifies that this application is correctly completed with all required attachments and requirements as stated in Appendix 2 of this application, have been met, and that any additional costs for engineering or professional services incurred by the Sandown Planning Board or the Town of Sandown in the Site Plan review process of this property shall be borne by the applicant and/or owner.

_____ _____

Applicant and/or Owner, or Agent Date

"I hereby authorize the Sandown Planning Board and its agents to access my land for the purposes of reviewing this subdivision plan, performing road inspections and any other inspections deemed necessary by the Board or its agents, to insure conformance of the on-site improvements with the approved plan and all Town of Sandown ordinances and regulations."
(Adopted November 1986)

_____ _____

Applicant and/or Owner, or Agent Date

SITE PLAN APPLICATION CHECKLIST

(Appendix 2)

Name of Applicant:_____

Location of Property:_____

Name of Site Plan:_____

In order to be complete, a Site Plan application shall contain the following information, where applicable:

_____ List of abutters and addresses: current, based on Town record, five days Prior to application submission. In addition, applicant shall submit, for each abutter, applicant and owner, a correctly addressed business envelope with: 1). Correct postage affixed (Postage stamp – do not meter); 2). A completed green return certified mail return receipt (form 3811); and 3). A completed white certified mail return receipt (form 3800) (Reference Appendix 6).

_____ Eight (8) copies of the plat (plan) showing the following, where applicable:

	Current Owner' s Name & Address		Location of water courses, standing water or fire ponds
	Option Holder's Name & Address		Location of ledges, stone walls & other natural features
	Surveyor Name, Address & signed stamp		Other essential features
	North Arrow		Topographical Map (2 ft. Intervals) Existing & proposed
	Scale (not more than 100 feet to the inch)		Edges of wetlands and brooks
	Date		Drainage calculations
	Location (Locus) Map		Location of test pits and test pit logs
	Tax map and parcel number		Common and dedicated land
	Location & dimension of property lines including entire undivided lots		All development phases must be included showing sketches of prospective street systems
	Abutting subdivision names, streets, easements, building lines, parks & public areas, & similar facts regarding abutting properties		Profiles of all proposed streets to include open water ways, water mains, storm sewers, culverts on a horizontal scale of 1"= 50' & vertical scale of 1" = 10'
	Proposed driveway locations		Access locations to existing town & state highways
	Location of existing & proposed easements or rights-of way; utility, slope and/or drainage		Title Block (See Appendix 7)

	Location of existing buildings		Name, width, class & location of existing & proposed streets
	Location of existing & proposed sewer & water lines and utilities		Drainage control: existing culverts & drains and proposed methods of providing surface drainage including sizes & types or classes of all pipes
	Name, width, class & location of existing & proposed streets		HIS Map overlay with 5 digit nomenclature (by soil scientist certified by the NH Board of Natural Scientists) (Amended 4/16/91) showing soil types, slopes & calculations
	All building and setback lines		Cross section of all proposed streets & driveways showing existing & proposed grades
	Conservation District Review Authorization Form signed		Construction Plan
	Copies of all applicable permits and applications for permits		Mylar
	Drainage information (three (3) copies)		Certification by the surveyor that the field work undertaken in the preparation of the final plan has an error of closure no greater than 1 part in 10,000
	Street plan and profile		Road profile
	Approval block for Planning Board endorsement		Two copies of the "Street Improvement Guarantee Worksheet" (Amended 4/16/91)
	Completed checklist with justification/explanation for any omissions		Base Flood Elevation (BFE) Data

"Reasonable fees in addition to fees for notice…may be imposed by the Board to cover its administrative expenses and costs of special investigative studies, review of documents and other matters which may be required by particular applications." (RSA 676:4 (g)

The following items may also be required by the Planning Board before final approval is granted:

_____ Erosion and sediment control plans

_____ Traffic Impact Analysis

_____ Environmental Impact Studies

_____ NH Wetlands Board Dredge & Fill Permit

_____ Driveway Access Permits

_____ NH WS & PCC Major Alternation Permit (149:8-a)

_____ Construction and Maintenance Bonding

_____ Town Engineer Review of Proposal

_____ Miscellaneous Engineering Studies

STORMWATER MANAGEMENT CHECKLIST
(Appendix 3) *(Adopted October 17, 2017)*

Applicant Name: _____

Property Address: _____

Map: _____ Lot: _____

_____ New Development Project _____ Redevelopment Project

SECTION	STORMWATER STANDARDS	COMMENTS/PLAN SHEET #	YES/NO
F.2.	**Minimum Threshold for Applicability – Report Proposed Area of Disturbance (square feet and/or acres)**		
	The post-construction stormwater management standards apply to any development or redevelopment project which are subject to Site Plan Review and disturbs more than 10,000 square feet or disturbs more than 2,500 square feet within 100 feet of a surface water body (e.g. lake, pond, stream or river). For sites that disturb less than 10,000 square feet the Planning Board may grant an exception if the amount of the total NEW site impervious cover does not exceed 1,000 square feet and the criteria in F.2.b. are fully met.	*Eligible for Exemption?*	
	All runoff from new impervious surfaces and structures shall be directed to a subsurface filtration and/or infiltration device or properly discharged to a naturally occurring or fully replanted and vegetated area with slopes of 15 percent or less and with adequate controls to prevent soil erosion and concentrated flow.	Standards a-d met?	
	Impervious surfaces for parking areas and roads shall be minimized to the extent possible (including minimum parking requirements for proposed uses).		
	All runoff generated from new impervious surfaces shall be retained on the development site and property.		
	All runoff from new impervious surfaces and structures shall be directed to a subsurface filtration and/or infiltration device or properly discharged to a naturally occurring or fully replanted and vegetated area with slopes of 15 percent or less and with adequate controls to prevent soil erosion and concentrated flow.		
	Impervious surfaces for parking areas and roads shall be minimized to the extent possible (including minimum parking requirements for proposed uses).		
	All runoff generated from new impervious surfaces shall be retained on the development site and property.		
F.3	**Stormwater Standards for New Development**		
	SWM practices shall be located outside any specified		

	buffer zones; stream and wetland crossings are minimized		
	Low Impact Development (LID) site planning and design strategies are used to the maximum extent practicable.	If not why?	
	Treatment areas shall be planted with native plantings appropriate for the site conditions: trees, grasses, shrubs and/or other native plants in sufficient numbers and density to prevent soil erosion and to achieve the water quality treatment requirements		
.	Installations and areas that receive rainfall runoff must be designed to drain within a maximum of 72 hours		
	Salt storage areas shall be fully covered with permanent or semi-permanent measures. Loading/offloading areas are located and designed to not drain directly to receiving waters and maintained with good housekeeping measures.		
	Provide treatment for discharge or filtration areas and/or capture and reuse runoff onsite.		
	Discharge off-site in volumes no greater than discharged under existing conditions (developed condition or undeveloped condition).		
	Runoff from impervious surfaces shall be treated to achieve at least 80% removal of Total Suspended Solids and at least 60% removal of both total nitrogen and total phosphorus.		
	Control the post-development peak rate runoff so that it does not exceed pre-development runoff.		
	Provide for the disposal of stormwater without flooding or functional impairment to streets, adjacent properties, downstream properties, soils, or vegetation.		
	Accounted for upstream and upgradient runoff that flows onto, over, or through the site to be developed or re-developed.		
	Whenever practicable, native site vegetation retained, protected, or supplemented. Any stripping of vegetation done to minimize soil erosion.		
F.4.	**Submission Requirements for Stormwater Management Report and Plans**		
	Comprehensive Stormwater Management Plan (SMP) with a narrative description for the Existing Conditions Site Plan and Proposed Conditions Plan. SMP shall include a comprehensive Stormwater Management plan (SMP) showing all pre-development surficial and hydrologic features and conditions.		
	SMP shall include a narrative description and a Proposed Conditions Site Plan showing all post-development proposed engineered, surficial and hydrologic conditions.		
	The SMP shall describe the general approach and strategies implemented, and the facts relied upon, to meet the goals of Element A and Element C.: The SWP shall include design plans and/or graphical sketch(es) of all proposed above ground LID practices.		
	The SMP shall include calculations of the change in impervious area, pollution loading and removal volumes for each best management practice, and GIS files		

	containing the coordinates of all stormwater infrastructure elements (e.g. catch basins, swales, detention/bioretention areas, piping).		
	SMP shall include a description and a proposed Site Plan showing proposed erosion and sediment control measures, limits of disturbance, temporary and permanent soil stabilization measures in accordance with the NHDES Stormwater Manual Volume 3 (most recent version) as well as a construction site inspection plan including phased installation of best management practices and final inspection upon completion of construction.		
	SMP shall include a long-term stormwater management BMP inspection and maintenance plan (see Element E) that describes the responsible parties and contact information for the qualified individuals who will perform future BMP inspections. The inspection frequency, maintenance and reporting protocols shall be included.		
	SMP shall describe and identify locations of any proposed deicing chemical and/or snow storage areas. SMP will describe how deicing chemical use will be minimized or used most efficiently.		
	In urbanized areas that are subject to the EPA MS4 Stormwater Permit and will drain to chloride-impaired waters, any new developments and redevelopment projects shall submit a description of measures that will be used to minimize salt usage, and track and report amounts used using the UNH Technology Transfer Center online tool (http://www.roadsalt.unh.edu/Salt/) in accordance with Appendix H of the NH MS4 Permit.		
F.5.	**General Performance Criteria for Stormwater Management Plans**		
	All applications shall apply site design practices to reduce the generation of stormwater in the post-developed condition, reduce overall impervious surface coverage, seek opportunities to capture and reuse and minimize and discharge of stormwater to the municipal stormwater management system.		
	Low Impact Development (LID) site planning and design strategies must be used to the maximum extent practicable (MEP) to reduce stormwater runoff volume, protect water quality, and maintaining predevelopment site hydrology. An applicant must document in writing why LID strategies are not appropriate when not used to manage stormwater.		
	Water Quality Protection. All stormwater runoff generated from new development or redevelopment shall not be discharged directly into a jurisdictional wetland or surface water body without adequate treatment. All developments shall provide adequate management of stormwater runoff and prevent discharge of stormwater runoff from creating or contributing to water quality impairment.		

	Onsite groundwater recharge rates shall be maintained by promoting infiltration through use of structural and non-structural methods. The annual recharge from the post development site shall maintain or exceed the annual recharge from pre-development site conditions. All stormwater management practices shall be designed to convey stormwater to allow for maximum groundwater recharge (and capture and reuse of stormwater runoff). This shall include, but not be limited to: i. Maximizing flow paths from collection points to outflow points. ii. Use of multiple best management practices. iii. Retention of and discharge to fully vegetated areas. iv. Maximizing use of infiltration practices. v. Stormwater System Design Performance Standards.		
.	Stormwater system design, performance standards and protection criteria shall be provided as prescribed in Table 1 below. Calculations shall include sizing of all structures and best management practices, including sizing of emergency overflow structures based on assessment of the 100-year 24-hour frequency storm discharge rate.		
	Sizing and design of stormwater management practices shall utilize new precipitation data from the Northeast Region Climate Center (NRCC) or the most recent precipitation atlas published by the National Oceanic and Atmospheric Administration (NOAA) for the sizing and design of all stormwater management practices. See the NRCC website at http://precip.eas.cornell.edu/.		
	Stormwater management practices involving bioretention and vegetative cover as a key functional component must have a landscaping plan detailing both the type and quantities of plants and vegetation to be in used in the practice and how and who will manage and maintain this vegetation (native plantings preferred). Landscaping plan must be prepared by a registered landscape architect, soil conservation district office, or another qualified professional.		
F.6.	**Spill Prevention, Control and Countermeasures (SPCC) Plan**		
	Disclosure statements describing the types, quantities, and storage locations of all regulated substances that will be part of the proposed use or activity.		
	Owner and spill response manager's contact information.		
	Location of all surface waters and drainage patterns.		
	A narrative describing the spill prevention practices to be employed when normally using regulated substances.		
	Containment controls, both structural and non-structural.		
	Spill reporting procedures, including a list of municipal personnel or agencies that will be contacted to assist in containing the spill, and the amount of a spill requiring outside assistance and response.		

	Name of a contractor available to assist in spill response, contaminant, and cleanup.		
	The list of available clean-up equipment with instructions available for use on-site and the names of employees with adequate training to implement containment and clean up response.		
F.7.	**Stormwater Standards for Redevelopment**		
	Redevelopment (as applicable to this stormwater regulation) means: a. Any construction, alteration, or improvement that disturbs existing impervious area (including demolition and removal of road/parking lot materials down to the erodible subbase) or expands existing impervious cover by any amount, where the existing land use is commercial, industrial, institutional, governmental, recreational, or multifamily residential. b. Any redevelopment activity that results in improvements with no increase in impervious area shall be considered redevelopment activity under this regulation if capital cost of improvements is greater than 30% of the appraised property value. c. Any new impervious area over portions of a site that are currently pervious. The following activities are not considered redevelopment: ▪ Interior and exterior building renovation. ▪ Resurfacing of an existing paved surface (e.g. parking lot, walkway or roadway). ▪ Pavement excavation and patching that is incidental to the primary project purpose, such as replacement of a collapsed storm drain.		
	Redevelopment applications shall comply with the requirements of Sections C.2 Submission Requirements for Stormwater Management Report and Plans, C.3 General Performance Criteria for Stormwater Management Plans, and C.4 Spill Prevention, Control and Countermeasure (SPCC) Plan.		
	For sites meeting the definition of a redevelopment project and having less than 40% existing impervious surface coverage, the stormwater management requirements will be the same as other new development projects**.** The applicant must satisfactorily demonstrate that impervious area is minimized, and LID practices have been implemented on-site to the maximum extent practicable.		
	For sites meeting the definition of a redevelopment project and having more than 60% existing impervious surface area, stormwater shall be managed for water quality in		

	accordance with one or more of the following techniques, listed in order of preference: a. Implement measures onsite that result in disconnection or treatment of 100% of the additional proposed impervious surface area and at least 30% of the existing impervious area and pavement areas, preferably using filtration and/or infiltration practices. b. If resulting in greater overall water quality improvement on the site, implement LID practices to the maximum extent practicable to provide treatment of runoff generated from at least 60% of the entire developed site area.		
	Runoff from impervious surfaces shall be treated to achieve at least 80% removal of Total Suspended Solids and at least 60% removal of both total nitrogen and total phosphorus using appropriate treatment measures, as specified in the NH Stormwater Manual. Volumes 1 and 2, December 2008, as amended (refer to Volume 2, page 6, Table 2.1 Summary of Design Criteria, Water Quality Volume for treatment criteria) or other equivalent means. Where practical, the use of natural, vegetated filtration and/or infiltration practices or subsurface gravel wetlands for water quality treatment is preferred given its relatively high nitrogen removal efficiency. All new impervious area draining to surface waters impaired by nitrogen, phosphorus or nutrients shall be treated with stormwater BMP's designed to optimize pollutant removal efficiencies based on design standards and performance data published by the UNH Stormwater Center and/or included in the latest version of the NH Stormwater Manual. Note: The Anti-Degradation provisions of the State Water Quality Standards require that runoff from development shall not contribute additional pollutant loads to existing water body impairments.		
	Runoff shall not be discharged from a redevelopment site to municipal drainage systems or privately owned drainage systems (whether enclosed or open drainage) or to surface water bodies and wetlands in volumes greater than discharged under existing conditions (developed condition or undeveloped condition).		
F.8.	**Stormwater Management Plan and Site Inspections**		
	The applicant shall provide that all stormwater management and treatment practices have an enforceable operations and maintenance plan and agreement to ensure the system functions as designed. This agreement will include all maintenance easements required to access and inspect the stormwater treatment practices, and to perform routine maintenance as necessary to ensure proper functioning of the stormwater system. The operations and maintenance plan shall specify the parties responsible for the proper maintenance of all stormwater treatment practices. The operations and maintenance shall be provided to the Planning Board as part of the application		

	prior to issuance of any local permits for land disturbance and construction activities.		
	The applicant shall provide legally binding documents for filing with the registry of deeds which demonstrate that the obligation for maintenance of stormwater best management practices and infrastructure runs with the land and that the Town has legal access to inspect the property to ensure their proper function or maintain onsite stormwater infrastructure when necessary to address emergency situations or conditions.		
	The property owner shall bear responsibility for the installation, construction, inspection, and maintenance of all stormwater management and erosion control measures required by the provisions of these regulations and as approved by the Planning Board, including emergency repairs completed by the town.		
	Stormwater management and sediment and erosion control plans shall be incorporated as part of any approved site plan. A Notice of Decision acknowledging the Planning Board approval of these plans shall be recorded at the Registry of Deeds. The Notice of Decision shall be referenced to the property deed (title/book/page number) and apply to all persons that may acquire any property subject to the approved stormwater management and sediment control plans. The Notice of Decision shall reference the requirements for maintenance pursuant to the stormwater management and erosion and sediment control plans as approved by the Planning Board.		
	The applicant shall submit as-built drawings of the constructed stormwater management system following construction. {The EPA MS4 permit specifically includes this requirement – may be considered optional for other communities.}		
F.10.	**Inspection and Maintenance Responsibility**		
	Municipal staff or their designated agent shall have site access to complete routine inspections to ensure compliance with the approved stormwater management and sediment and erosion control plans. Such inspections shall be performed at a time agreed upon with the landowner. a. If permission to inspect is denied by the landowner, municipal staff or their designated agent shall secure an administrative inspection warrant from the district or superior court under RSA 595-B Administrative Inspection Warrants. Expenses associated with inspections shall be the responsibility of the applicant/property owner. b. If violations or non-compliance with a condition(s) of approval are found on the site during routine inspections, the inspector (town engineer or other qualified agent of the town) shall provide a report to the Planning Board documenting these violations or non-compliance including recommend corrective actions. The Planning Board shall notify the property owner in writing of these violations or non-compliance and		

	corrective actions necessary to bring the property into full compliance with the approved site plan (RSA 674:43 Power to Review Site Plans and 674:44 Site Plan Review Regulations). The Planning Board, at their discretion, may recommend to the Board of Selectmen to issue a stop work order if corrective actions are not completed within 10 days. c. If corrective actions are not completed within a period of 30 days from the Planning Board or Board notification, the Planning Board may exercise their jurisdiction under RSA 676:4-a Revocation of Recorded Approval.		
	The applicant shall bear final responsibility for the installation, construction, inspection, and disposition of all stormwater management and erosion control measures required by the Planning Board. Site development shall not begin before the Stormwater Management Plan receives written approval by the Planning Board.		
	The municipality retains the right, though accepts no responsibility, to repair or maintain stormwater infrastructure if: a property is abandoned or becomes vacant; and in the event a property owner refuses to repair infrastructure that is damaged or is not functioning properly.		

STORMWATER MANAGEMENT RULES AND REGULATIONS
Appendix A

Sandown Site Plan Review Regulations

1.0 Purpose

The purpose of these stormwater regulations is to protect the Town of Sandown's waterbodies and groundwater and to safeguard the public health, safety, welfare and the environment by establishing minimum requirements and procedures to control the adverse effects of increased post-development stormwater runoff, decreased groundwater recharge, and nonpoint source pollution associated with new development, as more specifically addressed in Stormwater Management Ordinance of the Town of Sandown. Increased and contaminated stormwater runoff associated with construction sites, developed land uses and the accompanying increase in impervious surface are major causes of impairment of water quality and flow in lakes, ponds, streams, rivers, wetlands and groundwater.

2.0 Authority

The Sandown Planning Board, under the authority of Stormwater Management Ordinance (Article VII-Part B of Sandown Zoning Ordinance), adopts these Stormwater Management Rules and Regulations. These stormwater regulations may be periodically amended by the Planning Board in accordance with the procedures outlined in the Sandown Stormwater Management Ordinance.

3.0 Administration

A. The Planning Board shall administer, implement and enforce these regulations.

B. The Planning Board may designate by mutual agreement another Town board, commission, or department, including but not limited to the Planning Board, Building Department, Conservation Commission, Board of Health, and/or Department of Public Works, as its authorized agent or designee for the purposes of permit approval, site inspections of the stormwater management system, erosion and sediment controls, or long-term site inspections.

C. Town boards or departments, including, but not limited to the Conservation Commission, Planning Board, Department of Public Works, Building Department, Board of Health, and any other applicable Town board or department may formally adopt these regulations, or specific sections of these regulations, either directly or by reference.

4.0 Definitions

For the purposes of these rules and regulations, the following shall mean:

ABUTTER: Owners of land directly adjacent to property lines of the applicant and owners of land directly opposite on any public or private street or way, as they appear on the most recent tax list, notwithstanding that the land is located in another City of Town.

APPLICANT: Any person, individual, partnership, association, firm, company, corporation, trust, authority, agency, department, or political subdivision, of the State of New Hampshire or the federal government to the extent permitted by law requesting a soil erosion and sediment control permit for proposed land-disturbance activity.

ASSESSOR: Town of Sandown Town Assessor's office and/or Assessor.

BEST MANAGEMENT PRACTICE (BMP): Physical, structural, and/or managerial practices that, when used singly or in combination, prevent or reduce pollution of water, that have been approved by the Town of Sandown, and that have been incorporated by reference into the Stormwater Regulations as if fully set out therein.

CERTIFICATE OF COMPLETION: Document issued by the Planning Board upon receipt of a final inspection report and acknowledgement that all conditions of the Stormwater Management Permit have been satisfactorily completed.

CLEARING: Any activity that removes vegetative surface cover.

CONSTRUCTION WASTE AND MATERIALS: Excess or discarded building or site materials, including but not limited to concrete truck washout, chemicals, litter and sanitary waste at a construction site that may adversely impact water quality.

DISCHARGE OF POLLUTANTS: The addition from any source of any pollutant or combination of pollutants into the municipal storm drain system or into the waters of the United States or State of New Hampshire from any source.

DISTURBANCE OF LAND: Any action that causes a change in the position, location, or arrangement of soil, sand, rock, gravel or similar earth material.

EROSION: The wearing away of the land surface by natural or artificial forces such as wind, water, ice, gravity, or vehicle traffic and the subsequent detachment and transportation of soil particles.

EROSION AND SEDIMENT CONTROL PLAN: A document containing narrative, drawings, and details developed by a registered professional engineer (P.E.) or CPESC, which includes BMPs, or equivalent measures designed to control surface runoff, erosion, and sedimentation during pre-construction and construction-related land disturbance activities.

GRADING: Changing the level or shape of the ground surface.

GROUNDWATER: Water beneath the surface of the ground including confined or unconfined aquifers.

GRUBBING: The act of clearing land surface by digging up roots and stumps.

IMPERVIOUS SURFACE: Any material or structure on or above the ground that prevents or delays water from infiltrating the underlying soil, or causes water to runoff in greater quantities or at an increased rate of flow. Impervious surfaces include, but are not limited to, roads, driveways, parking lots, sidewalks, rooftops, patios, storage areas, concrete or asphalt paving, and gravel/dense-graded crushed stone areas.

LAND DISTURBING ACTIVITY: Any activity on property that results in a change in the existing soil cover (both vegetative and non-vegetative) and/or the existing soil topography. Land-disturbing activities include. but are not limited to, development, re-development, demolition, construction, reconstruction, clearing, grading, filling and excavation.

LOW IMPACT DEVELOPMENT (LID): An approach to land development design and stormwater management that attempts to mimic the natural hydrology of the site by avoiding, reducing, and mitigating impacts with natural, non-structural and structural measures.

LAND DISTURBING ACTIVITY: Any activity on property that results in a change in the existing soil cover (both vegetative and non-vegetative) and/or the existing soil topography. Land-disturbing activities include. but are not limited to, development, re-development, demolition, construction, reconstruction, clearing, grading, filling and excavation.

MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) or MUNICIPAL STORM DRAIN SYSTEM: The system of conveyances designed or used for collecting or conveying stormwater, including any road with a drainage system, street, gutter, curb, inlet, piped storm drain, pumping facility, retention or detention basin, natural or man-made or altered drainage channel, reservoir, and other drainage structure that together comprise the storm drainage system owned or operated by the Town of Sandown, NH.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STORMWATER DISCHARGE PERMIT: A permit issued by the EPA or jointly with the State of New Hampshire that authorizes the discharge of stormwater to waters of the Unites States.

NEW DEVELOPMENT: Any construction, land alteration, or improvement of a site or structure with less than 40 percent existing impervious surface, calculated by

dividing the total existing impervious surface by the size of the parcel and convert to a percentage.

OPERATION AND MAINTENANCE PLAN: A plan setting up the functional, financial and organizational mechanisms for the ongoing operation and maintenance of a stormwater management system to ensure that it continues to function as designed.

OUTFALL: The point where stormwater flows out from a point source which is a discernible, confined and discrete conveyance into waters of the State of New Hampshire.

OWNER: A person with a legal or equitable interest in property.

PERSON: An individual, partnership, association, firm, company, trust, corporation, agency, authority, department or political subdivision of the State of New Hampshire or the federal government, to the extent permitted by law, and any officer, employee, or agent of such person.

POINT SOURCE: Any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, or container from which stormwater is or may be discharged.

POLLUTANT: Any element or property of sewage, agricultural, industrial or commercial waste, runoff, leachate, heated effluent, or other matter whether originating at a point or non-point source, that is or may be introduced into any sewage treatment works or waters of the State of New Hampshire. Pollutants shall include, but are not limited to:

(a) Chemicals, paints, varnishes, and solvents;
(b) Oil and other automotive fluids;
(c) Non-hazardous liquid and solid wastes and yard wastes;
(d) Refuse, rubbish, garbage, litter, or other discarded or abandoned objects, ordnances, accumulations and floatables;
(e) Pesticides, herbicides, and fertilizers;
(f) Hazardous materials and wastes, sewage, fecal coliform and pathogens;
(g) Dissolved and particulate metals;
(h) Animal wastes;
(i) Rock, sand, salt, and soils;
(j) Concrete truck washout;
(k) Sanitary wastes;
(l) Construction wastes, demolition debris, and discarded building materials; and
(m) Noxious or offensive matter of any kind.

PRE-CONSTRUCTION: All activity in preparation for construction.

RECHARGE: The process by which groundwater is replenished by precipitation through the percolation of runoff and surface water through soil.

REDEVELOPMENT: A site is considered a redevelopment if it has 40 percent or more of existing impervious surface, calculated by dividing the total existing impervious surface by the size of the parcel and convert to a percentage.

RUNOFF: Rainfall, snowmelt, or irrigation water flowing over the ground surface.

SEDIMENT: Mineral or organic soil material that is transported by wind or water, from its origin to another location; the product of erosion processes.

SEDIMENTATION: The process or act of deposition of sediment.

SITE: Any lot, parcel of land, or area of property where land-disturbing activities are, were, or will be performed.

SLOPE: The incline of a ground surface expressed as a ratio of horizontal distance to vertical distance.

SOIL: Any earth, sand, rock, gravel, or similar material.

STABILIZATION: The use, singly or in combination, of mechanical, structural, or vegetative methods, to prevent or minimize erosion.

STORMWATER: Stormwater runoff, snow melt runoff, and surface water runoff and drainage.

STORMWATER MANAGEMENT PERMIT: The written approval granted by the Planning Board to undertake a construction activity pursuant to a Stormwater Management Permit Application. A valid Stormwater Management Permit must be signed by the Planning Board participating at a duly noted public hearing, prior to the start of any work.

STORMWATER POLLUTION PREVENTION PLAN (SWPPP): A plan that clearly describes appropriate control measures that include a description of all pollution control measures (i.e., Best Management Practices) that will be implemented as part of the construction activity to control pollutants in storm water discharges and describes the interim and permanent stabilization practices for the site.

STRIP: Any activity that removes the vegetative ground surface cover, including tree removal, clearing, grubbing, and storage or removal of topsoil.

STRUCTUAL BEST MANAGEMENT PRACTICES: Devices that are constructed to provide control of stormwater runoff.

STRUCTURAL STORMWATER CONTROL: A structural stormwater management facility or device that controls storm water runoff and changes the characteristics of that runoff including, but not limited to, the quantity and quality, the period of release or the velocity of flow.

TOXIC OR HAZARDOUS MATERIAL OR WASTE: Any material, which because of its quantity, concentration, chemical, corrosive, flammable, reactive, toxic, infectious or radioactive characteristics, either separately or in combination with any substance or substances, constitutes a present or potential threat to human health, safety, welfare, or to the environment. Toxic or hazardous materials include any synthetic or organic chemical, petroleum product, heavy metal, radioactive, biological, or infectious waste, acid and alkali, and any substance defined as Toxic or Hazardous under G.L. Ch.21C and Ch.21E, and the regulations at 310 CMR 30.000 and 310 CMR 40.0000.

TOTAL SUSPENDED SOLIDS (TSS): Sediment being carried in stormwater.

WATERCOURSE: A natural or man-man channel through which water flows or a stream of water, including a river, brook, or underground stream.

WATERS OF THE UNITED STATES: Any and all rivers, streams, creeks, branches, lakes, reservoirs, ponds, drainage systems, springs, wells, and other bodies of surface and subsurface water, natural or artificial, lying within or forming a part of the boundaries of the State of New Hampshire which are not entirely confined and retained completely upon the property of a single person.

5.0 Applicability

These rules and regulations apply to all activities meeting the applicability criteria of the Stormwater Management Ordinance. New development and redevelopment projects must comply with the rules and regulations contained herein unless expressly waived by the Planning Board.

6.0 Permit Procedures and Requirements

6.1. The Building Inspector shall not issue a Building Permit without first confirming that a Stormwater Management Permit has been obtained or is otherwise not required. The Stormwater Management Permit process shall be incorporated into existing permits to ensure efficiency of the Town permitting process for the Town and Applicant. The Planning Board shall serve as the Permit Granting Authority (PGA).

6.2. Filing Application.

(1) The site owner or his/her agent shall file with the Planning Board, three (3) copies of a completed Stormwater Management Permit Application package as outlined below. Permit issuance is required prior to any applicable site-altering activity. While the applicant can be a representative, the permittee must be the owner of the site.

(2) Proposed projects at individual single-family or duplex residences.
(a) Completed Application Form with original signatures of all owners;

(b) Three (3) copies of the Stormwater Management Plan for Single-Family or Duplex Residences as specified in Section 11.0;
(c) Methods for complying with the Stormwater Standards as specified in Section 12.0; and
(d) Payment of any application and review fees.

(3) All other types and/or locations of proposed projects:
(a) Completed Application Form with original signatures of all owners;
(b) List of abutters, certified by the Assessors' Office;
(c) Addressed and stamped envelopes in a quantity sufficient to deliver first-class mail notice to each abutter regarding the scheduling of the SWPA meeting to discuss the Stormwater Management Permit Application;
(d) Three (3) copies of the Stormwater Management Plan as specified in Section 7.0;
(e) Three (3) copies of the Erosion Control Plan as specified in Section 8.0;
(f) Three (3) copies of the Operation and Maintenance Plan as specified in Section 9.0;
(g) An acknowledgement of the Site Inspections and Final Reports requirements as specified in Section 10.0;
(h) Methods for complying with the Stormwater Standards as specified in Section 12.0; and
(i) Payment of any application and review fees.

The Stormwater Management Permit Application shall not be deemed to have been submitted unless it has been delivered to the Planning Board at a scheduled meeting or has been sent via registered mail to the Planning Board care of the Town Clerk. If so mailed, the date of mailing shall not be the date of submission of the plan, but the date of the next scheduled Planning Board meeting shall be deemed to be the date of submission.

6.3. Fee Structure.

(1) The Planning Board shall obtain with each submission an application fee established by the Planning Board to cover administrative expenses connected with the review of the stormwater management permit. A nonrefundable application fee of $100 shall be due and payable to the Town of Sandown at the time an application is formally filed.

(2) In addition to the above fee, the Planning Board is authorized to require an applicant to pay an initial fee of up to $2,500 for the reasonable costs and expenses for specific expert engineering and other consultant services deemed necessary by the Planning Board to come to a final decision on the application. Payment may be required at any point in the deliberations prior to a final decision. The Planning Board shall notify the applicant of such amount in writing. Failure to submit such additional amount within 14 days of receipt of said notice shall be deemed reason by the Planning Board to deny said application.
(a) If prior to final action on the plan the Planning Board finds that $2,500 is insufficient to cover costs and expenses for consultant services necessary

for review of the application, the Planning Board shall seek authorization from the Planning Board at one of the Board's regular meetings to require that the applicant submit forthwith such additional amount as is deemed required by the Planning Board to cover such costs. The Planning Board shall notify the applicant of such additional amount in writing. Failure to submit such additional amount as authorized by the Planning Board within 14 days of receipt of said notice shall be deemed reason by the Planning Board to deny said application.

(b) Such fee shall be held in escrow, to be used to engage independent consultants should the Planning Board determine this to be necessary, based on the characteristics or complexity of the issues raised by the application.

(c) If the actual cost incurred by the Town for review of said application is less than the amount on deposit as specified above, the Planning Board shall authorize that such excess amount be refunded to the applicant concurrently with final action on said application.

(d) The services for which a fee may be utilized include, but are not limited to, review of wetland survey and delineation, hydrologic and drainage analysis, wildlife evaluation, stormwater quality analysis, site inspections, as-built plan review, and analysis of legal issues.

6.4. Information Requests. The applicant shall submit all additional information requested by the Planning Board to issue a decision on the application.

6.5. Actions. The Planning Board’s action, rendered in writing, shall consist of either:

(1) “Approval” of the Stormwater Management Permit Application based upon determination that the proposed Stormwater Management Plan meets the Standards and will adequately protect the water resources of the community and is in compliance with the requirements set forth in these rules and regulations;

(2) “Approval with Conditions” of the Stormwater Management Permit Application subject to any conditions, modifications, or restrictions that will ensure the proposed Stormwater Management Plan meets the Standards and will adequately protect the water resources of the community and is in compliance with the requirements set forth in these rules and regulations;

(3) “Disapproval” of the Stormwater Management Permit Application based upon determination that the proposed Stormwater Management Plan, as submitted, does not meet the Standards or will not adequately protect the water resources of the community and is not in compliance with the requirements set forth in these rules and regulations.

6.6. Public Hearing. Before approval, modification and approval, or disapproval of the Stormwater Management Permit Application is given, a public hearing shall be held by the Planning Board. Notice of such hearing shall be given by the Planning Board at the expense of the applicant in each of two successive weeks by advertisement any

newspaper of general circulation in the Town of Sandown as determined by the Planning Board. The first notice being not less than 14 days before such hearing; the second notice being not less than seven days before such hearing. The Planning Board shall notify by first-class mail the abutters (as provided by the developer in the submission of the Stormwater Management Permit Application) to the proposed development.

6.7. Appeals. The applicant may appeal the decision, within thirty (30) consecutive calendar days in an action filed within 60 days.

6.8. Access Permission. To the extent permitted by New Hampshire law, the Planning Board or their designee and third-party inspector may enter upon privately owned property for the purpose of performing their duties under these rules and regulations and may make or cause to be made such examinations, surveys or sampling as the Planning Board deems reasonably necessary to determine compliance with the Stormwater Management Permit.

6.9. Plan Changes. The permittee must notify the Planning Board in writing of any drainage change or alteration in the system authorized in the Stormwater Management Permit before any change or alteration is made. If the Planning Board determines that the change or alteration is significant, based on the Standards, the requirements set forth in these rules and regulations, or accepted construction practices, the Planning Board may require that an amended application be filed. If any change or alteration from the Stormwater Management Permit occurs during any land disturbing activities, the Planning Board may require the installation of interim erosion and sedimentation control measures before approving the change or alteration.

6.10. The Planning Board reserves the right to authorize or waive some or all regulation requirements and/or projects at its discretion. The Planning Board also reserves the right to address items and/or projects not specifically addressed by these regulations on a case by case basis.

7.0 Stormwater Management Permit Application

7.1. The Stormwater Management Permit Application shall consist of a submittal of a Stormwater Management Plan to the Planning Board. This Stormwater Management Plan shall contain sufficient information for the Planning Board or their designee to evaluate the environmental impact, effectiveness, and acceptability of the measures proposed by the applicant for reducing adverse impacts from stormwater. The Stormwater Management Plan shall be designed to meet the Standards, as set forth in Section 8.3.

7.2. The Stormwater Management Plan shall full describe the project in drawings and narrative. It shall include, as a minimum, the following:

(1) Names, addresses, and telephone numbers of the owner, applicant, and person(s) or firm(s) preparing the plan;
(2) Project narrative containing relevant information related to stormwater requirements;
(3) Locus map of the site;
(4) Description of existing and proposed conditions;
(5) Existing and proposed zoning and land use at the site;
(6) Existing and proposed easements and utilities at the site;
(7) Existing and proposed topography (1-foot or 2-foot interval contours with additional spot grades as needed to depict detailed drainage patterns) at the site;
(8) Existing and proposed hydrology, watershed boundaries, drainage area, and stormwater flow paths;
(9) Existing and proposed stormwater conveyances, impoundments, and wetlands into which stormwater flows at and adjacent to the site;
(10) Existing and proposed 100-year flood plain, if applicable;
(11) Estimated high groundwater elevation (November to April) as determined via completion of representative test pits or other geological investigations in areas to be used for stormwater retention, detention, or infiltration;
(12) Description of subsurface conditions in areas to be used for stormwater retention, detention, or infiltration;
(13) Plans, drawings, and descriptions of proposed drainage system and all components including:
    (a) Locations, cross sections, and profiles of all stormwater conveyances such as drainage swales and their method of stabilization;
    (b) All measures for the detention, retention, and/or infiltration of stormwater;
    (c) All measures for the protection of water quality;
    (d) The structural details and sizing for all components of the proposed drainage systems and stormwater management facilities;
    (e) Notes on drawings specifying materials to be used, construction specifications, and typical details and cross-sections;
    (f) Analysis of existing and proposed hydrology with supporting calculations;
    (g) Calculations supporting the estimate of stormwater treatment performance;
    (h) Calculations supporting the design of infiltration practices, including design infiltration rates, estimated dewatering times, and mounding analyses, where applicable;
(14) Stormwater runoff shall be calculated using latest Northeast Regional Climate Center (NRCC) extreme precipitation amounts for recurrence intervals (storm events) 2-, 10-, 25-, 50- and 100-year frequencies;
(15) An Erosion and Sediment Control Plan as detailed in Section 9.0;
(16) An Operation and Maintenance Plan as detailed in Section 10.0;
(17) Documents must be stamped and certified by a qualified registered P.E.; and
(18) Any other information requested by the Planning Board.

7.3. Stormwater Standards. All projects subject to this section shall meet the Stormwater Standards outlined in Section 13. Narratives, calculations, and/or other methods for

meeting these requirements shall be provided along with the Stormwater Management Permit Application.

8.0 Erosion and Sediment Control Plan

8.1. The Stormwater Management Permit Application shall include submittal of an Erosion and Sediment Control Plan to the Planning Board. This Erosion and Sediment Control Plan shall contain sufficient information for the Planning Board or their designee about the nature and purpose of the proposed development, pertinent conditions of the site and adjacent areas, proposed erosion and sedimentation controls, and proposed control for other wastes on construction sites such as demolition debris, litter, and sanitary wastes to ensure they are not discharged to the MS4, drainage system, or waters of the United States or State of New Hampshire. The applicant shall submit such material as is necessary to show that the proposed development will comply with the design requirements as follows:

(1) Minimize total area of disturbance;
(2) Sequence activities to minimize simultaneous areas of disturbance;
(3) Minimize soil erosion and control sedimentation during construction, provided that prevention of erosion is preferred over sedimentation control;
(4) Divert uncontaminated water around disturbed areas;
(5) Maximize infiltration and groundwater recharge;
(6) Install, inspect, and maintain all Erosion and Sediment Control measures in accordance with the manufacturer's specifications and good engineering practices;
(7) Prevent off-site transport of sediment and wastes;
(8) Protect all storm drain inlets and armor all newly constructed outlets;
(9) Protect and manage on and off-site material storage areas (overburden and stockpiles of dirt, borrow areas, or other areas used solely by the permitted project are considered a part of the project);
(10) Comply with applicable federal, state and local laws and regulations including waste disposal, sanitary sewer or septic system regulations, and air quality requirements, including dust control;
(11) Institute interim and permanent stabilization measures, which shall be instituted on a disturbed area as soon as practicable but no more than fourteen (14) days after construction activity has temporarily or permanently ceased on that portion of the site;
(12) Properly manage on-site construction waste and materials;
(13) Stabilize construction site entrances and exits and prevent off-site vehicle tracking of sediments; and
(14) Ensure that any stormwater BMP (for post-construction stormwater management) installed during construction will be protected from compaction, siltation, and erosion or will be restored or replaced such that the BMP will be capable of functioning as designed in accordance with these stormwater regulations.

8.2. The content of the Erosion and Sediment Control Plan shall contain the following information:

(1) Names, addresses, and telephone numbers of the owner, applicant, and person(s) or firm(s) preparing this plan;

(2) Title, date, north arrow, names of abutters, scale, legend, and locus map;

(3) Location and description of natural features including:

(a) Watercourses and water bodies, wetland resource areas and all floodplain information, including the 100-year flood elevation based upon the most recent Flood Insurance Rate Map, or as calculated by a qualified P.E. for areas not assessed on these maps; and

(b) Existing vegetation including tree lines, canopy layer, shrub layer, and ground cover, and trees with a caliper twelve (12) inches or larger, noting specimen trees and forest communities.

(4) Lines of existing abutting streets showing drainage and driveway locations and curb cuts;

(5) Existing soils, volume and nature of imported soil materials;

(6) Topographical features including existing and proposed contours at intervals no greater than one (1) feet with spot elevations provided when needed;

(7) Surveyed property lines showing distances and monument locations, all existing and proposed easements, rights-of-way, and other encumbrances, the size of the entire parcel, and the delineation and number of square feet of the land area to be disturbed;

(8) Drainage patterns and approximate slopes anticipated after major grading activities;

(9) Location and details of erosion and sediment control measures with a narrative of the construction sequence/phasing of the project, including both operation and maintenance for structural and non-structural measures, interim grading, and material stockpiling areas;

(10) Path and mechanism to divert uncontaminated water around disturbed areas, to the maximum extent practicable;

(11) Location and description of and implementation schedule for temporary and permanent seeding, vegetative controls, and other stabilization measures;

(12) A description of construction and waste materials expected to be stored on-site. The Plan shall include a description of controls to reduce pollutants from these materials, including storage practices to minimize exposure of the materials to stormwater, and spill prevention and response;

(13) A description of provisions for phasing the project where one acre of area or greater is to be altered or disturbed;

(14) A description of how the project owner will inspect the site during the course of construction to monitor the management of stormwater in accordance with applicable town, state, and federal regulations;

(15) Plans must be stamped and certified by a qualified registered P.E. or a CPESC; and

(16) Such other information as is required by the Planning Board.

9.0 <u>Operation and Maintenance Plan</u>

9.1. The Stormwater Management Permit Application shall include a submittal of Operation and Maintenance Plan (O&M Plan) to the Planning Board. This O&M Plan shall be designed to ensure compliance with the Stormwater Management Permit, and that these rules and regulations are met in all seasons and throughout the life of the system. The Planning Board shall make the final decision of what maintenance option is appropriate in a given situation. The Planning Board or their designee will consider natural features, proximity of the site to MS4 infrastructure, proximity of the site to waterbodies and wetlands, extent of impervious surfaces, size of the site, the types of stormwater management structures, and potential need for ongoing maintenance activities when making this decision. The O&M Plan shall remain on file with the Planning Board and shall be an ongoing requirement. The O&M Plan shall include:

(1) The name(s) of the owner(s) of all components of the system;
(2) Maintenance agreements that specify:
    (a) The names and addresses of the person(s) responsible for operation and maintenance
    (b) The person(s) responsible for financing maintenance and emergency repairs.
    (c) A Maintenance Schedule that includes routine inspection along with routine and non-routine maintenance tasks for each BMP.
    (d) A list of easements, if applicable, with the purpose and location of each.
    (e) The signature(s) of the owner(s).
    (f) Estimated operation and maintenance budget.
    (g) The responsible party shall:
        i. Maintain a log of all operation and maintenance activities for the last three years including inspections, repair, replacement, and disposal (the log shall indicate the type of material and the disposal location);
        ii. Make this log available to the Planning Board or their designee and the State of New Hampshire upon request; and
        iii. Allow the Planning Board or their designee to inspect each BMP to determine whether the responsible party is implementing the Operation and Maintenance Plan.
(3) Stormwater Management Easement(s).
    (a) Stormwater management easements shall be provided by the property owner(s) as necessary for:
        i. Access for facility inspections and maintenance;
        ii. Preservation of stormwater runoff conveyance, infiltration, and detention areas and facilities, including flood routes for the 100-year storm event; and
        iii. Direct maintenance access by heavy equipment to structures requiring regular cleanout.
    (b) The purpose of each easement shall be specified in the maintenance agreement signed by the property owner.
    (c) Stormwater management easements are required for all areas used for off-site stormwater control, unless a waiver is granted by the Planning Board.

(4) Changes to Operation and Maintenance Plans.

(a) The owner(s) of the stormwater management system must notify the Planning Board of changes in ownership or assignment of financial responsibility.

(b) The maintenance schedule in the Maintenance Agreement may be amended to achieve the purposes of these rules and regulations by mutual agreement of the Planning Board and the responsible parties. Amendments must be in writing and signed by all responsible parties. Responsible parties shall include owner(s), persons with financial responsibility, and persons with operational responsibility during future years.

9.2. Stormwater infrastructure shall be privately owned, inspected and maintained per the Operation and Maintenance procedures approved for the project. Inspection and maintenance logs shall be provided to the Planning Board on a yearly basis by final day in June for the Town to use in preparation of its annual report to the US EPA as part of the NPDES MS4 Permit requirements.

9.3. Landowner shall provide the Planning Board an annual report prepared and stamped by a New Hampshire Licensed Professional Engineer documenting and certifying performance of required maintenance and providing an assessment of overall system performance.

9.4. The O&M Plan shall include procedures for using dedicated funds, establishing an escrow account, and/or developing a maintenance contract, if determined appropriate to ensure adequate long-term maintenance.

9.5. Stormwater Management operation and maintenance duties shall be recorded with the deed for each lot in a subdivision. The applicant may elect to setup a home owner's association (HOA) or other means to ensure all BMPs are inspected and maintained as required.

9.6. Long-term operators responsible for O&M Plan implementation shall submit an annual report to the Planning Board documenting all inspection and maintenance completed on the stormwater system.

10.0 <u>Site Inspections and Final Reports</u>

10.1. Pre-Construction Meeting. Prior to starting clearing, excavation, construction, or disturbance of land, the Applicant, the Applicant's technical representative, the general contractor, or any other person with authority to make changes to the project, shall meet with the Planning Board to review the permitted Stormwater Management, Erosion and Sediment Control, and Operation and Maintenance Plans and their implementation.

10.2. Permittee Erosion and Sediment Control Inspections. The permittee shall conduct and document inspections of all erosion and sediment control measures no less than

weekly or as specified in the Stormwater Management Permit, and prior to and following anticipated storm events. The purpose of such inspections is to determine the overall effectiveness of the erosion and sediment control plan, and the need for maintenance or additional control measures. The permittee shall submit monthly erosion and sediment control reports to the Planning Board or their designee in a format approved by the Planning Board.

10.3. Routine Inspections. Routine inspections shall be performed as follows:

(1) Initial Site Inspection: prior to approval of any permit/plan;
(2) Erosion and Sediment Control Inspection: to ensure erosion and sediment control measures are in place and stabilized, and to ensure erosion control practices are in accordance with the filed plan.
(3) Site Clearing has been substantially completed;
(4) Rough Grading has been substantially completed;
(5) Final Grading has been substantially completed;
(6) Bury Inspections: prior to backfilling of any underground drainage or stormwater structures.
(7) Close of the Construction Season;
(8) Landscaping (permanent stabilization); and
(9) Final Inspection. After the stormwater management system has been constructed, and before any surety is released, the Applicant must submit a record as-built plan detailing the actual stormwater management system as installed. Such plans shall show compliance with the final approved plans by the Planning Board. The Planning Board or their designee shall inspect the system to confirm its "as-built" features. This inspector shall also evaluate the effectiveness of the system in an actual storm. If the inspector finds the system to be adequate, he/she shall so report to Planning Board which will issue a Certificate of Completion.

10.4. Inspector Qualifications. Inspections shall be performed by an independent third-party registered Professional Engineer or CPESC. Alternatively, inspections shall be performed by a qualified employee of the Town of Sandown.

10.5. Final Reports. Upon completion of the work, the permittee shall submit a report (including certified as-built construction plans) from a PE or CPESC. As-built drawings shall be submitted no later than one year after completion of construction projects. The as-built drawings must depict all on site controls, both structural and non-structural, designed to manage the stormwater associated with the completed site (post-construction stormwater management). The report shall certify that all permitted construction, plans, and approved changes and modifications, were completed in accordance with the conditions of the approved Stormwater Management Permit. Any discrepancies should be noted in the report.

If the system is found to be inadequate by virtue of physical evidence of operational failure, even though it was built as called for in the Stormwater Management Plan, it shall be corrected by the permittee before the performance guarantee is released. If

the permittee fails to act the Town of Sandown may use the surety bond to complete the work. Examples of inadequacy include but are not limited to: errors in the infiltrative capability, errors in the maximum groundwater elevation, failure to properly define or construct flow paths, or erosive discharges from basins or other structural BMPs.

11.0 Stormwater Management Plan for Single-Family or Duplex Residences Application

11.1. The Stormwater Management Plan for Single-Family or Duplex Residences Application shall consist of a submittal of a Stormwater Management Plan to the Planning Board. This Stormwater Management Plan shall contain sufficient information for the Planning Board or their designee to evaluate the environmental impact, effectiveness, and acceptability of the measures proposed by the applicant for reducing adverse impacts from stormwater. The Stormwater Management Plan shall fully describe the project in drawings and narrative. It shall include, as a minimum, the following:

(1) Names, addresses, and telephone numbers of the owner, applicant, and person(s) or firm(s) preparing the plan;
(2) Project narrative of existing and proposed conditions as relevant to stormwater;
(3) Approximate property lines, all existing and proposed easements, rights-of-way, utilities, the size of the entire parcel, and the delineation and number of square feet of the land area to be disturbed;
(4) Surveyed property lines, if determined necessary by the Planning Board;
(5) Nearby roadways showing drainage and driveway locations and curb cuts;
(6) Existing vegetation including tree lines and trees with a caliper twelve (12) inches or larger;
(7) Topography as needed to depict drainage patterns onsite, drainage areas and stormwater flow paths;
(8) Stormwater conveyances such as swales and pipes, wetlands into which stormwater flows at and adjacent to the site, and 100-year flood plain, if applicable;
(9) Estimated high groundwater elevation (November to April) in areas to be used for stormwater retention, detention, or infiltration;
(10) Plans, drawings, and descriptions of proposed drainage system and all components including structural details, materials, and sizes for all components of proposed drainage systems and stormwater management facilities;
(11) Calculations supporting the estimate of stormwater treatment performance and design of infiltration practices;
(12) Information pertaining to how the project proposes to meet the Stormwater Standards as detailed below;
(13) An Erosion and Sediment Control Plan as detailed below;
(14) An Operation and Maintenance Plan as detailed below;
(15) Documents must be stamped and certified by a qualified registered P.E.; and
(16) Any other information requested by the Planning Board.

11.2. **Stormwater Standards**. All projects subject to this section shall meet the Stormwater Standards outlined in Section 13. Narratives, calculations, and/or other methods for meeting these requirements shall be provided along with the Stormwater Management Plan for Single-Family or Duplex Residences Application.

11.3. **Erosion and Sediment Control Plan**. The Stormwater Management Permit Application shall include submittal of an Erosion and Sediment Control Plan to the Planning Board. The content of the Erosion and Sediment Control Plan shall contain the following information:

(1) Names, addresses, and telephone numbers of the owner, applicant, and person(s) or firm(s) preparing this plan;
(2) Title, date, north arrow, scale, legend, and locus map;
(3) Location and description of natural features including watercourses and water bodies, wetland resource areas and all floodplain information, including the 100-year flood elevation based upon the most recent Flood Insurance Rate Map;
(4) Drainage patterns and approximate slopes anticipated after major grading activities;
(5) Location and details of erosion and sediment control measures with a narrative of the construction sequence/phasing of the project, including both operation and maintenance for structural and non-structural measures, interim grading, and material stockpiling areas;
(6) Plans must be stamped and certified by a qualified registered P.E. or a CPESC; and
(7) Such other information as is required by the Planning Board.

11.4. **Operation and Maintenance Plan**. The Stormwater Management Permit Application shall include a submittal of Operation and Maintenance Plan (O&M Plan) to the Planning Board. The Planning Board shall make the final decision of what maintenance option is appropriate in a given situation. The Planning Board or their designee will consider natural features, proximity of the site to MS4 infrastructure, proximity of the site to waterbodies and wetlands, extent of impervious surfaces, size of the site, the types of stormwater management structures, and potential need for ongoing maintenance activities when making this decision. The O&M Plan shall include:

(1) The name(s) of the owner(s) of all components of the system;
(2) A Maintenance Schedule that includes routine inspection along with routine and non-routine maintenance tasks for each BMP; and
(3) A signed letter of commitment to properly and timely maintaining all onsite stormwater structures.

11.5. **Permittee Erosion and Sediment Control Inspections**. The responsible party shall provide a description and schedule of how and when the project owner or authorized additional party will inspect the site during the course of construction to monitor the management of stormwater in accordance with applicable town, state, and federal regulations. The schedule shall be subject to approval by the Planning Board,

however may include documenting inspections of all erosion and sediment control measures no less than weekly, and prior to and following anticipated events:

(1) Initial Site Inspection: prior to approval of any permit/plan;
(2) Erosion and Sediment Control Inspection: to ensure erosion and sediment control measures are in place and stabilized, and to ensure erosion control practices are in accordance with the filed plan.
(3) Site Clearing has been substantially completed;
(4) Rough and Final Grading has been substantially completed;
(5) Landscaping has been completed (permanent stabilization); and
(6) Final Inspection.

11.6. **Inspector Qualifications**. Inspections shall be performed by the homeowner or an independent third-party registered Professional Engineer or CPESC. Alternatively, inspections shall be performed by a qualified employee of the Town of Sandown. If done by the homeowner, the homeowner is responsible for ensuring that inspections are conducted and that any repairs needed are conducted promptly and adequately to meet these Regulations. Failure to do so may subject the homeowner to the enforcement actions outlined under the Stormwater Management Ordinance.

11.7. **Final Reports.** Upon completion of the work, the permittee shall submit as-built construction plans no later than one year after completion of construction projects. The as-built drawings must depict all on site controls, both structural and non-structural, designed to manage the stormwater associated with the completed site (post-construction stormwater management). The report shall certify that all permitted construction, plans, and approved changes and modifications, were completed in accordance with the conditions of the approved Stormwater Management Permit. Any discrepancies should be noted in the report.

12.0 Stormwater Standards

12.1. No new stormwater conveyances (e.g. outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the State of New Hampshire;

12.2. Low Impact Development (LID) site planning and design strategies must be implemented unless infeasible in order to reduce the discharge of stormwater from development sites;

12.3. The Town of Sandown adopts as its stormwater design and "Best Management Practices" (BMP) manual the most recent publication of the New Hampshire Stormwater Manual Volume 2 (December 2008 or current revision) copy of which is available from the NHDES website;

12.4. Stormwater management systems on new development shall be controlled by:

(1) Retention or treatment of stormwater runoff by one of the following:

(a) Requiring BMPs that are designed to retain the Water Quality Volume calculated in accordance with N.H. Code Admin. R. Part Env-Wq 1504.10, or

(b) Installing BMPs that designed to meet an average annual pollutant removal equivalent to 90% of the average annual load of Total Suspended Solids (TSS) related to the total post-construction impervious area on the site AND 60% of the average annual load of Total Phosphorus (TP) related to the total post-construction impervious surface area on the site. Pollutant removal shall be consistent with EPA Region 1's BMP Performance Analysis (2010) or other BMP performance evaluation tool provided by EPA Region 1, where available. If EPA Region 1 tools do not address the planned or installed BMP performance, then any federally or State-approved BMP design guidance or performance standards (e.g., State stormwater handbooks and design guidance manuals) may be used to calculate BMP performance;

(2) Implement long-term maintenance practices of BMPs in accordance with N.H. Code Admin. R. Part Env-Wq 1507.08

12.5. Stormwater management systems on redevelopment sites shall be controlled by:

(1) Retention or treatment of stormwater runoff by one of the following:

(a) Requiring BMPs that are designed to retain the Water Quality Volume calculated in accordance with N.H. Code Admin. R. Part Env-Wq 1504.10 and be designed to remove pollutants in accordance with N.H. Code Admin. R. Part Env-Wq 1507.03, or

(b) Installing BMPs that designed to meet an average annual pollutant removal equivalent to 80% of the average annual load of Total Suspended Solids (TSS) related to the total post-construction impervious area on the site AND 50% of the average annual load of Total Phosphorus (TP) related to the total post-construction impervious surface area on the site. Pollutant removal shall be consistent with EPA Region 1's BMP Performance Analysis (2010) or other BMP performance evaluation tool provided by EPA Region 1, where available. If EPA Region 1 tools do not address the planned or installed BMP performance, then any federally or State-approved BMP design guidance or performance standards (e.g., State stormwater handbooks and design guidance manuals) may be used to calculate BMP performance;

(2) Implement long-term maintenance practices of BMPs in accordance with N.H. Code Admin. R. Part Env-Wq 1507.08

(3) Utilizing offsite mitigation that meets the above standards within the same USGS HUC10 as the redevelopment site.

12.6. Redevelopment activities that are exclusively limited to maintenance and improvement of existing roadways, (including widening less than a single lane, adding shoulders, correcting substandard intersections, improving existing drainage systems, and repaving projects) shall improve existing conditions where feasible and are exempt from part Section 13.5. Roadway widening or improvements that increase the amount of impervious area on the redevelopment site by greater than or equal to a single lane width shall meet the requirements of Section 13.5.

13.0 Certification of Completion

13.1. Upon completion, the applicant is responsible for certifying that the completed project is in accordance with the approved plans and specifications and shall provide regular inspection records sufficient to adequately document compliance.

13.2. The applicant is responsible for payment of any outstanding review fees, taxes, and other debts prior to receiving a certificate of completion.

13.3. The Planning Board will issue a letter certifying completion upon receipt and approval of the as-built plans, O&M Plan, final inspection and reports and/or upon otherwise determining that all work of the permit has been satisfactorily completed in conformance with this regulation.

13.4. The Planning Board may, in addition to certifying satisfactory completion of the project, require ongoing maintenance procedures as outlined O&M Plan and/or work deemed necessary by the Planning Board.

SITE PLAN REVIEW WAIVER REQUEST FORM
General Standards: Section 17 Waiver Clause

Map_____ Lot_____ Property Location_____

A waiver is being requested from (Regulation & Section):_____
Please provide specific information and/or documentation for each waiver request:

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

_____ _____
Signature of Applicant and/or Authorized Agent ***Date***

STREET IMPROVEMENT GUARANTEE SUMMARY SHEET

Subdivision Name_____ Tax Map_____ Lot_____

	Street Name	From Station	To Station	Amount
1				$
2				$
3				$

Total Amount Recommended by: _____ _____
Town Engineer's Signature Date

The undersigned agrees to perform the work set forth on the attached work sheets in accordance with the plans and specifications submitted therewith, and in accordance with the Town of Sandown, NH Zoning Ordinance, Subdivision Regulations and/or Site Plan Regulations, all within _____months from the date below.

Prior to final release, all required warranty deeds shall be submitted, and all cost incurred by the Town of Sandown, NH for roadway inspections shall be reimbursed to the Town. If in the opinion of the Sandown Planning Board, all work is not completed within _____ months of the date of this agreement, the developer hereby releases to the Town of Sandown, NH the amount of the bond or other performance guarantee still in effect at that time, such amount to be used by the Town of Sandown, NH to complete the deficient work.

The Town of Sandown, NH shall retain an amount equal to 10% of the original bond amount (Amended 4/16/91) or other performance guarantee for a period of twelve months from the date of acceptance of the work by the Planning Board as a maintenance guarantee. The developer agrees to correct all deficiencies which occur during this twelve month period. If, in the opinion of the Planning Board, all deficiencies are not corrected within the twelve month period, the developer hereby releases to the Town of Sandown, NH the amount of the maintenance guarantee in effect at that time, such amount to be used by the Town of Sandown, NH to correct such deficiencies.

_____ _____ _____
Developer's Company Signature of Developer Date

_____ _____
Planning Board Chairman Date

STREET IMPROVEMENT GUARANTEE WORKSHEET

Street:_____ Subdivision Name: _____

Station_____ to _____ = _____ Ft. Length Map _____ Lot _____

The following itemized statement and estimated unit costs shall be sufficient to complete all improvements required by the Sandown Subdivision Regulations:

Item	Quantity	Unit Price	Ext. Price
Clearing & Grumbling	Acre	$_____/C.Y.	
Ledge Excavation	C.Y.	$_____/C.Y.	
Common Burrow	C.Y.	$_____/C.Y.	
Bank Run Gravel	C.Y.	$_____/C.Y.	
Crushed Gravel	C.Y.	$_____/C.Y.	
Paving-Wear Course	Tons	$_____Tons	
Paving-Binding Course	Tons	$_____Tons	
Loam	S.Y.	$_____S.Y.	
Seed	S.Y.	$_____S.Y.	
Storm Drains-Size Type:			
	L.F.	$_____L.F.	
	L.F.	$_____L.F.	
	L.F.	$_____L.F.	
Trench Ledge	C.Y.	$_____L.F.	
Catch Basins	EA.	$_____/C.Y.	
Drain Manholes	EA.	$_____EA.	
Headwalls	EA.	$_____EA.	
End Sections	EA.	$_____EA.	
Bounds, Grade Stakes, Bench Marks, Signs	EA.	$_____EA.	
Signs	EA.	$_____EA.	
Miscellaneous (attach breakdown sheet if necessary)	EA.	$_____EA.	
	EA.	$_____EA.	
Subtotal:			
10% Engineering			
10% Contingency			
8% Escalation			
Total Bond Amount: (Amended 4/1991)			

IMPACT FEE ASSESSMENT FOR

_____ Road and _____ Road serving
_____ subdivision

BASIS		**Primary Access Road**	**Secondary Access Road**
I.	**DWELLING UNITS**		
	Units Proposed Road		
	Potential Units	_____ = _____	_____= _____
II.	**ROAD FRONTAGE**		
	Lots Proposed		
	Road Total	_____ = _____	_____ = _____
III.	**ACREAGE**		
	Lots Proposed		
	Road Total	_____ = _____	_____ = _____
IV.	**TRAFFIC IMPACT**		
	Vehicle Trips from S/D	_____ = _____	_____ = _____
	Vehicle Trips after S/D	_____ = _____	_____ = _____
V.	**TOTAL IMPACT (Sum I-IV)**	_____	_____
VI.	**AVERAGE IMPACT (V/4)**	_____	_____
VII.	**ROAD LENGTH (MILES)**	_____	_____
VIII.	**REFURBISHMENT COST AT $_____/MILE**	_____	_____
IX.	**AVERAGE IMPACT ASSESSMENT (VI-VIII)**	_____	_____
X.	**TOTAL ROAD IMPACT (IXA + IXB)**	_____	

Calculated by_____

Date _____

Off-Site Improvement Fee Calculation

The textual description of the calculation method used to complete off-site improvement fees for access roads serving a subdivision, as shown in Appendix D (page 1) and authorized under Subdivision Regulation 9.8 and RSA 674:36, III, is as follows:

I. Dwelling Unit Contribution

A. Units Proposed is the number of additional dwelling units proposed by an applicant. Existing units are excluded.

B. Units Proposed is the number of dwelling units that a road providing access to a proposed subdivision, can be projected to support when fully developed. Both lots fronting on a road, and lots not fronting on a road but projected to use that road for access, are used in this determination from tax maps. Two acres per dwelling unit is used for large tracts of land for future subdivision. The number of units for smaller lots depends on the frontage length (i.e., whether the frontage can be divided to accommodate the minimum 200' per lot).

II. Road Frontage

A. Lots Proposed is the sum of frontage lengths for new lots proposed by an applicant. The frontage length of an existing dwelling unit (or its proposed frontage) is not used here.

B. Road Total is the grand total of lot frontage on both sides of a road based on an analysis of the appropriate tax maps.

III. Acreage

A. Lots Proposed is the sum of all lots proposed by the applicant. For cluster subdivisions, the total original or "mother" lot area is used, since the number of dwelling units is usually maximized on the total soils capability of the lot. For grid subdivisions, the sum of the lot areas required by the zoning ordinance is used, since grid subdivisions usually have larger than required lot sizes due to frontage requirements.

B. Road Maximum is the total acreage of all lots that either directly or indirectly front on a road as per I. B above.

IV. Traffic Impact

A. Vehicle Trips from Development are the estimated number of vehicle trips per day (VPD) either from an applicant's traffic impact study, or the number of additional dwelling units times 10 (the number of VPD generated by a residential development as determined by the Institute of Traffic Engineers (ITE) – actually 10.062).

B. Vehicle Trips after Development is the number of VPD projected when the road is fully developed. This is the Road Potential Units from I.B time 10, or the Road Potential Units times 10 plus through traffic from an applicant's traffic impact study.

VIII. Refurbishment Cost

Refurbishment Cost is based on improving the roads providing access to the proposed development, at the maximum development level, to the standard per Section 9.8 of the Subdivision Regulations.

V-VIII, IX, and X are self-explanatory

SAMPLE IRREVOCABLE LETTER OF CREDIT

Date

Town of Sandown, NH
Attention: Planning Board
P.O. Box 1756
Sandown, NH 03873

Re: Name of Subdivision

Dear Town Officials:

By this document, the _____ bank (hereinafter "issuer") hereby issues an irrevocable letter of credit in the amount of $_____ to the Town of Sandown on behalf of _____ (hereinafter "developer"). This irrevocable letter of credit is issued to guaranty completion of all improvements required by the Sandown Planning Board and Town of Sandown improvements required by the Sandown Planning Board and Town of Sandown subdivision regulations in conjunction with a subdivision plan entitled "_____," dated _____, prepared by _____, and approved by the Sandown Planning Board on _____.

It is understood that the improvements guaranteed by this irrevocable letter of credit include, but are not limited to, the following:

1. Construction of _____ linear feet of roadway along with all associated utilities. Said roadway being shown on the above referenced plans as _____.

2.

3.

It is agreed and understood by the issuer of this letter of credit that it shall be issued for a period of _____ months. If all improvements guaranteed by this letter of credit are not completed by _____ (Date) and if a certificate indicating completion of all improvements has not been issued by the Sandown Planning Board, then this letter of credit shall be automatically considered to have been called, and without further action by the Town of Sandown, or its Planning Board, the _____ bank shall forthwith forward a check in the amount of $_____ to the treasurer of the Town of Sandown. The funds so forwarded to the town treasurer shall be used exclusively for the purpose of completing the improvements which are guaranteed by this letter of credit. Any funds not needed by the tow to complete improvements required by the subdivision plan referred to above shall be returned to the _____ bank.

Additionally, for out-of-state banks, the following sentences shall be an integral part of the irrevocable letter of credit. "_____ Bank" hereby consents to the jurisdiction of the New Hampshire court system for adjudication of any dispute arising from this letter of credit, and agrees that any such litigation shall be maintained in the Rockingham County Superior Court. The parties agree that this letter of credit shall be interpreted under New Hampshire law." (Amended Dec., 19, 1989)

_____ _____

Date Signature of Bank Official

TITLE BLOCK REQUIREMENTS

The following information shall appear in the lower 8.5x11 area on each plan drawing. Specify Pre-application, construction, final subdivision, grading, etc.

D _____ _____
C _____ _____
B _____ _____
A Original Issue
Description/Reason _____

Revision Record
_____
_____Plan for land in Sandown, New Hampshire known as _____ subdivision located on Tax Map _____, Lot _____ and owned by:

Owner's Name
Designer's Mailing Address
Designer's Town, State, Zip

_____

Page _____ of _____

• Sender: Please print your name, address, and ZIP+4 in this box •

TOWN OF SANDOWN, NH
PLANNING BOARD
PO BOX 1756
SANDOWN, NH 03873

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Postage & Fees Paid
USPS
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7099 3400 0009 8205 2608

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U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

Article Sent To:
ABUTTER'S NAME

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Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

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ABUTTER'S NAME
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ABUTTER'S ADDRESS
City, State, ZIP+4
ABUTTER'S TOWN, STATE, ZIP

PS Form 3800, July 1999 — See Reverse for Instructions

Is your RETURN ADDRESS completed on the reverse side?

SENDER:
- ☐ Complete items 1 and/or 2 for additional services. Complete items 3, 4a, and 4b.
- ☐ Print your name and address on the reverse of this form so that we can return this card to you.
- ☐ Attach this form to the front of the mailpiece, or on the back if space does not permit.
- ☐ Write *"Return Receipt Requested"* on the mailpiece below the article number.
- ☐ The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

3. Article Addressed to:
ABUTTER'S NAME
ABUTTER'S ADDRESS
ABUTTER'S TOWN, STATE, ZIP

4a. Article Number

4b. Service Type
☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery

5. Received By: *(Print Name)*

6. Signature *(Addressee or Agent)*

8. Addressee's Address *(Only if requested and fee is paid)*

PS Form **3811**, December 1994 — 102595-99-B-0223 — Domestic Return Receipt

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HOME BUSINESS SITE PLAN REGULATIONS
APPLICATION TO PLANNING BOARD

Section I Authoritv

As authorized by RSA 674:43 and Town meeting vote on March 9, 1988 (W.A. 38), all development or change or expansion of use of lots for nonresidential uses, or for multi-family units (structures containing more than two dwelling units), are required to submit a site plan for such use to and obtain approval from the Planning Board. (Amended March 12,2002)

Section 2 Purpose and Overview

The Home Business Site Plan Regulations are to be used when complying with Sandown Zoning Ordinance as noted above, specifically for home businesses which have received a Special Exception from the Zoning Board of Adjustment.

The purpose of this section is to permit the accessory use of a residence for business purposes which is clearly incidental to the principal residential use provided the use does not significantly change the residential character or function of the property to the extent that the use will be objectionable to other residential uses in the neighborhood. Specifically, the following special conditions must be met to the satisfaction of the Planning Board.

Section 3 Procedures

The Home Business Site Plan Regulations shall be conducted in accordance with the procedural requirements for review of plats contained in the Sandown Subdivision Regulations, including the notice to abutters and a public hearing. All costs for a public hearing and review shall be borne by the applicant. In addition, reasonable fees may be assessed to the applicant to cover the Board's administrative expenses and costs as may be required by particular applications. No building permit for a non-residential or multi-family use shall be issued until approval of the Home Business Site Plan Regulations has been granted, and a special exception has been granted by the Sandown Board of Adjustment.

Section 4 Submission Requirements

A. Home Business Application properly filled out with appropriate attachments.

B. Attachments required:

- Plan of site with required items shown.
- Payment of Fees.
- List of abutters
- Special Exception granted by Zoning Board of Adjustment
- Properly filled out envelopes, attached postage stamps, certified mail receipt and return receipt mail receipt.

C. Site Plan:

- The original and 9 copies, which may be hand-drawn showing the following:
- Sheet Size: 22x34 maximum.
- Scale: not less than 1 inch equals 100 ft.
- Match lines when needed.
- Date, title scale, north arrow and location map.
- Name and address of owner(s) of record.
- Name, address, license number and seal of developer, surveyor, soil scientist, wetland scientist, developer, designer or engineer if applicable.
- Locations of all easements and rights-of-way
- Names and addresses of all abutters
- Plan of all buildings with their type, size and location (including setbacks) on lot..
- Locate area that home occupation will be conducted in within the home or accessory structure.
- The location, width, and type of access and egress ways, plus streets within and around proposed site.
- Location of existing well and septic system areas.
- The location of culverts and surface water drainage features, if applicable.
- Existing and proposed landscaping.
- Location and size of any proposed signs.
- Location and size of any external lighting. Illumination shall not glare on abutting properties or on public highways or streets.
- Sufficient off-street parking must be provided for the anticipated use to accommodate both employees and customers so that no parking is forced into public streets.
- Sufficient off-sheet loading and/or unloading space must be provided'
- Any other exhibits or data that the Planning Board may require in order to adequately evaluate the proposed development for Site Review.

Section 5 General Standards

The Planning Board may require the additional submission items depending on the nature of the business in accordance with the Site Plan Review Regulations.

Section 6 Waivers

The Planning Board may waive any requirements listed in the Home Business Site Plan Regulations, if it determines that such regulations do not apply to the proposed home business proposal. Waivers must be in writing, dated and signed by the applicant. Reasons for granting the waiver must be furnished.

Section 7 Time of Submission

The applicant shall file the original and nine copies of the plan, completed application and required attachments with the Sandown Planning Board. In order to be considered for placement on the agenda of the Planning Board's regularly scheduled monthly meeting (Third Tuesday of the Month), the items listed above must be received at the Planning Board Office on the last Wednesday of the Month of the preceding month from 9 a.m. until 11 a.m.

Section 8 Notification of Abutters

The applicant shall provide a list including abutters, the applicant, holders of conservation, preservation or agricultural preservation restrictions; every engineer, architect, land surveyor, or soil scientist whose professional seal appears on the plat submitted to the board, as well as all owner(s) by certified mail, return receipt requested, of the date of the public meeting at which the completed application will be formally submitted to the board. (lncomplete applications will not be put on the agenda). Notice shall be mailed at least l0 days prior to the submission. Notice to the general public shall also be given at the same time by posting in two public places in Town. The notice shall include a general description of the proposal and shall identify the applicant and the location of the proposal.

Section 9 Fees

The following fees shall accompany all applications:

Application Fee: $100.00
Handling Fee $20.00
Legal Notice Fee: $200.00
Abutter Fee: 10.00 x # of abutters

Checks should be made payable to the "Town of Sandown, NH"

HOME BUSINESS SITE PLAN APPLICATION

Date:_____
Owner of Property Name: _____Home Phone: _____
Address: _____
Applicant's Name: _____Home Phone: _____
Address:_____
Acreage:_____ Tax Map No. _____
Business Name: _____ Tax Map No. _____
Number of Employees: _____ Resident: _____ Non-Resident: _____ Total: _____
Area in Square Footage to be Used for the Business: _____
Will the business be located in the main house or auxiliary building? _____
_____
_____

Give a detailed description of the operation of the business including the types of deliveries expected, materials and equipment used, number of vehicles used, hours of operation and amount of parking area.
_____
_____
_____

Will a sign be hung? If so, provide its description
_____
_____

Please provide a photograph of the front and rear of the residence or ancillary structure to be used for home business.

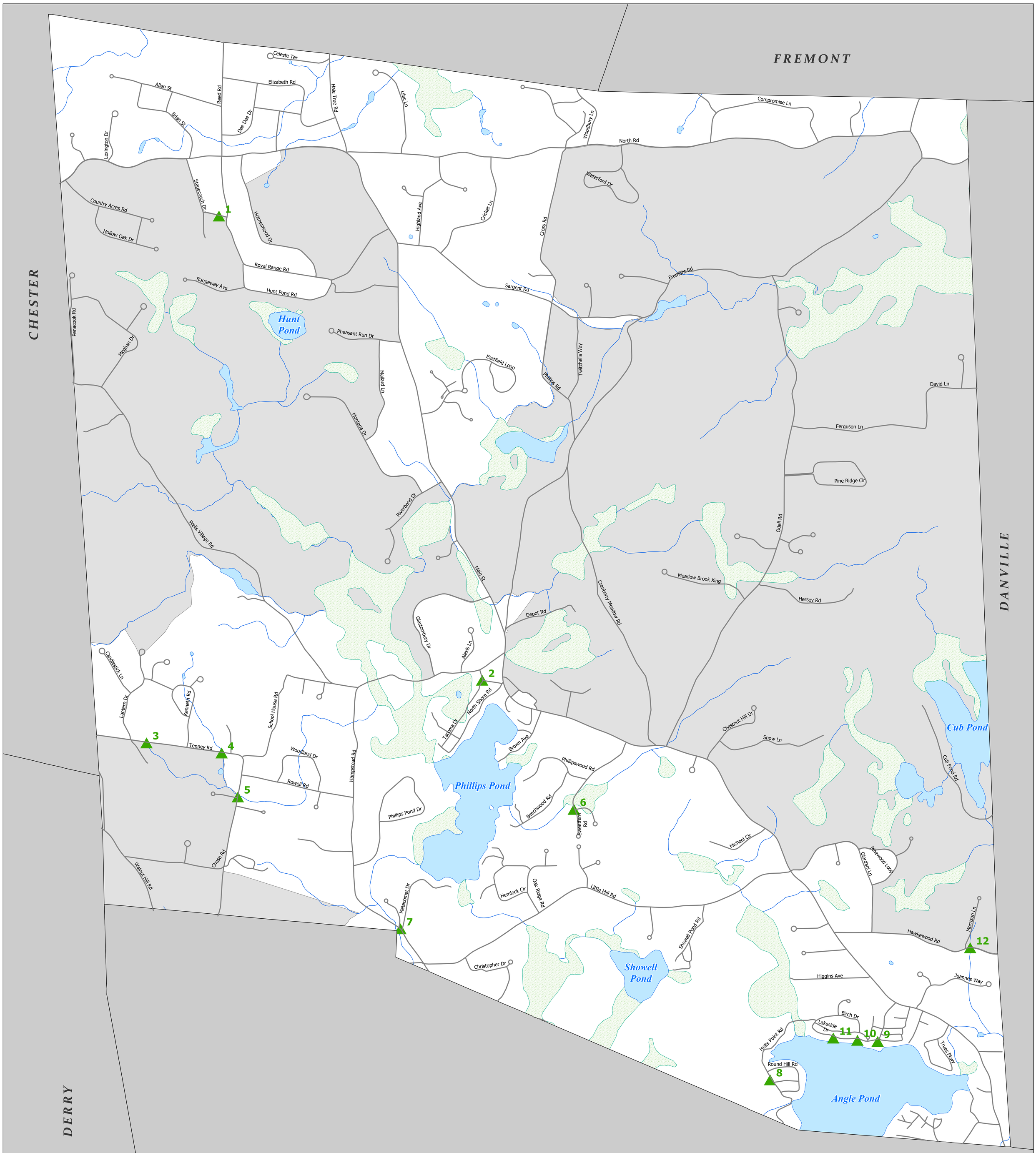
I declare I am the owner of the property for which this application is made and agree to pay any additional charges incurred on behalf of this application.
Owner: _____ Date: _____

Appendix C

Stormwater System Mapping

Mapping Status

Requirement Summary	Status
Phase I – Must be Complete by July 1, 2020	
1. Outfalls and receiving waters	Complete
2. Open channel conveyances	Complete
3. Interconnections with other MS4s	In progress
4. Municipally owned structural BMPs	Complete (not applicable)
5. Waterbody names and impairments	Complete
6. Initial catchment delineations by topography	Complete
Phase II – Must be Complete by July 1, 2028	
1. Outfalls with spatial accuracy +/-30 feet	Complete
2. Pipe connectivity	In progress
3. Manholes	Complete
4. Catch basins	Complete
5. Refined catchment delineations	Not started
6. Municipal sanitary system	Not Applicable
7. Municipal combined sewer system	Not Applicable


FREMONT
CHESTER
DANVILLE
DERRY
Celeste Ter
Elizabeth Rd
Allen St
Reed Rd
Hale True Rd
Lilac Ln
Brian St
Dee Dee Dr
Lexington Dr
Woodbury Ln
Compromise Ln
North Rd
Waterford Dr
Stagecoach Dr
Country Acres Rd
Hollow Oak Dr
Holmeswood Dr
Highland Ave
Cricket Ln
Cross Rd
Royal Range Rd
Rangeway Ave
Hunt Pond Rd
Sargent Rd
Fremont Rd
Hunt Pond
Penacook Rd
Meghan Dr
Pheasant Run Dr
Eastfield Loop
Mallard Ln
Phillips Rd
Twitchells Way
David Ln
Montana Dr
Ferguson Ln
Pine Ridge Cir
Riverbend Dr
Wells Village Rd
Odell Rd
Main St
Meadow Brook Xing
Hersey Rd
Cranberry Meadow Rd
Depot Rd
Glastonbury Dr
Alexis Ln
Candlestick Ln
Lantern Dr
Kenneth Rd
School House Rd
North Shore Rd
Tachma Dr
Chestnut Hill Dr
Snow Ln
Cub Pond
Cub Pond Rd
Tenney Rd
Woodland Dr
Hampstead Rd
Brown Ave
Phillipswood Rd
Rowell Rd
Phillips Pond
Phillips Pond Dr
Beechwood Rd
Sweetfern Rd
Michael Cir
Chase Rd
Walnut Hill Rd
Pinewood Loop
Giordani Ln
Hemlock Cir
Oak Ridge Rd
Little Mill Rd
Metacomet Dr
Showell Pond Rd
Morrison Ln
Hawkewood Rd
Christopher Dr
Showell Pond
Higgins Ave
Jeannes Way
Birch Dr
Lakeside Dr
Holts Point Rd
Round Hill Rd
Trues Pkwy
Angle Pond
1
2
3
4
5
6
7
8
9
10
11
12
N
S
E
W
0
0.25
0.5
1
Miles
Legend
Lake, Pond, Reservoir
Swamp, Marsh
Non-Urban Area
Outfall
Stream, Brook
Roads
Stormwater Infrastructure Map
Sandown, NH
Comprehensive
Environmental
Incorporated
Data Sources: CEI, GRANIT, Town of Sandown
04.25.2019

Appendix D

Regulatory Assessments

LID, GI, AND IA REGULATORY ASSESSMENT

To: Lynne Blaisdell, Town Administrator, Sandown NH

From: Nick Cristofori, P.E., Comprehensive Environmental Inc.

Date: December 20, 2021

Subject: Review of Sandown's Regulations for LID and Impervious Cover Creation

Under the Environmental Protection Agency's (EPA's) 2017 National Pollutant Discharge and Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permit, regulated communities such as Sandown are required to complete an assessment of existing town regulations as they pertain to Low Impact Development (LID), green infrastructures, and the creation of impervious area under permit sections 2.3.6.b and 2.3.6.c. In summary, communities must complete the following:

- Develop a report assessing current street design and parking lot guidelines and other local requirements that affect the creation of impervious cover to determine if changes to design standards for streets and parking lots can be made to support low impact design options.
- Develop a report assessing existing local regulations to determine the feasibility of making, at a minimum, the following practices allowable when appropriate site conditions exist: green roofs; infiltration practices such as rain gardens, planter gardens, pervious pavements, and other designs to manage stormwater using landscaping and structured soils; and water harvesting devices such as rain barrels and cisterns.

This memorandum serves as a report assessing any barriers to implementing LID and green infrastructure, opportunities for reducing mandatory creation of impervious area, recommended regulatory changes to be made, and a schedule for implementation of recommendations.

As part of preparation of this memo, CEI reviewed the following regulations:

- 2021 Zoning Ordinance
- 2021 Site Plan Review Regulations
- 2021 Land Subdivision Control Regulations
- 2010 Planning Board Bylaws
- 1990 Town of Sandown Excavation Regulations

Recommendations

The following items are provided as recommendations and next steps:

- Table 1 (attached) provides a detailed assessment and recommended regulatory changes that should be considered when updating relevant sections of the town's regulatory mechanisms.
- Regulatory review and permitting processes such as Site Plan Review, Subdivision, Wetlands, and/or any other similar processes should be updated to specifically reference

the stormwater regulatory mechanisms adopted to meet MS4 regulations for projects that disturb one or more acres. This should include the construction and post-construction stormwater requirements, including requirements for treating stormwater from new development and redevelopment, so that project proponents are aware of the additional requirements under MS4 regulations.

- Changes should be made as part of the next major regulatory update undertaken by the town for each relevant section, or more suitable timeframe as determined by the Planning Board and/or other regulatory board/department.
- This memorandum should be provided to the Planning Board and local transportation board, if applicable, as recommended by the permit.

If you have any further questions or would like additional information, please feel free to contact me at 800.725.2550 x303 or ncristofori@ceiengineers.com. Thank you.

Nick Cristofori, P.E.
Principal, Project Manager

Attachments:

- Table 1: Recommendations for Updating Existing Regulations Pertaining to LID, Green Infrastructure and Impervious Cover Creation

Table 1: Recommendations for Updating Existing Regulations Pertaining to LID, Green Infrastructure and Impervious Cover Creation

Topic	Reference	Existing Requirement	Recommendations
General design for environmental sensitivity	Site Plan Review II. Purpose	Stated purpose of Site Plan Regulations include to avoid development which may result in adverse environmental impact.	Consider expanding these sections to include: • Precautions to prevent pollution from stormwater runoff; • Minimization of cuts and fills; and • Minimization of disturbance of steep slopes.
	Subdivision Section 5: General Standards	Requires adequate provisions be made for storm water drainage and ground water recharge.	
Stormwater Management			
Drainage design/ surface runoff	Site Plan Review F. Post-Construction Stormwater Management Standards	Requires surface runoff from new impervious surfaces and structures be directed into appropriate stormwater control measures designed for treatment and/or infiltration to the maximum extent practicable and/or captured and reused onsite.	No changes recommended.
LID Practices	Site Plan Review F. Post-Construction Stormwater Management Standards	Requires LID site planning and design strategies be used to the maximum extent practicable for new development/ redevelopment projects and for general performance criteria for Stormwater Management Plans.	No changes recommended; LID practices consistently required to the maximum extent practicable.
	Site Plan Review Appendix A: Stormwater Management Rules and Regulations	Requires LID site planning and design strategies be implemented unless infeasible as a standard requirement.	
	Subdivision Section 9: Design Standards-Streets 9.18. Design and Construction Standards for Drainage and	Requires LID practices be used to the extent practicable unless applicant can document infeasibility to Planning Board.	

Topic	Reference	Existing Requirement	Recommendations
	Stormwater Management Facilities A. Analysis and Design of Improvements		
Open drainage/ stormwater facility design	Subdivision Section 9: Design Standards-Streets 9.18. Design and Construction Standards for Drainage and Stormwater Management Facilities B. Design and Construction Standards for Stormwater Management Improvements	Provides requirements for stormwater roadside ditches, conveyance channels, and swales; Refers to requirements in Stormwater Management Erosion and Sediment Control Handbook for Urban and Developing Areas in New Hampshire (NHDES) for detention ponds, retention basins, infiltration basins, and all stormwater treatment accommodations.	No changes recommended.
	Site Plan Review Appendix A: Stormwater Management Rules and Regulations 12.0 Stormwater Standards	Adopts the most recent publication of the NH Stormwater Manual Volume 2 as the Town's stormwater design and BMP manual.	
Storm event design	Zoning Article I: Part C: Floodplain Development Ordinance Section 8: Special Flood Hazard Areas	Requires the Building Inspector to review any 100-year floor elevation data available for development proposals in Zone A.	No changes recommended.
	Subdivision Section 9: Design Standards-Streets 9.18. Design and Construction Standards for Drainage and Stormwater Management Facilities	Requires design calculations for the 10-, 25-, 50-, and 100-year return frequency design storm events be prepared and incorporated into a Stormwater Management Report.	

Topic	Reference	Existing Requirement	Recommendations
	A. Analysis and Design of Improvements		
	Site Plan Review VI. General Standards 3. Stormwater Standards for New Development	Requires all stormwater installations and areas that receive rainfall runoff be designed to drain within a maximum of 72 hours for vector control.	
		Requires the design of stormwater management systems include sizing of all structures and BMPs based on the assessment of the 100-year 24-hour frequency storm discharge rate.	
Green roofs	Zoning Article III: Part A: Building Regulations – Zone A Pertaining to All Buildings Section 6	Requires the roof of every building be covered with non-combustible or fire-resistant materials.	Consider allowing for the installation of a vegetated roof with a planning permit. The contractor would need to ensure the following aspects are satisfied before permit could be issued: • Compliance with siting controls in the building regulations; • Appropriate load bearing capacity of the structure to be determined in a structural engineer's report; • Management of waterproofing and drainage measures; • Compliance with fire safety regulations; • Safety of access and emergency egress for building users.
Rain water harvesting	Town of Sandown website: Departments – Stormwater Management	Provides resources for home owners to learn about protecting Sandown's wetlands and water resources, including a link to the "SOAK up the Rain NH" project, which	No changes recommended. LID practices encourage allowing residential homeowners to use rain water harvesting devices, such as cisterns and rain barrels, to use for outdoor

Topic	Reference	Existing Requirement	Recommendations
		encourages homeowners to create rain gardens, set up rain barrels, etc.	purposes, such as lawn irrigation and gardening on their property.
Open Space			
Dedication of open space	Zoning Article II: Part D: Open Space Development Section 4: General Provisions Section 6: Design Requirements Article II: Part F: Elderly Housing Development Section 4: Regulations and Design Criteria	Permitted uses include single family dwellings, accessory recreational facilities, farming and agriculture, etc.; Minimum of one contiguous tract of open space having an area not less than ½ the required common open space area be provided, uninterrupted by buildings, streets, or other manmade improvements unless approved by Planning Board.	Consider explicitly allowing LID stormwater management practices (bioretention areas, filter strips, swales, rain gardens, constructed wetlands, etc.) as a permitted use within open space developments and to count towards the fulfillment of required open space areas.
Buffers	Zoning Article II: Part D: Open Space Development Section 6: Design Requirements	Requires landscaped buffer with minimum width of 50 feet around the perimeter, comprised of existing or planted vegetation with no permanent improvements unless approved by the Planning Board.	Consider allowing LID stormwater management practices (bioretention areas, filter strips, swales, rain gardens, constructed wetlands, etc.) within the buffer zone of open space development parcels.
Open space residential development (OSRD)	Zoning Article II: Part D: Open Space Development	The Open Space Development Ordinance permits any parcel situated in Zone A be open space development, provided that parcel conforms to the Minimum Tract Requirements, and provides other requirements needed for the application to be accepted.	No changes recommended. LID practices encourage permitting open space residential development (OSRD) as a "by right" form of development (no special permit required).
Street Design			
Width	Subdivision	Requires minimum pavement width of 20'-22' for residential streets, 24' for collector streets, and 30' for non-residential streets.	Consider permitting a minimum pavement width of 18-22 feet on low-traffic local streets in residential neighborhoods. Allow

Topic	Reference	Existing Requirement	Recommendations
	Appendix: Table of Geometric Roadway Design Standards for Streets		narrower pavement widths along sections of roadway where there are no houses, building, or intersections, and where on-street parking is not anticipated. For non-residential mixed-use roadways, pavement widths should be set based on traffic volume, types of vehicles, parking and pedestrian requirements. Consider specifying maximum pavement widths.
Materials	Site Plan Review VI. General Requirements	Permits the use of permeable pavement for access, parking and loading areas where appropriate, which might reduce the need for installation of drainage facilities to accommodate run-off.	Consider expanding to encourage the use of permeable materials such as porous pavers, paving stones, and pervious pavement for road shoulders and parking lanes in residential neighborhoods with the use of conventional paving for travel lanes only.
	Subdivision Section 14: Procedure for Road Inspections 14.7 Inspections	Includes subgrade preparation, gravel base placement, crushed gravel base placement, and base course installation requirements.	Consider providing requirements and an alternative cross-section for roads with permeable materials.
	Subdivision Appendix A: Typical Cross-Section for Construction of Streets	Specifies construction of streets with crushed gravel, gravel, and hot bituminous pavement.	
Layout	Subdivision Section 9: Design Standards – Streets 9.1.2. Arrangements of Streets	Requires streets comprise a convenient transportation system, provide maximum separation of through and local traffic, etc.	Consider expanding this section to require street layout be designed to reduce street length and minimize the total paved area (including cul-de-sacs) with the goal of protecting site hydrology.
Curbs and berms	Site Plan VI. General Standards	Requires all sidewalks be at least 6” above grade protected by curbing.	Consider explicitly permitting the use of “open drainage” along residential streets. If

Topic	Reference	Existing Requirement	Recommendations
	Subdivision Appendix: Alternative Cross-Section for the Construction of Streets (permitted for Residential-1 streets by approval from Planning Board)	Shows curb 6" high on road edge. No specific requirements of where curbs are used. Typical cross section does not show curb.	protection of the roadway edge is a concern, consider allowing alternative designs such as curbs with openings (or "leak-offs") or flush curbs, that enable the use of bioretention, treatment swales, and open drainage instead of requiring piped drainage systems.
Right-of-Way (ROW) width	Subdivision Appendix: Table of Geometric Roadway Design Standards for Streets	Requires minimum width of ROW of 50' for residential streets and 60' for collector and non-residential streets.	Consider allowing for flexibility of ROW widths and allowing the use of roadside swales for stormwater practices within ROW.
Cul-de-sacs	Subdivision Appendix: Typical Permanent Cul-De-Sac detail (Figure 2)	Shows cul-de-sac with hot bituminous pavement and radius to ROW of 80'.	Consider minimizing the required paved radius for cul-de-sacs to 35-45 feet, depending on emergency vehicles, and allowing alternative pavement types such as pervious pavement.
		No specific requirements for the island of cul-de-sacs.	Consider allowing- or better, requiring- the creation of a landscaped island in the center of cul-de-sacs and permitting the use of vegetated stormwater management practices within the island.
Dead-end streets	Subdivision Section 9: Design Standards – Streets 9.2.4. Design Requirements for Cul-De-Sacs and Single Access Streets	Requires all permanent dead-end streets end in a cul-de-sac, unless the Planning Board determines that a subsequent extension of the street is imminent, then they may permit a temporary "hammerhead" style turn-around.	Consider allowing alternative layouts for turnarounds to minimize impervious surfaces.
Sidewalks			
General requirements	Site Plan Review VI. General Requirements	Requires sidewalks be provided for pedestrian traffic between the main entrances of	Consider providing flexibility with sidewalk layout (e.g., alternative pedestrian circulation layout that uses common areas,

Topic	Reference	Existing Requirement	Recommendations
		business, housing or industrial establishments and parking areas.	rather than street rights of way) and permitting sidewalk placement on one side of the street only in low-density residential neighborhoods.
	Subdivision Appendix: Typical Cross-Section for Construction of Streets	No details for sidewalks.	Consider providing details for sidewalk design showing how to "disconnect" sidewalks from street drainage by placing a green strip or directing runoff to a designated landscaped area.
Width	Site Plan Review VI. General Requirements	No widths specified for sidewalks.	Consider requiring a sidewalk width of 4 feet.
	Subdivision Appendix: Typical Cross-Section for Construction of Streets		
Materials	Site Plan Review VI. General Requirements	Permits the use of permeable pavement for access, parking and loading areas where appropriate, which might reduce the need for installation of drainage facilities to accommodate run-off.	No changes recommended.
	Subdivision Section 9: Design Standards-Streets 9.23 Subdivision Recreation Facilities	Requires a recreation park for the subdivision contains at least 3 of the listed recreation facilities, one being a "paved recreation trail".	Consider explicitly requiring trails made of permeable surfaces, such as pervious, cross-country pathway or pervious pavement, rather than paved trails.
Driveways			
General requirements	Subdivision Section 9: Design Standards – Streets 9.3. Driveway Design and Construction Standards	Requires each platted lot have at least one location where driveway construction can occur without interfering with utility installations and/or stormwater management improvements.	No changes recommended.

Topic	Reference	Existing Requirement	Recommendations
Width	Subdivision Section 9: Design Standards – Streets 9.3. Driveway Design and Construction Standards	Requires all residential driveway aprons be paved to a minimum width of 12 feet and a maximum width of 20 feet.	Consider requiring a minimum driveway width of 18 feet for two-way traffic and 9 feet for one-way traffic, as recommended for LID practices.
Common driveways	Subdivision Section 9: Design Standards - Streets 9.3. Driveway Design and Construction Standards	No requirements for common or shared driveways.	Consider permitting the use of common residential driveways to serve up to four houses, including cluster development lots that do not meet standard dimensional requirements.
Materials	Subdivision Section 9: Design Standards - Streets 9.3. Driveway Design and Construction Standards	No specific requirements for materials of driveways.	Consider explicitly permitting pervious materials (porous pavers, paving stones, pervious concrete) and/or the use of "two-track" driveways, for residential driveways in the Subdivision Regulations.
	Subdivision Section 11: The Plat 11.20.1 Roadway Design Plan & Profiles Sheets	Requires a note specifying "All workmanship and materials incorporated into this work shall conform to applicable requirements of Standard Specifications for Road and Bridge Construction as published by NHDOT.	
	Site Plan Review VI. General Standards	Permits the use of permeable pavement for access, parking and loading areas where appropriate, which might reduce the need for installation of drainage facilities to accommodate run-off.	
Parking Lots			
Size of spaces	Zoning Article II: General Regulations – All Zones	Size of parking spaces not specified.	Consider providing dimensional requirements for standard parking spots (e.g., 9' width, 18' length) and for compact car spots (e.g., 8' width, 16' length).
Number of spaces	Site Plan Review VI. General Standards	Requires sufficient off-street parking be provided for the anticipated use to	Consider specifying the required number of spaces for parking areas for different uses.

Topic	Reference	Existing Requirement	Recommendations
		accommodate both employees and customers so that no parking is forced into public streets.	• Do not require more than 3 off-street parking spaces per 1000 SF of gross floor area of professional office buildings. • Do not require more than 4.5 off-street parking spaces per 1000 SF gross floor area of shopping centers. • Do not require more than 2 off-street parking spaces per single family home. Consider allowing reduced parking for homes and businesses near major transit stops and establishing a maximum number of spaces for parking areas.
	Site Plan Review F. Post-Construction Stormwater Management Standards	Requires impervious surfaces for parking areas be minimized to the extent possible, including minimum parking requirements for proposed uses.	
	Zoning Article II: Part F: Elderly Housing Development Section 4: Regulations and Design Criteria	Requires 2 parking spaces per dwelling unit in Elderly Housing Developments.	
	Zoning Article V: Special Exceptions Section 5: Accessory Dwelling Unit Ordinance	Requires off-street paved or gravel parking be provided for at least 4 vehicles.	
Materials	Zoning Article V: Special Exceptions Section 5: Accessory Dwelling Unit Ordinance	Requires off-street paved or gravel parking be provided for at least 4 vehicles.	Consider allowing pervious materials such as porous pavers, paving stones, reinforced grass, and pervious pavement for required parking areas.
	Site Plan Review VI. General Standards	Permits the use of permeable pavement for access, parking and loading areas where appropriate, which might reduce the need for installation of drainage facilities to accommodate run-off.	No changes recommended, LID practices encourage the use of permeable paving for parking stalls and spillover parking areas.
Shared parking	Zoning Article II: General Regulations – All Zones	No specific requirements regarding shared parking.	Establish formulas for the utilization of shared parking for uses with different peak demand periods (e.g., office peak demand 9am – 5pm; housing peak demand 6pm – 8am) and allow reduction of parking requirements if shared parking is proposed.

Topic	Reference	Existing Requirement	Recommendations
Compact car spaces	Zoning Article II: General Regulations – All Zones	No current provisions addressing compact car spaces.	Consider recommending or requiring commercial parking lots have up to 30% of spaces reserved for compact cars.
Landscaping	Site Plan Review VI. General Standards	No current provisions addressing landscaped areas in parking lots.	Consider establishing landscaping requirements for parking areas that include vegetated islands with bioretention functions.
Lot Layout			
Landscaping	Site Plan Review VI. General Standards	Requires landscape treatment consisting of natural, undisturbed vegetation or features, or the additional planting of ground cover, shrubs, or trees as appropriate.	Consider providing language explicitly allowing LID stormwater management practices (bioretention areas, filter strips, swales, rain gardens, constructed wetlands, etc.) in required landscaped areas for all districts.
Lot dimensions	Zoning Article III: Part B: Land Regulations – Zone A Section 3	Requires every building lot have a minimum frontage of 200 contiguous feet; Table 1A: Minimum Lot Size by Soil Type.	Consider establishing maximum lot areas and frontages. Consider permitting reduction in frontage (and corresponding road length/ paved area) where appropriate, such as OSRD, at the outside sideline of curved streets, and around cul-de-sacs in all districts.
	Zoning Article III: Part A: Building Regulations – Zone A Pertaining to All Buildings	Requires each structure in Zone A be setback at least 30 feet from the edge of the public ROW providing frontage.	
	Zoning Article II: Part E: Business District Land Regulations Section 3.1	Permits reduction of frontage on cul-de-sacs.	Consider expanding this section to also include permitting reduction in frontage (and corresponding road length/ paved area) in OSRD lots and at the outside sideline of curved streets.
Buffers	Zoning Article I: Part B: Wetland Conservation District Purpose	States the purpose of this district is to encourage those uses that can be appropriately and safely located in wetland areas and to prevent the development of structures and land uses on natural wetlands which would	Consider providing language explicitly allowing LID stormwater management practices (bioretention areas, filter strips, swales, rain gardens, constructed wetlands, etc.) within the buffer zone of wetland

Topic	Reference	Existing Requirement	Recommendations
		contribute to pollution of surface and groundwater.	resource areas, provided the location of these structures is not in conflict with any other setback criteria required by NHDEP or NH Stormwater Manuals.
	Site Plan Review VI. General Standards 3. Stormwater Standards for New Development	Requires stormwater management and erosion and sediment control practices be located outside any specified buffer zones unless otherwise approved by the Planning Board.	Consider providing language explicitly allowing LID stormwater management practices (bioretention area, filter strips, swales, rain gardens, constructed wetlands, etc.) within specified buffer zones, provided the location of these structures is not in conflict with other setback criteria.
Impervious lot coverage	Zoning Article II: Part E: Business District Land Regulations Section 5	Requires impermeable surfaces not cover more than 75% of any lot.	In rural, low-density areas, establish limits on impervious lot coverage (e.g., 15%). This recommendation is not appropriate for town centers, transit-oriented districts, and moderate density neighborhoods, where compact development should be encouraged.
	Zoning Article V: Special Exceptions	Requires impervious surfaces not exceed 50% of the lot area.	
Location of utilities	Subdivision Section 11: The Plat 11.10 Underground Utilities	Requires underground utilities not be constructed to run directly under the pavement of and parallel to centerline of proposed roads, but rather under the shoulder area of proposed roads or outside the road ROW.	Consider permitting the placement of utilities under the paved section of the ROW or immediately adjacent to the road edge so that the land adjacent to the roadway can be used for drainage swales.
	Subdivision Appendix: Alternative Cross-Section for the Construction of Streets	Shows underground utilities placed under the grassed land adjacent to the roadway.	
Site Work			

Topic	Reference	Existing Requirement	Recommendations
ROW clearing	Subdivision Appendix: Typical Cross-Section for Construction of Streets	Requires full width of ROW be cleared of all existing brush and trees unless otherwise approved by the Planning Board.	Consider requiring developers to limit clearing within the ROW to the minimum necessary to construct roadway, drainage, sidewalk, and utilities. Establish regulatory controls over tree clearance and removal of mature trees/forest stands.
Soil restoration	Excavation 8. Site Reclamation Standards	Requires stockpiled topsoil be spread over the disturbed area to allow and maintain vegetation.	Consider including provisions that address the following: • Minimization of the removal of topsoil from the property; • Restoration of natural soil permeability, such as rototilling of soils, within vegetated/ landscaped areas where construction has compacted soils.

Appendix E

Inventory and Ranking of Town-Owned Property

							Municipal Infrastructure										Parks and Open Space						Buildings and Facilities						Vehicle Maintenance and Storage Yards				Spill Prevention, Response and Reporting			Construction Management	
						SOP ID:	MI1	MI2	MI3	MI4	MI5	MI6	MI7	MI8	MI9	MI10	PO1	PO2	PO3	PO4	PO5	PO6	BF1	BF2	BF3	BF4	BF5	BF6	VM1	VM2	VM3	VM4	SR1	SR2	SR3	CM1	CM2
Site Name	Address	Responsible Department	Map ID	Map Tile Number	Contact	Notes	Street Sweeping	Catch Basin Inspection & Cleaning	Outfall Inspection & Maintenance	Stormwater & Water Line Maintenance	Asphalt Cleaning & Repair	BMP Inspection & Maintenance	Oil/Water Separator	Floor Drains	Snow Stockpiling/Removal	Winter Road Maintenance	Landscape Design & Management	Lawn & Grounds Maintenance	Pest Waste & Litter	Storage & Use of Pesticides & Herbicides	Storage & Use of Fertilizers	Waterfowl Management	Building Washing & Repair	Solid Waste Management	Material Loading/ Unloading	Material Storage	Painting	Winter Road Maintenance	Vehicle & Equipment Storage & Maintenance	Vehicle & Equipment Washing	Vehicle & Equipment Fueling	Parts Cleaning	Spill Response	Spill Reporting	Emergency Contact Info	Erosion & Sedimentation Control	Construction Site Inspection
MUNICIPAL BUILDINGS																																					
Town Hall	320 Main Street						x				x			x		x	x	x	x				x	x			x	x									
Fire Department - Central Fire Station	314 Main Street						x				x					x	x	x					x		x	x	x	x	x	x	x	x	x	x	x		
Fire Department - Angle Pond Fire Station	17 Main Street						x				x					x			x				x		x	x	x	x					x	x	x		
Police Department	460 Main Street						x				x			x		x	x	x	x				x				x	x									
Highway Department/Transfer Station	26 Depot Road						x	x		x	x					x	x	x					x		x	x	x	x	x	x	x	x					
SCHOOLS AND COMMUNITY BUILDINGS																																					
Sandown Public Library	305 Main Street						x				x					x	x	x					x				x	x									
Edward C. Garvey Recreation Facility	25 Pheasant Run Drive						x				x					x							x	x	x	x	x	x					x	x	x		
Edward C. Garvey Recreation Fields	25 Pheasant Run Drive																						x				x										
Miller Fields	212 Main Street																x	x					x	x	x	x	x						x	x	x		
Sandown North Elementary School	23 Stagecoach Road																																				
Sandown Central School	295 Main Street																																				
OPEN SPACES																																					
Parks/Trails/Historic Buildings																																					
Fremont Road Town Forest Trail and Red Barn	Access from Fremont Road																x	x	x			x	x				x										
Rockingham Recreational Trail	6 Depot Road																																				
Punch Pond and Cub Pond Trails	Access from off of Morrison Lane																		x																		
Eagle Trail	Access from Odell Road south of Meadow Brook Crossing																		x																		
Wells Village Road Parcel	Access from Wells Village Road																		x																		
Main Street/Community Garden	Main Street and Cranberry Meadow Road																x	x	x	x	x																
Sandown Historical Society and Museum	6 Depot Road						x				x					x	x	x	x				x				x	x									
Sandown Town Pound	Fremont Road																		x																		
1774 Sandown Meeting House	27 Fremont Road																x	x	x				x				x										
Beaches/Access to Water																																					
Seely Park and Beach	On Phillips Pond; Main Street																x	x					x				x										
Cemeteries																																					
Wells Cemetery	On Wells Village Road																x	x	x																		
Center Cemetery	315 Main Street																x	x	x				x	x			x										
North Road Cemetery	On North Road																x	x	x																		
OTHER																																					

MUNICIPAL PROPERTY BMP RETROFITS

To: Lynne, Blaisdell, Town Administrator, Town of Sandown

From: Nick Cristofori, P.E., Comprehensive Environmental Inc.

Date: June 30, 2022

Subject: Municipal Property BMP Retrofits

Permit Requirements and Project Background

Under the Environmental Protection Agency's (EPA's) 2017 National Pollutant Discharge and Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permit, as amended (Permit), the Town of Sandown is required to complete an inventory and priority ranking of Town-owned properties and existing stormwater infrastructure that could be retrofitted with stormwater Best Management Practices (BMPs) designed to reduce the frequency, volume and pollutant loads of stormwater discharges to its MS4 through the mitigation of impervious area. At a minimum, Sandown must consider municipal property with significant impervious area that could be mitigated, existing street right-of-ways, and open space and undeveloped land available to mitigate stormwater runoff from nearby areas (e.g. from a trunk line in the street).

The potential for retrofitting particular properties must consider, on a screening level and subject to availability, factors such as maintenance access; subsurface geology; depth to water table; site slope and elevation; and proximity to aquifers and subsurface infrastructure including sanitary sewers and septic systems. Sites must be priority ranked based on factors such as schedules for planned capital improvements to storm and sanitary sewer infrastructure and paving projects as available; current storm sewer level of service (if known); control of discharges to impaired or critical receiving waters; the complexity and cost of implementation; and opportunities for public use and education.

Additionally, the town has multiple waterbodies listed under the final New Hampshire Year 2018 List of Impaired Waters (2018 303d List[1]) as being subject to Total Maximum Daily Loads (TMDLs) and impaired waters requirements. Permit requirements are summarized as follows:

- Waterbodies with a phosphorus TMDL (Showell Pond): Develop a priority ranking of areas and infrastructure for implementation of phosphorus control practices based on the factors outlined previously. Structural BMPs must then be designed and constructed to meet pollutant reduction requirements specified under the TMDL by the end of June 2033 (Permit Year 15).
- Waterbodies with a phosphorus impairment (Phillips Pond and Angle Pond) and a nitrogen impairment (Great Bay via the Exeter River): Evaluate Town-owned properties within each watershed for opportunities to construct or retrofit BMPs. The evaluation must address the engineering and regulatory feasibility of the retrofit, estimated costs for BMP

[1] As of the date of this memorandum, the finalized 2018 303d List is the most recent List of Impaired Waters available.

implementation, and the schedule for any planned infrastructure, resurfacing or redevelopment activity. Sandown must design and construct a stormwater BMP as a public demonstration project targeting a catchment with high phosphorus load by the end of June 2024 (Permit Year 6).

Beginning with the fifth year MS4 annual report and in each subsequent annual report, Sandown must report on those permittee-owned properties and infrastructure inventoried that have been retrofitted with BMPs to mitigate impervious area and associated water quality impacts.

This memorandum outlines activities completed by Comprehensive Environmental Inc. (CEI) to assist the Town of Sandown with meeting the above Permit requirements, with a focus on potential retrofit opportunities on developed municipal parcels. Analysis of open space and undeveloped land available to mitigate stormwater runoff from nearby areas should be evaluated as part of a future effort.

Municipal Parcel Retrofits

Desktop and Field Analysis

The Town identified 23 Town-owned facilities located within the MS4 regulated area with impervious cover such as parking lots and rooftops as required by the permit which were advanced for additional desktop and field analysis. CEI first developed a series of parcel maps for each facility to be used for recording existing conditions and field notes. Parcel maps typically showed an aerial view of each facility, along with property lines, topography data, available drainage information, and other relevant information. Noah Parent of CEI conducted field assessments of all 23 facilities in fall 2021. The goal was to evaluate opportunities to reduce pollutant loads discharging to the MS4 or surface water bodies from the site through reduction or treatment of stormwater runoff from impervious surfaces

A map of all 23 facilities is provided as **Figure 1** at the end of this memorandum. A summary of the existing conditions for each site is included as **Table 1**, with proposed retrofit conditions provided as **Table 2** the end of this memorandum.

Proposed BMP Selection

Proposed conceptual BMPs have been selected based largely on available space, soil types within the area, and proximity to wetland areas. For planning, pollutant removal, and cost estimating purposes, locations with larger areas available for implementation were assigned BMPs with larger footprints such as infiltration basins, extended detention basins, or constructed wetlands, whereas smaller areas were assigned to rain gardens, trenches, or swales. Implementation areas with soils classified primarily as HSG C or D were assigned non-infiltrating BMP types such as extended detention basins. Areas located in close proximity to wetlands are assumed to have relatively high groundwater, and thus were assigned BMP types such as constructed wetlands.

For the purposes of this initial screening effort, BMP selection focused on surface BMPs that could be installed in existing available spaces with little disturbance to existing paved surfaces, as a typical surface BMP is less expensive on a pounds of pollutant removed than a subsurface system installed below a parking lot or ball field. More expensive underground infiltration BMPs (e.g., subsurface infiltration) will be considered for proposed redevelopment projects where demolition, reconstruction and/or repaving are proposed to minimize the costs of installation. The use of subsurface infiltration BMPs would significantly increase treatment costs, as they can cost up to 4-10 times more than surface BMPs. Other BMPs that disturb pavement, including leaching catch basins and porous pavement, can likely be implemented at a wide variety of site, however, were not comprehensively assessed as part of this project will also be evaluated during redevelopment projects.

Upon completion of field assessments at all 23 facilities, the Town overall had limited opportunities for BMP installation or retrofit, primarily due to the lack of drainage infrastructure within and nearby town-owned properties. However, several areas in close proximity to impaired waterbodies were noted to have eroded and/or destabilized areas which are causing sediment to enter the lake untreated, along with the associated phosphorus contributions. BMPs were proposed at these areas, however, do not have corresponding pollutant load reductions from BMP Accounting and Tracking Tool (BATT) calculator and thus are shown to have no pollutant reductions. Pollutant reductions are expected to be associated with these areas, however, are not quantified under **Table 2**. Actual BMP types and sizes for all locations are expected to be refined as part of future designs.

BMP Unit Costs

Costs for BMP design and construction were estimated based on a memorandum from EPA titled "Methodology for developing cost estimates for Opti-Tool" (**Attachment A**). This memorandum built on multiple previous studies dating as far back as 2010 to estimate total implementation costs for multiple types of stormwater BMPs on a dollars per cubic foot of constructed volume in 2016 dollars, which also assumed that 35% of the construction cost would go towards engineering design and other contingencies. For the purposes of this memorandum, 2016 dollars were then converted to 2022 dollars by adding 18% to the total cost in order to account for inflation over the preceding six years.

Additionally, the Opti-Tool memorandum notes that cost adjustment factors may be incorporated to more accurately account for BMP site constraints associated with installation in a urban environments as follows:

- Undeveloped areas: 1.0;
- Partially developed areas: 1.5;
- Developed areas: 2.0; and
- Highly urban setting: 3.0.

Based on current development conditions, a cost adjustment factor of 1.5 was applied to all potential BMPs. Actual engineering costs depend on many factors, and engineering for larger

projects generally consist of a lower total percent of the construction cost, with the inverse being true for smaller projects (e.g., a $250,000 construction project may have a $50,000 engineering cost or 20% of construction, whereas a $50,000 construction project may have a $25,000 engineering cost or 50% of construction). Costs outlined in this memorandum are for guidance and comparison purposes only, and future design phases will further refine costs associated with all BMPs. A summary of costing data is provided in **Table 3** at the end of this memorandum.

Pollutant Removal and Cost Summary

Based on calculations from the BATT calculator, implementation of the top six stormwater BMPs outlined in **Table 2** will remove a total of 3.1 pounds of phosphorus and 21.9 pounds of nitrogen for a total engineering and construction cost of approximately $619,300 at an average cost of $202,400 per pound of phosphorus removed and $9,000 per pound of nitrogen removed. Pre-conceptual designs for the top locations have been prepared and are included as **Attachment B**.

Comparison to NHDES Pollutant Removal Study

The New Hampshire Department of Environmental Services (NHDES), in partnership with the University of New Hampshire (UNH) and New Hampshire Regional Stormwater Coalitions (Attachment A), also completed a study focused on impervious cover in its ranking of parcels. The NHDES, UNH, and the New Hampshire Regional Stormwater Coalitions developed a report called "Pollutant Hot Spots – Priority Ranked Parcel Summary Report" (**Attachment C**) that created a priority ranking of non-conservation areas based on the amount of impervious cover onsite. This report consisted of a desktop assessment using GIS impervious cover data on a per-parcel basis to calculate theoretical nitrogen, phosphorus, and total suspended solids generated at each site to then develop a list of the top sites for BMP retrofits by assuming that all impervious cover can be mitigated through implementation of BMPs. This is a more simplistic approach than that conducted by CEI, as no field work was performed, it does not look at the proximity of each location in relationship to receiving waterbodies or their tributaries, it ignores potential treatment currently provided by impervious cover flowing to pervious areas on-site, and assumes that BMPs can be successfully sized and implemented at all sites regardless of site conditions. Nevertheless, it is useful as a high-level screening tool.

This study resulted in a list of eight sites with the largest quantity of impervious cover resulting in an 81% reduction in phosphorus and 92% reduction in nitrogen if infiltration basin BMPs are successfully implemented at all sites to capture 0.4 inch of runoff from all impervious areas. However, the majority of these sites were investigated by CEI and determined either to be largely disconnected impervious area and/or have minimal opportunities for retrofit.

Roadway Improvement Projects

Roadway improvement projects such as pavement resurfacing, reclamation, and/or roadway widening serve as an opportunity for the Town to coordinate drainage improvements with roadway improvements. It also provides an opportunity to incorporate water quality BMPs, however, such opportunities are often restricted to areas located within, or immediately adjacent to, the roadway. Example roadway intersection improvements for Town to consideration are provided in

Attachment D, however, other alternative designs may also be considered depending on site-specific conditions. Implementation of such BMPs requires evaluation on a case-by-case basis in consideration of the size of the ROW, soil type, surrounding drainage infrastructure and location of other utilities.

Recommendations and Next Steps

It is recommended that the Town consider moving forward with design of BMPs outlined in **Table 4** below. As noted above, these locations were identified to be of high priority as they have good opportunities for retrofit, discharge to waterbodies with a phosphorus or nitrogen impairment / TMDL, and have good public education opportunities. Pre-conceptual designs for each of these sites have been prepared and are included as **Attachment B**.

Table 4 – Top Ranked BMP Locations

Location				TP Reduction		TN Reduction	
Facility Name	**Address**	**Proposed BMP(s)**	**Construction & Engineering**	**Lbs / Year**	**Dollars / Pound**	**Lbs / Year**	**Dollars / Pound**
Recreation Building	25 Pheasant Run Dr.	Infiltration Swale (2)	Const: $96,600 Eng: $33,900	0.1	$2,610,000	0.4	$318,300
Town Hall and Fire Department	320 Main St.	Infiltration Basin	Const: $57,300 Eng: $20,100	1.6	$49,300	11.9	$6,600
Highway Department and Old Landfill	26 Depot Rd.	Berm and Riprap Armoring	Const: $12,000 Eng: $4,200	N/A	N/A	N/A	N/A
Main Street Parcel	315 Main St.	Bioretention Basin with Forebay	Const: $109,500 Eng: $38,400	0.6	$269,000	2.6	$56,100
Seeley Park / Town Beach	306 Main St.	Infiltration Basin with Forebay	Const: $26,600 Eng: $9,400	0.5	$76,600	3.7	$9,900
Boat Ramp / Middle Beach at Angle Pond	24 Round Hill Rd.	Waterbar and Riprap Armoring	Const: $40,000 Eng: $16,000	N/A	N/A	N/A	N/A

The Town should also consider investigating, and implementing where feasible, water quality treatment BMPs as part of drainage improvements during roadway improvement projects. The cost and amount of pollutant removed from these systems will vary based on the size of the BMP and contributing drainage area.

If you have any further questions or would like additional information, please feel free to contact me at 800.725.2550 x303 or ncristofori@ceiengineers.com. Thank you.

Attachments:

- Table 1: Summary of Existing Conditions
- Table 2: Proposed Improvements
- Table 3: BMP Costing Information
- Figure 1: Municipal Property Maps
- Attachment A: Memorandum report on Methodology for developing cost estimates for Opti-Tool; February 20, 2016
- Attachment B: Pre-Conceptual Designs for Top Locations
- Attachment C: Report on Pollutant Hot Spots, Priority Ranked Parcel Summary Report; November, 2021
- Attachment D: Example Roadway and Intersection BMP Improvements

Table 1 - Summary of Existing Conditions

Description	Address	CEI Map ID	GIS ID	Total Parcel Area (acres)	Impervious Area (acres)	Existing Conditions Description	Watershed	Direct or Near-Direct Discharge	BMPs Present?	Soils		
										Soil Type	Hydric Soil Group	Soil Area (acres)
Recreation Building	25 Pheasant Run Dr.	2	018-001-002-000	7.42	0.21	A partially paved but mostly gravel parking area was exists for the Rec. building, as well as a gravel entrance and exit of Pheasant Run Drive. General topography slopes to the south and west off site.	Exeter River (Impaired Section)	No	No	Hinckley fine sandy loam	A	2.03
										Windsor loamy sand	A	5.00
										Montauk fine sandy loam	C	0.26
										Ridgebury very fine sandy loam	C	0.12
										Greenwood mucky peat	D	0.01
Town Hall and Fire Department	320 Main St	9	010-019-001-000	2.12	1.05	The Town Hall and Fire Station share this parcel that's located south of the intersection of Main Street and Hampstead Road. A mix of grassy, wooded and paved areas make up the majority of the parcel. No drainage structures were observed on or near the parcel. Water appears to flow to a low area between the two buildings and west towards Hampstead Road.	Exeter River (Impaired Section)	No	No	Windsor loamy sand	A	0.63
										Canton gravelly fine sandy loam	B	0.79
										Chatfield-Hollis-Canton complex	B	0.69
Highway Department and Old Landfill	26 Depot Rd	7	011-003-000-000	16.21	2.00	A garage building as well as multiple fill and mulch piles was observed on the accessible portion of the property. The landfill area was fenced off at the time of the visit. Wetlands to the south of Depot road crossed under the roadway and formed into a stream that ran north/south through the parcel. A single catch basin and outfall	Exeter River (Impaired Section)	Yes (Unnamed Stream)	No	Udorthents, smoothed	N/A	6.11
										Chatfield-Hollis-Canton complex	B	4.51
										Chatfield-Hollis-Canton complex	B	2.96
										Scituate-Newfields complex	C	0.07
										Greenwood and Ossipee soils	D	2.55
Main Street Parcel	315 Main St	10	010-039-000-000	1.97	0.00	A completely vacant and wooded parcel with a paved open drainage outlet. This parcel abuts wetland areas to the north and a cemetery to the south.	Exeter River (Impaired Section)	No	No	Windsor loamy sand	A	1.82
										Chatfield-Hollis-Canton complex	B	0.00
										Greenwood mucky peat	D	0.15
Seeley Park / Town Beach	306 Main St	12	029-024-000-000	1.74	0.04	Town beach in between Main Street, Seeley Street and North Shore Road. The majority of the site slopes down to Phillips Pond. A small HDPE drainage pipe exists at the end of Seeley Street (gravel) and conveys water east to a low wetland area. A shed also exists near the beach section of the property.	Phillips Pond	Phillips Pond	No	Water	N/A	0.12
										Windsor loamy sand	A	1.46
										Canton gravelly fine sandy loam, very stony	B	0.16
Boat Ramp / Middle Beach at Angle Pond	24 Round Hill Rd	19	026-016-000-000	0.22	0.03	A grassed lake access area to Angle Pond off of Round Hill Road. A boat launch area and small beach were observed. Scour and erosion were observed near the waters edge.	Angle Pond	Angle Pond	No	Canton gravelly fine sandy loam	B	0.22
Vacant Land/Beach	22 Lakeside Dr	21	028-025-000-000	0.08	0.005	A small parcel between Lakeside Drive and Angle Pond. Difficult to determine parcel boundaries during site visit. The property appeared to be partially beach area and vacant. A small open drainage path was observed off of Lakeside Drive.	Angle Pond	Angle Pond	No	Canton gravelly fine sandy loam	B	0.01
										Scituate-Newfields complex	C	0.07
Vacant Land	West Shore Rd	23	028-011-001-000	0.05	0.02	Skinny parcel in between West Shore Drive and Angle Pond. Difficult to determine parcel boundaries during site visit. A catch basin was observed on West Shore Road and appears to be connected to outfall OF-34.	Angle Pond	Angle Pond	No	Scituate-Newfields complex	C	0.05
Boat Ramp	51 A Pillsbury Rd	28	025-021-001-000	0.24	0.03	A grassed lake access area to Angle Pond at the end of Pillsbury Road. A small HDPE culvert was observed carrying water from south of Pillsbury Road to Angle Pond. Minor erosion was observed near the edge of water from runoff and stream outlet.	Angle Pond	Angle Pond	No	Canton gravelly fine sandy loam	B	0.24
Vacant Land	13 William St	1	022-009-000-000	3.92	0.16	A completely vacant and wooded parcel in between Williams Street, Main Street and April Avenue. A culverted stream entered the parcel from Williams Street and existed to the north under April Avenue. Area was relatively flat with no drainage structures.	N/A	No	No	Canton gravelly fine sandy loam	B	1.15
										Chatfield-Hollis-Canton complex	B	1.15
										Ridgebury very fine sandy loam	C	0.16
										Walpole very fine sandy loam	C	1.46
Police Station	460 Main St	3	018-002-001-000	5.46	0.65	Parcel is mostly grassed or wooded with the police station and associated parking lot on the eastern side near Main Street. Parking area was generally flat. Flow direction is towards Main Street and Pheasant Run Drive. Shallow riprap swales were observed near the intersection with a catch basin to convey water under Pheasant Run Drive.	N/A	No	No	Windsor loamy sand	A	0.79
										Montauk fine sandy loam	C	4.62
										Scituate-Newfields complex	C	0.05
						A medium sized lot that is mostly wooded in between Fremont Road				Chatfield-Hollis-Canton complex	B	5.37

Description	Address	CEI Map ID	GIS ID	Total Parcel Area (acres)	Impervious Area (acres)	Existing Conditions Description	Watershed	Direct or Near-Direct Discharge	BMPs Present?	Soils		
										Soil Type	Hydric Soil Group	Soil Area (acres)
Barn and Pond - Historical	35 Fremont Rd	5	010-029-002-001	5.39	0.10	A medium sized lot that is mostly wooded in-between Fremont Road and Cranberry Meadow Road (gravel). A small gravel parking area, small barn, grass field and pond exist on the property.	N/A	No	No	Greenwood and Ossipee soils	D	0.02
Sandown Historical Meeting House	27 Fremont Rd	4	010-029-001-000	0.34	0.09	The Sandown Historical Meeting House took up a large portion of the parcel. A small gravel parking area existed off of Fremont Street. Parcel was located at the top of a hill. Rock ledge existed on the south side of the parcel.	N/A	No	No	Chatfield-Hollis-Canton complex	B	0.34
Train Station Depot Museum	6 Depot Rd	6	010-040-00A-000	0.10	0.00	Historical Depot Museum off of Depot Road. Difficult to determine parcel boundaries during site visit. Parcel was relatively flat with an increase in elevation to the northwest. A catch basin was observed in Depot Road, adjacent to the parcel.	N/A	No	No	Chatfield-Hollis-Canton complex	B	0.10
Shed Storage and Parking	1 Hampstead Rd	8	010-020-000-000	0.53	0.07	A mostly wooded lot with a small parting area near Hampstead Road, two small storage sheds also exist. A potential swale/ditch exists southwest of the parking area in order to convey runoff to the wooded portion of the lot.	N/A	No	No	Canton gravelly fine sandy loam	B	0.02
										Chatfield-Hollis-Canton complex	B	0.51
Town Library	305 Main St	11	029-083-000-000	1.00	0.50	Town library off of Main Street. Large parking area exists north of the building. No drainage structures observed. A low area was observed just south of the building.	N/A	No	No	Windsor loamy sand	A	1.02
Roy L. Miller Recreational Fields	212 Main St	13	007-005-001-000	14.76	0.96	Sports fields with gravel roads and parking areas. Some erosion observed in southern gravel parking lot near the baseball fields.	N/A	No	No	Hollis-Rock outcrop-Chatfield complex	N/A	0.94
										Canton gravelly fine sandy loam	B	0.25
										Canton gravelly fine sandy loam, very stony	B	3.02
										Chatfield-Hollis-Canton complex	B	6.71
										Montauk fine sandy loam	C	0.00
										Montauk fine sandy loam	C	3.84
Vacant Land	6 Showell Pond Ln	15	003-032-00C-000	0.93	0.024	Completely wooded lots near Showell Pond off of Showell Pond Lane. Vacant and unbuildable as determined by the town.	N/A	No	No	Windsor loamy sand	A	0.13
										Chatfield-Hollis-Canton complex	B	0.00
										Greenwood mucky peat	D	0.80
North Beach	28 Holts Point Rd	20	026-001-000-000	0.06	0.038	Town beach area. Difficult to determine parcel boundaries during site visit. Outfall OF-30 was observed adjacent to the parcel.	N/A	No	No	Canton gravelly fine sandy loam	B	0.06
Town Beach	25 Trues Parkway	24	027-044-000-000	0.24	0.00	Town beach area with picnic tables, partially wooded with beach front for Angle Pond. Area is relatively flat.	N/A	No	No	Chatfield-Hollis-Canton complex	B	0.00
										Scituate-Newfields complex	C	0.24
Vacant Land	Trues Parkway	25	027-040-00A-000	0.04	0.00	Very small vacant parcel off of Trues Parkway. No drainage structures in the area.	N/A	No	No	Scituate-Newfields complex	C	0.04
Fire Station	17 Main St	26	025-073-000-000	0.09	0.038	Small parcel with fire station and small paved parking area. Wetland area exists to the north. Parcel is relatively flat.	N/A	No	No	Chatfield-Hollis-Canton complex	B	0.09
Vacant Land	Aruda Rd	27	025-031-00A-000	0.26	0.025	Vacant wooded lot in residential area.	N/A	No	No	Canton gravelly fine sandy loam	B	0.26

1. All soils data obtained from GIS sources.

Table 2 - Proposed Improvements

					Area For Treatment		Pollutant Loading[1]			Proposed BMP(s)		Pollutant Reduction Estimates[2]			BMP Implementation Costs[3]				Dollars per Pound of Removal		
Description	Address	CEI Map ID	GIS ID	Recommendations and Conclusions	Total (acres)	Impervious (acres)	Impervious Area TP Load (lbs/yr)	Impervious Area TN Load (lbs/yr)	Impervious Area TSS Load (lbs/yr)	Proposed BMP(s)	Estimated Size	TP Reduction (lbs/yr)	TN Reduction (lbs/yr)	TSS Reduction (lbs/yr)	Unit Cost per CF or LF	Estimated Construction Cost	Estimated Engineering Cost	Total BMP Cost (Design & Construction)	TP Reduction ($$/lb)	TN Reduction ($$/lb)	TSS Reduction ($$/lb)
Recreation Building	25 Pheasant Run Dr.	2	018-001-002-000	Recommend the addition of two infiltration swales to collect sheet flow from the paved and gravel parking areas. Allowing them to infiltrate instead of carrying sediment into the wetland areas within the parcel. Swales will have riprap overflow areas .	1.16	0.04	0.1	0.4	59	Infiltration Swale x 2	60' x 5' x 1' Deep and 235' x 5' x 1' Deep	0.1	0.4	59	$8.18	$96,600	$33,900	$130,500	$2,610,000	$318,300	$2,300
Town Hall and Fire Department	320 Main St	9	010-019-001-000	Recommend the addition of a single catch basin in the parking area between the Town Hall and Fire Station to convey runoff to a new infiltration basin southwest of the entrance off of Hampstead Road. A riprap spillway will act as the overflow structure, allowing water to flow down the ditch south of Hampstead Road.	1.61	1.2	1.6	11.9	1732	Infiltration Basin	50' x 35' x 4' Deep	1.6	11.9	1732	$8.18	$57,300	$20,100	$77,400	$49,300	$6,600	$50
Highway Department and Old Landfill	26 Depot Rd	7	011-003-000-000	Recommend further armoring of the downstream headwall area and the open drainage outfall near the headwall. Recommend a berm to be installed along the western side of the stream to limit the runoff flow directly into the stream.	0.97	0.55	0.7	5.6	814	Berm and Riprap Armoring	210' of Berm (1') 200 SF of Riprap	N/A	N/A	N/A	N/A	$12,000	$4,200	$16,200	N/A	N/A	N/A
Main Street Parcel	315 Main St	10	010-039-000-000	Recommend a repave of the open drainage area and the addition of curbing and a double grate shallow catch basin. Flow would be piped to a sedimentation forebay before entering a proposed bioretention basin. A riprap spillway will allow for water to exit the BMP and enter the wetland area to the north during high flow events.	0.81	0.65	0.9	6.6	962	Bioretention Basin with Forebay	90' x 30' x 2' Deep	0.6	2.6	962	$20.27	$109,500	$38,400	$147,900	$269,000	$56,100	$200
Seeley Park / Town Beach	306 Main St	12	029-024-000-000	Recommend a sedimentation basin and attached infiltration basin at the downstream end of the existing HDPE pipe.	0.46	0.36	0.5	3.7	533	Infiltration Basin with Forebay	65' x 25' x 2' Deep	0.5	3.7	533	$8.18	$26,600	$9,400	$36,000	$76,600	$9,900	$70
Boat Ramp / Middle Beach at Angle Pond	24 Round Hill Rd	19	026-016-000-000	Recommend a articulating concrete block boat ramp for local residents to safely launch boats. A water bar immediately upgradient of the ramp will direct water to a small riprap channel to the side of the boat ramp. Riprap should be continued past the low water line.	0.65	0.25	0.3	2.5	370	Waterbar and Riprap Armoring	16' Waterbar 25' Riprap Spillway 1 Conc. Block Boat ramp	N/A	N/A	N/A	N/A	$40,000	$16,000	$56,000	N/A	N/A	N/A
Vacant Land/Beach	22 Lakeside Dr	21	028-025-000-000	Recommend the installation of a catch basin in place of the open drainage area. Catch basin shall be piped to an infiltration basin with riprap spillway and swale down to the water.	0.75	0.32	0.4	3.3	474	Infiltration Basin	25' x 25' x 2' Deep 25' Riprap Spillway	0.4	3.3	474	$8.18	$10,300	$6,000	$16,300	$38,900	$5,100	$40
Vacant Land	West Shore Rd	23	028-011-001-000	Recommend replacing the outlet pipe exiting the catch basin on West Shore Road, daylighting it within the Towns parcel. The current outfall location should be stabilized.	0.26	0.13	0.2	1.3	192	Outlet Pipe Daylighting	90' of Daylighting Channel 100 SF of Shoreline Stabilization	N/A	N/A	N/A	N/A	$60,000	$16,000	$76,000	N/A	N/A	N/A
Boat Ramp	51 A Pillsbury Rd	28	025-021-001-000	Recommend a articulating concrete block boat ramp for local residents to safely launch boats. A water bar immediately upgradient of the ramp will direct water to a small riprap channel to the side of the boat ramp. Riprap should be continued past the low water line. Stabilize the shoreline west of the ramp.	0.31	0.09	0.1	0.9	133	Waterbar and Riprap Armoring + Shoreline Stabilization	16' Waterbar 25' Riprap Spillway 1 Conc. Block Boat ramp 200 SF of Shoreline Stabilization	N/A	N/A	N/A	N/A	$45,000	$18,000	$63,000	N/A	N/A	N/A
Vacant Land	13 William St	1	022-009-000-000	No Recommendations	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Police Station	460 Main St	3	018-002-001-000	No Recommendations	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Barn and Pond - Historical	35 Fremont Rd	5	010-029-002-001	No Recommendations	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sandown Historical Meeting House	27 Fremont Rd	4	010-029-001-000	No Recommendations	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Train Station Depot Museum	6 Depot Rd	6	010-040-00A-000	No Recommendations	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Shed Storage and Parking	1 Hampstead Rd	8	010-020-000-000	No Recommendations	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Town Library	305 Main St	11	029-083-000-000	No Recommendations	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roy L. Miller Recreational Fields	212 Main St	13	007-005-001-000	No Recommendations	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vacant Land	6 Showell Pond Ln	15	003-032-00C-000	No Recommendations	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
North Beach	28 Holts Point Rd	20	026-001-000-000	No Recommendations	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Town Beach	25 Trues Parkway	24	027-044-000-000	No Recommendations	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

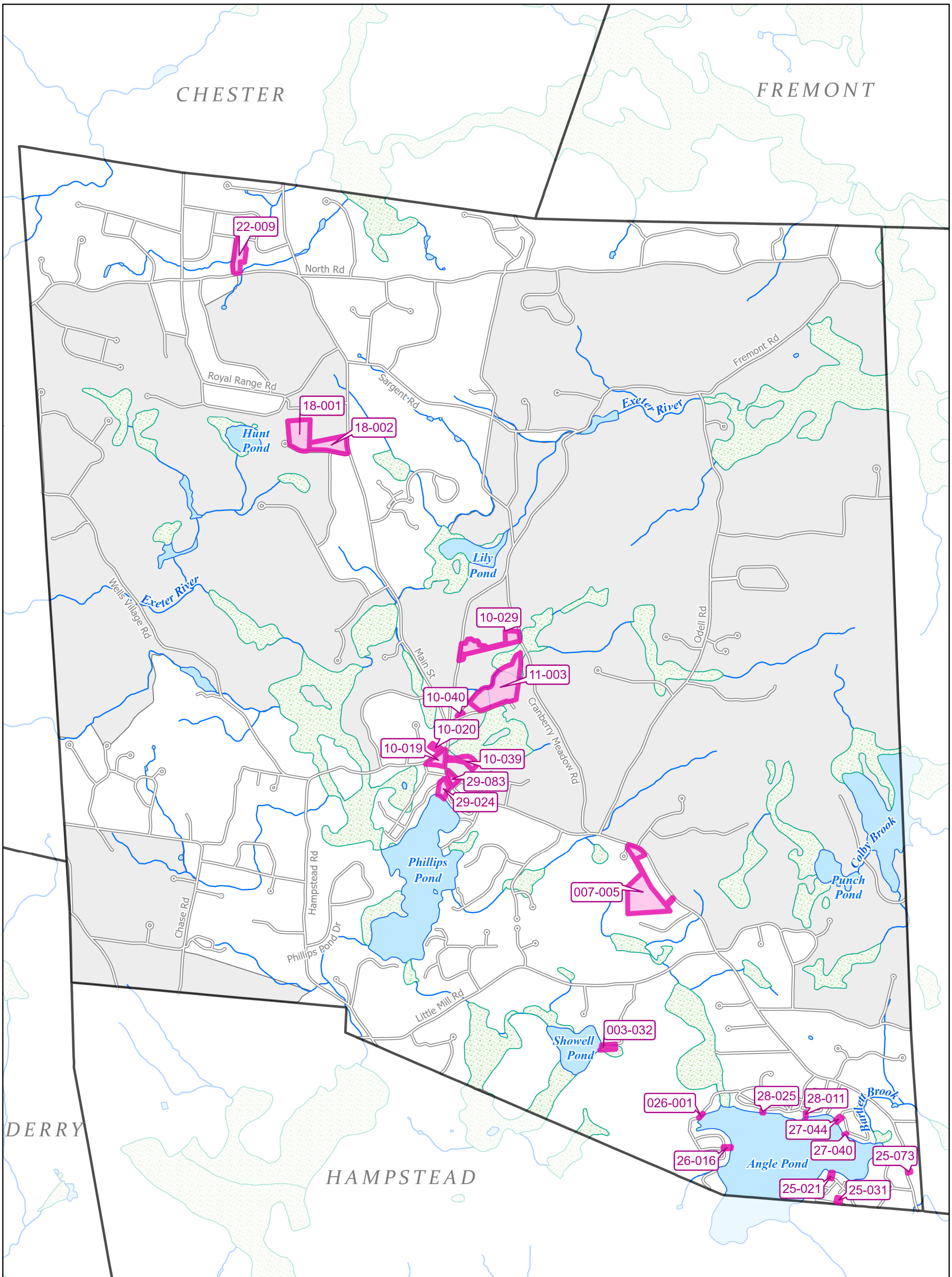
					Area For Treatment		Pollutant Loading[1]			Proposed BMP(s)		Pollutant Reduction Estimates[2]			BMP Implementation Costs[3]				Dollars per Pound of Removal		
Description	Address	CEI Map ID	GIS ID	Recommendations and Conclusions	Total (acres)	Impervious (acres)	Impervious Area TP Load (lbs/yr)	Impervious Area TN Load (lbs/yr)	Impervious Area TSS Load (lbs/yr)	Proposed BMP(s)	Estimated Size	TP Reduction (lbs/yr)	TN Reduction (lbs/yr)	TSS Reduction (lbs/yr)	Unit Cost per CF or LF	Estimated Construction Cost	Estimated Engineering Cost	Total BMP Cost (Design & Construction)	TP Reduction ($$/lb)	TN Reduction ($$/lb)	TSS Reduction ($$/lb)
Vacant Land	Trues Parkway	25	027-040-00A-000	No Recommendations	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fire Station	17 Main St	26	025-073-000-000	No Recommendations	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vacant Land	Aruda Rd	27	025-031-00A-000	No Recommendations	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
											Total	**3.1**	**21.9**	**3759**		**$553,800**	**$195,800**	**$619,300**	**$202,400**	**$9,000**	**$170**

1. Pollutant loading calculated for impervious areas only using the land use loading rates provided in the BATT calculator for "Highway". Rates are as follows, in pounds per acre per year: 1.34 pounds of Total Phosphorus; 10.17 pounds of Total Nitrogen; 1,480.13 pounds of Total Suspended Solids
2. Pollutant reduction estimates calculated through EPA's BATT calculator
3. Information on BMP costing is attached as Attachment A.

Table 3 - BMP Costing Information

Stormwater BMP Type	Unit	OptiTool BMP Estimates, 2016[1,2]	OptiTool BMP Estimates, 2022[3]	Adjusted BMP Estimate, 2022[4]	Adjusted Construction Estimate[4]	Adjusted Engineering/ Contingency Estimate[5]
Biorentention / Rain Garden	per CF	$15.46	$18.24	$27.36	$20.27	$7.09
Constructed Wetlands	per CF	$6.80	$8.02	$12.04	$8.92	$3.12
Dry Detention Basin	per CF	$6.80	$8.02	$12.04	$8.92	$3.12
Gravel Wetland	per CF	$8.78	$10.36	$15.54	$11.51	$4.03
Infiltration Basin	per CF	$6.24	$7.36	$11.04	$8.18	$2.86
Infiltration Trench	per CF	$12.49	$14.74	$22.11	$16.38	$5.73
Porous Pavement	per CF	$5.32	$6.28	$9.42	$6.98	$2.44
Sand Filter	per CF	$17.94	$21.17	$31.75	$23.52	$8.23
Wet Detention Basin	per CF	$6.80	$8.02	$12.04	$8.92	$3.12
Subsurface Infiltration/Detention System (aka Infiltration Chamber)	per CF	$67.85	$80.06	$160.13	$118.61	$41.51

1. Memorandum on Methodology for developing cost estimates for Opti-Tool is provided as Attachment A.
2. Total includes cost of construction, engineering, and contingencies.
3. 2022 Estimate assumes a 18% markup from 2016 Estimate due to inflation.
4. Adjustment factor of 1.5 is applied to account for construction in developed areas.
5. Engineering/Contingency Estimate is 35% of the Construction Estimate.



Legend

- Municipal Properties
- Lake, Pond, Reservoir
- Swamp, Marsh
- Stream, Brook
- Non-Urban Area

N W E S

0 1
Miles

BMP Retrofit Site Inspection Map

Sandown, NH

Comprehensive Environmental Incorporated

Data Sources: MassGIS, Town of Sandown, CEI

9/13/2022

MUNICIPAL PROPERTY BMP RETROFITS

Attachment A:
Memorandum report on Methodology for developing cost estimates for Opti-Tool; February 20, 2016

MEMORANDUM

DATE: February 20, 2016

TO: Opti-Tool TAC

FROM: Karen Mateleska, EPA Region- I

SUBJECT: **Methodology for developing cost estimates for Opti-Tool**

Introduction

EPA – Region I offered to provide TetraTech with BMP cost information for the New England Stormwater Management Optimization Tool (Opti-Tool). The goal was to include the latest available information that would accurately reflect capital costs for select BMPs installed in the New England region. This document describes the approach used to determine these values.

The unit cost estimates originally developed as part of a 2010 study were used as the basis/starting-point for the cost estimates for the Opti-Tool. This study, entitled *Stormwater Management Plan for Spruce Pond Brook Subwatershed,* was produced by the Charles River Watershed Association (CRWA). The full report can be viewed at: http://www.crwa.org/hs-fs/hub/311892/file-636820515-pdf/Our_Work_/Blue_Cities_Initiative/Scientific_and_Technical/CRWA_Franklin_Plan.pdf. This subwatershed in the Town of Franklin (in eastern Massachusetts) was selected, in part, because it represented one of the many communities in the watershed that would be required to reduce nutrient (phosphorus) loads in stormwater runoff as part of EPA's Phase II MS4 General Stormwater Permit and a TMDL for Nutrients in the Upper/Middle Charles River. The cost estimates developed in the study can predominantly be attributed to CRWA and both Rich Claytor and Nigel Pickering of Horsley Witten Group (CRWA *et al.* 2010). The development of these costs was based on a literature review of BMP cost information and Claytor's extensive experience working in this field with Massachusetts communities. These values were originally reported in Appendix B of the aforementioned CRWA document. Those cost estimates have also been used in additional stormwater studies supported by EPA – Region I, including the *Sustainable Stormwater Funding Evaluation for the Upper Charles River Communities of Bellingham, Franklin, and Milford, MA (*2011). (That report can be viewed at: http://www.epa.gov/region1/npdes/charlesriver/pdfs/20110930-SWUtilityReport.pdf)

Before simply relying on the CRWA cost estimates, additional research was conducted of publicly available (online) resources to determine if more recent BMP cost information for the New England region was available. These resources included:

- EPA's LID webpage: http://water.epa.gov/polwaste/green/
- EPA's 2013 Article: *Case Studies Analyzing the Economic Benefits of Low Impact Development and Green Infrastructure Programs: http://water.epa.gov/polwaste/green/upload/lid-gi-programs_report_8-6-13_combined.pdf*

- New England Environmental Finance Center: http://efc.muskie.usm.maine.edu/
- UNC Environmental Finance Center's *Catalog of Finance Publications on Green Infrastructure Approaches to Stormwater Management* (This spreadsheet provides a catalog of 46 publications related on green infrastructure for stormwater management that have finance relevance; Several of the sources from the catalog were reviewed for this document) : http://www.efc.sog.unc.edu/reslib/item/catalog-green-infrastructure-and-stormwater-finance-publications
- Houle, *et al. Comparison of Maintenance Cost, Labor Demands, and System Performance for LID and Conventional Stormwater Management*: http://www.unh.edu/unhsc/sites/unh.edu.unhsc/files/Houle_JEE_July-2013.pdf
- University of New Hampshire Stormwater Center's *Forging the Link: Linking the Economic Benefits of LID and Community Decisions: http://www.unh.edu/unhsc/forging-link-topics*
- Center for Neighborhood Technology's *Green Values Stormwater Tool Box: http://greenvalues.cnt.org/* which included the Green Values Calculator: http://greenvalues.cnt.org/national/calculator.php
- Water Environment Research Foundation (WERF): User's Guide to the BMP and LID Whole Life Cost Models, Version 2.0: www.werf.org/bmpcost
- Low Impact Development Center: http://www.lowimpactdevelopment.org/
- ECONorthwest's *The Economics of Low-Impact Development: A Literature Review:* http://www.econw.com/our-work/publications/the-economics-of-low-impact-development-a-literature-review/
- Drexel University's Low Impact Development Rapid Assessment (LIDRA Model) http://www.lidratool.org/home/publications.aspx

A review of these resources did highlight the multitude of variables that can impact the cost of installing LID BMPs and the variety of cost analysis methods that can be used when assessing the cost effectiveness of various LID storm water controls. For example, many of the resources emphasized that costs tend to be site specific. Costs often differ significantly among different geographical locations, depending upon labor and material expenses and the constraints of a particular site. Unfortunately, most of the aforementioned resources highlighted projects outside of the New England region (with the exception of the articles by Houle of the UNHSC and New England Environmental Finance Center.)

EPA's recent (2013) report entitled *Case Studies Analyzing the Economic Benefits of Low Impact Development and Green Infrastructure Programs* listed the 7 different types of economic analyses that were represented by the 13 case studies highlighted in the report. These ranged from the simplest form of economic analysis (i.e., the capital cost assessment) to more robust forms, including the life cycle cost assessment. Whole life-cycle costs would provide a more accurate estimate of the cost of installing, operating, maintaining, and replacing a project (i.e., BMP) throughout its expected lifetime. However this type of analysis requires solid estimates for capital, land purchase, O&M, and other related costs.

Ideally, the goal was to include a more advanced economic analysis (i.e. – life cycle costs) in the Opti-Tool while still maintaining some level of simplicity for the end user. However, such a robust economic analysis does not currently appear possible because the literary search for more recent BMP cost estimates, reflective of New England states, was largely unsuccessful. However, the search was not

entirely fruitless. Jamie Houle of the UNHSC did provide extremely valuable information on capital and maintenance costs for various BMPs that have been tested at the UNHSC. Cost estimates for a particular BMP available from *both* the CRWA study and UNHSC were discussed among Mark Voorhees of EPA, Jamie Houle of UNHSC, and Karen Mateleska of EPA, and a best professional judgment decision was made.

The recommendation at this time is to use a combination of the CRWA cost estimates **and** UNHSC costs estimates as the basis for the Opti-Tool BMP cost estimates, and to use a modified capital cost assessment (which includes a fixed percentage for Design and Contingency Costs) as well as a separate field for maintenance hours (from the UNHSC). The details supporting this approach are described below.

Overview of Scope and Approach

According to a draft memo, dated 6/20/14 from Tetra Tech to EPA Region I, the current SUSTAIN BMP Cost function has seven major individual components, using a formula that would likely be useful in a more detailed design mode. For purposes of simplicity, EPA Region I is proposing the following cost function formula for the tool's "planning" mode:

General Cost Function Formula = Storage Volume of BMP* (ft^3) X Cost Estimate for BMP ($/$ft^3$)

X Adjustment Factor

* Storage Volume of BMP is more accurately defined as (Design) Physical Storage Capacity of BMP; See Section A below for more details

Initially, the intention was to include the preliminary Operations and Maintenance (O&M) costs in the general formula (page 3) by simply multiplying the formula results by our Preliminary O & M costs. However, such an approach would only include **one year's worth** of operations and maintenance, which could have been misleading because it would not have reflected the true life cycle cost of the BMP (i.e., assume life cycle of 20 years). However, simply including the 20 year life cycle cost (O&M cost *20) in the above formula would have greatly increased the cost value and perhaps have created misconceptions about BMP use and affordability.

Therefore, the subcommittee decided to include the anticipated operation and maintenance **hours** required for each BMP per year instead. This parameter was included as a completely separate field in the Opti-Tool. The rationale was that Opti-Tool users need to understand that operation and maintenance impact the overall cost-effectiveness of BMPs and should be considered when selecting a BMP. Including O&M hours (instead of costs) as a separate field, would still highlight this important consideration for stormwater managers.

A. Storage Volume and Proposed Cost Estimate Values

As highlighted above, the general cost function formula used in the Opti-Tool consists of 3 factors: the BMP storage volume, the proposed BMP storage volume cost estimate, and the adjustment factor. The first two factors will be covered together in this memo because they are so closely linked. Table 1 below summarizes the proposed BMP cost estimates for the Opti-Tool.

Table 1: Proposed BMP Cost Estimates for Opti-Tool

BMP (From Opti-Tool)	Cost ($/ft^3) [1]	Cost ($/ft^3) – 2016 dollars[6]
Bioretention (Includes rain garden)	13.37 [2,4]	15.46
Dry Pond or detention basin	5.88 [2,4]	6.80
Enhanced Bioretention (aka-Bio-filtration Practice)	13.5 [2,3]	15.61
Infiltration Basin (or other Surface Infiltration Practice)	5.4 [2,3]	6.24
Infiltration Trench	10.8 [2,3]	12.49
Porous Pavement - Porous Asphalt Pavement	4.60 [2,4]	5.32
Porous Pavement - Pervious Concrete	15.63 [2,4]	18.07
Sand Filter	15.51 [2,4]	17.94
Gravel Wetland System (aka-subsurface gravel wetland)	7.59 [2,4]	8.78
Wet Pond or wet detention basin	5.88 [2,4]	6.80
Subsurface Infiltration/Detention System (aka-Infiltration Chamber)	54.54[5]	67.85

[1] Footnote: Includes 35% add on for design engineering and contingencies

[2] Costs in 2010 dollars

[3] From CRWA Cost Estimates

[4] From UNHSC Cost Estimates; Most of original costs were from 2004 and converted to 2010 dollars using U.S. Department of Labor (USDOL). (2012). Bureau of Labor Statistics consumer price index inflation calculator. http://www.bls.gov/data/inflation_calculator.htm

[5] From Cost Estimate of MA TT Rizzo Project (2008 Dollars)

[6] 2010 costs were converted to 2016 values to adjust for inflation. The ENR Cost Index Method was used for this conversion.

Table 1 includes all of the BMPs that are included in the Opti-Tool. The unit costs represent the dollar amount ($) per cubic foot of storage volume (ft^3), where the storage volume reflects the (design) physical static storage capacity that the relevant BMP can hold. This volume includes the volume of ponding water *and* the volume of water retained in the porous media or subbase materials if applicable. (This storage volume does *not* represent the *treated* volume of stormwater, which may be significantly higher than the physical storage volume of a BMP particularly for systems that are sized dynamically or

by a water quality flow rate as opposed to a water quality volume.) This unit cost per storage volume captured by a BMP differs from other (perhaps more traditional) methods that can be used. By choosing to use the unit cost per storage volume instead of volume of water treated, we are trying to eliminate confusion over what the actual dimensions of the BMP will be for the costs being estimated. Additionally, this use of the unit cost per storage volume is consistent with the approach used in developing the BMP performance curves (used in the Opti-Tool) where the x-axis is the actual **physical storage capacity** to hold water. Lastly, expressing the unit costs in this manner will benefit users who are simply interested in using the unit costs (outside of the Opti-Tool) by eliminating the step of modeling hydrology and routing the water through the BMP, which can yield widely varying results depending on modeling approach and supporting assumptions. Attachment A describes the method used in calculating the design storage volume for each of the selected BMPs.

Also, each unit cost per storage value represents the capital cost of construction/installation of the BMP and includes a 35% design/engineering/contingency (D & E) cost. This 35% fixed percentage of the total construction cost follows a general "rule of thumb," often used by consulting firms. Based upon a conversation between Mark Voorhees and Jamie Houle (two members of the Opti-Tool cost subcommittee), a decision was made to include this D&E cost. The values in Table 1 do *not* include the cost of purchasing any land, nor does it include any O&M costs (which is discussed in more detail in a subsequent section). Therefore, each unit cost in Table 1 that was based on the CRWA's 2010 values was calculated by multiplying the relevant BMP cost by 1.35.

Since the CRWA study did not include cost estimates for porous pavement or sand filters, which are BMPs included in the Opti-Tool, relevant data was obtained from Jamie Houle of the University of New Hampshire Stormwater Center (UNHSC). He also provided additional cost estimates (as denoted by Footnote 4 in Table 1) for some of the other BMPs included in the tool. UNHSC can provide valuable data because they have been directly involved with the engineering, design and construction of numerous LID controls, as well as evaluating multiple stormwater treatment systems over multiple years at their primary field research facility in Durham, N.H. Since they could provide cost information for both porous asphalt pavement and pervious concrete, separately, the general category of porous pavement was divided into the aforementioned two sub-categories.

It should be noted that the costs used for the Opti-tool *assume linearity*, which will both allow for *and* incentivize the scaling to smaller-sized systems. For example, EPA has estimated that *smaller* capacity designs for BMPs, rather than large-sized BMPs, can increase both the technical and economic feasibility of installing controls, particularly for retrofits. The assumption of linearity was made for the following reasons: 1) Limited data currently exists on the cost of small capacity systems. Until a larger pool of cost data becomes available which will allow for the development of a non-linear cost curve, the current method is the best available alternative; 2) As the installation of smaller systems becomes more wide-spread, it is likely that economies of scale will develop and cost savings will occur. For example, if one entity is contracted to install multiple small systems at once, materials can be bought in bulk and the installation process can become more efficient and less expensive; 3) An undersized system built to treat a large area can be a very cost effective approach. As an example, there should not be a significant cost difference between a 1-inch system treating 1 acre and a 1/10-inch-system that treats 10 acres, since the absolute capacity of the system is the same in both cases. This topic of linearity will be revisited in the future when more data is available.

Since UNHSC typically calculates the capital costs per cubic foot (ft^3) *treated*, using WQv, Jamie Houle converted the costs to represent the capital costs per BMP storage volume (ft^3). This was necessary so the capital cost data would be consistent with the method used in the Opti-Tool. Also, all of the costs were converted to 2010, and ultimately 2015, dollars. As with the CRWA costs, the UNHSC capital costs were already adjusted to include the 35% design/engineering/contingency (D & E) cost. Details of all of these calculations, and any other assumptions made, are presented in Attachment B.

When developing cost estimates, another topic for consideration was whether or not to address the issue of inflation. CRWA's BMP cost estimates were based on capital costs from 2010. As previously stated, UNHSW's cost estimates have also already been converted to constant 2010 dollars using consumer price index inflation rates [U.S. Department of Labor (USDOL) 2014].[1] Therefore, there was the option of converting all of these 2010 costs to 2016 costs, using the U.S. Department of Labor's consumer price index inflation calculator. However, another suggestion was made to use the ENR Cost Index method to adjust for inflation instead because it more closely tracks construction work. At least one New England state (i.e., Vermont) also uses the ENR Cost Index method, so this could provide some consistency, as well. Therefore, the decision was made to ultimately convert all of the costs to 2016 values using the ENR Cost Index method. These values are reflected in Table 1.

To use the index, one calculates the quotient of the current index number (based on the month and year of *current* date) divided by the index number from a given date (e.g., June of 2010). Since the month was not known for the 2010 costs, the month of June was used as an estimate. This assumption was used because it falls mid-way between the construction season and would likely provide a reasonable estimate. Once the quotient was calculated, it was multiplied by the construction cost (found in the middle column in Table 1, above) to provide the 2016 construction cost value

B. Cost Adjustment Factor

Since the cost of installing a BMP will vary depending on the specific site location, the TAC subcommittee believed it was important for the Opti-Tool to include a scalable cost adjustment factor. The proposed cost estimates for the Opti-Tool (in Table 1) are all based on a Cost Adjustment Factor of 1. However, each Opti-Tool user has the option to choose and enter into the tool a cost adjustment factor that is appropriate for their site. This will adjust the storage volume cost function in the Opti-Tool.

For example, the CRWA report included the cost factors summarized in Table 2.

[1] Reference: U.S. Department of Labor (USDOL). (2014). Bureau of Labor Statistics consumer price index inflation calculator." ⟨http://www.bls.gov/data/inflation_calculator.htm⟩(Sep. 12, 2014)

Table 2: Example of Cost Adjustment Factors

BMP Type	**EXAMPLE** Cost Adjustment Factor
New BMP in undeveloped area	1
New BMP in partially developed area	1.5
New BMP in developed area	2
Difficult installation in highly urban settings	3

(Source: Table 4 of Appendix B of CRWA's Spruce Pond Brook Subwatershed Project for Town of Franklin)

The assumption made was that it would cost more to install a new BMP in a developed area (with more site constraints) than it would cost to install the same BMP in a previously undeveloped area. So in the above example, the cost adjustment factor would be 2 for installing a BMP in a previously developed area versus a cost adjustment factor of 1 for installing a BMP in an undeveloped area.

It should be noted that Table 2 (above) provides just *one example* of adjustment factors. The factor should be flexible enough so that another location (or Opti-Tool user) can adjust it, as needed. For example, the Charles River Watershed (in eastern Massachusetts) used an adjustment factor of 2 for installing a BMP in a developed area, while the State of Vermont uses an adjustment factor of 1.4 to estimate the cost of installing a BMP for existing development.

C. Maintenance (O&M) Costs

Originally, one goal was to include Operation and Maintenance (O&M) costs as part of the cost estimates for the Opti-Tool. These O&M costs would help to provide a more realistic reflection of the long-term expenses of structural storm water controls, which is obviously critical in the practical, real-world implementation of BMPs. However, it is difficult to obtain accurate maintenance costs and they will be highly variable depending on the size, location and equipment needed to perform long-term O&M.

This point was highlighted by a key finding in EPA's recent (2013) publication, *Case Studies Analyzing the Economic Benefits of Low Impact Development and Green Infrastructure Programs.* The report indicated that only a small percentage of the entities that implement LID and GI approach for stormwater management conduct economic analyses due to the "uncertainties surrounding costs, operation and maintenance (O&M) requirements, budgetary constraints, and difficulties associated with quantifying the benefits provided by LID/GI" and the need "to obtain better estimates of the O&M costs associated with different types of LID/GI projects" was a key finding of the report.

As previously mentioned, one article entitled, *Comparison of Maintenance Cost, Labor Demands, and System Performance for LID and Conventional Stormwater Management* (Houle *et al. 2013)*, did contain relevant information for BMP costs in the New England region. During initial discussions between EPA Region I (Mark Voorhees) and UNHSC (Jamie Houle), there was concern that not enough data existed on O&M costs to propose accurate values for each of the BMPs included in the Opti-Tool. There was also

the concern that the O&M costs were not scaleable. For example, initial O&M costs for each BMP were based on the cost of operation and maintenance per year per acre of IC treated. Scaled differences such as the annual O&M costs for treating 0.5 acres of IC or 2 acres of IC have **not** been evaluated and may or may **not** result in a simple linear relationship. Yet the Opti-Tool costs subcommittee also realized the importance of including some maintenance parameter in order to *initiate* the conversation on the importance of accounting for O&M to maintain the functionality of the BMPs. Therefore Table 3, below, presents these annual maintenance costs (in $) for select BMPs, as well as the annual maintenance hours. Although the O&M costs have been presented in this memo, only the O&M **hours** will be included (as a separate field) in the Opti-Tool.

Table 3: Maintenance Costs ($) and Hours per year for select BMPs – From UNHSC

BMP	Maintenance Cost ($) per year	Annual Maintenance Hours
Bioretention	$1,890.00	20.7
Chamber System	Not Assessed	Not Assessed
Detention Pond	$2,380.00	24.0
Gravel Wetland	$2,138.33	21.7
Porous Asphalt	$1,080.00	6.0
Pervious Concrete	$1,080.00	6.0
Retention Pond	$3,060.00	28.0
Sand Filter	$2,807.50	28.5

*Note: initial costs based on cost of maintenance per year per acre of IC treated

Annual maintenance strategies were evaluated by directly quantifying hours spent categorizing maintenance activities, and assessing difficulty of those activities. To better illustrate costs and anticipate maintenance burdens, activities were characterized into distinct categories and a standard cost structure was applied. This unit conversion can easily be adapted according to local conditions, current economic climate, and regional cost variations which is why we decided to go with maintenance **hours** as those were directly measured and should remain constant. These maintenance activity categories allow more accurate cost predictions and provide insight into the appropriate assignment of maintenance responsibilities.

Annual maintenance costs were normalized to 2012 dollars and calculated for all SCMs by both dollars and personnel hours per acre of IC treated per system per year. It is important to note that inflation was not considered in life cycle maintenance cost projections.

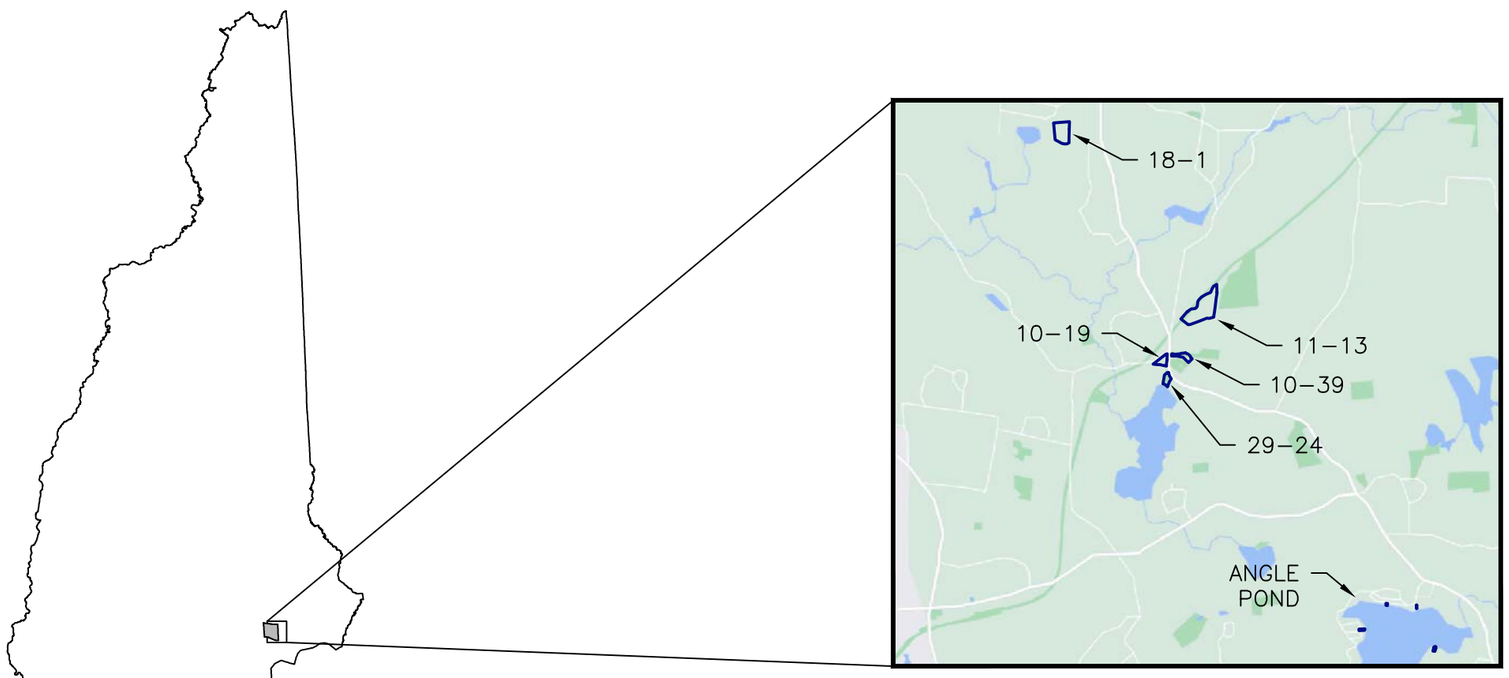
MUNICIPAL PROPERTY BMP RETROFITS

Attachment B:
Pre-Conceptual Designs for Top Locations

TOWN OF SANDOWN

MUNICIPAL PROPERTY BMP RETROFIT OPPORTUNITIES

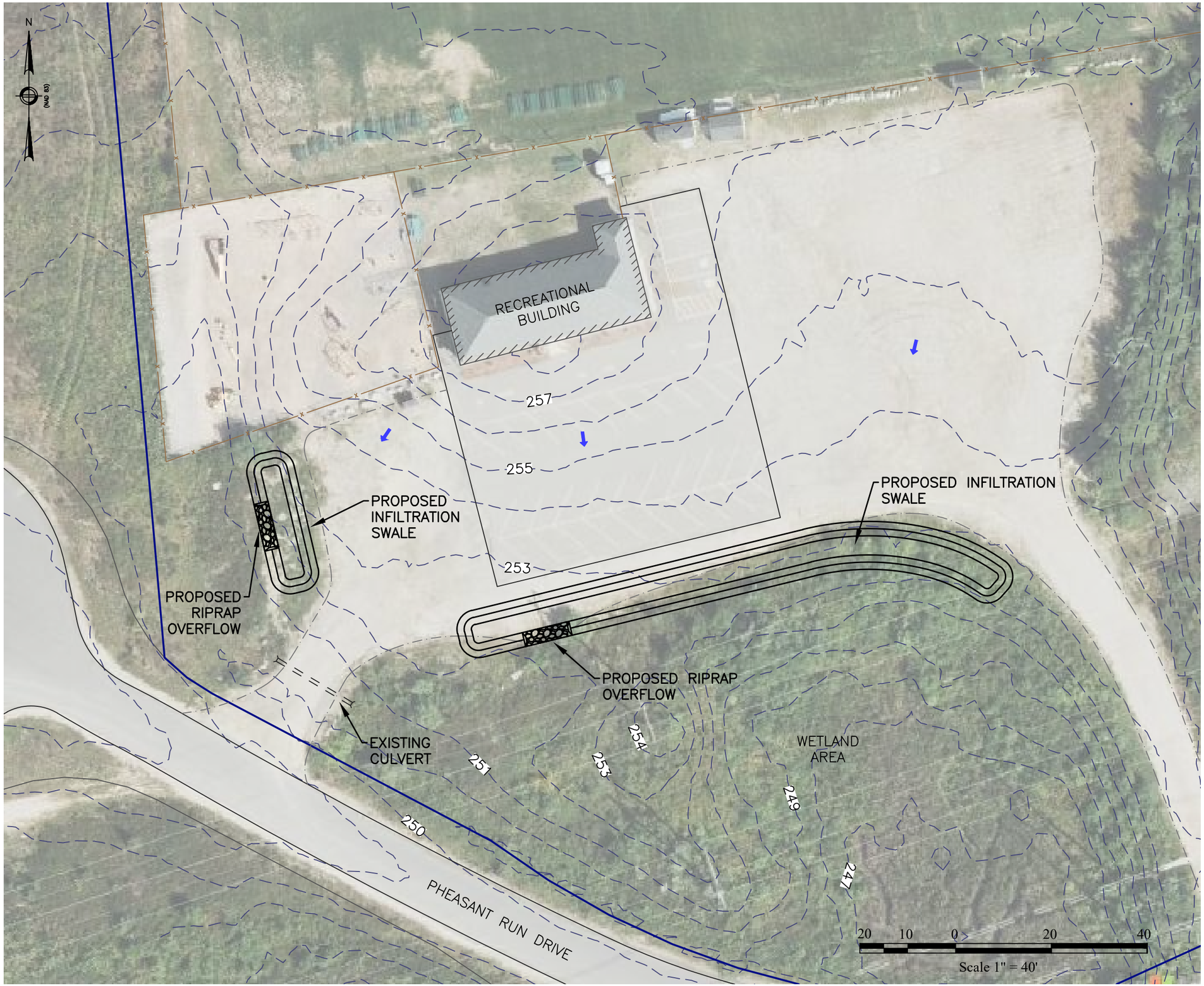
JUNE 2022



LOCUS SCALE 1" = 5000'

SHEET	TITLE
C-1	RECREATION BUILDING
C-2	FIRE DEPARTMENT/TOWN HALL
C-3	HIGHWAY DEPARTMENT
C-4	MAIN STREET PARCEL
C-5	SEELEY PARK
C-6	ANGLE POND

COMPREHENSIVE ENVIRONMENTAL INCORPORATED • BOLTON, MASSACHUSETTS



GENERAL NOTES

LEGEND

- PROJECT PARCEL
- PROPERTY LINE
- EXISTING DRAIN PIPE
- EXISTING CATCH BASIN
- EXISTING DRAIN MANHOLE
- EXISTING BUILDING
- EDGE OF PAVEMENT
- FLOW DIRECTION ARROW
- PROPOSED CATCH BASIN
- PROPOSED DRAIN PIPE

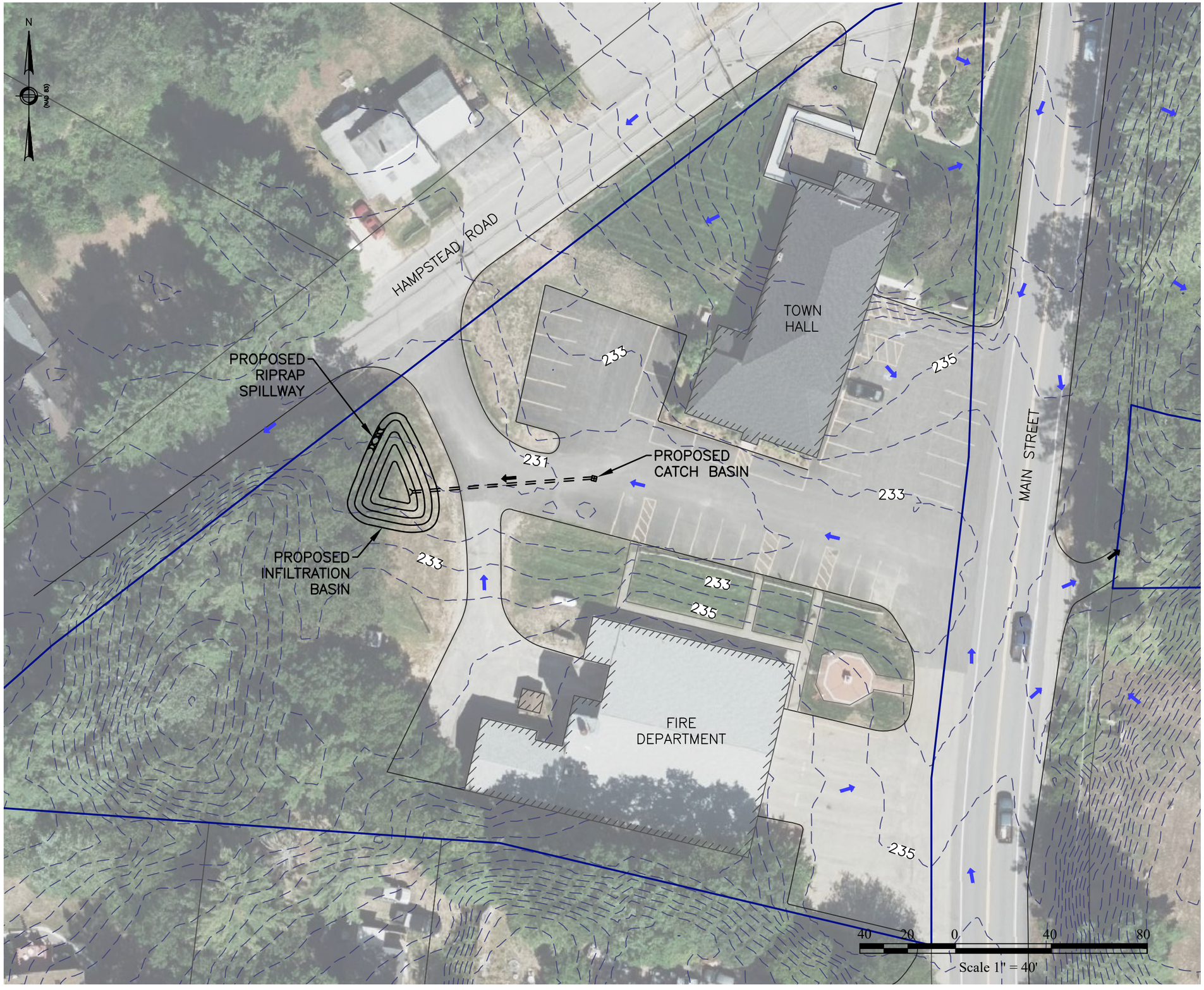
COMPREHENSIVE ENVIRONMENTAL INCORPORATED

41 MAIN STREET
BOLTON, MA 01740

PROPOSED CONDITIONS RECREATION BUILDING PLAN VIEW

TOWN OF SANDOWN, NH

Project No.: 356-04 Date: 12/9/2021	Sheet
Drawn By: NP	C-1
Checked By: NC	
Scale: AS SHOWN	



GENERAL NOTES

LEGEND

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- EXISTING CATCH BASIN
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- EXISTING BUILDING
- EDGE OF PAVEMENT
- FLOW DIRECTION ARROW
- PROPOSED CATCH BASIN
- PROPOSED DRAIN PIPE

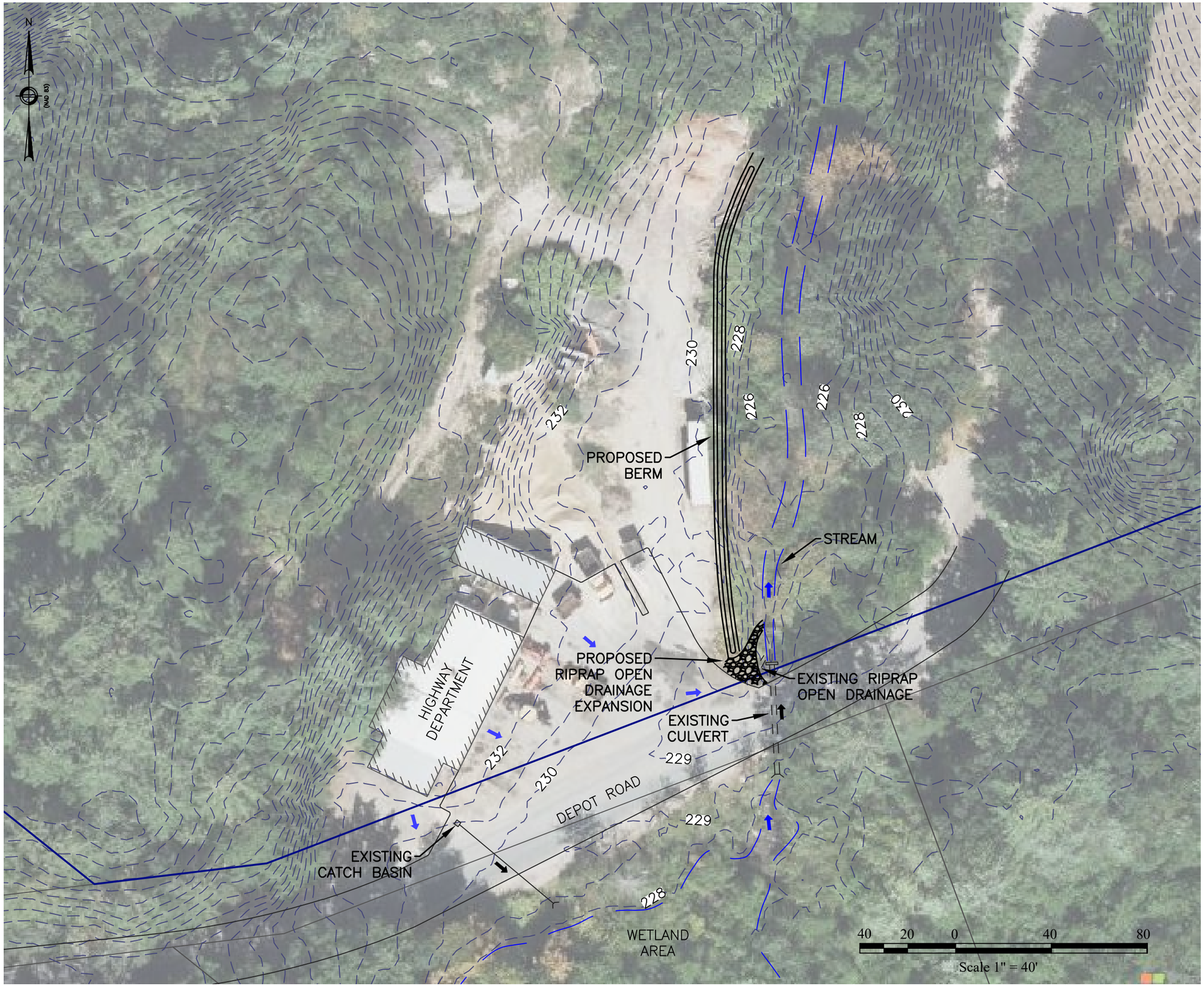
COMPREHENSIVE ENVIRONMENTAL INCORPORATED

41 MAIN STREET
BOLTON, MA 01740

PROPOSED CONDITIONS FIRE DEPARTMENT/TOWN HALL PLAN VIEW

TOWN OF SANDOWN, NH

Project No.: 356-04 Date: 12/9/2021	Sheet
Drawn By: NP	C-2
Checked By: NC	
Scale: AS SHOWN	



GENERAL NOTES

LEGEND

- PROJECT PARCEL
- PROPERTY LINE
- EXISTING DRAIN PIPE
- EXISTING CATCH BASIN
- EXISTING DRAIN MANHOLE
- EXISTING BUILDING
- EDGE OF PAVEMENT
- FLOW DIRECTION ARROW
- PROPOSED CATCH BASIN
- PROPOSED DRAIN PIPE

COMPREHENSIVE ENVIRONMENTAL INCORPORATED

41 MAIN STREET
BOLTON, MA 01740

PROPOSED CONDITIONS HIGHWAY DEPARTMENT PLAN VIEW

TOWN OF SANDOWN, NH

Project No.: 356-04 Date: 12/9/2021	Sheet
Drawn By: NP	C-3
Checked By: NC	
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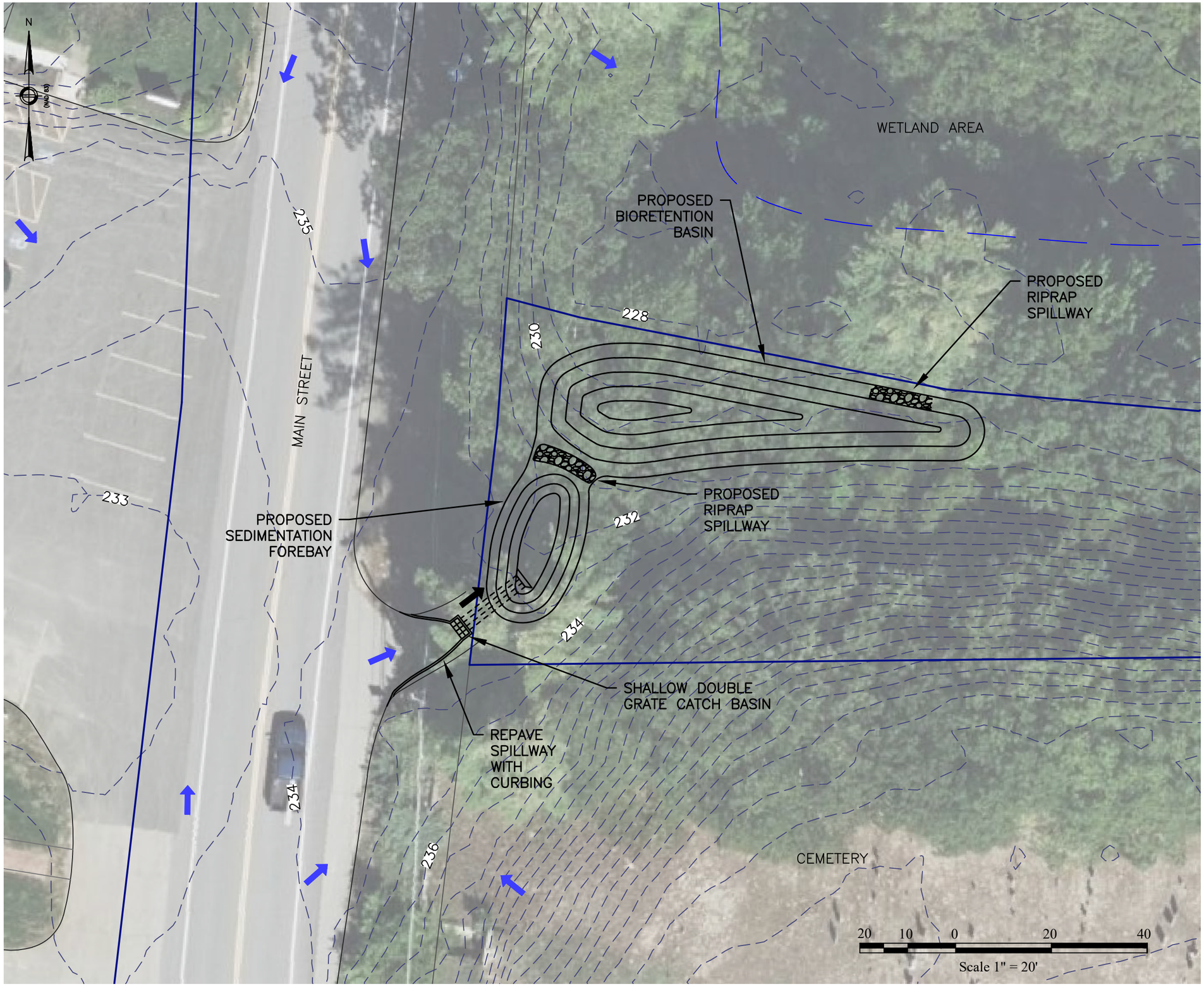

GENERAL NOTES

LEGEND

- PROJECT PARCEL
- PROPERTY LINE
- EXISTING DRAIN PIPE
- EXISTING CATCH BASIN
- EXISTING DRAIN MANHOLE
- EXISTING BUILDING
- EDGE OF PAVEMENT
- FLOW DIRECTION ARROW
- PROPOSED CATCH BASIN
- PROPOSED DRAIN PIPE

COMPREHENSIVE ENVIRONMENTAL INCORPORATED

41 MAIN STREET
BOLTON, MA 01740

PROPOSED CONDITIONS MAIN STREET PARCEL PLAN VIEW

TOWN OF SANDOWN, NH

Project No.: 356-04 Date: 12/9/2021	Sheet
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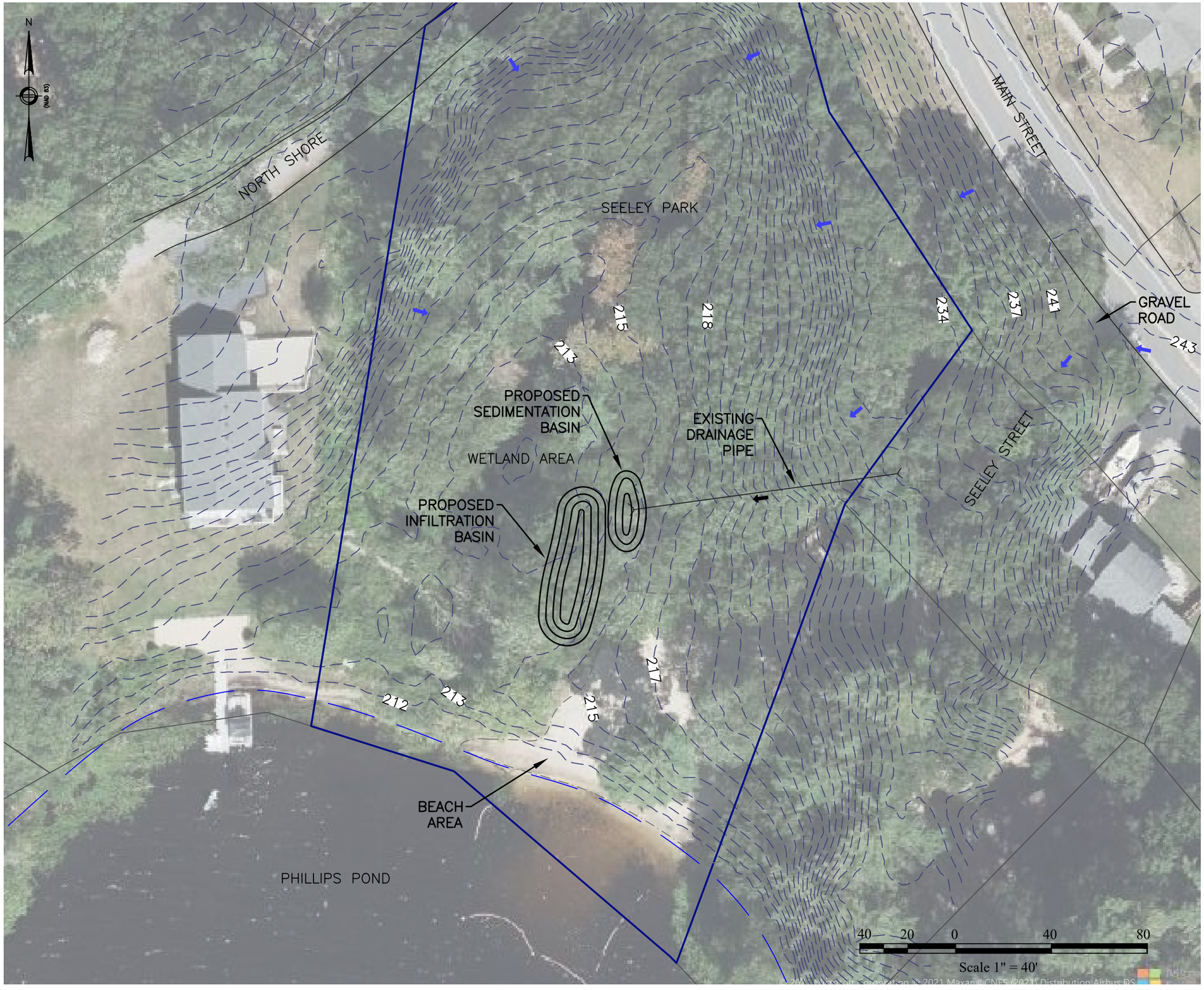
Checked By: NC	
Scale: AS SHOWN	



GENERAL NOTES

LEGEND

- PROJECT PARCEL
- PROPERTY LINE
- EXISTING DRAIN PIPE
- EXISTING CATCH BASIN
- EXISTING DRAIN MANHOLE
- EXISTING BUILDING
- EDGE OF PAVEMENT
- FLOW DIRECTION ARROW
- PROPOSED CATCH BASIN
- PROPOSED DRAIN PIPE

COMPREHENSIVE ENVIRONMENTAL INCORPORATED

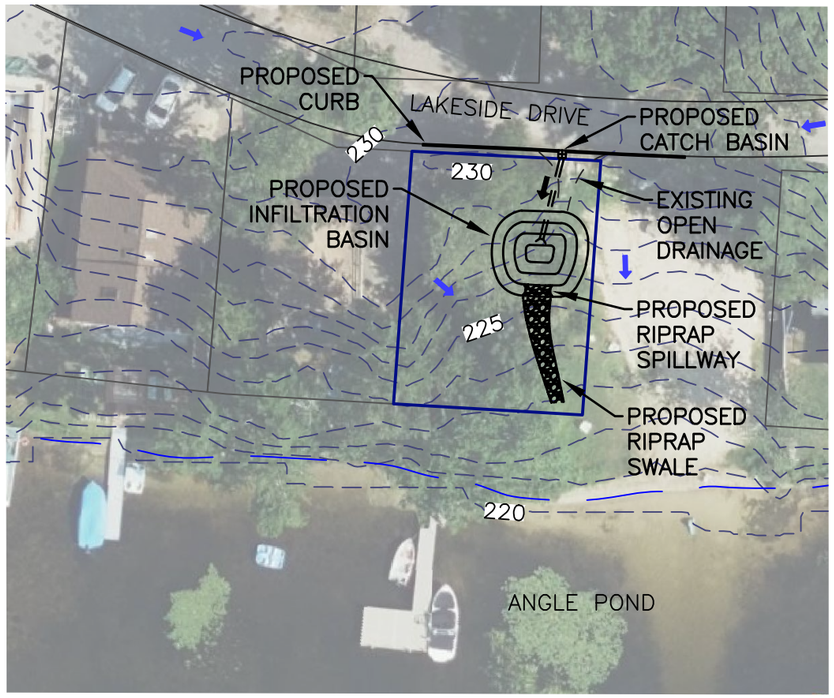
41 MAIN STREET
BOLTON, MA 01740

PROPOSED CONDITIONS SEELEY PARK PLAN VIEW

TOWN OF SANDOWN, NH

Project No.: 356-04 Date: 12/9/2021	Sheet
Drawn By: NP	C-5
Checked By: NC	
Scale: AS SHOWN	

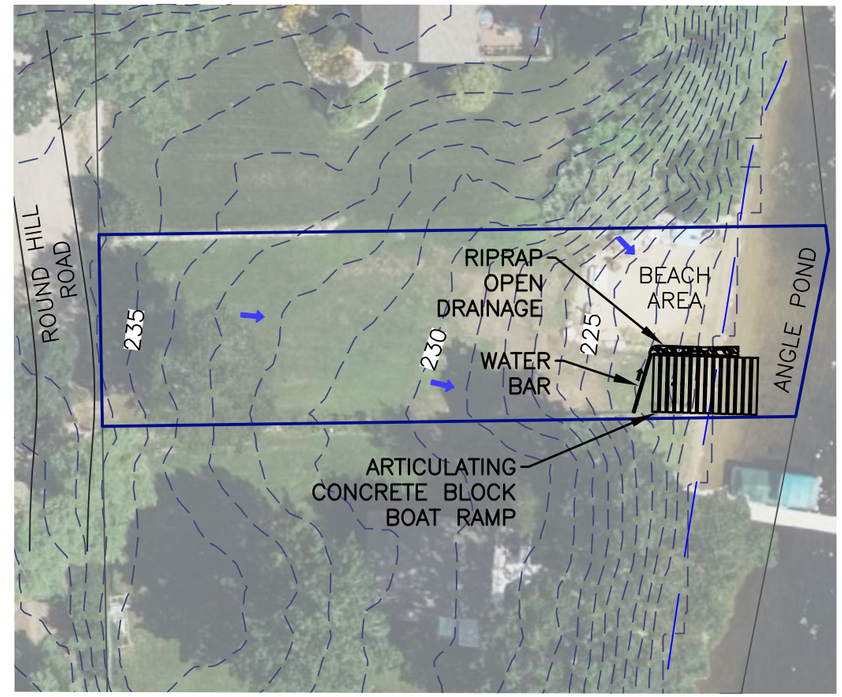
28–25



N

(NAD 83)

26–16



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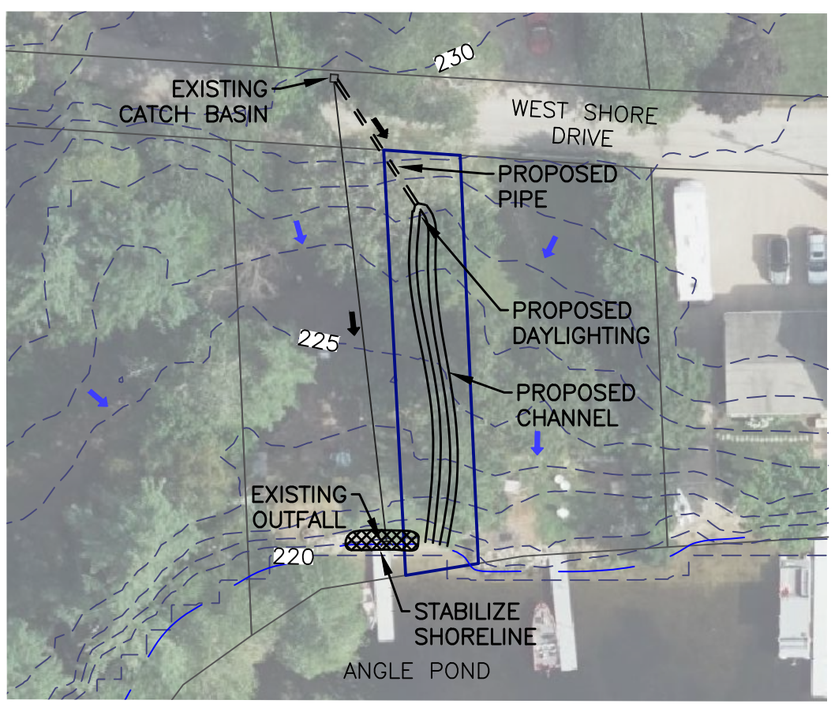
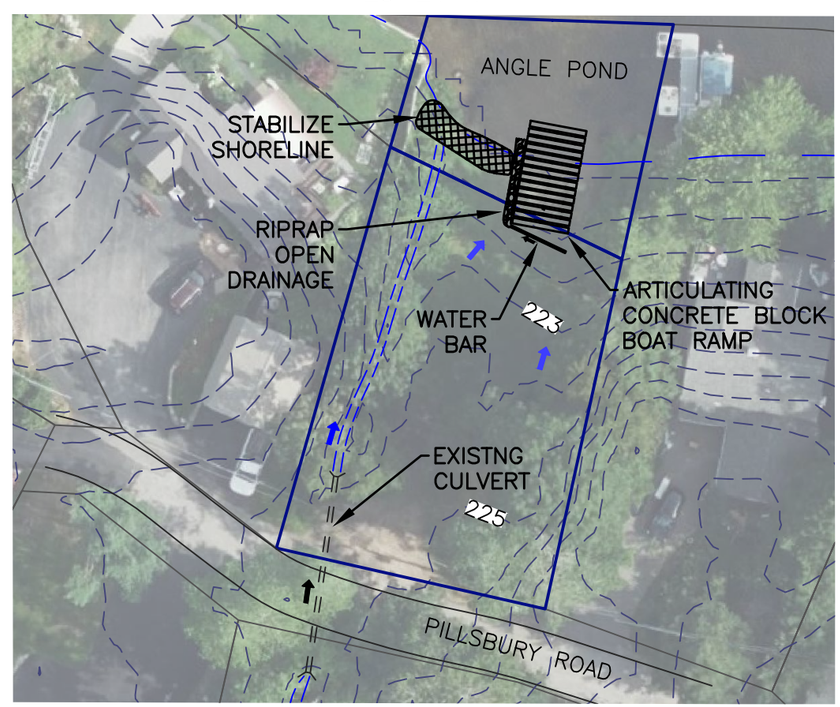


25–21–1



GENERAL NOTES

LEGEND

- PROJECT PARCEL
- PROPERTY LINE
- EXISTING DRAIN PIPE
- EXISTING CATCH BASIN
- EXISTING DRAIN MANHOLE
- EXISTING BUILDING
- EDGE OF PAVEMENT
- FLOW DIRECTION ARROW
- PROPOSED CATCH BASIN
- PROPOSED DRAIN PIPE

40 20 0 40 80

Scale 1" = 40'

COMPREHENSIVE ENVIRONMENTAL INCORPORATED

41 MAIN STREET
BOLTON, MA 01740

PROPOSED CONDITIONS
ANGLE POND
PLAN VIEW

TOWN OF SANDOWN, NH

Project No.: 356–04 Date: 12/9/2021	Sheet
Drawn By: NP	C–6
Checked By: NC	
Scale: AS SHOWN	

MUNICIPAL PROPERTY BMP RETROFITS

Attachment C:

Report on Pollutant Hot Spots, Priority Ranked Parcel Summary Report; November, 2021

Pollutant Hot Spots - Priority Ranked Parcel Summary Report
Municipality: Sandown, NH
Date of Report: November, 2021

Purpose

The NH 2017 Small MS4 General Permit requires for permittees to create an inventory and priority ranking of permittee-owned properties that could be retrofitted with Best Management Practices (BMPs) to reduce stormwater discharges and address pollutant loading from catchments identified as having high loading for nitrogen and/or phosphorus. To aid in these efforts, the information presented in this report may be used to identify and prioritize measures to reduce pollutant loading to impaired waters from the permittee's MS4 area.

This information will assist in fulfilling the following permit requirements for Year 4:

1. MCM #5 Post Construction Stormwater Management
    a. Inventory and priority ranking of permittee-owned property and existing infrastructure that could be retrofitted with BMPs designed to reduce frequency, volume and pollutant loads of stormwater discharges (page 48, section 2.3.6.e).
2. Appendix H - Requirements Related to Water Quality Limited Waters
    a. Nitrogen Source Identification Report (Appendix H, page 3, section I.1.b).
    b. Phosphorus Source Identification Report (Appendix H, page 6, section II.1.b).
3. Appendix F - Lake and Pond Phosphorus TMDLs
    a. Information in this report may be used in the development of Lake Phosphorus Control Plans (LPCP), such as developing a priority ranking of areas and infrastructure for potential implementation of phosphorus control practices.

Methods

Geographic Information System (GIS) analysis of the municipality of Sandown, NH was performed in 2019 using publicly available GIS layers; the analysis yielded total suspended solids (TSS), total nitrogen (TN), and total phosphorus (TP) pollutant load "hot spot" data per parcel by utilizing layers for parcel boundaries, conservation areas, land use, and impervious cover (IC) coupled with the pollutant load export rates found in Table 2-1 of Appendix F of the NH MS4 permit*.

The results were sorted to identity non-conservation parcels owned by the municipality in descending order by acreage of impervious cover, which indicated the priority rank for BMP implementation on municipally owned properties. Parcels were ranked using impervious cover because it is a key metric representing the largest manageable load for pollutants commonly associated with stormwater. Because impervious cover is not evenly distributed on municipal parcels, the graph of cumulative percent of impervious cover for the resulting ranked parcels is non-linear with a typical "knee" which indicates

**https://www.epa.gov/npdes-permits/new-hampshire-small-ms4-general-permit*

the point of decreasing IC area per additional parcel to be managed. The knee represents the optimal number of parcels to be treated by BMPs as they will treat the most impervious cover on the least number of parcels. This method also generally optimizes the resulting TSS, TN, and TP reductions, and costs for treatment as they are all linked to the IC area.

Results

Figure 1 shows the graph of cumulative percent of IC for the resulting ranked, municipal, non-conservation parcels. The knee of the curve is called out as the goal for treatment.

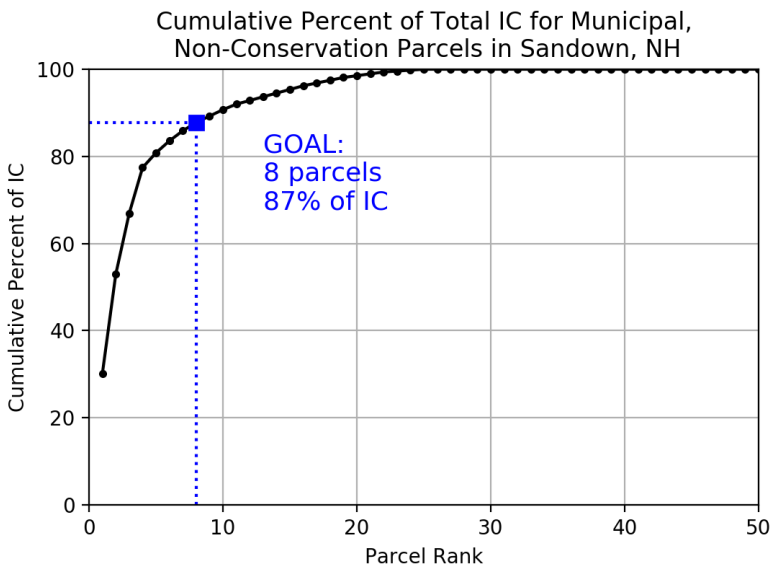


Figure 1: Cumulative percent of IC vs rank (priority) for municipal, non-conservation parcels.

Sandown's target for treatment is 8 parcels . Treating all the IC from these top 8 parcels accounts for 87% of all the municipally owned, non-conservation properties.

Pollutant reductions were estimated using the EPA performance curves for an infiltration basin BMP class** with a physical storage capacity of 0.4 inches and infiltration rate of 1.02 in./hr.. The curve yields 96% TSS reduction, 92% TN reduction, and 81% TP reduction. Table 1 is a summary table showing the IC, TSS reduction, TN reduction, TP reduction, and total estimated costs using the EPA costs outlined in UNH performance fact sheets** for the top 8 parcels and the percentage of the top parcels to the total municipal, non-conservation properties.

Table 1: Summary of priority municipal, non-conservation parcels. The total IC, TSS, TN, and TP reductions using the stated assumed treatment, and estimated cost of treatment are summarized for the priority parcels and their percentage of total municipal, non-conservation parcels.

	IC	TSS Red.	TN Red.	TP Red.	Cost
Top 8 Parcels Total	4 ac	3,682 lb/yr	90 lb/yr	9 lb/yr	$191,000
Percent of Municipal, Non-Cons.	88%	62%	54%	56%	88%

***https://www.unh.edu/unhsc/sites/default/files/media/ms4_permit_nomographs_sheet_final_2020.pdf*

Table 2 shows the priority list of the 8 municipal, non-conservation parcels with their NH GIS ID and street address.

*Table 2: Priority municipal, non-conservation parcels ranked by descending IC with NH GIS ID and street address.****

Treatment Priority	IC (ac)	NH GIS ID	Street Address
1	1.43	08191-018-001-002-000	Pheasant Run Dr
2	1.08	08191-007-005-001-000	212 Main St
3	0.66	08191-018-002-001-000	460 Main St
4	0.50	08191-029-083-000-000	305 Main St
5	0.16	08191-022-009-000-000	13 William St
6	0.13	08191-010-029-002-001	35 Fremont Rd
7	0.11	08191-025-060-000-000	33 Pillsbury Rd
8	0.09	08191-010-029-001-000	27 Fremont Rd

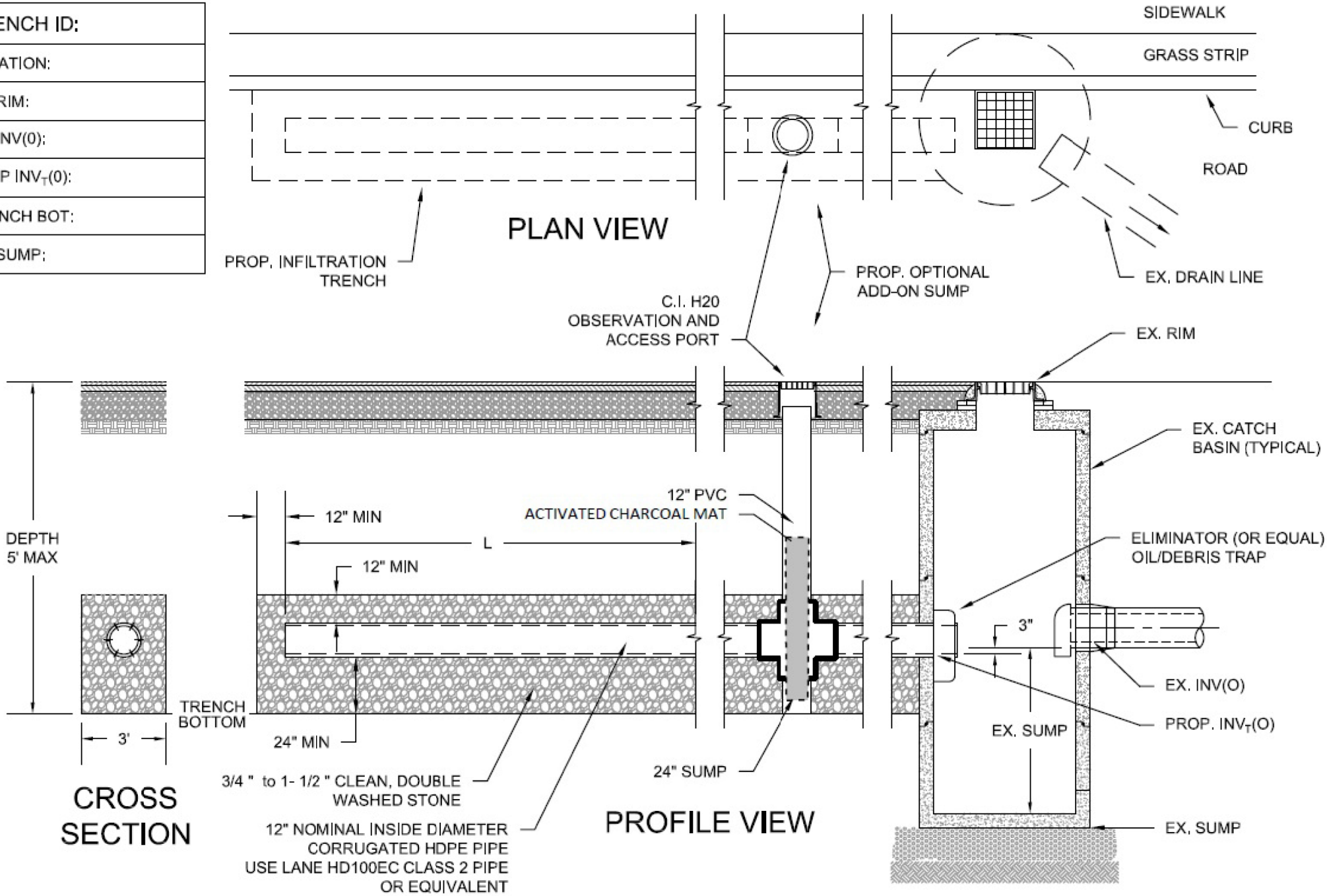
****For the complete prioritized spreadsheet including loads, reductions, and estimated costs, see: https://www4.des.state.nh.us/nh-ms4/?page_id=1798*

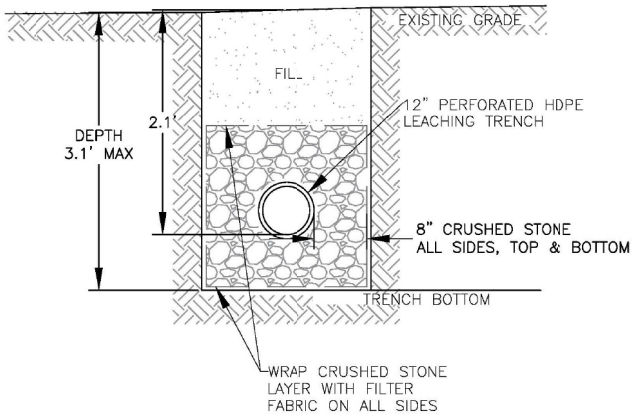
MUNICIPAL PROPERTY BMP RETROFITS

Attachment D:

Example Roadway and Intersection BMP Improvements

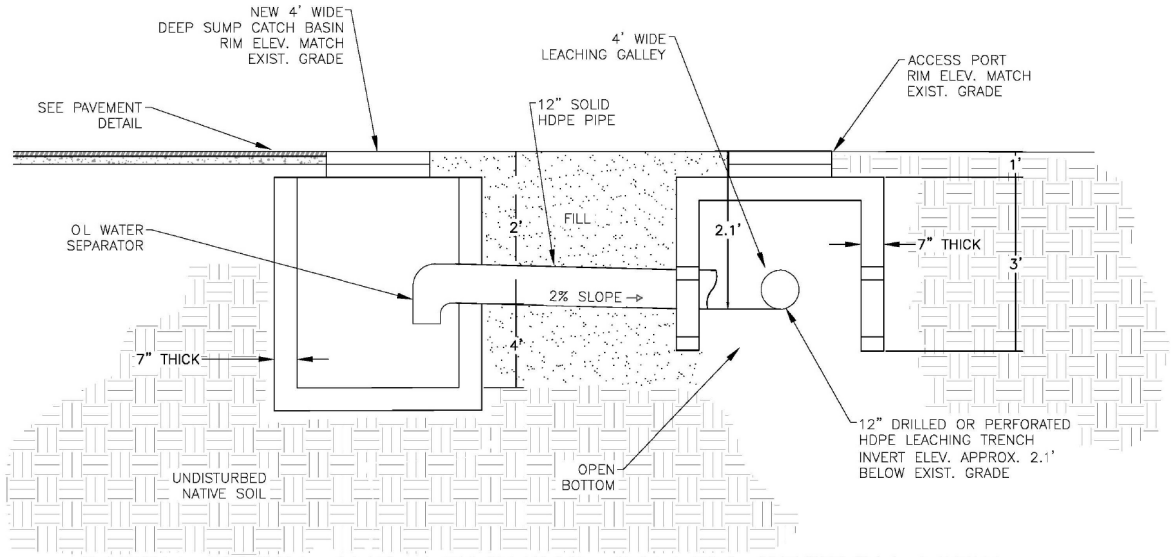
TRENCH ID:
LOCATION:
EX. RIM:
EX. INV(0):
PROP INV_T(0):
TRENCH BOT:
EX. SUMP:





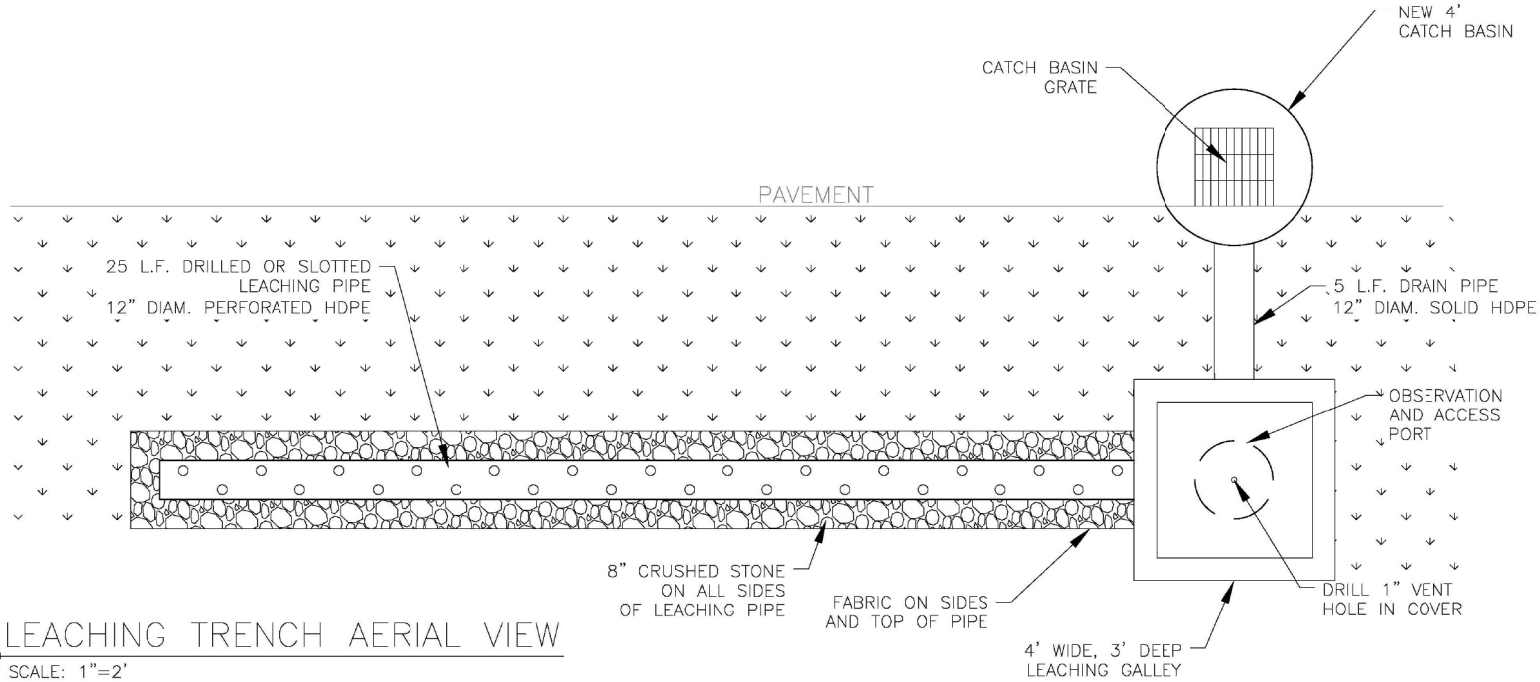
LEACHING TRENCH SECTION VIEW

SCALE N.T.S.



CATCH BASIN AND LEACHING GALLEY SECTION VIEW

SCALE: 1"=3'



LEACHING TRENCH AERIAL VIEW

SCALE: 1"=2'

Appendix F

Street Sweeping Optimization Plan

MI-1, Street Sweeping

Street sweeping is performed to remove sediments from streets and parking lots before it is washed into catch basins and waterways.

Procedures and Practices

- Sweep all Town-owned streets within the urbanized area with the exception of high-speed limited access highways at least once per year in the spring.
- For areas subject to nitrogen and phosphorus TMDL and impaired waters requirements, sweep streets once in the spring and once in the fall.
- If required, sweep priority areas such as those with construction sites or areas subject to heavier sanding and/or traffic volumes multiple times a year.
- Sweep all Town parking lots in spring after snow melts.
- If possible, notify residents and businesses of street sweeping schedule and requirements such as restricted parking and removal of objects that could obstruct sweeping operations.
- Lightly spray water on streets before sweeping to minimize airborne dust.
- Avoid pushing materials into or around storm drains and catch basins.
- Do not use kick brooms or sweeper attachments that tend to spread dirt.
- When unloading sweeper, make sure there is no dust or sediment release.
- After sweeping is finished, properly dispose of sweeper wastes (see below). Never dispose sweep debris into the storm drain systems, catch basins, or waterways.
- Never store street sweepings in areas where stormwater could transport fine materials to the storm drain system or a waterbody.
- If possible, clean catch basins after streets are swept.

Prior to the Start of the Sweeping Season (Spring)

- Train employees on the proper maintenance and operation of equipment and on the proper storage and disposal of street sweepings.
- Ensure all sweeping equipment is in good working order and conduct maintenance as needed (see Equipment Maintenance Section).
- Ensure road crews are familiar with sweeping routes to efficiently cover the entire municipality.

Prior to Leaving the Facility for Sweeping

- Speak with supervisor to determine special circumstances (i.e. rain, priority areas) and to confirm sweeping route.
- Inspect all vehicles. Check fluid levels and fill to proper levels. Ensure lights are in working order. Document any repairs.

Street Sweeping

- Operate all sweepers according to the manufacturer's recommended settings, standards, and procedures.

- While sweeping, drive between the optimal speed limit.
- If spills occur or illegal discharges are seen, report to your supervisor.
- Do not perform sweeping during heavy rainfall.

Upon Return to the Facility

- Provide daily progress reports on the number of miles and roads swept to supervisor.
- Wash vehicle following the Vehicles and Equipment Washing SOP (VM-2).
- Before parking any truck or equipment after use, check all fluid levels. Note any minor repairs conducted and other repairs that may be needed. Follow the Vehicle and Equipment Maintenance SOP (VM-1).

Storage, Disposal and Reuse

Storage

- Store separately from catch basin cleaning materials.
- Store street sweepings on an impermeable surface away from areas that receive stormwater runoff.
- Cover street sweeping piles with tarps to prevent rainwater from generating contaminated stormwater.
- Any Town employee handling the street sweepings should wear appropriate personal protective equipment, such as a dust mask, safety goggles, long-sleeved shirts and long pants at all times.

Reuse

Street sweepings may be reused if visual evidence of litter, animal waste, and petroleum contamination is absent.

Inspection and Maintenance

- Inspect sweepers before sweeping to ensure they are in good working order. Maintain and adjust as necessary.
- Inspect tarp to ensure pile is covered and no tears.
- Inspect erosion controls weekly and after major storms to ensure they are free of tears and sediment buildup. Repair as needed.
- Immediately abate any nuisance conditions (i.e., noise, dust, odor).
- Train employees on proper street sweeping procedures.

Recordkeeping and Reporting

- Use attached Street Sweeping Log to document street sweeping activities.
- Town employees should record:
    - Miles of roadway swept.
    - Tons or cubic yards of street sweeping materials generated.
    - Tons or cubic yards of street sweeping materials disposed of.
    - Tons or cubic yards of street sweeping materials reused as fill.

Street Sweeping Log

Date:_________________ **Precipitation in the last three days?** **Yes** **No**

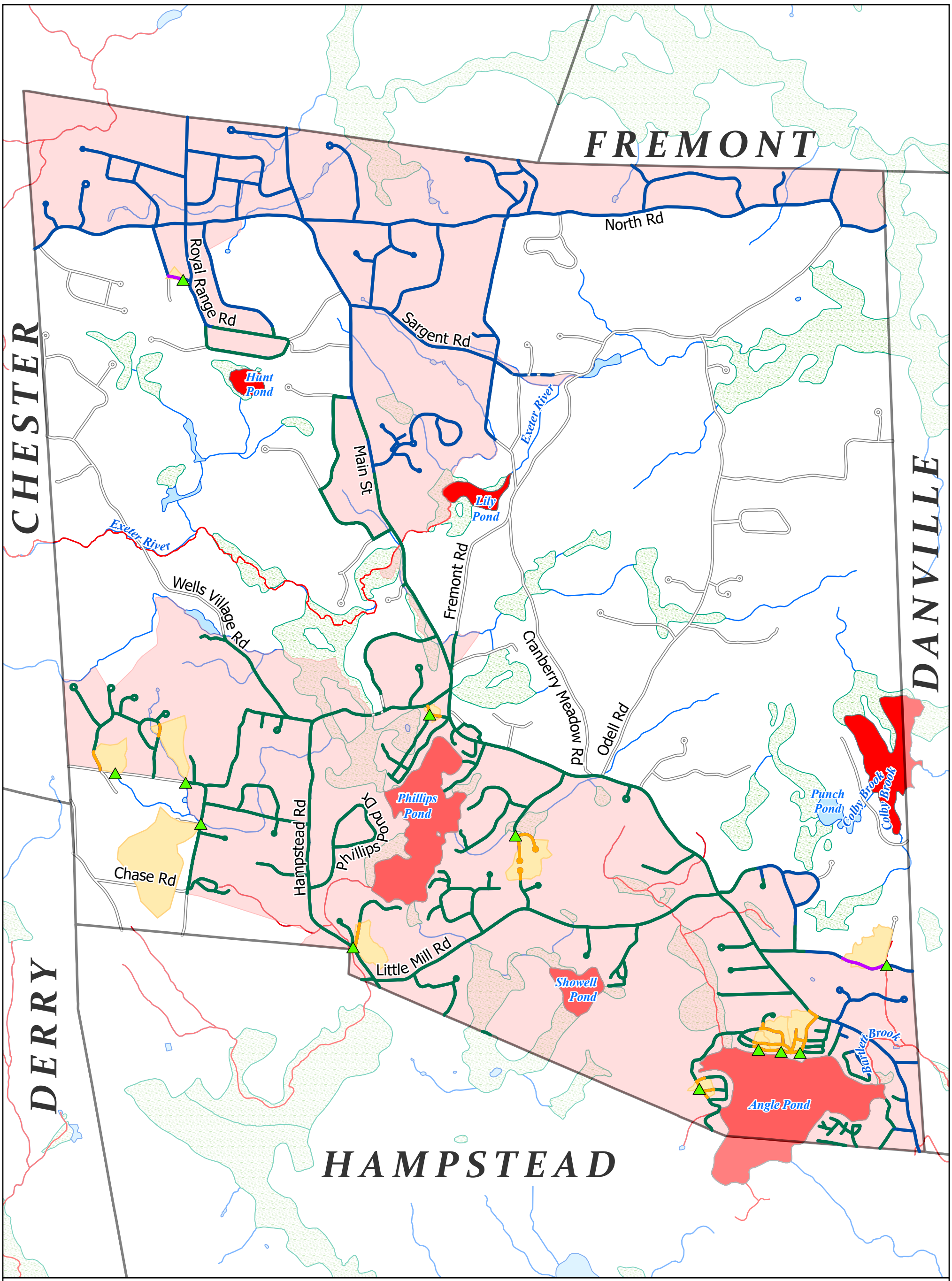
Weather Today:____

Supervisor/Crew Leader:_______________________________________

Street Swept (Name)	Miles	Observed Potential Sources of Pollution	Volume or Mass of Material Removed	Comments
		__ None __ Material Storage __ Construction Activity __ Equipment Storage __ Erosion __ Other*		
		__ None __ Material Storage __ Construction Activity __ Equipment Storage __ Erosion __ Other*		
		__ None __ Material Storage __ Construction Activity __ Equipment Storage __ Erosion __ Other*		
		__ None __ Material Storage __ Construction Activity __ Equipment Storage __ Erosion __ Other*		
		__ None __ Material Storage __ Construction Activity __ Equipment Storage __ Erosion __ Other*		
		__ None __ Material Storage __ Construction Activity __ Equipment Storage __ Erosion __ Other*		
		__ None __ Material Storage __ Construction Activity __ Equipment Storage __ Erosion __ Other*		
		__ None __ Material Storage __ Construction Activity __ Equipment Storage __ Erosion __ Other*		
		__ None __ Material Storage __ Construction Activity __ Equipment Storage __ Erosion __ Other*		
		__ None __ Material Storage __ Construction Activity __ Equipment Storage __ Erosion __ Other*		
		__ None __ Material Storage __ Construction Activity __ Equipment Storage __ Erosion __ Other*		
		__ None __ Material Storage __ Construction Activity __ Equipment Storage __ Erosion __ Other*		

Total Sediment Accumulated from Route (as weighed at landfill):_______________ tons

* Provide additional comments to describe the observations made for the category. Comments should also identify issues that hinder street sweeping progress (i.e., parked cars, obstructions).



Street Sweeping Map

Sweeping per Phase II Requirements

Sandown, NH

Legend

- Outfall
- Catchments
- Urbanized Area
- 303(d) Impaired Waterbody
- 303(d) Impaired Stream
- Lake, Pond, Reservoir
- Swamp, Marsh
- Stream, Brook

Street Sweeping Frequency

- 2x/year (required)
- 1x/year (required)
- 2x/year (optional)
- 1x/year (optional)

N W E S

0 1 Miles

Comprehensive Environmental Incorporated

Data Sources: Granit, Town of Sandown, CEI

9.2.2020

Appendix G

Catch Basin Optimization Plan

Plan for Optimizing Catch Basin Cleaning

Sandown, NH

June 2019

Prepared For:

Town of Sandown
320 Main St
Sandown, NH 03873

Prepared by:

Comprehensive Environmental Inc.
41 Main Street
Bolton, MA 01740

Table of Contents

Plan for Optimizing Catch Basin Cleaning – Sandown, NH

List of Appendices

1 Introduction

This Catch Basin Cleaning Optimization Plan has been prepared by Sandown, NH to address the catch basin inspection, cleaning and maintenance requirements of the United States Environmental Protection Agency's (USEPA's) 2017 National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4) in Massachusetts, hereafter referred to as the "2017 MS4 Permit."

The 2017 MS4 Permit requires the permittee to document its plan for optimizing catch basin cleaning, inspections, or its schedule for gathering information to develop the optimization plan. This plan documents the Town's existing catch basin cleaning program and its plans for gathering additional information to refine its program to meet the requirements of the permit.

2 Permit Requirements

This Catch Basin Cleaning Optimization Plan addresses Section 2.3.7.1.a.iii.2 of the 2017 MS4 Permit (Infrastructure Operations and Maintenance), which includes the following requirements:

- **Establish a schedule** with the goal that the frequency of routine cleaning will ensure that no catch basin at any time will be more than 50 percent full[1];

- **Prioritize** inspection and maintenance for catch basins:
  - located near construction activities[2]. These should be cleaned more frequently if inspection and maintenance activities indicate excessive sediment or debris loadings;
  - discharging to impaired waters where the pollutant of concern is E. coli or enterococcus; and
  - with sumps more than 50% full during consecutive inspections.

- **Establish proper documentation** of catch basin inspections to include:
  - the location and total number of catch basins;
  - the location and total number of catch basins cleaned or inspected; and
  - the total volume or mass of material removed from catch basin

- **Develop an optimization plan** for catch basin cleaning, inspection plans, or a schedule for gathering information to develop the optimization plan in the first annual report and in the SWMP.

[1] 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.
[2] Roadway construction; residential, commercial, or industrial development or redevelopment.

3 Existing Catch Basin Management Program

The Town has prioritized basins with known high sediment accumulation that are cleaned at least once a year while other basins are cleaned less frequently.

4 Plans to Refine Catch Basin Cleaning Optimization

4.1 Optimization Methodology

Sandown will continue to implement its existing catch basin cleaning program of cleaning basins based on sediment accumulation in each basin. During this time, it will collect data on the sump depth and sediment depth in each catch basin. A spreadsheet will be used to track sediment depth at each location. The catch basin inspection form included with the standard operating procedure (SOP) in **Appendix A** will be used to document data collected during cleaning.

A minimum of two years of data will be collected and evaluated to determine the status of the catch basins and whether the sump was more than half full. The catch basins that are more than 50% full will be evaluated for potential factors that may have contributed to it being 50% full (i.e., smaller sump, nearby construction, surrounding land uses, location in town). The evaluation will be used to identify catch basins that require more frequent inspection and/or cleaning and to develop an optimization plan that prioritizes these structures accordingly.

4.2 Catch Basin Cleaning Standard Operation Procedure (SOP)

All catch basins will be inspected and cleaned following the standard operating procedures (SOP) provided in **Appendix B**.

4.3 Catch Basin Cleanings Storage and Disposal

Sandown will explore possible beneficial uses for its collected catch basin cleanings.

Appendix A: SOPs

Standard Operating Procedures for Catch Basin Cleaning and Inspection

MI-2, Catch Basin Cleaning & Inspection

Catch basin cleaning (CBC) is performed to remove sediments from structures before it is washed into waterways. For additional information, see the Town's Catch Basin Cleaning Optimization Plan.

Procedures and Practices

1. If possible, notify residents and businesses of catch basin cleaning schedule to restrict parking that could obstruct catch basin cleaning operations.
2. Work upstream to downstream when cleaning catch basins within a drainage network.
3. Clean sediment and trash off grate before removing grate.
4. Inspect the outside of the grate and inside of the catch basin to determine cleaning needs and for structural integrity.
5. Either manually use a shovel to remove accumulated sediments, use a bucket loader to remove accumulated sediments, or use a high pressure washer to clean any remaining material out of the catch basin while capturing the slurry with a vacuum.
6. If necessary, after the catch basin is cleaned, use the rodder of a vacuum truck to clean downstream pipe and pull back sediment that might have entered downstream pipe.
7. After cleaning is finished, properly dispose of collected sediments (see below).
8. Collect and dispose of fluids during catch basin cleaning. Do not discharge fluids to a wetland or waterway.
9. If any suspected illicit discharges are observed or suspected, notify your supervisor.
10. At the end of each day, document location and number of catch basins cleaned, amount of waste collected, and disposal method for all screenings.

Storage and Disposal

Storage

- Store separately from street sweeping materials.
- Store materials on an impermeable surface away from areas that receive stormwater runoff.
- Cover piles with tarps to prevent rainwater from generating contaminated stormwater.
- Any Town employee handling the street sweepings should wear appropriate personal protective equipment, such as a dust mask, safety goggles, long-sleeved shirts and long pants at all times.

Disposal

Catch basin stockpiles should be evaluated for disposal as follows:

- If obviously (by visual and/or olfactory examination) contaminated with sanitary wastewater, animal wastes, oil, gasoline or other petroleum products, test the solids pursuant to the hazardous waste determination requirements in ENV-Hw 502 and dispose of as follows:

  - If non-hazardous – dispose at any permitted, lined solid waste landfill or other solid waste treatment facility permitted to accept this material.
  - If hazardous – dispose of in accordance with NH Hazardous Waste Rules, ENV-Hw 100-1100.
- If not obviously contaminated:
  - Test for metals, VOCs and PAHs.
  - Compare to NHDES Risk Characterization and Management Policy (RCMP) S-3 Soil Standards for reuse as road base or subbase.
  - Compare to NHDES RCMP S-1 Soil Standards for unrestricted reuse.

Inspection and Maintenance

- Clean catch basins to maintain sediment levels in sumps at less than 50% full.
- If catch basins are more than 50% full for two consecutive cleaning events, catch basins should either be cleaned more often or the contributing area should be investigated for sediment sources.
- Inspect catch basins for structural integrity and evidence of illicit discharges during cleaning.
- Inspect tarp to ensure pile is covered and no tears.
- Immediately abate any nuisance conditions (i.e., noise, dust, odor).
- Train employees on proper CBC procedures.

Recordkeeping and Reporting

- Use attached Catch Basin Inspection Form when inspecting catch basins. Town employees should record:
  - Number of catch basins inspected.
  - Number of catch basins cleaned.
  - Log of catch basins cleaned or inspected.
  - Tons or cubic yards of catch basin cleaning materials generated.
- Use attached Catch Basin Maintenance/Repair Log to document CBC activities.

Catch Basin Inspection Procedures

Option 1: Inspection during Cleaning

1. Clean sediment and trash off of grate.
2. Remove grate.
3. Fill out **Catch Basin Inspection Form** with basin-specific information:
    - **Before cleaning**:
        - Do a visual inspection of outside of grate.
        - Do a visual inspection of the inside of the catch basin to determine cleaning needs and structural issues.
        - Measure depth from rim of catch basin to top of sediment.
        - Measure depth from rim of catch basin to the top of the outlet pipe.
        - Take photo of catch basin.
    - **Clean catch basin**:
        - For manual removal, place removed material in a location protected from potential runoff and place cleanings in a vehicle for transport to designated disposal area.
        - OR use a high-powered vac truck to remove sediment.
    - **After cleaning**:
        - Measure depth from rim to bottom of catch basin.
        - Measure depth of sum (outlet pipe to bottom of catch basin).
        - Note if the catch basin is more than 50% full with sediment.
        - Note if the catch basin requires maintenance or it there are pollutants present.
        - Take photo of catch basin.
4. If any illicit discharges are observed or suspected, notify supervisor.

Option 2: Interim Inspection between Cleaning Cycles

1. Clean sediment and trash off grate.
2. Remove grate.
3. Fill out **Catch Basin Inspection Form** with basin-specific information:
    - Do a visual inspection of outside of grate.
    - Do a visual inspection of the inside of the catch basin to determine cleaning needs and structural issues.
    - Measure depth from rim of catch basin to top of sediment.
    - Using sump depth collected during previous cleaning, note if the catch basin is more than 50% full with sediment.
    - Note if the catch basin requires maintenance or if there are pollutants present.
4. If any illicit discharges are observed or suspected, notify supervisor.

Catch Basin Inspection Form

Inspection Information			
Catch Basin ID			
Street Location		GPS Location	
Inspector's Name			
Date of Inspection		Time of Inspection	
Weather (circle)	Dry Light Rain Heavy Rain Snow		

Catch Basin Information		
Location	**Surface Type**	**Grate**
☐ Road/Curb ☐ Alley ☐ Ditch ☐ Parking Lot ☐ Driveway ☐ Sidewalk Other:_____	☐ Asphalt ☐ Gravel ☐ Concrete ☐ Grass/Dirt Other:_____	____inches x ____ inches Material: _____ Shape:

Catch Basin Condition	
CB Damage: No Yes	Comment:

	Materials (circle)					**Condition (circle)**			
Grate	Cast Iron	Brick	Concrete	Aluminum	Fiberglass	Poor	Fair	Good	Excellent
Frame	Cast Iron	Brick	Concrete	Aluminum	Fiberglass	Poor	Fair	Good	Excellent
Chimney	Cast Iron	Brick	Concrete	Aluminum	Fiberglass	Poor	Fair	Good	Excellent
Walls	Cast Iron	Brick	Concrete	Aluminum	Fiberglass	Poor	Fair	Good	Excellent
Trap/Hood	Cast Iron	Brick	Concrete	Aluminum	Fiberglass	Poor	Fair	Good	Excellent
Sump	Cast Iron	Brick	Concrete	Aluminum	Fiberglass	Poor	Fair	Good	Excellent

Sediment Depth and IDDE (inches)	
A. Depth from Rim to Top of Sediment: _____ B. Depth from Rim to Bottom of Basin (after vac): _____ C. Sump Depth: _____ D. Depth of Sediment (B-A): _____ E. More than 50% Full of Sediment? (D/C): _____ **CB Cleaned?** No Yes **Suspected illicit discharge?** No Yes	Check those Present: __Sanitary Waste/Smell __Excessive Sediment __Oil Sheen __Floatables/Trash __Pet Waste: Other:_____ Potential Source: _____

Catch Basin Maintenance/Repair Log

Structure ID	Location (Street Name, Approximate Address)	Inspection Date	Problem(s) Identified, Comments	Date of Maint/Repair	Type of Maintenance/Repair, Comments

Appendix H

SWPPP Exemption Memorandum

NPDES MS4 SWPPP COMPLIANCE

TO: Ms. Lynne Blaisdell, Sandown Town Administrator

FROM: Mr. Nick Cristofori P.E.

DATE: August 25, 2020

SUBJECT: NPDES MS4 SWPPP Compliance

Background

Under the Environmental Protection Agency's (EPA's) 2017 National Pollutant Discharge and Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permit, regulated communities such as Sandown are required to prepare Stormwater Pollution Prevention Plans (SWPPPs) for the following permittee-owned or operated facilities if they discharge stormwater to the regulated MS4 and Waters of the United States:

- Maintenance garages;
- Public works yards;
- Transfer stations; and
- Other waste handling facilities where pollutants are exposed to stormwater as determined by the permittee.

In response, Comprehensive Environmental Inc. (CEI) and the Town developed a list of town-owned facilities that may require SWPPP preparation, identified as the following:

Table 1 – Potential SWPPP Facilities

Facility Name	Address	Map/Lot
Highway Garage	26 Depot Road	11-3
Transfer Station		

The above facilities do not necessarily require preparation of SWPPPs, depending on where they are located and where stormwater is discharged from the sites. Of note from the permit:

- "If the small MS4 is not located entirely within an urbanized area, only the portion of the MS4 that is located within the urbanized area [as per the most recent decennial census data] is regulated…"; and
- "A small municipal separate storm sewer system means all separate storm sewers that are: owned or operated by the… town… having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes… that discharges to waters of the United States."

Per the above paraphrased permit language, only areas located both within a community's regulated area and that discharge to waters of the United States are regulated under the permit and thus require preparation of SWPPPs. A review of the Town's urbanized area indicates that both facilities are located just outside of, but immediately adjacent to, the Town's regulated

urbanized area. Thus, if runoff flows from these facilities into the Town's urbanized area and ultimately to waters of the United States, then SWPPPs will likely be required.

Desktop and Field Investigations

CEI began with a desktop exercise of overlaying known drainage infrastructure, topography, and waterbody information available through GIS for both sites. Once complete, CEI then completed a brief evaluation of both facilities on August 24, 2020 to observe drainage patterns, stormwater destinations, and other relevant site-specific characteristics.

Runoff from both facilities generally flows to a low point at the Highway Garage where it flows into an unnamed tributary that eventually discharges to the Exeter River via a pair of shallow channels adjacent to a culvert running across Depot Road. However, due to a localized watershed break to the west of the Highway Garage, stormwater from both facilities does not discharge into the Town's regulated Urbanized Area. As stormwater runoff does not flow into areas regulated under the 2017 MS4 Permit, these facilities do not require preparation of a SWPPP(s).

Conclusions and Recommendations

Based on results of desktop and field investigations completed by CEI, the Highway Garage and Transfer Station facilities do not require preparation of a SWPPP(s) as they do not contribute stormwater runoff into the Town's regulated urbanized area and thus are not covered under the 2017 MS4 Permit. However, as both facilities discharge to waters of the United States and sediment was observed in close proximity to the discharge point, it is recommended that the town consider installing sediment traps to capture sediment before entering downstream waterbodies. Sediment traps should then be periodically cleaned so as to minimize potential sediment discharges into waters of the United States.

Additionally, it is recommended that applicable O&M procedures and Standard Operating Procedures (SOPs) be prepared and made available for relevant activities at the location to help minimize potential pollution do downgradient waterbodies. The Town has been provided with an Operation and Maintenance Plan dated June 30, 2019 containing SOPs that can be applied to both facilities.

Should the regulated urbanized area expand to include these facilities as part of a future update or should drainage patterns change to direct flow into the Town's regulated area, then a SWPPP should be prepared for both facilities.

If you have any further questions or would like additional information, please feel free to contact me at 800.725.2550 x303 or ncristofori@ceiengineers.com. Thank you.

Nick Cristofori, P.E.
Principal, Project Manager

Attachments:

- Facility Map

Legend

- Outfall
- Parcel Boundary
- Lake, Pond, Reservoir
- Swamp, Marsh
- Stream, Brook
- Contours (1 ft.)

N
W E
S

0 250
Feet

Highway Garage & Transfer Station Drainage Map for SWPPP Compliance Sandown, NH

Comprehensive Environmental Incorporated

Data Sources: GRANIT, Town of Sandown, CEI

8/25/2020

Legend

- Outfall
- Parcel Boundary
- Lake, Pond, Reservoir
- Swamp, Marsh
- Stream, Brook
- Contours (1 ft.)

N
W E
S

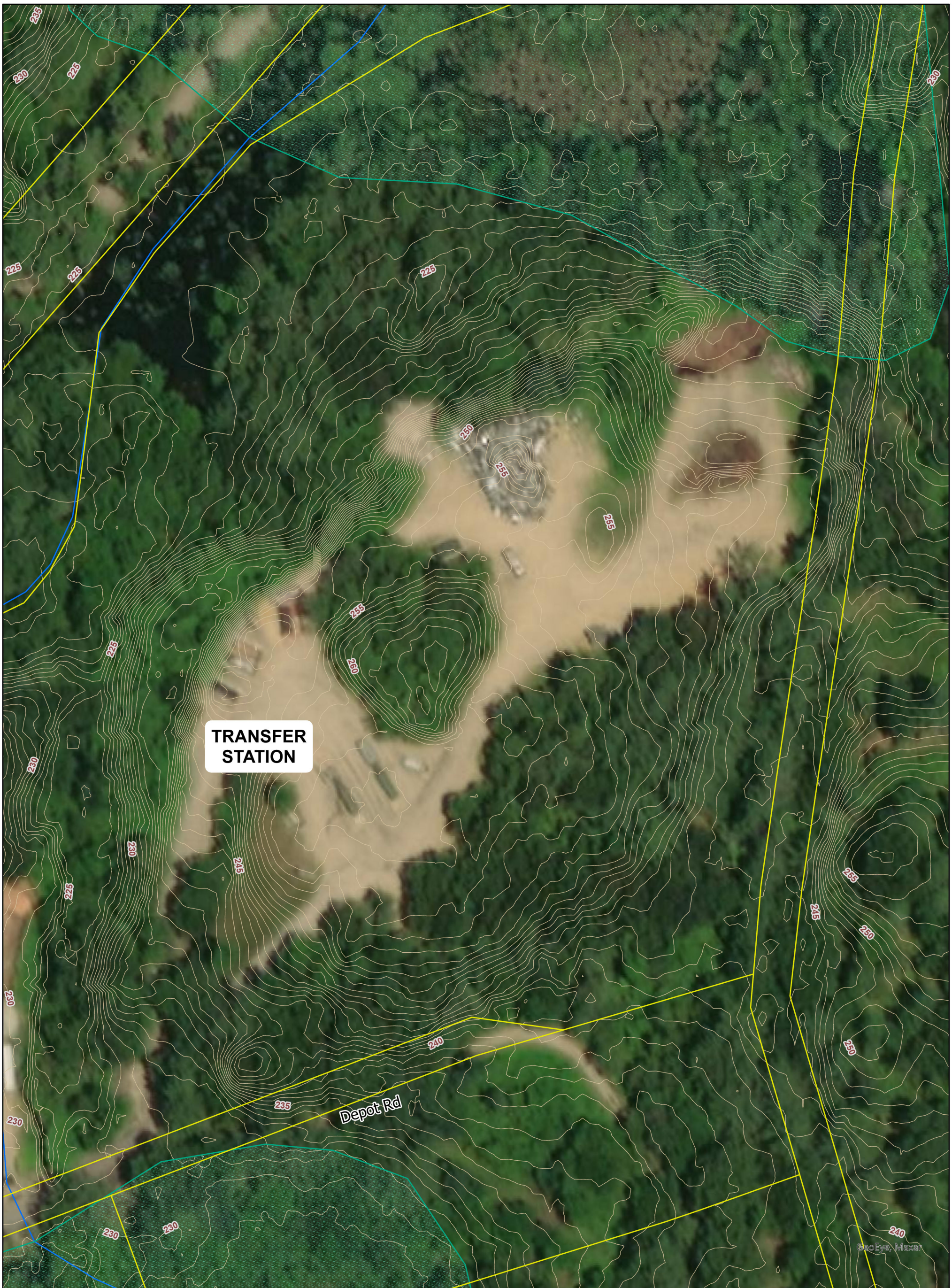
0 100
Feet

Highway Garage Drainage Map for SWPPP Compliance Sandown, NH

Comprehensive Environmental Incorporated

Data Sources: GRANIT, Town of Sandown, CEI

8/25/2020



Legend

- Outfall
- Parcel Boundary
- Lake, Pond, Reservoir
- Swamp, Marsh
- Stream, Brook
- Contours (1 ft.)

N W E S

0 250

Feet

Transfer Station Drainage Map for SWPPP Compliance Sandown, NH

Comprehensive Environmental Incorporated

Data Sources: GRANIT, Town of Sandown, CEI

8/25/2020

Appendix I

List of Stormwater BMPs and Inspection/Maintenance Records

Appendix J

Annual Reports

Year 1 Annual Report
New Hampshire Small MS4 General Permit
Reporting Period: May 1, 2018-June 30, 2019

Please DO NOT attach any documents to this form. Instead, attach all requested documents to an email when submitting the form

Unless otherwise noted, all fields are required to be filled out. If a field is left blank, it will be assumed the requirement or task has not been completed.

Part I: Contact Information

Name of Municipality or Organization: Town of Sandown, NH

EPA NPDES Permit Number: NHR041032

Primary MS4 Program Manager Contact Information

Name: Lynne Blaisdell Title: Town Administrator

Street Address Line 1: 320 Main Street

Street Address Line 2: na

City: Sandown State: NH Zip Code: 03873

Email: lblaisdell@sandown.us Phone Number: (603) 887-3646

Fax Number: na

Stormwater Management Program (SWMP) Information

SWMP Location (web address): www.sandown.us/stormwater-management

Date SWMP was Last Updated: June 30, 2019

If the SWMP is not available on the web please provide the physical address and an explanation of why it is not posted on the web:

Part II: Self Assessment

First, in the box below, select the impairment(s) and/or TMDL(s) that are applicable to your MS4.

Impairment(s)

- ☐ Bacteria/Pathogens
- ☐ Chloride
- ☒ Nitrogen
- ☒ Phosphorus
- ☐ Solids/ Oil/ Grease (Hydrocarbons)/ Metals

TMDL(s)

- ☒ Bacteria/ Pathogens
- ☐ Chloride
- ☒ Lake and Pond Phosphorus

Clear Impairments and TMDLs

Next, check off all requirements below that have been completed. ***By checking each box you are certifying that you have completed that permit requirement fully.*** *If you have not completed a requirement leave the box unchecked. Additional information will be requested in later sections.*

Year 1 Requirements

- ☒ Develop and begin public education and outreach program
- ☐ Identify and develop inventory of all known locations where SSOs have discharged to the MS4 in the last 5 years
  - ○ The SSO inventory is attached to the email submission
  - ○ The SSO inventory can be found at the following website:

    N/A, no sanitary sewer system
- ☒ Develop written IDDE plan including a procedure for screening and sampling outfalls
- ☒ IDDE ordinance complete
- ☒ Identify each outfall and interconnection discharging from MS4, classify into the relevant category, and priority rank each catchment for investigation
  - ○ The priority ranking of outfalls/interconnections is attached to the email submission
  - ◉ The priority ranking of outfalls/interconnections can be found at the following website:

    www.sandown.us/stormwater-management; IDDE Plan, Appendix B
- ☐ Construction/ Erosion and Sediment Control (ESC) ordinance complete
- ☐ Develop written procedures for site inspections and enforcement of sediment and erosion control measures
- ☒ Develop written procedures for site plan review
- ☐ Keep a log of catch basins cleaned or inspected
- ☐ Complete inspection of all stormwater treatment structures

Annual Requirements

- ☒ Annual opportunity for public participation in review and implementation of SWMP
- ☒ Comply with State Public Notice requirements
- ☒ Keep records relating to the permit available for 5 years and make available to the public

- ☒ Properly store and dispose of catch basin cleanings and street sweepings so they do not discharge to receiving waters
- ☐ Annual training to employees involved in IDDE program
- ☒ All curbed roadways have been swept a minimum of one time per year

Bacteria/ Pathogens (Combination of Impaired Waters Requirements and TMDL Requirements as Applicable)

Annual Requirements

*Public Education and Outreach**

- ☒ Annual message encouraging the proper management of pet waste, including noting any existing ordinances where appropriate
- ☒ Permittee or its agents disseminate educational material to dog owners at the time of issuance or renewal of dog license, or other appropriate time
- ☒ Provide information to owners of septic systems about proper maintenance in any catchment that discharges to a water body impaired for bacteria

** Public education messages can be combined with other public education requirements as applicable (see Appendix H and F for more information)*

Nitrogen Impairment

Annual Requirements

*Public Education and Outreach**

- ☒ Distribute an annual message in the spring (April/May) that encourages the proper use and disposal of grass clippings and encourages the proper use of slow-release fertilizers
- ☐ Distribute an annual message in the summer (June/July) encouraging the proper management of pet waste, including noting any existing ordinances where appropriate
- ☐ Distribute an annual message in the fall (August/September/October) encouraging the proper disposal of leaf litter

** Public education messages can be combined with other public education requirements as applicable (see Appendix H and F for more information)*

Good Housekeeping and Pollution Prevention for Permittee Owned Operations

- ☒ Increase street sweeping frequency of all municipal owned streets and parking lots subject to Permit part 2.3.7.1.d.iii to a minimum of two times per year (spring and fall)

Potential structural BMPs

- ☐ Any structural BMPs listed in Table 3 of Attachment 1 to Appendix H already existing or installed in the regulated area by the permittee or its agents shall be tracked and the permittee shall estimate the nitrogen removal by the BMP consistent with Attachment 1 to Appendix H. Document the BMP type, total area treated by the BMP, the design storage volume of the BMP and the estimated nitrogen removed in mass per year by the BMP in each each annual report

Phosphorus Impairment

Annual Requirements

*Public Education and Outreach**

- ☒ Distribute an annual message in the spring (April/May) that encourages the proper use and disposal of grass clippings and encourages the proper use of slow-release and phosphorus-free fertilizers

- ☐ Distribute an annual message in the summer (June/July) encouraging the proper management of pet waste, including noting any existing ordinances where appropriate
- ☐ Distribute an annual message in the fall (August/September/October) encouraging the proper disposal of leaf litter

** Public education messages can be combined with other public education requirements as applicable (see Appendix H and F for more information)*

Good Housekeeping and Pollution Prevention for Permittee Owned Operations

- ☒ Increase street sweeping frequency of all municipal owned streets and parking lots subject to Permit part 2.3.7.1.d.iii to a minimum of two times per year (spring and fall)

Potential structural BMPs

- ☐ Any structural BMPs listed in Attachment 3 to Appendix F already existing or installed in the regulated area by the permittee or its agents shall be tracked and the permittee shall estimate the phosphorus removal by the BMP consistent with Attachment 1 to Appendix H. Document the BMP type, total area treated by the BMP, the design storage volume of the BMP and the estimated phosphorus removed in mass per year by the BMP in each each annual report

Lake and Pond Phosphorus TMDL

- ☐ Begin Phase 1 Lake Phosphorus Control Plan (LPCP)

Use the box below to input additional details on any unchecked boxes above or any additional information you would like to share as part of your self assessment:

Public Education and Outreach - The Town provided three direct mailings to residents on topics related to lawn care, septic system maintenance, and pet waste during Permit Year 1. The Town has also developed a comprehensive stormwater website with information and links to various stormwater-related topics, including flyers and other materials for download. It is anticipated that this website will be expanded during Year 2 to in part provide additional audience-specific information. The Town has not yet developed seasonal educational messages for all seasons as required for bacteria and phosphorus waterbodies with a TMDL and/or nitrogen and phosphorus water quality limited waterbodies, however, will do so during Year 2. Note that the Town did distribute various messages throughout the year relating to pet waste pickup, septic system maintenance, and yard care that meets part of the seasonal public education requirements. With the exception of providing information on leaf collection during the fall (expected to occur during fall 2019), the Town has largely met all seasonal message distribution requirements.

Construction/Erosion and Sediment Control Ordinance - Requirements are partially met in the existing Town regulations, which in part require the use of erosion and sediment controls and site plan review, however, these do not provide a comprehensive program that applies to all sites that disturb one acre or more. Regulations will be revised along with the post-construction ordinance updates to be completed during Year 2.

Procedures for Site Inspections - The Town does not currently have comprehensive site inspection procedures in place. As part of the regulatory updates related to construction and erosion/sediment controls, existing regulations will be updated as applicable to meet permit requirements. This will be completed during Year 2.

Keep Log of Catch Basins Cleaned or Inspected - The Town developed a Catch Basin Cleaning Optimization Plan during Permit Year 1 and will begin tracking catch basin cleaning and inspections during Year 2.

Stormwater BMP Inspections - The Town is currently developing an inventory of its town-owned Stormwater BMPs. Inspections are expected to begin during Year 2.

IDDE Training - An employee IDDE Training program will be developed during Year 2, with annual training to be performed starting in Year 2.

Nitrogen/Phosphorus Structural BMP Tracking - The Town will begin evaluation of its permittee-owned stormwater BMPs during future years in conjunction with preparing the nutrient source identification reports. It is expected this task will not start until at least Year 3.

LPCP Phase 1 - The Town will begin preparation of its LPCP during Year 2, beginning with a legal analysis in accordance with permit schedule requirements.

Part III: Receiving Waters/Impaired Waters/TMDL

Have you made any changes to your lists of receiving waters, outfalls, or impairments since the NOI was submitted?

Yes ☒ No ☐

If yes, describe below, including any relevant impairments or TMDLs:

Part III of the NOI should be amended as follows:

Actions for Meeting Total Maximum Daily Load (TMDL) Requirements:
- Remove NHRIV600030802-10 - Towle Brook to Pandolphin Dam (e.coli_
- Remove NHLAK700061403-01-01 Angle Pond (phosphorus)

Actions for Meeting Requirements Related to Water Quality Limited Waters:
- Remove NHLAK600030802-04-Showell Pond (phosphorus)
- Remove NHRIV600030802-03-Exeter River (e.coli)
- Remove NHRIV600030802-10-Towle Brook (e.coli)
- Add NHRIV600030802-03 Great Bay via Exeter River (nitrogen), meet Appendix H, Part I
- Add NHLAK700061403-01-01 Angle Pond (phosphorus), meet Appendix H, Part II

The above changes have been reflected in the Town's SWMP Plan.

Part IV: Minimum Control Measures

Please fill out all of the metrics below. If applicable, include in the description who completed the task if completed by a third party.

MCM1: Public Education

Number of educational messages completed during the reporting period: 4

Below, report on the educational messages completed during the first year. For the measurable goal(s) please describe the method/measures used to assess the overall effectiveness of the educational program.

BMP: Pet Waste Flyers

Message Description and Distribution Method:

A flyer outlining the proper management of pet waste and the connection to stormwater was mailed to dog owners in February 2019 with registration reminder notices. Flyers are also continually available at Town Hall for pickup.

Targeted Audience: Residents

Responsible Department/Parties: Town Administrator

Measurable Goal(s):

Distribute informational flyers with all pet registration renewal reminders. A total of 1,057 flyers were mailed during Permit Year 1.

Message Date(s): 2/28/19

Message Completed for: Appendix F Requirements ☒ Appendix H Requirements ☐

Was this message different than what was proposed in your NOI? Yes ☐ No ☒

If yes, describe why the change was made:

BMP: Septic System Fact Sheet

Message Description and Distribution Method:

A flyer outlining proper septic system management practices and the connection to stormwater was mailed with all motor vehicle registration reminders on a monthly basis. Flyers are also continually available at Town Hall.

Targeted Audience: Residents

Responsible Department/Parties: Town Administrator

Measurable Goal(s):

Distribute informational flyers with all car registration renewal reminders. A total of 2,151 flyers have been

mailed at time of report.

Message Date(s): 5/16/19, 6/10/19, 7/10/19 and will continue on a monthly basis

Message Completed for: Appendix F Requirements ☒ Appendix H Requirements ☐

Was this message different than what was proposed in your NOI? Yes ☐ No ☒

If yes, describe why the change was made:

BMP: Lawncare Fact Sheet

Message Description and Distribution Method:

A flyer outlining proper lawn management practices (fertilizer use, landscaping, infiltration, etc.) and the connection to stormwater was mailed out to business owners in May 2019. Flyers are also continually available at Town Hall.

Targeted Audience: Businesses, institutions and commercial facilities; Industrial

Responsible Department/Parties: Town Administrator

Measurable Goal(s):

Continue period mailing of informational flyers to businesses within town. A total of 141 businesses and 25 commercial companies were mailed flyers during Permit Year 1.

Message Date(s): 5/23/19, 5/29/19

Message Completed for: Appendix F Requirements ☒ Appendix H Requirements ☒

Was this message different than what was proposed in your NOI? Yes ☐ No ☒

If yes, describe why the change was made:

BMP: Stormwater Webpage

Message Description and Distribution Method:

Develop a town stormwater website with a links to external sites such as EPA and NHDES as well as provide stormwater brochures for download.

Targeted Audience: Residents, Businesses, institutions and commercial, Developers, Industrial

Responsible Department/Parties: Town Administrator

Measurable Goal(s):

Create a website and complete periodic updates.

Message Date(s): Ongoing

Message Completed for: Appendix F Requirements ☒ Appendix H Requirements ☒

Was this message different than what was proposed in your NOI? Yes ☐ No ☒

If yes, describe why the change was made:

Add an Educational Message

MCM2: Public Participation

Describe the opportunity provided for public involvement in the development of the Stormwater Management Program (SWMP) during the reporting period:

SWMP Plan for Download - The Town has posted the SWMP Plan on Town website along with contact information to allow for public comment.

Was this opportunity different than what was proposed in your NOI? Yes ☐ No ☒

Describe any other public involvement or participation opportunities conducted during the reporting period:

Town-Wide Earth Day Clean Up - The Town partnered with the Girl Scouts, Garden Club and residents to clean up areas of town. A total of 93 bags of trash brought to the transfer station for disposal.

Stormwater Management Poster - The local Girl Scouts made a permanent poster that is on display at the Town Hall regarding stormwater management preventative measures. Topics generally target residents, including messages on pet waste, septic maintenance and yard waste disposal.

Household Hazardous Waste Disposal Event - The town participated in a hazardous waste disposal day with area towns. This is performed annually.

NH the Beautiful Grant - Obtained a NH the Beautiful Grant to assist with purchasing 2 DumpGard covers for transfer station containers.

MCM3: Illicit Discharge Detection and Elimination (IDDE)

Sanitary Sewer Overflows (SSOs)

Below, report on the number of SSOs identified in the MS4 system and removed during this reporting period.

Number of SSOs identified: N/A

Number of SSOs removed: N/A

Below, report on the total number of SSOs identified in the MS4 system and removed to date. At a minimum, report SSOs identified since 2013.

Total number of SSOs identified: N/A

Total number of SSOs removed: N/A

MS4 System Mapping

Describe the status of your MS4 map, including any progress made during the reporting period:

The Town has completed multiple Phase I mapping requirements under the 2017 Permit. Outfalls, receiving waters, and impaired waters within the Town's urbanized area have been mapped. The Town will work toward identifying its stormwater treatment structures, interconnections with other towns, and open channel conveyances in Permit Year 2.

Screening of Outfalls/Interconnections

If conducted, please submit any outfall monitoring results from this reporting period. Outfall monitoring results should include the date, outfall/interconnection identifier, location, weather conditions at time of sampling, precipitation in previous 48 hours, field screening parameter results, and results from all analyses.

- ○ The outfall screening data is attached to the email submission
- ○ The outfall screening data can be found at the following website:

N/A, none completed to date

Below, report on the number of outfalls/interconnections screened during this reporting period.

Number of outfalls screened: 0

Below, report on the percent of total outfalls/interconnections screened to date.

Percent of total outfalls screened: 0%

Catchment Investigations

If conducted, please submit all data collected during this reporting period as part of the dry and wet weather investigations. Also include the presence or absence of System Vulnerability Factors for each catchment.

- ○ The catchment investigation data is attached to the email submission
- ○ The catchment investigation data can be found at the following website:

N/A, none completed to date

Below, report on the number of catchment investigations completed during this reporting period.

Number of catchment investigations completed this reporting period: 0

Below, report on the percent of catchments investigated to date.

Percent of total catchments investigated: 0%

Optional: Provide any additional information for clarity regarding the catchment investigations below:

N/A, not yet started

IDDE Progress

If illicit discharges were found, please submit a document describing work conducted over this reporting period, and cumulative to date, including location source; description of the discharge; method of discovery; date of discovery; and date of elimination, mitigation, or enforcement OR planned corrective measures and schedule of removal.

- ○ The illicit discharge removal report is attached to the email submission
- ◉ The illicit discharge removal report can be found at the following website:

N/A, none found to date

Below, report on the number of illicit discharges identified and removed, along with the volume of sewage removed during this reporting period.

Number of illicit discharges identified: 0

Number of illicit discharges removed: 0

Estimated volume of sewage removed: 0 [UNITS]

Below, report on the total number of illicit discharges identified and removed to date. At a minimum, report on the number of illicit discharges identified and removed since the effective date of the permit.

Total number of illicit discharges identified: 0

Total number of illicit discharges removed: 0%

Optional: Provide any additional information for clarity regarding illicit discharges identified, removed, or planned to be removed below:

N/A, none found to date

Employee Training

Describe the frequency and type of employee training conducted during the reporting period:

An employee IDDE Training program will be developed during Year 2, with annual training to be performed starting in Year 2.

MCM4: Construction Site Stormwater Runoff Control

Below, report on the construction site plan reviews, inspections, and enforcement actions completed during this reporting period.

Number of site plan reviews completed: 5

Number of inspections completed: 5

Number of enforcement actions taken: 0

MCM5: Post-Construction Stormwater Management in New Development and Redevelopment

Ordinance Development

Describe the status of the post-construction ordinance required to be complete in year 2 of the permit term:

The current Town ordinances and regulations are partially in compliance with the Year 2 requirements, however do not meet all requirements pertaining to new development and redevelopment. The Town will draft a revised ordinance and accompanying regulations to meet all Year 2 requirements, and it is anticipated that revisions will be put up for vote at the spring 2020 town meeting.

As-built Drawings

Describe the status of the measures the MS4 has utilized to require the submission of as-built drawings and ensure long term operation and maintenance of completed construction sites required to be complete in year 2 of the permit term:

As part of the regulatory updates to be performed during Year 2, procedures for submittal of as-built drawings and long term operation and maintenance will be developed.

Street Design and Parking Lots Report

Describe the status of the street design and parking lots assessment due in year 4 of the permit term, including any planned or completed changes to local regulations and guidelines:

N/A, to be completed during future permit years.

Green Infrastructure Report

Describe the status of the green infrastructure report due in year 4 of the permit term, including the findings and progress towards making the practice allowable:

N/A, to be completed during future permit years.

Retrofit Properties Inventory

Describe the status of the inventory, due in year 4 of the permit term, of permittee-owned properties that could be modified or retrofitted with BMPs to mitigate impervious areas and report on any properties that have been modified or retrofitted:

The Town is currently developing an inventory of its permittee-owned properties. Once completed, facilities will be evaluated for potential BMP retrofit opportunities during future permit years.

MCM6: Good Housekeeping

Catch Basin Cleaning

Describe the status of the catch basin cleaning optimization plan:

The Town developed a Catch Basin Cleaning Optimization Plan during Permit Year 1 as a component of its SV

If complete, attach the catch basin cleaning optimization plan or the schedule to gather information to develop the optimization plan:

- ○ The catch basin cleaning optimization plan or schedule is attached to the email submission
- ◉ The catch basin cleaning optimization plan or schedule can be found at the following website:

https://www.sandown.us/stormwater-management; SWMP Plan, Appendix G

Below, report on the number of catch basins inspected and cleaned, along with the total volume of material removed from the catch basins during this reporting period.

Number of catch basins inspected: 179

Number of catch basins cleaned: 162

Total volume or mass of material removed from all catch basins: 16 YARDS

Below, report on the total number of catch basins in the MS4 system, if known.

Total number of catch basins:

If applicable:

Report on the actions taken if a catch basin sump is more than 50% full during two consecutive routine inspections/cleaning events:

Not yet applicable, pending collection of a second round of catch basin inspections.

Street Sweeping

Describe the status of the written procedures for sweeping streets and municipal-owned lots:

The Town developed a Street Sweeping Optimization Plan during Permit Year 1 as a component of its SWMP Plan. This consists of a map displaying sweeping requirements throughout the Town and a Standard Operating Procedure (SOP) for completing the sweeping.

Report on street sweeping completed during the reporting period using one of the three metrics below.

- ○ Number of miles cleaned: 3
- ○ Volume of material removed: 7 YARDS
- ○ Weight of material removed: [UNITS]

Winter Road Maintenance

Describe the status of the written procedures for winter road maintenance including the storage of salt and sand:

The Town developed SOPs for winter road maintenance during Permit Year 1. These SOPs will be included as part of a larger comprehensive Operation and Maintenance (O&M) Plan during Year 2 that covers other facilities and stormwater infrastructure.

Inventory of Permittee-Owned Properties

Describe the status of the inventory, due in year 2 of the permit term, of permittee-owned properties, including parks and open spaces, buildings and facilities, and vehicles and equipment, and include any updates:

The Town is currently developing an inventory of its permittee-owned properties, to be completed by the end of Year 2.

O&M Procedures for Parks and Open Spaces, Buildings and Facilities, and Vehicles and Equipment

Describe the status of the operation and maintenance procedures, due in year 2 of the permit term, of permittee-owned properties (parks and open spaces, buildings and facilities, vehicles and equipment) and include maintenance activities associated with each:

The Town is currently developing O&M Procedures for its Parks and Open Spaces, Buildings and Facilities, and Vehicles and Equipment, to be completed by the end of Year 2.

Stormwater Pollution Prevention Plan (SWPPP)

Describe the status of any SWPPP, due in year 2 of the permit term, for permittee-owned or operated facilities including maintenance garages, public works yards, transfer stations, and other waste handling facilities where pollutants are exposed to stormwater:

The Town is currently working towards completing SWPPPs for applicable facilities. During the first half of

Year 2, the Town will evaluate its facilities to determine which are regulated under the MS4 Permit and complete SWPPPs for applicable facilities by the end of Year 2.

Below, report on the number of site inspections for facilities that require a SWPPP completed during this reporting period.

Number of site inspections completed: 0

Describe any corrective actions taken at a facility with a SWPPP:

N/A, not yet started.

O&M Procedures for Stormwater Treatment Structures

Describe the status of the written procedure for stormwater treatment structure maintenance:

The Town is currently developing an inventory of its town-owned Stormwater BMPs. Once complete, the Town will inspect all regulated stormwater BMPs annually and perform maintenance as needed.

Additional Information

Monitoring or Study Results

Results from any other stormwater or receiving water quality monitoring or studies conducted during the reporting period not otherwise mentioned above, where the data is being used to inform permit compliance or permit effectiveness must be attached.

- (●) Not applicable
- ( ) The results from additional reports or studies are attached to the email submission
- ( ) The results from additional reports or studies can be found at the following website(s):

If such monitoring or studies were conducted on your behalf or if monitoring or studies conducted by other entities were reported to you, a brief description of the type of information gathered or received shall be described below:

N/A, not yet started.

Additional Information

Optional: Enter any additional information relevant to your stormwater management program implementation during the reporting period. Include any BMP modifications made by the MS4 if not already discussed above:

Activities performed during Year 1 include submittal of a Notice of Intent, development of a comprehensive Stormwater Management Program (SWMP) Plan which in part also included development of a Catch Basin Cleaning Optimization Plan and Street Sweeping Optimization Plan, development of a comprehensive Illicit Discharge Detection and Elimination (IDDE) Plan which in part included creation of procedures for identifying and removing illicit discharges along with classifying, prioritizing, and delineating catchment areas. Other activities completed included development of winter operation and maintenance procedures and completing an assessment of existing stormwater-related regulatory mechanisms.

Activities Planned for Next Reporting Period

Please confirm that your SWMP has been, or will be, updated to comply with all applicable permit requirements including but not limited to the year 2 requirements summarized below. (Note: impaired waters and TMDL requirements are not listed below)

Yes, I agree ☒

- Complete system mapping Phase I
- Begin investigations of catchments associated with Problem Outfalls
- Develop or modify an ordinance or other regulatory mechanism for post-construction stormwater runoff from new development and redevelopment
- Establish and implement written procedures to require the submission of as-built drawings no later than two years after the completion of construction projects
- Develop, if not already developed, written operations and maintenance procedures
- Develop an inventory of all permittee owned facilities in the categories of parks and open space, buildings and facilities, and vehicles and equipment; review annually and update as necessary
- Establish a written program detailing the activities and procedures the permittee will implement so that the MS4 infrastructure is maintained in a timely manner
- Develop and implement a written SWPPP for maintenance garages, public works yards, transfer stations, and other waste handling facilities where pollutants are exposed to stormwater
- Enclose or cover storage piles of salt or piles containing salt used for deicing or other purposes
- Develop, if not already developed, written procedures for sweeping streets and municipal-owned lots
- Develop, if not already developed, written procedures for winter road maintenance including storage of salt and sand
- Develop, if not already developed, a schedule for catch basin cleaning
- Develop, if not already developed, a written procedure for stormwater treatment structure maintenance
- Develop a written catchment investigation procedure *(18 months)*

Annual Requirements

- Annual report submitted and available to the public
- Annual opportunity for public participation in review and implementation of SWMP
- Keep records relating to the permit available for 5 years and make available to the public
- Properly store and dispose of catch basin cleanings and street sweepings so they do not discharge to receiving waters
- Annual training to employees involved in IDDE program
- Update inventory of all known locations where SSOs have discharged to the MS4 in the last 5 years
- Continue public education and outreach program
- Implement procedures for sweeping streets and municipal-owned lots
- Implement procedures for winter road maintenance

- Update outfall and interconnection inventory and priority ranking and include data collected in connection with the dry weather screening and other relevant inspections conducted
- Implement IDDE program
- Review site plans of construction sites as part of the construction stormwater runoff control program
- Conduct site inspection of construction sites as necessary
- Inspect and maintain stormwater treatment structures
- Log catch basins cleaned or inspected
- Sweep all uncurbed streets at least annually

Provide any additional details on activities planned for permit year 2 below:

Part V: Certification of Small MS4 Annual Report 2019

40 CFR 144.32(d) 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, I certify that 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.

Name: Lynne Blaisdell Title: Town Administrator

Signature: Lynne Blaisdell Date: 9/17/19

[Signatory may be a duly authorized representative]

Year 2 Annual Report
New Hampshire Small MS4 General Permit
Reporting Period: July 1, 2019-June 30, 2020

Please DO NOT attach any documents to this form. Instead, attach all requested documents to an email when submitting the form

Unless otherwise noted, all fields are required to be filled out. If a field is left blank, it will be assumed the requirement or task has not been completed. Please ONLY report on activities between July 1, 2019 and June 30, 2020 unless otherwise requested.

Part I: Contact Information

Name of Municipality or Organization: Town of Sandown, NH

EPA NPDES Permit Number: NHR041032

Primary MS4 Program Manager Contact Information

Name: Lynne Blaisdell Title: Town Administrator

Street Address Line 1: 320 Main Street

Street Address Line 2: na

City: Sandown State: NH Zip Code: 03873

Email: lblaisdell@sandown.us Phone Number: (603) 887-3646

Stormwater Management Program (SWMP) Information

SWMP Location (web address): https://www.sandown.us/sites/g/files/vyhlif4976/f/uploads/2019_sandown_nh_swmp_plan_final.pdf

Date SWMP was Last Updated: June 30, 2019

If the SWMP is not available on the web please provide the physical address:

Part II: Self-Assessment

First, in the box below, select the impairment(s) and/or TMDL(s) that are applicable to your MS4. Make sure you are referring to the most recent EPA approved Section 303(d) Impaired Waters List which can be found here: https://www.epa.gov/tmdl/region-1-impaired-waters-and-303d-lists-state

Impairment(s)

☐ Bacteria/Pathogens ☐ Chloride ☒ Nitrogen ☒ Phosphorus

☐ Solids/ Oil/ Grease (Hydrocarbons)/ Metals

TMDL(s)

☒ Bacteria and Pathogen ☐ Chloride ☒ Lake and Pond Phosphorus

Clear Impairments and TMDLs

Next, check off all requirements below that have been completed. ***By checking each box you are certifying that you have completed that permit requirement fully.*** *If you have not completed a requirement leave the box unchecked. Additional information will be requested in later sections.*

Year 2 Requirements

☐ Completed Phase I of system mapping

☒ Developed a written catchment investigation procedure and added the procedure to the SWMP

☐ Developed written procedures to require the submission of as-built drawings and ensure the long term operation and maintenance of completed construction sites and added these procedures to the SWMP

☒ Enclosed or covered storage piles of salt or piles containing salt used for deicing or other purposes

☒ Developed written operations and maintenance procedures for parks and open space, buildings and facilities, and vehicles and equipment and added these procedures to the SWMP

☒ Developed an inventory of all permittee owned facilities in the categories of parks and open space, buildings and facilities, and vehicles and equipment and added this inventory to the SWMP

☒ Completed a written program for MS4 infrastructure maintenance to reduce the discharge of pollutants

☒ Developed written SWPPPs, included in the SWMP, for all of the following permittee owned or operated facilities: maintenance garages, public works yards, transfer stations, and other waste handling facilities where pollutants are exposed to stormwater

Optional: If you would like to describe progress made on any incomplete requirements listed above, provide any additional information, and/or if any of the above year 2 requirements could not be completed due to the impacts of COVID-19, please identify the requirement that could not be completed, any actions taken to attempt to complete the requirement, and reason the requirement could not be completed below:

Phase I Mapping - mapping of open channel conveyances and any newly located outfalls is ongoing. Mapping interconnections with other MS4s (e.g. DOT) is ongoing, and it is expected that this will continue as part of DOT's own mapping efforts to be completed under a future TS4 permit.

As-Builts and Long-Term O&M - the Town is working on incorporating procedures for submittal of as-builts and require long term operation and maintenance as part of its stormwater regulatory updates to be completed as part of the Year 3 requirements under EPA's pending updated permit schedule. As a result of the

COVID-19 outbreak, regulations were not updated as planned during Permit Year 2.

Annual Requirements

- ☒ Provided an opportunity for public participation in review and implementation of SWMP and complied with State Public Notice requirements
- ☒ Kept records relating to the permit available for 5 years and made available to the public
- ☒ The SSO inventory has been updated, including the status of mitigation and corrective measures implemented
  - ◉ This is not applicable because we do not have sanitary sewer
  - ○ This is not applicable because we did not find any new SSOs
  - ○ The updated SSO inventory is attached to the email submission
  - ○ The updated SSO inventory can be found at the following website:
- ☒ Properly stored and disposed of catch basin cleanings and street sweepings so they did not discharge to receiving waters
- ☐ Provided training to employees involved in IDDE program within the reporting period
- ☒ All curbed roadways were swept at least once within the reporting period
- ☒ Updated outfall and interconnection inventory and priority ranking as needed

Optional: If you would like to describe progress made on any incomplete requirements listed above, provide any additional information, and/or if any of the above annual requirements could not be completed due to the impacts of COVID-19, please identify the requirement that could not be completed, any actions taken to attempt to complete the requirement, and reason the requirement could not be completed below:

IDDE Training - training was not performed during this permit year due to COVID-19 social distancing requirements and limited staff availability.

Outfall Inventory and Ranking - the outfall and interconnection inventory is updated on an ongoing basis as dry weather screening is performed. The priority ranking will be updated after dry weather inspections are completed and before catchment investigations commence.

Bacteria/ Pathogens (Combination of Impaired Waters Requirements and TMDL Requirements as Applicable)

Annual Requirements

*Public Education and Outreach**

- ☒ Annual message was distributed encouraging the proper management of pet waste, including noting any existing ordinances where appropriate
- ☒ Permittee or its agents disseminated educational material to dog owners at the time of issuance or renewal of dog license, or other appropriate time
- ☒ Provided information to owners of septic systems about proper maintenance in any catchment that discharges to a water body impaired for bacteria

** Public education messages can be combined with other public education requirements as applicable (see Appendix H and F for more information)*

Optional: If you would like to describe progress made on any incomplete requirements listed above or provide any additional details, please use the box below:

Public Education and Outreach - The Town included a flyer on pet waste pickup with a direct mailing in February 2020 to all residents with dog license renewal reminders and a total of 1,076 flyers were mailed. The Town also includes a flyer on septic system maintenance with a direct monthly mailing to all residents (approximately 8,880 in total) with motor vehicle registrations. Flyers on pet waste pickup and septic system maintenance are also available for download on the Town's website.

Nitrogen Impairment

Annual Requirements

*Public Education and Outreach**

- ☒ Distributed an annual message in the spring (April/May) that encourages the proper use and disposal of grass clippings and encourages the proper use of slow-release fertilizers
- ☒ Distributed an annual message in the summer (June/July) encouraging the proper management of pet waste, including noting any existing ordinances where appropriate
- ☒ Distributed an annual message in the fall (August/September/October) encouraging the proper disposal of leaf litter

** Public education messages can be combined with other public education requirements as applicable (see Appendix H and F for more information)*

Good Housekeeping and Pollution Prevention for Permittee Owned Operations

- ☒ Increased street sweeping frequency of all municipal owned streets and parking lots subject to Permit part 2.3.7.a.iii.(c) to a minimum of two times per year (spring and fall)

Potential structural BMPs

- ☐ Any structural BMPs listed in Table 3 of Attachment 1 to Appendix H already existing or installed in the regulated area by the permittee or its agents was tracked and the nitrogen removal by the BMP was estimated consistent with Attachment 1 to Appendix H. The BMP type, total area treated by the BMP, the design storage volume of the BMP and the estimated nitrogen removed in mass per year by the BMP were documented.
  - ○ The BMP information is attached to the email submission
  - ○ The BMP information can be found at the following website:

Optional: If you would like to describe progress made on any incomplete requirements listed above or provide any additional details, please use the box below:

Public Education and Outreach - The Town included a flyer on pet waste pickup with a direct mailing in February 2020 to all residents with dog license renewal reminders and a total of 1,076 flyers were mailed. The Town also did a direct mailing of 150 Spring Fertilizer and Lawn Care brochures to local businesses including landscapers on proper fertilizer and pesticide application in spring 2020. 75 brochures (25 pet waste collection, 25 septic system maintenance, and 25 yard maintenance) were also put on display at the town offices in summer 2019, and an additional 100 new brochures (25 rain barrel, 25 vegetated swale, 25 pervious walkways, and 25 water bar) were put on display at the town offices in March 2020, however, offices closed shortly thereafter due to COVID-19. Flyers on pet waste pickup are also available for download on the

Town's website, as well as general information on minimizing pollution due to stormwater runoff.

Structural BMPs - BMP pollutant removal has not yet been computed. It is expected that this will be completed as part of a future Source Identification Report to be completed by Year 4.

Phosphorus Impairment

Annual Requirements

*Public Education and Outreach**

- ☒ Distributed an annual message in the spring (April/May) encouraging the proper use and disposal of grass clippings and encouraging the proper use of slow-release and phosphorus-free fertilizers
- ☒ Distributed an annual message in the summer (June/July) encouraging the proper management of pet waste, including noting any existing ordinances where appropriate
- ☒ Distributed an annual message in the fall (August/September/October) encouraging the proper disposal of leaf litter

** Public education messages can be combined with other public education requirements as applicable (see Appendix H and F for more information)*

Good Housekeeping and Pollution Prevention for Permittee Owned Operations

- ☒ Increased street sweeping frequency of all municipal owned streets and parking lots subject to Permit part 2.3.7.a.iii.(c) to a minimum of two times per year (spring and fall)

Potential structural BMPs

- ☐ Any structural BMPs already existing or installed in the regulated area by the permittee or its agents was tracked and the phosphorus removal by the BMP was estimated consistent with Attachment 3 to Appendix F. The BMP type, total area treated by the BMP, the design storage volume of the BMP and the estimated phosphorus removed in mass per year by the BMP were documented.
  - ○ The BMP information is attached to the email submission
  - ○ The BMP information can be found at the following website:

Optional: If you would like to describe progress made on any incomplete requirements listed above or provide any additional details, please use the box below:

Public Education and Outreach - The Town included a flyer on pet waste pickup with a direct mailing in February 2020 to all residents with dog license renewal reminders and a total of 1,076 flyers were mailed. The Town also did a direct mailing of 150 Spring Fertilizer and Lawn Care brochures to local businesses including landscapers on proper fertilizer and pesticide application in spring 2020. 75 brochures (25 pet waste collection, 25 septic system maintenance, and 25 yard maintenance) were also put on display at the town offices in summer 2019, and an additional 100 new brochures (25 rain barrel, 25 vegetated swale, 25 pervious walkways, and 25 water bar) were put on display at the town offices in March 2020, however, offices closed shortly thereafter due to COVID-19.

Structural BMPs - BMPs pollutant removal has not yet been computed. It is expected that this will be completed as part of a future Source Identification Report to be completed by Year 4.

Lake and Pond Phosphorus TMDL

- ☒ Completed Legal Analysis

Optional: If you would like to describe progress made on any incomplete requirements listed above or provide any additional details, please use the box below:

Optional: Use the box below to provide any additional information you would like to share as part of your self-assessment:

Part III: Receiving Waters/Impaired Waters/TMDL

Have you made any changes to your lists of receiving waters, outfalls, or impairments since the NOI was submitted?

- (●) Yes
- ( ) No

If yes, describe below, including any relevant impairments or TMDLs:

Part III of the NOI should be amended as follows:

Actions for Meeting Total Maximum Daily Load (TMDL) Requirements:
- Remove NHRIV600030802-10 - Towle Brook to Pandolphin Dam (e.coli)
- Remove NHLAK700061403-01-01 Angle Pond (phosphorus)

Actions for Meeting Requirements Related to Water Quality Limited Waters:
- Remove NHLAK600030802-04-Showell Pond (phosphorus)
- Remove NHRIV600030802-03-Exeter River (e.coli)
- Remove NHRIV600030802-10-Towle Brook (e.coli)
- Add NHRIV600030802-03 Great Bay via Exeter River (nitrogen), meet Appendix H, Part I
- Add NHLAK700061403-01-01 Angle Pond (phosphorus), meet Appendix H, Part II

The following changes were made that do not affect TMDL and Impaired Waters requirements:
- Lily Pond (NHLAK600030802-02), Cyanobacteria impairment added to 303(d) list
- Phillips Pond (NHLAK600030802-03-01), Chlorophyll-a and Cyanobacteria removed from 303(d) list
- Phillips Pond - Seeley Town Beach (NHLAK600030802-03-02), Cyanobacteria removed from 303(d) list
- Showell Pond (NHLAK600030802-04 Cyanobacteria removed from 303(d) list
- Bartlett Brook - Colby Brook - Unnamed Brook (NHRIV700061403-05), pH and dissolved oxygen added to 303(d) list
- Unnamed Brook - to Southwest Inlet of Phillips Pond (NHRIV600030802-16), pH added to 303(d) list

Part IV: Minimum Control Measures

Please fill out all of the metrics below. If applicable, include in the description who completed the task if completed by a third party.

MCM1: Public Education

Number of educational messages completed **during this reporting period**: 4

*Below, report on the educational messages completed **during this reporting period.** For the measurable goal(s) please describe the method/measures used to assess the overall effectiveness of the educational program.*

BMP: Pet Waste Flyers

Message Description and Distribution Method:

A flyer outlining the proper management of pet waste and the connection to stormwater was mailed to dog owners in February 2020 with registration reminder notices. Flyers are also continually available at Town Hall for pickup.

Targeted Audience: Residents

Responsible Department/Parties: Town Administrator

Measurable Goal(s):

Distribute informational flyers with all pet registration renewal reminders. A total of 1,076 flyers were mailed during Permit Year 2.

Message Date(s): February 2020

Message Completed for: Appendix F Requirements ☒ Appendix H Requirements ☒

Was this message different than what was proposed in your NOI? Yes ○ No ◉

If yes, describe why the change was made:

BMP: Septic System Fact Sheet

Message Description and Distribution Method:

A flyer outlining proper septic system management practices and the connection to stormwater was mailed with all motor vehicle registration reminders on a monthly basis. Approximately 8,880 were mailed in total. Flyers are also continually available at Town Hall.

Targeted Audience: Residents

Responsible Department/Parties: Town Administrator

Measurable Goal(s):

Distribute informational flyers with all car registration renewal reminders.

Message Date(s): Monthly

Message Completed for: Appendix F Requirements ☒ Appendix H Requirements ☐

Was this message different than what was proposed in your NOI? Yes ○ No ◉

If yes, describe why the change was made:

BMP: Lawn Care Fact Sheet

Message Description and Distribution Method:

A flyer outlining proper lawn management practices (fertilizer use, landscaping, infiltration, etc.) and the connection to stormwater was mailed out to 150 business owners in May 2020. Flyers are also continually available at Town Hall.

Targeted Audience: Businesses, institutions and commercial facilities; Industrial

Responsible Department/Parties: Town Administrator

Measurable Goal(s):

Continue period mailing of informational flyers to businesses within town.

Message Date(s): May 2020

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☒

Was this message different than what was proposed in your NOI? Yes ○ No ◉

If yes, describe why the change was made:

BMP: Stormwater Webpage

Message Description and Distribution Method:

Develop a town stormwater website with a links to external sites such as EPA and NHDES as well as provide stormwater brochures for download.

Targeted Audience: Residents, Businesses, institutions and commercial, Developers, Industrial

Responsible Department/Parties: Town Administrator

Measurable Goal(s):

Create a website and complete periodic updates.

Message Date(s):

Message Completed for: Appendix F Requirements ☒ Appendix H Requirements ☒

Was this message different than what was proposed in your NOI? Yes ○ No ◉

If yes, describe why the change was made:

Add an Educational Message

MCM2: Public Participation

Describe the opportunity provided for public involvement in the development of the Stormwater Management Program (SWMP) **during this reporting period**:

SWMP Plan for Download - The Town has posted the SWMP Plan on Town website along with contact information to allow for public comment.

Was this opportunity different than what was proposed in your NOI? Yes ○ No ◉

Describe any other public involvement or participation opportunities conducted **during this reporting period:**

Town-Wide Earth Day Clean Up - The Town held an Earth Day Clean Up event and a total of 263 bags of trash brought to the transfer station for disposal by the Highway Department. Additional bags were brought directly to the transfer station by residents. Additionally, 2 National Honor Society applicants perform a roadside cleanup on North Road for a total of 3 hours.

The Town's annual rabies clinic was not held this year due to COVID-19 social distancing requirements.

MCM3: Illicit Discharge Detection and Elimination (IDDE)

Sanitary Sewer Overflows (SSOs)

Check off the box below if the statement is true.

☒ This SSO section is NOT applicable because we DO NOT have sanitary sewer

Below, report on the number of SSOs identified in the MS4 system and removed ***during this reporting period****.*

Number of SSOs identified: 0

Number of SSOs removed: 0

MS4 System Mapping

Below, check all that apply.

The following elements of the Phase I map have been completed:

- ☒ Outfalls and receiving waters
- ☐ Open channel conveyances
- ☐ Interconnections
- ☒ Municipally-owned stormwater treatment structures
- ☒ Waterbodies identified by name and indication of all use impairments
- ☒ Initial catchment delineations

Describe any additional progress you made on your map during this reporting period or provide additional status information regarding your map:

Phase I Mapping - all known outfalls, stormwater BMPs, and receiving waterbodies with impairments have been mapped to date. Initial catchment delineations have also been completed based on topographic mapping and available stormwater system information. Mapping of open channel conveyances and any newly located outfalls is ongoing. Mapping interconnections with other MS4s (e.g. DOT) is ongoing, and it is expected that this will continue as part of DOT's own mapping efforts to be completed under a future TS4 permit.

Screening of Outfalls/Interconnections

If conducted, please submit any outfall monitoring results from this reporting period. Outfall monitoring results should include the date, outfall/interconnection identifier, location, weather conditions at time of sampling, precipitation in previous 48 hours, field screening parameter results, and results from all analyses.

- ○ The outfall screening data is attached to the email submission
- ○ The outfall screening data can be found at the following website:

N/A, none completed to date

Below, report on the number of outfalls/interconnections screened ***during this reporting period****.*

Number of outfalls screened: 0

Below, report on the percent of total outfalls/ interconnections screened ***to date.***

Percent of total outfalls screened: 0

Catchment Investigations

If conducted, please submit all data collected during this reporting period as part of the dry and wet weather investigations. Also include the presence or absence of System Vulnerability Factors for each catchment.

- ○ The catchment investigation data is attached to the email submission
- ○ The catchment investigation data can be found at the following website:

N/A, none completed to date

Below, report on the number of catchment investigations completed ***during this reporting period****.*

Number of catchment investigations completed this reporting period: 0

Below, report on the percent of catchments investigated ***to date.***

Percent of total catchments investigated: 0

Optional: Provide any additional information for clarity regarding the catchment investigations below:

IDDE Progress

If illicit discharges were found, please submit a document describing work conducted over this reporting period, and cumulative to date, including location source; description of the discharge; method of discovery; date of discovery; and date of elimination, mitigation, or enforcement OR planned corrective measures and schedule of removal.

- ○ The illicit discharge removal report is attached to the email submission
- ○ The illicit discharge removal report can be found at the following website:

N/A, none found to date

Below, report on the number of illicit discharges identified and removed, along with the volume of sewage removed ***during this reporting period.***

Number of illicit discharges identified: 0

Number of illicit discharges removed: 0

Estimated volume of sewage removed: 0 gallons/day

Below, report on the total number of illicit discharges identified and removed to date. At a minimum, report on the number of illicit discharges identified and removed ***since the effective date of the permit (July 1, 2018)****.*

Total number of illicit discharges identified: 0

Total number of illicit discharges removed: 0

Optional: Provide any additional information for clarity regarding illicit discharges identified, removed, or planned to be removed below:

N/A, none found to date

Employee Training

Describe the frequency and type of employee training conducted **during the reporting period**:

Training was not performed during this permit year due to COVID-19 social distancing requirements and limited staff availability.

MCM4: Construction Site Stormwater Runoff Control

Below, report on the construction site plan reviews, inspections, and enforcement actions completed ***during this reporting period****.*

Number of site plan reviews completed: 5

Number of inspections completed: 5

Number of enforcement actions taken: 0

Optional: Enter any additional information relevant to construction site plan reviews, inspections, and enforcement actions:

MCM5: Post-Construction Stormwater Management in New Development and Redevelopment

Ordinance or Regulatory Mechanism

Below, select the option that describes your ordinance or regulatory mechanism progress.

- ○ Bylaw, ordinance, or regulations are updated and adopted consistent with permit requirements
- ○ Bylaw, ordinance, or regulations are updated consistent with permit requirements but are not yet adopted
- ◉ Bylaw, ordinance, or regulations have not been updated or adopted

As-built Drawings

Describe the measures the MS4 has utilized to require the submission of as-built drawings and ensure long term operation and maintenance of completed construction sites:

The Town is working on incorporating procedures for submittal of as-builts and require long term operation and maintenance as part of its stormwater regulatory updates to be completed as part of the Year 3 requirements under EPA's pending updated permit schedule. As a result of the COVID-19 outbreak, regulations were not updated as planned during Permit Year 2.

Street Design and Parking Lots Report

Describe the status of the street design and parking lots assessment due in year 4 of the permit term, including any planned or completed changes to local regulations and guidelines:

N/A, to be completed during future permit years.

Green Infrastructure Report

Describe the status of the green infrastructure report due in year 4 of the permit term, including the findings and progress towards making the practice allowable:

N/A, to be completed during future permit years.

Retrofit Properties Inventory

Describe the status of the inventory, due in year 4 of the permit term, of permittee-owned properties that could be modified or retrofitted with BMPs to mitigate impervious areas and report on any properties that have been modified or retrofitted:

The Town completed an inventory of its permittee-owned properties during this permit year. Facilities will be evaluated for potential BMP retrofit opportunities during future permit years.

MCM6: Good Housekeeping

Catch Basin Cleaning

Below, report on the number of catch basins inspected and cleaned, along with the total volume of material removed from the catch basins ***during this reporting period****.*

Number of catch basins inspected: 179

Number of catch basins cleaned: 162

Total volume or mass of material removed from all catch basins: 20 cubic yards

Below, report on the total number of catch basins in the MS4 system.

Total number of catch basins:

If applicable:

Report on the actions taken if a catch basin sump is more than 50% full during two consecutive routine inspections/cleaning events:

Not yet applicable.

Street Sweeping

Report on street sweeping completed ***during this reporting period*** *using one of the three metrics below.*

- (●) Number of miles cleaned: 3
- ( ) Volume of material removed: 12 cubic yards
- ( ) Weight of material removed: [Select Units]

O&M Procedures and Inventory of Permittee-Owned Properties

Below, check all that apply.

The following permittee-owned properties have been inventoried:

- ☒ Parks and open spaces
- ☒ Buildings and facilities
- ☒ Vehicles and equipment

The following O&M procedures for permittee-owned properties have been completed:

- ☒ Parks and open spaces
- ☒ Buildings and facilities
- ☒ Vehicles and equipment

Stormwater Pollution Prevention Plan (SWPPP)

Below, report on the number of site inspections for facilities that require a SWPPP completed ***during this reporting period****.*

Number of site inspections completed: 0

Describe any corrective actions taken at a facility with a SWPPP:

Not Applicable. The Town has no standalone maintenance garage or other waste handling facility. The Town's Highway Garage and Transfer Station are located on adjacent parcels within the urbanized area, however, have no closed drainage system with runoff sheet flowing into wooded areas. Based on the location of both facilities, surrounding land uses and topography, it has been determined that both facilities will not discharge to the Town's MS4 or a Waterbody of the United States under any conditions. Should future evaluation determine that any facilities drain to the MS4, the Town will prepare a SWPPP(s) as required by the 2017 MS4 Permit.

Additional Information

Monitoring or Study Results

Results from any other stormwater or receiving water quality monitoring or studies conducted during the reporting period not otherwise mentioned above, where the data is being used to inform permit compliance or permit effectiveness must be attached.

- (●) Not applicable
- ( ) The results from additional reports or studies are attached to the email submission
- ( ) The results from additional reports or studies can be found at the following website(s):

If such monitoring or studies were conducted on your behalf or if monitoring or studies conducted by other entities were reported to you, a brief description of the type of information gathered or received shall be described below:

N/A, not started yet.

Additional Information

Optional: Enter any additional information relevant to your stormwater management program implementation during the reporting period. Include any BMP modifications made by the MS4 if not already discussed above:

The MS4 Permit requires the Town to achieve a significant reduction in phosphorus loads to waters with phosphorus TMDLs, a significant portion of which comes from existing privately developed properties that discharge to the Town's MS4 or directly to surface waters. These existing private properties are currently not subject to stormwater permits and are not regulated to reduce their share of phosphorus contributions to TMDL waters. Instead, the Town is responsible for achieving phosphorus reductions from these private developments because these developments are located within Sandown's MS4. The Town would like to see a state or federal level stormwater permit for existing large commercial, industrial and institutional properties located within TMDL watersheds, similar to that in Vermont or that proposed for the Charles River Watershed in Massachusetts, with the same phosphorus or more stringent reduction requirements that the MS4 permitted communities are required to achieve to help mitigate impacts from private properties.

COVID-19 Impacts

Optional: If any of the above year 2 requirements could not be completed due to the impacts of COVID-19, please identify the requirement that could not be completed, any actions taken to attempt to complete the requirement, and reason the requirement could not be completed below:

Public Education and Participation - the Town's annual rabies clinic and Household Hazardous Waste Disposal Event were not held this year due to COVID-19 social distancing requirements.

IDDE Training - training was not performed during this permit year due to COVID-19 social distancing requirements and limited staff availability.

As-Builts and Long-Term O&M - the Town is working on incorporating procedures for submittal of as-builts and require long term operation and maintenance as part of its stormwater regulatory updates to be completed as part of the Year 3 requirements under EPA's pending updated permit schedule. As a result of the COVID-19 outbreak, regulations were not updated as planned during Permit Year 2.

Activities Planned for Next Reporting Period

Part V: Certification of Small MS4 Annual Report 2020

40 CFR 144.32(d) 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, I certify that 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.

Name: Lynne Blaisdell Title: Town Administrator

Signature: Lynne Blaisdell Date: 9/16/2020

[Signatory may be a duly authorized representative]

Year 3 Annual Report
New Hampshire Small MS4 General Permit
Reporting Period: July 1, 2020-June 30, 2021

Please DO NOT attach any documents to this form. Instead, attach all requested documents to an email when submitting the form

Unless otherwise noted, all fields are required to be filled out. If a field is left blank, it will be assumed the requirement or task has not been completed. Please ONLY report on activities between July 1, 2020 and June 30, 2021 unless otherwise requested.

Part I: Contact Information

Name of Municipality or Organization: Town of Sandown, NH

EPA NPDES Permit Number: NHR041032

Primary MS4 Program Manager Contact Information

Name: Lynne Blaisdell Title: Town Administrator

Street Address Line 1: 320 Main Street

Street Address Line 2:

City: Sandown State: NH Zip Code: 03873

Email: lblaisdell@sandown.us Phone Number: (603) 887-3646

Stormwater Management Program (SWMP) Information

SWMP Location (web address): https://www.sandown.us/stormwater-management/pages/stormwater-ms4-permit-information

Date SWMP was Last Updated: June 30, 2021

If the SWMP is not available on the web please provide the physical address:

Part II: Self-Assessment

First, in the box below, select the impairment(s) and/or TMDL(s) that are applicable to your MS4. Make sure you are referring to the most recent EPA approved Section 303(d) Impaired Waters List which can be found here: https://www.epa.gov/tmdl/region-1-impaired-waters-and-303d-lists-state

Impairment(s)

☐ Bacteria/Pathogens ☐ Chloride ☒ Nitrogen ☒ Phosphorus

☐ Solids/ Oil/ Grease (Hydrocarbons)/ Metals

TMDL(s)

☒ Bacteria and Pathogen ☐ Chloride ☒ Lake and Pond Phosphorus

Clear Impairments and TMDLs

Next, check off all requirements below that have been completed. ***By checking each box you are certifying that you have completed that permit requirement fully.*** *If you have not completed a requirement leave the box unchecked. Additional information will be requested in later sections.*

Year 3 Requirements

☒ Inspected and screened all outfalls/interconnections (excluding Problem and Excluded outfalls)

☒ Updated outfall/interconnection priority ranking based on the information collected during the dry weather inspections as necessary

☒ Post-construction bylaw, ordinance, or other regulatory mechanism was updated and adopted consistent with permit requirements

Optional: If you would like to describe progress made on any incomplete requirements listed above, provide any additional information, and/or if any of the above year 3 requirements could not be completed due to the impacts of COVID-19, please identify the requirement that could not be completed, any actions taken to attempt to complete the requirement, and reason the requirement could not be completed below:

Dry Weather Outfall Screening - During 2020 and 2021, the Town attempted to inspect all 43 known stormwater outfalls within the urbanized area during dry weather to investigate for potential illicit discharges. Of the 43 known stormwater outfalls that were attempted to be inspected, 36 were located, none of which were flowing. No additional evidence of potential illicit discharges was observed. The remaining 7 outfalls that could not be located or accessed were instead investigated at the immediate upgradient structure for potential illicit discharge indicators, of which none were observed.

Update Outfall Inventory and Priority Ranking - Outfall inventory and priority ranking was conducted concurrent with a comprehensive update of the SWMP and IDDE Plans, completed on June 30, 2021. The Town will continue to locate and inspect additional stormwater infrastructure during future permit years.

Construction and Post-Construction Bylaw - The Town updated its existing Site Plan Review Regulations (adopted June 15, 2021) which regulates construction projects that disturb greater than 10,000 square feet. These regulations meet all permit requirements for construction and post-construction requirements, including provisions for new/redevelopment to remove 90%/80% of total phosphorus and 60%/50% of total suspended solid, respectively.

Annual Requirements

- ☒ Provided an opportunity for public participation in review and implementation of SWMP and complied with State Public Notice requirements
- ☒ Kept records relating to the permit available for 5 years and made available to the public
- ☒ The SSO inventory has been updated, including the status of mitigation and corrective measures implemented
  - ◉ This is not applicable because we do not have sanitary sewer
  - ○ This is not applicable because we did not find any new SSOs
  - ○ The updated SSO inventory is attached to the email submission
  - ○ The updated SSO inventory can be found at the following website:
- ☒ Properly stored and disposed of catch basin cleanings and street sweepings so they did not discharge to receiving waters
- ☒ Provided training to employees involved in IDDE program within the reporting period
- ☒ All curbed roadways were swept at least once within the reporting period
- ☒ Updated system map due in year 2 as necessary
- ☐ Implemented SWPPPs for all permittee owned or operated maintenance garages, public works yards, transfer stations, and other waste handling facilities
- ☒ Enclosed all road salt storage piles or facilities and implemented winter road maintenance procedures to minimize the use of road salt
- ☒ Updated inventory of all permittee owned facilities as necessary
- ☒ O&M programs for all permittee owned facilities have been completed and updated as necessary
- ☒ Implemented all maintenance procedures for permittee owned facilities in accordance with O&M programs
- ☒ Implemented program for MS4 infrastructure maintenance to reduce the discharge of pollutants
- ☐ Inspected all permittee owned treatment structures (excluding catch basins)

Optional: If you would like to describe progress made on any incomplete requirements listed above, provide any additional information, and/or if any of the above annual requirements could not be completed due to the impacts of COVID-19, please identify the requirement that could not be completed, any actions taken to attempt to complete the requirement, and reason the requirement could not be completed below:

SWPPPs - The Town has no standalone maintenance garage or other waste handling facility. The Town's Highway Garage and Transfer Station are located on adjacent parcels just outside the urbanized area and have no closed drainage system. Rather, runoff sheet flows into nearby wooded areas. Based on the location of both facilities, surrounding land uses and topography, it has been determined that both facilities do not discharge to the Town's MS4 or a Waterbody of the United States under any conditions.

Structural BMPs - The Town currently has no known town-owned stormwater BMPs within its regulated urbanized area. Should any BMPs be located during future years, the Town will compute nitrogen removal provided by this BMP and begin annual inspections with maintenance performed as needed.

Bacteria/ Pathogens (Combination of Impaired Waters Requirements and TMDL Requirements as Applicable)

Annual Requirements

*Public Education and Outreach**

- ☒ Annual message was distributed encouraging the proper management of pet waste, including noting any existing ordinances where appropriate
- ☒ Permittee or its agents disseminated educational material to dog owners at the time of issuance or renewal of dog license, or other appropriate time
- ☒ Provided information to owners of septic systems about proper maintenance in any catchment that discharges to a water body impaired for bacteria

** Public education messages can be combined with other public education requirements as applicable (see Appendix H and F for more information)*

Optional: If you would like to describe progress made on any incomplete requirements listed above or provide any additional details, please use the box below:

Nitrogen Impairment

Annual Requirements

*Public Education and Outreach**

- ☒ Distributed an annual message in the spring (April/May) that encourages the proper use and disposal of grass clippings and encourages the proper use of slow-release fertilizers
- ☒ Distributed an annual message in the summer (June/July) encouraging the proper management of pet waste, including noting any existing ordinances where appropriate
- ☒ Distributed an annual message in the fall (August/September/October) encouraging the proper disposal of leaf litter

** Public education messages can be combined with other public education requirements as applicable (see Appendix H and F for more information)*

Good Housekeeping and Pollution Prevention for Permittee Owned Operations

- ☐ Increased street sweeping frequency of all municipal owned streets and parking lots subject to Permit part 2.3.7.a.iii.(c) to a minimum of two times per year (spring and fall)

Potential structural BMPs

- ☐ Any structural BMPs listed in Table 3 of Attachment 1 to Appendix H already existing or installed in the regulated area by the permittee or its agents was tracked and the nitrogen removal by the BMP was estimated consistent with Attachment 1 to Appendix H. The BMP type, total area treated by the BMP, the design storage volume of the BMP and the estimated nitrogen removed in mass per year by the BMP were documented.
  - ○ The BMP information is attached to the email submission
  - ○ The BMP information can be found at the following website:

Optional: If you would like to describe progress made on any incomplete requirements listed above or provide any additional details, please use the box below:

Street Sweeping - streets were swept only once during Year 3.

Structural BMPs - The Town currently has no known town-owned stormwater BMPs within its regulated urbanized area. Should any BMPs be located during future years, the Town will compute nitrogen removal provided by this BMP and begin annual inspections with maintenance performed as needed.

Phosphorus Impairment

Annual Requirements

*Public Education and Outreach**

- ☒ Distributed an annual message in the spring (April/May) encouraging the proper use and disposal of grass clippings and encouraging the proper use of slow-release and phosphorus-free fertilizers
- ☒ Distributed an annual message in the summer (June/July) encouraging the proper management of pet waste, including noting any existing ordinances where appropriate
- ☒ Distributed an annual message in the fall (August/September/October) encouraging the proper disposal of leaf litter

** Public education messages can be combined with other public education requirements as applicable (see Appendix H and F for more information)*

Good Housekeeping and Pollution Prevention for Permittee Owned Operations

- ☐ Increased street sweeping frequency of all municipal owned streets and parking lots subject to Permit part 2.3.7.a.iii.(c) to a minimum of two times per year (spring and fall)

Potential structural BMPs

- ☐ Any structural BMPs already existing or installed in the regulated area by the permittee or its agents was tracked and the phosphorus removal by the BMP was estimated consistent with Attachment 3 to Appendix F. The BMP type, total area treated by the BMP, the design storage volume of the BMP and the estimated phosphorus removed in mass per year by the BMP were documented.
  - ○ The BMP information is attached to the email submission
  - ○ The BMP information can be found at the following website:

Optional: If you would like to describe progress made on any incomplete requirements listed above or provide any additional details, please use the box below:

Street Sweeping - streets were swept only once during Year 3.

Structural BMPs - The Town currently has no known town-owned stormwater BMPs within its regulated urbanized area. Should any BMPs be located during future years, the Town will compute nitrogen removal provided by this BMP and begin annual inspections with maintenance performed as needed.

Lake and Pond Phosphorus TMDL

- ☒ Completed the funding source assessment

Optional: If you would like to describe progress made on any incomplete requirements listed above or provide any additional details, please use the box below:

Optional: Use the box below to provide any additional information you would like to share as part of your self-assessment:

Part III: Receiving Waters/Impaired Waters/TMDL

Have you made any changes to your lists of receiving waters, outfalls, or impairments since the NOI was submitted?

- (●) Yes
- ( ) No

If yes, describe below, including any relevant impairments or TMDLs:

Part III of the NOI should be amended as follows:

Actions for Meeting Total Maximum Daily Load (TMDL) Requirements:
- Remove NHRIV600030802-10 - Towle Brook to Pandolphin Dam (e.coli)
- Remove NHLAK700061403-01-01 Angle Pond (phosphorus)

Actions for Meeting Requirements Related to Water Quality Limited Waters:
- Remove NHLAK600030802-04-Showell Pond (phosphorus)
- Remove NHRIV600030802-03-Exeter River (e.coli)
- Remove NHRIV600030802-10-Towle Brook (e.coli)
- Add NHRIV600030802-03 Great Bay via Exeter River (nitrogen), meet Appendix H, Part I
- Add NHLAK700061403-01-01 Angle Pond (phosphorus), meet Appendix H, Part II

The Town also updated its list of outfalls and receiving waters as new outfalls were found during the dry weather screening. The inspection results are attached to this annual report and a list and updated prioritization are also kept with the Town's IDDE Plan.

Part IV: Minimum Control Measures

Please fill out all of the metrics below. If applicable, include in the description who completed the task if completed by a third party.

MCM1: Public Education

Number of educational messages completed **during this reporting period**: 6

*Below, report on the educational messages completed **during this reporting period.** For the measurable goal(s) please describe the method/measures used to assess the overall effectiveness of the educational program.*

BMP: Lawn Care and Leaf Litter Fact Sheet

Message Description and Distribution Method:

A flyer outlining proper lawn management practices and leaf litter cleanup is mailed monthly along with automobile registration renewal reminders. Flyers were distributed as follows:

-July 2020: 718 flyers
-August 2020: 674 flyers
-September 2020: 710 flyers
-October 2020: 682 flyers
-November 2020: 633 flyers
-December 2020: 742 flyers
-January 2021: 621 flyers
-February 2021: 702 flyers
-March 2021: 616 flyers
-April 2021: 1,031 flyers
-May 2021: 647 flyers
-June 2021: 647 flyers

Flyers are also continually available at Town Hall.

Targeted Audience: Residents

Responsible Department/Parties: Town Administrator

Measurable Goal(s):

Distribute informational flyer with all automobile registration renewal reminders. A total of 8,423 flyers were mailed during the first half of 2021.

Message Date(s): Monthly, see above

Message Completed for: Appendix F Requirements ☒ Appendix H Requirements ☒

Was this message different than what was proposed in your NOI? Yes ○ No ◉

If yes, describe why the change was made:

BMP: Pet Waste Flyers

Message Description and Distribution Method:

A flyer outlining the proper management of pet waste and the connection to stormwater was mailed to dog owners in February 2021 with registration reminder notices. Flyers are also continually available at Town Hall for pickup.

Targeted Audience: Residents

Responsible Department/Parties: Town Administrator

Measurable Goal(s):

Distribute informational flyers with all pet registration renewal reminders. A total of 1,621 flyers were mailed during Permit Year 3.

Message Date(s): February 2021

Message Completed for: Appendix F Requirements ☒ Appendix H Requirements ☒

Was this message different than what was proposed in your NOI? Yes ○ No ◉

If yes, describe why the change was made:

BMP: Lawn Care and Leaf Litter Fact Sheet

Message Description and Distribution Method:

A flyer outlining proper lawn management practices and leaf litter cleanup was mailed to businesses and industry within the town. Flyers are also continually available at Town Hall.

Targeted Audience: Businesses, institutions and commercial facilities; Industrial

Responsible Department/Parties: Town Administrator

Measurable Goal(s):

Distribute informational flyers annually. A total of 149 flyers were mailed during Permit Year 3.

Message Date(s): March 3, 2021

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☒

Was this message different than what was proposed in your NOI? Yes ○ No ◉

If yes, describe why the change was made:

BMP: EPA Fact Sheet

Message Description and Distribution Method:

Distributed a fact sheet on proper use of erosion and sediment controls to developers along with permit applications.

Targeted Audience: Developers

Responsible Department/Parties: Town Administrator

Measurable Goal(s):

Distribute informational fact sheet with permit applications. A total of 11 fact sheets were distributed during Permit Year 3.

Message Date(s): Ongoing

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☐

Was this message different than what was proposed in your NOI? Yes ○ No ◉

If yes, describe why the change was made:

BMP: Informational Flyers

Message Description and Distribution Method:

Provided a variety of flyers for collection at the Town Hall targeting residents. A flyer on car washing was made available from 4/22/21 through 8/18/21, during which 8 flyers were collected. Additional informational flyers are currently on display at the Town Hall and library.

Targeted Audience: Residents

Responsible Department/Parties: Town Administrator

Measurable Goal(s):

Provide inforamational flyers throughout the year. Track the number collected from various locations.

Message Date(s): Ongoing, with varying topics throughout the year.

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☐

Was this message different than what was proposed in your NOI? Yes ○ No ◉

If yes, describe why the change was made:

BMP: Stormwater Webpage

Message Description and Distribution Method:

Develop a town stormwater website with a links to external sites such as EPA and NHDES as well as provide stormwater brochures for download.

Targeted Audience: Residents, Businesses, institutions and commercial, Developers, Industrial

Responsible Department/Parties: Town Administrator

Measurable Goal(s):

Create a website and complete periodic updates.

Message Date(s): Ongoing / continuous

Message Completed for: Appendix F Requirements ☒ Appendix H Requirements ☒

Was this message different than what was proposed in your NOI? Yes ○ No ◉

If yes, describe why the change was made:

Add an Educational Message

MCM2: Public Participation

Describe the opportunity provided for public involvement in the development of the Stormwater Management Program (SWMP) **during this reporting period**:

SWMP Plan for Download - The Town has posted the SWMP Plan and other relevant information on Town website along with contact information to allow for public comment.

Was this opportunity different than what was proposed in your NOI? Yes ○ No ◉

Describe any other public involvement or participation opportunities conducted **during this reporting period:**

Lions Club Roadside Cleanup - The Lions Club held a roadside cleanup on 2 weekends 4/4 & 4/5 and 4/10 & 4/11 and a total of 18 bags of trash were collected for disposal.

Town-Wide Earth Day Clean Up - The Town held an Earth Day Clean Up event on 4/17 & 4/18 and a total of 16 bags of trash were collected for disposal. Additional miscellaneous bulk items were also collected.

MCM3: Illicit Discharge Detection and Elimination (IDDE)

Sanitary Sewer Overflows (SSOs)

Check off the box below if the statement is true.

☒ This SSO section is NOT applicable because we DO NOT have sanitary sewer

Below, report on the number of SSOs identified in the MS4 system and removed ***during this reporting period****.*

Number of SSOs identified: 0

Number of SSOs removed: 0

MS4 System Mapping

Optional: Provide additional status information regarding your map:

All known outfalls, stormwater BMPs, and receiving waterbodies with impairments have been mapped to date. Initial catchment delineations have also been completed based on topographic mapping and available stormwater system information. Mapping of open channel conveyances and any newly located outfalls is ongoing. Mapping interconnections with other MS4s (e.g. DOT) is ongoing, and it is expected that this will continue as part of DOT's own mapping efforts to be completed under a future TS4 permit.

Screening of Outfalls/Interconnections

If conducted, please submit any outfall monitoring results from this reporting period. Outfall monitoring results should include the date, outfall/interconnection identifier, location, weather conditions at time of sampling, precipitation in previous 48 hours, field screening parameter results, and results from all analyses. Please also include the updated inventory and ranking of outfalls/interconnections based on monitoring results.

○ No outfalls were inspected

◉ The outfall screening data is attached to the email submission

○ The outfall screening data can be found at the following website:

Below, report on the number of outfalls/interconnections screened ***during this reporting period****.*

Number of outfalls screened: 43

Below, report on the percent of total outfalls/ interconnections screened ***to date.***

Percent of outfalls screened: 100

Optional: Provide additional information regarding your outfall/interconnection screening:

During 2020 and 2021, the Town attempted to inspect all 43 known stormwater outfalls within the urbanized area during dry weather to investigate for potential illicit discharges. Of the 43 known stormwater outfalls that were attempted to be inspected, 36 were located, none of which were flowing. No additional evidence of potential illicit discharges was observed. The remaining 7 outfalls that could not be located or accessed were instead investigated at the immediate upgradient structure for potential illicit discharge indicators, of which

none were observed.

Catchment Investigations

If conducted, please submit all data collected during this reporting period as part of the dry and wet weather investigations. Also include the presence or absence of System Vulnerability Factors for each catchment.

- (●) No catchment investigations were conducted
- ( ) The catchment investigation data is attached to the email submission
- ( ) The catchment investigation data can be found at the following website:

Below, report on the number of catchment investigations completed ***during this reporting period****.*

Number of catchment investigations completed this reporting period: 0

Below, report on the percent of catchments investigated ***to date.***

Percent of total catchments investigated: 0

Optional: Provide any additional information for clarity regarding the catchment investigations below:

IDDE Progress

If illicit discharges were found, please submit a document describing work conducted over this reporting period, and cumulative to date, including location source; description of the discharge; method of discovery; date of discovery; and date of elimination, mitigation, or enforcement OR planned corrective measures and schedule of removal.

- (●) No illicit discharges were found
- ( ) The illicit discharge removal report is attached to the email submission
- ( ) The illicit discharge removal report can be found at the following website:

Below, report on the number of illicit discharges identified and removed, along with the volume of sewage removed ***during this reporting period.***

Number of illicit discharges identified: 0

Number of illicit discharges removed: 0

Estimated volume of sewage removed: 0 gallons/day

Below, report on the total number of illicit discharges identified and removed to date. At a minimum, report on the number of illicit discharges identified and removed ***since the effective date of the permit (July 1, 2018)****.*

Total number of illicit discharges identified: 0

Total number of illicit discharges removed: 0

Optional: Provide any additional information for clarity regarding illicit discharges identified, removed, or planned to be removed below:

Employee Training

Describe the frequency and type of employee training conducted **during this reporting period**:

An on-site IDDE training session was held on October 1, 2020 with applicable Highway staff.

MCM4: Construction Site Stormwater Runoff Control

Below, report on the construction site plan reviews, inspections, and enforcement actions completed ***during this reporting period****.*

Number of site plan reviews completed: 2

Number of inspections completed: 15

Number of enforcement actions taken: 0

Optional: Enter any additional information relevant to construction site plan reviews, inspections, and enforcement actions:

MCM5: Post-Construction Stormwater Management in New Development and Redevelopment

As-built Drawings

Below, report on the number of as-built drawings received ***during this reporting period****.*

Number of as-built drawings received: 0

Optional: Enter any additional information relevant to the submission of as-built drawings:

Street Design and Parking Lots Report

Describe the status of the street design and parking lots assessment due in year 4 of the permit term, including any planned or completed changes to local regulations and guidelines:

N/A, to be completed during Permit Year 4.

Green Infrastructure Report

Describe the status of the green infrastructure report due in year 4 of the permit term, including the findings and progress towards making the practice allowable:

N/A, to be completed during Permit Year 4.

MCM6: Good Housekeeping

Catch Basin Cleaning

Below, report on the number of catch basins inspected and cleaned, along with the total volume of material removed from the catch basins ***during this reporting period****.*

Number of catch basins inspected: 179

Number of catch basins cleaned: 162

Total volume or mass of material removed from all catch basins: 6 cubic yards

Below, report on the total number of catch basins in the MS4 system.

Total number of catch basins: 0

If applicable:

Report on the actions taken if a catch basin sump is more than 50% full during two consecutive routine inspections/cleaning events:

Street Sweeping

Report on the number of miles swept ***during this reporting period*** *below.*

Number of miles cleaned: 3

*Report either the volume or weight of street sweeping materials collected **during this reporting period** below.*

- (●) Volume of material removed: 7 cubic yards
- ( ) Weight of material removed: [Select Units]

Stormwater Pollution Prevention Plan (SWPPP)

*Below, report on the number of site inspections for facilities that require a SWPPP completed **during this reporting period**.*

Number of site inspections completed: 0

Describe any corrective actions taken at a facility with a SWPPP:

The Town has no standalone maintenance garage or other waste handling facility. The Town's Highway Garage and Transfer Station are located on adjacent parcels just outside the urbanized area and have no closed drainage system. Rather, runoff sheet flows into nearby wooded areas. Based on the location of both facilities, surrounding land uses and topography, it has been determined that both facilities do not discharge to the Town's MS4 or a Waterbody of the United States under any conditions.

Additional Information

Monitoring or Study Results

Results from any other stormwater or receiving water quality monitoring or studies conducted during the reporting period not otherwise mentioned above, where the data is being used to inform permit compliance or permit effectiveness must be attached.

- (●) Not applicable
- ( ) The results from additional reports or studies are attached to the email submission
- ( ) The results from additional reports or studies can be found at the following website(s):

If such monitoring or studies were conducted on your behalf or if monitoring or studies conducted by other entities were reported to you, a brief description of the type of information gathered or received shall be described below:

Additional Information

Optional: Enter any additional information relevant to your stormwater management program implementation during the reporting period. Include any BMP modifications made by the MS4 if not already discussed above:

COVID-19 Impacts

Optional: If any of the above year 3 requirements could not be completed due to the impacts of COVID-19, please identify the requirement that could not be completed, any actions taken to attempt to complete the requirement, and reason the requirement could not be completed below:

Activities Planned for Next Reporting Period

Please confirm that your SWMP has been, or will be, updated to comply with all applicable permit requirements including but not limited to the year 4 requirements summarized below. (Note: impaired waters and TMDL requirements are not listed below)

Yes, I agree ☒

- Develop a report assessing current street design and parking lot guidelines and other local requirements within the municipality that affect the creation of impervious cover
- Develop a report assessing existing local regulations to determine the feasibility of making green infrastructure practices allowable when appropriate site conditions exist
- Identify a minimum of 5 permittee-owned properties that could potentially be modified or retrofitted with BMPs to reduce impervious areas

Annual Requirements

- Annual report submitted and available to the public
- Annual opportunity for public participation in review and implementation of SWMP
- Keep records relating to the permit available for 5 years and make available to the public
- Properly store and dispose of catch basin cleanings and street sweepings so they do not discharge to receiving waters
- Annual training to employees involved in IDDE program
- Update inventory of all known locations where SSOs have discharged to the MS4
- Continue public education and outreach program
- Update outfall and interconnection inventory and priority ranking and include data collected in connection with the dry weather screening and other relevant inspections conducted
- Implement IDDE program
- Review site plans of construction sites as part of the construction stormwater runoff control program

- Conduct site inspection of construction sites as necessary
- Inspect and maintain stormwater treatment structures
- Log catch basins cleaned or inspected
- Sweep all curbed streets at least annually
- Continue investigations of catchments associated with Problem Outfalls
- Implemented SWPPPs for all permittee owned or operated maintenance garages, public works yards, transfer stations, and other waste handling facilities
- Review inventory of all permittee owned facilities in the categories of parks and open space, buildings and facilities, and vehicles and equipment; update if necessary
- Review O&M programs for all permittee owned facilities; update if necessary
- Implement all maintenance procedures for permittee owned facilities in accordance with O&M programs
- Implement program for MS4 infrastructure maintenance to reduce the discharge of pollutants
- Enclose all road salt storage piles or facilities and implemented winter road maintenance procedures to minimize the use of road salt
- Review as-built drawings for new and redevelopment to ensure compliance with post construction bylaws, regulations, or regulatory mechanism consistent with permit requirements
- Inspect all permittee owned treatment structures (excluding catch basins)

Provide any additional details on activities planned for permit year 4 below:

Part V: Certification of Small MS4 Annual Report 2021

40 CFR 144.32(d) 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, I certify that 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.

Name: Lynne Blaisdell

Title: Town Administrator

Signature: Lynne Blaisdell

Date: 9/8/21

[Signatory may be a duly authorized representative]