STORMWATER MANAGEMENT PLAN

FOR

CITY OF SACO, MAINE

MS4 General Permit Effective July 1, 2022
Submitted to Maine DEP March 31, 2021

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APPENDICES

1 INTRODUCTION

1.1 Overview of Regulatory Program

The City of Saco is subject to the General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems (MS4s) which was issued by the Maine Department of Environmental Protection (DEP) with an effective date of July 1, 2022. Because the permit is a Clean Water Act permit, it is limited to a duration of five (5) years and is due to expire on June 30, 2027. However, if the Maine DEP does not issue another Permit by June 30, 2027, then this permit will be administratively continued and the City may need to update this Stormwater Management Plan to show what activities it will complete during the continued time period.

Communities are regulated under this program when and if they are identified as having "Urbanized Areas" in their municipal boundary. An Urbanized Area is a U.S. Census-defined term, applied to a large area (50,000 people or more) that has a high population density and/or a high percentage of impervious cover (hard scape surfaces like parking lots or buildings). Both of these criteria (high population density and high percentage of impervious cover) cause an area to be at risk for adverse surface water quality impacts from polluted stormwater discharges.

The U.S. Environmental Protection Agency (USEPA) and Maine DEP began regulating communities for their stormwater discharges using the Urbanized Area criteria in 2003. The City of Saco became regulated in 2003 based on the 2000 census.

Once a community becomes regulated by the MS4 General Permit, only the portions of the municipality that are located within the Urbanized Area are regulated under the MS4 Permit. As each U.S. Census is published, if the Urbanized Area changes (based on changes to the population or impervious cover), additional areas can be added to the regulated area only after a new MS4 General Permit is issued. Once an Urbanized Area is regulated by the MS4 General Permit, it cannot be removed from regulation, even if a subsequent census identifies it is no longer classified as an Urbanized Area; therefore, the area regulated by the MS4 General Permit can either grow larger or stay the same size, but it cannot become smaller. Appendix A shows the Urbanized Area and the City's Priority Watershed (Goosefare Brook) within the City of Saco that are regulated by the 2022 MS4 General Permit, which is based on the cumulative 2000 and 2010 U.S. Census Urbanized Area data. The 2022 MS4 General Permit specifically does not include any areas identified by the 2020 U.S. Census.

1.2 Cooperation Between Regulated Communities

There are 30 municipalities in the State of Maine that are subject to the 2022 MS4 General Permit. There are also two transportation agencies that are subject to their own MS4 General Permit, and eight state/federal agencies that are subject to a third MS4 General Permit, which are called "nested" MS4s. The regulated MS4s (municipal, transportation and state/federal) have a good history of cooperating on a state-wide basis to complete activities required by the MS4 General Permit such as public outreach and training as a cost saving measure and to improve the quality of compliance.

The City of Saco is a member of the Casco Bay Interlocal Stormwater Working Group (ISWG). ISWG is a coalition of 14 MS4 municipalities in the greater Portland and Saco areas (Biddeford, Cape Elizabeth, Cumberland, Falmouth, Freeport, Gorham, Old Orchard Beach, Portland, Saco, Scarborough, South Portland, Westbrook, Windham, and Yarmouth) as well as the Southern Maine Community College and University of Southern Maine, which are also regulated as MS4s under a separate permit. This coalition is facilitated by the Cumberland County Soil and Water Conservation District, which also assists in completing some of the permit requirements under contract to the coalition.

Similarly, the Bangor area MS4s have formed the Bangor Area Stormwater Working Group (BASWG), the Lewiston-Auburn area MS4s formed the Androscoggin Valley Stormwater Working Group (AVSWG), and the southern-most regulated MS4s formed the Southern Maine Stormwater Working Group (SMSWG). For some public education requirements, all of the stormwater working groups are working cooperatively as identified in this plan.

In implementing the 2022 MS4 General Permit, the City of Saco relies on the ISWG to complete some requirements, and uses municipal staff, with assistance from third party-consultants as needed, in the implementation of some other requirements. This plan describes which elements will be completed individually, regionally or as a state-wide effort.

1.3 Stormwater Management Plan

Though the MS4 General Permit is a Clean Water Act Permit, it does not specify numeric effluent limitations (concentrations that a stormwater discharge must meet). Instead, the MS4 General Permit specifies narrative effluent limitations, in the form of Minimum Control Measures (MCMs).

Each of the four MS4 General Permits (effective 2003, 2008, 2013 and 2022) has required that the regulated MS4s develop and implement a Stormwater Management Plan (SWMP or Plan) to coincide with the effective dates of the General Permit.

This SWMP describes how the City will implement Best Management Practices (BMPs) to meet the six MCMs, set forth in Part IV(C) of the 2022 MS4 General Permit. The six MCMs that are required to be addressed in this Plan are:

MCM1 Education/Outreach Program
MCM2 Public Involvement and Participation
MCM3 Illicit Discharge Detection and Elimination Program
MCM4 Construction Site Stormwater Runoff Control
MCM5 Post-Construction Stormwater Management in New Development and Redevelopment
MCM6 Pollution Prevention/Good Housekeeping for Municipal Operations

The 2022 MS4 General Permit requires that for each MCM, the City must: define appropriate BMPs; designate a person(s) responsible for implementing each BMP; define a date or timeline with milestones for implementation of each BMP; and define measurable goals for each BMP.

The prior MS4 General Permits also required that the SWMP address these six MCMs, but the specific requirements related to each MCM have changed with each permit. In many instances, the BMPs in this plan expand upon or continue BMPs that were developed under prior General Permits.

In addition to addressing the six MCMs, the City must address several impaired water requirements. Section 1.4 and 1.5 describe the water quality status in the City and what watersheds are considered priorities. Sections 1.6 through 1.9 describe how permit coverage is obtained, how the SWMP is modified (when needed), when public notice is required, and annual reporting requirements.

The Maine DEP will review this Stormwater Management Plan and determine if the City is controlling pollutants to the "Maximum Extent Practicable" (MEP). The term "Maximum Extent Practicable" is defined in the Clean Water Act. The term means available and feasible considering cost, existing technology, and logistics based on the overall purpose of the project. Effectively, the City is allowed to consider these concepts as they select BMPs to meet permit requirements, but the Maine DEP decides if the City is meeting the "Maximum Extent Practicable" standard.

The SWMP is not an enforceable document and so some flexibility is built into the BMPs to allow communities to engage in an adaptive management approach to mitigating or eliminating the discharge of pollutants to and from its regulated small MS4. This allows the City to adjust BMPs throughout the Permit Cycle if needed based upon evaluations of their effectiveness, changing conditions, specific local concerns, or changes in other factors. Some SWMP Modifications require Maine DEP review and approval and public notice. Section 1.6 – Obtaining Coverage to Discharge and Section 1.8 – SWMP Modifications, describe the requirements associated with modifying the SWMP.

1.4 Water Quality and Discharges to Impaired Waters

The 2022 MS4 General Permit contains the following requirements for discharges to waters that are not meeting their fishable and swimmable standards (a.k.a. impaired waters):

(1) If the waterbody to which a point source discharge drains is impaired and has an EPA approved total maximum daily load (TMDL), then the SWMP must address compliance with the TMDL waste load allocation ("WLA") and any implementation plan. The MS4 General Permit does not authorize a direct discharge that is inconsistent with the WLA of an approved TMDL. This requirement applies only to TMDLs that were approved by EPA as of 10/15/2020.
(2) If a TMDL is approved or modified by EPA after 10/15/2020, the Maine DEP will notify the permittee if any changes are needed to the SWMP and may take other actions regarding the approved TMDL as identified in the 2022 MS4 General Permit.
(3) If an MS4 has a discharge to an Urban Impaired Stream, it must develop and implement three (3) BMPs to address the water's impairment, unless the DEP has determined the MS4 discharge is not causing or contributing to the impairment.

The Fact Sheet that was issued with the 2022 MS4 General Permit also contained a strongly worded recommendation for MS4s to consult with the Maine DEP Division of Environmental Assessment regarding impaired waters that do not have approved TMDLs. The consult would be focused on identifying the root cause of the impairment and developing a strategy to reduce the discharge of pollutants of concern if the permittee is causing or contributing to the impairment.

Section 1.4.1 describes generally how the state evaluates surface waters and describes TMDL documents and Urban Impaired Streams. Section 1.4.2 describes the status of the waters that receive discharges from the City's MS4 and Section 1.4.3 describes recent progress by the City on addressing any impairments, which have MS4 compliance requirements, and provides rationale for how the BMPs in this SWMP addresses these 2022 MS4 General Permit requirements.

1.4.1 State Water Quality Assessments

The State of Maine is required by the Clean Water Act to identify water quality classifications for each surface water in the State, and then to assess whether each of those waters is meeting its designated classification standards. Maine has four classifications for freshwater rivers, three classes for marine and estuarine waters, and one class for lakes and ponds. Each classification identifies a use and set of water quality standards for the water. The classifications, uses, and standards are described and assigned to the various waters in the Maine Statutes (Title 38, Sections 464 through 469).

Assessments as to whether each water is achieving its designated classification are based on data that is obtained from a number of sources depending on the type of water being assessed:

- Lake and ponds are assessed primarily through data obtained by the Maine DEP and regional entities and lake associations. The regional and lake association data is coordinated through the Lake Stewards of Maine (Volunteer Lake Monitoring Program).

- Marine and Estuarine waters are assessed by evaluation of data obtained from the Maine DEP, Maine Healthy Beaches, Department of Marine Resources, Marine Environment's Gulf Watch, Gulf of Maine Council, and several other academic and non-profit organizations.

- Wetlands are assessed primarily using data obtained from the Maine DEP Biomonitoring Program.

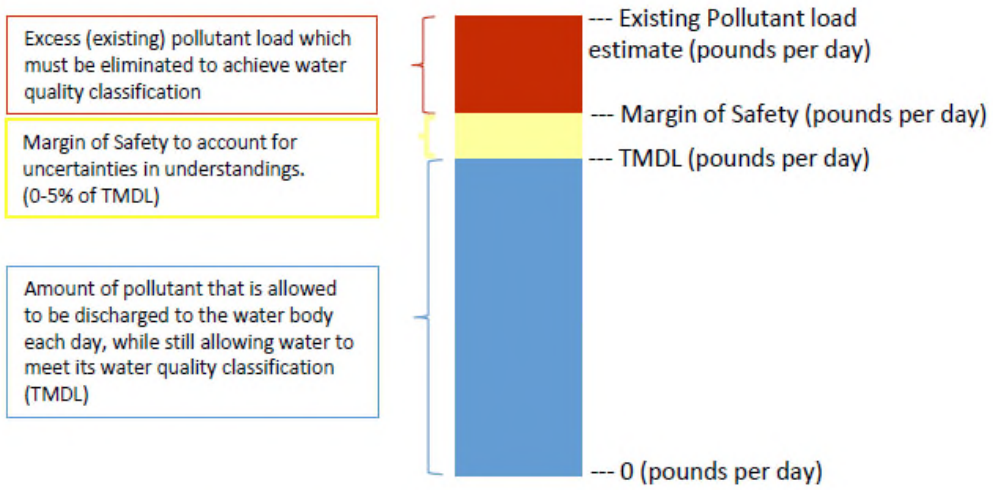
- Rivers and Streams are assessed using data from the Maine DEP Biomonitoring Program, Surface Water Ambient Toxics (SWAT) Monitoring Program, the Atlantic Salmon Recovery Plan, Volunteer River Monitoring Program (VRMP) and through many other government agencies such as the Department of Inland Fisheries and Wildlife, EPA, United States Geologic Survey.

Every two years, the DEP publishes a report and list documenting the results of the assessments, and identifying which waters are meeting their designated classifications, and which are considered impaired. The report and list are called the Integrated Water Quality Report and are generally referred to by the Section of the Clean Water Act which requires them: the 305(b) report and/or the 303(d) list, respectively. There are five general status categories available for assignment to each water:

- Category 1: Attaining all designated uses and water quality standards, and no use is threatened.
- Category 2: Attains some of the designated uses; no use is threatened; and insufficient data or no data and information is available to determine if the remaining uses are attained or threatened (with presumption that all uses are attained).
- Category 3: Insufficient data and information to determine if designated uses are attained (with presumption that one or more uses may be impaired).
- Category 4: Impaired or threatened for one or more designated uses but does not require development of a TMDL (Total Maximum Daily Load) report.
  - 4A means a TMDL has already been completed
  - 4B means other pollution control measures will address impairment
  - 4C means the impairment is not caused by a pollutant
- Category 5: Waters impaired or threatened for one or more designated uses by a pollutant(s), and a TMDL report is required.

In Maine, the most current 303(d) list approved by the EPA is from the 2016 data. The Maine DEP has indicated they will issue a combined 2018/2020/2022 303(d) list sometime in spring of 2022.

A TMDL document identifies the source(s) of the impairments and recommendations to correct the impairments. In particular, a TMDL document identifies how much of a pollutant a water body can receive and still meet its water quality classification. Typically, the units are identified as pounds per day, which is the basis for the term "Total Maximum Daily Load". TMDLs typically include a Margin of Safety between 2 and 5% of the TMDL to account for uncertainties or lack of knowledge about the relationship between the pollutant loading and water quality.



Total Maximum Daily Load (TMDL) Components

In addition to the Maine 305(b) report and 303(d) list, Maine has developed a special rule, Chapter 502, which has restrictions related to Direct Watersheds of Lakes Most at Risk from New Development and Urban Impaired Streams. This rule became effective in 1997 and has been modified several times over the years. The rule defines an Urban Impaired Stream as a stream that fails to meet its water quality standards because of effects of stormwater runoff from developed land. The rule imposes additional stormwater treatment controls on development in the watersheds of Urban Impaired Streams.

1.4.2 Saco Water Quality Status

The following is a summary of the waters in the City's Urbanized Area that receive point source discharges from the City's MS4 and each waterbody's TMDL and impairment status.

Figure 1 shows the locations of the fresh waters and their status according to the 2016 303(d) list.
(reference source https://maine.maps.arcgis.com/apps/webappviewer/index.html?id=dffb3d2b85904b18978d02fc9d913b5f)

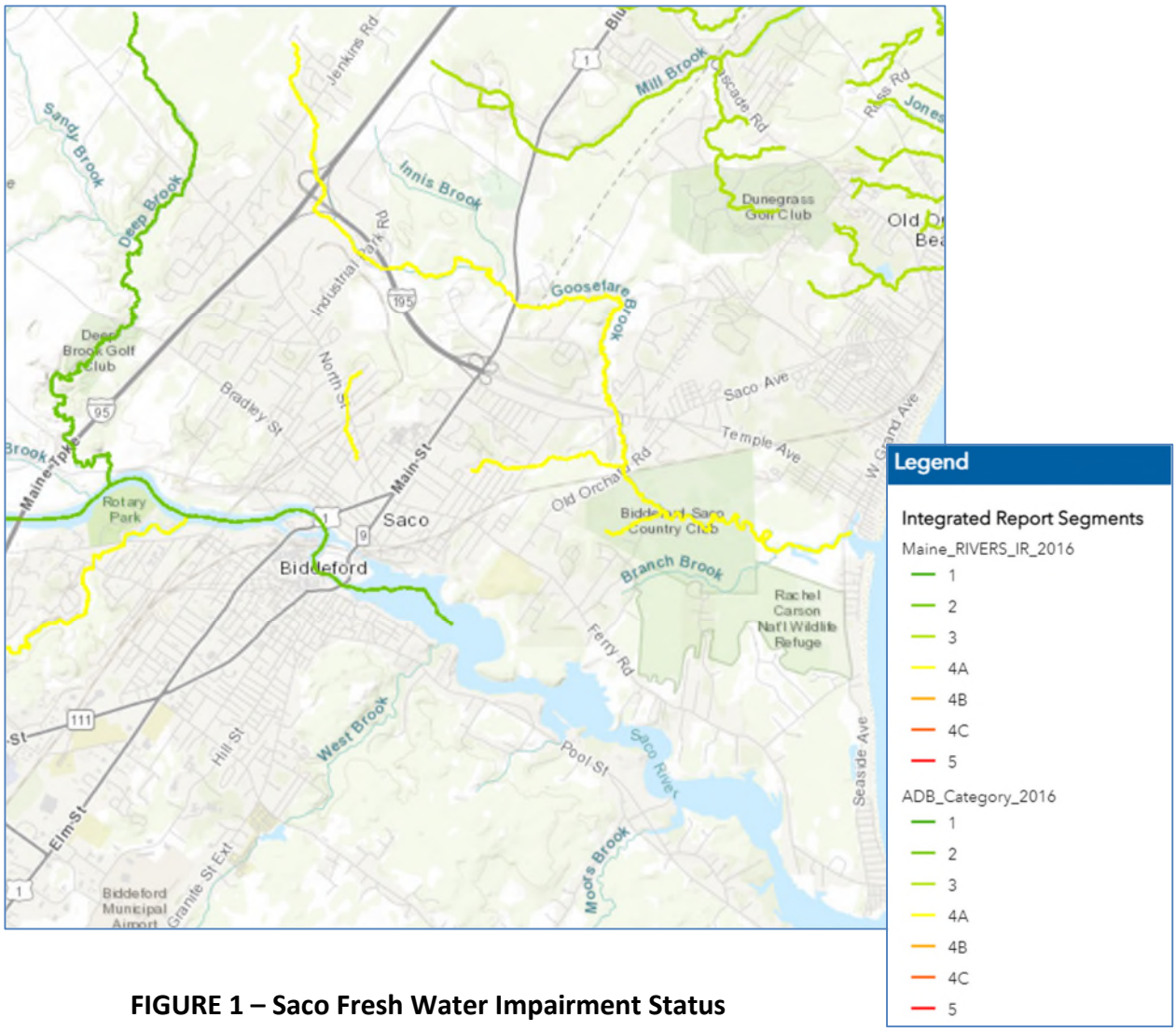


FIGURE 1 – Saco Fresh Water Impairment Status

A summary of the fresh water status is provided below:

Name	Status
Bear Brook	EPA Category 4A
Deep Brook	EPA Category 2
Goosefare Brook	EPA Category 4A
Saco River	EPA Category 2
Sawyer Brook	EPA Category 4A

Figure 2 below shows the locations of the marine/estuarine waters and their status according to the 2016 303(d) list.
(reference source https://www.maine.gov/dmr/shellfish-sanitation-management/closures/index.html).

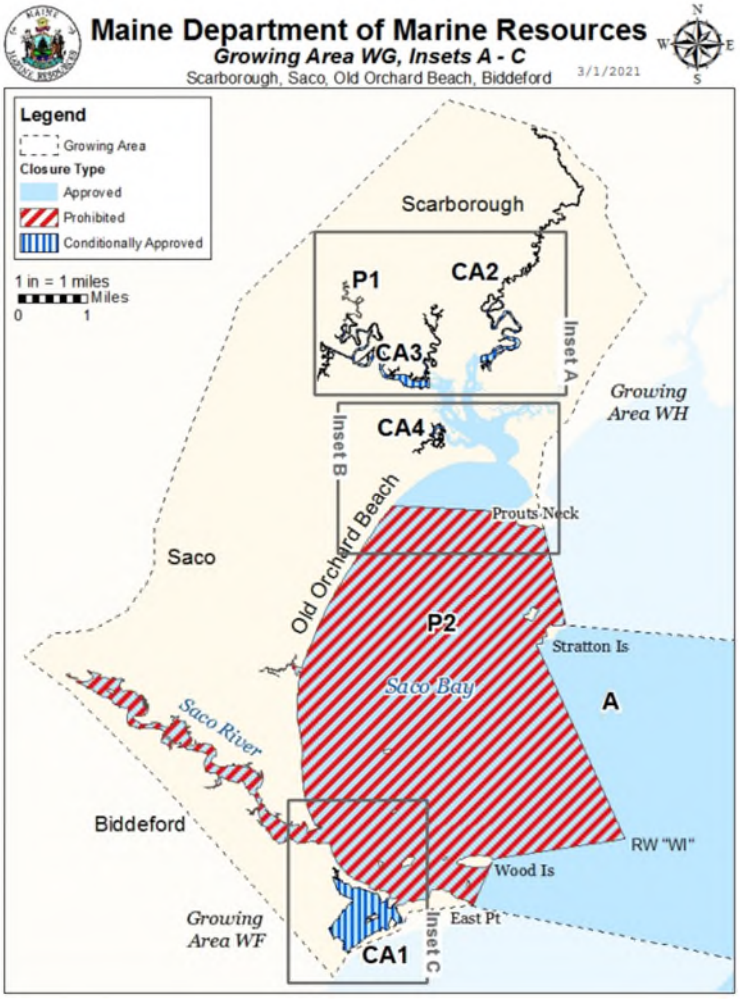


FIGURE 2 – Saco Marine/Estuarine Resources Status

A summary of the marine/estuarine resource status is provided below:

Name	Status
Saco River	Prohibited
Saco Bay	Prohibited

The following is a general summary of the impairment status for each waterbody within Saco that receive discharges from the MS4:

- Goosefare Brook, including tributary streams Bear Brook, Branch Brook and Innes Brook (Class B) – There are three EPA approved TMDLs, all pertaining to aquatic life use impairments, that are applicable:

1. September 2003 TMDL for seven (7) heavy metals.
2. September 2012 Impervious Cover TMDL for Impaired Streams (uses impervious cover as a surrogate for the mix of pollutants and other impacts associated with stormwater runoff)
3. Maine Statewide Bacteria TMDL Report Addendum 2013 for impairments caused by Escherichia coli (Ecoli).

Goosefare Brook is classified by MaineDEP as an Urban Impaired Stream. A Watershed Management Plan was completed in May 2016, and Implementation of the Watershed Management Plan is in progress.

- Bear Brook (Class B) – On 9/28/2009, EPA approved a Statewide Bacteria TMDL.
- Sawyer Brook (Class B) – On 9/28/2009, EPA approved a Statewide Bacteria TMDL.
- Tappan Brook, also known locally as Tappan Valley (Class B) – On 9/28/2009, EPA approved a Statewide Bacteria TMDL.
- Deep Brook (Class B) – No impairments identified.
- Cascade Brook (Class B) – No impairments identified.
- Mill Brook (Class B) – No impairments identified.
- Saco River (Class SB/SC) – On 9/28/2009, EPA approved a Statewide Bacteria TMDL that includes the estuarine and marine component of this waterbody.
- Saco Bay (Class SB) – On 9/28/2009, EPA approved a Statewide TMDL for waters impaired by pollutants other than those listed in 5-B through 5-D.

The following documents were reviewed in making these determinations:

- Maine Statewide Bacteria TMDL, Report #DEPLW-1002, dated August 2009
- Chapter 502 Direct Watersheds of Lakes Most at Risk from New Development and Urban Impaired Streams
- Maine Statewide Impervious Cover TMDL for Impaired Streams, Report #DEPLW-1239, dated September 2012
- Maine Statewide Bacteria TMDL: 2013 Freshwater Addendum, Report #DEPLW-1254, dated August 2014
- Goosefare Brook Watershed Based Management Plan, dated May 2016
- Final 2016 Maine Integrated Water Quality Report and Appendices (a.k.a. Maine 303(d) list), dated February 2018

Note that the bacteria impaired waters previously included listed in the 2009 Bacteria TMDL were re-categorized in 2016 to be category 5-B.1 (Needs TMDL) until such time as the Maine DEP can re-issue the Bacteria TMDL.

Goosefare Brook TMDLs: In Saco, Goosefare Brook is included in several statewide TMDL documents. The Impervious Cover TMDL reported the Goosefare Brook watershed as containing an estimated 17% impervious cover in 2012. Most of the developed portion of the Goosefare Brook Watershed is located in Saco, but a portion is located in Old Orchard Beach; therefore, Saco must comply with the additional TMDL requirements put forth in the 2022 MS4 General Permit.

Bacteria, low dissolved oxygen, and the presence of heavy metal toxic pollutants contribute to the aquatic life impairment. The sources and stressors contributing to these impairments identified in the TMDLs are summarized below:

Bacteria – Since 2009, Maine Healthy Beaches (MHB) and volunteers have monitored *Enterococcus* bacteria levels in Goosefare Brook and its tributaries. Numerous exceedances of the recreational water contact safety standards have been documented, triggering swimming advisories. Early monitoring efforts by MHB focused primarily on the mouth of Goosefare Brook. Since 2010, MHB monitoring efforts expanded upstream to help identify pollution sources. Significant efforts have been made by the Town of OOB, the OOB Conservation Commission, the Ocean Park Conservation Society, and MHB to monitor and identify sources of bacteria in the Goosefare Brook estuary and beaches. Bacteria counts continue to be elevated, leading to swimming advisories. Ocean Park is closed for shellfish harvesting due to the sewer outfall offshore. Since 2012, MDEP has focused primarily on *E. coli* in freshwater areas, and MHB and OOB have focused on *Enterococci* in brackish areas.

Dissolved Oxygen – Maine DEP deployed continuous data loggers at several stations in 2013, 2014 and 2015. Data was analyzed to detect places where DO dropped below the Class B standard of 7 mg/L, or 75% saturation for freshwater stations, and below the Class SB standards of 85% saturation for tidal stations. For both freshwater and tidal stations, data was screened for diurnal swings, and most stations were above or near DO standards. Three sampling stations consistently fell below the acceptable levels during summer baseflow periods. The sampling station on Bear Brook showed the lowest DO levels (between 4.5 and 5.5 mg/L). The sampling location at Old Orchard Road also frequently fell below the Class B standard in 2013. Monitoring in 2014 revealed DO fell below the standard consistently at Bear Brook and occasionally at Old Orchard Road.

Toxics – Heavy metals, including petroleum, PAHs, PCBs, and chlorinated solvents have been identified as contaminants of concern for the upper portions of the Brook. Potential legacy land use sources include Saco Steel and the General Dynamics Armament and Technical Products Operation in Saco. Previously, EPA performed a site cleanup effort at the Saco Steel site; however, an existing stormwater detention pond on the site continues to receive runoff from the property and discharges directly into Goosefare Brook. Metals present in the Brook's sediments include Fe, Ni, Cu, Cd, Cr, Zn and Pb. PCB's have also been documented in soils and the detention pond.

1.4.3 Progress on Addressing Impairments and Approach to BMP Development

Section 1.4.3 describes how impaired waters are addressed in this SWMP and provides some background on work the City has done in recent years to improve water quality in these waters.

1.4.3.1 Discharges to Waters with TMDLs

Because the Goosefare Brook and one of its' tributaries (Bear Brook) is listed in the Statewide Bacteria TMDL and the Statewide Impervious Cover TMDL, the Saco MS4 Discharges must be consistent with the Waste Load Allocations in the TMDLs, and three BMPs must be implemented in the Goosefare Brook watershed as part of this SWMP.

These are the only waters in Saco with a TMDL that the City's MS4 discharges into. Because Goosefare Brook is also an Urban Impaired Stream, the 2022 MS4 General Permit requires the City to implement three (3) BMPs to address the water's impairment and no additional actions need to be taken to address the TMDL for this water.

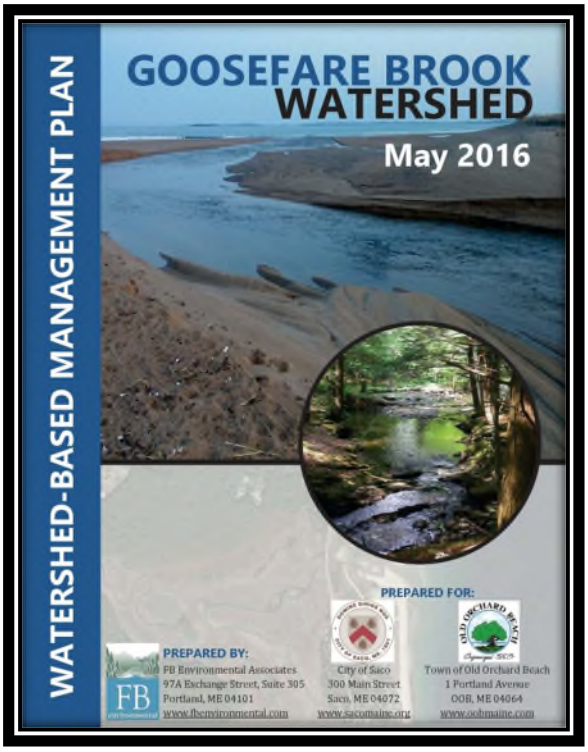
1.4.3.2 Discharges to Urban Impaired Streams

This section describes the historical activities that have been undertaken and the current status of proposed and planned projects, which support the selection of three (3) BMPs and their Measurable Goals as described in Section 2.7 of this SWMP.

Goosefare Brook has been designated by Maine DEP as an Urban Impaired Stream (UIS). Goosefare Brook is an eight-mile-long stream segment with a watershed area containing approximately 5,900 acres that is located within the City of Saco and Town of Old Orchard Beach. In 2006, the City of Saco developed the Goosefare Brook Compensation Fee Utilization Plan (CFUP) to fund implementation of additional stormwater BMPs throughout the watershed and mitigate impairments to the stream created by development within the watershed (as allowed by Maine DEP Chapter 500).

In 2015, the Nature Conservancy with support from the U.S. Fush and Wildlife Service, conducted a fish barrier survey throughout the Goosefare Brook watershed.

In 2015/2016, the City of Saco, in partnership with the Town of Old Orchard Beach, York County Soil and Water Conservation District (YCSWCD), Maine DEP and F.B. Environmental, developed a Watershed Based Management Plan (WBMP) for Goosefare Brook. Other watershed stakeholders (i.e. residents, business owners/representatives, Conservation Commissions, etc.) were active participants during the development of the Goosefare Brook WBMP.



The Goosefare Brook WBMP refined the understanding of the watershed and created an action plan focused on correcting the stressors and sources of the impairments beyond reduction of Impervious Cover. The refinement included re-evaluation of the % Impervious Cover for the watershed. The WBMP identified that the overall watershed was comprised of a total area of 5,902 acres, of which nearly 832 acres (14%) was impervious surface. Unfortunately, the WBMP did not provide an assessment of the direct versus disconnected impervious cover area.

The WBMP broke the overall Goosefare Brook watershed into sixteen subwatershed areas. Five of these subwatershed areas were identified as "high quality" subwatersheds, indicating good water quality. The remaining eleven subwatersheds were identified with one or more stressor as outlined below:

- Six subwatersheds were impacted with excess nutrients
- Three subwatersheds were impacted with heavy metals
- Seven subwatersheds were impacted with chlorides
- Five subwatersheds were impacted with bacteria

To achieve the water quality classification for Goosefare Brook, the WBMP outlined a 15-year implementation plan that included:

- installation of 58 stormwater retrofit sites to treat surface runoff from approximately 33 acres of impervious cover (IC);
- restoration of 25 stream channel erosion sites;
- restoration of 26 stream buffer sites;
- remedial actions to correct 6 stream channel alteration sites; and
- cleanup of 8 dumping sites

Following the adoption of the Goosefare Brook Watershed Based Management Plan (WBMP) in 2016, the Goosefare Brook Restoration Committee (GBRC) was formed to act as a steering committee during the implementation of the WBMP. Members of the GBRC include representatives from the partner communities (Saco and Old Orchard Beach); watershed stakeholders; Conservation Commissions; interested private citizens or property owners; Maine DEP and the York County Soil and Water Conservation District. Thus far, the City has participated in two phases of implementation efforts within the watershed that were partially funded by EPA through 319 NPS Grants administered by the Maine DEP (#2017RT06 and #2019008). Maine DEP recently awarded a third phase of implementation to the City of Saco that will also be partially funded by EPA through 319 NPS Grants (#2020008).

During the first two phases of implementation, the following projects were completed within the City of Saco in accordance with the recommendations of the WBMP:

Project Description	Projects Completed	Notes
Stormwater Retrofit #11A-Alt. Industrial Park Road @ I-195	Installed FocalPoint bioretention filter basin	IC Area Disconnected and Treated = 0.57 acres
Stormwater Retrofit #11B Fairfield Street	Installed FocalPoint bioretention filter basin	IC Area Disconnected and Treated = 0.20 acres
Stormwater Retrofit #33 Industrial Park Road @ North St.	Installed FocalPoint bioretention filter basin	IC Area Disconnected and Treated = 0.20 acres
Stormwater Retrofit #44 Ocean Park Road	Installed Catch Basin Cartridge Inserts	IC Area Disconnected and Treated = 0.30 acres
Erosion Site E10 Industrial Park Road @ I-195	Stream Bank Erosion Restoration	
Erosion Site E25 OOB Campground	Stream Bank Erosion Restoration	Remedial work performed on private property
Erosion Site E26 Cumberland Avenue	Stream Bank Erosion Restoration	Remedial work performed on private property
Stream Buffer Site B12 Cumberland Avenue	Stream Buffer Restoration	Buffering plantings performed on private property
Stream Buffer Site B13 OOB Campground	Stream Buffer Restoration	Buffer plantings in conjunction with Site E25
Stream Buffer Site B22 Bear Brook Pump Station	Stream Buffer Restoration	
Stream Buffer Site B33 Industrial Park Road @ I-195	Stream Buffer Restoration	Buffer plantings in conjunction with Site E10

In addition, the City developed a volunteer pilot program to assist with the installation of stormwater retrofit projects on private property. Thus far, the City has been successful in working with three property owners to install stormwater retrofits that provided treatment to 1.52 acres of impervious area.

This SWMP also contains three BMPs designed to improve Goosefare Brook water quality in accordance with the requirements of the 2022 MS4 General Permit.

1.4.3.3 Discharges to Impaired Waters that do not have TMDLs

As required by the Fact Sheet to the 2022 MS4 General Permit, the City consulted with the Maine DEP to assess what actions must be taken to address discharges to waters that do not have

TMDLs but are impaired. The waterbodies listed in 1.4.2 included several marine/estuarine waters that fell into this category because of bacteria impairments that affect shellfishing. These waters are located within Department of Marine Resources Growing Area WG (Previously Area 10).

These waters were originally listed in the Statewide Bacteria TMDL, but in 2016, the Maine DEP moved the estuarine/marine waters to the 303(d) non-TMDL category until such time as they can update the Bacteria TMDL to provide more specific spatial data on which areas are included. Therefore, the 2022 MS4 General Permit requirements do not apply to these 303(d) non-TMDL waters, but the Statewide Bacteria TMDL does provide some guidance on how impairments in these areas should be handled by MS4s.

The Statewide Bacteria document does not specifically identify the sources of the bacteria impairment; however, it encourages communities to pursue an action plan that is based on investigation of the source(s). The portion of the Saco River below the dams is estuarine, and so is considered impaired for bacteria.

The Statewide Bacteria TMDL document requires that all sources of bacteria that are prohibited (such as failed septic systems or illicit discharges) be removed. It also requires that any sources of bacteria from allowed discharges (such as this MS4 permitting program) be restricted to concentrations equal to the water quality criteria. MS4s are already required to complete these activities under MCM 3.

In considering MCM 3 requirements, consultation with Maine DEP on these non-TMDL waters revealed:

1. The Maine DEP has not fully specified the root cause of the impairment, but suspects that stormwater is a contributing factor.
2. That implementation of the IDDE elements of the MS4 General Permit (conducting outfall inspections, sampling outfalls during dry weather flow, and completing IDDE investigations to eliminate any bacteria sources) are sufficient to address the impairment until such time as the Bacteria TMDL document can be updated.

1.5 Priority Watersheds

Previous MS4 General Permits required that regulated MS4s identify a Priority Watershed and apply BMPs to that Watershed. The 2022 MS4 General Permit does not contain any specific requirements related to Priority Watersheds; however, it does require that an MS4 have a procedure in place to prioritize watersheds when addressing illicit discharges. The City of Saco uses this prioritization to identify where illicit discharge inspections are conducted first. The City may also use the prioritization for illicit discharge investigations in the event there were insufficient resources to address all potential illicit discharges simultaneously. The IDDE Plan describes in more detail how the prioritization is applied.

The Maine DEP maintains a list of waters that are vulnerable to non-point source pollution, which is then available to receive grant funding under Sections 308(b) and 319 of the Clean Water Act as long as the funding is not used to satisfy the conditions of a Clean Water Act Permit (such as the 2022 MS4 General Permit). This list includes the MS4's "Priority Watershed".

MS4s should keep in mind that they may not use 319 grant funding to implement any BMPs required by the General Permit.

The City's two highest priority watersheds are Goosefare Brook and the Saco River due to their impairments.

During the previous permit cycle, the City designated Goosefare Brook as its priority watershed.

1.6 Obtaining Coverage to Discharge

As required, a Notice of Intent (NOI) to comply with the 2022 MS4 General Permit was submitted to the Maine DEP with this SWMP. A copy of the City's NOI is provided in Appendix B.

30-day Public Notice was provided by both the Maine DEP and the City to allow the public to comment on the SWMP. A copy of the Public Notice provided by the City is contained in Appendix B.

Following review of the SWMP and NOI, and receipt of any public comments, the Maine DEP issues a permit specific DEP Order, establishing terms and conditions that are enforceable in addition to the language in the 2022 MS4 General Permit, which is also enforceable.

The permittee specific Maine DEP Order is also subject to a 30-day public comment period, but only the Maine DEP provides this public notice. Maine DEP provides any updated information to the City at the end of this public comment period.

If no comments are received, Maine DEP provides notice to the City that they are authorized to discharge under the 2022 MS4 General Parmit and permittee specific Maine DEP Order.

Once the Maine DEP issues authorization to discharge, the City has 60-days to update the SWMP to reflect any new or changed requirements based upon the Maine DEP Order and any comments. At that time, the permittee specific Maine DEP Order will be included in Appendix B. In addition, the permittee will include all comments received in Appendix C along with any notes on how the comments were addressed in the SWMP. The SWMP needs to be resubmitted to the Maine DEP after revision along with a narrative indicating how the SWMP has been modified to be consistent with the 2022 MS4 General Permit and permittee specific Maine DEP Order unless the Department indicates in writing that resubmittal is not required. The new permit conditions do not take effect until July 1, 2022.

1.7 SWMP Availability

The SWMP must be made available to the public by publishing on the City website. A copy must also be made available to the public at Saco Public Works Department located at 15 Phillips Spring Road.

If any of the following entities request a copy, one must be made immediately available to them:

a) USEPA or Maine DEP;
b) Any interconnected or adjacent MS4;
c) Any owner or operator of a water supply company where the MS4 discharges to a water supply watershed; or
d) Members of the public.

1.8 SWMP Modifications during the Permit Cycle

During the permit term (2022 to 2027), the SWMP must be kept current. As required by the 2022 MS4 General Permit the City will amend the SWMP if the Maine DEP or the City determine that:

a) The actions required by the BMPs fail to control pollutants to meet the terms and conditions of the 2022 MS4 General Permit and the permittee specific Maine DEP Order;
b) The BMPs do not prevent the potential for a significant contribution of pollutants to waters of the State other than groundwater; or
c) New information results in a shift in the SWMP's priorities.

Even though this SWMP is not an enforceable document, if any changes are made, the SWMP will be made available for a 30-day public comment by posting the changes on the City's website.

If the changes being made are not explicitly required by the 2022 MS4 General Permit or the permittee specific Maine DEP Order, the opportunity for public comment will be made on the City's website annually and the Maine DEP will be notified of the changes in the MS4 Annual Compliance Report following the permit year the changes were made.

If the changes being made are explicitly required by the 2022 MS4 General Permit or the permittee specific Maine DEP Order, one of the following processes will be followed, depending on who identified the need for the change:

- If the changes are initiated by the City, the Maine DEP will be notified prior to changing any elements by filing a permit application with the Maine DEP that includes a justification to formally modify the requirement; and
- If the changes are initiated by the Maine DEP, the Maine DEP will notify the City, and the City must respond in writing within 30-days of the notice explaining how it will modify the SWMP. The City must then modify the SWMP within 90 calendar days of the City's written response, or within 120 calendar days of the Maine DEP notice (whichever is less). Any such modification must be submitted to the Maine DEP for final review.

1.9 Annual Compliance Report and Record Keeping

By September 15 of each year, the City will electronically submit an Annual Compliance Report for the Maine DEP's review using a standardized form provided by the Maine DEP. The Annual Compliance Report will be sent to:

MS4 Program Manager
Department of Environmental Protection
17 State House Station
Augusta, Maine 04333-0017
Email: rhonda.poirier@maine.gov

The Annual Compliance Report must include the following:

a. The status of compliance with the terms and conditions of the 2022 MS4 General Permit and the City's permittee specific Maine DEP Order, based on the implementation of the City's Plan for each permit year, an assessment of the effectiveness of the components of its stormwater management program, an assessment of the appropriateness of identified BMPs, progress towards achieving identified measurable goals for each of the MCMs and progress toward achieving the goal of reducing the discharge of pollutants to the MEP.
b. A summary of information collected and analyzed, including monitoring data, if any, during the reporting period.
c. A summary of the stormwater activities the City intends to undertake pursuant to its Plan to comply with the terms and conditions of the 2022 MS4 General Permit and the City's permittee specific Maine DEP Order during the next reporting cycle.
d. A change in any identified BMPs or measurable goals that apply to the Plan.
e. A description of the activities, progress, and accomplishments for each of the MCMs #1 through #6 including such items as the status of education and outreach efforts, public involvement activities, stormwater mapping efforts, the number of visual dry weather inspections performed, the number of inaccessible and new outfalls, dry weather flow sampling events and laboratory results, detected illicit discharges, detected illicit connections, illicit discharges that were eliminated, construction site inspections, number and nature of enforcement actions, post construction BMP status and inspections, the number of functioning post construction BMPs, the number of post construction sites requiring maintenance or remedial action, the status of the permittee's good housekeeping/pollution prevention program including the percentage of catch basins cleaned, those catch basins cleaned multiple times and the number of catch basins that could not be evaluated for structural condition in a safe manner. Where applicable, the MS4 must quantify steps/measures/activities taken to comply with the 2022 MS4 General Permit and its Plan including reporting on the types of trainings presented, the number of municipal and contract staff that received training, the length of the training and training content delivered as well as any revisions to the SWPPP procedures and/or changes in municipal operations.

The Maine DEP will review the annual reports and provide comments to the MS4s. Changes to the report based on the Maine DEP's review comment(s) must be submitted to the Department within 60 days of the receipt of the comment(s).

The regulated MS4s must keep records required by the 2022 MS4 General Permit and permittee specific Maine DEP Order for at least three (3) years following its expiration or longer if requested by the Maine DEP Commissioner. The regulated MS4s must make records, including this Plan, available to the public at reasonable times during regular business hours.

1.10 Stormwater Program Permit and Contact Information

The following is a summary of the City of Saco Stormwater Program and Contact Information:

Permitting Authority:	Maine DEP
Permit Number:	MER04111
Permit Type:	General
Permit Name:	2022 MS4 General Permit and permittee specific Maine DEP Order
Date Issue:	07/01/2022
Date Expire:	06/30/2027

General Information for MS4 Operator Primary Contact Person

Operator Name:	City of Saco
Title:	City Administrator
Mailing Address:	300 Main Street, Saco, Maine 04072
Telephone Number:	207.282.4191
Official Website:	www.sacomaine.org

General Information for Primary Contact Person

Title:	Public Works Director
Telephone Number:	207.284.6641

General Information for Secondary Contact Person

Title:	City Engineer
Telephone Number:	207.284.6641

Other Relevant Contact Information:

Title:	City Planner
Telephone Number:	207.282.3487
Title:	Code Enforcement Officer
Telephone Number:	207.282.6983
Title:	Director of the Water Resources Recovery Department
Telephone Number:	207.282.3564

2 MINIMUM CONTROL MEASURES

2.1 MCM 1 Public Education and Outreach Program

The 2022 MS4 General Permit requires municipalities to develop and implement two Education/Outreach Campaigns to address stormwater issues of significance:

1. An Outreach to Raise Awareness Campaign targeted at two audiences applying three (3) tools per audience per year. One target audience must be the public and the second audience may be selected from: municipal, commercial, development/construction, or institutions.
2. An Outreach to Change Behavior Campaign to promote one behavior change directed at two audiences using a minimum of three (3) outreach tools per year. This campaign will promote and reinforce desirable behaviors designed to reduce stormwater pollution.

In 2018, the ISWG executed a statewide survey to assess public awareness of a variety of stormwater issues and related behaviors. The survey results report[1] was included in the ISWG Permit Year 5 (2017-2018) annual reports. In addition, the ISWG communities reviewed regional water quality related to stormwater issues, examined the unique conditions within each of their communities, and evaluated the needs for public education around stormwater at five of their regional meetings (9/13/2018, 3/21/2019, 7/18/2019, 3/26/2020, 5/21/2020). Based on the survey results and the discussions at their regional meetings, the ISWG communities agreed on which issues of significance to address and what tools and messages might be effective. Each of the BMPs provides a brief introductory section describing the rationale for the selection of the BMP based on the regional and local issues within the ISWG region. The BMPs are further structured to allow for adaptive education and outreach approaches to create a strong, diverse, and effective campaign over the duration of this permit.

The City will fulfill the requirements for Public Education/Outreach through participation in the ISWG and the City's provision of funding to the Cumberland County Soil & Water Conservation District (CCSWCD) for Public Education/Outreach services, as described in the following BMPs. The BMPs will be implemented according to their individual timelines over the term of the permit.

2.1.1 BMP 1.1 – Outreach to Raise Awareness Campaign

Responsible Party - Public Works Director (with implementation assistance from CCSWCD)

The 2022 MS4 General Permit requires the permittee to raise awareness of the public as well as one of the following groups: municipal, commercial, development/construction, or institutions. This BMP describes the reasoning and measurable goals for the public audience and the selected second audience: development/construction.

[1] http://thinkbluemaine.cumberlandswcd.com/wp-content/uploads/2018/07/Survey_Summary-FINAL.pdf

Background for Measurable Goal 1.1a Public Audience: The Think Blue Maine campaign began in 2003 as a statewide effort to raise awareness of common stormwater pollutants and ways to prevent those pollutants. The Think Blue Maine campaign has been historically successful in increasing awareness of stormwater issues. The ISWG, Androscoggin Valley Stormwater Working Group (AVSWG), and Southern Maine Stormwater Working Group (SMSWG) coordinate their Think Blue Maine messaging and education efforts to provide consistent messaging in Southern Maine. In addition, the Massachusetts and New Hampshire small MS4s are using similar Think Blue campaigns, so there is some regionally consistent messaging in circulation.

In 2018, the ISWG executed a statewide survey around public awareness of stormwater issues and behaviors that impact stormwater. Ninety-four percent of survey respondents in the ISWG region ages 25 to 34 stated it was "very important to have clean water in the lakes and streams in [their] community", and 86% of ISWG respondents ages 25 to 34 believe that stormwater runoff has a major impact or somewhat impacts water quality, but only 46% of ISWG respondents ages 25 to 34 were able to correctly describe what happens to stormwater at their residence. Because this age group has not been targeted before for education and has the potential to impact stormwater for many years into the future, the ISWG, AVSWG, and SMSWG communities will cooperatively use the Think Blue Maine campaign to raise awareness of the target audience to be more aware of stormwater issues and be more willing to change their behavior in the future.

Measurable Goal 1.1a – The City, through its participation in the ISWG, will raise 15%[2] of the target audience's awareness of what happens to stormwater at their residence or place of work. According to the 2019 US Census Bureau, the ISWG region's population for ages 25 to 34 is approximately 38,000 people: therefore 15% of the target audience is approximately 6,000 people.

Target Audience: People 25 to 34 in the ISWG region

Overarching Message: "Water that lands on our roads, roofs, and other hard surfaces picks up pollutants and carries them to our local waterbodies without being treated."
This message will be presented with variations based on target audience interests and outreach tools used.

Outreach Tools: A minimum of three outreach tools will be selected from Appendix D each year. Each tool will be assessed and customized based on the target audience's receptiveness to the method. Any tool used in a given year will be tailored to the message for the relevant target audience subset based on common characteristics and/or demographics.

Evaluation: Effectiveness will be evaluated annually by tracking process indicators[3] for each tool implemented that year and by tracking impact indicators[4] where available (see Appendix D).

[2] As recommended in the EPA's "Getting in Step: A guide for conducting watershed outreach campaigns" (2003), when 15 to 20 percent of an audience adopts a new idea or behavior, it will be able to permeate to the rest of the audience.

[3] Indicators related to the execution of the outreach program.

[4] Indicators related to the achievement of the goals or objectives of the program.

Implementation schedule: A minimum of three of the tools from Appendix D will be implemented each year for the duration of the permit.

Background for Measurable Goal 1.1b Development/Construction Audience: Evaluation of municipal stormwater programs, through annual meetings with municipal staff and officials, has revealed a large amount of effort required to comply with MCM 4 tasks. The ISWG communities identified opportunities to address common MCM 4 goals through coordinated regional and statewide stormwater education to developers and contractors to reduce development and construction-related stormwater pollutants that are not already required by MCM 4. Due to the cyclical nature of the development/construction sector, a baseline evaluation will be conducted in Permit Year 1 to establish contractor and developer awareness and the baseline target audience.

Measurable Goal 1.1b – The City, through its participation in the ISWG, will raise awareness of developers and contractors by 15% from the Permit Year 1 established baseline audience of developers and contractors about construction-related stormwater pollutants and methods available to reduce discharge of those pollutants.

Target Audience: Developers and contractors who are located within the ISWG region.

Overarching Message: "Through proper design and site management, erosion and sediment control best management practices can reduce the potential to negatively impact local water bodies."

This message will be presented with variations based on target audience interests and outreach tools used.

Outreach Tools: A minimum of three outreach tools will be selected from Appendix D each year. Each tool will be assessed and customized based on the target audience's receptiveness to the method. Any tool used in a given year will be tailored to the message for the relevant target audience subset based on common characteristics and/or demographics.

Evaluation: Effectiveness will be evaluated annually by tracking process indicators for each tool implemented that year and by tracking impact indicators where available (see Appendix D). Effectiveness will also be measured by the number of DEP certified contractors operating in the ISWG region over the course of the permit term.

Implementation schedule: A minimum of three of the tools will be implemented each year for the duration of the permit.

2.1.2 BMP 1.2 – Outreach to Change Behavior Campaign

Responsible Party - Public Works Director (with implementation assistance from CCSWCD)

The ISWG communities have focused on changing behavior to reduce nutrients into regional waterbodies in their MS4 permit for the past three permit cycles. The ISWG communities will continue their efforts to reduce sources of nutrients by promoting proper dog waste disposal to two target audiences this permit term for the following reasons:

1. Generally, excess nutrients in our waters are a nationally recognized water quality issue

related to stormwater – there are multiple common sources of nutrients including sediments, pet waste, septic systems, and fertilizers.

2. The Statewide survey conducted in Permit Year 5 of the previous cycle identified that survey respondents are aware that nutrient sources (including dog waste) are a common stormwater pollutant and respondents expressed a willingness to take action to help reduce stormwater pollution. Eighty-four percent of 2018 survey respondents in the ISWG region ages 25 to 34 and 67% of 2018 survey respondents in the ISWG region ages 35 to 55 selected "picking up pet waste and putting it in the trash" as a practice they believed could reduce water pollution.
3. Most ISWG communities are part of the Casco Bay watershed. In the June 2019 Casco Bay Nutrient Council report, nutrients were identified as the main pollutant of concern for the health of Casco Bay. While there is discrepancy between nutrient models as to the contribution percentages of the three main sources of nutrients (stormwater, wastewater, and atmospheric deposition), stormwater runoff is believed to contribute between 24% and 64% of the nitrogen entering Casco Bay.
4. Several ISWG communities have encountered problems with dog waste not being picked up[5] or not being properly disposed of in the trash, causing local water quality concerns[6] and unsanitary conditions for the public and municipal staff.
5. Most ISWG communities have taken steps to discourage improper dog waste disposal through ordinances. However, there are currently still barriers to effectively educating and enforcing these types of ordinances.
6. Dog owners ages 25 to 64 are the least likely age group to pick up after their dog[7]. However, dog owners age 25 to 64 receive their information through different outreach methods[8]. In order to provide effective messaging on proper dog waste management, two audiences will be created to allow appropriate outreach tools to be used per age group.

   A baseline evaluation will be conducted in Permit Year 1 to establish dog owner behavior of dog waste disposal and the baseline target audience within the ISWG region.

Measurable Goal 1.2a – The City, through its participation in the ISWG, will work towards changing the behavior of 15% of pet owners from the Permit Year 1 established baseline audience of dog owners so more will properly dispose of their pet waste.

Target audience: Dog owners ages 25 to34 within the ISWG region

Overarching Message: "Dispose of dog waste as a solid waste, so it does not end up in our stormwater. Once in the stormwater, dog waste contributes nutrients, bacteria, and pathogens to our ponds, lakes, streams, rivers, and bays, which can lower property values,

[5] https://www.pressherald.com/2019/03/21/south-portland-raises-a-red-flag-over-dog-waste-problem-at-hinckley-park/

[6] https://www.pressherald.com/2019/08/30/south-portland-park-tests-positive-for-algae-that-can-harm-dogs/

[7] Hall, S.L. (2006 June) Survey on Poop: Half don't scoop; neighborhoods seeking solutions. *The News & Observer,* pp. B1.

[8] https://umaine.edu/undiscoveredmaine/small-business/resources/marketing-for-small-business/social-media-tools/social-media-statistics-details/

harm our drinking water, and hinder recreational and economic opportunities."
This message will be presented with variations based on target audience interests and outreach tools used.

Outreach Tools: A minimum of three outreach tools will be selected from Appendix D each year. Each tool will be assessed and customized based on the target audience's receptiveness to the method. Any tool used in a given year will be tailored to the message of the relevant target audience subset based on common characteristics and/or demographics.

Evaluation: Effectiveness will be evaluated annually by tracking process indicators for each tool implemented that year and by tracking impact indicators where available (see Appendix D). Effectiveness will also be evaluated by conducting visual (observational) surveys of dog waste disposal at public areas and tracking the presence of dog waste bags in catch basins.

Implementation schedule: A minimum of three of the tools will be implemented each year for the duration of the permit.

Measurable Goal 1.2b – The City, through its participation in the ISWG, will work towards changing the behavior of 15% of pet owners from the Permit Year 1 established baseline audience of dog owners so more will properly dispose of their pet waste.

Target audience: Dog owners ages 35 to 55 within the ISWG region

Overarching Message: "Dispose of dog waste as a solid waste, so it does not end up in our stormwater. Once in the stormwater, dog waste contributes nutrients, bacteria, and pathogens to our ponds, lakes, streams, rivers, and bays, which can lower property values, harm our drinking water, and hinder recreational and economic opportunities."
This message will be presented with variations based on target audience interests and outreach tools used.

Outreach Tools: A minimum of three outreach tools will be selected from Appendix D each year. Each tool will be assessed and customized based on the target audience's receptiveness to the method. Any tool used in a given year will be tailored to the message for the relevant target audience subset based on common characteristics and/or demographics.

Evaluation: Effectiveness will be evaluated annually by tracking process indicators for each tool implemented that year and by tracking impact indicators where available (see Appendix D). Effectiveness will also be evaluated by conducting visual (observational) surveys of dog waste disposal at public areas and tracking the presence of dog waste bags in catch basins.

Implementation schedule: A minimum of three of the tools will be implemented each year for the duration of the permit.

2.1.3 BMP 1.3 – Effectiveness Evaluation

Responsible Party - Public Works Director (with implementation assistance from CCSWCD)

Measurable Goal 1.3a – The City, through its participation in ISWG, will submit an MS4 Annual Compliance Report each year of the 2022 MS4 General Permit term documenting the implementation of each BMP. The MS4 Annual Compliance Report will include the message for each audience, the methods of distribution, the outreach tools used, the measures/methods used to determine on-going effectiveness of the campaigns, and any changes planned based on the measures of effectiveness.

Measurable Goal 1.3b – In Permit Year 5 of the 2022 MS4 General Permit the City, through its participation in ISWG, will conduct an evaluation of the overall effectiveness of the Awareness and Behavior Change BMPs (BMPs 1.1 and 1.2). The evaluation will be a review of the annually reported benchmark values for the Awareness and Behavior Change BMPs as well as documentation of overall changes during the permit term. The evaluation will identify recommendations for future awareness and behavior change target audiences, messages, tools, and benchmarks. A comprehensive survey will be conducted for the ISWG region to evaluate the impact of the awareness campaigns.

2.1.4 BMP 1.4 – Additional Activities

Responsible Party - Public Works Director (with implementation assistance from CCSWCD)

This BMP describes activities that are not required by the 2022 MS4 General Permit but are being conducted by the City to supplement the Education/Outreach program.

Measurable Goal 1.4a – The City will continue to support the Cumberland County Soil & Water Conservation District's youth education curriculum to community schools as funding allows. MS4 Annual Compliance Reports will include the total number of students reached, which schools were involved, and the lesson topics covered.

Measurable Goal 1.4b – The City will support the regional YardScaping effort to reduce nutrients from entering regional waterways and increase buffers. MS4 Annual Compliance Reports will include the total number of people reached with workshops, partner point of sale locations, and workshop survey data.

2.2 MCM 2 Public Involvement and Participation

The City will fulfill the requirements for Public Involvement and Participation through participation in the ISWG and the City's provisions of funding to CCSWCD for Public Involvement and Participation services, or through directly fulfilling the requirements, as described in this section of the plan.

2.2.1 BMP 2.1 – Public Notice Requirement

Responsible Party - Public Works Director (with implementation assistance from CCSWCD)

Measurable Goal 2.1a – The City will follow applicable state and local public notice requirements for their Stormwater Management Plans and Notices of Intent (NOIs) to comply with the MS4 General Permit. Copies of the NOIs and plans will be made available on the City's website. The City will document public meetings related to their stormwater program and attendance of those meetings in their MS4 Annual Compliance Report.

Measurable Goal 2.1b – The ISWG members meet as a group six (6) times per year to review issues associated with implementation of the Stormwater Management Plan and MS4 General Permit. These meetings will be publicized through the CCSWCD website, on ISWG member websites, and open to the public.

2.2.2 BMP 2.2 – Public Events

Responsible Party: Public Works Director (with implementation assistance from CCSWCD)

Measurable Goal 2.2a – The City will annually host, conduct, and/or participate in a public community event with a pollution prevention and/or water quality theme from the list included in the 2022 MS4 General Permit or another activity approved by the DEP. Stormwater stewardship and educational messages and activities will be incorporated into the event. The event will be advertised on the City's website, through the City's and CCSWCD's social media accounts, and other City and CCSWCD communication methods. The MS4 Annual Compliance Report will include a description of the event and the estimated attendance/participation.

2.3 MCM 3 Illicit Discharge Detection and Elimination

The City will continue to implement its Illicit Discharge Detection and Elimination (IDDE) program, which includes:

- A Watershed-based map of the stormwater infrastructure,
- A written IDDE Plan which describes:
  - Inspections of the infrastructure during dry weather (and monitoring of outfalls that flow during dry weather)
  - Investigations of potential illicit discharges,
  - Enforcement of the Non-Stormwater Discharge Ordinance
  - A Quality Assurance Project Plan
- Development of a list of outfalls that have the potential to cause illicit discharges during wet weather.

The following BMPs will be implemented to meet this Minimum Control Measure.

2.3.1 BMP 3.1 – Continue to Implement the Non-Stormwater Discharge Ordinance

Responsible Party - Public Works Director

Measurable Goal 3.1a – The City implemented a Non-Stormwater Discharge Ordinance on January 3, 2005 that is contained as Part 4 of Chapter 176 – Sewers in the City's Code of Ordinances. The Code Enforcement Officer enforces this ordinance with the assistance of the Public Works Department and Water Resource Recovery Department when needed. This ordinance provides the Code Enforcement Officer with the authority to issue letters of warning, notices of violation and/or fines. The City will continue to enforce this ordinance throughout the permit cycle.

Measurable Goal 3.1b – The City will document the results of enforcement actions taken for illicit discharges on an excel spreadsheet.

2.3.2 BMP 3.2 – Maintain the Written IDDE Plan

Responsible Party - Public Works Director

Measurable Goal 3.2a – The City previously adopted in 2013 the use of the IDDE SOP from the "Think Blue". A new IDDE Plan has been prepared to update the previous SOP's to contain the elements required in the 2022 MS4 General Permit (Part IV.C.3.b.i through vi). The updated IDDE plan is contained in Appendix E of this SWMP. The plan will be reviewed annually and updated if needed to reflect any changes to the program.

Measurable Goal 3.2b – The City will conduct a wet weather assessment in accordance with the 2022 MS4 General Permit Part IV.C.3.f. and will incorporate the wet weather assessment into

their IDDE Plan by the end of Permit Year 5 (June 30, 2027).

2.3.3 BMP 3.3 – Maintain Storm Sewer System Infrastructure Map

Responsible Party - Public Works Director

Measurable Goal 3.3a – The City created a watershed-based map of the MS4 infrastructure during the first three permit cycles (2003-2022). The map shows the locations of stormwater catch basins, drain manholes, connecting surface and subsurface infrastructure showing the direction of pipe flow and the locations of stormwater outfalls. The infrastructure is documented in a Geographic Information System (GIS), which contains unique identifiers for outfalls and catch basins, as well as outfall material, size and receiving waters. The map is updated annually as follows:

- The GIS geodatabase is updated to reflect changes to infrastructure based on inspections by Public Work Staff by June 30 each year,
- The GIS geodatabase is updated when as-built drawings become available for municipal infrastructure, and
- Paper maps are printed by June 30 each year.

2.3.4 BMP 3.4 – Conduct Infrastructure Inspections and Monitor Flowing Outfalls

Responsible Party - Public Works Director

Measurable Goal 3.4a – The City will conduct infrastructure inspections for pollutants using the following frequency:

1. One dry weather inspection will be conducted on each outfall at least once per permit cycle as required by the 2022 MS4 General Permit.
2. Dry weather ditch inspections will be conducted whenever ditch maintenance work is anticipated.
3. Catch basins will be inspected for evidence of pollutants during their required sediment inspections (see BMP 6.4 for details).

Measurable Goal 3.4b – If an outfall is observed to be flowing during the dry weather inspection, the flow will be sampled and analyzed once per permit term using the methods described in the IDDE Plan unless it is exempt from dry weather investigations (as described in Part IV.C.3.e.vi of the 2022 MS4 General Permit). Outfalls sampled during dry weather will be handled as follows:

1. Outfalls where sampling and analysis reveals the potential for an illicit discharge: The City will investigate the catchment area associated with the outfall for potential illicit discharges as described under Measurable Goal 3.5a.
2. Outfalls where sampling and analysis does not reveal the potential for an illicit discharge: The City will document the dry weather flow as either uncontaminated groundwater,

water from a natural resource, or an allowable non-stormwater discharge.

The Public Works Department will summarize the monitoring results and any investigation completed, or the exempt status, as applicable, in an Excel spreadsheet or GIS geodatabase.

2.3.5 BMP 3.5 – Conduct Investigations on Suspect Illicit Discharges

Responsible Party - Public Works Director

Measurable Goal 3.5a – Whenever the Public Works Department becomes aware of a potential illicit discharge, it will investigate to identify the source(s) using methods described in the written IDDE Plan (Appendix E). The Public Works Department will continue to track the status and outcome of the investigations using an Excel spreadsheet or GIS geodatabase.

2.3.6 BMP 3.6 – Significant Contributors of Pollutants

Responsible Party - Public Works Director

Measurable Goal 3.6a – During the 2013-2022 Permit Cycle, the Maine DEP identified that hydrant flushing was a potentially significant contributor of pollutants to MS4s. The Maine DEP published an issue profile providing water districts and water departments guidance on how to meet ambient water quality standards for chlorine during hydrant flushing. The document was specifically designed for discharges to MS4s. In addition, the Maine Rural Water Association and Maine Water Utilities Association prepared a guidance document and training to show water districts and water departments how to meet the requirements of the issue profile.

The City previously made annual requests to the Maine Water Company (public water supply operator in Saco) to provide an annual report describing their hydrant flushing dechlorination processes. The City will continue to request a copy of Maine Water Company's annual report each year.

Measurable Goal 3.6b – If any of the following allowed non-stormwater discharges (in addition to hydrant flushing) are identified as potentially significant contributors of pollutants to the MS4, the City will work with the responsible dischargers to control the source so they are no longer potentially significant contributors of pollutants.

- landscape irrigation
- diverted stream flows
- rising ground waters
- uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20))
- uncontaminated pumped ground water
- uncontaminated flows from foundation drains
- air conditioning and compressor condensate
- irrigation water

- flows from uncontaminated springs
- uncontaminated water from crawl space pumps
- uncontaminated flows from footing drains
- lawn watering runoff
- flows from riparian habitats and wetlands
- residual street wash water (where spills/leaks of toxic or hazardous materials have not occurred, unless all spilled material has been removed and detergents are not used), and
- firefighting activity runoff (hydrant flushing is addressed in MG 3.6a)
- water line flushing and discharges from potable water sources
- individual residential car washing
- dechlorinated swimming pool discharges

2.4 MCM 4 Construction Site Stormwater Runoff Control

The City will update, implement, and enforce its Construction Runoff Control Program for construction activities that discharge to the MS4 and disturb greater than or equal to one acre of land, including projects less than one acre that are part of a larger common plan of development or sale as required by the 2022 MS4 General Permit through implementation of BMPs as described in this section.

In 2016, the City amended the Zoning Ordinance, Stormwater Runoff Section to ensure compliance with the requirements of the Maine DEP and the MS4 program; maintain the City's delegated review authority from Maine DEP; improve standards for inspection and maintenance of stormwater facilities; and improve water quality protection to the natural receiving water systems throughout the City.

In 2020, the City made extensive revisions to the City Code, including Zoning Ordinance (Chapter 230) Article XII – Stormwater and Erosion Control; Site Plan Review Ordinance; and Subdivision Ordinance that included additional requirements related to stormwater management and erosion control submissions required to meet the 2022 MS4 General Permit requirements.

The following is a summary of the existing ordinance requirements that address this MCM:

Subdivision Regulations

The Subdivision Application includes the requirement for the preparation and submission of an erosion control plan as follows:

Erosion Control Plan shall be prepared in accordance with the requirements of the Zoning Ordinance, Chapter 230, Article 1207 – General Erosion and Sedimentation Control Provisions. In general, the plan shall show the use of erosion and sediment control best management practices (BMPs) at construction sites consistent with the minimum standards outlined in the Maine DEP Stormwater Rule Chapter 500 Appendix A – Erosion and Sediment Control, Appendix B – Inspections and Maintenance, Appendix C – Housekeeping. Erosion and Sedimentation Control BMPs shall be designed, installed and maintained in accordance with the standards contained in the latest revisions of the following Maine DEP documents:

- *Maine Erosion and Sediment Control Best Management Practices (BMPs) Manual for Designers and Engineers*
- *Maine Erosion and Sediment Control Practices Field Guide for Contractors*

Site Plan Review Ordinance

Site developments that are subject to Site Plan Review include:

A. Construction of:
    1) Nonresidential structures, including accessory uses or structures, having a total floor area of more than one thousand (1,000) square feet
    2) Multi-family dwellings.

B. Expansion of:
    1) Nonresidential structures, including accessory structures, by more than one thousand (1,000) square feet of ground floor area within a five (5) year period.
    2) Multifamily dwellings, by the addition of one or more units within an existing structure or expansion of the structure to accommodate new units.
C. Conversion of single family or two-family dwellings to multi-family use.
D. Changing the siding or roofing materials of the street-facing façade of a nonresidential or multifamily structure or accessory structure by more than twenty-five (25) percent of the surface area of the siding or roof.
E. Proposals to pave, strip, or grade more than ten thousand (10,000) square feet within a five (5) year period.
F. Proposals for earth removal of more than ten thousand (10,000) square feet or one hundred (100) cubic yards within a five (5) year period.
G. Construction or expansion of boat building and repair facilities, marinas, piers, docks, boat houses, and port facilities.
H. The addition of a drive-up window.
I. Proposals to construct buildings taller than 35' high.
J. Site Location of Development. Site developments needing approval under 38 M.R.S.A. § 481-488, as permitted under 38 M.R.S.A. § 489-A, shall be reviewed under the procedures section of this Chapter and shall meet the standards of 38 M.R.S.A. §§ 481 to 490, as amended, as well as those in the regulations of the Maine Department of Environmental Protection, including Chapters 342, 371, 372, 373, 375, 376, 377, and 380, and others which may be issued by the DEP, which are hereby adopted by reference for projects falling under this Chapter. Projects subject to this section shall also meet the standards of this chapter. The City will notify the Department of Environmental Protection upon the submission of any projects subject to this Chapter.
K. Site developments requiring stormwater permits pursuant to 38 M.R.S.A. § 420-D, shall, to the extent permitted under 38 M.R.S.A. § 489-A, be reviewed under the procedures of this Chapter; and they shall meet and comply with those rules promulgated by the Maine Department of Environmental Protection pursuant to 38 M.R.S.A. § 420-D, specifically Chapters 500, 501, and 502 Rules.

The Site Plan Review Application includes the requirement for the preparation and submission of an erosion control plan as follows:

Erosion Control Plan shall be prepared in accordance with the requirements of the Zoning Ordinance, Chapter 230, Article 1207 – General Erosion and Sedimentation Control Provisions. In general, the plan shall show the use of erosion and sediment control best management practices (BMPs) at construction sites consistent with the minimum standards outlined in the Maine DEP Stormwater Rule Chapter 500 Appendix A – Erosion and Sediment Control, Appendix B – Inspections and Maintenance, Appendix C – Housekeeping. Erosion and Sedimentation Control BMPs shall be designed, installed and maintained in accordance with the standards contained in the latest revisions of the following Maine DEP documents:

- *Maine Erosion and Sediment Control Best Management Practices (BMPs) Manual for Designers and Engineers*
- *Maine Erosion and Sediment Control Practices Field Guide for Contractors*

City of Saco Ordinances can be found at:
https://www.sacomaine.org/departments/planning___development/land_use_regulations.php

The following BMPs will be implemented to meet this Minimum Control Measure.

2.4.1 BMP 4.1 – Erosion Sediment Control Ordinance

Responsible Party - Planner and Public Works Director

Measurable Goal 4.1a – Article XII "Stormwater and Erosion Control" of the City's Zoning Ordinance (Chapter 230 of the City Code) includes the requirements for stormwater management (quantity and quality control), including provisions for post-construction stormwater management, inspection, maintenance, and annual reporting to the City. In addition, Article XII also includes the requirements for an Erosion Control Plan to be prepared in accordance with the applicable sections of Attachment C to the 2022 MS4 General Permit, (which are the same as the Maine DEP Stormwater Rule Chapter 500 Appendix A – Erosion and Sediment Control, Appendix B – Inspections and Maintenance, and Appendix C – Housekeeping). A copy of the applicable ordinance sections was provided to Maine DEP on February 9, 2021 for review. On February 18th, Maine DEP responded that the draft ordinance changes met the 2022 MS4 General Permit MCM 4.a.i.-iv and MCM 5.a.and b. requirements with only a couple minor comments. The comments provided by MaineDEP were incorporated into the final ordinance language that is contained in Appendix F of this SWMP.

If it is determined by the Maine DEP that the City's 2020 Zoning Ordinance language contained in Appendix F is not adequate to meet the requirements of the 2022 MS4 General Permit, then the City will complete any additional ordinance updates by July 1, 2023.

Measurable Goal 4.1b – The City will develop either on its own, or regionally, a set of standards consistent with the construction site requirements contained in Attachment C to the 2022 MS4 General Permit, (which are the same as the Maine DEP Stormwater Rule Chapter 500 Appendix A – Erosion and Sediment Control, Appendix B – Inspections and Maintenance, and Appendix C – Housekeeping).

The standards will include a requirement to control waste such as discarded building materials, concrete truck wash-outs, chemicals, litter and sanitary waste at the construction site that may cause adverse impacts to water quality if passed through the storm drain system.

2.4.2 BMP 4.2 – Site Plan and Subdivision Review Procedures

Responsible Party - Planner

Measurable Goal 4.2a – The City's Site Plan and Subdivision Review Procedures, which contain the required elements listed in the 2022 MS4 General Permit (consideration of potential water quality impacts, erosion control, waste storage, the ability for the public to comment at publicly noticed meetings and procedures to consider information submitted by the public), will continue to be implemented.

2.4.3 BMP 4.3 – Procedures for Notifying Construction Site Developers and Operators

Responsible Party - Planner and Code Enforcement Officer

Measurable Goal 4.3a – The City will continue notifying developers and contractors of requirements to obtain coverage under the MCGP and Chapter 500 for sites that disturb one or more acres of land using the following methods:

- Providing notices on the Planning Department and Code Enforcement Department webpages,
- Requiring check box on building permit for sites that disturb one or more acres of land, and
- In discussions with applicants.

As summarized earlier, the Saco Site Plan Regulations require Site Plan Review approval for projects that:

- Proposals to pave, strip, or grade more than ten thousand (10,000) square feet within a five (5) year period.
- Proposals for earth removal of more than ten thousand (10,000) square feet or one hundred (100) cubic yards within a five (5) year period.

The Site Plan Review Application includes the requirement for the preparation and submission of an erosion control plan as follows:

Erosion Control Plan shall be prepared in accordance with the requirements of the Zoning Ordinance, Chapter 230, Article 1207 – General Erosion and Sedimentation Control Provisions. In general, the plan shall show the use of erosion and sediment control best management practices (BMPs) at construction sites consistent with the minimum standards outlined in the Maine DEP Stormwater Rule Chapter 500 Appendix A – Erosion and Sediment Control, Appendix B – Inspections and Maintenance, Appendix C – Housekeeping. Erosion and Sedimentation Control BMPs shall be designed, installed and maintained in accordance with the standards contained in the latest revisions of the following Maine DEP documents:

- *Maine Erosion and Sediment Control Best Management Practices (BMPs) Manual for Designers and Engineers*
- *Maine Erosion and Sediment Control Practices Field Guide for Contractors*

2.4.4 BMP 4.4 – Conduct and Document Construction Site Inspections

Responsible Party - Public Works Director and Code Enforcement Officer

Measurable Goal 4.4a – The City will continue implementing its procedure for construction site inspections for construction activities that disturbs one or more acres within the urbanized area, which will be formalized in a written document by July 1, 2022. The City's written construction inspection procedure will:

- Identify a City inspector or third-party inspector to conduct these inspections.
- Identify a City inspector or third-party inspector to review any inspection deficiencies with the contractor during or at the conclusion of the inspection to allow for BMP repairs to be done no later than the next workday, additional BMPs to be added within 7 calendar days, and significant repairs to be completed within 7 calendar days and prior to any storm event (rainfall) and that:
  - The inspection reports are provided to the City Planner and City Engineer within 3 days of the inspection for any site that require corrective measures, and within one week for any site that do not require corrective measures.
- Require three inspections be performed during active earth-moving phase of construction.
- Require a minimum of one inspection be performed annually until the project reaches substantial completion.
- Require a final inspection be performed at project completion to ensure that permanent stabilization has been achieved and all temporary erosion and sediment controls have been removed.
- Require construction inspections to be reported using the standardized construction inspection form provided in Appendix G of this SWMP.
- Identify that any deficiencies not corrected within 7 calendar days and prior to any storm event (rainfall) will result in the issuance of a written violation letter through the City's Code Enforcement Office using the standardized form provided in Appendix H of this SWMP.

Measurable Goal 4.4b. – The City will document construction sites that trigger the ordinance using iWorQ database software package that is maintained by the City's Planning and Economic Development Department and Code Enforcement Department. Site inspections are tracked on an excel spreadsheet that includes the site's name, map and lot number, dates of inspections, and any enforcement actions and corrective actions taken.

2.5 MCM 5 Post-Construction Stormwater Management in New Dev./Redevelopment

The City will continue to implement its Post Construction Stormwater Management Program to address stormwater runoff from new development and redevelopment projects that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale, that discharge into the City's MS4 through implementation of the following BMPs.

The City's current Ordinances contain provisions to prevent or minimize water quality impacts from development in accordance with the requirements of the MS4 General Permit.

The following is a brief summary of the ordinance contents as they relate to the MCM 5 requirements:

Zoning Ordinance (Chapter 230) Article XII – Stormwater and Erosion Control

- Stormwater runoff to be minimized and managed onsite through the use of onsite stormwater BMP measures.
- Sites designed to minimize impervious areas.
- Encourage the use of Low Impact Development (LID) practices
- Preparation and implementation of a Post Construction Stormwater Management Plan in accordance with Maine DEP Guidance,
- Execution and filing of a Maintenance Agreement for any infrastructure that will remain under private control,
- Submittal of an annual report documenting that all on-site BMPs have been inspected by a qualified inspector and are either functioning as intended or if they require maintenance and repair, a list of deficiencies, and documentation once they are corrected

City of Saco Ordinances can be found at:
https://www.sacomaine.org/departments/planning development/land use regulations.php

The following BMPs will be implemented to meet this Minimum Control Measure.

2.5.1 BMP 5.1 – Promote Strategies to Prevent or Minimize Water Quality Impacts

Responsible Party - Planner and Code Enforcement Officer

Measurable Goal 5.1a – The City will rely on the Maine DEP Chapter 500 Stormwater Rules, which promote stormwater treatment standards for sites that disturb one or more acres of land and are either:

- In the watershed of an Urban Impaired Stream or a lake at risk that creates 20,000 square feet of impervious cover, or
- In any other watershed that creates one (1) acre or more of impervious cover, or
- In any watershed where five (5) or more acres of land will be developed.

Measurable Goal 5.1b – The City's current ordinances contain general provisions to prevent or minimize water quality impacts from development, which includes notifying developers that they must consider Low Impact Development (LID) techniques in accordance with the requirements of the 2022 MS4 General Permit.

2.5.2 BMP 5.2 – Maintain Post Construction Ordinance or Similar Measure

Responsible Party - Planner and Code Enforcement Officer

Measurable Goal 5.2a – During the 2008-2013 permit cycle, the City passed a Post Construction Discharge Ordinance (Section 805 of the previous Zoning Ordinance that became effective June 1, 2009) that required any site disturbing more than one acres to certify to the City annually by July 15th that their stormwater BMPs have been inspected, maintained, and functioning as intended.

In 2016 and 2020, the City amended the Zoning Ordinance to ensure compliance with the requirements of the Maine DEP and the MS4 program; maintain the City's delegated review authority from Maine DEP; improve standards for inspection and maintenance of stormwater facilities; and improve water quality protection to the natural receiving water systems throughout the City.

The City will continue to track:

- The cumulative number of sites that have post construction BMPs discharging into the permittee' s MS4;
- The number of sites that have post construction BMPs discharging into the permittee's MS4 that were reported to the municipality;
- The number of sites with documented functioning post construction BMPs; and
- The number of sites that required routine maintenance or remedial action to ensure that the post construction BMP is functioning as intended.

Measurable Goal 5.2b – By July 1, 2023, the City's Post Construction Ordinance (Chapter XII, Section 1204) will be updated to state that for any sites reporting that maintenance is required:

- Deficiencies will be corrected within 60 days of identification and a record of the corrective action taken will be provided to the City's Planning and Public Works Departments within the same 60-day period.
- If it is not possible to correct the deficiency and notify the City within 60 days, the property owner will coordinate the City's Code Enforcement Officer to establish an expeditious schedule to correct the deficiency and will provide a record of the corrective actions taken.

2.6 MCM 6 Pollution Prevention/Good Housekeeping for Municipal Operations

The objective of this MCM is to mitigate or eliminate pollutant runoff from municipal operations on property that is owned or managed by the permittee and located within the 2000-2010 Urbanized Area through implementation of the following BMPs.

2.6.1 BMP 6.1 – Operations at Municipally Owned Grounds and Facilities

Responsible Party - Public Works Director

Measurable Goal 6.1a – During the previous MS4 permit cycle, the City developed an inventory of municipal operations conducted in, on, or associated with facilities, buildings, golf courses, cemeteries, parks and open space owned or operated by the City that have the potential to cause or contribute to stormwater pollution. The City will continue to review and update its inventory annually.

Measurable Goal 6.1b – During the previous MS4 permit cycle, the City developed and implemented Operation and Maintenance (O&M) Procedures for the municipal operations listed in their inventory that had the potential to cause or contribute to stormwater pollution. The City will continue to implement these O&M Procedures and will review and update the O&M Procedures annually to iteratively improve strategies and practices to eliminate or better control pollutant discharges.

2.6.2 BMP 6.2 – Training

Responsible Party - Public Works Director

Measurable Goal 6.2a – The City will conduct annual training as follows:

a. Train the Public Works Department (which includes transfer station) and Parks and Recreation Department employees annually in the Stormwater Pollution Prevention Plan and Grounds and Maintenance O&M Procedures.
b. Train the Police and Fire Departments employees annually in their respective O&M Procedures.

2.6.3 BMP 6.3 – Continue Street Sweeping Program

Responsible Party - Public Works Director

Measurable Goal 6.3a – Each permit year the City will continue to sweep all publicly accepted paved streets and publicly owned paved parking lots at least once a year as soon as possible after snowmelt.

2.6.4 BMP 6.4 – Cleaning of Catch Basins

Responsible Party - Public Works Director

Measurable Goal 6.4a – The City will inspect its catch basins for sediment content at least once every two years and will clean catch basins that accumulate more than six inches of sediment.

Measurable Goal 6.4b – The City will track which catch basins accumulate excess sediment (i.e., more than 50% of the sump depth contains sediment) to ensure those basins are inspected again the following year and cleaned if necessary. If a catch basin exhibits less than 25% depth of sediment in its sump for two consecutive years, it is removed from the excess sediment list, and can be inspected again every two years.

Measurable Goal 6.4c – The City will continue to beneficially re-use any catch basin grit that does not exhibit evidence of sewage, oil/grease, litter, or other pollutants in accordance with Maine DEP Solid Waste Management Rule 418 Beneficial Use of Solid Waste. Grit that exhibits evidence of pollutants will be profiled to assess its waste classification and disposed of at an appropriately licensed solid waste facility.

2.6.5 BMP 6.5 – Maintenance and Upgrading of Storm Water Conveyances and Outfalls

Responsible Party - Public Works Director

Measurable Goal 6.5a – The City will maintain and upgrade the stormwater conveyance systems based on the results of the catch basin, outfall, and ditch inspections, in accordance with the urgency of any needed repairs or maintenance. The City continues to perform systematic capital upgrades of the storm drain system in correlation with the road paving program for the City.

2.6.6 BMP 6.6 – Stormwater Pollution Prevention Plans (SWPPPs)

Responsible Party - Public Works Director

Measurable Goal 6.6a – During the last Permit Cycle, the City prepared a SWPPP for the Public Works Facility and Transfer Station. The City will amend the SWPPP to comply with the requirements specified in Part IV.C.6.d by June 30, 2022. In addition, the City will amend the SWPPP within 30 calendar days of completion of any of the following:

- A change in design, construction, operation or maintenance that may have a significant effect on the discharge or potential for discharge of pollutants including the addition or reduction of industrial activity,
- Monitoring, inspections, or investigations by the City, local, state or federal officials which determine the SWPPP is ineffective in eliminating or significantly minimizing the intended pollutants, or
- A discharge occurs that is determined by the Maine DEP to cause or have the reasonable

potential to cause or contribute to the violation of an applicable water quality standard.

Measurable Goal 6.6b – The City will implement the plan throughout each Permit Year including conducting quarterly facility inspections and visual monitoring using forms containing the inspection criteria contained in Appendix F of the 2022 MS4 General Permit.

2.7 Impaired Waters BMPs

The City's regulated MS4 has discharges to Goosefare Brook which are classified as an Urban Impaired Stream (UIS) in Maine DEP Rule Chapter 502 and are listed in the Maine Statewide Impervious Cover Total Maximum Daily Load (TMDL). Goosefare Brook is also listed in the Maine Statewide Bacteria TMDL. The 2022 MS4 General Permit requires that the City must implement three Best Management Practices (BMPs) for the UIS, and the Maine DEP has stated that no additional actions need to be taken to address the TMDLs.

To meet the USI requirement of the 2022 MS4 General Permit, the City will implement the following BMPs.

2.7.1 BMP 7.1 – Minimize Chloride Contributions to Goosefare Brook

Responsible Party - Public Works Director (with implementation assistance from CCSWCD)

As described in Section 1.4 of the City's SWMP, chlorides have been identified as a stressor of the Urban Impaired Stream that receive MS4 discharges.

The Municipality has already taken several actions over the past few years to minimize their chloride contributions during deicing, will continue to implement the following chloride reduction practices which are also specified in the Maine BMP Manual for Snow and Ice Control, 2015:

- Annual review of appropriate application rates with crew at beginning of winter season
- Use of Ground Speed Control and Annual Equipment Calibration to ensure proper application rates
- Recalibration of equipment whenever major repairs are made
- Use of pavement temperature gauges to determine application rates
- Use of liquid (prewetting) to improve performance and to reduce "bounce and scatter" when applying sodium chloride, and

In addition, although there are two regional pilot programs beginning in 2021 which target chloride reduction by private applicators, there is still a need for a statewide program, additional public education around chlorides, and limited liability legislation for private applicators.

The City will implement the following Measurable Goals related to chloride reduction within the UIS.

Measurable Goal 7.1a – At least one representative from the City will attend an annual regional training or roundtable to learn about new chloride reduction techniques coordinated by the ISWG or another organization.

Measurable Goal 7.1b – The City will complete the following actions to facilitate future reduction of chlorides through application by private contractors:

- In Permit Year 1, and alternating years thereafter until it passes, the City will provide educational outreach regarding limited liability legislation to legislators and at least two other organizations representing firms that conduct application of chloride on private property. The City will also provide comments on any drafted legislation, and provide testimony at the committee level once drafted to help inform the review committee. The information provided will identify how chlorides affect water quality and how limited liability legislation will support a training, data collection, and certification program like the New Hampshire "Green Snow Pro" program or Minnesota's Smart Salting Training Program for private applicators.
- In years when limited liability legislation has not passed and is not active for procedural reasons, the City will provide winter maintenance education and outreach to the public. The messaging will be delivered using two tools per year selected from Appendix D.
- Should the legislation be successful:
  - The first year after it passes, the City will provide awareness of its passage in the form of a presentation to the Select Board/Council.
  - Beginning the second and subsequent years after passage, the City will educate property owners/managers, private contractors, and/or the public on winter maintenance practices to maintain public safety and protect the environment. These practices will be delivered using two tools per year selected from Appendix D.

2.7.2 BMP 7.2 – Targeted Behavior Change: YardScaping 2.0

Responsible Party - Public Works Director (with implementation assistance from CCSWCD)

Measurable Goal 7.2a – As identified in Section 1.4 of the City's SWMP, public education was identified as a recommendation in the Watershed Management Plan for the UIS. This BMP will provide targeted education to the residents living adjacent to the Urban Impaired Stream. The goal of the enhanced public education is to encourage the residents to improve their riparian zone by creating or improving and maintaining the riparian buffer with native species to minimize erosion and to implement one of the YardScaping concepts. This BMP will incorporate targeted and regional outreach with other ISWG municipalities that have urban impaired streams. Within the ISWG municipalities with urban impaired streams, the following items will occur each year:

- One digital and one print outreach to residents within the UIS area designated above about ways to create, improve, and maintain their riparian zone.
- Offer four regional workshops on YardScaping and buffer BMPs (workshops will alternate

between communities with UIS each year).
- Product and plant recommendations will be identified at regional point of sale partners.

Surveys will be conducted immediately after workshops and then a follow up survey will be conducted after the next growing season to evaluate behavior changes of the target audience.

2.7.3 BMP 7.3 – Implement Structural Stormwater BMP within Goosefare Brook Watershed

Responsible Party - Public Works Director

Review of the Goosefare Brook Watershed Based Management Plan recommends implementation of stormwater BMPs to disconnect and treat surface runoff from impervious surfaces. The following Goosefare Brook subcatchment areas were identified with high priority stressors:

- Upper Main Stem
- Lower Main Stem
- Industrial Park North & South
- Moody Street Stream
- Route 1 North
- Bear Brook North & South Branches

The City will investigate, assess, design and install a structural stormwater BMP in one of the priority subcatchment areas as described in Measurable Goal 7.3a.

Measurable Goal 7.3a – During Permit Year 1, the City will conduct site visits to at least five (5) sites within the priority subcatchment areas and evaluate potential for implementing structural stormwater BMP to treat stormwater runoff from existing impervious surface. At a minimum, the following sites will be visited:

1. Industrial Park Road at Goosefare Brook Crossing – Upper Main Stem
2. Industrial Park Rail Yard Siding – Upper Main Stem
3. Intersection of Fairfield and Route 1 – Bear Brook South Branch
4. Intersection of Hutchins and Route 1 – Bear Brook South Branch
5. Intersection of Hannaford Supermarket Entrance and Route 1 – Bear Brook South Branch

All five sites were identified in the WBMP as high-ranking stormwater BMP retrofit opportunities due to pollutant sources from high traffic corridors and direct discharges within the Goosefare Brook watershed. The City will write a memo summarizing the results of the evaluation and will select a site for design. The City will provide summary on the recommended project in the MS4 Annual Compliance Report.

Measurable Goal 7.3b – During Permit Year 2, the City will prepare the design for the recommended project. The City will provide a summary on the project status in the MS4 Annual Compliance Report.

Measurable Goal 7.3c – During Permit Year 3, the City will obtain any necessary permits and easements to construct the recommended project. The City will provide a summary on the project status in the MS4 Annual Compliance Report.

Measurable Goal 7.3d – During Permit Year 4, the City will construct the project. The City will provide a summary on the project status in the MS4 Annual Compliance Report.

Measurable Goal 7.3e – During Permit Year 5, the City will begin inspection and maintenance on the completed project. The City will provide a summary on the project status in the MS4 Annual Compliance Report.

3 GENERAL REQUIREMENTS

3.1 Certification

The General Permit requires that this Plan be certified by either a principal executive officer or ranking elected official. This section provides the necessary 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 am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

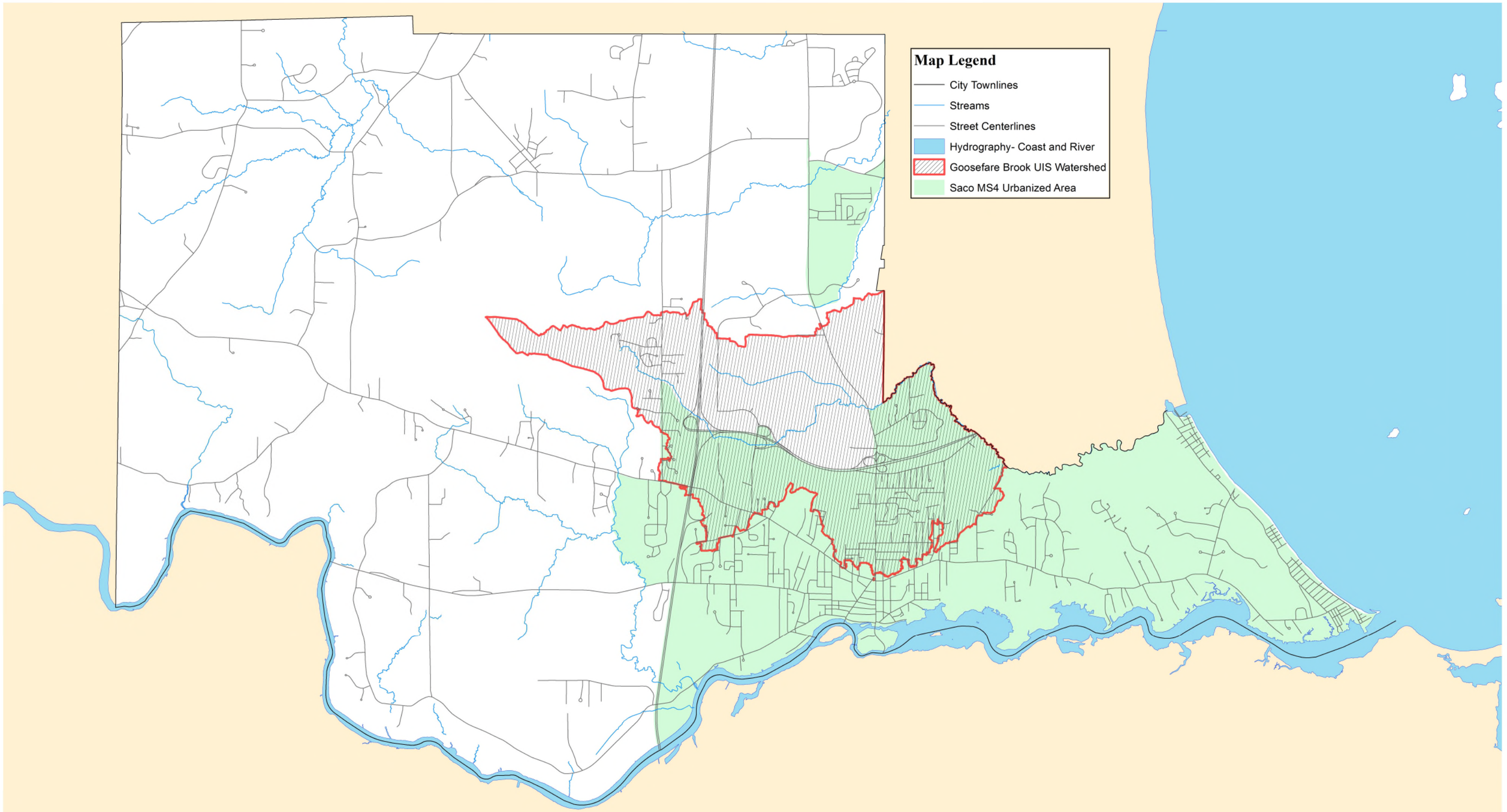
Signature: _____ Date: 3/2/2021

Bryan Kaenrath

Title: City Administrator

APPENDIX A

SACO MS4 URBANIZED AREA AND PRIORITY WATERSHED MAP



CITY OF Saco
friendly by nature

Saco Public Works
15 Phillips Spring Road
Saco ME, 04072

Saco MS4 Urbanized Area Map

0 0.75 1.5 3 Miles

N

The data contained within the Saco GIS is provided for the use of planning and review purposes only. GIS data is not intended for engineering design. Locations are provided within acceptable standard margin of error.

Map Printed : February 2021

APPENDIX B

NOTICE OF INTENT
AND PERMITTEE SPECIFIC DEP ORDER

NOTICE OF INTENT TO COMPLY WITH MAINE GENERAL PERMIT FOR THE DISCHARGE OF STORMWATER FROM MUNICIPAL SEPARATE STORM SEWER SYSTEMS (MS4)

PLEASE TYPE OR PRINT IN *BLACK INK ONLY*

PERMITTEE INFORMATION					
MS4 Entity	City of Saco			Permittee ID #	MER041011
Name and title of chief elected official or principal executive officer	Bryan Kaenrath, City Administrator				
Mailing Address	300 Main Street				
Town/City	Saco	State	Maine	Zip Code	04072
Daytime Phone	207.282.4191	Email	bkaenrath@sacomaine.org		
PRIMARY CONTACT PERSON FOR OVERALL STORMWATER MANAGEMENT PROGRAM (if different than PEO/CEO)					
Name and Title	Patrick Fox, Public Works Director				
Mailing Address	15 Phillips Spring Road				
Town/City	Saco	State	Maine	Zip Code	04072
Daytime Phone	207.284.6641	Email	pfox@sacomaine.org		
STORMWATER MANAGEMENT PLAN (SWMP)					
Urbanized Area (sq. mi.)	9.9				

I have attached our updated SWMP with ordinances, SOPs, forms. ☐

Name of streams, wetlands, or waterbodies to which the regulated small MS4 discharges (*attach additional sheets as necessary*):

Bear Brook, Branch Brook, Cascade Brook, Deep Brook, Goosefare Brook, Innis Brook, Mill Brook, Saco River, Sawyer Brook and Tappan Brook

List of impaired waterbodies that receive stormwater from the regulated small MS4 (*attach additional sheets as necessary*):

Goosefare Brook

CERTIFICATION

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

Signature of Permittee		Date	3/2/2021

This NOI registration form must be filed with the Department at the following address:

Stormwater Program Manager
Maine Department of Environmental Protection
Bureau of Water Quality
17 State House Station
Augusta ME 04333-0017
Rhonda.Poirier@maine.gov

OFFICE USE ONLY							
Date Recieved	Staff			Date Accepted		Date Not Accepted	

The Municipality of Saco will file a Notice of Intent (NOI) to comply with the Maine General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems issued 10/15/2020 (MER041000 W009170-5Y-C-R) and an associated Stormwater Management Plan (SWMP) with the Maine Department of Environmental Protection. The NOI and SWMP will be filed on or about March 31, 2021. A copy may also be seen at the Saco Department of Public Works located at 15 Phillips Spring Road and on the municipal website: https://www.sacomaine.org.

The DEP will review the submittal and assess if it is complete for processing within 60 days of submittal. Once it has been deemed complete for processing, it will be made available on the Maine DEP website for 30-day public comment: https://www.maine.gov/dep/comment/index.html. A request for public hearing or request that the Board of Environmental Protection assume jurisdiction over this application must be received by the DEP, in writing, no later than 20 days after the application is found acceptable for processing. Requests must indicate the interest of the person filing the request and specify the reasons why a hearing is warranted. Unless otherwise provided by law, a hearing is discretionary and may be held if the Commissioner or the Board finds significant public interest or there is conflicting technical information.

The NOI and SWMP are also available for viewing at the DEP Office in Augusta by scheduled appointment during normal business hours during the pandemic. Written public comments or requests for information may be made to the Division of Water Quality Management, Department of Environmental Protection, State House Station #17, Augusta, ME 04333- 0017; telephone (207) 592-6233 and must include the name of the municipality filing the NOI and the Permit number provided above.

Portland Press Herald
EST 1862
Maine Sunday Telegram
pressherald.com

Classified Advertising Proof

Karen Audie
Saco City Of/Zba
300 Main Street

Saco
ME
04072
(207) 282-4191
DBender@sacomaine.org

Thank you for placing your advertisement with us.

Your order information and a preview of your advertisement are attached below for your review. If there are changes or questions, please contact the classified department at (207) 791-6100

Thank you

(207) 791-6100 jjensen@mainetoday.com Monday – Friday 8:00 am – 5pm

Order Number	**0250808**	Order Price	**$349.82**
Sales Rep.	**Joan Jensen**	PO No.	**Notice of Intent / Torie Gorman**
Account	**150958**	Payment Type	**Invoice**

Publication	**Portland Press Herald**	Number of dates	**1**
First Run Date	**03/12/2021**	Last Run Date	**03/12/2021**

Publication	**Online Upsell PPH**	Number of dates	**1**
First Run Date	**03/12/2021**	Last Run Date	**03/12/2021**

Public Notice

The Municipality of Saco will file a Notice of Intent (NOI) to comply with the Maine General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems issued 10/15/2020 (MER041000 W009170-5Y-C-R) and an associated Stormwater Management Plan (SWMP) with the Maine Department

Maine Department of Environmental Protection. The NOI and SWMP will be filed on or about March 31, 2021. A copy may also be seen at the Saco Department of Public Works located at 15 Phillips Spring Road and on the municipal website: https://www.sacomaine.org.

The DEP will review the submittal and assess if it is complete for processing within 60 days of submittal. Once it has been deemed complete for processing, it will be made available on the Maine DEP website for 30-day public comment: https://www.maine.gov/dep/comment/index.html. A request for public hearing or request that the Board of Environmental Protection assume jurisdiction over this application must be received by the DEP, in writing, no later than 20 days after the application is found acceptable for processing. Requests must indicate the interest of the person filing the request and specify the reasons why a hearing is warranted. Unless otherwise provided by law, a hearing is discretionary and may be held if the Commissioner or the Board finds significant public interest or there is conflicting technical information.

The NOI and SWMP

The NOI and SWMP are also available for viewing at the DEP Office in Augusta by scheduled appointment during normal business hours during the pandemic. Written public comments or requests for information may be made to the Division of Water Quality Management, Department of Environmental Protection, State House Station #17, Augusta, ME 04333-0017; telephone (207) 592-6233 and must include the name of the municipality filing the NOI and the Permit number provided above.

APPENDIX C

SUMMARY OF PUBLIC COMMENTS RECEIVED

APPENDIX D

EDUCATION & OUTREACH TOOLS, LEVELS OF EFFORT, AND EFFECTIVENESS BENCHMARKS

Below is a list of tools with their corresponding minimum level of effort and effectiveness benchmark that will be selected from each year to implement BMP 1.1 and 1.2.

Outreach Tool	**Minimum Level of Effort**	**Effectiveness Benchmark**
Poster	10 posters/municipality	Total number of posters distributed
Flyer	1 flyer	Total number of flyers distributed
Brochure	1 brochure	Total number of brochures distributed
Rack Card	1 rack card	Total number of rack cards distributed
Newsletter Article	2 newsletter articles	Total number of newsletters distributed
Post Card	1 post card	Total number of postcards distributed
Factsheet	1 factsheet	Total number of factsheets distributed
Sign	5 signs/municipality	Total number of signs distributed
Story Walk	1 story walk	Number of QR code (or similar technology) scans from signs
Story Map	1 regional story map	Number of visitors to webpage
Stormwater Geocaching	1 regional activity (14 sites)	Number of participants per site
Augmented Reality App	1 regional activity (14 sites)	Number of app downloads Number of engagements within the app
Municipal Electronic Message Board	3 messages	Amount of time message was displayed
Email Newsletter	4 email newsletters	Number of people reached with email Number of interactions with email (e.g., link clicks)
Municipal Website Content	Annual updates to website stormwater content	Number of visitors to stormwater webpage(s)
Think Blue Maine Website Content	Semiannual updates to website content	Number of visitors to website
Social Media Post (each platform counts as separate tool)	12 posts	Amount of post engagement (e.g., reactions, comments, shares, etc.)
Social Media Ad (each platform counts as separate tool)	Ad(s) run 90 days (multiple ads may be run for shorter durations to total 90 days)	Amount of ad engagement (e.g., reactions, comments, shares, link clicks, etc.) Number of people reached with ad

Social Media Video (each platform counts as separate tool)	3 videos	Amount of video engagement (e.g., views, reactions, comments, shares, etc.)
Online ad	Ad(s) run 90 days (multiple ads may be run for shorter durations to total 90 days)	Number of people reached with ad Amount of ad engagement (e.g., link clicks)
Radio Ad	1 radio ad	Number of people reached with ad
Radio Segment	1 radio segment	Number of people reached with segment
Television Ad (broadcast or streaming)	1 television ad	Number of people reached with ad
Television News Segment (broadcast or streaming)	1 television news segment	Number of people reached with segment
Newspaper Article	1 newspaper article	Number of people reached with article
Newspaper Ad	1 newspaper ad	Number of people reached with ad
Webinar/Workshop	7 hours of training offered (multiple webinars/workshops may be offered to reach 7 hours)	Number of workshop attendees
Social Gathering	3 events	Number of interactions
Tabling	3 events	Number of interactions
Outreach partnership with local retailer	50% of industry retailers in region participating	Number of local retailers participating
Outreach partnership with local organization	3 content shares by partner organization	Number of people reached
Item with branding/messaging	1 item with branding/messaging	Total number of items distributed
A DEP-approved tool	Minimum level of effort will be determined based on the tool	Effectiveness benchmark will be determined based on the tool

APPENDIX E

IDDE PLAN AND QAPP

ILLICIT DISCHARGE DETECTION and ELIMINATION PLAN

FOR

CITY OF SACO, MAINE

For the

2022 MS4 General Permit for
Storm Water Discharges from
Municipal Separate Storm Sewer Systems

Effective July 1, 2022
Submitted to Maine DEP March 31, 2021

Table of Contents

Attachments

1.0 INTRODUCTION

The City of Saco is subject to the requirements of the Maine Department of Environmental Protection (Maine DEP) General Permit for Storm Water Discharges from Municipal Separate Storm Sewer Systems (hereafter referred to as the MS4 General Permit).

The MS4 General Permit requires permittees to address six Minimum Control Measures (MCMs) throughout the City's Urbanized Area. The six MCMs that are required to be addressed in this Plan are:

MCM1 Education/Outreach Program
MCM2 Public Involvement and Participation
MCM3 Illicit Discharge Detection and Elimination Program
MCM4 Construction Site Stormwater Runoff Control
MCM5 Post-Construction Stormwater Management in New Development and Redevelopment
MCM6 Pollution Prevention/Good Housekeeping for Municipal Operations

This document describes the Illicit Discharge Detection and Elimination (IDDE) Plan for the City of Saco, Maine. The Maine DEP defines an illicit discharge as any discharge to an MS4 that is not composed entirely of storm water, except that the following are not considered illicit discharges:

- Discharges authorized under a Maine DEP permit (38 M.R.S §413.)
- Uncontaminated groundwater,
- Water from a natural resource (such as a wetland), or
- an allowable non-storm water discharge.

See Section 3.0 of this Plan for a list of the allowed non-storm water discharges. The IDDE Plan described in this document fulfills the MCM 3 IDDE requirements specified in Part IV.C.3.b of the 2022 MS4 General Permit.

1.1 IDDE Responsibilities in the City of Saco

The City's Public Works Director is responsible for overall permit compliance, and for implementation of this IDDE Plan. The following other City personnel support implementation of this Plan:

Public Works staff: conduct outfall, ditch and catch basin inspections and monitoring, and conduct illicit discharge investigations, supported by third party contractors where necessary.

City Engineer/City Planner: is primary administrator for ArcGIS ESRI licensing (for mapping) and facilitates any required ordinance changes related to non-stormwater discharges through Planning Board.

Code Enforcement Officer/Health Inspector: assists Public Works staff in illicit discharge

investigations when needed (e.g., if plumbing inspections are needed) and enforcement.

1.2 Amendments and Updates to the IDDE Plan

The MS4 General Permits are designed to provide coverage for five-year periods. The first MS4 General Permit applicable to the City of Saco became effective in 2003 and expired in 2008. Subsequent General Permits were issued, providing the City with continuous coverage for their storm water discharges.

This IDDE Plan has been developed to meet the requirements of the 2022 MS4 General Permit. This Plan will be updated if any of the following occur:

- a new permit is issued which changes the requirements described in this IDDE Plan document,
- the City of Saco identifies that the IDDE Plan is not effective,
- municipal operations change which need to be reflected in this IDDE Plan.

The Public Works Director will either modify this IDDE Plan or engage a third party to update the document.

1.3 Typical Illicit Discharges

The Center for Watershed Protection (CWP) developed a comprehensive IDDE Manual in 2004 and provided an abbreviated update in 2011 which classifies illicit discharges into three categories related to frequency of discharge. This categorization allows communities to develop a comprehensive IDDE Plan that will address all kinds of illicit discharges. The three categories of illicit discharges identified in the CWP manual are described below along with examples of the types of discharges that may be encountered:

1. Transitory illicit discharges are typically one-time events resulting from spills, breaks, dumping, or accidents. Examples of transitory illicit discharges include:
    a. paint equipment rinse water
    b. carpet cleaning water
    c. sediment from construction sites
    d. wash water from vehicles other than individual residential car washing by an owner
    e. oil or gasoline spill from a vehicle crash or other source
    f. yard waste
    g. litter or pet waste

    Transitory illicit discharges are often reported to an authority through a citizen complaint line or following observation by a municipal employee during regular duties. Because they are not recurring, they are the most difficult to investigate,

trace, and remove. The best method to reduce transitory discharges is through general public education, education of municipal personnel to minimize spills and accidents, tracking of discharge locations (to identify potential patterns associated with spills), and enforcement of an illicit discharge ordinance.

2. Intermittent illicit discharges occur occasionally over a period of time (several hours per day, or a few days per year). Intermittent discharges can result from legal connections to the storm drain system, such as a legal sump pump connection that is illegally discharging washing machine water, a single home sanitary connection, or from illegal connections such as floor drains from industrial or commercial operations. Intermittent discharges can also result from activities such as excessive irrigation or wash down water from exterior areas. The 2022 General Permit requires that MS4s consider illicit discharges that might result from dumping. One example of this would be trash or litter dumped in/near stormwater structures might leak leachate into the system intermittently. Because intermittent discharges are longer lasting than transient, they are more likely to be discovered during an opportunistic or regularly scheduled inspection. They are less difficult to trace and remove than transitory discharges but can still present significant challenges. These discharges can have large or small impacts on water bodies depending on pollutant content.

3. Continuous illicit discharges are typically the result of a direct connection from a sanitary sewer, overflow from a malfunctioning septic system, or inflow from a nearby subsurface sanitary sewer that is malfunctioning. Continuous illicit discharges are usually easiest to trace and can have the greatest pollutant load but are typically the most costly and time consuming to correct because they likely involve construction and alteration of subsurface connections. (CWP and Robert Pitt 2004)

1.4 Overview of IDDE Plan Components

The MS4 General Permit requires an IDDE Plan be developed and implemented to assist the City in locating and eliminating Illicit discharges. An overview of each component of the IDDE Plan is provided in this subsection, and the remaining sections of this document describe how the City of Saco is implementing each component.

- Development of a watershed-based storm sewer infrastructure map: The City is required to develop a watershed-based storm sewer infrastructure map that includes the location of: catch basins, connecting surface and subsurface infrastructure, the direction of in-flow and out-flow pipes, and the locations of all discharges from the City's MS4 outfalls into any other interconnected MS4 or receiving water. The catch basins and outfalls must have unique identifiers. The following outfall information is included in the map system: the type of outfall (a connected pipe, a culvert, or a ditch), the material, its size, the name and location of the nearest named water body

to which it discharges. Section 2.0 of this document describes the City's watershed-based storm sewer infrastructure map.

- Authority to Prohibit Illicit Discharges: To the extent allowable under state or local law, the City must effectively prohibit, through an ordinance or other regulatory mechanism, non-storm water discharges into the system and implement appropriate enforcement procedures and actions. Section 3.0 of this document describes how the City's Non-Storm Water Discharge Ordinance is implemented.

- Identification of High Priority Areas for Inspections: Prior MS4 General Permits required that the City identify priority areas that need to be protected from illicit discharges. The 2022 MS4 General Permit does not have this requirement, but it does require that the City have "Procedures for prioritizing watersheds". The City of Saco conducts inspections more frequently than the 2022 MS4 General Permit requires, so they continue to conduct inspections in the priority watershed first. The City's high priority areas are described in Section 4.0 of this document, including a discussion of the basis for determining the high priority areas.

- Procedures to Locate Illicit Discharges (inspections): The City must develop procedures for locating illicit discharges by conducting dry weather outfall inspections and assessing catch basins for evidence of pollutants. The City also conducts opportunistic ditch inspections. The 2022 MS4 General Permit also requires monitoring be conducted on outfalls that are flowing during dry weather. Section 5.0 of this document describes the City's inspection Plan.

- Procedures to Investigate and Remove Illicit Discharges: The City must develop procedures for locating the source of the discharge and procedures for the removal of the source. Sections 6.0 and 7.0 of this document describe how the City investigates potential discharges to determine their sources and removes illicit discharges once the source is discovered.

- Procedures to Document Illicit Discharges: The City must develop procedures for documenting actions and evaluating impacts on the storm sewer system subsequent to the removal. Section 8.0 describes how the City tracks illicit discharges.

Section 9.0 of this document describes the record retention requirements of the MS4 General Permit and Section 10.0 of this document provide references.

2.0 STORMWATER INFRASTRUCTURE MAP

The City of Saco maintains storm water infrastructure information in Geographic Information System (GIS) format. Saco's storm water map was created from GPS data collection, historical site and utility infrastructure plans, review of subdivision plans, review of site plans, review of Maine Department of Transportation plans, review of Maine Turnpike Authority plans, and from public works knowledge of storm water infrastructure. Field verification has been used when needed to refine locations and infrastructure information.

The Public Works Department maintains the stormwater GIS layers in ArcGIS Online. The City's Public Works Director has overall responsibility for data integrity. The ArcGIS license (Basic) is maintained on a computer in the Public Works Department.

Limited information on the storm water infrastructure information is currently available to the general public through a GIS viewer on the City's website. The Public Works Department provides additional infrastructure information whenever requested verbally or in writing. The following subsections provide general information on the infrastructure naming protocols and procedures in use that keep the maps updated.

2.1 Infrastructure Naming Protocols

An inventory of the City's sanitary sewer and storm drain system was initially completed in 1993 as part of the City's Combined Sewer Overflow (CSO) Abatement Program. As part of that effort, each manhole and catch basin throughout the City's infrastructure (sewer and storm drain) system was assigned a unique numerical identification code. The basis of the numerical code was the type of structure, street location, and structure number. The numerical code is further defined below:

Structure Type Single Digit Code	Street Identification Number Three Digit Code	.	Appurtenance Number Three Digit Code
#	###	.	###

The structure type consists of the following numerical codes:

Numerical Code	Structure Type
1	Sanitary Sewer Manhole
2	Storm Drain Manhole
3	Catch Basin

The street identification number is a three-digit numerical listing of the streets throughout the City. This listing is expanded each time a new road is created within the City. The first roadway was identified by the number 001 with increasing sequential numbers for other roadways (i.e. 002, 003, etc.). A copy of the current street identification code index is contained in Attachment B.

The appurtenance number is a three-digit code which identifies the number of appurtenance structure along a particular roadway or cross-country route. The first structure along any particular roadway or route was identified by the number 101 with increasing sequential numbers for additional structures (i.e. 101, 103, etc.).

For example, a structure with the Identification Code Number of 1127.102 is identified as a sanitary sewer manhole (Structure Type Code 1), located on Front Street (Street Identification Code 127) and identified as the second manhole with the 102 Code Number.

MS4 Outfalls (ditch and pipes) are assigned unique identifier number and maintained within the GIS geodatabase. Outfalls are inspected during the dry weather outfall inspections.

2.2 Procedures to Update Map of Infrastructure

The following describes the scenarios under which changes to the storm drain system are typically made, and how the map subsequently gets updated:

1. Generally, the Public Works Department constructs minor changes to the system based on immediate or planned need without formal design drawings. When the Public Works Department makes changes to the storm drain infrastructure, the online GIS layer is updated to reflect these changes using the Public Works Department IPAD or survey data collector device, as an interface to the online GIS geodatabase. These changes can be made within weeks of the physical changes on the ground depending on the workload of the employees that are trained in the IPAD or survey data collector.

2. More significant changes are typically constructed after preparation of formal design drawings, whereupon either the Public Works Department or a private contractor constructs the changes. Where a private contractor constructs the changes, the City requires a formal as-built plan be prepared and submitted to the City Planning Department and Public Works Department in electronic format, so that the infrastructure can be imported into the GIS.

Updates to the GIS map is either performed by the City's GIS technician or by a third-party consultant. These updates are made throughout the year. Paper maps are printed annually and more frequently if/when deemed necessary by the Public Works Director.

3.0 AUTHORITY TO PROHIBIT ILLICIT DISCHARGES

The City of Saco authority to prohibit illicit discharges became effective January 5, 2005, when the City adopted the Non-Stormwater Discharge Ordinance as part of Chapter 176 Sewers (Part IV). Though the MS4 General Permit is only applicable to the Urbanized Area of City, the City implements the Non-Stormwater Discharge Ordinance in all areas of the City.

The Ordinance allows the following non-storm water discharges to the storm drain system as long as they do not cause or contribute to violations of water quality standards:

1. Landscape irrigation; diverted stream flows; rising groundwaters; uncontaminated groundwater infiltration [as defined at 40 CFR 35.2005(20)]; uncontaminated pumped groundwater; uncontaminated flows from foundation drains; air conditioning and compressor condensate; irrigation water; flows from uncontaminated springs; uncontaminated water from crawl space pumps; uncontaminated flows from footing drains; lawn watering runoff; flows from riparian habitats and wetlands; residual street wash water (where spills/leaks of toxic or hazardous materials have not occurred, unless all spilled material has been removed and detergents are not used); hydrant flushing and fire-fighting activity runoff; water line flushing and discharges from potable water sources; and individual residential car washing;

2. Discharges specified in writing by the Director of Public Works or his/her designee as being necessary to protect public health and safety; and

3. Dye testing, with verbal notification to the Director of Public Works or his/her designee prior to the time of the test.

The City's Public Works Director and Code Enforcement Officer administer the ordinance and the Code Enforcement Office has the authority to issue a written notice of violation, if needed.

In addition, discharges of hydrant and water line flushing are required to be dechlorinated if they are to be discharged to a portion of the MS4 system which discharges to a small stream. The hydrants and water lines are owned and operated by the Maine Water Company, a private utility company that provides service to the Saco and Biddeford area. Flushing of the water distribution system is determined by the Maine Water Company's Engineering Department. Maine Water Company provided the following policy information on their hydrant flushing efforts:

> *Maine Water Company attempts to flush all hydrants on an annual basis. The flushing flow rate and duration depends on many things; however, the duration is typically less than 15 minutes. Flush water is initially conveyed through a diffuser to pavement or hardened drainage swales to prevent erosion. Once erosion velocities have been managed, the water generally travels overland or to catch basins like rain events. Hydrants located within 200 feet of receiving waters have been identified as being sensitive discharge areas; however, the flushing period is rarely long enough to reach the one hour threshold for acute toxicity.*

The Maine Water Company flushes the system routinely and provides an annual report to the

Public Works Department describing water dechlorination methods in use and testing results for any flushing conducted.

4.0 IDENTIFICATION OF PRIORITY AREAS

Prior MS4 General Permits required that the City identify priority areas that need to be protected from illicit discharges. The 2022 MS4 General Permit does not have this requirement; however, the City may use this prioritization for illicit discharge investigations in the event there are insufficient resources to address all potential illicit discharges simultaneously.

To identify areas within the City that are priority for illicit discharge inspections, the City considered impaired waters (i.e., waters that are not meeting their designated classification) as priority.

The City identified Goosefare Brook as the priority watershed for the following reasons:

1. It has aquatic life impairments,
2. It is designated as an Urban Impaired Stream, and
3. It has a high potential to be restored due to the preparation of a TMDL document and a Watershed Based Management Plan which is being implemented. The TMDL document identified that illicit discharges may be contributing to impairment.

5.0 PROCEDURES TO LOCATE POTENTIAL ILLICIT DISCHARGES

The City of Saco uses the following methods to locate illicit discharges:

1. Observations during camera inspections
2. Observations during catch basin cleaning
3. Citizen reports of illicit discharge issues
4. Dry weather outfall inspections
5. Outfall sampling and analysis (for flowing outfalls and to identify potential illicit discharge sources)
6. Opportunistic ditch inspections
7. Other opportunistic Inspections

Inspections are completed on the forms contained in Attachment C. The City is working towards data collection with other electronic data collection devices that would be linked to the GIS geodatabase; however, at this time, that data collection process has not been implemented.

5.1 Catch Basin Cleaning Inspections

A public works employee or third-party contractor attempts to inspect all the City's accessible catch basins once every two years to assess which catch basins need to be cleaned. During this

inspection process, the employee is also inspecting to assess if any oil, litter, sewage, or other evidence of illicit discharges is present, including the presence of pet waste (specifically, improper disposal of pet waste bags within the catch basins). If the employee observes any evidence of illicit discharges, the evidence is documented in the inspection report and provided to the Public Works Director for further action.

5.2 Citizen Reports of Illicit Discharges

Citizen reports of illicit discharge issues received by phone are routed to the Public Works Department to be investigated. Most phone calls are received at the Public Works Department, but occasionally the public will call or email the Planner or Code Enforcement Officer, who directs the caller to Public Works. In addition, the City website contains a "Report a Spill" page that is available to the general public to report spills. An email notification to the City Engineer is created that initiates follow-up inspection and determination of any additional remedial cleanup, etc. The follow-up response is prioritized based upon the information reported, but follow-up occurs within one business day.

5.3 Dry Weather Outfall Inspections

During previous permit cycles, dry weather outfall inspections have been conducted in the priority watershed identified in Section 4.0 (Goosefare Brook), and then expanded to other areas of the City.

Dry weather is defined in the permit as a time when:

- There has been no snow or ice melt for 72 hours or
- There has been no precipitation greater than ¼ inch for 72 hours

If an outfall is inspected within the 72 hour window for rain or melting, and it is not flowing, the inspection can be considered a dry weather inspection.

The City inspects all piped and ditch outfalls once per permit cycle, and more frequently, if time and resources allow in accordance with the following:

- Inspections will be performed during periods of dry weather whenever possible.
- Inspections will be performed where field inspections may be performed in a safe and efficient manner;
- Inspections may be performed throughout the year; however, inspections are generally performed during periods of no or minimal snow cover and prior to the growth of vegetation (or after leaves have fallen) such that outfalls may be easily spotted and inspected;
- Observations will include the following at a minimum: observations of sheen, discoloration, foaming, evidence of sanitary sewage, excessive algal growth and similar visual indicators, and detection of odor
- Photographs may be taken at the time of inspection for either maintenance or illicit discharge documentation.
- MS4 outfalls will be inspected where the City has safe and legal access to the structure to be inspected.

- When maintenance or potential illicit discharge issues are identified, the Public Works Director will be informed so that he may prioritize the work with other required work for the City.

Inspection documentation is done using the form contained in Attachment C. The results of the inspections are pulled into an Excel spreadsheet. The City is currently working to update the inspection documentation process to incorporate the use of an IPAD or other mobile device for data collection and downloading of inspection data directly into the GIS geodatabase.

5.4 Outfall Sampling and Analysis

Outfall sampling and analysis is required under the 2022 MS4 General permit when an outfall is observed to be flowing during dry weather conditions whether or not it has exhibited evidence of an illicit discharge.

Outfalls and/or other structures may also be sampled if other evidence of illicit discharges is observed during inspection. A public works employee or a third-party contractor will be used to collect a sample for field screening depending on the conditions encountered.

A Quality Assurance Project Plan (QAPP) has been developed to provide sampling personnel the information that will assist them in collecting samples and using field equipment, test kits and obtaining analyses. The QAPP describes the sampling procedures that should be used as well as the analytical methods and field equipment that are appropriate for use in investigating potential illicit discharges and flowing outfalls. The QAPP also provides guidance on interpretation of the results obtained so that investigators can make informed decisions about whether to continue investigating a potential source, or whether the results indicate a flowing outfall might be from a natural source. The QAPP is contained in Attachment D to this IDDE Plan.

Wet weather sampling is not required by the MS4 General Permit at this time, but the Public Works Department may choose to conduct wet weather sampling if they suspect a discharge occurs only during wet weather (such as may be the case for failed septic systems).

5.5 Ditch Inspections

The 2022 MS4 General Permit does not require ditch inspections be completed. Moving forward, the City will generally inspect ditches for potential illicit discharges whenever maintenance work on ditches is being completed. The City follows these guidelines in conducting inspections:

- Field inspection will be performed during periods of dry weather when possible.
- Inspections will be performed during periods low flow where field inspections may be performed in a safe and efficient manner;
- Inspections will be performed during periods of no snow cover and prior to the growth of ditch vegetation such that potential outfalls may be easily spotted;

- Evidence of potential illicit discharges will be documented in the IDDE Tracking Sheet.
- If maintenance issues are identified, the Public Works Director will be informed so that he may prioritize the work with other required work for the City.

5.6 Septic System Inspections

As required by the 2013-2018 MS4 General Permit, by June 30, 2016, the City developed a list of aging (i.e., greater than 20 years old) septic systems in its priority watershed (Goosefare Brook) that might discharge to the MS4 if they were to fail. There are 50 occupied parcels within the Goosefare Brook Watershed that had onsite wastewater disposal systems that were more than 20 years of age. Of the 50 sites, 31 were determined to have the potential to discharge to the MS4 if the systems failed. The remaining 19 sites were located downgradient of the MS4 and could not enter the MS4 if the systems failed.

By June 30, 2017, the City performed a drive by evaluation for all parcels needing inspection as identified during the PY 3 mapping activity. None of the systems were observed to have evidence of leakage or failure.

Because this effort did not yield useful information on septic system failures, it is no longer being conducted.

5.7 Cooperation with other MS4s

Because the Saco MS4 infrastructure has interconnections with other MS4s, it may be necessary to conduct cooperative investigations with other MS4s or to inform them of issues associated with the Saco infrastructure. The other MS4 contacts with which Saco has interconnections are:

City of Biddeford – Thomas Milligan, P.E. Tom.Milligan@Biddefordmaine.org
Maine Turnpike Authority – Sean Donohue sdonohue@maineturnpike.com
Maine DOT – Kerem Gungor, P.E. kerem.gungor@maine.gov
Pan Am Rail – Shawn Higgins, P.E. shiggins@panam.com
Town of Scarborough – Angela Blanchette, P.E. ablanchette@scarboroughmaine.org
Town of Old Orchard Beach – Joseph Cooper jcooper@oobmaine.com

Documentation of correspondence with interconnected MS4s is contained in Attachment D to this IDDE Plan.

6.0 PROCEDURES TO INVESTIGATE ILLICIT DISCHARGES

Investigations of illicit discharge issues are conducted by the Public Works Department. The City relies on visual observations of the location where the illicit discharge was reported as a first step in identifying the source of the illicit discharge. If the evidence of the illicit discharge is still present in the initial structure or location where it was reported, the City uses their knowledge of the infrastructure routing to systematically inspect other structures upstream of the initial

location until either the evidence of the illicit discharge is no longer present, or until they locate a potential source of the illicit discharge.

For example, if evidence of gray water was observed during catch basin cleaning of a separated storm drain system, the Public Works Department would review as-built drawings, and the available GIS, and would inspect drain manholes and/or catch basins upstream of the initial observation until they could isolate one or more locations from which the gray water was likely emanating.

In the event visual observations of the structures cannot identify the source of an illicit discharge, the Public Works Director may employ televising, systematic dye testing, or smoke testing to identify the source. The Public Works Director could conduct dye testing and televising but would need to hire a third-party contractor for smoke testing. Sampling and analysis may also be conducted as described in subsection 5.4.

If no source can be located, the area may be re-inspected to assess if the illicit discharge was a one-time occurrence, or is a repeating occurrence, whereupon additional investigations may be conducted.

7.0 PROCEDURES TO REMOVE ILLICIT DISCHARGES

Once the potential source of the illicit discharge is identified, the Public Works Director notifies the Code Enforcement Officer; and identifies and contacts the responsible party in order to initiate removal or discontinuation of the illicit discharge.

If the illicit discharge is caused by a private entity, the Code Enforcement Officer may invoke the authority granted him/her under the Non-Storm Water Discharge Ordinance (See section 3.0 of this IDDE Plan). The Public Works Director typically provides initial verbal or email notice to any responsible party, then the Code Enforcement Officer follows up with a Notice of Violation. The Notice of Violation specifies the illicit discharge be removed within 60 days of its source identification but allows that if removal within 60 days is not possible, the responsible party must work with the Public Works Department to establish a schedule to remove the illicit discharge as expeditiously as possible.

If the illicit discharge is caused by the City, the Public Works Director would contact the department most responsible and work with them to remove or discontinue the illicit discharge within 60 calendar days of identification of the source or would develop a schedule to expedite elimination.

8.0 PROCEDURES TO DOCUMENT ILLICIT DISCHARGES

The City will document the progress of investigating and removing illicit discharges using an IDDE Tracking Sheet. Each year, the City is required to complete a MS4 Annual Compliance Report summarizing the activities completed under the MS4 Plan. The Public Works Director will print or retain an electronic copy of the IDDE Tracking Sheet for the year as back-up documentation of investigative and removal work completed.

9.0 RECORDS RETENTION

The Public Works Director will retain paper or electronic files of inspections and investigations including laboratory reports, for a minimum of three years after expiration of the MS4 General Permit Term. If the General Permit expires on June 30, 2021, the files may be discarded July 1, 2024.

10.0 REFERENCES

CWP and Robert Pitt 2004. *Illicit Discharge Detection and Elimination Manual* – A Guidance Manual for Plan Development and Technical Assessments. October 2004 Available at: http://cfpub1.epa.gov/npdes/stormwater/idde.cfm

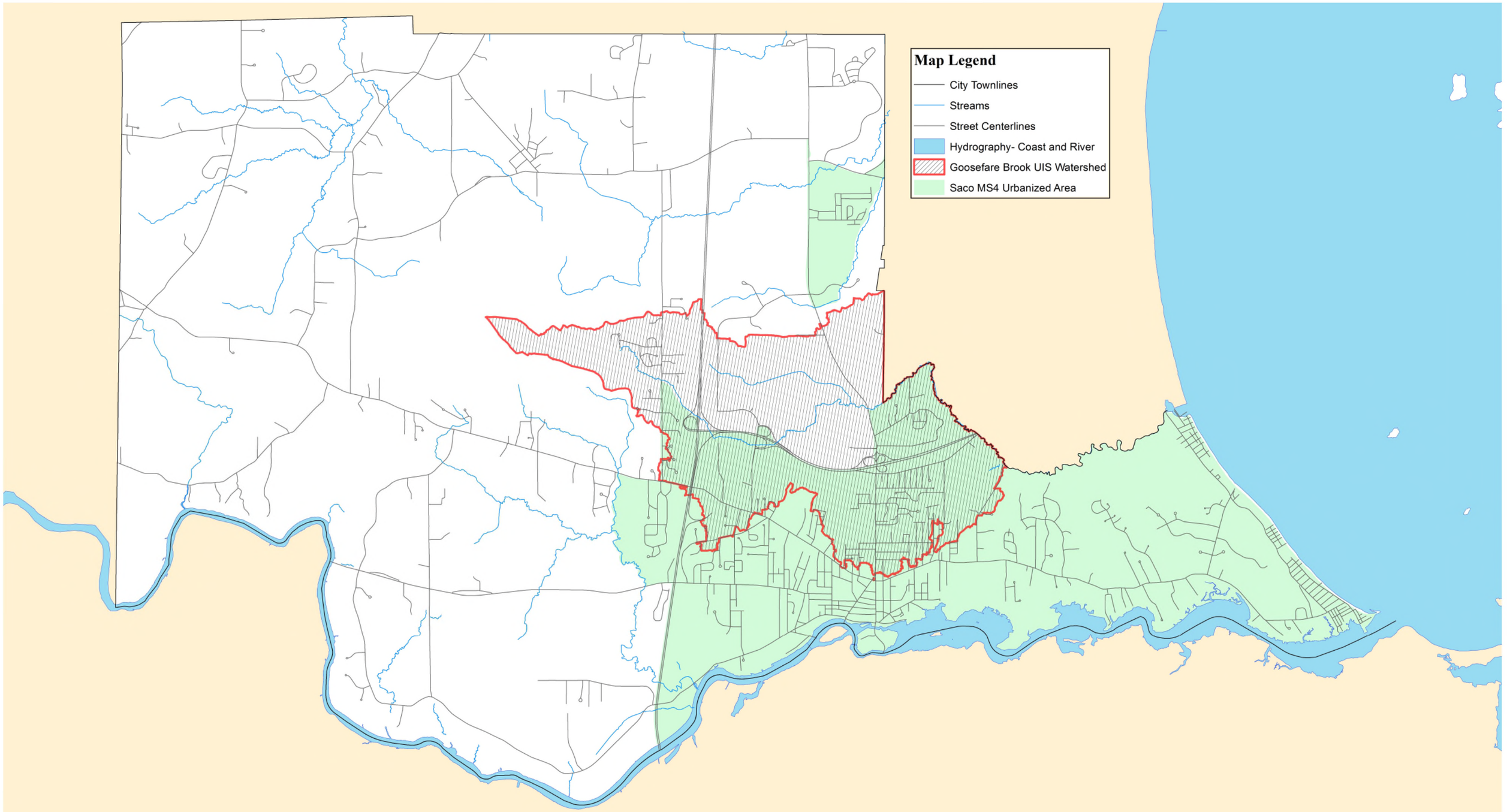
Aquarion Engineering Services and Casco Bay Estuary Partnership 2004. *Guidelines and Standard Operating Procedures for Stormwater Phase II Communities in Maine.* Available at: http://www.thinkbluemaine.org/docs/index.htm

CWP and Robert Pitt 2011 Illicit Discharge Detection and Tracking Guide. Available at: http://www.cwp.org/2013-04-05-16-15-03/idde

USEPA New England Bacterial Source Tracking Protocol 2012. Provided by USEPA to Integrated Environmental Engineering. Available at: https://www3.epa.gov/region1/npdes/stormwater/ma/2014AppendixI.pdf

ATTACHMENT A

SACO MS4 URBANIZED AREA MAP



CITY OF Saco
friendly by nature

Saco Public Works
15 Phillips Spring Road
Saco ME, 04072

Saco MS4 Urbanized Area Map

0 0.75 1.5 3 Miles

N

The data contained within the Saco GIS is provided for the use of planning and review purposes only. GIS data is not intended for engineering design. Locations are provided within acceptable standard margin of error.

Map Printed : February 2021

ATTACHMENT B

CURRENT STREET IDENTIFICATION CODE INDEX

GIS Street ID List

FACILITYID	FULLSTREET
001	Abby Ln
002	Academy Av
003	Ada Av
004	Allison Dr
005	Anderson Ln
006	Angers Way
007	Applewood Dr
008	
009	Ash Swamp Rd
010	Ashwood Dr
011	Atlantic Wy
012	Bartlett St
013	Bay Av
014	Bay View Rd
015	Bay View Terr
016	Bayberry Ln
017	Beach Av
018	Beach St
019	Beacon Av
020	
021	
022	Berry Ln
023	Berry Rd
024	Greta lane
025	
026	Birch St
027	Birchcroff Ln
028	Blackberry Ln
029	
030	Blueberry Av
031	Bobby Av
032	Bonython Av
033	
034	Boom Rd
035	Boothby Ln
036	Boothby Rd
037	Bradley St
038	Brenda Cir
039	Brentwood Cir
040	
041	Burnham Rd
042	Burrow St
043	Buxton Rd
044	C Street

FACILITYID	FULLSTREET
045	Calef St
046	Camp Ellis Av
047	Cantara Av
048	Canterbury Condo
049	Carter Farm Rd
050	Caryn Dr
051	Cascade Rd
052	Cedar street
053	Celia Drive
054	Central St
055	Charles Rd
056	Charles St
057	Chases Ln
058	Chelsea Cir
059	Cherryfield Av
060	Cristian Drive
061	Christopher Terr
062	Cindy lane
063	Circle Drive
064	City Retreat Drive
065	City View Drive
066	Clark St
067	Clayton Dr
068	Cleveland St
069	Cloverdale Ln
070	Colonial Dr
071	Common St
072	
073	Coolidge Av
074	
075	Cottage Av
076	Cottage Street
077	Country Village Rd
078	Country Woods Rd
079	Cove Av
080	Cross St
081	Cumberland Av
082	Curtis Av
083	Cutts Av
084	D street
085	Day St
086	
087	Delhi ave
088	Dennett

Note:This GIS street index list is for general information only. Exact street index may vary from this list

GIS Street ID List

FACILITYID	FULLSTREET
089	Dixie Av
090	Dode Dr
091	Douglas Av
092	Dune Av
093	Dyer St
094	
095	Eagle Av
096	Eastern Av
097	Edgewater Ln
098	Elm St
099	Elmwood Dr
100	Emerson Av
101	Eureka Ave
102	Eutaw ave
103	
104	Fairfield St
105	Fairhaven Av
106	Fawn Dr
107	Fenderson Rd
108	Ferry Ln
109	Ferry Park Av
110	Ferry Rd
111	Fides Dr
112	Fieldcrest Dr
113	Fire Lane 1
114	Hickory Hollow
115	Fire Lane 3
116	Fire Lane 4
117	Fireside Ln
118	Flag Pond Rd
119	Foley Av
120	Fore St
121	Forest St
122	Deering Av
123	Foss Rd
124	Fox Hill Ln
125	Franklin St
126	Free St
127	Front St
128	G street
129	Gallant Dr
130	Garfield Court
131	Garfield St
132	Garnet Ave
133	George Ave

FACILITYID	FULLSTREET
134	George Street
135	Glenhaven Cir
136	Glenwood Av
137	Gooch St
138	Goodale Av
139	Goosefare Ln
140	
141	
142	Granite street
143	Grant Rd
144	Grant St
145	Gray Av
146	Gray St
147	Green ave
148	Green St
149	Grove Cir
150	Gull Ave
151	
152	Hall Av
153	Harriman Farm Rd
154	Harrison Av
155	Hearn Rd
156	Heath Rd
157	Henry St
158	High Point Dr
159	High St
160	Hill St
161	Hillview Av
162	Hillview Av Ext
163	Hobson Ln
164	Hodgeman Av
165	Holmes Rd
166	Horton Av
167	Hubbard St
168	Hutchins St
169	Industrial Park Rd
170	I - 95
171	Irving St
172	Island View Av
173	Island View St
174	J street
175	James St
176	Jeffrey Av
177	Jenkins Rd
178	Jordan St

Note:This GIS street index list is for general information only. Exact street index may vary from this list

GIS Street ID List

FACILITYID	FULLSTREET
179	Old Buxton Rd
180	Juniper Ln
181	Kimberly Dr
182	King Av
183	King St
184	King Street ave
185	Labonte Av East
186	Labonte Av West
187	Lafayette St
188	Laliberte Cir
189	Lamport Rd
190	Laurel St
191	Lawn Av
192	Lebanon Rd
193	Ledgewood Terr
194	Lehner Rd
195	Leland Street
196	Lina Av
197	Lewis Av
198	Lewis Ln
199	Liberty Street
200	Lillian Av
201	Lincoln Rd
202	Lincoln St
203	Locke St
204	Long Pond Street
205	Long Reach street
206	Lord Rd
207	Louden Rd
208	Louise St
209	Lower Beach Rd
210	Lucille St
211	Lund Rd
212	Lyman Av
213	Mabel Av
214	Main Av
215	Main St
216	Maple Dr
217	Maple St
218	Margaret Cir
219	Marguerite Rd
220	Market St
221	Marshwood Cir
222	Mary Av
223	Mast Hill Rd

FACILITYID	FULLSTREET
224	May St
225	McKenney Rd
226	Meadow Av
227	Meadow Ln
228	Mechanic St
229	Meserve Cir
230	Michelle Wy
231	Middle St
232	Milliken Mills Rd
233	Miranda Cir
234	Moody St
235	Morris Av
236	Nelsen Way
237	New County Rd
238	Nikki Circle
239	Norman Av
240	Norman St
241	North Av
242	North St
243	Northwood Ln
244	Nott St
245	Nottingham Dr
246	Nutting Street
247	Nye St
248	
249	Oak St
250	Oakland St
251	Oakwood Dr
252	Ocean Park Rd
253	Ocean View Cir
254	Oceanside Dr
255	Old Cascade Road
256	
257	Old New County Rd
258	Old Orchard Rd
259	Olive St
260	Outlook Av
261	Palmer Av
262	Park Av
263	Park Rd
264	Park St
265	Parker Cir
266	Patriot Dr
267	Paul Av
268	Paul St

Note:This GIS street index list is for general information only. Exact street index may vary from this list

GIS Street ID List

FACILITYID	FULLSTREET
269	Peabody Ln
270	Pearl Av
271	Pearl Street
272	Pepperell St
273	Pepperell Sq
274	Perkins Street
275	Pheasant Rd
276	Pilgrim Ln
277	Pine Ave
278	Pine Crest Ave
279	Pine Haven St
280	Pine Ridge Rd
281	Pine St
282	Piney Woods Rd
283	Pleasant St
284	Pleasant View Dr
285	Plymouth Dr
286	Pond Av
287	Pond St
288	Portland Rd
289	Portland Street
290	Prior Cir
291	Promenade Av
292	Prospect St
293	Ranwall Av
294	Rice Street
295	Ricker Rd
296	River Ln
297	Rivers Edge Ln
298	Riverside Av
299	Robin St
300	Rocky Hill Rd
301	Roebuck Av
302	Rosewood Dr
303	Ross Rd
304	Rotary Dr
305	Rumery St
306	Ryan Rd
307	Saltaire Av
308	Santa Anita Ave
309	Sawyer St
310	Scamman St
311	School St
312	Scrimshaw Ln
313	Seafields Ln

FACILITYID	FULLSTREET
314	
315	Seaside Av
316	Shadagee Rd
317	
318	Sheila Cir
319	Shepard Av
320	Shirmel Cir
321	Shore Av
322	Simpson Rd
323	Skyline Dr
324	Smith Ln
325	Smutty Ln
326	Sokokis Cir
327	South St
328	Spring Ave
329	Spring Rd
330	Spring St
331	Springhill Ave
332	Spruce St
333	Stacy St
334	Stephens Knoll Road
335	Stockman Av
336	Stone St
337	Storer St
338	Stuart St
339	Sullivan Ln
340	Summer St
341	Sunrise Av
342	Sunset Av
343	Surf St
344	Susan Lane
345	Sylvan Av
346	Tall Pines Dr
347	Tall Pines Ln
348	Tapley Rd
349	Birch Hill Ln
350	Tasker St
351	Temple St
352	Thacher Street
353	Therrien Av
354	Thornton Av
355	Thunder Rd
356	Tiffany Ln
357	Timber Oaks Ln
358	Truman Av

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GIS Street ID List

FACILITYID	FULLSTREET
359	Union St
360	Ura St
361	Valerie Circle
362	Vernon St
363	Victor Av
364	Village Green Dr
365	Vines Rd
366	Virginia Av
367	Vivian St
368	Wakefield Av
369	Washington Av
370	Water St
371	Waterloo Ave
372	Watson Mill Rd
373	Wedgewood Dr
374	Wendy Wy
375	West Av
376	Westward Ln
377	Weymouth St
378	Wharf St
379	Whitten Dr
380	Wildwood Dr
381	Willow Av
382	Willow Haven St
383	Willow Lane
384	Wilson Drive
385	Winding Brook Ln
386	Windy Point Ln
387	Winter St
388	Winter St Ext
389	Wood Av
390	Woodcock Av
391	Woodland Av
392	Woodman Av
393	Woodside Av
394	Glenhaven Cir East
395	Glenhaven Cir West
396	Waycott Wy
397	Boynton Brook Rd
398	William Av
399	Landing Rd
400	Courtlynn Cir
401	Pine Tree Av
402	Lighthouse Ln
403	Cartier Cir

FACILITYID	FULLSTREET
404	Cori Dr
405	Dawn Marie Dr
406	
407	
408	
409	Carson Point Dr
410	
411	
412	
413	Scamman St Ext
414	Stockman Av Ext
415	Bruno Cir
416	Isabella Ln
417	Sofia Rd
418	Aspen Dr
419	Hemlock Dr
420	Farview Cir
421	Joy Valley Rd
422	Richards Wy
423	Spring Hill Rd
424	Willey Rd
425	Blake Av
426	Bluewave Ln
427	Buckthorn Cir
428	Chantelle Way
429	Jasmine Dr
430	Morgan Cir
431	Foley Ave Ext
432	Mill Ln
433	Sweet St
434	Sean Pl
435	Ocean Greens Dr
436	Autumn Dr
437	Evergreen Dr
438	Stone Pony Cir
439	Mill Brook Rd
440	Stonewall Ln
441	Ash St
442	
443	Blaine St
444	Forskol St
445	
446	
447	Ferry Beach State Park Rd
448	Golden Ln

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GIS Street ID List

FACILITYID	FULLSTREET
449	Graceland Acres Ln
450	Windemere Ln
451	McKinnon's Wy
452	Strawberry Ln
453	Zachary Ln
454	Wildberry Ln
455	Wild Briar Dr
456	Primrose Ln
457	Big Ledge Dr
458	Crystal Ln
459	Easy St
460	Osprey Av
461	Belvoire St
462	Billow Av
463	Boom Ln
464	Harbor Dr
465	Breakwater Wy
466	Brook Av
467	Carriage Wy
468	Shannon Ln
469	Horseshoe Dr
470	Stables Ln
471	Bentley Dr
472	Wildwood Drive Ext
473	
474	Balsam Ln
475	Fire Lane 18
476	Fire Lane 13
477	Ginger Ln
478	Pine Ledge Terr
479	Funtown Parkway
480	Old Flag Pond Rd
481	Cottonwood Dr
482	Country Club Dr
483	Schooner Wy
484	Mainsail Ln
485	Spinnaker Ln
486	Eastview Pkwy
487	Egret Cove
488	
489	
490	Garfield Ct
491	Grace Ln
492	Grandfield Ct
493	Knoll Dr

FACILITYID	FULLSTREET
494	Oak Haven Ln
495	Sandybrook Ln
496	Steeple Dr
497	Stonegate Dr
498	Weston Train Av
499	
500	Commonwealth Av
501	E St
502	F St
503	Cottage St
504	H St
505	Jacqueline Dr
506	White Tail Wy
507	Heather Ln
508	Cranberry Ln
509	Trailside Cir
510	Caroline way
511	
512	Equestrian Wy
513	Bridle Wy
514	Camire Dr
515	Harvest Cir
516	Ledgewood North
517	Seal Rock Springs Dr
518	Sherman Wy
519	Delputt Ln
520	Homestead Ln
521	Letarte Dr
522	Waterfall Dr
523	
524	
525	
526	
527	Lombard ln
528	
529	Phillips Spring Rd
530	Driftwood
531	Sailboat Ln
532	
533	
534	
535	Maneta Dr
536	Roaring Rock Rd
537	Quarry Ln
538	Creeks Edge Dr

Note:This GIS street index list is for general information only. Exact street index may vary from this list

GIS Street ID List

FACILITYID	FULLSTREET
539	Academy Place
540	Anthony Est
541	Apple Tree Ln
542	Arnold Way
543	Aroostook Rd
544	Atkinson Ln
545	Barbaras Ln
546	Baxter Ln
547	Big Buck Ln
548	Blosom Ln
549	Blunt Ln
550	Boyds Way
551	Butternut Ln
552	Capozzi Ln
553	Chandler Pt
554	Clarks Hill Ln
555	Cocktail Cove
556	Coppinger Ct
557	Cresent Ln
558	Cribble Cv
559	Davis Dr
560	Doddy Barn Rd
561	Elijah James Dr
562	Field Way
563	Frances Libby Way
564	Graymalkin Ln
565	Hadiaris Ln
566	Hickory Ln
567	I - 195
568	Jacks Way
569	Jennies Way
570	Joanna Dr
571	John Lane Way
572	Justines Wy
573	Kelso Wy
574	Leighton Way
575	Lilly Ln
576	Lindquist Ln
577	Lodge Dr
578	Mountain View Rd
579	Nonesuch Rd
580	Overlook Dr
581	Pendleton Dr
582	Penny Ln
583	Perkins Way

FACILITYID	FULLSTREET
584	Rachel Ln
585	Raynan Ln
586	Sancho Dr
587	Seagrass Ln
588	Settlers Way
589	Shamrock Dr
590	Shari Ln
591	Skobe Ln
592	Sod Farm Lane
593	Sugar Woods Way
594	Summit Way
595	Taylor Berry Ln
596	Treeline Ln
597	Turnberry Ln
598	Victory Lane
599	Whistling Pines Ln
600	Wilson Ln
601	Working Dog Dr
602	Wyatt Dr

Note:This GIS street index list is for general information only. Exact street index may vary from this list

ATTACHMENT C

INSPECTION FORMS AND GIS DATA COLLECTION FIELDS

DRY WEATHER PIPED OUTFALL INSPECTION FORM

General Information			
Outfall I.D. and Location:			Date of Inspection:
Outlet Pipe Size and Material:			Inspected by:
Precipitation within the past 3 days?	Yes	No	Weather:

Outfall Observations		
a.) Yard Waste Present?	Yes	No
b.) Trash / Litter Present?	Yes	No
c.) Foam / Soap Present?	Yes	No
d.) Floating Green Scum Present?	Yes	No
e.) Oil Film Present?	Yes	No
f.) Vegetative Mat Present?	Yes	No
g.) Sewage Solids Present?	Yes	No
h.) Improper Pet Waste Disposal Present?	Yes	No
i.) Odor Present?	Yes	No
j.) Standing Water Present?	Yes	No

Outfall Conditions		
a.) Pipe Flow?	Yes	No
Trickle	Yes	No
Steady	Yes	No
1/4 pipe flow or more	Yes	No
b.) Water Clarity (if present)		
Clear	Yes	No
Cloudy	Yes	No
Opaque	Yes	No
c.) Water Color (if present)		
Clear	Yes	No
Orange	Yes	No
Brown	Yes	No
Black	Yes	No
Green	Yes	No
d.) Outlet Pipe Sediment Condition		
Open	Yes	No
1/4 Plugged	Yes	No
1/2 Plugged	Yes	No
3/4 Plugged	Yes	No
Plugged	Yes	No
e.) Outlet Condition		
Obstructed	Yes	No
Stable	Yes	No
Any Other Comments / Actions Taken: Attach photo for IDDE documentation, if applicable.		

Follow-Up Required	Yes	No

DRY WEATHER DITCH OUTFALL INSPECTION FORM

General Information	
Site / Road Name:	Date of Inspection:
Address / Location Description:	Inspected by:
	Weather:

Ditch Observations		
a.) Yard Waste Present?	Yes	No
b.) Trash / Litter Present?	Yes	No
c.) Foam / Soap Present?	Yes	No
d.) Floating Green Scum Present?	Yes	No
e.) Oil Film Present?	Yes	No
f.) Vegetative Mat Present?	Yes	No
g.) Sewage Solids Present?	Yes	No
h.) Improper Pet Waste Disposal Present?	Yes	No
i.) Odor Present?	Yes	No
j.) Standing Water Present?	Yes	No

Ditch Conditions		
a.) Water Clarity		
Clear	Yes	No
Cloudy	Yes	No
Opaque	Yes	No
N/A	Yes	No
b.) Water Color		
Clear	Yes	No
Orange	Yes	No
Brown	Yes	No
Black	Yes	No
Green	Yes	No
N/A	Yes	No
c.) Outlet Condition		
Free of Obstructions	Yes	No
Obstructed	Yes	No
Stable	Yes	No
Unstable	Yes	No
Any Other Comments: Attach photo for IDDE documentation, if applicable.		

Follow-Up Required	Yes	No

CATCH BASIN INSPECTION FORM

General Information

Date of Inspection:	Inspected by:	Weather:

Catch Basin Inspection Observations

Catch Basin I.D.	Sump Depth (inches)	Sediment Depth (inches)	Pollution Sources Observed					Follow-Up Required
			Yard Waste	Foam / Soap	Oil Film	Sewage Solids	Pet Waste	

ATTACHMENT D

QUALITY ASSURANCE PROJECT PLAN (QAPP)

Stormwater Monitoring Quality Assurance Project Plan Template

1.0 Background and Scope

In Maine, there are 30 municipalities (permittees) regulated by the 2022 Maine General Permit for Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4 General Permit). The MS4 General Permit requires that the municipalities conduct dry weather inspections on 100% of their outfalls during the 5-year term of the MS4 General Permit.

Under most conditions, if an outfall is observed to have dry weather flow, monitoring must be conducted to assess whether there is an illicit discharge associated with the flow. (Part IV(C)(3)(e)(vi) of the MS4 General Permit contains a few conditions under which flowing outfalls do not need to be monitored.)

The following monitoring needs to be conducted whether or not the outfall's dry weather flow exhibits evidence of an illicit discharge:

- E. coli, enterococci, total fecal coliform or human bacteroides;
- Ammonia, total residual chlorine, temperature, and conductivity; and
- Optical enhancers or surfactants.

The objective of the monitoring is to collect data that can be used to determine if there is an illicit discharge present in the flow, or if the flow is from uncontaminated groundwater, water from a natural resource, or an allowable non-stormwater discharge.

> Illicit Discharge means any discharge to a regulated MS4 system that is not composed entirely of stormwater other than:
> - discharges authorized pursuant to another permit issued pursuant to 38 M.R.S. §413;
> - uncontaminated groundwater;
> - water from a natural resource [such as a wetland]; or
> - other Allowable Non-Stormwater Discharges identified in Part IV(C)(3)(h) of the MS4 General Permit.

The purpose of this Quality Assurance Project Plan (QAPP) is to provide sampling personnel information that will assist them in collecting samples and analyzing the samples using field equipment/test kit(s) and/or laboratories in a manner that ensures sufficient accuracy and precision so that sampling personnel and regulators can be confident there is or is not an illicit discharge present in dry weather flow from an outfall. This QAPP provides information on several field equipment/test kit(s) and analytical methods available to permittees that can be used to comply with the requirements for Dry Weather Outfall Monitoring.

Each municipality is required by the MS4 General Permit to prepare a written Illicit Discharge Detection and Elimination (IDDE) Plan. This QAPP has been developed to be an attachment to a municipality's IDDE Plan, and therefore does not contain all of the IDDE requirements associated with the MS4 General Permit. For example, some communities are conducting outfall inspections more frequently than once every 5 years. The IDDE Plan should be consulted to determine the municipality's frequency of inspections. In addition, if there is evidence of an illicit discharge, the municipality must conduct additional investigations to identify the source and work with responsible parties to remove the source. The IDDE Plan describes the processes and procedures specific to a municipality for the subsequent investigations.

2.0 Sampling Procedures

Samples are required to be collected at outfalls that exhibit dry weather flow (defined as flow after there has been no precipitation greater than ¼ inch for 72 hours, and no melt water from snow or ice).

Personnel should be prepared to collect samples during any outfall inspection, because dry weather flow is sometimes intermittent, and if personnel need to return to the site later in the same day, or several days later, the dry weather flow may no longer be present.
Table 1 contains a list of equipment that should be prepared and available in order to conduct dry weather monitoring.

Samples will be collected from a flowing source only (not from stagnant water), and where the pipe outlet has at least 1 or 2 inches of free-flowing drop before any standing water or pool below it. Stagnant water should not be sampled unless the municipality deems it necessary for some reason.

This outfall, though in poor condition because it is cantilevered, provides a good opportunity for a clean catch of its discharge.

This outfall is partially submerged and a clean catch of its discharge is not possible. If tidal influences are strong, wait until low tide to sample. Additional options include: sampling upstream structures or using sand bags around the outfall to prevent contamination from backflow.

Table 1 provides a list of equipment that should be gathered and available for use in the event dry weather outfall monitoring needs to be conducted.

Table 1 Field Equipment for Monitoring

1 Gallon of Distilled or de-ionized water for rinsing
1 Roll Paper towels
3-5 clean plastic 250 ml beakers for water sample collection in Baggie marked "Clean" or disposable "whirl bags"
Garbage bags
1 long sampling pole and or sampling pump and tubing
Equipment to remove and access catch basin covers if needed (pull, hammer, crowbar)
Field equipment/test kits (see Table 2) and bottles for any laboratory samples or off-site field test kits. Ensure field test kits reagents have not expired typically keep bottles for 3-5 samples available
Non-latex gloves
Box of 1 gallon plastic bags
Cooler with ice
Camera or phone
Safety Vest
Steel toed boots, waterproof
scissors
Sun screen and bug spray
Clip board
3-5 Field Data Sheets (See Addendum 1)
Chain of Custody (Addendum 3)
Sharpies and water-proof pens
Packing tape and Duct tape
Sheet of blank labels for bottles
First aid kit
Small white board with pen to mark outfall ID, date, and time in photo

For each outfall sampled, a Field Data Sheet will be used to document the date, time, and location of sample(s) collected, weather conditions, any general observations related to the tests being performed, and results of any parameters analyzed using field equipment or test kits. Note that the Field Data Sheet has a place to document sample observations including odor, color, turbidity, presence of algae, etc. The observations can be documented in this location instead of, or in addition to the observations made during the normal outfall inspection (which should be conducted in accordance with the MS4's IDDE Plan or SOP).

Sample bottles that will be taken away from the sampling site for analysis will be labelled with the date, time and sample location as well as the name of the sampler. Example labels are provided in Addendum 1 along with an example field data collection sheet.

When using a third-party laboratory for any off-site analysis, sample bottles should be obtained before the sampling event. Coordination with the laboratory is also recommended to ensure that sample hold times and preservation requirements are being met. If samples are being collected on a Friday, some laboratories need prior notice to meet short hold times. Analytical methods, hold times and other pertinent information is described in Section 3 of this QAPP.

After sampling events, any reusable sample collection containers will be cleaned with soap and water or trisodium phosphate and water. Cleaning will be completed in a location where wash

water can be discharged to a licensed wastewater treatment plant, sanitary sewer, or septic system.

3.0 Analyses and Reporting limits

The MS4 General Permit does not require samples to be analyzed using Clean Water Act (CWA) Methods published in 40 Code of Federal Regulations Chapter 136. The use of field equipment/ test kit(s) and laboratories are both allowed. The MS4 General Permit does not require samples to be analyzed by a laboratory that is certified by the Maine DEP. However, this QAPP specifies that when a commercial laboratory is used for a CWA method, it will be certified by the Maine DEP for the CWA method specified.

Use of a certified laboratory is specified in this QAPP because the data generated by a certified lab would be more likely to stand up in a court of law than data generated by a non-certified lab.

A list of commercial certified laboratories is available on the Maine DEP website at: https://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml . Note also that many Wastewater Treatment Plants conduct bacteria analysis for operational purposes. If there is a Wastewater Treatment Plant in the area, it can also be used for the bacteria screening.

This QAPP does not specify CWA methods or Maine DEP certification for use of field equipment/test kit(s).

Table 2 provides information related to sampling parameters, analysis methods, and sample preservation and holding times that may be used during dry weather outfall monitoring. Analysis methods specified in **Table 2** include CWA methods, field equipment, and test kits, where applicable. **Table 2** also provides information on when a given CWA Method, Field Equipment, or Test Kit might be preferable if there are multiple options for a given parameter.

Prior to sampling, the sampler and Stormwater Manager or Coordinator will determine what analysis method (CWA Method, Field Equipment, or Test Kit) will be used.

Electronic user manual(s) and safety data sheets (SDS) for field equipment and/or test kit(s) that will be utilized for dry weather monitoring are maintained in the Saco DPW offices and are easily accessible to the field personnel who will be conducting the monitoring.

Table 2 Sampling Parameters, Analysis Methods, and Sample Preservation and Holding Times

Bacteria - select one or more based on discharge environment	CWA Method, Field Equipment, or Test Kit	Preservation	Holding time	Bottle needed	Notes on Use
Bacteria - E. coli	SM 9223 B (IDEXX Colilert Quanti-Tray) EPA 1603 (membrane filtration, MF) Or SM 9221 B (Most probable number, MPN)	Ice	To lab within 6 hours Analyze within 2 hours of receipt	120 ml or 250 ml plastic sterile bottle with lid from lab	Use for discharges to freshwater (with ammonia and either optical enhancers or surfactants)
Bacteria - enterococcus	SM 9230 B, C or D, (MPN including IDEXX Enterolert, or MF) EPA 1600 (MF)	Ice	To lab within 6 hours Analyze within 2 hours of receipt	120 ml or 250 ml plastic sterile bottle with lid from lab	Use for discharges to salt water (with ammonia and either optical enhancers or surfactants)
Bacteria – Fecal Coliform	SM 9222 D (MF CFU/100ml) Or SM 9221 C, E (Multitube MPN/100ml)	Ice	To lab within 6 hours Analyze within 2 hours of receipt	120 ml or 250 ml plastic sterile bottle with lid from lab	Use for discharges to salt or freshwater (with ammonia and either optical enhancers or surfactants)
Bacteria – Human Bacteroides	Labs: EMSL (NJ), Microbial Insights (TN) or Source Molecular (FL) Or Dr. Steve Jones, UNH	Ice	To lab within 24 hours Analyze within 48 hours	1000 ml plastic bottle with sodium thiosulfate from lab (with insulated shipping box)	Use for discharges to salt or freshwater (with ammonia and either optical enhancers or surfactants). Not a CWA method, so Maine Laboratory certification not required.

Table 2 Sampling Parameters, Analysis Methods, and Sample Preservation and Holding Times

Ammonia (select one method)	**CWA Method, Field Equipment, or Test Kit**	**Preservation**	**Holding time**	**Bottle needed**	**Notes on Use**
Ammonia	Hach Ammonia Test Strips	None	Immediate (w/in 15 minutes) in Field	Field jar or beaker	
Ammonia	Laboratory Method EPA 350.1/350.2	H_2SO_4 (pH <2) + Ice	28 days	250 ml plastic bottle from lab	
Ammonia	Hach DR300 Pocket Colorimeter Ammonia Nitrogen or LaMotte 3680-01 DC1200 Colorimeter test kit	None	Immediate (w/in 15 minutes) in Field	Field jar or beaker	Reagent contains Mercury, Generates a Toxic Hazardous Waste (D009) instructional video (10 minutes): https://www.youtube.com/watch?v=hFiEEEAmWFo
Total Residual Chlorine (select one method)	**CWA Method, Field Equipment, or Test Kit**	**Preservation**	**Holding time**	**Bottle needed**	**Notes on Use**
Chlorine	Field kit – Hach Colorimeter II low range	None	Immediate (w/in 15 minutes) in Field	Field jar or beaker	Instructional video available at: https://www.youtube.com/watch?v=WTTUD0Hq1Vw
Chlorine	Industrial test Systems Ultra-Low Total Chlorine Test Strips and other mid range chlorine test strips	None	Immediate (w/in 15 minutes) in Field	Field jar or beaker	As of 6/2020, USEPA had not used Ultra low chlorine test strips (0.2 to 0.5 mg/L). Informal review shows these should be used simultaneously with a mid range (0.5 to 10 mg/l) test strips to double check range.
Temperature and Conductivity (use both)	**CWA Method, Field Equipment, or Test Kit**	**Preservation**	**Holding time**	**Bottle needed**	**Notes on Use**
Temperature	Temperature/ Conductivity probe	None	Immediate (w/in 15 minutes) in Field	Field jar or beaker	Use to distinguish between groundwater and surface water.
Conductivity	Temperature/ Conductivity probe	None	Immediate (w/in 15 minutes) in Field	Field jar or beaker	Use to distinguish between salt water and fresh water.

Table 2 Sampling Parameters, Analysis Methods, and Sample Preservation and Holding Times

Optical Enhancers or Surfactants (select one)	CWA Method, Field Equipment, or Test Kit	Preservation	Holding time	Bottle needed	Notes on Use
Surfactants	SM5540C	Ice	To lab within 24 hours Analyze within 48 hours	500 ml plastic bottle from lab	Works on most soaps (laundry detergent, personal care products, dish soap)
Surfactants	CheMetrics K-9400 field test kit (see Maine DEP guidance on handling and disposal in **Addendum 2**)	None	Immediate (w/in 15 minutes) in Field	Field jar or beaker	Works on most soaps (laundry detergent, personal care products, dish soap). Contains alcohol and chloroform. Generates a Flammable (D001) and Toxic (D022) Hazardous Waste. Do not use test kit in the field unless licensed to transport hazardous wastes. Instructional Video available at: https://www.youtube.com/watch?v=6vwiZgWqa04
Optical brighteners	VWR handheld UV lamp: UV-A: 360-365 nm, model number 89131-488	None	Analyze within 7 days	Unbleached cotton pad wetted with sample placed in sealed baggie	Works only on water with high to moderate laundry detergent. Provides only presence/absence.
Optical brighteners	Maine Healthy Beaches Fluorometer ($15,000 unit)	None	Keep in a dark container, provide to MHB in 1-2 days, analyze within 7 days	Whirl bag or 100 ml plastic bottle.	Provides semi-quantitative numeric fluorescence of sample. Need to provide sample to MHB in bottle or whirl bag (in a box or cooler). One week hold time. Provide advanced notice to coordinate delivery to office. Organic matter or tannins, or color will interfere.
Other Optional Parameters	**CWA Method, Field Equipment, or Test Kit**	**Preservation**	**Holding time**	**Bottle needed**	**Notes on Use**
Dissolved Oxygen	Hach DO Test kit Model OX-2P	None	Immediate (w/in 15 minutes) in Field	Field jar or beaker	Waters of the state have Dissolved Oxygen standards. This test can show whether outfall contributions are affecting Dissolved Oxygen content of receiving waters.
Total Phosphorus	EPA 365.3	Sulfuric Acid (pH <2) + Ice (4ºC)	28 days	250 ml glass bottle from lab.	Provides data regarding nutrient contributions to receiving waters which can originate from paved surfaces, fertilizers and eroding soils.

Table 2 Sampling Parameters, Analysis Methods, and Sample Preservation and Holding Times

Other Optional Parameters (continued)	CWA Method, Field Equipment, or Test Kit	Preservation	Holding time	Bottle needed	Notes on Use
Personal Care Products	EPA 1694	Sulfuric Acid (pH <2) + Ice (4°C)	7 day to extraction 40 days after extraction	1000 ml amber jar	EPA Lab Chelmsford can run if capacity. Contact Todd Borci. Otherwise need to use a commercial laboratory. EPA recommends analyzing only for following subset: Caffeine, 1,7-DMX (metabolite of caffeine), Acetominophen, Carbamazepine (anti-depressant), Primidone (anti-epilepsy drug), Atenolol (high Blood pressure med), Cotinine (metabolite of nicotine), urobilin (by product of hemoglobin breakdowns), Azithromycin (antibiotic)
Total Suspended Solids	EPA 160.2 or SM2549D	Ice	7 days	1000 ml plastic bottle from lab	
Biochemical Oxygen Demand	EPA 405.1 or SM5210B	Ice	To lab within 24 hours, analyze within 48 hours		Provides general water quality information.
Total Petroleum Hydrocarbons DRO and GRO	SW 8015C	Ice	7 Days to extraction 40 days after extraction	500 ml amber glass jar and 3 40 ml VOA containers from lab with sulfuric acid	DRO is Diesel Range Organics (C10 to C28) GRO is Gasoline Range Organics (C5 to C10)
Nitrate + Nitrite	SM 4500 or EPA 300	Sulfuric Acid (pH <2) + Ice (4°C)	28 days	125 ml plastic bottle from lab	Provides data regarding nutrient contributions to receiving waters which can originate from paved surfaces, fertilizers, eroding soils or wastewaters.
Total Kjeldahl Nitrogen	SM 4500 or EPA 300	Sulfuric Acid (pH <2) + Ice (4°C)	28 days	1000 ml amber glass bottle from lab	Provides data regarding nutrient contributions to receiving waters which can originate from paved surfaces, fertilizers, eroding soils or wastewaters.

4.0 Quality Control

The following are the reporting limits required by the MS4 General Permit:

Ammonia: 0.5 mg/L
Surfactants: 0.25 mg/L
Total Residual Chlorine: 0.05 mg/L
E. coli bacteria 4 cfu/100 ml
Enterococcus 10 cfu/100 ml

To ensure the data collected meets the required reporting limits, the MS4 permittee will use either a Maine Certified Laboratory or one of the field equipment/test kit methods listed in **Table 2** to assess dry weather flow.

Each of the test kits listed in **Table 2** has a use range that is appropriate for the work being conducted, and which meets the MS4 required reporting limits.

Test kit reagents that have expired will not be used. Test kit and temperature/conductivity probes that have useful life limits will be replaced when they have reached the end of their useful lives.

Maine Certified Laboratories have standard reporting limits for the parameters that conform to the MS4 General Permit required reporting limits.

4.2 Equipment or Rinsate Blanks. For most instances, dedicated equipment and containers are used to collect samples, so that equipment and rinsate blanks are not required to be collected and analyzed. However, if equipment or collection containers are being used multiple times in the field for different sample locations, they should be cleaned in between samples, wash water should be collected in the field and disposed of when returning to office or lab spaces, and equipment or rinsate blanks should be collected and assessed. The USEPA Volunteer Monitor's Guide to Quality Assurance Project Plans has additional information on how to complete these tasks (EPA Document 841-B-96-003).

5.0 Field Data Sheets and Chain of Custody

As described in Sampling Procedures, Field Data Sheets will be used to document sample collection. Field Data sheets will document the type of field equipment or test kit(s) used and results of any in-situ analysis. Example Field Data Sheets are provided in Addendum 1 to this QAPP.

Whenever samples will be sent to a laboratory for analysis, a Chain of Custody will be used to document sample collection dates, times, analytical methods requested, and custody of the sample from the time it was collected, until the time it was analyzed. Example Chains of Custody are provided in **Addendum 3** to this QAPP.

6.0 Data Reports

Field data collection sheets shall constitute data reports for analyses using field equipment or test kits.

Whenever samples are sent to a laboratory for analysis, data reports are provided by the laboratory showing the sample location, date and time of collection, results of the analysis, the reporting limit, the person who conducted the analysis, the analytical method used.

7.0 Data Review and Follow up

Once all data has been received, it will be reviewed by a Stormwater Manager or Coordinator. Data shall also be stored electronically or in paper format for at least 3 years following the expiration date of the MS4 General Permit, as required by the MS4 General Permit.

If the person collecting the sample is the Stormwater Manager or Coordinator, they may opt to have another municipal staff person review the data, or a Stormwater Manager or Coordinator from another municipality if they deem it necessary to assist in the overall investigation. Data should be reviewed within 2 weeks of receipt and additional investigations should be implemented to identify the source of any potential illicit discharge if any of the thresholds in **Table 3** are exceeded.

Table 3 Thresholds for Additional Investigation

Parameter	Threshold Level for Additional Investigation	Notes/Discussion
E. coli	236 cfu/100 ml – discharges into freshwater rivers or streams	All classifications of flowing fresh surface water in Maine (AA, A, B and C) have a standard that no more than 10% of the samples may exceed this concentration in any 90 day interval. A fresh surface water is at risk of impairment if it is receiving significant discharges from human sources above this concentration.
E. coli	194 cfu/100 ml – discharges into freshwater ponds	Great Ponds and lakes less than 10 acres have a standard that no more than 10% of the samples may exceed this concentration in any 90 day interval. A water of this type is at risk of impairment if it is receiving significant discharges from human sources above this concentration.
Enterococci	54 CFU/100 ml – discharges into saline/estuarine Class SA or SB	These waters have a standard that no more than 10% of the samples may exceed this concentration in any 90 day interval. A water is at risk of impairment if it is receiving significant discharges from human sources above this concentration. (Note Maine Healthy Beaches threshold is 104 MPN/100 ml)
Enterococci	94 CFU/100 ml – discharges into saline/estuarine Class SC	These waters have a standard that no more than 10% of the samples may exceed this concentration in any 90 day interval. A water is at risk of impairment if it is receiving significant discharges from human sources above this concentration. (Note Maine Healthy Beaches threshold is 104 MPN/100 ml)
Fecal Coliform	61 cfu/100 ml (2 times 31 cfu/100 ml for MF) to 100 cfu/100ml	The low end of this threshold is two times the 90th percentile standards that DMR applies for approved (open) shellfish harvesting areas and is very conservative (90% of the samples collected from the area must be above these concentrations for the harvesting area to remain open and completely unrestricted for shellfish harvesting. See Addendum 2 for additional info from DMR)
Human Bacteroides	Any concentration may be indicative of human sewage, but MHB considers 4,200 col/100ml HB to be equivalent to the level of contamination that exceeds the EPA acceptable risk of gastrointestinal illness to swimmers. (Rothenburger and Jones, 2018 and Boehm, Soller and Shanks 2015)	Any concentration of human source of sewage should be investigated.
Ammonia	≥ 0.50 mg/L	This is the effective reporting limit of the Ammonia test strips and was taken from USEPA Draft 2012 Bacteria Source Tracking Protocol.
Chlorine	≥ 0.05 mg/L	Limit of test kit and was taken from USEPA Draft 2012

Parameter	Threshold Level for Additional Investigation	Notes/Discussion
		Bacteria Source Tracking Protocol.
Surfactants	≥ 0.25 mg/L	Taken from USEPA Draft 2012 Bacteria Source Tracking Protocol.
Optical Brighteners	≥ 100 ug/L) (≥ 0.10 mg/L)	This is used by Maine Healthy Beaches as an actionable threshold. If using a handheld fluorometer, conduct further investigation if presence of optical brighteners is detected

MS4s should use the thresholds listed above and the following general guidance to make determinations whether an outfall requires additional investigation for illicit discharges:

Outfalls that have some visual evidence of an illicit discharge and exceed at least one of the above thresholds and should be investigated further using techniques described in the MS4s IDDE Plan.

Outfalls that do not have any visual evidence of an illicit discharge but exceed more than one of the above thresholds should be investigated further using techniques described in the MS4s IDDE Plan

As described in Section 1 of this QAPP, if the above thresholds are not exceeded, the MS4 may make the determination that the flow is from uncontaminated groundwater, water from a natural resource, or an allowable non-stormwater discharge.

Revisions:

1. Original document prepared for 2022 MS4 General Permit Submission to Maine DEP

Addenda

1. Example Field Data Collection Sheet and labels
2. References:
    a. E-mail on Surfactant field kit handling of residuals from DEP staff
    b. E-mail on Fecal Coliform thresholds from DMR listed in Table 3
3. Example Chains of Custody

References:

Rothenheber and Jones 2018. *Enterococci Concentrations in a Coastal Ecosystem are a function of fecal source input*. Published in Applied Environmental Microbiology, July 13, 2018.

Boehm, Soller and Shanks 2015. *Human-Associated Fecal Quantitative Polymerase Chain reaction Measurements and Simulated Risk of Gastrointestinal Illness in Recreational Waters Contaminated with Raw Sewage.* Published in Environmental Science and Technology Letters 2015, 2, 270-275.

Addendum 1
Example Field Data Collection Sheet and labels

Field Data Collection Sheet for Dry Weather Outfall Monitoring

Date		Project Name	
Time			
Sampler's Name		Project Location	
Weather:			
Sample Type:			
Sample Location/Sketch:			

Field Parameters to Monitor

Parameter	Result (units)	Equipment Used	Threshold triggering additional investigation (see QAPP)
Temperature (all flows)	C/F		No threshold. FYI: Temp. is dependent on season. Groundwater is typically 40-55 F. Surface water can be hotter or colder.
Conductivity (all flows)	µs		No threshold. FYI: Groundwater is typ. Less than 1000 µs. Freshwater can be as high as 2000 µs. Saltwater can be as high as 55,000 µs.
Ammonia (potential bacteria sources)	mg/L	Hach Test Strips	≥ 0.50 mg/L
Surfactants or Optical Brighteners (potential bacteria sources)			Surfactants ≥ 0.25 mg/L Optical Brighteners ≥ 100 ug/L or if present
Chlorine (potential chlorine sources)	mg/l	Hach Colorimeter II low range	≥ 0.05 mg/L (test kit limit)

Observations (unless already documented as part of outfall inspection: odor, color, turbidity, algae, etc):_____

Laboratory Analyses (see QAPP for thresholds)

Parameter	Method/ Lab Code	Comments
E. coli	SM 9223 B, EPA 1603, or SM 9221 B	For freshwaters
Enterococci	SM 9230 or EPA 1600	For marine/estuarine waters
Fecal Coliform	SM 9222 D or SM 9221 D, E	For fresh or marine/estuarine waters
Human Bacteriodes	qPCR	For fresh or marine/estuarine waters

Comments/Field Notes

This set of labels was designed to be used with Avery 5366 labels, but you can use any labels.

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Time: ________ Field ID: ________________

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Addendum 2
-Reference E-mails

Kristie Rabasca

From: Hudson, Michael S <Michael.S.Hudson@maine.gov>
Sent: Monday, October 7, 2019 11:51 AM
To: Kristie Rabasca
Cc: Plummer, Cherrie F; Poirier, Rhonda
Subject: FW: Proper handling and disposal of CheMetrics Surfactant field test kit residuals
Attachments: surfactants_CHEMetrics_k9400instructs.pdf; surfactants_CHEMetrics_k9400_SDSs.pdf; EIASOP-SWTestKits_REV1.pdf

Importance: High

In response to the questions posed regarding proper handling and disposal of CheMetrics Surfactant field test kit residuals:

1. Can the Towns mix the liquids from a. and b. in a single container for disposal as Doo1 and Do22 waste? Or do they need to keep them separate to dispose of them?
   Answer: Chloroform is miscible in alcohols such as n-propanol and is compatible. The Hazardous Waste Management Rules, 06-096 C.M.R. ch. 850 through 858, do not prohibit the mixing of compatible wastes. If mixed, the waste mixture should be coded as both D001 and D022. The town/generator could check with the licensed hazardous waste transporter it intends to use for the hazardous waste pick-up and disposal to determine if it is advisable or more cost effective to keep the wastes separate.

2. The n-propanol waste is super tough to get out of the vial – we pretty much just dispose of the whole vial. Is that okay? Or can we break the vial? And dispose of the empty glass as solid waste (as long as it is RCRA empty).
   Answer: The whole vials containing n-propanol can be disposed of as hazardous waste. If the generator choses to break the vial to dispose of the n-propanol as hazardous waste and the glass as a solid waste, then the generator must ensure the broken vials are RCRA-empty. Again, the town/generator could check with the licensed hazardous waste transporter it intends to use for the hazardous waste pick-up and disposal to determine if it is advisable or more cost effective to break and empty the vials to dispose of the glass and n-propanol separately. Of course, care and safety measures should be employed if breaking and handling glass vials.

3. Most of these towns are going to be SQGs (Maine Definition), and are going to be generating this waste while they are out in the field over a period of months. Then after each event, they are going to drive it back to the public works facility and set up a SQG haz waste storage area until they can get rid of it (either at HHWD collection, or have a specific pick up). They have 1 year to dispose of it. Have I missed any exemptions or special conditions for this? Is it okay that they are driving it around? Or should they be bringing the water samples back to public works and running the surfactant analysis on it at public works so they don't have to transport it. (its easier for them to run the sample right there while they are at the site).
   Answer: It is preferable for the town/generator to bring samples back from field sites to its Public Works to do the test so that hazardous waste generated by the tests does not have to be transported from field sites. Under the rules, the town/generator would need hazardous waste licenses to transport or accept the hazardous wastes from off-site. Towns should set up a hazardous waste collection container for the hazardous wastes from the tests, with an appropriate size container, labeled as "Hazardous Waste" with an accumulation start date. If the town's Public Works is a Small Quantity Generator (SQG), i.e. it generates for all its hazardous wastes in aggregate no more than 27 gallons/month and accumulates no more than 55 gallon of all of its hazardous waste in aggregate, then the town/generator could accumulate the waste indefinitely until the container of hazardous waste from tests is full at which point the town/generator would have 180 days to ship

via licensed hazardous waste transporter. Town/ Public Works should not dispose of these waste through the Household HW collection programs because they are not household exempt wastes.

4. We are going to do a training of the use of this kit on 10/17 in Portland. I would really like for attendees to be able to practice use of the kit at that training. Do I need to schedule with NRCC or Clean Harbors to come pick up the waste that day (as a licensed transporter), or could one of the communities transport it back to their public works facility for storage until later disposal (during HHWD)?
   Answer: Under the rules, the generator should arrange for waste pick-up at the site of generation. These hazardous wastes are not exempt under the household waste exclusion and are not acceptable at Household Hazardous Waste collections events.

The guidance above is based on the information provided below and the applicable rules, Hazardous Waste Management Rules, 06-096 C.M.R. ch. 850 through 858, without information on the number of test kits expected to be used, frequency of testing and volumes of anticipated waste accumulation If you have questions or would like to discuss the specifics, please feel free to contact me at Michael.s.hudson@maine.gov or 207-287-7884, or Cherrie Plummer of the Hazardous Waste Management Unit. Cherrie's contact is Cherrie.F.Plummer@maine.gov and 207-287-7882.

Michael S. Hudson, Supervisor, Hazardous Waste Management Unit
Maine Department of Environmental Protection
17 State House Station, Augusta, ME 04333-0017
Tel. 207-287-7884
www.maine.gov/dep

From: Poirier, Rhonda
Sent: Monday, October 07, 2019 9:37 AM
To: Hudson, Michael S <Michael.S.Hudson@maine.gov>
Subject: Proper handling and disposal of CheMetrics Surfactant field test kit residuals
Importance: High

Hi Mike,

The sampling she's describing is required by one of the permits in my stormwater program. She is giving a workshop on it on 10/17 and would like to talk to the proper DEP person before that, for planning purposes. Can you help her?

Thank you,
Rhonda

Rhonda Poirier
MEPDES Stormwater Program Manager
Bureau of Water Quality
Maine Department of Environmental Protection
207-592-6233
www.maine.gov/dep

From: Kristie Rabasca <krabasca@integratedenv.com>
Sent: Tuesday, October 01, 2019 4:02 PM
To: Poirier, Rhonda <Rhonda.Poirier@maine.gov>
Cc: Aimee Mountain (Aimee.Mountain@gza.com) <Aimee.Mountain@gza.com>; Damon Yakovleff <dyakovleff@cumberlandswcd.org>
Subject: Proper handling and disposal of CheMetrics Surfactant field test kit residuals

Hi Rhonda,
Thanks for taking my call.
I am developing a dry weather monitoring training session for the ISWG and SMSWG MS4s, and am developing a QAPP and some checklists.

We will need to use the CheMetrics K-9400 field test kit for surfactants. I have attached the instructions for the kit, and the Safety Data Sheets for the two reagents. Generally for each sample we will do the following:

1. Add 5 ml of water to a small plastic vial
2. Add 4ml of the double tipped reagent (SDS attached and it is flammable and contains 71% chloroform)
3. Shake
4. Use the 0.25 ml sealed glass ampule (which is 98% N-propanol) to draw the organic phase out of the plastic vial with the water and the first reagent.
5. Use colorimeter to check detergent concentration of sample.

So the two wastes we have when done are:

a. The mixture of the 5 ml water and the 4 ml 71% chloroform (which is still flammable) in the plastic vial (minus about 1 ml extracted into the n-propanol vial)
b. About 1 mil of the n-propanol and the chloroform organic phase in a very small glass ampule.

I am requesting the EPA SOP on this – but I do not think it has the detail I want.

When I have used this in the past, I have given it to the municipality where it was generated and told them it was a Doo1 Flammable and D022 Tox-chloroform waste, and they hand it to clean harbors during household hazardous waste day.

We are going to have a lot more people generating this waste – using these kits, and we need to handle it properly. As we provide them with guidance, we want to make sure it is right.

My questions are:

1. Can the Towns mix the liquids from a. and b. in a single container for disposal as Doo1 and Do22 waste? Or do they need to keep them separate to dispose of them?
2. The n-propanol waste is super tough to get out of the vial – we pretty much just dispose of the whole vial. Is that okay? Or can we break the vial? And dispose of the empty glass as solid waste (as long as it is RCRA empty)
3. Most of these towns are going to be SQGs (Maine Definition), and are going to be generating this waste while they are out in the field over a period of months. Then after each event, they are going to drive it back to the public works facility and set up a SQG haz waste storage area until they can get rid of it (either at HHWD collection, or have a specific pick up). They have 1 year to dispose of it. Have I missed any exemptions or special conditions for this? Is it okay that they are driving it around? Or should they be bringing the water samples back to public works and running the surfactant analysis on it at public works so they don't have to transport it. (its easier for them to run the sample right there while they are at the site).
4. We are going to do a training of the use of this kit on 10/17 in Portland. I would really like for attendees to be able to practice use of the kit at that training. Do I need to schedule with NRCC or Clean Harbors to come pick up the waste that day (as a licensed transporter), or could one of the communities transport it back to their public works facility for storage until later disposal (during HHWD)?

So many questions.... Perhaps I could talk with someone at Haz waste.... Thanks for any help you can provide.

Integrated Environmental ENGINEERING
Kristie L. Rabasca, P.E
Integrated Environmental Engineering, Inc.
12 Farms Edge Road
Cape Elizabeth, ME 04170
207-415-5830

Kristie Rabasca

From: Lewis, Bryant J <Bryant.J.Lewis@maine.gov>
Sent: Thursday, October 31, 2019 4:46 PM
To: Kristie Rabasca; Wahle, Benjamin
Subject: RE: simple summary of Fecal concentrations for open vs seasonal vs restricted vs prohibited?

Kristie,
I did misunderstand the question. Unless there is a specific area of concern where we are collaborating on a special study with a town, we typically provide a yearly update for each station's geomean and P90 incorporating the most recent 30 sample scores. That annual trend is provided to towns so we are not usually contacting a town based on any one score to tell them that there might be a problem.

However- if trying to determine a trigger on a single sample, there is some subjectivity to the answer. I would suggest a value between 50-100 as a high value trigger. There is merit to your suggestion of using twice the 31 value as well since that is within that range. Often, our Scientists would use 100 as the high score value as their own flag to watch a station since an area that is already at risk of exceeding the approved standard based on the last 30 samples would likely go over a P90 of 31 with a 100 added. I think you would likely accomplish your goal by using any of the three values; 50, 62, or 100. I would recommend starting with 62 then re-evaluating after some data is built up to determine if that should be increased or decreased based on program needs.

Bryant Lewis
ME Department of Marine Resources
Growing Area West Program Supervisor
194 McKown Point Road
West Boothbay Harbor, ME 04575
Tel: 207-633-9401
Cell: 207-215-4107

From: Kristie Rabasca <krabasca@integratedenv.com>
Sent: Thursday, October 31, 2019 2:42 PM
To: Lewis, Bryant J <Bryant.J.Lewis@maine.gov>; Wahle, Benjamin <Benjamin.Wahle@maine.gov>
Subject: RE: simple summary of Fecal concentrations for open vs seasonal vs restricted vs prohibited?

H Bryant,
I do a lot of illicit discharge investigations with and for the municipalities. Maybe I did not phrase my question properly.

For a single sample, at what concentration would DMR say to a municipality: "we think there might be a problem here". Is that concentration the 90th percentile number? 31? Or twice that?

Or do you wait until you see the GM or P90 number get close to its threshold for multiple samples?

Kristie L. Rabasca, P.E.
207-415-5830 (cell)

From: Lewis, Bryant J <Bryant.J.Lewis@maine.gov>
Sent: Thursday, October 31, 2019 2:33 PM

To: Kristie Rabasca <krabasca@integratedenv.com>; Wahle, Benjamin <Benjamin.Wahle@maine.gov>
Subject: RE: simple summary of Fecal concentrations for open vs seasonal vs restricted vs prohibited?

Kristie,
I would suspect DEP and possibly the municipality should be contacted for possible illicit discharges.

We use DMR water quality stations to classify growing area waters. As part of our program, we also conduct surveys of the shoreline where we look for malfunctioning septic systems and other pollution sources and sample the mouths of streams entering growing area waters; however, we do not conduct investigations to determine the sources of contamination. Generally, it is up to the municipality to investigate degrading water quality while sometimes DEP can provide some additional assistance. If there is an area where water quality was degrading we would provide the municipality the information we have if they wished to investigate. The municipality would likely need to do additional work to locate the source of contamination but the information you are describing would likely be valuable in their effort.

Bryant Lewis
ME Department of Marine Resources
Growing Area West Program Supervisor
194 McKown Point Road
West Boothbay Harbor, ME 04575
Tel: 207-633-9401
Cell: 207-215-4107

From: Kristie Rabasca <krabasca@integratedenv.com>
Sent: Wednesday, October 30, 2019 9:00 AM
To: Lewis, Bryant J <Bryant.J.Lewis@maine.gov>; Wahle, Benjamin <Benjamin.Wahle@maine.gov>
Subject: RE: simple summary of Fecal concentrations for open vs seasonal vs restricted vs prohibited?

Thanks so much for this. We are using it because some communities will be sampling outfalls that are discharging into marine environments for fecal coliform as a screening tool when looking for illicit discharges. The MS4 General Permit requires that the communities regulated for their stormwater discharges do sampling whenever an outfall if flowing after three days of dry weather. We are telling them to notify DMR of the results, and wanted to have some guidelines for when they should be concerned. I know that your scores are very conservative because they are all about the FDA and ingestion of shellfish.

I have attached a QAPP that we are using and you will see the table in the back has a "threshold" for additional investigation if the town is monitoring for fecal coliform. Please note that the samples they are collecting are discharges from outfalls into the water body – not from the water body.

Would you investigate further if the thresholds for 90th percentile for open areas were exceeded? Or would you use 2x that? Or some other number.

Hopefully you understand my question....

Kristie L. Rabasca, P.E.
207-415-5830 (cell)

From: Lewis, Bryant J <Bryant.J.Lewis@maine.gov>
Sent: Monday, October 28, 2019 10:16 AM
To: Wahle, Benjamin <Benjamin.Wahle@maine.gov>; Kristie Rabasca <krabasca@integratedenv.com>
Subject: RE: simple summary of Fecal concentrations for open vs seasonal vs restricted vs prohibited?

Kristie,
This webpage explains the classifications.
https://www.maine.gov/dmr/shellfish-sanitation-management/programs/growingareas/howclassified.html

The NSSP Model Ordinance dictates how we calculate water quality scores. A 90th percentile based on the most recent 30 samples providing a score of 31 or less is Approved, 32-163 is Restricted and above 163 is Prohibited. There is a link to the Model Ordinance on our website, if needed. It describes how to calculate scores for systematic random sampling using membrane filtration.
https://www.maine.gov/dmr/shellfish-sanitation-management/programs/growingareas/index.html

I have also attached a document summarizing what is in the Model Ordinance for calculating water quality station scores.

Bryant Lewis
ME Department of Marine Resources
Growing Area West Program Supervisor
194 McKown Point Road
West Boothbay Harbor, ME 04575
Tel: 207-633-9401
Cell: 207-215-4107

From: Wahle, Benjamin
Sent: Monday, October 28, 2019 9:28 AM
To: Kristie Rabasca <krabasca@integratedenv.com>
Cc: Lewis, Bryant J <Bryant.J.Lewis@maine.gov>
Subject: RE: simple summary of Fecal concentrations for open vs seasonal vs restricted vs prohibited?

Hi Kristie,

I'm actually going to refer you to Bryant Lewis, who is the Western Region Growing Area Supervisor. He'll be better able to explain DMR's classification system.

-Ben

From: Kristie Rabasca <krabasca@integratedenv.com>
Sent: Monday, October 28, 2019 8:03 AM
To: Wahle, Benjamin <Benjamin.Wahle@maine.gov>
Subject: simple summary of Fecal concentrations for open vs seasonal vs restricted vs prohibited?

Good Morning Ben,
I worked with you in Eliot and Cape – and am looking on your website for a simple summary of the P90 concentrations that trigger the various restrictions on shellfishing.

Does such an animal exist? If so, could you share it?

I am working on a QAPP for the stormwater folks and want to provide them with a reference that is accurate and truthed by DMR for when they are sampling outfalls near shellfishing areas.

Thanks for any help you can provide.

DMR uses a membrane filtration (MF) method for fecal coliform analysis using mTEC agar with a two-hour resuscitation step. The geometric mean and the90 th percentile are calculated on a minimum of the most recent 30 data points.

Geometric Mean(Geomean):

The geometric mean, or geomean, is a type of averaging calculation. Unlike a simple average or arithmetic mean, the geomean takes into account the way bacteria grow. During bacterial growth, each bacterium doubles and reproduces itself i.e. one bacterium becomes two, two bacteria become four, four become eight and so on. There are low values at first and the rate of growth increases as the number of colonies increases. This is called exponential growth (Figure 1). This growth pattern means a fecal coliform dataset may have a few high scores and many low scores. The calculation for the geometric mean takes exponential growth into account by transforming the data into logarithms, taking the mean and then converting the number back to a log base 10 number. For example, the arithmetic mean of a fecal coliform score of 300, 150, 23 and 2 CFU/100ml is 119 CFU/100ml. Calculating the geomean, the result is 38 CFU/100ml.

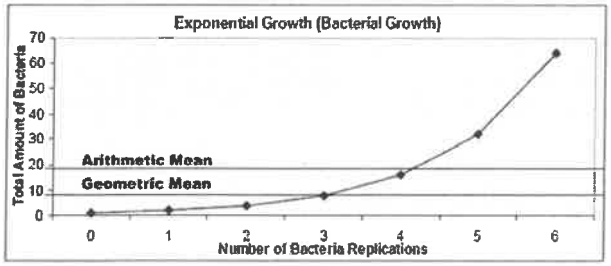
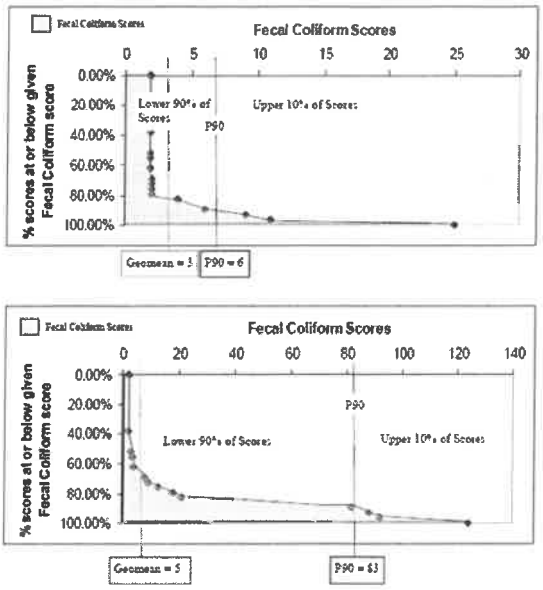


Figure 1. The graph illustrates exponential growth. The arithmetic mean for the scores is 18.1 while the geomean is 8.

90th Percentile (P90)

The other calculation used for shellfish growing area classification is the 90th percentile (P90). The P90 is the variability standard, meaning this value takes into account the variability of test readings. In any test measurement, successive readings of the same sample would produce slightly different scores each time due to precision of the equipment, human error, etc. This type of variability is a factor of the test method and equipment used and is true of all testing methods.

To account for the variability in the fecal coliform test, a standard has been established. Here again, since bacteria grows exponentially, the calculations are performed on a logarithmic scale. The P90 is based on the distribution of fecal coliform scores and means that 90% of scores are at are below the P90 and 10% scores are above (Figures 2a and 2b). As long as most of the other scores are low, a few high scores will not have a large impact on the P90 value. The P90 standard is the acknowledgment by the NSSP that a few high scores in data set may be due to the variability of the test method. If the area shows high fecal coliform scores intermittently due to pollution events such as rainfall, this may cause water quality to exceed the P90 standards because the shellfish are intermittently subject to polluted waters. For classification determinations, P90s are rounded to the nearest whole number. 0.1-0.49 are rounded down and 0.5-0.9 are rounded up to the next whole number.



Figures 2a and b. The lower 90% of the scores fall to the left of the P90 line and 10% of the scores fall to the right. 2a has a low P90 because there are many low scores and a few high scores. 2b has a larger number of high fecal coliform scores, so the P90 is shifted to the right. Although the geomean of 2b passes the approved standard, the area would not be classified as approved because the P90 score is above the threshold.

Fecal Coliform Standards by Shellfish Growing Area Classification Category

Shellfish Growing Area Classification	**Activity Allowed**	**Geometric mean FC/100ml**	**90th Percentile (P90) FC/100ml**
Approved	Harvesting allowed	≤ 14	≤ 31
Conditionally Approved	Harvesting allowed except during specified conditions	≤ 14 in open status	≤ 31 in open status
Restricted	Depuration harvesting or relay only	≤ 88 and >15	≤ 163 and >31
Conditionally Restricted	Depuration harvesting or relay allowed except during specified conditions	≤ 88 in open status	≤ 163 in open status
Prohibited	Aquaculture seed production only	>88	>163

Addendum 3
Example Chains of Custody

Laboratory Sample Chain of Custody

Client:	Contact:	Phone #:	Email
Address:	City:	State:	Zip Code:
Purchase Order #:	Proj. Name/No.:		Quote #:
Bill (if different than above):		Address:	
Sampler (Print/Sign):			Copies To:

LAB USE ONLY	Work Order #:		
Remarks:			
Shipping Info:	FEDEX	UPS	CLIENT
Airbill No:			
Temp C	Temp Blank	Intact	Not Intact

*	Sample Description	Date/Time Collected	Matrix water/soil /other	No. of Containers	Analysis and Container Type Preservatives									
					Filt. Y / N	Filt. Y / N	Filt. Y / N	Filt. Y / N	Filt. Y / N	Filt. Y / N	Filt. Y / N	Filt. Y / N	Filt. Y / N	Filt. Y / N

COMMENTS:					
Relinquished By:	Date/Time	Received By:	Relinquished By:	Date/Time	Received By:
Relinquished By:	Date/Time	Received By:	Relinquished By:	Date/Time	Received By:

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

EMSL Order Number (*Lab Use Only*):

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077
PHONE: (800) 220-3675
FAX:(856) 786-0262

Company :		**EMSL-Bill to:** ☐Same ☐ Different **If Bill to is Different please note in Comments****	
Street:		*Third Party Billing requires written authorization from third party*	
City:	**State/Province:**	**Zip/Postal Code:**	**Country:**
Report To (Name):		**Fax #:**	
Telephone #:		**E-mail Address:**	
Project Name/ Number:			
Please Provide Results: ☐Fax ☐E-mail	**PO#**	**State Samples Taken:**	

Turnaround Time (TAT) Options* - Please Check

☐ 3 Hour | ☐ 6 Hour | ☐ 24 Hour | ☐ 48 Hour | ☐ 72 Hour | ☐ 96 Hour | ☐ 1 Week | ☐ 2 Week

**Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide. TATs are subject to methodology requirements.*

Fungi	Bacteria	Insects
☐ **ERMI Panel (M180)** *Dust Only*	☐**Human *Bacteroides*(M199)**	☐ **Bed Bug (*Cimex lectularius*) (M146)**
☐ **EPA 36 Panel (M233)** *Air, Swab*	☐**Total *Bacteroides*(M095)**	☐ **Tick - *Anaplasma phagocytophilum* Anaplasmosis (M261)**
☐ **Water Damage 20 Panel (M181)**	☐ ***E. coli* O157:H7 (M140)**	☐ **Tick - *Babesia microti* Babesiosis (M260)**
☐ **Wood Rot Fungi 10 Panel (M232)**	☐ ***E. coli*(M200)**	☐ **Tick - *Borrelia burgdorferi* Lyme disease (M196)**
☐ ***Aspergillus* 15 Panel (M186)**	☐**Total *Enterococcus*(M096)**	**Other**
☐ ***Aspergillus* 6 Panel (M188)**	☐ ***Helicobacter pylori*(M207)**	☐ ***Acanthamoeba* spp. (M147)**
☐ ***Penicillium* 13 Panel (M189)**	☐ ***Legionella pneumophila* (M103)**	☐ ***Cryptosporidium* spp. (M237)**
☐ **Customized Fungi Panel (M100)**	☐ ***Legionella* 4 species-EPA (M162)**	☐ ***Giardia* spp. (M149)**
☐ ***Penicillium* Mycotoxin 9 Panel (M190)**	☐ ***Legionella* Broad Screen (M163)**	☐ **Enterovirus RT-PCR (M142)**
Birds, Animal Droppings	☐ **MRSA (M203)**	☐ **Food Authentication (F130)**
☐ ***Chlamydophila psittaci* (M234)**	☐ ***Mycobacterium avium*(M144)**	☐ **GMO Analysis (F131)**
☐ ***Cryptococcus neoformans*(M143)**	☐ ***Mycobacterium tuberculosis*(M159)**	☐ **DNA Barcode Analysis (M195)**
☐ ***Histoplasma capsulatum*(M208)**	☐ ***Pseudomonas aeruginosa***	☐ **DNA Sequencing Fungi/Bacteria Isolates (M192)**
☐ **Raccoon Roundworm (M236)**	☐ ***Salmonella* spp. (M141)**	☐ **Special Request:**
☐ **Rodent (Mouse, Rat) Dropping (M271)**	☐ ***Shigella* spp. (F122)**	

Sample #	Sample Location	Sample Type	Test Code	Volume/Area	Date/Time Collected

Client Sample # (s): -	**Total # of Samples:**	
Relinquished (Client):	**Date:**	**Time:**
Received (Lab):	**Date:**	**Time:**
Comments:		

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

EMSL Order Number (*Lab Use Only*):

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077
PHONE: (800) 220-3675
FAX:(856) 786-0262

Sample #	Sample Location	Sample Type	Test Code	Volume/Area	Date/Time Collected

****Comments/Special Instructions**

Page ______ of ______ pages

ATTACHMENT E

COORDINATION LETTERS WITH INTERCONNECTED MS4S

CITY OF SACO, MAINE

Saco Public Works Department
15 Phillips Spring Road
Saco, Maine 04072

Joseph A. Laverriere, P.E. – City Engineer
Telephone: (207) 284-6641
Email: jlaverriere@sacomaine.org

March 16, 2021

Mr. Tom Milligan, P.E., City Engineer
City of Biddeford
205 Main Street
Biddeford, Maine 04005

Subject: Potential Discharges from Interconnected MS4
Request for Notification

Dear Tom,

As you are aware, the City of Saco is a designated MS4 community. Within the City or abutting the City are other nested or interconnected MS4 entities or communities. In accordance with the MS4 Permit requirements, the City has developed and implemented an Illicit Discharge Detection and Elimination (IDDE) Plan. The City uses the Saco Police Dispatch for notifying and reporting a variety of issues, one of which is related to stormwater discharges. Reports received from the Police Dispatch result in an alert to the City's Stormwater Coordinator, who then responds accordingly.

As a nested or interconnected regulated MS4, we wanted to make you aware of the City's IDDE notification system. Should an illicit discharge occur that is tributary to your drainage system that discharges to the City of Saco MS4, we request that you contact the City immediately upon discovery of the discharge. To do this, please feel free to contact the Police Dispatch at 207-284-4535.

Also, the City intends to apply for coverage under the 2022 MS4 General Permit, and as such is preparing their Stormwater Management Plan and Illicit Discharge Detection and Elimination Plan. This letter constitutes notice that we are applying for continued coverage, and we will be providing formal public notice in March 2021.

Thank you for your corporation in this effort to minimize the potential for illicit discharges into our MS4.

Sincerely,
CITY OF SACO

Joseph A. Laverriere, P.E.
City Engineer

CITY OF SACO, MAINE

Saco Public Works Department
15 Phillips Spring Road
Saco, Maine 04072

Joseph A. Laverriere, P.E. – City Engineer
Telephone: (207) 284-6641
Email: jlaverriere@sacomaine.org

March 16, 2021

Mr. Kerem Gungor, P.E.
Maine DOT Environmental Office
16 State House Station
Augusta, Maine 04333-0016

Subject: Potential Discharges from Interconnected MS4
Request for Notification

Dear Kerem,

As you are aware, the City of Saco is a designated MS4 community. Within the City or abutting the City are other nested or interconnected MS4 entities or communities. In accordance with the MS4 Permit requirements, the City has developed and implemented an Illicit Discharge Detection and Elimination (IDDE) Plan. The City uses the Saco Police Dispatch for notifying and reporting a variety of issues, one of which is related to stormwater discharges. Reports received from the Police Dispatch result in an alert to the City's Stormwater Coordinator, who then responds accordingly.

As a nested or interconnected regulated MS4, we wanted to make you aware of the City's IDDE notification system. Should an illicit discharge occur that is tributary to your drainage system that discharges to the City of Saco MS4, we request that you contact the City immediately upon discovery of the discharge. To do this, please feel free to contact the Police Dispatch at 207-284-4535.

Also, the City intends to apply for coverage under the 2022 MS4 General Permit, and as such is preparing their Stormwater Management Plan and Illicit Discharge Detection and Elimination Plan. This letter constitutes notice that we are applying for continued coverage, and we will be providing formal public notice in March 2021.

Thank you for your corporation in this effort to minimize the potential for illicit discharges into our MS4.

Sincerely,
CITY OF SACO

Joseph A. Laverriere, P.E.
City Engineer

CITY OF SACO, MAINE

Saco Public Works Department
15 Phillips Spring Road
Saco, Maine 04072

Joseph A. Laverriere, P.E. – City Engineer
Telephone: (207) 284-6641
Email: jlaverriere@sacomaine.org

March 16, 2021

Mr. Sean Donohue, CSS, Permitting Coordinator
Maine Turnpike Authority
2360 Congress Street
Portland, Maine 04102

Subject: Potential Discharges from Interconnected MS4
Request for Notification

Dear Sean,

As you are aware, the City of Saco is a designated MS4 community. Within the City or abutting the City are other nested or interconnected MS4 entities or communities. In accordance with the MS4 Permit requirements, the City has developed and implemented an Illicit Discharge Detection and Elimination (IDDE) Plan. The City uses the Saco Police Dispatch for notifying and reporting a variety of issues, one of which is related to stormwater discharges. Reports received from the Police Dispatch result in an alert to the City's Stormwater Coordinator, who then responds accordingly.

As a nested or interconnected regulated MS4, we wanted to make you aware of the City's IDDE notification system. Should an illicit discharge occur that is tributary to your drainage system that discharges to the City of Saco MS4, we request that you contact the City immediately upon discovery of the discharge. To do this, please feel free to contact the Police Dispatch at 207-284-4535.

Also, the City intends to apply for coverage under the 2022 MS4 General Permit, and as such is preparing their Stormwater Management Plan and Illicit Discharge Detection and Elimination Plan. This letter constitutes notice that we are applying for continued coverage, and we will be providing formal public notice in March 2021.

Thank you for your corporation in this effort to minimize the potential for illicit discharges into our MS4.

Sincerely,
CITY OF SACO

Joseph A. Laverriere, P.E.
City Engineer

CITY OF SACO, MAINE

Saco Public Works Department
15 Phillips Spring Road
Saco, Maine 04072

Joseph A. Laverriere, P.E. – City Engineer
Telephone: (207) 284-6641
Email: jlaverriere@sacomaine.org

March 16, 2021

Mr. Joseph Cooper, Public Works Director
Town of Old Orchard Beach
1 Portland Avenue
Old Orchard Beach, Maine 04064

Subject: Potential Discharges from Interconnected MS4
Request for Notification

Dear Joe,

As you are aware, the City of Saco is a designated MS4 community. Within the City or abutting the City are other nested or interconnected MS4 entities or communities. In accordance with the MS4 Permit requirements, the City has developed and implemented an Illicit Discharge Detection and Elimination (IDDE) Plan. The City uses the Saco Police Dispatch for notifying and reporting a variety of issues, one of which is related to stormwater discharges. Reports received from the Police Dispatch result in an alert to the City's Stormwater Coordinator, who then responds accordingly.

As a nested or interconnected regulated MS4, we wanted to make you aware of the City's IDDE notification system. Should an illicit discharge occur that is tributary to your drainage system that discharges to the City of Saco MS4, we request that you contact the City immediately upon discovery of the discharge. To do this, please feel free to contact the Police Dispatch at 207-284-4535.

Also, the City intends to apply for coverage under the 2022 MS4 General Permit, and as such is preparing their Stormwater Management Plan and Illicit Discharge Detection and Elimination Plan. This letter constitutes notice that we are applying for continued coverage, and we will be providing formal public notice in March 2021.

Thank you for your corporation in this effort to minimize the potential for illicit discharges into our MS4.

Sincerely,
CITY OF SACO

Joseph A. Laverriere, P.E.
City Engineer

CITY OF SACO, MAINE

Saco Public Works Department
15 Phillips Spring Road
Saco, Maine 04072

Joseph A. Laverriere, P.E. – City Engineer
Telephone: (207) 284-6641
Email: jlaverriere@sacomaine.org

March 16, 2021

Mr. Shawn Higgins, P.E., Project Engineer
Pan Am Railways
1700 Iron Horse Park
North Billerica, MA 01862

Subject: Potential Discharges from Interconnected MS4
Request for Notification

Dear Shawn,

As you are aware, the City of Saco is a designated MS4 community. Within the City or abutting the City are other nested or interconnected MS4 entities or communities. In accordance with the MS4 Permit requirements, the City has developed and implemented an Illicit Discharge Detection and Elimination (IDDE) Plan. The City uses the Saco Police Dispatch for notifying and reporting a variety of issues, one of which is related to stormwater discharges. Reports received from the Police Dispatch result in an alert to the City's Stormwater Coordinator, who then responds accordingly.

As a nested or interconnected regulated MS4, we wanted to make you aware of the City's IDDE notification system. Should an illicit discharge occur that is tributary to your drainage system that discharges to the City of Saco MS4, we request that you contact the City immediately upon discovery of the discharge. To do this, please feel free to contact the Police Dispatch at 207-284-4535.

Also, the City intends to apply for coverage under the 2022 MS4 General Permit, and as such is preparing their Stormwater Management Plan and Illicit Discharge Detection and Elimination Plan. This letter constitutes notice that we are applying for continued coverage, and we will be providing formal public notice in March 2021.

Thank you for your corporation in this effort to minimize the potential for illicit discharges into our MS4.

Sincerely,
CITY OF SACO

Joseph A. Laverriere, P.E.
City Engineer

CITY OF SACO, MAINE

Saco Public Works Department
15 Phillips Spring Road
Saco, Maine 04072

Joseph A. Laverriere, P.E. – City Engineer
Telephone: (207) 284-6641
Email: jlaverriere@sacomaine.org

March 16, 2021

Ms. Angela Blanchette, P.E., Town Engineer
Town of Scarborough
P.O. Box 360
Scarborough, Maine 04070-0360

Subject: Potential Discharges from Interconnected MS4
Request for Notification

Dear Angela,

As you are aware, the City of Saco is a designated MS4 community. Within the City or abutting the City are other nested or interconnected MS4 entities or communities. In accordance with the MS4 Permit requirements, the City has developed and implemented an Illicit Discharge Detection and Elimination (IDDE) Plan. The City uses the Saco Police Dispatch for notifying and reporting a variety of issues, one of which is related to stormwater discharges. Reports received from the Police Dispatch result in an alert to the City's Stormwater Coordinator, who then responds accordingly.

As a nested or interconnected regulated MS4, we wanted to make you aware of the City's IDDE notification system. Should an illicit discharge occur that is tributary to your drainage system that discharges to the City of Saco MS4, we request that you contact the City immediately upon discovery of the discharge. To do this, please feel free to contact the Police Dispatch at 207-284-4535.

Also, the City intends to apply for coverage under the 2022 MS4 General Permit, and as such is preparing their Stormwater Management Plan and Illicit Discharge Detection and Elimination Plan. This letter constitutes notice that we are applying for continued coverage, and we will be providing formal public notice in March 2021.

Thank you for your corporation in this effort to minimize the potential for illicit discharges into our MS4.

Sincerely,
CITY OF SACO

Joseph A. Laverriere, P.E.
City Engineer

APPENDIX F

EROSION AND SEDIMENT CONTROL ORDINANCE

In 2020, the City of Saco embarked on an extensive revision process to the City Code, including Zoning Ordinance; Site Plan Review Ordinance; and Subdivision Ordinance that included additional requirements related to stormwater management and erosion control submissions. We took this opportunity to amend the zoning ordinance language to incorporate additional 2022 MS4 General Permit requirements.

Article XII "Stormwater and Erosion Control" of the City's Zoning Ordinance (Chapter 230 of the City Code) includes the requirements for stormwater management (quantity and quality control), including provisions for post-construction stormwater management, inspection, maintenance, and annual reporting to the City. In addition, Article XII also includes the requirements for an Erosion Control Plan to be prepared in accordance with the applicable sections of Attachment C to the 2022 MS4 General Permit, (which are the same as the Maine DEP Stormwater Rule Chapter 500 Appendix A – Erosion and Sediment Control, Appendix B – Inspections and Maintenance, and Appendix C – Housekeeping).

Excerpt of Zoning Ordinance

Article XII. Stormwater and Erosion Control

§XII1. General Stormwater Runoff Provisions

A. In general, surface water runoff shall be minimized, and it shall be the responsibility of the person developing the land to demonstrate that the work will not have an adverse impact on abutting or downstream properties and waterbodies. Sites shall be designed to minimize the amount of impervious area with a focus on reducing vehicle areas, including parking, drives aisles, and service areas.

B. The volume of stormwater discharged from a parcel shall be minimized through the use of on-site infiltration, detention, or retention to the extent practical. When stormwater must be discharged from a parcel, the preferred method is to discharge into the natural drainage system. Discharge of stormwater to the City's municipal separate storm sewer system (MS4) shall be allowed only when on-site retention and/or discharge to the natural system is not practical.

C. Infiltration, detention, or retention of stormwater shall assure that the total maximum daily loads (TMDLs) that have been established by the United States Environmental Protection Agency for various water bodies in the City will be met to the extent practical. The disposal of stormwater shall not constitute a threat to public health, safety, and welfare and shall not degrade the quality of surface water or groundwater below city, state, or federal standards.

D. Projects resulting in one or more acres of disturbed area shall be subject to the requirements of the Maine Construction General Permit (MCGP); Maine State Stormwater Management Law, 38 M.R.S. §420-D, and the latest revision of the "Stormwater Management Rules," Chapters 500, 501 and 502; and the requirements of Sections 1202 Stormwater Runoff Management, 1203 Stormwater Quantity and Quality Control, and 1204 Post Construction Management. Where the standards or provisions of such stormwater rules conflict with City ordinances, the stricter (more-protective) standard shall apply.

E. Groundwater. To the extent practical, the stormwater design shall maximize aquifer recharge.

F. Vegetative buffers shall be utilized to the extent practical to manage stormwater flow.

G. The use of Low Impact Development (LID) practices appropriate for the type of development as set forth in Chapter 10 of the DEP Stormwater Manual, Volume III - BMPs Technical Design Manual, is encouraged.

§ XII2. Stormwater Runoff Management

A. The City is a regulated community under the National Pollutant Discharge Elimination System (NPDES) MS4 Program; therefore, provisions for stormwater runoff management are required for all new development or redevelopment projects that result in one (1) or more acres of disturbed area. This provision also applies to projects disturbing less than one acre if the construction activity is part of a larger common scheme of development or sale that would disturb one (1) or more acres. In addition, the City also requires stormwater runoff management for all projects that result in ten thousand (10,000) square feet or more of new or redeveloped impervious area. In determining if these thresholds have been met, all disturbed or impervious areas created after December 27, 2006 (original effective date of this provision), shall be included in this total.

B. Exemptions:
   1. New development or redevelopment on a parcel that is part of a subdivision previously approved under this chapter that has a compliant post-construction stormwater management plan with sufficient capacity to accept and treat increases in stormwater discharges associated with the project.

   2. Smaller projects resulting in less than one acre of disturbed area but more than ten thousand (10,000) square feet of new or redeveloped impervious area are exempt from Sections XII3 Stormwater Quantity and Quality Control and XII4 Post Construction Management, but shall comply with requirements of Subsection XII5 Drainage Plan.

   3. All other projects are exempt from Sections XII3 Stormwater Quantity and Quality Control, 1204 Post Construction Management, and XII5 Drainage Plan but shall meet the general provisions in Section XII1 to the maximum extent practicable.

§ XII3. Stormwater Quantity and Quality Control

A. All projects subject to this section shall be designed to meet the requirements below:

   1. To the extent possible, the design shall dispose of stormwater runoff on the land at the proposed development through the appropriate use of the natural features of the site. Stormwater runoff systems will infiltrate, detain, or retain stormwater falling on the site such that the rate of flow from the site does not exceed that which would occur in the undeveloped state for a storm of intensity equal to the two (2)-, ten (10)-, twenty-five (25)-, and fifty (50)-year storm events.

   2. If the post-development peak runoff rate exceeds the predevelopment peak runoff rate, on-site mitigation measures, such as detention basins or flow restrictors, shall be required.

   3. All natural drainageways shall be preserved at their natural gradients and shall not be filled or converted to a closed system except as approved by the City's reviewing authority and appropriate state agencies.

   4. The design of the storm drain system shall fully incorporate the existing upstream runoff which must pass over or through the site to be developed. The system shall be designed to pass upstream flows without surcharging the system. Any special roadway culvert crossing designed to meet other applicable state regulations (i.e., fish passage) shall be specifically identified on the plans.

   5. Proposed alterations in stormwater drainage paths shall not enable the crossing of runoff

over a City street in order to enter a drainage system.

6. The drainage study shall meet the "urban impaired stream standard" when located within a watershed designated by the Maine Department of Environmental Protection as an urban impaired stream.

B. A waiver may be granted by the City of Saco Department of Public Works to discharge an insignificant increase in stormwater runoff to the municipal storm drain system when all of the following conditions are met:

1. A drainage study is prepared by a professional engineer licensed in the State of Maine, which demonstrates that the increase has no adverse impact to the downstream conditions, including impacts on abutting or City properties. Improvements may be required of the developer to prevent adverse downstream impacts caused by the project.

2. The increase in the peak flow from the site or in the peak flow of the receiving waters cannot be avoided by reasonable changes in project design or density.

3. Written authorization to discharge the increased peak flow rates has been provided by the Director of Public Works or their designee.

C. At the time of application, the applicant shall notify the Department of Public Works if its stormwater management system includes any stormwater BMP(s) that will discharge to the City's municipal storm drain system and shall include in this notification a listing of which stormwater BMP(s) will so discharge.

§ XII4. Post-Construction Stormwater Management Plan

A. All projects subject to this section shall be designed to meet the requirements below:

1. The applicant may meet the quantity and quality standards listed in Section XII3 Stormwater Quantity and Quality Control either on site or off site; but where off-site facilities are used, the applicant shall submit documentation to Saco's Department of Public Works that the applicant has sufficient property interest where the off-site facilities are located, by perpetual easement or other appropriate legal instrument, to ensure that the facilities will be available to provide post-construction stormwater management for the project and that the property will not be altered in a way that interferes with the off-site facilities.

2. Where the applicant proposes to retain ownership of the stormwater management facilities shown in its Post-Construction Stormwater Management Plan, and the stormwater management facilities will not be dedicated to the City, the applicant shall enter into a maintenance agreement with the City. A form for the maintenance agreement is available on the City's web site. The applicant shall be responsible for recording the maintenance agreement form at the York County Registry of Deeds within thirty (30) days of the date of execution of the agreement. Failure to comply with the terms of the maintenance agreement shall constitute a violation of this chapter.

3. Whenever elements of the stormwater management facilities are not within the right-of-way of a public street and the facilities will not be offered to the City for acceptance as public facilities, the Planning Board may require that perpetual easements be provided to the City allowing access for maintenance, repair, replacement, and improvement of the stormwater management facilities in accordance with the approved drainage maintenance agreement. If an offer of dedication is proposed, the applicant shall be responsible for the maintenance of

these stormwater management facilities until such time (if ever) as they are accepted by the City. Nothing in this chapter requires the City to accept any stormwater management facilities offered or dedicated by the applicant.

4. Any person, business, corporation, or other entity owning, leasing, or having control over stormwater management facilities required by a Post-Construction Stormwater Management Plan shall demonstrate compliance with that plan as follows:

   a) At least annually, inspect, clean, and maintain the stormwater management facilities, including, but not limited to, parking areas, catch basins, drainage swales, detention basins and ponds, pipes, and related structures, in accordance with all City and state inspection, cleaning and maintenance requirements of the approved post-construction stormwater management plan.

   b) Repair deficiencies found during inspection of the stormwater management facilities.

   c) On or by July 15 of each year, provide a completed and signed certification to the Department of Public Works certifying that the person has inspected, cleaned, and maintained the stormwater management facilities, describing any deficiencies found during inspection of the stormwater management facilities, and certifying that the person has repaired any deficiencies in the stormwater management facilities noted during the annual inspection. A form for the annual stormwater certification is available on the City's web site.

   d) The required inspection(s) must be conducted by a qualified inspector. The inspector shall perform an initial inspection to determine the status of the stormwater management facilities. If the initial inspection identifies any deficiencies with the facilities, the same inspector shall reinspect the facilities after they have been maintained or repaired to determine if they are performing as intended.

   e) "Qualified Inspector" means a person who conducts post-construction stormwater management facilities, best management practice ("BMP") inspections, and meets the following qualifications:

      i. The inspector shall not have any ownership or financial interest in the property being inspected nor be an employee or partner of any entity having an ownership or financial interest in the property; and

      ii. The inspector shall have a working knowledge of Chapter 500, Stormwater Management Rules, and Maine's Stormwater BMP Manual; and

      iii. The qualified inspector must be on the DEP's list of approved post-construction stormwater BMP inspectors, or alternately, shall satisfy at least one of the criteria outlined below:

         1) Nonproprietary stormwater management facilities
            a) Has a college degree in environmental science or civil engineering and is a professional engineer with at least three years of experience designing, evaluating or inspecting stormwater management facilities; or

            b) Has a college degree in an environmental science or civil engineering, or comparable expertise, and has demonstrated a practical knowledge of stormwater hydrology and stormwater management techniques, including

the maintenance requirements for stormwater management facilities, and has the ability to determine if stormwater facilities are performing as intended. This qualification must be accompanied by two professional references to be valid; or

c) Has successfully completed the requirements of a DEP training course on inspecting post-construction stormwater management facilities. Note: successful completion may require receiving a passing grade in an examination at the conclusion of the course.

2) Proprietary stormwater management facilities
   a) Proprietary stormwater management facilities must be inspected by a person approved by the manufacturer.

B. In order to determine compliance with this section and with the Post-Construction Stormwater Management Plan, the Director of the Department of Public Works or their designee may enter upon a property at reasonable hours and after making a good-faith effort to contact the owner, occupant, or agent to inspect the stormwater management facilities. Entry into a building shall only be after notice is provided to the owner, occupant, or agent.

C. Submission requirements.

1. The Post-Construction Stormwater Management Plan shall conform to the applicable submission requirements of Section 8 of DEP Chapter 500 Rules.

   a) The applicant shall provide the Department of Public Works with an electronic copy of the Post-Construction Stormwater Management Plan in a format that is compatible with the City's requirements. Following completion of construction, the applicant shall provide the City with an updated version of the plan showing the stormwater management facilities as actually constructed.

   b) The Planning Board may modify or waive any of the submission requirements for a Post-Construction Stormwater Management Plan if the Planning Board finds that, due to the unique physical characteristics of the site or the scale of the proposed activity, the information is not required to allow the Planning Board to determine if the applicable stormwater management standards are met.

2. As-built certification. Prior to the issuance of a certificate of occupancy for a project requiring a Post-Construction Stormwater Management Plan under this chapter, the applicant shall submit evidence in the form of a letter with as-built survey plan prepared and stamped by a professional engineer who either prepared the Post-Construction Stormwater Management Plan and its associated facilities or supervised the plan and facilities construction and implementation. The letter or plan shall certify that the stormwater management facilities have been installed in accordance with the approved Post-Construction Stormwater Management Plan and that they will function as intended by said plan. The as-built survey plan shall be performed for all post-construction stormwater facilities to document general conformance with the approved plans.

§ XII5. Drainage Plan

A. A drainage plan is required for activities that result in the expansion or alteration of an existing building or structure that results in the creation or redevelopment of ten thousand (10,000) square feet of impervious surface. New principal buildings that are located in a subdivision with an

approved post-construction stormwater management plan are not required to comply with the requirement for a drainage plan if the approved stormwater management plan contains provisions that adequately address surface drainage related to the construction of the building, as determined by the CEO.

B. The drainage plan shall meet the "urban impaired stream standard" of DEP Chapter 500 Rules when located within a watershed designated by the Maine Department of Environmental Protection as an urban impaired stream.

C. The drainage plan shall demonstrate that the proposed improvements are designed to minimize the volume of stormwater leaving the site. This shall include consideration of the design and location of improvements to minimize the total area of impervious surface on the site and stormwater management techniques to minimize both the volume and rate of runoff from the lot. The drainage plan shall provide for the treatment of 0.5 inch of runoff from 90% of the new or redeveloped impervious area and 0.2 inch of runoff from 75% of the new or redeveloped non-impervious surface area.

D. The drainage plan must also demonstrate that:

1. Stormwater draining onto or across the lot in its pre-development state will not be impeded or redirected so as to create ponding on or flooding of adjacent lots;

2. Any increase in volume or rate of stormwater draining from the lot onto an adjacent lot following the improvement can be handled on the adjacent lot without creating ponding, flooding, or other drainage problems and that the owner of the lot being improved has the legal right to increase the flow of stormwater onto the adjacent lot;

3. Any increase in volume or rate of stormwater draining from the lot onto City property following the improvement can be handled without creating ponding, flooding, or other drainage problems and that the owner of the lot being improved has the legal right to increase the flow of stormwater onto the City's property; and

4. Any increase in volume or rate of stormwater draining from the lot into the City's municipal storm drain system can be accommodated in the system without creating downstream problems or exceeding the capacity of the storm drain system.

E. Submission requirements:

1. A drainage plan must include a written statement demonstrating how the project has been designed to minimize the volume and rate of stormwater leaving the site, including provisions for minimizing the area of impervious surface or the use of LID practices, and a plan and supporting documentation with at least the following information:

a) The location and characteristics of streams or drainage courses existing on the parcel and/or abutting parcels.

b) The existing and proposed grading of the site using one-foot contours.

c) The location and area of existing and proposed buildings and impervious surfaces on the site.

d) The existing pattern of stormwater drainage on the site, including points of discharge to the City's municipal storm drain system or adjacent properties.

e) The proposed pattern of stormwater drainage after development, including the location and design of any stormwater facilities.

2. The City's reviewing authority may modify or waive any of the submission requirements for a Drainage Plan if the reviewing authority determines that the information is not required to determine if the drainage standard is met.

§ XII6. Standards for Drainage Easements and Rights-of-Way

If components of the stormwater runoff system lie outside of the public right-of-way, the applicant shall convey a stormwater easement that conforms to the following standards:

A. The minimum width of the easement shall be thirty (30) feet, provided that where a watercourse or retention area is wider than thirty (30) feet, the City's reviewing authority may require a drainage easement of adequate width to conform substantially to the lines of such watercourse or retention area, including additional width to provide access. The City's reviewing authority may reduce the width of the easement upon a positive recommendation from the Director of Public Works or their designee if the narrower easement will allow the stormwater facilities to be maintained or if the unique characteristics of the site make the creation of a wider easement impractical.

B. Where a drainage easement would include an open channel, stream or drainageway, the easement shall be designed and landscaped to further the objectives of the stormwater management plan. The natural landscape shall be retained to the extent practical, as determined by the Planning Board.

C. Where a drainage easement would include a closed conduit, the easement shall be centered along the conduit.

D. A public stormwater management system that will be offered to the City for acceptance as a public facility shall be located on a separate parcel of land deeded to the City.

§ XII7. General Erosion and Sediment Control Provisions

A. The Erosion and Sedimentation Control Law (Title 38 M.R.S. Section 420-C) applies to all activities in Maine's organized territories that will cause the filling, displacement or exposure of all earthen materials. The Erosion and Sedimentation Control Law requires that appropriate measures prevent unreasonable soil erosion and sedimentation beyond the site or into a protected natural resource (such as a river, stream, brook, lake, pond, or wetland). Erosion control measures must be installed before the activity begins and must be maintained until the site is permanently stabilized.

B. An Erosion Control Plan is required for all new development or redevelopment projects that result in one (1) or more acres of disturbed area or more than ten thousand (10,000) square feet of new or redeveloped impervious area. This provision also applies to projects disturbing less than one acre if the construction activity is part of a larger common plan or development or sale that would disturb one (1) or more acres.

C. Erosion Control Plan. The plan shall include comprehensive erosion and sediment control provisions as summarized below:

1. The plan shall show the use of erosion and sediment control best management practices (BMPs) at construction sites consistent with the minimum standards outlined in the Maine DEP Stormwater Rule Chapter 500 Appendix A – Erosion and Sediment Control, Appendix B –

Inspections and Maintenance, Appendix C – Housekeeping. Erosion and Sedimentation Control BMPs shall be designed, installed and maintained in accordance with the standards contained in the latest revisions of the following Maine DEP documents:

a) Maine Erosion and Sediment Control Best Management Practices (BMPs) Manual for Designers and Engineers

b) Maine Erosion and Sediment Control Practices Field Guide for Contractors

2. An erosion control plan prepared by a registered Maine professional engineer shall be submitted. The plan shall include the following:

a) Narrative. Provide a narrative describing the site's erosion potential and the measures to be employed to control erosion and sedimentation during construction and after completion of the development. Describe the temporary and permanent erosion control methods to be employed on the site.

b) Give the expected date by which final stabilization of the site will be complete.

c) Show the locations of all roads, lot boundaries, buildings, parking lots, material stockpiles, existing and proposed culverts, drainage channels, catch basins, subsurface drainage pipes and storm drain outfalls.

d) Show the location of all temporary and permanent erosion controls to be installed on the site.

e) Show the limits of the areas disturbed by construction.

f) Provide design drawings and specifications for the temporary and permanent erosion and sedimentation control measures to be used on the site. The drawings and details must be sufficiently detailed to allow a contractor unfamiliar with the controls to install and maintain them.

g) Provide calculations for sizing, spacing or stabilizing each erosion and sedimentation control measure in accordance with the latest revision of the Maine DEP “Erosion and Sediment Control Handbook for Construction: Best Management Practices”. These calculations must include analyses for determining the peak runoff flow to a control, its storage volume and its outlet design. At a minimum, the erosion and sedimentation control plan must include the following:

i. Location plan(s) showing, at a minimum, the location of structures, disturbed land, pre-construction site topography, post-construction site topography, on-site or adjacent water resources, and all erosion and sediment control measures.

ii. Detail plan(s) showing the following:

1) Erosion and sedimentation control notes including, but not limited to, permanent stabilization measures, seeding and mulching rates, and a construction schedule with the proposed construction dates and timeframe for major earth moving and construction events.

2) Construction and installation details for erosion and sedimentation control measures including, but are not limited to, sedimentation barriers, ditch lining,

rip rap, and culvert inlet and outlet designs.

3) Inspection and maintenance requirements for the temporary and permanent erosion and sedimentation controls for the project site shall be specified for each BMP in accordance with Maine DEP Stormwater Rule Chapter 500 Appendices A and B. At a minimum, the inspection and maintenance plan must include the following:

    a) List of the erosion control measure and stormwater management measures to be inspected and maintained (e.g., “parking lot catch basins”).

    b) Inspection and maintenance tasks specific to each erosion control measure or stormwater management measure (e.g., “remove accumulated sediments in basin sumps”). Submit the specific qualifications of the person performing each task (e.g., “a professional engineer registered in the State of Maine will inspect the retention pond embankment”).

    c) Specify required frequency of each inspection and maintenance task (e.g., “accumulated sediments will be removed from all catch basins annually in early spring”).

4) Responsible parties. Submit the name, job title, employer, employer address, phone number, and current email contact information for the person responsible for ensuring that inspection and maintenance tasks are completed. Submit the names, job titles, employer addresses, phone number, and any current email contact information of the engineers or other design professionals who designed the erosion control measures and stormwater management measures for the site. Include suppliers of proprietary erosion control measures or proprietary stormwater management measures used on the site.

5) For stormwater management pond(s) or basin(s) include a Maintenance Plan that specifies, at a minimum, the inspection and maintenance requirements for the pond’s embankments, outlet structure, and emergency spillway. Include as part of this plan provisions for the removal and disposal of accumulated sediments in the pond and the control of woody vegetation on the pond’s embankments.

6) For infiltration structure(s) or basin(s) include a Maintenance Plan that specifies, at a minimum, the inspection and maintenance requirements for the structure’s pretreatment measures, embankments, surface lining, and overflow spillway. Include as part of this plan provisions for the removal and disposal of accumulated sediments in the structure and for the rehabilitation of clogged surface linings.

7) For vegetated underdrained filter basins include a Maintenance Plan that specifies, at a minimum, the inspection and maintenance requirements for the filter embankments, surface lining, underdrain piping, and overflow spillway. Include as part of this plan provisions for the removal and disposal of accumulated sediments in the structure, the rehabilitation of clogged surface linings, and the flushing of underdrain piping.

8) For stormwater buffer(s) include a Maintenance Plan that specifies, at a minimum, the inspection and maintenance requirements to ensure the integrity and function of the project’s stormwater buffers. As part of this plan, include provisions for the

inspection, maintenance, and, if necessary, reconstruction of any level spreaders or ditch turnouts used to spread runoff into the buffers. Include as part of this plan provisions for the frequent removal and disposal of accumulated sediments and debris in the level spreader and turnout bays, provisions for the inspection and repair of any eroded areas within the buffer, and provisions for the re-establishment of buffer vegetation destroyed by post-construction activities.

9) For manufactured stormwater treatment system(s) include a Maintenance Plan that specifies, at a minimum, the inspection and maintenance requirements for the system's inlet, treatment chamber(s), and outlet. The plan shall conform to the inspection and maintenance guidelines recommended by the manufacturer based on the estimated runoff and pollutant load expected to the system from the project. As part of this plan, include provisions for the frequent removal of accumulated sediments, debris, and contaminated waters from the system and, if applicable, provisions for the removal, disposal, and replacement of any clogged or spent filter media.

10) For ditches, culverts, and storm drains include a Maintenance Plan that specifies, at a minimum, the inspection and maintenance requirements for all stormwater conveyances to be built or installed on the site – including, but not limited to, ditches, swales, culverts, catch basins, and storm drain piping. As part of this plan, include provisions for the repair of eroded areas at the inlet, within, and at the outlet of each conveyance and include provisions for the frequent removal and disposal of accumulated sediments and debris at the inlet, within, and at the outlet of each conveyance.

3. Submit a Housekeeping Plan in accordance with the requirements contained in Maine DEP Stormwater Rule Chapter 500, Appendix C. The Housekeeping Plan shall address spill prevention, groundwater protection, fugitive sediment and dust, debris and other materials, trench or foundation de-watering, or non-stormwater charges, as applicable to the specific site.

Excerpts from Subdivision and Site Plan Regulations

The City's Subdivision and Site Plan Regulations also include the following language references to Article XII of the Zoning Ordinance:

Subdivision Regulations

The Subdivision Application includes the requirement for the preparation and submission of an erosion control plan as follows:

Erosion Control Plan shall be prepared in accordance with the requirements of the Zoning Ordinance, Chapter 230, Article 1207 – General Erosion and Sedimentation Control Provisions. In general, the plan shall show the use of erosion and sediment control best management practices (BMPs) at construction sites consistent with the minimum standards outlined in the Maine DEP Stormwater Rule Chapter 500 Appendix A – Erosion and Sediment Control, Appendix B – Inspections and Maintenance, Appendix C – Housekeeping. Erosion and Sedimentation Control BMPs shall be designed, installed and maintained in accordance with the standards contained in the latest revisions of the following Maine DEP documents:

- *Maine Erosion and Sediment Control Best Management Practices (BMPs) Manual for Designers and Engineers*
- *Maine Erosion and Sediment Control Practices Field Guide for Contractors*

Site Plan Review Ordinance

Site developments that are subject to Site Plan Review include:

A. Construction of:
   1) Nonresidential structures, including accessory uses or structures, having a total floor area of more than one thousand (1,000) square feet
   2) Multi-family dwellings.
B. Expansion of:
   1) Nonresidential structures, including accessory structures, by more than one thousand (1,000) square feet of ground floor area within a five (5) year period.
   2) Multifamily dwellings, by the addition of one or more units within an existing structure or expansion of the structure to accommodate new units.
C. Conversion of single family or two-family dwellings to multi-family use.
D. Changing the siding or roofing materials of the street-facing façade of a nonresidential or multifamily structure or accessory structure by more than twenty-five (25) percent of the surface area of the siding or roof.
E. Proposals to pave, strip, or grade more than ten thousand (10,000) square feet within a five (5) year period.
F. Proposals for earth removal of more than ten thousand (10,000) square feet or one hundred (100) cubic yards within a five (5) year period.
G. Construction or expansion of boat building and repair facilities, marinas, piers, docks, boat houses, and port facilities.
H. The addition of a drive-up window.
I. Proposals to construct buildings taller than 35' high.
J. Site Location of Development. Site developments needing approval under 38 M.R.S.A. § 481-488, as permitted under 38 M.R.S.A. § 489-A, shall be reviewed under the procedures section of this Chapter and shall meet the standards of 38 M.R.S.A. §§ 481 to 490, as amended, as well as those in the regulations of the Maine Department of Environmental Protection, including Chapters 342, 371, 372, 373, 375, 376, 377, and 380, and others which may be issued by the DEP, which are hereby adopted by reference for projects falling under this Chapter. Projects subject to this section shall also meet the standards of this chapter. The City will notify the Department of Environmental Protection upon the submission of any projects subject to this Chapter.
K. Site developments requiring stormwater permits pursuant to 38 M.R.S.A. § 420-D, shall, to the extent permitted under 38 M.R.S.A. § 489-A, be reviewed under the procedures of this Chapter; and they shall meet and comply with those rules promulgated by the Maine Department of Environmental Protection pursuant to 38 M.R.S.A. § 420-D, specifically Chapters 500, 501, and 502 Rules.

The Site Plan Review Application includes the requirement for the preparation and submission of an erosion control plan as follows:

Erosion Control Plan shall be prepared in accordance with the requirements of the Zoning Ordinance, Chapter 230, Article 1207 – General Erosion and Sedimentation Control Provisions. In general, the plan shall show the use of erosion and sediment control best management practices (BMPs) at construction sites consistent with the minimum standards outlined in the Maine DEP Stormwater Rule Chapter 500 Appendix A – Erosion and Sediment Control, Appendix B – Inspections and Maintenance, Appendix C – Housekeeping. Erosion and Sedimentation Control BMPs shall be designed, installed and maintained in accordance with the standards contained in the latest revisions of the following Maine DEP documents:

- *Maine Erosion and Sediment Control Best Management Practices (BMPs) Manual for Designers and Engineers*
- *Maine Erosion and Sediment Control Practices Field Guide for Contractors*

APPENDIX G

CONSTRUCTION INSPECTION FORM

CONSTRUCTION SITE INSPECTION FORM FOR SEDIMENT AND EROSION CONTROL

General Information					
Project Name:			Date of Inspection:		
Address:			Inspected by:		
Owner:			Last Rain Date:		
Contractor:			Rainfall Amount (in):		
Is Project located within Priority Watershed?	Yes	No	Inspection 1	Inspection 2	Inspection 3

Documentation		
a.) Erosion Control Plan Onsite	Yes	No
b.) Inspection/Maintenance Forms/logs complete?	Yes	No

1. Erosion Control Practices During Construction				Photo Number	Discharge to MS4
a.) Are all disturbed areas dormant >21 days stabilized?	Yes	No	N/A		
b.) Are stockpiles protected or stabilized?	Yes	No	N/A		
c.) Are stabilized areas in good condition and not eroding?	Yes	No	N/A		
d.) Are silt fence/mulch berms/socks installed correctly and functioning?	Yes	No	N/A		
e.) Are inlet protection measures installed correctly and functioning?	Yes	No	N/A		
f.) Are all areas at final grade >7 days permanently stabilized?	Yes	No	N/A		
g.) Are all riprap outlet protection measures installed correctly and functioning?	Yes	No	N/A		
Comments/Corrective Action Required:					

2. Sedimentation Control Practices During Construction				Photo Number	Discharge to MS4
a.) Construction entrance installed correctly and functioning?	Yes	No	N/A		
b.) Sedimentation basins/traps installed correctly and functioning?	Yes	No	N/A		
c.) Perimeter control measures installed correctly and functioning?	Yes	No	N/A		
d.) Check dams installed correctly and functioning?	Yes	No	N/A		
e.) Dewatering area installed correctly and functioning?	Yes	No	N/A		
f.) Sediment contained on site?	Yes	No	N/A		
Comments/Corrective Action Required:					

3. Maintenance				Photo Number	Discharge to MS4
a.) E&S measures adequately maintained and functioning?	Yes	No	N/A		
b.) Sedimentation basin adequately maintained?	Yes	No	N/A		
c.) Ditches clean and not in need of maintenance?	Yes	No	N/A		
d.) Offsite paved areas clean and no evidence of track-out?	Yes	No	N/A		
e.) Dust control being implemented and functioning?	Yes	No	N/A		
Comments/Corrective Action Required:					

4. Other				Photo Number	Discharge to MS4
a.) All waste/litter contained (dumpster covered)?	Yes	No	N/A		
b.) Spill controls in place for petroleum or hazardous chemicals?	Yes	No	N/A		
c.) Concrete washout contained and functioning?	Yes	No	N/A		
d.) Are the natural buffers protected on the site?	Yes	No	N/A		
e.) Site compliant with approved plans?	Yes	No			
Comments/Corrective Action Required:					

Any Other Comments:

APPENDIX H

SAMPLE VIOLATION LETTER

CITY OF SACO, MAINE

Code Enforcement Department

Saco City Hall
300 Main Street
Saco, Maine 04072-1538

David Twomey, CBO
Director of Code Enforcement
Telephone: (207) 284-6983
Email: dtwomey@sacomaine.org
Facebook: /sacomaine
Twitter: @sacomaine

<Date>

<Name>
<Address>
<City, State, Zip>

RE: Stormwater Management Plan Report, <name of project, address, map/lot>

Dear Sir/Madam:

Recently the City of Saco Public Works Department reached out to you to advise that your annual Post Construction Stormwater Management Report was due per the terms of your Site Plan Approval and the requirements of the City of Saco Code of Ordinances, Chapter 230 Zoning, Section 805 Stormwater Runoff, a copy of which is enclosed. These reports are due annually, but we have not received your report as of the writing of this letter.

By not filing the report in a timely manner, you are in violation of the City Ordinance and of your Planning Board approval. If it becomes necessary for the City to enforce it laws through the Maine Courts (Maine Civil Rules of Procedure, rule 80-K Land Use Citation and Complaint) and the municipality is the prevailing party, the court may award a minimum penalty of $100, and the maximum penalty is $2,500 for violation of the Building, Plumbing or Electrical Code Standards, Property Maintenance Code Standards, or any land use regulations including zoning or subdivision rules. The court may also order the correction or abatement of the violations cited above. Monetary penalties may be assessed on a per-day basis and are civil penalties. The municipality must be awarded reasonable attorney fees, expert witness fees and costs, unless the court finds that special circumstances make the award of these fees and costs unjust. If the defendant is the prevailing party, the defendant may be awarded reasonable attorney fees, expert witness fees and costs as provided by court rule.

The City would much prefer to not bring its citizens and businesses through this process however we are committed to meeting our obligations under the National Pollutant Discharge Elimination System (NPDES) as a regulated community under the municipal separate storm sewer systems (MS4s) program.
https://www.epa.gov/npdes/stormwater-discharges-municipal-sources

I have enclosed a copy of the standardized report that can be completed and sent in. When completed, please forward this report to Joseph Laverriere, at the address shown at the bottom of the form. If you have any questions regarding this process or the reporting obligations, please contact Joe directly at (207) 284-6641 or jlaverriere@sacomaine.org

Thank you for your immediate attention in this matter.

Regards,

David Twomey, CBO
Director of Code Enforcement
City of Saco, Maine

Excerpt of City of Saco Code of Ordinances

Chapter 230, Section 805, Stormwater Runoff

Any person, business, corporation or other entity owning, leasing or having control over stormwater management facilities required by a Post-Construction Stormwater Management Plan shall demonstrate compliance with that Plan as follows:

A. That person shall, at least annually, inspect, clean and maintain the stormwater management facilities, including, but not limited to, any parking areas, catch basins, drainage swales, detention basins and ponds, pipes and related structures, in accordance with all City and State inspection, cleaning and maintenance requirements of the approved Post-Construction Stormwater Management Plan.

B. That person shall repair any deficiencies found during inspection of the stormwater management facilities.

C. That person shall, on or by July 15th of each year, provide a completed and signed certification to the Department of Public Works certifying that the person has inspected, cleaned and maintained the stormwater management facilities, describing any deficiencies found during inspection of the stormwater management facilities and certifying that the person has repaired any deficiencies in the stormwater management facilities noted during the annual inspection. The form of the Annual Stormwater Certification is attached as Form 2.

D. The required inspection(s) must be conducted by a qualified inspector employed by the responsible person. The qualified inspector shall perform an initial inspection to determine the status of the stormwater management facilities. If the initial inspection identifies any deficiencies with the facilities, the same qualified inspector shall re-inspect the facilities after they have been maintained or repaired to determine if they are performing as intended.

E. The qualified inspector means a person who conducts post-construction stormwater management facilities, Best Management Practice ("BMP") inspections and meets the following qualifications:

1.) The inspector shall not have any ownership or financial interest in the property being inspected nor be an employee or partner of any entity having an ownership or financial interest in the property; and

2.) The inspector shall have a working knowledge of Chapter 500, Stormwater Management Rules, and Maine's Stormwater BMP Manual, and

3.) The qualified inspector shall meet at least one of the following criteria outlined in a-c below; or the qualified inspector must be on the DEP's list of approved post construction stormwater BMP inspectors.

Non- Proprietary Stormwater Management Facilities

a.) Has a college degree in environmental science or civil engineering and is a professional engineer with at least three years of experience designing, evaluating or inspecting stormwater management facilities; or

b.) Has a college degree in an environmental science or civil engineering, or comparable expertise, and has demonstrated a practical knowledge of stormwater hydrology and stormwater management techniques, including the maintenance requirements for Stormwater Management Facilities, and has the ability to determine if stormwater facilities are performing as intended. This qualification must be accompanied by two professional references to be valid; or

c.) Has successfully completed the requirements of a DEP training course on inspecting post-construction stormwater management facilities. Note: successful completion may require receiving a passing grade in an examination at the conclusion of the course.

Proprietary Stormwater Management Facilities

a.) Proprietary stormwater management facilities must be inspected by a person approved by the manufacturer.

FORM 2

Annual Stormwater Management Facilities Certification
(to be completed by a Qualified Post-Construction Stormwater Inspector and sent to City of Saco Public Works Department)

I, _____ (print or type name), a Qualified Post-Construction Stormwater Inspector, certify the following:

1. I am making this Annual Stormwater Management Facilities Certification for the following property: _____ (print or type name of subdivision, condominium or other development) located at _____ (print or type address), (the "Property");

2. The owner, operator, tenant, lessee or homeowners' association of the Property is: _____ (name(s) of owner, operator, tenant, lessee, homeowners' association or other party having control over the Property);

3. I have knowledge of erosion and stormwater control and have reviewed the approved Post-Construction Stormwater Management Plan for the Property;

4. On _____, 20__, I inspected the Stormwater Management Facilities, including but not limited to parking areas, catch basins, drainage swales, detention basins and ponds, pipes and related structures required by the approved Post-Construction Stormwater Management Plan for the Property;

5. At the time of my inspection of the Stormwater Management Facilities on the Property, I identified the following need(s) for routine maintenance or deficiencies in the Stormwater Management Facilities:

_____

_____

6. On _____, 20__, I took the following routine maintenance or the following corrective action(s) to address the deficiencies in the Stormwater Management Facilities stated in 5. above:

_____

_____

7. As of the date of this certification, the Stormwater Management Facilities are functioning as intended by the approved Post-Construction Stormwater Management Plan for the Property.

Date:_____, 20__. By:_____
Signature

_____

Print Name

STATE OF MAINE
_____, ss. _____, 20__

Personally appeared the above-named _____, the _____ of _____, and acknowledged the foregoing Annual Certification to be said person's free act and deed in said capacity.

Before me, _____
Notary Public/Attorney at Law
Print Name: _____

1. The owner, operator, tenant, lessee, or other party having control over the Property shall sign below verifying the information above was completed by a Qualified Post-Construction Stormwater Inspector.

Date:_____, 20__. By:_____
Signature

_____
Print Name

STATE OF MAINE
_____, ss. _____, 20__

Personally appeared the above-named _____, the _____ of _____, and acknowledged the foregoing Annual Certification to be said person's free act and deed in said capacity.

Before me, _____
Notary Public/Attorney at Law
Print Name: _____

Mail or hand deliver this certification to the City of Saco at the following address:
City of Saco c/o City Engineer
300 Main Street
Saco, ME 04072