STORMWATER MANAGEMENT PLAN

FOR

TOWN OF CAPE ELIZABETH, MAINE

MS4 General Permit Effective July 1, 2022
Initial Submittal to Maine DEP March 30, 2021

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1 INTRODUCTION

1.1 Overview of Regulatory Program

The Town of Cape Elizabeth 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, the permit will be administratively continued, and the Town 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 Town of Cape Elizabeth became regulated in 2003 based on the 2000 census.

Once a community becomes regulated by the MS4 General Permit, only the Urbanized Area portions of the town are regulated. 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. So, 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 that is regulated by the 2022 MS4 General Permit for the town, 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 which are subject to their own MS4 General Permit, and eight state/federal agencies (which are called "nested" MS4s) that are

subject to a third MS4 General Permit. 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 General Permit such as public outreach and training as a cost saving measure and to improve the quality of compliance.

The Town of Cape Elizabeth is a member of the Casco Bay Interlocal Stormwater Working Group (ISWG), pronounced *izzy-wig.* ISWG is a coalition of 14 MS4 municipalities in the greater Portland and Saco areas (Biddeford, 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 Town of Cape Elizabeth relies on the ISWG to complete some requirements, hires a third party-consultant to implement some requirements and implements other requirements using municipal staff. 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 Town 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:

1 Education/Outreach Program
2 Public Involvement and Participation
3 Illicit Discharge Detection and Elimination Program
4 Construction Site Stormwater Runoff Control

5 Post-Construction Stormwater Management in New Development and Redevelopment
6 Pollution Prevention/Good Housekeeping for Municipal Operations

The 2022 MS4 General Permit requires that for each MCM, the Town 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 (6) Minimum Control Measures, the Town must address several impaired waters requirements. Sections 1.4 and 1.5 describe the water quality status in the Town, and what watersheds are considered to be 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 Town is controlling pollutants to the "Maximum Extent Practicable". 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 Town is allowed to consider these concepts as they select Best Management Practices (BMPs) to meet permit requirements, but the Maine DEP decides if the Town is meeting the "Maximum Extent Practicable" standard.

The SWMP is not an enforceable document and so some flexibility is built in to 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 Town to adjust BMPs throughout the Permit Cycle if needed based on evaluations of their effectiveness, changing conditions, specific local concerns, or changes in other factors. Some SWMP Modifications require 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 a 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 GP 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 Town's MS4. If applicable, Section 1.4.3 describes recent progress by the Town on addressing any impairments which have MS4 requirements and provides rationale for how the BMPs in this SWMP address 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:

- Lakes and ponds are assessed primarily through data obtained by the 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 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 DEP Biomonitoring Program.

- Rivers and Streams are assessed using data from the 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.

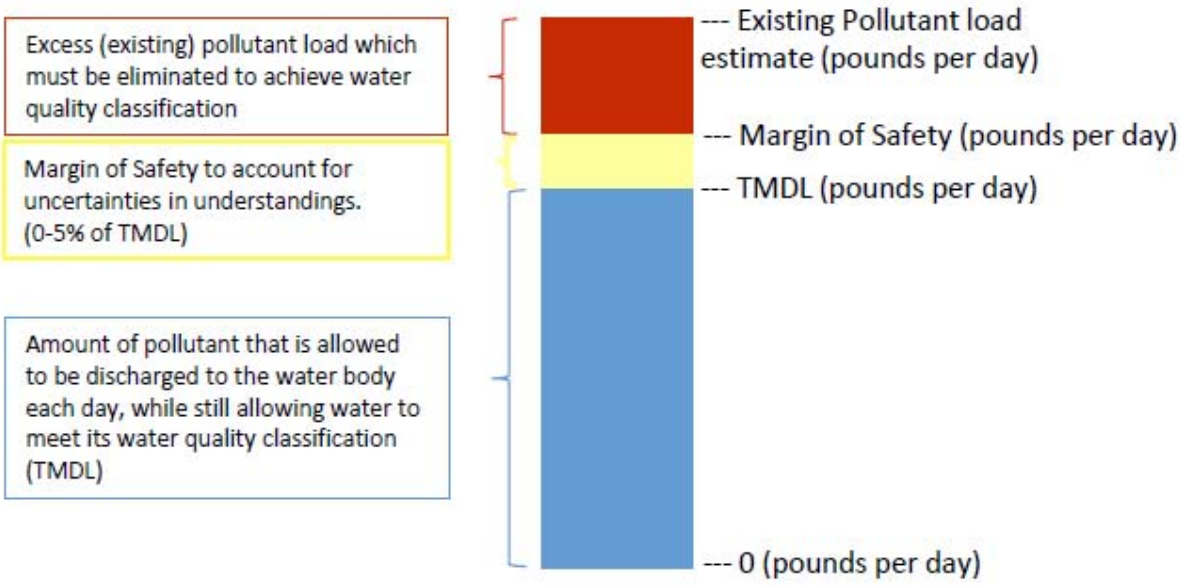
Every two years, the DEP publishes a report and list documenting the results of the assessments, and identifying which waters are meeting their designated classifications, and which are considered impaired. The report and list are called the Integrated Water Quality Report and are generally referred 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 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 Cape Elizabeth Water Quality Status

The following is a summary of the waters in the Town's Urbanized Area that receive point source discharges from the Town's MS4 and each waterbody's TMDL and impairment status. Table 1 shows the waters where the Town has MS4 discharges and their impairment status. The Table shows the number of MS4 outfalls (in parentheses) that discharge to each waterbody as of December 2020.

The following documents were reviewed in making these determinations:

- Statewide Bacteria TMDL (September 2009)
- Chapter 502 Direct Watersheds of Lakes Most at Risk from New Development and Urban Impaired Streams

- Impervious Cover TMDL (September 2012)
- Trout Brook Watershed Management Plan (December 2012)
- Trout Brook TMDL (October 2007)
- Final 2016 Maine Integrated Water Quality Report and Appendices (a.k.a. Maine 303(d) list)

Figure 1 shows the locations of the fresh waters and their status according to the 2016 303(d) list.

Figure 1
Cape Elizabeth Fresh Water Impairment Status

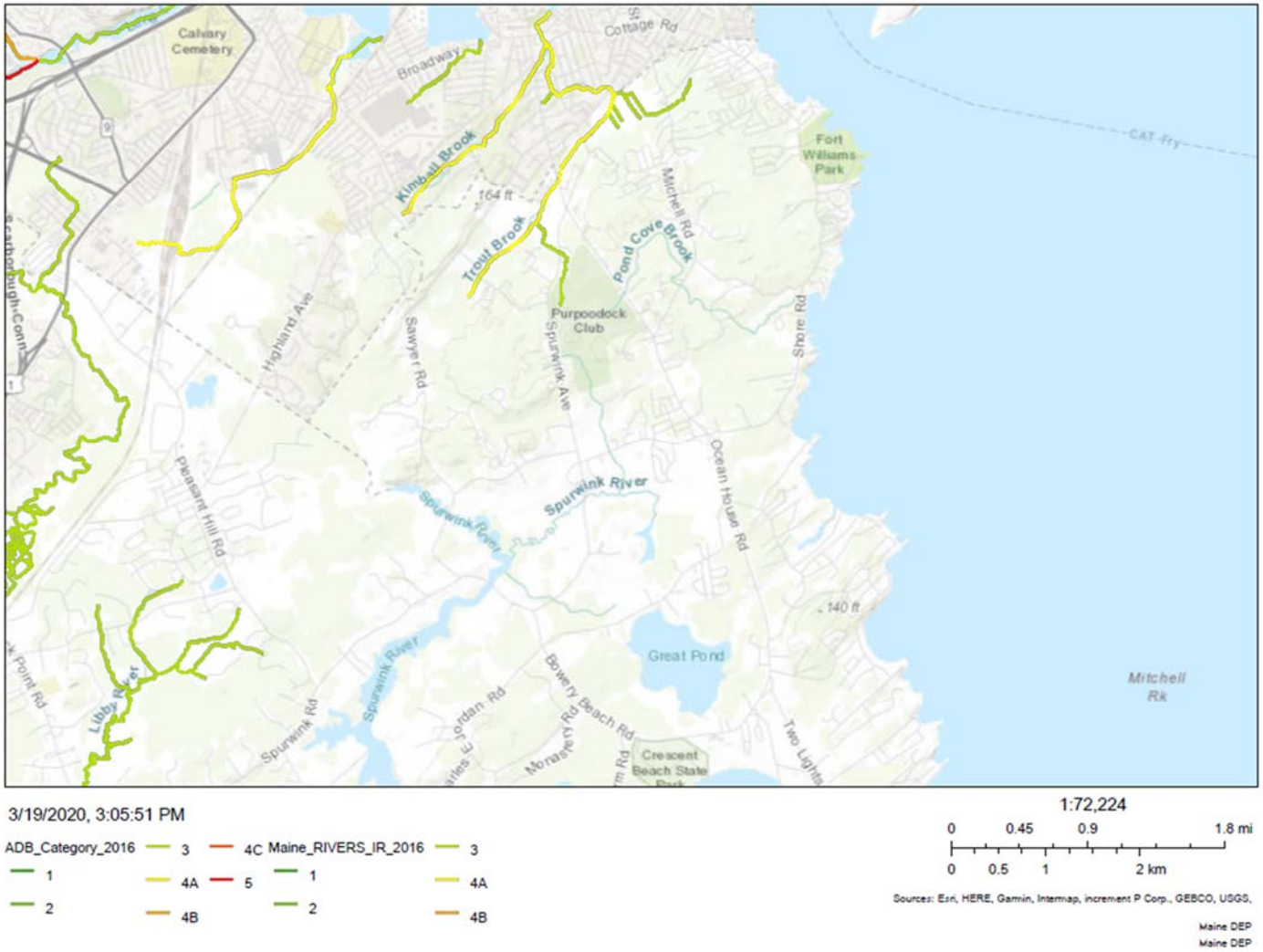
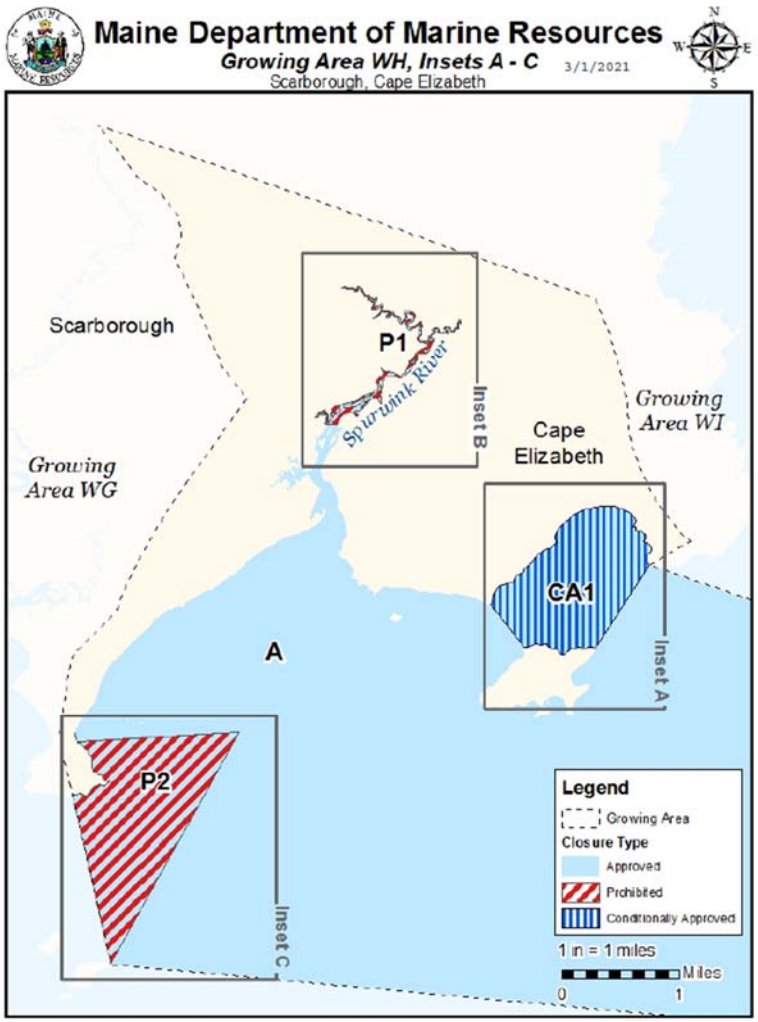
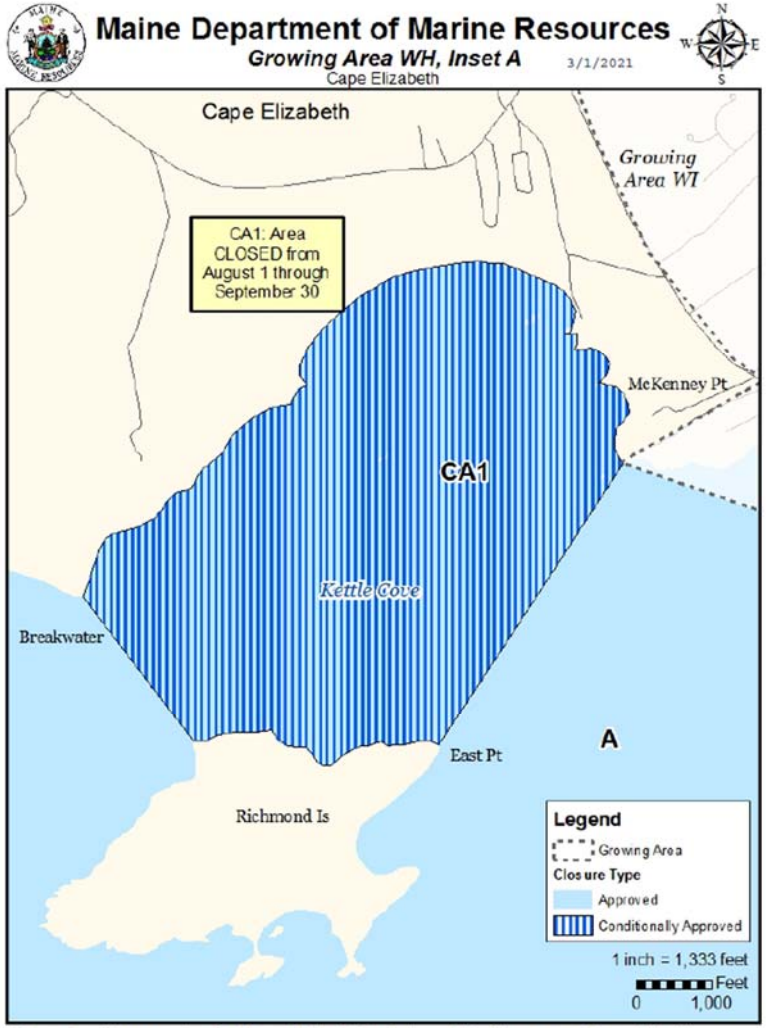


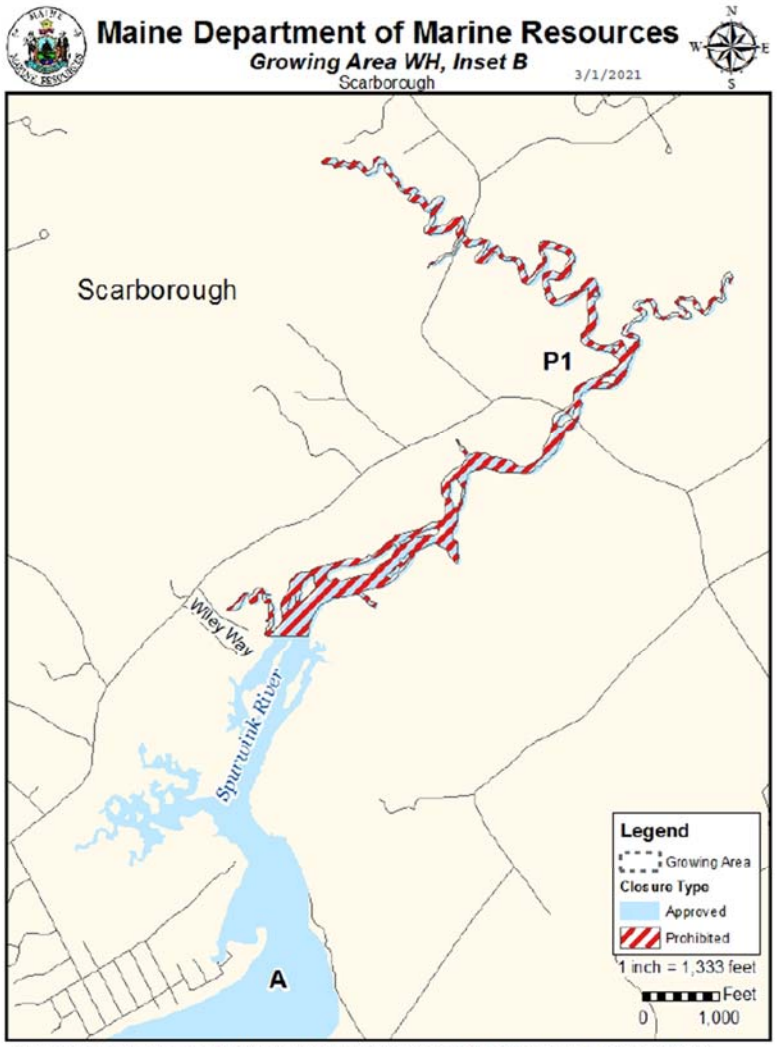
Figure 1 Fresh Water Impairment Status from 2016 303(d) list

(Taken from https://maine.maps.arcgis.com/apps/webappviewer/index.html?id=dffb3d2b85904b18978d02fc9d913b5f).

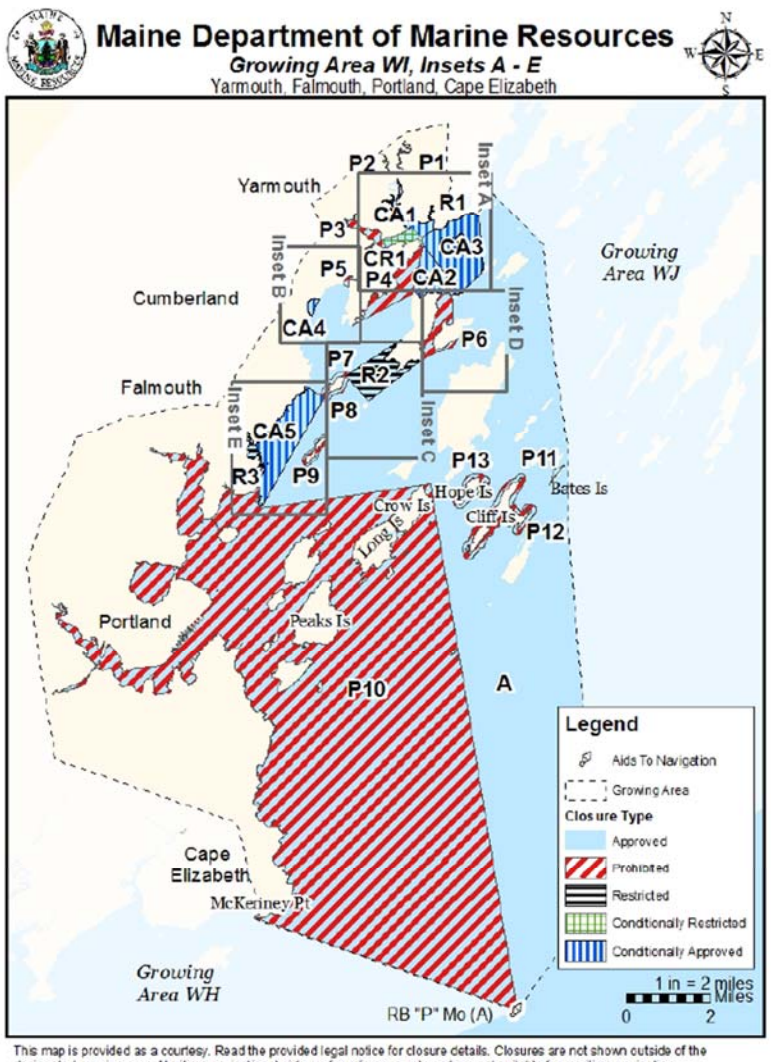
Figures 2a, 2b, 2c and 2d show the status of marine waters according to the Department of Marine Resources (from https://www.maine.gov/dmr/shellfish-sanitation-management/closures/index.html). Because DMR updated their designations and naming structure on 3/1/2021, the Figures reflect the new designations and naming structure and Table 1 shows both the new designation and the old DMR designation that was in effect when the 2022 MS4 General Permit was finalized on 10/15/2020.







This map is provided as a courtesy. Read the provided legal notice for closure details. Closures are not shown outside of the designated growing area. Maritime navigational aids are for reference only and are not suitable for maritime navigation.



This map is provided as a courtesy. Read the provided legal notice for closure details. Closures are not shown outside of the designated growing area. Maritime navigational aids are for reference only and are not suitable for maritime navigation.

Table 1 Status of Waterbodies Receiving MS4 Discharges – Cape Elizabeth Maine						
Water bodies with MS4 discharges (# outfalls)	**Maine DEP classification and numeric designation**	**DMR Area**	**Completed TMDLs (EPA approval date shown)**	**Urban Impaired Stream (Chapter 502)**	**Non-TMDL listing in 2016 303(d) list**	**Watershed Management Plan / Other Water Quality Document**
Spurwink River Estuary (58 ditch + 86 piped outfalls)	811-4 SA/SB	WH (Prev. 12.A.1)	None	None	Cat. 5-B-1 Bacteria Only 2020 Shellfishing Prohibited Area	None
Western Casco Bay and islands (Atlantic Ocean) - Kettle Cove/Crescent Beach Area (6 outfalls)	811 - SB	WH (Prev. 12.B)	None	None	Cat. 5-B-1 Bacteria Only 2020 Conditionally Approved	None
Western Casco Bay and islands (Atlantic Ocean) – North of Two Lights (29 ditch + 90 piped outfalls)	804 – SA/SB	WI (Prev. 13.A.1)	None	None	Cat. 5-B-1 Bacteria Only 2020 Shellfishing Prohibited Area	The Ottowa Road Pump station, a private residence in Smugglers Cove, and Fort Williams have Overboard Discharge licenses.
Trout Brook (10 ditch + 38 outfalls)	ME0106000105_610R05 B (headwaters to Highland) and C (Sawyer Marsh)	-	Trout Brook/Kimball Brook TMDL 2007	Yes	None (Cat. 4a TMDL completed)	Watershed Management Plan 2012 And CFUP
Dyer Pond/Wetlands (1 ditch + 1 piped outfalls)	No designation - B	-	None	None	None	None
Great Pond (7 ditch + 9 piped outfalls)	5648 GPA	-	None	None	None	None
Alewife Brook (6 ditch + 3_ piped outfalls)	No designation SB from the ocean to a rock dam	WI (Prev.	None	None	Cat. 5-B-1 Bacteria Only	The discharge pipe for Town's WWTP

Table 1 Status of Waterbodies Receiving MS4 Discharges – Cape Elizabeth Maine						
Water bodies with MS4 discharges (# outfalls)	**Maine DEP classification and numeric designation**	**DMR Area**	**Completed TMDLs (EPA approval date shown)**	**Urban Impaired Stream (Chapter 502)**	**Non-TMDL listing in 2016 303(d) list**	**Watershed Management Plan / Other Water Quality Document**
	at Old Ocean House Road, then B from Old Ocean House Road inland.	13.A.1)			2020 Shellfishing Prohibited Area	is at this location.
Unnamed water (wetland) (1 outfall off Rt 77)	None	-	None	None	None	None

Table 1 shows the Town has one Urban Impaired Stream, which also has its own TMDL (Trout Brook) and several marine/estuarine waters that are listed on the 303(d) list for bacteria impairments. Note that the bacteria impaired waters used to be listed in the 2009 Bacteria TMDL but 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.

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 Town has done in recent years to improve water quality in these waters.

1.4.3.1 Discharges to Waters with TMDLs

As shown in Table 1, a TMDL was prepared for Trout Brook in September 2007. The TMDL covers a 1.8-mile segment from Ocean House Road (Route 77) to the Highland Avenue bridge in South Portland. The centerline of about 0.5 miles of this segment forms a portion of the boundary between South Portland and Cape Elizabeth. This segment is classified as Class C. The 2016 303(d) list shows the entire length of Trout Brook 2.93 miles, to be impaired as Category 4-A TMDL Complete because a Watershed Management Plan was completed in 2012 for the watershed, and restoration activities began.

The TMDL identified the primary sources of the impairment to be urban stormwater and established the TMDL Waste Load Allocation (WLA) to be 11% Impervious Cover (9% plus a 2% margin of safety). This 708-acre portion of the watershed was identified as having 15% IC by converting land use to % IC. To meet the 11% TMDL, a minimum of 28 acres of land require disconnection. The impervious cover evaluation was updated in the Watershed Management Plan as described in the next section.

The TMDL also included WLAs for lead and zinc, which are surrogates representing the complex mixture of metals in stormwater. The lead and zinc WLAs are based on the chronic stormwater quality Criteria at 20 mg/L hardness and stream flow. The lead WLA ranges from 0.000022 lbs./day at stream flows of 0.01 cfs to 0.33 lbs./day at stream flows of 15 cfs (Chronic SWQC = 0.41 ug/L). The zinc WLA ranges from 0.0016 lbs./day at stream flows of 0.01 cfs to 2.47 lbs./day at stream flows of 15 cfs (Chronic zinc SWQC = 30.6 ug/L).

The Waste Load Allocation in the TMDL is assigned entirely to the MS4 areas in South Portland and Cape Elizabeth (there are no non-MS4 areas in the watershed, and there are no other point source discharges in the watershed). However, no specific actions were required of MS4s to address these WLAs.

This is the only water in Cape Elizabeth with a TMDL that the Town's MS4 discharges into. Because Trout Brook is also an UIS, the 2022 MS4 General Permit requires the Town to

implement 3 BMPs to address the water's impairment therefore, 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 3 BMPs and their Measurable Goals as described in Section 2.7 of this SWMP.

As an Urban Impaired Stream, Trout Brook has received much attention over the past decade in order to attempt to correct the Brook's impairment. The City of South Portland and Town of Cape Elizabeth have completed several projects related to water quality improvement. The following is a brief timeline showing recent studies and projects since the TMDL was completed.

In 2009, Casco Bay Estuary Partnership (CBEP) conducted a fish barrier survey of culverts in the Trout Brook Watershed.

In 2011/2012, the City of South Portland and Cumberland County Soil and Water Conservation District (CCSWCD) developed a Watershed Management Plan for Trout Brook and Kimball Brook. The Town of Cape Elizabeth, Maine DEP, CBEP and residents were all active participants in generating the Plan. The Trout Brook Watershed Management Plan refined the understanding of the watershed beyond that which was included in the TMDL and included all portions of the watershed (not just the TMDL segment).

The refinement included re-evaluation of the %Impervious cover for the watershed and included an action plan that would correct more issues than just the impervious cover issue. The work included delineation of 31 individual catchments in the watershed and evaluated the impervious cover for each. 25 of the catchments contributed less than 2% of the watershed imperviousness, but the remaining 6 catchments were larger and comprised between 2.5% and 11.6 % of the watershed imperviousness. The results showed that the overall watershed was 12% IC, and the direct Trout Brook Watershed was 13.6%. To achieve the TMDL WLA, 14 acres of impervious cover would require treatment in the direct Trout Brook Watershed (or 36 acres of the larger overall watershed).

In addition to the impervious cover evaluation, the Watershed Management Plan summarized prior studies (a 2003 Culvert Assessment, the 2009 CBEP fish barrier survey) and a 2011 stream corridor assessment. The Plan reviewed all the action items recommended by prior studies and categorized and prioritized them. The Plan identified 5 Restoration Strategies which categorize the recommended actions to improve water quality so the water can meet its Class C standards.

1. Nutrient Reduction Practices
2. Stream Habitat Restoration
3. Chloride Reduction

4. Stormwater Treatment and Impervious Cover Reduction
5. Citizen Outreach

In 2014, the Town of Cape Elizabeth developed a Compensation Fee Utilization Fund Plan to hold funds to correct impairments created by developments in the Watershed (as allowed by Maine DEP Chapter 500). In Town collected $25,000 from a subdivision which was created in in the watershed.

In 2013-2015, the Trout Brook Restoration Project Phase I was completed (DEP 319 funded project 2013RT08) which included removing invasive plants, replanting 565 feet of riparian area adjacent to the Brook using a Youth Conservation Corps, and conducting a pilot volunteer biomonitoring program for the Brook.

In 2016 Trout Brook Restoration Project Phase II was completed (DEP 319 funded project 2014RT08), which included installation of BMPs at 5 sites:

- rehabilitation of a church detention basin, and installation of a Focal Point Bioretention system to provide treatment for nutrients from parking lot prior to discharge to the Brook,
- Replacement of two failing culverts at an agricultural site (addressing erosion)
- Installation of a StormTree unit to provide treatment of 0.5 acres of impervious (road) surface on Boothby Avenue.

In 2020 Trout Brook Restoration Project Phase III was completed which included the following activities:

- at the Down Home Farm in the mid to upper portions of the watershed:
  - Construction of 720 feet of livestock fencing to prevent livestock access to the brook
  - Construction of a manure storage shed (for pigs),
  - Replacement of the irrigation pond outlet culvert, repair of its outlet control structure, and installation of a second culvert and overflow berm to increase oxygen in the stream
- planning for a rain garden at the Brown School roundabout was completed, but installation was not able to be completed because of Covid-19 social distancing restrictions.

As described above, many of the recommended actions have already been completed in the Trout Brook Watershed since the 2007 TMDL and the 2012 Watershed Management Plan were prepared. As each phase of restoration has been completed, a Non-Point Source (NPS) Tracking spreadsheet is updated showing which of the items recommended in the Watershed Management Plan have been completed. Each of the items in the NPS Tracker is listed as high, medium, or low priority.

The Town of Cape Elizabeth, City of South Portland, and Cumberland County Soil and Water Conservation District (CCSWCD) met on 1/6/2021 and 1/13/2021 to review the status of the

projects recommended by the Watershed Management Plan and discuss what additional work would benefit Trout Brook. An additional meeting was held with staff from the Maine DEP Watershed Assessment Division on 1/24/2021. Based on the meetings, CCSWCD reviewed and updated the Non-Point Source Tracker to reflect what projects have been completed to date. The discussions resulted in the following findings and recommendations:

1. The section of the stream that borders the two municipalities has several outstanding high and medium priority inadequate buffer sites (13, 15, 16 and 17) and stream corridor erosion sites (26, 27, 30, 31, 32 and 33). This section of the stream is listed as the impaired segment according to the TMDL. Many of these sites are located in residential back yards, and also had yard waste dumping so could benefit from public education on buffers, and erosion control, and best practices for landscaping. In addition, other segments on the Cape Elizabeth side of the Brook, could benefit from additional public education (the State Street area, where the Youth Conservation Corps planted buffers in 2016 may benefit from reminders about maintenance of their buffers and the Spurwink/Valley Road area has some residential properties that abut the Brook headwaters). The Town of Cape Elizabeth, South Portland and CCSWCD agreed public education would be a good BMP for the impaired water and will be implementing a shared public education BMP. This BMP would address two of the five restoration strategies identified in the WMP (1. Nutrient Reduction and 5. Citizen Outreach).

2. The Town is also committed to minimizing the impact of chloride on the Brook and has worked with the ISWG to develop a BMP that will be implemented regionally to address the chloride restoration strategy (3) in the WMP.

3. The group reviewed the recommended Stormwater Catchment Retrofit Recommendations to address the 4th restoration strategy in the WMP (4. Stormwater Treatment and Impervious Cover Reduction). The NPS tracking spreadsheet shows most of the high priority items have been addressed, but there were several medium priority items which still need to be addressed. After reviewing the remaining recommendations within the Cape Elizabeth Town boundary, most were identified as either low priority and low impact on the Brook, or they have been completed:
    a. The following catchments are located outside the impaired segment: Catchments R, Y and F (in the headwaters Blueberry Road and Linwood Road, off Mitchell Road) were identified as low impact and low benefit. These are associated with outfalls 015A, 015B, 015C and 016, and are in a growth area for the Town.
    b. Similarly, Catchment Z1 was identified as low impact and low benefit.
    c. Catchment S (Waterhouse Road) – the issue identified in the WMP was addressed in 2016 by cleaning out vegetation and sediment at Outfall 013 on Waterhouse Road, revegetating and creating a new plunge pool.
    d. Catchments M and O were addressed during Phase II of the WMP implementation at 29 Ocean House Road.

The following catchments have not been addressed and will be investigated and assessed for impervious cover disconnection or stormwater treatment as an UIS BMP:

a. Catchment Z2 (Pleasant Ave) was not fully delineated at the time of the WMP but was rated as a medium benefit and medium impact to the Brook. The area has been mapped, and has disconnected infrastructure, ditches and swales, and a few catch basins with minimal subsurface piping. Though this catchment had low existing impervious cover, it is located in a growth area for the Town.
b. Catchment G (Spurwink and Route 77) this catchment contributes runoff from the north side of Trout Brook through Outfall 014. It has multiple catch basins and a drainage ditch that contributes runoff. This catchment was identified as medium impact with potential medium benefit to the stream, but the area is highly developed, and the Town owns no land except for the roads. The Maine DEP indicated any infiltration BMPs in this area that receive road runoff would need be lined to prevent chloride infiltration to groundwater.
c. Catchment E (State Street and Route 77) this catchment contributes runoff from the south side of Trout Brook through Outfall 14 (on Rt 77). This catchment was also identified as medium impact with potential medium benefit to the stream, but the area is highly developed, and the Town owns no land except for the roads.
d. Catchment K (Waterhouse Road) – the WMP also identified that the outfall needs to be stabilized Outfall 012 on Bradford Road, low impact, low benefit, but the site is co-located with an erosion site. The Town does not currently have a paper easement for this outfall and would need to work with property owners to conduct any significant maintenance or make changes to the infrastructure.
e. Catchment Q Wilton Lane – off State Street. The WMP recommended evaluation of installing a shallow paved swale and level spreader prior to allowing a single catch basin to discharge into the buffer (Outfall 15). (Low impact, medium benefit). The Town does not currently have an easement for this outfall and would need to work with property owners to conduct any significant maintenance or make changes to the infrastructure.

Some of the Catchments that remain to be addressed are co-located with Stream Channel Alteration sites, Inadequate Buffer sites, and Stream Corridor erosion sites.

The three recommendations described above (targeted public education, chloride reduction, and identification, design and installation of a retrofit or treatment for one of the catchments) were developed into BMPs for the Urban Impaired Stream and are described in Section 2.7 of this SWMP. Because the Town does not own property in an around the catchments identified in the WMP it would be complicated to install water quality treatment systems or to disconnect impervious cover. So, the Town is including a more detailed review of buffer and stream corridor erosion sites as part of their BMP set in the event installation of a retrofit or treatment of a catchment is not feasible.

Figure 14 from the Trout Brook WMP is provided below, which shows the catchment areas described above.

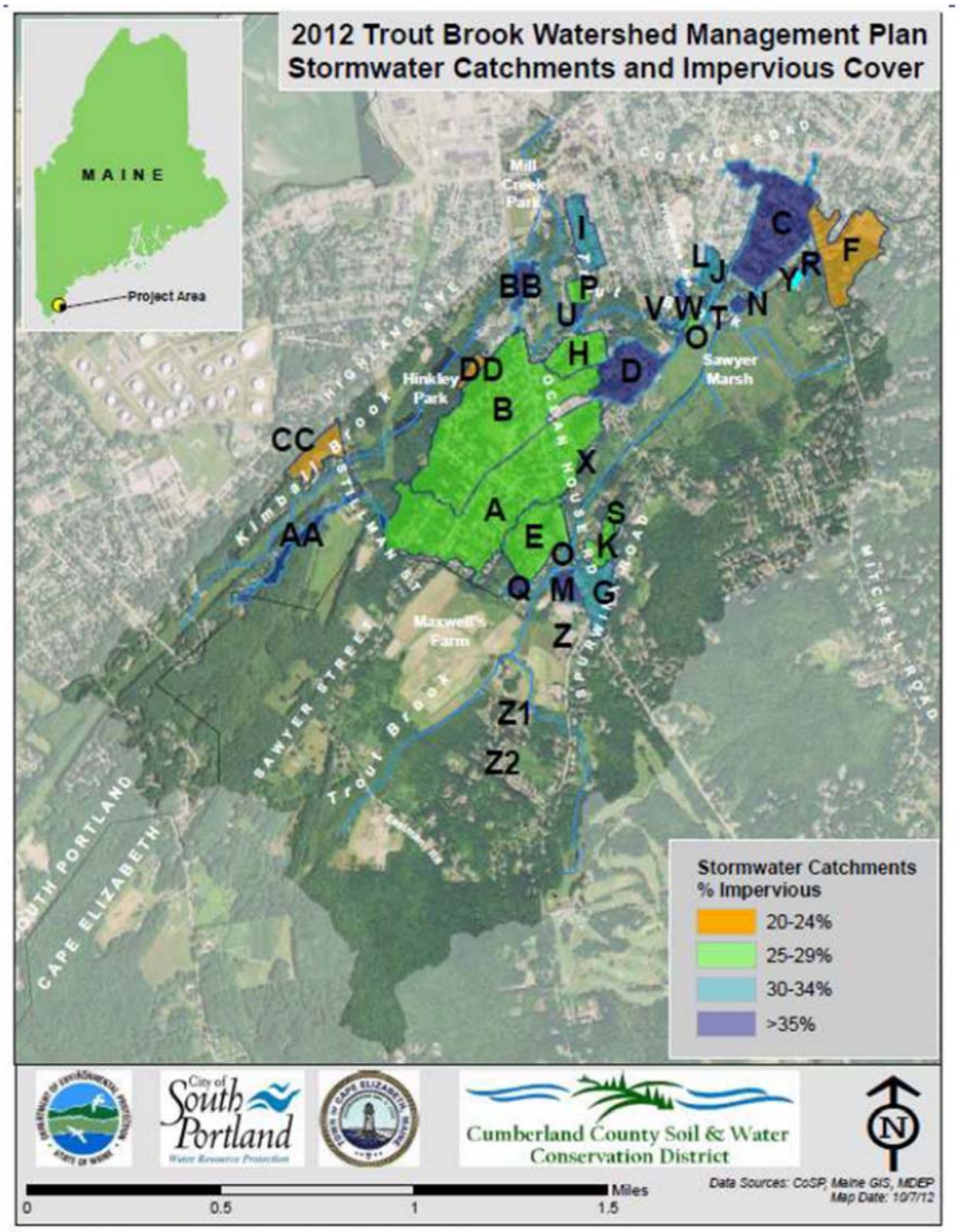


Figure 14. Trout Brook Watershed Outfall Catchments

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 Town 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. Table 1 showed that several marine/estuarine waters fall into this category because of bacteria impairments that affect shellfishing. These waters are located in the Department of Marine Resources Growing Areas WH and WI (Previously referred to as Pollution Areas 12 and 13). As shown on Table 1, there are also three Overboard Discharges and the Cape Elizabeth Treatment plant discharge to these areas. These other discharges are licensed by the DEP, and their permits are written to prevent receiving water quality degradation.

These waters were originally listed in the Statewide Bacteria TMDL, but in 2016, the 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 TMDL document does not specifically identify the sources of the bacteria impairments but encourages communities to pursue an action plan that is based on investigation of the source. MS4s are already required to conduct investigations of potential illicit discharges under MCM 3 IDDE.

The Statewide Bacteria TMDL document also 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 the Maine DEP on these non-TMDL waters revealed:

1. The 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 bacterial 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 Town of Cape Elizabeth uses this prioritization to identify where illicit discharge inspections are conducted first. The Town 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). The 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 MS4 General Permit.

The town's two highest priority watersheds are: Trout Brook and the Spurwink River, because of their impairments.

During the previous permit cycle, the Town designated Trout Brook as its first priority and the Spurwink River as its second priority.

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 Town's NOI is provided in Appendix B.

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

Following review of the SWMP and NOI, and receipt of any public comments, the Maine DEP issues a permittee 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 DEP Order is also subject to a 30-day public comment period, but only the DEP provides this public notice. DEP provides any updated information to the Town at the end of the public comment permit.

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

Once the DEP issues authorization to discharge, the Town has 60 days to update the SWMP to

reflect any new or changed requirements based on the DEP Order and any comments. At that time, the permittee specific 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 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 DEP Order unless the Department indicates in writing that resubmittal is not required. The new permit conditions do not take effect until 7/1/2022.

1.7 SWMP Availability

The SWMP must be made available to the public by publishing on the Town Website. A copy must also be made available to the public at Town Hall.

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 Town will amend the SWMP if the Maine DEP or the Town determine that:

a) The actions required by the BMPs fail to control pollutants to the meet the terms and conditions of the 2022 MS4 General Permit and the permittee specific DEP Order;
b) The BMPs do not prevent the potential for a significant contribution of pollutants to waters of the State other than groundwater;
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 30-day public comment by posting the changes on the Town's Website.

If the changes being made are not explicitly required by the 2022 MS4 General Permit or the permittee specific DEP Order, the opportunity for public comment will be made on the Town's website annually and the DEP will be notified of the changes in the annual 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 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 Town, the Maine DEP will be notified prior to changing any elements by filing a permit application with the DEP that includes a justification to formally modify the requirement;
- If the changes are initiated by the Maine DEP, it will notify the Town, and the Town must respond in writing within 30 days of the notice explaining how it will modify the SWMP. The Town must then modify the SWMP within 90 calendar days of the Town's written response, or within 120 calendar days of the DEP notice (whichever is less). Any such modification must be submitted to the DEP for final review.

1.9 Annual Compliance Report and Record Keeping

By September 15 of each year, the Town 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 must be sent to:

Rhonda.poirier@maine.gov
Municipal/Industrial Stormwater Coordinator
Department of Environmental Protection
17 State House Station
Augusta, Maine 04333-0017

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 Town's permittee specific DEP Order, based on the implementation of the Town'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 Town intends to undertake pursuant to its Plan to comply with the terms and conditions of the 2022 MS4 General Permit and the Town's permittee specific 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 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.

2 MINIMUM CONTROL MEASURES

2.1 MCM 1 Education/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 Town will fulfill the requirements for Public Education/Outreach through participation in the ISWG and the Town'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 – Raise Awareness– General Public.

Responsible Party - Public Works Director (with implementation assistance from CCSWCD through participation in ISWG)

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.

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

This BMP describes the reasoning and measurable goals for the public audience and the selected second audience: development/construction.

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 Town, 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

[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.

each tool implemented that year and by tracking impact indicators[4] where available (see Appendix D).

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 Town, 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 located 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 through participation in ISWG)

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

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 Town, 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.

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[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/

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, 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 Town, 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 through participation in ISWG)

Measurable Goal 1.3a – The Town, through its participation in ISWG, will submit an annual report each year of the 2022 MS4 General Permit term documenting the implementation of each BMP. The annual 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 Town, 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 through participation in ISWG)

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

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

2.2 MCM 2 Public Involvement and Participation

The Town will fulfill the requirements for Public Involvement and Participation through participation in the ISWG and the Town's provisions of funding to Cumberland County Soil & Water Conservation District for Public Involvement and Participation services, or through directly fulfilling the requirements, as described in this section of the plan.

BMP 2.1 - Public Notice Requirement

Responsible party - - Public Works Director (with implementation assistance from CCSWCD through participation in ISWG)

Measurable Goal 2.1a – The Town 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 Town's website. The Town will document public meetings related to their stormwater program and attendance of those meetings in their annual report.

Measurable Goal 2.1b – The ISWG members meet as a group 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.

BMP 2.2 - Host Public Events

Responsible party - - Public Works Director (with implementation assistance from CCSWCD through participation in ISWG)

Measurable Goal 2.2a – The Town 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 Town's website, through the Town's and CCSWCD's social media accounts, and through local distribution. The annual report will include a description of the event and the estimated attendance/participation.

2.3 MCM 3 Illicit Discharge Detection and Elimination

The Town 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 Town implemented a Non-Stormwater Discharge Ordinance on July 13, 2005. The Ordinance is embedded in Chapter 25 Storm Water, of the Town's Code of Ordinances. The Public Works Director enforces this ordinance with the assistance of the Code Enforcement Officer when needed. This ordinance provides the Public Works Director with the authority to issue letters of warning, notices of violation and/or fines. The Town will continue to enforce this ordinance throughout the permit cycle.

Measurable Goal 3.1b – The Town 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 Town prepared a written IDDE Plan in 2013 which has been updated to contain the elements required in the 2022 MS4 General Permit (Part IV.C.3.b.i through vi). The updated 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 Town 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 (6/30/2027).

2.3.3 BMP 3.3 - Maintain Storm Sewer System Infrastructure Map

Responsible Party - Public Works Director

Measurable Goal 3.3a – The Town 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 water. 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 Town will conduct infrastructure inspections for pollutants using the following frequency:

- One dry weather inspection will be conducted on each outfall at least once per permit cycle as required by the 2022 MS4 General Permit, but the Town will continue to attempt to inspect each outfall annually if time and municipal budget allows.
- Dry weather ditch inspections will be conducted whenever ditch maintenance work is anticipated
- 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 a 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 Town 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 Town 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 either the monitoring results or the exempt status on the excel spreadsheet used for Measurable Goal 3.5a or in a GIS geodatabase. If the monitoring reveals the outfall has a potential illicit discharge, as described in the IDDE Plan, the outfall will be investigated as required under Measurable Goal 3.5a.

The Town's IDDE Plan (contained in Appendix E) describes the information collected electronically during infrastructure inspections. The Town documents the inspections electronically in the GIS.

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 using methods described in the written IDDE Plan (Appendix E). The Public Works Department will track the status and outcome of the investigations using an excel spreadsheet.

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 potential contributor of pollutants to MS4s. The DEP published an issue profile providing water districts and 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 departments and districts how to meet the requirements of the issue profile.

The Town previously made annual requests to the Portland Water District to provide an annual report describing their hydrant flushing dechlorination processes, and the Town will continue to request that they provide the reports each year.

Measurable Goal 3.6b – If any of the following allowed non-stormwater discharges (in addition to hydrant flushing) are identified as significant contributors of pollutants to the MS4, the Town will work with the responsible dischargers to control these sources, so they are no longer 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 Town will update, implement and enforce its Construction Runoff Control Program for construction activities that 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 Town modified its ordinances and consolidated most stormwater requirements into a new Chapter 25 Stormwater. Chapter 19 Site Plan Review also contains some requirements related to stormwater submissions. Overall, the Town's existing ordinances meet most elements of the Construction Site Stormwater Runoff Control MCM, but some modifications are required to meet the 2022 MS4 General Permit requirements. The following is a summary of the existing ordinance requirements that address this MCM:

The following sites are required to submit a sediment and erosion control plan to the Town for review and approval:

Large sites:

Any site subject to Site Plan Review is required to submit an Erosion Control Plan including details of erosion control methods used and written notes (Section 19-9-4 C.2.j). Sites that are subject to Site Plan Review include:

- New construction involving more than 10,000 square feet of impervious surface, paving, clearing, or vegetative alteration, or any combination thereof.
- The construction of any nonresidential building or building addition (regardless of size)
- Multiplex housing and eldercare facilities (regardless of size)
- Any Subdivision of land

Small sites:

Though not required by the 2022 MS4 General Permit, small development sites that are not subject to the Site Plan Review requirement to submit an Erosion Control Plan may fall under the Chapter 25, Section 25-1-6 requirement to control erosion. Section 25-1-6 states that even sites that are not required to submit an erosion control plan must use Best Management Practices for Erosion and Sedimentation control whenever a site will discharge stormwater into the Town's stormwater system. The Public Works Director has the authority to require additional BMPs at these sites if there is a reasonable expectation that stormwater runoff will cause erosion and sediment to leave the development site.

Cape Elizabeth Ordinances can be found at: Ordinances - Town of Cape Elizabeth, Maine. 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 – The Town's Site Plan Review Procedures (specified in the Town's Zoning Ordinance Chapter 19, Section 19-9-4) already specify that any application for Site Plan Review contain an Erosion Control Plan. This requirement covers all sites that disturb one or more acres 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.

The Town will update the Zoning Ordinance by 7/1/2023 to reference that the Erosion Control Plan meet a set of standards consistent 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 Appendices A Erosion and Sediment Control, B Inspections and Maintenance, and C Housekeeping).

Measurable Goal 4.1b – Prior to the Zoning Ordinance update identified in Measurable Goal 4.1a, the Town 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 Appendices A Erosion and Sediment Control, B Inspections and Maintenance, and C Housekeeping).

The standards will include a requirement to control waste such as discarded building materials, concrete truck washouts, 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 Review Procedures

Responsible Party - Planner and Public Works Director

Measurable Goal 4.2a – The Town's Site Plan 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 Town 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.

2.4.4 BMP 4.4 –Conduct and Document Construction Site Inspections

Responsible Party – Public Works Director

Measurable Goal 4.4a – The Town will continue implementing its procedure for construction site inspections which will be formalized in a written document by 7/1/2022. The written procedure will:

- Identify that third-party inspectors conduct these inspections
- Identify that the third-party inspector will review any inspection deficiencies with the contractor during or at 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 Public Works Director within 3 days of the inspection for any sites that require corrective measures, and within one week for any sites that do not require corrective measures.
- Require three inspections during active earth-moving phase of construction
- Require a minimum of one inspection annually until the project reaches substantial completion.
- Require a final inspection at project completion to ensure that permanent stabilization has been achieved and all temporary erosion and sediment controls have been removed, and
- Include use of the construction inspection form provided in Appendix F of this SWMP.

Measurable Goal 4.4b. The Town will document construction sites that trigger the ordinance using an excel spreadsheet each year. The spreadsheet will contain 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 Development/ Redevelopment

The Town 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 Town's MS4 through implementation of the following BMPs.

The Town's current Ordinances contain provisions to prevent or minimize water quality impacts from development in accordance with the requirements of the MS4 General Permit. A separate Stormwater Management Plan was created in 2015 for Town Center to identify green infrastructure and Low Impact Development practices that could be used in the Town Center District. This Town Center Stormwater Management Plan is incorporated into the ordinances also.
The following is a brief summary of the ordinance contents' as they relate to the MCM 5 requirements:

Chapter 19 Article IX Site Plan Review requires that

- stormwater be managed on-site and off-site without damage to streets, adjacent properties, downstream properties, soils and vegetation,
- To the extent practical, the plan will retain stormwater on the site using the natural features of the site, except that in the Town Center District, stormwater management shall be consistent with the Town Center Stormwater Management Plan.
- a Low Impact Development method into stormwater management plan,

Chapter 25 requires that:

- 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.

Cape Elizabeth Ordinances can be found at: Ordinances - Town of Cape Elizabeth, Maine. 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 Town will rely on the Maine DEP Chapter 500 Stormwater Rules which provide 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 most at risk that create

20,000 square feet of impervious cover, or in any other watershed that creates 1 acre or more of impervious cover or is in any watershed where 5 or more acres of land will be developed.

Measurable Goal 5.1b – The Town'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.

Specifically, the Town's Site Plan Review Procedures (Section 19-9-4 Review Procedures, Item C.2.i for Stormwater submissions) require that each applicant use an LID method, and that they submit a narrative description of how stormwater will be managed including the Low Impact Development (LID) methods that are incorporated into the plan. The Town will continue to implement and enforce this requirement.

2.5.2 BMP 5.2 – Maintain Post Construction Ordinance or Similar Measure
Responsible Party - Planner and Public Works Director

Measurable Goal 5.2a – During the 2008-2013 permit cycle, the Town passed a Post Construction Discharge Ordinance (effective April 8, 2010, currently Chapter 25 Stormwater) which requires that any site that disturbs more than one or more acres certify to the town annually by August 1 that they have inspected and maintained their stormwater BMPS. The town 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 Town;
- 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 7/1/2023, the Town's Post Construction Ordinance (Chapter 25) 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 Public Works Director within the same 60-day period.
- If it is not possible to correct the deficiency and notify the Town within 60 days, the property owner will coordinate with the Public Works Director to establish an expeditious schedule to correct the deficiency and will provide a record of the corrective actions taken.

In coordination with the ordinance changes, the definitions in Chapter 25 will be updated to reflect the requirements of the 2022 MS4 General Permit.

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 Town developed an inventory of municipal operations conducted in, on, or associated with facilities, buildings, golf courses, cemeteries, or parks and open space owned or operated by the town that have the potential to cause or contribute to stormwater pollution. The Town will review its inventory annually and updated it if needed.

Measurable Goal 6.1b – During the previous MS4 permit cycle, the Town 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 town 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 Town will conduct annual training as follows:

a. Train the Public Works (which includes transfer station and parks and recreation) employees annually in the Stormwater Pollution Prevention Plan and Grounds and Maintenance O&M Procedures.
b. Train the Police and Fire 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 town will continue to sweep all publicly accepted paved streets and publicly owned paved parking lots at least once a year soon after snowmelt.

2.6.4 BMP 6.4 – Cleaning of Catch Basins

Responsible Party – Public Works Director

Measurable Goal 6.4a – The Town will inspect its catch basins for sediment content at least once every two years, but the Town will continue to attempt to inspect each catch basin annually if time and municipal budget allows annually and will clean catch basins that accumulate more than three inches of sediment.

Measurable Goal 6.4b – The Town will track which catch basins accumulate excess sediment (i.e., more than 50% of the sump contains sediment) to ensure those basins are inspected again the following year and cleaned if necessary. If a catch basin exhibits less than 25% 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 Town 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 Town 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 Town continues to perform systematic capital upgrades of the storm drain system in correlation with the road paving program for the town. The Town also inspects and maintains its proprietary stormwater treatment systems using a qualified third-party inspector.

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 Town prepared a SWPPP for the Public Works Facility and Recycling Center. The Town will amend the SWPPP to comply with the requirements specified in Part IV.C.6.d by 6/30/2022. In addition, the Town 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 Town, local, state or federal officials

which determine the SWPPP is ineffective in eliminating or significantly minimizing the intended pollutants,

- 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 Town will implement the plan throughout each Permit Year including conducting quarterly facility inspections using the Town's own form and visual monitoring using forms that contain the information required in Appendix E of the 2022 MS4 General Permit.

2.7 Impaired Waters BMPs

The Town's MS4 includes point source discharges to Trout Brook which is classified as an Urban Impaired Stream in Maine DEP Rule Chapter 502 and has its own TMDL dated October 2007. A Watershed Management Plan was completed for Trout Brook in 2012, and three phases of restoration projects have been completed in the watershed. The Town has been a partner in developing and implementing the Watershed Management Plan since it was developed, and as such has a good basis for understanding what additional steps should be taken to help correct the impairments. Details of the work completed to date are contained in Section 1.4 of this SWMP and set the framework for identification of the three BMPs that will be implemented to meet the Urban Impaired Stream requirement of the 2022 MS4 General Permit.

2.7.1 BMP 7.1 – Minimize Chloride Contributions to Trout Brook

Responsible Party – Public Works Director

As identified in Section 1.4 of the Town's SWMP, chlorides have been identified as a stressor of Trout Brook in the Watershed Management Plan.

The Town 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
- Use of road weather information cameras/sensors, to assess real time conditions.

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 Town will implement the following Measurable Goals related to chloride reduction in Trout Brook.

Measurable Goal 7.1a. At least one representative from the Town 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 Town 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 Town 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 Town 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 Town 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 Town 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 Town 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

Measurable Goal 7.2a – As identified in Section 1.4 of the Town's SWMP, public education was identified as a recommendation in the Trout Brook Watershed Management Plan. This BMP will provide targeted education to the residents living adjacent to Trout Brook in the following areas at a minimum: the section that is a border between South Portland and Cape Elizabeth (Waterhouse Road and Bradford Road), the State Street area that was retrofitted with buffers by the Youth Conservation Corps in 2016, and the Valley Road/Spurwink road area that abuts the headwaters.

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 Impervious Cover Disconnection or Stormwater Treatment Responsible Party – Public Works Director

Review of the Watershed Management Plan recommendations related to Impervious Cover Disconnection or Stormwater Treatment revealed there are 5 catchment areas that may have retrofit or treatment opportunities. The Town will investigate, assess, design and install either an impervious cover disconnection or stormwater treatment system in one of the catchment areas as described in the following measurable goals.

Implementation of BMP 7.3 will be contingent upon several factors including budget approvals and being able to obtain permits and easements on private property. Should BMP 7.3 prove to not be a viable BMP during any permit year, then the Town will report that in their annual report and will begin to implement Optional BMP 7.4 in the following permit year.

Measurable Goal 7.3a – During Permit Year 1, the Town will conduct site visits to several catchment, erosion, and inadequate buffer sites and evaluate them for current condition and potential for retrofits, repair and/or impervious cover disconnection. At a minimum the following sites will be visited: Catchment Z2 Pleasant Ave, Catchment G Spurwink and Route 77, Catchment E State Street and Route 77, Catchment K Waterhouse Road, Catchment Q Wilton Lane, and stream corridor erosion sites 26 and 27. The Town will write a memo summarizing the results of the evaluation and will select a site for design. The Town will report on the recommended project in their annual report.

Measurable Goal 7. 3b – During Permit Year 2, should the budget be approved, the Town will prepare the design for the recommended project.

Measurable Goal 7.3c – During Permit Year 3, should the budget be approved, the Town will attempt to obtain the necessary permits and easements to construct the recommended project.

Measurable Goal 7.3C – During Permit Year 4, If the budget is approved and necessary permits and easements are able to be obtained, the Town will construct the project.

Measurable Goal 7.3d – During Permit Year 5 the Town will begin inspection and maintenance on the completed project.

2.7.4 Optional BMP 7.4 – Enhanced Street Sweeping - To be implemented only in the event the Town deems BMP 7.1 to be infeasible.

Responsible Party – Public Works Director

Measurable Goal 7.4a – The Town will two additional rounds of street sweeping in the Trout Brook Watershed between the months of May and October each year that this BMP is in effect.

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."

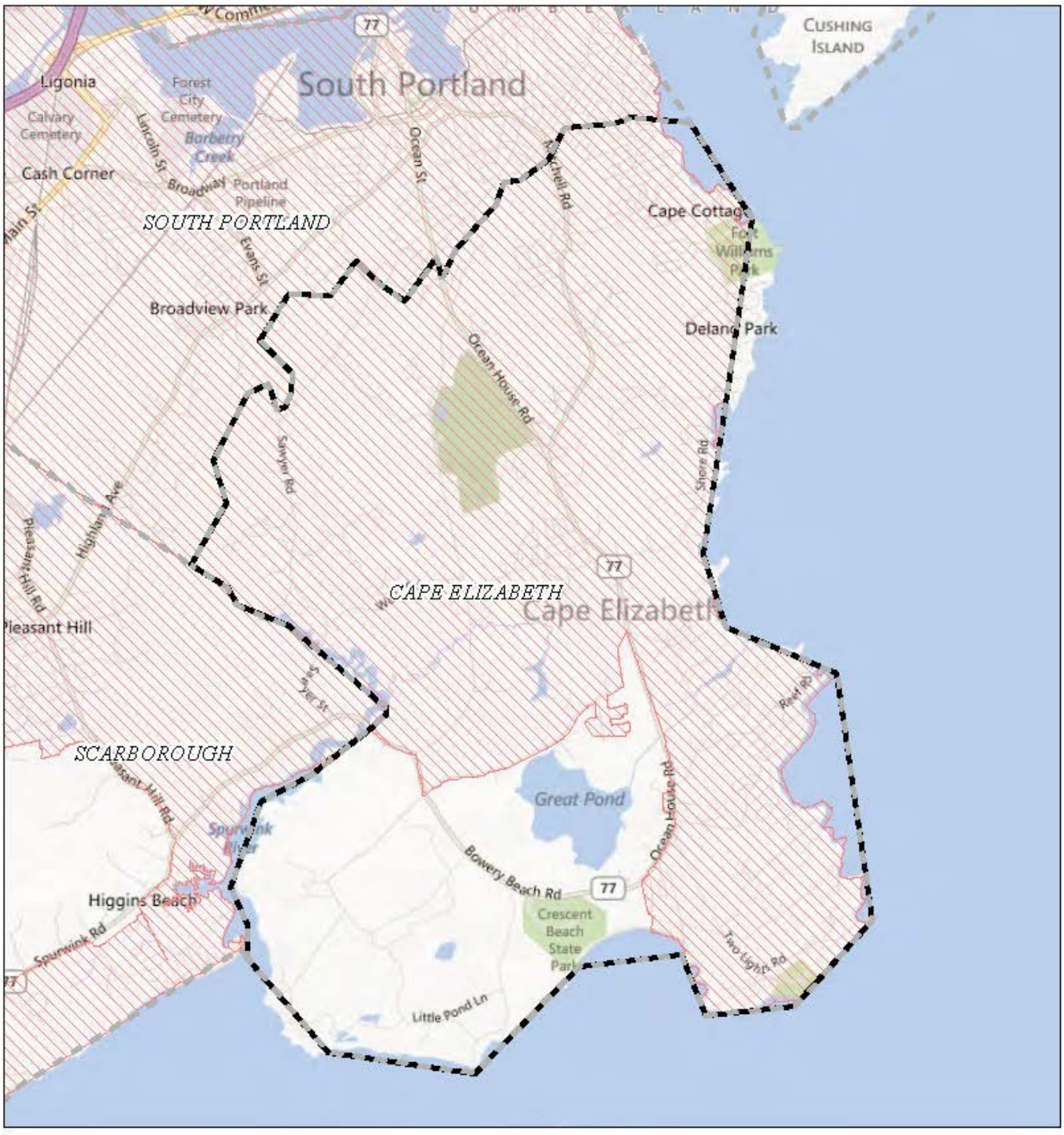
Signature: _____ Date: 3-12-2021

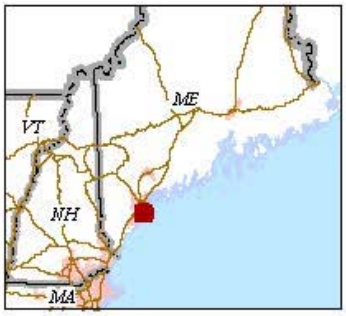
Matthew E. Sturgis

Title: Town Manager

APPENDIX A

URBANIZED AREA MAP





NPDES Phase II Stormwater Program
Automatically Designated MS4 Areas

Cape Elizabeth ME

Regulated Area (2000 + 2010 Urbanized Area)

0 1 2 3 Kilometers

0 1 2 3 Miles

Town Population: **8816**

Regulated Population: **8425**

(Populations estimated from 2010 Census)

EPA

Urbanized Areas, Town Boundaries:
US Census (2000, 2010)
Base map © 2010 Microsoft Corporation and its data suppliers

US EPA Region 1 GIS Center Map #8824, 11/19/2012

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	Town of Cape Elizabeth			Permittee ID #	MER041005
Name and title of chief elected official or principal executive officer	Matthew E. Sturgis, Town Manager				
Mailing Address	320 Ocean House Road				
Town/City	Cape Elizabeth	State	ME	Zip Code	04107
Daytime Phone	207-799-0881	Email	matthew.sturgis@capeelizabeth.com		
PRIMARY CONTACT PERSON FOR OVERALL STORMWATER MANAGEMENT PROGRAM (if different than PEO/CEO)					
Name and Title	Jay Reynolds				
Mailing Address	10 Cooper Drive				
Town/City	Cape Elizabeth	State	ME	Zip Code	04107
Daytime Phone	207-499-4151	Email	jay.reynolds@capeelizabeth.com		
STORMWATER MANAGEMENT PLAN (SWMP)					
Urbanized Area (sq. mi.)	10.6				
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*): Spurwink River Estuary, Atlantic Ocean (Kettle Cove, Crescent Beach and areas north), Trout Brook, Dyer Pond, Great Pond, Alewife Brook, and unnamed streams and wetlands					
List of impaired waterbodies that receive stormwater from the regulated small MS4 (*attach additional sheets as necessary*): Spurwink River Estuary and Atlantic Ocean (portions of DMR areas 12 and 13), Trout Brook, and Alewife 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	Matthew E Sturgis			Date	3-12-2021

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	

Public Notice

Notice of Intent to Comply with the Maine General Permit For the Discharge of Stormwater from Municipal Separate Storm Sewer Systems

The Municipality of Cape Elizabeth, Maine 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 3/31/2021. A copy may also be seen at the Cape Elizabeth Public Works Office and on the municipal website: www.capeelizabeth.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.

Public Notice Ran in the Portland Press Herald 3/14/2021

APPENDIX C

SUMMARY OF PUBLIC COMMENTS RECEIVED

APPENDIX D

Education & Outreach Tools, Levels of Effort, and Effectiveness Benchmarks

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 the

Town of Cape Elizabeth,

Maine

For the

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

December 2014

Revised April 2015, May 2019, Sept. 2019 and March 2021

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B. INSPECTION FIELDS AND DOMAINS IN GIS
C. QUALITY ASSURANCE PROJECT PLAN
C. COORDINATION LETTERS WITH INTERCONNECTED MS4S

1.0 INTRODUCTION

The Town of Cape Elizabeth 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).

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 MS4 General Permit requires permittees to address six Minimum Control Measures throughout the Town's Urbanized Area:

1. Education/Outreach on Storm Water Impacts
2. Public Involvement and Participation
3. Illicit Discharge Detection and Elimination (IDDE)
4. Construction Site Storm Water Runoff Control
5. Post-Construction Storm Water Management in New Development and Redevelopment
6. Pollution Prevention/Good Housekeeping for Municipal Operations

This document describes the IDDE Plan for the Town of Cape Elizabeth, Maine. The IDDE Plan described in this document fulfills the Minimum Control Measure 3 IDDE requirements specified in Part IV.C.3.b of the 2022 MS4 General Permit.

1.1 IDDE Responsibilities in the Town of Cape Elizabeth

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

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).

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 Town of Cape Elizabeth became effective in 2003 and expired in 2008. Subsequent General Permits were issued, providing the Town 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 Town of Cape Elizabeth identifies that the Plan is not effective,
- municipal operations change which need to be reflected in this Plan.

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

The following table briefly summarizes the origin and amendments to this document.

Date of Document	**Description of changes**
December 2014	Development of document from Stormwater Management Plan BMPs and Measurable Goals.

April 2015	Document updated to reflect electronic mapping and inspections using IPAD
May 2019	Document updated to reflect: - Updated Non-Stormwater Discharge Ordinance (new Chapter number) - Hydrant flushing information - New Watershed Map (added road names) - Addition of Permit year 6 and 7 inspections because of Permit Continuation. - New DOT contact
March 2021	Updated document to reflect 2022 MS4 General Permit requirements including QAPP and required inspection fields and domains for the GIS.

1.3 Typical Illicit Discharges

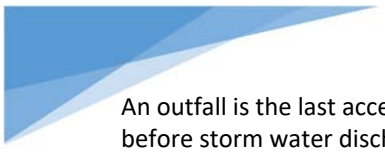
The Center for Watershed Protection (CWP) developed a comprehensive IDDE Manual in 2004 and provided an abbreviated update in 2011 which classifies illicit discharges into three categories related to frequency of discharge. This categorization allows communities to develop a comprehensive IDDE Plan that 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.



An outfall is the last accessible point before storm water discharges to a water body. Some things that are NOT outfalls include: driveway culverts that connect ditch segments, culverts that convey water bodies under roadways, and pipes that discharge to other storm water infrastructure elements.

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 Town in locating and eliminating Illicit Discharges. An overview of each component of the Plan is provided in this subsection, and the remaining sections of this document describe how the Town of Cape Elizabeth is implementing each component.

- Development of a watershed-based map: The Town is required to develop a watershed-based map of the storm sewer system infrastructure including: catch basins, connecting surface and subsurface infrastructure, the direction of in-flow and out-flow pipes, and the locations of all discharges from the Town'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 Town's watershed-based map.

- Authority to Prohibit Illicit Discharges: To the extent allowable under state or local law, the Town 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 Town's Non-Storm Water Discharge Ordinance is implemented.

- Identification of High Priority Areas for Inspections: Prior MS4 General Permits required that the Town 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 Town have "Procedures for prioritizing watersheds". The Town of Cape Elizabeth conducts inspections more frequently than the 2022 MS4 General Permit requires, so they continue to conduct inspections in the priority watershed first. The Town'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 Town must develop procedures for locating illicit discharges by conducting dry weather outfall inspections and assessing catch basins for evidence of pollutants. The Town 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 Town's inspection Plan.

- Procedures to Investigate and Remove Illicit Discharges: The Town must develop procedures for locating the source of the discharge and procedures for the removal of the source. Sections 6.0 and 7 of this document describe how the Town investigates potential discharges to determine their sources and removes illicit discharges once the source is discovered.

- Procedures to Document Illicit Discharges: The Town must develop procedures for documenting actions and evaluating impacts on the storm sewer system subsequent to the removal. Section 8.0 describes how the Town 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 Town of Cape Elizabeth maintains storm water infrastructure information in Geographic Information System (GIS) format. Cape Elizabeth's storm water map was created from GPS data collection, review of subdivision plans, review of Maine Department of Transportation 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 Town's Public Works Director has overall responsibility for data integrity. The ArcGIS license (Basic) is maintained on a computer in the public works department.

Though the storm water infrastructure information is not currently available to the general public it will be provided 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

The Town of Cape Elizabeth has historically referenced four watersheds and two sub-watersheds within its Town Boundaries. In this document, to be consistent with the US Geologic Survey Hydrologic Unit Code (HUC) national naming system, these areas are referred to as "Drainage areas" and are technically HUC 14 level drainage areas. The areas are shown on the figure contained in Attachment A.

Each drainage area has a numeric series to distinguish it from the other areas as follows:

- Trout Brook Drainage area is designated as 1000 series,
- Casco Bay Drainage area is designated as 2000 series,
- Atlantic Ocean Drainage area is designated as 3000 series,
- Spurwink River Drainage area is designated as 4000 series
- Great Pond Drainage area is designated as 5000 series
- Alewife Drainage area is designated as 6000 series.

Generally, catch basins in the Town have a 4-digit unique identifier in the format: XYYY, where the X is either 1, 2, 3, 4, 5, or 6 depending on the location and associated series number and the Y's are numeric values between 000 and 999.

Outfalls carry a unique three-digit identifier in the format: YYY. Drain manholes and pipes are also named using a straight numbering schema DMH-YYY.

Ditch names are simply the road names. Ditch outfalls are given a unique identifier in the format: DO-XXX where XXX is a three-digit number between 000 and 999. Ditch outfalls are inspected during ditch inspections. If a structure is replaced in its same location, it is renamed with an R designation to keep numbering intact. However, if the location is moved, the

structure is given a new number. If new outfalls are discovered or created or moved, they may be numbered with an A, B, or C designation at the discretion of the Public Works Director to keep numbering sequences geographically intact.

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, as an interface to the online files. 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.

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 Town requires a formal as-built plan be prepared and submitted to the Public Works Director in electronic format, so that the infrastructure can be imported into the GIS. A third-party consultant is used to update the infrastructure for large projects such as this. These changes are typically made annually.

Paper maps are updated annually and more frequently if/when deemed necessary by the Public Works Director.

3.0 AUTHORITY TO PROHIBIT ILLICIT DISCHARGES

The Town of Cape Elizabeth authority to prohibit illicit discharges became effective July 13, 2005, when the Town passed a Storm Water and Non-Storm Water Control Ordinance as part of Chapter 18 Conservation (Article II). The ordinance was created from a model ordinance developed by the Maine Municipal Association for Towns that are regulated by the MS4 General Permit. In 2016, the Town revised its Ordinances to create a stand-alone Stormwater Chapter and moved the content of the Non-Storm Water requirements into Chapter 25 Stormwater Section 25-1-8 Non-Stormwater Regulation. Though the MS4 General Permit is only applicable to the Urbanized Area of Town, the Town implements the Storm Water and Non-Storm Water Control Ordinance in all areas of Town.

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:

- 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);
- hydrant flushing and firefighting activity runoff;

- water line flushing and discharges from potable water sources;
- individual residential car washing.

The Town's Public Works Director administers the ordinance and has the authority to issue a notice of violation if needed.

It should be noted that discharges associated with dye testing are also allowed with verbal notice to the Public Works Director.

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. In accordance with the Maine DEP 11/18/2016 Issue Profile for Drinking Water System Discharges to Regulated Small MS4s, the Portland Water District either aerates or dechlorinates during flushing to meet Total Residual Chlorine (TRC) acute water quality criteria as follows:

- Fresh water 19 ug/L (adjusted to 50 ug/L, per the Maine DEP as the reporting limit for available reliable and consistent test methods)
- Marine water 13 ug/L (adjusted to 50 ug/L, per the Maine DEP as the reporting limit for available reliable and consistent test methods)

The Portland Water District flushes the system every three years and provides an annual report to the Town describing water dechlorination methods in use and testing results for any flushing conducted. The upcoming flushing schedule for the Town of Cape Elizabeth is as follows: 2020, 2023, etc.

4.0 IDENTIFICATION OF PRIORITY AREAS

Prior MS4 General Permits required that the Town identify priority areas that need to be protected from illicit discharges. The 2022 MS4 General Permit does not have this requirement,

but the Town of Cape Elizabeth conducts inspections more frequently than the 2022 MS4 General Permit requires, so they continue to conduct inspections in the priority watershed first. The Town may also 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 Town that are high priority for illicit discharge inspections, the Town considered impaired waters (i.e., waters that are not meeting their designated classification) as highest priority.

The Town of Cape Elizabeth identified Trout Brook as the highest priority for the following reasons:

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

The Town of Cape Elizabeth identified the Spurwink River is the second highest priority for the following reasons:

1. It has bacteria impairments affecting shell fishing, and
2. The TMDL document has been finalized, which identified that illicit discharges maybe contributing to the impairment.

5.0 PROCEDURES TO LOCATE POTENTIAL ILLICIT DISCHARGES

The Town of Cape Elizabeth uses the following methods to locate illicit discharges:

1. Observations during catch basin cleaning
2. Citizen reports of illicit discharge issues
3. Dry weather outfall inspections

4. Outfall Sampling and Analysis (for flowing outfalls and to identify potential illicit discharge sources)
5. Opportunistic Ditch inspections
6. Other opportunistic Inspections

Inspections are completed on the GIS typically accessed through an iPad. Attachment B contains a table showing the fields that are completed during inspections using the GIS.

5.1 Catch Basin Cleaning Inspections

Although inspections are only required every two years by the MS4 General Permit, each year, a public works employee attempts to inspect all the Town's accessible catch basins to assess which 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. If the employee sees any evidence of illicit discharges, the evidence is documented in the GIS 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.

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.

5.3 Dry Weather Outfall Inspections

During previous permit cycles, dry weather outfall inspections have been conducted in the highest priority areas identified in Section 4.0 (Trout Brook and the Spurwink River Drainage Areas), and then expanded to other areas of Town. The Public Works Department began documenting the

results of the inspections on the Public Works IPAD in the fall of 2014.

Although not required by the General Permit, the Town attempts to inspect all piped and ditch outfalls every year, 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 will be 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;
- Observations will include the follow 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 Town 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 Town.

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. The Public Works Director may solicit the assistance of the Portland Water District or a third-party contractor 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 C 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. Ditch inspections were completed by the Public Works Department on all ditches in the fall of 2014. The ditch inspections were completed using the IPAD and online map system.

Moving forward, the Town will generally inspect ditches for potential illicit discharges whenever maintenance work on ditches is being completed. The Town 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 Town.

5.6 Septic System Inspections

As required by the 2013-2018 MS4 General Permit, by June 30, 2016, the Town developed a list of aging (i.e., greater than 20 years old) septic systems in its two highest priority watersheds (Trout Brook and Spurwink River) that might discharge to the MS4 if they were to fail. There are 684 occupied parcels in the Trout Brook Watershed. 564 of these are on sanitary sewer. Of the remaining, Town documents show:

- 29 parcels have septic systems that are newer than 1997
- 19 parcels have septic systems that were installed in 1997 or earlier
- 72 parcels had insufficient information to assess if the septic systems were installed, or what age they were.

There are 937 occupied parcels in the Spurwink River Watershed. 585 of these are on sanitary sewer. Of the remaining, Town documents show:

- 90 parcels have septic systems that are newer than 1997
- 42 parcels have septic systems that were installed in 1997 or earlier
- 220 had insufficient information to assess if the septic systems were installed, or what age they were.

By June 30, 2017, the Town implemented a drive-by evaluation and documentation Plan of the aging septic systems. Drive by evaluations were attempted for all parcels needing

inspection as identified during the PY 3 mapping activity. In the Trout Brook Watershed, inspections were completed on 51 of the 91 parcels identified as having older septic systems or insufficient data to determine the date of the system. The other 40 parcels were determined to be condominiums, which were on sanitary sewer.

In the Spurwink River Watershed, all 42 of the aged septic systems were inspected, and 195 of the 220 parcels with insufficient data to determine their age were inspected. Of the other 25 parcels not inspected, 5 were not accessible from the public way, 1 was vacant (a municipal property that was known to not have any septic systems on it), and the remaining were determined to be either already on sanitary sewer or were on a common septic system which was not visible from public right of way.

None of the systems were observed to have evidence of leakage or failure.

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

5.7 Cooperation with other MS4s

Because the Cape Elizabeth 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 Cape Elizabeth infrastructure. The other MS4 contacts with which Cape Elizabeth has interconnections are:

Kerem Gungor Kerem.Gungor@maine.gov Ph: 207-592-3489
City of South Portland – Fred Dillon – fdillon@southportland.org Ph: 207-347-4138 (911 after hours)
Town of Scarborough – Dispatch 207-883-6361

Though there are no interconnections with Scarborough, both Towns discharge to the Spurwink River and Rachel Carson Reserve.

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 Town 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 Town 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 were 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 but would need to hire a third-party contractor for smoke testing or televising. 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 would identify and contact 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 Public Works Director 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 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 Town, 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 Town will document the progress of investigating and removing illicit discharges using an IDDE Tracking Sheet. The spreadsheet is maintained on a Dropbox ® drive, shared by the Public Works Director and the Town's consultant. Each year, the Town is required to complete an annual 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: 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: http://www.thinkbluemaine.org/docs/index.htm

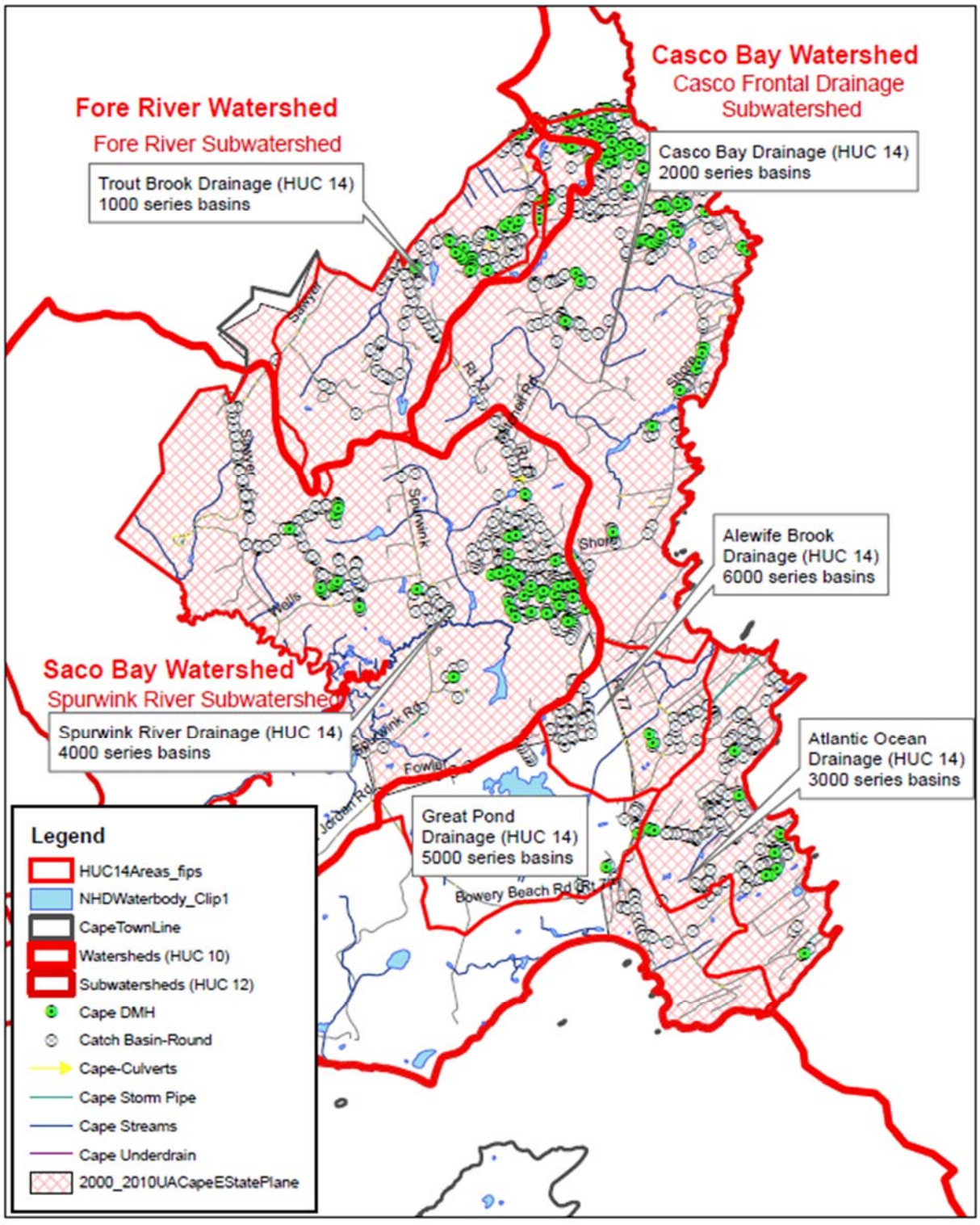
CWP and Robert Pitt 2011 Illicit Discharge Detection and Tracking Guide Available: http://www.cwp.org/2013-04-05-16-15-03/idde

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

CAPE ELIZABETH WATERSHED MAP

Cape Elizabeth Maine Watersheds



Document Path: C:\Users\KRabasca\Dropbox\GIS\CapeE\2019IDDEWatershedFig.mxd

ATTACHMENT B

INSPECTION FIELDS AND DOMAINS IN GIS

IDDE Inspections using ArcGIS Online and Collector Ap:
As an inspector is using the iPad in the field, they tap on the structure or element they are inspecting and edit the inspection fields by either typing data or using the drop down entries where available. The following is a summary of the available fields associated with each type of inspection. Those items in BOLD are required as part of the MS4 General Permit.

MS4 INSPECTION	**GIS FIELDS AND DOMAINS COMPLETED AS PART OF INSPECTION**
Catch Basins	**Cb_ID – Auto populated when selected** **PYxInspDate – manually selected (a new field is added for each permit year to replace the "x", date and time are recorded)** **PYxInspStatus – Needs_Inspection, Wet_Inspection Completed, Dry_Inspection Completed, Do_Not_Inspect (used for private or MDOT basins)** Condition – Excellent, Fair or Poor Sump_inch – manually entered if not already present – shows the depth of the sump in inches Sed_inches – manually entered shows how many inches of sediment are in the sump **Excess Sediment – Yes or No (Yes if the sump is ½ full of sediment or more full)** **NeedsClean – Yes, No, or No-Private** **Pollution – None, Oil Sheen, Discoloration, Foam/Soap, Sewage, AlgalGrowth, Odor, Yard Waste, Pet Waste, Cig. Butts, or More Than One** Accessible – Accessible, Paved Over, Unopenable, Buried, or Not Found Cover_Shape – square or round RimElev – from design drawings (not entered in field) **Cleaned Date – Manually selected** Follow-up – Yes or No Comments – open text field Photos cannot be attached to the inspection but are taken if needed for IDDE documentation.
Outfalls (piped and ditch)	**Outfall ID – Auto populated** **Receiving Waters: Manually selected from drop down list in GIS** **PYxInspDate – manually selected (a new field is added for each permit year to replace the "x", date and time are recorded)** **PYxInspStatus – Needs_Inspection, Wet_Inspection Completed, Dry_Inspection Completed, Do_Not_Inspect (used for private or DOT basins)** Weather – Clear, PartlyCloudy, Cloudy, Raining, Snowing, other **Composition – Transite_Asbestos_Concrete, None, Cast_Iron, Vitrified_Clay, PVC_SDR, HDPE_ADS, Corregated_Metal, Concrete_RCP, Other, TypeC_UD, TypeB_UD** Pipe Shape – Circular, Elliptical, Box, Other **Size – manually entered in inches if not already present** **Pollution – None, Oil Sheen, Discoloration, Foam/Soap, Sewage, AlgalGrowth, Odor, Yard Waste, Pet Waste, Cig. Butts, or More Than One** **Odor – None_Natural, Musty, Rancid_Sour, or Sewage_Septic** **Water Clarity – Not_Applicable, Clear, Cloudy, or Opaque**

MS4 INSPECTION	GIS FIELDS AND DOMAINS COMPLETED AS PART OF INSPECTION
	Flow – None, Trickly, Steady, or ¼ pipe or More Seepage Flow – None, Trickly, Steady, or ¼ pipe or More **FlowSampled Enter the Date or Not applicable (open text field)** **Flow Color – Brown, Tan, Gray, Other** Sediment – Open, ¼ full, ½ full, ¾ full, or plugged Outlet Stable – Yes or No PipeCond – Excellent, Fair, Poor Litter Present – Yes or No Yard Waste Present – Yes or No Follow-up – Yes or No Comments – open text field Photos cannot be attached to the inspection but are taken if needed for IDDE documentation.
Ditches	**ID – Auto populated** Road Name – manually entered **Inspection Date - Manually selected** **InspectType – Needs_Inspection, Wet_Inspection Completed, Dry_Inspection Completed, Do_Not_Inspect (used for private or DOT basins)** Weather – Clear, PartlyCloudy, Cloudy, Raining, Snowing, other Trash/Litter Present – Yes or No Yard Waste Present – Yes or No **Pollution – None, Oil Sheen, Discoloration, Foam/Soap, Sewage, AlgalGrowth, Odor, Yard Waste, Pet Waste, Cig. Butts, or More Than One** Odor – None/Natural, Musty, or Sewerage/Septic Standing Water – Yes or No Water Clarity – Clear, Cloudy, Opaque or Not applicable Flow Color –Clear, Orange, Brown, Black, or Green Inlet Condition - Free of Obstructions, Stable, or Unstable Outlet Condition – Free of Obstructions, Stable, Unstable, or Obstructed Sediment - Yes or No Condition – Excellent, Fair, Poor Excess Vegetation – Yes or No Invasive Vegetation – Yes or No **Erosion/Scouring - Yes or No** Woody Vegetation – Yes or No Follow-up – Yes or No Follow-up Reason - open text field Comments – open text field

ATTACHMENT C

QUALITY ASSURANCE PROJECT PLAN (QAPP)

Stormwater Monitoring Quality Assurance Project Plan

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.

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 included as Addendum 4 to this QAPP or may be kept in a separate electronic or paper location as long as they are easily accessible to the field personnel who will be conducting the monitoring.

The Town of Cape Elizabeth has updated Table 2 to show which methods they prefer to use, and what provider they prefer but may use other methods or Town-approved providers if they deem them more appropriate.

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) **Prefer: Katahdin Analytical, 600 Technology Way, Scarborough, ME 04074. 207-874-2400**
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) **Prefer: Katahdin Analytical, 600 Technology Way, Scarborough, ME 04074. 207-874-2400**
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) **Prefer: Katahdin Analytical, 600 Technology Way, Scarborough, ME 04074. 207-874-2400**
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. **Prefer: EMSL 843-628-3132 (Jay Rucker is contact as of 2/2021)**

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.

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) **Prefer: EMSL 843-628-3132 (Jay Rucker is contact as of 2/2021)** **Or Katahdin Katahdin Analytical, 600 Technology Way, Scarborough, ME 04074. 207-874-2400**
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.

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

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 (4°C)	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.
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.

4.1 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). Equipment or rinsate blanks will be collected at a rate of 1 per every 10 samples collected when equipment is used multiple times on the same day in the field.

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. (Rothenheber 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 Bacteria Source Tracking Protocol.

Parameter	Threshold Level for Additional Investigation	Notes/Discussion
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
4. User Manual(s) and Safety Data Sheets (SDS) for Field Equipment and/or Test Kit(s) (This is an optional addendum. The information must be located where field personnel can access electronically or in paper form, so this Addendum can be used as a place to describe where field personnel will find equipment, manuals and SDSs).

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.

Sampler: _____ Date: _____
Time: _____ Field ID: _____

Sampler: _____ Date: _____
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Sampler: _____ Date: _____
Time: _____ Field ID: _____

Addendum 2
-Reference E-mails

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 the 90th 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.

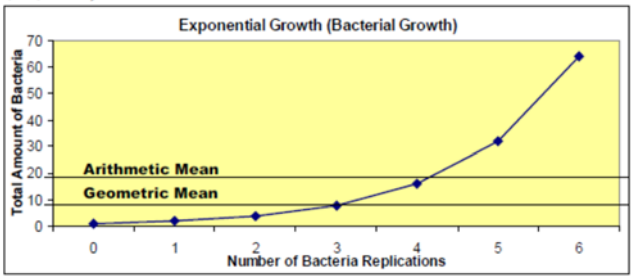
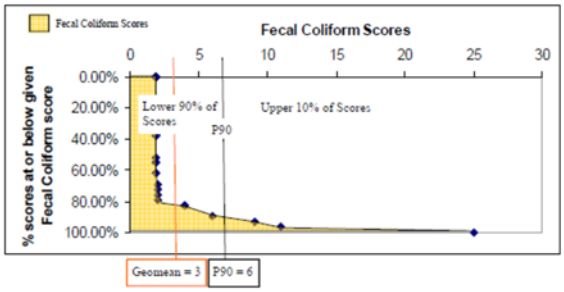


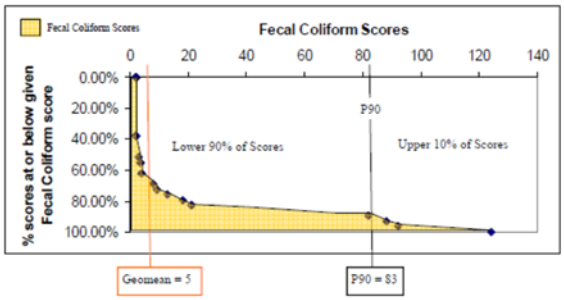
Figure 1. The graph illustrates exponential growth. The arithmetic mean for the scores is 18.1 while the geomean is 8.

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

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.

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

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

EMSL Order Number (*Lab Use Only*):

Company :		**EMSL-Bill to:** ☐ Same ☐ Different **If Bill to is Different please note in Comments**** *Third Party Billing requires written authorization from third party*	
Street:			
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 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

Addendum 4
User Manual(s) and Safety Data Sheets (SDS) for Field Equipment and/or Test Kit(s)
(This is an optional addendum. The information must be located where field personnel can access electronically or in paper form, so this Addendum can be used as a place to describe where field personnel will find equipment, manuals and SDSs).

ATTACHMENT D

COORDINATION LETTERS WITH INTERCONNECTED MS4S

Kristie Rabasca

From: Kristie Rabasca
Sent: Wednesday, March 3, 2021 1:41 PM
To: Fred Dillon (fdillon@southportland.org); Gungor, Kerem
Cc: jay.reynolds@capeelizabeth.org
Subject: Updated Cape Elizabeth Contact Information for MS4 General Permit

Good Afternoon,
The Town of Cape Elizabeth is regulated by the 2013 Maine General Permit for the Discharge of Stormwater from our Municipal Separate Storm Sewer System (MS4). Our mapping shows that we have cross connections (some of your MS4 system flows into ours and/or some of our MS4 system flows into yours).

With this letter we are acknowledging that you will notify us of any illicit discharges or spills in your MS4 that could affect our MS4. We will also notify you of any illicit discharges in our MS4 that may affect your MS4 system.

If you have any MS4 related issues, please contact Jay Reynolds at 207-799-4151 (office) or 207-383-9919 (cell) during regular business hours. Mr. Reynolds is cc'd on this email.

In the event of an emergency after hours, please contact 911 who will relay any pertinent information to Mr. Reynolds. Please provide this letter to your first responders for after-hours notices.

Also, the Town 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 consideration in this matter. Please reply to me confirm you have received this email notice.

On Behalf of the Town of Cape Elizabeth,

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

TOWN OF CAPE ELIZABETH
PUBLIC WORKS DEPARTMENT

10 Cooper Drive
Cape Elizabeth, ME 04107

Jay Reynolds
Public Works Director
(207) 799-4151
Fax: (207) 799-4426
jay.reynolds@capeelizabeth.org

March 29, 2021

Angela Blanchette, P.E.
Town Engineer
Town of Scarborough
Sent via email: ablanchette@scarboroughmaine.org

Dear Angela:

Thank you for your coordination letter dated March 24, 2021. With this letter we are acknowledging that you will notify us of any illicit discharges in South Portland that could affect our municipal separate storm sewer system (MS4). We will also notify you of any illicit discharges that may affect your MS4 system. We are providing a copy of your letter to our emergency first responders and ask that you provide your first responders with a copy of this letter.

If you have any MS4 related issues, please contact me at (207) 799-4151 or by email at jay.reynolds@capeelizabeth.org.

In the event of an emergency after hours, please contact 911 who will relay any pertinent information to me.

Also, as you are aware, The Town of Cape Elizabeth is in the process of filing a notice of intent to comply with the Maine General Permit (2022) for the Discharge of Stormwater from our MS4 system. Please consider this letter our notice to the Town of Scarborough. Once received by the State, A PDF of the notice of intent filed with Maine Department of Environmental Protection will be available on the Maine DEP website at: https://www.maine.gov. A formal public notice was provided in the March 14, 2021 issue of the Portland Press Herald.

Sincerely,

Jay Reynolds
Public Works Director
Cape Elizabeth, Maine

City of South Portland

Water Resource Protection

Fred Dillon, Stormwater Program Coordinator

September 28, 2020 (sent via email)

Jay Reynolds
Public Works Director
Town of Cape Elizabeth
Public Works Department
10 Cooper Drive
Cape Elizabeth, ME 04107

RE: MS4 Coordination for Illicit Discharges

Dear Jay:

The City of South Portland filed a notice of intent to comply with the Maine General Permit for the discharge of storm water from the municipal separate storm sewer system (MS4) in 2013. Under this permit (which has been administratively continued until June 30, 2021), we are required to coordinate with neighboring and nested MS4 permittees on spill response efforts in order to help improve the health of Maine's water resources.

The City of South Portland has interconnections with your MS4 system or stormwater outfalls discharging to shared water resources (please see our online infrastructure map here). We will notify you of any illicit discharges in South Portland that could affect either your MS4 system or shared water resources. We respectfully request that you do the same. In the event of an emergency after hours, please contact South Portland's Public Safety Dispatch at 911.

I would appreciate it if you would forward this letter and/or request to any first responders or other municipal staff who may be in a position to coordinate spill response efforts with South Portland. Please contact me if you have any questions and thanks for your cooperation.

Sincerely,

Fred Dillon

Cc: Kristie Rabasca – Integrated Environmental Engineering, Inc.
Patrick Cloutier – South Portland Water Resource Protection Department Director
Dave Thomes – South Portland Collection Systems Division Manager
Justin Gove – South Portland Civil and Transportation Engineer
Doug Howard – South Portland Public Works Director
Melissa Hutchins – South Portland Public Works Superintendent
Jim Wilson – South Portland Fire Chief

P.O. Box 9422 • South Portland, Maine 04116-9422 • Telephone (207) 767-7675 • Fax (207) 767-5697
fdillon@southportland.org • www.southportland.org

TOWN OF
SCARBOROUGH, MAINE

March 24, 2021

Jay Reynolds, Public Works Director
Town of Cape Elizabeth
320 Ocean House Road
Cape Elizabeth, ME 04107

RE: Interconnected MS4 Coordination for Illicit Discharges

Dear Jay:

As part of the Maine General Permit for the discharge of stormwater from the municipal separate storm sewer system (MS4), the Town of Scarborough is required to coordinate with neighboring and nested MS4 permittees. The primary aim for this coordination is to ensure that, in the event of a spill or other incident that could result in an illicit discharge crossing into neighboring MS4s, there can be coordination on a spill response to improve the health of Maine's water resources.

In accordance with the MS4 General Permit, the Town developed and implements an Illicit Discharge Detection and Elimination (IDDE) Plan. As a nested or interconnected MS4, we want to make you aware of the Town's IDDE notification system. We will notify you of any illicit discharges in Scarborough that have potential to affect either your MS4 or shared water resources. We respectfully request that you do the same by contacting Scarborough Dispatch at (207) 883-6361 immediately upon discovery of the discharge.

Also, the Town intends to apply for coverage under the 2022 MS4 General Permit. As such, we are preparing our Stormwater Management Plan and updating our IDDE Plan. This letter constitutes notice that we are applying for continued coverage. A formal public notice was also provided in the 2/26/21 issue of the *Portland Press Herald.*

Please forward this letter and/or request to any first responders or other municipal staff who may be in a position to coordinate spill response efforts with Scarborough. Please contact me if you have any questions.

Sincerely,
TOWN OF SCARBOROUGH

AJ Blanchette

Angela Blanchette, P.E.
Town Engineer

APPENDIX F

CONSTRUCTION INSPECTION FORMS

Construction Inspection Form for Sediment and Erosion Control

Site Name: Map/Lot:	Date of Inspection:
Inspector:	Inspection Time: AM/PM
Pictures Taken:	Weather:
Type of Inspection: Initial / Return / Winter Stabilization / Final Stabilization / Complaint / Other _____	

Inspection Parameters		**Comments/Follow up Date**
Description and estimate of construction area that is disturbed:		
Does contractor have Erosion and Sediment Control Plan, drawings, and inspection log on site?	**Yes / No / NA**	
Is the contractor or a third-party inspector conducting inspections after rain events and weekly as required by the Erosion and Sediment Control Plan for the site?	**Yes / No / NA**	
Is the construction entrance clean with no track out of sediment?	**Yes / No**	
Is waste properly managed (concrete washout disposed of properly, no liquids in waste container, waste containers closed)?	**Yes / No**	
Are there any petroleum or hazardous materials on site, and if so, are there spill controls in place?	**Yes / No**	
Review the site plan for sediment and erosion control requirements. Select "Pass" if structures are properly installed and functioning as required. Select "Fail" if contractor needs to make corrections or repairs and describe briefly repairs needed. **Select "N/A" for "Not Applicable" if they do not apply at the site.**		
Catch Basin Protection	**Pass / Fail / NA**	
Silt Fence /Hay bales	**Pass / Fail / NA**	
Erosion Control Berm or Sock	**Pass / Fail / NA**	
Dust Control	**Pass / Fail / NA**	
Dewatering	**Pass / Fail / NA**	
Other:_____	**Pass / Fail / NA**	
Any Areas of Repeated Non-compliance that require MDEP Notification?	**Yes / No**	
Any other comments?		