STILLWATER ENVIRONMENTAL ENGINEERING, INC. • PO Box 426, ORONO, MAINE 04473

MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) STORMWATER MANAGEMENT PLAN (SMP)

For

City of Brewer
80 North Main St, Brewer, ME 04412
(207) 989-7500

Prepared By

Stillwater Environmental Engineering, Inc.

March 25, 2021

MS4 General Permit Effective July 1, 2022

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1 Introduction

1.1 Regulatory Overview

The City of Brewer (City) is subject to the General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems (MS4s). The most recent permit was issued by the Maine Department of Environmental Protection (MDEP) on October 15, 2020, to be effective for 5 years from July 1, 2022 to June 30, 2027 (see **Attachment E**). The permit authorizes the direct discharge of stormwater from regulated MS4s to waters of the State, other than groundwater, pursuant to Water Pollution Control Law 38 M.R.S.A. § 413. The City of Brewer submitted a Notice of Intent (NOI) to comply with the terms and conditions of the MS4 General Permit before March 31, 2021 (see **Attachment F**).

The General Permit covers operations or activities associated with stormwater runoff within identified ”urbanized areas” of the municipality’s regulated MS4. An urbanized area is a classification of the U.S. Census Bureau that is based on population density and amount of concentrated development – factors that result in increased stormwater volume and pollutant load to receiving waterbodies in the area.

The U.S. Environmental Protection Agency (USEPA) and MDEP began regulating communities for their stormwater discharges using the Urbanized Area criteria in 2003. The City of Brewer became regulated in 2003 based on the 2000 census. **Attachment A** shows the urbanized area regulated by the 2022 MS4 General Permit for the City. This map was developed from the inclusive sum of the U.S. Census Bureau census conducted in 2000 and 2010. The 2022 MS4 General Permit does not include any modifications to urbanized area based on data from the 2020 U.S. Census.

The City of Brewer encompasses a total land area of approximately 10,035 acres, with approximately 7,600 acres of that total area within the City’s urbanized area. According to the 2010 U.S. Census, the population of the City is estimated to be 9,474, with 7,795 residents within the regulated urbanized area.

Each of the four MS4 General Permits (effective 2003, 2008, 2013, and 2022) have required that the regulated MS4s develop, and implement a Stormwater Management Plan (SMP) to coincide with the effective dates of the General Permit. The SMP is designed to reduce or eliminate polluted stormwater runoff to the maximum extent practicable (MEP) from its regulated MS4. The elements of the SMP are described in **Section 1.3**.

1.2 Cooperation Between Regulated Communities

There are 30 municipalities, two transportation agencies and eight state/federal agencies in the State of Maine subject to MS4 General Permit regulation. Historically, there is a strong regional and/or state-wide collaborative effort among regulated entities to develop and carry out required permit activities. Most regulated MS4s (municipal, transportation, and state/federal) in the State are part of an established regional stormwater working group consisting of MS4 communities and supporting local organizations. These working groups include:

- Bangor Area Stormwater Working Group (BASWG);
- Androscoggin Valley (Lewiston-Auburn) Stormwater Working Group (AVSWG);
- Interlocal (Greater Portland) Stormwater Working Group (ISWG); and
- Southern Maine (York County) Stormwater Working Group (SMSWG).

The City of Brewer is a member of BASWG, a coalition of seven MS4 municipalities in the greater Bangor area (Bangor, Brewer, Hampden, Milford, Old Town, Orono, and Veazie) as well as the University of Maine,

Eastern Maine Community College, University of Maine at Augusta - Bangor Campus, the Maine Air National Guard, and the Dorothea Dix Psychiatric Facility, which are also regulated as MS4s under a separate permit.

BASWG participants, including the City of Brewer, have contributed to a regional BASWG SMP that addresses all collaborative practices implemented in an effort to comply with the 2022 MS4 General Permit. The City will continue to participate in and support implementation of regional practices outlined in the BASWG SMP (submitted to MDEP under separate cover). In addition, the City 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, or regionally.

1.3 Stormwater Management Plan

As mentioned in the Regulatory Overview, operators of a regulated small MS4 are required to design a stormwater management plan (SMP) that will effectively:

- Reduce the discharge of pollutants to the "maximum extent practicable" (MEP);
- Protect water quality; and
- Satisfy the appropriate water quality requirements of the USEPA's Clean Water Act.

The SMP is a tool describing how a regulated community plans to manage stormwater in a way that will limit pollutant loads and protect the quality of receiving waters. The plan is *not enforceable*, yet is *adaptive*, allowing the permittee to adjust approaches and practices throughout the permit cycle if needed based on regular evaluation of their effectiveness, changing conditions, specific local concerns, and/or other factors. Some SMP modifications require MDEP review and approval and public notice.

Specifications of the MS4 General Permit are primarily based on qualitative *minimum control measures* (MCMs) of stormwater management, less so on quantitative requirements (e.g. numeric water quality criteria). This SMP describes how the City will implement Best Management Practices (BMPs) to meet the six MCMs that are defined in Part IV(C) of the 2022 MS4 General Permit:

I - Public Education and Outreach

II - Public Involvement and Participation

III - Illicit Discharge Detection and Elimination Program

IV - Construction Site Stormwater Runoff Control

V - Post-Construction Stormwater Management in New Development and Redevelopment

VI - Pollution Prevention/Good Housekeeping for Municipal Operations

The 2022 MS4 General Permit requires that for each MCM, the City must:

a) Define appropriate BMPs;

b) Designate a person(s) responsible for implementing each BMP;

c) Define a date or timeline with milestones for implementation of each BMP; and

d) Define measurable goals for each BMP.

This SMP is developed in accordance with the terms and conditions of the MS4 General Permit reissued by the MDEP on October 15, 2020. Many of the BMPs in this plan continue or expand upon BMPs developed under prior MS4 General Permits. Specific requirements for addressing MCMs have changed though the six MCMs have remained the same for all permit cycles.

Section 1.4 describes the City's water quality status, and the watershed(s) that are considered to be priorities for the City when considering stormwater management practices to prevent or alleviate impairment of waters. **Section 1.5**, **Section 1.6**, and **Section 1.7** describe how permit coverage is obtained, how the SMP is modified (when needed), when public notice is required, and annual reporting requirements.

The MDEP will review this SMP and determine if the City is controlling pollutants to the *maximum extent practicable* (MEP). MEP is the USEPA's statutory standard for pollutant reduction requirements of permitted MS4s, and the term is flexible in consideration that pollutant control strategies will vary for each small MS4 based on unique local conditions and factors such as cost, existing technology, and logistics of BMPs. The City is allowed to consider these concepts as they select BMPs to meet permit requirements but the MDEP decides if the City is meeting the MEP standard. *Practices that were considered MEP under the MS4 2013 permit may no longer meet that standard and must be improved or expanded based on changed conditions.*

1.4 City of Brewer Water Quality Status

The following named waterbodies receive discharges from the City's MS4:

- Eaton Brook;
- Felts Brook;
- Penobscot River (impaired); and
- Sedgeunkedunk Stream.

There are no waterbodies to which the municipality discharges with impairment classifications within the City of Brewer's MS4 regulated area that require additional actions by the City per the 2022 MS4 General Permit. However, the Penobscot River is listed on the statewide bacteria TMDL. This impairment is addressed by following the City's illicit discharge detection and elimination (IDDE) plan.

However, the City recognizes and prioritizes stormwater management practices that minimize pollutant loading to its most vulnerable waters, particularly Felts Brook, which receives discharge from 50% of the City's urbanized area and is located in the area of the City where most of the future development will take place. The City identifies Felts Brook as its priority watershed (see **Section 1.4.1**) when developing and implementing the City's IDDE plan, which is described in **Section 3.3**.

1.4.1 Priority Watersheds

Previous MS4 General Permits required regulated MS4s to 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 an MS4 to have a procedure in place to prioritize watersheds when addressing illicit discharges. The City of Brewer uses this prioritization to identify where illicit discharge inspections are conducted first. The City may also use the prioritization for illicit discharge investigations in the event there were insufficient resources to address all potential illicit discharges simultaneously. The IDDE Plan (**Attachment B**) describes in more detail how the prioritization is applied.

For previous MS4 permit cycles, the City selected Felts Brook as the priority watershed to focus on for SMP implementation. The City prioritizes Felts Brook watershed based on the stream's status as "threatened" for impairment and the watershed area's high potential for future development.

1.5 Obtaining Coverage to Discharge

As required, a Notice of Intent (NOI) to comply with the 2022 MS4 General Permit was submitted to the MDEP with this SMP. A copy of the City's NOI is provided in **Attachment F**.

Following review of the SMP and NOI, the MDEP may issue 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.

A 30-day Public Notice is required for both the NOI and the permittee specific DEP Order (as applicable).

Once the MDEP issues authorization to discharge, the permittee has 60 days to update the SMP to reflect any new or changed requirements based on the DEP Order and any public comments. The new permit conditions will take effect on July 1st, 2022.

1.6 SMP Modifications

The SMP must be amended during the permit term (2022 - 2027) if the MDEP or the regulated MS4s determine that:

a) The actions required by the BMPs fail to control pollutants to meet the terms and conditions of the 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; or

c) New information results in a shift in the SMP's priorities.

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

If the changes being made are not explicitly required by the 2022 MS4 General Permit or the permittee specific DEP Order, the opportunity for public comment will be made on the City's website annually and the MDEP 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, the applicable processes will be followed:

- *Modifications initiated by the City*: the City will notify the MDEP prior to changing any elements by filing a permit application with the MDEP that includes a justification to formally modify the requirement; or
- *Modifications initiated by the MDEP*: MDEP will notify the City, and the City must respond within 30 days with a written explanation of intended SMP modifications. The City must then modify the SMP within 90 calendar days of the City's written response, or within 120 calendar days of the MDEP notice (whichever is less). Any such modification must be submitted to the MDEP for final review.

1.7 Annual Compliance Report and Record Keeping

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

Rhonda Poirier
Municipal/Industrial Stormwater Coordinator

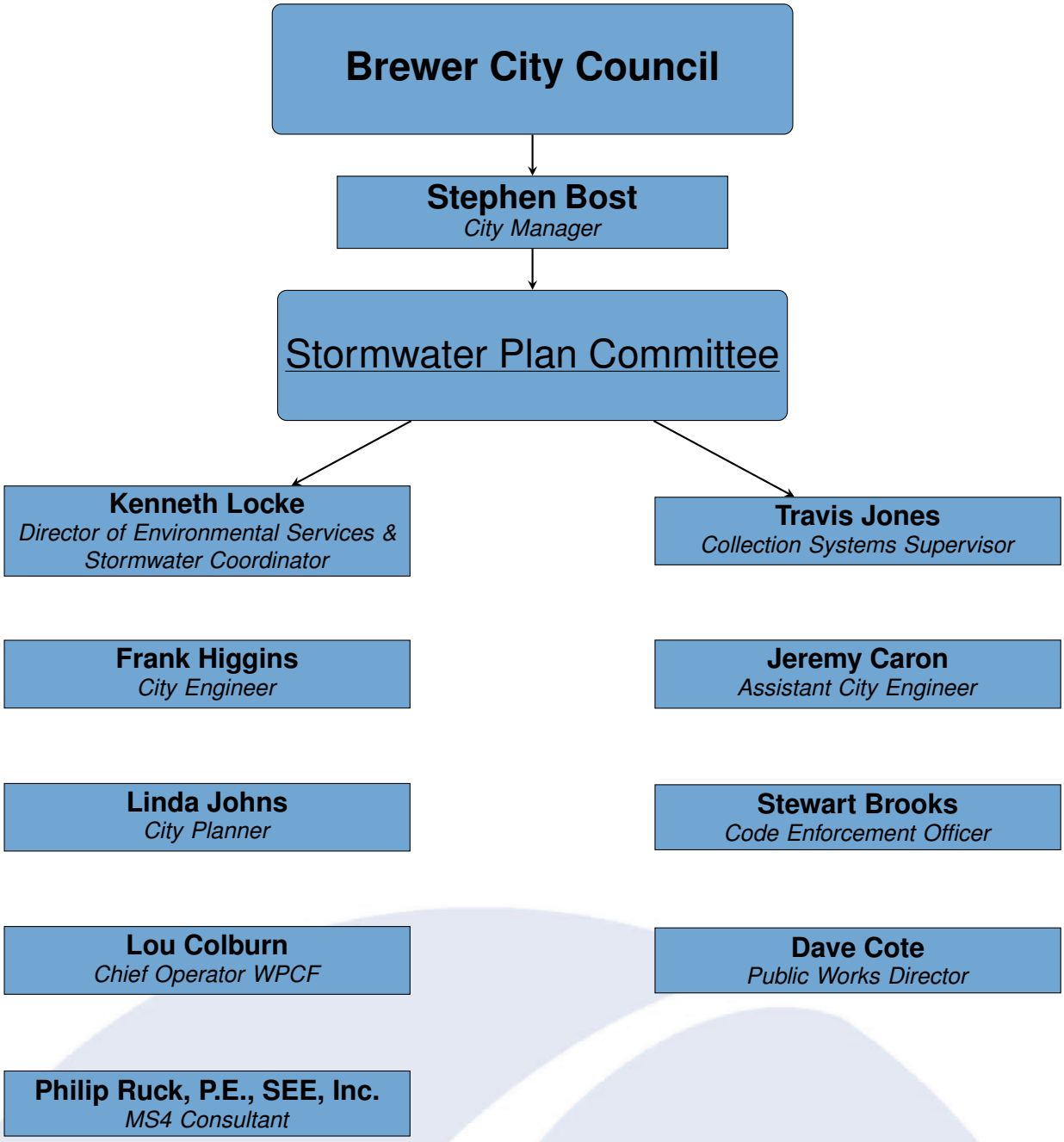
Maine Department of Environmental Protection
17 State House Station
Augusta, ME 04333-0017
rhonda.poirier@maine.gov

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

As a regulated MS4, the City must keep records required by the 2022 MS4 General Permit and permit modification for at least three (3) years following its expiration or longer if requested by the MDEP Commissioner. The City must make records (including this SMP) available to the public at reasonable times during regular business hours.

2 SMP Organization

2.1 Plan Management Hierarchy



2.2 Additional Environmental Plans

The City implements the following existing environmental plans:

- Operations and Maintenance (O&M) Plan for Municipal Operations (available upon request);
- Illicit Discharge Detection and Elimination (IDDE) Plan (**Attachment B**);
- Level of Service (LOS) Plan for Snow and Ice Removal (available upon request);
- Spill Prevention Control and Countermeasure Plans (SPCC) for the Water Pollution Control Facility and Public Works Facility (available upon request);
- Education and Outreach Plan (available upon request);
- Combined Sewer Overflow Program and Sewer Master Plan for CSO Abatement (available upon request); and
- Stormwater Pollution Prevention Plans (SWPPPs) for the Water Pollution Control Facility, Public Works Facility, the Construction and the Demolition Debris Landfill (available upon request).

3 Minimum Control Measures

3.1 MCM I - Education/Outreach Program

MS4 permittees must fully comply with MCM I by developing an Education/Outreach Program that will educate the public and smaller focus groups about polluted runoff and how to reduce pollution. The goal is to *change the behavior* of target audiences that will help to minimize stormwater impacts.

The City selected Best Management Practices (BMPs) for the Education/Outreach MCM of this SMP. The following BMPs are to be implemented through participation in BASWG and/or through the City's own education and outreach efforts. The outreach to raise awareness campaign targeted at the general public and the outreach to change behavior change campaign to two audiences will be conducted through participation in BASWG. Please see the BASWG SMP under separate cover for specifics about these campaigns.

3.1.1 BMP1A - Municipal Outreach to Raise Awareness

The 2022 General Permit requires each MS4 permittee to implement an outreach campaign to increase stormwater pollution awareness and deliver information to at least one of the following audiences: municipal, commercial, development/construction, or institutions. The outreach campaign must be delivered using at least three (3) outreach tools per year.

Description:
For the previous MS4 General Permit, the City developed a Municipal Permit Awareness Plan to educate municipal officials about the specifics of the City's SMP and also to focus on the impacts of stormwater runoff pollution. The existing plan was used to develop the Municipal Outreach program detailed below.

Measurable Goals:
During each permit year, the City will improve municipal staff and officials' awareness and knowledge of stormwater management and pollution prevention practices with a minimum of a 10% increase in awareness (determined through municipal surveys) by the end of PY5. The City chose a 10% increase due to the high baseline level of staff awareness from the previous permit cycle. To improve municipal officials' awareness, the City will use a minimum of three of the implementation tools below. A summary of th implementation of this BMP will be included in the MS4 Annual Report each year.

Target Audience: Municipal staff and officials.

Overarching Message: "The City has a stormwater discharge permit that requires municipal employees and officials to minimize stormwater pollutants entering into our local streams, to keep them clean and healthy for all City residents." This message will be presented with variations based on target audience interests and outreach tools used.

Implementation Tools:
To raise awareness of municipal staff and officials, the City will implement or support implementation of at least three (3) of the following outreach tools each year. If an implementation tool is found to be ineffective, based on process indicators (e.g. attendance), it will be modified accordingly.

1. Quarterly stormwater team meetings;
2. Annual Safety Day training for all municipal staff;
3. Annual email to municipal staff and officials detailing the Town's involvement in BASWG's annual public event;

4. Posting MS4 program updates on municipal staff bulletin boards;
5. Stormwater 101 training for at least one of the following sub-audiences:
    - City Council;
    - Technical Review Committee;
    - Planning Board;
    - Public Works Department;
    - Parks and Recreation Department;
    - Public Safety Department;
    - Environmental Department; or
    - Water Department

Responsible Party: Director of Environmental Services or Designee

3.1.2 BMP1B - Evaluate Campaign Effectiveness

The 2022 General Permit requires each MS4 permittee to identify methods it will use to evaluate the effectiveness of each awareness and behavior change campaign. A relevant baseline evaluation (e.g. from previous permit cycle) must be conducted prior to each campaign, followed by an evaluation in year five of this permit to assess the overall effectiveness of the outreach program. Any message or delivery mechanism found ineffective or of unsatisfactory efficacy, must be modified accordingly.

Description:
The City will collect Education/Outreach program data to show evidence that progress toward the defined awareness and behavior goals of the program is achieved. The City will evaluate BMP1A, all other outreach and behavior change campaigns through BASWG will be evaluated by BASWG. See the BASWG SMP under separate cover for more information.

Measurable Goals:

1. The baseline of the municipal awareness campaign will be evaluated in PY1 through a survey provided to municipal staff and officials to gauge their current understanding of MS4 Program topics; and
2. Each municipal training session will include a written evaluation prior to and immediately following the training session. These evaluations will include applicable questions to gauge the effectiveness of each training session.

Implementation Tools:
At the beginning of and throughout the 2022 MS4 permit cycle, the City will collect Education/Outreach program data and periodically assess the effectiveness of the awareness campaign (BMP1A). The following tools will be implemented for evaluation:

1. In PY1, conduct a baseline evaluation survey;
2. Gather data and feedback from training participants via pre and post training questionnaires; and
3. In PY5, the City will evaluate the effectiveness of the municipal outreach campaign by summarizing the findings referenced above.

Responsible Party: Director of Environmental Services or Designee

The following BMPs describe activities that are not required by the 2022 MS4 General Permit, but are being conducted by the City to supplement the Education/Outreach program.

3.1.3 BMP1C - Classroom Education and Outreach Program

Description:
The City will continue its classroom education and outreach programs. Providing stormwater education through schools exposes the message not only to students but to their parents as well.

Measurable Goals:
During each permit year, the City will educate students from the Brewer Community School about stormwater pollution.

Implementation Tools:
To educate local students, the City will implement at least one of the following educational programs each permit year:

- Classroom instruction regarding stormwater pollution followed by a tour of the City's Water Pollution Control Facility;
- Assembly presentation from a clean water educator, such as Mr. and Mrs. Fish, with a focus on stormwater;
- Participating in a clean water program such as 'A Day Without Water'; and
- Using the Enviroscape model to educate students either in person or via a recorded video presentation; and/or
- Another equivalent stormwater education tool or program.

Responsible Party: Director of Environmental Services or Designee

3.1.4 BMP1D - Partner with the Penobscot Riverkeepers Program

Description:
The Penobscot River and Bay Institute (PRBI) offers on-the-river experiences for school children throughout the Penobscot River watershed as part of its Penobsct Riverkeepers program. Founded in 1992 to promote experiential environmental education, PRBI's mission is to foster good stewardship of natural resources through hands-on learning. PRBI serves towns and schools in the Penboscot River watershed and coastal communities surrounding Penobscot Bay.

Measurable Goals:
The City will continue to partner with Penobscot Riverkeepers to educate local students each permit year.

Implementation Tools:
Each year of the permit, the Penobscot Riverkeepers will bring several groups (typically 4-8) of area middle school and high school students on tours of the City's WPCF facility. Approximately 200 - 400 students participate during each permit year. The students and staff are provided with pizza during "lunch and learn" sessions that focus on stormwater education. Topics discussed include water conservation, waste water treatment, and pollution prevention practices.

Responsible Parties:

- Director of Environmental Services or Designee;

- WPCF Chief Operator; or
- Collection Systems Supervisor.

3.1.5 BMP1E - Distribute Public Education Material and Promotional Giveaways

Description:
To enhance public education and outreach campaign messaging the City distributes public education material.

Promotional giveaways are another way to market stormwater education and outreach efforts. Promotional giveaways are small tokens with stormwater education slogans and graphics. They are free items given to people to help them become aware of and think about environmental issues.

Promotional items and educational materials are distributed through a number of venues, including watershed festivals, stream cleanups, conferences, seminars, outdoor events, and schools. Whenever possible the items accompany displays and act as rewards and incentives for participation in stormwater pollution prevention activities.

Measurable Goals:
During each permit year, the City will continue to distribute public education material and promotional giveaways at public events and public areas.

Implementation Tools:
Each year of the permit, the City will distribute public educational materials and promotional giveaways during at least one of the following events or in one of the following locations:

- Stream Clean Up Events;
- Brewer Days;
- Cabin Fever Reliever;
- Brewer Land Trust Day;
- City Library Environmental Display; and/or
- Brewer City Hall.

The following are some promotional items and educational materials that will be used:

- Handouts on stormwater pollution;
- Handout on water conservation practices;
- T-Shirts and caps;
- ”Think Blue” rubber ducks;
- Stormwater themed coloring books/activity books;
- Pins and stickers;
- Bags;
- Pens;
- Key chains; and

- Post-it booklets.

Responsible Parties:

- Director of Environmental Services or Designee;
- Chief Operator; or
- Collection Systems Supervisor.

3.1.6 BMP1F - Publicize Events and Activities through Social Media

Description:
Social media is a strong ally to promote a stormwater pollution prevention campaign and to educate the public about stormwater issues. The most effective media from the previous permit term are being continued in the current permit term.

Measurable Goals:
During each permit year, the City will use social media to promote local events and activities relating to stormwater pollution prevention.

Implementation Tools:
The City will use at least one of following tools each permit year to educate the public about local stormwater pollution prevention events:

- City of Brewer Facebook Page;
- City of Brewer website;
- BASWG Facebook Page; or
- Other City of Brewer social media platform.

Responsible Parties:

- Director of Environmental Services or Designee;
- WPCF Chief Operator; or
- Collection Systems Supervisor.

3.1.7 BMP1G - Cigarette Butt Collection

Description:
Trash and floating debris in waterways have become significant pollutants, especially in areas where a large volume of trash is generated in a concentrated area. Trash in water bodies contributes to visual pollution and detracts from the aesthetic qualities of the landscape. It also poses a threat to wildlife and human health (e.g. choking hazards to wildlife and bacteria to humans).

Participants in the City of Brewer's street and stream cleanup events have identified cigarettes as an ongoing and significant contributor of litter within the City. According to Clean Virginia Waterways, about 95% of cigarette filters are composed of cellulose acetate, which is a form of plastic that does not quickly degrade and can persist in the environment. The City aims to install cigarette butt receptacles at municipally owned properties.

Measurable Goals:
During each permit year, the City will continue to collect cigarette butts and maintain existing receptacles. The City may opt to install more cigarette butt receptacles, if necessary.

Implementation Tools:
The City will continue to collect cigarette butts from receptacles installed on municipally owned properties. These receptacles will have a sign to educate the public about stormwater pollution.

Responsible Party: Collection Systems Supervisor

3.1.8 BMP1H - Pet Waste Collection

Description:
Pet waste collection as a source control involves using a combination of education outreach and enforcement to encourage residents to clean up after their pets. The presence of pet waste in stormwater runoff has a number of implications for urban stream water quality, with perhaps the greatest impact from fecal bacteria.

The City implemented a pet waste collection program during previous permit cycles. This program uses pet owner awareness and education, and educational signs, to alert residents to the proper disposal techniques for pet droppings.

Measurable Goals:
The City will continue to maintain pet waste collection points and install additional receptacles, as needed. Baggies and signage on proper disposal of pet waste is located at each collection point.

Implementation Tools:
The City will continue to collect pet waste from all municipally owned receptacles each permit year.

Responsible Party: Collection Systems Supervisor

3.1.9 BMP1I - Felts Brook Watershed Water Quality Awareness

Description:
The City of Brewer conducts water quality monitoring annually in the Felts Brook Watershed to establish baseline water quality data, before future development occurs. This includes analytical monitoring conducted by the WPCF annually and benthic monitoring conducted by outside contractors and/or volunteers biannually. The City plans to raise awareness of the potential water quality impacts to Felts Brook and the data being collected by the City.

Measurable Goals:
The City will annually educate residents about the water quality data from Felts Brook Watershed.

Implementation Tools:
The City will use at least one of the following tools each permit year to educate residents on Felts Brook Water Quality:

- Posting stream monitoring data on the City's Facebook Page;
- Posting the stream monitoring data on the City's website; or
- Emailing stream monitoring data to the City's listserve.

Responsible Parties:

- WPCF Lab Manager; or
- Collection Systems Supervisor.

3.2 MCM II - Public Involvement and Participation

MS4 permittees must fully comply with MCM II by involving the public in the planning and implementation process of improving water quality and reducing stormwater quantity via their stormwater program. BMPs for this MCM must support active involvement of the public and stakeholders.

The City will fulfill the requirements for Public Involvement and Participation through relevant BASWG practices and by implementing additional BMPs.

3.2.1 BMP2A - Public Notice of Stakeholder Involvement

The MS4 permittee must comply with applicable state and local public notice requirements using effective mechanisms for reaching the public and comply with the Maine Freedom of Access Act when stakeholders are involved with implementation of the permit. The permittee must document the stakeholder meetings and attendance in the annual report as a way of measuring this goal.

Description:
The City will follow state and local Public Notice requirements when involving stakeholders, including BASWG and the City Council, in the implementation of the 2022 MS4 General Permit.

Measurable Goal:
There will be public notification and public access to documentation of all City meetings with MS4 permit stakeholders throughout the permit cycle.

Implementation Tools:
The City will comply with public notice and access requirements by:

1. Providing public notice of BASWG meetings, and posting BASWG agendas and minutes through a link to the BASWG website via the City website;
2. Posting the SMP on the City website; and
3. Providing public notice of City Council meetings, and posting Council meeting agendas and minutes on the City website, where MS4 related items are discussed.

Responsible Party: Director of Environmental Services or Designee

3.2.2 BMP2B - Public Events

The permittee or regional stormwater group of which the permittee is a member must annually host/conduct or participate in a public event that includes a pollution prevention and/or water quality theme.

Description:
As a member of the BASWG, the City participates in public events. Each year the BASWG coordinates multiple street and stream cleanup and stormdrain stenciling events throughout the Bangor region. The BASWG also coordinates an educational and interactive stormwater booth at the annual Maine Science Festival in Bangor, or a similar event. These events increase public involvement and participation in reducing stormwater pollution.

Measurable Goal:
Each permit year the City will participate in at least one public event coordinated by the BASWG with a pollution prevention and/or water quality theme.

Implementation Tools:
To meet the goals and the MS4 permit requirements for public events, the City will participate in BASWG events each permit year. Please see the BASWG SMP, under separate cover, for more detailed information concerning these events.

Responsible Party:

- Stream Cleanup Committee;
- Director of Environmental Services or Designee;
- WPCF Chief Operator; or
- Collection Systems Supervisor.

3.2.3 BMP2C - Stream Cleanup

Description:
The City has implemented a comprehensive street and stream cleanup program. The City does not focus cleanup events on a single stream but instead addresses several stream watersheds. In past years the City has been very successful with their cleanup program. With the help of many volunteers the City regularly collects 3-3.5 tons of trash, litter, and debris from the street and streams on an annual basis.

Measurable Goal:
Each permit year the City will conduct at least one City-wide street and stream cleanup event utilizing volunteer groups, commercial businesses, and residents.

Implementation Tools:
During previous permit cycles, the City has developed a comprehensive checklist for planning the cleanup each permit year. This checklist is in the City's education and outreach plan under separate cover.

Responsible Party:

- Stream Cleanup Committee;
- Director of Environmental Services or Designee;
- WPCF Chief Operator; or
- Collection Systems Supervisor.

3.2.4 BMP2D - Storm Drain Stenciling

Description:
Storm drain stenciling involves labeling storm drain inlets with painted messages or medallions warning citizens not to dump pollutants into the drains. The stenciled messages are generally a simple phrase to remind passersby that the storm drains connect to local waterbodies and that dumping pollutes those waters.

Measurable Goal:
During each permit year the City will continue its existing storm drain stenciling program, which involves

Brewer students, Scout groups, Job Corps, Project Healing Waters Fly Fishing, and/or other volunteer groups. Markers or stencils are utilized on catch basins around the City.

Implementation Tools:
The City will continue to annually mark storm drains with storm drain markers or spray paint stencils and to distribute educational materials to nearby residents during these events.

Responsible Parties: Collection Systems Supervisor

3.3 MCM III - Illicit Discharge Detection and Elimination

Each MS4 permittee must implement and enforce a program to detect and eliminate illicit discharges and unauthorized non-stormwater discharges. The program must address the following four components: 1) Procedures for prioritizing watersheds, 2)Procedures for tracing the source of an illicit discharge, 3)Procedures for removing the source of the discharges, and 4)Procedures for program evaluation and assessment.

To meet MS4 General Permit requirements for this MCM, the City will continue to implement its Illicit Discharge Detection and Elimination (IDDE) program, which includes:

- A Watershed-based map of the City's stormwater management system;
- A written IDDE Plan which includes;
  - Inspections of outfalls owned/operated by the City (and monitoring of outfalls which flow during dry weather);
  - Investigations of potential illicit discharges;
  - Enforcement of the Non-Stormwater Discharge Ordinance; and
  - A Quality Assurance Project Plan.
- Development of a prioritized list of outfalls which have the potential to cause illicit discharges during wet weather.

The following BMPs will be implemented to meet this MCM.

3.3.1 BMP3A - Non-stormwater Discharge Ordinance

The permittee must continue to implement a non-stormwater discharge ordinance that prohibits non-stormwater discharges and provides for the implementation of appropriate enforcement procedures and actions.

Description:
The City previously approved its Non-Stormwater Discharge Ordinance, which is included as Chapter 31, Article 6-B of the City's Code of Ordinances. The ordinance has been implemented since approval, and is enforced by the City Code Enforcement Officer.

Measurable Goals:

1. The City will implement and enforce its non-stormwater discharge ordinance throughout the 2022 MS4 permit cycle; and
2. Any violations of the non-stormwater discharge ordinance and related enforcement actions during the permit cycle will be documented.

Implementation:
The City will continue to implement and enforce its non-stormwater discharge ordinance including potential sanitary sewer overflows (SSOs) within the City's regulated area.

Responsible Party: Director of Environmental Services or Designee

3.3.2 BMP3B - IDDE Plan

The IDDE program must include a written IDDE Plan to address any discharge that is not uncontaminated groundwater, water from a natural resource, or an allowable non-stormwater discharge. The plan must address dumping that results in illicit discharges to the MS4. The IDDE plan must set forth all written procedures developed in accordance with the requirements listed in the General Permit.

Description:
The City developed an IDDE Plan as part of the 2013 MS4 General Permit, and has updated the IDDE Plan, (see **Attachment B**) to meet requirements of the 2022 MS4 General Permit.

Measurable Goal:
As part of its IDDE program, the City will review its IDDE Plan each permit year and revise the plan as necessary.

Implementation:
The City will continue to refine their IDDE program.

Responsible Party: Director of Environmental Services or Designee

3.3.3 BMP3C - Watershed Based Storm Sewer System Infrastructure Map

Permittees must maintain a map(s) of their municipally-owned or operated storm sewer system. The map(s) must show the location of all stormwater catch basins, connecting surface and subsurface infrastructure, depict the direction of in-flow and out-flow pipes, and the locations of all discharges from all stormwater outfalls operated by the regulated small MS4 to receiving waters or to an interconnected MS4 as well as the name of the receiving water for each outfall. Each catch basin must be uniquely identified to facilitate control of potential illicit discharges and proper operation and maintenance of these structures. Permittees must continue to keep their map(s) current and ensure that maps are reviewed for any updates at least annually. Permittees may choose to utilize paper or electronic maps for their storm sewer system.

Description:
The City developed and refined a watershed based storm sewer system infrastructure map during previous MS4 permit cycles. The City utilizes a Geographic Information System (GIS) based mapping system to manage all MS4 related storm sewer system components.

Measurable Goals:
The City will annually review its storm sewer infrastructure maps and revise, as necessary. The review will encompass all existing storm sewer system infrastructure, including but not limited to:

- The location of all stormwater catch basins;
- Connecting surface and subsurface infrastructure depicting the direction of in-flow and out-flow pipes; and
- The locations and receiving waters for all municipal stormwater outfalls within the regulated area.

Implementation:
The City will continue to refine their City infrastructure mapping system, as necessary, during each year of the current MS4 permit cycle to address potential changes to their stormwater management system. The City will rely on the annual storm sewer system infrastructure inspection program described in **BMPs 3D** and **6E** below to maintain awareness of system changes and necessary mapping updates.

Responsible Parties:

- Collection Systems Supervisor; or
- Environmental Technicians.

3.3.4 BMP3D - Dry Weather Outfall Inspection

Permittees must implement a dry weather outfall inspection program that includes all elements outlined in Part IV(C)(3)(e)(i - vii) of the General Permit.

Description:
The City performs dry weather inspections of all identified stormwater outfalls within the urbanized area. The City has identified priority areas where illicit discharges might be present. Dry weather outfall inspections are included as part of this priority IDDE program. The inspection program is designed to identify potential illicit discharges within the City's stormwater management system, and is a critical component for minimizing stormwater pollution to receiving waterbodies.

Measurable Goals:

1. Annually inspect at least 20% of outfalls within the City's regulated area (minimum); and
2. If possible, annually inspect 100% of outfalls within the City's regulated area (above and beyond).

Implementation:
The City will continue to annually perform its existing dry weather outfall inspection program, prioritizing inspection of outfalls discharging from the City's priority watershed. Stormwater Team members involved in the inspection program will be trained as necessary on how to conduct and record dry weather inspections. Inspection results will be documented in a database management system or other record keeping system for compliance purposes. The City will rely on available resources specifically addressing illicit discharge detection and elimination, including, but not limited to the City's Illicit Discharge Detection and Elimination Plan.

Responsible Parties:

- Collection Systems Supervisor; or
- Environmental Technicians.

3.3.5 BMP3E - Wet Weather Assessment for Potential Illicit Discharges

Prior to the expiration date of the 2022 MS4 General Permit, permittees must perform a wet weather assessment for the potential for illicit discharges during wet weather events. The assessment will vary by permittee and utilize data from existing studies including those listed in Part IV(C)(3)(f) of the General Permit. The outcome of the assessment will be a list of outfalls identified for wet weather monitoring and testing, if applicable, by the permittee in the next permit cycle and the rationale for including these outfalls. On or before the expiration date of this General Permit, the permittee must identify these wet weather outfalls in its written IDDE plan, identify specific parameters for wet weather monitoring based on the EPA New England bacterial source tracking protocol or other acceptable protocols or methodologies, and specify the timing and frequency of wet weather monitoring to be completed during the term of the next permit cycle. Should the permittee complete this assessment prior to the expiration date of the GP and permittee specific DEP Order, the permittee must implement the wet weather monitoring immediately.

Description:
The City will conduct a wet weather assessment in accordance with the 2022 MS4 General Permit Part IV(C)(3)(f), and will incorporate the wet weather assessment into their IDDE Plan by the end of PY5 (6/30/2027).

Measurable Goals:
The City's wet weather assessment will identify all outfalls in the regulated area that have the potential for illicit discharges during wet weather events, identify targeted wet weather outfalls for monitoring during the next permit cycle; and incorporate the wet weather assessment into the City IDDE Plan by the end of PY5.

Implementation:
The City will conduct a comprehensive wet weather outfall assessment over the course of the 2022 MS4 permit cycle.

Responsible Parties:

- Director of Environmental Services or Designee;
- Collection System Supervisor; or
- Environmental Technicians.

3.3.6 BMP3F - Identify Allowable Non-stormwater Discharges that Contribute Pollutants

The permittee must include if it has identified any allowable non-stormwater discharges that are significant contributors of pollutants to the MS4. The non-stormwater discharges authorized by the General Permit are listed in Part IV(C)(3)(h) of the permit. If sources are identified, then the permittee must implement measures and/or cooperate with responsible dischargers to control these sources so they are no longer significant contributors of pollutants.

Description:
The City has prioritized the following municipal generated allowable non-stormwater discharges to its MS4:

1. Hydrant flushing runoff: The City relies on Brewer Water District personnel for the flushing of all City owned fire hydrants located in the municipality. The City's Stormwater Management Team developed and implemented a standard operating procedure (SOP) for the flushing of all municipally owned hydrants within the regulated urbanized area. This SOP, included in the City's IDDE Plan found in **Attachment B**, ensures that discharges from the City's MS4 to receiving waterbodies as a result of hydrant flushing activities are not significant contributors of pollutants.

2. Swimming Pool discharge: Swimming pools are a major source of chlorinated water discharged into sanitary and storm sewer systems. An average swimming pool holds 19,000 gallons of chlorinated water. The City developed education material to distribute to pool owners regarding proper discharge options for chlorinated water during the previous permit cycle.

Measurable Goals:
The City will meet the following goals to control pollutant contributions from the identified allowable non-stormwater discharges:

1. Annual review of City hydrant map, including where discharges drain to the MS4 and receiving waters;
2. Request an annual water quality report from the BWD concerning hydrant flushing activities;
3. Continue to distribute educational material on proper discharge options for chlorinated water to residents permitting new swimming pools;
4. Address any other allowable non-stormwater discharges (see General Permit Part IV(C)(3)(h)) that are identified as significant contributors of pollutants to the MS4.

Implementation:
The City will implement the following measures to control pollutant contributions from the City's allowable non-stormwater discharges:

1. The City will work with the Brewer Water District to annually review and update the City infrastructure map to maintain location points of all hydrants;
2. The City will request an annual water quality report documenting all best management practices implemented for hydrant flushing activity at the prioritized hydrants as well as the BWD's testing results of the total residual chlorine for any such discharges;
3. During each permit year, the City will include a summary of all hydrant flushing activities conducted within the regulated area in their MS4 Annual Report; and
4. The City will continue to distribute educational material on proper discharge options for chlorinated water to residents permitting new swimming pools each permit year.

Responsible Parties:

- Water Superintendent; or
- Collection Systems Supervisor.

3.3.7 BMP3G - Community Hotline

Description:
Because regulators and authorities cannot monitor all waterbodies at once, they sometimes rely on the public to keep them informed of water polluters. A hotline can be a toll-free telephone number or an electronic form linked directly to a municipality's website. A typical call might report a leaking automobile, concrete wash-out dumped on the street, paint in a creek, or organic debris (including pet waste) in a drainage system or waterway.

Measurable Goals:
During each permit year, the City will continue to monitor the community hotlines and respond to all emails and phone calls.

Implementation:
The City maintains both an email and phone hotline. All distributed materials include pollution hotline numbers and information. Hotlines are advertised in the public education materials, on the City's website, and on the side of the City's piping video inspection truck.

Responsible Party: Director of Environmental Services or Designee

3.3.8 BMP3H - Sanitary Sewer Overflows

Description:
Sanitary sewer overflows (SSOs) involve the release of raw sewage from a separate sanitary sewer system prior to reaching a treatment facility. The raw sewage from these overflows contains bacteria and nutrients that affect both human and environmental health. These overflows occur when the flow into the system exceeds the design capacity of the conveyance system, resulting in discharges into basements, streets, and streams. A common SSO is overflowing sewage manholes that send untreated sewage into a stream. While SSOs can occasionally occur in any system due to factors such as flooding or temporary blockages, chronic overflows are an indicator of a deteriorating system or a system where development has exceeded capacity.

Measurable Goals:
During each permit year, the City will continue to implement the sanitary sewer maintenance program and to implement and update the WPCF Operations and Maintenance plan, as needed.

Implementation:
The City will continue to maintain the sanitary sewer system to prevent SSOs. This maintenance will include flushing, derooting, degreasing, and rehabilitation as necessary in the sanitary sewer system.

Responsible Parties:

- Director of Environmental Services or Designee;
- Collection System Supervisor;
- Environmental Technicians; or
- WPCF Chief Operator.

3.3.9 BMP3I - Proper Disposal of Household Hazardous and Universal Waste

Description:
Many products found in homes contain chemical ingredients that are harmful to people and to the environment. Chemicals such as oven cleaners, paint removers, bug killers, solvents, and drain cleaners are just a few common hazardous products in the home. The City of Brewer will continue to educated its residents on the proper handling and disposal of household hazardous and universal wastes.

The most important aspect of the household hazardous waste collection program is providing the public with information on how to dispose of hazardous items in their household, the hours and location of collection facilities, and items that are acceptable or unacceptable at the collection facility. This information is provided on the City's website.

Measurable Goals:
During each permit year, the City will continue to participate in a Household Hazardous Waste Program, which typically occurs in October, and will also continue the City's Universal Waste Program.

Implementation:
The City will post information about both the Household Hazardous Waste Program and the Universal Waste Program on their website. The City will also continue to collect anti-freeze and waste oil at the WPCF for proper disposal.

Responsible Parties:

- WPCF Chief Operator; or
- Collection Systems Supervisor.

3.4 MCM IV - Construction Site Stormwater Runoff Control

Each permittee must implement and enforce a program to minimize or eliminate pollutants in any stormwater runoff from construction activities that disturb one acre or more of land within the urbanized area. Reduction of stormwater discharges from construction activity disturbing less than one acre must be included in the program if that construction activity is part of a larger common plan of development or sale that would disturb one acre or more.

The City of Brewer selected the following Best Management Practices (BMPs) to meet requirements of MCM IV, ensuring that construction on both public and private property does not impact water resources.

3.4.1 BMP4A -Ordinance/Regulatory Mechanism

The General Permit requires that the MS4 permittee have an ordinance or other regulatory mechanism in place that requires the use of erosion and sediment control BMPs at construction sites consistent with the minimum standards outlined in Appendix C of the 2022 MS4 General Permit. Permittees who have an existing ordinance must evaluate and update it as needed within one (1) year of the effective date of this GP. Permittees without an existing ordinance must develop an ordinance within one (1) year of the effective date of this GP and have an approved ordinance in place with the necessary enforcement authority within two (2) years of the effective date of this General Permit.

Description:
The City of Brewer will continue to enforce an existing program to reduce pollutants in any stormwater runoff to the MS4 from construction activities resulting in a land disturbance of greater than or equal to one acre within the City's urbanized area. The City relies on Chapter 500, which applies to a project that disturbs one acre or more of land area and requires a stormwater permit, issued by MDEP, pursuant to the Stormwater Management Law. Chapter 500 Appendix C describes housekeeping performance standards, including construction site waste control, for permitted construction projects.

Measurable Goal:
In PY1, the City will evaluate and update its existing regulatory mechanism, as necessary, to include references to the requirements found in Attachment C of the MS4 General Permit. These requirements include the provisions detailed in the MDEP Chapter 500 Appendix A - Erosion and Sediment Control, Appendix B - Inspections and Maintenance, and Appendix C - Housekeeping. If updates to the City's existing ordinance are required, they will be completed by July 1, 2023.

Implementation:
The City will rely on the MDEP's administration and enforcement of the Maine Construction General Permit (MCGP) for all projects resulting in a land disturbance of greater than or equal to one acre in the City. The City may opt to implement and enforce their existing construction site stormwater runnoff conrol program within the municipal boundary and not just the urbanized area.

Responsible Parties:

- Director of Environmental Services or Designee;
- Collection Systems Supervisor; or
- Code Enforcement Officer.

3.4.2 BMP4B - Procedures for Site Plan Review

The MS4 permittee must develop and implement procedures for site plan review that incorporate consideration of potential water quality impacts, erosion control, waste storage, and other elements of this MCM, the ability for the public to comment on such reviews at publicly-noticed meetings, and procedures to consider information submitted by the public.

Description:
The City of Brewer has existing Site Plan and Subdivision Review procedures applicable to projects that disturb one or more acres of land within the urbanized area. These procedures include the provisions detailed 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, as well as procedures to consider information submitted by the public). The City Planning Board is authorized to review and act on all site plans for development requiring site plan review. All City Planning Board meetings are open to public attendance and public comment.

Measurable Goals:
The City will meet the following goals for implementing Site Plan Review procedures to address MS4 permit requirements:

1. Annual evaluation of the Site Plan Review Ordinance, updating the ordinance as necessary;
2. Notification for City residents of all Planning Board meetings; and
3. Consideration of all public input related to site plan reviews and actions.

Implementation:
The City will continue implementation and enforcement of its Site Plan Review Ordinance, specifically:

1. Throughout the 2022 permit cycle, the City will review and update its Site Plan Review procedures as necessary to incorporate consideration of stormwater runoff control at applicable construction sites;
2. Continue to notify and invite the public to City Planning Board meetings; and
3. Solicit public comment on site plan reviews applicable to MS4 regulation.

Responsible Parties:

- Environmental Director;
- Collection Systems Supervisor; or
- Code Enforcement Officer.

3.4.3 BMP4C - Procedures for Notification

The permittee's construction site runoff program must include procedures for notifying construction site developers and operators of the requirements for registration under the Maine Construction General Permit and Chapter 500, Stormwater Management.

Description:
As required by the MS4 permit, the City will notify construction site developers and operators of the requirements for registration under the Maine Construction General Permit or Chapter 500. This notification applies to construction activity in the City disturbing one or more acres.

Measurable Goals:
During each permit year the City will rely on site plan review application documents which include notification of requirement for registration under the MCGP or Chapter 500 requirements. During each permit year the City will provide a brief summary of all projects meeting the requirements for notification in the MS4 Annual Report submitted to MDEP.

Implementation:
Construction site developers and operators will be made aware of this requirement through site plan review application documents for applicable projects.

Responsible Party:

- Director of Environmental Services or Designee;
- Collection Systems Supervisor; or
- Code Enforcement Officer

3.4.4 BMP4D - Construction Site Inspections and Documentation

The permittee must document construction activity that disturbs one or more acres within the urbanized area. Written procedures for site inspection and enforcement authority must be documented. Construction site inspections must be completed following minimum requirements outlined in Part IV(4)(a)(v)(b) of the General Permit.

Description:
To maintain the effectiveness of construction site stormwater control best management practices (BMPs), regular inspection of control measures is essential. The City will continue to inspect applicable construction projects for erosion and sediment control (E&SC) and good housekeeping/pollution prevention, as required by the MS4 General Permit. The City will also develop a construction site inspection plan, detailing inspection procedures and follow-up actions for applicable construction sites within the regulated area.

Measurable Goals:
The City will meet the following goals for construction site inspections and documentation:

1. By the end of PY1 (July 1st, 2023), develop written procedures for site inspection and enforcement of erosion and sediment control (E&SC) measures;
2. Inspect each applicable construction site for E&SC compliance at least three times during the active earth-moving phase the operation (see **Attachment C** for a paper example of the electronic form used for these inspections);
3. Inspect each applicable construction site for E&SC compliance annually until the operation reaches substantial completion;
4. Inspect each applicable construction site for E&SC compliance at project completion to ensure that the site reached permanent stabilization and all temporary erosion and sediment controls have been removed;
5. Document all construction inspections, enforcement action, and corrective actions taken; and
6. Summarize the inspection program results in the MS4 Annual Report submitted to MDEP each permit year.

Implementation:
Qualified City personnel will perform, or contract to perform, applicable construction site inspections at a frequency specified in written inspection procedures. For sites not in compliance, the inspector(s) will provide site operators with guidance on how to come into compliance. Sites which are not brought into compliance with the MCGP within a reasonable period after receiving guidance from the inspector(s) or after other measures are taken by the MS4, will be reported to the MDEP for non-compliance with the MS4 Permit.

Responsible Parties:

- Director of Environmental Services or Designee; or
- Code Enforcement Officer

3.4.5 BMP4E - Felts Brook Watershed Expanded Construction Inspections

Description:
Felts Brook is the City's priority watershed and may be at risk of becoming an urban impaired stream as a result of current and future development and must be protected to the greatest extent practicable. To help protect the Felts Brook watershed from impairment in the future, the City shall periodically inspect all stormwater management facilities and/or systems located in the Felts Brook watershed, including those sites of one acre or less, to verify compliance with Stormwater Management Plans.

Measurable Goals:
The City will inspect all construction projects within the Felts Brook Watershed at least once following the procedures in their written construction inspection plan.

Implementation:
Qualified City personnel will perform, or contract with an MDEP certified third party inspector to perform, applicable construction site inspections at least once to determine whether sites in the Felts Brook Watershed are in compliance with the stormwater management plan and City ordinances.

Responsible Parties:

- Director of Environmental Services or Designee; or
- Technical Review Committee.

3.5 MCM V - Post-Construction Runoff Control for New Development and Redevelopment

Each permittee must implement and enforce a program to address post construction 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 MS4.

The City selected the following Best Management Practices (BMPs) for the Post-Construction Stormwater Management MCM of this SMP.

3.5.1 BMP5A - Promote Low Impact Development

The permittee must promote strategies which include a combination of structural and/or nonstructural BMPs appropriate to prevent or minimize water quality impacts.

Description:
Developers and/or construction site operators are notified of low impact development (LID) strategies through municipal Site Plan Review applications, which must also comply with MDEP's Chapter 500 requirements regarding LID.

Measurable Goals:
The City will promote LID strategies to all applicable site development projects within the Urbanized Area.

Implementation:
The City will promote LID as part of its Site Plan Review procedures, relying on Chapter 500 Stormwater requirements and/or the current City ordinance as applicable to each site development project.

The City's Technical Review Committee will meet, as needed, to discuss LID approaches for proposed projects in the City, including opportunities for including LID BMPs in City-owned facility improvements. Every project that goes before the City's Planning Board gets reviewed and LID approaches are discussed.

Responsible Parties:

- Technical Review Committee; or
- Code Enforcement Officer

3.5.2 BMP5B - Post-Construction Discharge Ordinance

Each MS4 permittee must have and implement a post-construction discharge ordinance, or other regulatory mechanism. Per the ordinance, applicable BMPs the operation must be inspected annually to document their proper function and any completed maintenance. This ordinance must also include provisions for the timely correction of any identified deficiencies.

Description:
The City will continue to rely on its existing Post-Construction Stormwater Ordinance developed during a previous permit cycle and enacted on February 9, 2010.

Measurable Goals:

1. The City's Post-Construction Stormwater Ordinance will be reviewed and updated to meet current MS4 General Permit requirements by the end of PY1 (July 1st, 2023).
2. During each permit year the City will ensure applicable post-construction stormwater management BMPs discharging to its regulated MS4 are functioning properly, as required by the General Permit. This includes those that are either privately or municipally owned and operated.
3. A summary of all post-construction inspections performed for MS4 permit compliance will be provided in the MS4 Annual Report submitted to MDEP each permit year.

Implementation:
The City's Post-Construction Stormwater Ordinance will be updated to contain the following specific requirements:

- The owner or operator of a post-construction BMP must provide the City with an annual report, completed by a qualified inspector documenting that all on-site BMPs are adequately maintained and functioning as intended; and
- If a post-construction BMP requires maintenance, the owner or operator must provide the City with a record of the deficiency and corrective action(s) taken no later than 60 days following the date the deficiency was identified. If 60 days is not possible, then the operator must establish an expeditious schedule to complete the maintenance and establish a record of the deficiency and corrective action(s) taken.

Responsible Party: Director of Environmental Services or Designee

3.6 MCM VI - Pollution Prevention/Good Housekeeping for Municipal Operations

The objective of this program is to mitigate or eliminate pollutant runoff from municipal operations on property that is owned or managed by the permittee and located within the urbanized area.

The City selected BMPs for the Pollution Prevention/Good Housekeeping for Municipal Operations MCM of this SMP. The following BMPs are specific to the City and are to be implemented in addition to those outlined in the BASWG SMP.

3.6.1 BMP6A - Operation and Maintenance Activities

Permittees must inventory and implement written operation and maintenance (O&M) procedures for all municipal operations conducted in, on, or associated with facilities, buildings, golf courses, cemeteries, parks, and open space owned or operated by the permittee that have the potential to cause or contribute to stormwater or surface water pollution. O&M procedures must reduce stormwater pollution to the maximum extent practicable and address stormwater treatment and controls that are used to achieve compliance with the conditions of the permit.

Description:
For previous MS4 permit cycles, the City developed and/or revised an O&M Plan for all activities on municipally owned properties that have the potential to impact stormwater runoff. The O&M Plan contains an inventory of these municipal operations.

The Plan inventory includes, at a minimum, the following activities:

- Automobile Maintenance;
- Hazardous Materials Storage;
- Landscaping and Lawn Care;
- Parking Lot and Street cleaning;
- Roadway Maintenance;
- Pest Control;
- Road Salt Application and Storage;
- Spill Response and Prevention;
- Storm Drain System Cleaning;
- Vehicle Washing; and
- Vehicle Fueling System.

Measurable Goals:

1. The City will annually review and update its inventory of municipal operations that have the potential to cause or contribute to stormwater pollution.
2. The City will evaluate the O&M Plan annually to iteratively improve strategies and practices to eliminate or better control pollutant discharges.
3. A summary of the O&M activities and any proposed changes to the O&M Plan based on annual evaluations will be provided in the MS4 Annual Report submitted to MDEP each permit year.

Implementation:
The City will update its O&M Plan to meet 2022 MS4 permit requirements by the permit effective date (July 1st, 2022), and review the plan annually thereafter. During all years of the 2022 permit cycle, the City will implement this O&M Plan for municipal activities occurring in the City that have the potential to impact stormwater runoff.

Responsible Parties:

- Director of Environmental Services or Designee;
- WPCF Chief Operator;
- Recreation Director;
- Water Director;
- Public Safety Director;
- Code Enforcement Officer; and
- Library Director

3.6.2 BMP6B - Municipal Employee Training

The permittee must conduct annual employee training to prevent and reduce stormwater pollution from municipal operations and facilities subject to the MS4 permit. Compliance measures related to trainings must be documented and reported to MDEP annually, including the types of trainings presented, names and titles of attendees, the percentage of municipal and contract staff, and their occupation, that received training, the length of the training, and training content delivered.

Description:
The City provides municipal employee training on an as needed basis, but at a minimum annually. The training programs focus on municipal activities occurring in the City which have a potential to impact stormwater runoff. Typical municipal operations with this potential have been identified in the O&M Plan in **BMP6A**.

Measurable Goals:

1. The City will annually evaluate and identify training needs and materials for MS4 staff regarding municipal O&M procedures.
2. Each permit year the City will provide an appropriate employee training program that addresses means to reduce stormwater pollution from municipal operations.
3. The City will document the following MS4 permit compliance measures for each annual training:
    - Types of training presented;
    - Percentage of municipal and contract staff trainees;
    - Occupations of municipal and contract staff trainees;
    - Duration of the training program; and
    - Content delivered during the training program.
4. The City will report compliance measures related to municipal trainings in the MS4 Annual Report submitted to MDEP each permit year.

Implementation:
Each permit year, the City will evaluate and identify specific training needs for municipal and contract staff regarding the City's O&M procedures. The City will then develop and gather materials appropriate for the topic to be presented. Topics to be covered by the training program may include, but are not limited to:

- Maintenance activities, maintenance schedules, and long-term inspection procedures for structural and non-structural stormwater controls to reduce pollutants discharged from the MS4;
- Controls for reducing or eliminating the discharge of pollutants into the MS4 from streets, roads, highways, parking lots, maintenance and storage yards, fleet or maintenance shops with outdoor storage areas, salt/sand storage locations, snow disposal areas, and waste transfer stations; and
- Procedures for disposing of waste removed from the MS4 and areas listed above in accordance with all regulatory requirements (such as dredge spoil, accumulated sediments, floatables, and other debris).

The City may opt to coordinate employee trainings through a regional effort sponsored by the BASWG. City staff have participated in similar regional training programs as a cost saving measure during previous MS4 permit cycles. Details of regional training approaches by the BASWG for its MS4 members will be provided in the group's SMP submitted under separate cover to MDEP.

Responsible Party: Director of Environmental Services or Designee

3.6.3 BMP6C - Street Sweeping

The permittees must develop and implement a program to sweep all paved streets and paved parking lots maintained by the permittee at least once a year done soon after snowmelt.

Description:
The City of Brewer employs a regular sweeping program on all City owned parking lots and roads. City personnel involved with winter maintenance operations also perform street sweeping. Applicable staff will be trained on all requirements associated with MS4 Program compliance.

Measurable Goals:

1. The City will perform street sweeping of all municipally owned/operated roads at least one time each year as soon as possible after snowmelt;
2. As necessary, the City will modify their winter road and parking lot maintenance program based on annual evaluations of the street sweeping activities; and
3. A summary of annual sweeping activities and any program modifications will be provided in the MS4 Annual Report submitted to MDEP each permit year.

Implementation:
During each permit year, the City will continue to implement a sweeping program for all City owned parking lots and roads. The City will annually evaluate the effectiveness of their street sweeping program and alter the program as necessary to meet their winter maintenance goals. Sweeping of all City owned roads and parking lots occurs as soon as possible after snowmelt.

Responsible Party: Public Works Director

3.6.4 BMP6D - Catch Basin Inspection and Cleaning

The permittee must develop and implement a program to inspect catch basins and other stormwater structures that accumulate sediment. All catch basins and stormwater structures must be inspected at least once every other year and cleaned with a frequency appropriate to the accumulation identified. Sediment must be removed in accordance with current state law.

Description:
The City's stormwater management system consists of a system of open ditches, catch basins and interconnecting storm drains collecting runoff that discharges to identified outfalls.

Measurable Goals:
Per MS4 permit requirements, the City will meet the following stormwater structure inspection and cleaning goals:

1. During each permit year the City will inspect and clean (as necessary) storm drains and catch basins in the storm sewer system to meet the following required frequency and conditions:
    - Inspect and clean a minimum of 50% of all catch basins, so that all catch basins are inspected and cleaned over the course of two years;
    - Clean catch basins more frequently if inspections indicate excessive accumulation (50% of the sump is filled) of sediment.
        - If two consecutive inspections show excess accumulation, then the City will clean those catch basins every year.
        - If two annual inspections show a decrease in sediment accumulation to less than 25% of the sump, then inspections can be resumed at a frequency of once every two years.
2. The City will perform opportunistic inspections of the catch basins during the cleaning process to detect potential illicit discharges; and
3. Inspections will be documented in a database system used by the City to manage all MS4 related inspections. See **Attachment D** for an example of the form used for these inspections.

Implementation:
The City will continue to inspect every year and clean as necessary (see measurable goals above) all City owned catch basins at a minimum of every other year.

Responsible Parties:

- Collection Systems Supervisor; or
- Public Works Director.

3.6.5 BMP6E - Maintenance and Upgrading of Stormwater Conveyance System

The permittee must evaluate and implement a prioritized schedule, as necessary, for repairing or upgrading the conveyances, structures, and outfalls within the regulated area.

Description:
The City's stormwater conveyance system primarily consists of a system of open ditches, catch basins and interconnecting storm drains collecting runoff that discharges to identified outfalls.

Measurable Goals:

1. During each permit year, the City will continue to evaluate and implement a maintenance schedule for conveyances, structures and outfalls owned and operated by the MS4; and
2. A summary of annual activities will be provided in the MS4 Annual Report submitted to MDEP each permit year.

Implementation:
The City will continue to evaluate their stormwater conveyance system each year. Based on the results of dry weather outfall inspections, catch basin inspections (**BMPs 3D**, **6D**) and other factors, the City will plan and implement (as necessary), a repair schedule of municipally owned conveyances, structures and outfalls.

Responsible Party: Public Works Director

3.6.6 BMP6F - Stormwater Pollution Prevention Plan (SWPPP)

The permittee must implement written procedures outlined in a stormwater pollution prevention plan ("SWPPP") for operations or facilities that are owned or operated by the permittee and not already regulated under the Maine Industrial Stormwater Program: public works facilities; transfer stations; and/or school bus maintenance facilities. SWPPP implementation must address long-term operation of structural and non-structural controls that reduce stormwater pollution to the maximum extent practicable.

Description:
During the previous permit cycle, the City developed SWPPPs for relevant City operations and facilities. The SWPPPs include compliance with necessary requirements under the most current issuance of the MDEP's Multi-Sector General Permit (MSGP) for Industrial Activities.

Measurable Goals:

1. The City will perform necessary quarterly visual monitoring and other compliance tasks each year, as described in their current SWPPP;
2. The City will make the SWPPP available to appropriate facility staff, MDEP staff, and USEPA staff, and keep a copy of the SWPPP on-site at all times for reference and review;
3. The City will amend the SWPPP to comply with the requirements specified in Part IV(C)(6)(d) of the MS4 General Permit by the permit effective date of July 1st, 2022;
4. The City will further 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 City, local, state or federal officials that determine the SWPPP is ineffective in eliminating or significantly minimizing the intended pollutants; or
- A discharge occurs that is determined by the MDEP to cause or have the reasonable potential to cause or contribute to the violation of an applicable water quality standard.

5. The City will maintain the proper documentation for inspections and monitoring activities;
6. Annual training for SWPPP activities will be provided as part of MS4 related trainings for relevant City staff; and
7. A summary of SWPPP related activities will be provided in the MS4 Annual Report submitted to MDEP each permit year.

Implementation:
During each permit year, the City will implement stormwater pollution control measures, non-numeric effluent limitations, and pollution prevention practices identified in the SWPPP. The City staff will perform necessary tasks to maintain compliance with the requirements of the most current issuance of the MDEP MSGP, including quarterly visual monitoring.

Responsible Party:

- WPCF Chief Operator;
- Collection Systems Supervisor; or
- Public Works Director

3.6.7 BMP6G - Alternative Discharge Options for Chlorinated Water

Description:
Chlorinated waters discharged to surface waters have an adverse impact on local water quality. The City's municipal pool discharges approximately 200,000 gallons.

Measurable Goals:
During each permit year the City will continue to discharge municipal pool water to the sanitary sewer system as a means of reducing chlorinated discharges from coming into contact with stormwater.

Implementation:
The City previously connected the municipal pool to the sanitary sewer system. All discharges from the pool will go directly to the sanitary sewer system.

Responsible Party: Public Works Director

4 General Requirements

4.1 Plan Approval

The City is committed to reduce the discharge of pollutants from its regulated small MS4 to the maximum extent practicable, and maintains the highest standards for stormwater management through regular review, updating, and implementation of this Stormwater Management Plan.

Signature _____ Date 3-25-21

STEPHEN BOST, CITY MANAGER
Printed Name, Title

4.2 Plan Location and Public Access

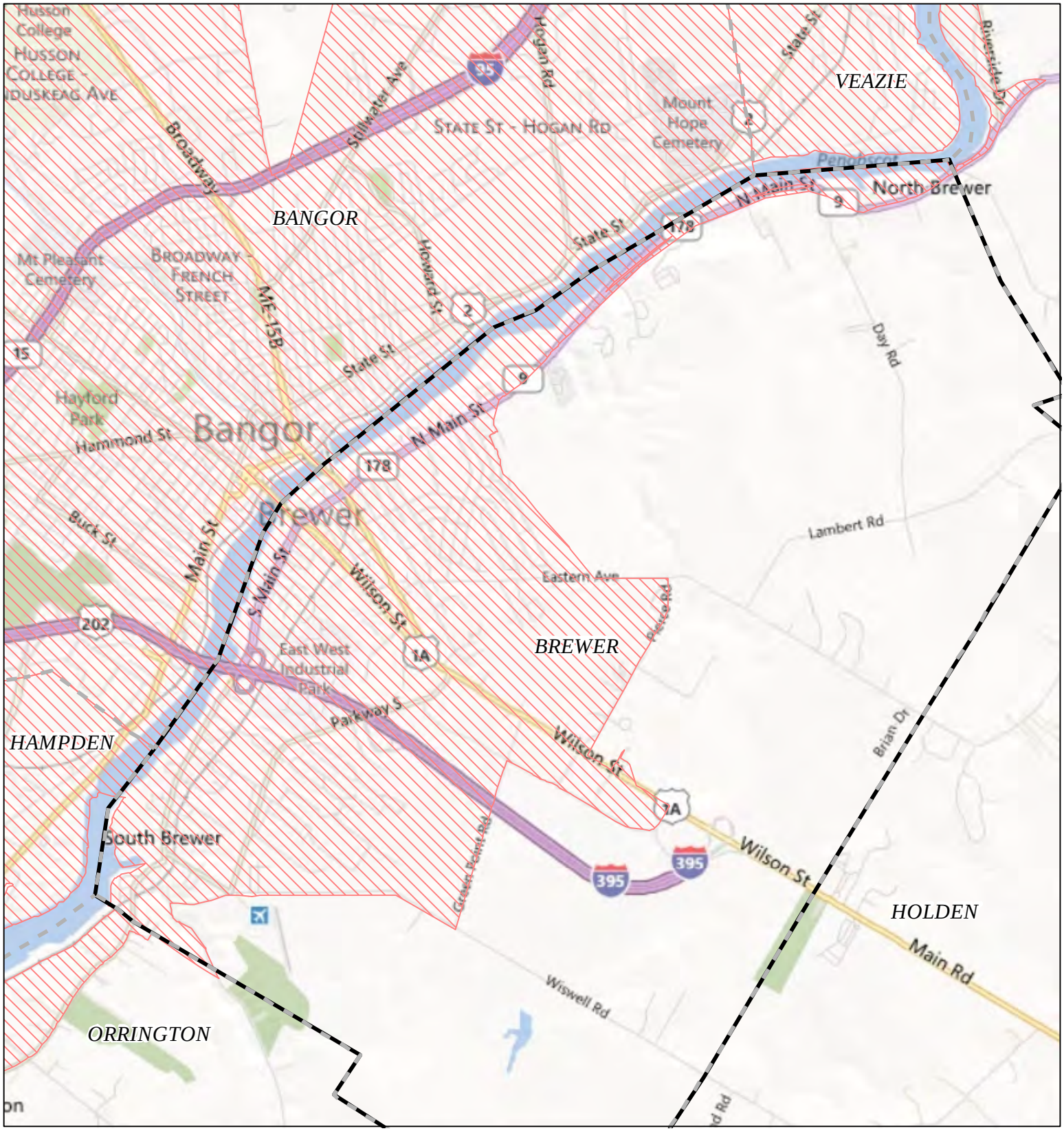
The Stormwater Management Plan and documents will be kept on file at the the City Environmental Management Office, on the City of Brewer website, and with a backup copy located at SEE, Inc. in Orono, Maine. Copies and review of documents will be made available when requested by appropriate government agencies and public safety groups.

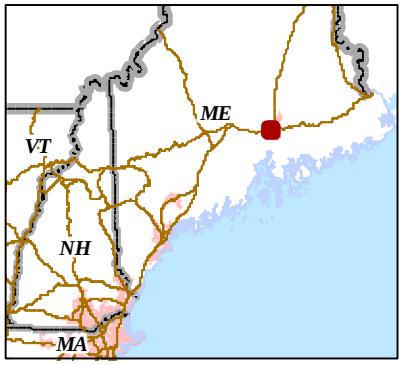
5 References

Portions of the Introduction and select areas of this document were adapted from a SMP Template prepared by Integrated Environmental Solutions for the Interlocal Stormwater Working Group (ISWG).

Attachments

A Urbanized Area Map





NPDES Phase II Stormwater Program
Automatically Designated MS4 Areas

Brewer ME

Regulated Area (2000 + 2010 Urbanized Area)

0 1 2 3 Kilometers

0 1 2 Miles

Town Population: 9474

Regulated Population: 7795

(Populations estimated from 2010 Census)

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

B Illicit Discharge Detection and Elimination (IDDE) Plan

STILLWATER ENVIRONMENTAL ENGINEERING, INC. • PO Box 426, ORONO, MAINE 04473

Illicit Discharge Detection and Elimination Plan

For

The City of Brewer
80 North Street, Brewer, ME 04412
(207) 989-7500

Prepared By

Stillwater Environmental Engineering, Inc.

June 2015
Last Updated: March 23, 2021

Philip L. Ruck P.E., *President*
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1 Illicit Discharge, Detection, and Elimination (IDDE) Introduction

Due to its population density, the City of Brewer is subject to the requirements of the Maine Department of Environmental Protection (MDEP) General Permit for Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4 General Permit).

There are six Minimum Control Measures (MCM's) which the MS4 General Permit requires the City to address throughout its urbanized area and specifically focused within the City's priority watershed of Penobscot River. An urbanized area map can be found in **Appendix A**. Infrastructure maps for the City can be found in the City's GIS and can be made available upon request.

These MCM's include:

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

This Plan, which details the IDDE program for the City of Brewer, fulfills the requirements of MCM 3 as specified in Part IV(C)(3)(b) of the 2022 MS4 General Permit. Details concerning measurable goals and deadlines for MCM 3 can be found in the City's Stormwater Management Plan (SMP).

1.1 IDDE Program Amendments, Updates, and Records

MS4 General Permits are written to provide coverage for five-year periods. The current MS4 General Permit coverage became effective on July 1, 2013 and has been administratively continued beyond five years, to expire on June 30, 2022. At the expiration of the current MS4 permit, the new 2022 MS4 General Permit, issued on October 15, 2020, will be in effect for five years beginning on July 1, 2022. This new permit will continue to provide coverage for the City of Brewer for stormwater discharges. This IDDE Plan has been updated to meet the requirements of the 2022 MS4 General Permit. This Plan must be further updated or amended if any of the following occur:

- Changes in requirements associated with a permit re-issuance;
- The City determines that this Plan is not effective; and/or
- Changes to municipal operations which effect this Plan.

The City's Environmental Services Department is responsible for MS4 General Permit compliance. The Environmental Services Department manager, Ken Locke, will modify this IDDE Plan as necessary, or utilize an outside consultant for the task.

The Environmental Services Department 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.

1.2 Typical Illicit Discharges

The MDEP defines an illicit discharge as any discharge to an MS4 which is not:

- Composed entirely of stormwater;
- An allowable non-stormwater discharge (see **Section 3** for a list of allowable non-stormwater discharges); or
- Permitted under another MDEP permit.

The Center for Watershed Protection (CWP) developed a comprehensive IDDE Manual in 2004 (updated in 2011), which classifies illicit discharges based on their characteristics:

- **Discharge Frequency**
  - **Continuous:** Discharges which occur most or all of the time, are usually easier to detect, and typically produce the greatest pollutant load.
  - **Intermittent:** Discharges which occur over a shorter period of time, such as, a few hours per day or a few days per year. Due to their infrequency, intermittent discharges are hard to detect, but can still represent a serious water quality problem, depending on their flow type. (See below)
  - **Transitory:** Discharges which occur rarely, usually in response to a singular event such as an industrial spill, ruptured tank, sewer break, transport accident or illegal dumping episode. These discharges are extremely hard to detect with routine monitoring, but under the right conditions, can exert severe water quality problems on downstream receiving waters.
- **Discharge Flow Type**
  - **Sewage and Septage:** Flows produced from sewer pipes and septic systems.
  - **Wash water:** Flows composed of:
    - Gray water (laundry) from homes;
    - Commercial carwash wash water;
    - Fleet wash water;
    - Commercial laundry wastewater; and
    - Floor washing shop drain wastewater.
  - **Liquid Wastes:** Flows containing contaminants such as:
    - Oil;
    - Paint;
    - Process water (radiator flushing water, plating bath wastewater, boiler blowdown, etc.); and
    - Any other potentially hazardous chemicals.
  - **Tap Water**
  - **Landscape Irrigation**
  - **Groundwater and Spring water**
- **Mode of Entry**
  - **Direct:** The discharge is directly connected to the storm drain pipe through:
    - Sewage pipes; and
    - Shop drains or other kinds of pipes.
  - **Indirect:** Flows which enter through stormdrain inlets or by infiltration through joints or breaks in a stormdrain pipe.

Illicit discharges may be detected by various means such as:

- The City's illicit discharge hotline;
- City staff during normal daily activities;
- Through annual inspections; and
- During infrastructure maintenance and repair.

By analyzing the different types of discharges and the means by which they may be discovered or reported, the City has developed a comprehensive IDDE program that will enable the City to identify and eliminate illicit discharges as quickly as possible. A table listing typical illicit discharges and their characteristics can be found on the next page. This table is not an exhaustive list of illicit discharges, but a list of typical discharges which may be found in the City.

Table 1: Typical Illicit Discharge Characteristics

Discharge	Flow Type	Frequency*			Mode of Entry		Detection Method
		Cont	Inter	Trans	Direct	Indirect	
Spills/Leaks	Liquid Wastes			X		X	Hotline & MDEP
Swimming Pool Discharges	Highly Chlorinated Water			X		X	Hotline
Sanitary Sewer Connections	Sewage	X	X		X		Outfall Inspections
Waste Dumping	Liquid Wastes			X		X	Hotline & Inspections
Floor Drain Connections	Liquid Wastes		X		X		Inspections
Failing Septic Systems	Septage	X	X			X	Inspections & Sampling
Sewer Line Leaks	Sewage	X	X			X	Inspections & Sampling
Contaminated Groundwater	Groundwater	X	X	X		X	Sampling
Industrial Materials/ Stockpiles	Liquid Wastes/ Sediment		X	X		X	Hotline & Inspections
Irrigation & Lawn Watering	Tap Water		X			X	Inspections & Sampling
Commercial/Industrial Washdowns	Wash Water		X			X	Hotline & Inspections
Sanitary Sewer Overflows	Sewage			X		X	Hotline & Sewer Dept.

*Frequency types: Cont = Continuous; Inter = Intermittent; Trans = Transitory

1.3 Overview of IDDE Program Components

In order to be compliant with the MS4 General Permit an IDDE program must be developed, implemented, and contain the following components:

1. Development/maintenance of a Watershed-Based Storm Sewer Map;
2. Development/maintenance of a Non-Stormwater Discharge Ordinance;
3. Identification of High Priority Areas for Inspections;
4. Procedures to Locate Illicit Discharges;
5. Procedures to Investigate and Remove Illicit Discharges; and
6. Procedures to Document Illicit Discharges.

The following sections offer detailed information concerning each component of the City's IDDE program.

2 Watershed-Based Storm Sewer Map

The first component of the City's IDDE program is the mapping of the City's storm sewer system. These maps enable the City to accurately track and locate the source of illicit discharges. The City's infrastructure maps contain features that meet or exceed the minimum requirements of the MS4 General Permit such as:

- The locations of all:
  - Catch basins;
  - Connecting surface and subsurface stormwater infrastructure;
  - Outfalls; and
  - Ditches.
- A unique identifier for all outfalls and catch basins; and
- The direction of in-flow and out-flow of all storm sewer connections;

For each outfall the following information is collected:

- Type;
- Material;
- Size; and
- Name and location of the nearest receiving waterbody.

An outfall is the location where concentrated stormwater discharges from an MS4 community enter Waters of the State or leave the MS4. Items that are not considered outfalls include:

- Driveway culverts connecting ditch segments;
- Stormdrains which convey streams/rivers under roadways; and
- Pipes that discharge to other stormwater infrastructure.

Information that the City plans to add to, or maintain within, their watershed-based storm sewer maps includes:

- Topography;
- Tax parcels;
- Zoning districts; and
- Locations of sanitary sewer lines.

The City of Brewer maintains electronic copies of its existing watershed-based storm sewer maps. These maps were created using GPS data, transportation infrastructure maps, and existing stormwater infrastructure information. When possible, field verification of stormwater infrastructure is conducted in order to ensure accurate mapping.

2.1 Infrastructure Naming Protocols

To improve existing infrastructure maps, the City has delineated watersheds in its urbanized area using the United States Geological Survey (USGS) StreamStats online tool. A total of five subwatersheds have been delineated within the urbanized area (Felts Brook, Eaton Brook, Sedgeunkedunk Stream, Penobscot River (North), and Penobscot River (South)), all of which are subwatersheds of the Lower Penobscot River watershed. This delineation facilitates the IDDE Prioritization detailed in **Section 4** below.

In addition, infrastructure (catch basins and outfalls) in the City's GIS are assigned unique alpha-numeric tags, which aid in identification for illicit discharge investigations and infrastructure maintenance.

2.2 Procedures to Update Infrastructure Map

Infrastructure maps are updated, as necessary, when new or previously unmapped infrastructure is located. The City utilizes mobile data collection devices with sub-meter GPS capabilities while conducting annual stormwater inspections, in addition to as-built drawings from new development. This information is used to update the stormwater infrastructure maps, as necessary. The City's Stormwater Coordinator is responsible for ensuring accurate data are being collected and that the infrastructure maps are updated when necessary.

3 Non-Stormwater Discharge Ordinance

The City's authority to prohibit illicit discharges became effective in 2005, when the City passed their Non-Stormwater Discharge Ordinance (see **Appendix I**). The Code Enforcement Office and Environmental Director administer the ordinance and the Code Enforcement Officer is authorized as an Enforcement Authority implement and enforce the provisions of the Ordinance.

The Ordinance allows the following non-stormwater 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;
- Dechlorinated swimming pool discharges;
- Discharges specified in writing by the enforcement authority as being necessary to protect public health and safety; and
- Dye testing, with verbal notification to the enforcement authority prior to the time of the test.

*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 MDEP 11/18/2016 Issue Profile for Drinking Water System Discharges to Regulated Small MS4s, the Brewer Water District either aerates or dechlorinates during flushing to meet Total Residual Chlorine (TRC) acute water quality criteria. For fresh water this value is 19 ug/L TRC (adjusted to 50 ug/L, per the MDEP as the reporting limit for available reliable and consistent test methods).

The Brewer Water District flushes the system every year and provides an annual report to the City describing water dechlorination methods in use and testing results for any flushing conducted. The Hydrant Flushing SOP, developed during the previous permit cycle, is attached as **Appendix G**.

4 Identification of Priority Areas

Prior MS4 General Permits required that permittees identify areas that may need special protection from illicit discharges. The City of Brewer has identified watershed drainage areas within its MS4 that have the highest potential for illicit discharge(s) to occur. The City will prioritize illicit discharge inspections in these priority areas if limited municipal resources prevent the City from conducting its typical annual inspection schedule, which is more frequent than the schedule required by the 2022 MS4 permit. The City may also use this prioritization for illicit discharge investigations, in the event there are insufficient resources to address all potential illicit discharges simultaneously.

During the 2013 MS4 permit cycle, the City's Stormwater Team identified priority areas where illicit discharges might be present, and identified areas that may need special protection from illicit discharges. Assisted by contracted service providers, City staff implemented a prioritization method developed by the Center for Watershed Protection, that consisted of the following steps:

1. Dividing the City into areas that could be evaluated for illicit discharge potential.
2. Selecting illicit discharge potential screening factors that apply to one or more of the areas and identifying the criteria to be used to evaluate each area.
3. Evaluating each area using the screening factors and assigning a numeric score based on their illicit discharge potential.

The City reviewed the screening factors presented in **Table 2** of **Appendix H**, to assess their applicability to each of the areas. The listing shows which screening factors were retained and eliminated, as well as the rationale for elimination.

Using the screening factors that were retained as applicable to the City, each drainage area was evaluated and assigned a score to describe whether the area exhibited a high potential for the factor to be present. Once all the areas were assigned scores for all of the screening factors, the scores were averaged and a final score for the area was obtained. A score of '3' represents a high priority area, a score of '2' represents a medium priority areas, and a score of '1' represents a low priority area.

The worksheet located in **Appendix H** shows the prioritization scoring scheme using retained screening factors for each of the areas identified in the City. Based on this procedure, areas having the highest normalized priority scores were determined to have the highest illicit discharge potential. As such, illicit discharge inspections are to be focused in these areas.

5 Procedures to Locate Potential Illicit Discharges

The City utilizes the following methods to detect illicit discharges:

- Observations during catch basin inspections and cleaning;
- Citizen reports of illicit discharge issues;
- Dry weather outfall inspections and monitoring;
- Opportunistic open ditch inspections; and
- Aging septic system evaluations.

The below sections provide more detailed information concerning the above listed items.

5.1 Catch Basin Inspections and Cleaning

Inspections are conducted during catch basin cleaning, which is completed at least annually in the spring as soon as possible after snow melt. Although inspections are only required every two years by the MS4 General Permit, each year inspections are attempted for all the City's accessible catch basins to assess which need to be cleaned. These inspections are conducted using a hand held mobile device and an electronic inspection form. These data are then integrated with the City's GIS system. During the inspections the amount of accumulated sediment and the general structural condition of the catch basin is noted along with the presence of:

- Debris
- Oil sheen
- Odors
- Other evidence of an illicit discharge.

5.2 Citizen Reports of Illicit Discharges

The City has established a "hotline" to handle possible illicit discharge reports. Residents, field staff, and outside agencies that suspect an illicit discharge, connection, or illegal dumping incident can call the stormwater coordinator at (207)989- 5417 to report the incident. This "hotline" can be found on the Environmental Services truck, as well as the City website (www.brewermaine.gov).

Any illicit discharge incidents that are reported by phone are handled by either the Environmental Services Department or the Public Safety Department. These calls are documented using an electronic form that can be accessed by computer or on a mobile device. Incident report data are then used to help City staff locate and eliminate the potential illicit discharge as quickly as possible.

5.2.1 Public Awareness

The City understands that public awareness is a vital part of a successful IDDE program. The public must be made aware of what does and does not constitute an illicit discharge. The City conducts education and outreach efforts along with the Bangor Area Stormwater Group (BASWG) in order to educate the public about stormwater issues including illicit discharges. The City also conducts catch basin stenciling, where catch basins are labeled to inform residents that they drain to a waterway.

Information concerning illicit discharges and how to report them can also be found on the City's website.

5.3 Dry Weather Outfall Inspections

Dry weather outfall inspections are conducted annually City-wide. The MS4 General Permit requires that 100% of identified outfalls are inspected over the course of the five-year term. The City attempts to inspect all MS4 outfalls every year, if time and resources allow, in accordance with the following:

- Inspections will be performed during periods of dry weather (less than 1/4 inch of rain in the previous 72 hours) whenever possible;
- Inspections will be performed where they can be done 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 following, at a minimum: observations of sheen, discoloration, foaming, evidence of sanitary sewage, excessive algal growth and similar visual indicators, and detection of odor;
- Photographs are taken at the time of inspection for either maintenance or illicit discharge documentation;
- MS4 outfalls are inspected where the City has safe and legal access to the structure to be inspected, otherwise inspection occurs at the next structure upstream from the outfall; and
- When maintenance or potential illicit discharge issues are identified, the Stormwater Coordinator will be informed so that he may prioritize the work with other required work for the City .

Properly trained municipal staff or consultants conduct these inspections using an electronic inspection form on a mobile device. Data that are documented include:

- Time since last precipitation;
- General condition of the outfall;
- The presence or absence of multiple illicit discharge indicators;
- If flow is present, any sampling data that was collected. (See QAPP in **Appendix E**).

The City has developed an SOP document for dry weather outfall inspections, which can be found in **Appendix D.1**.

5.3.1 Outfall Indicator 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. A sample will be collected by the inspector for either field screening or laboratory analysis, depending on the conditions encountered. Sampling and analysis must include, but is not limited to:

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

A Quality Assurance Project Plan (QAPP) for MS4 Dry Weather Outfall Monitoring has been developed to provide sampling personnel the information that will assist them in collecting samples for field and/or laboratory analysis, using field equipment and test kits, and documenting results. The QAPP (**Appendix E**) describes the sampling procedures as well as the appropriate analytical methods and field equipment to be used for 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.

5.4 Open Ditch Inspections

The 2022 MS4 General Permit does not require ditch inspections be completed. However, City Public Works staff will conduct opportunistic inspections of ditches for potential illicit discharges whenever maintenance work is being completed. If any potential illicit discharges are identified, they will be reported to the Stormwater Coordinator, who will determine next steps. Staff will be trained to evaluate the following items during these opportunistic inspections:

- Any unmapped possible illicit connections;
- Oil sheen;
- Odors; and
- Other evidence of possible illicit discharges.

6 Procedures to Investigate and Remove Illicit Discharges

6.1 Illicit Discharge Investigation

Investigations of illicit discharges are conducted by the Environmental Services Department. The City relies on visual observations of the location where the illicit discharge was reported as a first step in identifying the source of the illicit discharge (see Illicit Discharge Tracing SOP in **Appendix D.1**. If the evidence of the illicit discharge is still present in the initial structure or location where it was reported, City staff or contracted personnel use their knowledge of the City's infrastructure 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 the source of the illicit discharge.

For example if evidence of gray water was observed during catch basin cleaning, City staff 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, Environmental Services staff may employ televising, systematic dye testing, or smoke testing to identify the source. The Environmental Services Department could conduct dye testing but would need to hire a third party for smoke testing and camera work. Sampling and analysis may also be conducted as described in **Section 5.3.1** to help trace the source of an illicit discharge.

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

6.2 Illicit Discharge Removal

Once the potential source of the illicit discharge is identified, Environmental Services would 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 Code Enforcement Officer could issue a Notice of Violation as authorized by the Non-Stormwater Discharge Ordinance (**Appendix I**). In the event the illicit discharge is caused by the City, Environmental Services would contact the department responsible and work with them to remove or discontinue the illicit discharge. In either case, the City would require the responsible entity to eliminate the illicit discharge within 60 calendar days of identification of the source or would work with the responsible entity to establish an expeditious schedule to remove the illicit discharge.

The City has developed an SOP document for illicit discharge source removal, which can be found in **Appendix D.3**. For more in-depth information concerning the investigation and removal of illicit discharges see Chapters 13 and 14 of *Illicit Discharge Detection and Elimination*, Center for Watershed Protection, 2004.

7 Procedures to Document Illicit Discharges

The City will track the progress of the investigation and removal of illicit discharges using their GIS and electronic data management system. Each year, the City is required to complete an annual report summarizing the activities completed under the MS4 Program. All illicit discharge incidents will be documented in this report and all illicit discharge reports will be made available upon request. For more detailed information concerning the tracking of illicit discharges see Chapter 10 of *Illicit Discharge Detection and Elimination*, Center for Watershed Protection, 2004.

8 Coordination with Nearby Communities

8.1 Possible inflow and outflow locations

Preventing and responding to possible illicit discharges requires that an MS4 permittee have a thorough understanding of its storm sewer system. An integral part of this understanding involves mapping and inspecting all inflow and outflow locations in the municipality. Locating all possible inflow and outflow locations prepares the permittee to not only prevent a discharge from its regulated area, but to also respond quickly and efficiently to prevent discharges in nearby MS4s from entering its storm sewer system.

During the previous MS4 permit cycle, the City mapped all possible inflow and outflow locations within its regulated area, and added these locations to its infrastructure maps (see **Appendix B**).

8.2 Communication with Adjacent MS4s

The City of Brewer maintains communication with all adjacent, interconnected MS4 communities in order to facilitate a quick and coordinated response to any possible illicit discharges that may leave or enter its storm sewer system either from the City itself or from a neighboring MS4.

Contact information and documentation of correspondence with interconnected MS4s, including any coordinated responses to illicit discharge events, is contained in **Appendix C** of this IDDE Plan.

9 References

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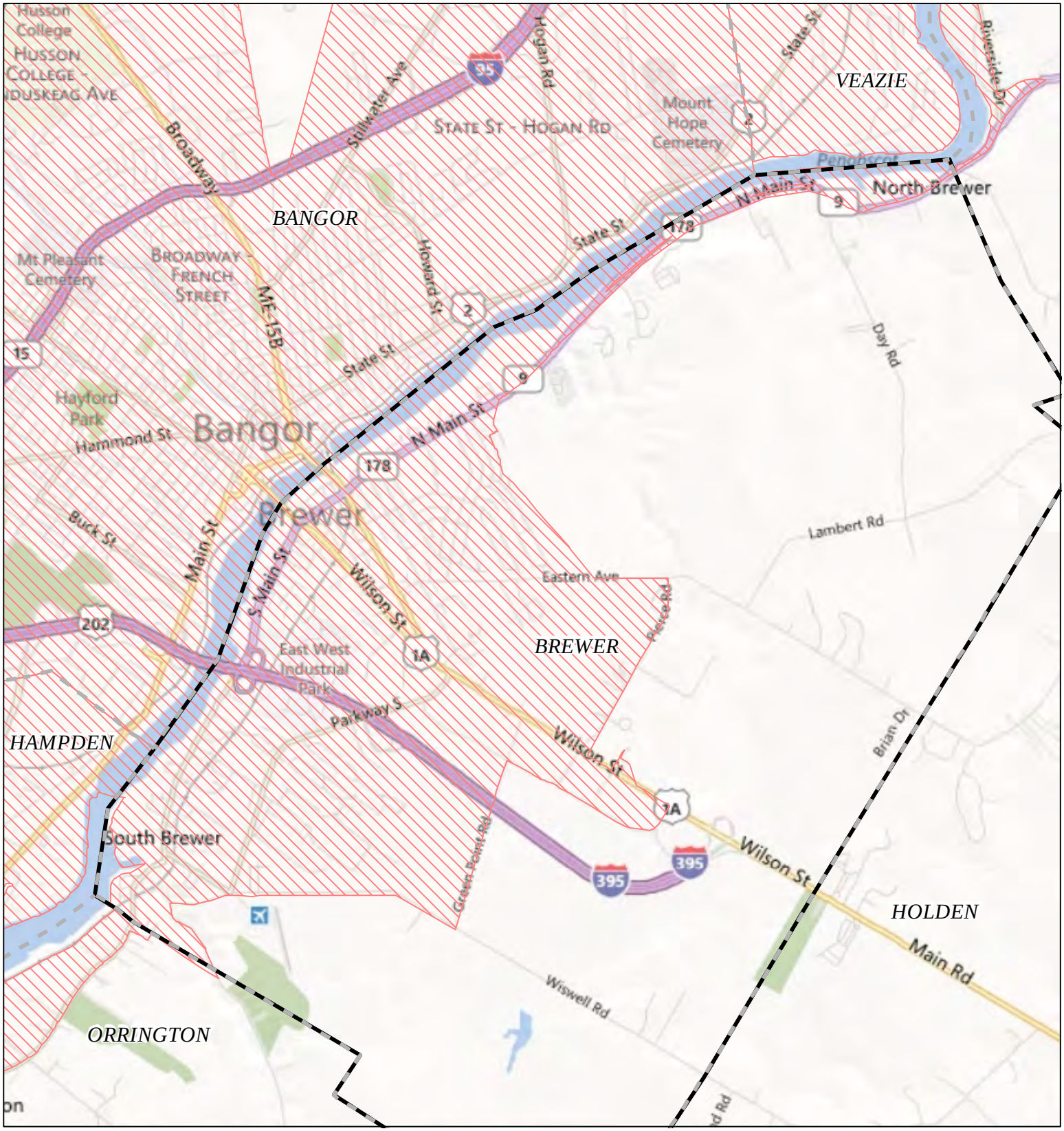
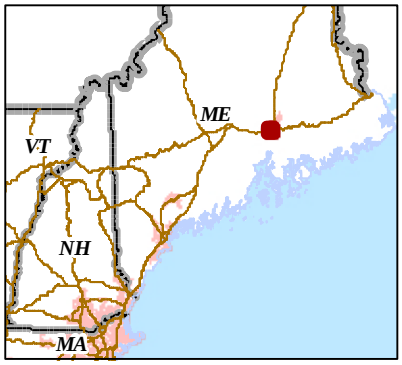
Appendices

A Urbanized Area Map





NPDES Phase II Stormwater Program
Automatically Designated MS4 Areas

Brewer ME

Regulated Area (2000 + 2010 Urbanized Area)

0 1 2 3 Kilometers

0 1 2 Miles

Town Population:	9474
Regulated Population:	7795

(Populations estimated from 2010 Census)

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

B City Stormwater Infrastructure Map

The City's Stormwater Infrastructure Map can be found in the City's GIS.

C Interlocal Contacts and Coordinated Response

This Appendix contains correspondence with interconnected MS4s. This correspondence was intitially implemented during the 2013 MS4 permit cycle. An updated notification letter was recently provided to interconnected MS4s and is provided below. All associated correspondence and coordinated IDDE response with neighboring communities will be documented in this Appendix.

The City of Brewer's interconnected MS4s and contacts are:

MaineDOT:

- Name: Kerem Gungor
- Title: Stormwater Engineer
- Phone Number: (207) 592-3489
- Email: kerem.gungor@maine.gov

Water Pollution Control Facility

March 15, 2021

Kerem Gungor, Ph.D., P.E
Maine DOT Environmental Office
Surface Water Quality Unit
16 SHS, Augusta, ME 04333-0016

Re: Interconnected MS4 Notification and Coordination

Dear Kerem,

The City of Brewer is regulated under the Maine Municipal Separate Storm Sewer System (MS4) General Permit for the discharge of stormwater from its urbanized area. Under this permit, the City is required to coordinate with interconnected and nested MS4 permittees. With the recent reissuance of the new 5-year MS4 General Permit, which takes effect July 1st, 2022, Brewer has developed and will implement a new Stormwater Management Plan (SMP). Our Notice of Intent (NOI) to comply with the 2022 MS4 permit, accompanied by our SMP, will be filed with the Maine DEP on or before March 31st, 2021 and will also be posted on the City's website.

Because Maine DOT's MS4 regulated area interconnects with Brewer's regulated area, we wanted to make you aware of our compliance efforts and SMP submission, as well as the continued implementation of our Illicit Discharge Detection and Elimination (IDDE) Plan that has been updated for the new permit.

Included in the IDDE Plan is an easy way for Brewer residents and staff to contact me, the Stormwater Coordinator, in the event of an illicit discharge. Should an illicit discharge occur within MDOT's infrastructure that has the potential to discharge to Brewer's MS4, we request that your agency contact me immediately upon discovery of the discharge. Should an illicit discharge occur in the City of Brewer that has the potential to affect MDOT's MS4, I will contact you immediately. Please forward this request to any of your unit staff that might be in a position to coordinate illicit discharge response efforts.

Thank you for your cooperation in this effort to minimize the potential for illicit discharges into our MS4. Feel free to contact me with any questions.

Respectfully,

Kenneth Locke

Ken Locke, Stormwater Coordinator and Director of Environmental Services
City of Brewer
Phone: 207-989-5417
Email: klocke@brewermaine.gov

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Street and Apt. No., or PO Box No.: 16 SHS
City, State, ZIP+4®: Augusta, ME 04333-0016

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

D Illicit Discharge Detection and Elimination Standard Operating Procedures

The following pages contain the Standard Operating Procedures (SOPs) followed by the City of Brewer for:

- Detecting illicit discharges via Outfall Inspections (**Appendix D.1**);
- Tracing illicit discharge sources (**Appendix D.2**); and
- Removing illicit discharge sources (**Appendix D.3**).

D.1 Outfall Inspection SOP

Standard Operation Procedure	
SOP-1 IDDE: Outfall Screening	
Purpose of the SOP:	This SOP provides a basic checklist for managers and field crews conducting illicit discharge inspections of storm drainage system outfalls

Reference: Brown et al., *Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments,* Center for Watershed Protection, Ellicott City, 2004.

Planning Considerations:

- ❑ Employees should have reviewed and understand the information presented in Chapter 11 of the reference manual
- ❑ Inspections are to occur during dry weather (less than ¼" precipitation in previous 72 hours)
- ❑ Conduct inspections with at least two staff per crew if possible
- ❑ Conduct inspections during low groundwater and leaf off conditions if possible

Field Methods:

- ❑ Ensure outfall is accessible – contact Public Works if overgrown
- ❑ Inspect outfall only if safe to do so
- ❑ Visually inspect general area for possible sources
- ❑ Estimate flow
- ❑ Use electronic Outfall Inspection Form to document observations
- ❑ If dry weather flow is present, attempt to identify the source of the flow for future comparison
- ❑ If dry weather flow is present, conduct field screening (multi-meter parameters and ammonia/chlorine test strips), followed by the collection of samples for lab parameters (*E. coli* and Surfactant testing)
- ❑ If an illicit discharge is suspected follow procedures outlined in **SOP-2 IDDE: Tracing Illicit Discharges**
- ❑ Do not enter private property without permission

Equipment List:

1. Mobile data collection device
2. Cell phone
3. Flashlight (spare batteries)
4. Disposable gloves
5. Folding wood ruler
6. Multi-parameter probe
7. Ammonia test strips
8. Chlorine test strips
9. Sample bottles
10. Timer
11. Hand sanitizer
12. Safety vests
13. First aid kit
14. Cooler
15. Permanent marker

D.2 Illicit Discharge Tracing SOP

Standard Operation Procedure	
SOP-2 IDDE: Tracing Illicit Discharges	
Purpose of the SOP:	To provide a quick reference list of items to keep in mind during investigation activities to efficiently and systematically identify the source of an illicit discharge

Reference: Brown et al., *Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments,* Center for Watershed Protection, Ellicott City, 2004.

Planning Considerations:

- ❑ Employees should have reviewed and understand the information presented in Chapter 13 of the reference manual
- ❑ Review / consider information collected when illicit discharge was initially identified (Outfall Inspection Form)
- ❑ Consider storm drainage basin and land uses
- ❑ Conduct investigation with at least two staff per crew
- ❑ Manholes may only be entered by properly trained and equipped personnel with authorization by an confined space entry supervisor
- ❑ Never put yourself in danger

Equipment List:

1. Mobile data collection device
2. Cell phone
3. Flashlight (spare batteries)
4. Disposable gloves
5. Hand sanitizer
6. Safety vests
7. Manhole hook
8. Safety cones
9. Sledgehammer
10. Equipment for outfall sampling and monitoring

Field Methods:

- ❑ Revisit outfall to verify reported discharge is still present
- ❑ Conduct field screening and collect applicable samples, as necessary, depending on previous findings and as per **SOP-1** and the QAPP located in Appendix E
- ❑ Survey the general area / surrounding properties to identify potential sources of the illicit discharge as a first step
- ❑ Investigate illicit discharges using visual inspections of upstream points as a second step
- ❑ Utilize O&M resources as required (traffic control, video truck, additional staff)
- ❑ Document investigation results for future reference
- ❑ Do not enter private property without permission (See the Non-Stormwater Discharge Ordinance for access and inspection permissions)
- ❑ If source cannot be found, add the location to a future inspection program

D.3 Illicit Discharge Source Removal SOP

Standard Operation Procedure	
SOP-3 IDDE: Illicit Discharge Source Removal	
Purpose of the SOP:	This SOP provides basic information for managers and inspection / enforcement staff to assist with illicit discharge source removal utilizing escalating compliance actions

Reference: Brown et al., Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments, Center for Watershed Protection, Ellicott City, 2004.

Planning Considerations:

- Employees should have reviewed and understand the information presented in Chapter 14 of the reference manual
- Employees should understand the Town's Non-Stormwater Discharge Ordinance

Field Methods:

- Upon identification of an illicit discharge to the MS4 the Stormwater Coordinator will be notified
- Upon identification of an illicit discharge to the MS4 the owner of the property, where the illicit connection is located will be notified and informed of their obligation to immediately stop the illicit discharge and begin corrective measures
- Town employees will provide technical assistance for eliminating the discharge and ensuring appropriate discharge of waste materials
- Follow-up inspections will be performed by municipal staff or consultants to verify that the illicit discharge is eliminated, and any corrective measures are installed in accordance with Town design standards
- Escalating enforcement and legal actions in accordance with Town Code will be utilized if the discharge is not eliminated

E Quality Assurance Project Plan (QAPP) for MS4 Dry Weather Outfall Monitoring

Quality Assurance Project Plan for MS4 Dry Weather Outfall Monitoring

1 Overview

The purpose of this Quality Assurance Project Plan (hereafter referred to as the QAPP) is to describe the actions that the MS4 permittee will undertake in order to comply with requirements of the Maine Pollutant Discharge Elimination System (MEPDES) Municipal Separate Storm Sewer System (MS4) General Permit. Data generated by this plan will be included, as required by the General Permit, in the MS4 Annual Report to the Maine DEP.

1.1 Acknowledgement

This QAPP is based on a Stormwater Monitoring QAPP developed by Integrated Environmental Engineering, Inc. for municipalities in Maine. Permission to use content from Integrated Environmental's QAPP was granted by Kristie L. Rabasca, P.E.

2 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). As part of the MS4 General Permit requirements, the municipalities must conduct dry weather inspections on 100% of their outfalls during the 5-year term of the MS4 General Permit.

2.1 Requirements for Outfall Monitoring

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. An illicit discharge is 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.

Exempt conditions for dry weather outfall sampling and monitoring are described in Part IV(C)(3)(e)(vi) of the 2022 MS4 General Permit.

Monitoring must be conducted whether or not the outfall's dry weather flow exhibits evidence of an illicit discharge. Where dry weather flow is present at an outfall, the permittee must sample the

discharge and analyze for the following parameters:

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

Data from sampling and analysis can be used to determine if there is an illicit discharge present in the flow and can help to identify potential sources of the illicit discharge.

2.2 QAPP Purpose

The purpose of this Quality Assurance Project Plan (QAPP) is to provide sampling personnel information that will assist them in collecting samples and analyzing them using field equipment/test kit(s) and/or laboratories in a manner that ensures sufficient accuracy and precision for identifying or ruling out the presence of illicit discharges in dry weather outfalls. This QAPP provides information on various field equipment/test kit(s) and analytical methods available to permittees that can be used to comply with the MS4 permit requirements for dry weather outfall monitoring.

This QAPP has been developed to accompany a municipality's Illicit Discharge Detection and Elimination (IDDE) Plan, which is required by the MS4 General Permit. The QAPP itself does not contain all the IDDE requirements associated with the MS4 permit, so the municipality's IDDE Plan should be consulted to determine the specific monitoring requirements and schedules. In addition, if an inspection finds evidence of an illicit discharge, the municipality must investigate 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 such follow-up investigations.

3 Sampling Procedures

3.1 Sample Collection

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 there is no melt water from snow or ice). Because dry weather flow can be intermittent and/or highly variable in short periods of time, personnel should be prepared to collect samples during any outfall inspection.

Samples are collected only from a flowing source, and where the pipe outlet has at least 1 or 2 inches of free-flowing drop before any standing water or pool below it (as in Fig. 1, below). Outfalls may not offer a clean catch of discharge (as in Fig. 2, below), and when this is the case, an alternative sampling

option should be considered, such as sampling upstream structures or using sand bags around the outfall to prevent contamination from backflow. Stagnant water should not be sampled unless the municipality deems it necessary.

Fig. 1. This outfall provides a good opportunity for a clean catch of its discharge.

Fig. 2. This outfall is partially submerged and a clean catch of its discharge is not possible.

3.2 Sampling equipment

If dry weather flow is present, the outfall is safely accessible, and a clean catch can be made, then monitoring should be conducted. **Table 1** provides a list of equipment that should be gathered and available for outfall monitoring. All samplers should be trained on the proper use and basic maintenance of field equipment prior to employing field methods. This includes training on calibration of analytical equipment used in the field, handling and disposal of field test kit components, and methods to minimize cross-contamination between samples.

After sampling events, any reusable sample collection containers are cleaned with soap and tap water. Cleaning is completed in a location where wash water can be discharged to a licensed wastewater treatment plant, sanitary sewer, or septic system.

Table 1. Field Equipment for Monitoring

1 Gallon of Distilled or de-ionized water for rinsing, and squirt bottle
1 Roll Paper towels
3-5 clean plastic 250 ml beakers for water sample collection in plastic bag marked “Clean” or disposable whirl-pak bags.
Garbage bags
1 long sampling pole and/or sampling pump and tubing
Equipment to remove and access catch basin covers if needed (hook/magnet, hammer, crowbar, etc.)
Field equipment/test kits (see Table 2) and bottles for any laboratory samples or off-site field test kits. • Ensure field test kits have not expired • Typically keep bottles available for 5-10 samples
Non-latex gloves
Box of 1-gallon plastic bags
Cooler with ice
Camera or phone
Safety Vest
Scissors
Sunscreen and bug spray
Clip board
3-5 Field Data Sheets (See Addendum 1)
Mobile device with application for digital data collection (e.g. Fulcrum)
Chain of Custody (See Addendum 2)
Sharpies and water-proof pens
Packing tape and Duct tape
Sheet of blank labels for bottles
First aid kit

3.3 Sample documentation

For each outfall sampled, a device with a mobile inspection data collection application (e.g. Fulcrum app), or a paper form as a backup, is 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 data collection form has a place to document sample observations including odor, color, turbidity, presence of algae, etc. These observations will be documented 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 form.

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, the laboratory may need prior notice to meet short hold times. Analytical methods, hold times, and other pertinent information is described in Section 4 of this QAPP.

4 Analysis methods

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.

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) or *E. coli* testing.

Table 2 provides information related to sampling parameters, analysis methods, and sample preservation and hold 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 particular analysis method might be preferable if there are

multiple options for a given parameter. Prior to sampling, the sampler and Stormwater Coordinator will determine what analysis method (CWA Method, field equipment, or test kit) will be used.

Test kit components that have expired will not be used and test kits will be replaced if/when they reach the end of their useful lives.

Dissolved oxygen, pH and conductivity meters are calibrated each day prior to use. The calibrations are documented electronically in a spreadsheet. Probes that have useful life limits are replaced following the manufacturers recommended schedule.

User manual(s) and safety data sheets (SDS) for field equipment and/or test kit(s) that will be utilized for dry weather monitoring are maintained electronically or in paper form, easily accessible to the field personnel who will be conducting the monitoring.

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

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

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

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

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

Optical Enhancers or Surfactants (select one)	CWA Method, Field Equipment, or Test Kit	Preservation	Holding time	Bottle needed	Notes on Use
Surfactants	SM5540C	Ice	To lab within 24 hours Analyze within 48 hours	500 ml plastic bottle from lab	Works on most soaps (laundry detergent, personal care products, dish soap)
Surfactants	CheMetrics K-9400 field test kit	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 DO Probe	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.
pH	EPA method 4500-H+B pH Probe	None	Immediate (w/in 15 minutes) in Field	Field jar or beaker	Waters of the state have pH standards. This measurement can show whether outfall contributions are affecting the pH of receiving waters.
Total Phosphorus	EPA 365.3	Sulfuric Acid (pH <2) + Ice (4^oC)	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.
Personal Care Products	EPA 1694	Sulfuric Acid (pH <2) + Ice (4^oC)	7 days 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)

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
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	300 mL BOD bottle	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^oC)	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^oC)	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.

5 Quality Control

5.1 Reporting Limits

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

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

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

5.2 Equipment or Rinsate Blanks

For most instances, dedicated equipment and containers are used to collect samples, so that equipment and rinsate blanks are not required to be collected and analyzed. However, if equipment or collection containers are being used multiple times in the field for different sample locations, they should be rinsed with distilled water in between samples, and the rinsate disposed of away from the collection site. The USEPA Volunteer Monitor's Guide to Quality Assurance Project Plans has additional information on how to complete these tasks.

6 Field Data Sheets and Chain of Custody

As described in Section 3.3, a mobile inspection application will be used to digitally document sample collection. The application will document the type of field equipment or test kit(s) used and results of any field analysis. A list of parameters documented are provided in **Addendum 1** to this QAPP.

Whenever samples will be sent to a laboratory or transported for off-site 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 2** to this QAPP.

7 Data Reports

Information and monitoring data collected on the mobile inspection application 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, date and time of analysis, the reporting limit, the person who conducted the analysis, and the analytical method used.

8 Data Review and Follow up

Once all results have been received, they will be reviewed by the Stormwater 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 Coordinator, they may opt to have another municipal staff person review the data, or a Stormwater 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)

Parameter	Threshold Level for Additional Investigation	Notes/Discussion
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.)
Human Bacteroides	Any concentration may be indicative of human sewage.	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.
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 to make determinations whether an outfall requires additional investigation for illicit discharges. Outfalls that exceed at least one of the above thresholds should be investigated further using techniques described in the MS4s IDDE Plan.

As described in Section 2 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.

9 List of Addenda

1. Example Data Collection Form and labels
2. Example Chains of Custody

10 References

Integrated Environmental Engineering. February 2021, *ISWG and SMSWG Stormwater Monitoring Program QAPP*, Revision 1.

U.S. EPA. September 1996, *The Volunteer Monitor's Guide to Quality Assurance Project Plans*, Document Number: 841-B-96-003.

Addendum 1

Example Field Data Collection and labels

SEE

STILLWATER ENVIRONMENTAL ENGINEERING, INC • PO Box 426, ORONO, ME 04473

MS4 Outfall Inspection Form

Outfall ID: **Date:** **Location (Lat./Long.):**

Inspector: **Time:**

Time/ Quantity of Last Precipitation (must be < .25" in preceding 72hrs):

Current Air Temperature/Weather Conditions:

Able to Inspect?

◯ Yes ◯ No (Unable to locate) ◯ No (Unable to access, fencing, etc.)

◯ No (Safety) ◯ No (Other – Describe)

Outfall Type:

◯ RCP ◯ PVC ◯ Iron ◯ CMP ◯ HDPE ◯ Ditch

◯ Other (Describe)

Outfall Diameter (If applicable): **Receiving Water:** **Flowing (Yes/No):**

Flow Quantity:

◯ Trickle ◯ Minor Flow ◯ Quarter Pipe ◯ ≥ Half Pipe
◯ N/A

Sampling Conducted:

◯ Yes ◯ No (Describe why not) ◯ N/A – No Flow

SEE

Documented Field Parameters:

Barometric Pressure_____mm/Hg Water Temperature_____°C

pH_____ Chlorine_____mg/L Ammonia_____mg/L

Conductivity_____µS/cm Dissolved Oxygen_____mg/L

Analytic Samples Collected:

◯ E. Coli ◯ Surfactants ◯ Other (Describe)

Illicit Discharge Indicators Present:

◯ Foam ◯ Discolored Discharge (Describe) ◯ Excess Algae/Vegetation

◯ Trash/Floatables ◯ Sanitary Sewer Solids ◯ Unusual Odor (Describe)

◯ Oil Sheen/Staining ◯ None ◯ Other (Describe)

General Condition of Outfall:

◯ Good ◯ Fair ◯ Poor

Identified Defects:

◯ Erosion ◯ Excess Sediment Accumulation ◯ Excess Vegetation

◯ Trash/Debris Accumulation ◯ Other (Describe) ◯ None

Maintenance Follow-Up:

◯ Yes (Describe) ◯ No

SEE

Maintenance Follow-Up Priority:

◯ High ◯ Medium ◯ Low ◯ N/A

Photo Collected:

◯ Yes ◯ No (Describe)

Comments:

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: ____________

Time: ________ Field ID: ______________________

Sampler: ________________ Date: ____________

Time: ________ Field ID: ______________________

Sampler: ________________ Date: ____________

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Sampler: ________________ Date: ____________

Time: ________ Field ID: ______________________

Sampler: ________________ Date: ____________

Time: ________ Field ID: ______________________

Addendum 2

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 ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

EMSL Order Number (*Lab Use Only*):

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

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

****Comments/Special Instructions**

F Potential Illicit Discharge Response Procedures

In the case of a potential illicit discharge reported via the “hotline” or other means, follow the below procedures.

1. **Process**

   (a) Use the electronic complaint reporting form to collect the appropriate information from the caller. Then, transfer the information to the Stormwater Coordinator.

   (b) Promptly investigate all reported potential illicit discharges.

   (c) If an illicit discharge of unknown source is confirmed, follow the procedure in SOP-2 IDDE: Tracing Illicit Discharges (which can be found in **Appendix D.2** of this Plan).

   (d) If an illicit discharge known source is confirmed, follow the procedure in SOP-3 IDDE - Illicit Discharge Source Removal (which can be found in **Appendix D.3** of this Plan.

2. **Clean- up**

   (a) Clean or cause to be cleaned the catch basin, storm drain, outfall, or other storm sewer conveyance or initiate the appropriate spill response as needed.

3. **Documentation**

   (a) File all completed electronic forms (i.e. Call log, catch basins cleaning, storm drain cleaning) in the IDDE folder located in the City’s electronic database.

   (b) Document any further action taken.

4. **Review**

   - Review incidents reported by citizens or municipal employees on an annual basis to look for patterns of illicit discharges and to evaluate the call-in inspection program.

G Hydrant Flushing SOP

City of Brewer Water Department
Hydrant Flushing
Standard Operating Procedure (SOP)

The purpose of the Hydrant Flushing SOP is to reduce or eliminate the release of potential pollutants **(chlorine, sediment, and soil erosion)** from waterline and hydrant flushing activities by using best management practices (BMP) techniques. If followed, this SOP will help Brewer avoid enforcement actions from EPA and MDEP, eliminate the need to obtain a waste discharge permit for these discharges and prevent impairment of the City's Priority Watersheds (Impairment means: to lessen in quality, damage or make worse).

NOTE: Chlorine is acutely (short-term exposure) toxic to some fish species at a very low levels/concentrations. Environmental Protection Agency (EPA) approved method for measuring total residual chlorine (TRC) can only measure down to 50 micrograms per liter (ug/L), therefore compliance with Maine's MS4 requirements with the intent of meeting Maine's ambient water quality criteria will be based on EPA's detection level of 50 (ug/L) or 0.05 parts per million (ppm), provided that at the point of discharge there is a minimum of 1:1 dilution factor. The Hach DR100 chlorine meter can measure down to a 0.05 mg/L TRC and accepted by EPA and MDEP!

The City of Brewer performs hydrant flushing activities in their entire water distribution system two times per year, once in the Spring (April-May) and once in the Fall (Sept.-Oct.).

During permit year one and two (July 1, 2013 through June 30, 2015) of the new 5-year (July 1, 2013 to June 30, 2018) MDEP Stormwater Permit, the Water and Environmental Departments will work together during hydrant flushing activities in April/May 2014 and September/October 2014 to identify which hydrants have reasonable potential to discharge water that will need de-chlorination before entering the receiving waters of Brewer. Those hydrants identified will be subject to total residual chlorine (TRC) monitoring and dechlorination during water hydrant flushing activities, in future years. The remaining hydrants will be exempt from dechlorination, but will require periodic spot checks for TRC to confirm the flushing water will meet water quality standards.

In year three, starting July 1, 2015, the City of Brewer Hydrant Flushing SOP will be revised and the following items will be attached to this policy:

- Excel spreadsheet with a list of hydrants requiring dechlorination,
- A map showing the locations of hydrants needing dechlorination,
- Soil erosion control recommendations to employ as needed during hydrant flushing, and
- Recommended hydrant flushing documentation.

C. ***Hydrant Flushing directly to the Penobscot River with TRC in excess of 1.0 mg/L.***

1. Test the water for TRC prior to flushing.
2. If the water TRC is less than 1.0 mg/L, declorination is not required for a discharge to the Penobscot River.
3. If the water TRC entering the receiving water is greater than 1.0 ppm then dechlorinate to less than 1.0 ppm.
4. Use soil erosion controls as needed.

NOTE: Alternative methods of disposing of hydrant flushing water, if necessary: With the permission of the WPCF Superintendent, flushing water can be discharged to the City sewer system by way of manholes, conveyed to an area with no discharge or hauled by tanker truck to the Brewer Water Pollution Control Facility for treatment.

Erosion and Sedimentation Control During Flushing Activities

Discharge from hydrant flushing has the potential to erode, suspend and transport sediments to the waters of Brewer through the stormwater conveyance system. The City's Priority Watershed and Sub Watersheds will be significantly impacted if flushing water contaminated with soil erosion is allowed to enter the City's Priority Watershed and Sub Watersheds. If the hydrant flushing water is not being discharged directly to a paved or other impervious surface the following steps may be used to prevent or lessen soil erosion:

1. Direct flow to a sheet of plywood, rubber mat or a tarp, and
2. Use hay bales or sand bags to reduce the velocity, where necessary.
3. Closely monitor flow area for erosion and adjust controls if needed.

Documentation for Each Hydrant Flushing Discharge to Surface Water

1. Estimated or actual volume of water discharged
2. Discharge duration
3. TRC at point of discharge to surface water or catch basin
4. Measures to control erosion and sedimentation
5. Observations of any impacts resulting from discharge.

City of Brewer

Water Hydrants Needing Declore Prior to Discharging to a Priority Watershed

Address of Hydrant Location	Watershed/Brook	Test Results at Receiving Water in mg/L	Result at Hydrant
69 Robinhood	Dyer Brook	1.46	2.5
56 Nottingham Way	Dyer Brook	0.96	2.7
Allen-a-Dale/Little John	Dyer Brook	0.22	2.6
78 Elm Street	Sedge	0.05	2.5
72 South Brewer Dr.	Sedge	1.5	2.5
Pendleton/Parkway South	Dyer Brook	1.25	2.5
Grove/Parkave.West	Dyer Brook	1.2	2.4
Corner of Day and Lambert Rd.	Felts Brook	2.2	2.8
414 Eastern Ave.	Felts Brook	1.84	2.2
534 Eastern Ave.	Felts Brook	2.2	2.2
250 Lambert Road	Felts Brook	2.02	2.8
55 Wild Rose Dr.	Felts Brook	2.2	1.8
utp#2 Wildrose Dr.	Felts Brook	2.2	1.6
Bennett/Pierce	Felts Brook	2.2	2.2
Craig Dr./Pierce Rd.	Felts Brook	2.1	1.7
Linnehans/Downeast Toyota	Felts Brook	0.05	1.6
610 Wilson St./Ledbetters	Felts Brook	1.38	2.4
231 Parkway South	Dyer Brook	1.47	2.3
49 Sunset Strip	Dyer Brook	0.28	2.3
35 Birchwood	Dyer Brook	1.25	2.9
Parkwaysouth/Edgewood	Dyer Brook	1.38	2.5
541 South Main	Sedge	1.9	2.3
20 Stone St.	Sedge	1.52	1.6
Houston Lane	Eaton Brook	0.85	?

Need Declore in the Penobscot River Watershed

Elmwood/South Main	Penobscot River	1.4	2.4
Pendlton/South Main	Penobscot River	1.8	2.4
Manns Court	Penobscot River	1.6	2.4
Wilson/S. Main (Brooks Bldg)	Penobscot River	1.4	1.6
Baker Blvd/Irving Oil	Penobscot River	1.2	1.4

NOTE: The TRC requirement for discharge to a Prioity Watershed and sensitive areas is 50 ug/L.

The TRC required for discharge to the Penobscot River is 1.0 mg/L.

City of Brewer

Hydrants at the Following Locations Still Need TRC Testing at Receiving Water

Address Location of Hydrant	Receiving Water			TRC at Hydrant	
26 Starlight Dr.	Penobscot River		needs test	2.3	
64 Starlight Dr.	Penobscot River		needs test	2.2	
109 Parkway North	Penobscot River		needs test	2	
8 Grove St.	Penobscot River		needs test		
12 Patten Court	Penobscot River		needs test	2.3	
St.Teresas Parking lot	Penobscot River		needs test	2.4	
Ivers Street	Penobscot River		needs test	2.3	
Harris St.	Penobscot River		needs test	2.3	
across 444 South Main	Penobscot River		needs test	2.4	
465 South Main	Penobscot River		needs test	2.4	
489 South Main	Penobscot River		needs test	2.4	
11 Oak St.	Penobscot River		needs test	2.4	
WWTP/oak St	Penobscot River		needs test	2.2	
509 South Main	Sedge		needs test	2.4	
Elm South Main	Sedge		needs test	2.3	
14 Elm St.	Sedge		needs test	2.3	
Save-a-lot	Penobscot River		needs test	1.6	
Hardy/South Main	Penobscot River		needs test	1.6	
Stone/Elm St	Sedge		needs test	1.7	
Elm by Bridge	Sedge		needs test	1.7	
11 Treats Falls	Penobscot River		needs test	1.2	
16 Allen Road	Penobscot River		needs test	1.8	
23 Riverview Terrace	Penobscot River		needs test	2	
36 Riverview Terrace	Penobscot River		needs test	1.8	
11 Floyd Street	Penobscot River		needs test	?	

NOTE: The Environmental technicians will work with the Water Dept. during the Fall hydrant flushing activities to get TRC readings for the above hydrant locations.

SEE H Illicit Discharge Prioritization Criteria and Worksheet

Table 2: Priority Area Screening Factors

Screening Factor	Retained or Eliminated	Rationale for Elimination
Receiving Water Status (Impaired areas, TMDLs with WLA, Poor dry weather receiving water quality)	Retained	
Density of Generating Sites	Eliminated	Density of Stormwater Infrastructure was used instead
Density of Stormwater Infrastructure	Retained	
Size of Subwatershed	Retained	
# Acres in Urbanized Area	Retained	
Average Development Age	Retained	
History of discharge complaints & knowledge of suspect discharges	Retained	
Density of Aging Septic Systems	Retained as aged septic systems	
Sewer Conversion Status (CSO)	Eliminated	City has never had combined sewers
Sewer Conversion (previously septic)	Retained	

Table 2: Cont.

Screening Factor	Retained or Eliminated	Rationale for Elimination
Historic Industrial Operations	Retained	
Sewer Crossings/Common trench construction	Retained	
Type of Development	Retained	

Drainage Area/ Subwatershed	Screening Factors -Categories of Information Reviewed																												Score	
	Poor dry weather receiving water quality		Density of Generating Sites		Density of Stormwater Infrastructure		Size of Subwatershed		# Acres in Urbanized Area		Average Development Age		Receiving Water Status (drinking water supply, beaches, shellfish, impaired areas, TMDLS with WLA)		History of discharge complains & knowledge of suspect discharges		Density of Aging Septic Systems		Sewer Conversion Status		Sewer Conversion (previously combined)		Historic Industrial Operations		Sewer Crossings/ Common trench construction		Type of Development		Raw Score	Average IDP Score
	Notes	Score	Notes	Score	Notes	Score	Notes	Score	Notes	Score	Notes	Score	Notes	Score	Notes	Score	Notes	Score	Notes	Score	Notes	Score	Notes	Score	Notes	Score	Notes	Score		
Felts Brook	Some natural drainage ditches with potential erosion issues. Landfill, golf course, I-395, box stores, agricultural activities.	1	Low density residential and commercial predict increased development in future.	1	Some subsurface systems and more ditch systems. Mostly rural areas with wetlands, woods, and fields.	1	Largest watershed in the city: 4874 acres.	3	739 acres (15%)	1	1960's to present. Most of commercial is on Wilson St.	2	Water quality poor at headwaters due to landfill but improves to class A water at river. Landfill/I-395 issues	2	Only complaints isolated to agricultural activity between I-395 and Eastern Ave.	2	Some septic on Eastern Ave, Pierce Rd, Wiswell Rd, Low-med density	1	Wilson, Elm St, N. Main St, sewered. No plans to sewer Eastern Ave and Wiswell Rd.	2	No combined sewers in area.	1	Landfill, golf course, I-395, box stores, agricultural are potential contributors to pollution in Felts Brook.	2	Minimal sewer in watershed and stormwater areas. Area mostly septic. Sewer crosses Felts Brook on N. Main St. near 644 N. Main St.	1	Box stores, I-395, agricultural, landfill (active and closed) development and housing developments, I-395 extension and behind landfill in the future.	2	22	1.5
Eaton Brook	Water quality should be good. Need to research more to confirm.	1	Brook mostly in wooded area/very low density residential areas/ commercial.	1	All natural drainage areas/a few CB's at N. Main St./ ditches along Day Rd could impact.	1	Brook originates in Holden. Brewer third largest stormwater drainage area: 1590 Acres.	2	73 acres (5%)	1	All residential, no industrial or commercial, 50 years	1	There are no activities in this watershed that could significantly impact water quality.	1	No history of complaints or suspected discharge.	1	Very low density septic systems on Day Rd, N. Main St.	1	All septic systems in brook drainage area. No public sewer.	1	100% septic system very low density, no combined sewer.	1	No industrial or commercial activity	1	No septic and stormwater system near each other except for at N. Main St.	1	All low density residential.	1	15	1.1
Sedgeunkedunk Stream	Some issues with soil erosion during heavy rain events, Orrington contributes greatly to soil erosion, removed dam in 2009	2	Residential- some contribute to stormwater pollution on Mill St.	2	Mostly open ditch drainage system/ some catch basins.	1	Only part of stream in Brewer, small watershed: 667 Acres.	1	309 acres (46%)	1	45-65 years old, all residential	2	No TMDLS, not impaired, not drinking water, potential salmon habitat.	1	Still erosion from dam removal in 2009, some soil erosion issues from residents and city ditches, noticable during heavy rain events	2	Entire area sewered in Brewer, Orrington has septic, Mill Street, N. Main St sewered	1	Converted from septic 40 plus years ago, all PVC pipe.	1	Conversion completed 10 years ago. No combined sewer currently.	1	No industrial activives in the drainage area. Eastern fine paper closed in 2004.	1	One sewer crossing on S. Main St. at 556 S. Main St. and stormwater close to each other.	2	Residential	1	19	1.4
Penobscot River North	The Penobscot River has improved significantly in the last 25 years. There is no longer a paper mill or any heavy industrial flows.	2	The watershed is all low density residential and limited commercial.	1	There is a very low density combination of subsurface infrastructure and ditch systems.	1	This is the second smallest subwatershed at 782 acres.	1	There is minimal area in this watershed that is in the urban area: 85 acres (11%).	1	Most of the residential development is since the 1940's.	1	No to all.	1	There have been no discharge complaints and there is no knowledge of suspect discharges.	2	There is 75% sewer and 25% septic. (estimate)	2	There is no combined sewer overflow. The sewer was new in the 1970s.	1	All new development was septic until the mid 1970's . There is now 75% sewer and 25% septic. No combined sewers.	1	There are no industrial activities in this drainage area.	1	No crossings.	1	The watershed is low density residential.	1	17	1.2
Penobscot River South	The Penobscot has improved significantly over the last few years. A large factor is the paper mills closing and all municipalites have treatment plants.	2	The entire urbanized area has stormwater discharge to the Penobscot River. It is very dense and all urban.	3	The entire urbanized area has subsurface stormwater infrastructure. Ninety percent of the catch basins in the city are in this area.	3	This is the second largest subwatershed in the city at 2,047 acres.	3	This area is almost entirely urban: 1944 acres (95%).	3	Most of the area along the Penobscor River was built in the late 1800's to mid 1900's. There has been some minor redevelopment over the last 50 years.	2	MDEP are working on a TMDL for nutrients for the river.	2	1. Commercial Areas- Runoff 2. Active CSO 3. Illicit discharges 4. Older sewer and stormwater system	3	Only 59 septic systems in this watershed.	1	99% seperated but still one active CSO, found 3 illicit discharges in 2016. Removed in 2017.	2	75% combined when CSO abatement started in 1972. 99% seperated in 2017.	1	All older industrial operations have been closed, East-West Industrial Park in this drainage area.	2	Less than 5 crossings, urban area, sewer and stormwater all in close proximity to each other, almost entire area was combined. Now separated	3	The area has a high level of commerical development and no industrial development.	2		2.3

Category Defintions														
High (Score = 3)	Water is of poor quality (impaired)	High density, urban development	>100	Large	Most	Old Development that has not been redeveloped (>50 years old)	Has more than one of the following statuses: drinking water supply, beaches, shellfish, poor water quality, impaired areas, or TMDLs	Many known issues	Many	If converted from combined sewers prior to 1990 or if located in an area is newlay on sewer (mixed sewer and septic system)	Many known issues from previous sewer condition	Many industrial operations or pollution from past operations	If a high number of crossings are present (100 or more), or many sewer lines in close proximity to stormd drain lines.	Industrial sites, or high density residential		
Medium (Score = 2)	Not a high or low quality water	Medium density development	~50-100	Medium	Medium Amount	10-50 years old	Has one of the following statuses: drinking water supply, beaches, shellfish, impaired areas, poor water quality, or TMDLs	Unknown or not many known issues	Not many	Unknown or not many known issues	Unknown or not many known issues	Few industrial operations or all previous operations closed	If a medium number of crossings are present (50-100), or there are not a lot of sewer lines in close proximity to storm drain lines.	Commercial sites or medium density residential		
Low (Score = 1)	Small amount	Low density development	<50	Small	Small Amount	Newly developed areas(<10 years old)	Not a drinking water supply, impaired area, no TMDLS, beaches, or shellfish	Few known issues	Very few	Few known issues	Few or no issues with previous sewer conversion	No historic industrial operations	If less than 50 crossings are present.	Low density residential, undeveloped or open space		

Non-Stormwater Discharge Ordinance

SECTION 605-B PROHIBITION OF NON-STORM WATER DISCHARGES

A. General Prohibition. Except as allowed or exempted herein, no person shall create, initiate, originate, or maintain a non-storm water discharge to the storm drainage system. Such non-storm water discharges are prohibited, notwithstanding the fact that the municipality may have approved the connections, drains, or conveyances by which a person discharges un-allowed non-storm water discharges to the storm drainage system.

B. Allowed Non-Storm Water Discharges. The creation, initiation, origination, or maintenance of the following non-storm water discharges to the storm drainage system is allowed:

1. Landscape irrigation; diverted stream flows; rising ground waters; uncontaminated ground water infiltration (as defined at 40 CFT 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; and individual residential car washing.

2. Discharges specified in writing by the enforcement authority as being necessary to protect public health and safety; and

3. Dye testing, with verbal notification to the enforcement authority prior to the time of the test.

C. Exempt Person or Discharge. This ordinance shall not apply to an exempt person or discharge, except that the enforcement authority may request form exempt persons and persons with exempt discharges copies of permits, notices of intent, licenses, and orders from the EPA or DEP that authorize the discharge(s).

SECTION 606-B SUSPENSION OF ACCESS TO THE MUNICIPALITY'S SMALL MS4

The enforcement authority may, without prior notice, physically suspend discharge access to the storm drainage system to a person when such suspension is necessary to stop an actual or threatened non-storm water discharges to the storm drainage system which present or may present imminent and substantial danger to the environment, or to the health or welfare of persons, or to storm drainage system, or which may cause the municipality to violate the terms of its environmental permits. Such suspension may include, but is not limited to, blocking pipes, constructing dams, or taking other measures, on public ways or public property, to physically block the discharge to prevent or minimize a non-storm water discharge to the storm drainage system. If the person fails to comply with a suspension

order issued in an emergency, the enforcement authority may take such steps as deemed necessary to prevent or minimize damage to the storm drainage system, or to minimize danger to persons; provided, however, that in taking such steps the enforcement authority may only enter upon the premises that is the source of the actual or threatened non-storm water discharge to the storm drainage system with the consent of the premises' owner, occupant, or agent.

SECTION 607-B MONITORING OF DISCHARGES

In order to determine compliance with this ordinance, the enforcement authority may enter upon and inspect premises subject to this ordinance at reasonable hours with the consent of the premises' owner, occupant, or agent to inspect the premises and connections thereon to the storm drainage system and to conduct monitoring, sampling, and testing of the discharge to the storm drainage system.

SECTION 608-B ENFORCEMENT

It shall be unlawful for any person to violate any provision of or to fail to comply with any of the requirements of this ordinance. Whenever the enforcement authority believes that a person has violated this ordinance, the enforcement authority may enforce this ordinance in accordance with 30-A M.R.S.A. § 4452, as the same may be amended from time to time.

A. Notice of Violation. Whenever the enforcement authority believes that a person has violated this ordinance, the enforcement authority may order compliance with this ordinance by written notice of violation to that person indicating the nature of the violation and ordering the action necessary to correct it, including, without limitation:

1. The elimination of non-storm water discharges to the storm drainage system, including, but not limited to, disconnection of the premises from the MS4;

2. The cessation of discharges, practices, or operations in violation of this ordinance;

3. At the person's expense, the abatement or remediation (in accordance with best management practices in DEP rules and regulations) of non-storm water discharges to the storm drainage system and the restoration of any affected property; and/or

4. The payment of fines, of the municipality's remediation costs and of the municipality's reasonable administrative costs and attorneys' fees and costs.

If abatement of a violation and/or restoration of affected property is required, the notice shall set forth a deadline within which such abatement or restoration must be completed.

B. Penalties/Fines/Injunctive Relief. Any person who violates this ordinance shall be subject to fines, penalties, and orders for injunctive relief and shall be responsible for the municipality's attorney's fees and costs, all in accordance with 30-A M.R.S.A. § 4452, as the same may be amended from time to time. Each day such violation continues shall constitute a separate violation. Moreover, any person who

violates this ordinance also shall be responsible for any and all fines, penalties, damages, and cost, including but not limited to attorneys' fees and costs, incurred by the municipality for violation of federal and state environmental laws and regulations caused by or related to that person's violation of this ordinance; this responsibility shall be in addition to any penalties, fines, or injunctive relief imposed under this section.

C. Consent Agreement. The enforcement authority may, with the approval of the municipal officers, enter into a written consent agreement with the violator to address timely abatement of the violations(s) of this ordinance for the purposes of eliminating violations of this ordinance and of recovering fines, costs, and fees without court action.

D. Appeal of Notice of Violation. Any person receiving a notice of violation or suspension notice may appeal the determination of the enforcement authority to the Board of Appeals in accordance with the City of Brewer Board of Appeals Ordinance. The notice of appeal must be received within thirty (30) days from the date if notice of violation. The Board of Appeals shall hold a de novo hearing on the appeal within thirty (30) days from the date of receipt of the notice of appeal. The Board of Appeals may affirm, reverse, or modify the decision of the enforcement authority. A suspension under Section 6 of this ordinance remains in place unless or until lifted by the Board of Appeals or by a reviewing court. A party aggrieved by the decision of the Board of Appeals may appeal that decision to the Maine Superior Court within forty-five (45) days of the date of the Board of Appeals decision pursuant to Rule 80-B of the Maine Rules of Civil Procedure.

E. Enforcement Measures. If the violation has not been corrected pursuant to the requirements set forth in the notice of violation, or, in the event of an appeal to the Board of Appeals, within 45 days of a decision of the Board of Appeals affirming the enforcement authority's decision, then the enforcement authority may recommend to the municipal officers that the municipality's attorney file an enforcement action in a Maine court of competent jurisdiction under Rule 80K of the Main Rules of Civil Procedure.

F. Ultimate Responsibility of Discharger. The standards set forth herein are minimum standards; therefore this ordinance does not intend nor imply that compliance by any person will ensure that there will be no contamination, pollution, nor unauthorized discharge of pollutants into waters of the U.S. caused by said person. This ordinance shall not create liability on the part of municipality, or any officer, agent or employee thereof for any damage(s) that may result from any person's reliance on this ordinance or any administrative decision lawfully made hereunder.

SECTION 609-B SEVERABILITY. The provisions of this ordinance are hereby declared to be severable. If any provision, clause, sentence, or paragraph of this ordinance or the application thereof to any person, establishment, or circumstances shall be held invalid, such invalidity shall not affect the other provisions, clauses, sentences, or paragraphs or application of this ordinance.

SECTION 610-B BASIS. The City of Brewer enacts this Non-Storm Water Discharge Ordinance (the "Ordinance") pursuant to 30-A M.R.S.A. § 3001 (municipal home rule ordinance authority), 39 M.R.S.A. § 413 (the "Wastewater Discharge Law"), 33 U.S.C. § 1251 et seq. (the "Clean Water Act"), and 40 CFR Part 122 (U.S. Environmental Protection agency's regulations governing the National Pollutant Discharge

Elimination System ("NPDES"). The Maine Department of Environmental Protection, through its promulgation of the "General Permit for the Discharge of Stormwater from Small Municipal Separate storm Sewer Systems", dated June 3, 2003, has listed the City of Brewer as having a Regulated Small Municipal Separate Storm Sewer System ("Small MS4"); under this General Permit, listing as a Regulated Small MS4 necessitates enactment of this ordinance as part of the Municipality's Storm Water Management Program.

SECTION 610-B ENFORCEMENT SECTION AND PENALTIES. The following shall be a guide for determining fines for violations of the Non-Storm Water Discharge Ordinance.

Non-Storm Water Discharge Ordinance

The following shall be a guide for determining fines for violations of the Non-Storm Water Discharge Ordinance:

First minor discharge violation of ordinance	NOV
Significant discharge (Significance determined by Environmental Director)	NOV and $1,000.00/day/violation
Repeat of minor discharge violation	$100.00/day/violation
Repeat of significant violation -intentional discharge	$2,500.00/day/violation
Late compliance report (30 days after NOV)	$100.00/day/violation
Late compliance report (60 days after NOV)	$500.00/day/violation
Failure to meet compliance schedule by more than 30 days (NOV and AO will require a schedule)	$500.00/day/violation
Reoccurring discharge violations after NOV, AO, Board of Appeals and compliance schedule	$1,000.00/day/violation
Failure to complete compliance schedule as Required by NOV, AO and Board of Appeals (45 days after BOA decision)	$1,000.00/day/violation

C Construction Inspection Form

City of Brewer Construction Site Inspection Form		
Permit Number:	Site Contractor:	
Site Name:	Date/Time:	Inspected By:
Address/Watershed:		
Last Rain Date/Quantity:		Area Disturbed:
Reason for Inspection: ☐ Initial ☐ Routine ☐ Final ☐ Rain Event ☐ Complaint		
Project Description:		

	YES/NO/NA	COMMENTS
1. Is an Erosion and Sediment Control Plan available and being followed?		
2. Is a weekly inspection log available and up to date (if required)?		
3. Are all erosion control practices installed properly, maintained, and functioning?		
Areas at finished grade are properly stabilized		
Concentrated flow inlet/outlet protection installed		
Disturbed dormant areas stabilized		
Entrance/exits properly stabilized		
Slopes and stockpiles properly stabilized/protected		
Other		

	YES/NO/NA	COMMENTS
4. Are all sedimentation control practices installed properly, maintained, and functioning?		
Construction entrance		
Dust control practices		
Sedimentation basins/traps/diversions		
Perimeter controls		
Check dams		
Other		
5. Are ESC measures, construction activities, and housekeeping adequately maintained?		
Sedimentation/erosion in ditches		
Tracked sediment or dust at exits		
Hazardous material storage and spill control practices adequate		
Waste management (concrete/paint washout, solid waste, sanitary waste, hazardous waste, etc.) adequate		
Other		

	YES/NO/NA	COMMENTS
6. Violation, Corrective Actions, Recommendations		
Sediment/pollutants discharged from site		
Natural resource impacts		
Corrective action required		
Site compliant with all permits		
Notice of violation or stop work order issued		
Comments/Corrective Actions (complete corrective actions before the next rain event and within 7 days)		

Attach any photos taken at the time of inspection to this document.

D Catch Basin Inspection Form

SEE

STILLWATER ENVIRONMENTAL ENGINEERING, INC • PO Box 426, ORONO, ME 04473

MS4 Catch Basin Inspection Form

Catch basin ID: **Date:** **Location (Lat./Long.):**

Inspector: **Time:**

Able To Inspect?

◯ Yes ◯ No (Unable to locate) ◯ No (Unable to access, fencing, etc.)

◯ No (Safety) ◯ No (Other – Describe)

Condition

◯ Good ◯ Fair ◯ Poor

Defects

◯ Loose Bricks ◯ Cracked Grout ◯ Frame Cracked ◯ Erosion

◯ Pavement Cracked ◯ Severe Structural Cracks ◯ Other (Describe)

◯ None

Sump Depth (Feet): **Silt Depth (Feet):** **≥50% of Sump Depth? (Yes/No):**

Flow Description:

◯ None ◯ Trickle ◯ Moderate ◯ Significant ◯ Intermittent

◯ Flooded ◯ Other (Describe)

Water Condition

◯ Clear ◯ Murky ◯ Litter ◯ Odor (Describe)

◯ Vegetation (Describe) ◯ Oil Sheen

◯ Pet Waste ◯ Foam ◯ Sanitary Sewer Solids

◯ Other (Describe)

SEE

Follow-Up:

◯ Yes (Describe) ◯ No

Follow-Up Priority:

◯ High ◯ Medium ◯ Low ◯ N/A

Photo Collected:

◯ Yes ◯ No (Describe)

Comments:

E 2022 MS4 General Permit

An electronic version of the 2022 MS4 General Permit can be found at the below link. This permit is also available in the City's electronic data management system.

General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems

F Notice of Intent

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

PLEASE TYPE OR PRINT IN *BLACK INK ONLY*

PERMITTEE INFORMATION					
MS4 Entity	City of Brewer, Maine			Permittee ID #	MER041008
Name and title of chief elected official or principal executive officer	Steve Bost, City Manager				
Mailing Address	80 North Main Street				
Town/City	Brewer	State	Maine	Zip Code	04412
Daytime Phone	(207) 989-7500	Email	sbost@brewermaine.gov		
PRIMARY CONTACT PERSON FOR OVERALL STORMWATER MANAGEMENT PROGRAM (if different than PEO/CEO)					
Name and Title	Kenneth Locke, Environmental Department Director				
Mailing Address	37 Oak Street				
Town/City	Brewer	State	Maine	Zip Code	04412
Daytime Phone	(207) 989-5417	Email	klocke@brewermaine.gov		
STORMWATER MANAGEMENT PLAN (SWMP)					
Urbanized Area (sq. mi.)	11.88				
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*): Penobscot River, Sedgeunkeduck Stream, Eaton Brook and Felts Brook					
List of impaired waterbodies that receive stormwater from the regulated small MS4 (*attach additional sheets as necessary*): Penobscot River (Not UIS)					
CERTIFICATION					
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.					
Signature of Permittee				Date	3-5-21

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	

F.1 Newspaper Public Notice

Legal Notices

NOTICE OF INTENT TO FILE MAINE MS4 GENERAL PERMIT

Please take notice that the City of Brewer intends to file a Notice of Intent (NOI) to comply with the MS4 General Permit to the Maine Department of Environmental Protection on or about March 31, 2021, for stormwater discharges associated with the City's municipal separate storm sewer system. The NOI will be filed at the Augusta Department of Environmental Protection office and the web site www.mainedep.com for inspection. Written comments may be sent to:

Rhonda Poirier,
MS4 Program Manager
Maine Department of
Environmental Protection
Bureau of Water Quality
17 State House Station
Augusta, ME 04333-0017
Rhonda.Poirier@maine.gov

March 13, 2021