
Illicit Discharge Detection and Elimination (IDDE) Plan



SEEKONK
MASSACHUSETTS

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If you find evidence of or suspect there may be an illicit discharge in your neighborhood, please contact the Department of Public Works at (508) 336-7407.

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1. Introduction

1.1 MS4 Program

This Illicit Discharge Detection and Elimination (IDDE) Plan has been developed by the Town of Seekonk to address the requirements of the United States Environmental Protection Agency's (USEPA's) 2016 National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewers Systems (MS4) in Massachusetts, hereafter referred to as the "2016 Massachusetts MS4 Permit" or "MS4 Permit".

The 2016 Massachusetts MS4 Permit requires that each permittee, or regulated community, address six Minimum Control Measures. These measures include the following:

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

Under Minimum Control Measure 3, the permittee is required to implement an IDDE program to identify and eliminate sources of non-stormwater discharges to its municipal separate storm sewer system and implement procedures to prevent such discharges. The IDDE program must also be recorded in a written (hardcopy or electronic) document. A hardcopy of this plan this IDDE Plan is available at the Town of Seekonk Department of Public Works and an electronic copy is available on the Town of Seekonk Stormwater webpage. This IDDE Plan has been prepared to address this requirement.

1.2 Illicit Discharges

An illicit discharge is defined as any discharge to a drainage system that is not composed entirely of stormwater, with the exception of discharges pursuant to a NPDES permit (other than the NPDES permit for discharges from the MS4) and discharges resulting from fire-fighting activities.

Illicit discharges may take a variety of forms and enter the drainage system through either direct or indirect connections. Direct connection may be relatively obvious, such as cross connections of sewer services to the storm drain system. Indirect illicit discharges may be more difficult to detect or address, such as failing septic systems or sump pumps that discharge contaminated water on an intermittent basis.

Some illicit discharges are intentional, such as dumping waste oil (or other pollutants) into catch basins, a resident or contractor illegally tapping a new sewer lateral into a storm drain pipe to avoid the costs of a sewer connection fee and service, and illegal dumping of yard wastes into surface waters.

Some illicit discharges are related to the unsuitability of aging infrastructure to the modern regulatory environment. Examples of illicit discharges in this category include floor drains in older buildings, as well as sanitary sewer overflows that enter the drainage system. Sump pumps legally connected to the storm drain may be used inappropriately, such as for the disposal of floor wash water or household produces, in many cases due to a lack of understanding on the part of the property owner.

Elimination of some discharges may require substantial costs and efforts, such as funding and designing a project to reconnect sanitary sewer laterals. Others, such as improvements to pet and yard waste management, can be accomplished by outreach in conjunction with the minimal additional cost of waste bins and a commitment to the disposal of collected materials on a regular basis.

When not addressed, illicit discharges can contribute high levels of pollutants, such as heavy metals, toxics, oil, grease, solvents, nutrients, and pathogens to surface waters.

1.3 Allowable Non-Stormwater Discharges

The following categories of non-stormwater discharges are allowed under the MS Permit unless the permittee, USEPA or Massachusetts Department of Environmental Protection (MassDEP) identifies any category or individual discharge of non-stormwater discharges as a significant contributor of pollutants to the MS4:

- Water line flushing
- Landscape irrigation
- Diverted stream flows
- Rise ground water
- Uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20))
- Uncontaminated pumped groundwater
- Discharge from potable water sources
- Foundation drains
- Air conditioning condensation
- Irrigation water, springs
- Water from crawl space pumps
- Footing drains
- Lawn watering
- Individual resident car washing
- De-chlorinated swimming pool discharges
- Street wash waters
- Residential building wash waters without detergents

If these discharges are identified as significant contributors to the MS4, they must be considered an “illicit discharge” and addressed in the IDDE Plan (i.e., control these sources so they are no longer significant contributors or pollutants, and/or eliminate them entirely).

1.4 Receiving Waters and Impairments

Table 1-1 lists the “impaired waters” within the boundaries of Seekonk’s regulated area based on the 2014 Massachusetts List of Integrated List of Waters produced by MassDEP every two years. Impaired waters are water bodies that do not meet water quality standards for one or more designated use(s) such as recreation or aquatic habitat.

Table 1-1. Impaired Waters
Seekonk, Massachusetts

Water Body Name	Segment ID	Category	Impairment(s)	Approved TMDL
Burrs Pond	MA53001	NA	Mercury, Metals	
Runnins River	MA53-01	5	Dissolved Oxygen Saturation, Nitrogen, Oil & Grease / PAH, Phosphorous, Debris / Floatables / Trash, Aquatic Macroinvertebrates Bioassessments, Fecal Coliform, Mercury in Fish Tissue, Nutrient / Eutrophication Biological Indicators, Low Flow Alterations	Fecal Coliform (EPA TMDL No. 38903), Mercury in Fish Tissue (EPA TMDL No. 33880)
Central Pond	MA52006	4C	Dissolved Oxygen, Nitrogen, Phosphorous, Aquatic Plants (Macrophytes), Excess Algal Growth, Organic Enrichment (Sewage) Biological Indicators, Phosphorous (Total), Low Flow Alterations	
James V. Turner Reservoir	MA52022	5	Dissolved Oxygen, Nitrogen, Phosphorous, Aquatic Plants (Macrophytes), Dissolved Oxygen Saturation, Excess Algal Growth, Organic Enrichment (Sewage) Biological Indicators, Phosphorous (Total)	
Coles Brook	MA52-11	4C	Low Flow Alteration	
Ten Mile River	MA52-03	5	Dissolved Oxygen, Nitrogen, Phosphorous, Aquatic Plants (Macrophytes), Chlordane, Dissolved Oxygen Saturation, Excess Algal Growth, Fecal Coliform, Organic Enrichment (Sewage) Biological Indicators, Other	
Clear Run Brook	MA53-13	4A	Fecal Coliform	Fecal Coliform (EPA TMDL No. 35097)
Palmer River	MA53-03	4A	Fecal Coliform	Fecal Coliform (EPA TMDL No. 35085)

1.5 IDDE Program Goals, Framework, and Timeline

The goals of the IDDE program are to find and eliminate illicit discharges to municipal separate storm sewer system and to prevent illicit discharges from happening in the future. The program consists of the following major components as outlined in the MS4 Permit:

- Legal authority and regulatory mechanism to prohibit illicit discharges and enforce this prohibition
- Storm system mapping
- Inventoried and ranking of outfalls
- Dry weather outfall screening
- Catchment investigations
- Identification / confirmation of illicit sources
- Illicit discharge removal
- Follow up screening
- Employee training

The IDDE investigation procedure framework is shown in **FIGURE 1-1**. The required timeline for implementing the IDDE program is shown in **TABLE 1-2**.

Figure 1-1. IDDE Investigation Procedure Framework

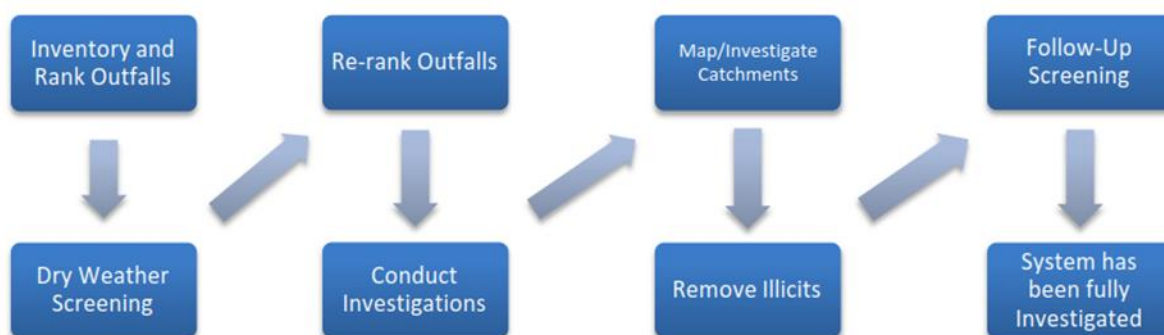


Table 1-2. IDDE Program Implementation Timeline

IDDE Program Requirement	Completion Date from Effective Date of Permit					
	1 Year	1.5 Years	2 Years	3 Years	7 Years	10 Years
Written IDDE Program Plan	X					
SSO Inventory	X					
Written Catchment Investigation Procedure		X				
Phase I Mapping			X			
Phase II Mapping						X
IDDE Regulatory Mechanism or By-law (if not already in place)				X		
Dry Weather Outfall Screening				X		
Follow-up Ranking of Outfalls and Interconnections				X		
Catchment Investigations – Problem Outfalls					X	
Catchment Investigations – all Problem, High and Low Priority Outfalls						X

1.6 Work Completed to Date

The 2003 MS4 Permit required each MS4 community to develop a plan to detect illicit discharges using a combination of storm system mapping, adopting a regulatory mechanism to prohibit illicit discharges and enforce this prohibition, and identifying tools and methods to investigate suspected illicit discharges. Each MS4 community was also required to define how confirmed discharges would be eliminated and how the removal would be documented.

The Town of Seekonk has completed the following IDDE program activities consistent with the 2003 MS4 Permit requirements:

- Developed a map of outfalls and receiving waters
- Adopted an IDDE bylaw, “Category 20A – *Illicit Connections and Discharges to the Storm Drain System*”, the purpose of which is to regulate illicit connections and discharges to the storm drain system, which is necessary for the protection of Seekonk’s water bodies and groundwater, and to safeguard the public health, safety, and welfare of the environment. A copy of this Bylaw is included in Appendix A.
- Developed procedures for locating illicit discharges including dry and wet weather screening
- Developed procedures for locating the source of the discharge
- Developed procedures for removal of the source of an illicit discharge
- Developed procedures for documenting action and evaluating impacts on the storm sewer system subsequent to removal

2 Authority and Statement of IDDE Responsibilities

2.1 Legal Authority

The Town of Seekonk adopted its Illicit Connection and Discharges to the Storm Drain System Bylaw (May 14, 2018). A copy of the Illicit Connection and Discharges to the Storm Drain System Bylaw is provided in **Appendix A**. The Illicit Connection and Discharges to the Storm Drain System Bylaw provides the Town of Seekonk with adequate legal authority to:

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

The Town of Seekonk will continue to review its current Illicit Connection and Discharges to the Storm Drain System Bylaw and related land use regulation and policies to ensure consistency with the 2016 MS4 Permit.

2.2 Statement of Responsibilities

The Seekonk Public Works department is the lead municipal department responsible for implementing the IDDE program pursuant to the provisions of the Illicit Connection and Discharges to the Storm Drain System Bylaw. Any powers granted to or duties imposed upon the Public Works Department may be delegated in writing to employees of the Department as well as other municipal employees or agents of

the Department, including but not limited to members of the Conservation Department, Planning Department, and Health Department.

3 Stormwater System Mapping

The Town of Seekonk originally developed mapping of its stormwater system to meet the mapping requirements of the 2003 MS4 Permit. A copy of the existing storm system mapping is provided in **Appendix B**. The 2016 MS4 Permit requires a more detailed storm system map than was required by the 2003 MS4 Permit. The revised mapping is intended to facilitate the identification of key infrastructure, factors influencing proper system operation, and the potential for illicit discharges.

The 2016 MS4 Permit requires the storm system map to be updated in two phases as outlined below. The Department of Public Works is responsible for updating the stormwater system mapping pursuant to the 2016 MS4 Permit. The Town of Seekonk will report on the progress towards completion of the storm system map in each annual report. Updates to the stormwater mapping will be included in **Appendix B**.

3.1 Phase I Mapping

Phase I mapping must be completed within two (2) years of the effective date of the permit (July 1, 2018) and included the following information:

- Outfalls and receiving waters (previous required by the MS4-203 permit)
- Open channel conveyances (swales, ditches, etc.)
- Interconnections with other MS4s and other storm sewer systems
- Municipally owned stormwater treatment structures
- Water bodies identified by name and indication of all use impairments as identified on the most recent EPA approved Massachusetts Integrated List of Waters report
- Initial catchment delineations. Topographic contours and drainage system information may be used to produce initial catchment delineations

The Town of Seekonk will update its stormwater mapping by July 1, 2020 to include the remaining Phase I information.

3.2 Phase II Mapping

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

- Outfall spatial location (latitude and longitude with a minimum accuracy of ± 30 feet)
- Pipes
- Manholes
- Catch basins
- Refined catchment delineation. Catchment delineations must be updated to reflect information collected during catchment investigations.
- Municipal Sanitary Sewer system (if available)
- Municipal combined sewer system (if applicable)

The Town of Seekonk will update its stormwater mapping by July 1, 2028 to include the remaining Phase II information.

3.3 Additional Recommended Mapping Elements

Although not a requirement of the 2016 MS4 Permit, the Town of Seekonk has made it a goal to include the following recommended elements in its stormwater system mapping:

- Storm sewer material, size (pipe diameter), age
- Sanitary sewer system material, size (pipe diameter), age
- Privately owned stormwater treatment structures
- Where a municipal sanitary sewer system exists, properties known or suspected to be served by a septic system, especially in high density urban areas
- Area where the permittee's MS4 has received or could receive flow from septic system discharges
- Seasonal high-water able elevations impacting sanitary alignments
- Topography
- Orthophotography
- Alignments, dates and representation of work completed of past illicit discharge investigations
- Locations of suspected confirmed and corrected illicit discharges with dates and flow estimates

4 Sanitary Sewer Overflows (SSOs)

The 2016 MS4 Permit requires municipalities to prohibit illicit discharges, including sanitary sewer overflows (SSOs), to the separate storm sewer system. SSOs are discharges of untreated sanitary wastewater from a municipal sanitary sewer that can contaminate surface waters, cause serious water quality problems and property damage, and threaten public health. SSOs can be caused by blockages, line breaks, sewer defects that allow stormwater and groundwater to overload the system, power failures, improper sewer design, and vandalism.

The Town of Seekonk has completed an inventory of its existing system and concluded that no SSOs have occurred within the five (5) years prior to the effective date of the 2016 MS4 Permit. Upon detection of an SSO, the Town of Seekonk will eliminate it as expeditiously as possible and take interim measures to minimize the discharge of pollutants to and from its MS4 until the SSO is eliminated. Upon becoming aware of an SSO to the MS4, the Town of Seekonk will provide oral notice to EPA within 24 hours and written notice to EPA and MassDEP within five (5) days of become aware of the SSO occurrence.

The inventory in **Table 4-1** will be updated by the Department of Public Works when new SSOs are detected. The SSO inventory will be included in the annual report, including the status of mitigation and corrective measures to address each identified SSO.

5 Assessment and Priority Ranking of Outfalls

The 2016 MS4 Permit requires an assessment and priority ranking of outfalls in terms of their potential to have illicit discharges and SSOs and the related public health significance. The ranking helps determine the priority order for performing IDDE investigations and meeting permit milestones.

5.1 Outfall Catchment Delineations

A catchment is the area that drains to an individual outfall¹ or interconnection.² The catchments for each of the MS4 outfalls will be delineated to define contributing areas for investigation of potential sources of illicit discharges. Catchments are typically delineated based on topographic contours and mapped drainage infrastructure, where available. As described in **Section 3**, initial catchment delineations will be completed as part of the Phase I mapping, and refined catchment delineations will be completed as part of the Phase II mapping to reflect information collected during catchment investigations

5.2 Outfall and Interconnection Inventory and Initial Ranking

The Department of Public Works will complete an initial outfall and interconnection inventory and priority ranking to assess illicit discharge potential based on existing information. The initial inventory and ranking will be completed within one (1) year from the effective date of the permit. An updated inventory and ranking will be provided in each annual report thereafter. The inventory will be updated annually to include data collected in connection with dry weather screening and other relevant inspections.

The outfall and interconnection inventory will identify each outfall and interconnection discharging from the MS4, record its location and condition, and provide a framework for tracking inspections, screenings and other IDDE program activities.

Outfalls and interconnections will be classified into one of the following categories:

1. **Problem Outfalls:** Outfalls / interconnections with known or suspected contribution of illicit discharges based on existing information shall be designated as Problem Outfalls. This shall include any outfalls / interconnections where previous screening indicates likely sewer input. Likely sewer input indicators are any of the following:
 - Olfactory or visual evidence of sewage
 - Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and bacteria levels greater than the water quality criteria applicable to the receiving water, or

¹ **Outfall** means a point source as defined by 40 CFR § 122.2 as the point where the municipal separate storm sewer discharges to waters of the United States. An outfall does not include open conveyances connecting two municipal separate storm sewers or pipes, tunnels or other conveyances that connect segments of the same stream or other waters of the United States and that are used to convey waters of the United States. Culverts longer than a simple road crossing shall be included in the inventory unless the permittee can confirm that they are free of any connections and simply convey waters of the United States.

² **Interconnection** means the point (excluding sheet flow over impervious surfaces) where the permittee's MS4 discharges to another MS4 or other storm sewer system, through which the discharge is conveyed to waters of the United States or to another storm sewer system and eventually to a water of the United States.

- Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and detectable levels of chlorine

Dry weather screening and sampling, as described in **Section 6** of this IDDE Plan and Part 2.3.4.7.b of the MS4 Permit, is not required for Problem Outfalls.

2. High Priority Outfalls: Outfalls/interconnections that have not been classified as Problem Outfalls and that are:

- Discharging to an area of concern to public health due to proximity of public beaches, recreational areas, drinking water supplies or shellfish beds
- Determined by the permittee as high priority based on the characteristics listed below or other available information.

3. Low Priority Outfalls: Outfalls/interconnections determined by the permittee as low priority based on the characteristics listed below or other available information.

4. Excluded outfalls: Outfalls/interconnections with no potential for illicit discharges may be excluded from the IDDE program. This category is limited to roadway drainage in undeveloped areas with no dwellings and no sanitary sewers; drainage for athletic fields, parks or undeveloped green space and associated parking without services; cross-country drainage alignments (that neither cross nor are in proximity to sanitary sewer alignments) through undeveloped land.

Outfalls will be ranked into the above priority categories (except for excluded outfalls, which may be excluded from the IDDE program) based on the following characteristics of the defined initial catchment areas, where information is available. Additional relevant characteristics, including location-specific characteristics, may be considered but must be documented in this IDDE Plan.

- **Previous screening results** – previous screening/sampling results indicate likely sewer input (see criteria above for Problem Outfalls).
- **Past discharge complaints and reports.**
- **Poor receiving water quality** – the following guidelines are recommended to identify waters as having a high illicit discharge potential:
 - Exceeding water quality standards for bacteria
 - Ammonia levels above 0.5 mg/l
 - Surfactants levels greater than or equal to 0.25 mg/l
- **Density of generating sites** – Generating sites are those places, including institutional, municipal, commercial, or industrial sites, with a potential to generate pollutants that could contribute to illicit discharges. Examples of these sites include, but are not limited to, car dealers; car washes; gas stations; garden centers; and industrial manufacturing areas.
- **Age of development and infrastructure** – Industrial areas greater than 40 years old and areas where the sanitary sewer system is more than 40 years old will probably have a high illicit discharge potential. Developments 20 years or younger will probably have a low illicit discharge potential.
- **Sewer conversion** – Contributing catchment areas that were once serviced by septic systems but have been converted to sewer connections may have a high illicit discharge potential.

- **Historic combined sewer systems** – Contributing areas that were once serviced by a combined sewer system but have been separated may have a high illicit discharge potential.
- **Surrounding density of aging septic systems** – Septic systems thirty years or older in residential land use areas are prone to have failures and may have a high illicit discharge potential.
- **Culverted streams** – Any river or stream that is culverted for distances greater than a simple roadway crossing may have a high illicit discharge potential.
- **Water quality limited waterbodies** that receive a discharge from the MS4 or waters with approved TMDLs applicable to the permittee, where illicit discharges have the potential to contain the pollutant identified as the cause of the water quality impairment.

6 Dry Weather Outfall Screening and Sampling

Dry weather flow is a common indicator of potential illicit connections. The MS4 Permit requires all outfalls / interconnections (excluding Problem and excluded Outfalls) to be inspected for the presence of dry weather flow. The Department of Public Works is responsible for conducting dry weather outfall screening, starting with High Priority outfalls, followed by Low Priority outfalls, based on the initial priority rankings described in the previous section.

6.1 Weather Conditions

Dry weather outfall screening and sampling may occur when no more than 0.1 inches of rainfall has occurred in the previous 24-hour period and no significant snow melt is occurring. For purposes of determining dry weather conditions, program staff will use precipitation data from the Martin Elementary School / Cole St. Station. If the Martin Elementary School / Cole St. Station is not available or not reporting current weather data, then data from the Richmond Square Station (East Providence, RI) will be used as back-up.

6.2 Dry Weather Screening / Sampling Procedure

6.2.1 General Procedure

The dry weather outfall inspection and sampling procedure consists of the following general steps:

- 1) Identify outfall(s) to be screened / sampled based on initial outfall inventory and priority ranking
- 2) Acquire the necessary staff, mapping, and field equipment
- 3) Conduct the outfall inspection during dry weather
 - a) Mark and photograph the outfall
 - b) Record the inspection information and outfall characteristics (using paper form or digital tablet or similar device)
 - c) Look for and record visual / olfactory evidence of pollutants in flowing outfalls including odor, color, turbidity, and floatable matter (suds, bubbles, excrement, toilet paper, or sanitary products). Also observe outfalls for deposits and stains, vegetation, and damage to outfall structures.
- 4) If flow is observed, sample and test the flow following the procedures described in the following sections
- 5) If no flow is observed, but evidence of illicit flow exists (illicit discharges are often intermittent or transitory), revisit the outfall during dry weather within one week of the initial observation, if

practicable, to perform a second dry weather screening and sample any observed flow. Other techniques can be used to detect intermittent or transitory flows including conducting inspections during evenings or weekends and using optical brighteners

- 6) Input results from screening and sampling into spreadsheet / database. Include pertinent information in the outfall / interconnection inventory and priority ranking
- 7) Include all screening data in the annual report.

Previous outfall screening/sampling conducted under the 2013 MS4 Permit may be used to satisfy the dry weather outfall/screening requirements of the 2016 MS4 Permit only if the previous screening and sampling was substantially equivalent to that required by the 2016 MS4 Permit, including the list of analytes outlined in Section 2.3.4.7.b.iii.4 of the 2016 permit.

6.2.2 Field Equipment

Table 6-1 lists field equipment commonly used for dry weather outfall screening and sampling.

Table 6-1. Field Equipment – Dry Weather Outfall Screening and Sampling

Equipment	Use/Notes
Clipboard	For organization of field sheets and writing surface
Field Sheets	Field sheets for both dry weather inspection and Dry weather sampling should be available with extras
Chain of Custody Forms	To ensure proper handling of all samples
Pens/Pencils/Permanent Markers	For proper labeling
Nitrile Gloves	To protect the sampler as well as the sample from contamination
Flashlight/headlamp w/batteries	For looking in outfalls or manholes, helpful in early mornings as well
Cooler with Ice	For transporting samples to the laboratory
Digital Camera	For documenting field conditions at time of inspection
Personal Protective Equipment (PPE)	Reflective vest, Safety glasses and boots at a minimum
GPS Receiver	For taking spatial location data
Water Quality Sonde	If needed, for sampling conductivity, temperature, pH
Water Quality Meter	Hand held meter, if available, for testing for various water quality parameters such as ammonia, surfactants and chlorine
Test Kits	Have extra kits on hand to sample more outfalls than are anticipated to be screened in a single day
Label Tape	For labeling sample containers
Sample Containers	Make sure all sample containers are clean. Keep extra sample containers on hand at all times. Make sure there are proper sample containers for what is being sampled for (i.e., bacteria requires sterile containers).
Pry Bar or Pick	For opening catch basins and manholes when necessary
Sandbags	For damming low flows in order to take samples
Small Mallet or Hammer	Helping to free stuck manhole and catch basin covers
Utility Knife	Multiple uses
Measuring Tape	Measuring distances and depth of flow

Equipment	Use/Notes
Safety Cones	Safety
Hand Sanitizer	Disinfectant/decontaminant
Zip Ties/Duct Tape	For making field repairs
Rubber Boots/Waders	For accessing shallow streams/areas
Sampling Pole/Dipper/Sampling Cage	For accessing hard to reach outfalls and manholes

6.2.3 Sample Collection and Analysis

If flow is present during a dry weather outfall inspection, a sample will be collected and analyzed for the required permit parameters³ listed in **Table 6-2**. The general procedure for collection of outfall samples is as follows:

1. Fill out all sample information on sample bottles and field sheets (see **Appendix C** for Sample Labels and Field Sheets)
2. Put on protective gloves (nitrile/latex/other) before sampling
3. Collect sample with dipper or directly in sample containers. If possible, collect water from the flow directly in the sample bottle. Be careful not to disturb sediments.
4. If using a dipper or other device, triple rinse the device with distilled water and then in water to be sampled (not for bacteria sampling)
5. Use test strips, test kits, and field meters (rinse similar to dipper) for most parameters (see **Table 6-2**)
6. Place laboratory samples on ice for analysis of bacteria and pollutants of concern
7. Fill out chain-of-custody form (**Appendix C**) for laboratory samples
8. Deliver samples to the laboratory to be specified by the Town of Seekonk
9. Dispose of used test strips and test kit ampules properly
10. Decontaminate all testing personnel and equipment

In the event that an outfall is submerged, either partially or completely, or inaccessible, field staff will proceed to the first accessible upstream manhole or structure for the observation and sampling and report the location with the screening results. Field staff will continue to the next upstream structure until there is no longer an influence from the receiving water on the visual inspection or sampling.

Field test kits or field instrumentation are permitted for all parameters except indicator bacteria and any pollutants of concern. Field kits need to have appropriate detection limits and ranges. **Table 6-2** lists various field test kits and field instruments that can be used for outfall sampling associated with the 2016 MS4 Permit parameters, other than indicator bacteria and any pollutants of concern. Analytic procedures and user's manuals for field test kits and field instrumentation are provided in **Appendix D**.

³ Other potentially useful parameters, although not required by the MS4 Permit, include **fluoride** (indicator of potable water sources in areas where water supplies are fluoridated), **potassium** (high levels may indicate the presence of sanitary wastewater), and **optical brighteners** (indicative of laundry detergents).

Table 6-2. Sampling Parameters and Analysis Methods

Analyte or Parameter	Instrumentation (Portable Meter)	Field Test Kit
Ammonia	CHEMetrics™ V-2000 Colorimeter Hach™ DR/890 Colorimeter Hach™ Pocket Colorimeter™ II	CHEMetrics™ K-1410 CHEMetrics™ K-1510 (series) Hach™ NI-SA Hach™ Ammonia Test Strips
Surfactants (Detergents)	CHEMetrics™ I-2017	CHEMetrics™ K-9400 and K-9404 Hach™ DE-2
Chlorine	CHEMetrics™ V-2000, K-2513 Hach™ Pocket Colorimeter™ II	NA
Conductivity	CHEMetrics™ I-1200 YSI Pro30 YSI EC300A Oakton 450	NA
Temperature	YSI Pro30 YSI EC300A Oakton 450	NA
Salinity	YSI Pro30 YSI EC300A Oakton 450	NA
Temperature	YSI Pro30 YSI EC300A Oakton 450	NA
Indicator Bacteria: <i>E. coli</i> (freshwater) or Enterococcus (saline water)	EPA certified laboratory procedure (40 CFR § 136)	NA
Pollutants of Concern ¹	EPA certified laboratory procedure (40 CFR § 136)	NA

¹ Where the discharge is directly into a water quality limited water or a water subject to an approved TMDL, the sample must be analyzed for the pollutant(s) of concern identified as the cause of the water quality impairment. Testing for indicator bacteria and any pollutants of concern must be conducted using analytical methods and procedures found in 40 CFR § 136.⁴ Samples for laboratory analysis must also be stored and preserved in accordance with procedures found in 40 CFR § 136. **Table 6-3** lists analytical methods, detection limits, hold times, and preservatives for laboratory analysis of dry weather sampling parameters.

⁴ 40 CFR § 136: <http://www.ecfr.gov/cgi-bin/text-idx?SID=b3b41fdea0b7b0b8cd6c4304d86271b7&mc=true&node=pt40.25.136&rgn=div5>

Table Error! No text of specified style in document.-1. Required Analytical Methods, Detection Limits, Hold Times, and Preservatives⁴

Analyte or Parameter	Analytical Method	Detection Limit	Max. Hold Time	Preservative
Ammonia	EPA: 350.2, SM: 4500-NH ₃ C	0.05 mg/L	28 days	Cool ≤6°C, H ₂ SO ₄ to pH <2, No preservative required if analyzed immediately
Surfactants	SM: 5540-C	0.01 mg/L	48 hours	Cool ≤6°C
Chlorine	SM: 4500-Cl G	0.02 mg/L	Analyze within 15 minutes	None Required
Temperature	SM: 2550B	NA	Immediate	None Required
Specific Conductance	EPA: 120.1, SM: 2510B	0.2 µs/cm	28 days	Cool ≤6°C
Salinity	SM: 2520	-	28 days	Cool ≤6°C
Indicator Bacteria: <i>E. coli</i> Enterococcus	<i>E. coli</i> EPA: 1603 SM: 9221B, 9221F, 9223 B Other: Colilert®, Colilert-18® <i>Enterococcus</i> EPA: 1600 SM: 9230 C Other: Enterolert®	<i>E. coli</i> EPA: 1 cfu/100mL SM: 2 MPN/100mL Other: 1 MPN/100mL <i>Enterococcus</i> EPA: 1 cfu/100mL SM: 1 MPN/100mL Other: 1 MPN/100mL	8 hours	Cool ≤10°C, 0.0008% Na ₂ S ₂ O ₃
Total Phosphorus	EPA: Manual-365.3, Automated Ascorbic acid digestion-365.1 Rev. 2, ICP/AES4-200.7 Rev. 4.4 SM: 4500-P E-F	EPA: 0.01 mg/L SM : 0.01 mg/L	28 days	Cool ≤6°C, H ₂ SO ₄ to pH <2
Total Nitrogen (Ammonia + Nitrate/Nitrite, methods are for Nitrate-Nitrite and need to be combined with Ammonia listed above.)	EPA: Cadmium reduction (automated)-353.2 Rev. 2.0, SM: 4500-NO ₃ E-F	EPA: 0.05 mg/L SM : 0.05 mg/L	28 days	Cool ≤6°C, H ₂ SO ₄ to pH <2

SM = Standard Methods

6.3 Interpreting Outfall Sampling Results

Outfall analytical data from dry weather sampling can be used to help identify the major type or source of discharge. **Table 6-4** shows values identified by the U.S. EPA and the Center for Watershed Protection as typical screening values for select parameters. These represent the typical concentration (or value) of each parameter expected to be found in stormwater. Screening values that exceed these benchmarks may be indicative of pollution and/or illicit discharges.

Table Error! No text of specified style in document.-2. Benchmark Field Measurements for Select Parameters

Analyte or Parameter	Benchmark
Ammonia	>0.5 mg/L
Conductivity	>2,000 μ S/cm
Surfactants	>0.25 mg/L
Chlorine	>0.02 mg/L (detectable levels per the 2016 MS4 Permit)
Indicator Bacteria ⁵ : <i>E.coli</i> <i>Enterococcus</i>	<i>E.coli</i> : the geometric mean of the five most recent samples taken during the same bathing season shall not exceed 126 colonies per 100 ml and no single sample taken during the bathing season shall exceed 235 colonies per 100 ml <i>Enterococcus</i> : the geometric mean of the five most recent samples taken during the same bathing season shall not exceed 33 colonies per 100 ml and no single sample taken during the bathing season shall exceed 61 colonies per 100 ml

6.4 Follow-up Ranking of Outfalls and Interconnections

The Town of Seekonk will update and re-prioritize the initial outfall and interconnection rankings based on information gathered during dry weather screening. The rankings will be updated periodically as dry weather screening information becomes available but will be completed within three (3) years of the effective date of the permit.

Outfalls/interconnections where relevant information was found indicating sewer input to the MS4 or where sampling results indicate sewer input are highly likely to contain illicit discharges from sanitary sources.

⁵ Massachusetts Water Quality Standards: <http://www.mass.gov/eea/docs/dep/service/regulations/314cmr04.pdf>

Such outfalls/interconnections will be ranked at the top of the High Priority Outfalls category for investigation. Other outfalls and interconnections may be re-ranked based on any new information from the dry weather screening.

7 Catchment Investigations

Once stormwater outfalls with evidence of illicit discharges have been identified, various methods can be used to trace the source of the potential discharge within the outfall catchment area. Catchment investigation techniques include but are not limited to review of maps, historic plans, and records; manhole observation; dry and wet weather sampling; video inspection; smoke testing; and dye testing. This section outlines a systematic procedure to investigate outfall catchments to trace the source of potential illicit discharges. All data collected as part of the catchment investigations will be recorded and reported in each annual report.

7.1 System Vulnerability Factors

The Town of Seekonk Public Works Department will review relevant mapping and historic plans and records to identify areas within the catchment with higher potential for illicit connections. The following information will be reviewed:

- Plans related to the construction of the drainage network
- Prior work on storm drains
- Board of Health or other municipal data on septic systems
- Complaint records related to SSOs
- Septic system breakouts.

Based on the review of this information, the presence of any of the following **System Vulnerability Factors (SVFs)** will be identified for each catchment:

- History of SSOs, including, but not limited to, those resulting from wet weather, high water table, or fat/oil/grease blockages
- Common or twin-invert manholes serving storm sewer alignments
- Common trench construction serving both storm sewer alignments
- Crossings of storm and sanitary sewer alignments where the sanitary system is shallower than the storm drain system
- Areas formerly served by combined sewer systems
- Any storm drain infrastructure greater than 40 years old
- Widespread code-required septic system upgrades required at property transfers (indicative of inadequate soils, water table separation, or other physical constraints of the area rather than poor owner maintenance)
- History of multiple Board of Health actions addressing widespread septic system failures (indicative of inadequate soils, water table separation, or other physical constraints of the area rather than poor owner maintenance).

An SVF inventory will be documented for each catchment (see **Table 7-1**), retained as part of this IDDE Plan, and included in the annual report.

7.2 Dry Weather Manhole Inspections

The Town of Seekonk will implement a dry weather storm drain network investigation program that involves systematically and progressively observing, sampling and evaluating key junction manholes in the MS4 to determine the approximate location of suspected illicit discharges.

The Town of Seekonk Public Works Department will be responsible for implementing the dry weather manhole inspection program and making updates as necessary. Infrastructure information will be incorporated into the storm system map, and catchment delineations will be refined based on the field investigation, where necessary. The SVF inventory will also be updated based on information obtained during the field investigations, where necessary.

Several important terms related to the dry weather manhole inspection program are defined by the MS4 Permit as follows:

- **Junction Manhole** is a manhole or structure with two or more inlets accepting flow from two or more MS4 alignments. Manholes with inlets solely from private storm drains, individual catch basins, or both are not considered junction manholes for these purposes.
- **Key Junction Manholes** are those junction manholes that can represent one or more junction manholes without compromising adequate implementation of the illicit discharge program. Adequate implementation of the illicit discharge program would not be compromised if the exclusion of a particular junction manhole as a key junction manhole would not affect the permittee's ability to determine the possible presence of an upstream illicit discharge. A permittee may exclude a junction manhole located upstream from another located in the immediate vicinity or that is serving a drainage alignment with no potential for illicit connections.

For all catchments identified for investigation, during dry weather, field crews will systematically inspect **key junction manholes** for evidence of illicit discharges. This program involves progressive inspection and sampling at manholes in the storm drain network to isolate and eliminate illicit discharges.

The manhole inspection methodology will be conducted in one of two ways (or a combination of both):

- By working progressively up from the outfall and inspecting key junction manholes along the way, or
- By working progressively down from the upper parts of the catchment toward the outfall.

For most catchments, manhole inspections will proceed from the outfall moving up into the system.

However, the decision to move up or down the system depends on the nature of the drainage system and the surrounding land use and the availability of information on the catchment and drainage system. Moving up the system can begin immediately when an illicit discharge is detected at an outfall, and only a map of the storm drain system is required. Moving down the system requires more advance preparation and reliable drainage system information on the upstream segments of the storm drain system but may be more efficient if the sources of illicit discharges are believed to be located in the

upstream portions of the catchment area. Once a manhole inspection methodology has been selected, investigations will continue systematically through the catchment.

Inspection of key junction manholes will proceed as follows:

1. Manholes will be opened and inspected for visual and olfactory evidence of illicit connections. A sample field inspection form is provided in **Appendix C**.
2. If flow is observed, a sample will be collected and analyzed at a minimum for ammonia, chlorine, and surfactants. Field kits can be used for these analyses. Sampling and analysis will be in accordance with procedures outlined in **Section 6**. Additional indicator sampling may assist in determining potential sources (e.g., bacteria for sanitary flows, conductivity to detect tidal backwater, etc.).
3. Where sampling results or visual or olfactory evidence indicate potential illicit discharges or SSOs, the area draining to the junction manhole will be flagged for further upstream manhole investigation and/or isolation and confirmation of sources.
4. Subsequent key junction manhole inspections will proceed until the location of suspected illicit discharges can be isolated to a pipe segment between two manholes.
5. If no evidence of an illicit discharge is found, catchment investigations will be considered complete upon completion of key junction manhole sampling.

7.3 Wet Weather Outfall Sampling

Where a minimum of one (1) System Vulnerability Factor (SVF) is identified based on previous information or the catchment investigation, a wet weather investigation must also be conducted at the associated outfall. The Town of Seekonk Public Works Department will be responsible for implementing the wet weather outfall sampling program and making updates as necessary.

Outfalls will be inspected and sampled under wet weather conditions, to the extent necessary, to determine whether wet weather-induced high flows in sanitary sewers or high groundwater in areas served by septic systems result in discharges of sanitary flow to the MS4.

Wet weather outfall sampling will proceed as follows:

1. At least one wet weather sample will be collected at the outfall for the same parameters required during dry weather screening.
2. Wet weather sampling will occur during or after a storm event of sufficient depth or intensity to produce a stormwater discharge at the outfall. There is no specific rainfall amount that will trigger sampling, although minimum storm event intensities that are likely to trigger sanitary sewer interconnections are preferred. To the extent feasible, sampling should occur during the spring (March through June) when groundwater levels are relatively high.

3. If wet weather outfall sampling indicates a potential illicit discharge, then additional wet weather source sampling will be performed, as warranted, or source isolation and confirmation procedures will be followed as described in **Section 7.4**.
4. If wet weather outfall sampling does not identify evidence of illicit discharges, and no evidence of an illicit discharge is found during dry weather manhole inspections, catchment investigations will be considered complete.

7.4 Source Isolation and Confirmation

Once the source of an illicit discharge is approximated between two manholes, more detailed investigation techniques will be used to isolate and confirm the source of the illicit discharge. The following methods may be used in isolating and confirming the source of illicit discharges

- Sandbagging
- Smoke Testing
- Dye Testing
- CCTV/Video Inspections
- Optical Brightener Monitoring

These methods are described in the sections below. Instructions and Standard Operating Procedures (SOPs) for these and other IDDE methods are provided in **Appendix F**.

Public notification is an important aspect of a detailed source investigation program. Prior to smoke testing, dye testing, or TV inspections, the Town of Seekonk Public Works Department will notify property owners in the affected area. Smoke testing notification will include automated calls and hanging of notifications for single family homes, businesses and building lobbies for multi-family dwellings.

7.4.1 Sandbagging

This technique can be particularly useful when attempting to isolate intermittent illicit discharges or those with very little perceptible flow. The technique involves placing sandbags or similar barriers (e.g., caulking, weirs/plates, or other temporary barriers) within outlets to manholes to form a temporary dam that collects any intermittent flows that may occur. Sandbags are typically left in place for 48 hours, and should only be installed when dry weather is forecast. If flow has collected behind the sandbags/barriers after 48 hours it can be assessed using visual observations or by sampling. If no flow collects behind the sandbag, the upstream pipe network can be ruled out as a source of the intermittent discharge. Finding appropriate durations of dry weather and the need for multiple trips to each manhole makes this method both time-consuming and somewhat limiting.

7.4.2 Smoke Testing

Smoke testing involves injecting non-toxic smoke into drain lines and noting the emergence of smoke from sanitary sewer vents in illegally connected buildings or from cracks and leaks in the system itself. Typically a smoke bomb or smoke generator is used to inject the smoke into the system at a catch basin or manhole and air is then forced through the system. Test personnel are placed in areas where there

are suspected illegal connections or cracks/leaks, noting any escape of smoke (indicating an illicit connection or damaged storm drain infrastructure). It is important when using this technique to make proper notifications to area residents and business owners as well as local police and fire departments.

If the initial test of the storm drain system is unsuccessful then a more thorough smoke-test of the sanitary sewer lines can also be performed. Unlike storm drain smoke tests, buildings that do not emit smoke during sanitary sewer smoke tests may have problem connections and may also have sewer gas venting inside, which is hazardous.

It should be noted that smoke may cause minor irritation of respiratory passages. Residents with respiratory conditions may need to be monitored or evacuated from the area of testing altogether to ensure safety during testing.

7.4.3 Dye Testing

Dye testing involves flushing non-toxic dye into plumbing fixtures such as toilets, showers, and sinks and observing nearby storm drains and sewer manholes as well as stormwater outfalls for the presence of the dye. Similar to smoke testing, it is important to inform local residents and business owners. Police, fire, and local public health staff should also be notified prior to testing in preparation of responding to citizen phone calls concerning the dye and their presence in local surface waters.

A team of two or more people is needed to perform dye testing (ideally, all with two-way radios). One person is inside the building, while the others are stationed at the appropriate storm sewer and sanitary sewer manholes (which should be opened) and/or outfalls. The person inside the building adds dye into a plumbing fixture (i.e., toilet or sink) and runs a sufficient amount of water to move the dye through the plumbing system. The person inside the building then radios to the outside crew that the dye has been dropped, and the outside crew watches for the dye in the storm sewer and sanitary sewer, recording the presence or absence of the dye.

The test can be relatively quick (about 30 minutes per test), effective (results are usually definitive), and inexpensive. Dye testing is best used when the likely source of an illicit discharge has been narrowed down to a few specific houses or businesses.

7.4.4 CCTV / Video Inspection

Another method of source isolation involves the use of mobile video cameras that are guided remotely through stormwater drain lines to observe possible illicit discharges. IDDE program staff can review the videos and note any visible illicit discharges. While this tool is both effective and usually definitive, it can be costly and time consuming when compared to other source isolation techniques.

7.4.5 Optical Brightener Monitoring

Optical brighteners are fluorescent dyes that are used in detergents and paper products to enhance their appearance. The presence of optical brighteners in surface waters or dry weather discharges suggests there is a possible illicit discharge or insufficient removal through adsorption in nearby septic systems or wastewater treatment. Optical brightener monitoring can be done in two ways. The most common, and least expensive, methodology involves placing a cotton pad in a wire cage and securing it in a pipe, manhole, catch basin, or inlet to capture intermittent dry weather flows. The pad is retrieved at a later date and placed under UV light to determine the presence/absence of brighteners during the

monitoring period. A second methodology uses handheld fluorometers to detect optical brighteners in water sample collected from outfalls or ambient surface waters. Use of a fluorometer, while more quantitative, is typically more costly and is not as effective at isolating intermittent discharges as other source isolation techniques.

7.5 Illicit Discharge Removal

When the specific source of an illicit discharge is identified, the Town of Seekonk will exercise its authority as necessary to require its removal. The annual report will include the status of IDDE investigation and removal activities including the following information for each confirmed source:

- The location of the discharge and its source(s)
- A description of the discharge
- The method of discovery
- Date of discovery
- Date of elimination, mitigation or enforcement action OR planned corrective measures and a schedule for completing the illicit discharge removal
- Estimate of the volume of flow removed.

7.5.1 Confirmatory Outfall Screening

Within one (1) year of removal of all identified illicit discharges within a catchment area, confirmatory outfall or interconnection screening will be conducted. The confirmatory screening will be conducted in dry weather unless System Vulnerability Factors have been identified, in which case both dry weather and wet weather confirmatory screening will be conducted. If confirmatory screening indicates evidence of additional illicit discharges, the catchment will be scheduled for additional investigation.

7.6 Ongoing Screening

Upon completion of all catchment investigations and illicit discharge removal and confirmation (if necessary), each outfall or interconnection will be re-prioritized for screening and scheduled for ongoing screening once every five (5) years. Ongoing screening will consist of dry weather screening and sampling consistent with the procedures described in **Section 6** of this plan. Ongoing wet weather screening and sampling will also be conducted at outfalls where wet weather screening was required due to System Vulnerability Factors and will be conducted in accordance with the procedures described in **Section 7.3**. All sampling results will be reported in the annual report

8 Training

All employees participating in the IDDE program will complete annual IDDE training. This training will at a minimum include information on how to identify illicit discharges and SSOs and may also include additional training specific to the functions of particular personnel and their function within the framework of the IDDE program. Training records will be maintained in **Appendix E**. The frequency and type of training will be included in the annual report.

9 Progress Reporting

The progress and success of the IDDE program will be evaluated on an annual basis. The evaluation will be documented in the annual report and will include the following indicators of program progress:

- Number of SSOs and illicit discharges identified and removed
- Number and percent of total outfall catchments served by the MS4 evaluated using the catchment investigation procedure
- Number of dry weather outfall inspections/screenings
- Number of wet weather outfall inspections/sampling events
- Number of enforcement notices issued
- All dry weather and wet weather screening and sampling results
- Estimate of the volume of sewage removed, as applicable
- Number of employees trained annually.

The success of the IDDE program will be measured by the IDDE activities completed within the required permit timelines.

Appendix A

Legal Authority – IDDE Bylaw

Category 20A – Illicit Connections and Discharges to the Storm Drain System

SEEKONK | Massachusetts

Town By-Laws

adopted at May 14, 2018

Spring Town Meeting

effective August 27, 2018

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5. The Board of Selectmen may promulgate rules and regulations stated in the permit which are necessary to administer this By-Law, after conducting a public hearing.

Fees

The Board of Selectmen shall establish permit fees in accordance with Category 5B Departmental Fees.

Any individual who violates this By-law shall be subject to fines in accordance with Category 39 of the By-law and the fine schedule established in Attachment A.

CATEGORY 19 – Depositing Snow on Town Streets and Mandatory Parking Ban

No person other than an employee in the service of the Town or an employee in the service of a private contractor acting on behalf of the Town shall pile, push, plow, dump, blow, shovel, or deposit snow, ice, or water subject to freezing onto, into, or across any public way, including sidewalks, or cause, direct, sanction, or authorize any such activity involving snow, ice, or water subject to freezing on a public way, including sidewalks.

Snow shall not be pushed, dumped or plowed across any public street. Snow pushed, plowed or dumped across the street from a driveway or private way and left along the edge of road creates a safety concern to Town plow operators and the motoring public.

There shall be no on-street parking during any snowstorm where snow accumulation is expected to reach three (3) inches of snow or more, as predicted by the national weather service. The parking ban shall remain in effect twenty-four (24) hours after the conclusion of the storm.

Snow, ice, or water subject to freezing placed on any public ways, including sidewalks may not remain on public ways. It shall be the responsibility of the property owner to immediately remove the snow, ice or water and to do so in such a manner that it does not create a hazardous condition to motorists, pedestrians, or Town plow operators. Failure to do so shall result in additional fines for each day that the violation exists.

It is the responsibility of the property owner to inform the hired contractor or tenant of this By-law. Fines shall be applicable to the property owner, tenant, and/or hired contractor as the Town deems appropriate.

CATEGORY 20 – Water Discharge

No person shall pump, drain or discharge water or cause to be pumped, drained or discharged upon any street or other public place in the Town of Seekonk without receiving prior written approval from the Superintendent of Public Works restricting the time and manner of said discharge. Under no circumstances shall said discharge cause a public inconvenience or interfere with the safety of the public. It shall be the property owner's responsibility to immediately address any discharge that causes a public inconvenience or interferes with the safety of the public, with the exception of natural flow of water from properties at a higher elevation to properties at lower elevations.

However, in the case of pumping ground water due to infiltration of a residential dwelling, the homeowner and the Superintendent of Public Works, and/or the Town Engineer shall try to establish recommendations to resolve the situation in the best interest of both parties. If it is determined that a recommendation is not easily determined by the Superintendent of Public Works, and/or the Town Engineer, the homeowner may be required to resolve the situation by hiring outside services at the homeowner's expense. The Penalties for discharging ground water from a residence onto a street or other public place that does not cause a public inconvenience or interfere with the safety of the public shall be enforced if the residential owner, upon meeting with the Superintendent of Public Works and/or the Town Engineer refuses to cooperate and enact any reasonable and viable solution recommended by the Superintendent of Public Works and/or the Town Engineer; or in the event that outside services are required, that the recommendations of the outside services are refused.

CATEGORY 20A – Illicit Connections and Discharges to the Storm Drain System

Section 1 – Purpose and Authority

The purpose of this By-law is to regulate illicit connections and discharges to the storm drain system, which is necessary for the protection of Seekonk's water bodies and groundwater, and to safeguard the public health, safety, welfare and the environment.

The objectives of this By-law are:

1. To prevent pollutants from entering Seekonk's municipal separate storm sewer system. (MS4);
2. To prohibit illicit connections and unauthorized discharges to the MS4;
3. To require the removal of all such illicit connections;
4. To comply with state and federal statutes and regulations relating to storm water discharges;
5. To establish the legal authority to ensure compliance with the provisions of this by-law through inspection, monitoring, and enforcement.
6. To prevent contamination of drinking water supplies.

Section 2 – Authority

The Board of Health and Department of Public Works shall administer, implement and enforce this By-law. Any powers granted to or duties imposed upon the Board of Health or the Department of Public Works may be delegated in writing to employees or agents by the Board of Health or the Department of Public Works.

Definitions

For the purposes of this by-law, the following shall mean:

“Authorized Enforcement Agency”: The Board of Health or the Department of Public Works, its employees or agents designated to enforce this by-law.

“Best Management Practice (BMP)”: An activity, procedure, restraint, or structural improvement that helps to reduce the quantity or improve the quality of storm water runoff.

“Clean Water Act”: The Federal Water Pollution Control Act (33 U.S.C. s 1251 et seq.) As hereafter amended.

“Discharge of Pollutants”: The addition from any source of any pollutant or combination of pollutants into storm drain systems or into the waters of the United States or Commonwealth from any source.

“Groundwater”: All water beneath the surface of the ground.

“Illegal Discharge”: Any direct or indirect non-storm water discharge to storm drain systems, except as specifically exempted in Section 6. The term does not include a discharge in compliance with an NPDES Storm Water Discharge Permit or resulting from firefighting activities exempted pursuant to Section 6, subsection 4, of this ordinance.

“Illicit Connection”: Any surface or subsurface drain or conveyance, which allows an illegal discharge into storm drain systems. Illicit connections include conveyances which allow a non-stormwater discharge to storm drain systems including sewage, processed wastewater or wash water and any connections from indoor drains, sinks, or toilets, regardless of whether said connection was previously allowed, permitted, or approved before the effective date of this ordinance.

“Impervious Surface”: Any material or structure on or above the ground that prevents water from infiltrating the underlying soil.

“Municipal separate storm sewer system (MS4) or municipal storm drain system”: The system of conveyances designed or used for collecting or conveying storm water, including any road with a drainage system, street, gutter, curb, inlet, piped storm drain, pumping facility, retention or detention basin, natural or man-made or altered drainage channel, reservoir, and other drainage structure that together comprise the storm drainage system owned or operated by the Town of Seekonk.

“National Pollutant Discharge Elimination System (NPDES) Storm Water Discharge Permit”: A permit issued by the United States Environmental Protection Agency or jointly with the State that authorizes the discharge of pollutants to waters of the United States.

“Non-Storm Water Discharge”: Any discharge to the storm drain systems not composed entirely of storm water.

“Person”: Any individual, partnership, association, firm, company, trust, corporation, and any agency, authority, and department, to the extent permitted by law, and any officer, employee, or agent of such person.

“Pollutant”: Any element or property of sewage, agricultural, industrial or commercial waste, runoff, leachate, heated effluent, or other matter whether originating at a point or non-point source, that is or may be introduced into any sewage treatment works or waters of the Commonwealth. Pollutants shall include:

1. Paints, varnishes, and solvents;
2. Oil and other automotive fluids;
3. Non-hazardous liquid and solid wastes and yard wastes;
4. Refuse, rubbish, garbage, litter, or other discarded or abandoned objects, ordinances, accumulations and floatables;
5. Pesticides, herbicides, and fertilizers;
6. Hazardous materials and wastes; sewage, fecal coliform and pathogens;
7. Dissolved and particulate metals;
8. Animal wastes;
9. Rock; sand; salt; soils;
10. Construction wastes and residues;
11. And noxious or offensive matter of any kind.

“Process Wastewater”: means any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any material, intermediate product, finished product, or waste product.

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

“Storm water”: Runoff from precipitation or snow melts.

“Storm Drain System”: The system of conveyances designed or used for collecting or conveying storm water, including any road with a drainage system, street, gutter, curb, inlet, piped storm drain, pumping facility, retention or detention basin, natural or man-made or altered drainage channel, reservoir, and other drainage structure that together comprise the storm drainage system on public or private ways within the Town of Seekonk.

“Toxic or Hazardous Material or Waste”: Any material, which because of its quantity, concentration, chemical, corrosive, flammable, reactive, toxic, infectious or radioactive characteristics, either separately or in combination with any substance or substances, constitutes a present or potential threat to human health, safety, welfare, or to the environment. Toxic or hazardous materials include any synthetic organic chemical, petroleum product, heavy metal, radioactive or infectious waste, acid and alkali, and any substance defined as Toxic or Hazardous under G.L. Ch.21C and Ch.21E, and the regulations at 310 CMR 30.000 and 310 CMR 40.000.

“Uncontaminated”: Water containing no pollutants.

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

“Waters of the Commonwealth”: All waters within the jurisdiction of the Commonwealth, including, without limitation, rivers, streams, lakes, ponds, springs, impoundments, estuaries, wetlands, coastal waters, and groundwater.

“Wastewater”: Any sanitary waste, sludge, or septic tank or cesspool overflow, and water that during manufacturing, cleaning or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct or waste product.

Section 3 – Applicability

This By-law shall apply to flows entering the municipally owned storm water and drainage system on public or private ways within the Town of Seekonk.

Section 4 – Regulations

The Board of Health or the Department of Public Works may promulgate rules, regulations and a permitting process to effectuate the purposes of this by-law. Failure by the Board of Health or the Department of Public Works to promulgate such rules and regulations shall not have the effect of suspending or invalidating this by-law.

A. Remediation of Illicit Connections

1. If an illicit connection is found to be from a septic system or other septic waste sources; remediation must commence within forty-eight hours (48) and be completed in seven (7) days.
2. If an illicit connection is found to be from a gray water source such as washing machine water, a sink or a similar discharge, remediation must begin within forty-eight hours (48) and be completed within seven (7) days.
3. If an illicit connection is found to be from a sump pump or similar discharge, the property owner must eliminate the connection, acquire the proper permit, conform to other requirements stated herein, and remediation completed in ninety (90) days.
4. A control manhole shall be installed at the property line before water is discharged into a catch basin or waterway. The manhole will also have a Tee connector installed vertically to act as an oil water separator. A light weight cover shall be provided to allow access for inspection purposes.

All cost associated with corrective measures are the sole responsibility of the homeowner.

Section 5 – Prohibited Activities

1. **Illegal Discharges**
No person shall dump, discharge, cause or allow to be discharged any pollutant or non-storm water discharge into storm drain systems, watercourse, or into the waters of the Commonwealth.
2. **Illicit Connections**
No person shall construct, use, allow, maintain or continue any illicit connection to storm drain systems, regardless of whether the connection was permissible under applicable law, regulation or custom at the time of connection.
3. **Obstruction of Storm Drain Systems**
No person shall obstruct or interfere with the normal flow of storm water into or out of storm drain systems without prior approval from the Board of Health or the Department of Public Works or its designated agent.
4. **Exemptions**
This by-law shall not apply to any of the following non-storm water discharges or flows provided that the source is not a significant contributor of a pollutant to storm drain systems and further provided that such discharge does not result in icing conditions.
 - A. Municipal waterline flushing;
 - B. Discharges from landscape irrigation or lawn watering;
 - C. Water from individual residential car washing and temporary fund-raising car wash events.
 - D. Discharges from de-chlorinated swimming pool water provided it is allowed to stand for one week prior to draining, or tested for chlorine levels with a pool test kit prior to draining (less than one parts per million chlorine), and the pool is drained in such a way as not to cause a nuisance;
 - E. Discharges from street sweepers of minor amounts of water during operations;
 - F. Discharges or flows resulting from firefighting activities;
 - G. Non- storm water discharges permitted under a NPDES permit, waiver, or waste discharge order administered under the authority of the United States Environmental Protection Agency, provided that the discharge is in full compliance with the requirements of the permit, waiver, or order and applicable laws and regulations.
5. **Exemptions with Permit from Board of Health or the Department of Public Works.**
This by-law shall not apply to any of the following non-storm water discharges or flows provided that the source is not a significant contributor of a pollutant to storm drain systems, provided that a permit is approved by the Board of Health or the Department of Public Works.
 - A. Flows from potable water sources;

- B. Springs;
- C. Natural flows from riparian habitats and wetlands;
- D. Diverted stream flows;
- E. Rising ground water;
- F. Uncontaminated ground water infiltration as defined in 40 CFR 35.2005 (20), or uncontaminated pumped groundwater.
- G. Uncontaminated groundwater discharge from a sump pump, with approved spill containment area for oil tanks, a containment area surrounding sump pump basins and a permit from the Board of Health or the Department of Public Works, in accordance with Section 5;
- H. Water from exterior foundation drains, footing drains (not including active ground water dewatering systems, such as dewatering excavations for foundation or pipelines), crawl space pumps, or air conditioning condensation;
- I. Dye testing, provided verbal notification is given to the Board of Health or the Department of Public Works prior to the time of the test.

The Board of Health or the Department of Public Works shall develop criteria for issuing permits under this section, based on the need to maintain capacity of the storm drain system and to protect public health, safety, welfare or the environment.

Section 6 – Suspension of Storm Drainage System Access

1. The Board of Health or the Department of Public Works may suspend storm drain system access to any person or property without prior written notice when such suspension is necessary to stop an actual or threatened illegal discharge that presents or may present imminent risk of harm to the public health, safety, welfare or the environment. In the event any person fails to comply with an emergency suspension order, the Authorized Enforcement Agency may take all reasonable steps to prevent or minimize harm to the public health, safety, welfare or the environment.
2. Any person discharging to a municipal storm drain system in violation of this By-law may have their storm drain system access terminated if such termination would abate or reduce an illicit discharge. The Board of Health or the Department of Public Works will notify a violator of the proposed termination of storm drain system access. The violator may petition the Board of Health or the Department of Public Works for reconsideration and hearing. A person commits an offense if the person reinstates storm drain system access to premises terminated pursuant to this section, without prior approval from the Board of Health or the Department of Public Works.

Section 7 – Notification of Spills

Not with standing any other requirements of local, state or federal law, as soon as any person responsible for a facility or operation, or responsible for emergency response for a facility or operation has information of any known or suspected release of materials at that facility operation which is resulting or may result in illegal discharge of pollutants that person shall take all necessary steps to ensure containment, and cleanup of the release. In the event of a release of oil or hazardous materials, the person shall immediately notify the municipal fire and police department, Department of Public Works and Board of Health. In the event of a release of non-hazardous material, said person shall notify the Authorized Enforcement Agency no later than the next business day.

Written confirmation of all telephone, facsimile or in person notifications shall be provided to the Authorized Enforcement Agency within three business days thereafter. If the discharge of prohibited materials is from a commercial or industrial facility, the facility owner or operator of the facility shall retain on-site a written record of the discharge and the actions taken to prevent its recurrence. Such records shall be retained for at least three years.

Section 8 – Enforcement

1. Regulatory Controls
The Board of Health, the Department of Public Works or its authorized agent shall enforce this by-law, and the regulations promulgated there under, as well as the terms and conditions of all permits, notices, and orders, and may pursue all civil and criminal remedies for such violations.

2. Civil Relief

If anyone violates the provisions of this by-law, regulations, permit, notice, or order issued there under, the Board of Health or the Department of Public Works shall issue a stop work order to restrain the person from activities which would create further violations or compelling the person to abate or remediate the violation.

3. Orders

The Board of Health or the Department of Public Works may issue a written order to enforce the provisions of this by-law or the regulations there under, which may include:

- A. elimination of illicit connections or discharges to the storm drainage system;
- B. termination of access to the storm drainage,
- C. performance of monitoring, analysis, and reporting;
- D. cessation of unlawful discharges, practices, or operations; and
- E. remediation of contamination in connection therewith.

If the Board of Health or the Department of Public Works determines that abatement or remediation of contamination is required, the order shall set forth a deadline for completion of the abatement or remediation. Said order shall further advise that, should the violator or property owner fail to abate or perform remediation within the specified deadline, the town may, at its option, undertake such work, and expenses thereof shall be charged to the violator or property owner. Within thirty (30) days after completing all measures necessary to abate the violation or to perform remediation, the violator and the property owner will be notified of the costs incurred by the town, including administrative costs. The violator or property owner may file a written protest objecting to the amount or basis of costs with the Board of Health or the Department of Public Works within thirty (30) days of receipt of the notification of the costs incurred. Pursuant to G.L. Ch. 40, § 58, the Town is hereby authorized to impose and record a municipal charges lien on the property for any costs that have not been paid to the Town by the applicable due date, and unpaid charges shall be added to the tax on the property, in the manner provided in said statute. Interest shall begin to accrue on any unpaid costs at the statutory rate provided in G.L. c.59, §57 after the thirtieth (30) day at which the costs first become due.

4. Criminal and Civil Penalties

Any individual who violates this By-law shall be subject to fines in accordance with Category 39 of the By-law and the fine schedule established in Attachment A.

5. Non-Criminal Disposition

As an alternative to criminal prosecution or civil action, the Town of Seekonk may elect to utilize the non-criminal disposition procedure set forth in G.L. Chapter 40, s 21D. The Board of Health or the Department of Public Works shall be the enforcing entity.

6. Entry to Perform Duties Under this By-Law

To the extent permitted by state law, or if authorized by the owner or other party in control of the property, the Board of Health, the Department of Public Works, its agents, or officers, and employees may enter upon privately owned property for the purpose of performing their duties under this by-law and regulations and may make or cause to be made such examinations, surveys or sampling as the Board of Health or the Department of Public Works deems reasonably necessary.

7. Appeals

The decisions or orders of the Board of Health or the Department of Public Works shall be final. Further relief shall be to a court of competent jurisdiction.

8. Remedies Not Exclusive

The remedies listed in this by-law are not exclusive of any other remedies available under any applicable federal, state or local law.

Section 9 – Severability

If any provision, paragraph, sentence, or clause, of this by-law shall be held invalid for any reason, all other provisions shall continue in full force and effect.

Section 10 – Transitional Provision

Residential property owners shall comply with this by-law on a schedule set forth in the Board of Health and Department of Public Works compliance order, but such property owners shall in no case have more than six months from the effective date of the by-law to comply with its provisions, unless good cause is shown for the failure to comply with the by-law during that period.

CATEGORY 20B – Stormwater Management; Construction Erosion and Sedimentation Control

Section 1 – Purpose

The purpose of this bylaw is to eliminate or reduce the harmful impacts of soil erosion and sedimentation on the public health, safety, and welfare, and the environment by prohibiting increase in sediment-laden runoff from land-disturbing activities and by prohibiting stream bank erosion along bodies of water. This bylaw regulates activities with potential for such impacts by requiring erosion and sedimentation control plans and pre-activity review. By implementing the controls in this bylaw, and in regulations promulgated pursuant to this bylaw, erosion and sediment shall be controlled so as to protect water quality, flood storage, stream flow, wildlife habitat, aquatic resources, and public safety.

- A. The harmful impacts of soil erosion and sedimentation are:
 - 1. impairment of water quality and flow in lakes, ponds, streams, rivers, wetlands and groundwater;
 - 2. contamination of drinking water supplies;
 - 3. alteration or destruction of aquatic and wildlife habitat; flooding; and,
 - 4. overloading or clogging of municipal catch basins and storm drainage systems.
- B. The objectives of this bylaw are to:
 - 1. protect water resources;
 - 2. require practices that eliminate soil erosion and sedimentation and control the volume and rate of stormwater runoff resulting from land disturbance activities;
 - 3. promote infiltration and the recharge of groundwater;
 - 4. ensure that soil erosion and sedimentation control measures and stormwater runoff control practices are incorporated into the site planning and design process and are implemented and maintained;
 - 5. require practices to control waste such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site that may cause adverse impacts to water quality;
 - 6. comply with state and federal statutes and regulations relating to stormwater discharges; and,
 - 7. establish the Town of Seekonk's legal authority to ensure compliance with the provisions of this by-law through inspection, monitoring, and enforcement.

Section 2 – Definitions

ABUTTER: The owner(s) of land abutting the activity.

AGRICULTURE: The normal maintenance or improvement of land in agricultural or aquacultural use, as defined by the Massachusetts Wetlands Protection Act and its implementing regulations.

APPLICANT: Any person, individual, partnership, association, firm, company, corporation, trust, authority, agency, department, or political subdivision, of the Commonwealth or the Federal government to the extent permitted by law requesting approval of an soil erosion and sediment control plan for proposed land-disturbance activity.

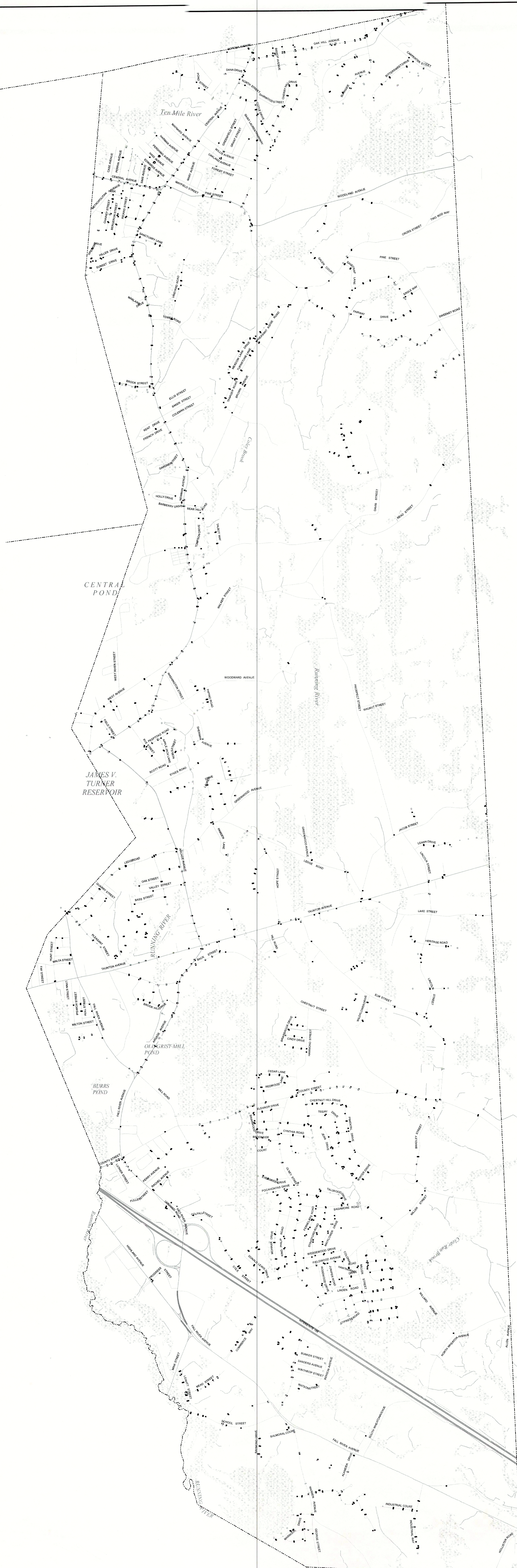
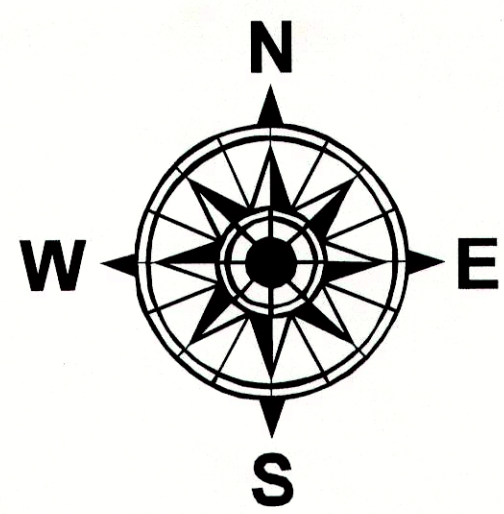
AUTHORIZED ENFORCEMENT AGENCY: The Planning Board, its employees or agents designated to administer, implement and enforce this by-law.

CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL (CPESC): A certified specialist in soil erosion and sediment control. This certification program, sponsored by the Soil and Water Conservation Society in cooperation with the American Society of Agronomy, provides the public with evidence of professional qualifications.

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

Appendix B

MS4 Mapping



Legend

----- Town Boundaries

Stormwater

- Outfall
- Drain Manhole
- Catch Basin

Basemap

Roads (By Classification)

- Limited Access Highway
- Multi-lane Hwy, not limited access
- Other Numbered Highway
- Major Road, Collector
- Minor Road, Arterial

DEP Wetlands (1:12,000)

- Hydrologic Connection
- Marsh/Bog
- Wooded marsh
- Salt Marsh
- Open Water
- Regulated Area 2000 (Urbanized Area)
Based on 2000 Census Bureau data

Data Source:
GPS Data acquired by Weston & Sampson using a Trimble ProXH GPS Receiver
Basemap data provided courtesy of the Office of Geographic and Environmental Information (MassGIS), Commonwealth of Massachusetts Executive Office of Environmental Affairs



FIGURE 1	
TOWN OF SEEKONK, MASSACHUSETTS	
PHASE II STORMWATER	
STORMWATER STRUCTURE	
MAPPING STATUS	
AUGUST, 2010	SCALE: NOTED
Weston & Sampson	

Appendix C

Forms, Sample Labels, and Chain of Custody Forms

Appendix D

Water Quality Analysis Instructions, User's Manuals and Standard Operating Procedures

Appendix E

IDDE Employee Training Record

Appendix F

Source Isolation and Confirmation Methods: Instructions, Manuals, and SOPs