# Illicit Discharge Detection and Elimination Program Manual

**Town of Bloomfield**
January 2019

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# 1. INTRODUCTION

The U.S. Environmental Protection Agency (EPA) established the National Pollutant Discharge Elimination System (NPDES) program as part of the Clean Water Act to regulate discharges to surface water. In Connecticut, the Department of Energy and Environmental Protection (DEEP) is the permitting authority that regulates stormwater runoff that enters local waterbodies through Municipal Separate Storm Sewer Systems (MS4s) in "Urbanized Areas." This Illicit Discharge Detection and Elimination (IDDE) Plan (the Plan) has been developed per DEEP's requirements for Phase II MS4 communities to develop a program to detect and eliminate illicit discharges.

The Town of Bloomfield, Connecticut (the Town) is required to obtain a permit for stormwater discharges from DEEP and is currently covered under a NPDES General Permit. The NPDES General Permit for Storm Water Discharges from Small MS4s (the "General Permit") authorizes the Town to discharge stormwater per their Stormwater Management Plan (SWMP). In accordance with the General Permit, the SWMP consists of six components called minimum control measures which, when implemented, should result in a reduction in pollutants discharging into receiving waters. The minimum control measures are:

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.

The Plan described herein will partially satisfy the requirements of the third minimum control measure.

The Town is committed to working with residents and state and federal environmental agencies to achieve water quality goals and protect public health. With assistance provided by Woodard & Curran Consultants, the Town has established this Plan to outline procedures, goals, standard operating procedures, and workflow processes.

On June 25, 2018, the Bloomfield Town Council adopted a revised Storm Drainage Ordinance ("BSDO") and associated Stormwater Management Regulations ("BSMR") to be in compliance with the General Permit. The BSDO and BSMR set forth authority, regulatory, and enforcement provisions under which this Plan is adopted and implemented.

This Plan is a working document and will be revised as necessary. The Plan includes or references legal authority, statement of responsibilities, assessment and priority ranking of investigation areas, stormwater discharge outfall screening and sampling, removal and confirmation, follow-up screening, prevention procedures, and training.

The Authorized Enforcement Agent, defined in the BSMR, manages the IDDE program with primary support from the West Hartford-Bloomfield Health District, the Metropolitan District Hartford, Connecticut (MDC), and other municipal departments.

## 1.1 PLAN APPLICABILITY

This Plan is to be implemented town wide.

## 1.2 WHAT IS AN ILLICIT DISCHARGE?

The General Permit defines an illicit discharge as "any unpermitted discharge to waters of the state that does not consist entirely of stormwater or uncontaminated ground water except those discharges identified in Section 3(a)(2) of this general permit when such non-stormwater discharges are not significant contributors of pollution to a discharge from an identified MS4". The above exceptions are also included in Sec. 1-18 of the BSMR. Under the BSDO and BSMR illicit discharges are a subset of what is termed "illegal discharges". For purposes of this plan, the term "illicit discharge" means an illegal discharge under the BSDO and BSMR.

Illicit discharges can enter the drainage system via direct connections or indirect discharges, which are defined as follows:

- Direct Connection: any non-stormwater pipe connected to the storm drain system, such as pipe from a washing machine or floor drain, or a sewer service connection from a house. Often, these types of discharges are continuous.
- Indirect Discharge: include a wide variety of sources, such as sanitary sewer overflows (SSO's), infiltration into the drainage system from failed septic systems or leaking sewer collection system, or hazardous waste spills collected by catch basins. Grass clippings, leaf litter, and other solid material dumped or otherwise deposited in the storm drain system are also considered indirect illicit discharges. These are commonly intermittent or transitory discharges.

## 1.3 SIGNIFICANCE OF ILLICIT DISCHARGE

Illicit discharges are not permitted under the General Permit or the BSDO and BSMR; and can result in violations and fines for MS4 operators. Additionally, illicit discharges contribute elevated levels of pollutants to surface waterbodies and can potentially contaminate groundwater. When these pollutants enter waterbodies, they can contaminate drinking water supplies, create public safety concerns, hinder recreational activities, and harm wildlife habitats.

## 1.4 DEEP'S REQUIREMENTS FOR MUNICIPALITIES

The most current CTDEEP General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems was issued on January 20, 2016 and expires on June 30, 2022. A link to the CTDEEP web page to view or download this general permit is provided in Appendix A.

## 1.5 DISCHARGES TO IMPAIRED WATERWAYS

The General Permit includes additional requirements for MS4 discharges to any impaired waterway with or without an approved Total Maximum Daily Load (TMDL). EPA establishes TMDLs to limit the concentration of pollutants that are allowed to enter impaired waterways.

The Town of Bloomfield is located in the North Branch Park River, Farmington River, Mill Brook, and Connecticut River drainage basins. Table 1-1 outlines impaired waterbodies, identified in the 2016 Connecticut Integrated Water Quality Report (IWQR), within the Town of Bloomfield.

| TABLE 1<br>Water Quality Impairments<br>Bloomfield, CT | | | |
|---|---|---|---|
| Drainage Basin Number | Name | Surface Water Quality Classification | Impaired per Water Quality Standards |
| 4404-04 | North Branch Park | A | Yes |
| 4321-00 | Mill Brook | A | Yes |
| 4300-00 | Rainbow Reservoir | B | Yes |

Both Mill Brook and the North Branch Park River are impaired for bacteria and fall under the CT Statewide Bacteria TMDL. The Rainbow Reservoir is impaired due to hydrostructure modifications and does not require special management under the IDDE program.

MS4 system direct discharges to Mill Brook and to the North Branch Park River have been identified as high priority waters under the Town's IDDE prioritization program.

| TABLE 1<br>Direct Discharge MS4 Outfalls to<br>Impaired Waters - Bloomfield, CT | | |
|---|---|---|
| Outfall ID Number | Waterbody Name | 2016 IWQR ID |
| 14, 107, 239, 126, 20, 21, 38 | North Branch Park River | CT 4404-00_02 |
| 34, 825 | Mill Brook | CT4321-00_02 & CT4321-00_01 |

Note: Reissuance of the Connecticut Impaired Waters List may necessitate modifications to this Manual to maintain compliance with applicable requirements.

## 1.6 PURPOSE OF THIS PLAN

The purpose of this Plan is to establish a strategic, written program to address illicit discharges to the MS4 or to waters of the state in accordance with the requirements of the General Permit, as appended.

This Plan is intended to assist the Town of Bloomfield in implementing the IDDE Program in a prioritized and strategic way to detect and eliminate illicit discharges. The Plan will also assist the Town with documentation for work orders and provide a basis for identifying labor and capital improvement budgeting each year; it is to be used as a guide for IDDE activities and can also be used as a training tool for staff. Additionally, the Plan has considered and includes coordination with the MDC related to sanitary sewer surveys and prioritized sanitary sewer pipe renewal or replacement.

Note: Reissuance of a new MS4 Permit may necessitate modifications to this Manual to maintain compliance with applicable requirements.

# 2. STORM SEWER SYSTEM MAP

The Town has undergone efforts to map its outfalls and drainage system structures (catch basins, manholes, culverts, etc.) in a Geographic Information System (GIS). The Town of Bloomfield continues to refine and add to the storm sewer system GIS data that shows the location of all stormwater catch basins and connecting surface and subsurface infrastructure. The data is updated regularly to reflect the results of condition evaluations and includes infrastructure attribute information (e.g. size, type, etc.) and, where possible, depicts the direction of in-flow and out-flow pipes and the locations of all stormwater outfalls discharging to receiving waters or to an interconnected MS4 within the Urbanized Area, as stipulated in the General Permit. GIS mapping information is available at the Engineering Department.

**PLAN: System Mapping**

| | |
|---|---|
| **1. Update map (as needed)** | **Throughout General Permit term**, the Town, in association with the MDC, will continue to update and improve the map as necessary to reflect attribute information, corrections or modifications, and progress made. |

# 3. REGULATORY MECHANISM

## 3.1 ORDINANCE

The Town of Bloomfield has adopted the BSDO and BSMR to regulate non-stormwater and potential hazard-causing or environmentally degrading discharges to the storm drainage system, to prohibit obstructions which may interfere with the free discharge of floodwaters, and to comply with the requirements of the National Pollutant Discharge Elimination System ("NPDES") permit.

The Town of Bloomfield maintains compliance with the State Plumbing Code regarding plumbing connections, On-site Sewage Disposal regulations and the Connecticut Public Health Code Regulations which include legal authority for the Director of Health to enforce and abate the discharge of sewage that may constitute a public nuisance. Additionally, the Sewer Ordinances of the Metropolitan District regulate the discharge of sewage waste and provides additional enforcement authority under Section S2a Permissible and Non-Permissible Discharges.

The Health District administers the CT Public Health Code which prohibits illicit discharges and provides enforcement mechanisms for the abatement of illicit discharges.

## 3.2 RESPONSIBLE PARTIES

The Town's Engineering Department is designated to administer the IDDE program. Additional responsible parties are listed in Table 3-1 – *Responsible Parties for Implementing IDDE Program*.

**Table 3-1: Responsible Parties for Implementing IDDE Program**

| Primary Responsible Party | Responsibilities |
|---|---|
| Town Engineer | - Coordinates with the Health District, Building Department, and MDC<br>- Conducts investigations, screening, and sampling<br>- Reviews screening results and citizen complaints<br>- Conducts training<br>- Compiles annual documentation<br>- Coordinates and monitors abatement activities |
| The Metropolitan District Commission (sanitary sewer) | - Conducts abatement activities |
| Building Official | - Manages building inspections and code enforcement<br>- Collaborates on abatement activities (as needed) |
| Health District | - Administers Public Health Code regulations<br>- Collaborates on enforcement activities |
| Public Works | - Conducts opportunistic inspections<br>- Collaborates on outfall screening and investigation<br>- Assists with abatement (if DPW facility) |

# 4. ILLICIT DISCHARGE MONITORING PLAN

The following Monitoring Plan is based on prior efforts in the Town and considers new requirements as outlined in the 2016 MS4 General Permit. The Plan focuses on the detection of direct illicit discharges into the Town's MS4, and ultimately the waters of the United States, but will continue to address indirect illicit discharges when encountered. This Plan also emphasizes the importance of adequate employee training.

Properties in the Town utilize either public sanitary sewer connections or private septic systems for wastewater treatment. The Metropolitan District (MDC) provides sewer service within Bloomfield and is responsible for sewer collection system rehabilitation and maintenance. The Town of Bloomfield operates the stormwater drainage system. Potential sources of direct illicit discharges may include broken sewer lines discharging into storm drains, cross connection of sewer laterals to storm drains, straight pipe discharge of sewage, piped overflow from septic systems and washing machine or other gray water connections to the MS4.

This Plan outlines formalized procedures for opportunistic inspections as well as targeted outfall screening and sampling.

The Town of Bloomfield will apply the following strategy:

1. Utilize Town catch basin and ditch cleaning to conduct opportunistic inspections for illicit discharges. During infrastructure cleaning and maintenance, opportunistic inspections for illicit discharges will be conducted in accordance with the protocol outlined in Section 4.1.1 and the Standard Operating Procedure (SOP) in Appendix B.

2. Continue to support the MDC as they conduct sanitary sewer inspections and the Health District as they conduct septic system inspections as needed to maintain compliance with Public Health Code regulations, as outlined in Section 4.1.2.

3. Utilize outfall screening and sampling assessments described in Section 4.2 to conduct wet-weather and dry-weather sampling screening and/or verify that illicit discharges identified during opportunistic inspections have been eliminated.

4. Catchment areas will be prioritized using the factors outlined in Section 4.3. Catchment areas will be reassessed after one (1) year of IDDE implementation, to refine prioritization based on inspection and sampling results from additional interconnections and outfalls. Within five (5) years of IDDE Program implementation, classification of all catchment areas will be reevaluated based on new field information to identify appropriate next steps and updates to this Plan.

## 4.1 SYSTEM INSPECTION

### 4.1.1 Opportunistic Inspections

The Town's ongoing drainage system maintenance activities (e.g. catch basin cleaning, ditch cleaning and maintenance, pipe flushing, etc.) provide the best initial screening opportunity to document and identify potential illicit discharges on an ongoing basis. These activities allow trained staff to visually inspect numerous drainage structures for illicit connections.

Town staff and/or contractors will utilize the SOP for Illicit Discharge Opportunistic Inspections in Appendix B and conduct olfactory (odor) and visual inspections (color, turbidity, floatables, staining, and pipe benthic growth) consistent with Chapter 11 of the EPA / Center for Watershed Protection's Illicit Discharge Detection and Elimination: A Guidance

Manual for Program Development and Technical Assessments (2004) (Appendix A). Training related to illicit discharge detection procedures is outlined in Section 7.

### 4.1.2 Sanitary Sewer and Septic System Inspections

The Town's IDDE program relies on sanitary sewer and septic system inspections and maintenance to minimize and eliminate potential illicit sanitary waste discharges into the MS4. The MDC is the municipal corporation that provides wastewater collection to the Town, and the West Hartford-Bloomfield Health District is the primary regulatory authority for septic system siting, construction, and maintenance of on-site wastewater disposal systems. Contact information for both is provided below. Appendix A provides a link to a copy of the Connecticut Public Health Code regulations and technical standards for subsurface sewage disposal systems.

Under the authority of the MDC District Manager, scheduled or warranted sanitary sewer inspections and maintenance will be performed. Based on the findings of the inspections, further investigation or repair/rehabilitation will be performed as needed.

In general, on-site septic systems are required to be inspected when properties are sold, divided or combined, under a change in use or an expansion of a facility, or when an inspection is required by the Health District or DEEP. The owner or operator of the system is the legally responsible party required to upgrade a failing system. Inspections required in connection with a property transfer generally are good for two (2) years. If a property is sold more than once in the two (2) year period, the single inspection is valid for all transfers. When a system is pumped on an annual basis and the pumping records are available, an inspection is valid for three (3) years.

System inspections include:

- General layout of the system components (location of the building sewer, septic tank or cesspool, distribution box and leaching field);
- Type of use (e.g., house, school, retail space), design flow, and whether the facility is presently occupied;
- Water use records from the previous two (2) years, if available;
- A description of the septic tank, including its condition, approximate age, thickness of grease/scum layer, and other relevant information;
- A characterization of the distribution box and dosing tanks with pumps, if any, such as condition and evidence of solids carryover or backup; and the condition of the soil absorption system including, any signs of hydraulic failure.

| MDC Headquarters: | West Hartford-Bloomfield Health District Headquarters: |
|---|---|
| 555 Main Street | 580 Cottage Grove Road, Suite 100 |
| Hartford, CT 06142 | Bloomfield, CT 06002 |
| (860) 278-7850 | (860) 561-7900 |

### 4.1.3 Private Property Inspections

The Town's IDDE Plan also relies on opportunistic private property inspections to detect and eliminate potential illicit sanitary waste discharges into the MS4. The Town of Bloomfield Building Department is the primary regulatory authority for building and plumbing code compliance.

**PROPOSED PLAN: SOP for Opportunistic Inspections**

| | | |
|---|---|---|
| **1.** | **Detect Illicit Discharges** | The Town staff will continue to conduct opportunistic inspections to detect illicit discharges. Appendix B contains a copy of the Town's SOP for the Illicit Discharge Opportunistic Inspection Program. Town staff and/or contractor who conduct drainage system operations and maintenance are trained in olfactory and visual detection of illicit discharges in accordance with Chapter 11 of the Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments (2004) (Appendix A).<br><br>Sewer or septic malfunctions, which are reported to and investigated by the Health District or the MDC, may also lead to the discovery of illicit discharges. Illicit discharges will continue to be investigated and documented as part of the sewer or septic malfunction reporting process. |
| **2.** | **Record Keeping** | If an illicit discharge is identified, Town staff and/or contractors will alert the Authorized Enforcement Agent for further investigation. This correspondence will be traceable by calendar year. |
| **3.** | **Identify Additional Problem Areas** | Problem areas for indirect illicit discharges or dumping will be identified during drainage system maintenance activities. Problem areas will be noted using paper or CMMS work order and will be targeted for further investigation, potential enforcement activities, and catch basin stenciling in subsequent years. |

## 4.2 OUTFALL AND INTERCONNECTION INSPECTION

The Town's primary method for tracking and eliminating illicit discharges, not immediately identified via opportunistic or private property inspection, will be through outfall inspection (i.e. screening and sampling). For the purpose of this Plan, the term outfall may also refer to locations that discharge into neighboring communities or into adjacent MS4s and are called interconnections.

### 4.2.1 Screening

Outfall and interconnection inspections consist of screening and sampling. Screening includes a rapid visual and olfactory inspection consistent with Chapter 11 of the Center for Watershed Protection's Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments (2004), as appended. Inspections will be conducted by Town staff and/or with the assistance of a third party and are documented on an Outfall Reconnaissance Inventory/Sample Collection Field Sheet; see example form in Appendix C.

Both dry-weather and wet-weather screening may be necessary to identify outfalls and interconnections with illicit discharges. For the purposes of this Plan, dry-weather conditions consist of no more than 0.1 inches of rainfall in the previous 24-hour period and no significant snowmelt. Wet-weather consist of precipitation of sufficient depth or intensity to produce a stormwater discharge and shall be conducted during the spring (March to June) when groundwater levels are relatively high.

Base flow in stormwater drainage systems is common and can be present at any time of year due to shallow groundwater infiltration. Therefore, it is essential to conduct dry-weather outfall and interconnection screening investigations during periods when groundwater infiltration is minimal. Coordination with the MDC will be necessary to confirm that dry weather flows present are not the result of hydrant flushing.

### 4.2.2 Sampling

If flow is observed during screening, two (2) samples are collected from the outfall (or if the outfall is inaccessible, the nearest accessible upstream drainage structure) in accordance with EPA's Draft Bacterial Source Tracking Protocol (2012); a link is provided for reference in Appendix A. One (1) sample is analyzed in the field for ammonia, chlorine, surfactants, conductivity, and temperature; the other sample is submitted to a certified laboratory to be analyzed for Escherichia coli (E. coli). Benchmark concentrations, instrumentation, and analytical methods used for stormwater sampling are included in Table 4-1. In addition to the parameters indicated in Table 4-1, the samples shall also be analyzed for conductivity, salinity and temperature using a probe. If flow is not observed during screening, the non-flowing condition is noted on the Outfall Inspection Form and no sample is collected.

All sampling shall be conducted according to a Water Quality Sampling Plan detailing sample collection, preservation, and quality control requirements.

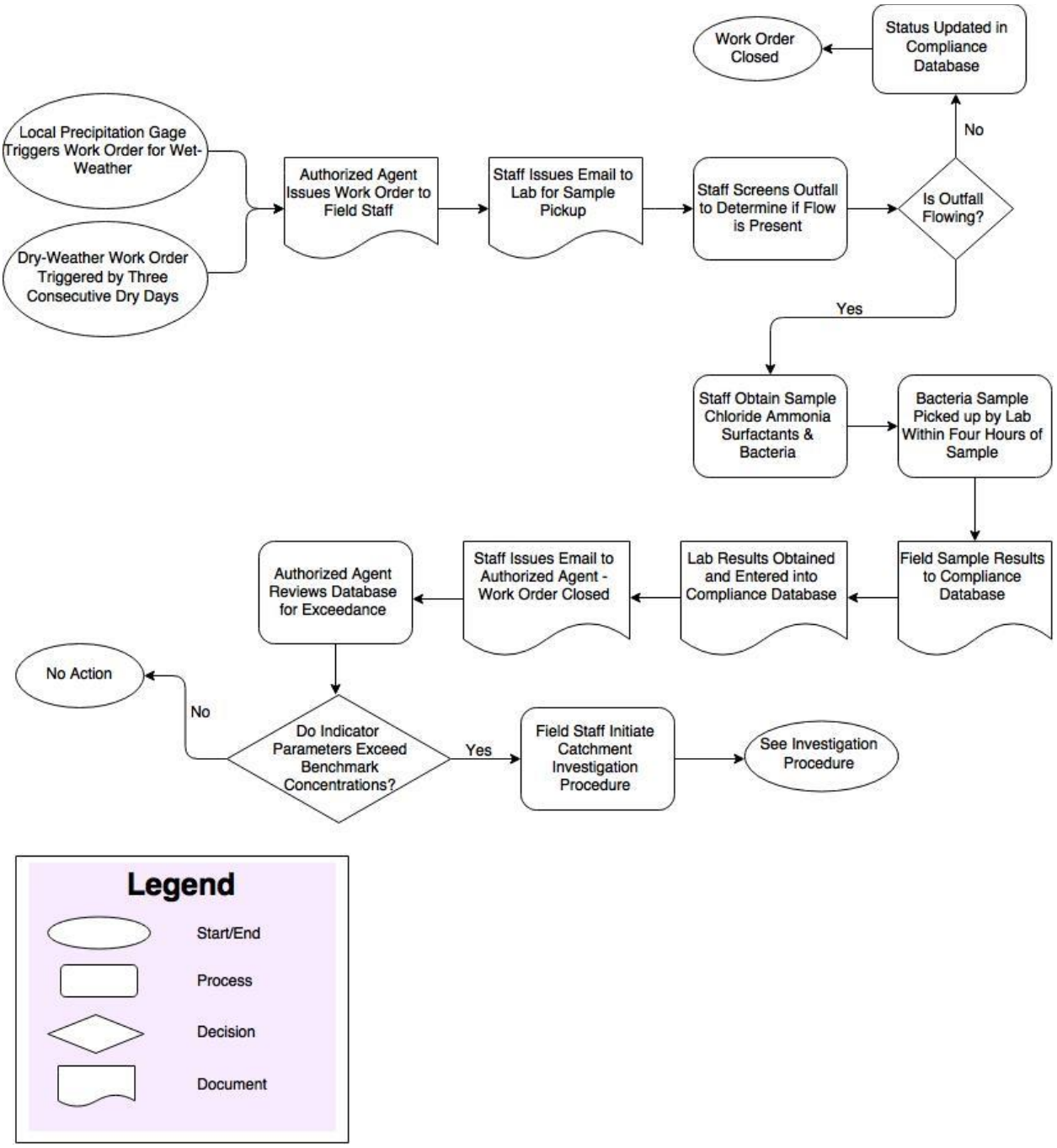
**Table 4-1 Sampling Guidelines for Water Quality Indicator Parameters[1]**

| Indicator Parameter | Benchmark Concentration | Instrumentation | Analytical Method |
|---|---|---|---|
| E. coli | 410 [2] cfu/100 mL | Via certified laboratory | 9223 B |
| Surfactants (as MBAS) | ≥ 0.25 mg/L | Field Kit | Methylene Blue |
| Ammonia ($NH_3$) | ≥ 0.5 mg/L | Field Kit | Direct Nesslerization |
| Total Chlorine | > 0.05 mg/L method detection limit | Field Kit | DPD |

A summary of the outfall monitoring workflow is shown in Figure 4-1.

[1] Adapted from EPA's Draft Bacterial Source Tracking Protocol (2012)
[2] Non-Designated Swimming

## Figure 4-1 Outfall Monitoring – Workflow Process



| PROPOPSED PLAN: Conduct Target Outfall Inspections | | |
|---|---|---|
| 1. | **Conduct Dry-Weather and Wet-Weather Outfall Inspections** | Dry-weather and wet-weather outfall and interconnection inspections will be conducted by Town staff with the assistance of a third-party contractor as necessary. A sample copy of The Town's Outfall Reconnaissance Inventory/Sample Collection Field Sheet Form has been included in Appendix C. MS4 outfalls with flow and of high-priority will be assessed each year based on priority score. |
| 2. | **Record Keeping** | If a potential illicit discharge is identified by the third-party contractor, the contractor will directly alert the Authorized Enforcement Agent via email. Town staff identifying potential illicit discharges will directly alert the Authorized Enforcement Agent of the need for further investigation. These correspondences will be traceable by calendar year. |
| 3. | **Identify Additional Problem Areas** | Problem areas for indirect illicit discharges or dumping will be identified during outfall inspection activities. Problem areas will be noted and will be targeted for catch basin stenciling, further investigation, or enforcement. During field inspections, crews should also note whether the outfalls have maintenance or structural issues, such as trash around the outfall or damaged infrastructure that should be considered for work and documented in work orders. Observed spills or environmental hazards should be immediately reported to the Authorized Enforcement Agent and the incident should be documented. |

## 4.3 CATCHMENT PRIORITIZATION

The Town has prioritized the catchments tributary to the primary MS4 outfalls and interconnections, allowing resources to be focused in areas with the most significant potential for illicit discharges. Catchments have been prioritized and classified as one of the following: Problem Catchments, High Priority Catchments, Low Priority Catchments, and Excluded Catchments,.

The following are EPA and CT DEEP definitions for each of the above categories:

- Problem Catchments: Catchments with known or suspected contributions of illicit discharges based on existing information.
- High Priority Catchments: Catchments that are discharging to an area of concern to public health due to proximity of public swimming areas, recreational areas, and/or drinking water supplies; TMDL or impaired waterbodies with bacteria is primary pollutant of concern or catchments determined by the permittee as high priority based on outfall screening.
- Low Priority Catchments: Catchments determined by the permittee as low priority based on outfall/interconnection inspections and/or the characteristics of the catchment.

- Excluded Catchments: Catchments 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.

The classification and prioritization of the catchments shall be based on the factors listed in the table included as Appendix D. Catchments will be reevaluated to refine categorizaton and priority ranking as new/additional information becomes available, such as through public reporting, inspections, or monitoring.

## 4.4 RECORD KEEPING

The Engineering Department shall keep all records associated with this Plan; and such records shall be available to the public by contacting the Engineering Department. Records to be kept shall include:

- ✓ Storm system discharges and interconnects.
- ✓ Storm system map.
- ✓ Inspection and monitoring results and findings.
- ✓ Reports of suspected illicit discharges and follow-up investigations and findings.
- ✓ Illicit discharge abatement activities.
- ✓ Disconnections from the system of directly connected impervious areas
- ✓ Training activities.
- ✓ System cleaning, maintenance, and improvement activities
- ✓ Operational good housekeeping activities and practice improvements.

Summaries of monitoring activities will be included in each MS4 Annual Report submitted to DEEP by April 1st and shall include:

- Laboratory data and field screening results;
- Dates and times screening and sampling events were conducted;
- Weather conditions both during each sample event, and in the twenty-four (24) hours prior to, each sampling event;
- An updated priority ranking of all catchment areas based on new field information (if applicable); and
- An updated map showing boundaries of all MS4 catchment areas (if applicable).

# 5. ILLICIT DISCHARGE INVESTIGATION PLAN

This section focuses on tracking and isolating the source(s) of illicit discharges into the Town's MS4 through systematic investigation of catchment areas consistent with the MS4 General Permit. Investigation procedures may vary depending on the nature of the illicit discharge potential. The following plan outlines the general components of investigation within the Town of Bloomfield, which are also illustrated in the workflow diagram in Figure 5-2. Note that when a direct connection is verified during opportunistic inspection or infrastructure assessment, several investigation steps will be bypassed to quickly eliminate the discharge.

## 5.1 CATCHMENT INVESTIGATION PROCEDURE

The Town will implement the following catchment investigation procedure in all catchments not defined in Section 4.3 as being Excluded Catchments, and proceed systematically from highest to lowest priority catchments. The potential for an illicit connection is evaluated based on a weight of evidence (WoE) assessment that incorporates both olfactory/visual evidence and sampling results. See Figure 5-1 for an overview of the use of sampling data for identification of potential sources of illicit discharges. In general, the catchment investigation procedure shall follow that set forth in A.7.(e) of Appendix B of the General Permit.

The MS4 General Permit requires that 40% of all catchment be investigated within 5 years from the permit effective date and 100% within 10 years. The Authorized Enforcement Agent will set a schedule to meet these requirements and initiate the investigation procedure, which can be conducted by trained field staff and/or a third-party contractor. The investigation of an illicit discharge may also be initiated by a public complaint as described in Section 6.3.

The investigation procedure includes the following implementation steps (for each catchment):

1. Conduct a preliminary review of catchment drainage plans, GIS mapping, and record plans to:

- Identify known System Vulnerability Factors. The existence of any System Vulnerability Factors, as defined in Appendix B (IDDE Program Protocol) of the MS4 General Permit, will obligate additional wet weather investigation in addition to the dry weather investigation; and,

- Identify key junction manholes (KJM) to be inspected in the dry weather investigation. The KJM shall be selected so as to ensure a thorough assessment of the system within the subject catchment. The direction of inspection of KJM will be determined for each catchment as deemed most appropriate; though, in general, it will be most efficient to work from upstream to downstream. When the direction has been determined, the order for KJM to be inspected shall be identified.

**Dry weather investigation:**

2. Following the KJM inspection order identified in (1) above, conduct a rapid visual and olfactory inspection of key junction manholes in the drainage area for evidence of flow or illicit connections (e.g. toilet paper or other typical sanitary solids, gray filamentous bacterial growth, staining).

    - When flow <u>is observed</u> in a junction manhole, use field kits to analyze samples for ammonia, chlorine, and surfactants and record results. Use a WoE approach to compare with the sampling thresholds shown in Table 4-1 to identify evidence of potential illicit connection(s).

    - When flow <u>is not observed</u> in a junction manhole, but there is evidence of possible dry weather flow, and not overwhelming visual or olfactory evidence of an illicit connection, (an example might be staining at the very invert of the pipe/shelf), partially block each inlet of the manhole using sandbags or other barriers for a twenty-four (24) hour dry period (i.e. when no precipitation or significant snowmelt is expected). Re-

inspect the junction manhole after forty-eight (48) hours for intermittent flows, and then sample any captured flow for ammonia, chlorine, and surfactants.

3. If evidence of illicit discharge is found and working in the upstream direction, then the investigation must continue to upstream KJM until each evidence of illicit discharge can be isolated to a single KJM; (if working in the downstream direction, this isolation will have occurred by design).

4. Once a KJM with evidence of an illicit discharge has been isolated, then the system mapping should be reviewed to identify all of the potential pipe/manhole subsystems that feed the subject KJM downstream of identified "clean" KJM's. From this review, an order of dry weather inspections of the manholes in the isolated subsystems should be determined, and carried out, with the goal of isolating individual pipe segments where the illicit discharge is likely occurring.

5. Once the likely illicit discharge has been isolated to a single pipe segment (or as few as possible), then additional investigations will be required to isolate the source(s) of pollutants. The particular investigations to be conducted, and in what order, will depend upon a number of factors. These investigations can include laboratory water quality testing, wet-weather and/or high groundwater investigation monitoring, CCTV pipe inspections, and targeted internal plumbing inspections including dye testing. Locations will be prioritized for further investigation based on a WoE determination of the likelihood of illicit discharge.

6. When illicit discharge locations are verified in association with a physical address or connection point, field staff will photograph the problem area at ground level, identify any other indicators of location, summarize likely remedy to the problem and forward this information, including any sampling results, to the Authorized Enforcement Agent via e-mail for initiation of the corrective action process described in the BSM$.

7. Upon determination of an illicit discharge to the system, the Authorized Enforcement Agent shall initiate enforcement per Article 4 of the BSMR. Enforcement actions may include: notice of violation, notice of failure to comply, suspension of connection, citation, and regulatory referral.

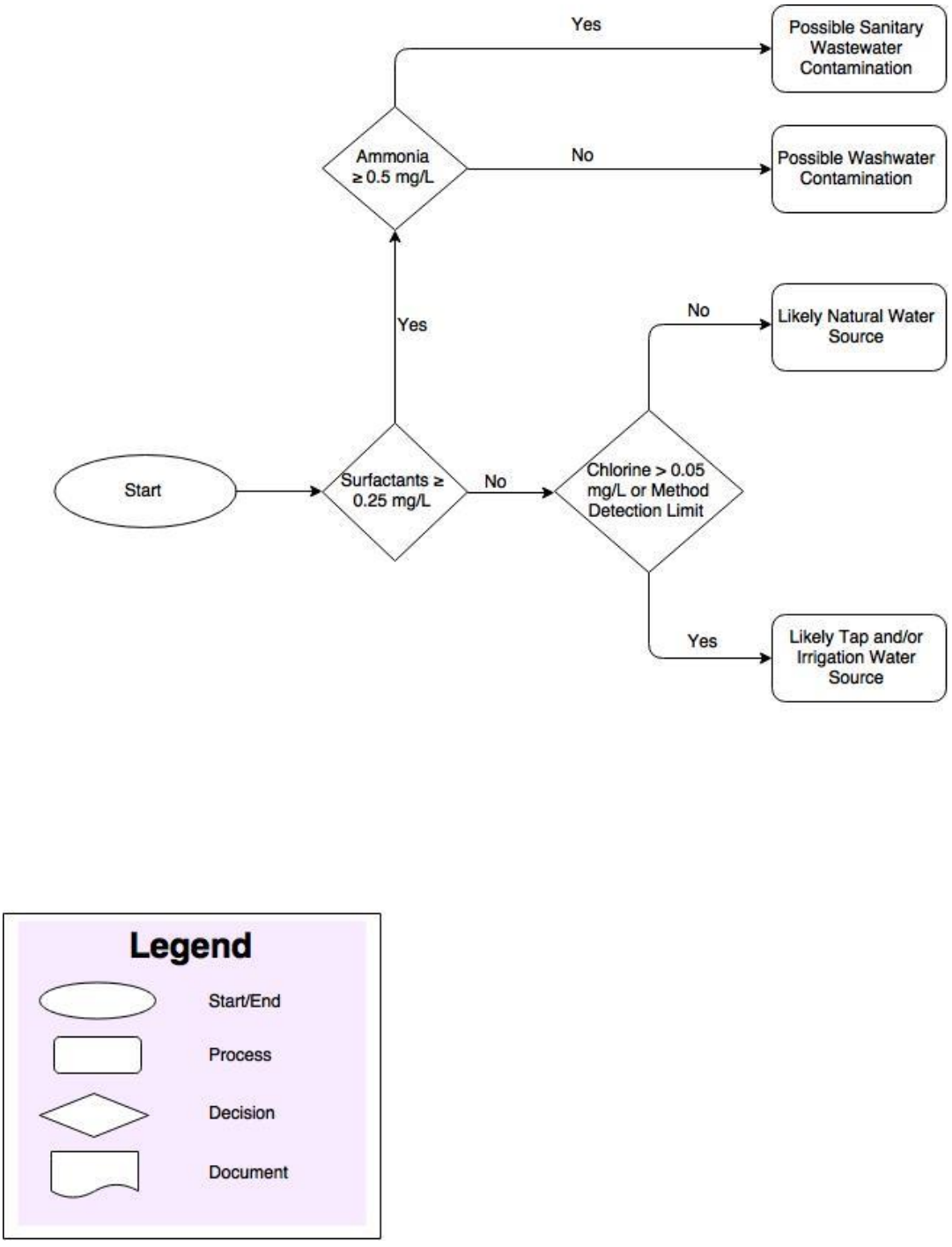
**Wet weather investigation:**

8. Where it is determined that wet-weather investigation is required/justified for a particular catchment, then at least one wet weather screening and sampling shall be conducted at the outfall of the catchment. If the wet weather sampling results in a finding of probable illicit discharge, then a procedure to isolate and locate the source similar to that set forth for dry weather investigation above shall be implemented using wet weather screening and sampling within the catchment.

## 5.2 OUTFALL AND INTERCONNECTION MAPPING

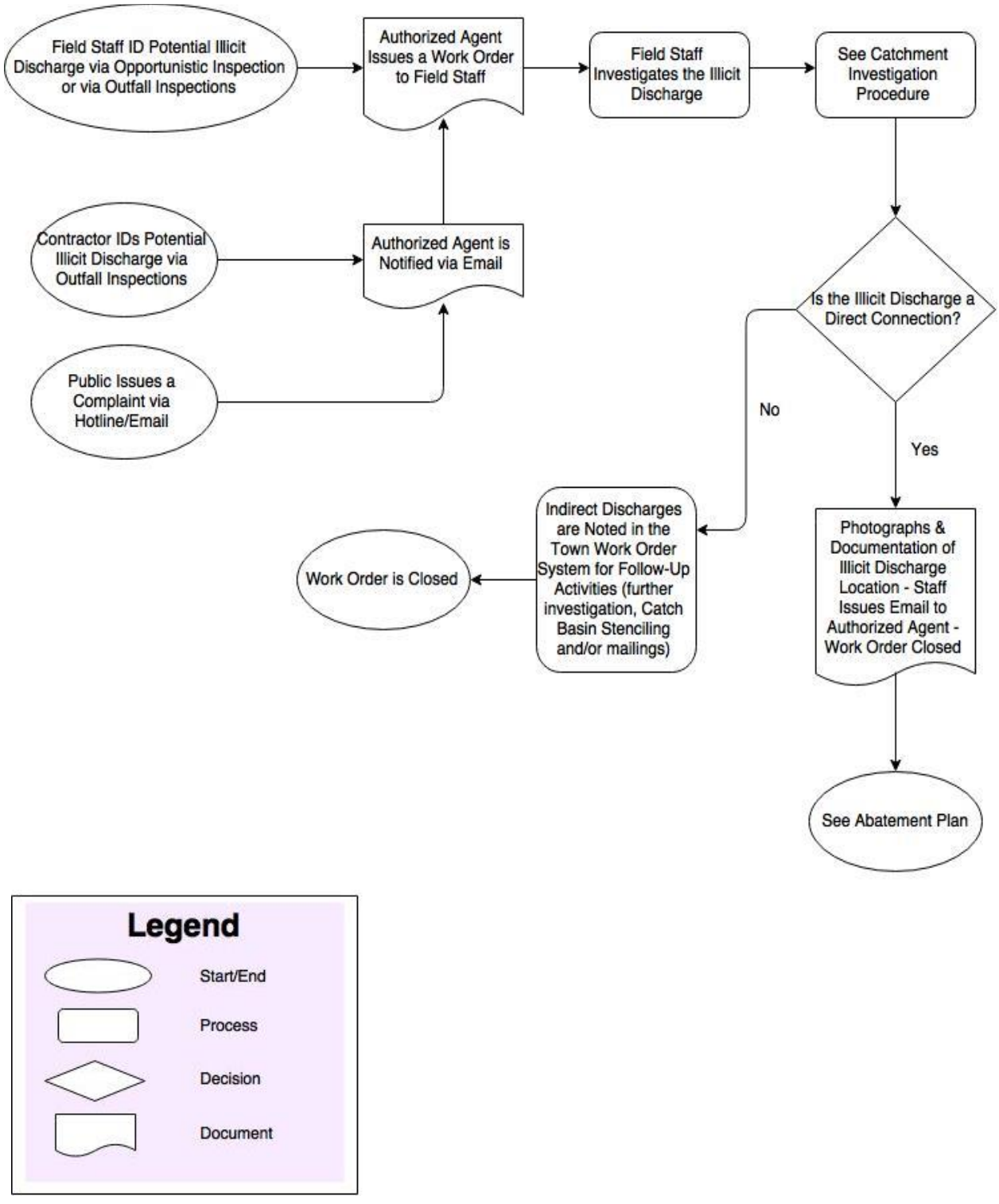
Unmapped stormwater infrastructure and MS4 interconnections discovered during field activities will be either GPS-located during the field activities or flagged for future locating. (It is not expected that any such unmapped infrastructure will be of a scope as to affect the KJM determinations.)

**Figure 5-1: Flow Chart to Identify Illicit Discharges**[3]




[3] Adapted from Chapter 12 of the Center for Watershed Protection's Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments (2004): Figure 47, pg. 131.

**Figure 5-2: Workflow Diagram of Illicit Discharge Investigation**



## 5.3 REMOVAL AND CONFIRMATION SCREENING AND SAMPLING

Within one (1) year of the illicit discharge abatement in any catchment, a confirmatory screening of the catchment shall be conducted for evidence of additional illicit discharges. If the original screening included wet weather screening, then wet weather screening shall also be included in the confirmatory screening. If confirmatory screening indicates evidence of additional illicit discharges, the catchment shall be scheduled for additional investigation.

## 5.4 ONGOING OUTFALL AND INTERCONNECTION MONITORING

Upon completion of the investigation of a catchment, and removal and confirmation of any identified illicit discharges, follow-up screening shall be conducted in accordance with the requirements of the General Permit.

## 5.5 RECORD OF ILLICIT DISCHARGES

Throughout the investigation and corrective action activities, all information related to the incident or property in question should be well documented. Along with monitoring and investigation activities, summaries of corrective action will be included in each MS4 Annual Report submitted annually by April 1st to DEEP. Records for each verified illicit discharge removed from the Town's MS4 within the corrective action timeline specified in the Notice of Violation should include:

- location of discharge and source;
- description of discharge;
- method/date of discovery;
- date of elimination;
- mitigation action and associated costs; and
- estimated volume of flow removed.

Additional records should be maintained for each illicit discharge that is not removed within the timeline specified including:

- justification for delayed corrective action;
- schedule for removal of illicit discharge;
- explanation of why schedule is as expeditious as possible; and
- description of legal actions against landowner (if applicable).

# 6. TRAINING, EDUCATION, AND VOLUNTARY REPORTING

## 6.1 ANNUAL EMPLOYEE TRAINING

Employee training is an important component of Bloomfield's stormwater program. Town staff are/will be trained in the opportunistic inspection SOP regularly. Town staff involved with the IDDE Program must be able to recognize and identify illicit discharges through standard drainage system maintenance operations.

| **PLAN: Annual Employee Training** | |
|---|---|
| **1. Include IDDE Topics in Annual Training (as needed for staff turnover)** | Town staff responsible for implementing the IDDE Plan, in addition to those that spend time doing site visits and inspections, will be trained to identify illicit discharges. Topics may vary each year based on staffing education needs. |

## 6.2 PUBLIC EDUCATION

Under the General Permit, the Town of Bloomfield must inform public employees, businesses, and the general public of the hazards of illicit discharges. Educational brochures and fact sheets are available on the Town website, and targeted mailings will be undertaken in neighborhoods with consistent indirect illicit discharges. General awareness on illicit discharges will be continued through educational materials linked through the Town website.

## 6.3 VOLUNTARY REPORTING

### 6.3.1 Incidental Detection

The Town has a general complaint reporting phone line that residents, field personnel, and outside agencies can call to report illicit discharges. This service encourages residents to participate in the reporting process and helps the Town to receive timely information about problems like illegal dumping, spills, or strong odors associated with septic outbreaks or failures. In the event of a release of hazardous materials, emergency services should be contacted immediately. In addition, the Town website directs homeowners to report suspected illicit discharges to the Engineering Department via email or phone.

### 6.3.2 Contact Information

During normal business hours (Monday thru Friday 9:00am to 5:00pm) citizens, other Town departments or outside agencies reporting incidents that have occurred within the Town limits can call the Town Engineer's office at (860) 769-3524.

After hours, emergency water quality incidents should be reported to the Bloomfield Police (860) 242-5501. Residents that encounter a non-emergency incident are encouraged to report the problem the next business day.

# 7. PROGRAM TIMELINE AND MILESTONES

Engineering will maintain a spreadsheet/database of program milestones and timelines, which will be updated regularly.

# 8. REFERENCES


Center for Watershed Protection and Robert Pitt University of Alabama, 2004. *Illicit Discharge Detection and Elimination: A Guidance Document for Program Development and Technical Assessments*; October.

Connecticut Department of Energy & Environmental Protection, 2016. *2016 State of Connecticut Integrated Water Quality Report*; October.

Connecticut Department of Energy & Environmental Protection, 2016. *General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems;* June.

New England Interstate Water Pollution Control Commission, 2003. *Illicit Discharge Detection and Elimination Manual: A Handbook for Municipalities;* January.

U.S. Environmental Protection Agency, 2012. Draft *EPA New England Bacterial Source Tracking Protocol;* January.

# APPENDIX A: REFERENCE DOCUMENT LINKS

***CT MS4 General Permit:***

https://www.ct.gov/deep/lib/deep/permits_and_licenses/water_discharge_general_permits/ms4_gp.pdf

***Bloomfield Storm Drainage Ordinance and Stormwater Management Regulations:***

https://www.bloomfieldct.gov/engineering/pages/ordinances-regulations

***On-Site Sewage Regulations and Technical Standards for Subsurface Sewage Disposal Systems (Connecticut Public Health Code):***

https://portal.ct.gov/-/media/Departments-and-Agencies/DPH/dph/environmental_health/environmental_engineering/2018-Uploads/Technical-Standards-2018-Master-011918.pdf

***MDC Sewer Use Ordinances:***

http://themdc.org/assets/uploads/files/Sewer%20Ordinances.pdf

***EPA New England Stormwater Tools:***

https://www.epa.gov/npdes-permits/stormwater-tools-new-england#idde

(Includes: Bacterial Source Tracking Protocol; Finding and Fixing Illicit Discharges; and Outfall Inspection Standard Operating Procedures and Templates.)

***EPA / Center for Watershed Protection's Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments (2004):***

https://www3.epa.gov/npdes/pubs/idde_manualwithappendices.pdf

# APPENDIX B: OPPORTUNISTIC INSPECTION SOP

Standard Operating Procedure for
Illicit Discharge Opportunistic Inspection Program

**Purpose:** The purpose of this Standard Operating Procedure (SOP) is to provide basic guidance for identification of possible illicit discharges to Bloomfield's storm drain system and ultimately the Town's receiving waters as required by the Small MS4 General Permit and as outlined in the Illicit Discharge Detection and Elimination (IDDE) Program Manual.

**Scope:** This SOP applies in the performance of IDDE screening inspections as required by Minimum Control Measure 3 Illicit Discharge Detection and Elimination.

**References:** Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments (October 2004)

**Responsible Parties:**

- Overall Program Management: Town Engineer
- Field Inspections: Public Works and Engineering Staff
- Tracking and Record Keeping: Engineering Staff
- Review and Follow up: Town employee authorized by Town Engineer (Authorized Enforcement Agent)
- Corrective Action: Town Engineer and Metropolitan District
- Enforcement: Authorized Enforcement Agent and Health District

**Inspection Procedure:**

- Inspections will be conducted in a safe manner and all required Personal Protective Equipment (PPE) will be used;
- Abnormal conditions and suspected illicit discharges via visual or olfactory indicators will be noted and will be reported to the Authorized Enforcement Agent for further investigation via email or phone;
- If the illicit discharge is an indirect discharge (i.e., oil/grease, dog waste bags or other dumped material, etc.), the location should be noted and filed for periodic review for targeted outreach; attempts to remove material and disposal per state law should be considered if the material is known. If material is not known, removal of contaminated sediments via vac truck or mechanical removal should only occur when authorized by the Authorized Enforcement Agent.
- Digital photographs shall be recorded and attached to each correspondence and should include photos of adjacent land areas/properties for reference;
- In the case where an illicit discharge is noted or suspected, an attempt will be made to locate the source of the illicit discharge and will be documented by the Authorized Enforcement Agent;

- Completed field notes on illegal dumping or other indirect discharge will be compiled on an annual basis and utilized by the Authorized Enforcement Agent to identify locations for catch basin stenciling, outreach letters or other voluntary compliance education options.

**Corrective Action:** When a suspected illicit discharge is confirmed through further investigation, the Authorized Enforcement Agent will notify the MDC and the West Hartford-Bloomfield Health District via email with description of issue and photographs of the illicit discharge.

**Record Keeping and Program Evaluation:** All inspection forms and correspondence should be available in paper or digital copy by the Public Works Administrative Assistant.

This system will include the following steps:

- Inspection that indicated an indirect or transitory illicit discharge will be summarized and forwarded to the Authorized Enforcement Agent for appropriate action;
- On at least an annual basis, the field notes and correspondence will be reviewed by the Authorized Enforcement Agent for accuracy and conformance to the SOP and the IDDE Program Manual; and
- On an annual basis, the field notes and correspondence shall be tabulated by the Authorized Enforcement Agent and will be included in the Town's MS4 Annual Report submitted every April 1st to DEEP.

# APPENDIX C: OUTFALL RECONNAISSANCE INVENTORY/ SAMPLE COLLECTION FIELD SHEET

# OUTFALL RECONNAISSANCE INVENTORY/ SAMPLE COLLECTION FIELD SHEET

## Section 1: Background Data

| | | | |
|---|---|---|---|
| Sub-watershed: | | Outfall ID: | |
| Today's date: | | Time (Military): | |
| Investigators: | | Form completed by: | |
| Temperature (°F): | Rainfall (in.): Last 24 hours: | Last 48 hours: | |
| Latitude: | Longitude: | GPS Unit: | GPS LMK #: |
| Camera: | | Photo #s: | |

Land Use in Drainage Area (Check all that apply):

☐ Industrial ☐ Open Space

☐ Ultra-Urban Residential ☐ Institutional

☐ Suburban Residential Other: _____

☐ Commercial Known Industries: _____

Notes (e.g.., origin of outfall, if known):

## Section 2: Outfall Description

| LOCATION | MATERIAL | SHAPE | | DIMENSIONS (IN.) | SUBMERGED |
|---|---|---|---|---|---|
| ☐ **Closed Pipe** | ☐ RCP ☐ CMP<br>☐ PVC ☐ HDPE<br>☐ Steel<br>☐ Other: _____ | ☐ Circular<br>☐ Elliptical<br>☐ Box<br>☐ Other: _____ | ☐ Single<br>☐ Double<br>☐ Triple<br>☐ Other: _____ | Diameter/Dimensions:<br>_____ | In Water:<br>☐ No<br>☐ Partially<br>☐ Fully<br>With Sediment:<br>☐ No<br>☐ Partially<br>☐ Fully |
| ☐ **Open drainage** | ☐ Concrete<br>☐ Earthen<br>☐ rip-rap<br>☐ Other: _____ | ☐ Trapezoid<br>☐ Parabolic<br>☐ Other: _____ | | Depth: _____<br>Top Width: _____<br>Bottom Width: _____ | |
| ☐ **In-Stream** | **(applicable when collecting samples)** | | | | |
| **Flow Present?** | ☐ Yes ☐ No | ***If No, Skip to Section 5*** | | | |
| **Flow Description (If present)** | ☐ Trickle ☐ Moderate ☐ Substantial | | | | |

## Section 3: Quantitative Characterization

| FIELD DATA FOR FLOWING OUTFALLS | | | | |
|---|---|---|---|---|
| **PARAMETER** | | **RESULT** | **UNIT** | **EQUIPMENT** |
| ☐Flow #1 | Volume | | Liter | Bottle |
| | Time to fill | | Sec | |
| Temperature | | | °F | Probe |
| Conductivity | | | µS/cm | Probe |
| Salinity | | | ppt | Probe |
| Ammonia | | | mg/L | Test strip |
| Surfactants | | | mg/L | Field test kit |
| Chlorine | | | mg/L | Field test kit |

# Outfall Reconnaissance Inventory Field Sheet

## Section 4: Physical Indicators for Flowing Outfalls Only

Are Any Physical Indicators Present in the flow? ☐ Yes ☐ No (*If No, Skip to Section 5)*

| INDICATOR | CHECK if Present | DESCRIPTION | RELATIVE SEVERITY INDEX (1-3) | | |
|---|---|---|---|---|---|
| Odor | ☐ | ☐ Sewage ☐ Rancid/sour ☐ Petroleum/gas ☐ Sulfide ☐ Other: | ☐ 1 – Faint | ☐ 2 – Easily detected | ☐ 3 – Noticeable from a distance |
| Color | ☐ | ☐ Clear ☐ Brown ☐ Gray ☐ Yellow ☐ Green ☐ Orange ☐ Red ☐Other: | ☐ 1 – Faint colors in sample bottle | ☐ 2 – Clearly visible in sample bottle | ☐ 3 – Clearly visible in outfall flow |
| Turbidity | ☐ | See severity | ☐ 1 – Slight cloudiness | ☐ 2 – Cloudy | ☐ 3 – Opaque |
| Floatables -Does Not Include Trash!! | ☐ | ☐ Sewage (Toilet Paper, etc.) ☐ Suds ☐ Petroleum (oil sheen) ☐ Other: | ☐ 1 – Few/slight; origin not obvious | ☐ 2 – Some; indications of origin (e.g., possible suds or oil sheen) | ☐ 3 - Some; origin clear (e.g., obvious oil sheen, suds, or floating sanitary materials) |

## Section 5: Physical Indicators for Both Flowing and Non-Flowing Outfalls

Are physical indicators that are not related to flow present? ☐ Yes ☐ No (*If No, Skip to Section 6)*

| INDICATOR | CHECK if Present | DESCRIPTION | COMMENTS |
|---|---|---|---|
| Outfall Damage | ☐ | ☐ Spalling, Cracking or Chipping ☐ Peeling Paint ☐ Corrosion | |
| Deposits/Stains | ☐ | ☐ Oily ☐ Flow Line ☐ Paint ☐ Other: | |
| Abnormal Vegetation | ☐ | ☐ Excessive ☐ Inhibited | |
| Poor pool quality | ☐ | ☐ Odors ☐ Colors ☐ Floatables ☐ Oil Sheen ☐ Suds ☐ Excessive Algae ☐ Other: | |
| Pipe benthic growth | ☐ | ☐ Brown ☐ Orange ☐ Green ☐ Other: | |

## Section 6: Overall Outfall Characterization

☐ Unlikely ☐ Potential (presence of two or more indicators) ☐ Suspect (one or more indicators with a severity of 3) ☐ Obvious

## Section 7: Data Collection

| | | | | |
|---|---|---|---|---|
| 1. | Sample for the lab? | ☐ Yes | ☐ No | |
| 2. | If yes, collected from: | ☐ Flow | ☐ Pool | |
| 3. | Intermittent flow trap set? | ☐ Yes | ☐ No | If Yes, type: ☐ OBM ☐ Caulk dam |

## Section 8: Any Non-Illicit Discharge Concerns (e.g., trash or needed infrastructure repairs)?

# APPENDIX D: CATCHMENT PRIORITIZATION

Bloomfield MS4 Program
Catchment Priority Factors

| Item | Factor | Examples |
|---|---|---|
| ***Priority Classification*** | | |
| Problem catchment: | Known or suspected contributions of illicit discharge based on:<br>Evidence from screening/sampling (see wet weather monitoring criteria)<br>Past history<br>Reports or complaints | |
| High priority catchment: | Evidence from screening/sampling (that doesn't rise to level of problem catchment) | |
| | Poor dry weather quality of receiving water (see wet weather monitoring criteria) | |
| | Relatively high density of generating sites | car dealers, car washes, gas stations, garden centers, industrial sites, etc. |
| | Age of surrounding development and infrastructure | Industrial development + sanitary sewer older than 40 years |
| | Septic system factors:<br>- History of failing systems<br>- > 30 years old<br>- Former septic system areas | |
| | Former combined sewer areas | |
| | Streams run in culverts for any distance | |
| | Discharges to impaired waters | |
| | Water quality classification of receiving water | |
| | Uses of receiving water | drinking water, swimming, contact recreation, shellfish beds |
| Low priority catchment: | Not meeting criteia of problem or high priority cathcment | |
| Excluded catchment: | No potential for illicit discharge | Areas with no development, (except play fields, parks, etc.) & no sanitary sewer |
| ***Priority Ranking*** | To be based upon above factors | |

| | |
|---|---|
| ***System Vulnerability Factors*** | Wet weather investigation shall be conducted (in addition to dry weather investigation) for catchments having one or more of these system vulnerability factors:<br>History of SSOs<br>Regular sewer surcharging or back-ups<br>Sewer pump lift station, siphon, or problem restriction<br>Common manholes<br>Sanitary sewer pipe crosses storm drain pipe<br>Sanitary sewer pipe constructed with underdrain<br>Known sanitary sewer defects<br>Former combined sewer areas<br>Sanitary sewer and storm drainage infrastructure greater than 40 years old<br>Significant area that requires septic system upgrades with property transfers<br>Significant area with history of septic system failures |

[redacted]

Town of Bloomfield