



# ILLICIT DISCHARGE DETECTION AND ELIMINATION (IDDE) PROGRAM

**Small Municipal Separate  
Storm Sewer Systems (MS4)  
Waterbury, CT**

Prepared For:

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Department of Public Works  
Waterbury, CT

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This document was prepared by HRP Associates, Inc. using the Illicit Discharge Detection and Elimination (IDDE) Plan template prepared for the Central Massachusetts Regional Stormwater Coalition by Fuss & O'Neill, dated June 30, 2016; the IDDE Program template located on the UConn NEMO website (<http://nemo.uconn.edu/ms4/tasks/idde.htm>); and the Connecticut Department of Energy and Environmental Protection (CTDEEP) General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems, effective July 1, 2017.

## **1.0 INTRODUCTION**

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### **1.1 MS4 Program**

This Illicit Discharge Detection and Elimination (IDDE) Program has been developed by The City of Waterbury to address the requirements of the Connecticut Department of Energy & Environmental Protection's (CTDEEP) *General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems*, effective July 1, 2017, hereafter referred to as the "2017 MS4 Permit", "MS4 Permit" or "MS4".

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

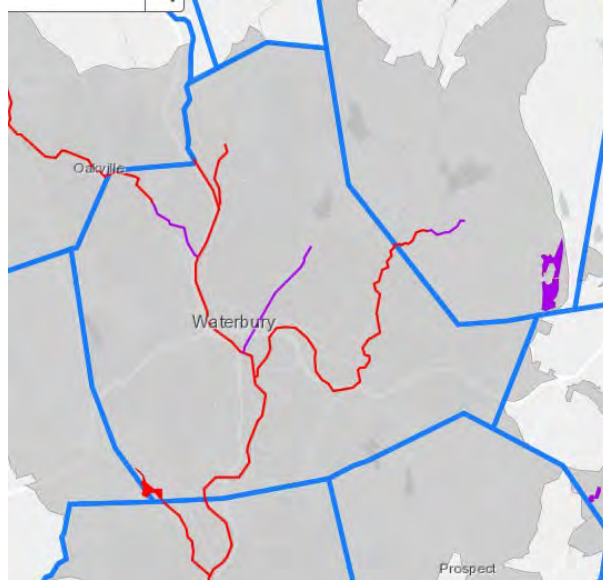
1. Public Education and Outreach
2. Public Involvement and Participation
3. Illicit Discharge Detection and Elimination Program
4. Construction Site Stormwater Runoff Control
5. Post-Construction Stormwater Management in New Development and Redevelopment; and
6. Pollution Prevention and Good Housekeeping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

Under Minimum Control Measure 3, the permittee is required to implement an IDDE program to systematically find 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. This IDDE Program has been prepared to address this requirement.

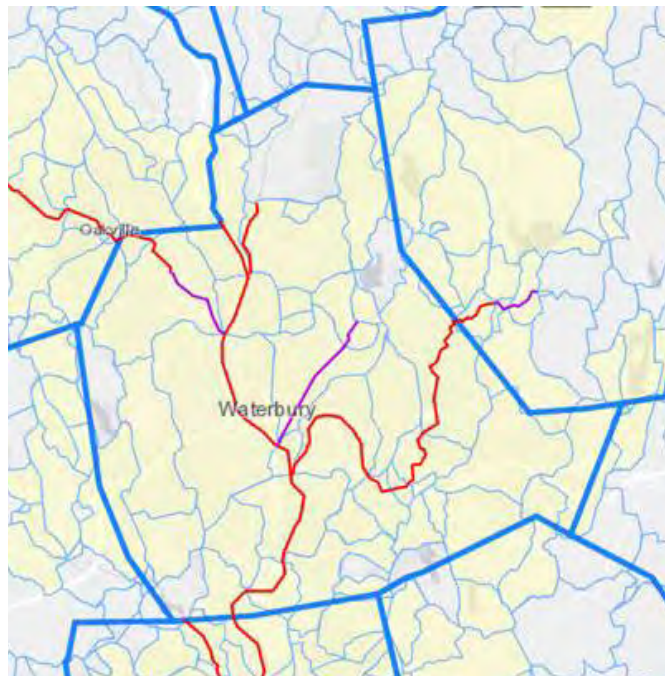
### **1.2 Geographic Scope of IDDE Program**

The MS4 Permit requires municipalities to implement the IDDE program within the Urbanized Area (based on 2010 U.S. Census) and those catchment areas of the MS4 with either Directly Connected Impervious Area (DCIA) of greater than 11% or which discharge directly to impaired waters, i.e. "priority areas". Figure 1 depicts the urbanized area and other areas outside the urbanized area that may be considered priority areas within the City of Waterbury.

**Figure 1. Urbanized Areas and Other Areas Potentially Subject to the MS4 Permit IDDE Program Requirements ("Priority Areas")\***



***DARK GREY REPRESENTS URBANIZED AREAS. BLUE LINES ARE CITY LIMITS.  
ALL OF WATERBURY IS CONSIDERED URBANIZED.***



***EACH SUBDIVISION REPRESENTS A LOCAL DRAINAGE BASIN.  
BASINS HIGHLIGHTED IN YELLOW CONTAIN 11% OR MORE IMPERVIOUS COVER.  
\*FIGURES ARE NOT TO SCALE***

***SOURCE: [HTTP://NEMO.UCONN.EDU/MS4/TOOLS/MS4MAP.HTML](http://nemo.uconn.edu/ms4/tools/ms4map.html) (2012)***

### **1.3 Illicit Discharges**

An “illicit discharge” is any unpermitted discharge to waters of the state that does not consist entirely of stormwater or uncontaminated ground water except: (1) certain allowable non-stormwater discharges when such non-stormwater discharges are not significant contributors of pollution to a discharge from an identified MS4, or (2) discharges authorized under a separate NPDES permit that authorize a discharge to the MS4.

Illicit discharges may take a variety of forms. Illicit discharges may enter the drainage system through direct or indirect connections. Direct connections 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 that discharge untreated sewage to a ditch within the MS4, or a sump pump that discharges contaminated water on an intermittent basis.

Some illicit discharges are intentional, such as dumping used oil (or other pollutant) 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 original infrastructure to the modern regulatory environment. Examples of illicit discharges in this category include connected floor drains in old buildings, as well as sanitary sewer overflows that enter the drainage system. Sump pumps legally connected to the storm drain system may be used inappropriately, such as for the disposal of floor washwater or old household products, in many cases due to a lack of understanding on the part of the homeowner.

Elimination of some discharges may involve substantial cost and effort, such as disconnecting and reconnecting sanitary sewer laterals or replacing leaking sanitary and/or storm sewer lines. Others, such as improving adherence to proper pet waste management practices through public education and by providing pest waste baggies and receptacles, can be accomplished through relatively low-cost efforts.

Regardless of the intention, 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.

### **1.4 Allowable Non-Stormwater Discharges**

The following categories of non-stormwater discharges are allowed under the MS4 Permit provided (1) the City of Waterbury controls such non-stormwater discharges to the Maximum Extent Practicable (MEP), as required by the MS4 Permit; (2) such non-stormwater discharges do not contribute to a violation of water quality standards; and (3) such non-stormwater discharges are documented in the Stormwater Management Plan and are not significant contributors of pollutants to any identified MS4:

- Uncontaminated groundwater discharges including, but not limited to, pumped ground water, foundation drains, water from crawl space pumps and footing drains
- Irrigation water including, but not limited to, landscape irrigation and lawn watering runoff
- Residual street wash water associated with sweeping
- Discharges or flows from firefighting activities (except training)
- Naturally occurring discharges such as rising ground waters, uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20)), springs, diverted stream flows and flows from riparian habitats and wetlands.

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

## 1.5 Receiving Waters and Impairments

**Table 1** lists the “impaired waters” within the boundaries of the City of Waterbury based on the latest version of the State of Connecticut Integrated Water Quality Report produced by CTDEEP 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.

<b>Table 1. Impaired Waters</b> <b>City of Waterbury, Connecticut</b>				
<b>Water Body Name</b>	<b>Segment ID</b>	<b>Category</b>	<b>Stormwater Pollutant(s) of Concern &amp; Impairment(s)</b>	<b>Associated Approved TMDL</b>
Naugatuck River	CT6900-00_02, 03, & 04	4a/5	<b>Bacteria &amp; Other Pollutant of Concern</b> Habitat for Fish, Other Aquatic Life and Wildlife, Recreation	Naugatuck River Regional Basin (NRRB) Ecoli
Mad River	CT6914-00-01, 02 & 3A	4a/4c/5	<b>Bacteria &amp; Other Pollutant of Concern</b> Habitat for Fish, Other Aquatic Life and Wildlife, Recreation	NRRB Ecoli
Great Brook	CT6900-22_01	4a/4c	<b>Bacteria</b> Habitat for Fish, Other Aquatic Life and Wildlife, Recreation	NRRB Ecoli
Steele Brook	CT6912-00_01	4a	<b>Bacteria &amp; Other Pollutant of Concern</b> Habitat for Fish, Other Aquatic Life and Wildlife, Recreation	NRRB Ecoli
	CT6912-00_02	4a/5		NRRB Ecoli & Copper

**Table 1. Impaired Waters**  
**City of Waterbury, Connecticut**

Water Body Name	Segment ID	Category	Stormwater Pollutant(s) of Concern & Impairment(s)	Associated Approved TMDL
Hancock Brook (from pond outlet to Naugatuck River)	CT6911-00_01	5	<b>Other Pollutant of Concern</b> Habitat for Fish, Other Aquatic Life and Wildlife	None
Hop Brook Lake	CT6916-00-3-L4_01	5	<b>Bacteria</b> Recreation	None

Source: State of Connecticut 2016 Integrated Water Quality Report (CT DEEP) and UCONN NEMO MS4 map found on the following website: <http://nemo.uconn.edu/ms4/tools/ms4map.html>  
Category 4a Waters – impaired water bodies with a completed Total Maximum Daily Load (TMDL).  
Category 4c Waters – impaired water bodies where the impairment is not caused by a pollutant. No TMDL required.  
Category 5 Waters – impaired water bodies that require a TMDL.

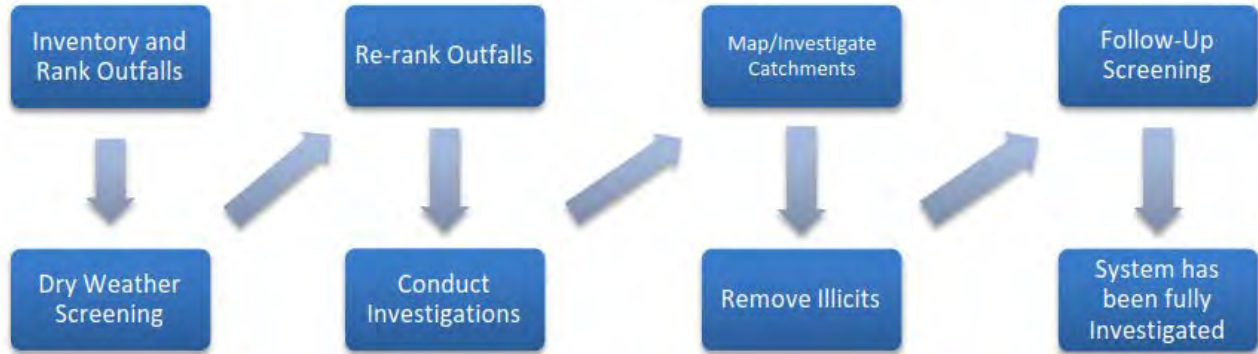
## 1.6 IDDE Program Goals, Framework and Timeline

The objective of the IDDE program is to systematically find and eliminate sources of non-stormwater discharges to the MS4 and implement procedures to prevent such discharges. The program consists of the following major components as outlined in the MS4 Permit:

- Legal authority to prohibit illicit discharges and enforce this prohibition
- Program for citizen reporting of illicit discharges
- Storm system mapping
- Sanitary Sewer Overflow (SSO) elimination
- Assessment and priority ranking of catchments
- Outfall and interconnection screening and sampling
- Catchment investigations
- Identification/confirmation of illicit sources
- Illicit discharge removal
- Follow-up screening
- Employee training.

The IDDE investigation procedure framework is shown in **Figure 2**. The required timeline for implementing the IDDE program is shown in **Table 2**.

**Figure 2. IDDE Investigation Procedure Framework**



Source: <http://nemo.uconn.edu>

**Table 2. IDDE Program Implementation Timeline**

IDDE Program Requirement	Completion Date from Effective Date of Permit					
	1 Year	2 Years	3 Years	4 Years	5 Years	10 Years
Sanitary Sewer Overflows (SSO) Inventory (5-year look back)	<b>Oct 30, 2017</b>					
Program for Citizen Reporting	<b>Effective date</b>					
Establish IDDE Legal Authority	<b>July 1, 2018</b>					
Written IDDE Program Plan	<b>July 1, 2018</b>					
Outfall/Interconnection Inventory		<b>July 1, 2019</b>				
Map All Stormwater Outfalls		<b>July 1, 2019</b>				
Initial Assessment and Priority Ranking of Catchments (update annually)		<b>July 1, 2019</b>				
Complete Detailed Storm System Mapping			<b>July 1, 2020</b>			
Begin Dry Weather Outfall Screening (high and low priority outfalls)	<b>July 1, 2018</b>					
Complete Dry Weather Outfall Screening & Sampling (High & Low Priority outfalls/CM)			<b>July 1, 2020</b>			

**Table 2. IDDE Program Implementation Timeline**

IDDE Program Requirement	Completion Date from Effective Date of Permit					
	1 Year	2 Years	3 Years	4 Years	5 Years	10 Years
Complete Catchment Investigations - Problem Catchments			>80% July 1, 2020		100% July 1, 2022	
Complete Catchment Investigations- Problem and High Priority Outfalls					July 1, 2022	
Catchment Investigations – all Problem, High and Low Priority Outfalls					40% July 1, 2022	100% July 1, 2027

For existing 2004 MS4 Permittees, investigations must begin within three months of finalization of the investigation procedure and no later than 15 months from effective date of permit.

## 1.7 IDDE Program Accomplishments

The 2004 MS4 Permit required MS4 communities 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. MS4s were also required to define how confirmed discharges would be eliminated and how the removal would be documented.

The City of Waterbury has initiated the following IDDE program elements:

- Program for citizen reporting of illicit discharges
- Sanitary Sewer Overflow (SSO) Inventory
- Employee Training on Operating Procedures for Stormwater Pollution Prevention and Cleanup Protocols
- Process to adopt an Illicit Discharge and Connection Stormwater Ordinance
- Development of Outfall Mapping
- Storm system mapping development, including the locations of catch basins, manholes and pipe connectivity
- Dry weather outfall screening.

## 2.0 **AUTHORITY AND STATEMENT OF IDDE RESPONSIBILITIES**

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### 2.1 **Legal Authority**

The City of Waterbury's Illicit Discharge and Connection Stormwater (IDDE) Ordinance was approved by the Board of Aldermen on August 20, 2018 and a legal notice was placed in local paper on August 31, 2018. The IDDE Ordinance is officially part of the City's Ordinance but has not yet been codified into the Ordinance book. The Legal Department must revise the Ordinance section numbers to match the chapter numbering in the Ordinance book, in order for it to be codified. A copy of the Illicit Discharge and Connection Stormwater Ordinance, letter of approval and legal notice is provided in **Appendix A**. The Illicit Discharge and Connection Stormwater Ordinance will provide the City of Waterbury 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.

### 2.2 **Statement of Responsibilities**

The Public Works Department is the lead municipal agency or department responsible for implementing the IDDE program pursuant to the provisions of the Stormwater Illicit Discharge and Connections Ordinance. Other agencies or departments with responsibility for aspects of the program include:

- **Public Works Department** - Implement citizen reporting program; Establish legal authority to prohibit illicit discharges; Hold Annual "Clean-up" Days along waterbodies
- **Engineering Department** - Implement public education and outreach; Address education/outreach for pollutants of concern; Develop written IDDE program; Develop list and maps of all MS4 stormwater outfalls in priority areas; Develop record keeping system for IDDE tracking; Address IDDE in areas with pollutants of concern
- **IT Department** - Implement citizen reporting program; Develop list and maps of all MS4 stormwater outfalls in priority areas
- **Corporation Counsel** – Establish legal authority to prohibit illicit discharges
- **Mayor's Office** – Implement citizen reporting program
- **Department of Education** – Implement public education and outreach; Address education/outreach for pollutants of concern

### **3.0 CITIZEN REPORTING OF ILLICIT DISCHARGES**

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The MS4 Permit requires municipalities to develop a program for citizen reporting of illicit discharges. The City of Waterbury has established an online reporting mechanism and process which can be found on the Citizen's Service Center Website. This reporting system can be accessed using the following link: <http://www.waterburyct.org/311/>. Complaints and service requests are logged and forwarded to the appropriate department for action and resolution. In addition, complaints and concerns can be filed using the smartphone application, "iReportWTBY".

The City of Waterbury will investigate and eliminate any illicit discharges reported by citizens or organizations, provided such a report incorporates at least a time and location of an observed discharge. The City of Waterbury will conduct an inspection of the reported outfalls, manholes or other sites promptly after receiving such a report. The City of Waterbury will incorporate the reported outfalls into the IDDE program. Citizen reports and the responses to those reports will be included in the Annual Report.

## 4.0 **STORMWATER SYSTEM MAPPING**

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The City of Waterbury has started to develop mapping of its stormwater system. Copies of the existing storm system map and the city outfall locations maps are provided in **Appendix B**.

The City of Waterbury is responsible for updating the stormwater system mapping pursuant to the MS4 permit. The City of Waterbury 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**.

### 4.1 **Outfall and Interconnection Inventory and Mapping**

The City of Waterbury will continue to develop an inventory (Microsoft Excel spreadsheet) listing all the stormwater outfalls<sup>1</sup> located within and owned or operated by the City of Waterbury and all the interconnections<sup>2</sup> with other MS4s. The City of Waterbury will also continue to develop a series of maps in GIS or compatible format (i.e., CAD), at a minimum scale of 1'=2000' and a maximum scale of 1"=100', showing the same structures as the inventory. The inventory and mapping must be completed within two (2) years of the effective date of the permit (July 1, 2019) and include the following information for each outfall and interconnection:

- Unique identifier
- Type, material, size (e.g., 24-inch concrete pipe)
- Spatial location (latitude and longitude with a minimum accuracy of +/-30 feet)
- Name, water body ID and Surface Water Quality Classification of the immediate surface water body or wetland to which the stormwater runoff discharges
- If the outfall does not discharge directly to a named water body, the name and water body ID of the nearest named water body to which the outfall eventually discharges
- Name of the watershed, including subregional drainage basin number, in which the discharge is located
- Date of most recent inspection
- Physical condition
- Indicators of potential non-stormwater discharges (including presence or evidence of suspect flow and sensory observations such as odor, color, turbidity, floatables, or oil sheen) as of the most recent inspection.

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<sup>1</sup> **Outfall** means a point source as defined by 40 CFR § 122.2 and in Section 2 of the 2017 MS4 Permit as the point where the MS4 discharges to waters of the state. An outfall does not include open conveyances connecting two separate storm sewers or pipes, tunnels or other conveyances that connect segments of the same stream or other waters of the state and that are used to convey waters of the state. It is strongly recommended that a permittee inspect all accessible portions of the system as part of this process. Culverts longer than a simple road crossing shall be included unless the permittee can confirm that they are free of any connections and simply convey waters of the state.

<sup>2</sup> **Interconnection** means the point where the permittee's MS4 discharges to another MS4 or other storm sewer system, through which the discharge is conveyed to waters of the state or to another storm sewer system and eventually to a water of the state.

The inventory will be updated annually to include data collected in connection with dry weather screening and other relevant inspections. An updated inventory and mapping will be provided in each Annual Report.

In the initial publication of the IDDE plan (dated June 29, 2018), the IDDE Catchment Assessment and Priority Ranking Matrix tables (**Tables 4 and 4a**) found in Section 6 of this report, included all “ends of pipes” initially identified as City-owned by the City of Waterbury. As a result of outfall screening activities and office research conducted since the initial IDDE publication, the ends of pipe outfalls that were determined to be privately or State owned, a true culvert, an inlet, or not an “outfall” as defined above were removed from **Table 4**. In addition, **Table 4a** includes all the outfalls that the City had initially designated as “culverts” owned by the City for the initial publication of the IDDE. Culverts may be removed from the table in the future if during screening activities culverts on this list are determined to be free of any connections and simply convey waters of the State, or are determined to be privately or State owned.

## 4.2 Detailed System Mapping

A detailed storm system map will be developed for, at a minimum, the portions of the municipality within “priority” areas. The detailed mapping is intended to facilitate the identification of key infrastructure, factors influencing proper system operation, and the potential for illicit discharges.

The mapping will be developed in GIS or a comparable digital format (i.e., CAD). The required scale and detail of the map will be appropriate to facilitate a rapid understanding of the system by the municipality and CTDEEP. The mapping will also serve as a planning tool for the implementation and phasing of the IDDE program and demonstration of the extent of complete and planned investigations and corrections. The mapping will be updated as necessary to reflect newly discovered information and required corrections or modifications. Detailed system mapping will be completed within three years of the effective date of the permit (July 1, 2020).

The following mapping elements will be included in the detailed storm system map as required:

- Municipal Separate Storm Sewer System
  - Outfalls and receiving waters (required by 2004 MS4 permit)
  - Pipes
  - Open channel conveyances (swales, ditches, etc.)
  - Catch basins
  - Manholes
  - Interconnections with other MS4s and other storm sewer systems
  - Municipality-owned stormwater treatment structures (e.g. detention and retention basins, infiltration systems, bio retention areas, water quality swales, gross particle separators, oil/water separators, or other proprietary systems)

- Catchment delineations as defined in this report for use in priority rankings or prioritizing BMP retrofits
- Waterbodies identified by name and indication of all use impairments as identified on the most recent Integrated Water Quality Report pursuant to Clean Water Act section 303(d) and 305(b).

The following elements will be included where available:

- Municipal sanitary sewer system
- Municipal combined sewer system, if applicable

#### **4.3 Additional Recommended Mapping Elements**

Although not a requirement of the 2017 MS4 Permit, the City of Waterbury may include the following recommended elements in its storm system mapping, where available:

- Storm sewer material, size and age
- Sanitary sewer system material, size and age
- Topography
- Orthophotography

## 5.0 **SANITARY SEWER OVERFLOWS (SSOS)**

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The 2017 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 City of Waterbury has completed an inventory of SSOs that have occurred within the five (5) years prior to the effective date of the 2017 MS4 Permit (July 1, 2012 -June 30, 2017). The SSO Inventory is based on a review of available documentation pertaining to SSOs (**Table 3**). The inventory includes all SSOs that occurred during wet or dry weather resulting from inadequate conveyance capacities or where interconnectivity of the storm and sanitary sewer infrastructure allows for transfer of flow between systems.

Upon detection of an SSO, the City of Waterbury will eliminate it as expeditiously as possible and take interim mitigation 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 City of Waterbury will provide written notice to the CTDEEP within five (5) days of becoming aware of the SSO occurrence and shall include the information in the updated inventory. The notice shall contain all the information listed in **Table 3**.

The inventory in **Table 3** will be updated by the City of Waterbury 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.

The period between identification and elimination of a discharge from the SSO to the MS4 is not a grace period. Discharges from an MS4 that are mixed with an SSO are not authorized by the general permit, are unlawful, and remain unlawful until eliminated.

**Table 3. SSO Inventory**  
**City of Waterbury, Connecticut**  
**Revision Date: February 8, 2019**

SSO Location <sup>1</sup>	Discharge to MS4 or Surface Water <sup>2</sup>	Date <sup>3</sup>	Time Start <sup>3</sup>	Time End <sup>3</sup>	Estimated Volume <sup>4</sup>	Description <sup>5</sup>	Mitigation Completed <sup>6</sup>	Mitigation Planned <sup>7</sup>
605 Woodtick Road	N/A	1/05/2015	3:41 pm	4:15 pm	Not known- homeowner said minor	Raw Sewage	Removed sticks, rags & other debris from MH#132	Added this section of Sanitary line to Long Term Maintenance Plan (LTMP)
Woodtick & Frost Roads	N/A	1/19/15	1:42 pm	3:00 pm	Not determined. Homeowner would not let WPC worker into house for inspection	Blockage	Removed grease blockage	Added to LTMP
Piping Rock Pump Station	N/A	2/6/15	10:00 am	10:20 am	1,500 gal	Electrical Equip. Failure	Vacuum Truck	Trouble shoot electric control panel
76 Piping Rock Drive	N/A	4/4/17	8:57 am	9:52 am	51-500 gal	Blockage	Removed piece of pipe from manhole. Cleaned and limed area	N/A
417 Pearl Lake Road	N/A	3/26/15	12:30 pm	12:40 pm	10 gal	Raw Sewage	Cleaned main line/ homeowner will mop & clean garage floor	Added this area to LTMP
497 Plank Road	Surface water	10/10/16	10:50 am	1:05 pm	5,000 gal	Blockage - I-84 construction crew broke a city MH while working in the Plank Rd area	Removed stones & bricks from MH	State Contractor Repaired Manhole

**Table 3. SSO Inventory**  
**City of Waterbury, Connecticut**  
**Revision Date: February 8, 2019**

SSO Location <sup>1</sup>	Discharge to MS4 or Surface Water <sup>2</sup>	Date <sup>3</sup>	Time Start <sup>3</sup>	Time End <sup>3</sup>	Estimated Volume <sup>4</sup>	Description <sup>5</sup>	Mitigation Completed <sup>6</sup>	Mitigation Planned <sup>7</sup>
62 Harper Avenue	N/A	6/29/17	8:30 am	10:37 am	51-500 gal	Raw Sewage / Sewer line blockage	Cleaned and limed area	Jetted and cleaned line from MH#63A to 64A
Harper Avenue R.O.W.	N/A	6/16/16	8:00 am	9:30 am	1,500 gal	Vandals	Removed debris from MH, Jetted line-vacuumed and removed paper products	Added new locking MH cover
831 Woodtick Road	N/A	8/20/17	10:15 am	10:50 am	51-500 gal	Sewer Line Blockage	Cleaned 1,000' of the sanitary line	This area added to the LTMP
282 Scott Road	N/A	2/6/17	10:26 am	8:33 pm	51-500 gal	Roots	N/A	This area added to the LTMP
40 Old Colony Drive	N/A	5/7/17	5:07 am	7:30 am	0-50 gal	Raw Sewage-Excessive flows storm event	Cleaned 650 ft.	Added to LTMP & Corrective Action Plan
95 Schraffs Drive	N/A	1/12/16	12:45 pm	2 pm	800-1,000 gal	Raw Sewage	Owner to call contractor	Jetted line
62 Hewlett Street	N/A	1/21/16	3:35 pm	4:00 pm	Not determined. Homeowner would not allow WPC into basement	Raw Sewage	Jetted sanitary line on Euclid Ave, MH # 59 to 61-there wasn't any waste on ground	Added this area to City's LTMP

**Table 3. SSO Inventory**  
**City of Waterbury, Connecticut**  
**Revision Date: February 8, 2019**

<b>SSO Location<sup>1</sup></b>	<b>Discharge to MS4 or Surface Water<sup>2</sup></b>	<b>Date<sup>3</sup></b>	<b>Time Start<sup>3</sup></b>	<b>Time End<sup>3</sup></b>	<b>Estimated Volume<sup>4</sup></b>	<b>Description<sup>5</sup></b>	<b>Mitigation Completed<sup>6</sup></b>	<b>Mitigation Planned<sup>7</sup></b>
25 Branch Street	N/A	2/23/16	11:00 am	12:15 pm	About 50 gals	Blockage	Cleaned 600ft of main sanitary line	Added another cleaning day to current LTMP
Overlook Avenue R.O.W.	Steele Brook	3/31/15	12:45 pm	2:15 pm	2,000 gals	Blockage	Vacuumed & racked, limed waste material	Added to Long Term Cleaning Plan
800' West of Bunker Hill Road	Trumpet Brook	5/6/15	12:30 pm	4:30 pm	2,000 gals	Broken pipe, misaligned manhole & sewer line	Raked & pick up debris & paper products	Scheduled to repair misaligned manhole & sewer line
800' West of Bunker Hill Road	Trumpet Brook	5/13/15	2:00 pm	4:30 pm	2,000-3,000 gal	Blockage	Raked & pick up debris & paper products	Repaired misaligned manhole & sewer line
35 Sharon Road	Mad River	12/15/12	5:30 pm	7:30 pm	2,000-3,000 gals	Sewer Main	Jetted line & vacuumed debris Add to LTMP	Added to LTMP
Treatment Plant 210 Municipal Rd	Naugatuck River	4/16/17	10:35 pm	11:10 pm	0.58 MG	Electrical Equip. Failure	Debris around catch basin near the septage receiving area was removed manually using 5 gal pails	Primary Pump station testing was completed on 5/15 by SNET
5 Ward Street	N/A	10/31/17	7:48 pm	9:15 pm	51-500 gals	Blockage**	Removed grease blockage	Added to LTMP
89 Clowes Terrace	N/A	1/12/18	4:15 pm	5:28 pm	1-50 gals	Blockage**	Removed grease blockage	Added to LTMP

**Table 3. SSO Inventory**  
**City of Waterbury, Connecticut**  
**Revision Date: February 8, 2019**

<b>SSO Location<sup>1</sup></b>	<b>Discharge to MS4 or Surface Water<sup>2</sup></b>	<b>Date<sup>3</sup></b>	<b>Time Start<sup>3</sup></b>	<b>Time End<sup>3</sup></b>	<b>Estimated Volume<sup>4</sup></b>	<b>Description<sup>5</sup></b>	<b>Mitigation Completed<sup>6</sup></b>	<b>Mitigation Planned<sup>7</sup></b>
Cornelius Ave	N/A	4/8/18	3:20 pm	5:00 pm	1-50 gals	Blockage	Removed roots and debris	Added to LTMP
3396 East Main Street*	N/A	6/4/18	5:20 pm	5:23 pm	Unknown	Unknown	N/A	N/A
151 Sharon Road	Mad River	6/8/18	1:00 pm	1:45 pm	501-1,000 gals	Blockage	Removed grease and sand blockage	Added to LTMP
611 Bunker Hill Avenue	Trumpet Brook	6/19/18	9:29 am	11:01 am	5,001-20,000 gals	Blockage in misaligned sanitary sewer line due to soil erosion in brook	Raked & pick-up debris, lime waste material	Contractor replaced misaligned sewer lines and encased sewer lines in concrete
15 Pritchard Road	N/A	7/3/18	1:00 pm	3:00 pm	1-50 gals	Blockage	N/A	Added to LTMP
509 Willow Street	N/A	8/2/18	5:15 pm	7:00 pm	51-500 gals	Blockage**	N/A	Added to LTMP
Lorraine Street ROW	N/A	11/26/18	11:30 am	1:30 pm	501-1,000 gals	Raw Sewage	Cleaned 400 feet of sanitary sewer line	Added to LTMP
133 Maybrook Road	Welton Brook	12/21/18	10:15 am	12:45 pm	2500 gals	Heavy Rain 1"-2" per hour	Maintained with Vacuum tank truck	Review pump station capacity
52 Terrell Road	N/A	12/21/18	11:40 am	1:42 pm	300-400 gals	Heavy Rain 1"-2" per hour	Maintained with Vacuum tank truck	Review pump station capacity
Colonial Avenue	N/A	12/24/18	11:00 am	12:30 pm	250 gals	Pump Station force main failure	Maintained with Vacuum tank truck	Monitor pump station operations on SCADA

**Table 3. SSO Inventory**  
**City of Waterbury, Connecticut**  
**Revision Date: February 8, 2019**

SSO Location <sup>1</sup>	Discharge to MS4 or Surface Water <sup>2</sup>	Date <sup>3</sup>	Time Start <sup>3</sup>	Time End <sup>3</sup>	Estimated Volume <sup>4</sup>	Description <sup>5</sup>	Mitigation Completed <sup>6</sup>	Mitigation Planned <sup>7</sup>
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- <sup>1</sup> Location (approximate street crossing/address and receiving water, if any)  
<sup>2</sup> A clear statement of whether the discharge entered a surface water directly or entered the MS4  
<sup>3</sup> Date(s) and time(s) of each known SSO occurrence (i.e., beginning and end of any known discharge)  
<sup>4</sup> Estimated volume(s) of the occurrence  
<sup>5</sup> Description of the occurrence indicating known or suspected cause(s)  
<sup>6</sup> Mitigation and corrective measures completed with dates implemented  
<sup>7</sup> Mitigation and corrective measures planned with implementation schedules

**\*This was reported as a bypass, however, WPC was not provided access to the basement by the property owner, and therefore could not verify that there was a bypass, the volume of it, or the cause of it. If the cause of a Bypass is not immediately clear, it may take time to identify the cause of the backup. As these cases can sometimes become legal matters and may end up in formal court proceedings and/or arbitration; having to formally commit to a cause before completing the investigation and determining the true cause could potentially undermine those proceedings.**

**\*\*Initial appearance is that the cause was due to grease, and/or roots, however, further investigation is needed to confirm the cause of the bypass. If the cause of a Bypass is not immediately clear, it may take time to identify the cause of the backup. As these cases can sometimes become legal matters and may end up in formal court proceedings and/or arbitration; having to formally commit to a cause before completing the investigation and determining the true cause could potentially undermine those proceedings.**

## 6.0 **ASSESSMENT AND PRIORITY RANKING OF CATCHMENTS**

The 2017 MS4 Permit requires an assessment and priority ranking of catchments 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 screening of outfalls and interconnections, catchment investigations for evidence of illicit discharges and SSOs, and provides the basis for determining permit milestones. An initial illicit discharge potential assessment and priority ranking based on existing information shall be completed within two years from the effective date of the permit (by July 1, 2019).

### 6.1 **Catchment Delineations**

A catchment is the area that drains to an individual outfall or interconnection. The catchments 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 4.2**, catchment delineations will be completed as part of the detailed system mapping.

Larger-scale watershed boundaries available from CTDEEP or local watershed organizations, such as CTDEEP Local Basin boundaries, may be used instead of individual outfall catchment areas to support the initial assessment and priority ranking of catchments. The City of Waterbury used the CTDEEP Local Basins with boundaries obtained from 'CT DEEP Basins with 2012 Impervious Stats' layer for initial organization of the catchments. Required updates to the catchment assessment and priority ranking will incorporate refined catchment details as they become available.

### 6.2 **Assessment and Priority Ranking of Outfalls/Catchments**

An initial illicit discharge potential assessment and priority ranking of catchments was completed based on existing information, including the outfall and interconnection inventory and mapping. The completed Catchment Assessment and Priority Ranking Matrix (IDDE Ranking Matrix) of City owned outfalls is provided in **Table 4**. Outfalls determined to be from private properties or State owned roads, inlets, true culverts or outfalls that discharge to wooded areas and not to "waters of the state" were removed from the original list/total of outfalls found in the original IDDE Plan dated June 29, 2018. **Table 4a** includes outfalls that the City has initially designated as "culverts" owned by the City. **Table 4a** has not been completed as of the revision date of this Plan. During outfall screening activities, outfalls may be removed from these tables as described in Section 4.1.

The IDDE Ranking Matrix was used to score each individual outfall based on available catchment characteristics information. The outfalls in the IDDE Ranking Matrix were grouped by DEEP's local drainage basins and were assigned IDs based on these basin numbers. Outfalls were assigned to a priority category (excluded, low, high or problem) based on their score in the IDDE Ranking Matrix. Originally, outfalls were to be grouped together and assessed by local basin. However, the characteristics, and consequently the score and priority category, of each of the outfalls within

a local drainage basin were not uniform. Therefore, the associated local drainage basin could not be directly assigned a single priority category.

In order to assign a Priority Ranking of Catchments, or DEEP Basins, for the Annual Report, the method of averaging the IDDE ranking score was used. Scores of outfalls within each DEEP local drainage basin were averaged and the basins were ranked by the averages, with 1 being the highest ranking and 23 being the lowest. This priority ranking of DEEP Basins is listed in the 2018 Annual Report.

An updated assessment and priority ranking will be provided in each Annual Report hereafter, including a listing of all catchments and the results of the ranking. The assessment and priority ranking will be updated annually based on catchment delineations, the results of dry weather screening, and other relevant information.

Catchments associated with outfalls and interconnections were/will be classified into one of the following categories:

1. **Problem Catchments:** Catchments with known or suspected contributions of illicit discharges based on existing information shall be designated as Problem Catchments. This shall include any catchments where previous outfall/interconnection screening indicates likely sewer input and catchments located near failed septic systems. Likely sewer input indicators are any of the following:
  - Olfactory or visual evidence of sewage,
  - Ammonia  $\geq 0.5$  mg/L, surfactants  $\geq 0.25$  mg/L, and bacteria levels greater than the water quality criteria applicable to the receiving water, or
  - Ammonia  $\geq 0.5$  mg/L, surfactants  $\geq 0.25$  mg/L, and detectable levels of chlorine.

In addition, the City classified outfalls with historically high levels of Ecoli in stormwater samples collected during the previous permit term as Problem. Problem Catchments do not need screening discussed in Section 7, but shall be scheduled for catchment investigation pursuant to Section 8 below. Problem Catchments shall be identified during the initial ranking of catchments and subsequent rankings shall not add any catchments to the Problem Catchment category.

2. **High Priority Catchments:** Catchments that have not been classified as Problem Catchments 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 outfall/interconnection screening discussed in Section 7, and
  - Determined by the permittee as high priority based on the catchment characteristics assessment described below and in **Table 4** and **Table 4a**.

Any catchment where outfall/interconnection screening indicates sewer input based on olfactory/visual evidence or sampling results (Ammonia  $\geq 0.5$  mg/L, surfactants  $\geq 0.25$  mg/L, and bacteria levels greater than the water quality criteria applicable to the receiving water, or Ammonia  $\geq 0.5$  mg/L, surfactants  $\geq 0.25$  mg/L, and detectable levels of chlorine) shall be ranked at the top of the High Priority Catchments category and scheduled for catchment investigation pursuant to Section 8.

3. **Low Priority Catchments:** Catchments determined by the permittee as low priority based on:
  - The outfall/interconnection screening discussed in Section 7, and
  - The catchment characteristics assessment described below and included in **Table 4** and **Table 4a**.
4. **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; and cross-country drainage alignments (that neither cross nor are in proximity to sanitary sewer alignments) through undeveloped land. Note: In addition to assigning an outfall to an "excluded" category based on the score in the IDDE Ranking Matrix, outfalls were also checked for characteristics for excluded catchments as defined above.

Catchments were/will be ranked into the above priority categories 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 Program.

- **Previous screening results** – previous screening/sampling results indicate likely sewer input (see criteria above for Problem Catchments).
- **Past discharge complaints and reports**
- **Poor dry weather 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. Outfalls located near or downgradient from known septic system failures will be ranked as Problem Catchments.
- **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 bodies** – that receive a discharge from the MS4 and are drinking water supplies, shell fishing areas, beaches or waters used for contact recreation.
- **Impaired 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.

### 6.3 Follow-up Ranking of Catchments

The initial illicit discharge potential assessment and priority ranking based on existing information shall be completed within two years from the effective date of the permit (by July 1, 2019). The City of Waterbury will update the catchment rankings annually based on catchment delineations, results of the dry weather screening and other new relevant information. The permittee shall provide a listing of all catchments and the results of the rankings in each Annual Report.

Outfalls/interconnections where relevant information was found indicating sewer input to the MS4 or sampling results indicating sewer input are highly likely to contain illicit discharges from sanitary sources will be ranked at the top of the High Priority Catchments category for investigation. Other outfalls and interconnections may be re-ranked based on any new information from the dry weather screening.

Table 4. Catchment Assessment and Priority Ranking Matrix (IDDE Ranking Matrix)* - City of Waterbury, CT													
Outfall ID	Local Drainage Basin	Previous Screening Results Indicate Likely Sewer Input? <sup>1</sup>	Discharging to Area of Concern to Public Health? <sup>2</sup>	Frequency of Past Discharge Complaints	Receiving Water Quality <sup>3</sup>	Density of Generating Sites <sup>4</sup>	Age of Development/ Infrastructure <sup>5</sup>	Historic Combined Sewers or Septic? <sup>6</sup>	Aging Septic? <sup>7</sup>	Culverted Streams? <sup>8</sup>	Additional Characteristics	Score	Priority Ranking <sup>9</sup>
Information Source		Outfall inspections and sample results	GIS Maps	City Staff	Impaired Waters List	Land Use/GIS Maps, Aerial Photography	Land Use Information, Visual Observation	City Staff, GIS Maps	Land Use, City Staff	GIS & Storm System Maps	Other		
Scoring Criteria		Yes = 3 (Problem Outfall) No = 0	Yes = 3 No = 0	Frequent = 3 Occasional = 2 None = 0	Poor = 3 Good = 0	High = 3 Medium = 2 Low = 1	High = 3 Medium = 2 Low = 1	Yes = 3 No = 0	Failed =3 (Problem) Yes = 2 No = 0	Yes = 3 No = 0	TBD		
6900-00-4-R11-001	Naugatuck River 6900-00-4-R11 (continued on next page)	0	0	0	3	2	2		0	0		7	Low
6900-00-4-R11-002		0	0	0	0	1	2		0	0		3	Low
6900-00-4-R11-003		0	0	0	0	1	2		0	0		3	Low
6900-00-4-R11-005		0	0	0	3	1	2		0	0		6	Low
6900-00-4-R11-007		0	0	0	3	1	2		0	0		6	Low
6900-00-4-R11-008		0	0	0	3	2	2		0	0		7	Low
6900-00-4-R11-009		0	0	0	0	1	2		0	0		3	Low
6900-00-4-R11-012		0	0	0	0	1	2		0	0		3	Low
6900-00-4-R11-013		0	0	0	3	1	2		0	0		6	Low
6900-00-4-R11-014		0	0	0	3	1	2		0	0		6	Low
6900-00-4-R11-015		0	0	0	3	1	2		0	0		6	Low
6900-00-4-R11-016		0	0	0	3	2	2		0	0		7	Low
6900-00-4-R11-017		0	0	0	3	2	2		0	0		7	Low
6900-00-4-R11-018		0	0	0	3	2	2		0	0		7	Low
6900-00-4-R11-019		0	0	0	0	1	2		0	0		3	Low
6900-00-4-R11-020		0	0	0	0	1	2		0	0		3	Low
6900-00-4-R11-021		0	0	0	0	1	2		3	0		6	Problem
6900-00-4-R11-022		0	0	0	0	1	2		0	0		3	Low
6900-00-4-R11-023		0	0	0	0	1	2		0	0		3	Low
6900-00-4-R11-026		0	0	0	0	1	2		0	0		3	Low
6900-00-4-R11-028		0	0	0	0	1	2		0	0		3	Low
6900-00-4-R11-030		0	0	0	0	1	2		0	0		3	Low
6900-00-4-R11-032		0	0	0	3	1	1		0	0		5	Low
6900-00-4-R11-033		0	0	0	3	1	1		0	0		5	Low
6900-00-4-R11-034		0	0	0	3	1	1		0	0		5	Low
6900-00-4-R11-035		0	0	0	3	1	1		0	0		5	Low
6900-00-4-R11-036		0	0	0	3	1	2		0	0		6	Low
6900-00-4-R11-037		0	0	0	3	1	1		0	0		5	Low
6900-00-4-R11-038		0	0	0	3	1	1		0	0		5	Low
6900-00-4-R11-040		0	0	0	3	1	1		0	0		5	Low
6900-00-4-R11-041		0	0	0	3	2	1		0	0		6	Low
6900-00-4-R11-042		0	0	0	3	1	1		0	0		5	Low
6900-00-4-R11-043		0	0	0	3	2	1		0	0		6	Low
6900-00-4-R11-044		0	0	0	3	1	1		0	0		5	Low
6900-00-4-R11-045		0	0	0	3	2	2		0	0		7	Low
6900-00-4-R11-049		0	0	0	0	1	1		0	0		2	Excluded

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Outfall ID	Local Drainage Basin	Previous Screening Results Indicate Likely Sewer Input? <sup>1</sup>	Discharging to Area of Concern to Public Health? <sup>2</sup>	Frequency of Past Discharge Complaints	Receiving Water Quality <sup>3</sup>	Density of Generating Sites <sup>4</sup>	Age of Development/ Infrastructure <sup>5</sup>	Historic Combined Sewers or Septic? <sup>6</sup>	Aging Septic? <sup>7</sup>	Culverted Streams? <sup>8</sup>	Additional Characteristics	Score	Priority Ranking <sup>9</sup>
Information Source		Outfall inspections and sample results	GIS Maps	City Staff	Impaired Waters List	Land Use/GIS Maps, Aerial Photography	Land Use Information, Visual Observation	City Staff, GIS Maps	Land Use, City Staff	GIS & Storm System Maps	Other		
Scoring Criteria		Yes = 3 (Problem Outfall) No = 0	Yes = 3 No = 0	Frequent = 3 Occasional = 2 None = 0	Poor = 3 Good = 0	High = 3 Medium = 2 Low = 1	High = 3 Medium = 2 Low = 1	Yes = 3 No = 0	Failed =3 (Problem) Yes = 2 No = 0	Yes = 3 No = 0	TBD		
6900-00-4-R11-051		0	0	0	0	1	1		0	0		2	Excluded
6900-00-4-R11-052		0	0	0	0	1	2		0	0		3	Low
6900-00-4-R11-053		0	0	0	0	1	2		0	0		3	Low
6900-00-4-R11-054		0	0	0	0	1	2		0	0		3	Low
6900-00-4-R11-055		0	0	0	0	1	2		0	0		3	Low
6900-00-4-R11-057		0	0	0	3	1	2		0	0		6	Low
6900-00-4-R11-058		3	0	0	3	1	2		0	0		9	Problem
6900-00-4-R11-059		0	0	0	3	1	2		0	0		6	Low
6900-00-4-R11-060		0	0	0	3	1	2		0	0		6	Low
6900-00-4-R11-061		0	0	0	0	1	2		0	0		3	Low
6900-00-4-R11-062		0	0	0	0	1	2		0	0		3	Low
6900-00-4-R11-063		0	0	0	0	1	2		0	0		3	Low
6900-00-4-R11-064		0	0	0	0	1	2		0	0		3	Low
6900-00-4-R11-066		0	0	0	3	1	2		0	0		6	Low
6900-00-4-R11-067		0	0	0	0	1	2		0	0		3	Low
6900-00-4-R11-068		0	0	0	0	1	2		0	0		3	Low
6900-00-4-R11-069		0	0	0	0	1	1		0	0		2	Excluded
6900-00-4-R11-072		0	0	0	0	1	2		0	0		3	Low
6900-00-4-R11-074		0	0	0	0	1	2		0	0		3	Low
6900-00-4-R11-075		0	0	0	0	1	2		0	0		3	Low
6900-00-4-R12-001	Naugatuck River 6900-00-4-R12	0	0	0	3	1	2		0	0		6	Low
6900-00-4-R12-002		0	0	0	3	1	2		0	0		6	Low
6900-00-4-R12-003		0	0	0	3	3	3		0	0		9	High
6900-00-4-R12-004		0	0	0	3	3	3		0	0		9	High
6900-00-4-R12-005		0	0	0	3	1	2		0	0		6	Low
6900-00-4-R13-001	Naugatuck River 6900-00-4-R13 (continued on next page)	0	0	0	3	3	3		0	0		9	High
6900-00-4-R13-003		0	0	0	3	1	2		0	0		6	Low
6900-00-4-R13-005		0	0	0	3	3	2		0	0		8	High
6900-00-4-R13-006		0	0	0	3	2	2		0	0		7	Low
6900-00-4-R13-007		0	0	0	3	3	2		0	0		8	High
6900-00-4-R13-008		0	0	0	3	3	2		0	0		8	High
6900-00-4-R13-009		0	0	0	3	3	2		0	0		8	High
6900-00-4-R13-010		0	0	0	3	3	2		0	0		8	High
6900-00-4-R13-011		0	0	0	3	3	2		0	0		8	High
6900-00-4-R13-012		3	0	0	3	3	2		0	0		11	Problem

Table 4. Catchment Assessment and Priority Ranking Matrix (IDDE Ranking Matrix)* - City of Waterbury, CT													
Outfall ID	Local Drainage Basin	Previous Screening Results Indicate Likely Sewer Input? <sup>1</sup>	Discharging to Area of Concern to Public Health? <sup>2</sup>	Frequency of Past Discharge Complaints	Receiving Water Quality <sup>3</sup>	Density of Generating Sites <sup>4</sup>	Age of Development/ Infrastructure <sup>5</sup>	Historic Combined Sewers or Septic? <sup>6</sup>	Aging Septic? <sup>7</sup>	Culverted Streams? <sup>8</sup>	Additional Characteristics	Score	Priority Ranking <sup>9</sup>
Information Source		Outfall inspections and sample results	GIS Maps	City Staff	Impaired Waters List	Land Use/GIS Maps, Aerial Photography	Land Use Information, Visual Observation	City Staff, GIS Maps	Land Use, City Staff	GIS & Storm System Maps	Other		
Scoring Criteria		Yes = 3 (Problem Outfall) No = 0	Yes = 3 No = 0	Frequent = 3 Occasional = 2 None = 0	Poor = 3 Good = 0	High = 3 Medium = 2 Low = 1	High = 3 Medium = 2 Low = 1	Yes = 3 No = 0	Failed =3 (Problem) Yes = 2 No = 0	Yes = 3 No = 0	TBD		
6900-00-4-R13-013		0	0	0	3	3	2		0	0		8	High
6900-00-4-R13-021		0	0	0	3	2	2		0	0		7	Low
6900-00-4-R13-022		0	0	0	3	1	2		0	0		6	Low
6900-00-4-R13-025		0	0	0	3	3	2		0	0		8	High
6900-00-4-R14-001	Naugatuck River 6900-00-4-R14	0	0	0	3	1	1		0	0		5	Low
6900-00-4-R14-002		0	0	0	3	1	1		0	0		5	Low
6900-00-4-R14-003		0	0	0	3	1	1		0	0		5	Low
6900-00-4-R14-005		0	0	0	0	1	1		0	0		2	Excluded
6900-00-4-R14-006		0	0	0	3	1	1		0	0		5	Low
6900-00-4-R15-007	Naugatuck River 6900-00-4-R15	0	0	0	3	1	2		0	0		6	Low
6900-00-4-R9-002	Naugatuck River 6900-00-4-R9	3	0	0	3	3	2		0	0		11	Problem
6900-00-4-R9-005		0	0	0	3	1	2		0	0		6	Low
6900-21-1-L3-001	Naugatuck River 6900-21-1-L3	0	0	0	3	1	1		0	0		5	Low
6900-22-1-002	Naugatuck River 6900-22-1	0	0	0	0	2	2		0	3		7	Low
6900-22-1-003		0	0	0	0	2	2		0	0		4	Low
6900-22-1-L1-001	Naugatuck River 6900-22-1-L1	0	0	0	0	1	2		0	0		3	Low
6900-22-1-L1-002		0	0	0	0	1	2		0	0		3	Low
6900-22-1-L1-003		0	0	0	0	1	2		0	0		3	Low
6900-22-1-L1-004		0	0	0	0	1	1		0	0		2	Excluded
6900-22-1-L1-005		0	0	0	0	1	2		0	0		3	Low
6900-22-1-L1-009		0	0	0	0	1	2		0	0		3	Low
6900-22-1-L1-010		0	0	0	0	1	2		0	0		3	Low
6900-22-1-L1-011		0	0	0	0	1	2		0	0		3	Low
6900-22-1-L1-012		0	0	0	0	1	2		0	0		3	Low
6900-22-1-L1-013		0	0	0	0	1	2		0	0		3	Low
6900-22-1-L2-001	Naugatuck River 6900-22-1-L2	0	0	0	0	1	1		0	0		2	Excluded
6900-22-1-L3-001	Naugatuck River 6900-22-1-L3	0	3	0	0	1	1		0	0		5	Low
6900-22-1-L4-001	Naugatuck River 6900-22-1-L4	0	0	0	0	1	2		0	0		3	Low
6900-22-1-L4-002		0	0	0	3	2	2		0	0		7	Low
6900-22-1-L4-004		0	0	0	0	1	1		0	0		2	Excluded
6900-22-1-L5-001	Naugatuck River 6900-22-1-L5	0	0	0	0	1	2		0	0		3	Low

Table 4. Catchment Assessment and Priority Ranking Matrix (IDDE Ranking Matrix)* - City of Waterbury, CT													
Outfall ID	Local Drainage Basin	Previous Screening Results Indicate Likely Sewer Input? <sup>1</sup>	Discharging to Area of Concern to Public Health? <sup>2</sup>	Frequency of Past Discharge Complaints	Receiving Water Quality <sup>3</sup>	Density of Generating Sites <sup>4</sup>	Age of Development/ Infrastructure <sup>5</sup>	Historic Combined Sewers or Septic? <sup>6</sup>	Aging Septic? <sup>7</sup>	Culverted Streams? <sup>8</sup>	Additional Characteristics	Score	Priority Ranking <sup>9</sup>
Information Source		Outfall inspections and sample results	GIS Maps	City Staff	Impaired Waters List	Land Use/GIS Maps, Aerial Photography	Land Use Information, Visual Observation	City Staff, GIS Maps	Land Use, City Staff	GIS & Storm System Maps	Other		
Scoring Criteria		Yes = 3 (Problem Outfall) No = 0	Yes = 3 No = 0	Frequent = 3 Occasional = 2 None = 0	Poor = 3 Good = 0	High = 3 Medium = 2 Low = 1	High = 3 Medium = 2 Low = 1	Yes = 3 No = 0	Failed =3 (Problem) Yes = 2 No = 0	Yes = 3 No = 0	TBD		
6900-22-1-L6-001	Naugatuck River 6900-22-1-L6	0	0	0	0	1	2		0	0		3	Low
6900-22-1-L6-002		0	0	0	0	1	2		0	0		3	Low
6900-22-1-L6-003		0	0	0	0	1	2		0	0		3	Low
6900-23-1-001	Naugatuck River 6900-23-1	0	0	0	0	1	2		0	0		3	Low
6900-23-1-002		0	0	0	0	1	2		0	0		3	Low
6900-23-1-003		0	0	0	0	1	2		0	0		3	Low
6900-23-1-004		0	0	0	0	1	2		0	0		3	Low
6900-23-1-009		0	0	0	0	1	2		0	0		3	Low
6900-23-1-011		0	0	0	0	1	2		0	3		6	Low
6900-23-1-L1-001	Naugatuck River 6900-23-1-L1	0	0	0	0	1	2		0	0		3	Low
6900-23-1-L2-001	Naugatuck River 6900-23-1-L2	0	0	0	0	1	2		0	0		3	Low
6900-23-1-L2-004		0	0	0	0	1	2		0	0		3	Low
6900-23-1-L3-002	Naugatuck River 6900-23-1-L3	0	0	0	0	1	2		0	0		3	Low
6900-23-1-L3-003		0	0	0	0	1	2		0	0		3	Low
6900-23-1-L3-005		0	0	0	0	1	2		0	0		3	Low
6900-23-1-L3-006		0	0	0	0	1	2		0	0		3	Low
6900-23-1-L3-007		0	0	0	0	1	2		0	0		3	Low
6900-23-1-L3-008		0	0	0	0	1	2		0	0		3	Low
6900-23-1-L3-009		0	0	0	0	1	2		0	0		3	Low
6900-23-1-L3-010		0	0	0	0	1	2		0	0		3	Low
6900-23-1-L3-011		0	0	0	0	1	2		0	0		3	Low
6900-23-1-L3-012		0	0	0	0	1	2		0	0		3	Low
6900-23-1-L3-013		0	0	0	0	1	2		0	0		3	Low
6900-23-1-L3-014		0	0	0	0	1	2		0	0		3	Low
6900-24-1-001	Naugatuck River 6900-24-1	0	0	0	0	1	2		0	0		3	Low
6900-24-1-002		0	0	0	0	1	2		0	0		3	Low
6900-24-1-003		0	0	0	0	2	2		0	0		4	Low
6900-24-1-004		0	0	0	0	1	2		0	0		3	Low
6900-24-1-005		0	0	0	0	1	2		0	0		3	Low
6900-24-1-006		0	0	0	0	1	2		0	0		3	Low
6900-24-1-009		0	0	0	0	1	2		0	0		3	Low
6900-24-1-010		0	0	0	0	1	2		0	0		3	Low

Table 4. Catchment Assessment and Priority Ranking Matrix (IDDE Ranking Matrix)* - City of Waterbury, CT													
Outfall ID	Local Drainage Basin	Previous Screening Results Indicate Likely Sewer Input? <sup>1</sup>	Discharging to Area of Concern to Public Health? <sup>2</sup>	Frequency of Past Discharge Complaints	Receiving Water Quality <sup>3</sup>	Density of Generating Sites <sup>4</sup>	Age of Development/ Infrastructure <sup>5</sup>	Historic Combined Sewers or Septic? <sup>6</sup>	Aging Septic? <sup>7</sup>	Culverted Streams? <sup>8</sup>	Additional Characteristics	Score	Priority Ranking <sup>9</sup>
Information Source		Outfall inspections and sample results	GIS Maps	City Staff	Impaired Waters List	Land Use/GIS Maps, Aerial Photography	Land Use Information, Visual Observation	City Staff, GIS Maps	Land Use, City Staff	GIS & Storm System Maps	Other		
Scoring Criteria		Yes = 3 (Problem Outfall) No = 0	Yes = 3 No = 0	Frequent = 3 Occasional = 2 None = 0	Poor = 3 Good = 0	High = 3 Medium = 2 Low = 1	High = 3 Medium = 2 Low = 1	Yes = 3 No = 0	Failed =3 (Problem) Yes = 2 No = 0	Yes = 3 No = 0	TBD		
6911-00-3-L8-003	Hancock Brook 6911-00-3-L8	0	0	0	0	1	2		0	0		3	Low
6911-00-3-L8-004		0	0	0	0	1	2		0	0		3	Low
6911-00-3-L8-008		0	0	0	0	1	1		0	0		2	Excluded
6911-00-3-L8-009		0	0	0	0	1	2		0	0		3	Low
6911-00-3-L8-010		0	0	0	0	1	1		0	0		2	Excluded
6911-00-3-L8-011		0	0	0	0	1	1		0	0		2	Excluded
6911-00-3-L8-012		0	0	0	0	1	1		0	0		2	Excluded
6911-00-3-L9-001	Hancock Brook 6911-00-3-L9	0	0	0	0	1	2		0	0		3	Low
6911-00-3-R1-002	Hancock Brook 6911-00-3-R1	0	0	0	0	1	2		0	0		3	Low
6911-00-3-R1-003		0	0	0	0	1	2		0	0		3	Low
6911-00-3-R1-004		0	0	0	0	1	2		0	0		3	Low
6911-00-3-R1-005		0	0	0	0	2	2		0	0		4	Low
6911-00-3-R1-006		0	0	0	0	2	2		0	0		4	Low
6911-00-3-R1-007		3	0	0	0	1	2		0	0		6	Problem
6911-00-3-R1-008		0	0	0	0	1	2		0	0		3	Low
6911-00-3-R1-009		0	0	0	0	1	2		0	0		3	Low
6911-00-3-R1-010		0	0	0	0	1	2		0	0		3	Low
6911-00-3-R1-017		0	0	0	3	2	2		0	0		7	Low
6911-00-3-R1-019		0	0	0	3	1	2		0	0		6	Low
6911-00-3-R1-020		0	0	0	3	1	1		0	0		5	Low
6911-00-3-R1-021		0	0	0	3	1	1		0	0		5	Low
6911-00-3-R1-022		0	0	0	3	1	2		0	0		6	Low
6911-00-3-R1-023		0	0	0	0	1	2		0	0		3	Low
6911-00-3-R1-024		0	0	0	0	1	2		0	0		3	Low
6911-00-3-R1-026		0	0	0	0	1	2		0	0		3	Low
6911-00-3-R1-028a		0	0	0	3	1	2		0	0		6	Low
6911-00-3-R1-029		0	0	0	0	1	2		0	0		3	Low
6911-00-3-R1-030		0	0	0	0	1	2		0	0		3	Low
6911-00-3-R1-031		0	0	0	0	1	2		0	0		3	Low
6911-00-3-R1-032		0	0	0	0	1	2		0	0		3	Low
6911-00-3-R1-033		0	0	0	0	1	2		0	0		3	Low
6911-00-3-R1-035		0	0	0	0	1	2		0	0		3	Low
6911-00-3-R1-036		0	0	0	0	1	2		0	0		3	Low
6911-00-3-R1-037		0	0	0	0	1	2		0	0		3	Low

Table 4. Catchment Assessment and Priority Ranking Matrix (IDDE Ranking Matrix)* - City of Waterbury, CT													
Outfall ID	Local Drainage Basin	Previous Screening Results Indicate Likely Sewer Input? <sup>1</sup>	Discharging to Area of Concern to Public Health? <sup>2</sup>	Frequency of Past Discharge Complaints	Receiving Water Quality <sup>3</sup>	Density of Generating Sites <sup>4</sup>	Age of Development/ Infrastructure <sup>5</sup>	Historic Combined Sewers or Septic? <sup>6</sup>	Aging Septic? <sup>7</sup>	Culverted Streams? <sup>8</sup>	Additional Characteristics	Score	Priority Ranking <sup>9</sup>
Information Source		Outfall inspections and sample results	GIS Maps	City Staff	Impaired Waters List	Land Use/GIS Maps, Aerial Photography	Land Use Information, Visual Observation	City Staff, GIS Maps	Land Use, City Staff	GIS & Storm System Maps	Other		
Scoring Criteria		Yes = 3 (Problem Outfall) No = 0	Yes = 3 No = 0	Frequent = 3 Occasional = 2 None = 0	Poor = 3 Good = 0	High = 3 Medium = 2 Low = 1	High = 3 Medium = 2 Low = 1	Yes = 3 No = 0	Failed =3 (Problem) Yes = 2 No = 0	Yes = 3 No = 0	TBD		
6912-00-3-R1-001	Steele Brook 6912-00-3-R1	0	0	0	0	1	2		0	0		3	Low
6912-00-3-R1-002		3	0	0	3	2	2		0	0		10	Problem
6912-00-3-R1-004		0	0	0	3	2	2		0	0		7	Low
6912-00-3-R1-006		0	0	0	3	2	2		0	0		7	Low
6912-00-3-R1-006a		0	0	0	3	1	2		0	0		6	Low
6912-00-3-R1-007		3	0	0	0	1	2		0	0		6	Problem
6912-00-3-R1-009		0	0	0	0	1	2		0	0		3	Low
6912-00-3-R1-010		0	0	0	3	1	2		0	0		6	Low
6912-00-3-R1-011		0	0	0	0	1	2		0	0		3	Low
6912-00-3-R1-012		0	0	0	0	1	2		0	0		3	Low
6912-00-3-R1-013		0	0	0	3	1	2		0	0		6	Low
6912-00-3-R1-014		0	0	0	3	1	2		3	0		9	Problem
6912-00-3-R1-016		0	0	0	0	1	2		0	0		3	Low
6912-00-3-R1-017		0	0	0	0	1	2		0	0		3	Low
6912-00-3-R1-019		0	0	0	0	1	2		0	0		3	Low
6912-00-3-R1-021		0	0	0	0	1	2		0	0		3	Low
6912-00-3-R1-024		0	0	0	0	1	2		0	0		3	Low
6912-00-3-R1-025		0	0	0	0	1	2		0	0		3	Low
6912-00-3-R1-026		0	0	0	0	1	2		0	0		3	Low
6912-00-3-R1-027		0	0	0	3	1	1		0	0		5	Low
6912-00-3-R1-030		0	0	0	0	1	2		0	0		3	Low
6912-00-3-R1-035		0	0	0	0	1	2		0	0		3	Low
6912-00-3-R1-036a		0	0	0	0	1	2		0	0		3	Low
6912-00-3-R1-037		0	0	0	3	1	2		0	0		6	Low
6912-00-3-R1-042		0	0	0	0	2	2		0	0		4	Low
6912-06-1-001	Steele Brook 6912-06-1	0	0	0	0	1	2		0	0		3	Low
6913-00-1-001	Beaver Pond Brook 6913-00-1	0	0	0	0	1	2		3	0		6	Problem
6913-00-2-R1-001	Beaver Pond Brook 6913-00-2-R1 (continued on next page)	0	0	0	0	1	2		0	0		3	Low
6913-00-2-R1-003		0	0	0	0	1	2		0	0		3	Low
6913-00-2-R1-005		0	0	0	0	1	2		0	0		3	Low
6913-00-2-R1-006		0	0	0	0	1	2		0	0		3	Low
6913-00-2-R1-011		0	0	0	0	2	2		0	0		4	Low
6913-00-2-R1-013		0	0	0	0	1	2		0	0		3	Low
6913-00-2-R1-014		0	0	0	0	2	2		0	0		4	Low
6913-00-2-R1-015		0	0	0	0	2	2		0	0		4	Low

Table 4. Catchment Assessment and Priority Ranking Matrix (IDDE Ranking Matrix)* - City of Waterbury, CT													
Outfall ID	Local Drainage Basin	Previous Screening Results Indicate Likely Sewer Input? <sup>1</sup>	Discharging to Area of Concern to Public Health? <sup>2</sup>	Frequency of Past Discharge Complaints	Receiving Water Quality <sup>3</sup>	Density of Generating Sites <sup>4</sup>	Age of Development/ Infrastructure <sup>5</sup>	Historic Combined Sewers or Septic? <sup>6</sup>	Aging Septic? <sup>7</sup>	Culverted Streams? <sup>8</sup>	Additional Characteristics	Score	Priority Ranking <sup>9</sup>
Information Source		Outfall inspections and sample results	GIS Maps	City Staff	Impaired Waters List	Land Use/GIS Maps, Aerial Photography	Land Use Information, Visual Observation	City Staff, GIS Maps	Land Use, City Staff	GIS & Storm System Maps	Other		
Scoring Criteria		Yes = 3 (Problem Outfall) No = 0	Yes = 3 No = 0	Frequent = 3 Occasional = 2 None = 0	Poor = 3 Good = 0	High = 3 Medium = 2 Low = 1	High = 3 Medium = 2 Low = 1	Yes = 3 No = 0	Failed =3 (Problem) Yes = 2 No = 0	Yes = 3 No = 0	TBD		
6913-00-2-R1-016		0	0	0	0	2	2		0	0		4	Low
6913-00-2-R1-017		0	0	0	0	1	2		0	0		3	Low
6913-00-2-R1-018		0	0	0	0	1	2		0	0		3	Low
6913-00-2-R1-019		0	0	0	0	2	2		0	0		4	Low
6913-00-2-R1-020		0	0	0	0	2	2		0	0		4	Low
6913-00-2-R1-022		0	0	0	0	1	2		0	0		3	Low
6913-00-2-R1-023		0	0	0	0	1	2		0	0		3	Low
6913-00-2-R1-024		0	0	0	0	1	2		0	0		3	Low
6913-00-2-R1-025		0	0	0	0	1	2		0	0		3	Low
6913-00-2-R1-031		0	0	0	0	1	2		0	0		3	Low
6913-00-2-R1-032		0	0	0	0	1	2		0	0		3	Low
6913-00-2-R1-033		0	0	0	0	1	2		0	0		3	Low
6913-00-2-R1-036		0	0	0	0	1	2		0	0		3	Low
6913-00-2-R2-001	Beaver Pond Brook 6913-00-2-R2	0	0	0	0	2	2		0	0		4	Low
6913-00-2-R2-003		0	0	0	0	2	2		0	0		4	Low
6913-00-2-R2-005		0	0	0	0	2	2		0	0		4	Low
6913-00-2-R2-006		0	0	0	0	2	2		0	0		4	Low
6913-01-1-003	Beaver Pond Brook 6913-01-1	0	0	0	0	1	2		0	0		3	Low
6913-01-1-004		0	0	0	0	1	1		0	0		2	Excluded
6913-01-1-005		0	0	0	0	1	2		0	0		3	Low
6913-01-1-006		0	0	0	0	1	1		0	0		2	Excluded
6913-01-1-007		0	0	0	0	1	1		0	0		2	Excluded
6913-01-1-008		0	0	0	0	1	1		0	0		2	Excluded
6913-02-1-001	Beaver Pond Brook 6913-02-1 (continued on next page)	0	0	0	0	1	1		0	0		2	Excluded
6913-02-1-002		0	0	0	0	1	1		0	0		2	Excluded
6913-02-1-003		0	0	0	0	1	1		0	0		2	Excluded
6913-02-1-004		0	0	0	0	1	1		0	0		2	Excluded
6913-02-1-005		0	0	0	0	1	1		0	0		2	Excluded
6913-02-1-006		0	0	0	0	1	1		0	0		2	Excluded
6913-02-1-007		0	0	0	0	1	1		0	0		2	Excluded
6913-02-1-008		0	0	0	0	1	1		0	0		2	Excluded
6913-02-1-009		0	0	0	0	1	2		0	0		3	Low
6913-02-1-010		0	0	0	0	1	2		0	0		3	Low
6913-02-1-011		0	0	0	0	1	2		0	0		3	Low
6913-02-1-012		0	0	0	0	1	2		0	0		3	Low
6913-02-1-013		0	0	0	0	1	2		0	0		3	Low

Table 4. Catchment Assessment and Priority Ranking Matrix (IDDE Ranking Matrix)* - City of Waterbury, CT													
Outfall ID	Local Drainage Basin	Previous Screening Results Indicate Likely Sewer Input? <sup>1</sup>	Discharging to Area of Concern to Public Health? <sup>2</sup>	Frequency of Past Discharge Complaints	Receiving Water Quality <sup>3</sup>	Density of Generating Sites <sup>4</sup>	Age of Development/ Infrastructure <sup>5</sup>	Historic Combined Sewers or Septic? <sup>6</sup>	Aging Septic? <sup>7</sup>	Culverted Streams? <sup>8</sup>	Additional Characteristics	Score	Priority Ranking <sup>9</sup>
Information Source		Outfall inspections and sample results	GIS Maps	City Staff	Impaired Waters List	Land Use/GIS Maps, Aerial Photography	Land Use Information, Visual Observation	City Staff, GIS Maps	Land Use, City Staff	GIS & Storm System Maps	Other		
Scoring Criteria		Yes = 3 (Problem Outfall) No = 0	Yes = 3 No = 0	Frequent = 3 Occasional = 2 None = 0	Poor = 3 Good = 0	High = 3 Medium = 2 Low = 1	High = 3 Medium = 2 Low = 1	Yes = 3 No = 0	Failed =3 (Problem) Yes = 2 No = 0	Yes = 3 No = 0	TBD		
6913-02-1-015		0	0	0	0	1	2		0	0		3	Low
6913-02-1-016		0	0	0	0	1	1		0	0		2	Excluded
6913-02-1-017		0	0	0	0	1	1		0	0		2	Excluded
6913-02-1-018		0	0	0	0	1	2		0	0		3	Low
6913-02-1-019		0	0	0	0	1	2		0	0		3	Low
6913-02-1-020		0	0	0	0	1	2		0	0		3	Low
6913-02-1-021		0	0	0	0	1	2		0	0		3	Low
6913-02-1-022		0	0	0	0	1	2		0	0		3	Low
6913-02-1-023		0	0	0	0	1	2		0	0		3	Low
6913-02-1-026		0	0	0	0	1	1		0	0		2	Excluded
6913-02-1-027		0	0	0	0	1	2		0	0		3	Low
6913-02-1-028		0	0	0	0	1	2		0	0		3	Low
6913-03-1-001	Beaver Pond Brook 6913-03-1	0	0	0	0	1	2		0	0		3	Low
6913-03-1-002		0	0	0	0	1	2		0	0		3	Low
6913-03-1-003		0	0	0	0	1	2		0	0		3	Low
6913-03-1-010		0	0	0	0	1	1		0	0		2	Excluded
6913-03-1-011		0	0	0	0	1	1		0	0		2	Excluded
6913-03-1-013		0	0	0	0	1	2		0	0		3	Low
6913-03-1-014		0	0	0	0	3	2		0	0		5	Low
6913-03-1-019		0	0	0	0	1	2		0	0		3	Low
6913-03-1-L1-001	Beaver Pond Brook 6913-03-1-L1	0	0	0	0	1	2		0	0		3	Low
6913-03-1-L1-002		0	0	0	0	1	1		0	0		2	Excluded
6913-03-1-L1-003		0	0	0	0	1	2		0	0		3	Low
6914-00-3-L3-001	Mad River 6914-00-3-L3 (continued on next page)	0	0	0	3	1	2		0	0		6	Low
6914-00-3-L3-002		0	0	0	3	1	2		0	0		6	Low
6914-00-3-L3-002a		0	0	0	3	1	2		0	0		6	Low
6914-00-3-L3-003		0	0	0	3	1	2		0	0		6	Low
6914-00-3-L3-004		0	0	0	3	1	2		0	0		6	Low
6914-00-3-L3-005		0	0	0	3	1	2		0	0		6	Low
6914-00-3-L3-007		0	0	0	3	2	2		0	0		7	Low
6914-00-3-L3-008		0	0	0	3	1	2		0	0		6	Low
6914-00-3-L3-009		0	0	0	3	1	2		0	0		6	Low
6914-00-3-L3-010		0	0	0	3	2	2		0	0		7	Low
6914-00-3-L3-011		0	0	0	3	2	2		0	0		7	Low
6914-00-3-L3-012		0	0	0	3	1	2		0	0		6	Low
6914-00-3-L3-013		0	0	0	3	1	2		0	0		6	Low

Table 4. Catchment Assessment and Priority Ranking Matrix (IDDE Ranking Matrix)* - City of Waterbury, CT													
Outfall ID	Local Drainage Basin	Previous Screening Results Indicate Likely Sewer Input? <sup>1</sup>	Discharging to Area of Concern to Public Health? <sup>2</sup>	Frequency of Past Discharge Complaints	Receiving Water Quality <sup>3</sup>	Density of Generating Sites <sup>4</sup>	Age of Development/ Infrastructure <sup>5</sup>	Historic Combined Sewers or Septic? <sup>6</sup>	Aging Septic? <sup>7</sup>	Culverted Streams? <sup>8</sup>	Additional Characteristics	Score	Priority Ranking <sup>9</sup>
Information Source		Outfall inspections and sample results	GIS Maps	City Staff	Impaired Waters List	Land Use/GIS Maps, Aerial Photography	Land Use Information, Visual Observation	City Staff, GIS Maps	Land Use, City Staff	GIS & Storm System Maps	Other		
Scoring Criteria		Yes = 3 (Problem Outfall) No = 0	Yes = 3 No = 0	Frequent = 3 Occasional = 2 None = 0	Poor = 3 Good = 0	High = 3 Medium = 2 Low = 1	High = 3 Medium = 2 Low = 1	Yes = 3 No = 0	Failed =3 (Problem) Yes = 2 No = 0	Yes = 3 No = 0	TBD		
6914-00-3-L3-017		0	0	0	3	1	2		0	0		6	Low
6914-00-3-L3-020		0	0	0	0	1	2		0	0		3	Low
6914-00-3-L3-021		0	0	0	3	1	2		0	0		6	Low
6914-00-3-L3-021a		0	0	0	3	1	2		0	0		6	Low
6914-00-3-L4-001	Mad River 6914-00-3-L4	0	0	0	3	1	2		0	0		6	Low
6914-00-3-L4-002		0	0	0	3	1	2		0	0		6	Low
6914-00-3-L4-004		0	0	0	3	2	2		0	0		7	Low
6914-00-3-L4-005		0	0	0	3	2	2		0	0		7	Low
6914-00-3-L4-006		0	0	0	3	2	2		0	0		7	Low
6914-00-3-L4-007		0	0	0	3	2	2		0	0		7	Low
6914-00-3-L4-008		0	0	0	3	2	2		0	0		7	Low
6914-00-3-L4-009		0	0	0	3	2	2		0	0		7	Low
6914-00-3-L4-010		0	0	0	0	1	2		0	0		3	Low
6914-00-3-L4-012		0	0	0	3	1	2		0	0		6	Low
6914-00-3-L4-013		0	0	0	3	1	2		0	0		6	Low
6914-00-3-L4-014		0	0	0	3	1	2		0	0		6	Low
6914-00-3-L4-015		0	0	0	3	1	2		0	0		6	Low
6914-00-3-R2-008	Mad River 6914-00-3-R2	0	0	0	3	1	2		0	0		6	Low
6914-00-3-R2-010		0	0	0	3	2	2		0	0		7	Low
6914-00-3-R3-001	Mad River 6914-00-3-R3	0	0	0	3	1	2		0	0		6	Low
6914-00-3-R3-002		3	0	0	3	2	2		0	0		10	Problem
6914-00-3-R3-003		0	0	0	3	2	3		0	0		8	High
6914-00-3-R3-004		0	0	0	3	1	2		0	0		6	Low
6914-00-3-R3-005		0	0	0	3	1	2		0	0		6	Low
6914-00-3-R3-006		0	0	0	3	1	2		0	0		6	Low
6914-00-3-R3-007		0	0	0	3	1	2		0	0		6	Low
6914-00-3-R3-008		0	0	0	3	1	2		0	0		6	Low
6914-00-3-R3-010		0	0	0	3	2	2		0	0		7	Low
6914-00-3-R3-011		0	0	0	3	1	2		0	0		6	Low
6914-00-3-R3-012		0	0	0	3	1	2		0	0		6	Low
6914-00-3-R3-013		0	0	0	3	1	2		0	0		6	Low
6914-00-3-R3-016		0	0	0	3	1	2		0	0		6	Low
6914-00-3-R3-017		0	0	0	0	1	1		0	0		2	Excluded
6914-00-3-R3-018		0	0	0	3	1	1		0	0		5	Low
6914-00-3-R3-019		0	0	0	3	1	1		0	0		5	Low

Table 4. Catchment Assessment and Priority Ranking Matrix (IDDE Ranking Matrix)* - City of Waterbury, CT													
Outfall ID	Local Drainage Basin	Previous Screening Results Indicate Likely Sewer Input? <sup>1</sup>	Discharging to Area of Concern to Public Health? <sup>2</sup>	Frequency of Past Discharge Complaints	Receiving Water Quality <sup>3</sup>	Density of Generating Sites <sup>4</sup>	Age of Development/ Infrastructure <sup>5</sup>	Historic Combined Sewers or Septic? <sup>6</sup>	Aging Septic? <sup>7</sup>	Culverted Streams? <sup>8</sup>	Additional Characteristics	Score	Priority Ranking <sup>9</sup>
Information Source		Outfall inspections and sample results	GIS Maps	City Staff	Impaired Waters List	Land Use/GIS Maps, Aerial Photography	Land Use Information, Visual Observation	City Staff, GIS Maps	Land Use, City Staff	GIS & Storm System Maps	Other		
Scoring Criteria		Yes = 3 (Problem Outfall) No = 0	Yes = 3 No = 0	Frequent = 3 Occasional = 2 None = 0	Poor = 3 Good = 0	High = 3 Medium = 2 Low = 1	High = 3 Medium = 2 Low = 1	Yes = 3 No = 0	Failed =3 (Problem) Yes = 2 No = 0	Yes = 3 No = 0	TBD		
6914-08-1-001	Mad River 6914-08-1	0	0	0	0	1	2		0	0		3	Low
6914-08-1-002		0	0	0	0	1	2		0	0		3	Low
6914-08-1-003		0	0	0	0	1	2		0	0		3	Low
6914-08-1-007		0	0	0	0	1	2		0	0		3	Low
6914-09-001	Mad River 6914-09	0	0	0	0	1	2		0	0		3	Low
6914-09-1-L1-001	Mad River 6914-09-1-L1	0	0	0	0	1	2		0	0		3	Low
6914-11-1-001	Mad River 6914-11-1	0	0	0	0	1	2		0	0		3	Low
6914-11-1-002		0	3	0	0	2	2		0	0		7	Low
6914-11-1-003		0	3	0	0	2	2		0	0		7	Low
6914-11-1-004		0	0	0	0	1	2		0	0		3	Low
6914-11-1-010		0	0	0	0	2	2		0	0		4	Low
6916-00-3-L4-001	Hop Brook 6916-00-3-L4	0	0	0	0	1	1		0	0		2	Excluded
6916-00-3-L4-002		0	0	0	0	1	2		0	0		3	Low
6916-00-3-L4-003		0	0	0	0	1	2		0	0		3	Low
6916-00-3-L4-004		0	0	0	0	1	2		0	0		3	Low
6916-00-3-L4-005		0	0	0	0	1	2		0	0		3	Low
6916-00-3-L4-006		0	0	0	0	1	2		0	0		3	Low
6916-10-1-001	Hop Brook 6916-10-1	0	0	0	0	1	2		0	0		3	Low
6916-10-1-002		0	0	0	0	1	2		0	0		3	Low
6916-10-1-003		0	0	0	0	1	2		0	0		3	Low
6916-10-1-004		0	0	0	0	1	2		0	0		3	Low
6916-10-1-005		0	0	0	0	1	2		0	0		3	Low
6916-10-1-006		0	0	0	0	1	2		0	0		3	Low
6916-10-1-011		0	0	0	0	1	2		0	0		3	Low
6916-10-1-L1-001	Hop Brook 6916-10-1-L1	0	0	0	0	1	2		0	0		3	Low
6916-10-1-L1-002		0	0	0	0	1	1		0	0		2	Excluded
6916-10-1-L1-003		0	0	0	0	1	2		0	0		3	Low
6916-10-1-L1-005		0	0	0	0	1	2		0	0		3	Low
6916-10-1-L1-006		0	0	0	0	1	1		0	0		2	Excluded
6916-10-1-L1-007		0	0	0	0	1	1		0	0		2	Excluded
6916-10-1-L1-008		0	0	0	0	2	2		0	0		4	Low
6916-11-1-001	Hop Brook 6916-11-1	0	0	0	0	1	2		0	0		3	Low
6916-11-1-002		0	0	0	0	1	2		0	0		3	Low
6916-11-1-004		0	0	0	0	1	2		0	0		3	Low

Table 4. Catchment Assessment and Priority Ranking Matrix (IDDE Ranking Matrix)* - City of Waterbury, CT													
Outfall ID	Local Drainage Basin	Previous Screening Results Indicate Likely Sewer Input? <sup>1</sup>	Discharging to Area of Concern to Public Health? <sup>2</sup>	Frequency of Past Discharge Complaints	Receiving Water Quality <sup>3</sup>	Density of Generating Sites <sup>4</sup>	Age of Development/Infrastructure <sup>5</sup>	Historic Combined Sewers or Septic? <sup>6</sup>	Aging Septic? <sup>7</sup>	Culverted Streams? <sup>8</sup>	Additional Characteristics	Score	Priority Ranking <sup>9</sup>
Information Source		Outfall inspections and sample results	GIS Maps	City Staff	Impaired Waters List	Land Use/GIS Maps, Aerial Photography	Land Use Information, Visual Observation	City Staff, GIS Maps	Land Use, City Staff	GIS & Storm System Maps	Other		
Scoring Criteria		Yes = 3 (Problem Outfall) No = 0	Yes = 3 No = 0	Frequent = 3 Occasional = 2 None = 0	Poor = 3 Good = 0	High = 3 Medium = 2 Low = 1	High = 3 Medium = 2 Low = 1	Yes = 3 No = 0	Failed =3 (Problem) Yes = 2 No = 0	Yes = 3 No = 0	TBD		
6916-11-1-L1-002	Hop Brook 6916-11-1-L1	0	0	0	0	1	2		0	0		3	Low
6916-11-1-L1-003		0	0	0	0	1	2		0	0		3	Low
6916-11-1-L1-005		0	0	0	0	1	2		0	0		3	Low
6916-11-1-L1-006		0	0	0	0	1	2		0	0		3	Low
6916-11-1-L1-007		0	0	0	0	1	2		0	0		3	Low
6916-11-1-L1-008		0	0	0	0	1	2		0	0		3	Low
6916-11-1-L1-009		0	0	0	0	1	2		0	0		3	Low
6916-11-1-L1-010		0	0	0	0	1	2		0	0		3	Low
6916-11-1-L1-011		0	0	0	0	1	2		0	0		3	Low
6916-11-1-L1-012		0	0	0	0	1	2		0	0		3	Low
6916-11-1-L1-014		0	0	0	0	1	2		0	0		3	Low
6916-11-1-L1-015		0	0	0	0	1	2		0	0		3	Low
6916-11-1-L1-016		0	0	0	0	1	2		0	0		3	Low
6916-11-1-L1-017		0	0	0	0	1	2		0	0		3	Low

Table 4. Catchment Assessment and Priority Ranking Matrix (IDDE Ranking Matrix)* - City of Waterbury, CT													
Outfall ID	Local Drainage Basin	Previous Screening Results Indicate Likely Sewer Input? <sup>1</sup>	Discharging to Area of Concern to Public Health? <sup>2</sup>	Frequency of Past Discharge Complaints	Receiving Water Quality <sup>3</sup>	Density of Generating Sites <sup>4</sup>	Age of Development/ Infrastructure <sup>5</sup>	Historic Combined Sewers or Septic? <sup>6</sup>	Aging Septic? <sup>7</sup>	Culverted Streams? <sup>8</sup>	Additional Characteristics	Score	Priority Ranking <sup>9</sup>
Information Source		Outfall inspections and sample results	GIS Maps	City Staff	Impaired Waters List	Land Use/GIS Maps, Aerial Photography	Land Use Information, Visual Observation	City Staff, GIS Maps	Land Use, City Staff	GIS & Storm System Maps	Other		
Scoring Criteria		Yes = 3 (Problem Outfall) No = 0	Yes = 3 No = 0	Frequent = 3 Occasional = 2 None = 0	Poor = 3 Good = 0	High = 3 Medium = 2 Low = 1	High = 3 Medium = 2 Low = 1	Yes = 3 No = 0	Failed =3 (Problem) Yes = 2 No = 0	Yes = 3 No = 0	TBD		

Scoring Criteria:
<sup>1</sup> Previous screening results indicate likely sewer input if any of the following are true: 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 Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and detectable levels of chlorine. If yes, these outfalls will be ranked as Problem. In addition, oufalls with previous sampling data with bacteria levels exceeding benchmarks were also ranked as Problem.
<sup>2</sup> Outfalls/interconnections that discharge to or in the vicinity of any of the following areas: public beaches, recreational areas, drinking water supplies, or shellfish beds
<sup>3</sup> Receiving water quality based on latest version of CT DEEP Integrated Water Quality Report. Poor = Waters with approved TMDLs (Category 4a Waters) where illicit discharges have the potential to contain the pollutant identified as the cause of the impairment, or water quality limited waterbodies that receive a discharge from the MS4 (Category 5 Waters) Good = No water quality impairments
<sup>4</sup> Generating sites are institutional, municipal, commercial, or industrial sites with a potential to contribute to illicit discharges (e.g., car dealers, car washes, gas stations, garden centers, industrial manufacturing, etc.)
<sup>5</sup> Age of development and infrastructure: High = Industrial areas greater than 40 years old and areas where the sanitary sewer system is more than 40 years old; Medium = Developments 20-40 years old; Low = Developments less than 20 years old. Generally, the age of the development and infrastructure for residential areas was approximated based on a broad assessment of the condition of roofs, structures, and/or pavement utilizing online aerial photographic mapping and street mapping images. Generally, this same method was used to approximate the age of the development and infrastructure for industrial areas and supplemented, as necessary, with a limited investigation of the age of structures in the subject area. The ages of structures were obtained through the City GIS and Property Records database available online. Values in this column may be subject to change as a result of a more comprehensive and detailed analysis.
<sup>6</sup> Areas once served by combined sewers but have been separated, or areas once served by septic systems but have been converted to sanitary sewers. (This information was unavailable at the time of this ranking.)
<sup>7</sup> Aging septic systems in residential areas: Failed = known septic system failures in the area (Problem Outfall); Yes = septic systems that are 30 years or older (There did not appear to be additional outfalls nearby and downgradient from known properties served by septic systems); NO=No known septic systems in the area (Areas presumed to be served by sewer.)
<sup>8</sup> Any river or stream that is culverted for distance greater than a simple roadway crossing.

IDDE Ranking Matrix Score	<sup>9</sup> Priority Ranking Category Scoring:
<3	Excluded
3 to 7	Low
8 to 20	High
>20, or if Previous Screening Results Indicate Likely Sewer Input (Column 1)=3, or if Aging Septic (Column 8)=3	Problem

In addition to assigning an outfall to an "excluded" category based on the score, outfalls were also checked for characteristics for "excluded catchments" as defined in the permit.

\*Ranking results as of January 2019.

Table 4a. Catchment Assessment and Priority Ranking Matrix (Culverts) - City of Waterbury, CT													
Outfall ID	Local Drainage Basin	Previous Screening Results Indicate Likely Sewer Input? <sup>1</sup>	Discharging to Area of Concern to Public Health? <sup>2</sup>	Frequency of Past Discharge Complaints	Receiving Water Quality <sup>3</sup>	Density of Generating Sites <sup>4</sup>	Age of Development/ Infrastructure <sup>5</sup>	Historic Combined Sewers or Septic? <sup>6</sup>	Aging Septic? <sup>7</sup>	Culverted Streams? <sup>8</sup>	Additional Characteristics	Score	Priority Ranking
Information Source		Outfall inspections and sample results	GIS Maps	City Staff	Impaired Waters List	Land Use/GIS Maps, Aerial Photography	Land Use Information, Visual Observation	City Staff, GIS Maps	Land Use, City Staff	GIS & Storm System Maps	Other		
Scoring Criteria		Yes = 3 (Problem Outfall) No = 0	Yes = 3 No = 0	Frequent = 3 Occasional = 2 None = 0	Poor = 3 Good = 0	High = 3 Medium = 2 Low = 1	High = 3 Medium = 2 Low = 1	Yes = 3 No = 0	Failed =3 (Problem) Yes = 2 No = 0	Yes = 3 No = 0	TBD		
6900-00-4-R10-008	Naugatuck River 6900-00-4-R10												
6900-00-4-R10-009													
6900-00-4-R11-077	Naugatuck River 6900-00-4-R11												
6900-00-4-R11-078													
6900-00-4-R11-079													
6900-00-4-R11-080													
6900-00-4-R11-081													
6900-00-4-R11-082													
6900-00-4-R11-083													
6900-00-4-R14-010	Naugatuck River 6900-00-4-R14												
6900-00-4-R14-011													
6900-00-4-R14-012													
6900-00-4-R15-013	NR 6900-4-R15												
6900-00-4-R9-015	NR 6900-4-R9												
6900-21-1-001	Naugatuck River 6900-22-1-L1												
6900-21-1-002													
6900-22-1-L1-014	Naugatuck River 6900-22-1-L1												
6900-22-1-L1-015													
6900-22-1-L1-016													
6900-22-1-L1-017													
6900-22-1-L2-004	NR 6900-22-1-L2												
6900-22-1-L4-005	NR 6900-22-1-L4												
6900-23-1-013	Naugatuck River 6900-23-1 (continued on next page)												
6900-23-1-014													
6900-23-1-015													
6900-23-1-016													
6900-23-1-017													
6900-23-1-018													

Table 4a. Catchment Assessment and Priority Ranking Matrix (Culverts) - City of Waterbury, CT													
Outfall ID	Local Drainage Basin	Previous Screening Results Indicate Likely Sewer Input? <sup>1</sup>	Discharging to Area of Concern to Public Health? <sup>2</sup>	Frequency of Past Discharge Complaints	Receiving Water Quality <sup>3</sup>	Density of Generating Sites <sup>4</sup>	Age of Development/ Infrastructure <sup>5</sup>	Historic Combined Sewers or Septic? <sup>6</sup>	Aging Septic? <sup>7</sup>	Culverted Streams? <sup>8</sup>	Additional Characteristics	Score	Priority Ranking
Information Source		Outfall inspections and sample results	GIS Maps	City Staff	Impaired Waters List	Land Use/GIS Maps, Aerial Photography	Land Use Information, Visual Observation	City Staff, GIS Maps	Land Use, City Staff	GIS & Storm System Maps	Other		
Scoring Criteria		Yes = 3 (Problem Outfall) No = 0	Yes = 3 No = 0	Frequent = 3 Occasional = 2 None = 0	Poor = 3 Good = 0	High = 3 Medium = 2 Low = 1	High = 3 Medium = 2 Low = 1	Yes = 3 No = 0	Failed =3 (Problem) Yes = 2 No = 0	Yes = 3 No = 0	TBD		
6900-23-1-019													
6900-23-1-020													
6900-23-1-021													
6900-23-1-022													
6900-23-1-023													
6900-23-1-024													
6900-23-1-025													
6900-23-1-026													
6900-23-1-027													
6900-23-1-L2-005	Naugatuck River 6900-23-1-L2												
6900-23-1-L2-006													
6911-00-3-R1-038	Hancock Brook 6911-00-3-R1												
6911-00-3-R1-039													
6912-00-3-R1-043	Steele Brook 6912-00-3-R1												
6912-00-3-R1-044													
6912-00-3-R1-045													
6912-00-3-R1-046													
6912-00-3-R1-047													
6912-00-3-R1-048													
6912-00-3-R1-049													
6913-00-2-R1-039	Beaver Pond Brook 6913-00-2-R1												
6913-00-2-R1-040													
6913-00-2-R1-041													
6913-00-2-R1-042													
6913-00-2-R1-043													
6913-00-2-R1-044													

Table 4a. Catchment Assessment and Priority Ranking Matrix (Culverts) - City of Waterbury, CT													
Outfall ID	Local Drainage Basin	Previous Screening Results Indicate Likely Sewer Input? <sup>1</sup>	Discharging to Area of Concern to Public Health? <sup>2</sup>	Frequency of Past Discharge Complaints	Receiving Water Quality <sup>3</sup>	Density of Generating Sites <sup>4</sup>	Age of Development/ Infrastructure <sup>5</sup>	Historic Combined Sewers or Septic? <sup>6</sup>	Aging Septic? <sup>7</sup>	Culverted Streams? <sup>8</sup>	Additional Characteristics	Score	Priority Ranking
Information Source		Outfall inspections and sample results	GIS Maps	City Staff	Impaired Waters List	Land Use/GIS Maps, Aerial Photography	Land Use Information, Visual Observation	City Staff, GIS Maps	Land Use, City Staff	GIS & Storm System Maps	Other		
Scoring Criteria		Yes = 3 (Problem Outfall) No = 0	Yes = 3 No = 0	Frequent = 3 Occasional = 2 None = 0	Poor = 3 Good = 0	High = 3 Medium = 2 Low = 1	High = 3 Medium = 2 Low = 1	Yes = 3 No = 0	Failed =3 (Problem) Yes = 2 No = 0	Yes = 3 No = 0	TBD		
6913-01-1-013	Beaver Pond Brook 6913-01-1												
6913-01-1-014													
6913-02-1-029	Beaver Pond Brook 6913-02-1												
6913-02-1-030													
6913-02-1-031													
6913-02-1-032													
6913-02-1-033													
6913-02-1-034													
6913-02-1-035													
6913-02-1-036													
6913-02-1-037													
6913-02-1-038													
6913-02-1-039													
6913-03-1-021	Beaver Pond Brook 6913-03-1												
6913-03-1-022													
6913-03-1-023													
6914-06-1-L2-001	Mad River 6914-06-1-L2												
6914-06-1-L2-003													
6914-11-1-013	MR 6914-11-1												
6916-10-1-009	Hop Brook 6919-10-1												
6916-10-1-010													
6916-10-1-L1-009	Hop Brook 6919-10-1-L1												
6916-10-1-L1-010													
6916-11-1-L1-02	Hop Brook 6919-11-1-L1 (continued on next page)												
6916-11-1-L1-021													
6916-11-1-L1-022													
6916-11-1-L1-023													
6916-11-1-L1-024													

Table 4a. Catchment Assessment and Priority Ranking Matrix (Culverts) - City of Waterbury, CT													
Outfall ID	Local Drainage Basin	Previous Screening Results Indicate Likely Sewer Input? <sup>1</sup>	Discharging to Area of Concern to Public Health? <sup>2</sup>	Frequency of Past Discharge Complaints	Receiving Water Quality <sup>3</sup>	Density of Generating Sites <sup>4</sup>	Age of Development/ Infrastructure <sup>5</sup>	Historic Combined Sewers or Septic? <sup>6</sup>	Aging Septic? <sup>7</sup>	Culverted Streams? <sup>8</sup>	Additional Characteristics	Score	Priority Ranking
Information Source		Outfall inspections and sample results	GIS Maps	City Staff	Impaired Waters List	Land Use/GIS Maps, Aerial Photography	Land Use Information, Visual Observation	City Staff, GIS Maps	Land Use, City Staff	GIS & Storm System Maps	Other		
Scoring Criteria		Yes = 3 (Problem Outfall) No = 0	Yes = 3 No = 0	Frequent = 3 Occasional = 2 None = 0	Poor = 3 Good = 0	High = 3 Medium = 2 Low = 1	High = 3 Medium = 2 Low = 1	Yes = 3 No = 0	Failed =3 (Problem) Yes = 2 No = 0	Yes = 3 No = 0	TBD		
6916-11-1-L1-025													
6916-11-1-L1-026													
6916-11-1-L1-028													

Scoring Criteria:

- <sup>1</sup> Previous screening results indicate likely sewer input if any of the following are true:
- 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
  - Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and detectable levels of chlorine
  - If yes, these outfalls will be ranked as Problem
- <sup>2</sup> Outfalls/interconnections that discharge to or in the vicinity of any of the following areas: public beaches, recreational areas, drinking water supplies, or shellfish beds
- <sup>3</sup> Receiving water quality based on latest version of CT DEEP Integrated Water Quality Report.
- Poor = Waters with approved TMDLs (Category 4a Waters) where illicit discharges have the potential to contain the pollutant identified as the cause of the impairment, or water quality limited waterbodies that receive a discharge from the MS4 (Category 5 Waters)
  - Good = No water quality impairments
- <sup>4</sup> Generating sites are institutional, municipal, commercial, or industrial sites with a potential to contribute to illicit discharges (e.g., car dealers, car washes, gas stations, garden centers, industrial manufacturing, etc.)
- <sup>5</sup> Age of development and infrastructure:
- High = Industrial areas greater than 40 years old and areas where the sanitary sewer system is more than 40 years old
  - Medium = Developments 20-40 years old
  - Low = Developments less than 20 years old
- <sup>6</sup> Areas once served by combined sewers but have been separated, or areas once served by septic systems but have been converted to sanitary sewers.
- <sup>7</sup> Aging septic systems in residential areas:
- Failed = known septic system failures in the area (Problem Outfall)
  - Yes = septic systems that are 30 years or older
- <sup>8</sup> Any river or stream that is culverted for distance greater than a simple roadway crossing.

## 7.0 **OUTFALL & INTERCONNECTION SCREENING AND SAMPLING**

The following written procedure for screening and sampling of outfalls and interconnections from the MS4 in dry and wet weather for evidence of illicit discharges and SSOs shall be used for:

- Baseline outfall and interconnection screening (dry weather);
- Confirmatory screenings (dry and/or wet weather depending on catchment characteristics);
- Follow-up screening (dry and/or wet weather depending on catchment characteristics).

The City of Waterbury is responsible for conducting dry and wet weather outfall and interconnection screening and sampling.

### 7.1 **Dry and Wet Weather Rainfall Criteria**

For the purposes of outfall screening and sampling, dry and wet weather conditions are defined as follows:

- **Dry Weather** – dry weather screening and sampling shall proceed when no more than 0.1 inches of rainfall has occurred in the previous 24-hour period.
- **Wet Weather** – wet weather screening and sampling shall 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. Sampling during the initial period of discharge (“first flush”) will be avoided. To the extent feasible, sampling should occur during the spring (March through June) when groundwater levels are relatively high.

Note that wet weather criteria for impaired waters outfall monitoring pursuant to Section 6(i) of the MS4 Permit are different than the above wet weather criteria for outfall screening and sampling.

For purposes of determining dry and wet weather conditions, precipitation data from Weather Underground ([www.wunderground.com](http://www.wunderground.com)) or the National Weather Service (<https://www.weather.gov/>) will be used.

The remainder of this section is focused on dry weather screening and sampling. Wet weather screening and sampling is discussed further in the context of catchment investigations, including confirmatory and follow-up screening in Section 8.

## 7.2 Dry Weather Screening/Sampling Procedure

Dry weather flow is a common indicator of potential illicit connections. The 2017 MS4 Permit requires all outfalls/interconnections (excluding Problem and Excluded Catchments) to be screened (i.e., visually inspected) for the presence of dry weather flow. Dry weather outfall screening and sampling may take place when no more than 0.1 inches of rainfall has occurred in the previous 24-hour period. The dry weather outfall screening 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 (see **Table 5** for list of potential 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 forms or digital form using a tablet or similar device) (see form in **Appendix C**). This information is now being recorded using the mobile device application "Epi-Collect".
  - 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. In the event an outfall is inaccessible or submerged, the staff may proceed to the first accessible upstream manhole or structure for the observation and sampling and report the location with the screening results. If an interconnection is inaccessible or submerged, the staff may perform screening at the first accessible location within the permittee's system upgradient of the interconnection.
5. If flow is observed, sample and test the flow following the procedures described in the following sections.
6. 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.

7. Input results from screening and sampling into spreadsheet/database. Include pertinent information in the outfall/interconnection inventory and priority ranking.
8. Include all screening data in the Annual Report.

Previous outfall screening/sampling conducted under the 2004 MS4 Permit may be used to satisfy the dry weather outfall/screening requirements of the 2017 MS4 Permit only if the previous screening and sampling was substantially equivalent to that required by the 2017 MS4 Permit, including the list of analytes outlined in Section 2.3.4.7.b.iii.4 of the 2017 permit.

### 7.3 Field Equipment

**Table 5** lists field equipment commonly used for outfall screening and sampling.

<b>Table 5. Field Equipment – Dry Weather Outfall Screening and Sampling</b>	
<b>Equipment</b>	<b>Use/Notes</b>
Clipboard	For organization of field sheets and writing surface
Field Sheets/Paperwork	Field sheets for both Dry Weather Inspection and Dry Weather Sampling should be available with extras, field book, maps, HASP
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 or I-phone	For documenting field conditions at time of inspection
Personal Protective Equipment (PPE)	Reflective vest, Safety glasses and boots at a minimum
GPS Receiver or I-phone	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

**Table 5. Field Equipment – Dry Weather Outfall Screening and Sampling**

<b>Equipment</b>	<b>Use/Notes</b>
Utility Knife	Multiple uses
Measuring Tape	Measuring distances and depth of flow
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
Machete and/or clippers	For clearing vegetation to locate outfalls
Insect Repellent	For insect/tick protection
Soap/DI Water	For cleaning meters in between samples
Bucket	For carrying equipment and supplies, trash

#### 7.4 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 parameters<sup>3</sup> listed in **Table 6**. 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**)
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 Laboratory or call for sample pick-up

<sup>3</sup> 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).

9. Dispose of used test strips and test kit ampules properly

10. Decontaminate all testing personnel and equipment

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** lists various field test kits and field instruments that can be used for outfall sampling associated with the 2017 MS4 Permit parameters, other than indicator bacteria and any pollutants of concern. User's manuals for field test kits and field instrumentation are provided in **Appendix D**.

Table 6. 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-1510 (series) Hach™ NI-SA Hach NI-8 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 Hach™ DR/890 Colorimeter	Hach CN-66F (Confirm with Regulatory Agency prior to use)
Conductivity	CHEMetrics™ I-1200 YSI Pro30, Pro1030 YSI EC300A Oakton 450 YSI 556 YSI 63	NA
Temperature	YSI Pro30, Pro1030 YSI EC300A Oakton 450 YSI 556 YSI 63	NA
Salinity	YSI Pro30, Pro1030 YSI EC300A Oakton 450 YSI 556 YSI 63	NA
Indicator Bacteria: <i>E. coli</i> (freshwater)	EPA certified laboratory procedure (40 CFR § 136)	NA
Pollutants of Concern <sup>1</sup>	EPA certified laboratory procedure (40 CFR § 136)	NA

<sup>1</sup> 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.<sup>4</sup> Samples for laboratory analysis must also be stored and preserved in accordance with procedures found in 40 CFR § 136. **Table 7** lists analytical methods, detection limits, hold times, and preservatives for laboratory analysis of dry weather sampling parameters.

**Table 7. Required Analytical Methods, Detection Limits, Hold Times, and Preservatives**

Analyte or Parameter	Analytical Method	Detection Limit	Max. Hold Time	Preservative
Ammonia	<b>EPA:</b> 350.1 <b>SM:</b> 4500-NH3C	0.10 mg/L	28 days	Cool ≤6°C, H <sub>2</sub> SO <sub>4</sub> to pH <2, No preservative required if analyzed immediately
Surfactants	<b>SM:</b> 5540-C	0.05 mg/L	48 hours	Cool ≤6°C
Chlorine	<b>SM:</b> 4500-Cl G	0.2 mg/L (HACH CN-66F field kit)* 0.02 mg/L (HACH Pocket Colorimeter II)	Analyze within 15 minutes	None Required
Temperature	<b>SM:</b> 2550B	NA	Immediate	None Required
Specific Conductance	<b>EPA:</b> 120.1, <b>SM:</b> 2510B	1.0 µs/cm	28 days	Cool ≤6°C
Salinity	<b>SM:</b> 2520	-	28 days	Cool ≤6°C
Indicator Bacteria: <i>E. coli</i> Enterococcus	<i>E. coli</i> <b>EPA:</b> 1603 <b>SM:</b> 9221B, 9221F, 9223 B <b>Other:</b> Colilert®, Colilert-18®, mColiBlue24  <i>Enterococcus</i> <b>EPA:</b> 1600 <b>SM:</b> 9230 C <b>Other:</b> Enterolert®	<i>E. coli</i> <b>EPA:</b> 1 cfu/100mL <b>SM:</b> 2 MPN/100mL <b>Other:</b> 1 MPN/100mL 1 cfu/100 mL  <i>Enterococcus</i> <b>EPA:</b> 1 cfu/100mL <b>SM:</b> 1 MPN/100mL <b>Other:</b> 1 MPN/100mL	6 hours	Cool ≤10°C, 0.0008% Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>
Total Phosphorus	<b>EPA:</b> Manual-365.3, Automated Ascorbic acid digestion-365.1 Rev. 2, ICP/AES4-200.7 Rev. 4.4  <b>SM:</b> 4500-P E-F	<b>EPA:</b> 0.01 mg/L <b>SM:</b> 0.01 mg/L	28 days	Cool ≤6°C, H <sub>2</sub> SO <sub>4</sub> to pH <2
Total Nitrogen (Ammonia + Nitrate/Nitrite, methods are for Nitrate-Nitrite and need to be combined with Ammonia listed above.)	<b>EPA:</b> Cadmium reduction (automated)-353.2 Rev. 2.0, <b>SM:</b> 4500-NO <sub>3</sub> E-F	<b>EPA:</b> 0.05 mg/L <b>SM:</b> 0.05 mg/L	28 days	Cool ≤6°C, H <sub>2</sub> SO <sub>4</sub> to pH <2

EPA= EPA Method SM = Standard Methods \*Confirm with Regulatory Agency prior to use

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

## 7.5 Interpreting Outfall Sampling Results

Outfall analytical data can be used to help identify the major type or source of discharge. **Table 8** 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 8. Benchmark Field Measurements for Select Parameters	
Analyte or Parameter	Benchmark
Ammonia	>0.5 mg/L
Conductivity	>2,000 $\mu$ S/cm
Surfactants	>0.25 mg/L
Chlorine	>0.02 mg/L (detectable levels per the 2017 MS4 Permit)
Indicator Bacteria: <i>E.coli</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 for designated swimming areas, 410 colonies per 100 ml for non-designated swimming areas, and 576 colonies per 100 mL for all other uses. <b>For outfalls discharging to impaired waterbodies the benchmark of 596 colonies per 100 mL shall be used.</b>

Catchments are considered highly likely to contain illicit discharges from sanitary sources when either of the following combinations of sampling results is detected:

- Ammonia  $\geq$  0.5 mg/L, surfactants  $\geq$  0.25 mg/L, and bacteria levels greater than the water quality criteria applicable to the receiving water, or
- Ammonia  $\geq$  0.5 mg/L, surfactants  $\geq$  0.25 mg/L, and detectable levels of chlorine.

Catchments with outfall screening results that meet the above criteria shall be ranked at the top of the High Priority Catchments category for investigation.

## 8.0 **CATCHMENT INVESTIGATION PROCEDURE**

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

### 8.1 **System Vulnerability Factors**

The City of Waterbury will develop a written systematic procedure for catchment investigation that includes (1) a review relevant mapping and historic plans and records to identify areas within the catchment with higher potential for illicit connections; (2) a manhole inspection methodology; (3) procedures to isolate and confirm sources of illicit discharges. The following information will be reviewed:

- Plans related to the construction of the storm drains and sanitary sewers
- Prior work on storm drains or sanitary sewers
- Health Department or other municipal data on septic systems failures or required upgrades
- Complaint records related to SSOs, sanitary sewer surcharges and 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. SVFs indicate a risk of sanitary or septic system inputs to the MS4 under wet weather conditions.

- History of SSOs, including, but not limited to, those resulting from wet weather, high water table, or fat/oil/grease blockages.
- Sewer pump/lift stations, siphons, or known sanitary sewer restrictions where power/equipment failures or blockages could readily result in SSOs.
- Inadequate sanitary sewer level of service (LOS) resulting in regular surcharging, customer back-ups, or frequent customer complaints.
- Common or twin-invert manholes serving storm and sanitary sewer alignments.
- Common trench construction serving both storm and sanitary sewer alignments.
- Crossings of storm and sanitary sewer alignments.
- Sanitary sewer alignments known or suspected to have been constructed with an underdrain system.
- Areas formerly served by combined sewer systems.
- Sanitary sewer infrastructure defects such as leaking service laterals, cracked, broken, or offset sanitary infrastructure, directly piped connections between storm drain and sanitary

sewer infrastructure, or other vulnerability factors identified through Inflow/Infiltration Analyses, Sanitary Sewer Evaluation Surveys, or other infrastructure investigations.

- Any sanitary sewer and storm drain infrastructure greater than 40 years old in medium and densely developed areas.
- 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 health department 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).

A SVF inventory will be documented for each outfall/drainage basin (see **Table 9**), retained as part of this IDDE Program, and included in the Annual Report.

## 8.2 Dry Weather Investigation - Manhole Inspections

The City of Waterbury will implement a dry weather storm drain network investigation 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 City of Waterbury 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 and confirm or identify potential system vulnerability factors. 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, inspecting key junction manholes along the way.

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 7**. Additional indicator sampling may assist in determining potential sources.
3. Where sampling results or visual or olfactory evidence indicate potential illicit discharges, 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.

### 8.2.1 Catchments Without Junction Manholes

Where catchments do not contain junction manholes, the dry weather screening and sampling shall be considered as meeting the manhole inspection requirement. In these catchments, dry weather screenings that indicate potential presence of illicit discharges shall be further investigated as described in **Section 8.4** below. Investigations in these catchments may be considered complete where dry weather screening reveals no flow; no evidence of illicit discharges or SSOs is indicated through sampling results or visual or olfactory means; and no wet weather SVFs are identified.

Table 9. Outfall Catchment System Vulnerability Factor (SVF) Inventory													
City of Waterbury, Connecticut													
Revision Date: ##DATE OF LAST UPDATE													
Outfall ID	Receiving Water	1 History of SSOs	2 Common or Twin Invert Manholes	3 Common Trench Construction	4 Storm/Sanitary Crossings (Sanitary Above)	5 Sanitary Lines with Underdrains	6 Inadequate Sanitary Level of Service	7 Areas Formerly Served by Combined Sewers	8 Sanitary Infrastructure Defects	9 SSO Potential In Event of System Failures	10 Sanitary and Storm Drain Infrastructure >40 years Old	11 Septic with Poor Soils or Water Table Separation	12 History of BOH Actions Addressing Septic Failure
Sample 1	XYZ River	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No

Presence/Absence Evaluation Criteria:

- 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 and sanitary sewer alignments
- Common trench construction serving both storm and sanitary sewer alignments
- Crossings of storm and sanitary sewer alignments where the sanitary system is shallower than the storm drain system
- Sanitary sewer alignments known or suspected to have been constructed with an underdrain system
- Inadequate sanitary sewer level of service (LOS) resulting in regular surcharging, customer back-ups, or frequent customer complaints
- Areas formerly served by combined sewer systems
- Sanitary sewer infrastructure defects such as leaking service laterals, cracked, broken, or offset sanitary infrastructure, directly piped connections between storm drain and sanitary sewer infrastructure, or other vulnerability factors identified through inflow/infiltration analyses, sanitary sewer evaluation surveys, or other infrastructure investigations
- Sewer pump/lift stations, siphons, or known sanitary sewer restrictions where power/equipment failures or blockages could readily result in SSOs
- Any sanitary sewer and 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 Health Department 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)

### 8.3 Wet Weather Investigation (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 City of Waterbury 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 (refer to **Table 6** and **Table 7**) and in accordance with the Sample Collection and Analysis procedure described in **Section 7.4** (see **Appendix C** for sample labels and field sheets).
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.
  - a. 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.
  - b. Sampling during the initial period of discharge ("first flush") will be avoided.
  - c. To the extent feasible, sampling should occur during the spring (March through June) when groundwater levels are relatively high. Refer to **Section 7.1** for information on weather tracking.
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 8.4**.
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. Data shall be recorded and reported in each Annual Report.

### 8.4 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
- IDDE Canines

These methods are described in the sections below. Additional instructions and Standard Operating Procedures (SOPs) 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 City of Waterbury will notify property owners in the affected area. Smoke testing notification may include ROBOCALLS, HANGING NOTIFICATIONS, EMAIL notification and/or LETTER notification for single family homes, businesses and building lobbies for multi-family dwellings.

#### **8.4.1 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.

#### **8.4.2 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. It is an appropriate tracing technique for short sections of pipe and for pipe with small diameters. 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.

#### **8.4.3 Dye Testing**

Dye testing involves flushing non-toxic dye into plumbing fixtures such as toilets, showers, and sinks (each fixture should be tested separately) 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.

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

#### **8.4.4 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.

#### **8.4.5 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.

#### **8.4.6 IDDE Canines**

Dogs specifically trained to smell human related sewage are becoming a cost-effective way to isolate and identify sources of illicit discharges. While not widespread at the moment, the use of IDDE canines is growing as is their accuracy. The use of IDDE canines is not recommended as a standalone practice for source identification; rather it is recommended as a tool to supplement other conventional methods, such as dye testing, in order to fully verify sources of illicit discharges.

### **8.5 Illicit Discharge Removal**

When the specific source of an illicit discharge is identified, the City of Waterbury 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
- Estimate of the volume of flow removed.

#### **8.5.1 Confirmatory Outfall Screening**

Within one (1) year of removal of all identified illicit discharges and SSO sources 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. Confirmatory screening is not required in catchments where no illicit discharges or System Vulnerability Factors have been identified and no previous screening indicated suspicious flows.

### **8.6 Follow-up Screening**

Upon completion of all catchment investigations and illicit discharge removal and confirmation (if necessary), each outfall or interconnection will be scheduled for follow-up screening within five (5) years, or sooner based on the catchment's illicit discharge priority. Ongoing screening will consist of dry weather screening and sampling consistent with the procedures described in **Section 7** of this document. 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 8.3**. All sampling results will be reported in the Annual Report.

## **8.7 Illicit Discharge Prevention Procedures**

The City of Waterbury will implement the following mechanisms and procedures to assist in the prevention of illicit discharges and SSOs:

- Spill response and prevention procedures including identification of spills, reporting procedures, containment procedures, and documentation.
- Public awareness (may be part of the education program required by Subsection 2 of the MS4 Permit).
- Reporting hotlines and training of public employees involved in the IDDE program on ways to identify potential illicit discharges and SSOs.

## 9.0 **TRAINING**

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Annual IDDE training will be made available to all employees involved in the IDDE program. 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.

## 10.0 **PROGRESS REPORTING**

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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:

- Measures that demonstrate efforts to locate illicit discharges
- Number of illicit discharges identified and removed
- Percent and area in acres of the catchment area 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 Ordinance)

The IDDE Ordinance, Letter of Approval and Legal Notice

RECEIVED  
AUG 27 2018



MS4  
Legal Authority  
Ordinance

Dept. of Public Works

OFFICE OF THE CITY CLERK  
**MEMORANDUM**


**DATE:** August 21, 2018  
**FROM:** Board of Aldermen  
**TO:** Paul M. Bellagamba, P.E. City Engineer, PWD  
**SUBJECT: PROPOSED CITY ORDINANCE**

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At a regular meeting of the Board of Aldermen held on Monday, August 20, 2018 the Board voted by a unanimous consent calendar roll call vote to **APPROVE** a **Proposed City Ordinance** for the Small Municipal Separate Storm Sewer System (MS4) Permit Entitled "Illicit Discharge and Connection Stormwater Ordinance".

**ATTEST:**

  
Michael J. Dalton  
City Clerk

MJD/dd

#OB #1

cc: Linda Wihbey, Corporation Counsel

# Illicit Discharge and Connection Stormwater Ordinance

ORDINANCE NO.           

## SECTION 1 PURPOSE/INTENT

The purpose of this ordinance is to provide for the health, safety, and general welfare of the citizens of the City of Waterbury through the regulation of non-storm water discharges to the storm drainage system to the maximum extent practicable as required by federal and state law. This ordinance establishes methods for controlling the introduction of pollutants into the municipal separate storm sewer system (MS4) in order to comply with requirements of the National Pollutant Discharge Elimination System (NPDES) permit process. The objectives of this ordinance are:

- (a) To regulate the contribution of pollutants to the municipal separate storm sewer system (MS4) by discharges by any user;
- (b) To prohibit and eliminate illicit connections and discharges to the municipal separate storm sewer system;
- (c) Prevent non-stormwater discharges, generated as a result of spills, inappropriate dumping or disposal, to these storm sewer systems;
- (d) To establish legal authority to carry out all inspection, surveillance and monitoring procedures necessary to ensure compliance with this ordinance
- (e) To ensure compliance with the City's Municipal Separate Storm Sewer System (MS4) Permit.

## SECTION 2 DEFINITIONS

For the purposes of this ordinance, the following shall mean:

Accidental Discharge: A discharge prohibited by this Ordinance, which occurs by chance, and without planning or thought prior to occurrence.

Authorized Enforcement Agency: The City of Waterbury Department of Public Works (hereinafter "Public Works Department"), and/or its employees or designees.

Best Management Practices (BMPs): Schedules of activities, practices (and prohibitions of practices), structures, vegetation, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants to waters of the state consistent with state, federal or other equivalent and technically supported guidance. BMPs also include treatment requirements, operating procedures, and practices to control site runoff, spillage or leaks, sludge or waste disposal, or drainage from material storage.

Clean Water Act: The federal Water Pollution Control Act (33 U.S.C. § 1251 et seq.), and any subsequent amendments thereto.

Construction Activity: Any activity associated with construction at a site including, but not limited to, clearing and grubbing, grading, excavation, and dewatering.

Department: The Public Works Department.

Director: Shall mean the City of Waterbury Director of Public Works or his/her authorized designee.

Hazardous Materials: Any material, including any substance, waste, or combination thereof, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may cause, or significantly contribute to, a substantial present or potential hazard to human health, safety, property, or the environment when improperly treated, stored, transported, disposed of, or otherwise

## **Illicit Discharge and Connection Stormwater Ordinance**

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**Illegal Discharge:** Any direct or indirect non-stormwater discharge to the storm drain system, except as exempted in Section 8 of this ordinance.

**Illicit Connections:** An illicit connection is defined as either of the following: Any drain or conveyance, whether on the surface or subsurface, which allows an illegal discharge to enter the storm drain system including but not limited to any conveyances which allow any non-storm water discharge including sewage, process wastewater, and wash water to enter the storm drain system and any connections to the storm drain system from indoor drains and sinks, regardless of whether said drain or connection had been previously allowed, permitted, or approved by an authorized enforcement agency or, any drain or conveyance connected from a commercial or industrial land use to the storm drain system which has not been documented in plans, maps, or equivalent records and approved by an authorized enforcement agency.

**Industrial Activity:** Activities subject to NPDES Industrial Permits as defined in 40 CFR, Section 122.26 (b)(14).

**National Pollutant Discharge Elimination System (NPDES) Storm Water Discharge Permit:** A permit issued by the [United States Environmental Protection Agency](#) (“EPA”) (or by a State under authority delegated pursuant to 33 USC § 1342(b)) that authorizes the discharge of pollutants to waters of the United States, whether the permit is applicable on an individual, group, or general area-wide basis.

**Non-Stormwater Discharge:** Any discharge to the storm drain system that is not composed entirely of storm water.

**Person:** Any individual, association, organization, partnership, firm, corporation or other entity recognized by law.

**Pollutant:** Anything which causes or contributes to pollution. Pollutants may include, but are not limited to: paints, varnishes, and solvents; oil and other automotive fluids; non-hazardous liquid and solid wastes and yard wastes; refuse, rubbish, garbage, litter, or other discarded or abandoned objects, and accumulations, so that same may cause or contribute to pollution; floatables; pesticides, herbicides, and fertilizers; hazardous substances and wastes; sewage, fecal coliform and pathogens; dissolved and particulate metals; animal wastes; wastes and residues that result from constructing a building or structure; and noxious or offensive matter of any kind.

**Premises:** Any building, lot, parcel of land, or portion of land whether improved or unimproved including adjacent sidewalks and parking strips.

**Storm Drainage System:** Publicly-owned facilities by which storm water is collected and/or conveyed, including but not limited to any roads with drainage systems, municipal streets, gutters, curbs, inlets, piped storm drains, pumping facilities, retention and detention basins, natural and human-made or altered drainage channels, reservoirs, and other drainage structures.

**Stormwater:** Waters consisting of rainfall runoff, including snow or ice melt, during a rain event.

**Stormwater Pollution Prevention Plan:** A document which describes the Best Management Practices and activities to be implemented by a person or business to identify sources of pollution or contamination at a site and the actions to eliminate or reduce pollutant discharges to Stormwater, Stormwater Conveyance Systems, and/or Receiving Waters to the Maximum Extent Practicable.

**Wastewater:** Any water or other liquid, other than uncontaminated storm water, discharged from a facility.

**Watercourse:** A permanent or intermittent stream or other body of water, either natural or man-made, which gathers or carries surface water. This includes but is not limited to lakes, ponds, rivers, streams or any other surface water defined as a watercourse by the City’s Inland Wetland regulations.

## **Illicit Discharge and Connection Stormwater Ordinance**

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### **SECTION 3                   APPLICABILITY**

This ordinance shall apply to all water entering the storm drain system generated on any developed and undeveloped lands unless explicitly exempted by the Department.

### **SECTION 4                   COMPATIBILITY WITH OTHER REGULATIONS**

This ordinance is not intended to modify or repeal any other ordinance, rule, regulation, or other provision of law. The requirements of this ordinance are in addition to the requirements of any other ordinance, rule, regulation, or other provision of law, or where any provision of this ordinance imposes restrictions different than those imposed by any other ordinance, rule, regulation, or other provision of law, whichever provision is more restrictive or imposes higher protective standards for human health or the environment shall control.

### **SECTION 5                   RESPONSIBILITY FOR ADMINISTRATION**

The Public Works Department shall administer, implement, and enforce the provisions of this ordinance. Any powers granted or duties imposed upon the Department may be delegated in writing by the Director to persons or entities acting in the beneficial interest of or in the employ of the agency.

### **SECTION 6                   SEVERABILITY**

The provisions of this ordinance are hereby declared to be severable. If any provision, clause, sentence, or paragraph of this Ordinance or the application thereof to any person, establishment, or circumstances shall be held invalid, such invalidity shall not affect the other provisions or application of this Ordinance.

### **SECTION 7                   ULTIMATE RESPONSIBILITY**

The standards set forth herein and promulgated pursuant to this ordinance are minimum standards; therefore this ordinance does not intend nor imply that compliance by any person will ensure that there will be no contamination, pollution, nor unauthorized discharge of pollutants.

### **SECTION 8                   DISCHARGE AND CONNECTION PROHIBITIONS**

#### **A. Prohibition of Illegal Discharges.**

No person shall discharge or cause to be discharged into the municipal storm drain system or any watercourse any materials, including but not limited to pollutants or waters containing any pollutants that cause or contribute to a violation of applicable water quality standards, other than stormwater. The commencement, conduct or continuance of any illegal discharge to the storm drain system is prohibited except as described as follows:

- (a) The following discharges are exempt from discharge prohibitions established by this ordinance: water line flushing or other potable water sources, landscape irrigation or lawn watering, diverted stream flows, rising ground water, ground water infiltration to storm drains, uncontaminated pumped ground water, foundation or floating drains (not including active groundwater dewatering systems), crawl space pumps, air conditioning condensation, springs, non-commercial washing of vehicles, natural riparian habitat or wetland flow,

## **Illicit Discharge and Connection Stormwater Ordinance**

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swimming pools (if dechlorinated-typically less than one PPM chlorine), firefighting activities, and any other water source not containing Pollutants;

- (b) Discharges specified in writing by the Department as being necessary to protect public health and safety;
- (c) Dye testing is an allowable discharge, but requires a written notification to the Department prior to the time of the test; or
- (d) Any non-stormwater discharge permitted under an NPDES permit, waiver, or waste discharge order issued to the discharger and administered under the authority of the Federal Environmental Protection Agency, provided that the discharger is in full compliance with all requirements of the permit, waiver, or order and other applicable laws and regulations, and provided that written approval has been granted for any discharge to the storm drain system.

### **B. Prohibition of Illicit Connections.**

- (a) The construction, use, maintenance or continued existence of illicit connections to the storm drain system is prohibited.
- (b) This prohibition expressly includes, without limitation, illicit connections made in the past, regardless of whether the connection was permissible under law or practices applicable or prevailing at the time of connection.
- (c) A person is considered to be in violation of this ordinance if the person connects a line conveying sewage to the MS4, or allows such a connection to continue.

## **SECTION 9                   SUSPENSION OF MS4 ACCESS**

### **A. Suspension due to Illicit Discharges in Emergency Situations.**

The Public Works Department may, without prior notice, suspend MS4 discharge access to a person when such suspension is necessary to stop an actual or threatened discharge which presents or may present imminent and substantial danger to the environment, or to the health or welfare of persons, or to the MS4 or Waters of the United States. If the violator fails to comply with a suspension order issued in an emergency, the Department may take such steps as deemed necessary to prevent or minimize damage to the MS4 or Waters of the United States, or to minimize danger to persons.

### **B. Suspension due to the Detection of Illicit Discharge.**

Any person discharging to the MS4 in violation of this ordinance may have their MS4 access terminated if such termination would abate or reduce an illicit discharge. The Department will notify a violator of the proposed termination of its MS4 access. The violator may petition the Department for a reconsideration and hearing.

A person commits an offense if the person reinstates MS4 access to premises terminated pursuant to this Section, without the prior approval of the Department .

## **SECTION 10               INDUSTRIAL OR CONSTRUCTION ACTIVITY DISCHARGES**

Any person subject to an industrial or construction activity NPDES storm water discharge permit shall comply with all provisions of such permit. Proof of compliance with said permit may be required in a form acceptable to the Public Works Department prior to the allowing of discharges to the MS4.

## **SECTION 11            MONITORING OF DISCHARGES**

### **A. Applicability.**

This section applies to all facilities that have storm water discharges associated with industrial activity, including construction activity.

### **B. Access to Facilities.**

(a) The Public Works Department shall be permitted to enter and inspect facilities subject to regulation under this ordinance as often as may be necessary to determine compliance with this ordinance. If a discharger has security measures in force which require proper identification and clearance before entry into its premises, the discharger shall make the necessary arrangements to allow access to representatives of the Department.

(b) Facility operators shall allow the Public Works Department ready access to all parts of the premises for the purposes of inspection, sampling, examination and copying of records that must be kept under the conditions of an NPDES permit to discharge stormwater, and the performance of any additional duties as defined by state and federal law.

(c) The Public Works Department shall have the right to set up on any facility subject to this section such devices as are necessary in the opinion of the Department to conduct monitoring and/or sampling of the facility's storm water discharge.

(d) The Public Works Department has the right to require the discharger to install monitoring equipment as necessary in the opinion of the Department. The facility's sampling and monitoring equipment shall be maintained at all times in a safe and proper operating condition by the discharger at its own expense. All devices used to measure stormwater flow and quality shall be calibrated to ensure their accuracy.

(e) Any temporary or permanent obstruction to safe and easy access to the facility to be inspected and/or sampled shall be promptly removed by the operator at the written or oral request of the Public Works Department and shall not be replaced. The costs of clearing such access shall be borne by the operator.

(f) Unreasonable delays in allowing the Public Works Department access to a permitted facility is a violation of a stormwater discharge permit and of this ordinance. A person who is the operator of a facility with a NPDES permit to discharge storm water associated with industrial activity commits an offense if the person denies the Department reasonable access to the permitted facility for the purpose of conducting any activity authorized or required by this ordinance.

(g) If the Public Works Department has been refused access to any part of the premises from which stormwater is discharged, and he/she is able to demonstrate probable cause to believe that there may be a violation of this ordinance, or that there is a need to inspect and/or sample as part of a routine inspection and sampling program designed to verify compliance with this ordinance or any order issued hereunder, or to protect the overall public health, safety, and welfare of the community, then the Department may seek issuance of a search warrant from any court of competent jurisdiction.

## **SECTION 12            REQUIREMENT TO PREVENT, CONTROL, AND REDUCE STORM WATER POLLUTANTS BY THE USE OF BEST MANAGEMENT PRACTICES**

The Public Works Department will adopt requirements identifying Best Management Practices for any activity, operation, or facility which may cause or contribute to pollution or contamination of storm water, the storm drain system, or waters of the U.S. The owner or operator of a commercial or industrial establishment shall provide, at their own expense, reasonable protection from accidental discharge of prohibited materials or other wastes into the municipal storm drain system or watercourses through the use of these structural and non-structural BMPs. Further, any person responsible for a property or premise, which is, or may be, the source of an illicit discharge, may be required to implement, at said person's expense, additional structural and non-structural BMPs to prevent the further discharge of pollutants to the municipal separate storm sewer system. Compliance with all terms and conditions of a valid NPDES permit authorizing the discharge of storm water associated with industrial activity, to the extent practicable, shall be deemed compliance with the provisions of this section. These BMPs shall be part of a stormwater pollution prevention plan (SWPPP) as necessary for compliance with requirements of the NPDES permit.

## **SECTION 13            WATERCOURSE PROTECTION**

Every person owning property through which a watercourse passes, or such person's lessee, shall keep and maintain that part of the watercourse within the property free of trash, debris, excessive vegetation, and other obstacles that would pollute, contaminate, or significantly retard the flow of water through the watercourse. In addition, the owner or lessee shall maintain existing privately owned structures within or adjacent to a watercourse, so that such structures will not become a hazard to the use, function, or physical integrity of the watercourse.

## **SECTION 14            NOTIFICATION OF SPILLS**

Notwithstanding other requirements of 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 which are resulting or may result in illegal discharges or pollutants discharging into stormwater, the storm drain system, or any waters of the U.S., said person shall take all necessary steps to ensure the discovery, containment, and cleanup of such release. In the event of such a release of hazardous materials said person shall immediately notify emergency response agencies of the occurrence via emergency dispatch services. In the event of a release of non-hazardous materials, said person shall notify the Department in person or by phone or facsimile no later than the next business day. Notifications in person or by phone shall be confirmed by written notice addressed and mailed to the Public Works Department within three business days of the phone notice. If the discharge of prohibited materials emanates from a commercial or industrial establishment, the owner or operator of such establishment shall take immediate steps to ensure no recurrence of the discharge or spill and shall also retain an on-site written record of the discharge and the actions taken to prevent its recurrence. Such records shall be retained for at least three years.

Failure to provide notification of a release as provided above is a violation of this ordinance.

## **SECTION 15            VIOLATIONS**

It shall be unlawful for any Person to violate any provision or fail to comply with any of the requirements of this Ordinance. Any Person who has violated or continues to violate the provisions of this ordinance may be subject to the enforcement actions outlined in Section 16 or may be

## **Illicit Discharge and Connection Stormwater Ordinance**

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restrained by injunction or the violation may otherwise be abated in a manner provided by law.

In the event the violation constitutes an immediate danger to public health or public safety, the Director, or his/her designee, is authorized to enter upon the subject private property, without giving prior notice, to take any and all measures necessary to abate the violation and/or restore the property. The Director is authorized to seek costs of the abatement as outlined in Section 19.

### **SECTION 16                      ENFORCEMENT**

Whenever the Public Works Department finds that a Person has violated a prohibition or failed to meet a requirement of this Ordinance, the Department may order compliance by written notice of violation to the responsible person.

#### **A. The Notice of Violation shall contain:**

- (a) The name and address of the alleged violator;
- (b) The address when available or a description of the building, structure or land upon which the violation is occurring, or has occurred;
- (c) A statement specifying the nature of the violation;
- (d) A description of the remedial measures necessary to restore compliance with this ordinance and a time schedule for the completion of such remedial action. It is not the responsibility of the City to formulate or design any remedial systems;
- (e) A statement of the penalty or penalties that shall or may be assessed against the Person to whom the Notice of Violation is directed;
- (f) A statement that any citation issued may be appealed to the City by filing a written notice of appeal within ten (10) days from the date of receipt of the written Notice of Violation;
- (g) A statement that if no notice of appeal is received within 10 days, an assessment and judgment may be entered; and
- (h) A statement that such judgment may be issued without further notice.

#### **B. Such notice may require, without limitation:**

- (a) The performance of monitoring, analyses, and reporting;
- (b) The elimination of illicit connections or discharges;
- (c) That violating discharges, practices, or operations shall cease and desist;
- (d) The abatement or remediation of storm water pollution or contamination hazards and the restoration of any affected property;
- (e) Payment of a fine or penalty, in addition to any sums necessary to recoup costs incurred by the Public Works Department;
- (f) Suspension of any discharge to the MS4 consistent with Section 9 of this ordinance; and
- (g) The implementation of source control or treatment BMPs.

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

Said notice shall further advise that, should the violator fail to remediate or restore within the established deadline, the work will be done by a designated governmental agency or a contractor and the expense thereof shall be charged to the violator.

### **SECTION 17                      APPEAL OF NOTICE OF VIOLATION**

Any person receiving a Notice of Violation may appeal the determination of the Department. The notice of appeal must be received within ten (10) days from the date of the Notice of Violation.

## **Illicit Discharge and Connection Stormwater Ordinance**

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Hearing on the appeal before a citation hearing officer shall take place within 15 days from the date of receipt of the notice of appeal. The decision of the citation hearing officer shall be final.

### **SECTION 18                    ENFORCEMENT MEASURES AFTER APPEAL**

If the violation has not been corrected pursuant to the requirements set forth in the Notice of Violation, or, in the event of an appeal, within thirty (30) days of the decision of the municipal authority upholding the decision of the Department, then representatives of the Department shall enter upon the subject private property and are authorized to take any and all measures necessary to abate the violation and/or restore the property. It shall be unlawful for any person, owner, agent or person in possession of any premises to refuse to allow the government agency or designated contractor to enter upon the premises for the purposes set forth above.

### **SECTION 19                    COST OF ABATEMENT OF THE VIOLATION**

Within thirty (30) days after abatement of the violation, the owner of the property will be notified of the cost of abatement, including administrative costs. The property owner may file a written protest objecting to the amount of the assessment within thirty (30) days. If the amount due is not paid within a timely manner as determined by the decision of the municipal authority or by the expiration of the time in which to file an appeal, the charges shall become a special assessment against the property and shall constitute a lien on the property for the amount of the assessment.

Any person violating any of the provisions of this article shall become liable to the city by reason of such violation. In the discretion of the Department, the liability may be paid in not more than 12 equal payments.

### **SECTION 20                    INJUNCTIVE RELIEF**

It shall be unlawful for any person to violate any provision or fail to comply with any of the requirements of this Ordinance. If a person has violated or continues to violate the provisions of this ordinance, the Department may petition for a preliminary or permanent injunction restraining the person from activities which would create further violations or compelling the person to perform abatement or remediation of the violation.

### **SECTION 21                    COMPENSATORY ACTION**

In lieu of enforcement proceedings, penalties, and remedies authorized by this Ordinance, the Department may impose upon a violator alternative compensatory actions, such as storm drain stenciling, attendance at compliance workshops, watershed cleanup, or other related activities.

### **SECTION 22                    VIOLATIONS DEEMED A PUBLIC NUISANCE**

In addition to the enforcement processes and penalties provided, any condition caused or permitted to exist in violation of any of the provisions of this Ordinance is a threat to public health, safety, and welfare, and is declared and deemed a nuisance, and may be summarily abated or restored at the violator's expense, and/or a civil action to abate, enjoin, or otherwise compel the cessation of such nuisance may be taken.

### **SECTION 23                    PENALTY**

Any person that has violated or continues to violate this ordinance shall be subject to a penalty of One Hundred dollars (\$100) per violation per day.

The Department may recover all attorneys' fees, court costs and other expenses associated with enforcement of this ordinance, including sampling and monitoring expenses.

## **Illicit Discharge and Connection Stormwater Ordinance**

Ordinance No. [REDACTED]

### **SECTION 24            REMEDIES NOT EXCLUSIVE**

The remedies listed in this ordinance are not exclusive of any other remedies available under any applicable federal, state or local law and it is within the discretion of the Department to seek cumulative remedies.

### **SECTION 25            ADOPTION OF ORDINANCE**

This ordinance shall be in full force and effect [REDACTED] days after its final passage and adoption. All prior ordinances and parts of ordinances in conflict with this ordinance are hereby repealed.

PASSED AND ADOPTED this [REDACTED] day of [REDACTED], 20[REDACTED], by the following vote:

---

---

## Legals/ Public Notices

### BOARD OF ALDERMEN

At a regular meeting of the Board of Aldermen held on Monday, August 20 2018 the Board voted unanimously to APPROVE a Proposed City Ordinance for the Small Municipal Separate Storm Sewer System (MS4) Permit Entitled "Illicit Discharge and Connection Stormwater Ordinance", as submitted by Paul M. Belagamba, P.E., City Engineer, PWD.

ATTEST: Michael J. Dalton  
City Clerk  
R-A August 31, 2018

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# APPENDIX B

## Storm System Mapping

Storm System Mapping is under development. Mapping shall be completed by July 1, 2020. The most recent version of the City's Storm System Map and the City Outfalls Maps are included herein.



# CITY OF WATERBURY, CT

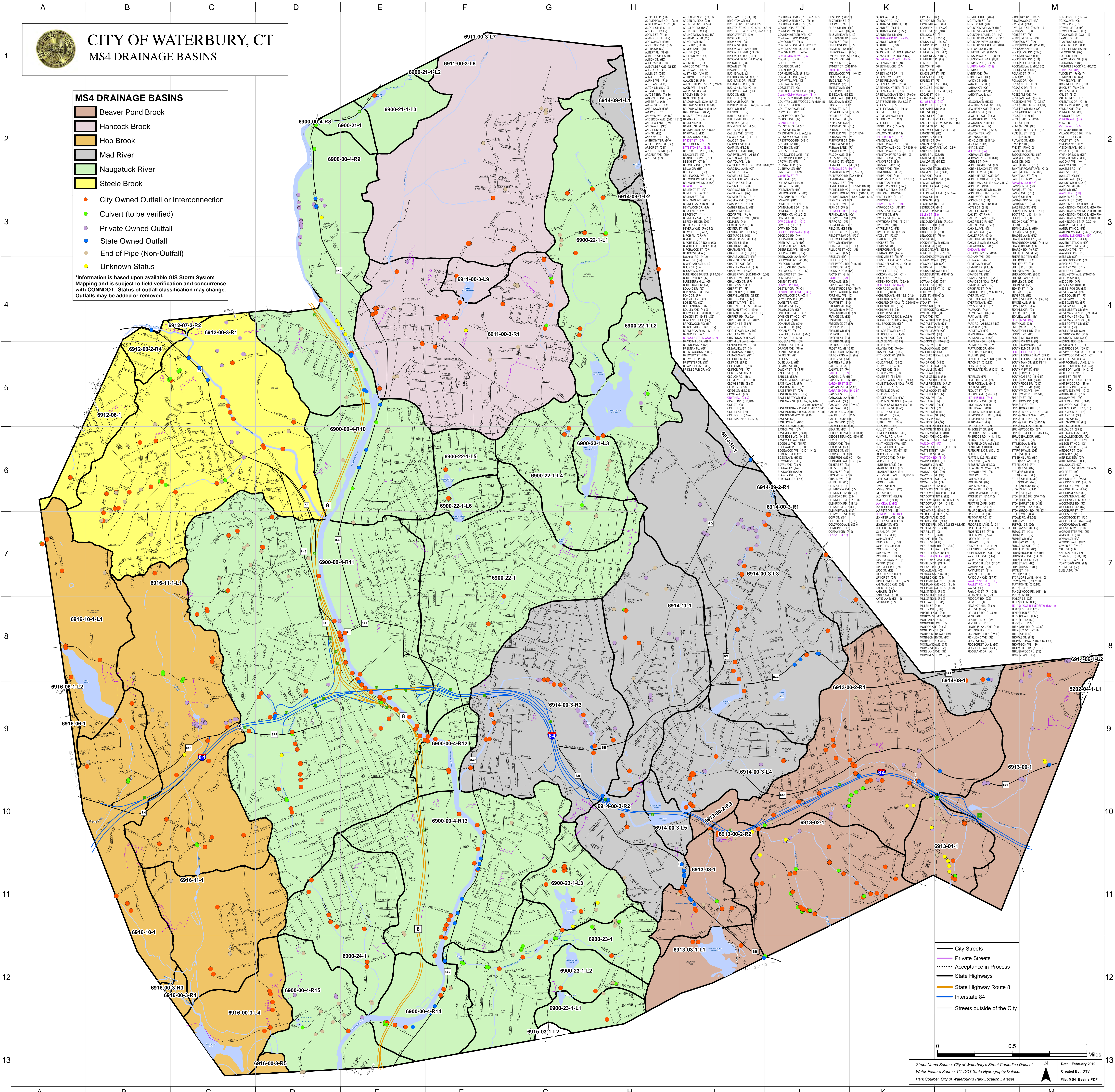
## MS4 DRAINAGE BASINS

### MS4 DRAINAGE BASINS

- Beaver Pond Brook
- Hancock Brook
- Hop Brook
- Mad River
- Naugatuck River
- Steele Brook

- City Owned Outfall or Interconnection
- Culvert (to be verified)
- Private Owned Outfall
- State Owned Outfall
- End of Pipe (Non-Outfall)
- Unknown Status

\*Information is based upon available GIS Storm System Mapping and is subject to field verification and concurrence with CONNDOT. Status of outfall classification may change. Outfalls may be added or removed.



- City Streets
- Private Streets
- Acceptance in Process
- State Highways
- State Highway Route 8
- Interstate 84
- Streets outside of the City



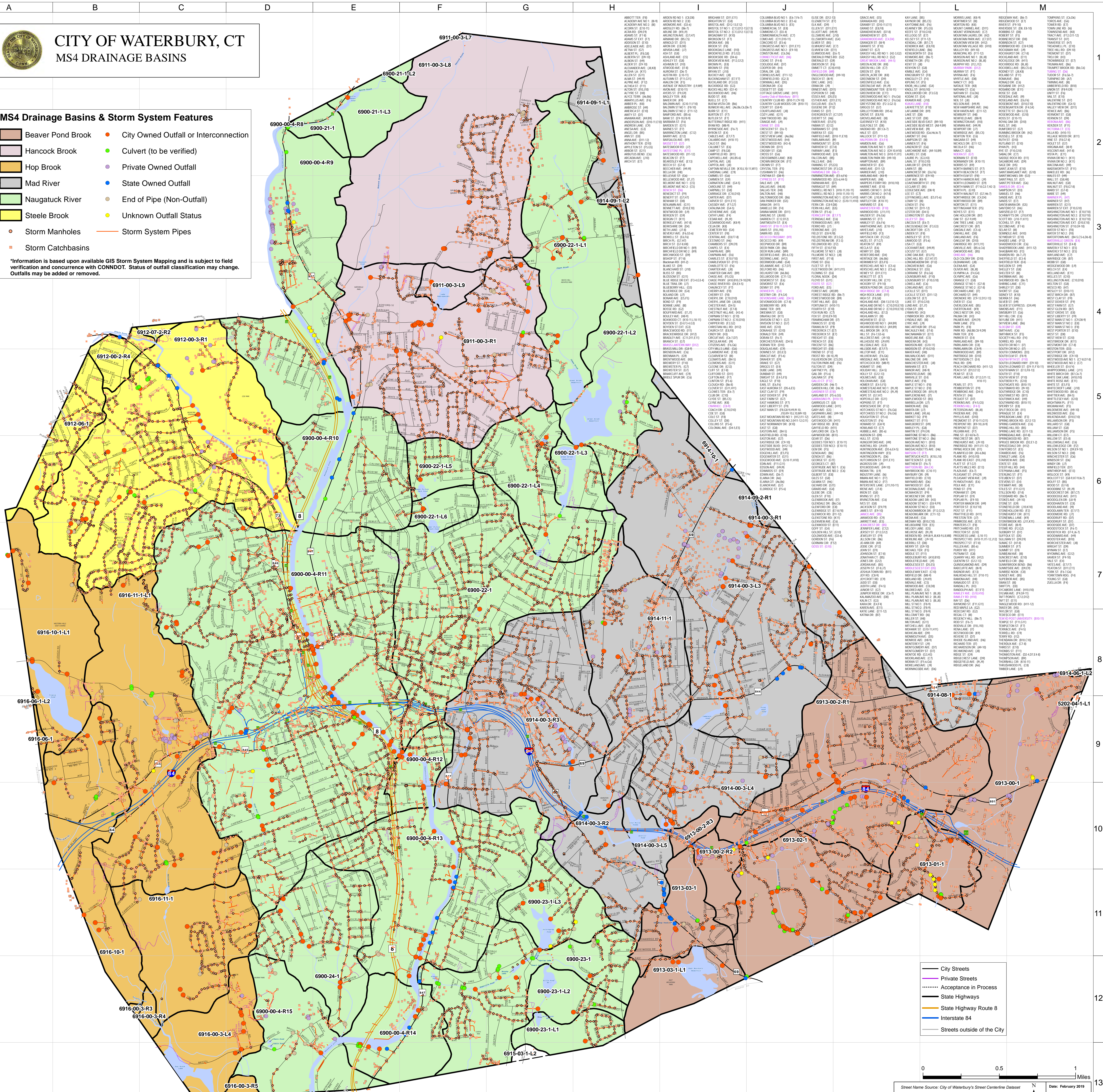
Street Name Source: City of Waterbury's Street Centerline Dataset  
Water Feature Source: CT DOT State Hydrography Dataset  
Park Source: City of Waterbury's Park Location Dataset

Date: February 2019  
Created by: DTV  
File: MS4\_Basins.pdf



	Beaver Pond Brook		City Owned Outfall or Interconnection
	Hancock Brook		Culvert (to be verified)
	Hop Brook		Private Owned Outfall
	Mad River		State Owned Outfall
	Naugatuck River		End of Pipe (Non-Outfall)
	Steele Brook		Unknown Outfall Status
	Storm Manholes		Storm System Pipes
	Storm Catchbasins		

\*Information is based upon available GIS Storm System Mapping and is subject to field verification and concurrence with CONNDOT. Status of outfall classification may change. Outfalls may be added or removed.



Street Name Source: City of Waterbury's Street Centerline Dataset  
Water Feature Source: CT DOT State Hydrography Dataset  
Park Source: City of Waterbury's Park Location Dataset

Street Name Source: City of Waterbury's Street Centerline Dataset  
Water Feature Source: CT DOT State Hydrography Dataset  
Park Source: City of Waterbury's Park Location Dataset



PLAN: J:\M\WATERC- CITY OF WATERBURY\20 MARK LINE- WATERBURY, CT\WAT04EIS\SE-01.mxd



**SUPERCEDED**  
Reference IDDE Program Plan  
Dated February 13, 2019

**HRP**  
MOVE YOUR ENVIRONMENT FORWARD  
197 SCOTT SWAMP ROAD  
FARMINGTON, CT 06032  
(860) 674-9570  
HRPASSOCIATES.COM

**NORTH**

0 300 600  
Feet

REVISIONS		DESCRIPTION	
NO.	DATE		

DESIGNED:	SCALE: 1"=600'
DRAWN: BOB	ISSUE DATE: 06/27/2018
REVIEWED: CWA	PROJECT NUMBER: WAT4043.WMI
APPROVED: TRB	SHEET SIZE: 24"X36"

City of Waterbury  
Connecticut

City Outfalls Map  
Progress Print

Information provided by  
The City of Waterbury  
on 06-01-2018

SHEET NO.  
**SE-01**



# APPENDIX C

## Field Forms, Sample Bottle Labels\*, and Chain of Custody Forms\*

\*Sample Bottle Labels and/or Chain of Custody Forms other than those included in this Appendix may be used if approved by the City of Waterbury and/or as required by the selected testing laboratory performing the sample analysis.

**Outfall ID:** \_\_\_\_\_ **Town:** \_\_\_\_\_  
**Inspector:** \_\_\_\_\_ **Date:** \_\_\_\_\_  
**Street Name:** \_\_\_\_\_  
**Last Rainfall Event:** \_\_\_\_\_



# **DRY WEATHER OUTFALL INSPECTION SURVEY**

<b>Type of Outfall (check one):</b>		<b>Pipe Outfall</b> <input type="checkbox"/>		<b>Open Swale Outfall</b> <input type="checkbox"/>			
<b>Outfall Label:</b>		<b>Stencil</b> <input type="checkbox"/>	<b>Ground Inset</b> <input type="checkbox"/>	<b>Sign</b> <input type="checkbox"/>	<b>None</b> <input type="checkbox"/> <b>Other</b> _____		
<b>Pipe Material:</b>	Concrete	<input type="checkbox"/>	<b>Pipe Condition:</b>	Good	<input type="checkbox"/>	Poor	<input type="checkbox"/>
	Corrugated metal	<input type="checkbox"/>		Fair	<input type="checkbox"/>	Crumbling	<input type="checkbox"/>
	Clay Tile	<input type="checkbox"/>					
	Plastic	<input type="checkbox"/>					
	Other: _____	<input type="checkbox"/>					
<b>Swale Material:</b>	Paved (asphalt)	<input type="checkbox"/>	<b>Swale Condition:</b>	Good	<input type="checkbox"/>	Poor	<input type="checkbox"/>
	Concrete	<input type="checkbox"/>		Fair	<input type="checkbox"/>	Crumbling	<input type="checkbox"/>
	Earthen	<input type="checkbox"/>					
	Stone	<input type="checkbox"/>					
	Other: _____	<input type="checkbox"/>					
<b>Shape of Pipe/Swale (check one)</b>							
 <input type="checkbox"/>		 <input type="checkbox"/>		 <input type="checkbox"/>		 <input type="checkbox"/>	
<b>Rounded Pipe/Swale</b>		<b>Rectangular Pipe/Swale</b>		<b>Triangular Swale</b>		<b>Trapezoidal Swale</b>	
<b>Pipe Measurements:</b>		<b>Swale Measurements:</b>		<b>Is there a headwall?</b>		<b>Location Sketch</b>	
Inner Dia. (in): d= _____		Swale Width (in): T= _____		Yes <input type="checkbox"/> No <input type="checkbox"/>		Photographs taken shall be attached.	
Outer Dia. (in): D= _____		Flow Width (in): t= _____		<b>Condition:</b>			
Pipe Width (in): T= _____		Swale Height (in): H= _____		Good <input type="checkbox"/> Poor <input type="checkbox"/>			
Pipe Height (in): H= _____		Flow Height (in): h= _____*		Fair <input type="checkbox"/> Crumbling <input type="checkbox"/>			
Flow Width (in): h= _____*		Bottom Width (in): b= _____					
<b>Description of Flow:</b> Heavy <input type="checkbox"/> Moderate <input type="checkbox"/> Trickling <input type="checkbox"/> Dry <input type="checkbox"/>							
<b>If the outlet is submerged check yes and indicate approximate height of water above the outlet invert. h above invert (in):</b>				<b>Circle All Materials Present:</b>			
<b>Odor:</b> Yes <input type="checkbox"/> No <input type="checkbox"/> <b>Optical enhancers suspected?</b> Yes <input type="checkbox"/> No <input type="checkbox"/> <b>Has channelization occurred?</b> Yes <input type="checkbox"/> No <input type="checkbox"/> <b>Has scouring occurred below the outlet?</b> Yes <input type="checkbox"/> No <input type="checkbox"/>		<b>Required Maintenance:</b> Tree Work Ditch Work Structural Corrosion N/A		Remove Trash/Debris Blocked Pipe Erosion at Structure Other		Rip rap Excessive sediment Foam Sanitary Waste Orange Staining	
						Sheen: Bacterial Sheen: Petroleum Floatables Algae Excessive Vegetation	
<b>Comments:</b>							

Outfall I.D.: \_\_\_\_\_ Date: \_\_\_\_\_

Inspector: \_\_\_\_\_

Time of Inspection: \_\_\_\_\_

Street Name & Town: \_\_\_\_\_

Last Rainfall Event: \_\_\_\_\_

**DRY WEATHER OUTFALL INSPECTION SURVEY  
FOR OBSERVABLE FLOW**



Visual Inspection:	Yes	No	Comments (Include probable source of observed contamination):
Color	<input type="checkbox"/>	<input type="checkbox"/>	
Odor	<input type="checkbox"/>	<input type="checkbox"/>	
Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	
Excessive Sediment	<input type="checkbox"/>	<input type="checkbox"/>	
Sanitary Waste	<input type="checkbox"/>	<input type="checkbox"/>	
Pet Waste	<input type="checkbox"/>	<input type="checkbox"/>	
Floatable Solids	<input type="checkbox"/>	<input type="checkbox"/>	
Oil Sheen	<input type="checkbox"/>	<input type="checkbox"/>	
Bacterial Sheen	<input type="checkbox"/>	<input type="checkbox"/>	
Foam	<input type="checkbox"/>	<input type="checkbox"/>	
Algae	<input type="checkbox"/>	<input type="checkbox"/>	
Orange Staining	<input type="checkbox"/>	<input type="checkbox"/>	
Excessive Vegetation	<input type="checkbox"/>	<input type="checkbox"/>	
Optical Enhancers	<input type="checkbox"/>	<input type="checkbox"/>	
Other _____			

Sample Parameters	Analytical Test Method	Benchmark*	Field Screening Result	Full Analytical?
Ammonia <sup>1</sup>	EPA 350.2; SM4500-NH3C	> 0.5 mg/L		<input type="checkbox"/> Yes <input type="checkbox"/> No
Surfactants <sup>2</sup>	SM5540C	> 0.25 mg/L		<input type="checkbox"/> Yes <input type="checkbox"/> No
Chlorine	SM4500-CI Q	> 0.02 mg/L		<input type="checkbox"/> Yes <input type="checkbox"/> No
Temperature	SM2550B	-		<input type="checkbox"/> Yes <input type="checkbox"/> No
Specific Conductance <sup>1</sup>	EPA120.1; SM 2510B	>2,000 µs/cm		<input type="checkbox"/> Yes <input type="checkbox"/> No
Salinity	SM2520	-		<input type="checkbox"/> Yes <input type="checkbox"/> No
Total Phosphorous (Pollutant of Concern)	EPA Manual-365.3; EPA Automated Ascorbic Acid Digestion-365.1 Rev. 2; EPA ICP/AES4-200.7 Rev. 4.4; SM4500-P E-F	-		<input type="checkbox"/> Yes <input type="checkbox"/> No

**Continued on reverse**

Sample Parameters	Analytical Test Method	Benchmark*	Field Screening Result	Full Analytical?
Indicator Bacteria  <i>E.coli</i> (freshwater)  <i>Enterococcus</i> (saltwater)	<i>E.coli</i> : EPA1603; SM9221B; SM9221F; SM9223B; Colilert®; Colilert-18®  <i>Enterococcus</i> : EPA1600; SM9230C; Enterolert®	See Below <sup>3</sup>		<input type="checkbox"/> Yes <input type="checkbox"/> No
Total Nitrogen (Pollutant of Concern) (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; SM4500-NO <sub>3</sub> E-F	-		<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Comments:</b>				

EPA = EPA Method    SM = Standard Methods

<sup>1</sup> – *Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments*, Center for Watershed Protection and Robert Pitt of University of Alabama, 2004, p. 134, Table 45.

<sup>2</sup> – *Appendix I – Field Measurements, Benchmarks and Instrumentation*, Draft Massachusetts North Coastal Small MS4 General Permit, 2009.

<sup>3</sup> – *Benchmark E. coli* – 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 for designated swimming areas, 410 colonies per 100 ml for non-designated swimming areas, and 576 colonies per 100 ml for all other uses. *Benchmark Enterococcus* – the geometric mean of the five most recent samples taken during the same bathing season shall not exceed 35 colonies per 100 ml and no single sample taken during the bathing season shall exceed 104 colonies per 100 ml for designated swimming areas and 500 colonies per 100 ml for all other uses.

Outfall I.D.: \_\_\_\_\_ Date: \_\_\_\_\_

Inspector: \_\_\_\_\_

Time of Inspection: \_\_\_\_\_

Street Name & Town: \_\_\_\_\_

Last Rainfall Event: \_\_\_\_\_



# WET WEATHER OUTFALL INSPECTION SURVEY

Visual Inspection:	Yes	No	Comments (Include probable source of observed contamination):
Color	<input type="checkbox"/>	<input type="checkbox"/>	
Odor	<input type="checkbox"/>	<input type="checkbox"/>	
Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	
Excessive Sediment	<input type="checkbox"/>	<input type="checkbox"/>	
Sanitary Waste	<input type="checkbox"/>	<input type="checkbox"/>	
Pet Waste	<input type="checkbox"/>	<input type="checkbox"/>	
Floatable Solids	<input type="checkbox"/>	<input type="checkbox"/>	
Oil Sheen	<input type="checkbox"/>	<input type="checkbox"/>	
Bacterial Sheen	<input type="checkbox"/>	<input type="checkbox"/>	
Foam	<input type="checkbox"/>	<input type="checkbox"/>	
Algae	<input type="checkbox"/>	<input type="checkbox"/>	
Orange Staining	<input type="checkbox"/>	<input type="checkbox"/>	
Excessive Vegetation	<input type="checkbox"/>	<input type="checkbox"/>	
Optical Enhancers	<input type="checkbox"/>	<input type="checkbox"/>	
Other _____			

Sample Parameters	Analytical Test Method	Benchmark*	Field Screening Result	Full Analytical?
Ammonia <sup>1</sup>	EPA 350.2;SM4500-NH3C	> 0.5 mg/L		<input type="checkbox"/> Yes <input type="checkbox"/> No
Surfactants <sup>2</sup>	SM5540C	> 0.25 mg/L		<input type="checkbox"/> Yes <input type="checkbox"/> No
Chlorine	SM4500-Cl Q	> 0.02 mg/L		<input type="checkbox"/> Yes <input type="checkbox"/> No
Temperature	SM2550B	-		<input type="checkbox"/> Yes <input type="checkbox"/> No
Specific Conductance <sup>1</sup>	EPA120.1;SM 2510B	>2,000 µs/cm		<input type="checkbox"/> Yes <input type="checkbox"/> No
Salinity	SM2520	-		<input type="checkbox"/> Yes <input type="checkbox"/> No
Total Phosphorous (Pollutant of Concern)	EPA Manual-365.3; EPA Automated Ascorbic Acid Digestion-365.1 Rev. 2; EPA ICP/AES4-200.7 Rev. 4.4; SM4500-P E-F	-		<input type="checkbox"/> Yes <input type="checkbox"/> No

Continued on reverse

Sample Parameters	Analytical Test Method	Benchmark*	Field Screening Result	Full Analytical?
Indicator Bacteria  <i>E.coli</i> (freshwater)  <i>Enterococcus</i> (saltwater)	<i>E.coli</i> : EPA1603; SM9221B; SM9221F; SM9223B; Colilert®; Colilert-18®  <i>Enterococcus</i> : EPA1600; SM9230C; Enterolert®	See Below <sup>3</sup>		<input type="checkbox"/> Yes <input type="checkbox"/> No
Total Nitrogen (Pollutant of Concern) (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; SM4500-NO <sub>3</sub> E-F	-		<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Comments:</b>				

EPA = EPA Method    SM = Standard Methods

<sup>1</sup> – *Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments*, Center for Watershed Protection and Robert Pitt of University of Alabama, 2004, p. 134, Table 45.

<sup>2</sup> – *Appendix I – Field Measurements, Benchmarks and Instrumentation*, Draft Massachusetts North Coastal Small MS4 General Permit, 2009.

<sup>3</sup> – *Benchmark E. coli* – 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 for designated swimming areas, 410 colonies per 100 ml for non-designated swimming areas, and 576 colonies per 100 ml for all other uses. *Benchmark Enterococcus* – the geometric mean of the five most recent samples taken during the same bathing season shall not exceed 35 colonies per 100 ml and no single sample taken during the bathing season shall exceed 104 colonies per 100 ml for designated swimming areas and 500 colonies per 100 ml for all other uses.

Manhole No.: \_\_\_\_\_ Town: \_\_\_\_\_  
 Inspector: \_\_\_\_\_ Date: \_\_\_\_\_



# MANHOLE INSPECTION FORM

<b>Manhole I.D.</b>			<b>Final Discharge from Structure?</b> Yes <input type="checkbox"/> No <input type="checkbox"/> <b>If Yes, Discharge to Outfall No:</b> _____	
<b>Manhole Label:</b>	<b>Stencil</b> <input type="checkbox"/> <b>Ground Inset</b> <input type="checkbox"/> <b>Sign</b> <input type="checkbox"/> <b>None</b> <input type="checkbox"/> <b>Other</b> _____			
<b>Manhole Material:</b>	Concrete <input type="checkbox"/> Corrugated metal <input type="checkbox"/> Stone <input type="checkbox"/> Brick <input type="checkbox"/> Other: _____ <input type="checkbox"/>	<b>Manhole Condition:</b>	Good <input type="checkbox"/> Poor <input type="checkbox"/> Fair <input type="checkbox"/> Crumbling <input type="checkbox"/>	
<b>Pipe Material:</b>	Concrete <input type="checkbox"/> HDPE <input type="checkbox"/> PVC <input type="checkbox"/> Clay Tile <input type="checkbox"/> Other: _____ <input type="checkbox"/>	<b>Pipe Measurements:</b>	Inlet Dia. (in): d= _____ Outlet Dia. (in): D= _____	
<b>Required Maintenance/ Problems (check all that apply):</b> <div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> Tree Work Required  <input type="checkbox"/> New Cover is Required  <input type="checkbox"/> Pipe is Blocked  <input type="checkbox"/> Frame Maintenance is Required  <input type="checkbox"/> Remove Accumulated Sediment  <input type="checkbox"/> Pipe Maintenance is Required  <input type="checkbox"/> Manhole Undermined or Bypassed         </div> <div> <input type="checkbox"/> Cannot Remove Cover  <input type="checkbox"/> Ditch Work  <input type="checkbox"/> Corrosion at Structure  <input type="checkbox"/> Erosion Around Structure  <input type="checkbox"/> Remove Trash &amp; Debris  <input type="checkbox"/> Need Cement Around Cover  <b>Other:</b> _____         </div> </div>				
<b>Manhole Cover Alignment :</b> Properly Aligned: Yes <input type="checkbox"/> No <input type="checkbox"/>	<b>Sediment Buildup Depth :</b> 0-6 (in): _____ 6-12(in): _____ 12-18 (in): _____ 18-24 (in): _____ 24 + (in): _____	<b>Description of Flow:</b> Heavy <input type="checkbox"/> Moderate <input type="checkbox"/> Slight <input type="checkbox"/> Trickling <input type="checkbox"/>	<b>Street Name/ Structure Location:</b>  Photographs taken shall be attached.	
<b>*If the outlet is submerged check yes and indicate approximate height of water above the outlet invert.</b> h above invert (in): _____			Yes <input type="checkbox"/>	No <input type="checkbox"/>
<input type="checkbox"/> <b>Flow</b> <input type="checkbox"/> <b>Standing Water</b> (check one or both)	<b>Observations:</b> Color: _____ Odor: _____		<b>Circle those present:</b> Foam Sanitary Waste Orange Staining Excessive sediment Other: _____	
<b>Weather Conditions :</b> Dry > 24 hours <input type="checkbox"/> Wet <input type="checkbox"/>			Oil Sheen Bacterial Sheen Floatables Pet Waste Optical Enhancers	
<b>Sample of Screenings Collected for Analysis?</b> Yes <input type="checkbox"/> No <input type="checkbox"/>				
<b>Comments:</b>				



# CHAIN OF CUSTODY RECORD

587 East Middle Turnpike, P.O. Box 370, Manchester, CT 06040  
 Email: [info@phoenixlabs.com](mailto:info@phoenixlabs.com) Fax (860) 645-0823  
**Client Services (860) 645-8726**

## Data Delivery:

☐ Fax # \_\_\_\_\_  
☐ Email: \_\_\_\_\_

Customer: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Project: \_\_\_\_\_  
 Report to: \_\_\_\_\_  
 Invoice to: \_\_\_\_\_  
 Phone #: \_\_\_\_\_  
 Fax #: \_\_\_\_\_

## Client Sample - Information - Identification

Sampler's Signature \_\_\_\_\_ Date: \_\_\_\_\_


## Matrix Code:

DW=Drinking Water GW=Ground Water SW=Surface Water WW=Waste Water  
 RW=Raw Water SE=Sediment SL=Sludge S=Soil SD=Solid W=Wipe  
 OIL=Oil B=Bulk L=Liquid

PHOENIX USE ONLY SAMPLE #	Customer Sample Identification	Sample Matrix	Date Sampled	Time Sampled
------------------------------	-----------------------------------	------------------	-----------------	-----------------

## Analysis Request

Soil VOA Vials [ ] methanol  
 GL Soil container (\_\_\_\_)  
 40 ml VOA \_\_\_\_\_  
 GL \_\_\_\_\_

**PHOENIX**   
*Environmental Laboratories, Inc.*  
587 East Middle Turnpike, P.O. Box 370  
Manchester, CT 06040  
Tel (860) 645-8726 Fax (860) 645-0823

DATE: \_\_\_\_\_

TIME: \_\_\_\_\_


COLLECTED BY: \_\_\_\_\_

Client/Source: \_\_\_\_\_

SAMPLING SITE: \_\_\_\_\_

TESTS REQUIRED: \_\_\_\_\_

PRESERVATIVE: \_\_\_\_\_

**PHOENIX**   
*Environmental Laboratories, Inc.*  
587 East Middle Turnpike, P.O. Box 370  
Manchester, CT 06040  
Tel (860) 645-8726 Fax (860) 645-0823

DATE: \_\_\_\_\_

TIME: \_\_\_\_\_

COLLECTED BY: \_\_\_\_\_

Client/Source: \_\_\_\_\_

SAMPLING SITE: \_\_\_\_\_

TESTS REQUIRED: \_\_\_\_\_

PRESERVATIVE: \_\_\_\_\_

**Na2S203**

# APPENDIX D

## User's Manuals\*

\*All User Manuals are provided in digital format on the CD included in this Appendix.

# APPENDIX E

## IDDE Employee Training Record

**Illicit Discharge Detection and Elimination (IDDE)  
Employee Training Record**

**City of Waterbury**

**Date of Training:** \_\_\_\_\_

**Duration of Training:** \_\_\_\_\_

**Instructor Name & Title:** \_\_\_\_\_

**Instructor Signature:** \_\_\_\_\_

Name	Title	Signature

# APPENDIX F

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

Instructions, Manuals and SOPs for Source Isolation  
and Confirmation Methods to be added as available.