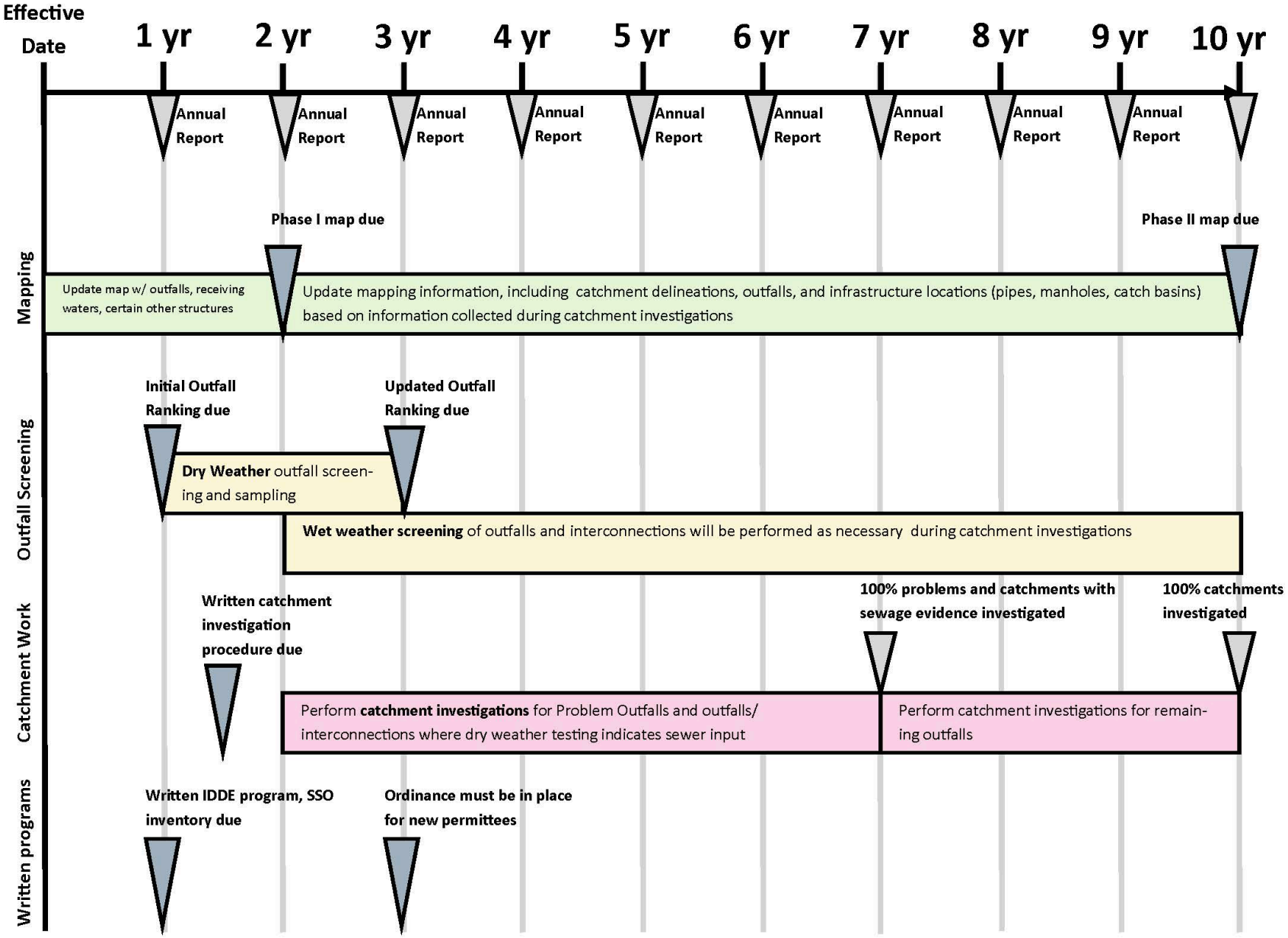
Illicit Discharge Detection and Elimination (IDDE) Plan

Town of Seabrook, NH

Prepared By:
Seacoast Stormwater Coalition &
Manchester/Nashua Stormwater Coalition

Permit Year 7

EPA NPDES Permit Number NHR041033


Effective Date
1 yr
2 yr
3 yr
4 yr
5 yr
6 yr
7 yr
8 yr
9 yr
10 yr
Annual Report
Mapping
Phase I map due
Phase II map due
Update map w/ outfalls, receiving waters, certain other structures
Update mapping information, including catchment delineations, outfalls, and infrastructure locations (pipes, manholes, catch basins) based on information collected during catchment investigations
Outfall Screening
Initial Outfall Ranking due
Updated Outfall Ranking due
Dry Weather outfall screening and sampling
Wet weather screening of outfalls and interconnections will be performed as necessary during catchment investigations
Catchment Work
Written catchment investigation procedure due
100% problems and catchments with sewage evidence investigated
100% catchments investigated
Perform catchment investigations for Problem Outfalls and outfalls/ interconnections where dry weather testing indicates sewer input
Perform catchment investigations for remaining outfalls
Written programs
Written IDDE program, SSO inventory due
Ordinance must be in place for new permittees

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1 IDDE Program Implementation Timeline

1.1 MS4 Program

This Illicit Discharge Detection and Elimination (IDDE) Plan has been developed by Town of Seabrook to address the requirements of the United States Environmental Protection Agency's (USEPA's) 2017 National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4) in New Hampshire, hereafter referred to as the "2017 New Hampshire MS4 Permit" or "MS4 Permit."

The 2017 New Hampshire MS4 Permit requires that each permittee, or regulated community, address six Minimum Control Measures. These measures include the following:

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

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

1.2 Illicit Discharges

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

Illicit discharges may take a variety of forms. 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 wash water or old household products, in many cases due to a lack of understanding on the part of the homeowner.

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

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.

1.3 Allowable Non-Stormwater Discharges

The following categories of non-storm water discharges are allowed under the MS4 Permit unless the permittee, USEPA identifies any category or individual discharge of non-stormwater discharge as a significant contributor of pollutants to the MS4:

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

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

Figure 1-1. IDDE Investigation Procedure Framework

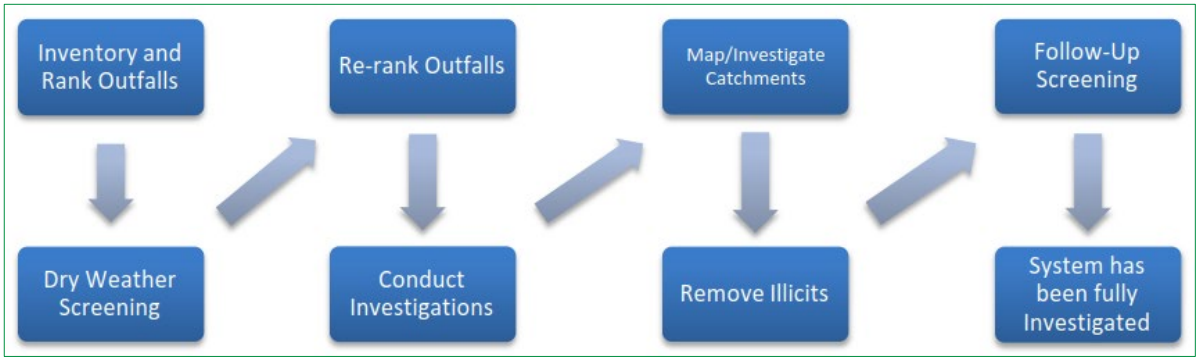

Table 1-1. IDDE Program Implementation Timeline

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

Effective date of the permit is July 1, 2018

2 Authority and Statement of IDDE Responsibilities

2.1 Legal Authority

The Town of Seabrook has adopted a Sewer Ordinance dated June 2005 with adequate legal authority to:

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

A copy of the bylaw is included in Appendix A. The Town of Seabrook will review its current Sewer Ordinance and related land use regulations and policies for consistency with the 2017 MS4 Permit.

2.2 Statement of Responsibilities

AECOM, contracted by the Town of Seabrook Department of Public Works, is the lead municipal agency responsible for implementing the IDDE program pursuant to the provisions of the IDDE Ordinance. Other agencies or departments with responsibility for aspects of the program include:

- Building Inspector and/or Code Enforcement Officer – Shall be responsible for the oversight of new and old construction as it pertains to the MS4 permit.
- Planning Board Chairperson – Shall only approve stormwater management system designs conforming to MS4 documentation.

3 Stormwater System Mapping

A copy of the existing storm system map is provided in **Appendix B**.

The MS4 Permit requires the storm system map to be updated in two phases as outlined below. AECOM is responsible for updating the stormwater system mapping pursuant to the 2017 MS4 Permit. The Town of Seabrook will report on the progress towards completion of the storm system map in each annual report. Updates to the stormwater mapping will be included in **Appendix B**.

3.1 Phase I Mapping

Phase I mapping must be completed within two (2) years of the effective date of the permit (July 1, 2020) and include the information per Part 2.3.4.5.a of the MS4 Permit.

- Outfalls and receiving waters (previously required by the MS4-2003 permit)
- Open channel conveyances (swales, ditches, etc.)
- Interconnections with other MS4s and other storm sewer systems
- Municipally owned stormwater treatment structures
- Water bodies identified by name and indication of all use impairments as identified on the most recent EPA approved Massachusetts Integrated List of Waters report
- Initial catchment delineations. Topographic contours and drainage system information may be used to produce initial catchment delineations.

3.2 Phase II Mapping

Phase II mapping must be completed within ten (10) years of the effective date of the permit (July 1, 2028) and include the information per Part 2.3.4.5.b of the MS4 Permit.

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

Phase II System Mapping Completion Progress: Phase II system mapping has been started by refining catchment delineations. All other requirements will be completed within ten (10) years of the effective date of the permit**.**

4 Sanitary Sewer Overflows (SSOs)

The Town of Seabrook has had one (1) Sanitary Sewer Overflows (SSOs) identified in the MS4 system and removed during this reporting period. The Town of Seabrook has had seven (7) Sanitary Sewer Overflows (SSOs) identified in the MS4 system and removed to date (since July 1, 2018).

Table 2-1. SSO Inventory

	Date Occurred	Date Resolved	Location
1	February 25, 2021	February 25, 2021	443 Lafayette Road
2	August 25, 2021	August 25, 2021	193 Walton Road
3	December 1, 2021	December 2, 2021	360 Route 286
4	June 14, 2022	June 14, 2022	380 Lafayette Road
5	June 11, 2024	June 11, 2024	274 Route 286
6	June 13, 2024	June 13, 2024	70 Rocks Road
7	January 16, 2025	January 17, 2025	31 Centennial Street

5 Assessment and Priority Ranking of Outfalls

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

5.1 Outfall Catchment Delineations

The catchments for each of the MS4 outfalls will be delineated to define contributing areas for investigation of potential sources of illicit discharges. Initial catchment delineations will be completed as part of the Phase I mapping, and refined catchment delineations will be completed as part of the Phase II mapping to reflect information collected during catchment investigations

5.2 Outfall and Interconnection Inventory and Initial Ranking

The Department of Public Works has completed an outfall and interconnection inventory and priority ranking to assess illicit discharge potential based on existing information. An updated inventory and ranking will be provided in each annual report. The inventory will be updated annually to include data collected in connection with dry weather screening and other relevant inspections.

The outfall and interconnection inventory identifies each outfall and interconnection discharging from the MS4, records its location and condition, and provides a framework for tracking inspections, screenings and other IDDE program activities. Seabrook has records of all known stormwater discharge points. What is evaluated here are the outfalls that fall under the NPDES definition of an outfall that are regulated by the Permit.

Outfalls and interconnections are classified into one of the following categories:

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

Dry weather screening and sampling, as described in **Section 6** of this IDDE Plan and Part 2.3.4.7.b of the MS4 Permit, is not required for Problem Outfalls. There are currently no Problem Outfalls in Seabrook, based on historical screening results and existing records.

2. **High Priority Outfalls**: Outfalls/interconnections that have not been classified as Problem Outfalls and that are:
    - Discharging to an area of concern to public health due to proximity of public beaches, recreational areas, drinking water supplies or shellfish beds
    - Determined by the permittee as high priority based on the characteristics listed in #4 below or other available information.

    There are no additional requirements for High Priority Outfalls, but ranking between High and Low Priority is intended to be a guide for Seabrook to plan for allocation of resources.
3. **Low Priority Outfalls**: Outfalls/interconnections determined by the permittee as low priority based on the characteristics listed in #4 below or other available information. Low priority outfalls are outfalls that are not determined to be High Priority.
4. **Excluded outfalls**: Outfalls/interconnections with no potential for illicit discharges may be excluded from the IDDE program. This category is limited to roadway drainage in undeveloped areas with no dwellings and no sanitary sewers; drainage for athletic fields, parks or undeveloped green space and associated parking without services; cross-country drainage alignments (that neither cross nor are in proximity to sanitary sewer alignments) through undeveloped land. There are no excluded outfalls in Seabrook.

Outfalls have been ranked into the above priority categories (except for excluded outfalls, which may be eliminated from the IDDE program) based on the following characteristics of the area that drains to each outfall, where information is available.

- **Previous screening results and dry weather flow –** Previous screening/sampling results indicate likely input from sanitary flow (see criteria above for Problem Outfalls). Previous screening results indicate dry weather flow from outfalls.

- **Area of Concern-** Discharging to an area of concern to public health due to proximity of public beaches, recreational areas, drinking water supplies or shellfish beds**.**
- **Past discharge complaints and reports-** Records of complaints, reports that have been received for pollutants entering or exiting the storm sewer system.
- **Receiving water quality**– Receiving water quality can be determined in two ways; listing in the New Hampshire Impaired Waters list and TMDLs, and information from water quality testing. The following guidelines are recommended to identify receiving waters as having a high illicit discharge potential if they are tested:
- 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: automotive repair shops, car washes, gas stations, garden centers, and industrial manufacturing areas.
- **Age of development and infrastructure** – Industrial areas greater 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. This is the EPA's provided age criteria.
- **Combined sewers historically in the area**- This criterion does not apply since Seabrook has never had combined sewers.
- **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. This is the EPA's provided age criteria.
- **Long Culverted Streams** – Culverts longer that the roadway have a tendency for higher Illicit discharge potential

Changes from the previous reporting year include data updates on some outfalls being identified as discharging to a stormwater BMP such as a detention pond, with the regulated outfall relisted as the detention pond outlet. Some outfalls were also determined to be at locations of culverts carrying surface waters, foundation drains, or other unregulated discharges. As a result, the following outfalls were removed from the ranking table: OF-10, 15, 32, 74, 82, 87, 104, 107, 113, 124, 138, 169, 172, 183. Some of these updates included the addition of outfalls to the ranking table: OF-20, 46, 190, 192, 195, 196, 197, and 198.

Appendix C is the outfall inventory and priority ranking matrix. Only regulated outfalls are listed here. Methods for ranking and the scoring system are further specified in the footnotes below the table.

6 Dry Weather Outfall Screening and Sampling

Dry weather flow is a common indicator of potential illicit connections. The MS4 Permit requires all outfalls/interconnections (excluding Problem and Excluded Outfalls) to be inspected for the presence of dry weather flow. AECOM, contracted by the Town of Seabrook Department of Public Works, is responsible for conducting dry weather outfall screening, starting with High Priority outfalls, followed by Low Priority outfalls, based on the initial priority rankings described in the previous section by the end of Year 3.

Dry weather outfall Screening and Sampling shall be completed in accordance with Part 2.3.4.7.b of the MS4 Permit. Plans and procedures for such screening and sampling shall be incorporated into this plan.

7 Catchment Investigations

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. Common catchment investigation techniques include, but are not limited to:

- Review of maps, historic plans, and records
- Manhole inspection
- Dry and wet weather sampling
- Video inspection
- Smoke testing
- Dye testing.

This section outlines a systematic procedure to investigate outfall catchments and identify the source(s) of potential illicit discharges. Information and data collected as part of the catchment investigations will be reported in each annual report.

7.1 Map and Record Review

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

- Plans related to the construction of the drainage network
- Prior work on the storm drains
- Health Department or other municipal data on septic system failures or required upgrades
- Records related to septic system breakouts, SSOs, and sanitary sewer surcharges

7.2 System Vulnerability Factors

Based on the Map and Records review, AECOM will identify any of the following System Vulnerability Factors (SVFs). SVFs indicate a risk of sanitary or septic system inputs to the MS4 under wet weather conditions.

The Town of Seabrook's SVF inventory based on the following factors, will be incorporated into the Outfall and Catchment investigation table in Appendix C as outfall testing is completed:

- 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.
- Areas formerly served by combined sewer systems.
- Any storm drain infrastructure greater than 40 years old in medium and densely developed areas.

7.3 Dry Weather Catchment Investigation (Manhole Inspections)

AECOM 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.

AECOM 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 and 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.

2. If flow is observed, a sample will be collected and analyzed at a minimum for ammonia, chlorine, and surfactants.

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.

Table 3-1: **Seabrook Catchment Investigations Completed through June 30, 2025**

Location	Catchment	Outfall	Key Junction Structures - Manhole(s)/Catch Basin(s)	SVF Presence	Key Junction Structures Present	Flow*	Suspected IDDE	Comments
Ocean Blvd	CA-8	OF-01	MH-19, SWMH-12, MH-18, MH-9	No	Yes	None	No	
Adams Ave	CA-13	OF-06	MH-71, MH-75, CB-967, CB-987	No	Yes	Trickling	No	
2 Viola Circle	CA-109	OF-07A	CB-1072, CB-1073, SWMH-69	No	Yes	Trickling	No	Medium sized rocks in outlet
2 Viola Circle	CA-20	OF-07B	CB-1075	No	No	None	No	
14 Centennial St	CA-39	OF-11A	SWMH-13, CB-293, CB-290	No	Yes	None	No	Sediment in outfall pipe
Centennial St	CA-40	OF-11B	MH-83, CB-258	No	Yes	None	No	
Folly Mill Rd	CA-59	OF-13	N/A	No	No	None	No	
Pine St	CA-90	OF-14	CB-41	No	Yes	None	No	
37 Rocks Rd	CA-57	OF-16	MH-97, CB-1171, CB-1346	No	Yes	Trickling	No	
Stard Rd	CA-53	OF-17	CB-331, CB-1111	No	Yes	Trickling	No	
46/48 Alison Drive	CA-50	OF-19	CB-503	No	Yes	Dry	No	
30 Riley Rd	CA-73	OF-20	CB-609, CB-604	No	Yes	Trickling	No	
Centennial St	CA-30	OF-27	MH-55	No	Yes	None	No	
Kimberly Dr	CA-58	OF-30	N/A	No	No	None	No	No pipe, runoff from Kimberly Dr
Turtle Creek Terr	CA-24	OF-31	N/A	No	No	None	No	
38 Viola Circle	CA-19	OF-33	CB-892, CB-1071, CB-1076, MH-80	No	Yes	Dry	No	
31 Worthley Ave	CA-120	OF-34	N/A	No	No	None	No	
South Main St	CA-10	OF-36	CB-1007	No	Yes		No	Verify pipe network
15 Violette Ln	CA-27	OF-38	CB-246, CB-251, CB-253	No	Yes	Trickling	No	
Troy Way	CA-26	OF-39	CB-54, CB-55	No	Yes	Trickling	No	
RR Ave	CA-48	OF-40	CB-150, MH-89	No	Yes	Trickling	No	
39 Farm Ln	CA-32	OF-41	CB-167, CB-81	No	Yes	None	No	
51 Causeway St	CA-36	OF-42	CB-165	No	Yes	Dry	No	
Walton Rd	CA-23	OF-43	MH-98	No	Yes	Moderate	No	Assumed network, verify connection to outfall
3 Quaker Ln	CA-25	OF-45	CB-288, SWMH-67	No	Yes	None	No	
89 Walton Rd	CA-28	OF-46	CB-284	No	Yes	Heavy	No	
31 Brooks Rd Ext		OF-49	N/A	No	No	Moderate	No	Flow from residential drains running at time of inspection. No other sources of flow was observed.
24 Butland Ave	CA-14	OF-50	CB-962, MH-78	No	Yes	None	No	Brown/orange sediment or residue in standing water
11 Pickens Ave	CA-15	OF-51	CB-315	No	Yes	Dry	No	
4 Janvrin Drive	CA-16	OF-52	CB-63	No	Yes	Dry	No	
33 Pickens Ave	CA-17	OF-53	CB-310	No	Yes	None	No	
59 Folly Mill Rd	CA-44	OF-54	N/A	No	No	None	No	
Folly Mill Rd	CA-43	OF-56	N/A	No	No	Moderate	No	
37 Folly Mill Terr	CA-42	OF-57	CB-19	No	No	Trickling	No	
8 Raymond Dr	CA-46	OF-58	CB-238, CB-241, CB-242	No	Yes	None	No	Leaves covering much of outlet, should be cleared
2 Lakeshore Drive	CA-4	OF-59	N/A	No	No	None	No	
5 Forest Dr	CA-6	OF-60	CB-1402, MH-42, MH-43, MH-44	No	Yes	Trickling	No	
7 Forest Dr	CA-5	OF-61	CB-244	No	Yes	None	No	Vines overing outlet. Sludge-like material in outlet
10 Forest Dr	CA-3	OF-62	CB-28, CB-193	No	Yes	None	No	
15 Ayer Cir	CA-1	OF-63	CB-1250, CB-21, CB-190	No	Yes	Trickling	No	
18 Pine Cone Dr	CA-2	OF-64	CB-39, CB-186	No	No	Moderate	No	
14 Rocks Rd	CA-56	OF-68	CB-471, CB-1167, SWMH-77	No	Yes	None	No	
47 Dearborn Ave	CA-55	OF-69	CB-320, CB-1107, MH-92	No	Yes	Trickling	No	Vegetation should be cleared.
24 Jean Dr	CA-83	OF-71	CB-1391, SWMH-62	No	No	None	No	
Folly Mill Rd (West Of 95)	CA-49	OF-72	N/A	No	No	None	No	
15 Randall Dr	CA-51	OF-83	CB-520, CB-521	No	No	None	No	
3 Halls Way	CA-33	OF-88	SWMH-3, CB-1220, SWMH-4	No	No	None	No	
11 Halls Way	CA-34	OF-89	CB-1222, SWMH-5	No	Yes	Moderate	No	Dry leaves at discharge point, oil hood present in CB
23 Halls Way	CA-35	OF-90	CB-1227	No	Yes	None	No	
Nicholas Way	CA-29	OF-103	CB-1217	No	Yes	Dry	No	
15 Beckman Landing	CA-37	OF-108	CB-90	No	Yes	Dry	No	
Elementary School	CA-21	OF-109	N/A	No	No	Trickling	No	

Table 3-1: **Seabrook Catchment Investigations Completed through June 30, 2025 (continued)**

Location	Catchment	Outfall	Key Junction Structures - Manhole(s)/Catch Basin(s)	SVF Presence	Key Junction Structures Present	Flow*	Suspected IDDE	Comments
MIddle School	CA-22	OF-110	N/A	No	No	None	No	
245 Walton Road	CA-114	OF-111	CB-264	No	Yes	Dry	No	
180 South Main St	CA-115	OF-112	N/A	No	No	None	No	
Next to Circle Discount	CA-99	OF-114	CB-50, CB-267	No	Yes	Moderate	No	
Community Center	CA-96	OF-115	N/A	No	No	None	No	
50 Alison Drive	CA-76	OF-116	CB-1352	No	Yes	Dry	No	
1 True Ln	CA-64	OF-117	N/A	No	Yes	None	No	
Ocean Blvd	CA-7	OF-118	MH-22, MH-29, SWMH-27, SWMH-26, SWMH-34	No	Yes	None	No	
3 Locke Ln	CA-105	OF-121	N/A	No	No	Trickling	No	
Locke Lane	CA-104	OF-123	N/A	No	No	None	No	
40 Halls Way	CA-108	OF-125	N/A	No	Yes	Trickling	No	
Raymond Dr	CA-45	OF-127	N/A	No	No	None	No	
Pine St And Rt 1	CA-47	OF-130	CB-1269	No	Yes	None	No	
17 Border Winds Ave	CA-77	OF-135	N/A	No	No	None	No	Excessive brush
Border Winds Ave	CA-52	OF-139	CB-512	No	Yes	None	No	
26 Pineo Farms Rd	CA-54	OF-152	N/A	No	Yes	Trickling	No	
24 Jean Dr	CA-82	OF-155	CB-1334, CB-1333	No	Yes	None	No	
36 Jean Dr	CA-84	OF-158	N/A	No	No	None	No	
6 Austins Way	CA-116	OF-160	CB-66	No	No	None	No	Grading ineffective, leaves blocking potential flow
18 Lighthouse Way	CA-103	OF-161	N/A	No	No	None	No	
8 Timber Ct	CA-95	OF-163	N/A	No	No	None	No	
54 Dows Ln	CA-101	OF-165	CB-1350	No	No	Trickling	No	Leaves blocking discharge point
Dows Lane	CA-102	OF-166	N/A	No	No	None	No	
Liberty Ln	CA-31	OF-167	N/A	No	No	Trickling	No	
Liberty Ln	CA-31	OF-168	CB-1180	No	Yes	Moderate	No	Police station
87 Centennial St	CA-31	OF-170	(CB-223)	No	No	None	No	
6 Quaker Lane	CA-25	OF-171	CB-278	No	Yes	Dry	No	
38 Marshview Cir	CA-117	OF-175	(CB-1199)	No	Yes	Dry	No	
58 Marshview Cir		OF-176	N/A	No	No	None	No	
571 Layette Road (State Route 1)	CA-87	OF-177	SWMH-71, CB-1358	No	Yes	Dry	No	Discharges into state-owned catchment
63 Adams Ave	CA-118	OF-178	CB-1047	No	No	None	No	One CB to outfall
50 Belgian Dr	CA-89	OF-182	N/A	No	No		No	
11 Belgian Dr	CA-119	OF-185	N/A	No	No	None	No	
Belgian Dr	CA-30	OF-186	MH-55	No	Yes	None	No	
27 Pickens Ave	CA-100	OF-187	CB-313	No	Yes	Dry	No	
30 Folly Mill Road	CA-97	OF-189	CB-266, CB-1159	No	Yes	Dry	No	
5 Dandiview Acres	CA-71	OF-190	CB-1133	No	Yes	Dry	No	
141 South Main St	CA-11	OF-191	N/A	No	Yes	None	No	
Pine Street	CA-91	OF-195	CB-8, CB-94	No	Yes	None	No	
Walton Rd	CA-88	OF-196	CB-272	No	Yes	None	No	
10 Austins Way	CA-121	OF-198	N/A	No	No	None	No	

7.4 Wet Weather Catchment 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. AECOM 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. 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. To the extent feasible, sampling should occur during the spring (March through June) when groundwater levels are relatively high.
    b. 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.
    c. Sampling during the initial period of discharge ("first flush") will be avoided.

2. 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 Source Isolation and Confirmation.

3. 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.

Table 4-1. Discharge Point Inspections from July 1, 2021 to June 30, 2022 – The Town of Seabrook, New Hampshire – Revision Date 09/16/2022

Outfall ID	Inspection Date	Receiving Water	Location	Weather Conditions at Time of Inspection	Precipitation in Previous 48 hours	Flow Description	Field Screening Parameter Results	Lab Results	Field Observations
OF-13	5/18/2022	Small Unnamed Stream	FOLLY MILL RD	Dry	0	None	N/A	N/A	Excessive Vegetation|Scouring Below Inlet
OF-19	4/26/2022	Small Wetland	ALISON DR	Dry Weather/Wet Ground	0	None	N/A	N/A	Excessive Sediment
OF-27	5/12/2022	Small Wetland	CENTENNIAL ST	Dry		None	N/A	N/A	
OF-28	5/6/2022		26 MARSHVIEW CIR	Dry	0	None	N/A	N/A	
OF-42	4/21/2022	Small Wetland	51 CAUSEWAY ST	Dry	0	None	N/A	N/A	
OF-49	5/13/2022	Small Stream Next to Railroad Tracks	31 BROOKS RD EXTENSION	Dry	0	None	N/A	N/A	
OF-51	5/13/2022	Small Stream Next to Railroad Tracks	PICKENS AVE	Dry		None	N/A	N/A	Excessive Vegetation
OF-52	5/13/2022	Small Stream Next to Railroad Tracks	4 JANVRIN DR	Dry	0	None	N/A	N/A	Excessive Vegetation
OF-54	5/18/2022	Small Unnamed Stream	59 FOLLY MILL RD	Dry	0	None	N/A	N/A	
OF-65	5/11/2022		GREENLEAF DR	Dry	0	Trickling	N/A	N/A	
OF-67	5/11/2022		WHITTIER DR	Dry		None	N/A	N/A	Excessive Vegetation
OF-103	5/11/2022	Cains Brook	22 NICHOLAS WAY	Dry	0	Trickling	N/A	N/A	
OF-111	5/17/2022	Cain’s Brook	245 WALTON RD	Dry Weather/Wet Ground	0	Trickling	N/A	N/A	Excessive Sediment
OF-116	4/26/2022	Wetland	50 ALISON DR	Dry	0	None	N/A	N/A	Excessive Sediment
OF-121	8/4/2021	Salt marsh	Locke Lane	Dry		None	N/A	N/A	
OF-123	8/4/2021	Salt marsh	Locke Lane	Dry	0	None	N/A	N/A	
OF-124	8/4/2021	Wetland	8 LOCKE LN	Dry	0	None	N/A	N/A	
OF-125	8/4/2021	Salt marsh	Near the intersection of Halls Way and Causeway St	Dry	0	None	N/A	N/A	
OF-127	8/6/2021	Pond that flows to Cain's brook	Raymond Dr	Dry		None	N/A	N/A	
OF-130	8/10/2021	State Drainage System on Rt 1	Pine St and Rt 1	Dry	0	None	N/A	N/A	Interconnection with state drainage
OF-135	11/3/2021	Intermittent stream		Dry Weather/Wet Ground	0	Moderate	N/A	N/A	
OF-138	11/10/2021	Wetland		Dry	0	None	N/A	N/A	

Outfall ID	Inspection Date	Receiving Water	Location	Weather Conditions at Time of Inspection	Precipitation in Previous 48 hours	Flow Description	Field Screening Parameter Results	Lab Results	Field Observations
OF-139	11/10/2021	Wetland		Dry		None	N/A	N/A	
OF-140	11/4/2021	Wetland		Dry	0	None	N/A	N/A	
OF-147	11/10/2021	Wetland	Water Department	Dry	0	None	N/A	N/A	
OF-148	12/8/2021		Water Department	Dry	0	None	N/A	N/A	
OF-149	12/10/2021	Wetland	Water Department	Dry		None	N/A	N/A	
OF-151	12/10/2021	Wooded Wetland	Water Department	Dry	0	None	N/A	N/A	
OF-152	12/10/2021	Wetland	Pineo Farm Rd	Dry	0	None	N/A	N/A	
OF-155	12/10/2021	Wetland	27 JEAN DR	Dry	0	None	N/A	N/A	
OF-158	11/10/2021	Wetland	36 JEAN DR	Dry		None	N/A	N/A	
OF-160	4/18/2022	unnamed stream	6 AUSTINS WAY	Dry	0	None	N/A	N/A	
OF-162	4/18/2022			Dry Weather/Wet Ground	0	None	N/A	N/A	
OF-163	4/18/2022	Tributary to Cains Brook	8 TIMBER CT	Dry Weather/Wet Ground	0	None	N/A	N/A	
OF-166	4/19/2022	Unnamed stream	DOWS LANE	Dry Weather/Wet Ground		None	N/A	N/A	
OF-169	4/19/2022	Fowler Brook		Dry Weather/Wet Ground	0	None	N/A	N/A	Excessive Sediment
OF-175	5/6/2022		38 MARSHVIEW CIR	Dry	0	None	N/A	N/A	Excessive Vegetation
OF-176	5/6/2022		58 MARSHVIEW CIR	Dry	0	None	N/A	N/A	
OF-177	5/6/2022	State drainage system for Rt 1	571 LAFAYETTE RD	Dry		None	N/A	N/A	Interconnection with state drainage
OF-178	5/6/2022		63 ADAMS AVE	Dry	0	None	N/A	N/A	Excessive Vegetation
OF-179	5/11/2022			Dry	0		N/A	N/A	
OF-181	5/11/2022		50 BELGIAN DR	Dry	0	None	N/A	N/A	
OF-183	5/11/2022	Unnamed stream	50 BELGIAN DR	Dry	0	None	N/A	N/A	
OF-185	5/12/2022	unnamed stream	11 BELGIAN DR	Dry Weather/Wet Ground	0		N/A	N/A	
OF-186	5/12/2022	unnamed stream		Dry	0	None	N/A	N/A	Excessive Vegetation
OF-189	5/18/2022	Unnamed stream	30 FOLLY MILL RD	Dry	0	None	N/A	N/A	Excessive Vegetation

7.5 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.

Public notification is an important aspect of a detailed source investigation program. Prior to smoke testing, dye testing, or TV inspections, the Town of Seabrook will notify property owners in the affected area.

7.6 Illicit Discharge Removal

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

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

7.6.1 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.

7.7 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. Ongoing wet weather screening and sampling will also be conducted at outfalls where wet weather screening was required due to System Vulnerability Factors. All sampling results will be reported in the annual report.

7.8 Illicit Discharge Detection and Elimination Training

The Town of Seabrook will implement a training program to employees involved in IDDE program about the program, including how to recognize illicit discharges. The permittee shall report on the frequency and type of employee training in the annual report.

8 Progress Reporting

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

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

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

Appendix A

Legal Authority (IDDE Bylaw or Ordinance)

Town of Seabrook Sewer Ordinance, June 2005

It shall be unlawful to discharge to any natural outlet within the Town, or in any area under the jurisdiction of said Town, any wastewater or other polluted waters, except where suitable treatment has been provided in accordance with subsequent provisions of this Ordinance and with State and Federal laws and regulations.

Use Of Storm Sewers. Storm water and all other unpolluted drainage shall be discharged only to such sewers as are specifically designed as storm sewers, or to natural outlets approved by the Board of Selectmen. Industrial cooling water, process waters, or storm water runoff generated in areas of industrial activity (as defined in 40 CFR Part 122) require an NPDES permit prior to discharge to a storm sewer or natural outlet.

Use Designation. If the intended or designated use of any particular sewer or drain and allowable discharge thereto is unclear, the Superintendent will consider the pertinent facts and make a determination. This determination shall be final and binding.

Use Of Sanitary Sewers. Except as specifically designated by the Town with reference to some particular sewer, sanitary sewers shall be used only for the conveyance and disposal of sanitary sewage, and for industrial wastes that are not objectionable as hereinafter provided. No sanitary sewer shall be used to receive and convey or dispose of any storm or surface water, subsoil drainage, or unpolluted water.

Appendix B

List of Impaired Waters
Storm System Mapping

Receiving waterbody	# of Outfalls	Chloride	Chlorpophyll-a	DO	Nitrogen	Oil & Grease / PAH	Phosphorus	Solids/TSS/ Turbidity	E. Coli	Enteroccus	Others
Atlantic Ocean - WWTP	2										
Blackwater River	8										Mercury, PCBS, Dioxin
Browns River	4										Mercury, PCBS, Dioxin
Cains Brook	22			x							pH
Cain's Brook - Noyes Pond	2	x		x							pH
Cains Mill Pond	4										
Folly Mill Brook	1										Iron, pH
Fowlers Brook	1										
Gove Brook	4										
Hampton Falls River	3										Mercury, PCBS, Dioxin
Hunt's Island Creek	5										Mercury, PCBS, Dioxin
Lucy Brook	4										
Mary's Brook	1										
Mill Creek	7										Mercury, PCBS, Dioxin
Salt Marsh	2										
Secord Pond	2										pH
Shepherd Brook	6										
State drainage system for Rt 1	3										
Unnamed stream	7										
Unnamed Tidal Stream	1										
Wetland	16										
Winkley brook	1										

Appendix C

Outfall Inventory and
Priority Ranking Matrix

Outfall Inventory and Priority Ranking Matrix

Outfall ID	Receiving Water	Previous Results Indicate Likely Wastewater Input?[1]	Discharging to Area of Concern to Public Health?[2]	Frequency of Past Discharge Complaints	Receiving Water Quality[3]	Density of Generating Sites[4]	Age of Development/ Infrastructure[5]	Historic Combined Sewer?	Aging Septic?[6]	Long Culverted Streams?[7]	Additional Characteristics	Score	Priority Ranking
Information Source->		Outfall Inspections and Sample Results	GIS Maps, Recreation Areas, Recreational Uses	Town Staff	Impaired Waters List, TMDLs, Downstream Waters	Land Use/GIS Maps, Aerial Photography	Land Use Information, Visual Observation, Town Staff	Town Staff, GIS Maps	Land Use, Town Staff	GIS Maps, Town Pipe Data			
Scoring Criteria->		Yes = Problem No = 0	High = 5 Low = 0	Frequent = 3 Occasional = 2 None = 0	Poor = 6 Fair = 2 Good = 0	High = 6 Medium = 3 Low = 1	High = 3 Medium = 2 Low = 1	Yes = 5 No = 0	Many = 6 Few = 2 None = 0	Yes = 3 No = 0	Notes		
OF-14	Small Stream	0	0	0	1	6	3	0	0	0	Receives some stormwater from car wash parking lot	**10**	High Priority
OF-72	Cains Brook	0	0	0	6	5	2	0	0	0	Next to I-95 and Henkel Loctite facility	**13**	High Priority
OF-168	Unnamed Stream	0	0	0	6	6	2	0	0	0		**14**	High Priority
OF-177	State Drainage System for Rt 1	0	0	0	6	6	1	0	0	3		**16**	High Priority
OF-01	Salt Marsh	0	0	0								**6**	Low Priority
OF-06	Small Unnamed Stream	0	0	0	1	1	2	0	0	0		**4**	Low Priority
OF-07A	Small Unnamed Stream	0	0	0	1	1	1	0	0	0		**3**	Low Priority
OF-07B	Small Unnamed Stream	0	0	0	1	1	1	0	0	0		**3**	Low Priority
OF-08	Mill Creek Salt Marsh	0	0	0	1	1	2	0	0	0		**4**	Low Priority
OF-11A	Cains Brook	0	0	0	6	1	2	0	0	0		**9**	Low Priority
OF-11B	Cains Brook	0	0	0	6	1	1	0	0	0	Drain MH Directly Discharges into Culvert	**8**	Low Priority
OF-13	Small Unnamed Stream	0	0	0								**6**	Low Priority
OF-16	Small Wetland	0	0	0	0	1	2	0	0	0		**3**	Low Priority
OF-17	Small Unnamed Stream	0	0	0								**6**	Low Priority
OF-19	Small Wetland	0	0	0	0	1	2	0	0	0		**3**	Low Priority
OF-20	Wetland	0	0	0	0	3	1	0	0	0		**4**	Low Priority
OF-27	Small Wetland	0	0	0	0	1	1	0	0	0		**2**	Low Priority
OF-30	Farm Brook Wetland	0	0	0	0	1	1	0	0	0	Swale accepting run-off from a small area of roadway	**2**	Low Priority
OF-31	Cains Brook	0	0	0	6	1	2	0	0	0		**9**	Low Priority
OF-33	Small Tidal Stream	0	0	0	1	2	2	0	0	0		**5**	Low Priority

Outfall Inventory and Priority Ranking Matrix (continued)

Outfall ID	Receiving Water	Previous Results Indicate Likely Wastewater Input?[1]	Discharging to Area of Concern to Public Health?[2]	Frequency of Past Discharge Complaints	Receiving Water Quality[3]	Density of Generating Sites[4]	Age of Development/ Infrastructure[5]	Historic Combined Sewer?	Aging Septic?[6]	Long Culverted Streams?[7]	Additional Characteristics	Score	Priority Ranking
Information Source->		Outfall Inspections and Sample Results	GIS Maps, Recreation Areas, Recreational Uses	Town Staff	Impaired Waters List, TMDLs, Downstream Waters	Land Use/GIS Maps, Aerial Photography	Land Use Information, Visual Observation, Town Staff	Town Staff, GIS Maps	Land Use, Town Staff	GIS Maps, Town Pipe Data			
Scoring Criteria->		Yes = Problem No = 0	High = 5 Low = 0	Frequent = 3 Occasional = 2 None = 0	Poor = 6 Fair = 2 Good = 0	High = 6 Medium = 3 Low = 1	High = 3 Medium = 2 Low = 1	Yes = 5 No = 0	Many = 6 Few = 2 None = 0	Yes = 3 No = 0	Notes		
OF-34	Small Unnamed Stream	0	0	0	1	2	2	0	0	0		**5**	Low Priority
OF-36	Salt Marsh	0	0	0	1	1	2	0	0	0		**4**	Low Priority
OF-38	Cains Brook	0	0	0	6	1	2	0	0	0		**9**	Low Priority
OF-39	Cains Brook	0	0	0	6	1	2	0	0	0		**9**	Low Priority
OF-40	Small Wetland	0	0	0	0	2	2	0	0	0		**4**	Low Priority
OF-41	Small Unnamed Stream	0	0	0	0	1	2	0	0	0		**3**	Low Priority
OF-42	Small Wetland	0	0	0	0	1	2	0	0	0		**3**	Low Priority
OF-43	Cains Brook	0	0	0	6	1	2	0	0	0		**9**	Low Priority
OF-45	Small Wetland	0	0	0	0	1	1	0	0	0		**2**	Low Priority
OF-46	Cains Brook	0	0	0	6	1	2	0	0	0		**9**	Low Priority
OF-49	Small Stream Next to Railroad Tracks	0	0	0	0	1	1	0	0	0		**2**	Low Priority
OF-50	Small Unnamed Stream	0	0	0	0	1	2	0	0	0		**3**	Low Priority
OF-51	Small Stream Next to Railroad Tracks	0	0	0	0	1	2	0	0	0		**3**	Low Priority
OF-52	Small Stream Next to Railroad Tracks	0	0	0	0	1	2	0	0	0		**3**	Low Priority
OF-53	Small Stream Next to Railroad Tracks	0	0	0	0	1	2	0	0	0		**3**	Low Priority
OF-54	Small Unnamed Stream	0	0	0								**7**	Low Priority
OF-56	Cains Brook	0	0	0	6	1	2	0	0	0		**9**	Low Priority
OF-57	Cains Brook	0	0	0	6	1	2	0	0	0		**9**	Low Priority
OF-58	Small Unnamed Stream	0	0	0	2	1	2	0	0	0		**5**	Low Priority
OF-59	Cains Brook	0	0	0	6	1	2	0	0	0		**9**	Low Priority
OF-60	Cains Brook	0	0	0	6	1	2	0	0	0		**9**	Low Priority
OF-61	Cains Brook	0	0	0	6	1	2	0	0	0		**9**	Low Priority
OF-62	Cains Brook	0	0	0	6	1	2	0	0	0		**9**	Low Priority

Outfall Inventory and Priority Ranking Matrix (continued)

Outfall ID	Receiving Water	Previous Results Indicate Likely Wastewater Input?[1]	Discharging to Area of Concern to Public Health?[2]	Frequency of Past Discharge Complaints	Receiving Water Quality[3]	Density of Generating Sites[4]	Age of Development/ Infrastructure[5]	Historic Combined Sewer?	Aging Septic?[6]	Long Culverted Streams?[7]	Additional Characteristics	Score	Priority Ranking
Information Source->		Outfall Inspections and Sample Results	GIS Maps, Recreation Areas, Recreational Uses	Town Staff	Impaired Waters List, TMDLs, Downstream Waters	Land Use/GIS Maps, Aerial Photography	Land Use Information, Visual Observation, Town Staff	Town Staff, GIS Maps	Land Use, Town Staff	GIS Maps, Town Pipe Data			
Scoring Criteria->		Yes = Problem No = 0	High = 5 Low = 0	Frequent = 3 Occasional = 2 None = 0	Poor = 6 Fair = 2 Good = 0	High = 6 Medium = 3 Low = 1	High = 3 Medium = 2 Low = 1	Yes = 5 No = 0	Many = 6 Few = 2 None = 0	Yes = 3 No = 0	Notes		
OF-63	Cains Brook	0	0	0	6	1	2	0	0	0		**9**	Low Priority
OF-64	Cains Brook	0	0	0	6	1	2	0	0	0		**9**	Low Priority
OF-68	Browns River	0	0	0								**6**	Low Priority
OF-69	Small Unnamed Stream	0	0	0	0	1	2	0	0	0		**3**	Low Priority
OF-71	Small Wetland	0	0	0	0	1	0	0	0	0	Discharges to swale before wetland	**1**	Low Priority
OF-83	Small Wetland	0	0	0	0	1	1	0	0	0		**2**	Low Priority
OF-88	Unnamed Brook	0	0	0	0	1	1	0	0	0		**2**	Low Priority
OF-89	Unnamed Brook	0	0	0	0	1	1	0	0	0		**2**	Low Priority
OF-90	Unnamed Brook	0	0	0	0	1	1	0	0	0		**2**	Low Priority
OF-103	Cains Brook	0	0	0	6	1	2	0	0	0		**9**	Low Priority
OF-108	Large Saltwater Wetland	0	0	0	2	1	1	0	0	0		**4**	Low Priority
OF-109	Large Saltwater Wetland	0	0	0								**6**	Low Priority
OF-110	Large Saltwater Wetland	0	0	0								**6**	Low Priority
OF-111	Cains Brook	0	0	0	6	1	1	0	0	0		**8**	Low Priority
OF-112	Wetland	0	0	0	0	1	1	0	0	0		**2**	Low Priority
OF-114	Unnamed Stream Carried by Culvert	0	0	0	0	3	2	0	0	3		**8**	Low Priority
OF-115	Mary's Brook	0	0	0	0	1	1	0	0	0		**2**	Low Priority
OF-116	Wetland	0	0	0	0	1	1	0	0	0		**2**	Low Priority
OF-117	Wetland	0	0	0	0	1	1	0	0	0		**2**	Low Priority
OF-118	Salt marsh	0	0	0	2	1	2	0	0	0		**5**	Low Priority
OF-121	Salt marsh	0	0	0	2	1	1	0	0	0	Discharge from Retention basin BMP	**4**	Low Priority
OF-123	Salt marsh	0	0	0	2	1	1	0	0	0	Discharge from Retention basin BMP	**4**	Low Priority

Outfall Inventory and Priority Ranking Matrix (continued)

Outfall ID	Receiving Water	Previous Results Indicate Likely Wastewater Input?[1]	Discharging to Area of Concern to Public Health?[2]	Frequency of Past Discharge Complaints	Receiving Water Quality[3]	Density of Generating Sites[4]	Age of Development/ Infrastructure[5]	Historic Combined Sewer?	Aging Septic?[6]	Long Culverted Streams?[7]	Additional Characteristics	Score	Priority Ranking
Information Source->		Outfall Inspections and Sample Results	GIS Maps, Recreation Areas, Recreational Uses	Town Staff	Impaired Waters List, TMDLs, Downstream Waters	Land Use/GIS Maps, Aerial Photography	Land Use Information, Visual Observation, Town Staff	Town Staff, GIS Maps	Land Use, Town Staff	GIS Maps, Town Pipe Data			
Scoring Criteria->		Yes = Problem No = 0	High = 5 Low = 0	Frequent = 3 Occasional = 2 None = 0	Poor = 6 Fair = 2 Good = 0	High = 6 Medium = 3 Low = 1	High = 3 Medium = 2 Low = 1	Yes = 5 No = 0	Many = 6 Few = 2 None = 0	Yes = 3 No = 0	Notes		
OF-125	Salt marsh	0	0	0	2	1	1	0	0	0	Discharge from Retention basin BMP	**4**	Low Priority
OF-127	Pond to Cain's Brook	0	0	0								**6**	Low Priority
OF-130	State Drainage System on Rt 1	0	0	0	0	3	2	0	0	0	Interconnection with state system on Pine St and Rt 1	**5**	Low Priority
OF-135	Intermittent Stream	0	0	0	0	1	1	0	0	0		**2**	Low Priority
OF-139	Wetland	0	0	0	0	1	2	0	0	0		**3**	Low Priority
OF-147	Wetland	0	0	0	0	1	1	0	0	0		**2**	Low Priority
OF-149	Wetland	0	0	0	0	1	2	0	0	0		**3**	Low Priority
OF-151	Wooded Wetland	0	0	0	2	1	2	0	0	0		**5**	Low Priority
OF-152	Wetland	0	0	0	0	1	1	0	0	0		**2**	Low Priority
OF-155	Wetland	0	0	0	0	1	1	0	0	0		**2**	Low Priority
OF-158	Wetland	0	0	0	0	1	1	0	0	0		**2**	Low Priority
OF-159	Constructed Pond	0	0	0	2	3	2	0	0	0		**7**	Low Priority
OF-160	Unnamed Stream	0	0	0	0	1	1	0	0	0		**2**	Low Priority
OF-161	Artificial Pond	0	0	0	2	1	2	0	0	0		**5**	Low Priority
OF-163	Marys Brook	0	0	0	2	1	1	0	0	0		**4**	Low Priority
OF-164	Cains Brook	0	0	0	2	3	2	0	0	0		**7**	Low Priority
OF-165	Farm Brook	0	0	0	0	1	2	0	0	0		**3**	Low Priority
OF-166	Farm Brook	0	0	0	0	1	2	0	0	0		**3**	Low Priority
OF-167	Unnamed stream	0	0	0	0	1	1	0	0	0		**2**	Low Priority
OF-170	Fowlers Brook	0	0	0	0	1	1	0	0	0		**2**	Low Priority
OF-171	Unnamed Stream	0	0	0	0	1	1	0	0	0		**2**	Low Priority
OF-175	Small Wetland	0	0	0	0	1	1	0	0	0		**2**	Low Priority
OF-176	Salt Marsh	0	0	0	0	1	1	0	0	0		**2**	Low Priority
OF-178	Unnamed Brook	0	0	0	0	1	1	0	0	0		**2**	Low Priority
OF-180	Unnamed Stream	0	0	0	0	1	1	0	0	0		**2**	Low Priority
OF-182	Unnamed Stream	0	0	0	0	1	1	0	0	0		**2**	Low Priority
OF-185	Unnamed Stream	0	0	0	0	1	1	0	0	0		**2**	Low Priority

Outfall Inventory and Priority Ranking Matrix (continued)

Outfall ID	Receiving Water	Previous Results Indicate Likely Wastewater Input?[1]	Discharging to Area of Concern to Public Health?[2]	Frequency of Past Discharge Complaints	Receiving Water Quality[3]	Density of Generating Sites[4]	Age of Development/ Infrastructure[5]	Historic Combined Sewer?	Aging Septic?[6]	Long Culverted Streams?[7]	Additional Characteristics	Score	Priority Ranking
Information Source->		Outfall Inspections and Sample Results	GIS Maps, Recreation Areas, Recreational Uses	Town Staff	Impaired Waters List, TMDLs, Downstream Waters	Land Use/GIS Maps, Aerial Photography	Land Use Information, Visual Observation, Town Staff	Town Staff, GIS Maps	Land Use, Town Staff	GIS Maps, Town Pipe Data			
Scoring Criteria->		Yes = Problem No = 0	High = 5 Low = 0	Frequent = 3 Occasional = 2 None = 0	Poor = 6 Fair = 2 Good = 0	High = 6 Medium = 3 Low = 1	High = 3 Medium = 2 Low = 1	Yes = 5 No = 0	Many = 6 Few = 2 None = 0	Yes = 3 No = 0	Notes		
OF-186	Unnamed Stream	0	0	0	0	1	1	0	0	0		**2**	Low Priority
OF-187	Unnamed Stream	0	0	0	2	1	2	0	0	0		**5**	Low Priority
OF-189	Unnamed Stream	0	0	0	0	1	1	0	0	0		**2**	Low Priority
OF-190	Small Wetland	0	0	0	0	1	1	0	0	0		**2**	Low Priority
OF-191	Unnamed Brook	0	0	0	0	1	1	0	0	0		**2**	Low Priority
OF-192	Browns River	0	0	0	0	1	1	0	0	0		**2**	Low Priority
OF-195	Marys Brook - Marys Pond Dam	0	0	0	0	2	1	0	0	0		**3**	Low Priority
OF-196	Cains Brook - Noyes Pond	0	0	0	6	1	1	0	0	0		**8**	Low Priority
OF-197	Unnamed Brook	0	0	0	0	1	1	0	0	0		**2**	Low Priority
OF-198	Small Wetland	0	0	0	0	1	1	0	0	0		**2**	Low Priority

[1] Previous screening results indicate likely wastewater input if any of the following are true:

- Olfactory or visual evidence of wastewater,
- 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

[2] 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

[3] Receiving water quality based on latest version of NHDES Integrated List of Waters (303d list).

- 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
- Fair = Water quality limited waterbodies that receive a discharge from the MS4 (Category 5 Waters)
- Good = No water quality impairments
- Outfalls that discharge to impaired waters were automatically given a High Priority ranking.

[4] Generating sites are institutional, municipal, commercial, or industrial sites with a potential to contribute to illicit discharges (e.g., car shops or washes, gas stations, garden centers, etc.)

[5] Mean age of development and infrastructure as prescribed by EPA:

- High = Industrial areas greater than 40 years old
- Medium = Developments 20-40 years old
- Low = Developments less than 20 years old

[6] Aging septic systems are septic systems 30 years or older in residential areas as prescribed by EPA.

[7] Long culverted streams are culverts than are significantly longer than the roadway crossing.

[8] Dry weather flow was assessed during previous outfall inspections. Light flow includes any flow up to 5 gpm.

Appendix D

Field Forms,
Sample Bottle Labels, and
Chain of Custody Forms

ANALYTICAL REPORT

Lab Number:	L2333173
Client:	AECOM 250 Apollo Dr. Chelmsford, MA 01824
ATTN:	Doug DeNatale
Phone:	(978) 905-2180
Project Name:	SEABROOK WWTF
Project Number:	Not Specified
Report Date:	06/23/23

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0826), IL (200077), IN (C-MA-03), KY (KY98045), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), OH (CL108), OR (MA-1316), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #525-23-122-91930).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: SEABROOK WWTF
Project Number: Not Specified

Lab Number: L2333173
Report Date: 06/23/23

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2333173-01	SEABROOK WWTF #37	WATER	SEABROOK, NH	06/13/23 06:29	06/13/23

Project Name:	SEABROOK WWTF	**Lab Number:**	L2333173
Project Number:	Not Specified	**Report Date:**	06/23/23

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Tiffani Morrissey - Tiffani Morrissey

Title: Technical Director/Representative Date: 06/23/23

INORGANICS
&
MISCELLANEOUS

Project Name: SEABROOK WWTF
Project Number: Not Specified

Lab Number: L2333173
Report Date: 06/23/23

SAMPLE RESULTS

Lab ID: L2333173-01
Client ID: SEABROOK WWTF #37
Sample Location: SEABROOK, NH

Date Collected: 06/13/23 06:29
Date Received: 06/13/23
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total Suspended	17.		mg/l	5.0	NA	1	-	06/20/23 09:19	121,2540D	NGS
Chemical Oxygen Demand	31.		mg/l	20	--	1	06/22/23 15:15	06/22/23 19:36	121,5220D	CVN

Project Name: SEABROOK WWTF
Project Number: Not Specified
Lab Number: L2333173
Report Date: 06/23/23

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1793632-1										
Solids, Total Suspended	ND		mg/l	5.0	NA	1	-	06/20/23 09:19	121,2540D	NGS
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1794767-1										
Chemical Oxygen Demand	ND		mg/l	20	--	1	06/22/23 15:15	06/22/23 19:32	121,5220D	CVN

Lab Control Sample Analysis

Batch Quality Control

Project Name: SEABROOK WWTF

Project Number: Not Specified

Lab Number: L2333173

Report Date: 06/23/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1793632-2								
Solids, Total Suspended	103		-		80-120	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1794767-2								
Chemical Oxygen Demand	102		-		90-110	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: SEABROOK WWTF
Project Number: Not Specified

Lab Number: L2333173
Report Date: 06/23/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1794767-4 QC Sample: L2332985-01 Client ID: MS Sample												
Chemical Oxygen Demand	ND	238	240	103		-	-		84-120	-		12

Lab Duplicate Analysis

Batch Quality Control

Project Name: SEABROOK WWTF
Project Number: Not Specified

Lab Number: L2333173
Report Date: 06/23/23

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1793632-4 QC Sample: L2333381-02 Client ID: DUP Sample						
Solids, Total Suspended	ND	ND	mg/l	NC		32
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1794767-3 QC Sample: L2332985-01 Client ID: DUP Sample						
Chemical Oxygen Demand	ND	ND	mg/l	NC		12

Project Name: SEABROOK WWTF
Project Number: Not Specified

Lab Number: L2333173
Report Date: 06/23/23

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2333173-01A	Plastic 120ml H2SO4 preserved	A	<2	<2	2.6	Y	Absent		COD-5220(28)
L2333173-01B	Plastic 950ml unpreserved	A	7	7	2.6	Y	Absent		TSS-2540(7)

*Values in parentheses indicate holding time in days

Project Name:	SEABROOK WWTF	**Lab Number:**	L2333173
Project Number:	Not Specified	**Report Date:**	06/23/23

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: Data Usability Report

Project Name:	SEABROOK WWTF	**Lab Number:**	L2333173
Project Number:	Not Specified	**Report Date:**	06/23/23

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

Report Format: Data Usability Report

Project Name:	SEABROOK WWTF	**Lab Number:**	L2333173
Project Number:	Not Specified	**Report Date:**	06/23/23

Data Qualifiers

ND - Not detected at the reporting limit (RL) for the sample.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: Data Usability Report

Project Name:	SEABROOK WWTF	**Lab Number:**	L2333173
Project Number:	Not Specified	**Report Date:**	06/23/23

REFERENCES

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625.1: alpha-Terpineol
EPA 8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 524.2: THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables).
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 2 OF 2

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 6/13/23

ALPHA Job #: L2333173

Client Information

Client: AECOM
Address: 250 Apollo Drive
Chelmsford, MA 01824
Phone: (978) 905 2180
Fax:
Email: doug.denatale@aecom.com
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Seabrook WWTF
Project Location: Seabrook NH
Project #:
Project Manager: Doug DeNatale
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved)
Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☐ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program	Criteria

Other Project Specific Requirements/Comments/Detection Limits:

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	ANALYSIS: TSS - 2540	ANALYSIS: COD	Sample Specific Comments	TOTAL # BOTTLES
33173-01	Seabrook WWTF #37	6/13/23	6:29	water	E.H.	X	X		

SAMPLE HANDLING
Filtration
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

Container Type																		
Preservative																		

Relinquished By:	Date/Time	Received By:	Date/Time
	6/13 8:17am		6/13/23 8:17
	6/13/23 16:45		6-13-23 16:45
	6-13-23 20:15		06113123-2015

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

Facility ID:
OF-43

Inspection ID:
INSP-58-DRY

Inspection Date: *
September 6, 2019 clear

Inspected By:
○ Town | ○ Consultant | ○ Other

Inspector Initials: *
SM

Date of Last Rainfall Event:
September 2, 2019 clear

Label Present?
○ Yes | ○ No

Upload Photo
Upload File...

Comments:
Flow = approx. 15 gpm

Add a Water Quality Field Screening:

History of Field Screenings:
- September 6, 2019

Add Water Quality Full Analytical Results:

History of Full Analytical Results:
- September 6, 2019

OBSERVATIONS

FLOW DETAILS

REQUIRED MAINTENANCE

Attachment A
Quarterly Water Quality and Visual Monitoring of Stormwater Discharge

Objective: To identify sources of storm water pollution and optimize SWPPP effectiveness

Frequency: Quarterly and Annually

Records: Monitoring Reports, Forms 1 and 2 and any analytical results

1. Obtain several clear glass one-liter jars prior to the sampling event. Identify and label the jars prior to the sampling event, if multiple samples are to be obtained. A minimum of one grab sample must be obtained; obtain additional samples if possible, to ensure sufficient quantity for visual, benchmark, and impaired waters monitoring as required.

2. Within thirty minutes after storm water runoff begins discharging from the facility outfall, collect one full sample jar. (Note: there is generally a lag time between the start of rainfall and the start of discharge, depending on site conditions).

3. Bring the collected samples to a well-lit area and perform the visual examination as soon as is practical.

4. Prepare benchmark and impaired waters monitoring samples for transport to the analytical lab, ensuring required preservation and hold times are complied with.

5. Using the Quarterly Visual Monitoring Report, Form 1, (or similar) included with this Procedure, record your observations of the quality of the storm water in each sample. Use a separate form for each sample. Record observations of color, odor, clarity, floating solids, settled solids, suspended solids, foam, oily sheen, or other indicators of pollution.

6. Using the Monitoring of Storm Water Discharge Report, Form 2, record Storm Event Information as noted for this sampling event.

7. In the appropriate location on the Form 1, record your opinion of the probable source of the pollution observed in each sample.

8. As soon as practical, conduct inspections of each area of the facility thought to be a potential source of the observed pollution in each sample.

9. Record the results of the inspections in the appropriate location on the Form 1. Attach additional sheets, as necessary.

10. If the results of the visual examinations and the subsequent facility inspections indicate deficiencies in the facility SWPPP, make provisions to update the SWPPP as soon as possible.

11. File the Visual Examination Report with the SWPPP.

12. Upon receipt of analytical results, complete the DMRs, including appropriate signature, and submit to EPA, with the Storm Event Information, within 30 days either electronically or via mail. Maintain copies of results and signed DMRs with the SWPPP.

13. If any analytical results exceed WLA values, institute corrective actions and required follow-up reporting in accordance with the MSGP.

QUARTERLY VISUAL MONITORING OF STORM WATER DISCHARGE REPORT – SAMPLE OBSERVATIONS, Form 1

Seabrook Wastewater Treatment Facility, Seabrook, New Hampshire

Date/Time: _____

Personnel Involved: _____

Parameter	Outfall 03 **(Permit Outfall # 002)**
Color	
Odor	
Clarity	
Floating Solids	
Suspended Solids	
Settled Solids	
Foam	
Sheen	

Sources of Pollution/Follow-up Inspections: Identify potential sources of the pollution identified above and results of follow-up inspections (follow-up inspections must be performed to trace any sources of pollution identified here)

_____

_____

_____

_____

_____

Additional Notes:

_____

_____

_____

_____

Signatures:

_____ _____

Inspector Principal Executive Officer or Authorized Rep

Monitoring of Stormwater Discharge Report, Form 2
Storm Event Information
Seabrook Wastewater Treatment Facility
Seabrook, New Hampshire

Outfall 03 (Permit Outfall # 002)

Date:	
Sample location (description):	
Visibility:	Sun, Cloudy, Mixed, Gray
Outfall Rate (estimate):	_____L/sec or Gal/sec
Sample volume (gallons):	_____Gallons
Snow melt or Rainfall:	
Air Temperature (estimate, if necessary):	
Starting time and date of rainfall event:	
Time of initial grab sample:	
Magnitude of rainfall:	_____ Inches
Ending time and date of rainfall event:	
Date and time most recent previous rainfall event ended:	
Magnitude of previous rainfall event:	_____ Inches

QUARTERLY VISUAL MONITORING OF STORM WATER DISCHARGE REPORT – SAMPLE OBSERVATIONS, Form 1

Seabrook Wastewater Treatment Facility, Seabrook, New Hampshire

Date/Time: _____

Personnel Involved: _____

Parameter	Outfall 037 **(Permit Outfall # 001)**
Color	
Odor	
Clarity	
Floating Solids	
Suspended Solids	
Settled Solids	
Foam	
Sheen	

Sources of Pollution/Follow-up Inspections: Identify potential sources of the pollution identified above and results of follow-up inspections (follow-up inspections must be performed to trace any sources of pollution identified here)

_____

_____

_____

_____

_____

Additional Notes:

_____

_____

_____

_____

Signatures:

_____ _____

Inspector Principal Executive Officer or Authorized Rep

Monitoring of Stormwater Discharge Report, Form 2
Storm Event Information
Seabrook Wastewater Treatment Facility
Seabrook, New Hampshire

Outfall 037 (Permit Outfall # 001)

Date:	
Sample location (description):	
Visibility:	Sun, Cloudy, Mixed, Gray
Outfall Rate (estimate):	_____L/sec or Gal/sec
Sample volume (gallons):	_____Gallons
Snow melt or Rainfall:	
Air Temperature (estimate, if necessary):	
Starting time and date of rainfall event:	
Time of initial grab sample:	
Magnitude of rainfall:	_____ Inches
Ending time and date of rainfall event:	
Date and time most recent previous rainfall event ended:	
Magnitude of previous rainfall event:	_____ Inches

Appendix E

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

Appendix F

IDDE Employee Training Record

Illicit Discharge Detection and Elimination (IDDE)
Employee Training Record

Town of Seabrook

Date	Type of Training	Participants
10/29/24	IDDE	Municipal Staff

Appendix G

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

Standard Operating Procedure for:	
IDDE: Inspections During Mapping	
Purpose of SOP:	This SOP provides a basic checklist for managers and field crews conducting illicit discharge inspections during mapping.

Always:

Characterize the outfall by recording information on the Storm Drain Characteristic Form.

- Conduct inspections during dry weather periods using the Dry Weather Outfall Inspection Form.
- Follow procedure below if an illicit discharge is encountered (such as raw sewage, paint, etc.).
- Conduct inspections with at least two staff per crew.
- Carry a list of emergency phone numbers.

Whenever Possible:

- Conduct inspections during low groundwater and leaf off conditions.
- Photograph the outfall with a digital camera (use dry erase or chalk board to identify outfall).
- Identify and label the outfall with a unique identifier. For example, "SWO-013".
- If dry weather flow is present at the outfall, and the flow does not appear to be an illicit discharge attempt to identify the source of the flow (intermittent stream etc.), then document the discharge for future comparison.
- Carry an authorization letter.
- Collect samples of flowing discharges before and after source removal. (Contact NHDES for technical assistance.)

Never:

- Never put yourself in danger.
- Never enter private property without permission

Equipment list for mapping:

1. Existing paper maps
2. Field sheets
3. Camera (preferably digital) on pole
4. GPS Unit
5. Spray paint (or other marker)
6. Cell phones or hand-held radios
7. Clip boards and pencils
8. First aid kit
9. Flash light or head lamp
10. Surgical gloves
11. Tape measure
12. Temperature probe
13. Waders
14. Watch with a second hand
15. Five 1-liter sample bottles
16. Dry erase board (for photos)
17. Hand sanitizer
18. Sampling pole
19. Mirror (for light)
20. Safety vests

Procedures to follow if illicit discharge is detected:

- □ Call dispatch / supervisor.
- □ Use the Dry Weather Outfall Inspection Form to document observations.
- □ Visually inspect general area for possible sources.
- □ Take photos.
- □ Estimate flow/collect samples if instructed to do so.

Dry Weather Discharge

The CWP defines **dry weather** as a 48 hour period with no runoff-producing rainfall. NEIWPCC defines dry weather as a 48-72 hour period with less than 1/10-inch rainfall.

Dry Weather Outfall Inspection Form

Location Information

Date: **Inspector:**

Time:

Outfall ID:

Outfall Location:

Receiving Waterbody:

Photo Taken: Yes No **Photo ID:**

Weather: Clear Cloudy **Approximate Temp:** **Wind Present:** Yes No

Precipitation in the past 3 days: No Yes inches

Pipe Flow: None Trickle Steady 1/4 pipe flow or more

Seepage Flow: None Trickle Steady 1/4 pipe flow or more

Color (if flow is present):

Obvious Debris/Pollution: Odor: Water Clarity:

None 0 None/Natural 0 Clear 0

Foam 3 Musty 5 Cloudy 5

Staining 5 Sewage/septic 10

Floating Green Scum 8 Petroleum 10 Opaque 10

Oil / Film 9

Vegetative Mat/or Gray Mat 9

Sewage Solids 10

TOTAL **TOTAL** **TOTAL**

GRAND TOTAL SCORE =

Sediment Condition: Open 1/4 Full 1/2 Full 3/4 Full Plugged

Structure Condition: Yes No Excellent Good Fair Poor

Trash/litter present: **Yard waste observed:** Yes No

General Comments:

Potential Sources / Actions Taken:

Sample collected? Yes No

By whom?

Parameters:	**Results:**

Follow up required: Yes No

NOTE: Sketch site map/note on back.

Inspection order select all that apply:

Odor – Most strong odors, especially gasoline, oils, and solvents are likely associated with high responses on the toxicity screening test.

Stale sanitary wastewater: sewage
Detergent, perfume: Laundromat or household laundry
Sulfur ("rotten eggs"): industries that discharge sulfide compounds or organics (meat packers, canneries, dairies)
Oil and gas: facilities associated with vehicle maintenance or petroleum product storage (gas stations) or petroleum refineries
Rancid-sour: food preparation facilities (restaurants, hotels)

Color – Important indicator of inappropriate industrial sources. Dark colors, such as brown, gray, or black are the most common.

Yellow: chemical plants, textile, and tanning plants
Brown: meat packers, printing plants, metal works, stone and concrete, fertilizers, and petroleum refining facilities [note: can be from natural organic acids if a wetland is upstream]
Green: chemical plants, textile facilities
Red: meat packers [note: can be from organic acids if a wetland is upstream]
Gray: dairies

Turbidity – The cloudy appearance of water caused by the presence of suspended or colloidal matter. In dry weather, high turbidity is often a characteristic of undiluted industrial discharges.

Cloudy: sanitary wastewater, concrete or stone operations, fertilizer facilities, automotive dealers
Opaque: food processors, lumber mills, metal operations, pigment plants

Floatable matter – a contaminated flow may contain floating solids or liquids directly related to industrial or sanitary wastewater pollution. Floatables of industrial origin may include animal fats, spoiled food, oils, solvents, sawdust, foams, packing materials, or fuel.

Oil sheen: petroleum refiners or storage facilities and vehicle service facilities. [note: there is a type of bacteria that looks like an oil sheen. If you take a stick and swirl around the sheen, it will break up into blocky pieces if it is the bacteria. A true oil sheen will quickly re-form and not look blocky.]
Toilet paper bits, fecal bits, food particles: sanitary wastewater
Soap suds: if white or a clear sheen, laundry discharge (check odor) [note: can also occur from natural surfactants; usually off-white or tan with an earthy-fishy odor.]

Deposits and Stains – Any type of coating near the outfall, usually a dark color. Deposits and stains will often contain fragments of floatable substances.

Lots of sediment: construction site erosion, sand and gravel pits, winter road applications

Oil stain: petroleum storage, vehicle service facilities, petroleum refineries
Rusty: precipitates from iron-rich water (natural or industrial) [note: if slimey and clumpy, it could be iron bacteria]
Grayish-black deposits and hair: leather tanneries
White crystalline powder: nitrogenous fertilizer waste

Vegetation – Vegetation surrounding an outfall may show the effects of industrial pollutants. Decaying organic materials coming from various food product wastes would cause an increase in plant life, while the discharge of chemical dyes and inorganic pigments from textile mills could noticeably decrease vegetation. It is important not to confuse the adverse effects on high storm water flows on vegetation with highly toxic dry-weather intermittent flows.

Excessive growth: food product facilities, fertilizer runoff (lawns, golf courses, and farms)
Inhibited growth: high storm water flows, beverage facilities, printing plants, metal product facilities, drug manufacturing, petroleum facilities, vehicle service facilities, and automobile dealers

Damage to Outfall Structures – Outfall damage can be caused by severely contaminated discharges that are very acidic or basic in nature. Primary metal industries have a strong potential to cause outfall structure damage because their batch dumps are highly acidic. Poor construction, hydraulic scour, and old age can also negatively affect the condition of al outfall structure.

Concrete or spalling (breaking off into chips or layers): industrial flows
Peeling paint: industrial flows
Metal corrosion: industrial flows

This sheet was courtesy of the NHDES (modified from Pitt et al., 1993 Investigation of Inappropriate Pollutant Entries into Storm Drainage Systems: A User's Guide. EPA Office of research and Development, EPA/600/R-92/238)**.**