

**Illicit Discharge Detection and Elimination  
(IDDE) Plan**

**TOWN OF STRATHAM**

**Permit Year 1**

EPA NPDES Permit Number NHR041000

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# 1 IDDE Program Implementation Timeline

**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

## 2 Authority and Statement of IDDE Responsibilities

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### 2.1 Legal Authority

The [Town of Stratham](#) will adopt a bylaw, ordinance, or other regulatory mechanism to provide the Town of Stratham with adequate legal authority to:

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

The bylaw, ordinance, or other regulatory mechanism will meet the requirements of the 2017 MS4 Permit and will be in place within 3 years of the permit effective date (July 1, 2021).

### 2.2 Statement of Responsibilities

The Department of Public Works is the lead municipal agency or department responsible for implementing the IDDE program pursuant to the provisions of the IDDE Regulations upon adoption. Other agencies or departments with responsibility for aspects of the program include:

- Planning Board – Site Plan and Subdivision Regulations
- Board of Selectmen/ Town Administrator – Provide adequate financial and legislative support

## 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. The Department of Public Works is responsible for updating the stormwater system mapping pursuant to the 2017 MS4 Permit. The Town of Stratham 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**.

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### 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.

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### 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.

## 4 Sanitary Sewer Overflows (SSOs)

Town of Stratham has no municipally owned sewer and therefore no Sanitary Sewer Overflows (SSOs).

Town of Stratham has no Sanitary Sewer Overflows (SSOs).

Discharges of wastewater from any point sources, including sanitary sewer overflows (SSO's) shall be reported in accordance with Part II, Section D.1.e. of the General Requirements of the Publicly Owned Treatment Works General Permit.

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

Discharges of wastewater from any point sources, including sanitary sewer overflows (SSO's) shall be reported in accordance with Part II, Section D.1.e. of the General Requirements of the Publicly Owned Treatment Works General Permit.

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

**Table 4-1. SSO Inventory**  
**Town of Stratham**  
**Revision Date: ##DATE OF LAST UPDATE**

SSO Location <sup>1</sup>	Discharge Statement <sup>2</sup>	Date <sup>3</sup>	Time Start <sup>3</sup>	Time End <sup>3</sup>	Estimated Volume <sup>4</sup>	Description <sup>5</sup>	Mitigation Completed <sup>6</sup>	Mitigation Planned <sup>7</sup>

<sup>1</sup> Location (approximate street crossing/address and receiving water, if any)

<sup>2</sup> A clear statement of whether the discharge entered a surface water directly or entered the MS4

<sup>3</sup> Date(s) and time(s) of each known SSO occurrence (i.e., beginning and end of any known discharge)

<sup>4</sup> Estimated volume(s) of the occurrence

<sup>5</sup> Description of the occurrence indicating known or suspected cause(s)

<sup>6</sup> Mitigation and corrective measures completed with dates implemented

<sup>7</sup> Mitigation and corrective measures planned with implementation schedules

## 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.

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### 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.

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### 5.2 Outfall and Interconnection Inventory and Initial Ranking

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

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

**1. Excluded outfalls:**

- Outfalls/interconnections that do not discharge to an impaired waterbody or are not listed in Part II Summary of Receiving Waters in the NOI.
- Outfalls/interconnections with no potential for illicit discharges including 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.

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

**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 **Appendix C**.

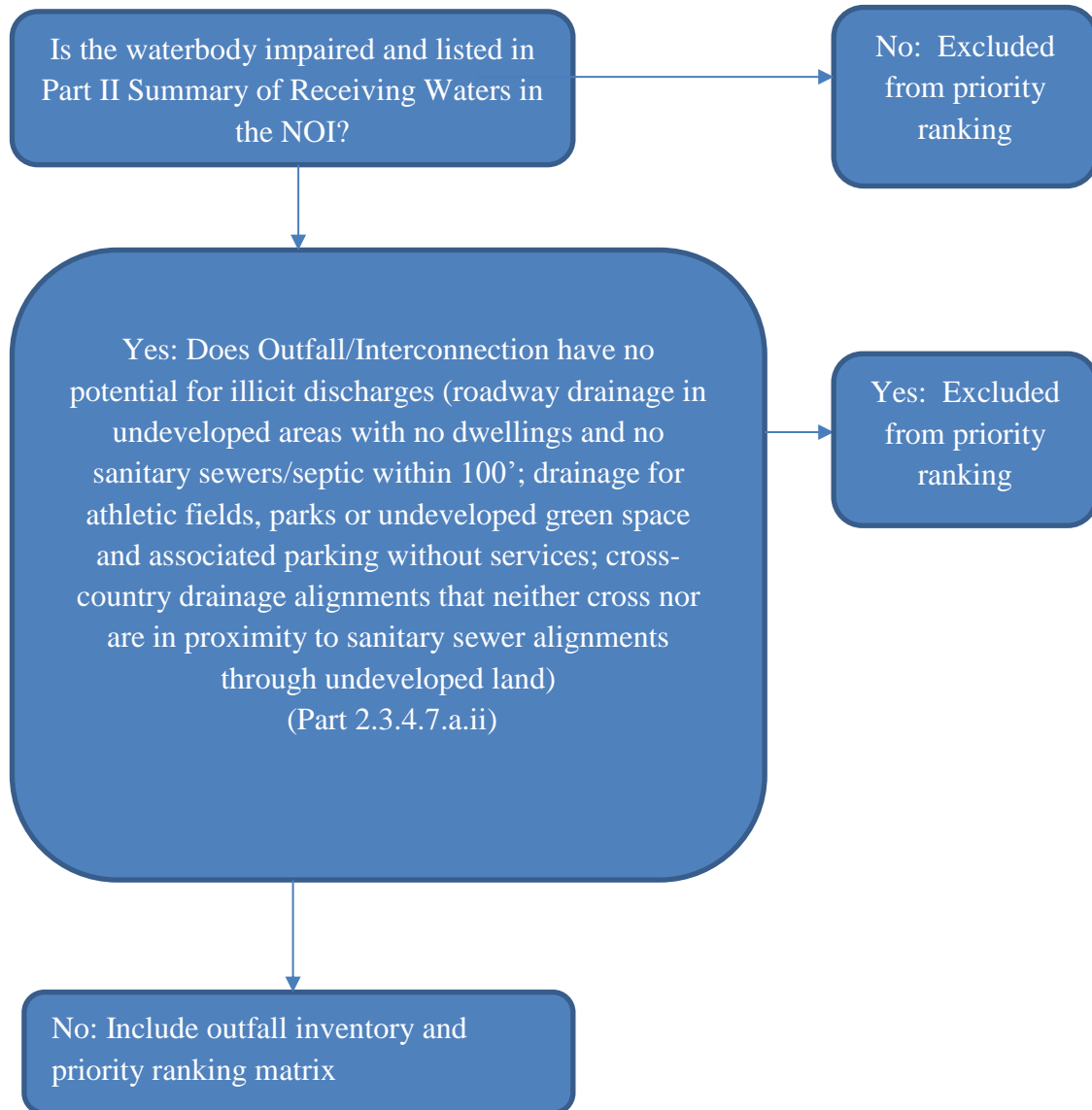
**3. Low Priority Outfalls:** Outfalls/interconnections determined by the permittee as low priority based on the characteristics listed below or other available information.

Outfalls will be ranked into the above priority categories (except for excluded outfalls, which may be excluded from the IDDE program) based on the following characteristics of the defined initial catchment areas, where information is available. To prioritize initial mapping and outfall assessment work the permittee is using location-specific characteristics of water body impairments to focus initial work as included in **Appendix B**. It is understood that not all currently excluded catchments will remain excluded throughout the 10 year assessment period, however for initial outfall ranking and catchment investigations this approach will target the worst areas first.

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

- **Culverted streams** – Any river or stream that is culverted for distances greater than a simple roadway crossing may have a high illicit discharge potential.
- **Water quality limited waterbodies** that receive a discharge from the MS4 or waters with approved TMDLs applicable to the permittee, where illicit discharges have the potential to contain the pollutant identified as the cause of the water quality impairment.

The following is an initial outfall prioritization flowchart, see Appendix C for an outfall inventory and priority ranking matrix:



## **6 Dry Weather Outfall Screening and Sampling**

Dry weather flow is a common indicator of potential illicit connections. The MS4 Permit requires all outfalls/interconnections (excluding Problem and Excluded Outfalls) to be inspected for the presence of dry weather flow. The Department of Public Works is responsible for conducting dry weather outfall screening, starting with High Priority outfalls, followed by Low Priority outfalls, based on the initial priority rankings described in the previous section 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 trace the source of the potential discharge within the outfall catchment area. Catchment investigation techniques include but are not limited to review of maps, historic plans, and records; manhole observation; dry and wet weather sampling; video inspection; smoke testing; and dye testing.

Catchment Investigations shall be completed in accordance with Part 2.3.4.8 of the MS4 Permit. A written catchment investigation procedure shall be developed and incorporated into this plan within 18 months of the permit effective date. Investigations of catchments associated with Problem Outfalls shall begin no later than two (2) years from the permit effective date and shall be completed within seven (7) years.

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### 7.1 Illicit Discharge Removal

When the specific source of an illicit discharge is identified, the Town of Stratham 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.

## 8 Training

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

## 9 Progress Reporting

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

- Number of SSOs and illicit discharges identified and removed
- Number and percent of total outfall catchments served by the MS4 evaluated using the catchment investigation procedure
- Number of dry weather outfall inspections/screenings
- Number of wet weather outfall inspections/sampling events
- 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**

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Legal Authority (IDDE Bylaw or Ordinance)

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## **Appendix B**

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### Storm System Mapping

# Appendix C

## Outfall Inventory and Priority Ranking Matrix

Receiving Water	Outfall ID	Previous Screening Results Indicate Likely Sewer Input? <sup>1</sup>	Receiving Water Body Impairment? <sup>2</sup>	Discharging to Area of Concern to Public Health? <sup>3</sup>	Frequency of Past Discharge Complaints	Density of Generating Sites <sup>4</sup>	Age of Development/Infrastructure <sup>5</sup>	Historic Combined Sewers or Septic? <sup>6</sup>	Aging Septic? <sup>7</sup>	Culverted Streams? <sup>8</sup>	Additional Characteristics	Score	Priority Ranking
Information Source	Outfall Inspections and sample results	Yes = 10 (Problem Outfall) No = 0	Yes = 10 (impairment listed as high priority in permit) No = 0	Maps Yes = 10 No = 0	Town Staff Frequent = 3 Occasional = 2 None = 0	Land Use/GIS Maps, Aerial Photography High = 3 Medium = 2 Low = 1	Land Use Information, Visual Observation High = 3 Medium = 2 Low = 1	Town Staff, GIS Maps Yes = 3 No = 0	Land Use, Town Staff Yes = 3 No = 0	GIS and Storm System Maps Yes = 3 No = 0	Other TBD		
Winnicutt River	1	0	10	0	0	1	2	3	3	0	None	19	High Priority
Winnicutt River	2	0	10	0	0	1	2	3	3	0	None	19	High Priority
Winnicutt River	3	0	10	0	0	1	2	3	3	0	None	19	High Priority
Winnicutt River	4	0	10	0	0	1	2	3	3	0	None	19	High Priority
Winnicutt River	5	0	10	0	0	1	2	3	3	0	None	19	High Priority
Winnicutt River	6	0	10	0	0	1	2	3	3	0	None	19	High Priority
Winnicutt River	7	0	10	0	0	1	2	3	3	0	None	19	High Priority
Winnicutt River	8	0	10	0	0	1	2	3	3	0	None	19	High Priority
Winnicutt River	9	0	10	0	0	1	2	3	3	0	None	19	High Priority
Winnicutt River	10	0	10	0	0	1	2	3	3	0	None	19	High Priority
Winnicutt River	11	0	10	0	0	1	2	3	3	0	None	19	High Priority

**Scoring Criteria:**

<sup>1</sup> Previous screening results indicate likely sewer input if any of the following are true:

- Olfactory or visual evidence of sewage,
- Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and bacteria levels greater than the water quality criteria applicable to the receiving water, or
- Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and detectable levels of chlorine

<sup>2</sup> Catchments draining to any waterbody impaired for the following shall be designated either Problem Catchments or HIGH priority

- bacteria or pathogens
- Nitrogen
- Phosphorus

<sup>3</sup> Outfalls/interconnections that discharge to or in the vicinity of any of the following areas:

- Public Beaches
- Recreational Areas
- Drinking Water Supplies
- Shellfish beds

<sup>4</sup> Generating sites are institutional, municipal, commercial, or industrial sites with a potential to contribute to illicit discharges (e.g., car dealers, car washes, gas stations, garden centers, industrial manufacturing, etc.)

<sup>5</sup> Age of development and infrastructure:

- High = Industrial areas greater than 40 years old and areas where the sanitary sewer system is more than 40 years old
- Medium = Developments 20-40 years old
- Low = Developments less than 20 years old

<sup>6</sup> Areas once served by combined sewers and but have been separated, or areas once served by septic systems but have been converted to sanitary sewers.

<sup>7</sup> Aging septic systems are septic systems 30 years or older in residential areas.

<sup>8</sup> Any river or stream that is culverted for distance greater than a simple roadway crossing.

**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. <sup>4</sup> Problem Outfalls need not be screened pursuant to Part 2.3.4.7.b.

**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 the table with scores ≥11

**Low Priority Outfalls:** Outfalls/interconnections determined by the permittee as low priority based on the characteristics listed the table with scores ≤10

**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.

See full document: [https://www.strathamnh.gov/sites/strathamnh/files/uploads/stratham\\_ssc-outfall-ranking\\_12-18.pdf](https://www.strathamnh.gov/sites/strathamnh/files/uploads/stratham_ssc-outfall-ranking_12-18.pdf)



## Appendix D

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

*Appendix to include copies of the following field sampling documents once fully developed in accordance with the 2017 MS4 Permit:*

- *Dry weather outfall inspection/sampling form*
  - *Wet weather outfall inspection/sampling form*
  - *Manhole inspection form*
  - *Example sample labels (provided by laboratory)*
  - *Example chain-of-custody form(s) (provided by laboratory(s))*
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## Appendix E

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

*Appendix to include copies of water quality analysis instructions, procedures, and SOPs for all sample parameters and all meters or field test kits that are used for analysis once fully developed in accordance with the 2017 MS4 Permit. This includes the manufacturer's instructions for how to use field test kits as well as the manufacturer's instructions or user's manual for any field instrumentation.*

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## **Appendix F**

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IDDE Employee Training Record

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

**Town of Stratham**

Date	Type of Training	Participants

## Appendix G

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

*Appendix to provide manufacturer instructions, manuals and procedures and any in-house SOPs used to perform source isolation and confirmation for illicit discharges once fully developed in accordance with the 2017 MS4 Permit.*

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