

A. PERMIT REQUIRED OUTFALL SCREENING

Part 2.3.4.7.b, *Dry Weather Outfall and Interconnection Screening and Sampling*, of the US Environmental Protection Agency (EPA) 2017 Small Municipal Separate Storm Sewer System (MS4) General Permit in New Hampshire (the Permit) requires permittees to screen all municipal stormwater MS4 outfalls discharging from the municipality's regulated Urban Area (UA) (per US Census mapping) to Waters of the United States.

Theoretically, stormwater outfalls are not expected to flow during dry weather, and dry-weather flow can be an indication of non-stormwater inputs, illicit discharges, to an MS4. The primary goal of this requirement is to identify discharge points where further upstream investigations are needed to locate and remove potential illicit discharges of pollutants within the municipality's UA. These screenings were required to be completed by the permittee by the end of Permit Year 3 (June 30, 2021). This report provides a summary of the Town of Pelham's (the Town) efforts to meet this Permit requirement.

B. PERMIT SCREENING REQUIREMENTS

The first year of the Permit required the Town to develop a written Stormwater Management Plan (SWMP) that includes an Illicit Discharge Detection and Elimination Program (IDDEP) (Appendix D of the SWMP). As part of the IDDEP development, the Town was required to compile a list of MS4 outfalls within the Town's UA and prioritize them based on criteria established in Permit Part 2.3.4.7.a, *Assessment and Priority Ranking of Outfalls/Interconnections*.

Based upon the prioritization, all MS4 outfalls must be screened for dry weather discharge by the end of Permit Year 3. If an outfall is observed with discharge at the time of screening, subsequent sampling must be completed and documented. Written IDDEP procedures (SOPs) for dry-weather screening and sampling were also developed as part of the Year 1 requirements.

As defined in the Permit (Part 2.3.4.7b.ii), *dry-weather screening and sampling shall proceed only when no more than 0.1 inches of rainfall has occurred in the previous 24-hour period and no significant snow melt is occurring*. During dry-weather screening, each outfall is required to be checked for visual and olfactory (smell) observations such as color, turbidity, floatables, and odor. If visual or olfactory indicators are observed with no discernable discharge, the outfall must be flagged for additional screening or sampling, as described in the IDDEP SOPs. If a discharge is found, sampling is required using field sampling instruments and kits.

Table 1 lists the Permit required water quality parameters and methods for field sampling of dry-weather discharges. This includes the addition of phosphorus for certain watersheds as identified on the EPA-approved New Hampshire Department of Environmental Services 303(d) list of impaired waters.

TABLE 1: Minimum Sample Analysis Required by 2017 MS4 Permit Part 2.3.4.7.b.iii.4a		
Analytes	Field Equipment	Lab Analysis
ammonia	field kit/test strips	n/a
chlorine	field kit/test strips	n/a
conductivity	YSI	n/a
salinity	YSI	n/a
E. coli (bacteria)	n/a	grab sample 8-hr max. holding
surfactants	field kit	n/a
temperature	YSI	n/a
phosphorus	field kit or	grab sample

C. FIELD SCREENING SUMMARY

The Permit required permittees to locate, map, prioritize, and screen all MS4 stormwater outfalls for dry-weather discharge within the first three (3) years of the permit. The purpose of the dry-weather screening program is to find potential illicit discharge locations as a continued effort to protect public waters. Between the months of June and November of 2020, Verdantas, in conjunction with the Town, performed dry-weather outfall screening in accordance with the Town's IDDEP SOPs and the Permit.

The outfall inventory includes a total of 311 MS4 outfalls within the town. A total of 307 outfalls were screened during the 2020 field program. While in the field, Verdantas staff determined that 5 of the 314 outfalls did not meet the definition of a municipal MS4 outfall due to location, purpose, or function, and 2 others were not able to be located. Of 307 outfalls screened, none were observed to have dry-weather discharge or found to have any of the visual or olfactory indicators of a current or past illicit discharge.

In 2022, the Town screened 8 additional outfalls and found that 2 of them were not municipal MS4 outfalls. After analysis, the Town and Verdantas determined that only 134 outfalls were deemed MS4 outfalls due to distance from impaired waterbodies and location within the MS4. Table 2 is a summary of the outfall screening.

TABLE 2: Dry-Weather Screening Data					
Total Outfalls	Outfalls Screened	Outfalls with No Discharge	Outfalls Sampled	Outfalls with an Initial priority ranking as 'High'	Outfalls with ranked as 'High' post 2020 screening
311	311	311	0	110	0

D. FIELD WORK PREPARATION

The Town developed dry-weather screening and sampling SOPs in Year 1 per Permit Part 2.3.4.7 and Part 2.3.4.8 including requirements for all screening and sampling results to be documented each year in the Town's Annual Report to the EPA. A digital dry-weather inspection form was developed for field screening using Google Forms™ to facilitate the collection of field data and documentation. Each outfall was recorded on its own form, automatically time-stamped, and digitally populated a spreadsheet. The form was used in the field via a digital tablet and cell phones.

Town mapping including previously collected outfall locations (by others) was compiled in the office using ESRI GIS mapping software ArcMap™. The map of the town was divided into 76 tiles to obtain a printed map scale that would be useable in the field. Mapped outfalls were color-coded based on ranked priority. Printed maps were used in the field for locating and tracking each outfall as it was screened. The Town's inventory (by others) also included nearest street location and geographical coordinates to assist in locating each outfall. Field days were scheduled based on tile groupings and using the printed maps with Google Maps™ navigation, reasonable routes through the town were developed in order to optimize field time.

Prior to a scheduled field day, map tiles and routes were printed, and the weather was constantly monitored to ensure a minimum of 24-hours of dry-weather (as defined above) prior to preceding with field work. The Town's Planning Director was also notified each day prior to field work with the general location(s) where the screening was planned.

E. FIELD WORK APPROACH

As the weather played a critical part of preparation, on the day of each scheduled field day precipitation for the previous 24-hours was checked from a variety of online resources to determine if 'dry-weather' conditions were met. In some cases, this meant canceling a field day when an unexpected amount of rainfall occurred in the overnight hours or may was forecasted.

Verdantas field staff always performed the outfall screening in pairs for the safety for the inspectors. The printed maps, field staff knowledge of ground topography and their ability to visualize existing drainage patterns were used to locate each outfall. As anticipated, several outfalls were difficult to find due to heavy vegetation therefore, it was necessary to limit the

amount of time spent looking for a particular outfall. As a general rule-of-thumb, if field staff were unable to locate an outfall within 10-15 minutes, the outfall was marked as 'not found'. All 311 outfalls were identified as either screened or 'not found' by September 2020, with 8 additional outfalls screened in 2022.

F. NOVEMBER 2020 FIELD SCREENING DAY

In November 2020, a field day accompanied by Town Planning and Highway staff was scheduled. During this final field day 14 of the 21 outfalls previously label as 'not found' were located and screened. One additional outfall previously not on the inventory list was also found and screened. The remaining seven outfalls were not screened as noted below:

- Three outfalls were in private communities or on private property.
- Two outfalls were located along a state road and the Highway representative said the Town was not responsible for those outfalls.
- Two outfalls were buried and remained unable to be found.

G. RESULTS, CONCLUSIONS, AND RECOMMENDATION

Over the course of 10 in-field days in 2020, a total of 307 MS4 outfalls were screened for dry-weather flow. In one additional field day in 2022, a total of 8 outfalls were screened, with 2 being classified as not Town owned outfalls. Based on the field work, there were no outfalls found with dry-weather flow or were identified to have potential illicit discharges, past or current. Subsequently, all outfalls were reprioritized to a 'Low' ranking in the Town's MS4 outfall inventory per Part 2.3.4.7.c of the Permit. Screening results are reported in the Town's SWMP and annual reports.

In a one case, flow was observed at an outfall located at the end of a cul-de-sac. The flow observed did not exhibit any indication of an illicit discharge. A brief investigation of the upstream catch basins revealed that the flow was being caused by a lawn irrigation system spraying directly into the catch basin. According to Part 1.4 of the Permit, lawn irrigation is an allowable non-stormwater discharge.

Next steps for the Town as related to outfall screening is to complete catchment investigations (Permit Part 2.3.4.8) and wet-weather screening and sampling, as applicable. SOPs for both catchment investigations and wet-weather screening are included in the Town's IDDEP appendices. Additionally, each outfall that remains part of the Town MS4 inventory is required to be scheduled for on-going dry-weather screening once every five years per Part 2.3.4.10 of the permit.

Attached is the updated IDDEP Table C.1 Outfall Inventory and Ranking, based on fieldwork completed in 2022.