

## MEMORANDUM

**TO:** David Desrosiers, P.E., Highway Superintendent, Town of Granby, MA

**FROM:** Julianne Busa, PhD; Sarah Hayden, MSc

**DATE:** February 7, 2022

**RE:** Nitrogen Source Identification Report  
Review Memo & Retrofit Implementation Schedule/Costs

---

Pursuant to the Total Maximum Daily Load (TMDL) and impaired waters requirements of the United States Environmental Protection Agency's (EPA) *General Permits for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems in Massachusetts* (MS4 General Permit), the Pioneer Valley Planning Commission (PVPC) developed a Nitrogen Source Identification Report (NSIR) for the Town of Granby. The report included a desktop screening and initial identification of potential high-priority parcels for stormwater control measures. Fuss & O'Neill reviewed the findings and recommendations of PVPC's NSIR and integrated them with the Town's existing outfall and catchment screening data and Stormwater Retrofit Plan. The recommendations of Fuss & O'Neill's Stormwater Retrofit Plan were also reviewed in the context of the impervious area/nutrient loading data and priority catchments included in the PVPC NSIR. This memorandum includes the findings of these reviews, along with a recommended implementation schedule and estimated implementation costs for high-priority retrofit projects. Together with the existing NSIR and Stormwater Retrofit Plan, this documentation brings the Town into full compliance with the permit requirements for the Nitrogen Source Identification Report, as well as the Year 5 requirements for identification of specific structural best management practice (BMP) projects.

### 1. Review of PVPC Recommendations Based on Fuss & O'Neill Field Investigations

In the NSIR, PVPC identified five high-priority sites for stormwater retrofits/BMPs to reduce nitrogen loading throughout Town. PVPC selected these sites through a desktop screening process. Separately, Fuss & O'Neill conducted both desktop and field screenings of potential retrofit sites as part of the development of the Town's Stormwater Retrofit Report. Fuss & O'Neill's desktop screening identified 27 sites in Granby for potential retrofit opportunities; the five sites recommended by PVPC were among those identified by Fuss & O'Neill. A comparison of methods used for screening by each party is presented in Section 3 of this memo.

Fuss & O'Neill conducted field inventories of the 27 sites we identified as potential retrofit sites, including PVPC's five high-priority sites, in April 2021. The sites and adjacent street areas were visually inspected for potential stormwater retrofit opportunities (i.e., impervious surfaces connected to the on-site drainage system, available green space to accommodate new stormwater retrofits, and drainage features that could be enhanced or improved) and physical site characteristics such as site configuration, drainage patterns, current use, slope, landscaping, subsurface utilities, design complexity, and maintenance access considerations. These field inventories provide further insight into the suitability of PVPC's recommended high-priority sites for stormwater retrofits. **Table 1** summarizes Fuss & O'Neill's assessment of the retrofit potential at each of the

five sites recommended by PVPC, based on our field observations, including potential retrofit opportunities where appropriate and barriers to implementation.

**Table 1: Summary of Fuss & O'Neill field inventories for the five high-priority sites identified by PVPC.**

Site ID	Address/Site Name	Fuss & O'Neill Field Observations	Potential for Stormwater Retrofits?
M_116026_890054	State Street/ Undeveloped parcel behind the Church of Christ	<ul style="list-style-type: none"> <li>The parcel has limited space for surface and subsurface retrofit opportunities. Additionally, it is located behind a privately owned facility and may require coordination with the Church's owner(s).</li> <li>The area is currently paved and may be needed for vehicle access, restricting the potential for surface practices.</li> <li>The parcel is located at a high point on the site and would capture a negligible amount of runoff. Currently, runoff from the site drains as sheet flow to the forest to the west/south and to the church parking lot to the north.</li> <li>As a result of limited space, restrictions resulting from potential site use, and site topography, no retrofit opportunities were identified for this site.</li> </ul>	No (PVPC Nitrogen BMP score – 86/96)
M_114317_890093	Smith Avenue/ Undeveloped Parcel	<ul style="list-style-type: none"> <li>There is no impervious cover on the site.</li> <li>The site is currently forested/thickly vegetated.</li> <li>The site is at a high point (runoff from the site is pitched towards the impervious area and houses on Smith Avenue).</li> <li>As a result of limited impervious area on site and site topography, no retrofit opportunities were identified for this site.</li> </ul>	No (PVPC Nitrogen BMP score – 86/96)
M_116070_890120	239 State Street/Granby Historical Association	<ul style="list-style-type: none"> <li>The site is located at a low point, receiving runoff from the Church of Christ and its parking lot. Considerable sedimentation around the building was observed during the field visit.</li> <li>There is limited space for retrofit opportunities/insufficient open space for surface practices. Any surface practices would not be a sufficient distance from the foundation of the Granby Historical Association Building.</li> <li>Subsurface practices (dry wells) may be feasible but would lack the visibility and educational component that would accompany a surface practice.</li> </ul>	No (PVPC Nitrogen BMP score – 86/95)
M_115059_889896	West Street/ Undeveloped parcel behind Granby Highway Department	<ul style="list-style-type: none"> <li>The parcel is forested/thickly vegetated. There is minimal impervious cover. The site is currently used by the Granby Highway Department for stockpile storage. No retrofit opportunities were identified for this parcel.</li> </ul>	No (PVPC Nitrogen BMP score – 86.25/95)

Site ID	Address/Site Name	Fuss & O'Neill Field Observations	Potential for Stormwater Retrofits?
		<ul style="list-style-type: none"> <li>• As a result of a lack of potential opportunities at the identified parcel, Fuss &amp; O'Neill's field screening for the site also focused on the Highway Department facility in the adjacent parcel to the south. Sediment accumulation was present on site, with considerable sediment also observed in catch basins. Recommendations included installing catch basin filters and increasing frequency of sweeping to prevent sediment accumulation.</li> <li>• Along Crescent Street, runoff is captured by a series of catch basins on both sides of the road. Right-of-way (ROW) opportunities are limited by lack of space.</li> <li>• Additionally, the outfall located in the southern portion of the parcel is in very poor condition and needs to be repaired/replaced. There is severe erosion along the pipe and under nearby tree roots.</li> </ul>	
M_115890_890310	14 West Street/West Street Elementary School (vacant)	<ul style="list-style-type: none"> <li>• The building on site is a vacant school building (closed in 2018).</li> <li>• The future use of the site is unknown. As of May 2021, it was thought that the building may be demolished or repurposed as a Town Hall or Senior Center Space.</li> <li>• Depending on the future use of the building/site, Fuss &amp; O'Neill identified numerous potential retrofit opportunities. These include:               <ul style="list-style-type: none"> <li>○ Bioretention basins at the southwest corner of the property near the driveway.</li> <li>○ Pavement removal and site restoration in the eastern parking lot.</li> <li>○ Rain garden installation near the old playground.</li> <li>○ Installation of supplemental dry wells, infiltrating catch basins, or subsurface infiltration as needed.</li> <li>○ Non-stormwater practices: solar canopies over parking lots; rooftop solar or green roof; nature-inspired playground, depending on future use of site.</li> </ul> </li> </ul>	Yes (PVPC Nitrogen BMP score – 90/95)

## 2. Outfall Screening Data

Pursuant to Section B.I.1.b.i.2 of Appendix F of the MS4 General Permit, Nitrogen Source Identification Reports are required to incorporate all screening and monitoring results collected as part of the Town's Illicit Discharge Detection and Elimination efforts from areas that drain to the impaired receiving water segment(s)

and utilize these results along with other factors to identify high priority catchments for intervention. PVPC's report includes a section for this information, but responsibility for filling in the appropriate information was left to the Town to complete independently.

Dry weather screening of outfalls was completed in July and August 2019 for the 130 outfalls in the Town's regulated area. Because the entirety of the Town is subject to the Long Island Sound TMDL for Total Nitrogen, all outfalls in the regulated area are subject to inclusion in the Nitrogen Source Identification Report. Results for outfall screenings are presented in **Attachment A**. Of these 130 outfalls, there was olfactory evidence of potential illicit discharge at one outfall: outfall #0127 had a sewage/septic odor. Dry weather flow was observed at five outfalls: outfalls #0082, #0084, #0091, #0116, and #0120. Follow-up sampling at four of the outfalls (not including outfall #0091, which was no longer flowing when it was revisited for sampling) was conducted on March 6<sup>th</sup>, 2020. The samples were tested for ammonia, surfactants, chlorine, E. coli, total nitrogen, phosphorus, and total suspended solids (**Table 2 and Table 3**). Based on the sampling data, none of the outfalls showed evidence of illicit discharge. Surfactant levels at outfall ID #0082 exceeded the benchmark value of 0.25mg/L; however, this is not considered indicative of an illicit discharge unless coupled with an exceedance for ammonia and either bacteria above water quality thresholds or detectable levels of chlorine.

Two of the catchments with dry weather flow (#0082 and #0084) were also identified through PVPC's desktop analysis as among the five catchments with the highest modeled nitrogen load in the regulated area (92.25 lbs N/yr and 86.34 lbs N/yr, respectively). Based on sampling results, total nitrogen was nearly three times higher at #0084 than at #0082 (**Table 3**). The nitrogen level at #0084 was similar to that found at outfall #0116, which has a significantly lower total catchment nitrogen load based on PVPC's model (46.04 lbs N/yr). The other high-nitrogen load catchments identified by PVPC were #0089, #0065, and #0112. Dry weather screening and sampling indicated no dry weather flow or other indicators of potential illicit discharge concerns at these locations.

**Table 2: Results of outfall sampling for standard IDDE parameters. (Exceedances shown in bold.)**

Outfall ID	Ammonia (ppm)	Surfactants (mg/L)	Chlorine (mg/L)	E. coli (MPN/100mL)	Temp (° C)	Specific Conductivity (S/m)	Salinity (ppt)
0082	0.25	<b>0.25-0.50</b>	0	<10	8.2	438.7	0.21
0084	0.25	<0.25	0	<10	7.3	240.6	0.11
0120	0	<0.25	0	<10	6.5	280.3	0.13
0116	0.25	<0.25	0	<100	10.9	299.7	0.14

**Table 3: Outfall sampling lab results for pollutants of concern.**

Outfall ID	Total Nitrogen (mg/L)	Phosphorus (mg/L)	TSS (mg/L)
0082	1.46	0.011	2.5
0084	4.32	0.022	<2.5
0120	2.28	0.014	<2.5
0116	4.38	0.039	–

### 3. Comparison of Fuss & O'Neill Site Selection and PVPC Screening Metrics

PVPC and Fuss & O'Neill both conducted desktop screenings to identify potential high-priority sites for BMPs/stormwater retrofits. The PVPC desktop screening focused specifically on identifying potential sites for retrofit opportunities for nitrogen load reductions, pursuant to the NSIR requirements outlined in Section B.I.1.b.i.5 of Appendix F of the MS4 General Permit. The Fuss & O'Neill desktop screening was conducted pursuant to Section 2.3.6.d of the MS4 General Permit and did not specifically consider nutrient loading, but instead focused on a Town-wide process to identify the top five (5) municipal retrofit sites intended to reduce the frequency, volume, and pollutant loads of stormwater discharges to and from the MS4 through disconnection and reduction of impervious area.

During these screenings, many of the same factors were considered during site selection. However, there are several factors that were not included in both screenings (**Table 4**). Additionally, PVPC used a weighted scoring method to calculate the top priority sites for BMPs. Fuss & O'Neill did not utilize a weighted scoring system to refine site selection; instead, 27 sites were selected for field screening, and the list was further refined based on field observations. Because Fuss & O'Neill's original screening process did not focus specifically on stormwater retrofits for nitrogen load reductions, we reviewed our five recommended retrofit sites relative to PVPC's additional catchment-level nutrient loading data. **Table 5** summarizes these sites and includes nitrogen reduction scores, if applicable, from PVPC's desktop screening tool. It also includes information from PVPC's directly connected impervious area (DCIA) analysis and nitrogen loading calculations.

**Table 4: Summary of desktop screening factors.**

Factor	Included in PVPC Site Selection	Included in Fuss & O'Neill Site Selection
Land Ownership	Yes (No points assigned)	Yes
Within MS4 Regulated Area	Yes Yes = 5.0 points	Yes
Water Quality (Proximity to Impaired Waters)	Yes Yes = 5.0 points	Yes
NRCS Hydrologic Soil Group (HSG)	Yes A or B soils = 5.0 points A/D or B/D soils = 2.5 points	Yes
Impervious Cover	Yes >1 acre = 5.0 points 0.5-1 acre = 2.5 points <1 acre = 1.0 point	Yes
Known Drainage/Flooding Issues on Site	Yes Yes = 5.0 points	Yes
Within 100-Year Floodplain	No	Yes
Environmental Justice Area	Yes Yes = 5.0 points	No
Catchment Area N or P below mean loading rate	Yes Yes = 35.0 points	No
Catchment Area N or P above mean loading rate	Yes Yes = 70.0 points	No

**Table 5: Summary of top stormwater retrofit sites selected by Fuss & O'Neill with additional nitrogen scores and nitrogen loading data from PVPC.**

Site Name	Site Address	Stormwater Retrofit Recommendations	PVPC Nitrogen BMP Score	Catchment DCIA Acreage Nitrogen Loading
Old Granby Public Library	1 Library Ln	<ul style="list-style-type: none"> <li>• Bioretention supplemented by an underground infiltration system or dry well at northeast corner of parking lot and in the adjacent right-of-way.</li> </ul>	46.00	Catchment 0127 DCIA: 0.23 acres N Load: 5.93 lbs/ac/yr
West Street Elementary School	14 West St	<ul style="list-style-type: none"> <li>• Bioretention basins at southwest corner of property near driveway.</li> <li>• Pavement removal and site restoration in eastern parking lot.</li> <li>• Rain garden near playground.</li> <li>• Supplemental dry wells, infiltrating catch basins, or subsurface infiltration as needed.</li> <li>• Non-stormwater practices: solar canopies over parking lots; rooftop solar or green roof; nature-inspired playground.</li> </ul>	90.00	Catchment 0064 DCIA: 0.36 acres N Load: 10.31 lbs/ac/yr  Catchment 0065 DCIA: 0.83 acres N Load: 78.66 lbs/ac/yr  Catchment 0063 DCIA: 0.83 acres N Load: 45.97 lbs/ac/yr
Brown Ellison Park	Carver St	<ul style="list-style-type: none"> <li>• Bioretention swale in right-of-way along Carver Street.</li> <li>• Revegetate sides of driveway where drivers have driven off the gravel surface and caused rutting and erosion.</li> <li>• Place boulders along edge of driveway prevent driving on grass.</li> </ul>	85.00	Catchment 0132 DCIA: 1.04 acres N Load: 56.75 lb/ac/yr
Dufresne Recreation Park	32 Kendall St	<ul style="list-style-type: none"> <li>• Remove and restore unnecessary impervious surfaces, including those within 50-100 feet of water's edge, except for necessary access for the disabled or for maintenance.</li> <li>• Pave the remaining sections existing parking lots to define the limits of the drivable area and to stabilize loose sediment. Retrofit the existing swale to create a bioretention swale.</li> <li>• Install a grade control to halt the headcut erosion occurring in the swale. Where overflow parking is needed, consider the installation of grasspave or gravelpave products to limit the expansion of impervious area.</li> <li>• Consider interactive practices and informational signs.</li> </ul>	48.75	N/A (not within any mapped outfall catchments; site was selected because it drains directly to an impaired waterbody within the regulated area)
Town Common	Common St	<ul style="list-style-type: none"> <li>• Subsurface infiltration.</li> </ul>	86.00	Catchment 0062 DCIA: 0.12 acres N Load: 6.04 lbs/ac/yr

The five sites selected by Fuss & O'Neill were scored under PVPC's desktop screening tool. Three of the sites, Brown Ellison Park, Town Common, and the West Street Elementary School, received high scores (85.0, 86.0 and 90.0, respectively). Brown Ellison Park and West Street Elementary School also have high nitrogen annual loading rates and DCIA acreage. The Old Granby Public Library and Dufresne Recreation Park received relatively lower scores (46 and 48.75, respectively). These two scores are lower because the two properties are within catchments that have nitrogen loading rates below the mean value (which automatically results in scores 35 points lower than those assigned to properties that are in catchments that have nitrogen loading rates above the mean value). Dufresne Recreation Park is not located within any mapped outfall catchments in PVPC's data and therefore has no DCIA or nitrogen loading data (the site was selected by Fuss & O'Neill based on the fact that it discharges directly to an impaired waterbody, despite having no piped drainage on site). The Town Common and the Old Granby Public Library both have relatively low nitrogen loading rates and DCIA acreage compared to other properties screened during the nutrient loading and DCIA analysis. Note, however, that the right of way associated with Common Street is split between two catchments. The catchment to the west has substantially higher associated nitrogen loads, and retrofits at the Town Common may be able to divert stormwater from this catchment for treatment in addition to that being captured from the catchment that includes the Town Common itself. Additionally, although there are no mapped catchments for Dufresne Recreation Park, there is still an opportunity to reduce nutrient loading to the impaired waterbody on site. Both dog and waterfowl waste (observed at time of field visit), as well as fertilizer, may increase nutrient loading at this site, and potential retrofits can help address this issue. Furthermore, although the Town Common, Old Granby Public Library, and potentially the Dufresne Recreational Park have low DCIA acreage and nutrient loading rates, these projects remain strong retrofit candidates that provide opportunities to meet broader MS4 objectives. Because these sites are publicly-owned and highly trafficked, they provide a valuable opportunity to establish learning opportunities, such as educational signage that can reach a broad audience in Town, focused on stormwater and the benefits of green infrastructure and low impact development.

#### 4. Recommended Sites and Implementation Schedule for Retrofit Projects

Upon review and comparison of high-priority sites selected by PVPC and Fuss & O'Neill, and the various factors considered (screening and sampling results, modeled nitrogen loads, impervious cover, and site suitability for retrofit projects) the sites listed in **Table 6** are recommended for retrofit development. **Table 6** also provides projected cost ranges and project prioritization/rank order. These projects were found to provide the highest benefits in relation to nitrogen load reduction, DCIA reduction, overall opportunities to improve water quality, and opportunities for educational benefits.

**Table 6: Order-of-magnitude cost estimates and recommended implementation priority.**

Site Name	Practices	Cost Range	Project Prioritization/ Rank Order
Old Granby Public Library	Bioretention basins	\$15,000 to \$33,000	
West Street Elementary School	Bioretention basins, rain gardens, pavement removal/restoration	\$67,000 to \$144,000	6
Brown Ellison Park	Bioretention swale	\$15,000 to \$33,000	1
Dufresne Recreation Park	Pavement removal/restoration, native plantings, bioretention swale	\$302,000 to \$647,000	
Town Common	Subsurface infiltration	\$146,000 to \$312,000	

Site Name	Practices	Cost Range	Project Prioritization/ Rank Order
Granby Historical Association	Infiltrating catch basin	\$14,000 to \$30,000	
Catchment ROWs (prioritizing catchments 0082, 0084, 0089, 0065, and 0112)	Various	Will vary based on site conditions and extent of retrofits.	Continual basis as roadway repaving or other maintenance is completed.

Note that projected cost ranges are based on screening-level evaluations of site characteristics and should be used for planning purposes only. Construction costs could vary significantly.

**Attachments:**

Attachment A: Outfall Dry Weather Screening Results



## Attachment A

---

### Outfall Dry Weather Screening Results

### Outfall Dry Weather Screening Results

Outfall ID	Outfall Location (Description)	Inspector	Date and Time	Air Temperature (°F)	Pipe Flow	Evidence of Floating Material / Debris	Odor	Water Clarity	Damage, Stains, Growth, Other Indicators of Pollution?	Samples Collected for Lab Analysis	Longitude	Latitude
91	Near pole #24/9	BP	7/25/2019, 1:48 PM	79	Trickle	None	None	Clear		No	-72.54805359	42.24833453
92	Across pole #50 Pleasant St.	Bp	7/25/2019, 1:56 PM	79	No Flow	None	None			No	-72.54797903	42.24831782
81	SHELD pole #2 Virginia Dr.	BP	7/25/2019, 2:03 PM	79	No Flow	None	None		Pipe corrosion		-72.55557444	42.24905959
82	SHELD pole #7 Mary Lyon Dr.	BP	7/25/2019, 2:09 PM	79	Trickle	None	None	Clear		No	-72.55515279	42.24601187
83	Across house #2	BP	7/25/2019, 2:14 PM	79	No Flow		None				-72.55190255	42.24358696
84	Near Pole #6 Karen Dr.	BP	7/25/2019, 2:17 PM	79	Trickle	None	None	Clear	Minor spalling		-72.55158159	42.24330146
86	200' East Pole #7 Circle Dr.	BP	7/25/2019, 2:30 PM	79	No Flow	None	None		Minor corrosion		-72.54828236	42.24598148
85	Behind house # 10 Circle Dr.	BP	7/25/2019, 2:23 PM	79	No Flow	None	None				-72.54824514	42.24505731
102	Across pole # 6 Barton St.	BP	7/25/2019, 2:44 PM	79	No Flow	None	None				-72.53214007	42.24294486
103	Behind house # 4Country View Ln.	BP	7/25/2019, 2:48 PM	79	No Flow	None	None				-72.53166690	42.24212090
93	Between poles 21-50 and 22 Morgan St.	BP	7/25/2019, 3:03 PM	79	No Flow	None	None				-72.53903190	42.23333706
94	Across pole 11 Morgan St.	BP	7/25/2019, 3:07 PM	79	No Flow	Oil (Natural)	None	Cloudy	Corrosion		-72.53986272	42.22587154
105	Across pole # 1 Ferry Hill Rd.	BP	7/26/2019, 7:19 AM	66	No Flow	None	None				-72.51958655	42.25454501
106	Pole # 40 South St.	BP	7/26/2019, 7:29 AM	66	No Flow	None	None				-72.52631100	42.24291777
107	150' east pole # 43-84	BP	7/26/2019, 7:35 AM	66	No Flow	None	None		End of pipe crushed by tractor still open		-72.52594783	42.24054412
108	Near pole # 45-50 South St.	BP	7/26/2019, 7:47 AM	66	No Flow	Oil (Natural)	None	Clear			-72.52615818	42.23828680
109	South side of driveway of 129 South St.	BP	7/26/2019, 8:21 AM	68	No Flow	None	None				-72.52755117	42.22591245

Outfall ID	Outfall Location (Description)	Inspector	Date and Time	Air Temperature (°F)	Pipe Flow	Evidence of Floating Material / Debris	Odor	Water Clarity	Damage, Stains, Growth, Other Indicators of Pollution?	Samples Collected for Lab Analysis	Longitude	Latitude
95	Across pole # 11-50 New Ludlow Rd.	BP	7/26/2019, 8:36 AM	68		None	None				-72.52926072	42.22170513
96	Across pole # 2 New Ludlow Rd.	BP	7/26/2019, 8:41 AM	68	No Flow	None	None				-72.51941640	42.22492308
110	Pole #8 East St.	BP	7/26/2019, 9:35 AM	75	No Flow	None	None				-72.53612776	42.23470792
118	Near pole # 12 East St. BP	BP	7/26/2019, 9:40 AM	75	No Flow	None	None		Concrete is degrading		-72.53454384	42.23434766
119		BP	7/26/2019, 9:55 AM	75	No Flow	None	None		Homeowner is dumping grass clippings in the discharge area		-72.53246473	42.23543765
120		BP	7/26/2019, 10:09 AM	75	Trickle	None	None	Clear			-72.53292806	42.23673611
121	Near house # 11 Jennifer Dr.	Bp	7/26/2019, 10:11 AM	75	No Flow	None	None				-72.53296530	42.23674600
122	200' North of house # 2 Phillip Cir.	BP	7/26/2019, 10:16 AM	78	No Flow	None	None				-72.53153205	42.23532762
123	Est. 100' south of house # 7 Phillip Cir.	BP	7/26/2019, 10:21 AM	78	No Flow	None	None				-72.53124008	42.23587329
124	In the hedge row between houses # 11 & 13 Phillip Cir.	BP	7/26/2019, 10:26 AM	78	No Flow	None	None				-72.53143819	42.23777827
111	Next to driveway for house # 64 East St.	BP	7/26/2019, 10:51 AM	78	No Flow	None	None				-72.52864452	42.23191966
112	Across pole # 45 East St.	BP	7/26/2019, 10:57 AM	78	No Flow	None	None				-72.52200064	42.22702608

Outfall ID	Outfall Location (Description)	Inspector	Date and Time	Air Temperature (°F)	Pipe Flow	Evidence of Floating Material / Debris	Odor	Water Clarity	Damage, Stains, Growth, Other Indicators of Pollution?	Samples Collected for Lab Analysis	Longitude	Latitude
97	Across between poles # 62 & 63 East St.	BP	7/26/2019, 11:01 AM	78	No Flow	None	None	Clear			-72.51301168	42.22407176
100	250' from end of pavement Sherwood Dr.	BP	7/26/2019, 11:21 AM	80	No Flow	Oil (Natural)	None	Clear	Pipe is corroded		-72.51335511	42.22058956
99	Est 200' west of pole # 6 Acrebrook Dr.	BP	7/26/2019, 11:16 AM	80	No Flow	Oil (Natural)	None	Clear			-72.51324160	42.22144193
98	Est. 225' west of pole # 1 Acrebrook Dr.	BP	7/26/2019, 11:08 AM	80	No Flow	None	None				-72.51334292	42.22356915
114	Across pole # 73 East St.	BP	7/26/2019, 11:38 AM	84	No Flow	None	None		Had to clear rocks to find. Tear in pipe		-72.50709448	42.22278558
113	Across pole # 78 East St.	BP	7/26/2019, 11:43 AM	84	No Flow	Vegetative Material	None	Clear			-72.50425093	42.22176185
80	Next to pole # 4 Cold Hill Dr.	BP	7/26/2019, 12:58 PM	84	No Flow	None	None				-72.55146536	42.25822777
90	Dunkin parking lot 50' from ATM	BP	7/26/2019, 1:12 PM	86	No Flow	None	None				-72.54364200	42.24734494
89	Next to driveway of house # 47 Amherst St.	BP	7/26/2019, 1:19 PM	86	No Flow	None	None				-72.54247899	42.25338370
87	Next to driveway house # 30 Smith Ave.	BP	7/26/2019, 1:30 PM	86	No Flow	None	None				-72.53549253	42.25628847
69	Near pole # 20 Crescent St.	BP	7/26/2019, 1:36 PM	87	No Flow	None	None				-72.52741202	42.25501104
68	Across pole # 20 Crescent St.	BP	7/26/2019, 1:42 PM	87	No Flow	None	None				-72.52767253	42.25506904
62	Near pole #6 State St.	BP	7/26/2019, 1:50 PM	87	No Flow	None	None				-72.51651513	42.25716988
63	Across pole # 6 West St.	BP	7/26/2019, 1:57 PM	87	No Flow	None	None				-72.51881691	42.25719611
64	Behind house # 21	BP	7/26/2019, 2:01 PM	87	No Flow	None	None				-72.52029263	42.25706892
65	Near house # 39 West St.	BP	7/26/2019, 2:13 PM	87	No Flow	None	None				-72.52438762	42.25780157
66	Pole # 15-84 West St.	BP	7/26/2019, 2:18 PM	87	No Flow	None	None		Corrosion of pipe and tree growing around it.		-72.52820645	42.25819069

Outfall ID	Outfall Location (Description)	Inspector	Date and Time	Air Temperature (°F)	Pipe Flow	Evidence of Floating Material / Debris	Odor	Water Clarity	Damage, Stains, Growth, Other Indicators of Pollution?	Samples Collected for Lab Analysis	Longitude	Latitude
67	Pole # 15-84 West St.	BP	7/26/2019, 2:22 PM	87	No Flow	None	None		Corrosion		-72.52821885	42.25817398
129	Behind house # 5 Ken Ln.	BP	7/26/2019, 2:28 PM	89	No Flow	None	None				-72.52771704	42.25909955
130	Behind between houses # 117 & 119 West St.	BP	7/26/2019, 2:35 PM	89	No Flow	None	None				-72.53794913	42.25876763
88	Near pole # 27 Amherst St.	BP	7/26/2019, 2:49 PM	89	No Flow	None	None				-72.53984400	42.25893446
71	Across pole # 41 West St.	BP	7/26/2019, 2:58 PM	89		None	None				-72.54227622	42.26022733
72	Est. 60' NNE of pole #6 Burnett St.	BP	8/6/2019, 7:42 AM	62	No Flow	None	None				-72.54426682	42.26574674
131	Est. 75' East of pole # 4 Burnett St.	BP	8/6/2019, 7:29 AM	62	No Flow	None	None		Corrosion of pipe		-72.54446360	42.26456712
73	Across house # 116 Burnett St.	BP	8/6/2019, 7:51 AM	62	No Flow	None	None				-72.54439308	42.27009467
74	Est. 40' South of pole # 13-1/2 Burnett St.	BP	8/6/2019, 7:59 AM	62	No Flow	None	None				-72.54467704	42.27196764
75	Next to driveway of house # 81 Burnett St.	BP	8/6/2019, 8:06 AM	62	No Flow	None	None		Outfall is below grade. Swale needs cleaning		-72.54629701	42.27384651
76	Est. 10-15' East of pole # 18 Burnett St.	BP	8/6/2019, 8:15 AM	62	No Flow	None	None				-72.54778899	42.27451240
77	Est. 50' North of pole # 20 Burnett St.	BP	8/6/2019, 8:21 AM	62	No Flow	None	None		Outfall is below grade. Swale needs cleaning		-72.54994530	42.27484738
78	Est. 200' WSW of pole # 7 Lyn Dr.	BP	8/6/2019, 8:32 AM	62	No Flow	None	None		Some corrosion of pipe		-72.55244201	42.27955902
79	Est. 25' pole # 1 at driveway for house # 12 Jackelyn Cir.	BP	8/6/2019, 8:42 AM	62	No Flow	None	None				-72.54988762	42.28298687
70	Next to driveway house # 111 Amherst St.	BP	8/6/2019, 9:24 AM	66	No Flow	None, Vegetative Material	None				-72.53865006	42.26093665
61	Est. 50' east of pole # 41 Amherst St.	BP	8/6/2019, 9:34 AM	66	No Flow	None	None		Outfall under remnants of stone wall		-72.53293531	42.26607597

Outfall ID	Outfall Location (Description)	Inspector	Date and Time	Air Temperature (°F)	Pipe Flow	Evidence of Floating Material / Debris	Odor	Water Clarity	Damage, Stains, Growth, Other Indicators of Pollution?	Samples Collected for Lab Analysis	Longitude	Latitude
59	Est. 200' southeast of pole # 55 Amherst St.	BP	8/6/2019, 9:45 AM	66	No Flow	None	None				-72.53116097	42.27396715
58	Across from house # 241 Amherst St.	BP	8/6/2019, 9:50 AM	66	No Flow	None	None				-72.53194695	42.27757461
53	Across pole # 27 Aldrich St.	BP	8/6/2019, 9:58 AM	66	No Flow	None	None		Outfall flair disconnected from outfall.		-72.54000885	42.28334862
52	Across pole # 25 Aldrich St.	BP	8/6/2019, 10:03 AM	66	No Flow	None	None				-72.53828786	42.28261262
51	Est 45' east of pole # 16 Aldrich St.	BP	8/6/2019, 10:08 AM	66	No Flow	None	None				-72.53577303	42.28254229
57	Est. 300' west pole # 1 Mill Ln.	BP	8/6/2019, 10:14 AM	66	No Flow	None	None				-72.53375942	42.28313993
54	In basin across pole # 91 Amherst St.	BP	8/6/2019, 10:22 AM	66	No Flow		None				-72.53235639	42.29032591
56	Est. 100' north of pole # 70 Amherst St.	BP	8/6/2019, 10:18 AM	66	No Flow	None	None				-72.53218602	42.28324790
55	Across pole # 92 Amherst St.	BP	8/6/2019, 10:30 AM	66	No Flow	None	None				-72.53248855	42.29055509
1	Behind pole # 78 Amherst Dr.	BP	8/6/2019, 10:40 AM	66	No Flow	None	None		Outfall partially filled with sediment. Swale needs to be cleaned.		-72.53169281	42.28560545
2	Behind pole # 17 Batchelor St.	BP	8/6/2019, 10:46 AM	68	No Flow	Oil (Natural)	None	Clear			-72.51922140	42.28134906
47	Across house # 162 North St. At North and Batchelor intersection	BP	8/6/2019, 11:27 AM	80	No Flow	None	None	Clear	Outfall below grade. Swale needs cleaning.		-72.50595097	42.27676657
49	Across house # 172 Porter St.	BP	8/6/2019, 11:11 AM		No Flow	None	None				-72.52014092	42.28010541

Outfall ID	Outfall Location (Description)	Inspector	Date and Time	Air Temperature (°F)	Pipe Flow	Evidence of Floating Material / Debris	Odor	Water Clarity	Damage, Stains, Growth, Other Indicators of Pollution?	Samples Collected for Lab Analysis	Longitude	Latitude
3	Est. 80' east of pole # 24 Batchelor St.	BP	8/6/2019, 10:59 AM	74	No Flow	None	None	Clear	Pipe corrosion		-72.51263261	42.27981786
4	Est. 125' NNW of pole #	BP	8/6/2019, 11:36 AM	80	No Flow	None	None				-72.50437134	42.27701296
126	10' east of pole # 169 East State St.	BP	8/6/2019, 3:04 PM	81	No Flow	None	None	Clear			-72.47205680	42.26541036
15	Believed to be state manhole across pole # 172 East State St.	BP	8/6/2019, 2:39 PM	81	No Flow	None	None	Clear			-72.47342859	42.26515434
14	Est. 60' west of pole # 42 School St.	BP	8/6/2019, 2:24 PM	81	No Flow	None	None				-72.47219748	42.27006845
13	Est. 20' west of pole # 93 Batchelor St.	BP	8/6/2019, 2:16 PM	81	No Flow	None	None		Outfall partially buried. Swale needs cleaning		-72.46027764	42.28122086
12	Est. 35' west of pole # 80 Batchelor St.	BP	8/6/2019, 2:09 PM	81	No Flow	None	None				-72.46870297	42.27815475
11	Est. 125' southwest of wellhead at house # 312 Batchelor St.	BP	8/6/2019, 2:00 PM	81	No Flow	None	None				-72.48154040	42.28133147
10	Est. 80' northwest of CB # 0190 on Harris St.	BP	8/6/2019, 1:48 PM	81	No Flow	None	None				-72.47579342	42.29686873
9	Cement pipe est. 40' west of pole # 58 Batchelor St.	BP	8/6/2019, 1:34 PM	81	No Flow	None	None		Small portion of pipe broken. See picture		-72.48637283	42.28348835
7	Est. 50' west of center of driveways. 100' from edge of pavement at 8 Ridge Path	BP	8/6/2019, 1:18 PM	81	No Flow	None, Vegetative Material	None	Clear			-72.49750727	42.28007229
8	Behind house # 7 Griswold Cir.	BP	8/6/2019, 1:11 PM	81	No Flow	None	None				-72.49901895	42.27922866
6	Est. 10' northwest of pole # 44 1/2 Batchelor St.	BP	8/6/2019, 12:58 PM	81	No Flow	None	Other		Outfall partially buried. Swale needs cleaning		-72.49700007	42.27809025
5	Est. 200' northwest of pole # 3 Lane Brook St.	BP	8/6/2019, 12:49 PM	81	No Flow	None	None				-72.50180135	42.27782440
50	Est. 60' WNW of pole # 2 Porter St.	BP	8/7/2019, 7:11 AM	68	No Flow	None	None				-72.51779794	42.25879453

Outfall ID	Outfall Location (Description)	Inspector	Date and Time	Air Temperature (°F)	Pipe Flow	Evidence of Floating Material / Debris	Odor	Water Clarity	Damage, Stains, Growth, Other Indicators of Pollution?	Samples Collected for Lab Analysis	Longitude	Latitude
48	Est. 40' east of pole # 52 1/2 Amherst St.	BP	8/7/2019, 7:20 AM	68	No Flow	None	None				-72.53188372	42.27239148
40	Est 15' north of pole # 11-84 Lyman St.	BP	8/7/2019, 7:28 AM	69	No Flow	None	None	Clear			-72.50695979	42.26903185
39	Est. 70' south of pole # 6 Lyman St.	BP	8/7/2019, 7:50 AM	70	No Flow	None	None				-72.50721314	42.26563846
38	Est. 20' north of pole # 1 Lyman St.	BP	8/7/2019, 8:05 AM	70	No Flow	None	None	Clear			-72.50715091	42.26245979
43	Est. 60' west of pole # 1-50 Porter at State St.	BP	8/7/2019, 8:19 AM	72	No Flow	None	None				-72.51620496	42.25854327
43	State basin est. 20' east of pole # 1-50 at corner of Porter and 202	BP	8/7/2019, 8:24 AM	72	No Flow	None	None				-72.51595370	42.25864042
42	Est. 30' south of pole # 31 North St.	BP	8/7/2019, 8:33 AM	72	No Flow	None	None				-72.51031034	42.26897520
41	Est. 40' southeast of pole # 36 North St.	BP	8/7/2019, 8:40 AM	72	No Flow	None	None		Spalling of wall above outfall		-72.50949244	42.27100803
44	Est. 100' east of pole # 38 1/2 North St.	BP	8/7/2019, 9:29 AM	73	No Flow	None	None				-72.50873366	42.27266598
45	Est. 90' southeast of pole # 39 North St.	BP	8/7/2019, 9:32 AM	76	No Flow	None	None				-72.50873183	42.27299556
46	Est. 25' east of pole # 40 1/2 North St.	BP	8/7/2019, 9:54 AM	76	No Flow	None	None				-72.50865975	42.27397095
31	Est. 10' east of pole # 255 East State St.	BP	8/7/2019, 10:02 AM	76	No Flow	None	None				-72.50864133	42.26087696
127	Behind house # 9 Center St. Far east corner	BP	8/7/2019, 10:11 AM	76	No Flow	None	Sewage/ Septic				-72.51599932	42.25521158
30	Est. 30' northwest of pole # 16 Taylor St.	BP	8/7/2019, 10:21 AM	77	No Flow	None	None				-72.50958066	42.25437063



Outfall ID	Outfall Location (Description)	Inspector	Date and Time	Air Temperature (°F)	Pipe Flow	Evidence of Floating Material / Debris	Odor	Water Clarity	Damage, Stains, Growth, Other Indicators of Pollution?	Samples Collected for Lab Analysis	Longitude	Latitude
128	Est. 70' southwest of pole # 33 Taylor St.	BP	8/7/2019, 10:42 AM	78	No Flow	None	None	Clear			-72.51226733	42.24885102
29	Est. 30' east of pole # 2 Hubbard Dr.	BP	8/7/2019, 10:47 AM	78	No Flow	None	None				-72.51189110	42.24511278
28	5' west of pole # 39-50 Taylor St.	BP	8/7/2019, 10:52 AM	78	No Flow	None	None				-72.51272643	42.24504487
26	Est. 40' northwest of pole # 45 Taylor St.	BP	8/7/2019, 11:00 AM	78	No Flow	None	None		Outfall below grade. Area needs to be dug out. Marked by stake.		-72.51212353	42.24251961
25	Next to pole # 48-2 Taylor St.	BP	8/7/2019, 11:05 AM	78		None	None				-72.51152403	42.24017178
101	Next to pole # 24-2 Truby St.	BP	8/7/2019, 11:13 AM	78		None	None				-72.51152363	42.23319477
24	Est. 40' WNW of pole # 69 Taylor St.	BP	8/7/2019, 11:38 AM	80	No Flow	None	None				-72.50224209	42.23433394
132	Est. 30' north of pole # 93 Taylor St.	BP	8/7/2019, 11:46 AM	80	No Flow	None	None				-72.49727511	42.22612687
18	Est. 30' north of pole # 34-84 Chicopee St.	BP	8/7/2019, 1:33 PM	80	No Flow	None	None				-72.47740149	42.24787246
17	Est. 50' northwest of pole # 85 Chicopee St.	BP	8/7/2019, 1:23 PM	82	No Flow	None	None				-72.47472560	42.24931141
16	Est. 40' north of pole # 82 School St.	BP	8/7/2019, 1:17 PM	82	No Flow	None	None		Top of pipe at outfall crushed		-72.47316953	42.25115836
125	Est. 40' west of pole # 78 School St.	BP	8/7/2019, 1:11 PM	84	No Flow	None	None				-72.47246631	42.25330171

Outfall ID	Outfall Location (Description)	Inspector	Date and Time	Air Temperature (°F)	Pipe Flow	Evidence of Floating Material / Debris	Odor	Water Clarity	Damage, Stains, Growth, Other Indicators of Pollution?	Samples Collected for Lab Analysis	Longitude	Latitude
116	Backyard of house # 18 Deerbrook Dr.	BP	8/7/2019, 12:47 PM	83	Steady Flow	Vegetative Material, Leaves, Yard Waste	None	Clear			-72.49675112	42.26843426
33		Dd	8/21/2019, 12:43 PM		No Flow	None	None				-72.49295184	42.25528030
34		Dd	8/21/2019, 12:56 PM		No Flow	None	None				-72.49260073	42.25476337
32		Dd	8/21/2019, 1:01 PM		No Flow	None	None				-72.49666749	42.25828064
104		Dd	8/22/2019, 11:35 AM		No Flow	None	None				-72.52326981	42.24989616
115		Dd	8/22/2019, 11:44 AM		No Flow	None	None				-72.49769416	42.26301537
37		Dd	8/22/2019, 1:46 PM		No Flow	None	None	Cloudy			-72.48865421	42.24810563
36		Dd	8/22/2019, 1:49 PM		No Flow	None	None				-72.48968366	42.24846077
35		Dd	8/22/2019, 1:53 PM		No Flow	None	None				-72.49146741	42.25200269
19		Dd	8/22/2019, 2:14 PM		No Flow	None	None				-72.47958604	42.24397419
20		Dd	8/22/2019, 2:19 PM		No Flow	None	None				-72.48001190	42.24261706
117		Dd	8/22/2019, 2:22 PM		No Flow	None	None				-72.49228151	42.22967003
21		Dd	8/22/2019, 2:30 PM		No Flow	None	None				-72.47379688	42.23624808
22		Dd	8/22/2019, 2:38 PM		No Flow	None	None				-72.49037951	42.22650184