

MS4 General Permit
Town of Madison 2019 Annual Report
Existing MS4 Permittee
Permit Number GSM 000051
January 1, 2019 – December 31, 2019

This report documents the Town of Madison’s efforts to comply with the conditions of the MS4 General Permit to the maximum extent practicable (MEP) from January 1, 2019 to December 31, 2019.

Part I: Summary of Minimum Control Measure Activities

1. Public Education and Outreach (Section 6 (a)(1) / page 19)

1.1 BMP Summary

BMP	Status	Activities in current reporting period	Measurable goal	Department / Person Responsible	Due	Date completed or projected completion date	Additional details
1-1 Implement public education and outreach	Complete	<ul style="list-style-type: none"> • Town DPW website includes stormwater management background information, general permit descriptions and informational resources • The informational resources include links to: EPA NPDES Stormwater Program, CTDEEP Stormwater Management Program, CTDEEP Watershed Management Program, Center for Watershed Protection and the Local Government Environmental Assistance Network • Held “Madison Green Up Clean Up Day” on April 27, 2019 to raise environmental awareness and help keep Madison clean. 	Educate the public & raise environmental awareness	Public Works Rob Russo, P.E.	Jul 1, 2018	January 1, 2018	

1-2 Address education/ outreach for pollutants of concern	Complete	<ul style="list-style-type: none"> • CTDEEP Water Quality/ Stormwater summary factsheet available on the Town's DPW website • Animal Waste & Water Quality literature focusing on bacterial contamination located within Town Hall • Homeowner's Guide to Septic Systems & Wells which includes information on stormwater and water quality is located on the Town's Health Department website • The DPW in coordination with the Madison Conservation Commission have installed "Entering Watershed" signage Town wide notifying residents to use care when handling fertilizer, salt, pet waste, herbicides and washing vehicles. 	Raise awareness for pollutants of concern	Public Works Rob Russo, P.E.	Jul 1, 2018	July 1, 2018	
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<p>1-3 Integrate storm water management, pollution prevention & water quality into school curriculum</p>	<p>Complete</p>	<ul style="list-style-type: none"> • DPW coordinated with Board of Education science teachers to implement stormwater, pollution prevention & water quality education into the science curriculum. • On October 4th, all Madison Middle School 7th graders took a field trip to Bauer Farm to attend a lecture on stormwater runoff, water quality, illicit discharges and information on the State's General Permit. The lecture was given by Robert Russo from the DPW throughout the morning to each class. After the lecture, students walked around the ponds at the farm asking questions, recording observations for their lab assignment and obtaining water samples. • In April, the DPW coordinated with the Daniel Hand High School Science Department Lead to include stormwater sampling into the water chemistry unit of the Marine Science class. Students followed the Town's IDDE protocols and sampled numerous outfalls on Town owned properties. Results are shown in Part III of this report. 	<p>Educate students on common stormwater, pollution prevention & water quality topics</p>	<p>Public Works Rob Russo, P.E.</p>	<p>-</p>	<p>Ongoing Annually</p>	
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1.2 Describe any Public Education and Outreach activities planned for the next year, if applicable.

- Madison Green Up Clean Up Day 2020
- Continue educational lectures and Q&A sessions to Madison Public Schools 7th Graders on stormwater runoff, pollution, water quality & illicit discharges
- Continue coordination & implementation of stormwater sampling into the water chemistry unit of the Daniel Hand High School Marine Science class

1.3 Details of activities implemented to educate the community on stormwater

Program Element/Activity	Audience (and number of people reached)	Topic(s) covered	Pollutant of Concern addressed (if applicable)	Responsible dept. or partner org.
<i>Madison Public Schools - 7th Grade Educational Lecture and Q&A Session</i>	Teachers & Students (Approx. 250)	Stormwater Runoff, Pollution, Water Quality & Illicit Discharges	Bacteria – Pet Waste	Public Works & Board of Education
<i>Madison Public Schools – High School Stormwater Sampling</i>	Teachers & Students (Approx. 50)	Water Quality	Bacteria – E. coli	Public Works & Board of Education

2. Public Involvement/Participation (Section 6(a)(2) / page 21)

2.1 BMP Summary

BMP	Status	Activities in current reporting period	Measurable goal	Department / Person Responsible	Due	Date completed or projected completion date	Additional details
2-1 Comply with public notice requirements for the Stormwater Management Plan	Complete	<ul style="list-style-type: none"> The Stormwater Management Plan is available on the Town of Madison's Public Works website 	Provide public notice and access to the Town's Stormwater Management Plan	Public Works Rob Russo, P.E.	Apr 3, 2017	April 3, 2017	
2-2 Comply with public notice requirements for Annual Reports	Complete	<ul style="list-style-type: none"> The 2016, 2017, 2018 & 2019 Annual Reports have been made available to the public on the Town of Madison's Public Works website 	Provide public notice and access to the Town's Annual Reports	Public Works Rob Russo, P.E.	Feb 15, 2019	February 15, 2019	

2.2 Describe any Public Involvement/Participation activities planned for the next year, if applicable.

<ul style="list-style-type: none"> - Madison Green Up Clean Up Day 2020 - Continue compliance with public notice requirements for the Annual Report

2.3 Public Involvement/Participation reporting metrics

Metrics	Implemented	Date	Posted
Availability of the Stormwater Management Plan announced to public	Yes	April 3, 2017	Town of Madison's Public Works Website
Availability of Annual Report announced to public	Yes	February 14, 2019	Town of Madison's Public Works Website

3. Illicit Discharge Detection and Elimination (Section 6(a)(3) and Appendix B / page 22)

3.1 BMP Summary

BMP	Status	Activities in current reporting period	Measurable goal	Department / Person Responsible	Due	Date completed or projected completion date	Additional details
3-1 Develop written IDDE program	Complete	<ul style="list-style-type: none"> The IDDE program has been completed and is available on the Town's DPW website 	Develop written plan of IDDE program	Public Works Rob Russo, P.E.	Jul 1, 2018	July 1, 2018	
3-2 Develop list and maps of all MS4 stormwater outfalls in priority areas	Complete	<ul style="list-style-type: none"> The Town's storm drainage systems which include piping, outfalls, catch basins and other structures have been identified & mapped in a GIS database. 	Map all Townwide Stormwater Outfalls	Public Works Rob Russo, P.E.	Jul 1, 2019	July 1, 2019	
3-3 Implement citizen reporting program	Complete	<ul style="list-style-type: none"> The Town of Madison's Public Works website encourages citizens to report illicit discharges through a "Report a Concern" function 	Promote citizen reporting of illicit discharges into the Town's storm drainage systems	Public Works Rob Russo, P.E.	Jul 1, 2017	July 1, 2017	
3-4 Establish legal authority to prohibit illicit discharges	Complete	<ul style="list-style-type: none"> The Town has implemented an Illicit Discharge Detection and Elimination Stormwater Ordinance into the Town of Madison Code of Ordinances. Per the ordinance the DPW will be responsible for investigating, monitoring and prohibiting illicit discharges. 	Create a legal authority consisting of an individual or individuals who will investigate, monitor & eliminate reported illicit discharges	Public Works Rob Russo, P.E.	Jul 1, 2018	August 17, 2018	

3-5 Develop record keeping system for IDDE tracking	Complete	<ul style="list-style-type: none"> The Town of Madison's Public Works Department has implemented Cartegraph Operational & Asset Management software to record stormwater related issues and track illicit discharges 	Create & maintain a current and reliable system for recording stormwater issues and tracking illicit discharges	Public Works Beth Anne Twohill	Jul 1, 2017	July 1, 2017	
3-6 Address IDDE in areas with pollutants of concern	Not Started	<ul style="list-style-type: none"> No activities to declare during current reporting period 					

3.2 Describe any IDDE activities planned for the next year, if applicable.

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| <ul style="list-style-type: none"> Utilize the IDDE program to continue baseline and catchment area sampling (dry and wet). Utilize the stormwater ordinance to investigate, monitor and eliminate discovered illicit discharges. Continue IDDE outfall screenings in MS4 priority area Citizen illicit discharge concerns will be recorded and tracked by the Department of Public Works in the Cartegraph software. |
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3.3 List of citizen reports of suspected illicit discharges received during this reporting period.

Date of Report	Location / suspected source	Response taken
6-7-2019	684 Boston Post Road Overflowing toilet discharging out of building and down driveway into drain	The Health Department responded to the report; the toilet was fixed on 6-7-2019 and the discharge was eliminated.

3.4 Provide a record of illicit discharges occurring during the reporting period and SSOs occurring July 2012 through end of reporting period using the following table. **The Town of Madison has no SSOs**

Location (Lat long/ street crossing /address and receiving water)	Date and duration of occurrence	Discharge to MS4 or surface water	Estimated volume discharged	Known or suspected cause / Responsible party	Corrective measures planned and completed (include dates)	Sampling data (if applicable)
N/A						
N/A						

3.5 Briefly describe the method used to track illicit discharge reports, responses to those reports, and who was responsible for tracking this information.

Illicit Discharge reports as well as other stormwater related issues/concerns are received by the Department of Public Works and input into Cartegraph Operational & Asset Management software. The information is stored in a database which is graphically linked to Town wide GIS mapping. The DPW administrative assistant will generate a work request from the database and distribute to the DPW personnel. The DPW personnel, upon receipt of the work request investigates, monitors and takes the appropriate action in accordance with the IDDE Ordinance.

3.6 Provide a summary of actions taken to address septic failures using the table below.

Location and nature of structure with failing septic systems	Actions taken to respond to and address the failures	Impacted waterbody or watershed, if known
Approximately 150 Town-wide septic system permits issued 50% of septic system permits issued are repairs due to septic failures	Property owners are issued order letter with specific time frame (if necessary) to have system designed by a professional engineer or licensed septic contractor and installed immediately.	No evidence of contaminated drinking water or groundwater

3.7 IDDE reporting metrics

Metrics	
Estimated or actual number of MS4 outfalls	745 - Estimated
Estimated or actual number of interconnections	28 - Estimated
Outfall mapping complete	100%
Interconnection mapping complete	100%
System-wide mapping complete (detailed MS4 infrastructure)	85%
Outfall assessment and priority ranking	50%
Dry weather screening of all High and Low priority outfalls complete	30%
Catchment investigations complete	50%
Estimated percentage of MS4 catchment area investigated	50%

3.8 Briefly describe the IDDE training for employees involved in carrying out IDDE tasks including what type of training is provided and how often is it given (minimum once per year).

The Illicit Discharge Detection and Elimination (IDDE) Program has been made available to the public via the Town website as well as all internal Town employees. A hard copy of the program is kept at the Town garage for Department of Public Works employees to reference.

No formal IDDE training has been implemented at this time.

4. Construction Site Runoff Control (Section 6(a)(4) / page 25)

4.1 BMP Summary

BMP	Status	Activities in current reporting period	Measurable goal	Department / Person Responsible	Due	Date completed or projected completion date	Additional details
4-1 Implement, upgrade, and enforce land use regulations or other legal authority to meet requirements of MS4 general permit	Complete	<ul style="list-style-type: none"> All proposed development projects are reviewed by the Public Works & Land Use Departments for compliance with State of Connecticut 2002 Guidelines for Soil Erosion and Sediment Control, 2004 Connecticut Stormwater Quality Manual, Town of Madison Zoning Regulations, Inland Wetland Regulations and Building Regulations. 	Enforce State & Municipal guidelines and regulations to meet requirements of MS4 general permit	Land Use Dave Anderson Public Works Rob Russo, P.E.	Jul 1, 2019	Ongoing	
4-2 Develop/Implement plan for interdepartmental coordination in site plan review and approval	Complete	<ul style="list-style-type: none"> The Town of Madison's Public Works, Land Use, Building & Health Departments coordinate and review site plans for approval Interdepartmental meetings regarding certain projects are held as necessary 	Maximize interdepartmental coordination on site plan reviews through communication	Public Works Rob Russo, P.E.	Jul 1, 2017	July 1, 2017	
4-3 Review site plans for stormwater quality concerns	Complete	<ul style="list-style-type: none"> The Town of Madison's Public Works, Land Use, Building & Health Departments perform site plan reviews to identify activities that disturb land surface and detect potential causes of pollution to stormwater runoff 	Identify stormwater quality concerns during site plan review process	Land Use Dave Anderson Public Works Rob Russo, P.E.	Jul 1, 2017	July 1, 2017	

4-4 Conduct site inspections	Complete	<ul style="list-style-type: none"> Site Developments are inspected by the building official, zoning enforcement officer, public works personnel & inland wetlands officer during construction 	Identify stormwater drainage issues with the site development	Building Department Vinny Garafalo	Jul 1, 2017	July 1, 2017	
4-5 Implement procedure to allow public comment on site development	Complete	<ul style="list-style-type: none"> The public has the ability to comment on site development at Town Meetings The Town of Madison's website includes a reporting function to receive public comments 	Allow public comment on site developments through public meetings and the Town of Madison's website	Public Works Rob Russo, P.E.	Jul 1, 2017	July 1, 2017	
4-6 Implement procedure to notify developers about DEEP construction stormwater permit	Complete	<ul style="list-style-type: none"> Developers are notified of the DEEP construction stormwater permit under Section 18 of the Town of Madison's Site Plan Review Application 	Notify developers of the DEEP construction stormwater permit	Land Use Dave Anderson	Jul 1, 2017	July 1, 2017	

4.2 Describe any Construction Site Runoff Control activities planned for the next year, if applicable.

- Continued enforcement of the State's Soil Erosion and Sedimentation Control Guidelines
- Continued enforcement of the State's Stormwater Quality Manual
- Continued enforcement of the Town of Madison's Zoning & Inland Wetland Regulations
- Continued Site Inspections
- Continued review of all proposed site development projects
- Continued implementation of the current procedure to allow public comment on site development
- Continued implementation of the current procedure to notify developers about DEEP construction stormwater permit

5. Post-construction Stormwater Management (Section 6(a)(5) / page 27)

5.1 BMP Summary

BMP	Status	Activities in current reporting period	Measurable goal	Department / Person Responsible	Due	Date completed or projected completion date	Additional details
5-1 Establish and/or update legal authority and guidelines regarding LID and runoff reduction in site development planning	In Progress	<ul style="list-style-type: none"> The Town will review the need for a legal authority & additional guidelines that may be required to meet the intent of this permit. 	Establish and/or update legal authority and guidelines regarding LID and runoff reduction in site development planning	Dave Anderson Land Use	Jul 1, 2021	July 1, 2021	
5-2 Enforce LID/runoff reduction requirements for development and redevelopment projects	Complete	<ul style="list-style-type: none"> The Town strongly encourages LID in projects and enforces runoff reduction through the use of stormwater regulations. The Town's current stormwater regulations require the applicant to minimize impervious surfaces and maximize infiltration through the use of vegetated swales, rain gardens, bioretention, etc... 	Enforce LID/runoff reduction requirements for development and redevelopment projects	Land Use Dave Anderson Public Works John Iennaco, P.E.	Jul 1, 2019	July 1, 2019	
5-3 Identify retention and detention ponds in priority areas	In Progress	<ul style="list-style-type: none"> The majority of Town owned detention ponds have been identified however the ponds still need to be mapped in the GIS database. 	Identify retention and detention ponds in priority areas	Public Works Rob Russo, P.E.	Jul 1, 2019	July 1, 2020	

5-4 Implement long-term maintenance plan for stormwater basins and treatment structures	Complete	<ul style="list-style-type: none"> The Town Engineers perform periodic inspections of the stormwater basins throughout Town. If the health of basin & vegetation is a cause for concern, a wetland scientist is contacted to perform an investigation. If the basin requires routine maintenance, a work request is sent to the Public Works employees for action. 	Implement long-term maintenance plan for stormwater basins and treatment structures	Public Works John Iennaco, P.E.	Jul 1, 2019	July 1, 2019	
5-5 DCIA mapping	In Progress	<ul style="list-style-type: none"> The Town of Madison is in the process of defining catchment areas for each of the Town's outfalls in the priority/urbanized areas. Mapping provided by UCONN Clear will be utilized to analyze DCIA within the catchment areas. 	Identify DCIA's within the MS4 general permit priority area	Public Works Rob Russo, P.E.	Jul 1, 2020	Anticipated for July 1, 2020	
5-6 Address post-construction issues in areas with pollutants of concern	Not Started	<ul style="list-style-type: none"> No activities to declare during current reporting period 			Not specified		

5.2 Describe any Post-Construction Stormwater Management activities planned for the next year, if applicable.

- Continue review of legal authority and/or other updates to the current regulations to meet those LID and runoff reduction practices required under this permit
- Continued enforcement of LID/runoff reduction on all proposed development and redevelopment projects
- Complete GIS mapping of all identified Town owned detention ponds
- Continue periodic inspections, wetland scientist investigations and routine maintenance on all Town owned detention pond and stormwater treatment structures
- Complete DCIA mapping

5.3 Post-Construction Stormwater Management reporting metrics

Metrics	
Baseline (2012) Directly Connected Impervious Area (DCIA)	N/A
DCIA disconnected (redevelopment plus retrofits)	N/A
Retrofits completed	N/A
DCIA disconnected	N/A
Estimated cost of retrofits	N/A
Detention or retention ponds identified	4 ponds

5.4 Briefly describe the method to be used to determine baseline DCIA.

The Town of Madison will be following the guidance provided by CTDEEP and UCONN Clear to calculate the baseline Directly Connected Impervious Area (DCIA) of the watershed that contributes stormwater runoff to each of its MS4 outfalls.

6. Pollution Prevention/Good Housekeeping (Section 6(a)(6) / page 31)

6.1 BMP Summary

BMP	Status	Activities in current reporting period	Measurable goal	Department / Person Responsible	Due	Date completed or projected completion date	Additional details
6-1 Develop/implement formal employee training program	Complete	<ul style="list-style-type: none"> Stormwater Pollution Prevention Yearly Training for the Town's Department of Public Works was conducted by Ted Stevens, PE LEP of Stevens Engineering & Environmental Services, LLC on December 13, 2019 Training included the importance of stormwater management, pollution prevention and good housekeeping practices 	Educate & train Town personnel on stormwater management and pollution prevention	Public Works Rob Russo, P.E.	Jul 1, 2017	Ongoing	
6-2 Implement MS4 property and operations maintenance	Complete	<ul style="list-style-type: none"> Under the general permit associated with industrial activity, the Town's Bulky Waste & Garage properties are currently being maintained. In accordance with the permit, stormwater samples are being obtained, analyzed and submitted to CTDEEP by Stevens Engineering and Environmental Services, LLC. Additional Town impervious areas such as the school properties were swept during low traffic volumes. Catch Basin cleanings for these properties were also completed. 	Maintain all Town owned properties in accordance with the MS4 General Permit	Public Works Rob Russo, P.E.	Jul 1, 2018	Ongoing	

6-3 Implement coordination with interconnected MS4s	In Progress	<ul style="list-style-type: none"> The Town has researched, identified & mapped interconnections with other MS4s. Further coordination is needed to detail interconnected systems. 	Coordinate interconnected MS4's	Public Works Rob Russo, P.E.	Not specified	Anticipated for July 1, 2020	
6-4 Develop/implement program to control other sources of pollutants to the MS4	Not Started	<ul style="list-style-type: none"> No activities to declare during current reporting period 			Not specified		
6-5 Evaluate additional measures for discharges to impaired waters*	Not Started	<ul style="list-style-type: none"> No activities to declare during current reporting period 			Not specified		
6-6 Track projects that disconnect DCIA	Complete	<ul style="list-style-type: none"> The Town of Madison is currently tracking projects that disconnect DCIA via an internal database. 	Track & monitor projects that disconnect DCIA	Public Works Rob Russo, P.E.	Jul 1, 2017	Ongoing	
6-7 Implement infrastructure repair/rehab program	Complete	<ul style="list-style-type: none"> Based on DPW inspections, citizen reports and annual roadway improvement projects, storm drainage infrastructure rehabilitation & repair projects are completed by DPW personnel or bid to private contractors. 	Improve, repair & rehabilitate Town wide storm drainage infrastructure.	Public Works John Iennaco, P.E.	Jul 1, 2021	Ongoing	
6-8 Develop/implement plan to identify/prioritize retrofit projects	Not Started	<ul style="list-style-type: none"> No activities to declare during current reporting period 			Jul 1, 2020		

6-9 Implement retrofit projects to disconnect 2% of DCIA	Not Started	<ul style="list-style-type: none"> No activities to declare during current reporting period 			Jul 1, 2022		
6-10 Develop/implement street sweeping program	Complete	<ul style="list-style-type: none"> The Town of Madison's annual street sweeping program was completed by the Department of Public Works, supplemented by Tri State Industrial Maintenance, LLC. Approximately 125 miles of Town roads were swept as part of the annual program. Additional Town impervious areas such as the school properties were also included in the program. 	Continue annual street sweeping program to mitigate sediment & debris on Town roads and properties	Public Works John Iennaco, P.E.	Jul 1, 2017	Ongoing	
6-11 Develop/implement catch basin cleaning program	Complete	<ul style="list-style-type: none"> The Town of Madison's annual catch basin cleaning program was completed by Kropp Environmental Contractors. 1,105 catch basins were cleaned during this reporting period. 	Continue catch basin cleaning program to remove sediment & debris from basins and improve stormwater quality	Public Works John Iennaco, P.E.	Jul 1, 2020	Ongoing	
6-12 Develop/implement snow management practices	Complete	<ul style="list-style-type: none"> Road salt was utilized to treat Town roads during storm events as opposed to a salt/sand mixture; preventing sediment accumulation in catch basins To mitigate wetland impacts, adjacent snow banks/piles were transported to Town properties 	Continue snow management practices to mitigate the effect on water quality and the Town's storm drainage infrastructure.	Public Works John Iennaco, P.E.	Jul 1, 2018	Ongoing	

6.2 Describe any Pollution Prevention/Good Housekeeping activities planned for the next year, if applicable.

- Continue Stormwater Pollution Prevention Training for Department of Public Works Personnel
- Additional maintenance on Town owned MS4 properties
- MS4 interconnection coordination with the State of Connecticut
- Continue tracking projects that disconnect DCIA
- Continue Street Sweeping and Catch Basin Cleaning Programs
- Develop a plan to identify potential retrofit projects

6.3 Pollution Prevention/ Good Housekeeping reporting metrics

Metrics	
Employee training provided for key staff	Yes 12-13-2019
Street sweeping	
Curb miles swept	250 miles
Volume (or mass) of material collected	N/A
Catch basin cleaning	
Total catch basins in priority areas	2,154
Total catch basins in MS4	2,643
Catch basins inspected	1105
Catch basins cleaned	1105
Volume (or mass) of material removed from all catch basins	950 C.Y.
Volume removed from catch basins to impaired waters (if known)	N/A
Snow management	
Type(s) of deicing material used	Road Salt
Total amount of each deicing material applied	1,095 tons
Type(s) of deicing equipment used	6 wheel dump trucks w/ computerized salt spreading equipment
Lane-miles treated	250 miles
Snow disposal location	Exchange Field
Staff training provided on application methods & equipment	Yes for New Hires
Municipal turf management program actions (for permittee properties in basins with N/P impairments)	
Reduction in application of fertilizers (since start of permit)	N/A
Reduction in turf area (since start of permit)	N/A
Lands with high potential to contribute bacteria (dog parks, parks with open water, & sites with failing septic systems)	
Cost of mitigation actions/retrofits	N/A

6.4 Catch basin cleaning program

Briefly describe the method used to optimize your catch basin inspection and cleaning schedule.

The Town of Madison Department of Public Works personnel performed visual inspections of the catch basins throughout Town to determine which areas were most in need of cleaning. These observations in conjunction with residents work requests provide direction on which quadrant of Town will be cleaned in a given year. The remaining quadrants of Town will be targeted in subsequent years.

6.5 Retrofit program

Briefly describe the Retrofit Program identification and prioritization process, the projects selected for implementation, the rationale for the selection of those projects and the total DCIA to be disconnected upon completion of each project. [

N/A

Describe plans for continuing the Retrofit program and how to achieve a goal of 1% DCIA disconnection in future years.

N/A

Describe plans for continuing the Retrofit program beyond this permit term with the goal to disconnect 1% DCIA annually over the next 5 years.

N/A

Part II: Impaired waters investigation and monitoring

1. Impaired waters investigation and monitoring program

1.1 Indicate which stormwater pollutant(s) of concern occur(s) in your municipality or institution. This data is available on the MS4 map viewer: <http://s.uconn.edu/ctms4map>.

Nitrogen/ Phosphorus

Bacteria

Mercury

Other Pollutant of Concern

1.2 Describe program status.

Discuss 1) the status of monitoring work completed, 2) a summary of the results and any notable findings, and 3) any changes to the Stormwater Management Plan based on monitoring results.

In 2019, the Town of Madison hired Stevens Engineering & Environmental Services, LLC (Consultant) to assist with the Town's impaired waters investigation and perform stormwater monitoring as required under the 2017 MS4 General Permit. The Consultant wet weather sampled 15 outfalls that discharge to impaired water bodies. The collected samples were sent to a certified lab and analyzed for the pollutant of concern (bacteria). The empirical data indicated that all 15 outfalls sampled exceeded the pollutant threshold for Class SA surface waters. These outfall locations have been noted in the Town's records and will be analyzed further when the "Worst 6 Outfalls" annual monitoring locations are being determined. As noted in the Public Education & Outreach section of this report, the Department of Public Works (DPW) has partnered with the Board of Education to provide educational and real world science applications to students. As a result, an additional 4 outfalls were sampled by the Daniel Hand High School Marine Science class. The testing procedure utilized was not able to provide a numeric value however a positive or negative result could be determined. All 4 outfalls indicated a positive presence of bacteria and have been flagged by the DPW to follow up with additional certified lab testing.

2. Screening data for outfalls to impaired waterbodies (Section 6(i)(1) / page 41)

2.1 Screening data

Complete the table below for any outfalls screened during the reporting period. Each Annual Report will add on to the previous year's screening data showing a cumulative list of outfall screening data.

Outfall ID	Sample date	Parameter (Nitrogen, Phosphorus, Bacteria, or Other pollutant of concern)	Results	Name of Laboratory (if used)	Follow-up required?
OF-8	6-20-19	Bacteria – E. coli	47.3 MPN/100ml	CET, Inc.	Yes
OF-42	6-20-19	Bacteria – E. coli	1553.1 MPN/100ml	CET, Inc.	Yes
OF-71	6-20-19	Bacteria – E. coli	1413.6 MPN/100ml	CET, Inc.	Yes
OF-72	6-20-19	Bacteria – E. coli	>2419.6 MPN/100ml	CET, Inc.	Yes
OF-89	6-20-19	Bacteria – E. coli	>2419.6 MPN/100ml	CET, Inc.	Yes
OF-123	6-20-19	Bacteria – E. coli	>2419.6 MPN/100ml	CET, Inc.	Yes
OF-263	6-20-19	Bacteria – E. coli	>2419.6 MPN/100ml	CET, Inc.	Yes
OF-276	6-20-19	Bacteria – E. coli	50.4 MPN/100ml	CET, Inc.	Yes
OF-298	6-20-19	Bacteria – E. coli	547.5 MPN/100ml	CET, Inc.	Yes
OF-257	12-9-19	Bacteria – E. coli	185 MPN/100ml	CET, Inc.	Yes
OF-1.147	12-9-19	Bacteria – E. coli	50.4 MPN/100ml	CET, Inc.	Yes
OF-1.254	12-9-19	Bacteria – E. coli	111.2 MPN/100ml	CET, Inc.	Yes
OF-1.256	12-9-19	Bacteria – E. coli	44.8 MPN/100ml	CET, Inc.	Yes
OF-1.257	12-9-19	Bacteria – E. coli	36.4 MPN/100ml	CET, Inc.	Yes
OF-1.315	12-9-19	Bacteria – E. coli	328.2 MPN/100ml	CET, Inc.	Yes
OF-262	5-2-19	Bacteria – E. coli	Positive	DHHS Lab	Yes
OF-258	5-2-19	Bacteria – E. coli	Positive	DHHS Lab	Yes
OF-400	5-2-19	Bacteria – E. coli	Positive	DHHS Lab	Yes
OF-401	4-25-19	Bacteria – E. coli	Positive	DHHS Lab	Yes

2.2 Credit for screening data collected under 2004 permit

If any outfalls to impaired waters were sampled under the 2004 MS4 permit, that data can count towards the monitoring requirements under the modified 2017 MS4 permit. Complete the table below to record sampling data for any outfalls to impaired waters under the 2004 MS4 permit.

Outfall	Sample date	Parameter (Nitrogen, Phosphorus, Bacteria, or Other pollutant of concern)	Results	Name of Laboratory (if used)	Follow-up required?
68 Neck Road	11/15/16	Bacteria - E. coli	>24196 MPN/100ml	CET, Inc.	Yes
68 Neck Road	12/17/15	Bacteria - E. coli	2419 MPN/100ml	CET, Inc.	Yes
68 Neck Road	10/19/12	Bacteria - E. coli	1203.3 MPN/100ml	ECL, Inc.	Yes
68 Neck Road	11/16/11	Bacteria - E. coli	488.4 MPN/100ml	ECL, Inc.	Yes
55 Mungertown Road	12/15/16	Bacteria - E. coli	7701 MPN/100ml	CET, Inc.	Yes
55 Mungertown Road	12/17/15	Bacteria - E. coli	579.4 MPN/100ml	CET, Inc.	Yes
55 Mungertown Road	10/19/12	Bacteria - E. coli	165.8 MPN/100ml	ECL, Inc.	Yes
55 Mungertown Road	11/16/11	Bacteria - E. coli	449.5 MPN/100ml	ECL, Inc.	Yes
203 Curry Cross Road	11/15/16	Bacteria - E. coli	>24196 MPN/100ml	CET, Inc.	Yes
203 Curry Cross Road	12/17/15	Bacteria - E. coli	193.5 MPN/100ml	CET, Inc.	Yes
203 Curry Cross Road	10/19/12	Bacteria - E. coli	139.6 MPN/100ml	ECL, Inc.	Yes
203 Curry Cross Road	11/16/11	Bacteria - E. coli	151.5 MPN/100ml	ECL, Inc.	Yes
203 Curry Cross Road	9/11/09	Bacteria - E. coli	161.6 MPN/100ml	ECL, Inc.	Yes
60 Webster Point Road	11/15/16	Bacteria - E. coli	1414 MPN/100ml	CET, Inc.	Yes
60 Webster Point Road	12/17/15	Bacteria - E. coli	435.2 MPN/100ml	CET, Inc.	Yes
60 Webster Point Road	10/19/12	Bacteria - E. coli	980.4 MPN/100ml	ECL, Inc.	Yes
60 Webster Point Road	11/16/11	Bacteria - E. coli	435.2 MPN/100ml	ECL, Inc.	Yes

3. Follow-up investigations (Section 6(i)(1)(D) / page 43) – Anticipated for 2020 Annual Report

Provide the following information for outfalls exceeding the pollutant threshold.

Outfall	Status of drainage area investigation	Control measure implementation to address impairment

4. Prioritized outfall monitoring (Section 6(i)(1)(D) / page 43) – Anticipated for 2020 Annual Report

Once outfall screening has been completed for at least 50% of outfalls to impaired waters, identify 6 of the highest contributors of any pollutants of concern. Begin monitoring these outfalls on an annual basis by July 1, 2020.

Outfall	Sample Date	Parameter(s)	Results	Name of Laboratory (if used)

Part III: Additional IDDE Program Data

1. Assessment and Priority Ranking of Catchments data (Appendix B (A)(7)(c) / page 5)

Provide a list of all catchments with ranking results (DEEP basins may be used instead of manual catchment delineations).

Catchment ID (DEEP Basin ID)	Priority Ranking
5000-17	High Priority
5000-15	High Priority
5000-16	High Priority
5000-14	High Priority
5000-13	High Priority
5107-01	High Priority
5106-00	High Priority
5106-17	High Priority
5107-00	Low Priority
5106-14	Low Priority
5108-05	Low Priority
5108-01	Low Priority

2. Outfall and Interconnection Screening and Sampling data (Appendix B (A)(7)(d) / page 7)

2.1 Dry weather screening and sampling data from outfalls and interconnections

Provide sample data for outfalls where flow is observed. Only include Pollutant of concern data for outfalls that discharge into stormwater impaired waterbodies.

Outfall / Interconnection ID	Screening / sample date	Flow	Ammonia	Chlorine	Conductivity	Salinity	E. coli or enterococcus	Surfactants	Water Temp	Pollutant of concern	If required, follow-up actions taken
See Attachment A											

2.2 Wet weather sample and inspection data

Provide sample data for outfalls and key junction manholes of any catchment area with at least one System Vulnerability Factor.

Outfall / Interconnection ID	Sample date	Ammonia	Chlorine	Conductivity	Salinity	E. coli or Enterococcus	Surfactants	Water Temp	Pollutant of concern
See Attachment B									

3. Catchment Investigation data (Appendix B (A)(7)(e) / page 9)

3.1 System Vulnerability Factor Summary

For those catchments being investigated for illicit discharges (i.e. categorized as high priority, low priority, or problem) document the presence or absence of System Vulnerability Factors (SVF). If present, report which SVF's were identified. An example is provided below.

Outfall ID	Receiving Water	System Vulnerability Factors
5000-17	Neck River	None as specified
5000-15	Long Island Sound	None as specified; high density area (industrial, commercial, residential, parks)
5000-16	Long Island Sound	None as specified; high density area (industrial, commercial, residential, schools, parks)
5000-13	Long Island Sound	None as specified
5000-14	Long Island Sound	None as specified; high density area (commercial, residential, parks)
5106-00	Hammonasset River	None as specified
5107-01	Neck River	None as specified; high density area (commercial, residential, schools)
5106-17	Hammonasset River	None as specified
5107-00	Neck River	None as specified; high density area (commercial, residential)
5106-14	Hammonasset River	None as specified
5108-05	East River	None as specified
5108-01	East River	None as specified

Where SVFs are:

1. History of SSOs, including, but not limited to, those resulting from wet weather, high water table, or fat/oil/grease blockages.
2. Sewer pump/lift stations, siphons, or known sanitary sewer restrictions where power/equipment failures or blockages could readily result in SSOs.
3. Inadequate sanitary sewer level of service (LOS) resulting in regular surcharging, customer back-ups, or frequent customer complaints.
4. Common or twin-invert manholes serving storm and sanitary sewer alignments.
5. Common trench construction serving both storm and sanitary sewer alignments.
6. Crossings of storm and sanitary sewer alignments.
7. Sanitary sewer alignments known or suspected to have been constructed with an underdrain system;
8. 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.
9. Areas formerly served by combined sewer systems.
10. Any sanitary sewer and storm drain infrastructure greater than 40 years old in medium and densely developed areas.
11. Widespread code-required septic system upgrades required at property transfers (indicative of inadequate soils, water table separation, or other physical constraints of the area rather than poor owner maintenance).
12. History of multiple local health department or sanitarian actions addressing widespread septic system failures (indicative of inadequate soils, water table separation, or other physical constraints of the area rather than poor owner maintenance).

3.2 Key junction manhole dry weather screening and sampling data

Key Junction Manhole ID	Screening / Sample date	Visual/ olfactory evidence of illicit discharge	Ammonia	Chlorine	Surfactants
Attachment A					

3.3 Wet weather investigation outfall sampling data

Outfall ID	Sample date	Ammonia	Chlorine	Surfactants
Attachment B				

3.4 Data for each illicit discharge source confirmed through the catchment investigation procedure

Discharge location	Source location	Discharge description	Method of discovery	Date of discovery	Date of elimination	Mitigation or enforcement action	Estimated volume of flow removed
No sources indicated as of 12/31/2019							

Part IV: Certification

“I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that a false statement made in this document or its attachments may be punishable as a criminal offense, in accordance with Section 22a-6 of the Connecticut General Statutes, pursuant to Section 53a-157b of the Connecticut General Statutes, and in accordance with any other applicable statute.”

Chief Elected Official or Principal Executive Officer	Document Prepared by
Print name:	Print name:
Signature / Date:	Signature / Date:

Attachment A
Dry Weather Screening and Sampling Data

Outfall ID	Screening/Sample Date	Flow Obs.	Ammonia (mg/L)	Chlorine (mg/L)	Conductivity (umhos/cm)	Salinity (mg/L)	Bacteria E. Coli - (MPN/100ml)	Surfactants (mg/L)	Water Temp Degrees F	If required, follow up action taken
OF-285	11/6/2018	No								
OF-286	11/6/2018	No								
OF-263	10/31/2018	No								
OF-264	10/31/2018	No								
OF-265	10/31/2018	No								
OF-266	11/1/2018	No								
OF-267	11/1/2018	No								
OF-268	11/1/2018	No								
OF-269	11/1/2018	No								
OF-270	11/1/2018	No								
OF-272	11/1/2018	No								
OF-287	11/6/2018	No								
OF-288	11/6/2018	No								
OF-289	11/6/2018	No								
OF-290	11/6/2018	No								
OF-291	11/6/2018	No								
OF-292	11/6/2018	No								
OF-293	11/6/2018	No								
OF-294	11/6/2018	No								
OF-302	11/7/2018	No								
OF-304	11/7/2018	No								
OF-305	11/7/2018	No								
OF-306	11/7/2018	No								
OF-307	11/7/2018	No								
OF-308	11/7/2018	No								
OF-309	11/7/2018	No								
OF-310	11/7/2018	Yes								Follow up sampling Planned for 2020
OF-295	11/6/2018	Yes								Follow up sampling Planned for 2020
OF-298	11/7/2018	Yes								Follow up sampling Planned for 2020

Attachment A
Dry Weather Screening and Sampling Data

Outfall ID	Screening/Sample Date	Flow Obs.	Ammonia (mg/L)	Chlorine (mg/L)	Conductivity (umhos/cm)	Salinity (mg/L)	Bacteria E. Coli - (MPN/100ml)	Surfactants (mg/L)	Water Temp Degrees F	If required, follow up action taken
OF-340	11/20/2018	Yes								Follow up sampling Planned for 2020
OF-341	11/20/2018	No								
OF-343	11/20/2018	No								
OF-344	11/20/2018	No								
OF-346	11/20/2018	Yes								Follow up sampling Planned for 2020

Attachment B
Wet Weather Sampling and Inspection Data

Outfall ID	Screening/Sample Date	Flow Obs.	Ammonia (mg/L)	Chlorine (mg/L)	Conductivity (umhos/cm)	Salinity (mg/L)	Bacteria E. coli - (MPN/100ml)	Surfactants (mg/L)	Temp. Degrees F	If required, follow up action taken
OF-8	6/20/2019	Yes	0	0	210.6	186	47.3	ND < 0.05	66.7	
OF-18	6/20/2019	No								
OF-42	6/20/2019	Yes	0	0	255.3	230	1553.1	ND < 0.05	65.9	
OF-71	6/20/2019	Yes	< 0.25	0	82.9	75.9	1413.6	ND < 0.05	67.6	
OF-72	6/20/2019	Yes	0	0	39	34.9	>2419.6	ND < 0.05	68	
OF-89	6/20/2019	Yes	0	0	74.3	67.4	>2419.6	ND < 0.05	67.6	
OF-112	6/20/2019	No								
OF-123	6/20/2019	Yes	0	0	34.1	30.7	>2419.6	ND < 0.05	67.1	
OF-128	6/20/2019	No								
OF-147	6/20/2019	No								
OF-220	6/20/2019	No								
OF-227	6/20/2019	No								
OF-245	6/20/2019	No								
OF-248	6/20/2019	No								
OF-257	6/20/2019	No								
OF-261	6/20/2019	No								
OF-263	6/20/2019	Yes	< 0.25	0	44.6	39.2	>2419.6	0.13	68.7	
OF-276	6/20/2019	Yes	0	0	188.8	172.1	50.4	0.071	67.1	
OF-279	6/20/2019	No								
OF-298	6/20/2019	Yes	0	0	244.8	224.1	547.5	ND < 0.05	68.8	
OF-324	6/20/2019	No								
OF-333	6/20/2019	No								
OF-336	6/20/2019	No								
OF-257	12/9/2019	Yes	< 0.25	< 0.25	266.9	190	185	0.086	44	
OF-1.147	12/9/2019	Yes	< 0.25	< 0.25	94.7	60	50.4	ND < 0.05	43	
OF-1.254	12/9/2019	Yes	< 0.25	< 0.25	465.9	330	111.2	ND < 0.05	43	
OF-1.256	12/9/2019	Yes	< 0.25	< 0.25	441.9	330	44.8	ND < 0.05	42	
OF-1.257	12/9/2019	Yes	< 0.25	< 0.25	365.1	260	36.4	ND < 0.05	41	
OF-1.315	12/9/2019	Yes	< 0.25	< 0.25	106.5	80	328.2	0.075	44	