MS4 General Permit
City of Middletown 2023 Annual Report
Existing MS4 Permittee
Permit Number GSM 000011
January 1, 2023 – December 31, 2023
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This report documents Middletown's efforts to comply with the conditions of the MS4 General Permit to the maximum extent practicable (MEP) from January 1, 2023 to December 31, 2023.

Part I: Summary of Minimum Control Measure Activities

1. Public Education and Outreach

1.1 BMP Summary

BMP	Status	Activities in current reporting period	Measurable goal	Department / Person Responsible	Due	Date completed or projected completion date
1-1 Implement public education and outreach	Ongoing	See details below.	Document how many brochures have been distributed.	Kim O'Rourke, Recycling Coordinator	Ongoing	In Progress as of 2018
1-2 Address education/ outreach for pollutants of concern	Completed	Bacteria (E. coli) is addressed in the "Protect the Waterways" brochure. The City installed pet waste receptacles (bags and containers) in many of the parks and promoted it on social media.	Create educational materials to target: a. Septic systems b. Sanitary cross connections c. Waterfowl d. Pet waste e. Manure piles associated with livestock & horses	Kim O'Rourke, Recycling Coordinator	Completed	Educational materials are posted on the city website. Completed December 2023.

1-3 Target education to specific properties known to contribute bacteria to stormwater	Began in 2022	One farm on the corner of Boardman Ln & Bell St, that does not discharge directly to the MS4, may contaminate the Sawmill River and contribute to its "impaired" designation. No other properties have been identified.	1) Identify properties based on historic sanitary system failures, proximity to impaired waters, low infiltrative soils, and shallow groundwater. 2) Contact the farm owner.	Kim O'Rourke, Donald Fisco and Tom Nigosanti	Ongoing	This BMP commenced in 2022.

Additional descriptions of BMP activities:

BMP	
1-1 Implement public education and outreach	1) Middletown maintains their own link to UConn NEMO's comprehensive online library of stormwater educational material. A link to UConn NEMO's comprehensive web-based library of stormwater educational materials can be found at the top of the page under LID Resources at https://www.middletownct.gov/DocumentCenter/View/16248/LID-Brochure-002?bidId=. 2) Educational brochures have been developed and distributed to various segments of the population; elementary schools, Russell Library, Wesleyan, Household Hazardous Waste Collection participants, public meetings and/or included with water bills. Some topics may include green lawns, household hazardous waste, pet waste, fertilizers, herbicides, and pesticides, impervious cover and impacts of illicit discharges and improper disposal of waste. Kim O'Rourke ensures that the brochures are available at many outreach events. They are also available at the City Hall and Russell Library. 3) Middletown uses the "SeeClickFix" program to allow for citizen reporting of suspected illicit discharges into the stormwater system. 4) A specific brochure was developed for "Project Green Lawn". The purpose was a public awareness campaign to encourage residents and businesses to maintain healthy, lush lawns free of chemicals that are harmful to people, pets and the environment. Organic lawn care & stormwater run-off are addressed in the brochure. 5) Educational Outreach for "Project Green Lawn" was made available to the public at the following events in 2023. The educational materials listed in #6 below will be made available at these events in 2024. • Middletown Farmers Market – every Friday June through October • Compost Bin sales - Spring & Fall

- Household Hazardous Waste Events - Spring, Summer & Fall
- Composting presentation - Spring, Summer & Fall
- Earth Day Event - April
- Presentation to High School Class - April
- Daffodil Festival at Wadsworth Mansion - April
- Distributed through summer camp - Summer
- Kids Health and Safety Fair - May
- Make Music Day at Wadsworth Mansion - June
- Summer Music Concert Series - Summer
- Open Air Market - August
- Paper Shred Events - Spring & Fall
- Amistad Event - October
- Recycling Workshop – November

6) The following files (educational materials) are currently posted on the City's website at https://www.middletownct.gov/911/Stormwater-Management and at https://middletownct.gov/742/Environmental-Sustainability as well as displayed at Educational Outreach events listed above. In the future, they may also be included on the first page of https://middletownct.gov/ with the Mowing Season and Covid-19, etc. on a rotating basis and on the City's Facebook Recycling page. (new/updated info)

- Good Horse Keeping Book
- Pet Waste Poster
- Do Not Feed Wildlife
- Household Hazardous Waste (Protect the Waterways)
- Long Island Sound Brochure
- EPA Urban Runoff

7) Middletown has donated $75,000 to the Jonah Center. The Jonah Center uses the funds to help eradicate invasive chestnut found along the Connecticut River. (new/updated info)

1.2 Public Education and Outreach activities planned for the next year.

Though they are not scheduled yet, Middletown will hold similar events for 2024, where the above listed brochures will be made available:	
• Middletown Farmers Market • Compost Bin sales • Household Hazardous Waste Events • Composting presentation • Earth Day Event • Presentation to High School Class • Daffodil Festival at Wadsworth Mansion • Distributed through summer camp	• Kids Health and Safety Fair • Make Music Day at Wadsworth Mansion • Summer Music Concert Series • Open Air Market • Paper Shred Events • Amistad Event • Recycling Workshop

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.
BMPs are listed in Section 1-1 above.	Residents of all ages are targeted at these events	Maintaining a chemical-free lawn, list of organic landscapers, lawncare product catalogs and url links to additional resources	Phosphorus (fertilizers) add'l toxins (pesticides)	Kim O'Rourke, Recycling Coordinator
Scavenger Hunt	Kids and families	On May 6, 2023, Middletown in partnership with Eversource and Russell Library hosted a Sustainability Scavenger Hunt. Participants traveled to different locations to learn about their energy efficient practices and tips about how to make daily life more sustainable. Information on recycling & waste reduction, energy efficiency and local initiatives was presented throughout the event.	Bacteria and others	Kim O'Rourke, Recycling Coordinator

2. Public Involvement/Participation

2.1 BMP Summary

BMP	Status	Activities in current reporting period	Measurable goal	Department / Person Responsible	Due	Date completed or projected completion date
2-1 Final Stormwater Management Plan publicly available	Completed	The plan has been developed and implementation dates updated to reflect realistic resources. A copy of the Stormwater Management Plan can be found at: https://www.middletownct.gov/DocumentCenter/View/646/Storm-Water-Management-Plan-PDF?bidId=	Post the Stormwater Management Plan on the City website.	Tom Nigosanti	April 1, 2017	The Stormwater Management Plan was posted on the City website in early 2017. Exact date is not available.
2-2 Comply with public notice requirements for Annual Reports	Ongoing	The public notice is scheduled to be posted on Feb 15, 2024 for the 2023 reporting period.	Post Annual Report on City website by Feb 15 annually. Final report must be submitted to CTDEEP by April 1.	Tom Nigosanti	Annually by Feb 15	Feb 15, 2024

2.2 Public Involvement/Participation activities planned for the next year.

No additional Public Involvement/Participation activities are planned during this reporting period. A link to UConn NEMO's comprehensive online library of stormwater educational materials can be found at the top of the page under LID Resources at https://www.middletownct.gov/DocumentCenter/View/16248/LID-Brochure-002?bidId=.

2.3 Public Involvement/Participation reporting metrics

Metrics	Implemented	Date	Posted
Availability of the Stormwater Management Plan to public	Yes	April 2017	Town Hall and Russell library and https://www.middletownct.gov/
Availability of Annual Report announced to public	Yes, the report will be announced by the Feb 15 deadline.	Feb 15, 2024	Town Hall and Russell library and https://www.middletownct.gov/

3. Illicit Discharge Detection and Elimination

3.1 BMP Summary

BMP	Status	Activities in current reporting period	Measurable goal	Department / Person Responsible	Due	Date completed or projected completion date
3-1 Develop written IDDE program	Completed	The written IDDE program was completed in Nov 2021.	N/A	Public works Tom Nigosanti	N/A	Completed ahead of the July 1, 2022 deadline.
3-2 Develop list and maps of all MS4 stormwater outfalls in priority areas	Completed in 2022	Catchment basins with impervious cover greater than 11% that discharge to impaired waters have been ID'd and delineated. Priority outfalls have been ID'd.	Exceeded the 50% complete goal by November 1, 2022. Completed in 2022.	Public works Tom Nigosanti & Hired Contractor	Completed	Completed in 2022.
3-3 Implement citizen reporting program	Completed in 2021	Middletown began "SeeClickFix" program to allow for citizen reporting.	Assign a tracking # to each report. Issue follow up report.	Public works Tom Nigosanti	Ongoing	The "SeeClickFix" program was implemented in 2021.

3.1 BMP Summary (continued)

3-4 Establish legal authority to prohibit illicit discharges	Complete	Already fulfilled.	N/A	N/A	Jul 1, 2018	Article II of Chapter 258, Stormwater Management– Illicit Discharges and Connections was Adopted 6-3-2013 by Ord. No. 16-13.
3-5 Develop record keeping system for tracking IDDE abatement	Complete	IDDE abatement actions will be recorded in Table 1-7 in the IDDE Program.	Fill in Table 1-7 to start tracking.	Public works/Tom Nigosanti	Jul 1, 2017	The written IDDE program was completed in Nov 2021, and IDDE Tracking system is in Table 1-7.
3-6 Address IDDE in areas with pollutants of concern	In progress	Baseline outfall and dry weather screening 100% complete.	Completed dry weather screening as of 9/1/23. Finish last 50% of wet weather screening in 2024.	Public works/Tom Nigosanti	Not specified	Dry weather screening was 100% complete as of 9/1/23 with the exception of 3 that could not be located due to thick vegetation and dangerous slopes.

3.2 Describe any IDDE activities planned for the next year.

If necessary to narrow the location of suspected illicit discharges, the city will conduct dry weather investigations involving opening and inspecting key junction manholes. Wet weather investigations began in 2023. Approximately 50% of all outfalls were screened. The remaining 50% are planned to be screened in 2024. Screening data results thus far does not warrant opening key junction manholes.

Chris Stone, CTDEEP Water Permitting & Enforcement Division, gave the “go-ahead” for IDDE sampling outside of the March through June time frame since 2023 was a period of high groundwater.

3.3 List of citizen reports of suspected illicit discharges received during this reporting period. Illicit discharges are any unpermitted discharge to waters of the state that do not consist entirely of stormwater or uncontaminated groundwater except those discharges identified in Section 3(a)(2) of the MS4 general permit when such non-stormwater discharges are not significant contributors of pollution to a discharge from an identified MS4.

Date of Report	Location / suspected source	Response taken
N/A	N/A	No illicit discharges have been reported in the "SeeClickFix" program for 2023.
N/A	N/A	Citizen reports on "SeeClickFix" from November 12, 2020 to November 8, 2023 were reviewed on November 14, 2023. Of the 82 reports, 0 were related to sewer issues. The reports were mostly related to sidewalk, street signs and pothole conditions. (new/updated info)
6/27/2022	Grease containers were observed as uncovered and overflowing with oil/grease pooling on the ground. They were discovered during an MS4 outfall screening at Z's Rustic Pizza and the Red Fox Restaurant. The area is adjacent to an unnamed brook which ultimately discharges under Rt 91 to the Sawmill Brook. The businesses need to comply with the city's fat, oil and grease (FOG) ordinance and specifications. (new/updated info)	This issue will be addressed in a program to control the contribution of pollutants to its MS4 from commercial, industrial, municipal, institutional or other facilities, not otherwise authorized by permit, in accordance with Section 6(a)(6)(G) of the General Permit. (new/updated info) This will be addressed on one of several ways on or before August 31, 2024. One plan is to adapt the current training program to focus on specific steps that commercial, industrial, municipal, institutional or other facilities can take to control the contribution of pollutants from their sites. Pamphlets may be created and sent to these entities. Another possible approach is to draft a letter to these entities outlining steps they can take to control the contribution of pollutants from their sites. (new/updated info)

3.4 A record of illicit discharges and SSOs occurring during the reporting period.

SSOs are reported annually to the CT Department of Energy and Environmental Protection and the EPA under the Capacity, Management, Operation, and Maintenance (CMOM) program. The reporting period summarized is June 2022 – May 2023.

Location	**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)
105 Fowler Avenue[1]	Started 7/13/2022 @ 7:20PM. Stopped @ 8PM same night. 1 hour	No, released into basement.	Undetermined	Water main break in road allowed rocks and debris to enter sewer and cause a blockage.	Sewer jetted to clear blockage and fixed water main.	N/A
565 Newfield Street[1]	Started 9/27/2022 @ 7:30AM. Stopped @ 9/28/2022 1:15PM. 30 hours	Sewage released into easement.	2,000 gallons	Eversource construction caused manhole misalignment allowing debris and roots to enter manhole and cause a blockage.	Roots removed from manhole. Area was cleaned and lime applied. Manhole frame and cover were corrected.	N/A
1 Dove Lane[1]	Started 5/31/2023 @ 2:25PM. Stopped @ 5/31/2023 @ 3:00PM. 45 minutes	Sewage released into easement.	Minimal	Build-up of grease in the sewer main.	Sewer jetted to clear blockage. Area was cleaned and lime applied.	N/A

Note 1: DPW has contracts with two engineering firms to develop sewer rehab recommendations for basins 25, 26 and 27 which will help to reduce inflow and infiltration in the sewer system. Construction work for basins 25 and 26 began in 2023. The sewer rehab work for basin 27 was expected to be bid the fall of 2023. Additionally, DPW worked with Weston & Sampson to design upgrades to an existing wastewater pumping station originally constructed in 1967.

3.5 Method used to track illicit discharge reports, responses to those reports, and who was responsible for tracking this information.

IDDE abatement actions will be recorded in Table 1-7 in the IDDE Program. Tom Nigosanti of the Public Works department is responsible.

A desk review was conducted by Monarch Environmental on the highest contributors of bacteria discovered to date. These included MIN 4600 013, MIN 4600 017, MIN 4600 021, SAW 4604 012, SUM 4013 010, SUM 4013 012, SUM 4013 013 and SUM 4013 014. Sewer service maps and septic system areas were also reviewed. Data is being tracked in the Excel spreadsheet as presented in Section 3.3 of this report, "Wet weather investigation". Mr. Kevin Elak, Director of the Middletown Health Department, stated that they do not maintain a list of septic systems that have been repaired or are failing. See subsection 4. "Prioritized outfall monitoring" under Section 2. "Screening data for outfalls to impaired waterbodies" for additional information. (new/updated info)

3.6 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
No failing septic systems to report at this time.	N/A	N/A

3.7 IDDE reporting metrics

Metrics	
Estimated or actual number of MS4 outfalls: Total Town Acres = 27,171.80 (data source from CTDEEP website www.ct.gov/deep/municipalstormwater and Municipality Factsheets)	The original estimate of 990 was high. The new estimate includes only MS4 outfalls that discharge to impaired waters and are owned by Middletown. 93 outfalls were identified in the screening process in 2022. Of those 93 outfalls, 79 were determined to be Middletown-owned after reviewing city GIS parcel maps. Since 80% of the catchment areas were screened (see entry 5 rows below) and 79 Middletown-owned outfalls were identified, a more accurate estimate of total MS4 outfalls would be 99 (79 / .8).
Estimated or actual number of interconnections (2% estimated)	5 estimated (previous estimate was 22). Potential interconnected institutions include Middlesex Hospital, Connecticut Valley Hospital, Wesleyan University and Middlesex Community College. The Towns of Middlefield and Berlin as well as the DOT have potential interconnections. On November 18 and 19, 2023, Mr. Tom Nigosanti wrote to these entities, and based on their responses and/or map analyses, 3 interconnections with Berlin and 5 with Middlefield have been identified. To date, no others have been identified, and with the available

	information, it has been determined that further screening is not required for any of these. (new/updated info)
Outfall mapping complete	95% completed. A contract with Tighe and Bond to complete the mapping has been initiated.

3.7 IDDE reporting metrics (continued)

Interconnection mapping complete (with other MS4s)	0% The maps and GIS data are attributed from the City's plans "Topographic Map of the City of Middletown, Connecticut with Drainage Systems and Inland Wetland Superimposed". A contract with Tighe and Bond to complete the mapping of interconnections has been initiated.
System-wide mapping complete (detailed MS4 infrastructure)	95% completed. The list and mapping are complete with the exception of some interconnections with Wesleyan, Middlesex Hospital, Connecticut Valley Hospital, Middlesex Community College and DOT. Refer to the discussion in Section 2. (Outfall and Interconnection Screening).
Outfall assessment and priority ranking	Catchment areas have been assessed and a priority ranking matrix has been developed in the IDDE program, Table 6-1. All 8 of the ranking factors have been assessed and assigned.
Dry weather screening of all High and Low priority outfalls complete	Dry weather screening was 100% complete as of 9/1/23 with the exception of 3 outfalls that could not be located due to thick vegetation and dangerous slopes. Some catchment areas will not be screened for various reasons (e.g., catchment areas do not discharge to impaired water or no city-owned parcels were identified in the GIS parcel maps). (new/updated info)
Catchment investigations complete	Additional dry weather investigations involve opening and inspecting key junction manholes. These are required only where System Vulnerability Factors are present, however due to the age of systems in Middletown, every catchment basin has at least one SVF. Wet weather screening began in 2023 and is approximately 50% complete. Screening data results thus far do not warrant opening key junction manholes. (new/updated info)

Estimated percentage of MS4 catchment area investigated	79 outfalls were identified during dry weather; only 10 were flowing, and of those 10 only 2 were ID'd as high priority. 1 needs to be sampled. 1 was backed up, but water was not moving indicating no actual flow. It appears only a small percent will require investigation, if any. Outfall CON 4000 011 in Catchment 4000-00-6+R25 was investigated based on visual observation and odor. A large section of the marsh that discharges to the outfall was explored but resulted in no illicit discharge. Further investigation is necessary at nearby manhole. **2023 Update:** A discussion and review was held with Mr. Chris Holden on 3/13/23. Town engineering drawings and maps were reviewed; it was determined that the odor was from natural breakdown of organics in the marsh. There is no illicit discharge to this outfall. See subsection 4. "Prioritized outfall monitoring" under Section 2. "Screening data for outfalls to impaired waterbodies" for additional information collected in 2023. (new/updated info)

3.8 IDDE training for employees involved in carrying out IDDE tasks including what type of training is provided and how often is it given.

Monarch Environmental provided annual IDDE training on December 19, 2023 to Tom Nigosanti, Chris Holden, and DPW truck drivers Sergio Consentino, Cody Sperry, Preston Marino and Adam Colavito. Recognizing and reporting illicit discharges, and investigation steps were covered in the PowerPoint program of 48 slides. Training was provided to Howard Weissberg on December 22, 2023.

4. Construction Site Runoff Control

4.1 BMP Summary

BMP	Status	Activities in current reporting period	Measurable goal	Department / Person Responsible	Due	Date completed or projected completion date
4-1 Implement, upgrade, and enforce land use regulations or other legal authority to meet requirements of MS4 general permit	Complete	N/A	Existing regs were amended to meet permit requirements.	Director of Planning, Conservation & Development	Jul 1, 2019	Adopted 1-7-1980

4-2 Develop/Implement plan for interdepartmental coordination in site plan review and approval	Complete	N/A	Site plans are reviewed by the Planning, Conservation & Development Department and DPW Engineering Division for sedimentation and erosion controls.	Director of Planning, Conservation & Development and DPW	Complete	Completed in 2011. The City established requirements in Section 4.2 of its Stormwater Management Plan to address this issue.
4-3 Review site plans for stormwater quality concerns	Ongoing	No activities to report	Develop a procedure to conduct site plan reviews incorporating consideration of stormwater controls or mgmt practices to prevent or minimize impacts to water quality.	Director of Planning, Conservation & Development	Ongoing	Ongoing as construction projects and plans are developed
4-4 Conduct site inspections	Ongoing	No activities to report	Procedures are in place to assess the adequacy of the installation, maintenance, operation, and repair of construction and post construction control measures.[1]	Director of Planning, Conservation & Development and/or Inland Wetlands Enforcement Officer and Third-Party Inspectors	Ongoing	Ongoing as construction and post construction control measures are completed. Section 10.09.03 of the City's Planning and Zoning Code addresses this and was effective as of 2/28/95.

4.1 BMP Summary (continued)

4-5 Implement procedure to allow public comment on site development	Completed	No activities to report	Site development projects are announced on the city website with a link for public comment. Public involvement includes receipt and consideration of input submitted through the link.[2]	Director of Planning, Conservation & Development	Completed and Ongoing	No date available
4-6 Implement procedure to notify developers about DEEP construction stormwater permit	Completed	Section 42 of the City's Planning and Zoning Code addresses this requirement.	Develop a procedure to notify developers of their potential obligation to obtain a "construction general permit" from DEEP.	Director of Planning, Conservation & Development	Completed	Section 42 of the City's Planning and Zoning Code was amended effective 5/26/98.

Notes:
1) Progress reports are prepared by the developer and/or the Zoning Enforcement Officer. A checklist of issues and prioritizing rating system will be implemented as a measuring tool going forward.
2) Public comments can be made during hearings held by the City's Planning and Zoning Commission or Inland/Wetlands and Watercourses Agency.

4.2 Construction Site Runoff Control activities planned for the next year.

Construction and post construction control measures will be assessed regarding the adequacy of the installations, maintenance, operations, and repairs needed, if any.

5. Post-construction Stormwater Management

5.1 BMP Summary

BMP	Status	Activities in current reporting period	Measurable goal	Department / Person Responsible	Due	Date completed or projected completion date
5-1 Establish and/or update legal authority and guidelines regarding LID and runoff reduction in site development planning	Complete	N/A	Existing regs were amended to meet permit requirements. The regulations can be found at: https://www.middletownct.gov/508/Zoning-Code Cluster Design standards are written in the Middletown Zoning Code, Section 44. Also please see: https://www.middletownct.gov/DocumentCenter/View/1550/Section-44--Special-Exception-PDF The stormwater detention requirements can be found in Section 10 of the City's Planning and Zoning Code: https://www.middletownct.gov/DocumentCenter/View/1475/Section-10--General-Provisions-PDF	Director of Planning, Conservation & Development	Jul 1, 2021	Prior to Jul 1, 2021
5-2 Enforce LID/runoff reduction requirements for dev and re-dev projects	As needed	No activities to report	Implement appropriate enforcement procedures and actions as needed. Create a table to track the activities.	Director of Planning, Conservation & Development	Ongoing beginning Jul 1, 2019	As needed
5-3 Identify retention and detention ponds in priority areas	Complete	24 Detention basins have been mapped.	Identify those in priority areas. 90 in total have been identified from a previous analysis, thus there are an estimated 66 additional basins to be mapped. Until they are all mapped, it is assumed that the 24 mapped are in priority areas.	Thomas Nigosanti, City Engineer, DPW	Jul 1, 2019	Completed 2023

5.1 BMP Summary (continued)

5-4 Implement long-term maintenance plan for stormwater basins and treatment structures	In Progress	N/A	Annually inspect all such ponds and structures.	Chris Holden, DPW Director as of 2022 (formerly William Russo)	Ongoing beginning Jul 1, 2019	Projected to start in 2022. No add'l activity to report.
5-5 DCIA calculation (previously listed as "mapping")	Complete	Baseline DCIA was determined to be 250.7 acres.	Completed the requirement to calculate DCIA (DCIA mapping is not required.)	Thomas Nigosanti, City Engineer, DPW	Jul 1, 2020	Completed 2022
5-6 Address post-construction issues in areas with pollutants of concern	In Progress	A tracking sheet was developed for assessing construction control measures	Address erosion and sediment problems noted during inspections of retention ponds and treatment structures for discharges to impaired waters. Develop, fund, implement, and prioritize a program to address these problems under the Retrofit program. Establish a schedule to correct the problems and establish a short and long-term maintenance program.	Director of Planning, Conservation & Development	Not specified	Projected to start in 2022. No add'l activity to report.

5.2 Post-Construction Stormwater Management activities planned for the next year.

The following projects were listed to be assessed in 2022 under the Post-Construction Stormwater Management program. Erosion and sediment problems for discharges to impaired waters, if any, will be addressed at some point depending on available funding. Issues will be prioritized and addressed accordingly under the Retrofit program; a short and long-term maintenance program will be established. Additionally, any improvements to the DCIA (disconnections of impervious surfaces) will be assessed.

- Municipal Field (Pat Kidney)
- Woodrow Wilson Middle School Renovation
- Recreation Building Renovations
- Columbus Avenue, Mazzotta Place & Berlin Street Water, Sanitary Sewer, Drainage & Roadway Improvements

- Harbor Park Boardwalk and Handrail Improvements
- J.S. Roth Water Treatment Plant Roof Renovations
- John S. Roth Wellfield Improvements
- Community Boathouse Remediation
- South Fire District Building Renovations
- Water Pollution Control Facility (WPCF) Decommissioning
- Reconstruction of Millbrook Road
- Woodrow Wilson Middle School Phase I
- Potential Renovations at Russell Library Following Assessment
- Forest City Laundry Property - Future Brownfield Project
- Riverfront Restaurant, Canoe Club
- Installation of Concrete Sidewalks and Extruded Concrete Curbing

5.3 Post-Construction Stormwater Management reporting metrics

For additional information on this requirement, visit https://nemo.uconn.edu/ms4/tasks/post-construction.htm, and scroll down to the DCIA section.

Metrics	
Baseline (2012) Directly Connected Impervious Area (DCIA) (based on factors and formulas by development type as presented by nemo.uconn.edu) See Excel sheet 3.2 IC and Priority Areas	Total Town Acres = 27,171.80 (data source: CTDEEP website www.ct.gov/deep/municipalstormwater and Municipality Factsheets) DCIA: **250.70 acres**
DCIA disconnected (redevelopment plus retrofits) (new/updated info)	4.1 acres this reporting period (1.6%)
Retrofit projects completed (new/updated info)	3
DCIA disconnected (new/updated info)	4.1 acres this year (1.6%)
Estimated cost of retrofits	See estimates below
Detention or retention ponds identified	90 (including pipe easements)

DCIA at start of permit was 250.7 acres x 2% = 5.014 acres. Three projects have been initiated in the 2022 to 2023 reporting period. Details and a rough estimate for reducing the pavement width and creating silt basins are as follows (new/updated info):

1) **Atkins Street - Impervious cover disconnected equals 2.9 acres (1.16%). $25,000**
2) **Smith Street - Impervious cover disconnected equals 0.7 acres (0.3%). $120,000**
3) **Industrial Park Road - Impervious cover disconnected equals 0.5 acres (0.2%). $490,000**

5.3 Post-Construction Stormwater Management reporting metrics (continued) (new/updated info)

Total acres disconnected 2022 to 2023: 2.9+0.7+0.5 = 4.1, thus meeting the 1% goal (See discussion below)

As part of our annual pavement improvement projects, we will consider the possibility of disconnecting pavement areas and drainage systems. When feasible, we will do what we can to implement these improvements within our budgetary constraints. Any changes will be updated in the DCIA Tracking Sheet.

We are planning to change our goal to 1% in accordance with Section 6(a)(6)(B)(ii)(c) of the permit on page 33: "If the two percent (2%) goal will not be met, the permittee shall include in the Annual Report a discussion of what percentage of DCIA will actually be disconnected and why the remainder of the two percent (2%) goal could not be achieved based on the MEP standard outlined in Section 5(*b*)." (MEP = Maximum Extent Practicable)

250.7 acres x 1% = 2.507 acres. Acres disconnected in 2022 to 2023 equaled 4.1, thus meeting the 1% goal.

5.4 Method used to determine baseline DCIA.

The baseline DCIA was determined using the impaired waterbodies map developed by NEMO and impervious cover (IC) by CTDEEP Basin IDs (11-84% IC) and data obtained from the attribute tables for each basin within which there is an impaired water. Factors and formulas as presented by nemo.uconn.edu were used in calculations. "Development type" was determined by visual review/judgement of the land use map within each basin (catchment area). The factors in the calculation include: Total Impervious Cover (acres), Total Impervious Cover (%), Connectivity Level, Exponent Factor and Connectivity Level Factor.
The data is presented on the next page.

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB
2	Priority areas determined by NEMO impaired waterbodies map + impervious cover (IC) by DEEP Basin ID (11-84% IC). Data obtained from the attribute tables for each basin within which there is an impaired water body.																					DCIA that contributes stormwater runoff to each basin /catchment					
3	Unique DEEP Basin Number	Local Basin	Subregional Basin	Subregional Basin Name	Regional Basin	Regional Basin Name	Unique Basin ID	Clipped Basin Area (Acres)	Clipped Basin Area (SqMiles)	Total Impervious Cover[1] (acres)	Total Impervious Cover (%)	Buildings IC (acres)	Buildings IC (%)	All Roads IC (acres)	All Roads IC (%)	DOT Roads IC (acres)	DOT Roads (%)	Town Roads (acres)	Town Road (%)	Other Impervious (acres)	Other Impervious (%)	**Total Impervious Cover (%)**	**Connectivity Level[2]**	**Exponent**	**Connectivity Level Factor**	**% DCIA Calculated[3]**	**# DCIA Acres/ Basin**
4	4604-00-2-R1	4604-00	4604	Sawmill Brook	46	Mattabesset	5531	474.27	0.74	100.56	21.2	26.51	5.59	20.14	4.25	2.89	0.61	17.24	3.64	53.92	11.37	21.2	Moderate	1.5	0.1	9.50	9.5544
5	4604-00-1*	4604-00	4604	Sawmill Brook	46	Mattabesset	5663	729.41	1.14	142.77	19.57	30.03	4.12	36.88	5.06	17.99	2.47	18.89	2.59	75.86	10.4	19.57	Moderate	1.5	0.1	8.77	12.5219
6	4600-00-3-R10	4600-00	4600	Mattabesset River	46	Mattabesset	5461	69.22	0.11	14.48	20.92	0.13	0.18	2.74	3.96	0	0	2.74	3.96	11.61	16.77	20.92	Moderate	1.5	0.1	9.38	1.3576
7	4600-00-3-R13	4600-00	4600	Mattabesset River	46	Mattabesset	5440	241.53	0.38	61.12	25.3	20.22	8.37	20.09	8.32	3.42	1.42	16.67	6.9	20.8	8.61	25.3	Low	1.7	0.04	5.54	3.3858
8	4600-26-2-R1	4600-26	4600	Mattabesset River	46	Mattabesset *(to Miner Br)*	5549	339.56	0.53	90.32	26.6	26.97	7.94	17.4	5.12	9.79	2.88	7.61	2.24	45.95	13.53	26.6	Low	1.7	0.04	5.82	5.2605
9	4600-25-1	4600-25	4600	Mattabesset River	46	Mattabesset *(to Miner Br)*	5619	104.34	0.16	24.88	23.85	7.55	7.23	7.66	7.35	2.85	2.73	4.82	4.62	9.67	9.27	23.85	Low	1.7	0.04	5.22	1.2993
10	4600-24-1	4600-24	4600	Mattabesset River	46	Mattabesset *(to Miner Br)*	5616	252.96	0.4	38.54	15.23	11.89	4.7	9.52	3.76	0	0	9.52	3.76	17.13	6.77	15.23	Low	1.7	0.04	3.33	1.2852
11	4600-25-1-L1	4600-25	4600	Mattabesset River	46	Mattabesset *(to Miner Br)*	5769	475.8	0.74	70.16	14.74	20.03	4.21	22.92	4.82	5.79	1.22	17.13	3.6	27.21	5.72	14.74	Low	1.7	0.04	3.23	2.2644
12	4600-30-2-R1	4600-30	4600	Mattabesset River	46	Mattabesset	5571	217.11	0.34	37.86	17.44	9.45	4.35	6.13	2.82	3.04	1.4	3.1	1.43	22.28	10.26	17.44	Moderate	1.5	0.1	7.82	2.9592
13	4600-00-3-R15	4600-00	4600	Mattabesset River	46	Mattabesset	5570	18.11	0.03	2.25	12.42	1.31	7.22	0	0	0	0	0	0	0.94	5.2	12.42	Low	1.7	0.04	2.72	0.0612
14	4600-00-3-R16	4600-00	4600	Mattabesset River	46	Mattabesset	5424	514.19	0.8	132.82	25.83	40.23	7.82	20.46	3.98	3.44	0.67	17.01	3.31	72.14	14.03	25.83	Moderate	1.5	0.1	11.58	15.3755
15	4607-00-3-R9 (Mid-Town Rt 66)	4607-00	4607	Coginchaug River	46	Mattabesset	5796	1,366.38	2.13	271.27	19.85	69.82	5.11	64.93	4.75	15.26	1.12	49.67	3.63	136.52	9.99	19.85	High	1.2	0.4	26.36	71.5115
16	4607-00-3-L2	4607-00	4607	Coginchaug River	46	Mattabesset	6032	741.69	1.16	130.39	17.58	34.71	4.68	33.97	4.58	10.48	1.41	23.5	3.17	61.71	8.32	17.58	Moderate	1.5	0.1	7.88	10.2732
17	4607-13-1	4607-13	4607	Coginchaug R/Laurel Br	46	Mattabesset	2467	323.49	0.51	42.31	13.08	13.61	4.21	10.56	3.27	0.41	0.13	10.15	3.14	18.13	5.6	13.08	Low	1.7	0.04	2.86	1.2117
18	4000-00-6+R24 (Downtown Area)	4000-00	4000	Connecticut River	40	Connecticut Main Stem	5874	406.79	0.64	173.1	42.55	48.06	11.82	46.08	11.33	21.22	5.22	24.86	6.11	78.95	19.41	42.55	High	1.2	0.4	56.51	97.8160
19	4000-00-6+R25 (SE of Downtown incl CT Valley Hosp)	4000-00	4000	Connecticut River	40	Connecticut Main Stem	5764	365.35	0.57	46.86	12.82	10.48	2.87	12.35	3.38	5.24	1.43	7.11	1.95	24.02	6.58	12.82	Low	1.7	0.04	2.81	1.3154
20	4000-00-6+R30 (SE corner with P&W)	4000-00	4000	Connecticut River	40	Connecticut Main Stem	6143	303.99	0.47	36.62	12.05	5.88	1.94	3.79	1.25	0	0	3.79	1.25	26.95	8.87	12.05	Moderate	1.5	0.1	5.40	1.9776
21	4013-00-3-R1	4013-00	4013	Sumner Brook	40	Connecticut Main Stem	6136	398.64	0.62	143.23	35.93	40.13	10.07	38.38	9.63	5.59	1.4	32.8	8.23	64.71	16.23	35.93	Low	1.7	0.04	7.87	11.2681
22	**Notes:**																									**Total DCIA Acres in Middletown =**	**250.70**
23	1) Only catchment areas (basins) that are 11 - 84% impervious are included.																										
24	"Catchment area" means the land area from which stormwater runoff is collected by a permittee's MS4 and discharges through a single outfall to surface water.																										
25	2) Connectivity Levels were determined based on map review and Catchment Assessment and Priority Ranking Matrix in the IDDE program, Table 6-1.																										
26	3) Estimates are based on factors and formulas using the "Prius" approach by development type as presented by nemo.uconn.edu.																										
27	3 Catchment Basins with impervious cover (IC) by DEEP Basin ID (11-84% IC) but which do not contain an impaired water body are listed below:																										
28	4013-00-3-R2	4013-00	4013	Sumner Brook	40	Connecticut Main Stem		217.2	0.3	108.59	50	25.51	12	32.1	15	13.2	Unk	Unk	Unk	50.97	Unk	50	Low	1.7	0.04	10.95	11.8883
29	4600-24-1	4600-24	4600	Mattabesset River	46	Mattabesset *(to Miner Br)*	5616	252.96	0.4	38.54	15.23	11.89	4.7	9.52	3.76	0	0	9.52	3.76	17.13	6.77	15.23	Low	1.7	0.04	3.33	1.2852
30	4600-30-2-R1	4600-30	4600	Mattabesset River	46	Mattabesset	5571	217.11	0.34	37.86	17.44	9.45	4.35	6.13	2.82	3.04	1.4	3.1	1.43	22.28	10.26	17.44	Moderate	1.5	0.1	7.82	2.9592

6. Pollution Prevention/Good Housekeeping

6.1 BMP Summary

BMP	Status	Activities in current reporting period	Measurable goal	Department / Person Responsible	Due	Date completed or projected completion date
6-1 Develop/implement formal employee training program	In Progress	A training session for 4 City Yard employees was held in-person by Monarch Env.	Present training of main topics at least annually. Make use of other trainings coordinated by UConn CLEAR or NEMO.	Tom Nigosanti	Ongoing and Annually	December 19, 2023
6-2 Implement MS4 property and operations maintenance	Ongoing	A Spill Prevention, Control and Countermeasure Plan (SPCC) has been in effect for the City Yard since 2014. Pet waste bags and receptacles have been installed at the city parks.[1]	List each property type with relevant BMPs (i.e., parks and open space, buildings and facilities, etc.). Develop relevant metrics to measure progress of each.	Tom Nigosanti and Bob Russo	Ongoing beginning Jul 1, 2018	Property and operations maintenance has been in effect for many years. The programs are ongoing.
6-3 Implement coordination with interconnected MS4s	In Progress	Tom Nigosanti wrote to the sites on 10/19/2023 (new/updated info). Interconnections with other towns are expected to be minimal.[2]	Made contact with Middlesex Hospital, CT Valley Hosp, Wesleyan Univ., Middlesex Community College, town of Berlin and Middlefield and DOT. See discussion in Section 2. Outfall and Interconnection Screening and Sampling data.	Tom Nigosanti	On or before November 30, 2023 in accordance w/ consent decree.	Completed November 30, 2023. After a desk review of maps & responses from entities, it appears no further screening is required.

6.1 BMP Summary (continued)

6-4 Develop/implement program to control other sources of pollutants to the MS4	In Progress	Ideas have been developed.	Adapt the current training program to focus on steps that commercial, industrial, municipal & institutional facilities can take to control pollutants in stormwater.	Tom Nigosanti	Not specified	Development of program to be completed before July 30, 2024 and implemented before August 31, 2024.
6-5 Evaluate additional measures for discharges to impaired waters	Completed	A list of dog parks, parks with open water has been created & related outfalls analyzed with no issues identified. Sites with failing septic systems were assessed & none found. Assessed geese & waterfowl presence & steps taken to minimize problems.	Create a list of dog parks, parks with open water, sites with failing septic systems. Locate the closest outfalls. Correct any problems. Prohibit feeding geese or waterfowl and implement a program to manage these.	Tom Nigosanti	Not specified	Completed. Discussion is in 6.3 Pollution Prevention/ Good Housekeeping reporting metrics.
6-6 Track projects that disconnect DCIA	In Progress. Initial results are reported in 5.3 above.	DCIA has been calculated to be 250.70 acres.	Annually track total acreage of DCIA disconnected as a result of redevelopment or retrofit projects. Document the amount of existing DCIA that is modified/disconnected.	Tom Nigosanti	Ongoing	Goal is to reduce 1% of total DCIA acreage per year starting in 2022, however this is dependent on funding.

6.1 BMP Summary (continued)

6-7 Implement infrastructure repair/rehab program	Ongoing	3 projects have been initiated in the 2022 to 2023 reporting period.	Evaluate and prioritize repairs, retrofits or upgrades of conveyances, structures and outfalls. Monitoring results, impaired waters, inspection observations or observations made during outfall mapping will be used to develop this program.	Tom Nigosanti	Jul 1, 2021	3 projects have been initiated in the 2022 to 2023 reporting period.
6-8 Develop/implement plan to identify/prioritize retrofit projects	Ongoing	As projects arise, efforts to minimize impervious surfaces will be made.	1) Identify and prioritize developed sites with DCIA of 40% or more. Develop a plan to retain half the water quality volume, or retain runoff volume to the maximum extent achievable. 2) Develop a similar plan for developed sites with DCIA less than 40%. Goal is to retain all the water quality volume for the site, or provide documentation of site constraints that prevent retention.	Tom Nigosanti	July 1, 2020	Ongoing

6.1 BMP Summary (continued)

6-9 Implement retrofit projects to disconnect 2% of DCIA	Ongoing	3 projects have been initiated .	Identify potential areas for retrofits to reduce DCIA. We are planning to change our goal to 1% in accordance with Section 6(a)(6)(B)(ii)(c) of the permit.	Tom Nigosanti	Jul 1, 2022	3 projects have been initiated in the '22 – '23 period.
6-10 Develop/implement street sweeping program	Ongoing	The City sweeps streets in priority areas beginning in the spring of each year, after the salt/sanding season is over for the winter months. All streets are swept at least annually.	1) Identify streets and parking lots within the Urbanized Area, and outside the Urbanized Area with either DCIA of greater than 11% or which discharge to impaired waters. 2) Complete the same for areas outside Urban Areas	Tom Nigosanti	Ongoing beginning Jul 1, 2017	This program has been ongoing informally for years. Formal documentation has been developed for tracking and reporting.
6-11 Develop/implement catch basin cleaning program	Ongoing	1,100 catch basins were cleaned in this reporting period.	Conduct routine cleaning of all catch basins. Document data such as total # of catch basins, # inspected, # cleaned, the total volume or mass of material removed from all catch basins and, if practicable, the volume or mass of material removed from each catch basin draining to priority areas.	Tom Nigosanti	Ongoing beginning Jul 1, 2020	This program has been ongoing for years. Formal documentation has been developed for tracking and reporting.

6.1 BMP Summary (continued)

6-12 Develop/implement snow management practices	Ongoing	4,670 lbs of salt were applied in 2022. Annual records of salt use are kept. Add'l details are in the metrics table below. The City converted from a sand and salt mix to salt only. The current standard procedure is for straight rock salt to be applied.	Develop and implement SOPs for the use, handling, storage, application, and disposal of salt and sand to minimize exposure to stormwater. Track efforts to minimize the use and optimize the application of chloride-based or other salts or deicing products.	Tom Nigosanti	Ongoing beginning Jul 1, 2018	This program has been ongoing for years. Formal documentation has been developed for tracking and reporting.

Notes:

1) The City follows procedures in Section 6.2 of the Stormwater Management Plan to address properties and vehicles, grass clippings, leaf management and waterfowl management. Leaves are currently disposed at a composting facility. Additionally, a Stormwater Pollution Prevention Plan was developed for the 3 regulated industrial properties (City Yard, Parks and Rec and Recycling Center) and updated in 2017.

2) Interconnections with other municipalities are expected to be minimal because the N, and NE of Middletown is bordered by the Mattabesset R., and the E is bordered by the CT River. There are no priority areas on the S bordering Durham or Haddam. The SW border with Middlefield may have connections to Basins 4607-13-1 and 4607-00-3-L2. The N border with Berlin may have connections to Basins 4600-16-1 and 4600-13-2-R3. The detailed MS4 map developed by Tighe and Bond does not appear to show any MS4 interconnections with Middlefield or Berlin. A contract with Tighe and Bond has been initiated to complete this.

6.2 Pollution Prevention/Good Housekeeping activities planned for the next year.

Improved documentation of Pollution Prevention/Good Housekeeping activities are planned in the next reporting period.

6.3 Pollution Prevention/ Good Housekeeping reporting metrics (new/updated info)

Metrics	
Employee training provided for key staff	December 19, 2023
Street sweeping	
Curb miles swept	400 Miles (every street at least 1/yr)
Volume (or mass) of material collected	No data available (mostly trash and leaves)
Catch basin cleaning	
Total catch basins in priority areas	4,400 (estimated 40% of total)
Total catch basins town-wide	11,000
Catch basins inspected	60
Catch basins cleaned	750 cleaned by contractor/ 100 by the town
Volume (or mass) of material removed from all catch basins	50 Tons
Volume removed from catch basins to impaired waters (if known)	Unknown
Snow management	
Type(s) of deicing material used	Rock salt (no liquid deicing is used)
Total amount of each deicing material applied	1,000 tons (July 2022 to July 2023)
Type(s) of deicing equipment used	Conventional truck with spreader & computerized distribution system (the city does not use zero velocity spreaders).
Lane-miles treated (miles of roadway in a single driving lane)	400 Miles per storm
Snow disposal location	Palmer Field on gravel parking lot
Staff training provided on application methods & equipment	25 people trained on 11/8/2023
Municipal turf management program actions (for permittee properties in basins with N/P impairments)	*Not applicable to Middletown*
Lands with high potential to contribute bacteria (dog parks, parks with open water, & sites with failing septic systems)	See discussion and lists below.

Cost of mitigation actions/retrofits	Fake coyotes (a deterrent to geese) are in the budget for 2024.
There have been no retrofitting projects related to minimizing bacteria. Other retrofit projects are discussed in Section 6.5 Retrofit Program.	

Dog Parks (new/updated info)

A presentation on dog parks developed in 2006 can be found on the Middletown city website. At that time, 6 locations were proposed: Tynan Park, Marzalek Park, and four options at Veteran's Memorial Park. The presentation included costs for fencing, trash cans and dog waste bag dispensers. None of the options at Veteran's Park are currently being considered. Other locations under consideration include:

- Zoar's Pond
- Space near the former Wesleyan Hills swim club
- Long Hill Road soccer complex
- Land owned by the Housing Authority near Silver Street and River Road

Lot size, accessibility, proximity to potential users, parking, proximity to wetlands and work required to develop the site are major factors in the process. For parks close to water bodies, an infiltration trench may be installed to mitigate groundwater contamination from animal waste. At this time, there are no dog parks in the city and no plans have been finalized. There are parks in the city, however, where dogs may be walked, and they are discussed in the next section.

Parks with Open Water (new/updated info)

In accordance with the SMP, Middletown will prohibit the feeding of geese or waterfowl and implement a program to manage geese and waterfowl populations. The parks listed below with open water are being targeted for the program. Signage or other techniques will be used to educate the public about the detrimental impacts of feeding waterfowl and discourage such feeding practices. Geese will likely find the best sites offering water and grass regardless of human feeding practices however. Pinwheels, other visual deterrents and noise-making devices are being considered to scatter waterfowl. The Parks and Recreation Department has ordered 15 fake coyotes to deter geese, and some of these will be placed at Crystal Lake as well as other parks. Some are already present at the non-recreational section of Veteran's Memorial Park. Middletown attempted geese control management through the CTDEEP permit process which includes the destruction of goose nests and eggs, however the nests could not be found.

Regarding geese and bacteria contamination, even if geese do not congregate in a specific area on the ground, excrement can land on the ground as they fly over, thus affecting the bacteria count. This would be the case for any bird, especially if the area is a frequent flight path. Fake coyotes are in the budget for 2024 as a deterrent to geese.

As mentioned in the BMP Summary, the following educational materials are currently posted on the City's website at https://www.middletownct.gov/911/Stormwater-Management and at https://middletownct.gov/742/Environmental-Sustainability as well as displayed at Educational Outreach events. In the future, they may also be included on the first page of https://middletownct.gov/ with the Mowing Season and Covid-19, etc. on a rotating basis and on the City's Facebook Recycling page. (new/updated info)

- Good Horse Keeping Book
- Pet Waste Poster
- No Feed Wildlife
- Household Hazardous Waste (Protect the Waterways)
- Long Island Sound Brochure
- EPA Urban Runoff

The following parks were inspected for geese feeding prohibition signs/practices, other educational signage, "clean up after your dog" signs, dog waste bags and dog waste receptacles. Dog waste signs, bags and waste receptacles are present in some parks. The waste bags will be refilled more frequently as many of them were empty on the day of inspection.

Butternut Hollow
Butternut Street (5.9 acres): The signs at this park are confusing and contradictory. Two signs state "no pets allowed". A third sign states "dogs and pets must be on a leash". If dogs are allowed, poop bags and dog waste receptacles must be available but were not. There are no signs prohibiting the feeding of waterfowl. Many geese and lots of goose poop were observed at the park. According to the stormwater site plan for the City Yard, north of Butternut Hollow, flow from the pond is piped under City Yard then under the railroad tracks, discharging to a tributary which ultimately flows into the Coginchaug River.

Closest outfalls; investigation of outfalls; identification and correction of any identified problems: Stormwater from the pond ultimately discharges to the west of the railroad tracks to outfall COG 4607 022. In 2022, the discharge was cloudy and grayish in dry weather, however no sample was taken due to weather conditions/timing. In 2023, the discharge was tested in dry weather, and results met water quality criteria. No further investigation is warranted at this time. Wet weather sampling is planned for 2024.

Columbus Point
Harbor Drive (0.75 acres): Columbus Point is a small subsection of Harbor Park, located at the farthest point south of the Wesleyan boathouses. Signs, pet waste bags and pet waste receptacles are needed in this area.

Closest outfalls; investigation of outfalls; identification and correction of any identified problems: No MS4 outfalls are affected by this park.

Harbor Park
80 Harbor Drive (2.6 acres): A "clean up after your dog" sign is located between the boathouse and the restaurant on the edge of the parking lot with a waste bag dispenser and trash receptacle available. The waste bag dispenser needs to be refilled. Further along at the edge of the parking lot, north of the restaurant, are two signs and with a bag dispenser available and waste receptacle. The bag the container was empty on the day of inspection.

Closest outfalls; investigation of outfalls; identification and correction of any identified problems: Outfalls adjacent to the park include CON 4000 001 N, CON 4000 001 S, CON 4000 002, CON 4000 002 N, CON 4000 003, CON 4000 004, CON 4000 005, CON 4000 006 N/S, CON 4000 007 and CON 4000 008. Dry weather data on the investigations and corrections can be found in the table in Section 1.2 of this report. Some have been repaired, some are frequently below the river level due to flooding, and some have not been accessible due to a broken dock. Investigations on upstream catch basins are planned for the future if the outfalls continue to be inaccessible.

Marzalek Park
Middlefield Street (0.5 acres): A "clean up after your dog" sign is located at the entrance of the park with a waste bag dispenser and trash receptacle. Fishing, swimming or boating are not listed as activities here, but the park is next to open water (Coginchaug River) so it is included in this report.

Closest outfalls; investigation of outfalls; identification and correction of any identified problems: COG 4607 028 is the closest outfall, however it is located on the opposite side of the street and opposite side of the river from the park. Dry and wet weather screening results are good at the outfall, however the outfall is not affected by drainage from the park.

McCutcheon Park
Crystal Lake, Livingston Road (104 acres): Two "clean up after your dog" signs are located in the first parking lot with one waste bag dispenser that needs to be refilled. Two more signs and dog waste bag dispensers are located at the far parking lot near the pavilion building.

Closest outfalls; investigation of outfalls; identification and correction of any identified problems: One outfall, CRY 4013 001, was located and exhibited no issues in dry weather. Wet weather screening will take place in 2024. There was an odor in the catch basin immediately upstream from the outfall, however stagnant water was present with decomposing material presumed to be the likely cause of the odor. The drainage system to the outfall is from the catch basins in the driveway entrance, and none of the other catch basins had an odor. Some were filled with dry leaves which will be cleaned out at the next scheduled catch basin cleaning.

McCutcheon Wildlife Sanctuary
Livingston Road (30 acres): It is assumed that the Sanctuary abuts McCutcheon Park, however exact location and boundary could not be determined after reviewing several map sources. Proximity to Crystal Lake is considered insignificant at this time.

Closest outfalls; investigation of outfalls; identification and correction of any identified problems: Outfalls from the sanctuary to Crystal Lake, if any, will be assessed in the future.

Ravine Park
Highland Avenue (9 acres): Ravine Park is located at the corner of Beach Street and High Street. It's a very small space with no signs, pet waste bags or waste receptacles. Marian Banks nature trail was found upstream from Ravine Park and is likely part of the 9 acres.

Closest outfalls; investigation of outfalls; identification and correction of any identified problems: Water appears to flow from Marian Banks down to Ravine Park which flows through a culvert to a concrete box unit. No MS4 outfalls are affected by this park.

Swales Pond
Wadsworth Street (1.5 acre): Pond is not identified on Google maps but appears to be a small body of water west of Long Lane and east of McKenna Drive. There are currently no signs, pet waste bags or waste receptacles.

Closest outfalls; investigation of outfalls; identification and correction of any identified problems: The pond discharges through culvert to a large parcel of open space. No MS4 outfalls are affected by this park.

Town Farms Park
River Road (6 acres): There are currently no signs, pet waste bags or waste receptacles at this location. This is a remote area along the CT River, not frequently used by the public.

Closest outfalls; investigation of outfalls; identification and correction of any identified problems: The exact location of the park is difficult to determine. There are several MS4 outfalls in the vicinity, and all are being screened in dry and wet weather. These include CON 4000 012, CON 4000 013, CON 4000 014 and CON 4000 015. All were dry during dry weather screening except CON 4000 015. The dry weather flow from this outfall was tested, and results met water quality criteria. Additional dry weather data on investigations and corrections can be found in the table in Section 1.2 of this report. Wet weather screening is planned for the future.

Veteran's Memorial Park

Newfield Street (41 acres): A sign at the entrance states “dogs must be on leash”, however no pet waste bags or waste receptacles are in place. Across the road from the splash pad, adjacent to the memorial states “don't allow your dogs to roam freely” and “refrain from walking your dog”. There was a small congregation of geese with no signs about prohibiting feeding.

Closest outfalls; investigation of outfalls; identification and correction of any identified problems: Stormwater from the site discharges to COG 4607 019. Dry weather flow from this outfall was tested, and results met water quality criteria. Additional dry weather data on investigations and corrections can be found in the table in Section 1.2 of this report. Wet weather screening resulted in E. coli of >2420 MPN/100ml. The lab did not provide a specific result on this test. The bacteria threshold is exceeded, however the extent of the exceedance is unknown, and there are several other MS4 outfalls with much higher bacteria counts that will be prioritized over this one.

Zoar’s Pond

Randolph Road (25 acres): There is no easy public access to this pond/park and no sign identifying the space as a park. Geese may congregate there, however it does not appear to be a dog friendly location due to lack of access. The pond appears to flow to Round Hill Brook which flows into Pameacha Pond.

Closest outfalls; investigation of outfalls; identification and correction of any identified problems: No MS4 outfalls are affected by this park.

Sites with Failing Septic Systems (new/updated info)

Kevin Elak, Director of Middletown Health, was contacted on November 13, 2023 about known septic system failures. He stated that his department does not maintain a list of septic systems that have been repaired or that are failing. The sewer service area maps were reviewed to identify where there is no sewer service, thus locating the septic areas; very few sections of the city are on septic. At this time, there are no known failing septic systems. None of the outfalls with high bacteria test results are located in areas served by septic systems thus far.

Lake Ridge Heights (aka Lake Rd in the Tighe & Bond GIS map) is an area with septic systems. Crystal Lake Rd, Prout Hill Rd, Trailside Crossing and the Polish Falcon's Pavilion are all served by sanitary sewer. A resident of the Lake Ridge Heights area, Ms. Kerry Hart, was interviewed regarding any issues observed. She reported that there is a small lake association and they have periodic informational and educational meetings led by Mr. Chris Hart. Although the area is still on septic, she has not noticed any failing systems and she felt confident in her assessment. Residents care a lot about the lake and share similar concerns about its health.

6.4 Catch basin cleaning program

Updates or modifications to the catch basin cleaning program
The majority of catch basins are cleaned by a subcontractor; a small percentage are cleaned by the City. No modifications to the program are expected.

6.5 Retrofit Program (new/updated info)

Description of the Retrofit Program identification and prioritization process, projects selected for implementation, rationale for the selection of those projects and the total DCIA to be disconnected upon completion of each project.
DCIA at start of permit was 250.7 acres x 2% = 5.014 acres. Three projects have been initiated in the 2022 to 2023 reporting period: 1. Atkins Street - Impervious cover disconnected equals 2.9 acres (1.16%). 2. Smith Street - Impervious cover disconnected equals 0.7 acres (0.3%). 3. Industrial Park Road - Impervious cover disconnected equals 0.5 acres (0.2%). Total acres disconnected 2022 to 2023: 2.9+0.7+0.5 = 4.1, thus meeting the 1% goal (See discussion below) As part of our annual pavement improvement projects, we will consider the possibility of disconnecting pavement areas and drainage systems. When feasible, we will do what we can to implement these improvements within our budgetary constraints. Any changes will be updated in the DCIA Tracking Sheet. We are planning to change our goal to 1% in accordance with Section 6(a)(6)(B)(ii)(c) of the permit on page 33: “If the two percent (2%) goal will not be met, the permittee shall include in the Annual Report a discussion of what percentage of DCIA will actually be disconnected and why the remainder of the two percent (2%) goal could not be achieved based on the MEP standard outlined in Section 5(*b*).” (MEP = Maximum Extent Practicable) 250.7 acres x 1% = 2.507 acres. Acres disconnected in 2022 to 2023 equaled 4.1, thus meeting the 1% goal.

Plans for continuing the Retrofit program and how to achieve a goal of 1% DCIA disconnection in future years.
Catchment areas (basins) with either Directly Connected Impervious Area (DCIA) of greater than 11% or which discharge directly to impaired waters (priority areas) have been identified and ranked. Those with the highest ranking priority will be addressed as funding becomes available. When determining the construction schedule for the next year, we will consider retrofit work to prioritize the schedule. The amount of water quality improvement structures added will depend on the available funding.

Plans for continuing the Retrofit program beyond this permit term with the goal to disconnect 1% DCIA annually over the next 5 years.
The plan described above will be followed to achieve a goal of 1% DCIA disconnection in future years. Catchment areas (basins) with either Directly Connected Impervious Area (DCIA) of greater than 11% or which discharge directly to impaired waters (priority areas) have been identified and ranked. Those with the highest ranking priority will be addressed as funding becomes available.

Part II: Impaired waters investigation and monitoring

1. **Impaired waters investigation and monitoring program**
   For details on this requirement, visit https://nemo.uconn.edu/ms4/tasks/monitoring.htm
   Refer to the yellow column of the Monitoring comparison chart and the Impaired waters monitoring flowchart. Ms. Karen Allen, DEEP Water Permitting and Enforcement Division, and staff in the Water Planning and Standards Division clarified: "The MS4 impaired waters mapping on the UCONN CLEAR MS4 website identifies "stormwater impaired waters", a subset of the surface waters of the state identified as impaired as a result of stormwater runoff. These are the impairments to be prioritized under the MS4 general permit." Accordingly, PCBs are not pollutants of concern with regard to MS4 permitting. See the Stormwater Management Plan for further detail.

1.1 Stormwater pollutant(s) of concern in Middletown. This data is available on the MS4 map viewer: http://s.uconn.edu/ctms4map.

Nitrogen/ Phosphorus ☐ Bacteria ☒ Mercury ☐ Other Pollutant of Concern ☐

1.2 Monitoring program status.

1) Status: The monitoring program began in 2022. Dry weather screening is 100% complete and Wet weather screening is approximately 50% complete.
2) A summary of the results and any notable findings: See the dry weather screening table starting on the next page below and the wet weather screening table in Section 2.2 "Wet weather sample and inspection data".
   The outfalls were located and identified by the following combination of methods: Review of GIS parcel maps, NEMO basin maps and impaired waters to locate relevant areas for screening. Monarch Environmental physically climbed, walked and waded up and down each river to locate the outfalls. Data and pictures were collected using the Epicollect5 app and field kits. All data was then uploaded to an Excel spreadsheet which is presented below. Outfalls mapped by Tighe and Bond that discharge to impaired waters were also identified in the field.
3) No changes to the Stormwater Management Plan based on monitoring results are expected at this time.

Dry Weather Screening Results (new/updated info)

Unique Outfall Identifier	Date of Inspection	Current weather conditions	Time Discharge Started (wet weather only)	Latitude	Longitude	Accuracy (meters)	Describe Waterbody	Physical condition of the outfall	Type, material and size of outfall (e.g. 24" concrete pipe)	Is there a flow? (Note during dry weather)	If flowing, confirm testing done	Evidence of previous flow or other pollution indicators?	Final notes to add, if any	Dry Weather Sampling Done?	Sample Results Show High Priority?	Flagged for follow up or repair
	Legend:	Entire line yellow: needs to be screened		Yellow cell: a little maintenance needed		Red cell: Outfall in need of repair or follow up										
COG 4607 011	4/14/2022	sunny	NA - Dry screen	41.557228	-72.671202	3	Coginchaug River	Fair (minimal debris)	Corrugated metal approx 24 in diameter	Unknown, water is backed up but does not appear flowing. Leaves and sticks blocking flow.	NA	No	Could be Middletown or COLEMAN MOBILE HOME PARK LLC	NA	NA	Yes
COG 4607 012	4/14/2022	sunny	NA - Dry screen	41.554937	-72.673944	4	Coginchaug River	Good	Corrugated metal 5 ft diameter	Yes	Yes	No	The only evidence of pollution is some foam in the area. Bubbly foam. Needed test kits and equipment for add'l parameters for dry weather	E coli on 4/15/2022. Others on 5/6/22	No	NA
COG 4607 013	4/14/2022	sunny	NA - Dry screen	41.555434	-72.673416	6	Coginchaug River	Poor: in need of repair, debris build up	Concrete approx 12-in diameter	No	NA	No		NA	NA	Repair
COG 4607 016	5/6/2022	cloudy	NA - Dry screen	41.557358	-72.66898	6	Ultimate discharge is to the COG. Between Palmer Field and Meineke Car	Poor: in need of repair, debris build up	8 in metal, rusty and filled with sand or silt.	No	NA	No	There's a manhole about 30 ft west of the outfall. Can't determine if they are connected.	NA	NA	Repair

COG 4607 017	5/6/2022	cloudy	NA - Dry screen	41.55656	-72.66893	2	Same tributary to the COG. Approximately 60 ft north of Route 66. Distributary appears to run behind the Sunoco station across the street to the South and along side the railroad tracks.	Good (no issues observed)	12-in corrugated plastic	No	NA	None	Note that this is upstream from the oil sheens previously reported. The section behind Sunoco is all fenced in and inaccessible.	NA	NA	NA
COG 4607 018	5/6/2022 and 5/10/2022 (returned to sample)	cloudy	NA - Dry screen	41.55977	-72.665606	4	Directly into the COG. End of Jackson St.	Poor: in need of repair, debris build up	30 inch diameter corrugated metal.	Yes	Yes	None	Bottom of pipe is completely rotted about six feet in. A closer look at the flow appears to be groundwater flowing underneath the pipe. Need to return with better flashlight to inspect the flow and take sample.	Yes. 5/10/22	No	Repair
COG 4607 019	5/6/2022	cloudy	NA - Dry screen	41.559266	-72.66842	7	Discharge is directly to the COG. Across from Vet Park	Good (no issues observed)	15-in concrete pipe supported by flat rocks	Yes	Yes	Slight odor	Light oil sheen along the edges of the river adjacent to outfall. Bacteria taken on 5/10/2022 due to timing.	Yes. 5/6/22 E.coli on 5/10 - All results within good range.	No	NA
COG 4607 022 - City Yard discharges to this outfall	8/12/2022 and 9/1/2023	sunny	NA - Dry screen	41.556035	-72.668574	3	Unnamed tributary starts on the south side of Route 66. The same swale that discharges to the COG on the east side of the Palmer Field property.	Good (no issues observed)	Two- 5 ft diameter concrete culverts. Best to access from Route 66 on the east side of the bridge and block parallel to railroad tracks	Yes	No in 2022; Yes in 2023	Color in 2022; None in 2023	**2022:** The color is cloudy, grayish. No sample taken because 0.19 inches of rain recorded in the last 24 hours for the COG. Possibly sample from catch basin on the other side at City Yard because flow is above bottom of pipe. **2023 Update:** Sampled in dry weather.	Yes	No; results meet water quality criteria (E coli 254)	No

COG 4607 022-A	9/1/2023	sunny	NA - Dry screen	41.556055	-72.668579	6	Tributary to the coginchaug	Good (no issues observed)	3 to 4 foot concrete	No	NA	None	This outfall is about 20 ft into the culvert (underneath) from the south side. Same as Yellow outfall ID'd on T&B map.	NA	NA	NA
COG 4607 022-B	9/1/2023	sunny	NA - Dry screen	41.556495	-72.668804	4	Tributary to the coginchaug	Good (no issues observed) (however oil sheen observed)	3ft 9 inch round concrete	Yes	"Yes, tests confirmed "	Oil Sheen	Same outfall as identified by T&B	Yes	Yes, based on NH3, E Coil (3972) & MBAs.	Yes
COG 4607 022-C	9/1/2023	sunny	NA - Dry screen	41.556437	-72.668835	2	Tributary to the coginchaug	Good (no issues observed)	10 inch round concrete	No	NA	None	Outfall is wet because it is submerged slightly below the tributary. Water is going into the pipe, not coming out.	NA	NA	NA
COG 4607 023	6/2/2023	sunny	NA - Dry screen	41.571956	-72.660747	3	Coginchaug River (end of Johnson St)	Good (no issues observed)	12 inch concreted	No	NA	None	Sampling in wet weather will be challenging because it's fenced off and the other access point would be through the business.	NA	NA	NA
COG 4607 024	6/2/2023	sunny	NA - Dry screen	41.561769	-72.665709		Coginchaug River (end of Berlin St)	No data	Could not locate outfall. Lat & Long is approx.	Unknown	"No, explain in Notes section"	None	Outfall is at the end of Berlin Street. Vegetation was thick & slope is steep. After 15 minutes search, outfall could not be found.	No	TBD	TBD

COG 4607 025	6/2/2023	sunny	NA - Dry screen	41.570953	-72.666153	3	Coginchaug River (end of Rose Circle)	No data	Outfall could not be located. I was dead center on the yellow outfall mapped by T&B and could not find it. A large tree has fallen in the vicinity and may be covering the outfall.	Unknown	"No, explain in Notes section"	None	The area is fairly easy to locate by following the drain line and then there's a path in the woods.	No	TBD	TBD
COG 4607 026	6/2/2023	sunny	NA - Dry screen	41.567629	-72.667048	3	Coginchaug River (end of Stoneycrest Drive)	No data	Could not locate the outfall.	Unknown	"No, explain in Notes section"	None	There's a straight drop down about 100 ft at the edge of this drain pipe. Outfall could not be found and would be dangerous to attempt further.	No	TBD	TBD
COG 4607 027	6/2/2023 and 12/6/2023	sunny	NA - Dry screen	41.548988	-72.67717	2	Coginchaug River (end of Beverly Heights)	**6/2:** No data **12/6:** Fair (minimal debris and/or a little maintenance required)	**6/2:** Could not locate the outfall. Vegetation is thick. **12/6:** Approx 12-inch round concrete	**6/2:** Unknown **12/6:** No	NA	None	**6/2:** Outfall was not located. Vegetation is thick and head wall is straight down. **12/6:** Very hard to access from concrete wall above.	No	NA	NA
COG 4607 028	6/2/2023	sunny	NA - Dry screen	41.543909	-72.685577	2	Coginchaug River (opposite Marzalek Park)	Poor (in need of repair, debris build up or odor detected)	12-in concrete pipe	No	NA	None	Outfall is obstructed by a fallen tree and a large chunk of concrete.	NA	NA	Outfall is obstructed by a fallen tree and a large chunk of concrete.
MIN 4600 001	6/20/2022 & 3/24/2023	sunny	NA - Dry screen	41.598569	41.598569, -72.699849	10	Miner Brook	Fair (minimal debris and/or a little maintenance required)	18-in concrete. The larger piece of 30 in wide reinforced concrete culvert has broken off.	Yes	"No, explain in Notes section"	None	The drip is extremely slow. One drop per 5 seconds. Absolutely no odor. (Same both years)	NA	NA	Yes. Repair.
MIN 4600 002	3/24/2023	sunny	NA - Dry screen	41.599952	-72.699428	3	Miner Brook	Good (no issues observed)	30 in concrete with flared end	No	NA	None	Not found in 2022 due to veggie growth.	NA	NA	NA

MIN 4600 005	3/24/2023	sunny	NA - Dry screen	41.597871	-72.699719	5	Miner Brook	Good (no issues observed)	12 inch round concrete	No	NA	None	Located adjacent to the 1st corner of the 1st building, directly behind the tree trunk. (Not found in 2022 due to veggie growth.)	NA	NA	NA
MIN 4600 006	3/24/2023	sunny	NA - Dry screen	41.597659	-72.700086	3	Miner Brook	Good (no issues observed)	26-in flared end, reinforced concrete	No	NA	None	Located approximately 15 ft from the road. (Not found in 2022 due to veggie growth.)	NA	NA	NA
MIN 4600 006-A	7/13/2023	sunny	NA	41.597733	-72.699909	3	Minor Brook	Poor (in need of repair, debris build up or odor detected)	20 to 24 inches flared concrete	Outfall is submerged. Flow not determined.	NA	None	A large area of sand and sediment is blocking the flow into the river. OF is located about 15 ft North of the road in a nearly direct line north from the east side of the metal fence. This is the same as the yellow outfall ID'd by T & B on the map.	NA	NA	Sediment needs to be cleared.
MIN 4600 006-B	7/13/2023	partly cloudy	NA	41.597398	-72.699941	3	Minor Brook	Poor (in need of repair, debris build up or odor detected)	20 to 24 inch flared reinforced concrete	No	NA	None	Same location as ID'd by T & B map. A large hole in ground immediately uphill from outfall. Also approx in middle of bridge about 20 ft south.	NA	NA	Large hole uphill from the outfall needs to be assessed for repair, however there was a flow during wet weather screening.
MIN 4600 007	6/20/2022	sunny	NA - Dry screen	41.596913	-72.699877	8	Miner Brook	Good (no issues observed)	24 inch concrete	No	NA	None	The outfall is damp but no flow. Appears to be GVW 1. Located about 60 ft from the road.	NA	NA	NA
MIN 4600 008	6/20/2022	sunny	NA - Dry screen	41.595338	-72.699341	5	Miner Brook	Good (no issues observed)	17 inch corrugated metal. A little rusting with a few holes on the bottom	Yes	Yes	None	Same ID as GVW 2	Yes. 6/20/22	No	NA

MIN 4600 009	6/24/2022	sunny	NA - Dry screen	41.588535	-72.701551	3	East Miner Brook	Good (no issues observed)	24-in wide concrete culvert	No	NA	None	Same as SYL 1	NA	NA	NA
MIN 4600 010	6/24/2022	sunny	NA - Dry screen	41.588246	-72.701144	5	East Miner Brook	Fair (minimal debris and/or a little maintenance required)	24 inch Y-shaped concrete	No	NA	None	Same as HTG 1. Outfall is prone to clogging with dirt from adjacent slope. A significant amount of clogging has begun.	NA	NA	Yes. Repair.
MIN 4600 011	6/24/2022	sunny	NA - Dry screen	41.588069	-72.701381	7	East Miner Brook	Fair (minimal debris and/or a little maintenance required)	32-in wide, Y-shaped concrete	No	NA	None	Same as HTG 2. Outfall is prone to clogging from erosion of adjacent slope. Some clogging has begun.	NA	NA	Yes. Repair.
MIN 4600 012	6/24/2022	sunny	NA - Dry screen	41.587556	-72.701734	5	East Miner Brook	Poor: in need of repair, debris build up	22-inch, Y-shaped concrete	No	NA	None	Same as FIE 1. Outfall is significantly clogged with dirt eroding from adjacent slope as well as grass clippings from adjacent lawn.	NA	NA	NA
MIN 4600 013	6/24/2022	sunny	NA - Dry screen	41.585897	-72.702652	3	East Miner Brook	Good (no issues observed)	16 inch reinforced concrete	No	NA	None	Same as GHL 2. Adjacent property owner described major flooding last year and showed me a video of the flood level.	NA	NA	NA
MIN 4600 014	6/24/2022	partly cloudy	NA - Dry screen	41.585736	-72.702867	3	East Miner Brook	Good (no issues observed)	18-in concrete	No	NA	None	Same as GHL 1. Second photo is not the outfall. It shows the clogged channel that flows under Grove Hill Road. Possibly because of last year's flooding.	NA	NA	NA
MIN 4600 015	6/24/2022	partly cloudy	NA - Dry screen	41.583604	-72.70313	2	East Miner Brook	Good (no issues observed)	15 inch corrugated plastic pipe	No	NA	None	Same as GLT 1. Though no evidence of pollution checked in app, there is a significant amount of algae in the vicinity.	NA	NA	NA

MIN 4600 016	6/24/2022	partly cloudy	NA - Dry screen	41.583628	-72.703092	5	East Miner Brook	Good (no issues observed)	16 inch concrete pipe	No	NA	None	Same as GLT 2. Second photo is the algae in the river.	NA	NA	NA
MIN 4600 017	6/24/2022	partly cloudy	NA - Dry screen	41.581166	-72.703521	3	East Miner Brook	Poor: in need of repair, debris build up	Area overgrown. Outfall not found initially in 2022; subsequently found in 2023.	No	NA	None	Same as MIN 1. Area was completely overgrown in 2022. Flow could not be determined. T&B ID'd as culvert, but it appears to be an outfall.	NA	NA	NA
MIN 4600 020	7/13/2023	cloudy	NA	41.569617	-72.70051	3	Minor Brook	Good (no issues observed)	12-in concrete	No	NA	None	An easy one to find!	NA	NA	NA
MIN 4600 021	7/13/2023	partly cloudy	NA	41.565628	-72.701533	6	Minor Brook	Poor (in need of repair, debris build up or odor detected)	16 inch concrete	No	NA	None	Pipe has completely broken off from the connection. Use the location from the T & B map. My recorded accuracy was low. Access directly across the street from the mailbox at 79 East Street	NA	NA	Yes. See Final Notes.
MAT 4600 001	6/29/2022	sunny	NA - Dry screen	41.600413	-72.689989	7	Mattabasset river	Good (no issues observed)	17-in concrete pipe	No	NA	None	Located along the bike path.	NA	NA	NA
MAT 4600 002	6/29/2022	sunny	NA - Dry screen	41.600706	-72.687133	3	Mattabasset river	Good (no issues observed)	Approximately 3 ft by 3 ft concrete blocks as culvert/tunnel for natural stream crossing under bike path	Yes	"No, explain in Notes section"	None	Walked upstream to assess illicit discharge. Unnamed natural stream was mostly dry with a few small ponding areas. Stream runs between Pond Place and Rolling Green. No illicit discharge detected.	NA	NA	NA
MAT 4600 003	6/29/2022	partly cloudy	NA - Dry screen	41.600602	-72.687099	3	Indirect discharge to Mattabassett river via unnamed stream.	Good (no issues observed)	8-in PVC pipe	No	NA	None	Hard to determine where the beginning of this pipe is located.	NA	NA	NA

MAT 4600 004	6/29/2022	partly cloudy	NA - Dry screen	41.600518	-72.686983	4	Indirectly to Mattabassett river via unnamed stream	Good (no issues observed)	28 inch y-shaped concrete	No	NA	None		NA	NA	NA
MAT 4600 005	7/15/2022	sunny	NA - Dry screen	41.600146	-72.684535	15	Mattabasset river	Good (no issues observed)	4 ft 7 in high and 4 ft wide arched with stone blocks with concrete base	No	NA	None		NA	NA	NA
MAT 4600 006	7/16/2022 and 9/1/2023	partly cloudy	NA - Dry screen	41.600097	-72.696698	3	Mattabasset river	Good (no issues observed)	Slope is too steep to climb down at first discovery in 2022. Returned in 2023	Yes	No in 2022; Yes in 2023	None	Flow while riding bike on the path in '22. Returned in '23 to investigate. May not be considered an outfall; it appears to drain a retention area on the other side of bike path; may be considered private in the condo association. See additional pictures. LOTS of mosquitoes! Also extremely steep and would be very difficult/dangerous in rainy weather.	Yes	No; only E Coli was high: 652/100mL	NA
SAW 4604 001 B (changed from 001)	8/3/2022	sunny	NA - Dry screen	41.590124	-72.714402	9	Tributary that leads directly to the Sawmill Brook	Poor: in need of repair, debris build up	12 to 15 inch corrugated metal. The underside is rusted out.	No. Potentially greater than 0.1 rain last night, based on Meriden airport data, however there is no discharge from the outfall.	NA	None	Confirmed by GIS database that the parcel is Middletown owned.	NA	NA	Yes. Repair.
SAW 4604 002	8/12/2022	sunny	NA - Dry screen	41.585507	-72.718603	4	Sawmill Brook	Good (no issues observed)	15-in concrete pipe. Flared to 32-in wide	No	NA	None		NA	NA	NA

SAW 4604 002 D	9/30/2022	partly cloudy	NA - Dry screen	41.588267	-72.716393	3	Sawmill Brook	Good (no issues observed)	18 inch corrugated plastic	Yes	Yes	Color, Foam	No odor. Color was a very, very light tan or brown. Very lightly "dirty". Confirmed Middletown owned - Parcel ID: 1278, Map-Lot: 06-0023	Yes	No; only E Coli was high: 1011/100mL	NA
SAW 4604 003 (furthest east under sm bridge)	6/24/2022 and 1/3/2024	6/24/2022: partly cloudy 1/3/2024: cloudy 40°	NA - Dry screen **Lat & Long have been updated.**	41.583966	-72.711994	2	Originally thought to not discharge to impaired water. Upon 2nd review, it appears to discharge via channel/conduit to Sawmill.	Good (no issues observed) Need to screen/sample in early spring with no vegetation. Accessed best from the residence behind the pizza place.	3.5 ft corrugated metal	6/24/2022 No 1/3/2024 Yes	Yes	None	Appears to be same as SMI 1(?). Flow appears to be entering the brook from the east side of the pipe, not the pipe itself. It's all overgrown in the summer.	Yes	No; results meet water quality criteria (E coli 4/100mL)	No
SAW 4604 004 (immediately adj to SAW 4604 003)	6/24/2022 and 9/1/2023 and 1/3/2024	partly cloudy	NA - Dry screen **Lat & Long have been updated.**	41.583945	-72.712086	2	Originally thought to not discharge to impaired water. Upon 2nd review, it appears to discharge via channel/conduit to Sawmill.	Good (no issues observed) Need to screen/sample in early spring with no vegetation. Accessed best from the residence behind the pizza place.	Approximately 3 ft corrugated metal	6/24/2022 No 1/3/2024 Yes	Yes	None	Appears to be the same as SMI 2(?). Difficult to confirm if this is just a conduit for the brook under the road, but that's what it appeared to be in 2022. (Later confirmed drainage to Sawmill.) Assessed again in 2023 but vegetation too thick. Assessed in Jan 2024 & found it.	Yes	No; results meet water quality criteria (E coli 0/100mL)	No

SAW 4604 004 - A (between SAW 004 & 004 - B)	1/3/2024	cloudy	NA - Dry screen **Lat & Long have been updated.**	41.58396	-72.712099	2	Originally thought to not discharge to impaired water. Upon 2nd review, it appears to discharge via channel/conduit to Sawmill.	Good (no issues observed) Need to screen/sample in early spring with no vegetation. Accessed best from the residence behind the pizza place.	Approximately 3 ft concrete	Yes	Yes	None	There are 4 outfalls under the small bridge. T&B identified 2 in their map. Need to confer & match IDs.	Yes	No; results meet water quality criteria (E coli 8/100mL)	No
SAW 4604 004 - B (furthest west under sm bridge)	1/3/2024	cloudy	NA - Dry screen **Lat & Long have been updated.**	41.58397	-72.712181	2	Originally thought to not discharge to impaired water. Upon 2nd review, it appears to discharge via channel/conduit to Sawmill.	Good (no issues observed) Need to screen/sample in early spring with no vegetation. Accessed best from the residence behind the pizza place.	12-in concrete pipe	No	NA	None	There are 4 outfalls under the small bridge. T&B identified 2 in their map. Need to confer & match IDs.	NA	NA	NA
SAW 4604 005 (WLK 8?) Not located	6/24/2022 and 9/1/2023 and 1/3/2024	partly cloudy	NA - Dry screen	41.584261	-72.711973	4	Originally thought to not discharge to impaired water. Upon 2nd review, it appears to discharge via channel/conduit to Sawmill.	Outfall not located.	Outfall not located.	NA	NA	None	Same as WLK 8. Not mapped by T&B. Outfall was not located in the field. **Assessed again in 2023 but vegetation too thick.**	No		Yes, screen in late fall, winter or early spring.
SAW 4604 006	8/12/2022 and 8/23/2023	sunny	NA - Dry screen	41.585482	-72.71894	6	Sawmill Brook	Poor: in need of repair, debris build up. Lat and Long is correct.	15 inch corrugated metal that flares out to metal bottom. Access from the West through All Star Software Systems.	Yes	No in 2022 Yes in 2023	Foam in 2022; None in 2023	This appears to be the last and northernmost outfall of this Middletown parcel. The flow appeared to be due to the back up caused by sediment accumulation.	Yes	No; results meet water quality criteria (E coli 60; All others within good range.)	Sediment needs to be cleared, and metal bottom needs to be flattened as it currenlty curves upwards. **Determine if Middletown-owned. Could be BOSTONMIDDLETOWN LLC**
SAW 4604 007	8/12/2022	sunny	NA - Dry screen	41.585228	-72.718964	4	Sawmill Brook	Good (no issues observed)	15 to 18-in concrete with flat bottom. 005 is flat bottom also	No	NA	None	Accessed from the Saw Mill Brook. Access for sampling will be easier from the road.	NA	NA	NA

SAW 4604 008	8/12/2022	sunny	NA - Dry screen	41.585038	-72.719018	5	Sawmill Brook	Good (no issues observed)	15 to 18 in concrete	No	NA	None	Will have to use long/lat to find it again from the road.	NA	NA	NA
SAW 4604 010	8/12/2022 and 8/23/2023	sunny	NA - Dry screen	41.584184	-72.716829	4	Sawmill Brook	Good (no issues observed) At the culvert at Corner of Smith and Ind Park Rd.	18 in plastic coated corrugated metal	Yes	No in 2022 Yes in 2023	None	2022: Flow was barely dripping, but no sample taken because of rain previous night. Outfall locating, assessing and mapping only. 2023: Sample taken.	Yes	No; results meet water quality criteria (E coli 71; All others within good range.)	NA
SAW 4604 010 - A	8/23/2023	partly cloudy	NA - Dry screen	41.584276	-72.717857	6	Sawmill Brook	Fair (minimal debris and/or a little maintenance required)	8 to 10 inch corrugated metal with flared end	No	NA	None	Mapped by T&B; Located between Ind. Park Rd and Sawmill Brook	NA	NA	Yes. Repair or clear.
SAW 4604 010 - B	8/23/2023	sunny	NA - Dry screen	41.584005	-72.715132	4	Channelized flow to Sawmill Brook	Good (no issues observed)	12 to 14 in corrugated metal	Yes	Yes	None	Mapped by T&B; Located on Smith immed W of Rt 91.	Yes	No; results meet water quality criteria (E coli 56; All others within good range.)	NA
SAW 4604 011	6/8/2023 and 8/23/2023	partly cloudy	NA - Dry screen	41.593395	-72.714745	3	Sawmill Brook	Good (no issues observed) Between Fedex Dr and Roscommon. Enter through p-lot directly across from outfall. Easy access through woods. See orange marker in corner of parking lot of 333 Industrial Park Road to access.	24-in concrete with metal interior	Yes	Yes	**6/8/2023:** Oil Sheen (3 small spots approx 1 sq inch, likely from new pavement on Industrial Park Road.) **8/23/2023:** No evidence of pollution.	**6/8/2023:** Sawmill Brook is backed up into the pipe. Upstream catch basin was checked for flow. One incoming pipe was flowing; one was dripping very slowly. Lots of poison ivy in the very beginning but then it's pretty clear. **8/23/2023:** Outfall is submerged an inch or two, but I was able to get the sample from a little waterfall two feet downstream.	Yes	No; results meet water quality criteria (E coli 49; All others within good range.)	NA

SAW 4604 012	6/8/2023 and 1/3/2024	partly cloudy	NA - Dry screen	41.578434	-72.722709	3	Sawmill Brook	Good (no issues observed)	At least 24 inch concrete. Outfall can be seen from the SW side of employee parking lot at Thames River Recycling (TRR). Access is nearly impossible through the thick vegetation and steep slope. River is also deep there.	6/8/2023 No 1/3/2024 Yes - the majority of the flow (95%) is coming from the southern pipe into the catch basin.	NA	None	As mentioned, access is difficult. Outfall is visible from opposite side of the river from employee parking at TRR. Accessible to sample from the concrete wall above. **Followed up again in dry weather due to high bacteria in wet weather.**	Yes	No	NA
SAW 4604 013	6/8/2023 and 1/3/2024	partly cloudy	NA - Dry screen	41.578851	-72.723971	3	Sawmill Brook	Good (no issues observed)	16 in flared concrete	6/8/2023 No 1/3/2024 Yes	No	Color	The orange algae seen at other outfalls is visible inside pipe. Natural oil sheen as seen in others is also visible.	No	TBD - return to sample	TBD
SAW 4604 014	6/8/2023 and 8/23/2023 and 1/3/2024	partly cloudy	NA - Dry screen	41.57848	-72.728235	2	Sawmill Brook	Changed to Good (no issues observed). Initially could not locate OF. On 12/28/2023 catch basin on SW side of road appeared to be piped under road, to N side of Boardman, discharging under road.	Could not find the outfall after 2 attempts. During rain event on 3rd attempt, discharge location was found.	Yes on 1/3/2024	Yes	None	Could not locate using T&B map. On 12/28/2023 catch basin on SW side of road appeared to be piped under road, to N side of Boardman, discharging under road. Access river about 60 ft from the road through light brush & field around sm opening in barbed wire fence, then walk river edge to outfall. If sampling in wet weather, best do it in the late fall winter or early spring with no vegetation.	Yes	No	NA
SAW 4604 015	6/8/2023	partly cloudy	NA - Dry screen	41.568773	-72.738777	2	Sawmill Brook	Good (no issues observed)	24 inch flared concrete	No	NA	None		NA	NA	NA

SAW 4604 016	6/8/2023	partly cloudy	NA - Dry screen	41.568784	-72.738779	3	Sawmill Brook	Fair (minimal debris and/or a little maintenance required)	24 in flared concrete	No	NA	None	Some dirt and rocks may block flow.	NA	NA	Yes. Clear debris.
CON 4000 001 N	9/2/2022 and 8/23/2023	sunny	NA - Dry screen	41.562371	-72.646873	3	Directly to CT River	Poor: in need of repair, debris build up in 2022. Outfall has been repaired in 2023 and dry during screening.	14-in corrugated plastic	Yes in 2022, No in 2023 after repairs.	NA	Oil sheen observed on side of pipe in photo in 2022; was not visible in person with bright sun.	2022: Pipe runs under sidewalk. Significant amt of gravel building up, blocking flow. Unsuccessful attempt to clear gravel with shovel to sample. 2nd photo is the other side of sidewalk. **2023 Update: Outfall has been repaired.**	Yes	NA	2022: Gravel needs to be removed for sampling. Also, gravel is caught up in fabric filter exacerbating the issue. **Update: Outfall has been repaired in 2023.**
CON 4000 001 S	9/2/2022	sunny	NA - Dry screen	41.562368	-72.646847	3	Directly to CT River	Fair (minimal debris and/or a little maintenance required)	14-in corrugated plastic	Yes	Yes	None	Pipe runs under sidewalk to an excavated fenced area on the other side. Sampled at 1:30pm. **2023 Update: Outfall has been repaired.**	Yes	No	**2023 Update: Outfall has been repaired.**
CON 4000 002	9/2/2022	sunny	NA - Dry screen	41.562031	-72.646338	2	Directly to CT River	Good (no issues observed)	Approximately 30-inch concrete	Yes	Yes	None	None	Yes	No; E Coli not concerning: 1986/100mL 2nd test: 1120/100mL	Returned to determine if there is odor. Discharge was clear and odor was minimal. Smelled typical of City water; not sewage, just slightly poor quality in general, but not offensive as sewage.
CON 4000 002 N	9/16/2022	sunny	NA - Dry screen	41.562214	-72.646489	4	Directly to CT River	Poor: in need of repair, debris build up	Approx 6 inch metal pipe disconnected from source	No	NA	None	Pipe is disconnected and lying on rocky edge	NA	NA	Pipe needs to be reconnected or removed.
CON 4000 003	9/16/2022	sunny	NA - Dry screen	41.561302	-72.645668	4	Directly to CT River	Good (no issues observed)	Approx 18-in appears to be metal	No	NA	None	River level is up over the top of the outfall. Approx 3 hrs after high tide.	NA	NA	NA

CON 4000 004	9/16/2022 and 8/23/2023	sunny	NA - Dry screen	41.560672	-72.6451	5	Directly to CT River	Good (no issues observed in 2022)	3 ft concrete	Yes, in 2022.	"No, explain in Notes section"	None	Low volume flow is coming from above the pipe in 2022. River level is above top of pipe or at the top, so no sample possible. Approx 3 hrs after high tide. Accessible from the dock in '22 but not in '23. May need to screen from upstream CB.	No	TBD	Attempted screening in 2023, however dock is broken from flood so access is not feasible. Could not see outfall from above. May need to screen from upstream CB.
CON 4000 005	9/16/2022	sunny	NA - Dry screen	41.560647	-72.645044	3	Directly to CT River	Poor: in need of repair, debris build up	3 ft concrete	NA	NA	None	River level is at top of pipe. Sampling not possible and flow detection not possible. Significant amount of gunky stuff accumulating in the outfall. Accessible from the dock.	NA	NA	Gunk and sediment need to be removed. May need to screen from upstream CB.
CON 4000 006 N/S	9/16/2022	sunny	NA - Dry screen	41.560423	-72.644774	2	Directly to CT River	Fair (minimal debris and/or a little maintenance required)	4-in PVC two pipes within inches of each other (both)	No	NA	None	Pipes are 6 ft above the river level. Accessible from the dock.	NA	NA	Yes
CON 4000 007	9/16/2022	sunny	NA - Dry screen	41.560037	-72.644665	4	Directly to CT River	Good (no issues observed)	12-in metal	No	NA	None	None	NA	NA	NA
CON 4000 008	9/16/2022	sunny	NA - Dry screen	41.559748	-72.643924	5	Directly to CT River	Good (no issues observed)	4-ft concrete y shaped	No	NA	Color	Color is green apparently from algae. Water level is close the top so sampling not possible. 2nd photo shows color. Located directly in center of Wesleyan boathouse, so may not be Middletown's	NA	NA	NA

SUM 4013 003	9/16/2022	sunny	NA - Dry screen	41.558068	-72.643352	6	Sumner Brook	Poor: in need of repair, debris build up	6 Inch corrugated plastic	No	NA	None	Outfall is backed up with gravel	NA	NA	Gravel and sediment need to be removed.
SUM 4013 004	10/21/2022 and 10/28/2022	sunny	NA - Dry screen	41.555723	-72.644101	5	Sumner Brook	Poor: in need of repair, debris build up. Likely to have periodic build-up of dirt.	Approx 12 inch wide, partially visible concrete. Could be bigger; Mostly covered with heavy dirt.	Yes	Yes	Color, Turbidity, Floatables	During observation on 10/21/22, I moved some of the blockage and orange discharge began. Orange appears to be natural algae observed at other outfalls. On 10/28/22, color cleared up once blockage was removed.	Yes	No; results meet water quality criteria (E coli 261)	Sample results meet criteria. However outfall and area could use a clean out.
SUM 4013 005 A	10/21/2022 and 10/28/2022	sunny	NA - Dry screen	41.555696	-72.644166	4	Sumner Brook	Poor: in need of repair, debris build up	4 ft wide concrete	Yes	Yes	Color, Turbidity, Floatables	Discharge is orange also with what appears to be small pieces of dry oil sheen or other shiny substance on surface. Muck has built up not allowing total flow. Orange algae: "It is not considered directly toxic, but can cause de-oxygenation and/or high ammonia concentrations as it breaks down."	Yes	Yes, based on visual, odor, high NH3 and bacteria. *These conditions may also be natural.*	Follow up to determine the source.
SUM 4013 005 B	10/28/2022	sunny	NA - Dry screen	41.555659	-72.644146	6	Sumner Brook	Poor: in need of repair, debris build up	14-in concrete	No	NA	None	Outfall is backed up with dirt and leaves.	NA	NA	Yes
SUM 4013 006	10/21/2022	sunny	NA - Dry screen	41.555214	-72.645424	5	Sumner Brook	Good (no issues observed)	24 in concrete	No	NA	None	Located about 20 ft from bridge on Main Street Extension	NA	NA	NA
SUM 4013 007	10/21/2022	sunny	NA - Dry screen	41.552092	-72.646209	5	Sumner Brook	Fair (minimal debris and/or a little maintenance required)	26 inch Y-shaped concrete	No	NA	None	Dirt and vegetation have built up at the outfall. Needs to be cleared.	NA	NA	Yes

SUM 4013 008							Determine if this is MS4 from Pameacha Pond.									
SUM 4013 009	10/21/2022	sunny	NA - Dry screen	41.550826	-72.645792	4	Sumner Brook	Fair (minimal debris and/or a little maintenance required)	24-in Y-shaped concrete (or horseshoe shape)	No	NA	None	Large rip-rap rocks have fallen in, however it appears a flow would not be blocked. Second photo is a brick / concrete structure, closer to the brook and about 20 ft from the outfall.	NA	NA	Yes
SUM 4013 010	6/1/2023	sunny	NA - Dry screen	41.550068	-72.644207	4	Sumner Brook (Mill St at Barnhart Crane)	Good (no issues observed)	Concrete block, double outfalls, 24 in diameter each	Yes	Yes	None	Embankment was extremely steep and loose material. Too dangerous to carry sampling materials down. Samples taken from flowing stream (mini waterfall) behind Barnhart property. Barnhart owner, Joe Irwin, said he installed a concrete pipe from the back of the property to Sumner Brook; there is a sedimentation tank as well. The drainage comes from the neighborhood behind the property on Warner Ave, Schuyler Ave and Thayer Street areas.	Yes	No; results meet water quality criteria (E coli 13; All others within good range.)	NA

SUM 4013 011	6/1/2023	sunny	NA - Dry screen	41.549916	-72.642914	2	Sumner Brook (Ridge Rd near Mill St)	No data	Did not see the outfall. See notes.	Unknown	"No, explain in Notes section"	None	The actual outfall was not inspected due to inaccessibility. Vegetation is thick, poison ivy is thick, slope is long & steep. I crossed Ridge Road to check for access. I climbed down that slope but did not feel comfortable wading through the culvert under the road. Catch basin at the other end of the drainage pipe, to the south on Ridge Rd, was totally dry.	Not sampled but since catch basin immediatel y upstream was dry, it's reasonable to conclude that OF is also dry.	NA	NA
SUM 4013 012	6/1/2023	sunny	NA - Dry screen	41.548753	-72.64113	3	Sumner Brook	Good (no issues observed)	24 inch diameter concrete	No	NA	None	Located approximately 40 ft from the Brook. Access from Mill Street is easier.	NA	NA	NA
SUM 4013 013	6/1/2023	sunny	NA - Dry screen	41.548902	-72.640828	6	Sumner Brook	Good (no issues observed)	Approximatel y 40 inch concrete pipe	Yes	Yes	None	Outfall is extremely difficult to reach. Access is easy though across the street from CVS from small paved lot.	Yes	No; results meet water quality criteria (E coli 0; All others within good range.)	NA
SUM 4013 014	6/1/2023	sunny	NA - Dry screen	41.548034	-72.640953	4	Sumner Brook	Good (no issues observed)	Approximatel y 40 inch concrete pipe	Yes	Yes	None	Outfall is in very steep location. Sampling during rain would be dangerous. Access by the sign a little beyond the sign of Bergen diesel at 157 Mill Street	Yes	No; results meet water quality criteria (E coli 173; All others within good range.)	NA
CON 4000 009	11/7/2022	partly cloudy	NA - Dry screen	41.558555	-72.641858	3	Connecticut River	Good (no issues observed)	18 to 24-in concrete	No	NA	None	Located at the northern edge of sewer treatment property.	NA	NA	NA

CON 4000 010	11/7/2022 and 8/23/2023	partly cloudy	NA - Dry screen	41.558234	-72.639582	3	Connecticut River	Poor: in need of repair, debris build up. Outfall will be continuously submerged due to its low elevation compared to the river. About 6 in of water in pipe submerged about an hour before low tide. Inspected at 12:30 and low tide is at 1:30. See picture. No sample taken.	24-in concrete. High tide is half way up the pipe vertically 1st screening.	Could not determine flow due to high tide in 2022. Returned at low tide in 2023 and still submerged.	"No, explain in Notes section"	None	A section of the concrete has broken off. Could not sample due to high tide.	No	NA	Yes. See Final Notes and Physical Condition.
CON 4000 011	11/7/2022	sunny	NA - Dry screen	41.558363	-72.637939	3	Connecticut River	Fair (minimal debris and/or a little maintenance required)	14-in wide, rectangle shape. Appears to be natural rock material.	Yes	"No, explain in Notes section"	Odor, Color, Floatables, Oil Sheen, Foam	Outfall is halfway submerged. Olfactory indicates possible sewer input. No samples taken. Investigated upstream from the pipe for possible sampling point or illicit source.	No. Used olfactory to determine possible sewer input.	High priority based on visual & odor, but investigation resulted in no illicit discharge. Nearby manhole assessed in DPW office.	COMPLETE. Followed up on 11/9/22 to isolate & determine the source. Notes in "Follow Up Investigations" folder. See notes on marsh investigation below. Odor determined to be natural from marsh.
CON 4000 012	11/7/2022	sunny	NA - Dry screen	41.559812	-72.635033	3	Connecticut River	Good (no issues observed)	12-in metal. Coming out of concrete wall just below the wood fence.	No	NA	None	Location is at the end of Eastern Drive.	NA	NA	NA
CON 4000 013	11/7/2022	sunny	NA - Dry screen	41.559816	-72.634815	3	Connecticut River	Fair (minimal debris and/or a little maintenance required)	24-in concrete pipe that opens up to 36 in wide Y shape	No	NA	None	Some logs and debris piling up between pipe and river.	NA	NA	Yes
CON 4000 014	11/14/2022	sunny	NA - Dry screen	41.559241	-72.627657	3	Connecticut River	Good (no issues observed)	18-in concrete opens up to 3 ft Y shape	No	NA	None	Located in between in the middle to westernmost sheds, little buildings.	NA	NA	NA

CON 4000 015	11/14/2022 and 8/23/2023	sunny	NA - Dry screen	41.558928	-72.625953	2	Connecticut River	Fair (minimal debris and/or a little maintenance required)	34 inch concrete	Yes	Yes	None	**2022:** Leaves & debris blocking flow. I cleared them to drain the pipe. Returned 1.5 hours later and it's still flowing. **2023:** Sample taken. Location is about 1/2 dist between main bldg & sm outbuilding to the west. Outfall is blocked by sediment and dirt. A sample was taken from a tiny waterfall 2 ft from the outfall. Water in the pipe was stagnant prior to manual clearing & creating flow. Looking across the road, this outfall appears to be a culvert from large open space.	Yes	No; results meet water quality criteria (E coli 50; All others within good range.)	Yes
CON 4000 015-A	8/23/2023	sunny	NA - Dry screen	41.558362	-72.626071	2	Connecticut River	Fair (minimal debris and/or a little maintenance required)	2.5 to 3 ft concrete	Yes	Yes	None	This appears to be a culvert that goes under River Road and discharges through 015. **Conduct field check to determine if MS4.**	Yes	No; results meet water quality criteria (E coli 26; All others within good range.)	Yes

CON 4000 018 (opposite Green St)	8/23/2023 and 12/6/2023	8/23 sunny 12/6 sunny	NA - Dry screen	41.565373	-72.648979	3	Connecticut River	**8/23** not inspected (see note) **12/6** Good (no issues observed)	48-inch round concrete	**8/23** Unknown **12/6** Yes	Yes on 12/6	None	8/23: I got halfway to the outfall from 019, and the poison ivy became too thick. Wait for fall/winter 12/6: This is extremely difficult to get to. I would not attempt during rain unless I can come directly across Route 9 from Green Street. Or walk along the guard rail on Rt 9.	Yes	No; results meet water quality criteria (E coli 1; All others within good range.)	No
CON 4000 018 - A	12/6/2023	sunny	NA - Dry screen	41.565215	-72.648852	4	Connecticut River	Good (no issues observed)	16 inch corrugated metal	No	NA	None	Additional outfall not mapped by T&B.	NA	NA	NA
CON 4000 019 (opposite Ferry St)	8/23/2023	sunny	NA - Dry screen	41.564588	-72.648499	5	Connecticut River	Good (no issues observed)	3 ft concrete	No	NA	None	Same location as mapped by T & B. Outfall looks good except some dirt is building up.	NA	NA	NA
CON 4000 019-A	8/23/2023	sunny	NA - Dry screen	41.564597	-72.648506	6	Connecticut River	Fair (minimal debris and/or a little maintenance required)	20 to 22 in corrugated metal	No	NA	Floatables	The "floatables" are either grass clippings or simply dirt backed up. Outfall was not ID'd on the T & B map. **May not be Middletown-owned.**	NA	NA	Yes and determine ownership.

CRY 4013 001	45266	partly cloudy	NA - Dry screen	41.516623	-72.6387	2	Crystal Lake	Good (no issues observed)	30 in round concrete	No	NA	Odor in the CB immediately upstream. Stagnant water in CB w/ decomposing mat'l is likely cause. Lake level is above bottom of outfall.	Lake Ridge Heights (aka Lake Rd) is NOT served by SS. Crystal Lake Rd, Prout Hill Rd, Trailside Crossing and Polish Falcon's Pavilion ARE served by SS. Lake level is above bottom of outfall. Drainage system is simply from the CBs in driveway entrance. No issues in CBs except odor in last one before outfall & leaves in others.	NA	NA	
DOT Outfalls																
SUM 4013 006 B DOT **To be VOIDED because it does not flow through city MS4.**	11/28/2023	sunny	NA - Dry Screen	41.554709	-72.645606	4	Sumner Brook	Good (no issues observed)	Approximate 12-in concrete inside concrete wall. Possible second outfall in same location in the same wall.	Outfall appeared backed up	NA	Unknown	Outfall is fenced in with steep slope. It appears to be somewhat backed up. Only able to see from South Main Street with binoculars. Likely a DOT outfall as it is located under/adjacent to the ramp from Main St. Ext. to Route 17.			
VOIDED Outfall IDs																
COG 4607 010	4/14/2022	sunny	NA - Dry screen	41.556711	-72.672459	4	Coginchaug River	Good. Determined to be disconnected from sources.	Brick type material 4-in diameter, a little broken.	No	NA	No	Middletown-owned	NA	NA	Determined to be disconnected from sources.
COG 4607 016-A	5/6/2022	cloudy	NA - Dry screen	41.558324	-72.66879	4	Tributary to the COG located between Palmer Field and Meineke Car	Good (no issues observed)	NA	Yes, tributary flowing	"No, explain in Notes section"	Yes	Approximately 100 ft from the COG are some spots of oil. See picture. Oil sheen on edge.	NA	NA	Investigated upstream outfall COG 4607 022.

COG 4607 016-B	5/6/2022	cloudy	NA - Dry screen	41.558721	-72.668862	2	Tributary flows from the south side of Route 66, between Palmer Field and Meineke	Good (no issues observed)	NA. Tributary was located.	Yes, tributary flowing	"No, explain in Notes section"	No	This is a flowing tributary. Need to investigate upstream for outfalls.	NA	NA	NA
MIN 4600 003 VOID ID	6/20/2022	sunny	NA - Dry screen	Assigned new ID	VOID ID	VOID ID	VOID ID	VOID ID	VOID ID	VOID ID	VOID ID	VOID ID	**Outfall not found 2022 or 2023. Ultimately found in 2023 and assigned new ID.**	NA	NA	NA
MIN 4600 004 VOID ID	6/20/2022	sunny	NA - Dry screen	VOID outfall ID	VOID ID	VOID ID	VOID ID	VOID ID	VOID ID	VOID ID	VOID ID	VOID ID	**Outfall is the same as 001, so 004 is voided.**	NA	NA	NA
MIN 4600 007-A VOID ID	7/16/2023	raining	NA	41.59576	-72.699536	6	Miner Brook	Good (no issues observed)	6-in plastic, white PVC	Yes, but it was raining at the time.	NA	None	Discovered in wet weather, not dry. **Determined to be roof drain or similar from condo.**	NA	NA	NA
MIN 4600 007-B VOID ID	7/16/2023	raining, but outfall was dry	NA	41.595656	-72.699513	5	Miner Brook	Good (no issues observed)	4 inch white PVC	No (totally dry even in the rain)	NA	None	This is a new outfall found while wet weather screeing, not previously discovered. This is south of the larger 6 in plastic white PVC pipe. **Determined to be roof drain or similar from condo.**	NA	NA	NA
MIN 4600 008-A VOID ID due to significant disrepair.	7/13/2023	cloudy	NA	41.595549	-72.699453	5	Minor Brook	Poor (in need of repair, debris build up or odor detected)	Two separate pieces of broken concrete pipe. One is 16 inches, the other about 16 inches also.	No	NA	None	The yellow outfall mapped by T & B location is accurate. My location accuracy is low.	NA	NA	Both pipes found near each other are oriented incorrectly and both filled with sediment. Disrepair is too significant to function.
No ID Assigned. See notes.	6/20/2022	sunny	NA - Dry screen	41.597033	-72.699759	4	Minor Brook	See notes.	See notes.	Yes	"No, explain in Notes section"	None	Heard strong water flow **under ground** at this location. Possibly another discharge point but cannot determine.	NA	NA	NA

MIN 4600 018 VOID ID	6/24/2022	partly cloudy	NA - Dry screen	41.581081	-72.704905	5	**West Miner Brook which is not impaired.**	Good (no issues observed)	Outfall could not be assessed due to overgrowth, however discharge is not to impaired water.	No	NA	None	Same as MIN 2; discharging to West Miner Brook	NA	NA	NA
MIN 4600 019 VOID ID		cloudy	NA				Minor Brook	OF is far north of the street. I don't see access except through private property. ID'd as channel for river through private property, not an outfall.	Not inspected. Private property. 42 inch corrugated metal pipe reported by T&B.	Not inspected.	NA	Unknown	Not inspected. Located on private property and not an MS4 outfall.	NA	NA	NA
SAW 4604 001 A (changed from 001) VOID ID	6/24/2022	partly cloudy	NA - Dry screen	41.580563	-72.711201	4	**Does not discharge to impaired water body**	Fair (minimal debris and/or a little maintenance required)	Too much overgrowth to locate the outfall, as well as abundant poison ivy.	No	NA	None	Same as MIN 3. Too much overgrowth to assess the outfall.	NA	NA	NA
SAW 4604 002 A VOID ID	8/12/2022	sunny	NA - Dry screen	41.586442	-72.716644	6	Tributary to The Sawmill Brook	Good (no issues observed)	8-in dia PVC	No	NA	None	ID'd as small roof drain or similar from business. **Not Middletown-owned.**	NA	NA	NA
SAW 4604 002 B VOID ID	8/12/2022	sunny	NA - Dry screen	41.586453	-72.716639	7	Tributary to The Sawmill Brook	Good (no issues observed)	6-in diameter PVC	No	NA	None	002 A and 002 B are right next to each other. ID'd as small roof drain or similar from business. **Not Middletown-owned.**	NA	NA	NA
SAW 4604 002 C VOID ID	8/12/2022	sunny	NA - Dry screen	41.586627	-72.716993	5	Tributary to The Sawmill Brook	Good (no issues observed)	3 inch diameter PVC	No	NA	None	ID'd as small roof drain or similar from business. **Not Middletown-owned.**	NA	NA	NA

SAW 4604 002 E VOID ID	9/30/2022	partly cloudy	NA - Dry screen	41.587324	-72.717131	3	About 50 ft from Sawmill Brook with a distinct swale	Poor: in need of repair, debris build up	Approx 10 in corrugated metal or plastic with a plastic extension	No	NA	None	Water not moving but backed up to 1/2 the dia of outfall. **Not Middletown-owned.** Owned by 111 INDUSTRIAL PARK REALTY LLC according to map.	NA	NA	NA
SAW 4604 009 Multi (28) VOID ID	8/12/2022	sunny	NA - Dry screen	41.584192	-72.716851	3	Sawmill Brook	Good (no issues observed)	4 inch PVC. There are 14 of these on the north inner side of the culvert, and 14 on the south inner side of the culvert. All dry. No flows in dry or wet weather.	No	NA	None	Access through the corner of the Marc property	NA	NA	NA
SUM 4013 001 VOID ID	9/16/2022	sunny	NA - Dry screen	41.55798	-72.64367	4	Sumner Brook	Good (no issues observed)	4 to 6 inch, possibly clay. **Culvert - not an outfall**	No	NA	None	Picture looks like it's flowing, but the color is only a stain. VOID ID	NA	NA	NA
SUM 4013 002 VOID ID	9/16/2022	sunny	NA - Dry screen	41.558029	-72.643566	3	Sumner Brook	Good (no issues observed)	4 to 6 inch, possibly clay. **Culvert - not an outfall**	No	NA	None	VOID ID	NA	NA	NA
SUM 4013 006 A (Middlesex Hospital-not MS4)	11/28/2023	sunny	NA - Dry screen	41.554772	-72.646253	5	Sumner Brook	Good (no issues observed)	Approximately 12 in metal supported by concrete wall	No	NA	None	Outfall is surrounded by a retaining wall and a steep slope. Look to sample at catch basin in parking lot.	NA	NA	NA
CON 4000 011 Marsh investigation location #1	11/10/2022	sunny	NA - Dry screen	41.556225	-72.635558	3	Wet grassy area with slight sewage smell flowing into the natural tributary in the middle of the marsh. Odor was detected in wet leaves but not while standing in the area (at nose level).	NA: Marsh area	Wet Grassy area	Yes	"No, explain in Notes section"	Odor	Wetland investigation. Entry created with location to locate spot again for further investigation if needed.	NA	NA	Investigation complete and determined to be natural sources.

CON 4000 011 Marsh investigation location #2	11/10/2022	sunny	NA - Dry screen	41.556459	-72.636051	3	Marsh upstream of CON 4000 011	NA: Marsh area	First sighting of colored bluish sheen on top of water and orange algae as I head north but no odor detectable.	Yes	"No, explain in Notes section"	Color, Oil Sheen	Wetland investigation. Entry created with location to locate spot again for further investigation if needed.	NA	NA	4
CON 4000 011 Marsh investigation location #3	11/10/2022	sunny	NA - Dry screen	41.556664	-72.636376	3	Marsh upstream of CON 4000 011	NA: Marsh area	No odor, or orange algae or sheen at this spot.	Yes	"No, explain in Notes section"	None	Wetland investigation. This is the last location reached as I head north in the center of the marsh. Later returned and headed south from River Road.	NA	NA	Investigation complete and determined to be natural sources.
CON 4000 016 VOID ID	11/14/2022	sunny	NA - Dry screen	41.558373	-72.623214	2	Connecticut River	Good (no issues observed)	4 ft concrete culvert under the road for stream crossing.	Yes	"No, explain in Notes section"	None	**Natural stream crossing under the road.** No sample taken. Upstream source is simply natural drainage from Reservoir Brook and associated marsh located to the east of the Rushford Center.	NA	NA	NA
CON 4000 017 VOID ID	11/14/2022	sunny	NA - Dry screen	41.55771	-72.622406	NA	Not Middletown owned.	Good (no issues observed)	16 inch corrugated metal to a 2.5 ft metal flared.	No	NA	None	Outfall is behind the Rushford Center. Discharges to a swale or retention pond/swale or a natural stream. **Owned by Rushford Ctr.**	NA	NA	NA

2. Screening data for outfalls to impaired waterbodies

2.1 Screening data (wet weather)

The table below shows data for any wet weather sampling completed for MS4 outfalls that discharge directly to a stormwater impaired waterbody during the reporting period.

Each Annual Report will add on to the previous year's data showing a cumulative list of sampling data. (or see Excel spreadsheet with the same data)

Outfall ID	**Latitude / Longitude**	**Sample date**	**Parameter**[1] (Bacteria)	**Results**	**Name of Laboratory (if used)**	**Follow-up required? ***
No wet weather sampling was conducted in 2022. Wet weather sampling and investigation began in 2023. 44 of the 98 outfalls were sampled in 2023.						

Note: 1) Nitrogen or Phosphorus are not pollutants of concern in Middletown.

2.2 Credit for screening data collected under 2004 permit

Outfalls to impaired waters that were sampled under the 2004 MS4 permit count towards the monitoring requirements under the modified 2017 MS4 permit. The table below shows sampling data for any outfalls to impaired waters under the 2004 MS4 permit.

Outfall	**Latitude / Longitude**	**Sample date**	**Parameter** (Nitrogen, Phosphorus, Bacteria, or Other pollutant of concern)	**Results**	**Name of Laboratory (if used)**	**Follow-up required? ***
No sampling was completed under the 2004 MS4 permit. The Parks & Recreation Department hires TruGreen for fertilizing although Nitrogen or Phosphorus are not pollutants of concern in Middletown.						

*Follow-up investigation required if the following pollutant thresholds are exceeded.

Pollutant of concern	**Pollutant threshold**
Bacteria (fresh waterbody)[1]	• E. coli > 235 col/100ml for swimming areas or 410 col/100ml for all others • Total Coliform > 500 col/100ml

Note 1): Bacteria (fresh waterbody) is the only pollutant of concern for Middletown.

The Pollutants of Concerns in the following table are *not applicable* to the City:

Pollutant of concern	Pollutant threshold
Nitrogen (N/A*)*	Total N > 2.5 mg/l
Phosphorus (N/A)	Total P > 0.3 mg/l
Bacteria (salt waterbody) (N/A)	• Fecal Coliform > 31 col/100ml for Class SA and > 260 col/100ml for Class SB • Enterococci > 104 col/100ml for swimming areas or 500 col/100 for all others
Other pollutants of concern (N/A)	Sample turbidity is 5 NTU > in-stream sample

3. Follow-up investigations

See the table in Section 2.2 “Wet weather sample and inspection data” for information related to outfalls exceeding the pollutant threshold and notes on follow-up investigations. Specific data on the investigations is also discussed in Section 4 below.

From the 2020 Integrated Water Quality Report: “Land uses can contribute pollutants that vary depending on the type of land cover or activity. Developed areas whether industrial, commercial, residential or urban can contribute pollutants through stormwater runoff. These pollutants originate from human activities that generally include heavy metals, nutrients, and petroleum based products. Impervious cover, stormwater drainage systems and over land flow are primary factors in the transport of these pollutants to surface waters. Small and large agricultural operations can contribute nutrients, pesticides, bacteria and sediment to surface waters.” As such, we are focusing follow-up investigations on outfalls and catchments with total coliform spikes at or above 8670 MPN/100ml. Bacteria sample data shows a range of total coliform from 326 to 24,200 MPN/100ml. The range is broken down as follows: (new/updated info)

< 488 MPN/100ml = 2 outfalls (Determined to be natural or urban cause)
489 to 4840 MPN/100ml = 30 outfalls (Determined to be natural or urban cause)
4841 to 8669 MPN/100ml = 0 outfalls (No data in this range)
8670 to 24,200 = 11 outfalls (Spikes warranting follow-up investigations. Investigations on 3 have been initiated, and no further investigation is planned for one of them based on the determination of natural bacteria sources from open space.)

4. Prioritized outfall monitoring

Once outfall sampling has been completed for at least 50% of outfalls to impaired waters, the 6 highest contributors of pollutants of concern will be identified. These outfalls will then be monitored on an annual basis. (new/updated info)

Outfall	Latitude / Longitude	Sample Date	Parameter(s)	Results	Name of Laboratory (if used)
MIN 4600 013	41.585897 -72.702652	All sample data is present in Section 2.2 "Wet weather sample and inspection data". Environmental Monitoring Lab was used for bacteria testing, and after 12/28/2023 was also used for surfactant testing. Others were tested with field kits.			
MIN 4600 017	41.581166 -72.703521				
SAW 4604 012	41.578434 -72.722709				
SUM 4013 012	41.548753 -72.64113				
SUM 4013 013	41.548902 -72.640828				
SUM 4013 014	41.548034 -72.640953				

Part III: Additional IDDE Program Data

1. **Assessment and Priority Ranking of Catchments Data** (Table 6-1 IDDE Program)
   Below is a list of all catchments with ranking results. See next page.

Catchment ID[10] (CT Basin Name)	Receiving Water	Previous Screening Results Indicate Likely Sewer Input? [1]	Discharging to Area of Concern to Public Health? [2]	Frequency of Past Discharge Complaints	Receiving Water Quality [3]	Density of Generating Sites [4]	Age of Development/ Infrastructure [5]	Historic Combined Sewers or Septic? [6]	Aging Septic? [7]	Culverted Streams? [8]	Score	Priority Ranking (Problem, High, Low) [10] (new/updated info)
Information Source		Catchment inspections and sample results (new/updated info)	https://cteco.uconn.edu/viewers	Municipal Staff, other	Impaired Waters List	Land Use/GIS Maps, Aerial Photography	Land Use Information, Visual Observation	Municipal Staff, GIS Maps	Land Use, Municipal Staff	GIS and Storm System Maps		
Scoring Criteria		Yes = 3 (Problem Catchment) No = 0	Yes = 3 No = 0	Frequent = 3 Occasional = 2 None = 0	Poor = 3 Fair = 2 Good = 0	High = 3 Medium = 2 Low = 1	High = 3 Medium = 2 Low = 1	Yes = 3 No = 0	Yes = 3 No = 0	Yes = 3 No = 0		
4604-00-2-R1	Sawmill Br 4604-00-1	Dry screening done: 0 (FedEx owns lg portion)	0	0	3	2	1	0	0	0	6	Low
4604-00-1	Sawmill Br 4604-00-1	Dry screening done: 0 Several large portions are owned by Army Reserves & Middlesex Land Trust	0	0	3	2	1	0	0	0	6	Low
4600-00-3-R10 Tiny section in NW near Berlin	Mattabesset R 4600-00_02	No screening planned N portion owned by 131 New Park Drive LLC. S & W parcel owned by Middletown but no outfalls ID'd by T&B and lg portion is undeveloped. W of Spruce Br. has Berlin addresses.	0	0	3 (listed as 4a and 5)	2	1	0	0	0	6	Low
4600-00-3-R13	Mattabesset R 4600-00_02	Dry screening done: 0	0	0	3 (listed as 4a and 5)	1	2	0	0	0	6	Low
4600-26-2-R1	Miner Br 4600-26_01	Dry screening done: 0	0	0	3	1	2	0	0	0	6	Low
4600-25-1	Miner Br 4600-26_01	Dry screening done: 0	0	0	3	1	2	0	0	0	6	Low
4600-25-1-L1	Miner Br 4600-26_01	Dry screening done: 0	0	0	3	1	2	0	0	0	6	Low
4600-24-1	Miner Br 4600-26_01	*Does not appear to discharge to impaired water*	0	0	0	1	*Catchment basin does not discharge to an impaired water body*				N/A	N/A
4600-30-2-R1	Mattabesset R	*Marshy areas or not Middletown-owned*	0	0	0	2	*Catchment basin does not discharge to an impaired water body*				N/A	N/A
4600-00-3-R15	Mattabesset R 4600-00_01	*NONE of the properties abutting the Matt R on the west are Middletown-owned. East side is entirely marsh. Also, basin is < 11% DCIA* = 0			3	1	2	0	0	0	N/A	N/A

4600-00-3-R16 (north section)	Mattabesset R 4600-00_01	*NONE of the properties that abut the Matt R on the west side, in the north section of this catchment basin, are Middletown-owned. East side is entirely marsh = 0*			3	2	0	0	0	0	N/A	N/A
4600-00-3-R16 (south section)	Mattabesset R 4600-00_01	*Properties along the west side of the Matt R, in the south section of this catchment basin, are Middletown- owned but marshy and direct outfalls are not expected. Also, a 1-inch storm is not expected to reach the river in this area = 0*			3	2	3	0	0	0	N/A	N/A
4607-00-3-R9 (Mid-Town Rt 66)	Coginchaug R 4607-00_01	Dry screening done: 0	0	0	2	3	3	0	0	0	8	High
4607-00-3-R9 (Mid-Town Rt 66)	Coginchaug R 4607-00_02	Dry screening done: 0	0	0	3	3	3	0	0	0	9	High
4607-00-3-R9 (Mid-Town Rt 66)	Coginchaug R 4607-00_03	Dry screening done: 0	0	0	3	3	3	0	0	0	9	High
4607-00-3-L2 *Town*	Coginchaug R 4607-00_04 *owns 2 parcels*	Dry screening done: 0 *w/ approx 600 ft of frontage.*	0	0	3	2	2	0	0	0	7	Low
4607-13-1	Coginchaug R/ Laurel Br 4607-13_01	No screening planned *The entire section of the Coginchaug River in this basin is owned by the State of CT.*			3	1	1	0	0	0	4	Low
4000-00-6+R24 (Downtown)[9, 9a]	Connecticut R 4000-00_02	Dry screening done: 0	0	0	2	3	3	3	0	0	11	High
4000-00-6+R25 (SE of Downtown incl CT Valley Hosp)[9, 9a]	Connecticut R 4000-00_02	Dry screening done: 0	0	0	2	1	2	0	0	0	5	Low
4000-00-6+R27[9b]	Connecticut R	See note 9b										N/A
4000-00-6+R30 (SE corner with Pratt & Whitney)[9]	Connecticut R 4000-00_02	No screening planned *See note on next line (These 2 sections of the river have 2 different impairment levels, so they are listed separately)*			2	2	1	0	0	0	5	Low
4000-00-6+R30 (Southernmost section of Pratt & Whitney)[9]	Connecticut R 4000-00_01	No screening planned *Total IC in this basin is only 5%. Very small Parcel ID 120 MAP Lot 56-0017 is owned by Middletown. Cannot visually identify the exact location of the Middletown parcel. All others south of Pratt & Whitney are owned by others or unknown.*			3	2	1	0	0	0	6	N/A
4013-00-3-R1 **Catchment updated June '23**	Sumner Brook Middletown-02	Dry screening done: 0	0	0	3	3	3	0	0	0	9	High
4013-00-3-R2 *Urbanized area but*	Sumner Brook Middletown-02 *only a few city-*	Dry screening done: 0 *owned parcels or easements*	0 *abut the brook.*	0	2	3	3	0	0	0	8	High

Scoring Criteria on next page:

Scoring Criteria:

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

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

[2] Catchments that discharge to or in the vicinity of any of the following areas: public beaches, recreational areas, drinking water supplies, or shellfish beds

[3] Receiving water quality based on latest version of State of Connecticut Integrated Water Quality Report.

- Poor = Waters with approved TMDLs (Category 4a Waters) where illicit discharges have the potential to contain the pollutant identified as the cause of the impairment
- Fair = Water quality limited waterbodies that receive a discharge from the MS4 (Category 5 Waters)
- Good = No water quality impairments

[4] 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.)

[5] 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

[6] 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.

[7] Aging septic systems are septic systems 30 years or older in residential areas. *(If issues are found during wet and dry weather screening, they will be investigated.)*

[8] Any river or stream that is culverted for distance greater than a simple roadway crossing. *In 2022, Tom Nigosanti reported that there are "not many in the system". This column will be re-assessed in the future if/when specific locations are determined.*

Additional Notes:

[9] App B-1 lists PCBs & E. coli as pollutants of concern and the cteco.uconn map data only lists E. coli. Ms. Karen Allen, DEEP Water Permitting and Enforcement Division, and staff in the Water Planning and Standards Division clarified: "The MS4 impaired waters mapping on the UCONN CLEAR MS4 website identifies "stormwater impaired waters", a subset of the surface waters of the state identified as impaired as a result of stormwater runoff. These are the impairments to be prioritized under the MS4 general permit." Accordingly, PCBs are not pollutants of concern with regard to MS4 permitting.

[9a] *Middletown owns all the frontage of this section of the CT River basin.*

[9b] *Basin 4000-00-6+R27 is not assessed for several reasons. Only 6% is impervious cover, and, although this section of the river is impaired, most properties are owned by others, not Middletown.*

[9c] *In 2022, the sewer department found a connection on Main Street through the hydrant flushing program where they observed an immediate response at the pump station. Investigations were conducted and a temporary connection between the sanitary sewer and the storm sewer was found. It has since been abandoned/fixed/disconnected.*

[10] Larger-scale watershed boundaries, such as CTDEEP Local Basin boundaries, may be used instead of individual outfall catchment areas to support the initial assessment and priority ranking of catchments.

2. Outfall and Interconnection Screening and Sampling data

2.1 Dry weather screening and sampling data from outfalls and interconnections

For details on this requirement, visit https://nemo.uconn.edu/ms4/tasks/monitoring.htm. Refer to the blue column of the Monitoring comparison chart and the IDDE baseline monitoring flowchart.

Interconnected MS4's may include Middlesex Hospital, Connecticut Valley Hospital, Wesleyan University and Middlesex Community College, Towns of Middlefield and Berlin. See the discussion on interconnections below the table.

The table below shows sample data for outfalls where flow was observed in dry weather. Samples must be analyzed at a minimum for those listed in this table. All analyses with the exception of indicator bacteria can be performed with field test kits or field instrumentation. In addition, where the discharge is directly into a water quality limited water or a water subject to an approved TMDL, the sample shall be analyzed for the pollutants identified as the cause of the impairment; Since E. coli is the only pollutant of concern in Middletown, there are no additional analyses required other than those listed below.

Outfall ID & Location Description Lat/Long	Screening Date Time	Bacteria[5]	Visual/ olfactory evidence	Ammonia (NH_3) (ppm)	Chlorine (ppm)	Sample Temp (F)	Conductivity[3] (µS)	Salinity[4] (ppm)	Surfactants (ppm)	High Priority Catchment[1, 2] (IDDE Follow-up) (Yes/No)
COG 4607 012 NE of Rt 66 Bridge 41.55493, -72.67394	5/6/22 9:10 am	E. Coli 140/100mL (4/15/22)	None	0	< 0.05	59°	673	320	0.25	No (E. Coli < criteria)
COG 4607 018 Jackson Street 41.5597, -72.66560	5/10/22 11:00 am	21/100mL (5/10/22)	None	0	0	59°	791	396	1.0	No (E. Coli < criteria)
COG 4607 019 Vet's Memorial Park 41.55926, -72.66842	5/6/22 12:50 pm	35/100mL (5/10/22)	Slight sewage odor	0	0	63°	220	102	0.25	Yes, based on odor
MIN 4600 008 41.59533, -72.69934	6/20/22 2:45 pm	12/100mL (6/20)	None	0	0	72°	756	358	0.25	No (E. Coli < criteria)
CON 4000 001 S North in Harbor Pk Lat/long in other file	9/2/22 1:30pm	15/100mL	None	0	0	74°	2.38	1.13	0.25	No (E. Coli < criteria)
CON 4000 002 * Mid Harbor Pk Lat/long in other file	9/2/22 12:25pm	1986/100mL	None	0	0	75.5°	2.32	1.19	0.25	No (due to NH_3 = 0)

2.1 Dry weather screening and sampling data (continued) (new/updated info)

Outfall ID & Location Description Lat/Long *(Lat/long in other file)*	**Screening Date Time**	**Bacteria[5]**	**Visual/ olfactory evidence**	**Ammonia (NH_3) (ppm)**	**Chlorine (ppm)**	**Sample Temp (F)**	**Conductivity[3] (µS)**	**Salinity[4] (ppm)**	**Surfactants (ppm)**	**High Priority Catchment[1, 2] (IDDE Follow-up) (Yes/No)**
CON 4000 002 * Mid Harbor Pk	9/30/22 9:55am	1120/100mL ** Tested 2x to confirm*	None	0	0	62°	2.49	1.23	0.25	No (due to NH_3 = 0)
SAW 4604 002 D West of 155 Industrial Pk Rd	9/30/22 12:15pm	1011/100mL	None	0	0	60°	667	319	< 0.25	No (due to NH_3 = 0)
SAW 4604 002 E West of 155 Industrial Pk Rd	9/30/22	Identified but not tested yet.	H20 backed up. No movement.							
SUM 4013 004 Behind Hubbard Park[1]	10/28/22 11:20am	261/100mL	Orange algae (natural)	0	0	56.6	1060	518	0.25 (sampled 11/3 @ 8:20am)	No (E. Coli < criteria)
SUM 4013 005 A Behind Hubbard Park[1]	10/28/22 11:30am	2420/100mL	Dark, odor, oil sheen	2.0	0	53	2.69	1.37	1st sample > hold time, no flow on 2nd attempt	Yes, based on visual, odor, NH_3 and bacteria
Note 1) These 2 outfalls are adjacent to each other; it was hard to distinguish between the flows as they mixed with each other at the end of SUM 4013 005 A.										
SUM 4013 010 Lat/long in other file	6/1/23 9:30am	13/100mL	None	0	0	60°	478	237	0	No (E. Coli < criteria)
SUM 4013 013	6/1/23 12:30pm	0/100mL	None	0	0	67°	763	359	0 – 0.25	No (E. Coli < criteria)
SUM 4013 014	6/1/23 1:15pm	173/100mL	None	0	0	64°	1171	563	0.25	No (E. Coli < criteria)
CON 4000 010 Dir N of Walnut St	Outfall is continuously submerged due to its low elevation compared to the river. About 6 in of water in pipe submerged about an hour before low tide. Inspected at 12:30 and low tide is at 1:30. 2.5 to 3 ft wide reinforced concrete. See picture. No sample taken.									TBD

Outfall ID & Location Description Lat/Long *(Lat/long in other file)*	**Screening Date Time**	**Bacteria[5]**	**Visual/ olfactory evidence**	**Ammonia (NH_3) (ppm)**	**Chlorine (ppm)**	**Sample Temp (F)**	**Conductivity[3] (µS)**	**Salinity[4] (ppm)**	**Surfactants (ppm)**	**High Priority Catchment[1, 2] (IDDE Follow-up) (Yes/No)**
CON 4000 015 Water Dept *½ dist between Main*	8/23/2023 12:58pm *Bldg. and*	50/100mL *Sm out bldg*	None *to the west.*	0 - 0.5	0	69°	334	158	0	No (E. Coli < criteria)
CON 4000 015-A Culvert to 015 listed above	8/23/2023 1:22pm	26/100mL	None	0	0	70°	390	184	0	No (E. Coli < criteria)
CON 4000 018 Opposite Green St	8/23/2023 11:15am: I got halfway between 019 and this one and the poison ivy became too thick. Returned on 12/6/2023. See data below.									NA See data below.
CON 4000 019 Opposite Ferry St	8/23/2023 11:00am	Outfall dry – data entered in EpiCollect								No Flow
CON 4000 001 N	8/23/2023 11:30am	Gravel has been removed and outfalls (both N and S) have been repaired. Both were dry. Need to determine if large opening below is a culvert, an outfall or what.								TBD
CON 4000 004 Access from dock	8/23/2023 11:40am	Attempted to screen, however the dock is broken from the flood so access it not feasible. Could not see outfall from above.								TBD
COG 4607 022 See notes below	9/1/2023 8:50am	254/100mL	None	0.5	0	64°	686	331	0.25	No (E. Coli < criteria)
Two- 5 ft diameter concrete culverts. Access from Route 66 on the east side of the bridge and block parallel to railroad tracks. T&B did not map this one. Possible VOID ID.										
MAT 4600 006 Steep slope on bike path	9/1/2023 11:00am	652/100mL	None	0	0	64°	983	481	0.25	No (due to NH_3 = 0)
COG 4607 022-B	9/1/2023 9:25am	3972/100mL	None	0.5	0	66°	891	432	0.25	Yes based on E. Coli, NH_3 and Surf.
CON 4000 018 Opposite Green St	12/6/2023 11:40am	1/100mL	None	0.5	0	50°	625	299	0.25	No (E. Coli < criteria)

Outfall ID & Location Description Lat/Long *(Lat/long in other file)*	**Screening Date Time**	**Bacteria[5]**	**Visual/ olfactory evidence**	**Ammonia (NH_3) (ppm)**	**Chlorine (ppm)**	**Sample Temp (F)**	**Conductivity[3] (µS)**	**Salinity[4] (ppm)**	**Surfactants (ppm)**	**High Priority Catchment[1, 2] (IDDE Follow-up) (Yes/No)**
SAW 4604 006 Sediment needs to be cleared.	8/23/2023 8:56am	60/100mL	None	0	0	65°	194	91	0	No (E. Coli < criteria)
SAW 4604 010 At the culvert at Corner of Smith and Ind Park Rd.	8/23/2023 8:25am	71/100mL	None	0	0	64°	816	396	0 – 0.25	No (E. Coli < criteria)
SAW 4604 010 A between Ind. Park Rd and Sawmill Brook	8/23/2023 8:40am	DRY No Flow	NA	NA	NA	NA	NA	NA	NA	No Flow
SAW 4604 010 B on Smith immed W of Rt 91.	8/23/2023 9:20am	56/100mL	None	0	0	69°	787	379	0 – 0.25	No (E. Coli < criteria)
SAW 4604 011 Access is clear through woods from street. See notes below.	8/23/2023 8:05am	49/100mL	None	0	0	63°	654	315	0.25	No (E. Coli < criteria)
Access at corner of parking lot of 333 industrial Park Road. Outfall was submerged an inch or two, but I was able to get the sample from a little waterfall two feet downstream.										
SAW 4604 012	1/3/2024 2:50pm Temp 41°	24/100mL	None	0	0	48°	713	345	0.03	No (E. Coli < criteria)
SAW 4604 014 Not found 1st or 2nd time. Found 3rd time.	8/23/2023 9:50am ******* 1/3/2024 3:20pm Temp 40°	28/100mL	None	0	0	48°	382	182	< 0.01	No (E. Coli < criteria)
SAW 4604 003	1/3/2024 1:30pm Temp 40°	4/100mL	None	0	0	45°	403	192	0.04	No (E. Coli < criteria)

Outfall ID & Location Description Lat/Long *(Lat/long in other file)*	Screening Date Time	Bacteria[5]	Visual/ olfactory evidence	Ammonia (NH_3) (ppm)	Chlorine (ppm)	Sample Temp (F)	Conductivity[3] (µS)	Salinity[4] (ppm)	Surfactants (ppm)	High Priority Catchment[1, 2] (IDDE Follow-up) (Yes/No)
SAW 4604 004	1/3/2024 1:40pm Temp 40°	0/100mL	None	0	0	43°	366	174	0.06	No (E. Coli < criteria)
SAW 4604 004 - A	1/3/2024 2:05pm Temp 40°	8/100mL	None	0	0	43°	384	183	0.05	No (E. Coli < criteria)

Notes:

1) Screening indicates sewer input based on olfactory/visual evidence or sampling results (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. Must schedule for catchment investigation for any of these combinations.
2) NEMO: "If a sample exceeds all three thresholds for ammonia, surfactants and bacteria (or ammonia, surfactants and detectable chlorine), then rank the catchment at the top of the High Priority catchments for investigation."
3) Conductivity benchmark that may indicate pollution and/or illicit discharges: > 1,500 or 2,000 µS/cm (Guidance only; not listed in MS4 permit)
4) Salinity benchmark: ≥ 0.5ppm for freshwater (Guidance only; not listed in MS4 permit)
5) Applicable Water Quality Criteria for Bacteria:
   E. coli >235 col/100ml for swimming areas
   E. coli >410 col/100ml for all others

Interconnections (new/updated info)

On November 18 and 19, 2023, Mr. Tom Nigosanti wrote to the following entities with interconnections to Middletown's MS4 system. Based on their responses and/or map analyses, the following information discusses the interconnections and any potential pollutant issues:

Wesleyan University - Any stormwater discharges from Wesleyan would be conveyed via the Middletown MS4 system or the DOT MS4 system, both of which ultimately discharge to the Coginchaug or Connecticut Rivers. Outfalls to both rivers have been identified and screened in dry weather, and several have been screened in wet weather with the remaining scheduled for 2024. Thus far, no major issues have been identified. No further information on pollutant issues is available from Wesleyan at this time.

Middlesex Community College – The college installed sediment collection structures in the two parking lots in 2001. One is in the northwest corner of the upper parking lot on Training Hill Road and the other is in the northwest corner of the lower parking lot on

Reservoir Road. Otherwise, catch basins mapped by Tighe and Bond appear to flow along Reservoir Road and discharge into a large parcel of open space north of the campus. There are no direct discharges to impaired waters so further screening is not required.

Town of Berlin – The Town has confirmed the following three interconnections that were noted by Mr. Nigosanti:
Savage Hill Road/Atkins Street - There is no drainage system, just surface flow, and no houses or other development in the area. Further screening is not required.

Middletown portion of Spruce Brook Road – There is no drainage system on the street, only overland flow. Some washing out of the curb has been repaired by Middletown DPW. Further screening is not required.

Spruce Brook Road/Main Street/Middle Street - Middletown has a drainage system in Middle Street which connects to a system at the Main Street/Spruce Brook Road intersection. The system runs easterly along Spruce Brook Road to the Mattabassett River. A topo and construction map provided by Mr. Nigosanti shows that the outlet isn't close enough to the Mattabesset River to be considered a contributor of pollutants to the MS4. Further screening is not required.

Town of Middlefield
Lorraine Terrace – This is not located in vicinity of impaired waters. Further screening is not required.

Ross and Boston Road - The short piping system discharges to a small parcel of open space south of Boston Road. It is not close enough to the Coginchaug River to be considered a contributor of pollutants to the MS4. Further screening is not required.

Hubbard Street / Rockfall Road - There is one culvert that discharges from one large area of low population density/open space to another area of open space. Further screening is not required.

Spring Street / Middlefield Street - There is no piped drainage system, only overland flow and not in the vicinity of an impaired water body. Further screening is not required.

Laurel Brook Road / Anderson Road - A short system of catch basins discharges to a small tributary in open space where the two roads intersect, west of Anderson Road. This system is not in the vicinity of any impaired water body. Further screening is not required.

Middlesex Hospital
Stormwater discharges from Middlesex Hospital flow to several oil/water separators and cyclone separators. Discharges are directly to Sumner Brook and not through the City MS4. One outfall was assigned as SUM 4013 006 A and then later voided. Further screening is not required.

Connecticut Valley Hospital
Any stormwater discharges from Connecticut Valley Hospital would be conveyed via the Middletown MS4 system or the DOT MS4 system, both of which ultimately discharge to the Sumner or Connecticut Rivers. Outfalls to both rivers have been identified and screened in dry weather, and several have been screened in wet weather with the remaining scheduled for 2024. Thus far, no major issues have been identified. There may also be stormwater discharges from the institution to large open spaces of which there are several in and around the site which do not require screening. No further information on pollutant issues is available at this time.

Department of Transportation (DOT)
The DOT was contacted by Thomas Nigosanti on December 14, 2023 regarding the ongoing compliance with the MS4 permit and interconnected storm systems to determine the number and location of interconnects and their condition. Christine Xenelis of the DOT responded on December 15, 2023 with other contacts and email addresses to involve the appropriate parties. As of the writing of this section of the report, no further information has been made available.

2.2 Wet weather sample and inspection data

For details on this requirement, visit https://nemo.uconn.edu/ms4/tasks/monitoring.htm.
The table below shows sample data for outfalls and key junction manholes of catchment areas with at least one System Vulnerability Factor.

Outfall / Interconnection ID	Latitude / Longitude	Sample date	Ammonia	Chlorine	Conductivity	Salinity	E. coli	Surfactants	Temp	Pollutant of concern
Wet weather screening began in 2023. Screening data results did not warrant opening key junction manholes. See the data below.										

Wet weather screening results are presented on the next page (new/updated info)

Color Legend:	*Blue Highlight = Sampling Complete*		*Red Highlight = Noted Issues*			Bacteria note: according to the lab, it's not unusual for different samples to have same results. (MPN = Most Probable Number of Colonies)			IMPAIRED WATERS: 48 hours after prior rain. (Can sample for BOTH Impaired Waters & IDDE in same storm IF > 48 hr rule is met)				IDDE: Mar-Jun (groundwater levels relatively high - No minimum rainfall required. Sampling permitted during or after a storm of sufficient depth or intensity. 2023 summer was very wet so the IDDE sampling period was extended.)								Select 6 of the highest contributors of bacteria (E. coli, Total Coliform, Fecal coliform or Enterococci)	Follow-up Investigations & Implement BMPs
Outfall Identifier	**Describe Waterbody**	**Physical condition of the outfall**	**Type, material and size of outfall (e.g. 24" concrete pipe)**	**Sampling Date/Time**	**Magnitude of rain (inches)**	**Duration (hrs) between this rain event & previous**	**Current weather conditions, temperature & notes**	**Time Discharge Started**	**E. Coli (MPN/100ml) (ALL except CON)**	**Total Coliform (MPN/100ml) (ALL except CON)**	**Fecal coliform (MPN/100ml) (CON only)**	**Enterococci (MPN/100ml) (CON only)**	**E. Coli (MPN/100ml) (ALL Rivers)**	**Visual/ Olfactory**	**NH_3 (ppm)**	**CL (ppm)**	**Sample Temp (F)**	**Cond (µS)**	**Salinity (ppm)**	**MBAs (ppm)**		
COG 4607 011	COG	Fair (minimal debris)	Corrugated metal approx 24 in diameter	4/24/2023 6am-8am	Several inches the day b4 on 4/23/23		Dry. OF submerged & lots of PI growth. Need to find a catch basin upstream from the OF to sample or wade into river.				NA	NA										
COG 4607 012 Lg outfall NW corner of Washington St bridge	COG	Good	Corrugated metal 5 ft diameter	4/24/2023 6am-8am **2nd attempt:** 7/10/2023 8:20AM	Several inches the day b4 on 4/23/23 **2nd attempt:** 1 inch	> 48 hours	Dry. OF was flowing, but it was also flowing during dry weather, and tested clean during dry weather. No wet sample taken. See note in COG 4607 010. **2nd attempt:** Raining 73°	5:30AM	>2420	1986	NA	NA	>2420	None	0	0	70°	120	56	0	Follow-up data starting at column Z. At this time, there are higher priorities elsewhere regarding bacteria levels.	Sampled again on 12/28/2023. See bacteria result. Area is on sanitary sewer. Bacteria does not warrant follow-up. Determined to be natural or urban cause.
COG 4607 013 Corner of P-lot on Bernie O'Rourke	COG	Poor: in need of repair, debris build-up or odor detected	Concrete approx 12-in diameter	4/24/2023 6am-8am **2nd attempt:** 7/14/2023 10:55AM	Several inches the day b4 on 4/23/23 **2nd attempt:** 0.88 inches	> 48 hours	Dry. OF was clogged with garbage. Nearby ground was damp but no flow. See note in COG 4607 010. **2nd attempt:** Raining 75°	9AM	1414	1986	NA	NA	1414	None	0.5	0	71°	21	10	0 - 0.25	Follow-up data starting at column Z. At this time, there are higher priorities elsewhere regarding bacteria levels.	Sampled again on 12/28/2023. See bacteria result. Area is on sanitary sewer. Bacteria does not warrant follow-up. Determined to be natural or urban cause.
COG 4607 016	Ultimate discharge is to the COG. Between Palmer Field and Meineke Car	Poor (in need of repair, debris build up or odor detected)	8 in metal, rusty and filled with sand or silt.	4/24/2023 6am-8am	Several inches the day b4 on 4/23/23		Dry. No flow from OF. See note in COG 4607 010.				NA	NA										
COG 4607 017	Same tributary to the COG. Approximately 60 ft north of Route 66. Tributary appears to run behind the Sunoco station across the street to the South and along side the railroad tracks.	Good (no issues observed)	12-in corrugated plastic	4/24/2023 6am-8am	Several inches the day b4 on 4/23/23		Dry. No flow from OF. See note in COG 4607 010.				NA	NA										
COG 4607 018	Directly into the COG. End of Jackson St.	Poor (in need of repair, debris build up or odor detected)	30 inch diameter corrugated metal.	4/24/2023 6am-8am	Several inches the day b4 on 4/23/23		Need assistant for this one.				NA	NA										

COG 4607 019 Across from Vet Park	Discharge is directly to the COG. Across from Vet Park	Good (no issues observed)	15-in concrete pipe supported by flat rocks	4/24/2023 6am-8am **2nd attempt:** 7/10/2023 9:10AM	Several inches the day b4 on 4/23/23 **2nd attempt:** 1 inch	> 48 hours	Dry weather. OF flowing, but it was also flowing during dry weather, and tested clean during dry weather. Major construction at the park. No wet sample taken. See note in COG 4607 010. **2nd attempt:** Raining 73°	5:30AM	>2420	1733	NA	NA	>2420	None	0	0	74°	212	100	0.25	Follow-up data starting at column Z. At this time, there are higher priorities elsewhere regarding bacteria levels.	Sampled again on 12/28/2023. See bacteria result. Area is on sanitary sewer. Bacteria does not warrant follow-up. Determined to be natural or urban cause.
COG 4607 022	Unnamed tributary starts on the south side of Route 66. The same swale that discharges to the COG on the east side of the Palmer Field property.	Good (no issues observed)	Two- 5 ft diameter concrete culverts. Best to access from Route 66 on the east side of the bridge and block parallel to railroad tracks								NA	NA										
COG 4607 022-A	Tributary to the COG located between Palmer Field and Meineke Car	Good (no issues observed)	3 to 4 foot concrete				This outfall is about 20 ft into the culvert (underneath) from the south side. Same as Yellow outfall ID'd on T&B map. **Bring extension pole and headlamp for wet weather sampling.**				NA	NA										
COG 4607 022-B	Tributary to the COG located between Palmer Field and Meineke Car	Good (no issues observed)	3ft 9 inch round concrete				Same outfall as identified by T&B				NA	NA										
COG 4607 022-C	Tributary to the COG located between Palmer Field and Meineke Car	Good (no issues observed)	10 inch round concrete								NA	NA										
COG 4607 023 End of Johnson St.	Coginchaug River (end of Johnson St)	Good (no issues observed)	12 inch concreted	7/10/2023 9:48AM	1 inch	> 48 hours	Raining 73° Very steep slope from next door – use extension rod over chain link fence	5:30AM	525	326	NA	NA	525	None	0	0	76°	10	5	0		Bacteria does not warrant follow-up. Determined to be natural or urban cause.
COG 4607 024	Coginchaug River (end of Berlin St)	No data	Could not locate outfall. Lat & Long is approx.								NA	NA										
COG 4607 025	Coginchaug River (end of Rose Circle)	No data	Outfall not located. A large tree has fallen & may be covering outfall.								NA	NA										
COG 4607 026	Coginchaug River (end of Stoneycrest Drive)	No data	Could not locate the outfall.								NA	NA										
COG 4607 027	Coginchaug River (end of Beverly Heights)	Fair (minimal debris and/or a little maintenance required)	Approx 12-inch round concrete	12/28/2023 7:27AM	1.91 inches	> 48 hours	Raining 40°	2AM	1632	3106	NA	NA	1632	None	0	0	51°	12.8	5.9	0.08		Bacteria does not warrant follow-up. Determined to be natural or urban cause.

COG 4607 028	Coginchaug River (opposite Marzalek Park)	Poor (in need of repair, debris build up or odor detected)	12-in concrete pipe	7/14/2023 11:20AM	0.88 inches	> 48 hours	Raining 75° Opposite Marzalek Park	9AM	1046	1733	NA	NA	1046	None	0	0	74°	21	10	0.25		Bacteria does not warrant follow-up. Determined to be natural or urban cause.
MIN 4600 001	Miner Brook	Fair (minimal debris and/or a little maintenance required)	18-in concrete. The larger piece of 30 in wide reinforced concrete culvert has broken off.	7/16/2023 9:30AM	2.82 inches	> 48 hours	Raining 75°	9:30AM	1120	1120	NA	NA	1120	None	0	0	70°-72°	10	4.8	0		Bacteria does not warrant follow-up. Determined to be natural or urban cause.
MIN 4600 002	Miner Brook	Good (no issues observed)	30 in concrete with flared end	7/16/2023 9:45AM	2.82 inches	> 48 hours	Raining 75°	9:30AM	1553	3106	NA	NA	1553	None	0	0	70°-72°	9	4	0 - 0.25		Bacteria does not warrant follow-up. Determined to be natural or urban cause.
MIN 4600 005	Miner Brook	Good (no issues observed)	12 inch round concrete	7/16/2023 10:00AM	2.82 inches	> 48 hours	Raining 75°	9:30AM	4820	4820	NA	NA	4820	None	0	0	70°-72°	13.4	6.4	0.25 – 0.50		Bacteria does not warrant follow-up. Determined to be natural or urban cause.
MIN 4600 006	Miner Brook	Good (no issues observed)	26-in flared end, reinforced concrete	7/16/2023 10:15AM	2.82 inches	> 48 hours	Raining 75°	9:30AM	2420	2814	NA	NA	2420	None	0	0	70°-72°	77.6	36.5	0.25		Bacteria does not warrant follow-up. Determined to be natural or urban cause.
MIN 4600 006-A	Miner Brook	Poor (in need of repair, debris build up or odor detected)	20 to 24 inches flared concrete	7/16/2023			Outfall submerged and significant sediment build-up. Must be cleared to sample.				NA	NA										
MIN 4600 006-B	Miner Brook	Poor (in need of repair, debris build up or odor detected)	20 to 24 inch flared reinforced concrete	7/16/2023 10:30AM	2.82 inches	> 48 hours	Raining 75°	9:30AM	816	1986	NA	NA	816	None	0	0	70°-72°	155.3	73.4	0.25		Bacteria does not warrant follow-up. Determined to be natural or urban cause.
MIN 4600 007	Miner Brook	Good (no issues observed)	24 inch concrete	7/16/2023 10:45AM	2.82 inches	> 48 hours	Raining 75°	9:30AM	3872	3872	NA	NA	3872	None	0	0	70°-72°	83.2	39.1	0.5		Bacteria does not warrant follow-up. Determined to be natural or urban cause.
MIN 4600 008	Miner Brook	Good (no issues observed)	17 inch corrugated metal. A little rusting with a few holes on the bottom	7/16/2023 11:15AM	2.82 inches	> 48 hours	Raining 75°	9:30AM	1553	1733	NA	NA	1553	None	0	0	70°-72°	24.3	11.4	0		Bacteria does not warrant follow-up. Determined to be natural or urban cause.
MIN 4600 009	East Miner Brook	Good (no issues observed)	24-in wide concrete culvert	7/16/2023 11:30AM	2.82 inches	> 48 hours	Raining 75°	9:30AM	1120	2814	NA	NA	1120	None	0	0	70°-72°	26	12.2	0 – 0.25		Bacteria does not warrant follow-up. Determined to be natural or urban cause.
MIN 4600 010	East Miner Brook	Fair (minimal debris and/or a little maintenance required)	24 inch Y-shaped concrete	7/16/2023 11:45AM	2.82 inches	> 48 hours	Raining 75°	9:30AM	1046	1733	NA	NA	1046	None	0	0	70°-72°	10.6	4.9	0		Bacteria does not warrant follow-up. Determined to be natural or urban cause.
MIN 4600 011	East Miner Brook	Fair (minimal debris and/or a little maintenance required)	32-in wide, Y-shaped concrete	7/16/2023 12PM	2.82 inches	> 48 hours	Raining 75°	9:30AM	1120	1553	NA	NA	1120	None	0	0	70°-72°	21.2	9.9	0		Bacteria does not warrant follow-up. Determined to be natural or urban cause.
MIN 4600 012	East Miner Brook	Poor (in need of repair, debris build up or odor detected)	22-inch, Y-shaped concrete	7/16/2023 12:15PM	2.82 inches	> 48 hours	Raining 75°	9:30AM	1300	1733	NA	NA	1130	None	0	0	70°-72°	17.9	8.4	0 - 0.25		Bacteria does not warrant follow-up. Determined to be natural or urban cause.
MIN 4600 013	East Miner Brook	Good (no issues observed)	16 inch reinforced concrete	9/18/2023 11:55am	0.81 inches	> 48 hours	Raining 64° - 66° No sample taken on 1st attempt due to submersion.	Between 5 & 6am	1110	11,200	NA	NA	1110	None	0.5	0	66°	183.3	86.7	0.25	Currently 1 of the 6 highest (Total Coliform)	Follow-up Investigation & Implement BMPs
MIN 4600 014	East Miner Brook	Good (no issues observed)	18-in concrete	7/16/2023 12:30PM	2.82 inches	> 48 hours	Raining 75°	9:30AM	866	1553	NA	NA	866	None	0	0	70°-72°	14.9	7	0		Bacteria does not warrant follow-up. Determined to be natural or urban cause.
MIN 4600 015	East Miner Brook	Good (no issues observed)	15 inch corrugated plastic pipe	9/18/2023 8:15am	0.81 inches	> 48 hours	Raining 64° - 66°	Between 5 & 6am	860	9800	NA	NA	860	None	0.5	0	67°	12.7	5.8	0		Follow-up Investigation & Implement BMPs
MIN 4600 016	East Miner Brook	Good (no issues observed)	16 inch concrete pipe	9/18/2023 8:30am	0.81 inches	> 48 hours	Raining 64° - 66°	Between 5 & 6am	530	9210	NA	NA	530	None	0	0	67°	9.6	4.4	0 - 0.25		Follow-up Investigation & Implement BMPs

MIN 4600 017 (Previously voided, then outfall found)	East Miner Brook	Poor (in need of repair, debris build up or odor detected)	Area overgrown. Outfall not found initially.	9/18/2023 8:50am	0.81 inches	> 48 hours	Raining 64° - 66° T&B ID'd one as culvert. Regulated outfall found later.	Between 5 & 6am	3450	14,140	NA	NA	3450	None	0.5	0	67°	9	4.2	0.25	Currently 1 of the 6 highest (Total Coliform)	Follow-up Investigation & Implement BMPs
MIN 4600 020 easy one on Congdon Street	Minor Brook	Good (no issues observed)	12-in concrete	7/14/2023 11:48PM	0.88 inches	> 48 hours	Raining 75°	9AM	1420	2828	NA	NA	1420	None	0	0	72°	59	27.5	0.25		Bacteria does not warrant follow-up. Determined to be natural or urban cause.
MIN 4600 021	Minor Brook	Poor (in need of repair, debris build up or odor detected)	16 inch concrete	9/18/2023 9:05am	0.81 inches	> 48 hours	Raining 64° - 66°	Between 5 & 6am	470	10,460	NA	NA	470	None	0.5	0	67°	12.7	5.9	0	Currently 1 of the highest (Total Coliform)	Map review indicates sewered area. Initially focusing on other 6 that are higher.
MAT 4600 001	Mattabasset river	Good (no issues observed)	17-in concrete pipe								NA	NA										
MAT 4600 002	Mattabasset river	Good (no issues observed)	Approximately 3 ft by 3 ft concrete blocks as culvert/tunnel for natural stream under bike path								NA	NA										
MAT 4600 003	Indirect discharge to mattabassett river via unnamed stream.	Good (no issues observed)	8-in PVC pipe								NA	NA										
MAT 4600 004	Indirectly to mattabassett river via unnamed stream	Good (no issues observed)	28 inch y-shaped concrete								NA	NA										
MAT 4600 005	Mattabasset river	Good (no issues observed)	4 ft 7 in high and 4 ft wide arched with stone blocks with concrete base								NA	NA										
MAT 4600 006	Mattabasset river	Good (no issues observed)	Slope is too steep to climb down at the moment. Will have to come back								NA	NA										
SAW 4604 001 B (changed from 001)	Tributary that leads directly to the Sawmill Brook. Just South of Roscommon.	Poor (in need of repair, debris build up or odor detected)	12 to 15 inch corrugated metal. The underside is rusted out.	8/15/2023 7:30am	0.3 inches	> 48 hours	Raining 70° - 72°. Park at 14 Industrial Park Place. Used extension pole. Very steep and eroded sides.	2:00am	250	2240	NA	NA	250	None	0	0	69°	158	76	0-0.25		Bacteria does not warrant follow-up. Determined to be natural or urban cause.
SAW 4604 002	Sawmill Brook	Good (no issues observed)	15-in concrete pipe - flared to 32-in wide	8/7/2023 12:48pm	1.49 inches	> 48 hours	Raining 70°	8:30am	1414	2240	NA	NA	1414	None	0.5	0	71°	15	6.8	0		Bacteria does not warrant follow-up. Determined to be natural or urban cause.
SAW 4604 002 D	Sawmill Brook	Good (no issues observed)	18 inch corrugated plastic				Behind 6th bldg N of Smith. Not found on 8/15/2023. Need to look again. Best to enter at the far end of the business on the south side. Slope is too steep and not enough room on edge. Can walk in brook if slow flow.				NA	NA										

SAW 4604 003	Discharges via channel/conduit to Sawmill Brook.	Good (no issues observed)	3.5 ft corrugated metal				Originally thought to not discharge to impaired water. Upon 2nd review, it appears to discharge via channel/conduit to Sawmill.				NA	NA										
SAW 4604 004	Discharges via channel/conduit to Sawmill Brook.	Good (no issues observed)	Approximately 3 ft corrugated metal				Originally thought to not discharge to impaired water. Upon 2nd review, it appears to discharge via channel/conduit to Sawmill.				NA	NA										
SAW 4604 004 - A (between SAW 004 & 004 - B)	Discharges via channel/conduit to Sawmill Brook.	Good (no issues observed)	Approximately 3 ft concrete																			
SAW 4604 004 - B (furthest west under sm bridge)	Discharges via channel/conduit to Sawmill Brook.	Good (no issues observed)	12-in concrete pipe																			
SAW 4604 005 (WLK 8?) Not located	Discharges via channel/conduit to Sawmill Brook.	TBD	Outfall not located.				Originally thought to not discharge to impaired water. Upon 2nd review, it appears to discharge via channel/conduit to Sawmill.				NA	NA										
SAW 4604 006	Sawmill Brook	Poor (in need of repair, debris build up or odor detected)	15 inch corrugated metal that flares out to a wider metal bottom. Access from the W through All Star Software Systems.	8/7/2023 1:00pm	1.49 inches	> 48 hours	Raining 70°	8:30am	1046	4840	NA	NA	1046	None	0	0	71°	65	31	0		Bacteria does not warrant follow-up. Determined to be natural or urban cause.
SAW 4604 007	Sawmill Brook	Good (no issues observed)	15 to 18-in concrete with flat bottom. 005 is flat bottom also	8/7/2023 1:10pm	1.49 inches	> 48 hours	Raining 70°	8:30am	1733	3106	NA	NA	1733	None	0.5	0	71°	133	62	0 - 0.25		Bacteria does not warrant follow-up. Determined to be natural or urban cause.
SAW 4604 008	Sawmill Brook	Good (no issues observed)	15 to 18 in concrete	8/7/2023 1:16pm	1.49 inches	> 48 hours	Raining 70°	8:30am	20	3466	NA	NA	20	None	0	0	71°	31	14	0.25		Bacteria does not warrant follow-up. Determined to be natural or urban cause.
SAW 4604 010	Sawmill Brook	Good (no issues observed)	18 in plastic coated corrugated metal inside concrete case. NE corner of Smith & Ind Pk Rd.	8/7/2023 12:30pm	1.49 inches	> 48 hours	Raining 70°	8:30am	2420	3972	NA	NA	2420	None	0	0	71°	22	10	0 - 0.25		Bacteria does not warrant follow-up. Determined to be natural or urban cause.
SAW 4604 010 - A	Sawmill Brook	Clearing is needed. CB backed up with stormwater.	8 to 10 inch corrugated metal with flared end	Attempted 9/18/2023 but clogged at CB.	0.81 inches	> 48 hours	Mapped by T&B. Located between Ind. Park Rd and Sawmill Brook	Between 5am and 6am	No data. See repair note.	No data. See repair note.	NA	NA										
SAW 4604 010 - B	Sawmill Brook	Good (no issues observed)	12 to 14 in corrugated metal	9/18/2023 11:00am	0.81 inches	> 48 hours	Mapped by T&B. Located on Smith immed W of Rt 91.	Between 5am and 6am	2480	4840	NA	NA	2480	None	0	0	66°	Not tested	Not tested	0.25		Bacteria does not warrant follow-up. Determined to be natural or urban cause.

SAW 4604 011	Sawmill Brook	Good (no issues observed)	24-in concrete with metal interior	8/15/2023 7:12am	0.3 inches	> 48 hours	Raining 70° - 72°. Between Fedex Dr and Roscommon. Enter through p-lot directly across from outfall. Easy access through woods.	2:00am	3106	2092	NA	NA	3106	None	0	0	69°	80	37	0		Bacteria does not warrant follow-up. Determined to be natural or urban cause.
SAW 4604 012	Sawmill Brook	Good (no issues observed)	At least 24 inch concrete. Outfall can be seen from the SW side of employee p-lot at Thames River Recycling. Access is nearly impossible through thick vegetation & steep slope.	9/18/2023 9:45am	0.81 inches	> 48 hours	Raining 64° - 66°. Sample collected from above the wall with jug. Located where brook crosses at Middle St.	Between 5am and 6am	15,530	24,200	NA	NA	15530	None	0.5	0	66°	88.4	41.4	0.25	Currently 1 of the 6 highest (E. Coli & Total Coliform) **Dry weather sampling result for E. Coli = 24 mpn/100ml**	Mr. Holden reviewed the engineered drawings and concluded the sewer line does cross the storm drain system in this area. Further investigation with video is planned for 2024. (Although the farm does not discharge stormwater directly to the drainage system, stormwater from the site could certainly contaminate the Sawmill River thus contributing to its impairment as identified by the EPA and CTDEEP.)
SAW 4604 013	Sawmill Brook	Good (no issues observed)	16 in flared concrete	8/15/2023 8:43am	0.3 inches	> 48 hours	Raining 70° - 72°. Boardman Ln, 1st one from Middle St.	2:00am	1414	2022	NA	NA	1414	None	0	0	69°	137	65	0 - 0.25		Bacteria does not warrant follow-up. Determined to be natural or urban cause.
SAW 4604 014	Sawmill Brook	Good (no issues observed)	Could not locate using T&B map. On 12/28/2023 catch basin on SW side of road appeared to be piped under road, to N side of Boardman, discharging under road.	9/18/2023 2nd attempt; 12/28/2023 3rd Attempt but submerged			On 12/28/2023 discovered it is under the road and discharges to other side. Access river about 60 ft from the road through light brush & field around sm opening in barbed wire fence, then walk river edge to outfall.				NA	NA										
SAW 4604 015	Sawmill Brook	Good (no issues observed)	24 inch flared concrete	9/18/2023 Attempted 12/28/2023 2nd Attempt			Submerged. Bailer needed at CB or try following drier spell. 12/28/2023 submerged again (South of SAW 4604 016)				NA	NA										
SAW 4604 016	Sawmill Brook	Fair (minimal debris and/or a little maintenance required)	24 in flared concrete	9/18/2023 11:20am	0.81 inches	> 48 hours	Raining 64° - 66° North of SAW 4604 015	Between 5am and 6am	560	4540	NA	NA	560	None	0	0	68°	26	12.2	0.25		Bacteria does not warrant follow-up. Determined to be natural or urban cause.
CON 4000 001 N	Directly to CT River	Poor (in need of repair, debris build up or odor detected)	14-in corrugated plastic						NA	NA												
CON 4000 001 S	Directly to CT River	Fair (minimal debris and/or a little maintenance required)	14-in corrugated plastic						NA	NA												
CON 4000 002	Directly to CT River	Good (no issues observed)	Approximately 30-inch concrete						NA	NA												
CON 4000 002 N	Directly to CT River	Poor (in need of repair, debris build up or odor detected)	Approx 6 inch metal pipe disconnected from source						NA	NA												
CON 4000 003	Directly to CT River	Good (no issues observed)	Approx 18-in appears to be metal						NA	NA												

CON 4000 004	Directly to CT River	Good (no issues observed)	3 ft concrete						NA	NA												
CON 4000 005	Directly to CT River	Poor (in need of repair, debris build up or odor detected)	3 ft concrete						NA	NA												
CON 4000 006 N/S	Directly to CT River	Fair (minimal debris and/or a little maintenance required)	4-in PVC two pipes within inches of each other (both)						NA	NA												
CON 4000 007	Directly to CT River	Good (no issues observed)	12-in metal						NA	NA												
CON 4000 008	Directly to CT River	Good (no issues observed)	4-ft concrete y shaped						NA	NA												
SUM 4013 003	Sumner Brook	Poor (in need of repair, debris build up or odor detected)	6 inch corrugated plastic. Filled with dirt. Steep slope to access.	8/7/2023 No sample.	1.49 inches	> 48 hours	Raining 69°	8:30am	No sample taken. Outfall filled with dirt. No flow.		NA	NA										
SUM 4013 004	Sumner Brook	Poor (in need of repair, debris build up or odor detected)	Approx 12 inch wide, partially visible concrete. Could be bigger; Mostly covered with heavy dirt. Right next to 005A.	8/7/2023 9:30am	1.49 inches	> 48 hours	Raining 69° Steep and slippery when wet.	8:30am	9	488	NA	NA	9	None	3	0	66°	1682	833	0.25		GOOD
SUM 4013 005 A	Sumner Brook	Poor (in need of repair, debris build up or odor detected)	4 ft wide concrete. Right next to 004.	8/7/2023 No sample. Submerged	1.49 inches	> 48 hours	Raining 69° Steep and slippery when wet.	8:30am	No sample taken. Submerged on 8/7 & 9/29.		NA	NA										
SUM 4013 005 B	Sumner Brook	Poor (in need of repair, debris build up or odor detected)	14-in concrete inside concrete case	8/7/2023 No sample. 2nd attempt on 9/29/2023	2.8 inches on 9/29/2023	> 48 hours	Raining 53°	Approx. 5am	Thick veg. Could not access/locate on 8/7 or 9/29.		NA	NA										
SUM 4013 006	Sumner Brook	Good (no issues observed)	24 in concrete. Easy access, far corner of park.	8/7/2023 10am	1.49 inches	> 48 hours	Raining 69°	8:30am	24	2420	NA	NA	24	None	0.5	0	71°	69	31	0.5		Bacteria does not warrant follow-up. Determined to be natural or urban cause.
SUM 4013 007	Sumner Brook	Fair (minimal debris and/or a little maintenance required)	26 inch flared concrete. Directly behind boat at end of road. In line with end of driveway at #33.	8/7/2023 10:35am	1.49 inches	> 48 hours	Raining 69°	8:30am	2828	4840	NA	NA	2828	None	0.5	0	71°	33	15	0.5		Bacteria does not warrant follow-up. Determined to be natural or urban cause.
SUM 4013 008	Sumner Brook		Determine if this is MS4 from Pameacha Pond.																			
SUM 4013 009	Sumner Brook	Fair (minimal debris and/or a little maintenance required)	24-in Y-shaped concrete (or horseshoe shape)	9/29/2023 7:00am	2.8 inches	> 48 hours	Raining 53°	Approx. 5am	647	8670	NA	NA	647	None	0.5	0	60°	22.6	10.6	0.25		Follow-up Investigation & Implement BMPs

SUM 4013 010	Sumner Brook	Good (no issues observed)	Concrete block, double outfalls, 24 in diameter each	9/29/2023 7:35am	2.8 inches	> 48 hours	Raining 53°	Approx. 5am	12,030	24,200	NA	NA	12,030	No odor but cloudy	0.5	0	62°	132	62.3	0.25	Currently one of the highest (E. Coli & Total Coliform)	Map reviewed indicates sewered area. Drainage upstream from Barnhart is from an estimated 13 acres of open space south of the sample point, behind the property. 4**No further investigation is planned.**
SUM 4013 011	Sumner Brook	No data	Did not see the outfall. See notes.				Attempted again from street but extremely steep. Best to access under culvert with assistance.				NA	NA										
SUM 4013 012	Sumner Brook	Good (no issues observed)	24 inch diameter concrete	9/29/2023 7:57am	2.8 inches	> 48 hours	Raining 53°	Approx. 5am	8160	19,860	NA	NA	8160	None	0.5	0	62°	18.7	8.7	0.25	Currently 1 of the 6 highest (Total Coliform)	Follow-up Investigation & Implement BMPs
SUM 4013 013	Sumner Brook	Good (no issues observed)	Approximately 40 inch concrete pipe	9/29/2023 8:35am	2.8 inches	> 48 hours	Raining 54°	Approx. 5am	3650	13,000	NA	NA	3650	Slight petroleum smell and cloudy	0.5	0	63°	56.1	26.4	0.25	Currently 1 of the 6 highest (Total Coliform)	Follow-up Investigation & Implement BMPs
SUM 4013 014	Sumner Brook	Good (no issues observed)	Approximately 40 inch concrete pipe	9/29/2023 9:10am	2.8 inches	> 48 hours	Raining 54°	Approx. 5am	4350	14,140	NA	NA	4350	No odor but a bit cloudy, light tan	0.5	0	62°	113.8	53.7	0.25	Currently 1 of the 6 highest (Total Coliform)	Follow-up Investigation & Implement BMPs
CON 4000 009	Connecticut River	Good (no issues observed)	18 to 24-in concrete						NA	NA												
CON 4000 010	Connecticut River	Fair (minimal debris and/or a little maintenance required)	24-in concrete. High tide is half way up the pipe vertically.						NA	NA												
CON 4000 011	Connecticut River	Fair (minimal debris and/or a little maintenance required)	14-in wide, rectangle shape. Appears to be natural rock material.						NA	NA												
CON 4000 012	Connecticut River	Good (no issues observed)	12-in metal. Coming out of concrete wall just below the wood fence.						NA	NA												
CON 4000 013	Connecticut River	Fair (minimal debris and/or a little maintenance required)	24-in concrete pipe that opens up to 36 in wide Y shape						NA	NA												
CON 4000 014	Connecticut River	Good (no issues observed)	18-in concrete opens up to 3 ft Y shape						NA	NA												
CON 4000 015	Connecticut River	Fair (minimal debris and/or a little maintenance required)	34 inch concrete						NA	NA												
CON 4000 015-A	Connecticut River	check if culvert and drainage area if MS4.							NA	NA												
CON 4000 018	Connecticut River	Good (no issues observed)	48-inch round concrete						NA	NA												
CON 4000 018 - A	Connecticut River	Good (no issues observed)	16 inch corrugated metal						NA	NA												
CON 4000 019	Connecticut River	Good (no issues observed)	3 ft concrete				Opposite Ferry St		NA	NA												

CON 4000 019-A	Connecticut River	Fair (minimal debris and/or a little maintenance required)	20 to 22 in corrugated metal				**May not be Middletown-owned.**		NA	NA												
CRY 4013 001	Crystal Lake	Good (no issues observed)	30 in round concrete																			
DOT Outfalls																						
SUM 4013 006 B DOT	Sumner Brook (likely NOT an MS4 connection as discharge is direct to Brook)	Good (no issues observed)	Approximate 12-in concrete inside concrete wall. Possible second outfall in same location in the same wall.																			
VOIDED Outfall IDs																						
COG 4607 010 VOID ID	COG	Good visually but determined to be disconnected from sources.	Brick type material 4-in diameter, a little broken.	4/24/2023 6am-8am 2nd attempt 7/14/2023	Several inches the day b4 on 4/23/23	VOID ID	Dry. Attempted IDDE sampling. Wondered if GW would be high after heavy rain on 4/23. Outfalls were dry, so IDDE sampling plan was scratched. Dry on 7/14/2023 during rain.	VOID ID	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
COG 4607 016-A VOID ID	Tributary to the COG located between Palmer Field and Meineke Car	Good (no issues observed)	NA	VOID ID	VOID ID	VOID ID	VOID ID	VOID ID	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
COG 4607 016-B VOID ID	Tributary flows from the south side of Route 66, between Palmer Field and Meineke	Good (no issues observed)	NA. Tributary was located.	VOID ID	VOID ID	VOID ID	VOID ID	VOID ID	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
MIN 4600 003 VOID ID	VOID ID	Outfall not found 2022 or 1st attempt in 2023.	Found on 2nd attempt in 2023 & assigned new ID.	VOID ID	VOID ID	VOID ID	VOID ID	VOID ID	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
MIN 4600 004 VOID ID	VOID ID	VOID ID	Outfall is the same as 001, so 004 is voided.	VOID ID	VOID ID	VOID ID	VOID ID	VOID ID	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
MIN 4600 007-A VOID ID	Miner Brook	Good (no issues observed)	6-in plastic, white PVC Determined to be roof drain or similar from condo.	7/16/2023 11AM	2.82 inches	> 48 hours	Raining 75°	9:30AM	1120	2420	NA	NA	1120	None	0.5	0	70°-72°	20.2	9.4	0.25		
MIN 4600 007-B VOID ID	Miner Brook	Good (no issues observed)	4 inch white PVC Determined to be roof drain or similar from condo.	7/16/2023 Dry during rain	2.82 inches	> 48 hours	Raining 75° Not sampled because OF was dry during significant rainfall.	9:30AM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
MIN 4600 008-A VOID ID due to significant disrepair	Miner Brook	Poor (in need of repair, debris build up or odor detected)	Two separate pieces of broken concrete pipe. One is 16 inches, the other about 16 inches also.	VOID ID	VOID ID	VOID ID	VOID ID	VOID ID	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
No ID Assigned. See notes.	Miner Brook	NA	NA	VOID ID	VOID ID	VOID ID	Heard strong water flow **under ground** at this location. Possibly another discharge point but cannot determine.	VOID ID	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		

MIN 4600 018 VOID ID	West Miner Brook which is not impaired.	Good (no issues observed)	Outfall could not be assessed due to overgrowth, however discharge is not to impaired water.	VOID ID	VOID ID	VOID ID	VOID ID	VOID ID	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
MIN 4600 019 VOID ID	Miner Brook	OF is far north of the street. No access except through private property.	Not inspected. 42 inch corrugated metal pipe reported by T&B.	VOID ID	VOID ID	VOID ID	ID'd as channel for river through private property, not an outfall.	VOID ID	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
SAW 4604 001 A (changed from 001) VOID ID	Does not discharge to impaired water body	Fair (minimal debris and/or a little maintenance required)	Too much overgrowth to locate the outfall, as well as abundant poison ivy.	VOID ID	VOID ID	VOID ID	VOID ID	VOID ID	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
SAW 4604 002 A VOID ID	Tributary to The Sawmill Brook	Good (no issues observed)	8-in dia PVC	VOID ID	ID'd as small roof drain or similar from business.		VOID ID	VOID ID	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
SAW 4604 002 B VOID ID	Tributary to The Sawmill Brook	Good (no issues observed)	6-in diameter PVC	VOID ID	ID'd as small roof drain or similar from business.		VOID ID	VOID ID	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
SAW 4604 002 C VOID ID	Tributary to The Sawmill Brook	Good (no issues observed)	3 inch diameter PVC	VOID ID	ID'd as small roof drain or similar from business.		VOID ID	VOID ID	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
SAW 4604 002 E VOID ID	About 50 ft from Sawmill Brook with a distinct swale	Poor (in need of repair, debris build up or odor detected)	Approx 10 in corrugated metal or plastic with a plastic extension	VOID ID	Not Middletown-owned.		VOID ID	VOID ID	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
SAW 4604 009 Multi (28) VOID ID	Sawmill Brook	Good (no issues observed)	4 inch PVC. There are 14 of these on the north side of the culvert, and 14 on the south side of the culvert. All dry. No flows in dry or wet weather.	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
SUM 4013 001 VOID ID	Sumner Brook	Good (no issues observed)	4 to 6 inch, possibly clay. *Culvert - not an outfall*	VOID ID	VOID ID	VOID ID	VOID ID	VOID ID	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
SUM 4013 002 VOID ID	Sumner Brook	Good (no issues observed)	4 to 6 inch, possibly clay. *Culvert - not an outfall*	VOID ID	VOID ID	VOID ID	VOID ID	VOID ID	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
SUM 4013 006 A	Sumner Brook	Good (no issues observed)	Approximately 12 in metal supported by concrete wall	VOID ID	VOID ID	VOID ID	Discharge is direct from Middlesex Hospital. Not MS4 connected.															
CON 4000 011 Marsh investigation location #1	Marsh upstream of CON 4000 011	NA	NA	VOID ID	VOID ID	VOID ID	See notes in dry weather data. Investigation complete and determined to be natural sources.	VOID ID	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
CON 4000 011 Marsh investigation location #2	Marsh upstream of CON 4000 011	NA	NA	VOID ID	VOID ID	VOID ID	See notes in dry weather data. Investigation complete and determined to be natural sources.	VOID ID	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
CON 4000 011 Marsh investigation location #3	Marsh upstream of CON 4000 011	NA	NA	VOID ID	VOID ID	VOID ID	See notes in dry weather data. Investigation complete and determined to be natural sources.	VOID ID	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		

CON 4000 016 VOID ID	Connecticut River	Good (no issues observed)	4 ft concrete culvert under the road for stream crossing.	VOID ID	VOID ID	VOID ID	VOID ID	VOID ID	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CON 4000 017 VOID ID	Connecticut River	Good (no issues observed)	16 inch corrugated metal to a 2.5 ft metal flared.	VOID ID	VOID ID	VOID ID	VOID ID	VOID ID	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

3. Catchment Investigation data

3.1 System Vulnerability Factor Summary

The presence or absence of System Vulnerability Factors (SVF) for catchments that are being investigated for illicit discharges (i.e. categorized as high priority, low priority, or problem) are documented below. If present, the specific SVF is identified.

The SVF assessment is presented on the following page.

Catchment ID	Receiving Water	1 History of SSOs (Yes/No)	2 Common or Twin Invert Manholes (Yes/No)	3 Common Trench Construction (Yes/No)	4 Storm/Sanitary Crossings (Sanitary Above) (Yes/No)	5 Sanitary Lines with Underdrains (Yes/No)	6 Inadequate Sanitary Level of Service (Yes/No)	7 Areas Formerly Served by Combined Sewers (Yes/No)	8 Sanitary Infrastructure Defects (Yes/No)	9 SSO Potential In Event of System Failures (Yes/No)	10 Sanitary and Storm Drain Infrastructure >40 Years Old (Yes/No)	11 Septic with Poor Soils or Water Table Separation (Yes/No)	12 History of BOH Actions Addressing Septic Failure (Yes/No)
4604-00-2-R1	Sawmill Br 4604-00-1	No	No	T. Nigosanti believes none	T. Nigosanti believes none	No	Will inquire w/ sewer dept	None	None known	Possible	Yes	None known	None known
4604-00-1	Sawmill Br 4604-00-1	No	No	T. Nigosanti believes none	T. Nigosanti believes none	No	Will inquire w/ sewer dept	None	None known	Possible	Yes	None known	None known
4600-00-3-R10 Tiny section in NW near Berlin	Mattabesset R 4600-00_02	No	No	T. Nigosanti believes none	T. Nigosanti believes none	No	Will inquire w/ sewer dept	None	None known	Possible	Yes	None known	None known
4600-00-3-R13	Mattabesset R 4600-00_02	No	No	T. Nigosanti believes none	T. Nigosanti believes none	No	Will inquire w/ sewer dept	None	None known	Possible	Yes	None known	None known
4600-26-2-R1	Miner Br 4600-26_01	No	No	T. Nigosanti believes none	T. Nigosanti believes none	No	Will inquire w/ sewer dept	None	None known	Possible	Yes	None known	None known
4600-25-1	Miner Br 4600-26_01	No	No	T. Nigosanti believes none	T. Nigosanti believes none	No	Will inquire w/ sewer dept	None	None known	Possible	Yes	None known	None known
4600-25-1-L1	Miner Br 4600-26_01	No	No	T. Nigosanti believes none	T. Nigosanti believes none	No	Will inquire w/ sewer dept	None	None known	Possible	Yes	None known	None known
4600-24-1 [13]	Miner Br 4600-26_01	No	No	T. Nigosanti believes none	T. Nigosanti believes none	No	Will inquire w/ sewer dept	None	None known	Possible	Yes	None known	None known
4600-30-2-R1 [13]	Mattabesset R	No	No	T. Nigosanti believes none	T. Nigosanti believes none	No	Will inquire w/ sewer dept	None	None known	Possible	Yes	None known	None known
4600-00-3-R15	Mattabesset R 4600-00_01	No	No	T. Nigosanti believes none	T. Nigosanti believes none	No	Will inquire w/ sewer dept	None	None known	Possible	Yes	None known	None known
4600-00-3-R16	Mattabesset R 4600-00_01	No	No	T. Nigosanti believes none	T. Nigosanti believes none	No	Will inquire w/ sewer dept	None	None known	Possible	Yes	None known	None known
4607-00-3-R9 (Mid-Town Rt 66)	Coginchaug R 4607-00_01	Yes - 42 Columbus Av & 207 Westfield St	No	T. Nigosanti believes none	T. Nigosanti believes none	No	Will inquire w/ sewer dept	None	None known	Possible	Yes	None known	None known
4607-00-3-R9 (Mid-Town Rt 66)	Coginchaug R 4607-00_02	No	No	T. Nigosanti believes none	T. Nigosanti believes none	No	Will inquire w/ sewer dept	None	None known	Possible	Yes	None known	None known
4607-00-3-R9 (Mid-Town Rt 66)	Coginchaug R 4607-00_03	No	No	T. Nigosanti believes none	T. Nigosanti believes none	No	Will inquire w/ sewer dept	None	None known	Possible	Yes	None known	None known
4607-00-3-L2	Coginchaug R 4607-00_04	No	No	T. Nigosanti believes none	T. Nigosanti believes none	No	Will inquire w/ sewer dept	None	None known	Possible	Yes	None known	None known
4607-13-1	Coginchaug R/ Laurel Br 4607-13_01	No	No	T. Nigosanti believes none	T. Nigosanti believes none	No	Will inquire w/ sewer dept	None	None known	Possible	Yes	None known	None known
4000-00-6+R24 (Downtown)	Connecticut R 4000-00_02	No	No	T. Nigosanti believes none	T. Nigosanti believes none	No	Will inquire w/ sewer dept	One[14]	None known	Possible	Yes	None known	None known
4000-00-6+R25 (SE of Downtown incl CT Valley Hsp)	Connecticut R 4000-00_02	No	No	T. Nigosanti believes none	T. Nigosanti believes none	No	Will inquire w/ sewer dept	One[14]	None known	Possible	Yes	None known	None known
4000-00-6+R30 (SE corner with Pratt & Whitney)	Connecticut R 4000-00_02	No	No	T. Nigosanti believes none	T. Nigosanti believes none	No	Will inquire w/ sewer dept	None	None known	Possible	Yes	None known	None known
4000-00-6+R30 (Southernmost section of Pratt & Whitney)	Connecticut R 4000-00_01	No	No	T. Nigosanti believes none	T. Nigosanti believes none	No	Will inquire w/ sewer dept	None	None known	Possible	Yes	None known	None known
4013-00-3-R1	Sumner Brook Middletown-02	No	No	T. Nigosanti believes none	T. Nigosanti believes none	No	Will inquire w/ sewer dept	None	None known	Possible	Yes	None known	None known

Presence/Absence Evaluation Criteria is listed on the following page.

Presence/Absence Evaluation Criteria:

1. History of SSOs, including, but not limited to, those resulting from wet weather, high water table, or fat/oil/grease blockages
2. Common or twin-invert manholes serving storm and sanitary sewer alignments
3. Common trench construction serving both storm and sanitary sewer alignments
4. Crossings of storm and sanitary sewer alignments where the sanitary system is shallower than the storm drain system
5. Sanitary sewer alignments known or suspected to have been constructed with an underdrain system
6. Inadequate sanitary sewer level of service (LOS) resulting in regular surcharging, customer back-ups, or frequent customer complaints
7. Areas formerly served by combined sewer systems
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. Sewer pump/lift stations, siphons, or known sanitary sewer restrictions where power/equipment failures or blockages could readily result in SSOs
10. Any sanitary sewer and storm drain infrastructure greater than 40 years old
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 health department 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)

Additional Notes:

13. This catchment may not discharge to an impaired water body. Needs to be field checked.
14. In 2022, the sewer department found a connection on Main Street through the hydrant flushing program where they observed an immediate response at the pump station. Investigations were conducted and a temporary connection between the sanitary sewer and the storm sewer was found. It has since been abandoned (fixed/disconnected).

3.2 Key junction manhole dry weather screening and sampling data

Key Junction Manhole ID	Latitude / Longitude	Screening / Sample date	Visual/ olfactory evidence of illicit discharge	Ammonia	Chlorine	Surfactants
No data to report for 2022.						
Screening data results in 2023 did not warrant opening key junction manholes.						

3.3 Wet weather investigation outfall sampling data (new/updated info)

Outfall ID	Latitude / Longitude	Sample date	Ammonia	Chlorine	Surfactants
No data to report for 2022. Wet weather investigations began in 2023.					
All sample data is present in Section 2.2 “Wet weather sample and inspection data”. Environmental Monitoring Lab was used for bacteria testing, and after 12/28/2023 was also used for surfactant testing. Others were tested with field kits.					

Outfall ID	Status of drainage area investigation	Control measure to address impairment
MIN 4600 013	Map reviewed indicates sewered area. Street drainage from Fieldbrook Road. Residential area.	Outfall planned to be jetted and re-tested.
MIN 4600 017	Map reviewed indicates sewered area. Waterbody south of outfall, but determined to be insignificant. Street drainage from east section of Miner Street. Residential area plus adjacent business All Care LLC (adult day care center) & Westfield Fire Station nearby.	Outfall planned to be re-tested. Further investigation will ensue if re-test is high.
MIN 4600 021	Map reviewed indicates sewered area. Drainage is from Meadowood Drive. Residential area. Possible sanitary cross connection.	Currently focusing on others that are higher. No further investigation is planned at this time.

SAW 4604 012	Map reviewed indicates sewered area. Originally thought to receive SW from open space on Boardman Lane and a farm further upstream on Bell St. where composting activity making "Black Gold" from manure takes place. After a review of the storm and sewer maps, the farm was determined to be a non-contributor to this outfall. Although the farm does not discharge stormwater directly to the drainage system that was tested (at SAW 4604 012), stormwater from the site could certainly contaminate the Sawmill River thus contributing to its impairment as identified by the EPA and CTDEEP. Mr. Holden reviewed and described the engineered drawings and concluded the sewer line does cross the storm drain system in this area. A video could detect a loose connection.	Businesses on Middle St contribute to the stormwater system in this area. More field investigation is planned to inspect and assess the businesses. Further investigation with video is planned for 2024, **however the outfall was flowing in dry weather on 1/3/2024 and sampled again at that time. Bacteria results were 24/100mL and no issues with other constituents.**
SUM 4013 010	Map reviewed indicates sewered area. Drainage upstream from Barnhart is from an estimated 13 acres of open space south of the sample point, behind the property. Natural bacteria sources from the open space is likely.	No further investigation is planned.
SUM 4013 012	Map reviewed indicates sewered area. Drainage from a short section of Mill St and longer section of Front St. Residential area. No insights were revealed from the review.	Outfall planned to be re-tested.
SUM 4013 013	Map reviewed indicates sewered area. Drainage is from a large section of residential, mixed with industrial and commercial businesses such as CVS, Irving Gas Station, and high traffic area to Bob's, Marshalls, Stop & Shop, Santostefano Auto Body and Get Fresh Barber Shop. No specific insights were revealed from the review.	Outfall planned to be re-tested.
SUM 4013 014	Map reviewed indicates sewered area. Drainage from industrial and commercial area including Fortune Garden Chinese restaurant and Walgreens. Rayco Metal Finishing and Bergen Diesel are immediately adjacent to the outfall, however map does not show any connection to the drainage system. No specific insights were revealed from the review.	Outfall planned to be re-tested.

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 data to report for 2023. To date, there have been no confirmed illicit discharges.							
Approximately 10 to 15 years ago, a sanitary connection to the storm system was discovered from the Forbidden City restaurant on Main St. The connection was promptly disconnected as soon as possible after discovery.							
In recent history (sometime in the last 10 years), a sanitary connection to the storm system was discovered at the deKoven House on deKoven Drive. The connection was promptly disconnected as soon as possible after discovery.							
All sanitary connections to the storm system that the DPW is aware of have been disconnected.							

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: Benjamin Florsheim, Mayor	Print name: Sharon Finney, Monarch Environmental, LLC
Signature / Date:	Signature / Date: February 6, 2024
Email: mayor@MiddletownCT.gov	Email: sharonfinney@comcast.net