Year 3 Annual Report
Massachusetts Small MS4 General Permit
Reporting Period: July 1, 2020-June 30, 2021

Please DO NOT attach any documents to this form. Instead, attach all requested documents to an email when submitting the form

Unless otherwise noted, all fields are required to be filled out. If a field is left blank, it will be assumed the requirement or task has not been completed. Please ONLY report on activities between July 1, 2020 and June 30, 2021 unless otherwise requested.

Part I: Contact Information

Name of Municipality or Organization: Town of Dedham

EPA NPDES Permit Number: MAR041033

Primary MS4 Program Manager Contact Information

Name: Jason Mammone, P.E. Title: Director of Engineering

Street Address Line 1: 55 River Street

Street Address Line 2: NA

City: Dedham State: MA Zip Code: 02026

Email: jmammone@dedham-ma.gov Phone Number: (781) 751-9352

Stormwater Management Program (SWMP) Information

SWMP Location (web address): https://www.dedham-ma.gov/home/showdocument?id=13475

Date SWMP was Last Updated: June 2021

If the SWMP is not available on the web please provide the physical address:

Part II: Self-Assessment

First, in the box below, select the impairment(s) and/or TMDL(s) that are applicable to your MS4. Make sure you are referring to the most recent EPA approved Section 303(d) Impaired Waters List which can be found here: https://www.epa.gov/tmdl/region-1-impaired-waters-and-303d-lists-state

Impairment(s)

☒ Bacteria/Pathogens ☐ Chloride ☐ Nitrogen ☒ Phosphorus
☒ Solids/ Oil/ Grease (Hydrocarbons)/ Metals

TMDL(s)

In State: ☐ Assabet River Phosphorus ☒ Bacteria and Pathogen ☐ Cape Cod Nitrogen
☒ Charles River Watershed Phosphorus ☐ Lake and Pond Phosphorus

Out of State: ☐ Bacteria/Pathogens ☐ Metals ☐ Nitrogen ☐ Phosphorus

Clear Impairments and TMDLs

Next, check off all requirements below that have been completed. ***By checking each box you are certifying that you have completed that permit requirement fully.*** *If you have not completed a requirement leave the box unchecked. Additional information will be requested in later sections.*

Year 3 Requirements

- ☒ Inspected and screened all outfalls/interconnections (excluding Problem and Excluded outfalls)
- ☒ Updated outfall/interconnection priority ranking based on the information collected during the dry weather inspections as necessary
- ☒ Post-construction bylaw, ordinance, or other regulatory mechanism was updated and adopted consistent with permit requirements

Optional: If you would like to describe progress made on any incomplete requirements listed above, provide any additional information, and/or if any of the above year 3 requirements could not be completed due to the impacts of COVID-19, please identify the requirement that could not be completed, any actions taken to attempt to complete the requirement, and reason the requirement could not be completed below:

Annual Requirements

- ☒ Provided an opportunity for public participation in review and implementation of SWMP and complied with State Public Notice requirements
- ☒ Kept records relating to the permit available for 5 years and made available to the public
- ☐ The SSO inventory has been updated, including the status of mitigation and corrective measures implemented
  - ○ This is not applicable because we do not have sanitary sewer
  - ◉ This is not applicable because we did not find any new SSOs

- ○ The updated SSO inventory is attached to the email submission
- ○ The updated SSO inventory can be found at the following website:

☒ Properly stored and disposed of catch basin cleanings and street sweepings so they did not discharge to receiving waters

☒ Provided training to employees involved in IDDE program within the reporting period

☒ All curbed roadways were swept at least once within the reporting period

☒ Updated system map due in year 2 as necessary

☒ Enclosed all road salt storage piles or facilities and implemented winter road maintenance procedures to minimize the use of road salt

☒ Implemented SWPPPs for all permittee owned or operated maintenance garages, public works yards, transfer stations, and other waste handling facilities

☒ Updated inventory of all permittee owned facilities as necessary

☒ O&M programs for all permittee owned facilities have been completed and updated as necessary

☒ Implemented all maintenance procedures for permittee owned facilities in accordance with O&M programs

☒ Implemented program for MS4 infrastructure maintenance to reduce the discharge of pollutants

☒ Inspected all permittee owned treatment structures (excluding catch basins)

Optional: If you would like to describe progress made on any incomplete requirements listed above, provide any additional information, and/or if any of the above annual requirements could not be completed due to the impacts of COVID-19, please identify the requirement that could not be completed, any actions taken to attempt to complete the requirement, and reason the requirement could not be completed below:

Bacteria/ Pathogens (Combination of Impaired Waters Requirements and TMDL Requirements as Applicable)

Annual Requirements

*Public Education and Outreach**

☒ Annual message was distributed encouraging the proper management of pet waste, including noting any existing ordinances where appropriate

☒ Permittee or its agents disseminated educational material to dog owners at the time of issuance or renewal of dog license, or other appropriate time

☒ Provided information to owners of septic systems about proper maintenance in any catchment that discharges to a water body impaired for bacteria

** Public education messages can be combined with other public education requirements as applicable (see Appendix H and F for more information)*

Optional: If you would like to describe progress made on any incomplete requirements listed above or provide any additional details, please use the box below:

The SepticSmart flyer developed by EPA which was mailed out to properties in Dedham known to have septic systems in Permit Year 2, was not mailed to any properties during Permit Year 3. However, the flyer was maintained on the Town's website in both English and Spanish to be accessible to as many people as possible.

Phosphorus (Combination of Impaired Waters Requirements and TMDL Requirements as Applicable)

Annual Requirements

*Public Education and Outreach**

☒ Distributed an annual message in the spring (April/May) encouraging the proper use and disposal of grass clippings and encouraging the proper use of slow-release and phosphorus-free fertilizers

☒ Distributed an annual message in the summer (June/July) encouraging the proper management of pet waste, including noting any existing ordinances where appropriate

☒ Distributed an annual message in the fall (August/September/October) encouraging the proper disposal of leaf litter

** Public education messages can be combined with other public education requirements as applicable (see Appendix H and F for more information)*

Good Housekeeping and Pollution Prevention for Permittee Owned Operations

☒ Increased street sweeping frequency of all municipal owned streets and parking lots subject to Permit part 2.3.7.a.iii.(c) to a minimum of two times per year (spring and fall)

Potential structural BMPs

☐ Any structural BMPs already existing or installed in the regulated area by the permittee or its agents was tracked and the phosphorus removal by the BMP was estimated consistent with Attachment 3 to Appendix F. The BMP type, total area treated by the BMP, the design storage volume of the BMP and the estimated phosphorus removed in mass per year by the BMP were documented.

- ○ The BMP information is attached to the email submission
- ○ The BMP information can be found at the following website:

Optional: If you would like to describe progress made on any incomplete requirements listed above or provide any additional details, please use the box below:

The estimated phosphorus removal associated with existing structural BMPs has been calculated for some developments in Town. However, the Town is still working to refine this information and expand this analysis. As the Town moves forward in developing their Phosphorus Control Plan, the Town will track and estimate the phosphorus removed by each BMP including reporting the BMP type, total area treated, design storage volume, and the estimated phosphorus removed in mass per year.

Through their partnership with the Neponset River Watershed Association, the Town was able to calculate estimated phosphorus loadings for each of the Town's drainage catchments. A template for the Phosphorus Source Identification Report was also developed by the Neponset River Watershed Association. This information will be used when finalizing the Phosphorus Source Identification Report for Mother Brook during Permit Year 4.

Solids, Oil and Grease (Hydrocarbons), or Metals

Annual Requirements

Good Housekeeping and Pollution Prevention for Permittee Owned Operations

☒ Increased street sweeping frequency of all municipal owned streets and parking lots to a schedule that targets areas with potential for high pollutant loads

☐ Prioritized inspection and maintenance for catch basins to ensure that no sump shall be more than 50 percent full; Cleaned catch basins more frequently if inspection and maintenance activities indicated excessive sediment or debris loadings

Optional: If you would like to describe progress made on any incomplete requirements listed above or provide any additional details, please use the box below:

The Town has been collecting data during annual catch basin cleaning that will be utilized to develop a catch basin cleaning optimization plan. This plan will be developed and implemented once sufficient data has been collected. The plan will include provisions to prioritize areas that discharge to water bodies impaired for solids, oil, grease, or metals.

Charles River Watershed Phosphorus TMDL

☒ Completed the funding source assessment

Optional: If you would like to describe progress made on any incomplete requirements listed above or provide any additional details, please use the box below:

Optional: Use the box below to provide any additional information you would like to share as part of your self-assessment:

Through their partnership with the Neponset River Watershed Association, the Town was able to calculate phosphorus loadings for each of the Town's drainage catchments. The phosphorus loadings from this analysis that are applicable to the Charles River watershed will be used when developing Phase 1 of the required Phosphorus Control Plan in Permit Year 5.

There are no known locations where SSOs have discharged to the MS4 during the reporting period or in the 5 years prior to the start of the reporting period.

The Town performed training on Illicit Discharge Detection and Elimination (IDDE) and Good Housekeeping and Pollution Prevention in June 2021. Due to the COVID-9 pandemic, a formal, in-person training was not permissible, so PowerPoint Presentations were distributed to staff, and staff had to send confirmation to the Director of Engineering verifying that they completed the required training.

The Town was proactive in drafting the regulatory updates required under MCM5 during Permit Year 2, however the onset of COVID-19 and the change to a virtual public meeting format delayed the adoption of those regulatory updates until Permit Year 3. Dedham's Stormwater Management Rules and Regulations were officially updated to meet permit requirements at a Conservation Commission meeting held on August 8, 2020.

The Town inspected all 78 municipally owned stormwater treatment structures during the reporting period.

Part III: Receiving Waters/Impaired Waters/TMDL

Have you made any changes to your lists of receiving waters, outfalls, or impairments since the NOI was submitted?

- (●) Yes
- ( ) No

If yes, describe below, including any relevant impairments or TMDLs:

The list of outfalls/interconnections and their receiving waters was updated during Permit Year 3 as part of the completed dry-weather outfall screening and sampling. The updated list of receiving waters and outfalls is included in Section 1 of the Town's SWMP.

The following changes have been made to the Town's list of impaired waters since the permit effective date: Charles River has added harmful algal blooms as an impairment and Mother Brook has added debris, dewatering, and trash as impairments. None of these impairments trigger additional sampling requirements.

Part IV: Minimum Control Measures

Please fill out all of the metrics below. If applicable, include in the description who completed the task if completed by a third party.

MCM1: Public Education

Number of educational messages completed **during this reporting period**: 6

*Below, report on the educational messages completed **during this reporting period**. For the measurable goal(s) please describe the method/measures used to assess the overall effectiveness of the educational program.*

BMP:Dog Waste Flyers

Message Description and Distribution Method:

The Town distributed a flyer entitled "There's no such thing as the poop fairy" with dog license issuances and renewals during Permit Year 3. These flyers were distributed both in-person and via mail after the onset of COVID-19.

Targeted Audience: Residents

Responsible Department/Parties: Town Clerk/ Environmental Department

Measurable Goal(s):

The Town distributed 1,400 dog waste flyers with dog license issuances and renewals during the reporting period.

Message Date(s): Permit Year 3

Message Completed for: Appendix F Requirements ☒ Appendix H Requirements ☒

Was this message different than what was proposed in your NOI? Yes ○ No ◉

If yes, describe why the change was made:

BMP:Leaf Litter Messaging

Message Description and Distribution Method:

The Town posted information provided by the Nepsonset River Watershed Partnership regarding proper disposal of leaf litter to the home page of its website during the Fall of 2020. The leaf litter slider also served as a link to the Town's stormwater webpage, where more educational information is posted. As part of the fall campaign, the Town also shared the information to the "Dedham DPW" Facebook and "Town of Dedham Engineering Dept" Twitter pages.

Targeted Audience: Residents

Responsible Department/Parties: Engineering Department, DPW

Measurable Goal(s):

By posting the leaf litter slide to the home page of the Town's website, Dedham ensured that it would be accessible to as many residents as possible. Additionally, the post on the Dedham DPW Facebook page reached the accounts 1,861 followers, and the post on the Engineering Department's Twitter page reached the accounts of 125 followers.

Message Date(s): November 2020

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☒

Was this message different than what was proposed in your NOI? Yes ○ No ◉

If yes, describe why the change was made:

BMP: Septic System Messaging

Message Description and Distribution Method:

The Town posted a SepticSmart flyer developed by EPA and a SepticSmart homeowners guide to its website in the winter of 2020. The flyer was posted in both English and Spanish.

Targeted Audience: Residents

Responsible Department/Parties: Health Department, Engineering Department

Measurable Goal(s):

By posting the septic system flyer to the home page of the Town's website, Dedham ensured that it would be accessible to as many residents as possible.

Message Date(s):

Message Completed for: Appendix F Requirements ☒ Appendix H Requirements ☒

Was this message different than what was proposed in your NOI? Yes ○ No ◉

If yes, describe why the change was made:

BMP: Regional Outreach Mailer

Message Description and Distribution Method:

The Neponset River Watershed Association distributed an informational flyer directly to Dedham residents in June of 2021. The flyer covered rain barrels, dog waste management, fertilizer use, and other topics related to stormwater management.

Targeted Audience: Residents

Responsible Department/Parties: Neponset Stormwater Partnership

Measurable Goal(s):

Informational flyer was distributed to all residents.

Message Date(s): June 2021

Message Completed for: Appendix F Requirements ☒ Appendix H Requirements ☒

Was this message different than what was proposed in your NOI? Yes ○ No ◉

If yes, describe why the change was made:

BMP: Fertilizer Messaging

Message Description and Distribution Method:

The Town shared the "Fertilizer Calculator" developed by the Neponset Stormwater Partnership to Dedham DPW Facebook and Twitter pages, and the Engineering Department Twitter page. These posts were part of a spring campaign to minimize phosphorus use and encourage the use of low phosphorus or phosphorus-free fertilizer.

Targeted Audience: Residents

Responsible Department/Parties: Engineering Department, DPW

Measurable Goal(s):

The post was sent out through the Dedham DPW Facebook and Twitter pages and reached the accounts of 1,861 followers and 107 followers respectively, and the Engineering Department's Twitter page reached the accounts of 125 followers.

Message Date(s): Spring 2021

Message Completed for: Appendix F Requirements ☒ Appendix H Requirements ☒

Was this message different than what was proposed in your NOI? Yes ○ No ◉

If yes, describe why the change was made:

BMP: Yard Waste Flyer

Message Description and Distribution Method:

A flyer regarding best management practices for yard waste was developed and sent out to all the public schools in Dedham.

Targeted Audience: Residents

Responsible Department/Parties: Engineering Department, School Department

Measurable Goal(s):

By posting the yard flyer to the home page of the Town's website as well as handing it out to students, Dedham ensured that it would be accessible to as many residents as possible.

Message Date(s): Fall 2020

Message Completed for: Appendix F Requirements ☐ Appendix H Requirements ☒

Was this message different than what was proposed in your NOI? Yes ○ No ◉

If yes, describe why the change was made:

Add an Educational Message

MCM2: Public Participation

Describe the opportunity provided for public involvement in the development of the Stormwater Management Program (SWMP) **during this reporting period**:

The Town posted the updated SWMP, dated June 2021, to its website at the end of Permit Year 3. The SWMP was made available for public comment. However, no comments were received. A final version of the updated SWMP has since been posted to the Town's website at the link included on the first page of this report.

Was this opportunity different than what was proposed in your NOI? Yes ○ No ◉

Describe any other public involvement or participation opportunities conducted **during this reporting period**:

The Board of Health held its annual Household Hazardous Waste Collection Day on October 3, 2020, providing the opportunity for residents to properly dispose of hazardous materials such as paints, pesticides, vehicle fluids, batteries, flammable materials, and other substances that may have otherwise been discharged into the MS4. While only one official collection day is held annually, DPW staff collect and properly dispose of hazardous materials year-round as needed.

In addition to providing bi-weekly curbside recycling pickup, the Town held a recycling collection event on April 24, 2021, to collect items that are not accepted during curbside pickup, but are still recyclable. Dedham Arts also held an electronic/metals recycling event on October 24, 2020 for items not accepted during curbside pickup, but are still recyclable.

Rain barrels were made available for purchase to residents from the Dedham-Westwood Water District and composting bins were made available for purchase through the Town's Manager's office.

The Town continued its Citizens Water Monitoring Network, an initiative organized through the Neponset River Watershed Association, during the reporting period. Resident volunteers collected monthly samples at

the Mother Brook at Washington Street station, testing for E.coli, total phosphorus, pH, dissolved oxygen, temperature, ortho-phosphate, total nitrogen, and ammonia.

MCM3: Illicit Discharge Detection and Elimination (IDDE)

Sanitary Sewer Overflows (SSOs)

Check off the box below if the statement is true.

☐ This SSO section is NOT applicable because we DO NOT have sanitary sewer

*Below, report on the number of SSOs identified in the MS4 system and removed **during this reporting period**.*

Number of SSOs identified: 0

Number of SSOs removed: 0

MS4 System Mapping

Optional: Provide additional status information regarding your map:

During the reporting period, the Town was able to refine their outfall and interconnection inventory during dry weather screening. Updates to the Town's MS4 system mapping were completed to include these changes. The most recent version of the MS4 map is included with the SWMP and available at the following location: https://dedham.maps.arcgis.com/home/index.html.

Screening of Outfalls/Interconnections

If conducted, please submit any outfall monitoring results from this reporting period. Outfall monitoring results should include the date, outfall/interconnection identifier, location, weather conditions at time of sampling, precipitation in previous 48 hours, field screening parameter results, and results from all analyses. Please also include the updated inventory and ranking of outfalls/interconnections based on monitoring results.

○ No outfalls were inspected

◉ The outfall screening data is attached to the email submission

○ The outfall screening data can be found at the following website:

*Below, report on the number of outfalls/interconnections screened **during this reporting period**.*

Number of outfalls screened: 184

*Below, report on the percent of outfalls/interconnections screened **to date**.*

Percent of outfalls screened: 100

Optional: Provide additional information regarding your outfall/interconnection screening:

Due to the impacts of COVID-19, the Town of Dedham had to institute a hiring freeze during 2020 which prevented the Engineering Department from hiring their summer intern who was going to focus on performing dry weather outfall inspections for the 184 Town-owned outfalls/interconnections. Dry weather screening did not begin until the spring of 2021. Although all outfalls/interconnections were initially screened during the

reporting period, due to the variability of the weather, dry weather samples were not collected until July 2021.

Wet weather outfall sampling was completed for 20 outfalls during the reporting period. All the outfalls sampled during wet weather discharge to Mother Brook and data collected will be used for development of the Phosphorus Source Identification Report for Mother Brook in Permit Year 4.

Catchment Investigations

If conducted, please submit all data collected during this reporting period as part of the dry and wet weather investigations. Also include the presence or absence of System Vulnerability Factors for each catchment.

- ○ No catchment investigations were conducted
- ◉ The catchment investigation data is attached to the email submission
- ○ The catchment investigation data can be found at the following website:

*Below, report on the number of catchment investigations completed **during this reporting period**.*

Number of catchment investigations completed this reporting period: 10

*Below, report on the percent of catchments investigated **to date.***

Percent of total catchments investigated: 5

Optional: Provide any additional information for clarity regarding the catchment investigations below:

The Town investigated 22 catchments during Permit Year 3, however there were only 10 catchments where both catchment investigations and wet weather outfall sampling were completed. Catchment investigation data attached to this report includes all the investigations completed during the reporting period. There are 180 outfalls in Dedham that have at least one SVF, therefore wet weather sampling must be conducted for catchment investigations to be considered complete.

IDDE Progress

If illicit discharges were found, please submit a document describing work conducted over this reporting period, and cumulative to date, including location source; description of the discharge; method of discovery; date of discovery; and date of elimination, mitigation, or enforcement OR planned corrective measures and schedule of removal.

- ◉ No illicit discharges were found
- ○ The illicit discharge removal report is attached to the email submission
- ○ The illicit discharge removal report can be found at the following website:

*Below, report on the number of illicit discharges identified and removed, along with the volume of sewage removed **during this reporting period.***

Number of illicit discharges identified: 0

Number of illicit discharges removed: 0

Estimated volume of sewage removed: 0 gallons/day

Below, report on the total number of illicit discharges identified and removed to date. At a minimum, report on the number of illicit discharges identified and removed ***since the effective date of the permit (July 1, 2018)****.*

Total number of illicit discharges identified: 0

Total number of illicit discharges removed: 0

Optional: Provide any additional information for clarity regarding illicit discharges identified, removed, or planned to be removed below:

Employee Training

Describe the frequency and type of employee training conducted **during this reporting period**:

Individual employee training was conducted in June of the reporting period. Training could not be conducted in a formal group setting due to COVID-19, so instead PowerPoint presentations were sent to staff and the staff had to send an email confirmation to the Director of Engineering that they had completed the training. The Town will continue annual employee training for the duration of the permit term.

MCM4: Construction Site Stormwater Runoff Control

Below, report on the construction site plan reviews, inspections, and enforcement actions completed ***during this reporting period****.*

Number of site plan reviews completed: 3

Number of inspections completed: 7

Number of enforcement actions taken: 1

Optional: Enter any additional information relevant to construction site plan reviews, inspections, and enforcement actions:

The above quantities for site plan reviews, inspections, and enforcement actions taken pertain to sites with 1 acre or more of disturbance.

MCM5: Post-Construction Stormwater Management in New Development and Redevelopment

As-built Drawings

*Below, report on the number of as-built drawings received **during this reporting period**.*

Number of as-built drawings received: 8

Optional: Enter any additional information relevant to the submission of as-built drawings:

The number of as-builts received is for all projects, even those where there was less than an acre of disturbance.

Street Design and Parking Lots Report

Describe the status of the street design and parking lots assessment due in year 4 of the permit term, including any planned or completed changes to local regulations and guidelines:

The Town is working to develop the street design and parking lots assessment. This assessment will be complete within four years of the permit effective date, or by June 30, 2022.

Green Infrastructure Report

Describe the status of the green infrastructure report due in year 4 of the permit term, including the findings and progress towards making the practice allowable:

The Town is working to develop the green infrastructure report. The report will be complete within four year of the permit effective date, or by June 30, 2022.

Retrofit Properties Inventory

Describe the status of the inventory, due in year 4 of the permit term, of permittee-owned properties that could be modified or retrofitted with BMPs to mitigate impervious areas and report on any properties that have been modified or retrofitted:

The Town has compiled an inventory of municipally-owned properties and is working to identify which of these properties could be modified or retrofitted with BMPs to mitigate impacts to the MS4. This retrofit inventory will be complete within four years of the permit effective date, or by June 30, 2022.

MCM6: Good Housekeeping

Catch Basin Cleaning

*Below, report on the number of catch basins inspected and cleaned, along with the total volume of material removed from the catch basins **during this reporting period**.*

Number of catch basins inspected: 1,574

Number of catch basins cleaned: 1,544

Total volume or mass of material removed from all catch basins: 34,480 cubic feet

Below, report on the total number of catch basins in the MS4 system.

Total number of catch basins: 1,961

If applicable:

Report on the actions taken if a catch basin sump is more than 50% full during two consecutive routine inspections/cleaning events:

Street Sweeping

*Report on street sweeping completed **during this reporting period** using one of the three metrics below.*

- (•) Number of miles cleaned: 330
- ( ) Volume of material removed: [Select Units]
- ( ) Weight of material removed: [Select Units]

Stormwater Pollution Prevention Plan (SWPPP)

*Below, report on the number of site inspections for facilities that require a SWPPP completed **during this reporting period**.*

Number of site inspections completed: 3

Describe any corrective actions taken at a facility with a SWPPP:

Inspections were conducted for the DPW Facility during three of the four quarters for the reporting period, with one inspection conducted during wet weather. No corrective actions were taken at this facility. However, the Town is in the process of designing some DPW facility improvements based on recommendations included in the SWPPP.

Additional Information

Monitoring or Study Results

Results from any other stormwater or receiving water quality monitoring or studies conducted during the reporting period not otherwise mentioned above, where the data is being used to inform permit compliance or permit effectiveness must be attached.

- ( ) Not applicable
- (•) The results from additional reports or studies are attached to the email submission
- ( ) The results from additional reports or studies can be found at the following website(s):

If such monitoring or studies were conducted on your behalf or if monitoring or studies conducted by other entities were reported to you, a brief description of the type of information gathered or received shall be described below:

The Neponset River Watershed Association has been collecting water quality data in Dedham and throughout the Nepsonset River watershed since 1996. Samples are collected by volunteers through the Community Water Monitoring Network and by the Nepsonset River Watershed Association staff. The data is used to track the health of the Nepsonet River and its tributaries, and to locate pollution sources for follow-up sampling. There is one permanent monitoring station in Dedham located on Mother Brook. The station is tested for E.coli, total phosphorus, pH, dissolved oxygen, and temperature once per month between May and October. Recommendations related to phosphorus and e.coli levels were identified in the 2020 Water Quality Report. The Town will utilize this data during future MS4 compliance initiatives and when developing the Phosphorus Source Identification Report for Mother Brook in Permit Year 4.

Additional Information

Optional: Enter any additional information relevant to your stormwater management program implementation during the reporting period. Include any BMP modifications made by the MS4 if not already discussed above:

COVID-19 Impacts

Optional: If any of the above year 3 requirements could not be completed due to the impacts of COVID-19, please identify the requirement that could not be completed, any actions taken to attempt to complete the requirement, and reason the requirement could not be completed below:

Due to the impacts of COVID-19, the Town of Dedham had to institute a hiring freeze during 2020 which prevented the Engineering Department from hiring their summer intern who was going to perform dry weather outfall inspections for the 184 Town-owned outfalls/interconnections. Although all the outfalls/ interconnections were initially screened during the reporting period, dry weather samples were not collected until July 2021.

Activities Planned for Next Reporting Period

Please confirm that your SWMP has been, or will be, updated to comply with all applicable permit requirements including but not limited to the year 4 requirements summarized below. (Note: impaired waters and TMDL requirements are not listed below)

Yes, I agree ☒

- Develop a report assessing current street design and parking lot guidelines and other local requirements within the municipality that affect the creation of impervious cover
- Develop a report assessing existing local regulations to determine the feasibility of making green infrastructure practices allowable when appropriate site conditions exist
- Identify a minimum of 5 permittee-owned properties that could potentially be modified or retrofitted

with BMPs to reduce impervious areas

Annual Requirements

- Annual report submitted and available to the public
- Annual opportunity for public participation in review and implementation of SWMP
- Keep records relating to the permit available for 5 years and make available to the public
- Properly store and dispose of catch basin cleanings and street sweepings so they do not discharge to receiving waters
- Annual training to employees involved in IDDE program
- Update inventory of all known locations where SSOs have discharged to the MS4
- Continue public education and outreach program
- Update outfall and interconnection inventory and priority ranking and include data collected in connection with the dry weather screening and other relevant inspections conducted
- Implement IDDE program
- Review site plans of construction sites as part of the construction stormwater runoff control program
- Conduct site inspection of construction sites as necessary
- Inspect and maintain stormwater treatment structures
- Log catch basins cleaned or inspected
- Sweep all curbed streets at least annually
- Continue investigations of catchments associated with Problem Outfalls
- Implemented SWPPPs for all permittee owned or operated maintenance garages, public works yards, transfer stations, and other waste handling facilities
- Review inventory of all permittee owned facilities in the categories of parks and open space, buildings and facilities, and vehicles and equipment; update if necessary
- Review O&M programs for all permittee owned facilities; update if necessary
- Implement all maintenance procedures for permittee owned facilities in accordance with O&M programs
- Implement program for MS4 infrastructure maintenance to reduce the discharge of pollutants
- Enclose all road salt storage piles or facilities and implemented winter road maintenance procedures to minimize the use of road salt
- Review as-built drawings for new and redevelopment to ensure compliance with post construction bylaws, regulations, or regulatory mechanism consistent with permit requirements
- Inspect all permittee owned treatment structures (excluding catch basins)

Provide any additional details on activities planned for permit year 4 below:

Part V: Certification of Small MS4 Annual Report 2021

40 CFR 144.32(d) Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, I certify that the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name:	Jason Mammone, P.E.	Title:	Director of Engineering
Signature:	Jason Mammone Digitally signed by Jason Mammone DN: cn=Jason Mammone, o=Town of Dedham, ou=Engineering Department, email=jmammone@dedham-ma.gov, c=US Date: 2021.09.23 09:54:54 -04'00'	Date:	

[Signatory may be a duly authorized representative]

Dedham, MA - Catchment Investigation Results

System Discharge	Structure	Upstream Structure	Location Description	Date	Flow	Sandbagged	Flow Behind Sandbag	Sampling Results					Surcharging	Observations
								Ammonia (mg/l)	Chlorine (mg/l)	Surfactants (mg/l)	Temperature (°F)	E.coli (mpn/100 mL)		
OF604	DMH1317	CB2734	Hyde Park St	12/2/20	Yes	No	No	0.1	0.03	0.375	51.2	690	No	
OF604	DMH1688	CB1564	Hyde Park St	12/2/20	Yes	No	No	0	0.04	0.75	50.3	49	No	
OF604	DMH333	DMH916	Colburn St	12/2/20	Yes	No	No	0	0	0.25	50.6	51	No	
OF604	DMH1714	DMH1317	Hyde Park St	12/3/20	Yes	No	No	0	0.02	0.375	52.4	34	No	
OF604	CB446	DMH1714	Hyde Park St	12/3/20	Yes	No	No	0	0.02	0.375	51.1	33	No	
OF604	CB446	CB447	Hyde Park St	12/3/2020	No	Yes	No	-	-	-	-	-	No	
OF604	DMH67	DMH1513	Colburn St	12/3/2020	No	Yes	No	-	-	-	-	-	No	
OF604	DMH67	CB360	Colburn St	12/3/2020	No	Yes	No	-	-	-	-	-	No	
OF604	DMH636	CB370	Colburn St	12/3/2020	No	Yes	No	-	-	-	-	-	No	Could only see one incoming pipe and one pipe from CB(sandbagged). Mainline flow from inlet not sampled.
OF604	DMH64	CB357	Greenhood St	12/3/2020	No	Yes	No	-	-	-	-	-	No	
OF604	CB358	CB359	Greenhood St	12/3/2020	No	Yes	No	-	-	-	-	-	No	Mainline flow from inlet to drainage system, no sample taken.
OF604	CB453	CB455	Greenhood St	12/3/2020	No	Yes	No	-	-	-	-	-	No	
OF604	CB453	CB454	Greenhood St	12/3/2020	No	Yes	No	-	-	-	-	-	No	
OF604	CB442	CB443	Colburn St	12/3/2020	No	Yes	No	-	-	-	-	-	No	
OF604	CB1488	CB335	Congress Pl	12/3/2020	No	Yes	No	-	-	-	-	-	No	
OF604	CB1488	DMH63	Congress Pl	12/3/2020	No	Yes	No	-	-	-	-	-	No	
OF604	DMH1726	CB374	Colburn St	12/3/2020	No	Yes	No	-	-	-	-	-	No	
OF604	DMH1726	DMH1725	Colburn St	12/3/2020	No	Yes	No	-	-	-	-	-	No	
OF604	DMH1727	CB371	Colburn St	12/3/2020	No	Yes	No	-	-	-	-	-	No	
OF604	DMH1727	CB373	Colburn St	12/3/2020	No	Yes	No	-	-	-	-	-	No	
OF504	CB1642	DMH330	Colburn St	12/3/2020	No	Yes	No	-	-	-	-	-	No	
OF459	CB1613	CB979	Clark St	12/3/2020	No	No	No	-	-	-	-	-	Yes	
OF459	CB1613	CB751	Clark St	12/3/2020	No	No	No	-	-	-	-	-	Yes	
OF459	DMH1498	CB1613	Clark St	12/3/2020	No	No	No	-	-	-	-	-	Yes	
OF464	DMH1413	CB977	Charles St	12/4/20	Yes	No	No	0	0.01	0.5	55.1	550	No	
OF604	OF604	DMH917	Colburn St	12/4/20	Yes	No	No	0.3	0.01	0.375	53	1300	No	
OF604	IN26	Stream	Greenhood St	12/4/20	Yes	No	No	0	0.02	0.375	49.5	310	No	Inlet sampled to compare with outlet.
OF459	CB2220	DMH294	Barrows St	12/4/20	Yes	No	No	0	0.02	0.5	57.8	<1	No	
OF459	CB979	CB2221	Charles St	12/4/20	Yes	No	No	0	0.02	0.5	55.2	2	No	Downstream sample taken to compare with inlet sample.
OF464	CB1912	CB988	Woodleigh Rd	12/4/20	Yes	No	No	0	0.01	0.25	53.9	54	No	
OF464	CB977	CB978	Barrows St	12/4/2020	No	Yes	No	-	-	-	-	-	No	Pipe connecting DMH to nearby SMH is capped.
OF464	CB977	CB1364	Barrows St	12/4/2020	No	Yes	No	-	-	-	-	-	No	
OF464	CB977	SMH	Barrows St	12/4/2020	No	Yes	No	-	-	-	-	-	No	
OF464	DMH185	DMH942	Mt Vernon St	12/4/2020	No	Yes	No	-	-	-	-	-	No	
OF464	DMH185	CB981	Mt Vernon St	12/4/2020	No	Yes	No	-	-	-	-	-	No	
OF464	CB976	SMH	Mt Vernon St	12/4/2020	No	Yes	No	-	-	-	-	-	No	
OF464	CB301	CB302	Whiting Rd	12/4/2020	No	Yes	No	-	-	-	-	-	No	
OF459	CB977	CB976	Barrows St	12/9/20	Yes	No	No	0	0	0.375	49.6	<1	No	
OF168	CB480	CB478	Veterans Rd	12/9/20	Yes	No	No	0	0.02	0.375	49	<1	No	
OF168	CB482	CB481	Veterans Rd	12/9/20	Yes	No	No	0	0.02	0.375	48	1	No	
OF464	CB986	DMH1155	Whiting Rd	12/9/20	Yes	No	No	0	0.02	0.375	46	120	No	Flow from DMH1155 is backing up into the outlet pipe of CB301. can not verify flow from CB201.
OF168	CB481	CB480	Veterans Rd	12/9/20	Yes	No	No	0	0	0.25	48.2	1	No	Foam in catch basin sump
OF464	DMH185	DMH944	Mt Vernon St	12/9/20	Yes	No	No	0	0.02	0.375	47.6	550	No	
OF168	CB483	CB482	Veterans Rd	12/9/2020	No	No	No	-	-	-	-	-	Yes	
OF604	CB362	CB453	Greenhood St	12/9/2020	No	No	No	-	-	-	-	-	Yes	
OF408	DMH1742	DMH337	Leonard St	12/10/2020	Yes	No	No	0	0.02	0.25	55.2	12	No	
OF408	CB474	CB473	Leonard St	12/10/2020	Yes	No	No	0	0.01	0.25	52.1	20	No	
OF167	CB523	DMH338	Veterans Rd	12/10/2020	Yes	No	No	0	0.02	0.125	48.8	<1	No	
OF167	CB518	CB517	Veterans Rd	12/10/2020	Yes	No	No	0	0	0.125	50.2	1	No	
OF167	CB518	CB1410	Veterans Rd	12/10/2020	Yes	No	No	0	0	0.125	49.7	2	No	
OF408	CB1641	CB475	Oakland St	12/10/2020	Yes	No	No	0	0	0.25	49.3	5.2	No	
OF408	DMH1742	CB472	Leonard St	12/10/2020	No	Yes	No	-	-	-	-	-	No	
OF167	CB523	CB522	Veterans Rd	12/10/2020	No	Yes	No	-	-	-	-	-	No	
OF167	CB518	CB519	Veterans Rd	12/10/2020	No	Yes	No	-	-	-	-	-	No	
OF167	CB518	CB516	Veterans Rd	12/10/2020	No	Yes	No	-	-	-	-	-	No	
OF408	CB1641	CB476	Oakland St	12/10/2020	No	Yes	No	-	-	-	-	-	No	
OF168	CB480	CB479	Veterans Rd	12/10/2020	No	Yes	No	-	-	-	-	-	No	
OF168	CB482	Unknown structure	Veterans Rd	12/10/2020	No	Yes	No	-	-	-	-	-	No	
OF705	IN18	Open Channel Conveyance	Mt Vernon St	12/14/2020	Yes	No	No	0	0.03	0.375	48.2	>2419.6	No	
OF705	OF705	CB2615	Whiting Rd	12/14/2020	Yes	No	No	0.1	0	0.375	48.8	>2419.6	No	
OF705	CB339	CB338	Fulton St	1/5/2021	Yes	No	No	0	0	0.25	46.5	2	No	
OF705	DMH61	CB335	Fulton St	1/5/2021	Yes	No	No	0	0	0.25	46.5	1	No	
OF403	DMH57	CB1486	High St	1/6/2021	Yes	No	No	0	0	0.375	50.1	2	No	
OF705	CB332	DMH61	Fulton St	1/6/2021	Yes	No	No	0	0.02	0.375	46.4	2	No	
OF705	DMH1671	DMH1670	Avery Elementary School	1/6/2021	No	Yes	Yes	0.2	0.05	1.25	-	2400	No	
OF448	DMH927	CB2214	High St	1/6/2021	No	Yes	No	-	-	-	-	-	No	
OF448	DMH927	CB439	High St	1/6/2021	No	Yes	No	-	-	-	-	-	No	
OF448	DMH2510	CB548	High St	1/6/2021	No	Yes	No	-	-	-	-	-	No	
OF448	DMH2510	CB2510	High St	1/6/2021	No	Yes	No	-	-	-	-	-	No	
OF448	DMH2510	DMH250	High St	1/6/2021	No	Yes	No	-	-	-	-	-	No	
OF448	DMH210	DMH209	High St	1/6/2021	No	Yes	No	-	-	-	-	-	No	
OF448	DMH210	DMH423	High St	1/6/2021	No	Yes	No	-	-	-	-	-	No	
OF448	DMH404	CB1205	High St	1/6/2021	No	Yes	No	-	-	-	-	-	No	
OF448	DMH404	CB701	High St	1/6/2021	No	Yes	No	-	-	-	-	-	No	
OF448	DMH404	DMH139	High St	1/6/2021	No	Yes	No	-	-	-	-	-	No	
OF446	CB1601	CB1602	Ames St	1/6/2021	No	Yes	No	-	-	-	-	-	No	
OF705	CB342	CB341	Woodleigh Rd	1/6/2021	No	Yes	No	-	-	-	-	-	No	
OF705	DMH61	CB333	Fulton St	1/6/2021	No	Yes	No	-	-	-	-	-	No	
OF705	CB339	CB340	Fulton St	1/6/2021	No	Yes	No	-	-	-	-	-	No	
OF705	DMH52	CB256	Whiting Rd	1/6/2021	No	Yes	No	-	-	-	-	-	No	
OF705	DMH52	CB330	Whiting Rd	1/6/2021	No	Yes	No	-	-	-	-	-	No	
OF705	CB2226	DMH850	Whiting Rd	1/6/2021	No	Yes	No	-	-	-	-	-	No	
OF705	DMH1670	CB2979	Avery Elementary School	1/6/2021	No	Yes	No	-	-	-	-	-	No	
OF705	DMH1670	CB2980	Avery Elementary School	1/6/2021	No	Yes	No	-	-	-	-	-	No	
OF705	DMH1676	CB2985	Avery Elementary School	1/6/2021	No	Yes	No	-	-	-	-	-	No	
OF705	DMH1676	CB2616	Avery Elementary School	1/6/2021	No	Yes	No	-	-	-	-	-	No	
OF705	DMH1676	CB2986	Avery Elementary School	1/6/2021	No	Yes	No	-	-	-	-	-	No	
OF705	DMH1671	DMH1672	Avery Elementary School	1/6/2021	No	Yes	No	-	-	-	-	-	No	
OF705	DMH1668	DMH1671	Avery Elementary School	1/6/2021	No	Yes	No	-	-	-	-	-	No	
OF705	DMH1668	DMH1671	Avery Elementary School	1/6/2021	No	Yes	No	-	-	-	-	-	No	
OF705	DMH1672	CB2981	Avery Elementary School	1/6/2021	No	Yes	No	-	-	-	-	-	No	

System Discharge	Structure	Upstream Structure	Location Description	Date	Flow	Sandbagged	Flow Behind Sandbag	Sampling Results					Surcharging	Observations
								Ammonia (mg/l)	Chlorine (mg/l)	Surfactants (mg/l)	Temperature (°F)	E.coli (mpn/100 mL)		
OF705	DMH1672	CB2982	Avery Elementary School	1/6/2021	No	Yes	No	-	-	-	-	-	No	
OF705	DMH1672	DMH1673	Avery Elementary School	1/6/2021	No	Yes	No	-	-	-	-	-	No	
OF705	DMH1674	CB2983	Avery Elementary School	1/6/2021	No	Yes	No	-	-	-	-	-	No	
OF705	DMH1674	CB2984	Avery Elementary School	1/6/2021	No	Yes	No	-	-	-	-	-	No	
OF705	DMH1674	Unnamed CB	Avery Elementary School	1/6/2021	No	Yes	No	-	-	-	-	-	No	
OF705	DMH1674	DMH1675	Avery Elementary School	1/6/2021	No	Yes	No	-	-	-	-	-	No	
OF403	DMH415	DMH77	Sawmill Ln	1/6/2021	No	No	No	-	-	-	-	-	Yes	
OF403	DMH77	DMH76	Sawmill Ln	1/6/2021	No	No	No	-	-	-	-	-	Yes	Moderate turbidity in standing water
OF403	DMH80	CB392	Walnut St	1/7/2021	Yes	No	No	0	0.03	0.375	45.6	1	No	
OF403	DMH81	DMH80	Bussey St	1/7/2021	Yes	No	No	0	0.04	0.375	46.9	3.1	No	
OF403	DMH71	DMH69	Sawmill Ln	1/7/2021	No	Yes	Yes	0.1	0.04	0.625	54.5	<1	No	
OF403	DMH71	DMH70	Sawmill Ln	1/7/2021	Yes	No	No	0	0.02	0.375	53.3	<1	No	
OF403	DMH70	DMH72	Bussey St	1/7/2021	Yes	No	No	0	0.01	0.375	48.9	<1	No	
OF403	DMH73	DMH74	High St	1/7/2021	Yes	No	No	0	0.02	0.375	48.8	1	No	
OF403	DMH78	DMH71	Sawmill Ln	1/7/2021	Yes	No	No	0	0.02	0.375	47.9	2	No	
OF403	DMH76	DMH82	Sawmill Ln	1/7/2021	No	Yes	Yes	0	0.02	0.375	48.7	64	No	Not enough flow to sample from DMH82, sandbagged overnight, sampled next day.
OF403	DMH415	CB389	Sawmill Ln	1/7/2021	No	Yes	No	-	-	-	-	-	No	
OF403	DMH77	CB388	Sawmill Ln	1/7/2021	No	Yes	No	-	-	-	-	-	No	
OF403	DMH76	DMH75	Sawmill Ln	1/7/2021	No	Yes	No	-	-	-	-	-	No	
OF403	DMH82	CB398	Bussey St	1/7/2021	No	Yes	No	-	-	-	-	-	No	
OF403	DMH81	CB396	Walnut St	1/7/2021	No	Yes	No	-	-	-	-	-	No	
OF403	DMH81	CB395	Walnut St	1/7/2021	No	Yes	No	-	-	-	-	-	No	
OF403	DMH80	DMH79	Walnut St	1/7/2021	No	Yes	No	-	-	-	-	-	No	
OF403	DMH80	CB393	Walnut St	1/7/2021	No	Yes	No	-	-	-	-	-	No	
OF403	DMH78	CB390	Sawmill Ln	1/7/2021	No	Yes	No	-	-	-	-	-	No	
OF403	DMH73	CB384	High St	1/7/2021	No	Yes	No	-	-	-	-	-	No	
OF403	DMH73	CB385	High St	1/7/2021	No	Yes	No	-	-	-	-	-	No	
OF403	DMH70	Unknown	Bussey St	1/7/2021	No	Yes	No	-	-	-	-	-	No	
OF403	DMH71	CB381	Sawmill Ln	1/7/2021	No	Yes	No	-	-	-	-	-	No	
OF403	DMH71	CB382	Sawmill Ln	1/7/2021	No	Yes	No	-	-	-	-	-	No	
OF403	DMH69	CB378	Bussey St	1/7/2021	No	Yes	No	-	-	-	-	-	No	
OF403	DMH69	CB377	Bussey St	1/7/2021	No	Yes	No	-	-	-	-	-	No	
OF403	DMH57	CB322	High St	1/7/2021	No	Yes	No	-	-	-	-	-	No	Infiltration from walls and bench of manhole, flow from catch basin coming from pipe segment. Upstream catch basin is dry.
OF403	DMH314	CB1405	Walnut St	1/7/2021	No	Yes	No	-	-	-	-	-	No	
OF403	DMH79	CB391	Cass Ave	1/7/2021	No	Yes	No	-	-	-	-	-	No	
OF403	DMH79	DMH331	Cass Ave	1/7/2021	No	Yes	No	-	-	-	-	-	No	
OF403	DMH58	CB323	Cass Ave	1/7/2021	No	Yes	No	-	-	-	-	-	No	
OF403	DMH58	CB324	Cass Ave	1/7/2021	No	Yes	No	-	-	-	-	-	No	
OF403	DMH58	DMH59	Cass Ave	1/7/2021	No	Yes	No	-	-	-	-	-	No	
OF403	DMH60	CB325	Cass Ave	1/7/2021	No	Yes	No	-	-	-	-	-	No	
OF403	DMH60	CB326	Cass Ave	1/7/2021	No	Yes	No	-	-	-	-	-	No	
OF403	DMH60	CB327	Cass Ave	1/7/2021	No	Yes	No	-	-	-	-	-	No	
OF705	CB332	CB331	Fulton St	1/7/2021	No	Yes	No	-	-	-	-	-	No	

YEAR 3 CATCHMENT SCORING, RANKING & PRIOIRITIZATION

Discharge Point ID	Discharge Group ID	Catchment Area ID	Catchment located within 300' of a Recreational Area (0=No, 1=Yes, High Priority)	Catchment loacted within 1500' of drinking water Supplies (0=No, 1=Yes, High Priority)	Sewer Inputs indicators found during dry weather screening (0=No, 1=Yes, Problem)	Know or suspected problem including 2003 MS4 screening (0=No, 1=Yes, High Priority)	Past discharge complaints or reports (0=No, 1=Yes, High Priority)	Area of septic locted within the catchment area (Sq. Ft.)	Percentage of septic located within the catchment area	Septic Score	Low Loading Generating Site Located Within Catchment Area (0=No, 1=Yes)	Area of Low Loading Generating Sites Located Within Catchment Area (Sq. Ft.)	Percentage of Low Loading Generating Sites Located Within Catchment Area	Low Loading Generating Sites Score	Area of Medium Loading Generating Sites Located Within Catchment Area (Sq. Ft.)	Percentage of Medium Loading Generating Sites Located Within Catchment Area	Medium Loading Generating Sites Score	High Loading Generating Sites Score	Miles of Public Sewer Mains Located within the Catchment Area	Sewer Score	Discharge Point Discharges Directly to Waterbody with Approved TMDL or Known Impairment (0=No, 5=Unknown, 10=Yes)
OF572	DG_207	DG_207_OF572_1	1	0	0	0	0	0.00	0%	0	1	42342.56	2%	1	138085.03	5%	2	0	2.24	7	10
OF704	DG_263	DG_263_OF704_1	1	0	0	0	0	0.00	0%	0	1	260092.61	4%	1	21996.05	1%	2	0	2.36	7	10
OF604	DG_368	DG_368_OF604_1	1	0	0	0	0	48027.80	2%	1	0	0.00	0%	0	0.00	0%	0	0	2.35	7	10
OF707	DG_415_1	DG_415_1_OF707_0	1	0	0	0	0	0.00	0%	0	1	30878.52	1%	1	0.00	0%	0	0	2.91	7	10
OF403	DG_262	DG_262_OF403_1	1	0	0	0	0	0.00	0%	0	1	4169.18	1%	1	16513.46	2%	2	0	0.79	3	10
OF596	DG_449	DG_449_OF596_1	1	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	1.07	5	10
OF655	DG_464	DG_464_OF655_1	1	0	0	0	0	0.00	0%	0	1	44968.73	4%	1	31240.35	3%	2	0	0.50	2	10
OF471	DG_306	DG_306_OF471_1	1	0	0	0	0	11784.49	1%	1	0	0.00	0%	0	0.00	0%	0	0	0.54	3	10
ITC001	DG_446	DG_446_ITC001_1	1	0	0	0	0	0.00	0%	0	1	103.11	1%	1	0.00	0%	0	0	0.70	3	10
OF408	DG_280	DG_280_OF408_1	1	0	0	0	0	36075.63	3%	1	0	0.00	0%	0	0.00	0%	0	0	0.67	3	10
OF448	DG_307	DG_307_OF448_1	1	1	0	0	0	13164.21	2%	1	0	0.00	0%	0	0.00	0%	0	0	0.72	3	10
OF446	DG_316	DG_316_OF446_1	1	1	0	0	0	0.00	0%	0	1	60955.54	16%	1	258.57	1%	2	0	0.20	1	10
OF559	DG_284	DG_284_OF559_1	1	0	0	0	0	0.00	0%	0	1	239877.71	64%	3	0.00	0%	0	0	0.16	1	10
OF152	DG_351_1	DG_351_1_OF152_1	1	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.91	3	10
OF00855	DG_442	DG_442_OF00855_1	1	0	0	0	0	0.00	0%	0	1	2039.52	1%	1	0.00	0%	0	0	0.26	2	10
OF422	DG_344	DG_344_OF422_1	0	1	0	0	0	47609.93	74%	3	0	0.00	0%	0	0.00	0%	0	0	0.00	0	10
OF423	DG_345	DG_345_OF423_1	0	1	0	0	0	164246.58	73%	3	0	0.00	0%	0	0.00	0%	0	0	0.00	0	10
OF504	DG_314	DG_314_OF504_1	1	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.60	3	10
OF473	DG_249	DG_249_OF473_1	1	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.11	1	10
OF168	DG_226	DG_226_OF168_1	1	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.03	1	10
OF472	DG_290_2	DG_290_2_OF472_1	1	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.00	1	10
OF485	DG_351_2	DG_351_2_OF485_1	1	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.00	1	10
OF486	DG_257	DG_257_OF486_1	1	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.01	1	10
OF603	DG_290_1	DG_290_1_OF603_1	1	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.18	1	10
OF654	DG_261	DG_261_OF654_1	1	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.02	1	10
OF713	DG_255	DG_255_OF713_1	1	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.01	1	10
OF714	DG_254	DG_254_OF714_1	1	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.00	1	10
OF715	DG_248	DG_248_OF715_1	1	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.01	1	10
OF716	DG_251	DG_251_OF716_1	1	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.02	1	10
OF153	DG_300	DG_300_OF153_1	1	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.00	0	10
OF433	DG_339	DG_339_OF433_1	0	1	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.00	0	10
OF526	DG_334	DG_334_OF526_1	0	1	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.00	0	10
OF602	DG_292	DG_292_OF602_1	1	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.00	0	10
OF710	DG_252	DG_252_OF710_1	1	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.00	0	10
OF747	DG_283	DG_283_OF747_1	1	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.00	0	10
OF750	DG_277	DG_277_OF750_1	1	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.00	0	10
OF722	DG_264	DG_264_OF722_1	1	0	0	0	0	0.00	0%	0	1	30463.91	2%	1	18419.01	1%	2	0	1.59	5	0
OF172	DG_075	DG_075_OF172_1	1	0	0	0	0	0.00	0%	0	1	3.22	1%	1	8511.31	1%	2	0	1.61	5	0
OF574	DG_156	DG_156_OF574_1	1	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	4.65	7	0
OF781	DG_064	DG_064_OF781_1	1	0	0	0	0	0.00	0%	0	0	0.00	0%	0	17655.04	1%	2	0	1.79	5	0
OF314	DG_033	DG_033_OF314_1	1	0	0	0	0	1580.59	0%	1	0	0.00	0%	0	0.00	0%	0	0	1.98	5	0
OF674	DG_106	DG_106_OF674_1	1	0	0	0	0	0.00	0%	0	1	133204.14	57%	3	6465.10	3%	2	0	0.10	1	0
OF672	DG_367	DG_367_OF672_1	1	0	0	0	0	518898.29	52%	3	1	500482.75	50%	3	0.00	0%	0	0	0.00	0	0
ITC020	DG_646	DG_646_ITC020_1	1	0	0	0	0	0.00	0%	0	0	0.00	0%	0	9559.26	50%	6	0	0.00	0	0
OF575	DG_093	DG_093_OF575_1	1	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	1.21	5	0
OF474	DG_055	DG_055_OF474_1	1	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	1.39	5	0
OF670	DG_148	DG_148_OF670_1	1	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	1.54	5	0
OF478	DG_090	DG_090_OF478_1	1	0	0	0	0	0.00	0%	0	1	101311.31	42%	2	40731.09	17%	2	0	0.23	1	0
OF775	DG_461	DG_461_OF775_1	1	1	0	0	0	0.00	0%	0	0	0.00	0%	0	124497.14	14%	2	0	0.91	3	0
OF668	DG_148	DG_148_OF668_1	1	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	1.30	5	0
OF678	DG_267	DG_267_OF678_1	1	0	0	0	0	0.00	0%	0	1	109092.38	37%	2	0.00	0%	0	0	0.37	2	0
OF434	DG_268	DG_268_OF434_1	1	1	0	0	0	0.00	0%	0	1	88921.02	14%	1	0.00	0%	0	0	0.61	3	0
OF673	DG_071	DG_071_OF673_1	1	0	0	0	0	0.00	0%	0	0	0.00	0%	0	1525.26	1%	2	0	0.46	2	0
OF198	DG_362	DG_362_OF198_1	1	0	0	0	0	893436.11	73%	3	1	203857.21	17%	1	0.00	0%	0	0	0.00	0	0
OF397	DG_208	DG_208_OF397_1	1	0	0	0	0	0.00	0%	0	1	1898.08	12%	1	3.34	1%	2	0	0.01	1	0
ITC021	DG_646	DG_646_ITC021_1	1	0	0	0	0	0.00	0%	0	1	8.92	1%	1	4088.82	22%	2	0	0.08	1	0
OF429	DG_276	DG_276_OF429_1	0	1	0	0	0	52694.41	14%	1	0	0.00	0%	0	0.00	0%	0	0	0.27	2	0
OF449	DG_239_1	DG_239_1_OF449_1	1	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.84	3	0
OF539	DG_190	DG_190_OF539_1	1	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.87	3	0
OF583	DG_062	DG_062_OF583_1	1	0	0	0	0	0.00	0%	0	1	6856.65	2%	1	0.00	0%	0	0	0.31	2	0
OF617	DG_238	DG_238_OF617_1	0	1	0	0	0	0.00	0%	0	1	53766.63	44%	2	0.00	0%	0	0	0.01	1	0
OF653	DG_272	DG_272_OF653_1	0	1	0	0	0	18.85	0%	1	0	0.00	0%	0	0.00	0%	0	0	0.06	1	0
OF669	DG_109	DG_109_OF669_1	1	0	0	0	0	7306.02	4%	1	0	0.00	0%	0	0.00	0%	0	0	0.17	1	0
OF476	DG_027	DG_027_OF476_1	1	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.29	2	0
OF567	DG_032	DG_032_OF567_1	1	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.41	2	0
OF568	DG_039	DG_039_OF568_1	1	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.41	2	0
OF496	DG_447	DG_447_OF496_1	1	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.09	1	0
OF677	DG_287	DG_287_OF677_1	1	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.09	1	0
OF00847	DG_274	DG_274_OF00847_1	1	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.05	1	0
OF00857	DG_097	DG_097_OF00857_1	1	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.11	1	0
OF452	DG_117	DG_117_OF452_1	1	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.04	1	0
OF495	DG_448	DG_448_OF495_1	1	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.07	1	0
OF508	DG_203	DG_203_OF508_1	1	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.10	1	0
OF270	DG_085	DG_085_OF270_1	1	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.06	1	0
OF494	DG_450	DG_450_OF494_1	1	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.01	1	0
OF879	DG_650	DG_650_OF879_1	1	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.12	1	0
OF720	DG_210	DG_210_OF720_1	1	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.00	0	0
OF721	DG_214	DG_214_OF721_1	1	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.00	0	0
OF877	DG_648	DG_648_OF877_1	1	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.00	0	0
OF878	DG_651	DG_651_OF878_1	1	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.00	0	0
OF880	DG_649	DG_649_OF880_1	1	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.00	0	0
OF881	DG_647	DG_647_OF881_1	1	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.00	0	0
ITC007	DG_371	DG_371_ITC007_1	0	0	0	0	0	0.00	0%	0	1	426246.97	20%	1	2000.01	1%	2	0	0.27	2	10
OF657	DG_341	DG_341_OF657_1	0	0	0	0	0	3382.37	2%	1	1	7244.51	4%	1	11491.16	7%	2	0	0.17	1	10
OF201	DG_357	DG_357_OF201_1	0	0	0	0	0	545676.21	95%	4	0	0.00	0%	0	0.00	0%	0	0	0.00	0	10
OF484	DG_363	DG_363_OF484_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	17912.59	4%	2	0	0.32	2	10
OF660	DG_321	DG_321_OF660_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.84	3	10
OF414	DG_400	DG_400_OF414_1	0	0	0	0	0	206465.43	48%	2	1	95883.69	22%	1	0.00	0%	0	0	0.00	0	10
OF593	DG_456	DG_456_OF593_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.68	3	10
OF600	DG_342_1	DG_342_1_OF600_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.60	3	10
OF601	DG_342_2	DG_342_2_OF601_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.60	3	10
ITC003	DG_440	DG_440_ITC003_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.47	2	10
OF443	DG_366	DG_366_OF443_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.27	2	10
OF466	DG_281	DG_281_OF466_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.29	2	10
OF591	DG_457	DG_457_OF591_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.34	2	10
OF777	DG_348	DG_348_OF777_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.04	1	10
ITC006	DG_440	DG_440_ITC006_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.07	1	10
ITC008	DG_371	DG_371_ITC008_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.11	1	10
OF656	DG_271	DG_271_OF656_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.13	1	10
OF442	DG_383	DG_383_OF442_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.05	1	10
ITC002	DG_440	DG_440_ITC002_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.15	1	10
ITC004	DG_440	DG_440_ITC004_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.02	1	10
ITC005	DG_440	DG_440_ITC005_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.12	1	10
ITC009	DG_371	DG_371_ITC009_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.04	1	10
ITC010	DG_371	DG_371_ITC010_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.19	1	10
ITC026	DG_440	DG_440_ITC026_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.19	1	10
OF167	DG_231	DG_231_OF167_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.02	1	10
OF169	DG_218	DG_218_OF169_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.08	1	10
OF170	DG_288	DG_288_OF170_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.07	1	10
OF592	DG_455	DG_455_OF592_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.08	1	10
OF594	DG_452	DG_452_OF594_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.02	1	10
OF658	DG_459	DG_459_OF658_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.07	1	10
OF769	DG_418	DG_418_OF769_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.00	1	10
OF776	DG_355	DG_355_OF776_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.08	1	10
ITC025	DG_430	DG_430_ITC025_1	0	0	0	0	0	0.00	0%	0	1	3013.80	1%	1	0.00	0%	0	0	0.00	0	10
OF771	DG_289	DG_289_OF771_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.00	0	10
OF701	DG_096	DG_096_OF701_1	0	0	0	0	0	0.00	0%	0	1	2973.69	1%	1	10082.65	1%	2	0	1.08	5	0
ITC019	DG_100	DG_100_ITC019_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.26	2	5
ITC012	DG_113	DG_113_ITC012_1	0	0	0	0	0	472.74	0%	1	0	0.00	0%	0	0.00	0%	0	0	0.12	1	5
OF242	DG_151_1	DG_151_1_OF242_1	0	0	0	0	0	17257.85	1%	1	1	230048.97	16%	1	0.00	0%	0	0	1.05	5	0
ITC016	DG_119	DG_119_ITC016_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.16	1	5
ITC017	DG_067	DG_067_ITC017_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.06	1	5
ITC018	DG_072	DG_072_ITC018_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.15	1	5
OF193	DG_369	DG_369_OF193_1	0	0	0	0	0	2779.64	72%	3	1	2779.63	72%	3	0.00	0%	0	0	0.00	0	0
OF394	DG_126	DG_126_OF394_1	0	0	0	0	0	0.00	0%	0	1	321.13	1%	1	1653.48	1%	2	0	0.29	2	0
OF395	DG_126	DG_126_OF395_1	0	0	0	0	0	0.00	0%	0	1	321.13	1%	1	1653.48	1%	2	0	0.29	2	0
OF212	DG_228	DG_228_OF212_1	0	0	0	0	0	564.87	3%	1	1	17117.13	77%	4	0.00	0%	0	0	0.00	0	0
OF418	DG_325	DG_325_OF418_1	0	0	0	0	0	331601.21	89%	4	0	0.00	0%	0	0.00	0%	0	0	0.00	0	0
OF586	DG_175	DG_175_OF586_1	0	0	0	0	0	139073.73	81%	4	0	0.00	0%	0	0.00	0%	0	0	0.00	0	0
OF697	DG_077	DG_077_OF697_1	0	0	0	0	0	0.00	0%	0	1	88127.67	8%	1	0.00	0%	0	0	0.92	3	0
ITC011	DG_094	DG_094_ITC011_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	1262.81	1%	2	0	0.27	2	0
OF437	DG_239_2	DG_239_2_OF437_1	0	0	0	0	0	0.00	0%	0	1	9377.08	1%	1	41222.71	4%	2	0	0.24	1	0
OF682	DG_319	DG_319_OF682_1	0	0	0	0	0	0.00	0%	0	1	714.98	1%	1	219.79	1%	2	0	0.17	1	0
ITC023	DG_158	DG_158_ITC023_1	0	0	0	0	0	42484.06	6%	1	0	0.00	0%	0	0.00	0%	0	0	0.35	2	0
ITC024	DG_046	DG_046_ITC024_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	13178.69	1%	2	0	0.11	1	0
ITC022	DG_158	DG_158_ITC022_1	0	0	0	0	0	146380.52	67%	3	0	0.00	0%	0	0.00	0%	0	0	0.00	0	0
OF399	DG_162	DG_162_OF399_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.72	3	0
OF430	DG_225	DG_225_OF430_1	0	0	0	0	0	62081.82	53%	3	0	0.00	0%	0	0.00	0%	0	0	0.00	0	0
OF520	DG_451	DG_451_OF520_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.72	3	0
OF779	DG_069_2	DG_069_2_OF779_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.62	3	0
OF421	DG_443	DG_443_OF421_1	0	0	0	0	0	0.00	0%	0	1	23256.00	28%	2	0.00	0%	0	0	0.01	1	0
OF406	DG_092	DG_092_OF406_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	7953.99	8%	2	0	0.05	1	0
OF439	DG_171	DG_171_OF439_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	171.28	3%	2	0	0.03	1	0
OF801	DG_191	DG_191_OF801_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.33	2	0
ITC015	DG_646	DG_646_ITC015_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.30	2	0
ITC013	DG_211	DG_211_ITC013_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.39	2	0
ITC028	DG_061	DG_061_ITC029_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.27	2	0
ITC029	DG_061	DG_061_ITC029_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.27	2	0
ITC030	DG_061	DG_061_ITC029_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.27	2	0
OF413	DG_305	DG_305_OF413_1	0	0	0	0	0	32504.32	32%	2	0	0.00	0%	0	0.00	0%	0	0	0.00	0	0
OF552	DG_037	DG_037_OF552_1	0	0	0	0	0	47324.01	21%	1	0	0.00	0%	0	0.00	0%	0	0	0.20	1	0
OF564	DG_069_2	DG_069_2_OF564_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.48	2	0
OF666	DG_232	DG_232_OF666_1	0	0	0	0	0	24887.74	17%	1	0	0.00	0%	0	0.00	0%	0	0	0.12	1	0
OF876	DG_018	DG_018_OF876_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.33	2	0
OF671	DG_102	DG_102_OF671_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.07	1	0
OF667	DG_112	DG_112_OF667_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.10	1	0
OF247	DG_379	DG_379_OF247_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.05	1	0
ITC027	DG_646	DG_646_ITC027_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.04	1	0
OF00871	DG_065	DG_065_OF00871_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.09	1	0
OF230	DG_453	DG_453_OF230_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.09	1	0
OF274	DG_149	DG_149_OF274_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.16	1	0
OF391	DG_192	DG_192_OF391_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.01	1	0
OF419	DG_204	DG_204_OF419_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.15	1	0
OF436	DG_180	DG_180_OF436_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.01	1	0
OF438	DG_179	DG_179_OF438_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.01	1	0
OF450	DG_170	DG_170_OF450_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.22	1	0
OF451	DG_167	DG_167_OF451_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.12	1	0
OF461	DG_143	DG_143_OF461_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.02	1	0
OF462	DG_128	DG_128_OF462_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.12	1	0
OF475	DG_023	DG_023_OF475_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.05	1	0
OF477	DG_014	DG_014_OF477_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.05	1	0
OF546	DG_021	DG_021_OF546_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.24	1	0
OF570	DG_022	DG_022_OF570_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.20	1	0
OF571	DG_020	DG_020_OF571_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.09	1	0
OF576	DG_038	DG_038_OF576_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.06	1	0
OF637	DG_026	DG_026_OF637_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.10	1	0
OF706	DG_024	DG_024_OF706_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.15	1	0
OF708	DG_049	DG_049_OF708_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.16	1	0
OF417	DG_372	DG_372_OF417_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.00	0	0
OF435	DG_198	DG_198_OF435_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.00	0	0
OF455	DG_074	DG_074_OF455_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.00	0	0
OF480	DG_385	DG_385_OF480_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.00	0	0
OF565	DG_034	DG_034_OF565_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.00	0	0
OF773	DG_199	DG_199_OF773_1	0	0	0	0	0	0.00	0%	0	0	0.00	0%	0	0.00	0%	0	0	0.00	0	0

Discharge Point ID	MS4 Receiving Waterbody Name	Final_Outfall_ID	Final_ReceivingWater_Name	EPA Priority	Total Score	Final Rank	System Vulnerabilty Factor Present (0=No, 1=Yes)	Dry Weather Inspection Date	Rain Within 48 Hours Of Inspection	Weather At Time Of Inspection	Flow (Yes/No)	Flow Sample Collected Date	Temperature (F)	Ammonia Result (mg/l) Benchmark= ≥ 0.5 mg/L	Surfactants Result (mg/l) Benchmark= ≥ 0.25 mg/L	Total Chlorine Result (mg/l) Benchmark= > 0.02 mg/L	E.Coli Result (MPN) = (cfu/100ml) Benchmark= 235 cfu/100ml	Total Phosphorus (mg/l) Benchmark= > 0.1 mg/L	Dissolved Oxygen Benchmark= < 5.0 mg/L	BODs (mg/l) Benchmark= 5 mg/L	Inspection Comments
OF572	Mother Brook (MA73-28)	OF572	Mother Brook (MA73-28)	High	20	1	1	06/07/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF704	Mother Brook (MA73-28)	OF704	Mother Brook (MA73-28)	High	20	2	1	06/30/21	No	Sunny	YES	08/04/21	NA	< 0.5	0.10	0.04	26.20	0.02	NA	< 5	Tested
OF604	Mother Brook (MA73-28)	OF604	Mother Brook (MA73-28)	High	18	3	1	06/30/21	No	Sunny	YES	08/04/21	NA	< 0.5	0.10	0.05	1,299.70	0.04	NA	< 5	Tested
OF707	Charles River (MA72-07)	OF707	Charles River (MA72-07)	High	18	4	1	06/30/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF403	Mother Brook (MA73-28)	OF403	Mother Brook (MA73-28)	High	16	5	1	01/07/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Hardcopy inspection
OF596	Charles River (MA72-07)	OF596	Charles River (MA72-07)	High	15	6	1	06/24/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Trash around outfall
OF655	Mother Brook (MA73-28)	OF655	Mother Brook (MA73-28)	High	15	7	1	06/30/21	No	Sunny	YES	08/04/21	NA	< 0.5	0.10	< 0.02	135.40	< 0.01	NA	< 5	Tested
OF471	Mother Brook (MA73-28)	OF471	Mother Brook (MA73-28)	High	14	8	1	06/22/21	No	Cloudy	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
ITC001	Charles River (MA72-07)	OF597	Charles River (MA72-07)	High	14	9	1	06/30/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Inspection performed at upstream CB823
OF408	Mother Brook (MA73-28)	OF408	Mother Brook (MA73-28)	High	14	10	1	06/04/21	Yes	Cloudy	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF448	Charles River (MA72-07)	OF448	Charles River (MA72-07)	High	14	11	1	01/11/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Hardcopy inspection
OF446	Charles River (MA72-07)	OF446	Charles River (MA72-07)	High	14	12	1	04/15/21	No	Cloudy	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Some minor trash
OF559	Mother Brook (MA73-28)	OF745	Mother Brook (MA73-28)	High	14	13	1	01/08/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Hardcopy inspection
OF152	Mother Brook (MA73-28)	OF152	Mother Brook (MA73-28)	High	13	14	1	04/20/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	SUBMERGED - inspected upstream structure
OF00855	Charles River (MA72-07)	OF00855	Charles River (MA72-07)	High	13	15	1	06/08/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF422	Charles River (MA72-07)	OF422	Charles River (MA72-07)	High	13	16	1	01/11/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Hardcopy inspection
OF423	Charles River (MA72-07)	OF423	Charles River (MA72-07)	High	13	17	1	01/11/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Hardcopy inspection
OF504	Mother Brook (MA73-28)	OF504	Mother Brook (MA73-28)	High	13	18	1	04/20/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	SUBMERGED - could see, but also got upstream structure
OF473	Mother Brook (MA73-28)	OF473	Mother Brook (MA73-28)	High	11	19	1	06/03/21	No	Cloudy	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Part of the pipe has broken off
OF168	Mother Brook (MA73-28)	OF168	Mother Brook (MA73-28)	High	11	20	1	06/22/21	No	Cloudy	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Outfall could not be found, to much trash
OF472	Mother Brook (MA73-28)	OF472	Mother Brook (MA73-28)	High	11	21	1	06/22/21	No	Cloudy	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Debris around and in outfall
OF485	Mother Brook (MA73-28)	OF485	Mother Brook (MA73-28)	High	11	22	1	01/07/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Hardcopy inspection
OF486	Mother Brook (MA73-28)	OF486	Mother Brook (MA73-28)	High	11	23	1	01/11/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Hardcopy inspection
OF603	Mother Brook (MA73-28)	OF603	Mother Brook (MA73-28)	High	11	24	1	01/07/21	Yes	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Hardcopy inspection
OF654	Mother Brook (MA73-28)	OF654	Mother Brook (MA73-28)	High	11	25	1	04/15/21	No	Cloudy	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Outfall pipe has corrosion
OF713	Mother Brook (MA73-28)	OF713	Mother Brook (MA73-28)	High	11	26	1	06/03/21	No	Cloudy	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF714	Mother Brook (MA73-28)	OF714	Mother Brook (MA73-28)	High	11	27	1	06/22/21	No	Cloudy	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF715	Mother Brook (MA73-28)	OF715	Mother Brook (MA73-28)	High	11	28	1	06/03/21	No	Cloudy	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Trash around base of outfall
OF716	Mother Brook (MA73-28)	OF716	Mother Brook (MA73-28)	High	11	29	1	06/03/21	No	Cloudy	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Trash around base of outfall
OF153	Mother Brook (MA73-28)	OF153	Mother Brook (MA73-28)	High	10	30	1	04/20/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	SUBMERGED - inspected upstream structure
OF433	Charles River (MA72-07)	OF433	Charles River (MA72-07)	High	10	31	1	06/04/21	Yes	Cloudy	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Outfall is covered in soil
OF526	Charles River (MA72-07)	OF526	Charles River (MA72-07)	High	10	32	0	06/22/21	No	Cloudy	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF602	Mother Brook (MA73-28)	OF602	Mother Brook (MA73-28)	High	10	33	1	06/04/21	No	Cloudy	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF710	Mother Brook (MA73-28)	OF710	Mother Brook (MA73-28)	High	10	34	1	01/07/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Hardcopy inspection
OF747	Mother Brook (MA73-28)	OF747	Mother Brook (MA73-28)	High	10	35	1	04/20/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF750	Mother Brook (MA73-28)	OF750	Mother Brook (MA73-28)	High	10	36	0	01/07/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Hardcopy inspection
OF722	Wigwam Brook	OF722	Wigwam Brook	High	8	37	1	06/08/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Submerged at DMH1065, DMH1067, and DMH173
OF172	Greenlodge Stream	OF172	Greenlodge Stream	High	8	38	1	06/28/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF574	Greenlodge Stream	OF574	Greenlodge Stream	High	7	39	1	06/30/21	No	Sunny	Yes	08/04/21	NA	< 0.5	0.10	< 0.02	125.90	0.01	NA	< 5	Tested
OF781	East Brook	OF781	East Brook	High	7	40	1	06/28/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF314	Greenlodge Stream	OF314	Greenlodge Stream	High	6	41	1	06/28/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF674	Greenlodge Stream	OF674	Greenlodge Stream	High	6	42	1	06/08/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Inspected the second catch basin upstream from outfall
OF672	Weld Stream	OF672	Weld Stream	High	6	43	1	06/11/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
ITC020	Wigwam Brook	OF611	Wigwam Brook	High	6	44	1	06/29/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Inspection Performed at upstream CB2944. Trash in basin
OF575	Greenlodge Stream	OF575	Greenlodge Stream	High	5	45	1	06/07/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF474	Greenlodge Stream	OF474	Greenlodge Stream	High	5	46	1	06/28/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF670	East Brook	OF670	East Brook	High	5	47	1	06/28/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF478	Greenlodge Stream	OF478	Greenlodge Stream	High	5	48	1	06/22/21	No	Cloudy	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Heavy trash around outfall
OF775	Wigwam Brook	OF775	Wigwam Brook	High	5	49	1	06/08/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Submerged at DMH1532 and DMH01645, inspected alternative structure
OF668	East Brook	OF670	East Brook	High	5	50	1	06/28/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF678	Wigwam Brook	OF678	Wigwam Brook	High	4	51	1	06/22/21	No	Cloudy	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF434	Lowder Brook	OF434	Lowder Brook	High	4	52	1	01/13/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Hardcopy inspection
OF673	Greenlodge Stream	OF673	Greenlodge Stream	High	4	53	1	06/30/21	No	Sunny	YES	08/04/21	NA	< 0.5	0.10	0.02	727.00	0.03	NA	< 5	Tested
OF198	MIT Endicott Brook	OF198	MIT Endicott Brook	High	4	54	1	06/28/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Trash around outfall
OF397	Wigwam Brook	OF397	Wigwam Brook	High	4	55	1	06/22/21	No	Cloudy	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
ITC021	Wigwam Brook	OF611	Wigwam Brook	High	4	56	1	06/29/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Inspection performed at upstream CB2188. Trash on top and in basin
OF429	Lowder Brook	OF429	Lowder Brook	High	3	57	1	04/15/21	No	Cloudy	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Possible bag of dog poop. Catch basin has "no dumping" grate
OF449	Wigwam Brook	OF449	Wigwam Brook	High	3	58	1	06/22/21	No	Cloudy	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Power line very close to water
OF539	East Brook	OF539	East Brook	High	3	59	1	04/20/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Partially submerged - also inspected upstream structure
OF583	Greenlodge Stream	OF583	Greenlodge Stream	High	3	60	1	06/28/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Outfall not found
OF617	Ursuline Stream	OF617	Ursuline Stream	High	3	61	1	06/17/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF653	Lowder Brook	OF653	Lowder Brook	High	2	62	1	04/15/21	No	Cloudy	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Some minor trash
OF669	East Brook	OF669	East Brook	High	2	63	1	04/15/21	No	Cloudy	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF476	Greenlodge Stream	OF476	Greenlodge Stream	High	2	64	1	06/17/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF567	Greenlodge Stream	OF567	Greenlodge Stream	High	2	65	1	01/19/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Hardcopy inspection
OF568	Greenlodge Stream	OF568	Greenlodge Stream	High	2	66	1	06/28/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	5-10 pieces of trash
OF496	Vine Rock Stream	OF496	Vine Rock Stream	High	1	67	1	03/22/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Pipe is broken 4' upstream from outfall
OF677	Wigwam Brook	OF677	Wigwam Brook	High	1	68	1	06/08/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Inspected catch basin next to outfall
OF00847	Wigwam Brook	OF00847	Wigwam Brook	High	1	69	1	06/08/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Inspected catch basin next to outfall
OF00857	Little Wigwam Stream	OF00857	Little Wigwam Stream	High	1	70	1	04/15/21	No	Cloudy	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Mostly buried
OF452	Little Wigwam Stream	OF452	Little Wigwam Stream	High	1	71	1	04/15/21	No	Cloudy	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	20' of exposed pipe with minor joint separation. However, outfall currently operating wel
OF495	Vine Rock Stream	OF495	Vine Rock Stream	High	1	72	1	03/22/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dead animal at outfall
OF508	Wigwam Brook	OF508	Wigwam Brook	High	1	73	1	06/22/21	No	Cloudy	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF270	Little Wigwam Stream	OF270	Little Wigwam Stream	High	1	74	1	04/15/21	No	Cloudy	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Partially buried
OF494	Vine Rock Stream	OF494	Vine Rock Stream	High	1	75	1	03/22/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	None
OF879	Lowder Brook	OF879	Lowder Brook	High	1	76	1	06/30/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF720	Wigwam Brook	OF720	Wigwam Brook	High	0	77	0	06/07/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF721	Wigwam Brook	OF721	Wigwam Brook	High	0	78	0	06/22/21	No	Cloudy	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF877	Westfield Brook	OF877	Westfield Brook	High	0	79	1	06/30/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF878	Westfield Brook	OF878	Westfield Brook	High	0	80	1	06/30/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF880	Westfield Brook	OF880	Westfield Brook	High	0	81	1	06/30/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF881	Lowder Brook	OF881	Lowder Brook	High	0	82	1	06/30/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
ITC007	Mother Brook (MA73-28)	OF659	Mother Brook (MA73-28)	Low	15	83	1	06/29/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Inspection performed at upstream CB2098. Interconnection to BWSC drainage
OF657	Mother Brook (MA73-28)	OF657	Mother Brook (MA73-28)	Low	15	84	1	04/15/21	No	Cloudy	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF201	Charles River (MA72-07)	OF201	Charles River (MA72-07)	Low	14	85	1	06/08/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Outfall could not be located, went to the next collector upstream
OF484	Mother Brook (MA73-28)	OF484	Mother Brook (MA73-28)	Low	14	86	1	04/15/21	No	Cloudy	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF660	Mother Brook (MA73-28)	OF660	Mother Brook (MA73-28)	Low	13	87	1	06/24/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF414	Charles River (MA72-07)	OF414	Charles River (MA72-07)	Low	13	88	1	01/11/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Hardcopy inspection
OF593	Charles River (MA72-07)	OF593	Charles River (MA72-07)	Low	13	89	1	06/08/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF600	Mother Brook (MA73-28)	OF600	Mother Brook (MA73-28)	Low	13	90	1	06/09/21	Yes	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF601	Mother Brook (MA73-28)	OF601	Mother Brook (MA73-28)	Low	13	91	1	06/09/21	Yes	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
ITC003	Charles River (MA72-07)	OF598	Charles River (MA72-07)	Low	12	92	1	06/30/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	ITC003 is at CB720.
OF443	Charles River (MA72-07)	OF443	Charles River (MA72-07)	Low	12	93	1	06/09/21	Yes	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF466	Mother Brook (MA73-28)	OF466	Mother Brook (MA73-28)	Low	12	94	1	03/18/21	No	Cloudy	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF591	Charles River (MA72-07)	OF591	Charles River (MA72-07)	Low	12	95	1	03/22/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Last 15' of pipe exposed. Hole at transition from clay to CMP. Old lumber retaining wall has failed. Apparent bag of dog poop
OF777	Mother Brook (MA73-28)	OF777	Mother Brook (MA73-28)	Low	11	96	1	01/08/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Hardcopy inspection
ITC006	Charles River (MA72-07)	OF598	Charles River (MA72-07)	Low	11	97	1	06/30/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Inspection performed at upstream CB741.
ITC008	Mother Brook (MA73-28)	OF659	Mother Brook (MA73-28)	Low	11	98	1	06/28/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Inspection performed at upstream CB2095. Connection to BWSC drainage
OF656	Mother Brook (MA73-28)	OF656	Mother Brook (MA73-28)	Low	11	99	1	04/15/21	No	Cloudy	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF442	Charles River (MA72-07)	OF442	Charles River (MA72-07)	Low	11	100	1	06/09/21	Yes	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Buried
ITC002	Charles River (MA72-07)	OF598	Charles River (MA72-07)	Low	11	101	1	06/30/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	ITC002 is at CB715. Trash and dirt from construction
ITC004	Charles River (MA72-07)	OF598	Charles River (MA72-07)	Low	11	102	1	06/30/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Inspection performed at upstream CB722.
ITC005	Charles River (MA72-07)	OF598	Charles River (MA72-07)	Low	11	103	1	06/30/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Inspection performed at upstream CB735.
ITC009	Mother Brook (MA73-28)	OF659	Mother Brook (MA73-28)	Low	11	104	1	06/29/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Inspection performed at upstream CB2097. Connection to BWSC drainage
ITC010	Mother Brook (MA73-28)	OF659	Mother Brook (MA73-28)	Low	11	105	1	06/29/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Inspection performed at upstream CB1929. Connection to BWSC drainage
ITC026	Charles River (MA72-07)	OF598	Charles River (MA72-07)	Low	11	106	1	06/30/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Inspection performed at upstream CB728.
OF167	Mother Brook (MA73-28)	OF167	Mother Brook (MA73-28)	Low	11	107	1	06/04/21	Yes	Cloudy	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Heavy trash all around outfall
OF169	Mother Brook (MA73-28)	OF169	Mother Brook (MA73-28)	Low	11	108	1	06/04/21	Yes	Cloudy	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Heavy trash and wood blocking outfall
OF170	Charles River (MA72-07)	OF170	Charles River (MA72-07)	Low	11	109	1	06/22/21	No	Cloudy	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Could not locate outfall
OF592	Charles River (MA72-07)	OF592	Charles River (MA72-07)	Low	11	110	1	06/30/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF594	Charles River (MA72-07)	OF594	Charles River (MA72-07)	Low	11	111	1	06/09/21	Yes	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Buried
OF658	Mother Brook (MA73-28)	OF658	Mother Brook (MA73-28)	Low	11	112	1	06/09/21	Yes	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Outfall has broken
OF769	Charles River (MA72-07)	OF769	Charles River (MA72-07)	Low	11	113	1	06/30/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF776	Mother Brook (MA73-28)	OF776	Mother Brook (MA73-28)	Low	11	114	1	04/15/21	No	Cloudy	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
ITC025	Charles River (MA72-07)	OF410	Charles River (MA72-07)	Low	11	115	1	06/30/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Inspection performed at upstream CB1557.
OF771	Mother Brook (MA73-28)	OF771	Mother Brook (MA73-28)	Low	10	116	1	01/08/21	Yes	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	DEBRIS IN FRONT. Hardcopy inspection
OF701	East Brook	OF701	East Brook	Low	8	117	1	06/10/21	No	Cloudy	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
ITC019	Unknown	OF135	Unknown	Low	7	118	1	06/29/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Inspection performed at upstream CB1139.
ITC012	Unknown	CB	Unknown	Low	7	119	1	06/30/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	ITC012 is at DMH215.
OF242	Wigwam Brook	OF242	Wigwam Brook	Low	7	120	1	06/24/21	No	Cloudy	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Wall is cracked and falling over, outfall has no damage
ITC016	Unknown	ITC016 - DMH424	Unknown	Low	6	121	1	06/28/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	ITC016 is at DMH424. 1-5 pieces of trash
ITC017	Unknown	ITC017	Unknown	Low	6	122	1	06/29/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Inspection performed at upstream CB864. Interconnection with state drair
ITC018	Unknown	Culvert Point	Unknown	Low	6	123	1	06/30/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	ITC018 is at DMH259. Interconnection to state drainage
OF193	Weld Stream	OF193	Weld Stream	Low	6	124	1	01/11/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	DEBRIS IN FRONT . Hardcopy inspection
OF394	Wigwam Brook	OF394	Wigwam Brook	Low	5	125	1	06/28/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF395	Wigwam Brook	OF394	Wigwam Brook	Low	5	126	1	06/28/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF212	Lowder Brook	OF212	Lowder Brook	Low	5	127	1	06/17/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF418	Weld Stream	OF418	Weld Stream	Low	4	128	1	06/30/21	No	Sunny	YES	08/04/21	NA	< 0.5	0.02	< 0.02	54.60	< 0.01	NA	< 5	Tested
OF586	Stoney Lea Brook	OF586	Stoney Lea Brook	Low	4	129	1	06/03/21	No	Cloudy	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Possibly some sediment as a result of recently exposing outfall
OF697	East Brook	OF697	East Brook	Low	4	130	1	06/28/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
ITC011	Little Wigwam Stream	OF757	Little Wigwam Stream	Low	4	131	1	06/29/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Inspection performed at upstream CB874. Trash around basin
OF437	Lowder Brook	OF437	Lowder Brook	Low	4	132	1	04/09/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Minor trash
OF682	Wigwam Brook	OF682	Wigwam Brook	Low	4	133	1	06/28/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Outfall cannot be reached, trash in basin
ITC023	N/A	OF856	N/A	Low	3	134	1	06/29/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	ITC023 is at DMH384. All upstream catch basins are dry
ITC024	Little Wigwam Stream	OF686	Little Wigwam Stream	Low	3	135	1	06/30/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	ITC024 is at CB917.
ITC022	N/A	OF856	N/A	Low	3	136	1	06/29/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Inspection performed at upstream CB1120. Connection to private drainage
OF399	East Brook	DMH1004	East Brook	Low	3	137	1	06/11/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF430	Lowder Brook	OF430	Lowder Brook	Low	3	138	1	06/11/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF520	Cutler Brook	OF520	Cutler Brook	Low	3	139	1	05/31/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Test delete
OF779	Greenlodge Stream	OF564	Greenlodge Stream	Low	3	140	1	06/28/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF421	Cutler Brook	OF421	Cutler Brook	Low	3	141	1	06/03/21	No	Cloudy	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF406	Greenlodge Stream	OF406	Greenlodge Stream	Low	3	142	1	06/28/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF439	Lowder Brook	OF439	Lowder Brook	Low	3	143	1	04/09/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Some scour. Could benefit from end wall and rip rap, but this area is likely under water much of the year. Some trash from roadway.
OF801	Lowder Brook	OF801	Lowder Brook	Low	2	144	1	06/30/21	No	Sunny	YES	08/04/21	NA	< 0.5	0.20	< 0.02	149.70	0.01	NA	< 5	Tested
ITC015	Wigwam Brook	OF611	Wigwam Brook	Low	2	145	1	06/29/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Inspection performed at upstream CB1255.
ITC013	Lowder Brook	OF487	Lowder Brook	Low	2	146	1	06/11/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
ITC028	Little Wigwam Stream	OF883	Little Wigwam Stream	Low	2	147	1	06/29/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Inspection made at upstream CB1610
ITC029	Little Wigwam Stream	OF883	Little Wigwam Stream	Low	2	148	1	06/29/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Inspection made at upstream CB881
ITC030	Little Wigwam Stream	OF883	Little Wigwam Stream	Low	2	149	1	06/29/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Inspection made at upstream CB916
OF413	Weld Stream	OF413	Weld Stream	Low	2	150	1	04/09/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Discarded vegetables. Partially submerged, partially buried. No flow. I stirred it up while clearing some debris away
OF552	Little Wigwam Stream	OF552	Little Wigwam Stream	Low	2	151	1	06/17/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Heavily buried
OF564	Greenlodge Stream	OF564	Greenlodge Stream	Low	2	152	1	06/28/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF666	Westfield Brook	OF666	Westfield Brook	Low	2	153	1	06/28/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF876	Peanut Butter Brook	OF876	Peanut Butter Brook	Low	2	154	1	06/17/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF671	East Brook	OF671	East Brook	Low	1	155	1	06/10/21	No	Cloudy	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF667	East Brook	OF667	East Brook	Low	1	156	1	06/28/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF247	Arlington Stream	OF247	Arlington Stream	Low	1	157	1	06/17/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Buried
ITC027	Wigwam Brook	OF611	Wigwam Brook	Low	1	158	1	06/29/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	ITC027 is at CB1258.
OF00871	Greenlodge Stream	OF00871	Greenlodge Stream	Low	1	159	1	06/17/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF230	Vine Rock Stream	OF230	Vine Rock Stream	Low	1	160	1	03/22/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Slope stabilization matting is exposed.
OF274	East Brook	OF274	East Brook	Low	1	161	1	04/20/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF391	Lowder Brook	OF391	Lowder Brook	Low	1	162	1	06/10/21	No	Cloudy	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Part has broken off
OF419	Lowder Brook	OF419	Lowder Brook	Low	1	163	1	06/28/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF436	Lowder Brook	OF436	Lowder Brook	Low	1	164	1	04/09/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Some roadside trash
OF438	Lowder Brook	OF438	Lowder Brook	Low	1	165	1	04/09/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Staining appears to be natural. No evidence of dumping at upstream CB which is only source going to outfall. Scour hole / plunge pool below OF appears stable.
OF450	East Brook	OF450	East Brook	Low	1	166	1	04/20/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF451	East Brook	OF451	East Brook	Low	1	167	1	04/20/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF461	East Brook	OF461	East Brook	Low	1	168	1	04/20/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF462	East Brook	OF462	East Brook	Low	1	169	1	06/28/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF475	Greenlodge Stream	OF475	Greenlodge Stream	Low	1	170	1	06/17/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Heavily buried
OF477	Peanut Butter Brook	OF477	Peanut Butter Brook	Low	1	171	1	04/15/21	No	Cloudy	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Slightly buried
OF546	Peanut Butter Brook	OF546	Peanut Butter Brook	Low	1	172	1	04/15/21	No	Cloudy	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Many bags of dog poop
OF570	Peanut Butter Brook	OF570	Peanut Butter Brook	Low	1	173	1	04/15/21	No	Cloudy	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF571	Peanut Butter Brook	OF571	Peanut Butter Brook	Low	1	174	1	04/15/21	No	Cloudy	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	One minor separated joint. Some bags of dog poop
OF576	Greenlodge Stream	OF576	Greenlodge Stream	Low	1	175	1	06/28/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF637	Greenlodge Stream	OF637	Greenlodge Stream	Low	1	176	1	06/11/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF706	Greenlodge Stream	OF706	Greenlodge Stream	Low	1	177	1	06/28/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF708	Greenlodge Stream	OF708	Greenlodge Stream	Low	1	178	1	06/17/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF417	County Jail Brook	OF417	County Jail Brook	Low	0	179	1	01/11/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Hardcopy inspection
OF435	Lowder Brook	OF435	Lowder Brook	Low	0	180	1	06/28/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF455	Little Wigwam Stream	OF455	Little Wigwam Stream	Low	0	181	1	06/29/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	Buried
OF480	County Jail Brook	OF480	County Jail Brook	Low	0	182	1	06/17/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF565	Greenlodge Stream	OF565	Greenlodge Stream	Low	0	183	1	06/28/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	
OF773	Lowder Brook	OF773	Lowder Brook	Low	0	184	1	06/28/21	No	Sunny	NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	

Dedham, MA - Wet Weather Outfall Sampling Results

Outfall ID	Location	Receiving Water	Inspection Date and Time	Outfall Size/ Material	Physical Condition	Estimated Flow Rate (gallon/min)	Evidence of Non-Stormwater Discharge	Comments	Field Testing Results						Lab Results			
									Temp. (°F)	Salinity (PPM)	Conductivity (µs/cm)	Ammonia (mg/L)	Surfactants (mg/L)	Chlorine (mg/L)	E. Coli (mpn/100 mL)	Dissolved Oxygen (mg/L)	BOD5 (mg/L)	Total Phosphorus (mg/L)
OF604	188 Colburn St	Mother Brook (MA73-28)	4/1/2021 13:25	48" CMP	Poor condition, CMP beginning to rust out	30	None	-	50.7	446	824	0.40	0.50	0.06	1100	9.8	<4.0	<0.05
OF705	High School/Avery Elementary School Easement	Mother Brook (MA73-28)	4/16/2021 11:30	24" HDPE	Average condition, grate at the outlet needs to be cleaned of debris	10	None	-	37.6	124	245	0.2	0.25	0.08	620	11	<4.0	<0.05
OF704	Cliff Way	Mother Brook (MA73-28)	4/1/2021 12:40	24" RCP	Fair condition, moderate soil erosion	40+	None	-	49.1	839	1491	0.2	0.5	0.1	110	11	<4.0	<0.05
OF464	11 Clark St	Mother Brook (MA73-28)	4/16/2021 12:45	18" RCP	Average condition	25	Moderate turbidity in discharge	-	35.8	100	206	0.3	0.25	0.1	379	11	<4.0	0.11
OF715	Sawmill Ln	Mother Brook (MA73-28)	4/16/2021 9:50	24" RCP	Good condition	5	None	-	35.9	119	364	0	0.5	0.04	20	12	<4.0	<0.05
OF471	Emmett Ave @ Sawmill Ln	Mother Brook (MA73-28)	4/1/2021 10:30	18" RCP	Fair condition, moderate soil erosion		None	-	48.2	228	424	0.2	0.5	0.22	1700	11	<4.0	0.054
OF459	11 Clark St	Mother Brook (MA73-28)	4/16/2021 12:15	24" HDPE	Good condition	10	None	-	37.9	145	291	0.2	0.375	0.06	226	10	<4.0	0.14
OF408	38 N Stone Mill Dr	Mother Brook (MA73-28)	4/1/2021 10:00	12" PVC	Good condition	10	None	-	49	84	88	2	1	0.34	2400	10	8.9	0.14
OF152	Colburn St @ Bussey St	Mother Brook (MA73-28)	4/16/2021 8:55	12" RCP	-	20+	None	Sampled at U/S drain manhole. Could not access outfall - under bridge	40.8	27	55	0.2	0.5	0.07	908	10	<4.0	0.096
OF572	Paradis Ln	Mother Brook (MA73-28)	4/1/2021 12:05	21" RCP	Fair condition, severe overgrowth	15	None	-	51.5	525	954	0.1	0.25	0.09	200	7.9	<4.0	<0.05
OF716	Sawmill Ln	Mother Brook (MA73-28)	4/16/2021 9:35	24" RCP	Good condition	3	None	-	34.6	12	30	0	0.5	0.02	52	13	<4.0	0.053
OF167	63 Veterans Rd	Mother Brook (MA73-28)	4/1/2021 8:00	18" CMP	Fair conditon, CMP beginning to rust out	3	None	-	49	188	342	0	0.75	0	1100	10	<4.0	<0.05
OF168	11 Veterans Rd	Mother Brook (MA73-28)	4/1/2021 9:00	12" RCP	Fair condition, almostly fully clogged with debris/garbage - needs cleaning	1	None	Sampled at U/S catch basin	48.8	68	131	0.3	0.75	0.19	63	10	<4.0	0.089
OF169	43 Veterans Rd	Mother Brook (MA73-28)	4/1/2021 9:30	12" RCP	Fair condtion, clogged with debris//garbage - needs cleaning	2	Moderate turbidity in discharge	Sampled at U/S catch basin	49.4	43	82	0.2	0.5	0.24	280	10	<4.0	0.14
OF603	180 Bussey St (Condon Park)	Mother Brook (MA73-28)	4/16/2021 7:50	12" PVC	Good condition	4	None	-	42.1	32	89	0.2	0.5	0	86	11	<4.0	0.055
OF485	Colburn St @ Bussey St	Mother Brook (MA73-28)	4/16/2021 8:15	12" RCP	Fair condition	3	None	-	42.7	18	36	0.1	0.5	0	1126	11	<4.0	0.079
OF713	Sawmill Ln	Mother Brook (MA73-28)	4/16/2021 10:10	24" RCP	Fair condition	5	Moderate turbidity in discharge	-	34.2	77	164	0.1	0.5	0.07	97	13	4.4	0.076
OF602	Bussey St	Mother Brook (MA73-28)	4/16/2021 10:50	12" RCP	Good condition	1	None	-	33.3	36	78	0	0.25	0	9208	13	<4.0	0.14
OF473	Oakland St @ Sawmill Ln	Mother Brook (MA73-28)	4/16/2021 9:15	10" PVC	Fair condition	3	None	-	37.2	11	25	0	1	0.11	98	11	<4.0	0.071
OF504	Colburn St @ Bussey St	Mother Brook (MA73-28)	4/16/2021 8:40	12" CMP	Poor condition, bottom of pipe completely rusted out	20	None	-	41.6	10	20	0.1	0.5	0.07	1565	12	<4.0	0.081

*The 2016 MS4 Permit identifies likely sewer input indicators as follows:

Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and bacteria levels greater than the water quality criteria applicable to the receiving water. E.Coli = 235 CFU/100 mL.

Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and detectable levels of chlorine.

The catchment area to this outfall has a suspected illicit connection based upon MS4 Permit criteria, which indicates likely sewer input.

The outfall sampling results exceed water quality standards/benchmark criteria.

2020 Water Quality Report, Dedham, Massachusetts

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8/5/2021

Background

The Neponset River Watershed Association (NepRWA) has been collecting water quality data in Dedham and throughout the Neponset River watershed since 1996. Samples are collected by volunteers through the Community (formerly Citizen) Water Monitoring Network (CWMN) and by NepRWA staff through the Hot Spot program. Data gathered by the CWMN volunteers are used to track the health of the Neponset River and its tributaries, and to locate pollution sources (hot spots) for follow-up sampling. There is one permanent CWMN station within the town of Dedham on Mother Brook (Figure 1), which is tested for *Escherichia coli* (*E.coli*), total phosphorus, pH, dissolved oxygen, and temperature once per month between May and October. The raw water quality data are available upon request.

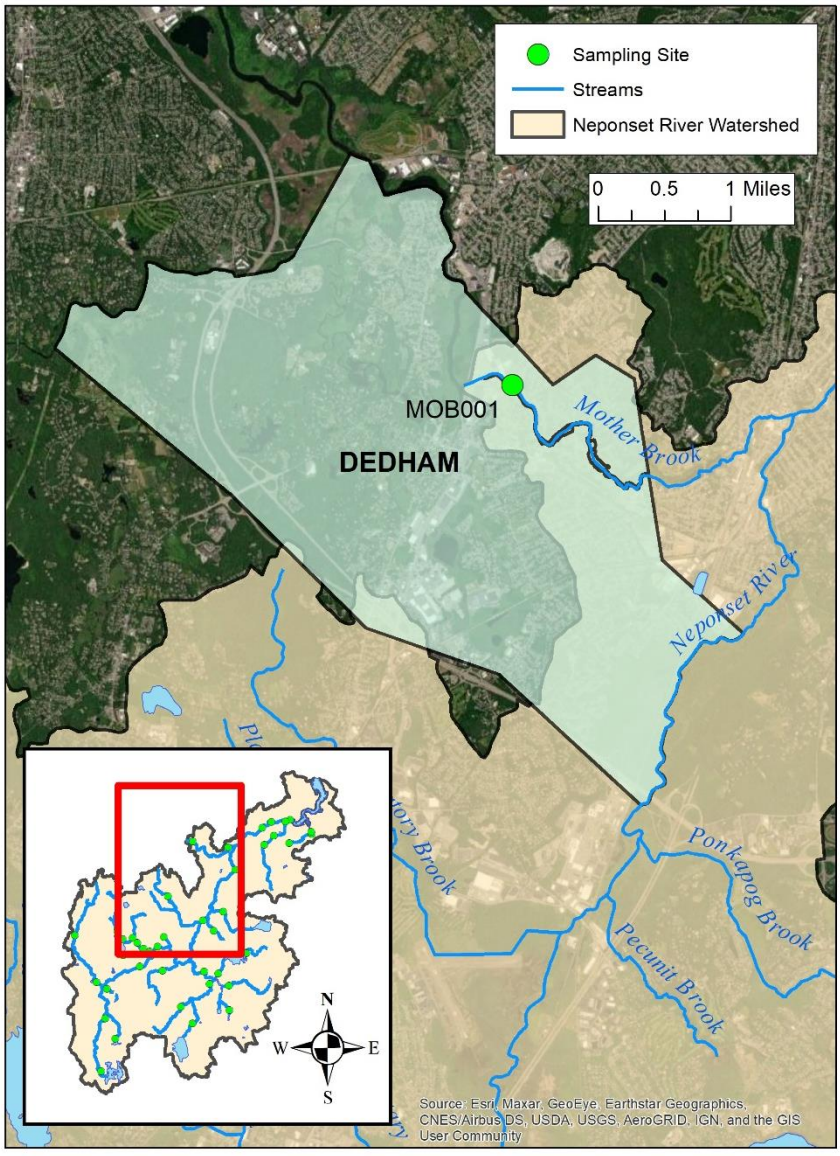

Figure 1: Map of the CWMN sites in Dedham, Massachusetts.

The concentration of *E. coli* bacteria is used to assess a waterbody's safety for "contact recreation" through activities such as swimming, fishing, boating, and wading. The presence of *E. coli* is evidence of fecal contamination and is an indicator of the likely presence of other, more dangerous, pathogens associated with human and animal waste. The most

common sources of *E. coli* include improper disposal of pet waste in streets, lawns, and catch basins. Additional common sources include sewer or septic system malfunctions and discharges of organic wastes from household or commercial garbage. Wildlife waste also contains *E. coli,* however elevated concentrations from wildlife are typically associated with human activities, such as feeding ducks. Management interventions to reduce *E. coli* loads can include education on pet waste disposal, proper management of solid waste, frequent cleaning of catch basins, filtration stormwater best management practices (BMPs) to reduce the runoff that reaches a waterbody, and rapid identification and repair of sewage leaks and spills.

Phosphorus is a required plant nutrient that is often the "limiting nutrient" in freshwater ecosystems. Therefore, the concentration of available phosphorus in a freshwater waterbody will often control the rate of aquatic plant growth (the other required nutrients are typically present at proportionately higher levels). *Excess* phosphorus creates *excess* biomass, especially algae, in a process called eutrophication. When the excess plants and algae die, the process of decomposition consumes dissolved oxygen, and in extreme cases dissolved oxygen levels get too low to support aquatic animals such as fish. Other impacts of eutrophication include unattractive and smelly algal blooms and destruction of underwater plant communities through reduced light penetration. Elevated phosphorus concentrations can cause *harmful* algal blooms (HABs), such as cyanobacteria that produce toxins harmful to people. Phosphorus sources can include wet (from rain) or dry (from sprinklers) weather runoff from parking lots, streets/gutters, and lawns. These surfaces contain phosphorus from fertilizers, organic matter (leaves, grass clippings), soil, garbage, and pet waste. Interestingly, phosphorus can also accumulate on these surfaces from atmospheric deposition. Illegal dumping of organic matter such as leaves in or near waterways or catch basins is a common problem. Poorly maintained septic systems, illicit discharges of sewage, and naturally occurring dead aquatic plant materials are additional sources.

The pH of a waterbody is a measure of how much free hydrogen ion (H+) is present in the water—a lot of free hydrogen ion leads to acidity (low pH) and low amounts of free hydrogen ion leads to more basic conditions (high pH). Water that is too acidic or too basic can be toxic to aquatic life. The pH is influenced by bedrock characteristics, groundwater seepage, acid rain, or heavy loading of tannin rich leaves/needles.

Adequate concentrations of dissolved oxygen (DO) are necessary to support fish, amphibians, mollusks, aquatic insects, and other invertebrate species. Many environmental drivers impact the DO levels in a water body. For example, cooler water temperatures sustain higher levels of DO, which is why there is often a seasonal trend in DO concentration: low levels in the warm months and higher levels in the colder months. Rapid mixing and turbulence (such as riffles or step pools) also result in high levels of DO due to atmospheric mixing. Alternatively, large amounts of decaying organic matter consume dissolved oxygen as microorganisms degrade the organic matter and lower levels of DO result. Excessive phosphorous that causes eutrophic conditions is also closely associated with low dissolved oxygen levels because it drives plant growth and subsequent decomposition. In thermally stratified lakes, oxygen deficient conditions can occur in the deeper portions of the water where there is no atmospheric mixing and no photosynthesis (the two sources of DO in aquatic systems). In the summer, ponds and lakes typically have warmer surface waters and thus lower surface DO concentrations. Management interventions that can increase DO levels include increasing riparian shading to maintain lower water temperatures, removing obsolete dams, reducing excessive water diversions, and reducing decaying organic matter though the reduction of phosphorous runoff and other drivers of eutrophication.

Results and Discussion

Monthly sampling events occur on predetermined days each month, which means the weather is not a criterion in determining when to collect the water quality data. However, rain events can significantly alter the concentrations of various parameters by washing bacteria, nutrients, and other chemicals from land surfaces into the river. In 2020, five sampling days occurred during dry periods and just one sampling date occurred during a wet period. A wet period is defined as greater than 0.1 inches of precipitation within the 48-hour period preceding a sampling event. As shown in Table 1, 2020 had more sampling events occur during dry weather since 2016 when all six sampling events occurred during dry weather. The implication of this result is that any improvements in certain parameters like *E. coli* may be a result from the disproportionate sampling during dry weather as opposed to real changes in water quality or real changes in the frequency of sewage spills.

Table 1: The number of water quality sampling days that occurred during dry or wet weather since year 2010.

Year	Dry (days)	Wet (days)
2010	5	1
2011	3	3
2012	2	4
2013	5	1
2014	4	2
2015	4	2
2016	6	0
2017	4	2
2018	3	3
2019	3	3
2020	5	1

Escherichia coli (E. coli)

In Massachusetts there are two criteria that define acceptable levels of *E.coli* in Class B waterbodies (waterbodies that support wildlife, swimming, and boating, but not drinking). In Class B waters, no single sample shall exceed 235 Colony Forming Units (CFU) per 100 ml (the single sample standard), and/or the geometric mean of at least 5 samples taken within the same season shall not exceed 126 CFU/100ml (the seasonal standard).

In 2020 maximum *E. coli* levels at the Mother Brook site were within the single sample standard for the first time in 10 years (Table 2). Levels of *E. coli* in 2020 were also below the seasonal sample limit, for the first time since 2013. The 2020 wet weather sample maximum was 199 cfu/100ml (N=1) and the dry weather sample maximum was 185 cfu/100ml (N=5), suggesting that the excess runoff during precipitation was not contaminated with high levels of *E. coli* like it was in previous years (Figure 2). In 2018, we investigated the high levels of *E. coli* and identified the source of contamination as the Dedham Transfer Station. The Dedham Engineering and Public Works Departments were altered of this, and the station was officially closed in 2019, which led to the lower *E. coli* concentrations in 2020 (good news!).

Table 2: The maximum, average, minimum, and geometric mean *E. coli* concentrations at the site on Mother Brook (MOB001) in Dedham, MA, since year 2010. N=6. Units are in cfu/100ml.

Year	Maximum	Average	Minimum	Geometric Mean
2010	740	190	41	105
2011	3450	653	5	94

2012	19900	3538	5	261
2013	288	100	10	60
2014	1200	337	109	191
2015	1940	735	98	457
2016	591	235	52	161
2017	3260	1327	74	569
2018	24200	9237	62	2160
2019	3870	716	20	132
2020	199	116	20	93

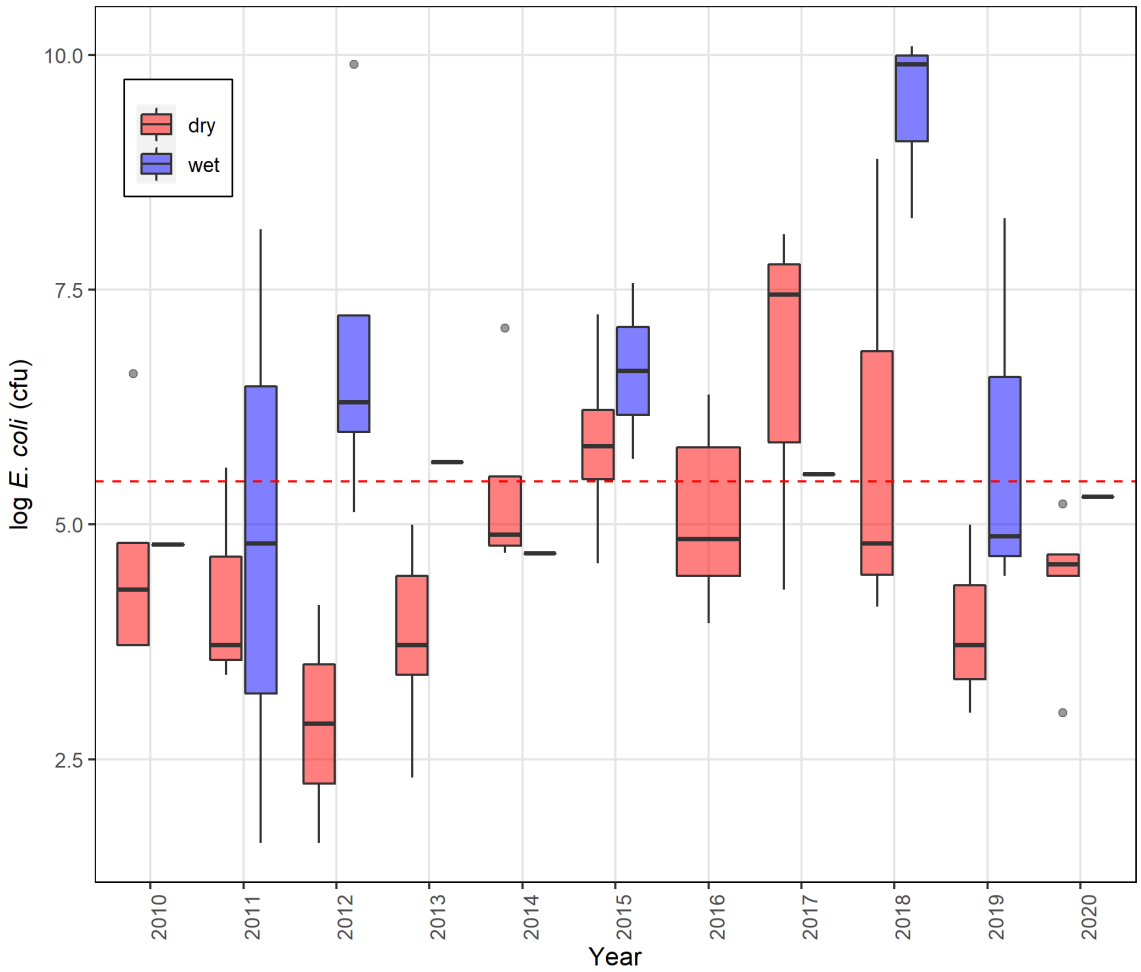

Figure 2: *E. coli* levels at Mother Brook in Dedham, MA from years 2010 to 2020 – note the log scale. The plot shows levels grouped by weather (blue = wet, red = dry). The red dashed line at y = log(235) shows the single sample maximum acceptable threshold. Boxplot statistics: The lower and upper hinges correspond to the first and third quartiles (the 25th and 75th percentiles). The upper whisker extends from the hinge to the largest value no further than 1.5 * IQR from the hinge (where IQR is the inter-quartile range, or distance between the first and third quartiles). The lower whisker extends from the hinge to the smallest value at most 1.5 * IQR of the hinge. Data beyond the end of the whiskers are called "outlying" points and are plotted individually.

Phosphorus

The state of Massachusetts does not provide numerical phosphorus standards for classification of water quality impairments. Instead, the Massachusetts Department of Environmental Protection (MassDEP) uses a narrative standard that considers the EPA gold book standard, dissolved oxygen levels, and excessive primary producer growth. The EPA gold book standard identifies an average of at least three samples exceeding 0.1mg/l as the upper threshold for flowing waters and 0.05mg/l for streams entering a lake/reservoir. We considered the Mother Brook site in Dedham to be entering a lake or reservoir. Dissolved oxygen and excess primary producer growth like algal blooms are used as evidence that the phosphorus levels are causing an impact to the stream ecology.

The seasonal average total Phosphorus level in 2020 was 0.06 mg/l, which is just above the threshold for waters entering a lake or reservoir (Table 3). Since 2010 seasonal averages have ranged from 0.05mg/l to 0.08 mg/l in 2018 due to a large outlying value (Figure 3).

Table 3: The maximum, average, and minimum values of total phosphorus recorded during 2020 at Mother Brook in Dedham, MA. N=6.

Maximum (mg/l)	Average (mg/l)	Minimum (mg/l)	Standard (mg/l)
0.11	0.06	0.03	0.05

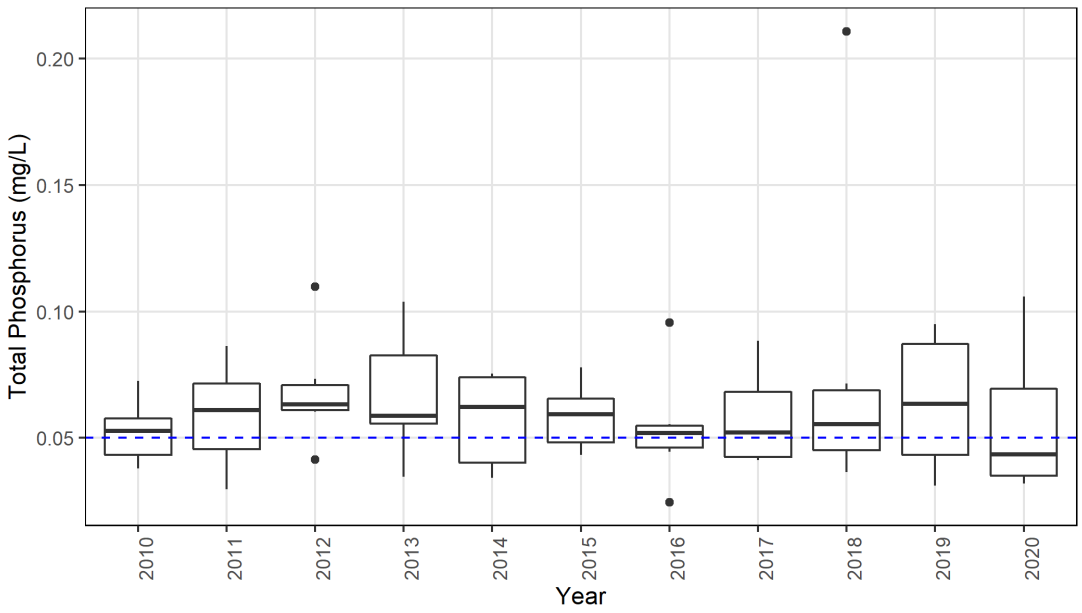

Figure 3: Total phosphorus levels at Mother Brook in Dedham, MA from year 2010 to 2020. The blue dashed line is at 0.05mg/l. Boxplot statistics are the same as Figure 2.

It is important to note that the Massachusetts DEP asks for additional information to help identify a problem with total Phosphorus, such as primary producer data. While we do not have primary producer data at this site, there is a strong negative correlation between total Phosphorus levels and dissolved oxygen levels (R^2 = -0.55), which can be a symptom of eutrophication. While dissolved oxygen levels are not considered low at this site, the strong relationship with total Phosphorus implies that it is important to maintain low nutrient levels.

pH

The state of Massachusetts considers a pH range between 6.5 and 8.3 to be healthy for waterbodies in the state. Since 2010 pH levels have been within the acceptable range at the Mother Brook site except during one sampling event in 2020 (Figure 4). The July water sample had a pH of 6.13, which is too acidic, but all other samples that year had near neutral values. It is not clear what could have caused the low reading and an instrument error or recording error is always possible. Future years of data will show whether the water is becoming more acidic or whether this was a one-time event.

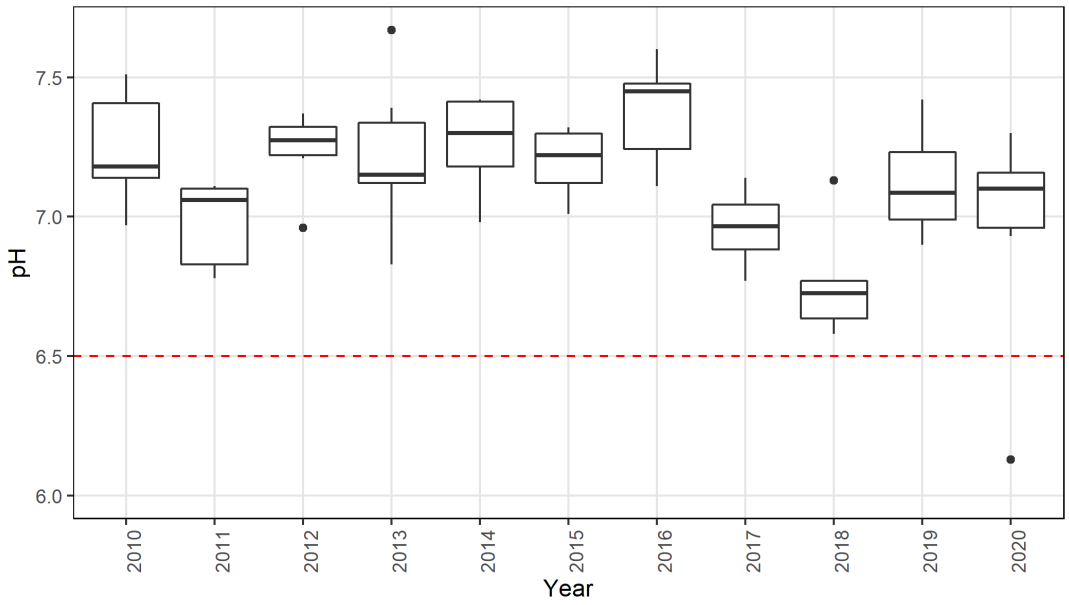

Figure 4: The pH levels at the eight sites in Dedham for years 2010 through 2020. Boxplots statistics are the same as Figure 2.

Dissolved Oxygen:

The state of Massachusetts considers DO levels below 5 mg/L to be stressful to all aquatic organisms and 6 mg/L to be stressful to certain species of fishes that require colder water. Mother Brook is not listed as a cold-water resource by the Massachusetts Division of Fisheries and Wildlife so we use the 5 mg/l threshold.

Dissolved oxygen levels in 2020 were similar to the 10-year average levels (Figure 5). Trends in seasonal dissolved oxygen are likely driven by stream temperatures and nutrient enrichment. Ten years of data shows that DO levels are typically above the stressful threshold except in 2018 when the June and July levels were DO = 1.7mg/l and DO = 2.3mg/l, respectively (Figure 6). The June 2018 total Phosphorus concentration was 0.21mg/l, which could have fueled plant growth and a subsequent reduction in DO. Considering the 10 years of data shown in Figure 6, the hypoxic conditions in 2018 appear to be an anomalous, but it would be helpful to understand what environmental conditions created the hypoxic stream conditions to prevent that in the future.

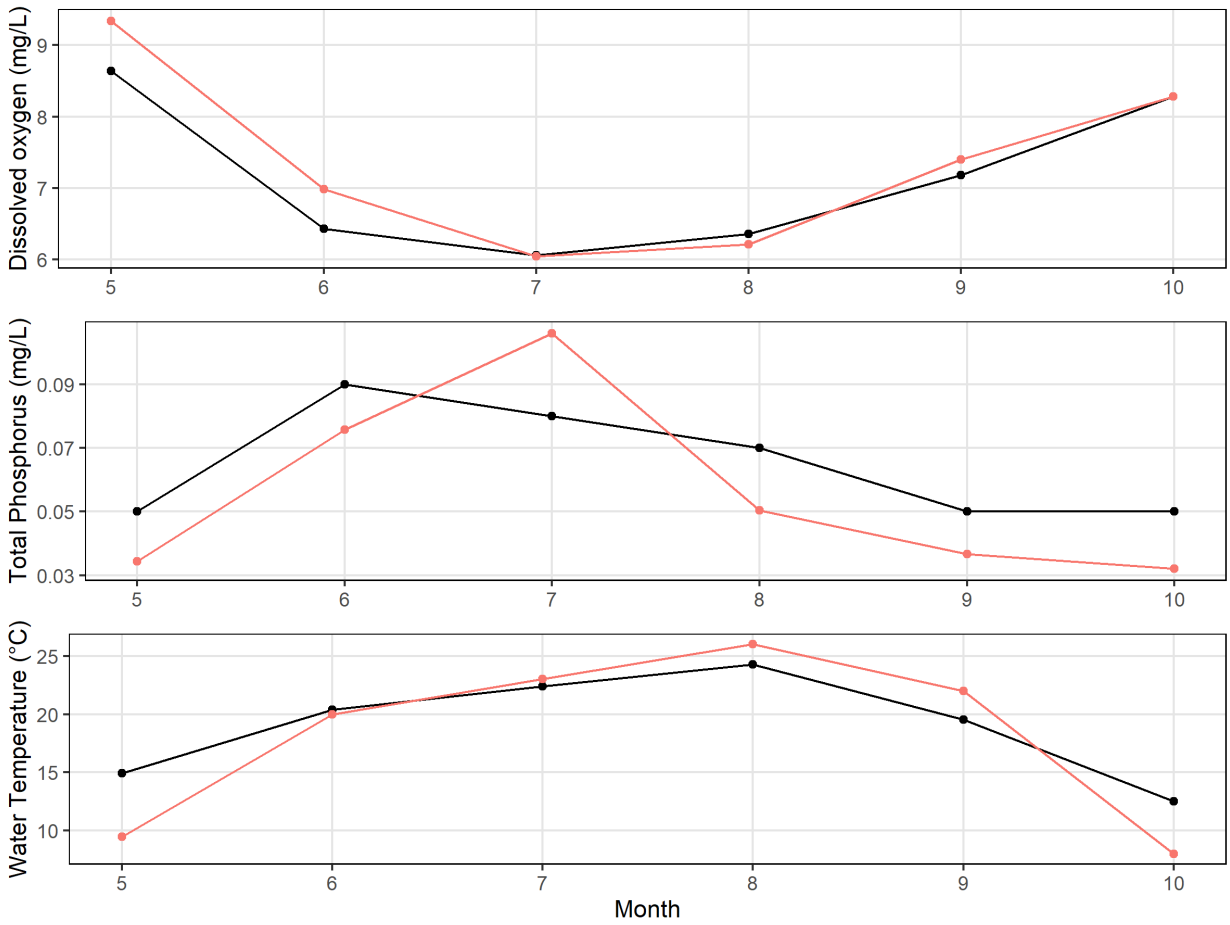

Figure 5: Monthly dissolved oxygen levels (top plot), total phosphorus levels (middle plot) and water temperature levels (bottom plot) at Mother Brook in Dedham. The black line shows the mean monthly value from 2010 to 2019 and the red line shows the 2020 values.

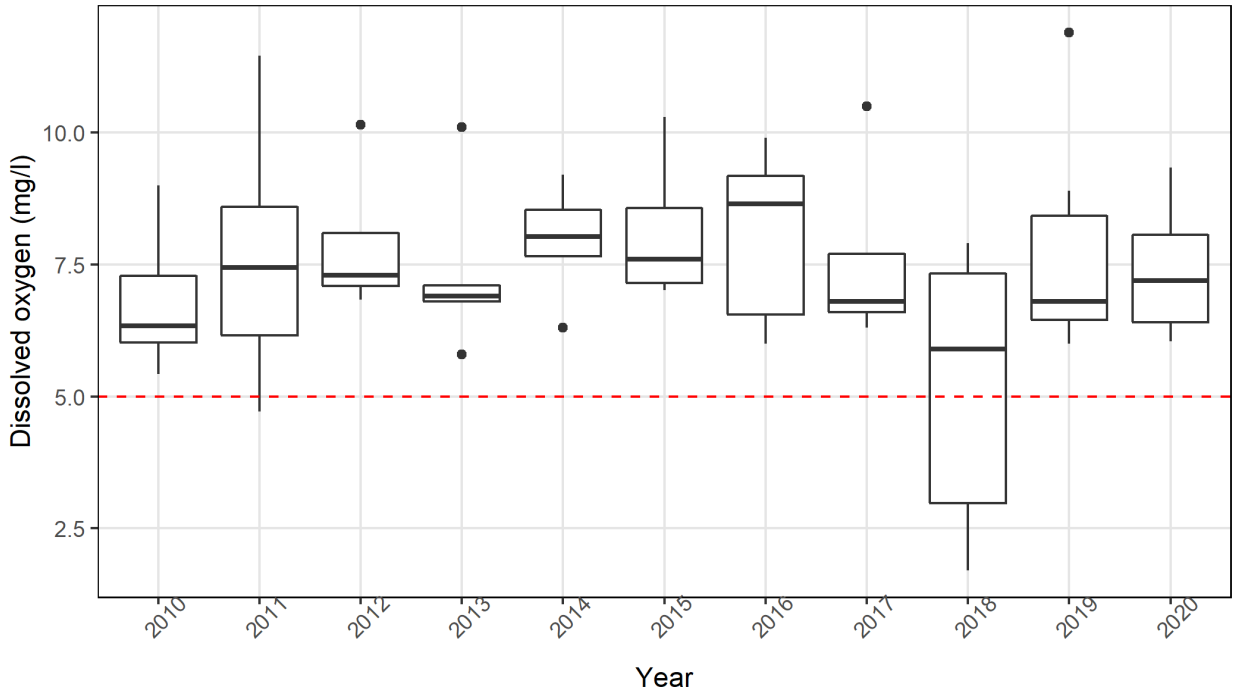

Figure 6: Dissolved oxygen levels at Mother Brook in Dedham, MA, from year 2010 to year 2020. N=6 for each year. The red dashed line is at DO = 5mg/l.

Conclusion

The water quality data that we collect through the CWMN program is used to inform our messaging to the public and follow up site visits to sites to investigate problems (hot spot sampling). Table 4 details our recommendations and items to discuss with the Town.

Table 4: Major parameters of concern by site with recommendations on first steps to address the problem.

Site	Parameter	Recommendation
MOB001	TP	• Identify sources of phosphorus and aim to reduce concentrations -including areas upstream on the Charles River. • Monitor for plant and algae growth to identify ecological impacts of the high phosphorus concentrations.
MOB001	*E. coli*	• Continue to monitor to ensure that the levels remain low following the closure of the Dedham Transfer Station.