City of
Fitchburg

Department of
Public Works

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February 27, 2023

U.S. Environmental Protection Agency
Water Enforcement
OES4-SMR
5 Post Office Square, Suite 100
Boston, MA 02109-3912

Re: CSOs Monitoring & Overflow Report
February 1, 2022 to January 31, 2023 Reporting Period
Consent Decree, VII. REMEDIAL MEASURES, Paragraphs 32 & 33

Dear Sir or Madam:

In accordance with Section VII, Paragraphs 32 and 33 of the Consent Decree (Decree) signed by Fitchburg's Mayor on June 1, 2012, this submission provides an Annual Summary of CSOs Monitoring, Overflows Reporting, and Inspection Certification of CSO Outfalls Report on the City's compliance with requirements of the Decree (as described by Paragraphs 32 and 33). In addition, weir wall adjustments at CSO locations and dry-weather CSO's will be discussed. The report covers the period from February 1, 2022 to January 31, 2023.

Monitoring Sites

The City of Fitchburg has maintained a total of 8 CSO Regulator Sites, all of which are metered.

The Collections Team of the City's Wastewater Division continued to monitor meters throughout the city during the reporting period, and also monitored the City's 148 remaining combination manholes with tell-tale blocks for the United States Environmental Protection (US EPA) and Massachusetts Department of Environmental Protection (MassDEP) reporting purposes. During the reporting period, the City monitored regulators with ADS Environmental, Inc. Triton+ (Triton) flow meters, the latest meter offered by ADS. The City has had on-call agreement with ADS to assist the City in troubleshooting problematic meters, installing meters in difficult sites, or for training purposes. The City maintains two ADS "Rain Alert III" rain gauges, one at the East Fitchburg Wastewater Treatment Facility located on Lanides Lane (recently relocated from the Summer Street Fire Station), and one at the DPW Building. In December 2018, the City also installed an ADS "Echo" level sensor in CSO Regulator 045. The "Echo" sensor is ultrasonic, with no equipment in the flow. The sensor allows the City to monitor the water level in the regulator chamber to help determine when an overflow over the weir wall is occurring. The City used the "Echo" sensor during reporting period to calculate overflow volumes from the regulator using a simplified weir equation. The City also maintained down looking sensors at CSOs 041 and 076, to give increased accuracy during overflow events.

These sites are calculated as a simplified weir equation, and manning's equation, respectively.

During the reporting period, the City had flow meters located at all of its remaining open overflow regulators. This report discusses the overflows recorded at each site, issues that occurred during the reporting period, and proposed future metering changes. The City experienced some data quality and meter downtime issues during the year, which prompted the City to have ADS visit all the sites in the City to conduct maintenance and repairs multiple times throughout the reporting period.

As stated above, the City maintains two ADS RainAlert III rain gauges, one at DPW and one on the City of Fitchburg Waste Water Treatment Plant (relocated from the Summer Street. The rain gauges logged a total of 27.51-inches of rainfall during the reporting period.

In order to most accurately calculate CSO volumes, a variety of methods were used. The City has worked closely with ADS to determine the most accurate way to calculate overflow volume, as CSO volume is notoriously difficult to obtain due to vastly different hydraulics at each CSO, and differing rain events. The City is frequently reviewing data and methods to calculate overflow volume, and revising calculation methods as appropriate. Some of the City's CSO sites were calculated using a "silt-method". With this method, if the incoming pipe is large, and the crown of the pipe is above the weir wall elevation, a "silt-level" is set on the flow meter to match the weir wall elevation. Any flow that that is recorded over this elevation is a CSO. Other sites were calculated using a velocity vs. depth relationship. Plotting the data on a scattergraph, and using ADS' "Iso-Q" lines, the maximum amount of flow that passes through the regulator prior to an overflow can be interpolated. This flow rate is then subtracted from the total flow rate, resulting in the CSO volume.

At other sites, a more traditional method of using a weir wall equation or Manning's Equation in Excel were used. Manning's Equation for open channel flow was used when a depth of water was known at an overflow pipe. The broad-crested rectangular weir equation was utilized when known depths overtopped weir walls. At CSO-64, an "orifice equation" was used, as the discharge location is a small opening into a much larger diameter pipe, and the chamber itself is susceptible to surcharge.

Summary of Results

Table 1 includes the summary of overflows. The flow meters logged 134 overflow events totaling 17,178,879 gallons. Additional data shown in Table 1 includes notes regarding the operational status of the meter.

Table 2 contains annual rainfall data. Daily total, average intensity, peak hour intensity and duration of storm are provided.

Table 3 contains the meters' overflow detail. Overflow event dates, calculated gallons of overflow and duration of overflow are all provided. Daily rainfall is also provided for the reviewer's convenience.

Discussion of CSO Sites

CSO 004 - Cleghorn Street at Oak Hill Road

CSO-004 weir wall was raised by six (6) inches to a total height of thirty-six (36) inches on May 12, 2021.

CSO 004 Highlights
1 Overflow Events
Unknown gal. Overflow
Unknown Duration
97% Meter Coverage
System type: Combined

CSO-004 is a regulator manhole consisting of a 55" x 36" combined brick influent pipe, a 12" sanitary effluent pipe, and a 55" x 36" brick overflow pipe. A brick weir wall directs all flow to the 12" sanitary pipe. When this regulator does overflow, the 12" sanitary becomes inundated and water overtops the weir wall. Overflows discharge to the Nashua River. Further sewer separation upstream is required to close this regulator. The downstream pipe may also need to be upsized as it flows close to half full during dry weather. A volume for one event was missed due to a data drop. Occasionally as the sensors age, data can be 'dropped' during large events. After a few dropped events, the City investigates and replaces the $1,700 sensor if necessary. An ADS "down looking" sensor will likely be placed in this structure in the next reporting period for increased monitoring and calculation of a weir equation. The documented event was recorded as "unknown" due to no flow recorded by meter, however visual aid block indicated an overflow event had occurred.

CSO 007 - Cushing Street at Riverfront Park

CSO-007 was closed on May 3, 2021.

CSO 007 Highlights
0 Overflow Events
0 Overflow
Duration
Meter Coverage
System Type: Separate

CSO 010 - Main Street at River Street

CSO-010 weir wall was raised from twenty (20) inches to thirty (30) inches above the sensor on May 12, 2021.

CSO 010 Highlights
14 Overflow Events
149,294 gal. Overflow
1.93 hr. Duration
99% Meter Coverage
System type: Combined

CSO-010 consists of a regulator manhole with a 15" influent pipe, 12" effluent pipe and a 15" overflow pipe discharge, with a weir wall between the overflow pipe and dry-weather flow. A significant amount of combined sewer upstream overwhelms the 12" effluent pipe during intense rainfall causing weir wall overtopping. With a large number of combined sewer areas upstream that contribute to this regulator, the City plans to complete closure of this regulator around 2025, in accordance with the Wastewater Management Plan submitted during the reporting period. A few events in the beginning of the period were missed due to meter communication issues.

CSO 032 - 543 Main Street at Post Office

CSO-032 weir wall was raised by three and three quarters (3.75) inches on May 12, 2021. A confirmation measurement was conducted on January 24th, 2022 for a total height of a weir wall of twenty-three (23) inches.

CSO 032 Highlights
32 Overflow Events
421,611 gal Overflow
15.43 hr. Duration
100% Meter Coverage
System Type: Combined

The CSO-032 regulator contains an 18" combined influent pipe, an 8" sanitary throttle discharge pipe, and an 18" overflow to the drainage system. Due to a number of combined pipes upstream of this regulator, the 8" throttle pipe becomes overwhelmed during heavy rainfall events and overflows to the drainage system via a small weir wall. Meter communication issues were experienced sporadically throughout the period. With a large number of combined sewers upstream that contribute to this regulator, the City plans to complete closure of this regulator around 2025, in accordance with the City's Wastewater Management Plan.

CSO 039 - Water Street at Walnut Street

CSO-039 was closed on August 26,2021.

CSO 039 Highlights
0 Overflow Events
0 gal. Overflow
0 hr. Duration
Meter Coverage
System Type: Combined

CSO 041 - Benson Street at Falulah Street

CSO 041 Highlights
14 Overflow Events
1,269 gal. Overflow
0.08 Hr. Duration
100% Meter Coverage
System Type: Separated

CSO-041 consists of a regulator manhole with a 12" influent, a 10" effluent, and an 18" overflow. In past reporting periods, the City has experienced periodic overflows at this location. The contributing area to the regulator is fully separated, which correlates to high inflow in the contributing collection system. During the metering period, the data analysis by the City's engineering consultant revealed that high inflow is an issue in this portion of the City's sewer system. A minimum of 4 catch basins have been confirmed to tie into the sanitary system in the upstream basin. During the SSES Phase II study of this area, it was determined that the base flow pipe is undersized, and will need to be upsized in order close the overflow. An ultrasonic down-looking level sensor is used in at this regulator to provide more reliable overflow data using a weir method for calculating overflow.

CSO 045 - Main Street at Oliver/Putnam Street

CSO 045 Highlights
36 Overflow Events
12,635,061 gal. Overflow
30.91 Hr. Duration
100% Meter Coverage
System Type: Combined

Regulator CSO-045 consists of a chamber with numerous inlets and outlets, and adjacent catch basins tied into the chamber. The basic construction of the chamber consists of a 30" diameter drain on one edge of the chamber, a sewer line on the adjacent edge (12" dia. inlet, 15" dia. outlet), with a weir wall between the drain and sewer. In addition, there is a 26" x 39" inlet sewer that bridges the drain and discharges to the sewer side of the chamber. Overflows consist of flow topping the weir wall, bridge sewer, and also a 26" x 39" overflow outlet line. Both weir walls in the chamber are within an inch of each other in overflow elevation. With a large number of combined sewer areas upstream that contribute to this regulator, the City plans to complete closure of this regulator around 2025, in accordance with the Wastewater

Management Plan (WMP) submitted during the reporting period. During the reporting period, the City used an ADS "Echo" ultrasonic sensor to the chamber to calculate overflow monitoring via a weir equation.

CSO 048 - 85 Water Street at Market Basket

CSO-048 was closed on June 2, 2022.

CSO 048 Highlights
0 Overflow Events
0 gal. Overflow
0 Hr. Duration
System Type: Separated

CSO 064 - Water Street Easement Grit Chamber

CSO-064 is located within a former grit/siphon chamber on the trunk sewer. Upstream of the regulator, the sewer is 48" diameter and downstream it is 30" diameter, creating a bottleneck. The opening of the overflow is currently a partially plugged outlet pipe, which essentially creates a weir wall, with approximately a 15" diameter opening. In order to fully close this regulator, additional sewer separation work and inflow removal will be required upstream. Approximately 60% of the collection system is located upstream of this location.

CSO 064 Highlights
20 Overflow Events
3,746,665 gal. Overflow
23.10 Hr. Duration
100% Meter Coverage
System Type: Combined/Separated

During the reporting period, the City's Capacity Assessment Report was submitted to the EPA and the MassDEP for review. During the capacity assessment, hydraulic model runs confirmed that upsizing the trunk sewer downstream of the regulator will allow for closure of the regulator. In accordance with the City's submitted WMP, the regulator is slated for closure in 2030.

CSO 076 - Birch Street at Heywood Street

The CSO-076 regulator manhole consists of a 10" influent, 10" effluent, and a 12" overflow.

CSO 076 Highlights
12 Overflow Events
90,801 gal. Overflow
1.83 Hr. Duration
100% Meter Coverage
System Type: Separated

The contributing collection system area to CSO-076 contains areas of high infiltration, and sewers of poor construction, which leads to large quantity of suspected infiltration. In addition, the base flow pipe is undersized. It is anticipated that inflow and infiltration removal upstream will reduce the amount of overflows at this location. There is no known combined sewer upstream of this regulator.

Due to unreliability of having the flow sensor in the overflow pipe, the City replaced the sensor with an ultrasonic down looking sensor to monitor surcharge height in the manhole, in order to use a manning's equation to calculate overflow volume. It has been apparent that this change has provided greater accuracy in overflow reporting.

CSO 083 - Main Street at Prichard Street

The regulator manhole consists of a 12" x 18" brick combined sewer for an inlet, a 15" VC effluent pipe, and a 12" overflow. The City plans to install a down looking sensor in this regulator, in order to provide more reliable overflow readings.

CSO 083 Highlights
14 Overflow Events
134,178 gal. Overflow
3.334 Hr. Duration
100% Meter Coverage
System Type: Combined

About half of the upstream contribution area is combined sewer, constructed in the late 1800s to early 1900s. With a large number of combined sewer areas upstream that contribute to this regulator, the City plans to complete closure of this regulator around 2025, in accordance with the Wastewater Management Plan submitted during the reporting period.

Weir Wall Elevation Adjustments and Regulator Closures

CSO-004 Weir was raised six (6) inches on May 12, 2021. This brings a total weir wall height to thirty six (36) inches at which an overflow event will now occur. CSO-010 weir wall was raised from twenty (20) inches to thirty (30) inches above the sensor on May 12, 2021. CSO-032 weir wall was raised by three and three quarters (3.75) inches on May 12, 2021. A confirmation measurement was conducted on January 24th, 2022 for a total height of a weir wall of twenty-three (23) inches. No additional weir wall adjustments were made on the remaining CSO during the reporting year, as we believe that we have likely maximized the existing capacity in the collection system based on surcharge heights within regulator manholes without causing customer back-ups. In addition, the City has a 10-year plan to close all the remaining regulators in accordance with the CWMP, minimizing the need to perform wide-spread weir wall adjustments.

Dry Weather Overflows

Dry weather overflows are associated with blockages that occur in the sanitary system and cause an overflow either over a weir wall or through a relief pipe in a combination manhole or a regulator manhole. The City experienced no dry-weather overflows during the reporting period.

If you have any questions regarding this report, please contact the Fitchburg Civil Engineer, Jeff Hillman, P.E., at 978-829-1912, or the undersigned.

Very Truly Yours,

Mark McNamara
Fitchburg DPW Interim Deputy Commissioner of Wastewater

Electronic & Hard Copy:	Beth Kudarauskas, USEPA, Region 1 Office David Boyer, P.E., MassDEP, Central Region Office
Electronic copy: (Transmittal letter only)	Chief, Environmental Enforcement Section, DOJ Anu Balakrishna, Assistant U.S. Attorney Jeff Kopf, Senior Enforcement Counsel, EPA Region 1 Louis Dundin, Assistant Attorney General, Massachusetts AG Vincent Pusateri, II, Fitchburg City Solicitor
Electronic copy:	File

"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, 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."

Mark McNamara
Fitchburg DPW Interim Deputy Commissioner of Wastewater

Table 1 - SSO Events (February 1, 2022 to January 31, 2022)

Event	SSO Discovered		SSO Stopped		Discharge From	Discharge To	Receiving Water	Location/Address	Estimated SSO Volume (Gallons)	Estimation Method	Cause of SSO Event	Corrective Actions Taken	Impact Area Disinfected Yes/No	Comments/Follow-up
	Date	Time	Date	Time										
1	6-Mar-22	6:00 PM	7-Mar-22	2:00 PM	Sewer manhole	Catch basin	N. Nashua River	135 Intervale Rd.	50 gpm	Visual	Construction	On-call contractor by-passed main and cleared	Yes	Residual SSO infiltrated ground surface.
2	28-Apr-22	5:00 PM	28-Apr-22	6:00 PM	Backup into	Property	N/A	370 Summer St.	100	Vacuumed by	Blockage/roots	Main line was cleared of roots.	Yes	Root killer will be periodically applied to this sewer main.
3	8-Jul-22	11:00 AM	8-Jul-22	11:00 AM	Backup into	Property	N/A	115 Swan Ave.	15	Visual	Blockage/roots	Main line was cleared of roots.	Yes	Root killer will be periodically applied to this sewer main.
4	27-Jul-22	12:15 PM	27-Jul-22	12:35 PM	Backup into	Property	N/A	207 Summer St.	80	Visual	Blockage	Main line was cleared of debris.	Yes	Camera line to look for additional defects.
5	9-Aug-22	9:00 AM	9-Aug-22	9:00 AM	Sewer manhole	Ground Surface	N/A	23 Columbia Ave	20	Visual	Blockage	Jetted main to clear grease and rags.	No	SSO was evaporated when we arrived at the site. Heavy rain occurred after event clearing surface.
6	9-Aug-22	3:35 PM	9-Aug-22	2:00 PM	Backup into property	Property basement	N/A	164 Elm St.	1,222	Basement Size/Water mark	Rain event	Owner advised to repair backflow preventer and disconnet bar-drain from building sewer.	Yes, cleaning crew was on-site	Area to be separated in the next 2-4 years.
7	29-Sep-22	9:59 AM	29-Sep-22	11:30 AM	Backup into property	Property basement	N/A	112 Buttrick Ave.	5,800	Visual	Broken pipe	Restore flow and repair pipe.	Yes	Gas and Water work in vicinity of break, camera to determine cause.
8	17-Nov-22	8:30 AM	17-Nov-22	9:00 AM	Sewer manhole	Ground surface	N/A	Intersection of Goddard St. and Bond St.	2,000	Visual	Blockage	DPW salted frozen water that resulted. Crew cleaned area.	Yes	Check area periodically/routine maintenance.

Table 1: Summary of Overflows

CSO SUMMARY JULY 31,2022 TO FEBRUARY 1, 2023

Meter	Location	Events	Volume (Gallons)	Notes
CSO-004	Cleghorn St at Oak Hill Road	1	Unknown	100% coverage.
CSO-007	Cushing St at Riverfront Park	--	--	Closed May 3, 2021
CSO-010	Main St. at River St.	14	149,294	99% coverage.
CSO-032	543 Main St at Post Office	36	421,611	100% coverage.
CSO-039	Water St at Walnut St.	--	--	Closed August 24, 2021
CSO-041	Benson Rd. near Falulah St.	1	1,269	99% coverage.
CSO-045	Main St. at Oliver/Putnam St.	36	12,635,061	100% coverage
CSO-048	85 Water St at Market Basket	--	--	Closed June 2, 2022
CSO-064	Water St. Easement at Chamber	20	3,746,665	100% coverage.
CSO-076	Birch St. at Heywood Street	12	90,801	100% coverage.
CSO-083	Main St. at Prichard St.	14	134,178	100% coverage.
	Totals	**134**	**17,178,879**	

Table 2 - Rainfall: 7/31/2022 to 2/1/2023

Date	Event Total (inches)	Duration (Hours)	Average Intensity (in/hr)	Peak Hour (in/hr)
2/3/2022	0.80	6.00	0.13	0.02
2/4/2022	1.50	8.17	0.18	0.03
2/5/2022	0.01	0.08	0.12	0.01
2/6/2022	0.02	0.17	0.12	0.01
2/7/2022	0.62	4.92	0.13	0.02
2/8/2022	0.46	3.83	0.12	0.01
2/13/2022	0.03	0.17	0.18	0.02
2/17/2022	0.04	0.33	0.12	0.01
2/18/2022	0.46	2.33	0.20	0.13
2/19/2022	0.01	0.08	0.12	0.01
2/22/2022	0.89	5.67	0.16	0.03
2/23/2022	0.01	0.08	0.12	0.01
2/26/2022	0.26	1.67	0.16	0.02
3/1/2022	0.13	1.08	0.12	0.01
3/2/2022	0.01	0.08	0.12	0.01
3/3/2022	0.03	0.25	0.12	0.01
3/7/2022	0.41	1.17	0.35	0.20
3/10/2022	0.31	1.42	0.22	0.04
3/12/2022	0.31	2.25	0.14	0.02
3/15/2022	0.04	0.33	0.12	0.01
3/16/2022	0.01	0.08	0.12	0.01
3/17/2022	0.04	0.33	0.12	0.01
3/19/2022	0.43	2.33	0.18	0.06
3/20/2022	0.01	0.08	0.12	0.01
3/24/2022	0.73	5.50	0.13	0.05
3/25/2022	0.49	2.75	0.18	0.04
3/26/2022	0.07	0.58	0.12	0.01
3/31/2022	0.23	1.58	0.15	0.02
4/1/2022	0.32	2.33	0.14	0.03
4/3/2022	0.07	0.58	0.12	0.01
4/4/2022	0.01	0.08	0.12	0.01
4/6/2022	0.01	0.08	0.12	0.01
4/7/2022	0.09	0.75	0.12	0.01
4/8/2022	1.12	4.25	0.26	0.06
4/9/2022	0.56	1.75	0.32	0.16
4/12/2022	0.03	0.25	0.12	0.01
4/14/2022	0.10	0.50	0.20	0.05
4/16/2022	0.34	2.42	0.14	0.02
4/19/2022	1.24	5.00	0.25	0.05
4/26/2022	0.25	1.83	0.14	0.03
4/27/2022	0.06	0.50	0.12	0.01
5/2/2022	0.03	0.25	0.12	0.01
5/3/2022	0.09	0.67	0.14	0.02
5/4/2022	0.20	1.42	0.14	0.02
5/15/2022	0.22	0.75	0.29	0.05
5/16/2022	0.26	0.50	0.52	0.09
5/19/2022	0.09	0.58	0.15	0.03
5/20/2022	0.01	0.08	0.12	0.01
5/21/2022	0.02	0.17	0.12	0.01
5/22/2022	0.04	0.33	0.12	0.01
5/28/2022	0.32	1.75	0.18	0.06
5/29/2022	0.01	0.08	0.12	0.01
5/31/2022	0.27	0.67	0.41	0.14
6/1/2022	0.23	0.42	0.55	0.16
6/2/2022	0.01	0.08	0.12	0.01
6/7/2022	0.04	0.42	0.10	0.01
6/8/2022	0.08	0.67	0.12	0.01
6/9/2022	1.22	3.42	0.36	0.10
6/28/2022	0.16	0.08	1.92	0.16
6/30/2022	0.02	0.08	0.24	0.02
7/2/2022	0.05	0.42	0.12	0.01
7/5/2022	0.09	0.58	0.15	0.02
7/6/2022	0.04	0.08	0.48	0.04
7/14/2022	0.22	1.67	0.13	0.02
7/18/2022	0.35	1.67	0.21	0.06
7/19/2022	0.17	1.17	0.15	0.02
7/28/2022	0.66	1.08	0.61	0.15
8/2/2022	0.33	0.25	1.32	0.20
8/8/2022	0.01	0.08	0.12	0.01
8/9/2022	0.8	0.75	1.07	0.24
8/22/2022	0.61	7.17	0.09	0.10
8/23/2022	0.07	7.92	0.01	0.02

Table 2 - Rainfall: 7/31/2022 to 2/1/2023

Date	Event Total (inches)	Duration (Hours)	Average Intensity (in/hr)	Peak Hour (In/hr)
8/26/2022	0.08	0.50	0.16	0.02
8/31/2022	0.26	2.50	0.10	0.07
9/5/2022	1.4	17.33	0.08	0.09
9/6/2022	1.6	23.75	0.07	0.04
9/8/2022	0.01	0.08	0.12	0.01
9/12/2022	0.03	14.17	0.00	0.01
9/13/2022	0.44	14.25	0.03	0.12
9/18/2022	0.01	0.08	0.12	0.01
9/19/2022	1.05	6.25	0.17	0.19
9/20/2022	0.29	20.67	0.01	0.02
9/21/2022	0.03	1.58	0.02	0.01
9/22/2022	0.62	6.92	0.09	0.07
9/26/2022	0.1	1.00	0.10	0.03
9/27/2022	0.1	0.08	1.20	0.01
10/4/2022	0.17	6.42	0.03	0.02
10/5/2022	0.28	22.50	0.01	0.01
10/6/2022	0.03	4.58	0.01	0.01
10/10/2022	0.02	0.17	0.12	0.01
10/11/2022	0.01	0.08	0.12	0.01
10/13/2022	0.94	13.67	0.07	0.08
10/14/2022	0.91	11.08	0.08	0.09
10/15/2022	0.01	0.08	0.12	0.01
10/17/2022	0.1	7.92	0.01	0.04
10/18/2022	0.12	7.25	0.02	0.02
10/23/2022	0.04	0.58	0.07	0.01
10/24/2022	0.07	16.42	0.00	0.01
10/25/2022	0.13	23.17	0.01	0.01
10/26/2022	0.68	11.67	0.06	0.05
11/1/2022	0.1	8.42	0.01	0.02
11/7/2022	0.06	0.08	0.72	0.05
11/11/2022	0.96	7.92	0.12	0.07
11/12/2022	0.31	7.67	0.04	0.12
11/13/2022	0.33	8.00	0.04	0.04
11/16/2022	0.89	9.25	0.10	0.02
11/17/2022	0.01	0.08	0.12	0.01
11/27/2022	0.52	8.17	0.06	0.03
11/30/2022	0.63	7.67	0.08	0.03
12/3/2022	0.4	9.25	0.04	0.02
12/6/2022	0.11	5.92	0.02	0.02
12/7/2022	0.92	14.58	0.06	0.02
12/12/2022	0.14	2.50	0.06	0.02
12/15/2022	0.04	1.67	0.02	0.01
12/16/2022	1.7	23.67	0.07	0.02
12/17/2022	0.5	11.00	0.05	0.02
12/22/2022	0.58	4.92	0.12	0.02
12/23/2022	2.32	17.75	0.13	0.07
12/31/2022	0.22	7.17	0.03	0.02
1/1/2023	0.02	1.08	0.02	0.01
1/3/2023	0.33	14.08	0.02	0.02
1/4/2023	0.26	22.67	0.01	0.02
1/5/2023	0.11	10.67	0.01	0.01
1/6/2023	0.25	10.83	0.02	0.01
1/7/2023	0.12	2.92	0.04	0.02
1/12/2023	0.7	6.75	0.10	0.03
1/13/2023	0.39	15.33	0.03	0.03
1/14/2023	0.02	0.33	0.06	0.01
1/16/2023	0.11	4.50	0.02	0.01
1/17/2023	0.03	0.25	0.12	0.01
1/19/2023	0.28	7.33	0.04	0.01
1/20/2023	0.28	14.50	0.02	0.01
1/21/2023	0.03	2.75	0.01	0.01
1/22/2023	0.03	2.00	0.02	0.01
1/23/2023	0.6	11.17	0.05	0.00
1/24/2023	0.3	5.92	0.05	0.01
1/25/2023	0.25	4.75	0.05	0.01
1/26/2023	1.29	5.75	0.22	0.00
1/31/2023	0.02	0.33	0.06	0.01
Total Rain (in):	**27.51**			

TABLE 3: METER OVERFLOW DATA SUMMARY

CSO SUMMARY

CSO-004 - Cleghorn St. at Oak Hill Rd.

Rainfall (in.)	Events (No.)	Volume (Gallons)	Duration (Hours)	Date
--	1	unknown	unknown	8/9/22
Totals	1	0	0.00	

CSO-007 - Cushing Street at Riverfront Park

Rainfall (in.)	Events (No.)	Volume (Gallons)	Duration (Hours)	Date
		CLOSED MAY 3, 2021		
Totals	0	0	0.00	

CSO-010 - Main Street at River Street

Rainfall (in.)	Events (No.)	Volume (Gallons)	Duration (Hours)	Date
--	1	unknown	unknown	3/9/22
--	1	unknown	unknown	3/28/22
--	1	unknown	unknown	4/22/22
0.35	1	4,588	0.08	7/18/22
0.66	1	23,936	0.33	7/28/22
0.33	1	14,600	0.08	8/2/22
0.8	1	20,800	0.5	8/9/22
0.61	1	4,370	0.08	8/22/22
0.3	1	17,000	0.1	9/5/22
0.41	1	23,000	0.17	9/13/22
0.63	1	27,000	0.25	9/19/22
0.27	1	10,000	0.17	10/13/22
0.43	1	4,000	0.17	10/14/22
--	1	unknown	unknown	12/27/22
Totals	14	149,294	1.93	

TABLE 3: METER OVERFLOW DATA SUMMARY

CSO-032 - Main St. at Post Office (542 Main St.)

Rainfall (in.)	Events (No.)	Volume (Gallons)	Duration (Hours)	Date
1.5	1	unknown	unknown	02/04/22
0.46	1	486	0.08	02/18/22
0.41	1	3,115	0.17	03/07/22
--	1	unknown	unknown	03/09/22
--	1	unknown	unknown	03/28/22
1.12	1	6,044	1.00	04/08/22
0.56	1	10,672	0.33	04/09/22
1.24	1	3,673	1.83	04/19/22
--	1	unknown	unknown	04/22/22
0.26	1	1,953	0.25	05/16/22
0.23	1	115	0.33	06/01/22
1.22	1	10,912	2.00	06/09/22
--	1	unknown	unknown	06/10/22
--	1	unknown	unknown	06/13/22
--	1	10	0.17	07/07/22
--	1	50	1.00	07/08/22
--	1	472	0.75	07/11/22
--	1	7,814	0.83	07/12/22
--	1	1	0.42	07/13/22
0.22	1	22,250	0.17	07/14/22
0.35	1	2,466	0.08	07/18/22
--	1	3,245	0.17	07/21/22
0.66	1	67,433	0.92	07/28/22
--	1	unknown	unknown	07/29/22
0.33	1	12,300	0.17	08/02/22
0.8	1	127,000	0.58	08/09/22
0.61	1	13,100	0.58	08/22/22
0.26	1	1,500	0.08	08/31/22
0.3	1	2,000	0.10	09/05/22
0.41	1	8,000	0.25	09/13/22
0.63	1	69,000	0.75	09/19/22
0	1	7,000	0.27	09/22/22
0.04	1	1,000	0.07	09/26/22
0.27	1	14,000	0.50	10/13/22
0.26	1	3,000	0.18	10/26/22
2.32	1	23,000	1.40	12/23/22
Totals	36	421,611	15.43	

CSO-039 - Water St at Walnut St

Rainfall (in.)	Events (No.)	Volume (Gallons)	Duration (Hours)	Date
CLOSED AUGUST 24, 2021				
Totals	0	0	0.00	

TABLE 3: METER OVERFLOW DATA SUMMARY

CSO-041 - Benson St. at Falullah St.

Rainfall (in.)	Events (No.)	Volume (Gallons)	Duration (Hours)	Date
0.27	1	1,269	0.08	05/31/22
Totals	1	1,269	0.08	

CSO-045 - Main St. at Oliver/Putnam St.

Rainfall (in.)	Events (No.)	Volume (Gallons)	Duration (Hours)	Date
1.5	1	1,095,837	4.75	02/04/22
0.46	1	188,299	0.25	02/18/22
0.89	1	26,685	0.33	02/22/22
--	1	unknown	unknown	03/09/22
--	1	unknown	unknown	03/21/22
--	1	unknown	unknown	03/28/22
0.01	1	unknown	unknown	04/04/22
1.12	1	463,730	1.83	04/08/22
0.56	1	126,802	0.25	04/09/22
1.24	1	656,281	1.50	04/19/22
--	1	unknown	unknown	04/22/22
0.22	1	75,783	0.25	05/15/22
0.26	1	282,921	0.42	05/16/22
0.23	1	48,285	0.17	06/01/22
--	1	7,594,743	0.83	06/06/22
1.22	1	818,021	1.67	06/09/22
--	1	unknown	unknown	06/13/22
--	1	unknown	unknown	07/01/22
0.04	1	6,357	0.17	07/06/22
0.35	1	109,183	0.25	07/18/22
--	1	99,435	0.25	07/21/22
0.66	1	113,699	0.50	07/28/22
0.33	1	30,000	0.17	08/02/22
0.8	1	144,000	0.58	08/09/22
0.61	1	45,000	0.25	08/22/22
0.3	1	36,000	0.50	09/05/22
0.41	1	70,000	0.33	09/13/22
0.63	1	98,000	0.75	09/19/22
--	1	unknown	unknown	10/05/22
0.27	1	126,000	0.50	10/13/22
0.45	1	72,000	0.50	10/14/22
0.26	1	82,000	0.25	10/26/22
--	1	unknown	unknown	11/16/22
--	1	unknown	unknown	11/28/22
2.32	1	225,000	3.58	12/23/22
1.29	1	1,000	0.08	01/26/23
Totals	36	12,635,061	20.91	

TABLE 3: METER OVERFLOW DATA SUMMARY

CSO-048 - 85 Water St at Market Basket

Rainfall (in.)	Events (No.)	Volume (Gallons)	Duration (Hours)	Date
CLOSED JUNE 2, 2022				
Totals	0	0	0.00	

CSO-064 - Water Street Easement at Chamber

Rainfall (in.)	Events (No.)	Volume (Gallons)	Duration (Hours)	Date
1.5	1	893,820	6.00	02/04/22
0.46	1	94,536	1.00	02/18/22
0.89	1	213,451	2.00	02/22/22
--	1	unknown	unknown	02/28/22
0.41	1	581,646	0.50	03/07/22
0.49	1	18,049	0.25	03/25/22
1.12	1	182,152	1.42	04/08/22
0.56	1	53,619	0.42	04/09/22
1.24	1	271,479	1.75	04/19/22
--	1	unknown	unknown	04/22/22
0.26	1	60,127	0.42	05/16/22
1.22	1	241,823	1.67	06/09/22
0.66	1	91,963	0.50	07/28/22
--	1	unknown	unknown	07/29/22
0.8	1	257,000	0.42	08/09/22
0.3	1	6,000	0.25	09/05/22
0.41	1	4,000	0.42	09/13/22
--	1	unknown	unknown	09/20/22
2.32	1	776,000	6.00	12/23/22
1.29	1	1,000	0.08	01/26/23
Totals	20	3,746,665	23.10	

TABLE 3: METER OVERFLOW DATA SUMMARY

CSO-076 - Birch St at Heywood St

Rainfall (in.)	Events (No.)	Volume (Gallons)	Duration (Hours)	Date
1.5	1	575	0.17	2/4/22
0.01	1	28	0.03	2/19/22
0.01	1	640	0.1	2/23/22
0.41	1	38	0.03	3/7/22
--	1	unknown	unknown	3/9/22
0.49	1	196	0.07	3/25/22
0.07	1	2,966	0.17	3/26/22
1.12	1	1,550	0.2	4/8/22
0.04	1	73,808	0.33	6/7/55
0.63	1	1,000	0.08	9/19/22
2.32	1	6,000	0.4	12/23/22
--	1	4,000	0.25	1/27/23
Totals	12	90,801	1.83	

CSO-083 - Main St. at Prichard St.

Rainfall (in.)	Events (No.)	Volume (Gallons)	Duration (Hours)	Date
--	1	unknown	unknown	6/10/22
--	1	unknown	unknown	6/13/22
0.04	1	885	0.17	7/6/22
0.66	1	38,993	0.25	7/28/22
0.33	1	6,100	0.08	8/2/22
0.8	1	20,000	0.17	8/9/22
0.61	1	5,800	0.08	8/22/22
0.26	1	11,700	0.08	8/31/22
0.3	1	14,700	0.83	9/5/22
0.41	1	6,000	0.17	9/13/22
0.63	1	22,000	0.33	9/19/22
--	1	unknown	unknown	9/26/22
0.45	1	3,000	0.42	10/14/22
0.26	1	5,000	0.75	10/26/22
Totals	14	134,178	3.33	