



A Division of ADS LLC

51 Wentworth Ave, Suite 11
Londonderry, NH 03053
www.adsenv.com

March 23, 2021

Chelsey Little, BSBS MPH
Superintendent
Montague WPCF

Dear Ms. Little,

ADS is pleased to submit the February 2021 report for the Montague, MA Flow Monitoring Project.

During the monitoring period the following quality assurance steps are taken to ensure the integrity of the data collected:

- **Measure Power Supply:** The monitor is powered by a dry cell battery pack. Power levels are recorded and battery packs replaced, if necessary. A separate battery provides back-up power to memory, which allows the primary battery to be replaced without the loss of data.
- **Confirm Monitor Synchronization:** The field crew and/or data analyst checks the flow monitor's clock for accuracy.
- **Upload and Review Data:** Data collected by the monitor is uploaded and reviewed by a data analyst. All readings are checked for consistency and screened for deviations in the flow patterns, which indicate system anomalies or equipment failure.

To facilitate review of the data beginning Monday, February 1, 2021 through Sunday, February 28, 2021, results have been provided in graphical, tabular and 5-minute Excel formats.

The flow data is presented graphically in the form of hydrographs and include depth, velocity, quantity and rain. Tables are provided in daily average format. Along with depth and velocity, these tables show the flow rate for each day, along with the daily minimum and maximums, the times they were observed, the total daily flow, and total flow for the month. The following explanation of terms may aid in interpretation of the tables and hydrographs.

DEPTH - Final calculated depth measurement (in inches)

QUANTITY - Final calculated flow rate (in MGD)

VELOCITY - Final calculated flow velocity (in feet per second)

REPORT TOTAL - Total volume of flow recorded for the indicated time period (in MG)

In addition, we would be happy to further explain any details about the report that may seem unclear. Should you have any questions or comments, please contact the Project Manager, Michael Armes at 603-625-1212 or me at (256) 975-4059

Thank you for choosing ADS products and services to meet your flow monitoring needs.

Sincerely,
ADS ENVIRONMENTAL SERVICES

Melissa Hygom
Data Analyst



[An IDEX Fluid & Metering Business](#)

Accusonic
ADS Environmental Services
Hydra-Stop

Main Maint Table

Project Name	Site Name	Crew	Meter Type	Recommended Actions	Date of Action	Actions Taken	Site Visit Notes	Replacement Parts Used
Montague.LTN.MA.2011-2012	DentonStOverflow	Phillips, Michael	ECHO		02-11-2021	Battery - Replaced Comm - Antenna Replaced Monitor - Firmware Upgraded	connected wirelessly, -92dB 0in DOF Took pictures	Battery
Montague.LTN.MA.2011-2012	GSTREETOUTFALL	Phillips, Michael	ECHO		02-11-2021	Battery - Replaced Monitor - Replaced	confirm, meter reading 2 in DOF took site pics could not collect old meter, seems to have trouble storing .lif and data	Battery Monitor ECHO AT&T
Montague.LTN.MA.2011-2012	7th L CSO	Phillips, Michael	Triton +		02-11-2021	Battery - Replaced Monitor - Firmware Upgraded Confirmation - Complete Sensor - Pressure Desiccant Replaced	connected wirelessly, -75dB	Battery None
Montague.LTN.MA.2011-2012	Ave A CSO	Phillips, Michael	ECHO		02-11-2021	Battery - Replaced Monitor - Firmware Upgraded	connected wirelessly, -76dB cant put confirm into qstart w/ ECHOs .5 DOF	Battery
Montague.LTN.MA.2011-2012	GREENFIELD_M1	Phillips, Michael	Triton +		02-11-2021	Battery - Replaced Sensor - Scrubbed/Cleaned Sensors Confirmation - Complete Monitor - Firmware Upgraded	took pictures connected wirelessly, -85dB	Battery
Montague.LTN.MA.2011-2012	RGI	Phillips, Michael	RainAlert III		02-11-2021	Battery - Replaced Monitor - Firmware Upgraded	Connected wirelessly, -88dB	Battery

Site Commentary

Site Information

7th_L_CS0	
Location:	7th Street at L Street

Overview

The [hydrograph](#) for location 7th_L_CS0 shows depth levels and calculated flow values recorded during the monitoring period of Monday, February 1, 2021 to Sunday, February 28, 2021 .

[Daily longtables](#) displaying final quantities are also provided.

One overflow event occurred during the monitoring period.

Observations

Average flow depth and quantity data observed during Monday, February 1, 2021 to Sunday, February 28, 2021 , along with observed minimum and maximum data, are provided in the following table.

Observed Flow Conditions		
Item	Depth (in)	Quantity (MGD)
Average	1.67	0.168
Minimum	1.20	0.082
Maximum	8.65	3.822
Time of Minimum	2/26/2021 5:15 AM	2/26/2021 5:15 AM
Time of Maximum	2/16/2021 8:25 AM	2/16/2021 8:25 AM

Please note the minimum and maximum flow rate recorded in this table may vary from those recorded on the daily and weekly tabular data. The minimum and maximum rates recorded on the daily and weekly tabular data are absolute versus average fifteen minute data. Graphical data reports are based on an hourly average.

Data Quality

Data uptime observed during the Monday, February 1, 2021 to the Sunday, February 28, 2021 monitoring period is provided in the table below.

Percent Uptime	
Depth (in)	100

Overflow Events

7th_L_CSO	Total	Duration	Start	Stop	Rain
W1	59	0:20:00	2/16/21 8:25	2/16/21 8:45	1.04

	Gals.	Hrs.	Rain
Total	59	0:20:00	1.04

Montague, MA

Flow Monitoring Site Installation Report

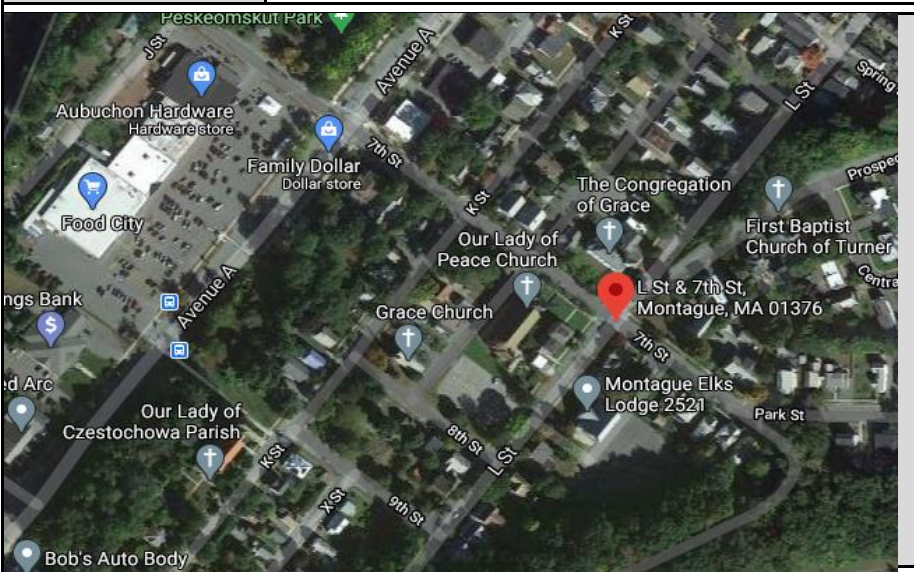


Site I.D.

7th_L_CSO

Site Address / Location:	7TH STREET AT L STREET
Site Access:	Drive- Detailed needed

Monitor Series	TRITON+
Pipe Size (H x W)	14.25x14.25
Location Type	Permanent
Pipe Shape	Circular



Manhole #	N/A
System Characteristics	Residential
Access	Traffic
Drive	Light



Installation Information

Installation Date:	Thursday, February 11, 2021	Installation Type:	Doppler Standard Ring and Crank
Monitoring Location (Sensors):		Monitor Location:	Manhole
Sensors / Devices:	Peak Combo (CS4)	Pressure Sensor Range (psi)	

Installation Confirmation:

Confirmation Time:	11:41:00 AM	Pipe Size (HxW)	14.25x14.25
Depth of Flow (Wet DOF) (in)	1.5	Range (Air DOF) (in)	
Downlooker Physical Offset (in)		Measurement Confidence (in)	0.25"
Peak Velocity (fps)	2.5	Velocity Sensor Offset (in)	N/A
Silt (in)	0	Silt Type	N/A

Hydraulic Comments:
Slow

Manhole / Pipe Information:

Manhole Depth (Approx. FT):	6	Manhole Configuration	Common Trench
Manhole Material:	Concrete	Manhole Condition:	Good
Manhole Opening Diameter (in)	24	Manhole Diameter (Approx.):	24
Manhole Cover	Concealed	Manhole Frame	Normal
Active Drop Connections	No	Air Quality:	Good
Pipe Material	PVC	Pipe Condition:	Good

Communication Information:

Communication Type	Wireless	Antenna Location	Drilled Pavement / Concrete
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Additional Site Info. / Comments:

N. 42.60349 W. -72.55722 S / N: 64109 I/P: 166.219.169.91 Site Overflows at Depth of 8.0 Inches



ADS Project Name:	Montague, MA
ADS Project Number:	

HYDROGRAPH REPORT

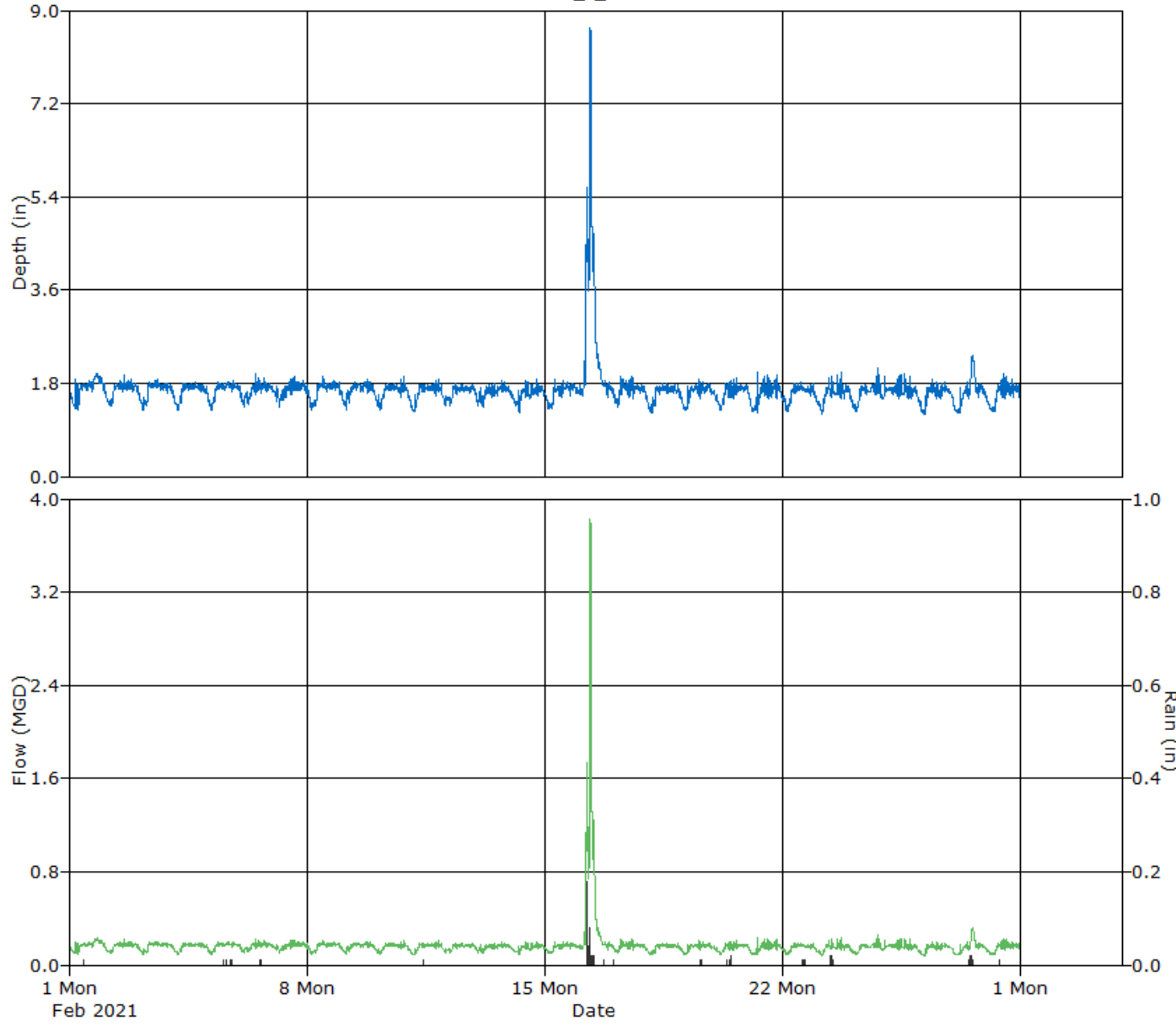
7th_L_CSO

Flow Monitor
7th_L_CSO

Pipe Height
14.25 in

Report Period
2/1/2021
To
2/28/2021

Legend
— Depth
— Quantity
— Rain



Daily Tabular Report

Date	Depth (in)						Quantity (MGD - Total MG)						Rain (in)						
	Time	Min	Time	Max	Avg	Total	Time	Min	Time	Max	Avg	Total	Time	Min	Time	Max	Avg	Total	
02/01/2021	06:30	1.28	19:50	1.99	1.71		06:30	0.094	19:50	0.229	0.170	0.170							0.01
02/02/2021	06:00	1.36	14:35	1.96	1.67		06:00	0.106	14:35	0.222	0.162	0.162							
02/03/2021	04:10	1.27	15:10	1.88	1.66		04:10	0.092	15:10	0.204	0.159	0.159							
02/04/2021	05:00	1.29	17:00	1.82	1.64		05:00	0.094	17:00	0.191	0.156	0.156							
02/05/2021	05:10	1.27	20:15	1.85	1.66		05:10	0.092	20:15	0.198	0.159	0.159							0.05
02/06/2021	03:45	1.34	12:15	1.98	1.65		03:45	0.102	12:15	0.227	0.158	0.158							0.03
02/07/2021	05:05	1.35	15:20	1.93	1.66		05:05	0.104	15:20	0.214	0.160	0.160							
02/08/2021	03:10	1.30	11:45	1.92	1.66		03:10	0.096	11:45	0.214	0.159	0.159							
02/09/2021	03:50	1.28	18:30	1.88	1.67		03:50	0.093	18:30	0.204	0.160	0.160							
02/10/2021	04:05	1.28	20:20	1.93	1.64		04:05	0.093	20:20	0.215	0.155	0.155							
02/11/2021	03:25	1.24	21:35	1.89	1.61		03:25	0.088	21:35	0.206	0.151	0.151							0.01
02/12/2021	05:20	1.36	09:05	1.80	1.63		05:20	0.105	09:05	0.187	0.153	0.153							
02/13/2021	04:30	1.34	17:55	1.85	1.63		04:30	0.103	17:55	0.197	0.152	0.152							
02/14/2021	06:10	1.24	18:15	1.87	1.60		06:10	0.087	18:15	0.202	0.147	0.147							
02/15/2021	05:10	1.32	07:20	1.87	1.63		05:10	0.098	07:20	0.202	0.153	0.153							
02/16/2021	21:00	1.51	08:25	8.65	2.70		21:00	0.131	08:25	3.822	0.540	0.540							1.04
02/17/2021	03:40	1.35	13:50	1.94	1.65		03:40	0.104	13:50	0.218	0.158	0.158							0.01
02/18/2021	04:30	1.23	14:35	1.80	1.60		04:30	0.087	14:35	0.187	0.147	0.147							
02/19/2021	02:55	1.28	13:35	1.89	1.61		02:55	0.094	13:35	0.206	0.151	0.151							0.07
02/20/2021	04:05	1.28	15:30	1.89	1.61		04:05	0.093	15:30	0.207	0.150	0.150							0.07
02/21/2021	06:25	1.24	06:40	2.02	1.59		06:25	0.087	06:40	0.236	0.146	0.146							
02/22/2021	04:00	1.25	13:25	1.82	1.61		04:00	0.088	13:25	0.191	0.150	0.150							0.05
02/23/2021	04:20	1.21	18:00	2.02	1.58		04:20	0.083	18:00	0.237	0.145	0.145							0.21
02/24/2021	04:25	1.25	19:40	2.10	1.59		04:25	0.089	19:40	0.255	0.146	0.146							
02/25/2021	23:55	1.49	14:50	1.98	1.67		23:55	0.127	14:50	0.228	0.162	0.162							
02/26/2021	05:15	1.20	09:50	1.88	1.58		05:15	0.082	09:50	0.203	0.144	0.144							
02/27/2021	05:15	1.23	14:55	2.33	1.63		05:15	0.086	14:55	0.314	0.157	0.157							0.29
02/28/2021	05:50	1.26	12:30	1.98	1.58		05:50	0.090	12:30	0.225	0.145	0.145							0.01

Report Summary For The Period 02/01/2021 - 02/28/2021

	Depth (in)	Quantity (MGD - Total MG)	Rain (in)
Total		4.696	1.85
Avg	1.67	0.168	

Site Commentary

Site Information

Ave_A_CSO	
Location:	250 Avenue A

Overview

The [hydrograph](#) for location Ave_A_CSO shows depth levels and calculated flow values recorded during the monitoring period of Monday, February 1, 2021 to Sunday, February 28, 2021 .

[Daily longtables](#) displaying final quantities are also provided.

No overflow events occurred during the monitoring period.

Observations

Average flow depth and quantity data observed during Monday, February 1, 2021 to Sunday, February 28, 2021 , along with observed minimum and maximum data, are provided in the following table.

Observed Flow Conditions		
Item	Depth (in)	Quantity (MGD)
Average	2.23	0.422
Minimum	1.13	0.097
Maximum	12.69	11.316
Time of Minimum	2/1/2021 4:45 AM	2/1/2021 4:45 AM
Time of Maximum	2/16/2021 8:30 AM	2/16/2021 8:30 AM

Please note the minimum and maximum flow rate recorded in this table may vary from those recorded on the daily and weekly tabular data. The minimum and maximum rates recorded on the daily and weekly tabular data are absolute versus average fifteen minute data. Graphical data reports are based on an hourly average.

Data Quality

Data uptime observed during the Monday, February 1, 2021 to the Sunday, February 28, 2021 monitoring period is provided in the table below.

Percent Uptime	
Depth (in)	100

Montague, MA

Flow Monitoring Site Installation Report



Site I.D.

Ave_A_CSO

Site Address / Location:	250 Avenue A	Monitor Series	ECHO	Location Type	Permanent
Site Access:	Drive- Detailed needed	Pipe Size (H x W)	21x21	Pipe Shape	Circular



Manhole #	N/A	System Characteristics	Residential
Access	Drive		Traffic
			Light



Installation Information	
Installation Date:	Thursday, February 11, 2021
Installation Type:	Level Only
Monitoring Location (Sensors):	Manhole
Sensors / Devices:	Peak Combo (CS4)
	Pressure Sensor Range (psi)

Installation Confirmation:	
Confirmation Time:	11:15:00 AM
Pipe Size (HxW)	21x21
Depth of Flow (Wet DOF) (in)	0.5
Range (Air DOF) (in)	
Downlooker Physical Offset (in)	Measurement Confidence (in)
	0.25"
Peak Velocity (fps)	Velocity Sensor Offset (in)
	N/A
Silt (in)	Silt Type
0	N/A

Hydraulic Comments:
Slow

Manhole / Pipe Information:	
Manhole Depth (Approx. FT):	10.75
Manhole Configuration	Common Trench
Manhole Material:	Concrete
Manhole Condition:	Good
Manhole Opening Diameter (in)	24
Manhole Diameter (Approx.):	24
Manhole Cover	Concealed
Manhole Frame	Normal
Active Drop Connections	No
Air Quality:	Good
Pipe Material	PVC
Pipe Condition:	Good

Communication Information:	
Communication Type	Wireless
Antenna Location	Drilled Pavement / Concrete

Additional Site Info. / Comments:
N. 42.60422 W. -72.56094 S /N: 1729 I/P: 107.80.17.199 Site Overflows at Depth of 27.0 Inches



ADS Project Name:	Montague, MA
ADS Project Number:	

HYDROGRAPH REPORT

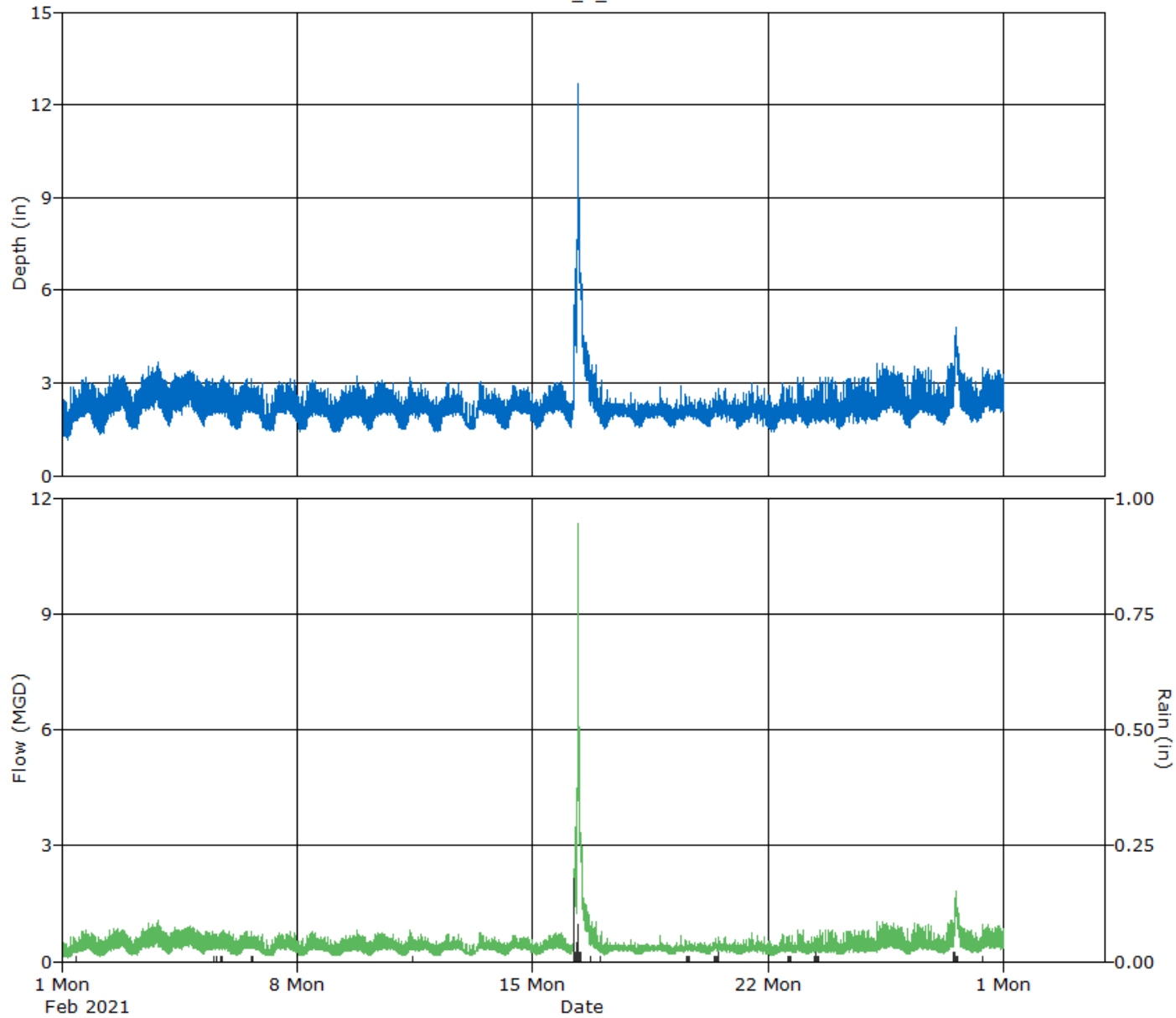
Ave_A_CSO

Flow Monitor
Ave_A_CSO

Pipe Height
21.00 in

Report Period
2/1/2021
To
2/28/2021

Legend
— Depth
— Quantity
— Rain



Daily Tabular Report

Date	Depth (in)						Quantity (MGD - Total MG)						Rain (in)						
	Time	Min	Time	Max	Avg	Total	Time	Min	Time	Max	Avg	Total	Time	Min	Time	Max	Avg	Total	
02/01/2021	04:45	1.13	17:20	3.17	1.93		04:45	0.097	17:20	0.798	0.307	0.307							0.01
02/02/2021	03:20	1.34	12:55	3.28	2.19		03:20	0.139	12:55	0.855	0.395	0.395							
02/03/2021	06:20	1.51	20:40	3.66	2.43		06:20	0.176	20:40	1.066	0.491	0.491							
02/04/2021	05:05	1.59	19:55	3.40	2.61		05:05	0.197	19:55	0.922	0.555	0.555							
02/05/2021	05:45	1.62	19:50	3.20	2.43		05:45	0.204	19:50	0.814	0.480	0.480							0.05
02/06/2021	04:30	1.50	12:10	3.14	2.13		04:30	0.175	12:10	0.785	0.369	0.369							0.03
02/07/2021	05:15	1.45	18:55	3.13	2.06		05:15	0.161	18:55	0.781	0.345	0.345							
02/08/2021	02:00	1.41	10:50	3.11	2.01		02:00	0.154	10:50	0.768	0.326	0.326							
02/09/2021	02:40	1.41	18:40	3.22	2.03		02:40	0.153	18:40	0.826	0.338	0.338							
02/10/2021	03:05	1.48	12:25	3.08	2.13		03:05	0.168	12:25	0.753	0.368	0.368							
02/11/2021	03:05	1.49	08:15	3.19	2.04		03:05	0.173	08:15	0.812	0.336	0.336							0.01
02/12/2021	02:05	1.42	10:50	3.00	2.01		02:05	0.156	10:50	0.717	0.326	0.326							
02/13/2021	03:05	1.49	11:05	3.02	2.00		03:05	0.171	11:05	0.727	0.320	0.320							
02/14/2021	05:20	1.50	11:05	2.91	2.10		05:20	0.174	11:05	0.672	0.353	0.353							
02/15/2021	03:05	1.52	20:10	3.02	2.18		03:05	0.178	20:10	0.725	0.385	0.385							
02/16/2021	03:20	1.57	08:30	12.69	3.64		03:20	0.190	08:30	11.316	1.323	1.323							1.04
02/17/2021	03:20	1.52	00:55	3.10	2.04		03:20	0.178	00:55	0.764	0.331	0.331							0.01
02/18/2021	04:35	1.55	19:05	2.87	2.00		04:35	0.186	19:05	0.654	0.316	0.316							
02/19/2021	05:10	1.57	10:05	2.92	2.01		05:10	0.192	10:05	0.677	0.321	0.321							0.07
02/20/2021	05:25	1.60	17:15	2.81	2.08		05:25	0.198	17:15	0.628	0.345	0.345							0.07
02/21/2021	03:05	1.53	12:45	3.01	2.09		03:05	0.181	12:45	0.721	0.347	0.347							
02/22/2021	02:30	1.41	21:45	3.16	2.03		02:30	0.153	21:45	0.794	0.333	0.333							0.05
02/23/2021	04:40	1.58	18:45	3.19	2.16		04:40	0.193	18:45	0.808	0.376	0.376							0.21
02/24/2021	03:10	1.53	14:10	3.19	2.25		03:10	0.181	14:10	0.808	0.410	0.410							
02/25/2021	05:35	1.77	10:00	3.62	2.46		05:35	0.243	10:00	1.041	0.497	0.497							
02/26/2021	04:55	1.55	08:50	3.54	2.29		04:55	0.187	08:50	0.999	0.425	0.425							
02/27/2021	05:20	1.66	14:30	4.78	2.67		05:20	0.215	14:30	1.804	0.601	0.601							0.29
02/28/2021	04:45	1.75	09:35	3.48	2.46		04:45	0.239	09:35	0.960	0.491	0.490							0.01

Report Summary For The Period 02/01/2021 - 02/28/2021

	Depth (in)	Quantity (MGD - Total MG)	Rain (in)
Total		11.809	1.85
Avg	2.23	0.422	

Site Commentary

Site Information

Greenfield_M1	
Location:	Greenfield Road - CSO

Overview

The [hydrograph](#) for location Greenfield_M1 shows depth levels and calculated flow values recorded during the monitoring period of Monday, February 1, 2021 to Sunday, February 28, 2021 .

[Daily longtables](#) displaying final quantities are also provided.

One overflow event occurred during the monitoring period.

Observations

Average flow depth and quantity data observed during Monday, February 1, 2021 to Sunday, February 28, 2021 , along with observed minimum and maximum data, are provided in the following table.

Observed Flow Conditions		
Item	Depth (in)	Quantity (MGD)
Average	4.40	0.539
Minimum	2.72	0.199
Maximum	42.84	3.599
Time of Minimum	2/15/2021 3:50 AM	2/15/2021 3:45 AM
Time of Maximum	2/16/2021 9:24 AM	2/16/2021 9:20 AM

Please note the minimum and maximum flow rate recorded in this table may vary from those recorded on the daily and weekly tabular data. The minimum and maximum rates recorded on the daily and weekly tabular data are absolute versus average fifteen minute data. Graphical data reports are based on an hourly average.

Data Quality

Data uptime observed during the Monday, February 1, 2021 to the Sunday, February 28, 2021 monitoring period is provided in the table below.

Percent Uptime	
Depth (in)	100

Overflow Events

Greenfield_M1	Total	Duration	Start	Stop	Rain
W1	242	0:17:00	2/16/21 9:18	2/16/21 9:35	1.04

	Gals.	Hrs.	Rain
Total	242	0:17:00	1.04

Montague, MA

Flow Monitoring Site Installation Report



Site I.D.

Greenfield_M1

Site Address / Location:	GREENFIELD ROAD - CSO	Monitor Series	Location Type
Site Access:	Drive	TRITON+	Permanent
		Pipe Size (H x W)	Pipe Shape
		36x36	Circular



Manhole #	System Characteristics
N/A	Residential
Access	Traffic
Drive	Light



Installation Information

Installation Date:	Installation Type:
Thursday, February 11, 2021	Doppler Standard Ring and Crank
Monitoring Location (Sensors):	Monitor Location:
	Manhole
Sensors / Devices:	Pressure Sensor Range (psi)
Peak Combo (CS4)	

Installation Confirmation:

Confirmation Time:	Pipe Size (HxW)
10:21:00 AM	36x36
Depth of Flow (Wet DOF) (in)	Range (Air DOF) (in)
4.63	
Downlooker Physical Offset (in)	Measurement Confidence (in)
	0.25"
Peak Velocity (fps)	Velocity Sensor Offset (in)
2.5	N/A
Silt (in)	Silt Type
0	N/A

Hydraulic Comments:

Slow

Manhole / Pipe Information:

Manhole Depth (Approx. FT):	Manhole Configuration
14	Common Trench
Manhole Material:	Manhole Condition:
Concrete	Good
Manhole Opening Diameter (in)	Manhole Diameter (Approx.):
24	24
Manhole Cover	Manhole Frame
Concealed	Normal
Active Drop Connections	Air Quality:
No	Good
Pipe Material	Pipe Condition:
Concrete	Good

Communication Information:

Communication Type	Antenna Location
Wireless	Drilled Pavement / Concrete

Additional Site Info. / Comments:

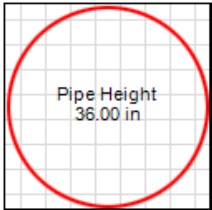
N. 42.58211 W. -72.57486 S / N: 52143 I/P: 107.80.17.22 Site Overflows at Depth of 42.0 Inches

ADS Project Name:	Montague, MA
ADS Project Number:	

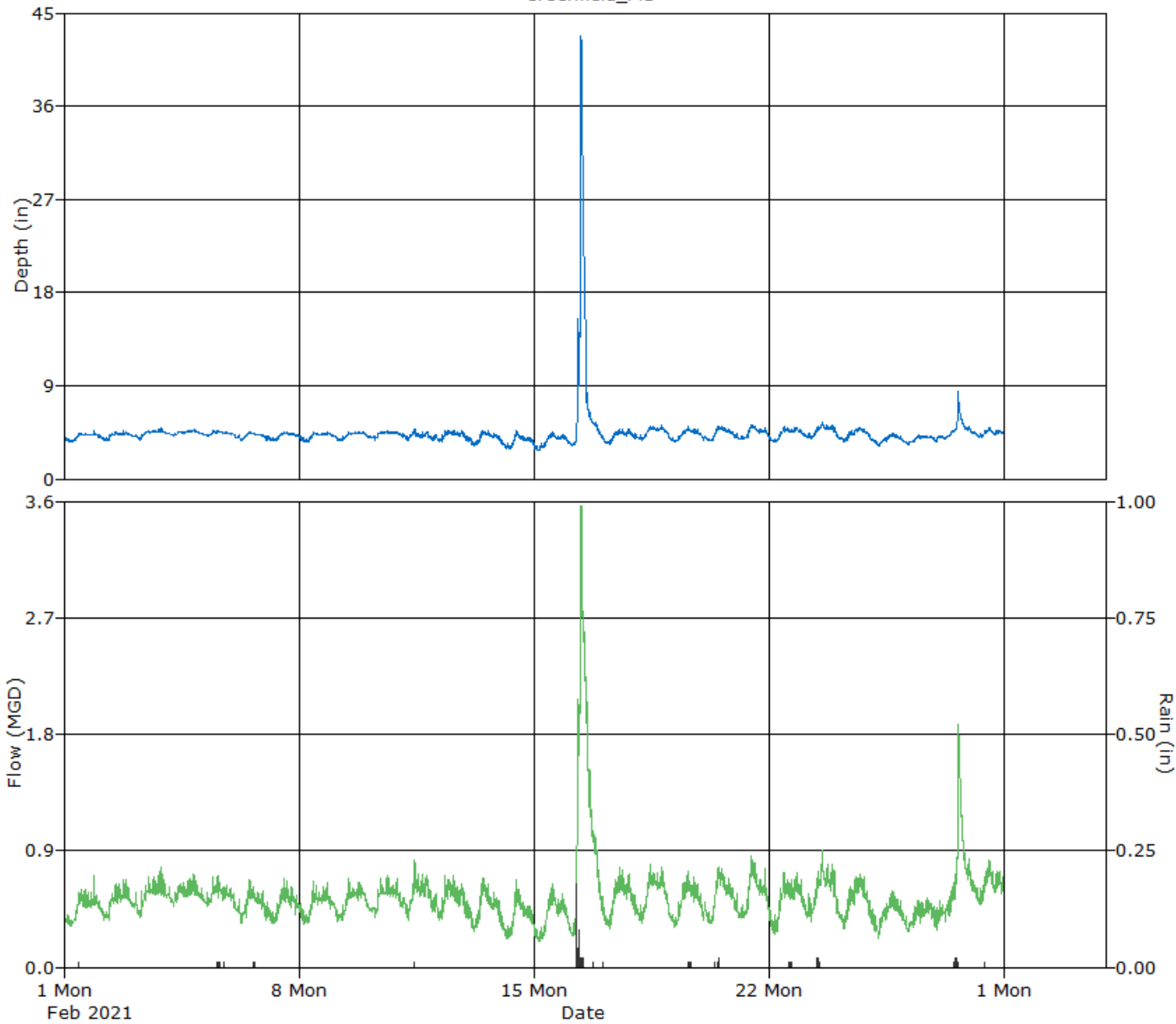
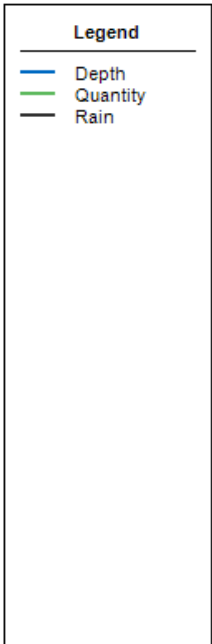
HYDROGRAPH REPORT

Greenfield_M1

Flow Monitor
Greenfield_M1



Report Period
2/1/2021
To
2/28/2021



Daily Tabular Report

Date	Depth (in)						Quantity (MGD - Total MG)						Rain (in)					
	Time	Min	Time	Max	Avg	Total	Time	Min	Time	Max	Avg	Total	Time	Min	Time	Max	Avg	Total
02/01/2021	04:55	3.58	21:35	4.69	4.06		04:55	0.320	21:35	0.704	0.454	0.454						0.01
02/02/2021	04:05	3.75	18:10	4.64	4.20		04:05	0.366	20:00	0.679	0.498	0.498						
02/03/2021	06:40	3.75	21:50	4.90	4.37		06:40	0.381	21:50	0.777	0.549	0.549						
02/04/2021	06:20	4.10	21:45	4.78	4.45		06:20	0.467	20:20	0.721	0.572	0.572						
02/05/2021	06:15	4.13	10:40	4.69	4.39		06:15	0.474	14:40	0.713	0.555	0.555						0.05
02/06/2021	07:00	3.67	12:25	4.57	4.18		06:50	0.343	12:25	0.675	0.491	0.491						0.03
02/07/2021	05:35	3.65	13:35	4.55	4.12		05:35	0.338	13:35	0.683	0.476	0.476						
02/08/2021	04:10	3.59	10:35	4.50	4.12		03:30	0.330	10:35	0.662	0.479	0.479						
02/09/2021	06:20	3.68	11:05	4.49	4.21		03:35	0.352	11:05	0.684	0.503	0.503						
02/10/2021	06:00	3.75	14:50	4.66	4.30		06:00	0.381	14:45	0.708	0.533	0.533						
02/11/2021	05:55	3.67	10:35	4.84	4.17		05:55	0.362	10:35	0.826	0.552	0.552						0.01
02/12/2021	04:15	3.61	15:10	4.72	4.19		04:10	0.362	13:55	0.713	0.527	0.527						
02/13/2021	05:10	3.24	11:20	4.68	3.98		05:15	0.276	11:20	0.683	0.463	0.463						
02/14/2021	05:45	2.90	11:15	4.66	3.64		04:35	0.216	11:15	0.678	0.389	0.389						
02/15/2021	03:50	2.72	13:30	4.49	3.66		03:45	0.199	13:30	0.641	0.394	0.394						
02/16/2021	03:15	3.24	09:24	42.84	9.48		03:15	0.242	09:20	3.599	1.235	1.235						1.04
02/17/2021	06:15	3.30	13:20	4.79	4.12		06:15	0.298	13:20	0.770	0.524	0.524						0.01
02/18/2021	05:20	3.74	18:45	5.18	4.49		05:20	0.341	11:05	0.790	0.564	0.564						
02/19/2021	04:10	3.55	14:00	5.01	4.26		04:15	0.307	14:00	0.735	0.502	0.502						0.07
02/20/2021	06:00	3.68	14:05	5.07	4.32		05:30	0.335	11:45	0.771	0.531	0.531						0.07
02/21/2021	03:30	3.79	12:15	5.24	4.41		02:15	0.381	10:50	0.859	0.555	0.555						
02/22/2021	03:25	3.55	10:20	5.07	4.35		03:35	0.255	10:20	0.734	0.511	0.511						0.05
02/23/2021	05:55	3.91	13:55	5.54	4.61		05:40	0.353	13:55	0.907	0.585	0.585						0.21
02/24/2021	05:30	3.58	16:30	4.95	4.30		05:15	0.297	16:30	0.714	0.508	0.508						
02/25/2021	05:30	3.18	16:10	4.40	3.82		05:45	0.226	16:05	0.593	0.409	0.409						
02/26/2021	02:55	3.32	10:30	4.22	3.82		02:45	0.273	17:00	0.538	0.393	0.393						
02/27/2021	05:20	3.84	14:55	8.43	4.76		00:10	0.344	15:05	1.874	0.707	0.707						0.29
02/28/2021	05:35	4.05	13:10	4.91	4.41		06:55	0.481	12:50	0.825	0.630	0.606						0.01

Report Summary For The Period 02/01/2021 - 02/28/2021

	Depth (in)	Quantity (MGD - Total MG)	Rain (in)
Total		15.067	1.85
Avg	4.40	0.539	

Site Commentary

Site Information

DentonStOverflow	
Location:	3 Denton St

Overview

The [hydrograph](#) for location DentonStOverflow shows depth levels and calculated flow values recorded during the monitoring period of Monday, February 1, 2021 to Sunday, February 28, 2021 .

[Daily longtables](#) displaying final quantities are also provided.

One overflow event occurred during the monitoring period.

Observations

Average flow depth and quantity data observed during Monday, February 1, 2021 to Sunday, February 28, 2021 , along with observed minimum and maximum data, are provided in the following table.

Observed Flow Conditions		
Item	Depth (in)	Quantity (MGD)
Average	0.69	
Minimum	0.32	
Maximum	1.21	
Time of Minimum	2/12/2021 7:35 AM	
Time of Maximum	2/25/2021 8:40 PM	

Please note the minimum and maximum flow rate recorded in this table may vary from those recorded on the daily and weekly tabular data. The minimum and maximum rates recorded on the daily and weekly tabular data are absolute versus average fifteen minute data. Graphical data reports are based on an hourly average.

Data Quality

Data uptime observed during the Monday, February 1, 2021 to the Sunday, February 28, 2021 monitoring period is provided in the table below.

Percent Uptime	
Depth (in)	62

MWRA TEMP

Flow Monitoring Site Installation Report



Site I.D.

DentonSt

Site Address / Location:	3 Denton St	Monitor Series	ECHO	Location Type	Temporary
Site Access:	Drive	Pipe Size (H x W)	N/A	Pipe Shape	Circular



Manhole #	N/A	System Characteristics	Residential
Access	Drive		Traffic
			None



Installation Information

Installation Date:	Thursday, May 31, 2018	Installation Type:	Level Only
Monitoring Location (Sensors):		Monitor Location:	Manhole
Sensors / Devices:	ECHO Depth	Pressure Sensor Range (psi)	

Installation Confirmation:

Confirmation Time:	10:00:00 AM	Pipe Size (HxW)	N/A
Depth of Flow (Wet DOF) (in)	N/A	Range (Air DOF) (in)	N/A
Downlooker Physical Offset (in)	N/A	Measurement Confidence (in)	
Peak Velocity (fps)	N/A	Velocity Sensor Offset (in)	N/A
Silt (in)	0	Silt Type	N/A

Hydraulic Comments:

steady flow

Manhole / Pipe Information:

Manhole Depth (Approx. FT):	7	Manhole Configuration	Common Trench
Manhole Material:	Concrete	Manhole Condition:	Fair
Manhole Opening Diameter (in)	N/A	Manhole Diameter (Approx.):	N/A
Manhole Cover	Vented	Manhole Frame	Normal
Active Drop Connections	No	Air Quality:	Good
Pipe Material		Pipe Condition:	Fair

Communication Information:

Communication Type	Serial	Antenna Location	
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Additional Site Info. / Comments:

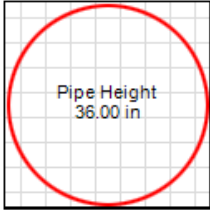
S/N: 332 IP: 107.80.22.16 42.558154, -72.516005 Crew: Nick B

ADS Project Name:	MWRA TEMP
ADS Project Number:	53383.22.325

HYDROGRAPH REPORT

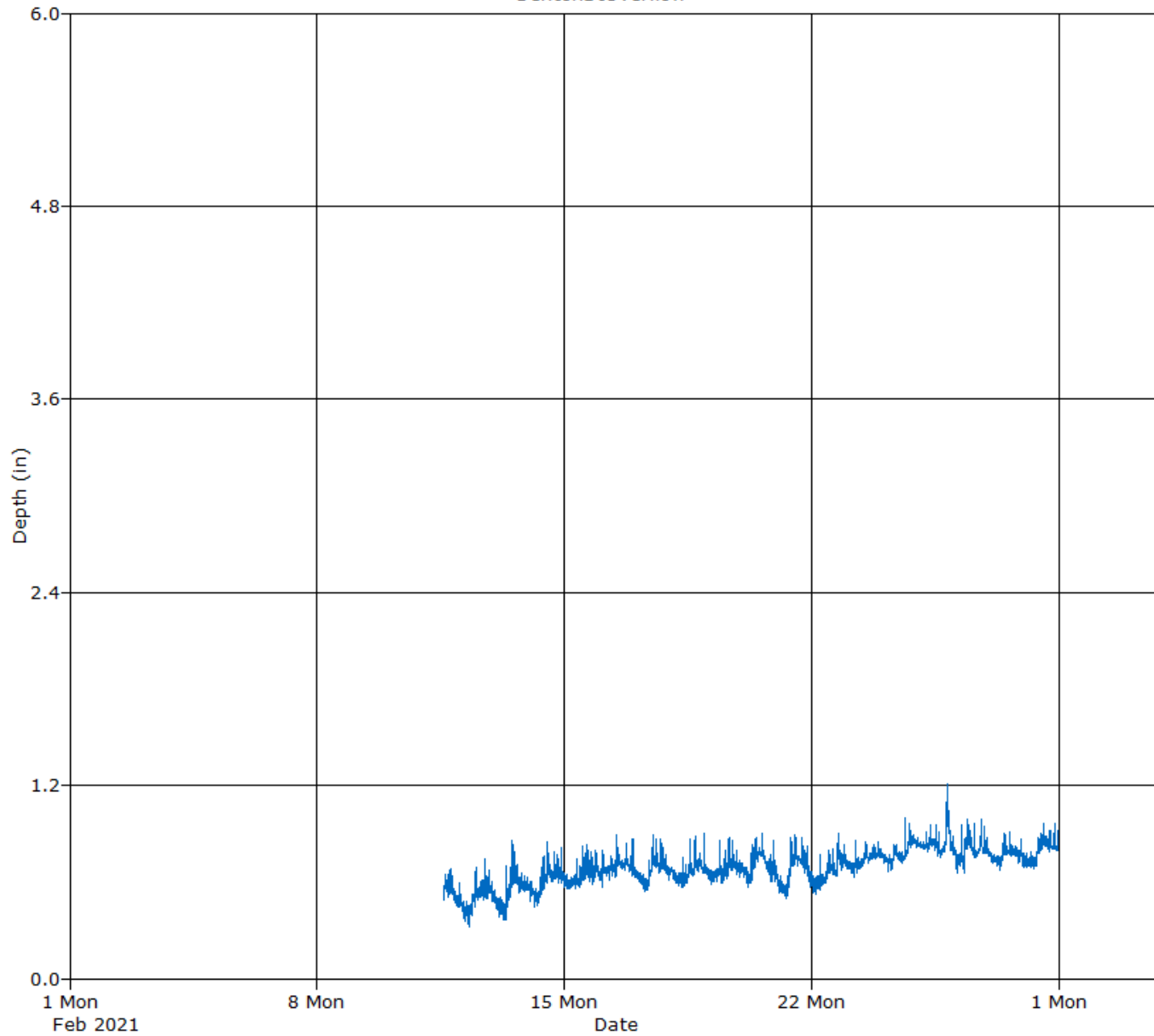
DentonStOverflow

Flow Monitor
DentonStOverflow



Report Period
2/1/2021
To
2/28/2021

Legend
— Depth



Daily Tabular Report

Date	Depth (in)						Quantity (MGD - Total MG)						Rain (in)						
	Time	Min	Time	Max	Avg	Total	Time	Min	Time	Max	Avg	Total	Time	Min	Time	Max	Avg	Total	
02/01/2021																			
02/02/2021																			
02/03/2021																			
02/04/2021																			
02/05/2021																			
02/06/2021																			
02/07/2021																			
02/08/2021																			
02/09/2021																			
02/10/2021																			
02/11/2021	23:45	0.45	18:55	0.68	0.55														
02/12/2021	07:35	0.32	18:25	0.74	0.50														
02/13/2021	07:45	0.36	12:45	0.86	0.55														
02/14/2021	03:40	0.44	12:45	0.85	0.61														
02/15/2021	07:35	0.55	15:00	0.83	0.65														
02/16/2021	01:40	0.57	11:50	0.89	0.70														
02/17/2021	06:20	0.54	12:10	0.89	0.67														
02/18/2021	08:20	0.57	22:50	0.90	0.67														
02/19/2021	03:35	0.58	16:00	0.87	0.68														
02/20/2021	04:45	0.56	14:40	0.90	0.71														
02/21/2021	06:45	0.50	13:05	0.89	0.67														
02/22/2021	02:40	0.52	18:05	0.90	0.67														
02/23/2021	04:40	0.63	05:40	0.86	0.74														
02/24/2021	04:15	0.66	15:25	1.00	0.78														
02/25/2021	15:40	0.75	20:40	1.21	0.85														
02/26/2021	07:50	0.65	09:45	0.99	0.80														
02/27/2021	08:25	0.68	14:55	0.91	0.77														
02/28/2021	07:30	0.68	21:05	0.97	0.79														

Report Summary For The Period 02/01/2021 - 02/28/2021

	Depth (in)
Total	
Avg	0.69

Site Commentary

Site Information

GStreetOutfall	
Location:	G Street at 11th St (dirt road)

Overview

The [hydrograph](#) for location GStreetOutfall shows depth levels and calculated flow values recorded during the monitoring period of Monday, February 1, 2021 to Sunday, February 28, 2021 .

[Daily longtables](#) displaying final quantities are also provided.

One overflow event occurred during the monitoring period.

Observations

Average flow depth and quantity data observed during Monday, February 1, 2021 to Sunday, February 28, 2021 , along with observed minimum and maximum data, are provided in the following table.

Observed Flow Conditions		
Item	Depth (in)	Quantity (MGD)
Average	1.81	
Minimum	0.82	
Maximum	2.67	
Time of Minimum	2/17/2021 11:25 PM	
Time of Maximum	2/24/2021 10:35 AM	

Please note the minimum and maximum flow rate recorded in this table may vary from those recorded on the daily and weekly tabular data. The minimum and maximum rates recorded on the daily and weekly tabular data are absolute versus average fifteen minute data. Graphical data reports are based on an hourly average.

Data Quality

Data uptime observed during the Monday, February 1, 2021 to the Sunday, February 28, 2021 monitoring period is provided in the table below.

Percent Uptime	
Depth (in)	45

MWRA TEMP

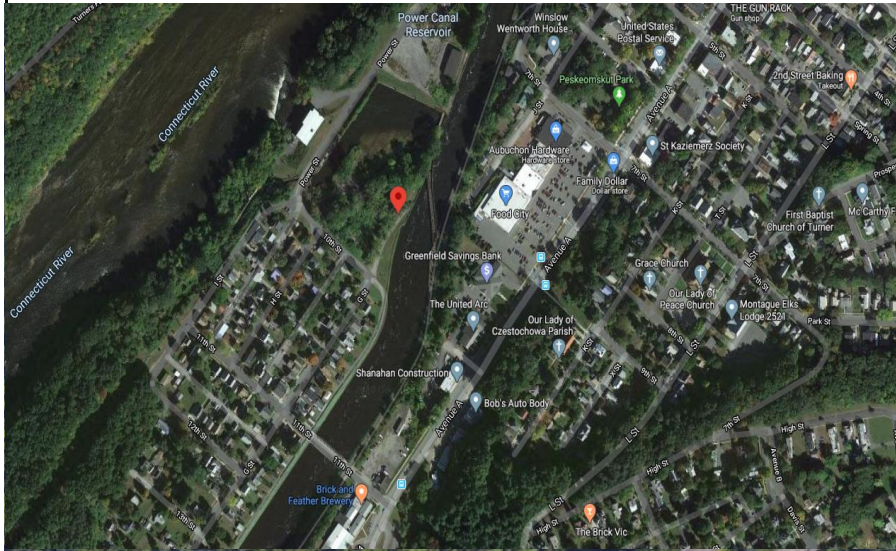
Flow Monitoring Site Installation Report



Site I.D.

DentonSt

Site Address / Location:	G Street at 11th St (dirt road)	Monitor Series	Location Type
Site Access:	Drive	ECHO	Temporary
		Pipe Size (H x W)	Pipe Shape
		N/A	Circular



Manhole #	System Characteristics
N/A	Residential
Access	Traffic
Drive	None



Installation Information	
Installation Date:	Installation Type:
Thursday, May 31, 2018	Level Only
Monitoring Location (Sensors):	Monitor Location:
Sensors / Devices:	Pressure Sensor Range (psi)
ECHO Depth	
Installation Confirmation:	
Confirmation Time:	Pipe Size (HxW)
11:00:00 AM	N/A
Depth of Flow (Wet DOF) (in)	Range (Air DOF) (in)
N/A	N/A
Downlooker Physical Offset (in)	Measurement Confidence (in)
N/A	
Peak Velocity (fps)	Velocity Sensor Offset (in)
N/A	N/A
Silt (in)	Silt Type
0	N/A
Hydraulic Comments:	
steady flow	
Manhole / Pipe Information:	
Manhole Depth (Approx. FT):	Manhole Configuration
7.5	Common Trench
Manhole Material:	Manhole Condition:
Concrete	Fair
Manhole Opening Diameter (in)	Manhole Diameter (Approx.):
N/A	N/A
Manhole Cover	Manhole Frame
Vented	Normal
Active Drop Connections	Air Quality:
No	Good
Pipe Material	Pipe Condition:
	Fair
Communication Information:	
Communication Type	Antenna Location
Serial	
Additional Site Info. / Comments:	
S/N: 342 IP: 107.80.22.18 42.604965,-72.563304 Crew: Nick B	

ADS Project Name:	Montague, Ma
ADS Project Number:	32257

HYDROGRAPH REPORT

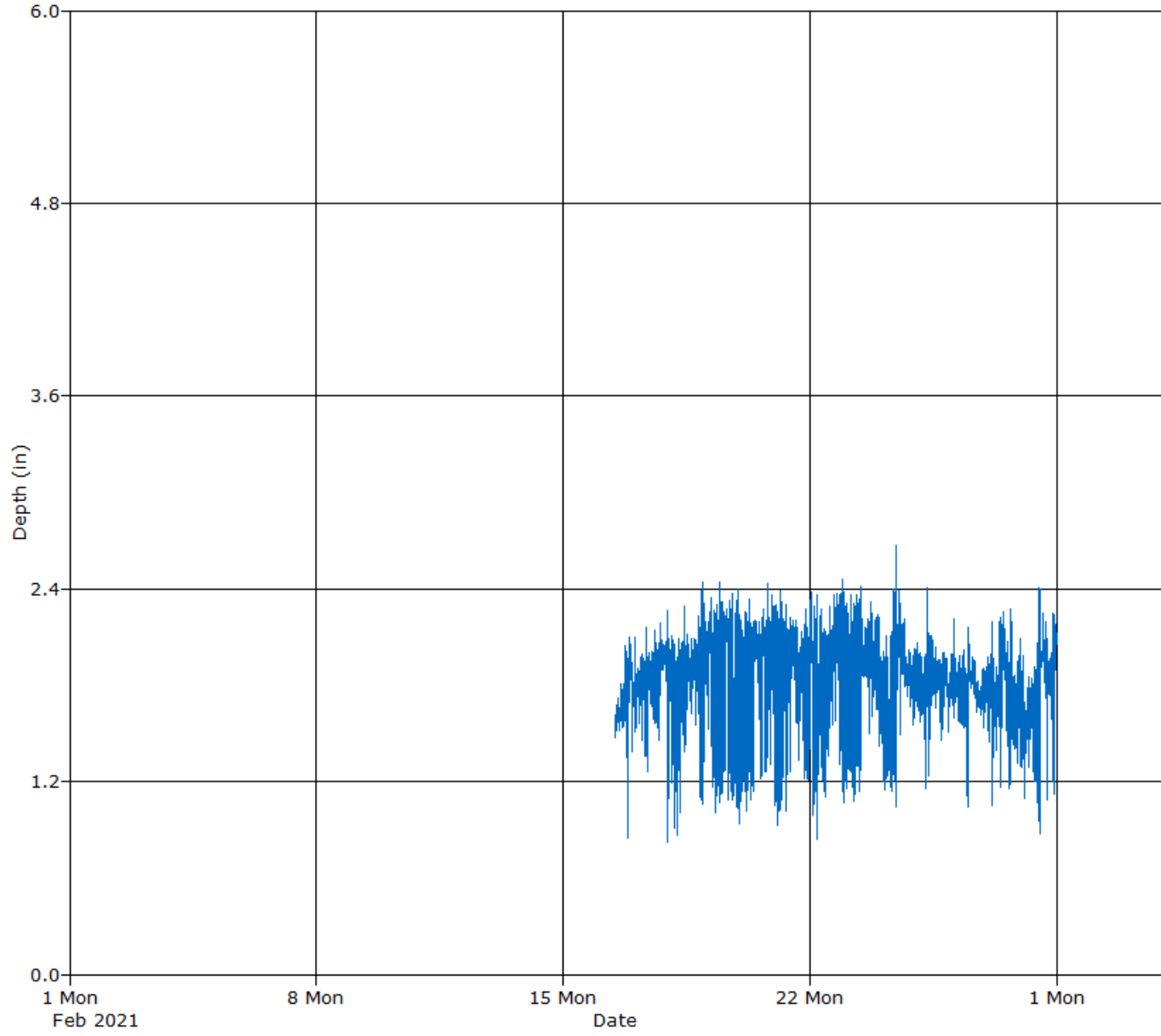
GStreetOutfall

Flow Monitor
GStreetOutfall

Pipe Height
36.00 in

Report Period
2/1/2021
To
2/28/2021

Legend
— Depth



Daily Tabular Report

Date	Depth (in)						Quantity (MGD - Total MG)						Rain (in)						
	Time	Min	Time	Max	Avg	Total	Time	Min	Time	Max	Avg	Total	Time	Min	Time	Max	Avg	Total	
02/01/2021																			
02/02/2021																			
02/03/2021																			
02/04/2021																			
02/05/2021																			
02/06/2021																			
02/07/2021																			
02/08/2021																			
02/09/2021																			
02/10/2021																			
02/11/2021																			
02/12/2021																			
02/13/2021																			
02/14/2021																			
02/15/2021																			
02/16/2021	20:05	0.85	20:45	2.10	1.70														
02/17/2021	23:25	0.82	23:15	2.26	1.82														
02/18/2021	05:45	0.87	22:50	2.44	1.84														
02/19/2021	07:35	1.00	11:05	2.44	1.80														
02/20/2021	00:10	0.93	19:30	2.43	1.84														
02/21/2021	01:50	0.93	04:25	2.39	1.84														
02/22/2021	04:30	0.84	21:55	2.46	1.84														
02/23/2021	06:25	1.08	10:20	2.41	1.90														
02/24/2021	10:30	1.04	10:35	2.67	1.80														
02/25/2021	07:15	1.15	07:35	2.41	1.84														
02/26/2021	11:25	1.04	01:50	2.22	1.80														
02/27/2021	03:55	1.05	16:45	2.28	1.77														
02/28/2021	12:45	0.88	11:50	2.41	1.76														

Report Summary For The Period 02/01/2021 - 02/28/2021

	Depth (in)
Total	
Avg	1.81

Rainfall data

The rainfall measured at RG1 from February 01, 2021 to February 28, 2021 is 1.85 inches.

<u>Date / Time</u>	<u>Maximum Rainfall (in.)</u>
2/16/2021 5:50 AM	0.18

Montague, MA

Flow Monitoring Site Installation Report



Site I.D.

RG1

Site Address / Location:	29 Greenfield Road - WWTP	Monitor Series	Location Type
Site Access:	Drive	Rain Alert III	Permanent
		Pipe Size (H x W)	Pipe Shape



Manhole #	System Characteristics
N/A	Residential
Access	Traffic
Drive	Light

Installation Date:	Thursday, February 11, 2021	Installation Type:	Rain Gauge
Monitoring Location (Sensors):	Field	Monitor Location:	Building
Sensors / Devices:	Rain Gauge Tipping Bucket	Pressure Sensor Range (psi)	

Installation Information	
Installation Date:	Thursday, February 11, 2021
Installation Type:	Rain Gauge
Monitoring Location (Sensors):	Field
Monitor Location:	Building
Sensors / Devices:	Rain Gauge Tipping Bucket
Pressure Sensor Range (psi)	
Installation Confirmation:	
Confirmation Time:	Pipe Size (HxW)
	0
Depth of Flow (Wet DOF) (in)	Range (Air DOF) (in)
Downlooker Physical Offset (in)	Measurement Confidence (in)
	0.25"
Peak Velocity (fps)	Velocity Sensor Offset (in)
	N/A
Silt (in)	Silt Type
	N/A
Hydraulic Comments:	
Slow	

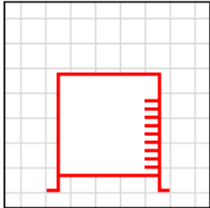
ADS Project Name:	Montague, MA
ADS Project Number:	

Manhole / Pipe Information:	
Manhole Depth (Approx. FT):	Manhole Configuration
	Common Trench
Manhole Material:	Manhole Condition:
Manhole Opening Diameter (in)	Manhole Diameter (Approx.):
Manhole Cover	Manhole Frame
Active Drop Connections	Air Quality:
Pipe Material	Pipe Condition:
Communication Information:	
Communication Type	Antenna Location
Wireless	
Additional Site Info. / Comments:	
N. 42.580276 W. -72.57139 S /N: 4789 I/P: 166.219.49.18	

HYDROGRAPH REPORT

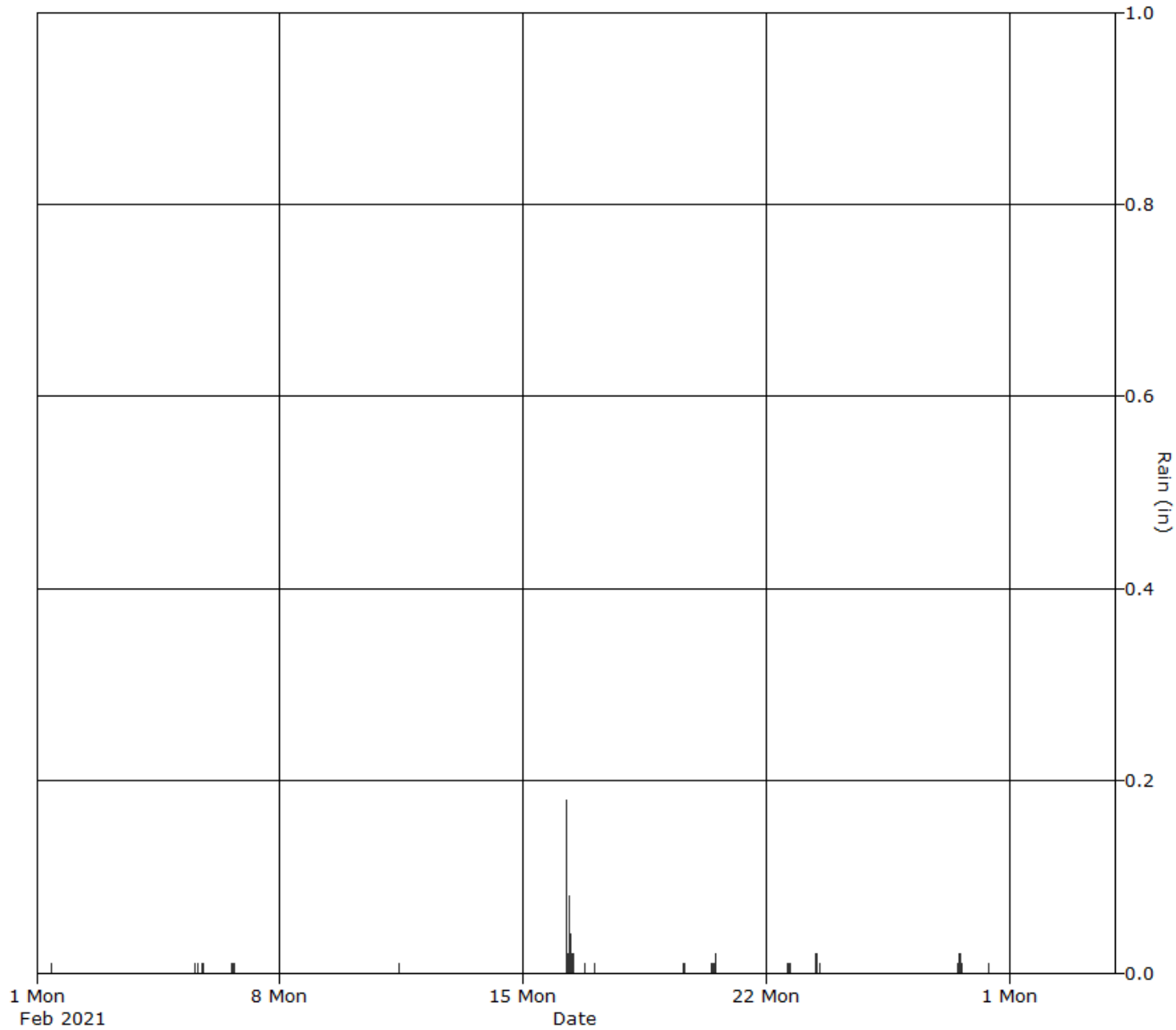
RG1

Rain Gauge
RG1



Report Period
2/1/2021
To
2/28/2021

Legend
— Rain



Daily Tabular Report

Date	Depth (in)						Quantity (MGD - Total MG)						Rain (in)						
	Time	Min	Time	Max	Avg	Total	Time	Min	Time	Max	Avg	Total	Time	Min	Time	Max	Avg	Total	
02/01/2021																			0.01
02/02/2021																			
02/03/2021																			
02/04/2021																			
02/05/2021																			0.05
02/06/2021																			0.03
02/07/2021																			
02/08/2021																			
02/09/2021																			
02/10/2021																			
02/11/2021																			0.01
02/12/2021																			
02/13/2021																			
02/14/2021																			
02/15/2021																			
02/16/2021																			1.04
02/17/2021																			0.01
02/18/2021																			
02/19/2021																			0.07
02/20/2021																			0.07
02/21/2021																			
02/22/2021																			0.05
02/23/2021																			0.21
02/24/2021																			
02/25/2021																			
02/26/2021																			
02/27/2021																			0.29
02/28/2021																			0.01

Report Summary For The Period 02/01/2021 - 02/28/2021

	Rain (in)
Total	1.85
Avg	