

Wayne County Downriver Sewage Disposal System

Annual System Monitoring Report for 2016



Report to Wayne County and Communities

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April 6, 2017

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1. INTRODUCTION

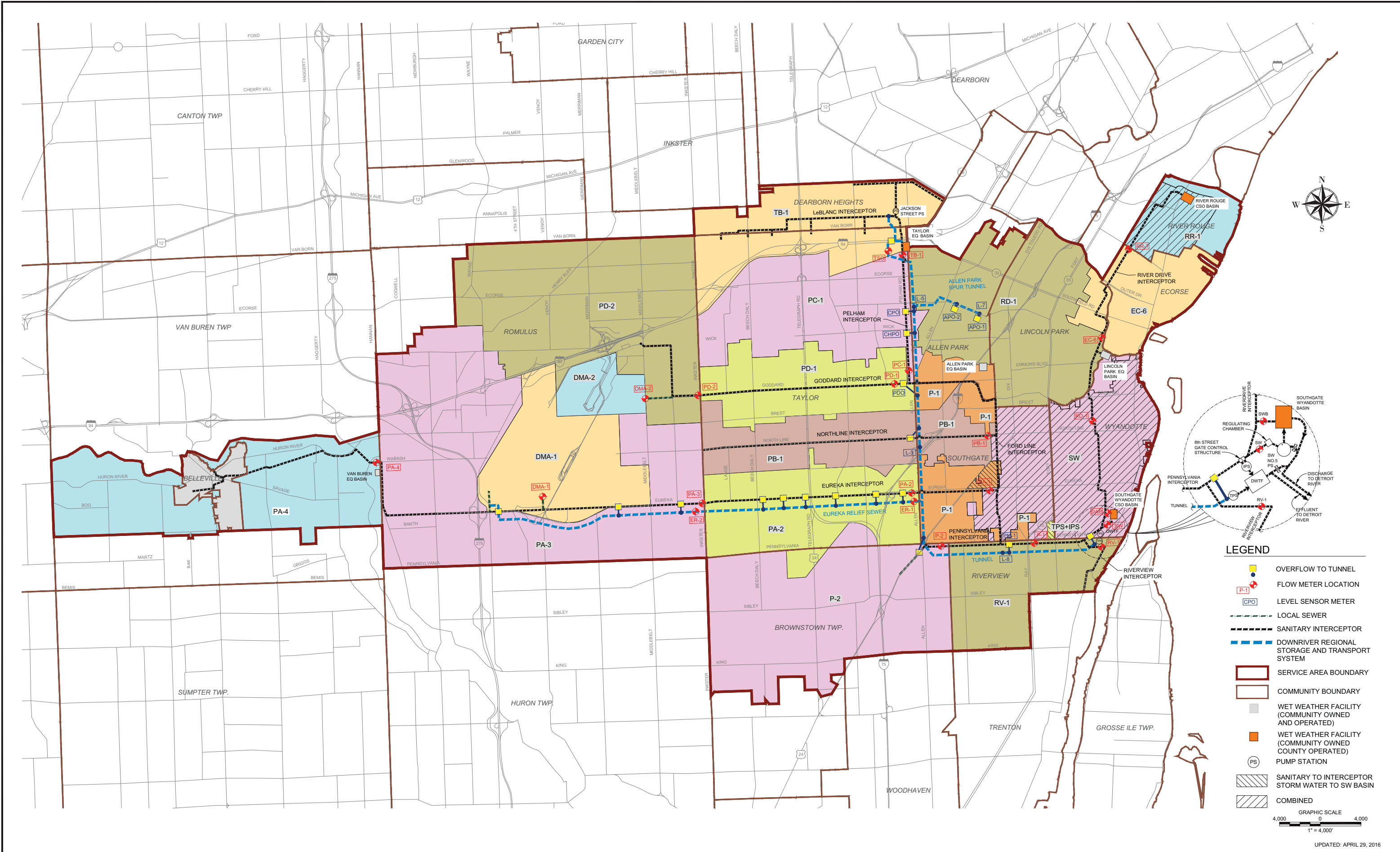
This annual report provides a summary of the flow monitoring data for Wayne County's Downriver Sewage Disposal System (DSDS) for January through December 2016. This report supersedes and consolidates the information in the six (6) bi-monthly reports previously issued for 2016. It is intended to provide the best available estimate of flow rates for each meter district and community during the dry and wet weather conditions that occurred in 2016. For some meter districts and communities, the data have been revised from the bi-monthly reports.

Figure 1 presents a map of the DSDS showing the flow meter and level sensor locations, incremental meter districts, and the interceptors and Downriver Regional Storage and Transport System (DRSTS). Figure 2 presents the location of rain gages within and surrounding the DSDS service area.

The DSDS system monitoring program was strengthened during the year. A flow meter was replaced with new equipment because the corrective maintenance of the old equipment was not cost effective. The new equipment has significantly lower on-going maintenance costs than the old equipment.

The 2016 DSDS flow monitoring data were reviewed, edited and filled-in to provide a complete data set. Missing or erroneous data have been estimated using technically sound fill-in techniques.

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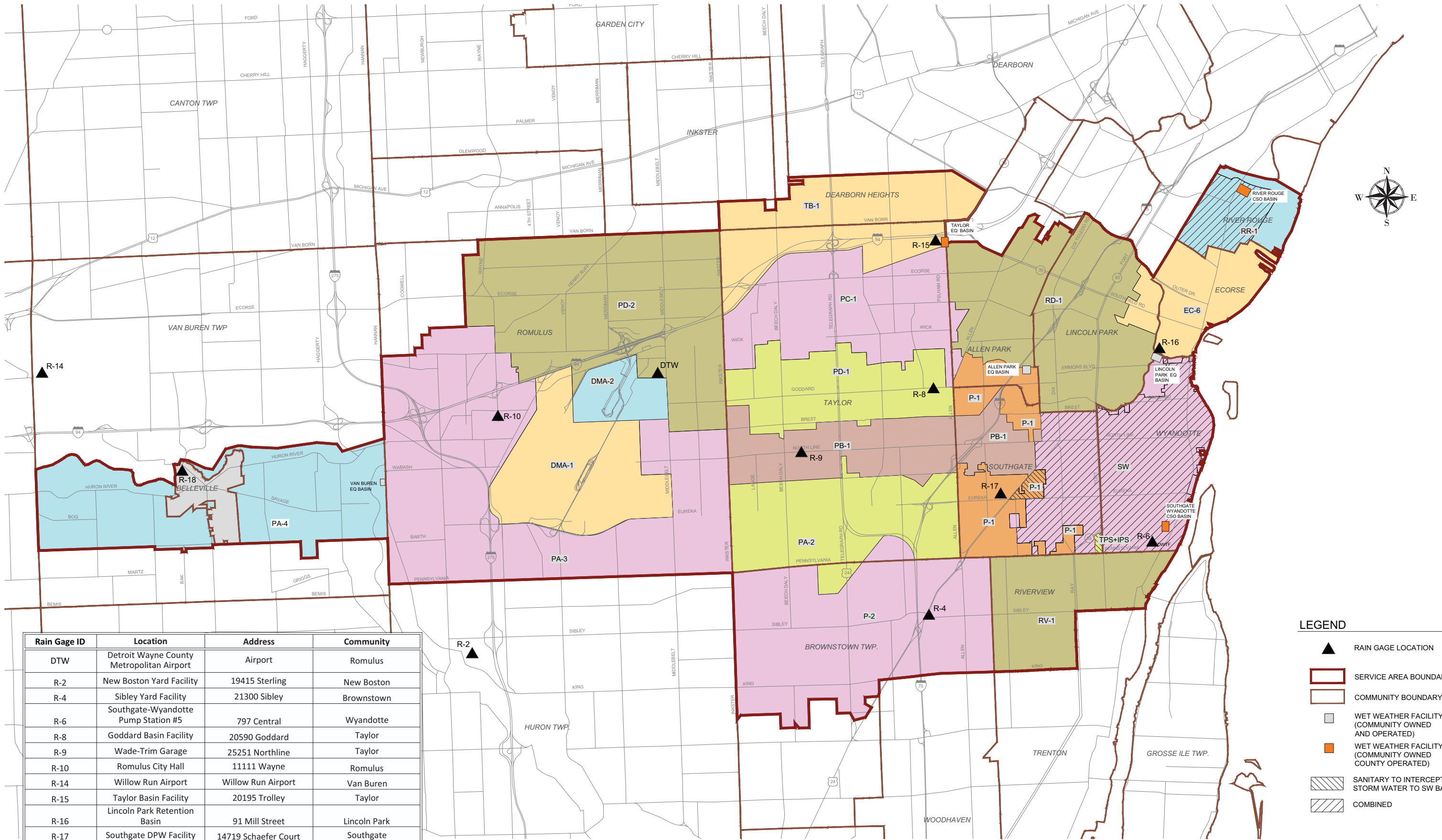


DOWNRIVER
SEWAGE DISPOSAL SYSTEM

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INCREMENTAL METER DISTRICTS &
INTERCEPTOR & METER LOCATIONS
FOR 2016 SYSTEM MONITORING PLAN

SCALE:	1" = 4000'
JOB No.	ASI #1230
FILE No.	
FIGURE 1	



Rain Gage ID	Location	Address	Community
DTW	Detroit Wayne County Metropolitan Airport	Airport	Romulus
R-2	New Boston Yard Facility	19415 Sterling	New Boston
R-4	Sibley Yard Facility	21300 Sibley	Brownstown
R-6	Southgate-Wyandotte Pump Station #5	797 Central	Wyandotte
R-8	Goddard Basin Facility	20590 Goddard	Taylor
R-9	Wade-Trim Garage	25251 Northline	Taylor
R-10	Romulus City Hall	11111 Wayne	Romulus
R-14	Willow Run Airport	Willow Run Airport	Van Buren
R-15	Taylor Basin Facility	20195 Trolley	Taylor
R-16	Lincoln Park Retention Basin	91 Mill Street	Lincoln Park
R-17	Southgate DPW Facility	14719 Schaefer Court	Southgate
R-18	Belleville Fire Station	130 4th Street	Belleville

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RAIN GAGE LOCATION MAP
FOR 2016 SYSTEM MONITORING PLAN

SCALE: 1" = 4000'
JOB No. ASI #1230
FILE No.

FIGURE 2

UPDATED: APRIL 29, 2016

2. FINDINGS FROM 2016 DSDS SYSTEM MONITORING

The major findings from the DSDS 2016 system monitoring are presented below.

- a. Over the year, the flow meters and level sensors in the DSDS operated and provided useful data for 94.7% of the period.
- b. The total precipitation at the Detroit Metropolitan Wayne County Airport (DTW) for the year was 34.69 inches, which is 1.22 inches above normal. There were eight (8) significant storms in 2016. Significant storm events are defined as those with at least 0.5 inches of rainfall occurring on a single day with an event total of at least 1.0 inch of rainfall. Significant storm events are separated by at least 2 consecutive days without precipitation over 0.1 inches. This storm event definition is based on the arithmetic mean of the rainfall recorded by all rain gages used in the analysis for that storm. Of the significant storms, four (4) of the largest were also defined as major storms. Major storm events are a subgroup of significant storm events which result in the peak hourly influent flow rate to the Downriver Wastewater Treatment Facility (DWTF) reaching or exceeding 175 million gallons per day (MGD). The average rainfall depths at DTW for the major storms are listed in Table 1.

Table 1
Downriver Sewage Disposal System
Rainfall Depths at DTW for Major Storms during 2016 in the DSDS Service Area

Major Storm Event	Significant Storm Event	Event Dates	Peak 24-hour Rainfall Depth (inches)	Total Rainfall Depth (inches)
A	2	3/13/2016 - 3/14/2016	1.25	1.25
B	3	3/24/2016	1.49	1.49
C	5	8/15/2016 - 8/16/2016	2.08	2.08
D	7	9/27/2016 - 10/1/2016	3.08	4.01

- c. The controlled flow communities are tributary to the Riverdrive Interceptor and their peak flow rates into the interceptor are required to be regulated to maximum flow limits. The peak hourly flow rates for the controlled flow communities during significant/major storm events during 2016 are summarized in Table 2.
 - The Meter RR-1 district includes all of River Rouge. The flow rates estimated for the Meter RR-1 district for the significant storms during 2016 were below the maximum flow limit for five of the eight events and slightly exceeded the maximum flow limit for three of the eight events. Flow from River Rouge is pumped into the Riverdrive Interceptor. No flow meter exists on the pump station discharge pipe. The pumps are operated to maintain a maximum level in the Riverdrive Interceptor immediately downstream of the River Rouge CSO Basin. This sometimes results in a slight exceedence of the maximum flow limit.

Table 2
Downriver Sewage Disposal System
Peak Hourly Flow Rates for Controlled Flow Communities
During 2016 Significant/Major Storm Events

Meter District =	RR-1	EC-6	RD-1		SW
Location =	River Rouge CSO Basin Outlet	Riverdrive Interceptor South of Southfield Road	Riverdrive Interceptor North of Northline Road		SWRDDD Connection
Incremental Flow Formula =	[RR-1]	[EC-6] - [RR-1r]	[RD-1] - [EC-6r]		[SW] + [SWB]
Communities Included in Incremental Flow =	River Rouge	Ecorse & Lincoln Park (part)	Lincoln Park (part) & Allen Park (part)		Southgate (part) & Wyandotte
Proposed Maximum Flow Limit ¹ =	11.26 cfs	11.10 cfs	43.46 cfs		31.73 cfs
Event 1 (2/24-25/2016)	10.09 cfs	12.73 cfs	61.04 cfs ²	49.73 cfs ³	35.74 cfs ⁴
Event 2 / Major Event A (3/13-14/2016)	10.72 cfs	14.36 cfs	72.39 cfs ²	47.12 cfs ³	34.41 cfs ⁴
Event 3 / Major Event B (3/24/2016)	11.40 cfs	18.26 cfs	74.51 cfs ²	52.94 cfs ³	30.87 cfs
Event 4 (5/12-14/2016)	9.54 cfs	13.79 cfs	48.91 cfs ³		27.86 cfs
Event 5 / Major Event C (8/15-16/2016)	10.98 cfs	36.08 cfs	89.47 cfs ³		41.73 cfs ⁴
Event 6 (9/10/2016)	12.38 cfs	24.70 cfs	52.66 cfs ³		26.13 cfs
Event 7 / Major Event D (9/27/2016 – 10/1/2016)	12.68 cfs	15.59 cfs	54.09 cfs ³		45.40 cfs ⁴
Event 8 (10/20-21/2016)	7.99 cfs	6.64 cfs	47.29 cfs ³		31.13 cfs

Notes:

1. The Maximum Wet Weather Flow Limits for Controlled Flow Communities are from the proposed new Downriver Sewage Disposal System Service Agreement (December 4, 2014). These flow limits are specified in the existing service agreement, adjusted in April 2014 to reflect increases in DWTF capacity, transfers that have occurred between communities and proper conversions from cfs to MGD, consistent significant figures and appropriate rounding. The communities are responsible for regulating their flow rates to the Riverdrive Interceptor to the these flow limits.
2. Exceedance of the proposed maximum flow limit occurred after the peak of the storm event and was due to Lincoln Park basin dewatering operations.
3. Exceedance of the proposed maximum flow limit occurred during the peak of the storm event.
4. Exceedance of the proposed maximum flow limit occurred primarily after the peak of the storm event and is due to Wayne County dewatering operations at the SWRDDD facilities to minimize discharges to the Detroit River from the SWRDDD.

Legend:

XX.XX	Exceeds maximum flow limit by 0 to 20%
XX.XX	Exceeds maximum flow limit by > 20%

- The Meter EC-6 district includes all of the City of Ecorse and a section of Lincoln Park. The incremental flow rates estimated for the Meter EC-6 district for the significant storms during 2016 were below the maximum flow limit for one of the eight events, slightly exceeded the maximum flow limit for one of the eight events and significantly exceeded the maximum flow limit for six of the eight events.
- The Meter RD-1 district includes most of Allen Park and most of Lincoln Park. The incremental flow rates estimated for the Meter RD-1 district for the significant storms during 2016 slightly exceeded the maximum flow limit for two of the eight events and

significantly exceeded the maximum flow limit for six of the eight events. The peak flow rates for Significant Storm Events for 1, 2 and 3 for Meter RD-1 District occurred after the peak of the storm event and were due to Lincoln Park basin dewatering in coordination with Wayne County. Lincoln Park owns and/or operates the regulated connections to the Riverdrive Interceptor for the Meter RD-1 district as well as a connection from a wastewater equalization basin.

- The Meter SW district serves the Southgate-Wyandotte Relief Drains Drainage District (SWRDDD). The SWRDDD is a combined sewer area that includes part of Southgate and all of Wyandotte. Flow limit exceedences occurred primarily after the peak of the storm event during dewatering operations of the SWRDDD CSO retention treatment facility, which were coordinated with DWTF operations to minimize bypass operations at DWTF and discharges to Detroit River from SWRDDD.
- d. The non-controlled flow communities are tributary to both the Pennsylvania Interceptor system and the DRSTS and have allowable peak 96-hour volumes that were established for the 4.42 inch design storm. The estimated peak 96-hour total volumes for the 2016 major storm events are listed in Table 3. None of the Downriver communities are estimated to have exceeded the allowable peak 96-hour total volumes during 2016. The DRSTS worked as intended for all of the storm events during 2016.

Table 3
Downriver Sewage Disposal System
Peak 96 Hour Total Volumes for Non-Controlled Flow Communities
During 2016 Major Storm Events

Community	Total Volume (MG)				
	4.42 inch Design Storm	Major Storm Event			
		Event A March 13-14, 2016 1.23 inches	Event B March 24, 2016 1.56 inches	Event C August 15-16, 2016 2.20 inches	Event D September 27, 2016 to October 1, 2016 3.25 inches
Allen Park (part)	29.23	11.52	17.14	6.35	14.64
Belleville	4.86	2.90	3.21	0.93	2.25
Brownstown Twp.	20.90	8.57	9.58	7.75	8.04
Dearborn Heights	43.76	29.65	32.22	17.36	27.50
Riverview	28.30	15.88	18.65	12.07	19.31
Romulus	88.43	38.16	47.64	19.10	27.02
Southgate (part)	31.24	17.41	19.81	11.53	16.18
Taylor	164.45	74.83	79.66	39.85	66.28
Van Buren Twp.	7.04	4.16	4.60	1.34	3.22
Total	418.21	203.08	232.53	116.28	184.44

Legend:

XX.XX	Exceeds design storm volume by 0 to 20%
XX.XX	Exceeds design storm volume by > 20%

- e. In addition, the non-controlled flow communities have proposed maximum allowable average daily dry weather flow rate limits. Meter District PA-2 in Taylor was the only district to exceed these limits during 2016. This portion of Meter District PA-2 slightly exceeded its proposed dry weather flow limit in March and April 2016. Inclusive of all meter districts, Taylor did not exceed the total proposed maximum allowable average daily dry weather flow rate limit for any month.
- f. A summary of relief structure discharges into the DRSTS during significant storm events for 2016 are listed in Table 4. At least one of the relief structures discharged into the DRSTS during all of the significant storm events in 2016. The relief structure at Meter CHPO discharged most frequently.

Table 4
Downriver Sewage Disposal System
Downriver Regional Storage and Transport System Usage
during 2016 Significant Storm Events

Storm Event	Meter									
	TPS	TSO	CHPO	CPO	PDO	ER-2	ER-1	APO-2	APO-1	PM-1
Event 1 (2/24-25/2016)	✓	✓	✓	×	×	×	✓	×	×	×
Event 2 / Major Event A (3/13-14/2016)	✓	✓	✓	✓	×	✓	✓	✓	✓	×
Event 3 / Major Event B (3/24/2016)	✓	✓	✓	✓	×	✓	✓	✓	✓	×
Event 4 (5/12-14/2016)	✓	✓	✓	✓	×	×	×	×	×	×
Event 5 / Major Event C (8/15-16/2016)	✓	✓	✓	✓	×	×	✓	✓	✓	✓
Event 6 (9/10/2016)	✓	✓	✓	✓	×	×	✓	✓	✓	×
Event 7 / Major Event D (9/27/2016 – 10/1/2016)	✓	✓	✓	✓	×	×	✓	✓	✓	×
Event 8 (10/20-21/2016)	×	×	✓	×	×	×	×	×	×	×
Number of Overflow Events	7/8	7/8	8/8	6/8	0/8	2/8	6/8	5/8	5/8	1/8

Legend:

✓	Discharge to DRSTS
×	No discharge to DRSTS

- g. Table 5 lists the average annual flow rate and total annual flow volume for each community for year 2016. The total incoming flow rate to the DWTF is based on the interceptor system flow meters. The DWTF flow rate is based on the Interceptor Pump Station (IPS) and Tunnel Pump Station (TPS), and includes recycle flow rate.

Table 5
Downriver Sewage Disposal System
Average Annual Flow Rate and Volume by Community for 2016

Community	Estimated Annual Average Flow Rate (cfs)	Estimated Annual Flow Volume	
		(MG)	(MCF)
Allen Park	6.12	1,449	193,659
Belleville	0.78	183	24,508
Brownstown Twp.	2.20	521	69,586
Dearborn Hts.	4.77	1,127	150,692
Ecorse	1.90	449	59,977
Lincoln Park	10.17	2,407	321,706
River Rouge	3.38	799	106,744
Riverview	2.37	559	74,792
Romulus	8.21	1,943	259,685
Southgate	9.90	2,341	312,941
Taylor	12.13	2,870	383,673
Van Buren Twp.	1.11	263	35,104
Wyandotte	11.81	2,794	373,469
Total Incoming Flow	74.84	17,703	2,366,537
DWTF Including Recycle (IPS + TPS)	81.87	19,365	2,588,743

Notes:

1. cfs = Cubic Feet per Second
2. MG = Million Gallons
3. MCF = Thousand Cubic Feet

3. SUMMARY BY COMMUNITY

Table 6 presents the estimated average monthly flow rate for each community in the DSDS for each month in 2016. The average monthly flow rate includes all days – both dry and wet weather. Table 6 also shows the percentages for each community of the incoming flow rate to the DWTF; these percentages are also plotted on Figure 3.

The incoming flow rate to the DWTF is based on the interceptor system flow meters. Table 6 presents both the incoming flow rate and the average monthly influent pumping rate at the DWTF. The DWTF influent pumping rate includes recycle flow rates, whereas the incoming flow rate measured by the interceptor system meters does not include DWTF recycle flow rates. Therefore, it is expected that the incoming flow rate measured by the sum of the interceptor system meters will be slightly less than the DWTF influent flow rate.

The average monthly flow rates are subtotaled for controlled flow communities and for non-controlled flow communities. Tables 7 and 8 provide the average monthly flow rates during 2016 for the controlled flow communities and non-controlled flow communities, respectively.

Table 9 shows the 2016 incremental monthly flow rates for each community summarized by meter district component. Incremental average daily flow rates are given along with an estimate of the average daily dry weather flow rates. The Year 2010 residential population is given on Table 9 and it is used to estimate per-capita dry weather flow rates.

In addition, Table 9 shows the maximum dry weather flow limits for each community from the proposed new Downriver Sewage Disposal System Service Agreement (December 4, 2014). For the controlled flow communities, maximum flow limits are specified in the existing service agreement and were adjusted in April 2014 to reflect increases in DWTF capacity, transfers that have occurred between communities and proper conversions from cfs to MGD, consistent significant figures and appropriate rounding. The peak flow rates for these communities are required to be regulated to these maximum values.

For non-controlled communities, the existing service agreement does not contain dry weather flow limits for the non-controlled communities. The proposed maximum allowable average daily dry weather flow limits for the non-controlled flow communities shown in Table 9 are from the proposed new Downriver Sewage Disposal System Service Agreement (December 4, 2014). Values are shown for informational purposes only as agreement on the flow limits has not yet been reached and a new service agreement has not yet been executed.

Appendix A contains a set of tables that further support the results presented on Tables 6, 7, 8 and 9.

Table 6
Downriver Sewage Disposal System
Average Monthly Flow Rates by Community for 2016

Community	Flow Rate (cfs)												
	January	February	March	April	May	June	July	August	September	October	November	December	Average Annual
Allen Park	5.80	6.54	11.76	7.30	6.37	3.57	3.20	6.52	5.65	6.20	4.89	5.62	6.12
Belleville	0.82	0.78	1.03	0.99	0.87	0.69	0.58	0.53	0.67	0.75	0.80	0.80	0.78
Brownstown Twp.	1.83	1.86	2.68	2.77	2.53	2.12	1.98	2.17	2.06	2.10	2.17	2.14	2.20
Dearborn Hts.	4.84	5.05	8.53	6.10	5.50	3.02	2.66	3.74	3.94	4.90	4.34	4.52	4.77
Ecorse	1.51	1.85	2.85	2.03	2.05	1.78	1.83	2.07	1.89	1.61	1.46	1.80	1.90
Lincoln Park	9.67	11.14	18.37	12.09	10.69	6.23	5.70	11.26	9.21	10.23	8.07	9.32	10.17
River Rouge	3.25	3.07	5.30	3.91	3.37	2.11	2.10	4.00	4.07	3.51	2.99	2.79	3.38
Riverview	2.27	2.43	3.82	2.35	2.25	1.51	1.67	2.35	2.49	2.46	2.15	2.62	2.37
Romulus	8.66	8.72	12.96	13.01	10.71	5.89	5.23	5.72	5.99	6.50	7.74	7.44	8.21
Southgate	9.54	9.72	14.43	12.63	10.76	6.59	7.49	10.01	9.75	9.87	8.83	9.08	9.90
Taylor	12.50	13.09	20.38	15.41	13.48	7.46	6.74	9.87	10.65	12.28	11.40	12.29	12.13
Van Buren Twp.	1.18	1.12	1.47	1.42	1.25	0.98	0.83	0.77	0.96	1.07	1.15	1.15	1.11
Wyandotte	11.19	11.31	16.43	14.95	12.63	7.72	9.60	12.87	12.25	11.96	10.25	10.48	11.81
Subtotal Controlled Flow Communities	36.81	39.31	61.44	47.47	41.17	25.17	27.33	43.06	38.88	39.20	32.58	34.91	38.97
Subtotal Non-Controlled Flow Communities	36.26	37.35	58.56	47.49	41.29	24.50	22.28	28.82	30.70	34.23	33.65	35.14	35.87
Total Incoming Flow Rate	73.07	76.66	120.00	94.95	82.46	49.66	49.60	71.87	69.58	73.43	66.23	70.05	74.84
DWTF Including Recycle (IPS + TPS)	81.10	82.57	127.04	101.19	87.73	55.87	56.64	80.88	76.82	81.07	72.79	78.08	81.87
Total Precipitation DTW (inches)	1.34	1.97	4.86	2.31	2.20	1.30	1.57	5.62	6.28	2.98	2.10	2.16	34.69

Percentage of Total Incoming Flow Rate by Community for 2016

Community	January	February	March	April	May	June	July	August	September	October	November	December	Average Annual
Allen Park	7.9%	8.5%	9.8%	7.7%	7.7%	7.2%	6.5%	9.1%	8.1%	8.4%	7.4%	8.0%	8.0%
Belleville	1.1%	1.0%	0.9%	1.0%	1.1%	1.4%	1.2%	0.7%	1.0%	1.0%	1.2%	1.1%	1.1%
Brownstown Twp.	2.5%	2.4%	2.2%	2.9%	3.1%	4.3%	4.0%	3.0%	3.0%	2.9%	3.3%	3.1%	3.0%
Dearborn Hts.	6.6%	6.6%	7.1%	6.4%	6.7%	6.1%	5.4%	5.2%	5.7%	6.7%	6.5%	6.5%	6.3%
Ecorse	2.1%	2.4%	2.4%	2.1%	2.5%	3.6%	3.7%	2.9%	2.7%	2.2%	2.2%	2.6%	2.6%
Lincoln Park	13.2%	14.5%	15.3%	12.7%	13.0%	12.5%	11.5%	15.7%	13.2%	13.9%	12.2%	13.3%	13.4%
River Rouge	4.5%	4.0%	4.4%	4.1%	4.1%	4.3%	4.2%	5.6%	5.8%	4.8%	4.5%	4.0%	4.5%
Riverview	3.1%	3.2%	3.2%	2.5%	2.7%	3.0%	3.4%	3.3%	3.6%	3.3%	3.2%	3.7%	3.2%
Romulus	11.8%	11.4%	10.8%	13.7%	13.0%	11.9%	10.6%	8.0%	8.6%	8.9%	11.7%	10.6%	10.9%
Southgate	13.1%	12.7%	12.0%	13.3%	13.1%	13.3%	15.1%	13.9%	14.0%	13.4%	13.3%	13.0%	13.3%
Taylor	17.1%	17.1%	17.0%	16.2%	16.3%	15.0%	13.6%	13.7%	15.3%	16.7%	17.2%	17.6%	16.1%
Van Buren Twp.	1.6%	1.5%	1.2%	1.5%	1.5%	2.0%	1.7%	1.1%	1.4%	1.5%	1.7%	1.6%	1.5%
Wyandotte	15.3%	14.7%	13.7%	15.7%	15.3%	15.6%	19.3%	17.9%	17.6%	16.3%	15.5%	15.0%	16.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Figure 3
Downriver Sewage Disposal System
Percentage of Incoming Flow for 2016

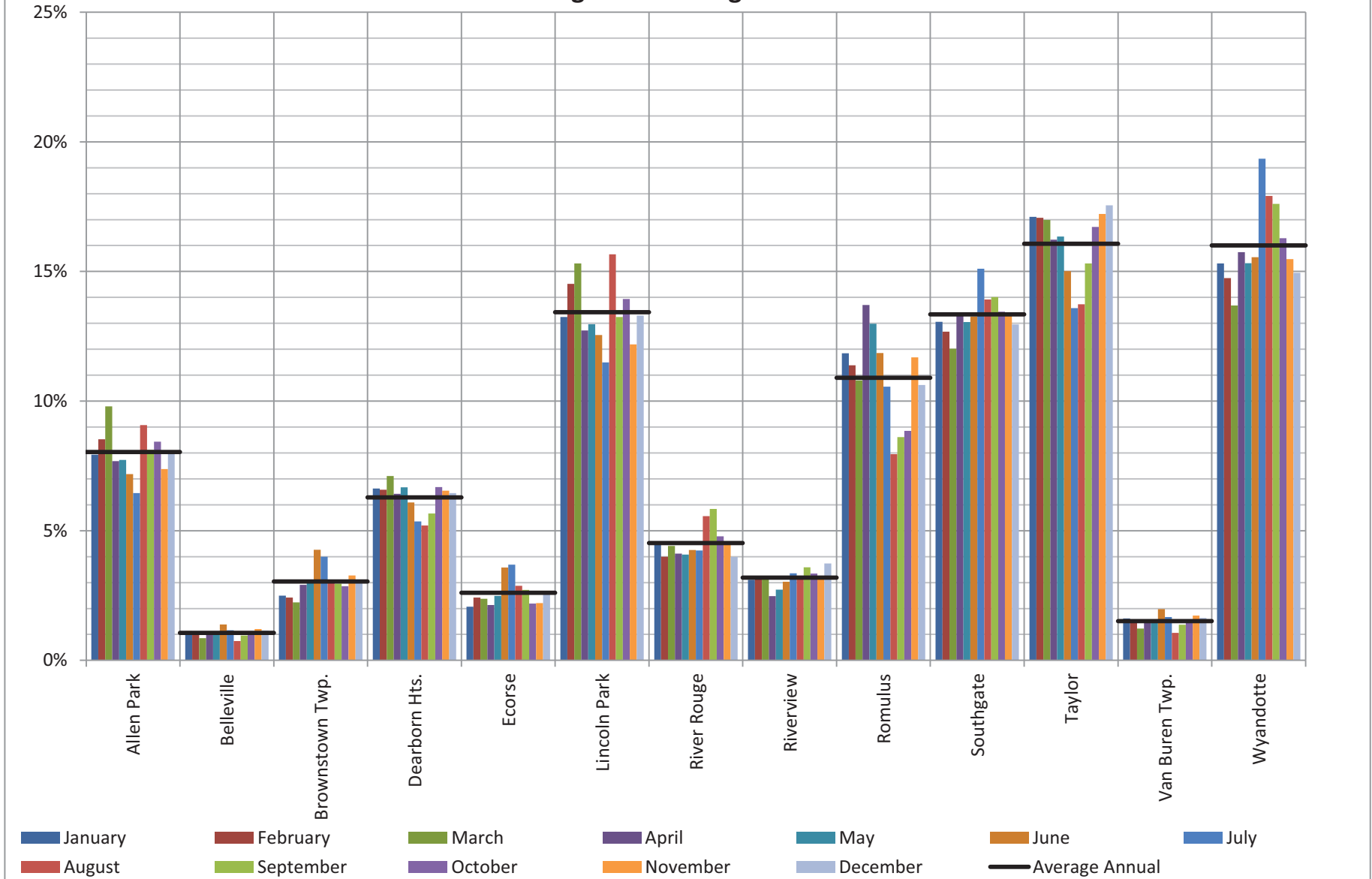


Table 7
Downriver Sewage Disposal System
Average Monthly Flow Rates for Controlled Flow Communities for 2016

Community	Flow Rate (cfs)												
	January	February	March	April	May	June	July	August	September	October	November	December	Average Annual
Allen Park (part)	4.80	5.50	9.12	5.97	5.23	2.92	2.63	5.52	4.48	5.08	3.96	4.55	4.98
Ecorse	1.51	1.85	2.85	2.03	2.05	1.78	1.83	2.07	1.89	1.61	1.46	1.80	1.90
Lincoln Park	9.67	11.14	18.37	12.09	10.69	6.23	5.70	11.26	9.21	10.23	8.07	9.32	10.17
River Rouge	3.25	3.07	5.30	3.91	3.37	2.11	2.10	4.00	4.07	3.51	2.99	2.79	3.38
Southgate - Wyandotte RDDD	17.56	17.75	25.80	23.47	19.83	12.13	15.07	20.21	19.23	18.77	16.09	16.45	18.54
Total	36.81	39.31	61.44	47.47	41.17	25.17	27.33	43.06	38.88	39.20	32.58	34.91	38.97
Total Precipitation DTW (inches)	1.34	1.97	4.86	2.31	2.20	1.30	1.57	5.62	6.28	2.98	2.10	2.16	34.69

Table 8
Downriver Sewage Disposal System
Average Monthly Flow Rates for Non-Controlled Flow Communities for 2016

Community	Flow Rate (cfs)												
	January	February	March	April	May	June	July	August	September	October	November	December	Average Annual
Allen Park (part)	1.00	1.03	2.63	1.33	1.15	0.65	0.57	1.00	1.18	1.12	0.92	1.07	1.14
Belleville	0.82	0.78	1.03	0.99	0.87	0.69	0.58	0.53	0.67	0.75	0.80	0.80	0.78
Brownstown Twp.	1.83	1.86	2.68	2.77	2.53	2.12	1.98	2.17	2.06	2.10	2.17	2.14	2.20
Dearborn Hts.	4.84	5.05	8.53	6.10	5.50	3.02	2.66	3.74	3.94	4.90	4.34	4.52	4.76
Riverview	2.27	2.43	3.82	2.35	2.25	1.51	1.67	2.35	2.49	2.46	2.15	2.62	2.37
Romulus	8.66	8.72	12.96	13.01	10.71	5.89	5.23	5.72	5.99	6.50	7.74	7.44	8.21
Southgate (part)	3.17	3.28	5.06	4.11	3.56	2.18	2.02	2.67	2.77	3.06	2.99	3.11	3.16
Taylor	12.50	13.09	20.38	15.41	13.48	7.46	6.74	9.87	10.65	12.28	11.40	12.29	12.13
Van Buren Twp.	1.18	1.12	1.47	1.42	1.25	0.98	0.83	0.77	0.96	1.07	1.15	1.15	1.11
Total	36.26	37.35	58.56	47.49	41.29	24.50	22.28	28.82	30.70	34.23	33.65	35.14	35.86
Total Precipitation DTW (inches)	1.34	1.97	4.86	2.31	2.20	1.30	1.57	5.62	6.28	2.98	2.10	2.16	34.69

Table 9
Downriver Sewage Disposal System
Monthly Incremental Flow Rates Summarized by Community

Community	Sewage Flow Meter Math	Meter District	Year 2010 Incremental Population	January 2016			February 2016			March 2016			April 2016			May 2016			June 2016			Proposed Maximum Allowable Dry Weather Flow Limits for Controlled Flow Communities ¹ (cfs)	Proposed Maximum Allowable Dry Weather Flow Limits for Non-Controlled Flow Communities ² (cfs)
				Total	Dry Weather		Total	Dry Weather		Total	Dry Weather		Total	Dry Weather		Total	Dry Weather		Total	Dry Weather			
				Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)		
Allen Park	3.8%([PC-1]+[CPO]+[CHPO]-[TB-1]) + 23.9%([P-1]+[PM-1]-[P-2]-[PA-2]-[PB-1]-[PD-1]-[PC-1]) + 34.6%([RD-1]-[EC-6]) + ([APO-1] + [APO-2])	PC-1	1,019	0.21	0.19	118	0.22	0.18	112	0.35	0.25	158	0.25	0.22	138	0.24	0.17	109	0.11	0.10	64	-	0.40
		P-1	3,332	0.79	0.74	144	0.81	0.71	137	1.27	0.95	185	1.05	0.94	183	0.91	0.73	142	0.53	0.51	100	-	1.47
		RD-1	18,179	4.80	3.88	138	5.50	3.69	131	9.12	5.91	210	5.97	4.63	165	5.23	3.28	116	2.92	2.61	93	17.20	-
		APO-1 + APO-2	0	0.00	0.00	-	0.00	0.00	-	1.01	0.00	-	0.03	0.00	-	0.00	0.00	-	0.00	0.00	-	-	-
		Total	22,531	5.80	4.81	138	6.54	4.57	131	11.76	7.11	204	7.30	5.79	166	6.37	4.18	120	3.57	3.23	93	-	1.87
Belleville	41.1%[PA-4]	PA-4	3,993	0.82	0.82	132	0.78	0.77	124	1.03	0.91	148	0.99	0.92	150	0.87	0.79	127	0.69	0.68	109	-	1.22
Brownstown Twp.	97.5%[P-2] + 1.8%([PA-2]+[ER-1]-[PA-3]-[ER-2])	P-2	10,397	1.79	1.73	108	1.82	1.60	99	2.62	2.17	135	2.72	2.53	157	2.50	2.28	142	2.10	2.05	127	-	3.65
		PA-2	248	0.04	0.03	88	0.04	0.03	81	0.06	0.04	112	0.05	0.04	113	0.03	0.02	58	0.02	0.02	50	-	0.06
		Total	10,645	1.83	1.77	107	1.86	1.63	99	2.68	2.21	134	2.77	2.58	156	2.53	2.30	140	2.12	2.07	125	-	3.71
Dearborn Hts.	78.2%([TB-1]+[TSO])	TB-1	19,152	4.84	4.40	148	5.05	4.16	140	8.53	6.06	204	6.10	5.17	174	5.50	4.03	136	3.02	2.85	96	-	7.66
Ecorse	71.5%([EC-6]-[RR-1])	EC-6	9,515	1.51	1.41	96	1.85	1.57	107	2.85	2.08	141	2.03	1.91	129	2.05	1.90	129	1.78	1.75	119	9.20	-
Lincoln Park	28.5%([EC-6]-[RR-1]) + 65.4%([RD-1]-[EC-6])	EC-6	3,795	0.60	0.56	96	0.74	0.63	107	1.14	0.83	141	0.81	0.76	129	0.82	0.76	129	0.71	0.70	119	1.90	-
		RD-1	34,347	9.07	7.34	138	10.40	6.97	131	17.24	11.16	210	11.28	8.76	165	9.88	6.19	116	5.52	4.93	93	26.26	-
		Total	38,142	9.67	7.90	134	11.14	7.59	129	18.37	11.99	203	12.09	9.52	161	10.69	6.95	118	6.23	5.63	95	28.16	-
River Rouge	[RR-1]	RR-1	7,903	3.25	2.96	242	3.07	2.48	202	5.30	3.69	301	3.91	3.38	276	3.37	2.67	218	2.11	2.02	165	11.26	-
Riverview	[RV-1]	RV-1	12,486	2.27	1.95	101	2.43	1.81	93	3.82	2.40	124	2.35	1.92	99	2.25	1.70	88	1.51	1.46	75	-	2.66
Romulus	[DMA-1] + ([PA-3]+[ER-2]-[PA-4]-[DMA-1] + [DMA-2] + ([PD-2] - [DMA-2])	DMA-1	0	0.71	0.72	-	0.83	0.78	-	0.81	0.81	-	0.77	0.76	-	0.86	0.89	-	0.88	0.88	-	-	5.96
		PA-3	11,371	3.86	3.75	213	4.00	3.68	209	5.79	5.04	287	5.16	4.76	271	4.49	3.79	216	2.78	2.72	155	-	
		DMA-2	0	1.20	1.16	-	0.86	0.84	-	1.57	0.98	-	2.90	2.78	-	1.72	1.34	-	0.16	0.16	-	-	8.42
		PD-2	9,532	2.89	2.70	183	3.04	2.71	184	4.78	3.62	245	4.19	3.77	256	3.64	2.98	202	2.07	2.01	136	-	
		Total	20,904	8.66	8.33	258	8.72	8.00	247	12.96	10.45	323	13.01	12.08	374	10.71	9.01	278	5.89	5.77	178	-	14.38
Southgate	76.1%([P-1]+[PM-1]-[P-2]-[PA-2]-[PB-1]-[PD-1]-[PC-1]) + 40%[PB-1] + 36.3%([SW]+[SWB]) + 1.4%([P-1]+[PM-1]-[P-2]-[PA-2]-[PB-1]-[PD-1]-[PC-1])	P-1	10,637	2.53	2.37	144	2.59	2.26	137	4.07	3.05	185	3.35	3.01	183	2.90	2.33	142	1.71	1.64	100	-	3.42
		PB-1	4,459	0.59	0.55	80	0.63	0.54	79	0.92	0.69	101	0.69	0.62	90	0.61	0.51	73	0.44	0.43	63	-	1.33
		SW	14,752	6.38	5.31	233	6.44	5.11	224	9.36	7.98	350	8.52	7.66	336	7.20	5.46	239	4.40	3.95	173	11.52	-
		TPS+IPS	199	0.05	0.04	144	0.05	0.04	137	0.08	0.06	185	0.06	0.06	183	0.05	0.04	142	0.03	0.03	100	-	0.06
		Total	30,047	9.54	8.27	178	9.72	7.95	171	14.43	11.78	253	12.63	11.35	244	10.76	8.35	180	6.59	6.05	130	-	4.81
Taylor	2.5%[P-2] + 98.2%([PA-2]+[ER-1]-[PA-3]-[ER-2]) + 60%[PB-1] + 21.8%([TB-1]+[TSO]) + 96.2%([PC-1]+[CPO]+[CHPO]-[TB-1]) + ([PD-1]-[PD-2])	P-2	262	0.05	0.04	108	0.05	0.04	99	0.07	0.05	135	0.07	0.06	157	0.06	0.06	142	0.05	0.05	127	-	0.08
		PA-2	13,270	1.94	1.80	88	1.94	1.67	81	3.18	2.30	112	2.59	2.32	113	1.60	1.20	58	1.05	1.02	50	-	2.24
		PB-1	6,462	0.89	0.83	83	0.95	0.81	81	1.38	1.04	104	1.04	0.93	93	0.91	0.76	76	0.67	0.65	65	-	2.01
		TB-1	5,339	1.35	1.23	148	1.41	1.16	140	2.38	1.69	204	1.70	1.44	174	1.53	1.12	136	0.84	0.80	96	-	2.14
		PC-1	25,700	5.23	4.70	118	5.59	4.46	112	8.76	6.29	158	6.37	5.50	138	6.03	4.35	109	2.79	2.53	64	-	10.29
		PD-1	12,100	3.05	2.89	154	3.16	2.87	153	4.62	3.71	198	3.63	3.33	178	3.34	2.86	153	2.06	2.01	108	-	3.74
		Total	63,131	12.50	11.49	118	13.09	11.02	113	20.38	15.09	154	15.41	13.58	139	13.48	10.35	106	7.46	7.06	72	-	20.50
Van Buren Twp.	58.9%[PA-4]	PA-4	5,719	1.18	1.17	132	1.12	1.10	124	1.47	1.31	148	1.42	1.32	150	1.25	1.13	127	0.98	0.97	109	-	2.21
Wyandotte	63.7%([SW]+[SWB])	SW	25,883	11.19	9.31	233	11.31	8.97	224	16.43	14.01	350	14.95	13.45	336	12.63	9.59	239	7.72	6.92	173	20.21	-
Subtotal Controlled Flow Communities			114,374	36.81	30.78	174	39.31	29.40	166	61.44	45.66	258	47.47	40.54	229	41.17	29.84	169	25.17	22.88	129	97.55	-
Subtotal Non-Controlled Flow Communities			155,677	36.26	33.81	140	37.35	32.20	134	57.55	43.43	180	47.46	42.42	176	41.29	33.08	137	24.50	23.58	98	-	59.02
Total Incoming Flow			270,052	73.07	64.59	155	76.66	61.61	147	120.00	89.09	213	94.95	82.97	199	82.46	62.93	151	49.66	46.45	111	-	-
DWTf Including Recycle (IPS + TPS)			270,052	81.10	71.66	171	82.57	66.26	159	127.04	91.73	220	101.19	88.67	212	87.73	67.52	162	55.87	52.55	126	-	-

Note:

1) Maximum flow limits from the proposed new Downriver Sewage Disposal System Service Agreement (December 4, 2014). These values are specified in the existing service agreement and were adjusted in April 2014 to reflect increases in DWTf capacity, transfers that have occurred between communities and proper conversions from cfs to MGD, consistent significant figures and appropriate rounding.

2) Proposed maximum dry weather flow limits from the proposed new Downriver Sewage Disposal System Service Agreement (December 4, 2014). Values are shown for informational purposes only as agreement on the flow limits has not yet been reached.

3) The maximum flow limit for each community component of Meter District SW is population weighted. Southgate and Wyandotte have maximum flow limits of 7.67 and 24.06 cfs, respectively. Therefore, the combined maximum flow limit is 31.73 cfs. The population weighted maximum flow limit for Southgate and Wyandotte are allocated to be 11.52 and 20.21 cfs, respectively.

4) The meter district flow rates are split into community components based on relative 2010 residential population.

Legend:

XX.XX	Exceeds the maximum flow limit (for the controlled flow communities) or the maximum allowable average daily dry weather flow rate (for the non-controlled flow communities) by 0 to 20%
XX.XX	Exceeds the maximum flow limit (for the controlled flow communities) or the maximum allowable average daily dry weather flow rate (for the non-controlled flow communities) by greater than 20%

Table 9 continued
Downriver Sewage Disposal System
Monthly Incremental Flow Rates Summarized by Community

Community	Sewage Flow Meter Math	Meter District	Year 2010 Incremental Population	July 2016			August 2016			September 2016			October 2016			November 2016			December 2016			Proposed Maximum Allowable Dry Weather Flow Limits for Controlled Flow Communities ¹ (cfs)	Proposed Maximum Allowable Dry Weather Flow Limits for Non-Controlled Flow Communities ² (cfs)
				Total	Dry Weather		Total	Dry Weather		Total	Dry Weather		Total	Dry Weather		Total	Dry Weather		Total	Dry Weather			
				Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)		
Allen Park	3.8%([PC-1]+[CPO]+[CHPO]-[TB-1]) + 23.9%([P-1]+[PM-1]-[P-2]-[PA-2]-[PB-1]-[PD-1]-[PC-1]) + 34.6%([RD-1]-[EC-6]) + ([APO-1] + [APO-2])	PC-1	1,019	0.09	0.09	55	0.16	0.10	66	0.17	0.13	82	0.20	0.15	93	0.19	0.16	99	0.21	0.16	101	-	0.40
		P-1	3,332	0.48	0.47	91	0.63	0.49	94	0.66	0.54	104	0.74	0.60	116	0.73	0.65	127	0.76	0.64	124	-	1.47
		RD-1	18,179	2.63	2.24	80	5.52	2.60	93	4.48	2.68	95	5.08	2.74	98	3.96	2.60	92	4.55	2.87	102	17.20	-
		APO-1 + APO-2	0	0.00	0.00	-	0.21	0.00	-	0.34	0.00	-	0.18	0.00	-	0.00	0.00	-	0.11	0.00	-	-	-
		Total	22,531	3.20	2.80	80	6.52	3.19	92	5.65	3.34	96	6.20	3.49	100	4.89	3.41	98	5.62	3.67	105	-	1.87
Belleville	41.1%[PA-4]	PA-4	3,993	0.58	0.58	93	0.53	0.56	90	0.67	0.64	104	0.75	0.69	111	0.80	0.77	125	0.80	0.76	122	-	1.22
Brownstown Twp.	97.5%[P-2] + 1.8%([PA-2]+[ER-1]-[PA-3]-[ER-2])	P-2	10,397	1.96	1.97	122	2.14	1.94	121	2.03	1.86	116	2.07	1.85	115	2.14	2.02	126	2.11	1.92	119	-	3.65
		PA-2	248	0.02	0.02	49	0.03	0.02	54	0.03	0.02	58	0.03	0.02	62	0.03	0.03	70	0.04	0.03	77	-	0.06
		Total	10,645	1.98	1.99	121	2.17	1.96	119	2.06	1.89	115	2.10	1.87	114	2.17	2.05	125	2.14	1.95	118	-	3.71
Dearborn Hts.	78.2%([TB-1]+[TSO])	TB-1	19,152	2.66	2.58	87	3.74	2.61	88	3.94	2.90	98	4.90	3.51	118	4.34	3.51	118	4.52	3.53	119	-	7.66
Ecorse	71.5%([EC-6]-[RR-1])	EC-6	9,515	1.83	1.80	122	2.07	1.68	114	1.89	1.32	90	1.61	1.31	89	1.46	1.20	81	1.80	1.38	94	9.20	-
Lincoln Park	28.5%([EC-6]-[RR-1]) + 65.4%([RD-1]-[EC-6])	EC-6	3,795	0.73	0.72	122	0.83	0.67	114	0.76	0.53	90	0.64	0.52	89	0.58	0.48	81	0.72	0.55	94	1.90	-
		RD-1	34,347	4.97	4.23	80	10.43	4.92	93	8.46	5.06	95	9.59	5.18	98	7.49	4.91	92	8.60	5.42	102	26.26	-
		Total	38,142	5.70	4.95	84	11.26	5.59	95	9.21	5.58	95	10.23	5.71	97	8.07	5.39	91	9.32	5.97	101	28.16	-
River Rouge	[RR-1]	RR-1	7,903	2.10	1.91	156	4.00	1.88	154	4.07	2.77	226	3.51	2.65	217	2.99	2.48	203	2.79	2.14	175	11.26	-
Riverview	[RV-1]	RV-1	12,486	1.67	1.55	80	2.35	1.53	79	2.49	1.72	89	2.46	1.76	91	2.15	1.71	89	2.62	1.92	99	-	2.66
Romulus	[DMA-1] + ([PA-3]+[ER-2]-[PA-4]-[DMA-1] + [DMA-2] + ([PD-2] - [DMA-2]))	DMA-1	0	0.96	0.96	-	0.98	1.01	-	0.84	0.84	-	0.80	0.80	-	0.72	0.73	-	0.72	0.72	-	-	5.96
		PA-3	11,371	2.32	2.30	131	2.50	2.10	119	2.75	2.48	141	3.19	2.92	166	3.30	3.04	173	3.55	3.13	178	-	
		DMA-2	0	0.17	0.17	-	0.17	0.16	-	0.17	0.16	-	0.17	0.16	-	1.24	1.23	-	0.82	0.73	-	-	8.42
		PD-2	9,532	1.79	1.77	120	2.07	1.80	122	2.23	1.86	126	2.34	2.04	138	2.48	2.20	149	2.36	2.00	135	-	
		Total	20,904	5.23	5.20	161	5.72	5.07	157	5.99	5.34	165	6.50	5.93	183	7.74	7.20	223	7.44	6.57	203	-	14.38
Southgate	76.1%([P-1]+[PM-1]-[P-2]-[PA-2]-[PB-1]-[PD-1]-[PC-1]) + 40%[PB-1] + 36.3%([SW]+[SWB]) + 1.4%([P-1]+[PM-1]-[P-2]-[PA-2]-[PB-1]-[PD-1]-[PC-1])	P-1	10,637	1.53	1.50	91	2.01	1.55	94	2.10	1.72	104	2.36	1.91	116	2.34	2.08	127	2.42	2.03	124	-	3.42
		PB-1	4,459	0.46	0.44	64	0.62	0.48	69	0.63	0.51	75	0.65	0.54	79	0.60	0.54	78	0.64	0.55	80	-	1.33
		SW	14,752	5.47	4.35	191	7.34	4.43	194	6.98	5.72	251	6.81	4.92	216	5.84	4.34	190	5.97	4.19	183	11.52	-
		TPS+IPS	199	0.03	0.03	91	0.04	0.03	94	0.04	0.03	104	0.04	0.04	116	0.04	0.04	127	0.05	0.04	124	-	0.06
		Total	30,047	7.49	6.33	136	10.01	6.48	139	9.75	7.99	172	9.87	7.42	159	8.83	7.00	151	9.08	6.81	146	-	4.81
Taylor	2.5%[P-2] + 98.2%([PA-2]+[ER-1]-[PA-3]-[ER-2]) + 60%[PB-1] + 21.8%([TB-1]+[TSO]) + 96.2%([PC-1]+[CPO]+[CHPO]-[TB-1]) + ([PD-1]-[PD-2])	P-2	262	0.05	0.05	122	0.05	0.05	121	0.05	0.05	116	0.05	0.05	115	0.05	0.05	126	0.05	0.05	119	-	0.08
		PA-2	13,270	1.03	1.01	49	1.37	1.10	54	1.47	1.19	58	1.60	1.27	62	1.63	1.43	70	1.88	1.59	77	-	2.24
		PB-1	6,462	0.69	0.66	66	0.93	0.72	72	0.95	0.77	77	0.98	0.82	82	0.90	0.81	81	0.97	0.82	82	-	2.01
		TB-1	5,339	0.74	0.72	87	1.04	0.73	88	1.10	0.81	98	1.37	0.98	118	1.21	0.98	118	1.26	0.98	119	-	2.14
		PC-1	25,700	2.32	2.20	55	4.05	2.63	66	4.40	3.28	82	5.17	3.69	93	4.78	3.95	99	5.19	4.02	101	-	10.29
		PD-1	12,100	1.90	1.87	100	2.42	2.01	108	2.68	2.40	128	3.10	2.71	145	2.82	2.71	145	2.95	2.62	140	-	3.74
		Total	63,131	6.74	6.51	67	9.87	7.24	74	10.65	8.49	87	12.28	9.51	97	11.40	9.94	102	12.29	10.08	103	-	20.50
Van Buren Twp.	58.9%[PA-4]	PA-4	5,719	0.83	0.83	93	0.77	0.80	90	0.96	0.92	104	1.07	0.98	111	1.15	1.11	125	1.15	1.08	122	-	2.21
Wyandotte	63.7%([SW]+[SWB])	SW	25,883	9.60	7.64	191	12.87	7.77	194	12.25	10.04	251	11.96	8.64	216	10.25	7.61	190	10.48	7.34	183	20.21	-

Subtotal Controlled Flow Communities	114,374	27.33	22.89	129	43.06	23.95	135	38.88	28.11	159	39.20	25.98	147	32.58	23.62	133	34.91	23.89	135	97.55	-
Subtotal Non-Controlled Flow Communities	155,677	22.28	21.76	90	28.60	22.42	93	30.36	24.83	103	34.05	27.49	114	33.65	29.77	124	35.03	29.31	122	-	59.02
Total Incoming Flow	270,052	49.60	44.65	107	71.87	46.36	111	69.58	52.94	127	73.43	53.47	128	66.23	53.38	128	70.05	53.21	127	-	-
DWTF Including Recycle (IPS + TPS)	270,052	56.64	50.68	121	80.88	52.43	125	76.82	57.59	138	81.07	58.08	139	72.79	59.46	142	78.08	57.68	138	-	-

Note:
1) Maximum flow limits from the proposed new Downriver Sewage Disposal System Service Agreement (December 4, 2014). These values are specified in the existing service agreement and were adjusted in April 2014 to reflect increases in DWTF capacity, transfers that have occurred between communities and proper conversions from cfs to MGD, consistent significant figures and appropriate rounding.
2) Proposed maximum dry weather flow limits from the proposed new Downriver Sewage Disposal System Service Agreement (December 4, 2014). Values are shown for informational purposes only as agreement on the flow limits has not yet been reached.
3) The maximum flow limit for each community component of Meter Distict SW is population weighted. Southgate and Wyandotte have maximum flow limits of 7.67 and 24.06 cfs, respectively. Therefore, the combined maximum flow limit is 31.73 cfs. The population weighted maximum flow limit for Southgate and Wyandotte are allocated to be 11.52 and 20.21 cfs, respectively.
4) The meter district flow rates are split into community components based on relative 2010 residential population.

Legend:	
XX.XX	Exceeds the maximum flow limit (for the controlled flow communities) or the maximum allowable average daily dry weather flow rate (for the non-controlled flow communities) by 0 to 20%
XX.XX	Exceeds the maximum flow limit (for the controlled flow communities) or the maximum allowable average daily dry weather flow rate (for the non-controlled flow communities) by greater than 20%

4. 2016 DSDS SYSTEM MONITORING PLAN UPDATES

The DSDS System Monitoring Plan was updated in April 2015, and is available online at <http://www.waynecounty.com/doe/dps-fmd-reference-library.htm>. Modifications to the DSDS System Monitoring Plan which occurred in 2016 are summarized below.

Appendix B presents detailed 2016 flow monitoring data for each meter in the DSDS system monitoring plan and other related information.

Meter System Changes

A new P-2 flow meter was installed in March 2016. The new flow meter is an ADS Model Triton+. The new equipment replaced an Accusonic flow meter that had been in-service for over 10 years and required significant and costly corrective maintenance. The Accusonic meter was kept in-service until September 2016 when it was removed. For clarity in this report, the new ADS flow meter is designated as Meters P-2 (ADS) and the Accusonic flow meter is designated as Meters P-2 (Accusonic). The best available dataset presented in this report is a combination of the Accusonic and ADS meter data.

Dye-Dilution Tests

Dye-dilution tests are used to verify meter accuracy and estimate meter bias. The dye test results were used to adjust the flow meter data to provide more reasonable estimates of flow rates for the meters, meter districts, and communities. Some of the dye tests which occurred in 2013, 2014 and 2015 were used to adjust the data for 2016. The results of these dye tests and meter adjustment factors are shown in Table 10.

Table 10
Downriver Sewage Disposal System
Dye-Dilution Test Summary

Meter	Date	Adjustment Factor	Period Adjustment Factor
DMA-2	9/24/2014	0.86	0.86
EC-6	2/18/2014	0.70	0.70
P-1	9/16/2013	0.99	0.99
PA-1	11/6/2013	0.93	0.93
PA-2	11/4/2013	0.86	0.86
PA-3	11/5/2013	1.00	1.00
PA-4	8/18/2015	0.81	0.81
PB-1	9/18/2014	0.86	0.86
PC-1	9/25/2014	0.93	0.93
PD-1	8/18/2015	0.76	0.76
PD-2	11/26/2013	0.97	0.97
RD-1	9/17/2009	1.14	1.05
	12/14/2009	1.05	
	7/24/2013	1.05	
	9/23/2014	0.96	
RR-1	2/19/2014	0.97	0.97
SW	11/12/2013	1.00 (with sludge accounted for)	1.00
TB-1	11/10/2014	1.05	1.05

5. 2016 PRECIPITATION DATA

Table 11 lists the monthly precipitation at DTW, the departure from normal, and the number of wet/dry days included for each month.

Table 11
Downriver Sewage Disposal System
Dry/Wet Weather Day Count by Month and Monthly Precipitation at DTW for 2016

Month	Number of Dry Weather Days	Number of Wet Weather Days	Monthly Total Precipitation (in)	
			DTW ¹	Departure From Normal ²
January	21	10	1.34	-0.62
February	19	10	1.97	-0.05
March	15	16	4.86	+2.58
April	17	13	2.31	-0.59
May	15	16	2.20	-1.18
June	23	7	1.30	-2.22
July	23	8	1.57	-1.80
August	12	19	5.62	+2.62
September	17	13	6.28	+3.01
October	14	17	2.98	+0.46
November	18	12	2.10	-0.69
December	17	14	2.16	-0.30
Total	211	155	34.69	+1.22

Notes:

1. Detroit Metropolitan Wayne County Airport (DTW)
2. Normal is a period mean computed by the National Climatic Data Center (NCDC) for a National Weather Service (NWS) observing station from a period comprising three consecutive 10-year decadal periods (for example, 1981-2010)

Significant storm events are defined as those with at least 0.5 inches of rainfall occurring on a single day with an event total of at least 1.0 inch of rainfall. Significant storm events are separated by at least 2 consecutive days without precipitation over 0.1 inches. This storm event definition is based on the arithmetic mean of the rainfall recorded by all rain gages used in the analysis for that storm. Major storm events are a subgroup of significant storm events which result in the peak hourly influent flow rate to the DWTF reaching or exceeding 175 MGD (271 cfs).

There were eight significant storm events in 2016. Of these eight events, four were also considered major storm events. The precipitation data for the significant/major storm events are further summarized in Appendix C. None of these events equaled or exceeded the 25-year, 24-hour design storm rainfall total of 4.42 inches on which the DRSTS was based.

A quality assurance (QA) and quality control (QC) review of the Wayne County rain gage data was performed and involved a review of the maintenance logs and a comparison of the recorded precipitation to other nearby rain gages. The maintenance logs identified rain gage issues which were detected during site visits. In almost all cases these issues were resolved during the site visit. In general, when a rain gage had an issue, it recorded zero precipitation. All rain gage data with documented maintenance log issues were flagged.

For the DSDS rain gages, the minimum, average, and maximum recorded annual precipitation for 2016 were 32.51, 35.15, and 38.03 inches, respectively. The annual total precipitation for rain gages R-14 and R-18 were omitted from this summary because they were missing substantial data in January and February 2016. The precipitation data are further summarized in Appendix C.

6. SUMMARY OF 2016 DSDS DRY WEATHER FLOWS

A single set of dry days was used to estimate the dry weather flow rates for all of the meters. The dry weather days were determined by analyzing the daily flow rate traces for meters near the downstream end of the interceptor system. The meters used for this analysis include: [P-1], [PA-1], [PC-1], [EC-6], and [RD-1]. These meters were chosen because they are near the downstream end of the interceptor system, include some dewatering flow rates, and provide a well-defined sort of dry/wet days. Two methods were used for screening out dry and wet weather days using average daily flow rates.

The first method was designed to flag days that exhibited abrupt changes in average daily flow rate from the preceding or following days. This criterion was selected because wet weather events will significantly raise the average daily flow rate when compared to the preceding day. Likewise, the average daily flow rate on the day following a wet weather event will exhibit a decrease as the flow rates subside.

The second method was designed to flag additional wet weather days that were typically found during large, multiple day events that elevated the metered flow rates for a few days. When this happens, the days in the middle of the event are not flagged by the first method because there is no change in the already elevated flow rate. For this method, the average daily flow rate on dry days was constrained to remain below two standard deviations of the two month average flow rate. Any day with a daily average above this was flagged as a wet day. The monitoring period data was analyzed for dry weather days in two month increments: January-February, March-April, May-June, July-August, September-October, and November-December.

7. SUMMARY OF 2016 DSDS WET WEATHER FLOWS

Appendix D contains detailed summary tables and figures for the four major storm events which occurred in 2016. Peak hourly flow rates, peak 96-hour volumes, and peak hydraulic gradelines are tabulated for each meter. For the controlled flow communities, the incremental peak hourly flow rates are summarized by meter district. For the non-controlled flow communities, the peak 96-hour volumes are summarized for each meter district and for each community. In addition, the total 96-hour volumes versus precipitation for both major storm events are compared to the 4.42 inch design event for the non-controlled flow communities.

Controlled Flow Communities

The Riverdrive Interceptor surcharged during all four major storm events. The surcharging at Meters RR-1, EC-6 and RD-1 highlight the exceedence and capacity issues along the Riverdrive Interceptor. Surcharging at Meter SW normally occurs, and is due to backwater from the Influent Pump Station at the DWTF.

There was reverse flow from the DSDS into the SWRDDD system during Major Storm Event C. Reverse flow occurs as hydraulically necessary for emergency operating conditions and/or storms greater than the design storm.

Incremental peak hourly flow rates for Meter EC-6 were determined by routing Meter RR-1 flow rates through the Riverdrive Interceptor to the location of Meter EC-6 using the SWMM5 mini-model. The routed RR-1 flow rates were subtracted from the EC-6 flow rates to get the incremental EC-6 flow rates. RD-1 incremental peak hourly flow rates were determined in the same manner as EC-6 incremental flow rates, using the routed EC-6 flow rates and RD-1 flow rates.

The maximum flow limit for the Southgate-Wyandotte meter district is 31.73 cfs. The total flow rate for the district is the sum of Meters SW and SWB. Meter SW is located on the connection between the Drainage District Number 5 pump station and IPS and carries dry weather flow. Meter SWB is located on the dewatering line from the Southgate-Wyandotte CSO Retention Basin and operates intermittently. The flow rate at Meter SW is typically throttled to a maximum of about 31.73 cfs by a gate at an upstream regulating chamber. This gate uses the raw flow rate data from Meter SW to control the throttling. However, the raw flow rate data from Meter SW does not account for sludge deposits in the pipe. Therefore, the actual flow rate is controlled to about 26 cfs.

Non-Controlled Flow Communities

Surcharging was recorded for three of the four major storm events. For Event A, surcharging was recorded at Meter RV-1 along the Pennsylvania Interceptor. For Event B, surcharging was recorded at Meters P-1 and RV-1 along the Pennsylvania Interceptor, and Meter PC-1 along the Pelham Interceptor. For Event C, surcharging was recorded at Meters P-1 and RV-1 along the Pennsylvania Interceptor. For Event D, no surcharging was recorded.

The peak 96-hour wet weather volumes for the non-controlled flow communities during the significant storm events that occurred in 2016 were estimated using the flow monitoring data set. These volumes were compared to those for the 4.42 inch storm event used in the design of the DRSTS. None of the communities exceeded their allocated peak 96-hour volumes during the major storm events for this 2016 reporting period.

Appendix A

Additional Monthly Summary Tables, 2016 DSDS System Monitoring Plan

Table A-1
Downriver Sewage Disposal System
Incremental Flow Rates Summarized by Meter District with Community Components

Meter District	Community	Year 2010 Incremental Population	Meter District Percentage	January 2016			February 2016			March 2016			April 2016			May 2016			June 2016		
				Total	Dry Weather		Total	Dry Weather		Total	Dry Weather		Total	Dry Weather		Total	Dry Weather		Total	Dry Weather	
				Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)
TB-1	Dearborn Heights	19,152	78.2%	4.84	4.40	148	5.05	4.16	140	8.53	6.06	204	6.10	5.17	174	5.50	4.03	136	3.02	2.85	96
	Taylor	5,339	21.8%	1.35	1.23		1.41	1.16		2.38	1.69		1.70	1.44		1.53	1.12		0.84	0.80	
	Total	24,491	100.0%	6.19	5.62		6.46	5.32		10.90	7.74		7.81	6.61		7.04	5.15		3.87	3.65	
PC-1	Allen Park	1,019	3.8%	0.21	0.19	118	0.22	0.18	112	0.35	0.25	158	0.25	0.22	138	0.24	0.17	109	0.11	0.10	64
	Taylor	25,700	96.2%	5.23	4.70		5.59	4.46		8.76	6.29		6.37	5.50		6.03	4.35		2.79	2.53	
	Total	26,719	100.0%	5.43	4.89		5.81	4.64		9.10	6.54		6.63	5.72		6.27	4.52		2.90	2.63	
DMA-2	Romulus	0	100.0%	1.20	1.16	--	0.86	0.84	--	1.57	0.98	--	2.90	2.78	--	1.72	1.34	--	0.16	0.16	--
PD-2	Romulus	9,532	100.0%	2.89	2.70	183	3.04	2.71	184	4.78	3.62	245	4.19	3.77	256	3.64	2.98	202	2.07	2.01	136
PD-1	Taylor	12,100	100.0%	3.05	2.89	154	3.16	2.87	153	4.62	3.71	198	3.63	3.33	178	3.34	2.86	153	2.06	2.01	108
PB-1 ¹	Taylor	6,462	60.0%	0.89	0.83	83	0.95	0.81	81	1.38	1.04	104	1.04	0.93	93	0.91	0.76	76	0.67	0.65	65
	Southgate	4,459	40.0%	0.59	0.55	80	0.63	0.54	79	0.92	0.69	101	0.69	0.62	90	0.61	0.51	73	0.44	0.43	63
	Total	10,921	100.0%	1.48	1.39	82	1.58	1.35	80	2.30	1.74	103	1.73	1.55	92	1.52	1.27	75	1.11	1.08	64
PA-4	Belleville	3,993	41.1%	0.82	0.82	132	0.78	0.77	124	1.03	0.91	148	0.99	0.92	150	0.87	0.79	127	0.69	0.68	109
	Van Buren Twp	5,719	58.9%	1.18	1.17		1.12	1.10		1.47	1.31		1.42	1.32		1.25	1.13		0.98	0.97	
	Total	9,712	100.0%	2.00	1.99		1.89	1.87		2.50	2.22		2.41	2.25		2.12	1.91		1.67	1.64	
DMA-1	Romulus (Airport)	0	100.0%	0.71	0.72	--	0.83	0.78	--	0.81	0.81	--	0.77	0.76	--	0.86	0.89	--	0.88	0.88	--
PA-3	Romulus	11,371	100.0%	3.86	3.75	213	4.00	3.68	209	5.79	5.04	287	5.16	4.76	271	4.49	3.79	216	2.78	2.72	155
PA-2	Taylor	13,270	98.2%	1.94	1.80	88	1.94	1.67	81	3.18	2.30	112	2.59	2.32	113	1.60	1.20	58	1.05	1.02	50
	Brownstown Twp	248	1.8%	0.04	0.03		0.04	0.03		0.06	0.04		0.05	0.04		0.03	0.02		0.02	0.02	
	Total	13,517	100.0%	1.98	1.84		1.97	1.70		3.24	2.34		2.64	2.37		1.63	1.22		1.07	1.04	
P-2	Brownstown Twp	10,397	97.5%	1.79	1.73	108	1.82	1.60	99	2.62	2.17	135	2.72	2.53	157	2.50	2.28	142	2.10	2.05	127
	Taylor	262	2.5%	0.05	0.04		0.05	0.04		0.07	0.05		0.07	0.06		0.06	0.06		0.05	0.05	
	Total	10,659	100.0%	1.83	1.78		1.87	1.64		2.69	2.22		2.79	2.60		2.56	2.34		2.15	2.10	
P-1	Allen Park	3,332	23.9%	0.79	0.74	144	0.81	0.71	137	1.27	0.95	185	1.05	0.94	183	0.91	0.73	142	0.53	0.51	100
	Southgate	10,637	76.1%	2.53	2.37		2.59	2.26		4.07	3.05		3.35	3.01		2.90	2.33		1.71	1.64	
	Total	13,969	100.0%	3.32	3.11		3.41	2.97		5.34	4.00		4.40	3.95		3.81	3.06		2.24	2.16	
RV-1	Riverview	12,486	100.0%	2.27	1.95	101	2.43	1.81	93	3.82	2.40	124	2.35	1.92	99	2.25	1.70	88	1.51	1.46	75
RR-1	River Rouge	7,903	100.0%	3.25	2.96	242	3.07	2.48	202	5.30	3.69	301	3.91	3.38	276	3.37	2.67	218	2.11	2.02	165
EC-6	Ecorse	9,515	71.5%	1.51	1.41	96	1.85	1.57	107	2.85	2.08	141	2.03	1.91	129	2.05	1.90	129	1.78	1.75	119
	Lincoln Park	3,795	28.5%	0.60	0.56		0.74	0.63		1.14	0.83		0.81	0.76		0.82	0.76		0.71	0.70	
	Total	13,310	100.0%	2.12	1.98		2.59	2.19		3.99	2.90		2.83	2.67		2.87	2.66		2.49	2.44	
RD-1	Allen Park	18,179	34.6%	4.80	3.88	138	5.50	3.69	131	9.12	5.91	210	5.97	4.63	165	5.23	3.28	116	2.92	2.61	93
	Lincoln Park	34,347	65.4%	9.07	7.34		10.40	6.97		17.24	11.16		11.28	8.76		9.88	6.19		5.52	4.93	
	Total	52,526	100.0%	13.87	11.22		15.90	10.66		26.36	17.07		17.25	13.39		15.10	9.47		8.45	7.54	
SW + SWB	Southgate	14,752	36.3%	6.38	5.31	233	6.44	5.11	224	9.36	7.98	350	8.52	7.66	336	7.20	5.46	239	4.40	3.95	173
	Wyandotte	25,883	63.7%	11.19	9.31		11.31	8.97		16.43	14.01		14.95	13.45		12.63	9.59		7.72	6.92	
	Total	40,635	100.0%	17.56	14.62		17.75	14.08		25.80	21.99		23.47	21.11		19.83	15.05		12.13	10.87	
APO-1 + APO-2	Allen Park	0	100.0%	0.00	0.00	--	0.00	0.00	--	1.01	0.00	--	0.03	0.00	--	0.00	0.00	--	0.00	0.00	--
TPS+IPS	Southgate	199	100.0%	0.05	0.04	144	0.05	0.04	137	0.08	0.06	185	0.06	0.06	183	0.05	0.04	142	0.03	0.03	100

Subtotal Controlled Flow Communities	114,374	42.4%	36.81	30.78	174	39.31	29.40	166	61.44	45.66	258	47.47	40.54	229	41.17	29.84	169	25.17	22.88	129
Subtotal Non-Controlled Flow Communities	155,677	57.6%	36.26	33.81	140	37.35	32.20	134	58.56	43.43	180	47.49	42.42	176	41.29	33.08	137	24.50	23.58	98
Total Incoming Flow	270,052	100.0%	73.07	64.59	155	76.66	61.61	147	120.00	89.09	213	94.95	82.97	199	82.46	62.93	151	49.66	46.45	111
DWTF Including Recycle (IPS + TPS)	270,052	100.0%	81.10	71.66	171	82.57	66.26	159	127.04	91.73	220	101.19	88.67	212	87.73	67.52	162	55.87	52.55	126

Notes:

1) PB-1 flow rates were estimated to be 60% Taylor and 40% Southgate of the total Meter PB-1 flow rates.

Table A-1 continued
Downriver Sewage Disposal System
Incremental Flow Rates Summarized by Meter District with Community Components

Meter District	Community	Year 2010 Incremental Population	Meter District Percentage	July 2016			August 2016			September 2016			October 2016			November 2016			December 2016		
				Total	Dry Weather		Total	Dry Weather		Total	Dry Weather		Total	Dry Weather		Total	Dry Weather		Total	Dry Weather	
				Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)
TB-1	Dearborn Heights	19,152	78.2%	2.66	2.58	87	3.74	2.61	88	3.94	2.90	98	4.90	3.51	118	4.34	3.51	118	4.52	3.53	119
	Taylor	5,339	21.8%	0.74	0.72		1.04	0.73		1.10	0.81		1.37	0.98		1.21	0.98		1.26	0.98	
	Total	24,491	100.0%	3.40	3.30		4.78	3.34		5.04	3.71		6.27	4.49		5.55	4.49		5.78	4.52	
PC-1	Allen Park	1,019	3.8%	0.09	0.09	55	0.16	0.10	66	0.17	0.13	82	0.20	0.15	93	0.19	0.16	99	0.21	0.16	101
	Taylor	25,700	96.2%	2.32	2.20		4.05	2.63		4.40	3.28		5.17	3.69		4.78	3.95		5.19	4.02	
	Total	26,719	100.0%	2.41	2.29		4.21	2.74		4.58	3.41		5.37	3.84		4.97	4.11		5.40	4.17	
DMA-2	Romulus	0	100.0%	0.17	0.17	--	0.17	0.16	--	0.17	0.16	--	0.17	0.16	--	1.24	1.23	--	0.82	0.73	--
PD-2	Romulus	9,532	100.0%	1.79	1.77	120	2.07	1.80	122	2.23	1.86	126	2.34	2.04	138	2.48	2.20	149	2.36	2.00	135
PD-1	Taylor	12,100	100.0%	1.90	1.87	100	2.42	2.01	108	2.68	2.40	128	3.10	2.71	145	2.82	2.71	145	2.95	2.62	140
PB-1 ¹	Taylor	6,462	60.0%	0.69	0.66	66	0.93	0.72	72	0.95	0.77	77	0.98	0.82	82	0.90	0.81	81	0.97	0.82	82
	Southgate	4,459	40.0%	0.46	0.44	64	0.62	0.48	69	0.63	0.51	75	0.65	0.54	79	0.60	0.54	78	0.64	0.55	80
	Total	10,921	100.0%	1.16	1.11	66	1.55	1.19	71	1.58	1.29	76	1.64	1.36	81	1.51	1.35	80	1.61	1.37	81
PA-4	Belleville	3,993	41.1%	0.58	0.58	93	0.53	0.56	90	0.67	0.64	104	0.75	0.69	111	0.80	0.77	125	0.80	0.76	122
	Van Buren Twp	5,719	58.9%	0.83	0.83		0.77	0.80		0.96	0.92		1.07	0.98		1.15	1.11		1.15	1.08	
	Total	9,712	100.0%	1.41	1.40		1.30	1.35		1.62	1.57		1.82	1.67		1.94	1.88		1.94	1.84	
DMA-1	Romulus (Airport)	0	100.0%	0.96	0.96	--	0.98	1.01	--	0.84	0.84	--	0.80	0.80	--	0.72	0.73	--	0.72	0.72	--
PA-3	Romulus	11,371	100.0%	2.32	2.30	131	2.50	2.10	119	2.75	2.48	141	3.19	2.92	166	3.30	3.04	173	3.55	3.13	178
PA-2	Taylor	13,270	98.2%	1.03	1.01	49	1.37	1.10	54	1.47	1.19	58	1.60	1.27	62	1.63	1.43	70	1.88	1.59	77
	Brownstown Twp	248	1.8%	0.02	0.02		0.03	0.02		0.03	0.02		0.03	0.02		0.03	0.03		0.04	0.03	
	Total	13,517	100.0%	1.05	1.03		1.40	1.12		1.50	1.21		1.63	1.29		1.66	1.46		1.91	1.62	
P-2	Brownstown Twp	10,397	97.5%	1.96	1.97	122	2.14	1.94	121	2.03	1.86	116	2.07	1.85	115	2.14	2.02	126	2.11	1.92	119
	Taylor	262	2.5%	0.05	0.05		0.05	0.05		0.05	0.05		0.05	0.05		0.05	0.05		0.05	0.05	
	Total	10,659	100.0%	2.01	2.02		2.19	1.99		2.08	1.91		2.12	1.89		2.19	2.08		2.16	1.97	
P-1	Allen Park	3,332	23.9%	0.48	0.47	91	0.63	0.49	94	0.66	0.54	104	0.74	0.60	116	0.73	0.65	127	0.76	0.64	124
	Southgate	10,637	76.1%	1.53	1.50		2.01	1.55		2.10	1.72		2.36	1.91		2.34	2.08		2.42	2.03	
	Total	13,969	100.0%	2.01	1.97		2.64	2.04		2.75	2.26		3.10	2.51		3.07	2.74		3.17	2.67	
RV-1	Riverview	12,486	100.0%	1.67	1.55	80	2.35	1.53	79	2.49	1.72	89	2.46	1.76	91	2.15	1.71	89	2.62	1.92	99
RR-1	River Rouge	7,903	100.0%	2.10	1.91	156	4.00	1.88	154	4.07	2.77	226	3.51	2.65	217	2.99	2.48	203	2.79	2.14	175
EC-6	Ecorse	9,515	71.5%	1.83	1.80	122	2.07	1.68	114	1.89	1.32	90	1.61	1.31	89	1.46	1.20	81	1.80	1.38	94
	Lincoln Park	3,795	28.5%	0.73	0.72		0.83	0.67		0.76	0.53		0.64	0.52		0.58	0.48		0.72	0.55	
	Total	13,310	100.0%	2.56	2.52		2.89	2.35		2.65	1.84		2.25	1.83		2.05	1.67		2.52	1.93	
RD-1	Allen Park	18,179	34.6%	2.63	2.24	80	5.52	2.60	93	4.48	2.68	95	5.08	2.74	98	3.96	2.60	92	4.55	2.87	102
	Lincoln Park	34,347	65.4%	4.97	4.23		10.43	4.92		8.46	5.06		9.59	5.18		7.49	4.91		8.60	5.42	
	Total	52,526	100.0%	7.60	6.47		15.95	7.52		12.93	7.73		14.67	7.93		11.45	7.51		13.15	8.29	
SW + SWB	Southgate	14,752	36.3%	5.47	4.35	191	7.34	4.43	194	6.98	5.72	251	6.81	4.92	216	5.84	4.34	190	5.97	4.19	183
	Wyandotte	25,883	63.7%	9.60	7.64		12.87	7.77		12.25	10.04		11.96	8.64		10.25	7.61		10.48	7.34	
	Total	40,635	100.0%	15.07	11.99		20.21	12.19		19.23	15.77		18.77	13.56		16.09	11.95		16.45	11.53	
APO-1 + APO-2	Allen Park	0	100.0%	0.00	0.00	--	0.21	0.00	--	0.34	0.00	--	0.18	0.00	--	0.00	0.00	--	0.11	0.00	--
TPS+IPS	Southgate	199	100.0%	0.03	0.03	91	0.04	0.03	94	0.04	0.03	104	0.04	0.04	116	0.04	0.04	127	0.05	0.04	124

Subtotal Controlled Flow Communities	114,374	42.4%	27.33	22.89	129	43.06	23.95	135	38.88	28.11	159	39.20	25.98	147	32.58	23.62	133	34.91	23.89	135
Subtotal Non-Controlled Flow Communities	155,677	57.6%	22.28	21.76	90	28.82	22.42	93	30.70	24.83	103	34.23	27.49	114	33.65	29.77	124	35.14	29.31	122
Total Incoming Flow	270,052	100.0%	49.60	44.65	107	71.87	46.36	111	69.58	52.94	127	73.43	53.47	128	66.23	53.38	128	70.05	53.21	127
DWTF Including Recycle (IPS + TPS)	270,052	100.0%	56.64	50.68	121	80.88	52.43	125	76.82	57.59	138	81.07	58.08	139	72.79	59.46	142	78.08	57.68	138

Notes:

1) PB-1 flow rates were estimated to be 60% Taylor and 40% Southgate of the total Meter PB-1 flow rates.

Table A-2
Downriver Sewage Disposal System
Incremental Flow Rates by Meter District

Meter District	Incremental Meter District Formula	Year 2010 Incremental Population	January 2016			February 2016			March 2016			April 2016			May 2016			June 2016		
			Total	Dry Weather		Total	Dry Weather		Total	Dry Weather		Total	Dry Weather		Total	Dry Weather		Total	Dry Weather	
			Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)
TB-1	[TB-1]+[TSO]	24,491	6.19	5.62	148	6.46	5.32	140	10.90	7.74	204	7.81	6.61	174	7.04	5.15	136	3.87	3.65	96
PC-1	[PC-1]+[CPO] +[CHPO]-[TB-1]	26,719	5.43	4.89	118	5.81	4.64	112	9.10	6.54	158	6.63	5.72	138	6.27	4.52	109	2.90	2.63	64
DMA-2	[DMA-2]	0	1.20	1.16	-	0.86	0.84	-	1.57	0.98	-	2.90	2.78	-	1.72	1.34	-	0.16	0.16	-
PD-2	[PD-2] - [DMA-2]	9,532	2.89	2.70	183	3.04	2.71	184	4.78	3.62	245	4.19	3.77	256	3.64	2.98	202	2.07	2.01	136
PD-1	[PD-1]-[PD-2]+[PDO]	12,100	3.05	2.89	154	3.16	2.87	153	4.62	3.71	198	3.63	3.33	178	3.34	2.86	153	2.06	2.01	108
PB-1	[PB-1]	10,921	1.48	1.39	82	1.58	1.35	80	2.30	1.74	103	1.73	1.55	92	1.52	1.27	75	1.11	1.08	64
PA-4	[PA-4]	9,712	2.00	1.99	132	1.89	1.87	124	2.50	2.22	148	2.41	2.25	150	2.12	1.91	127	1.67	1.64	109
DMA-1	[DMA-1]	0	0.71	0.72	-	0.83	0.78	-	0.81	0.81	-	0.77	0.76	-	0.86	0.89	-	0.88	0.88	-
PA-3	[PA-3]+[ER-2] -[PA-4]-[DMA-1]	11,371	3.86	3.75	213	4.00	3.68	209	5.79	5.04	287	5.16	4.76	271	4.49	3.79	216	2.78	2.72	155
PA-2	[PA-2]+[ER-1] -[PA-3]-[ER-2]	13,517	1.98	1.84	88	1.97	1.70	81	3.24	2.34	112	2.64	2.37	113	1.63	1.22	58	1.07	1.04	50
P-2	[P-2]	10,659	1.83	1.78	108	1.87	1.64	99	2.69	2.22	135	2.79	2.60	157	2.56	2.34	142	2.15	2.10	127
P-1	[P-1]+[PM-1]-[P-2] -[PA-2]-[PB-1]-[PD-1]-[PC-1]	13,969	3.32	3.11	144	3.41	2.97	137	5.34	4.00	185	4.40	3.95	183	3.81	3.06	142	2.24	2.16	100
RV-1	[RV-1]	12,486	2.27	1.95	101	2.43	1.81	93	3.82	2.40	124	2.35	1.92	99	2.25	1.70	88	1.51	1.46	75
RR-1	[RR-1]	7,903	3.25	2.96	242	3.07	2.48	202	5.30	3.69	301	3.91	3.38	276	3.37	2.67	218	2.11	2.02	165
EC-6	[EC-6]-[RR-1]	13,310	2.12	1.98	96	2.59	2.19	107	3.99	2.90	141	2.83	2.67	129	2.87	2.66	129	2.49	2.44	119
RD-1	[RD-1]-[EC-6]	52,526	13.87	11.22	138	15.90	10.66	131	26.36	17.07	210	17.25	13.39	165	15.10	9.47	116	8.45	7.54	93
APO-1 + APO-2	[APO-1]+[APO-2]	0	0.00	0.00	-	0.00	0.00	-	1.01	0.00	-	0.03	0.00	-	0.00	0.00	-	0.00	0.00	-
SW+SWB	[SW]+[SWB]	40,635	17.56	14.62	233	17.75	14.08	224	25.80	21.99	350	23.47	21.11	336	19.83	15.05	239	12.13	10.87	173
TPS+IPS ¹	Population Ratio of Meter District P-1	199	0.05	0.04	144	0.05	0.04	137	0.08	0.06	185	0.06	0.06	183	0.05	0.04	142	0.03	0.03	100

Notes:

1) ([TPS+IPS] Inc. Flow Rate) = (TPS-IPS Inc. Pop. / P-1 Inc. Pop.) x ([P-1] Inc. Flow Rate)

Table A-2 continued
Downriver Sewage Disposal System
Incremental Flow Rates by Meter District

Meter District	Incremental Meter District Formula	Year 2010 Incremental Population	July 2016			August 2016			September 2016			October 2016			November 2016			December 2016		
			Total	Dry Weather		Total	Dry Weather		Total	Dry Weather		Total	Dry Weather		Total	Dry Weather		Total	Dry Weather	
			Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)
TB-1	[TB-1]+[TSO]	24,491	3.40	3.30	87	4.78	3.34	88	5.04	3.71	98	6.27	4.49	118	5.55	4.49	118	5.78	4.52	119
PC-1	[PC-1]+[CPO] +[CHPO]-[TB-1]	26,719	2.41	2.29	55	4.21	2.74	66	4.58	3.41	82	5.37	3.84	93	4.97	4.11	99	5.40	4.17	101
DMA-2	[DMA-2]	0	0.17	0.17	-	0.17	0.16	-	0.17	0.16	-	0.17	0.16	-	1.24	1.23	-	0.82	0.73	-
PD-2	[PD-2] - [DMA-2]	9,532	1.79	1.77	120	2.07	1.80	122	2.23	1.86	126	2.34	2.04	138	2.48	2.20	149	2.36	2.00	135
PD-1	[PD-1]-[PD-2]+[PDO]	12,100	1.90	1.87	100	2.42	2.01	108	2.68	2.40	128	3.10	2.71	145	2.82	2.71	145	2.95	2.62	140
PB-1	[PB-1]	10,921	1.16	1.11	66	1.55	1.19	71	1.58	1.29	76	1.64	1.36	81	1.51	1.35	80	1.61	1.37	81
PA-4	[PA-4]	9,712	1.41	1.40	93	1.30	1.35	90	1.62	1.57	104	1.82	1.67	111	1.94	1.88	125	1.94	1.84	122
DMA-1	[DMA-1]	0	0.96	0.96	-	0.98	1.01	-	0.84	0.84	-	0.80	0.80	-	0.72	0.73	-	0.72	0.72	-
PA-3	[PA-3]+[ER-2] -[PA-4]-[DMA-1]	11,371	2.32	2.30	131	2.50	2.10	119	2.75	2.48	141	3.19	2.92	166	3.30	3.04	173	3.55	3.13	178
PA-2	[PA-2]+[ER-1] -[PA-3]-[ER-2]	13,517	1.05	1.03	49	1.40	1.12	54	1.50	1.21	58	1.63	1.29	62	1.66	1.46	70	1.91	1.62	77
P-2	[P-2]	10,659	2.01	2.02	122	2.19	1.99	121	2.08	1.91	116	2.12	1.89	115	2.19	2.08	126	2.16	1.97	119
P-1	[P-1]+[PM-1]-[P-2] -[PA-2]-[PB-1]-[PD-1]-[PC-1]	13,969	2.01	1.97	91	2.64	2.04	94	2.75	2.26	104	3.10	2.51	116	3.07	2.74	127	3.17	2.67	124
RV-1	[RV-1]	12,486	1.67	1.55	80	2.35	1.53	79	2.49	1.72	89	2.46	1.76	91	2.15	1.71	89	2.62	1.92	99
RR-1	[RR-1]	7,903	2.10	1.91	156	4.00	1.88	154	4.07	2.77	226	3.51	2.65	217	2.99	2.48	203	2.79	2.14	175
EC-6	[EC-6]-[RR-1]	13,310	2.56	2.52	122	2.89	2.35	114	2.65	1.84	90	2.25	1.83	89	2.05	1.67	81	2.52	1.93	94
RD-1	[RD-1]-[EC-6]	52,526	7.60	6.47	80	15.95	7.52	93	12.93	7.73	95	14.67	7.93	98	11.45	7.51	92	13.15	8.29	102
APO-1 + APO-2	[APO-1]+[APO-2]	0	0.00	0.00	-	0.21	0.00	-	0.34	0.00	-	0.18	0.00	-	0.00	0.00	-	0.11	0.00	-
SW+SWB	[SW]+[SWB]	40,635	15.07	11.99	191	20.21	12.19	194	19.23	15.77	251	18.77	13.56	216	16.09	11.95	190	16.45	11.53	183
TPS+IPS ¹	Population Ratio of Meter District P-1	199	0.03	0.03	91	0.04	0.03	94	0.04	0.03	104	0.04	0.04	116	0.04	0.04	127	0.05	0.04	124

Notes:

1) ([TPS+IPS] Inc. Flow Rate) = (TPS-IPS Inc. Pop. / P-1 Inc. Pop.) x ([P-1] Inc. Flow Rate)

Table A-3
Downriver Sewage Disposal System
Monthly Flow Rates by Meter for 2016

System	Meter	Location	Year 2010 Cumulative Population	Average Flow Rates (cfs)												
				January	February	March	April	May	June	July	August	September	October	November	December	Average Annual
Tunnel (Non-Controlled)	TB-1	Taylor Basin	24,491	6.19	6.45	10.90	7.81	7.04	3.87	3.40	4.78	5.04	6.27	5.54	5.78	6.09
	PC-1	Pelham Interceptor North of Goddard Road	51,210	11.59	12.15	18.65	14.37	13.22	6.76	5.81	8.83	9.47	11.61	10.48	11.07	11.17
	DTW Pond 3 West	Detroit Metro Airport	0	1.33	0.60	1.74	3.27	2.03	0.00	0.00	0.00	0.00	0.00	1.44	0.89	0.94
	DMA-2	Detroit Metro Airport	0	1.20	0.86	1.57	2.90	1.72	0.16	0.17	0.17	0.17	0.17	1.24	0.82	0.93
	PD-2	Goddard Interceptor West of Inkster Road	9,532	4.08	3.90	6.36	7.08	5.36	2.23	1.96	2.24	2.39	2.52	3.72	3.18	3.75
	PD-1	Goddard Interceptor West of Allen Road	21,632	7.13	7.06	10.98	10.71	8.70	4.29	3.86	4.66	5.08	5.62	6.55	6.13	6.73
	PB-1	Northline Interceptor West of Fordline Road	10,921	1.48	1.58	2.30	1.73	1.52	1.11	1.16	1.55	1.58	1.64	1.51	1.61	1.56
	PA-4	Eureka Interceptor near Hannan Road	9,712	2.00	1.89	2.50	2.41	2.12	1.67	1.41	1.30	1.62	1.82	1.94	1.94	1.89
	DMA-1	Detroit Metro Airport Connection to the Eureka Interceptor	0	0.71	0.83	0.81	0.77	0.86	0.88	0.96	0.98	0.84	0.80	0.72	0.72	0.82
	PA-3	Eureka Interceptor at Inkster Road	21,084	6.58	6.72	9.05	8.33	7.46	5.33	4.68	4.78	5.22	5.80	5.96	6.21	6.34
	PA-2	Eureka Interceptor at Allen Road	34,601	8.55	8.69	12.21	10.92	9.09	6.40	5.73	6.17	6.71	7.44	7.62	8.11	8.14
	PA-1	Eureka Interceptor West of Fordline Road	38,730	9.35	9.79	14.85	12.34	10.82	7.12	6.45	7.37	7.90	8.84	9.27	10.50	9.55
	P-2 ¹	Pennsylvania Interceptor East of Dix-Toledo Road	10,659	1.83	1.87	2.69	2.79	2.56	2.15	2.01	2.19	2.08	2.12	2.19	2.16	2.22
	P-1 ²	Pennsylvania Interceptor East of Fort Street	142,992	33.91	34.75	52.17	44.93	38.90	22.95	20.58	25.98	27.67	31.52	31.41	32.25	33.09
	RV-1	Pennsylvania Interceptor West of Jefferson Avenue	12,486	2.27	2.43	3.82	2.35	2.25	1.51	1.67	2.35	2.49	2.46	2.15	2.62	2.37
Riverdrive (Controlled)	RR-1	River Rouge CSO Basin Outlet	7,903	3.25	3.07	5.30	3.91	3.37	2.11	2.10	4.00	4.07	3.51	2.99	2.79	3.38
	EC-6	Riverdrive Interceptor South of Southfield Road	21,213	5.37	5.66	9.29	6.75	6.24	4.60	4.66	6.89	6.72	5.76	5.04	5.32	6.03
	RD-1	Riverdrive Interceptor North of Northline Road	73,739	19.24	21.56	35.64	23.99	21.34	13.04	12.26	22.84	19.65	20.43	16.49	18.47	20.43
	SW	On Southgate-Wyandotte Connection	40,635	16.27	16.45	24.27	21.90	18.33	11.67	13.36	17.21	17.88	16.71	14.57	15.13	16.99
	SWB	Southgate-Wyandotte Basin	0	1.30	1.30	1.53	1.57	1.50	0.46	1.70	3.00	1.35	2.06	1.52	1.31	1.56
Tunnel Connection Meters	TSO	Connection to Tunnel at Pelham Basin	0	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	APO-1	Allen Park Connection to Tunnel at Belmont and Rosedale Road	0	0.00	0.00	0.15	0.00	0.00	0.00	0.00	0.09	0.06	0.02	0.00	0.02	0.03
	APO-2	Allen Park Connection to Tunnel at Belmont and Quandt Road	0	0.00	0.00	0.86	0.03	0.00	0.00	0.00	0.12	0.29	0.15	0.00	0.09	0.13
	CHPO	Pelham Interceptor Connection to Tunnel North of Haskell Road	0	0.03	0.11	1.19	0.06	0.07	0.00	0.00	0.09	0.13	0.03	0.04	0.09	0.15
	CPO	Pelham Interceptor Connection to Tunnel South of R.R.	0	0.00	0.00	0.16	0.00	0.02	0.00	0.00	0.07	0.02	0.00	0.00	0.02	0.02
	PDO	Goddard Interceptor Connection to Tunnel at Allen Road	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	ER-2	Eureka Relief Sewer Extention Connection to Tunnel at Inkster Road	0	0.00	0.00	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	ER-1	Eureka Relief Sewer Connection to Tunnel at Allen Road	0	0.00	0.00	0.12	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
	PM-1	Pennsylvania Interceptor Connection to Tunnel at Fordline Road	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.01
DWTF	P-1+RD-1+RV-1+SW+SWB +Tunnel Connections	End of Interceptor System Meters	269,853	73.02	76.62	119.93	94.89	82.40	49.63	49.57	71.84	69.54	73.38	66.19	70.01	74.79
	IPS+TPS	DWTF	270,052	81.10	82.57	127.04	101.19	87.73	55.87	56.64	80.88	76.82	81.07	72.79	78.08	81.86

Notes:

1) Meter P-2 (Accusonic) data was used for January through March 2016. Meter P-2 (ADS) data was used for April through December 2016.

2) [P-1] = [P-2] + [PA-2] + [PB-1] + [PC-1] + [PD-1] + (P-1 Inc. Pop. / (P-2 Cum. Pop. + PA-2 Cum. Pop. + PB-1 Cum. Pop. + PC-1 Cum. Pop. + PD-1 Cum. Pop.)) x ([P-2] + [PA-2] + [PB-1] + [PC-1] + [PD-1] + [TSO] + [CPO] + [CHPO] + [PDO] + [APO-1] + [APO-2] + [ER-1])

Table A-4
Downriver Sewage Disposal System
Average Flow Rates by Meter

System	Meter	Year 2010 Cumulative Population	January 2016			February 2016			March 2016			April 2016			May 2016			June 2016		
			Total	Dry Weather		Total	Dry Weather		Total	Dry Weather		Total	Dry Weather		Total	Dry Weather		Total	Dry Weather	
			Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)
Tunnel (Non-Controlled)	TB-1	24,491	6.19	5.62	148	6.45	5.32	140	10.90	7.74	204	7.81	6.61	174	7.04	5.15	136	3.87	3.65	96
	PC-1	51,210	11.59	10.51	133	12.15	9.96	126	18.65	14.28	180	14.37	12.33	156	13.22	9.67	122	6.76	6.28	79
	DTW Pond 3 West	0	1.33	1.27	-	0.60	0.60	-	1.74	1.02	-	3.27	3.07	-	2.03	1.58	-	0.00	0.00	-
	DMA-2	0	1.20	1.16	-	0.86	0.84	-	1.57	0.98	-	2.90	2.78	-	1.72	1.34	-	0.16	0.16	-
	PD-2	9,532	4.08	3.86	262	3.90	3.54	240	6.36	4.60	312	7.08	6.55	444	5.36	4.32	293	2.23	2.17	147
	PD-1	21,632	7.13	6.75	202	7.06	6.41	192	10.98	8.31	248	10.71	9.88	295	8.70	7.18	215	4.29	4.18	125
	PB-1	10,921	1.48	1.39	82	1.58	1.35	80	2.30	1.74	103	1.73	1.55	92	1.52	1.27	75	1.11	1.08	64
	PA-4	9,712	2.00	1.99	132	1.89	1.87	124	2.50	2.22	148	2.41	2.25	150	2.12	1.91	127	1.67	1.64	109
	DMA-1	0	0.71	0.72	-	0.83	0.78	-	0.81	0.81	-	0.77	0.76	-	0.86	0.89	-	0.88	0.88	-
	PA-3	21,084	6.58	6.46	198	6.72	6.32	194	9.05	8.08	248	8.33	7.78	238	7.46	6.60	202	5.33	5.24	161
	PA-2	34,601	8.55	8.29	155	8.69	8.02	150	12.21	10.42	195	10.92	10.14	189	9.09	7.82	146	6.40	6.29	117
	PA-1	38,730	9.35	8.86	148	9.79	8.52	142	14.85	12.57	210	12.34	11.03	184	10.82	8.79	147	7.12	6.97	116
	P-2 ¹	10,659	1.83	1.78	108	1.87	1.64	99	2.69	2.22	135	2.79	2.60	157	2.56	2.34	142	2.15	2.10	127
	P-1 ²	142,992	33.91	31.82	144	34.75	30.36	137	52.17	40.97	185	44.93	40.45	183	38.90	31.34	142	22.95	22.09	100
	RV-1	12,486	2.27	1.95	101	2.43	1.81	93	3.82	2.40	124	2.35	1.92	99	2.25	1.70	88	1.51	1.46	75
Riverdrive (Controlled)	RR-1	7,903	3.25	2.96	242	3.07	2.48	202	5.30	3.69	301	3.91	3.38	276	3.37	2.67	218	2.11	2.02	165
	EC-6	21,213	5.37	4.94	150	5.66	4.67	142	9.29	6.59	201	6.75	6.05	184	6.24	5.33	162	4.60	4.46	136
	RD-1	73,739	19.24	16.15	142	21.56	15.33	134	35.64	23.66	207	23.99	19.44	170	21.34	14.79	130	13.04	12.00	105
	SW (with sludge depth)	40,635	16.27	14.06	224	16.45	12.89	205	24.27	21.43	341	21.90	19.06	303	18.33	14.11	224	11.67	10.84	172
	SWB	0	1.30	0.56	-	1.30	1.18	-	1.53	0.56	-	1.57	2.05	-	1.50	0.94	-	0.46	0.03	-
Tunnel Connection Meters	TSO	0	0.01	0.00	-	0.00	0.00	-	0.01	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-
	APO-1	0	0.00	0.00	-	0.00	0.00	-	0.15	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-
	APO-2	0	0.00	0.00	-	0.00	0.00	-	0.86	0.00	-	0.03	0.00	-	0.00	0.00	-	0.00	0.00	-
	CHPO	0	0.03	0.00	-	0.11	0.00	-	1.19	0.00	-	0.06	0.00	-	0.07	0.00	-	0.00	0.00	-
	CPO	0	0.00	0.00	-	0.00	0.00	-	0.16	0.00	-	0.00	0.00	-	0.02	0.00	-	0.00	0.00	-
	PDO	0	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-
	ER-2	0	0.00	0.00	-	0.00	0.00	-	0.04	0.00	-	0.01	0.00	-	0.00	0.00	-	0.00	0.00	-
	ER-1	0	0.00	0.00	-	0.00	0.00	-	0.12	0.00	-	0.05	0.00	-	0.00	0.00	-	0.00	0.00	-
	PM-1	0	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-
	Total	0	0.04	0.00	-	0.12	0.00	-	2.50	0.00	-	0.14	0.00	-	0.09	0.00	-	0.00	0.00	-
DWTf	P-1+RV-1+RD-1+SW+SWB +Tunnel Connections	269,853	73.02	64.54	155	76.62	61.56	147	119.93	89.03	213	94.89	82.91	199	82.40	62.88	151	49.63	46.42	111
	IPS+TPS	270,052	81.10	71.66	171	82.57	66.26	159	127.04	91.73	220	101.19	88.67	212	87.73	67.52	162	55.87	52.55	126

Notes:

- 1) Meter P-2 (Accusonic) data was used for January through March 2016. Meter P-2 (ADS) data was used for April through December 2016.
- 2) [P-1] = [P-2] + [PA-2] + [PB-1] + [PC-1] + [PD-1] + (P-1 Inc. Pop. / (P-2 Cum. Pop. + PA-2 Cum. Pop. + PB-1 Cum. Pop. + PC-1 Cum. Pop. + PD-1 Cum. Pop.)) x ([P-2] + [PA-2] + [PB-1] + [PC-1] + [PD-1] + [TSO] + [CPO] + [CHPO] + [PDO] + [APO-1] + [APO-2] + [ER-1])

Table A-4 continued
Downriver Sewage Disposal System
Average Flow Rates by Meter

System	Meter	Year 2010 Cumulative Population	July 2016			August 2016			September 2016			October 2016			November 2016			December 2016		
			Total	Dry Weather		Total	Dry Weather		Total	Dry Weather		Total	Dry Weather		Total	Dry Weather		Total	Dry Weather	
			Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)	Average Daily Flow Rate (cfs)	Average Daily Flow Rate (cfs)	Average Per Capita Flow Rate (gpcd)
Tunnel (Non-Controlled)	TB-1	24,491	3.40	3.30	87	4.78	3.34	88	5.04	3.71	98	6.27	4.49	118	5.54	4.49	118	5.78	4.52	119
	PC-1	51,210	5.81	5.58	70	8.83	6.08	77	9.47	7.12	90	11.61	8.33	105	10.48	8.60	108	11.07	8.69	110
	DTW Pond 3 West	0	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-	1.44	1.31	-	0.89	0.78	-
	DMA-2	0	0.17	0.17	-	0.17	0.16	-	0.17	0.16	-	0.17	0.16	-	1.24	1.23	-	0.82	0.73	-
	PD-2	9,532	1.96	1.94	131	2.24	1.96	133	2.39	2.02	137	2.52	2.20	149	3.72	3.43	232	3.18	2.73	185
	PD-1	21,632	3.86	3.81	114	4.66	3.98	119	5.08	4.42	132	5.62	4.92	147	6.55	6.14	183	6.13	5.35	160
	PB-1	10,921	1.16	1.11	66	1.55	1.19	71	1.58	1.29	76	1.64	1.36	81	1.51	1.35	80	1.61	1.37	81
	PA-4	9,712	1.41	1.40	93	1.30	1.35	90	1.62	1.57	104	1.82	1.67	111	1.94	1.88	125	1.94	1.84	122
	DMA-1	0	0.96	0.96	-	0.98	1.01	-	0.84	0.84	-	0.80	0.80	-	0.72	0.73	-	0.72	0.72	-
	PA-3	21,084	4.68	4.67	143	4.78	4.46	137	5.22	4.89	150	5.80	5.39	165	5.96	5.66	173	6.21	5.68	174
	PA-2	34,601	5.73	5.69	106	6.17	5.58	104	6.71	6.10	114	7.44	6.68	125	7.62	7.12	133	8.11	7.30	136
	PA-1	38,730	6.45	6.35	106	7.37	6.22	104	7.90	6.79	113	8.84	7.37	123	9.27	8.38	140	10.50	9.32	155
	P-2 ¹	10,659	2.01	2.02	122	2.19	1.99	121	2.08	1.91	116	2.12	1.89	115	2.19	2.08	126	2.16	1.97	119
	P-1 ²	142,992	20.58	20.18	91	25.98	20.86	94	27.67	23.09	104	31.52	25.69	116	31.41	28.01	127	32.25	27.35	124
	RV-1	12,486	1.67	1.55	80	2.35	1.53	79	2.49	1.72	89	2.46	1.76	91	2.15	1.71	89	2.62	1.92	99
Riverdrive (Controlled)	RR-1	7,903	2.10	1.91	156	4.00	1.88	154	4.07	2.77	226	3.51	2.65	217	2.99	2.48	203	2.79	2.14	175
	EC-6	21,213	4.66	4.43	135	6.89	4.23	129	6.72	4.61	141	5.76	4.49	137	5.04	4.15	126	5.32	4.08	124
	RD-1	73,739	12.26	10.90	96	22.84	11.75	103	19.65	12.34	108	20.43	12.41	109	16.49	11.67	102	18.47	12.36	108
	SW (with sludge depth)	40,635	13.36	11.67	186	17.21	12.14	193	17.88	14.57	232	16.71	12.67	202	14.57	11.46	182	15.13	11.38	181
	SWB	0	1.70	0.33	-	3.00	0.06	-	1.35	1.20	-	2.06	0.89	-	1.52	0.49	-	1.31	0.15	-
Tunnel Connection Meters	TSO	0	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-
	APO-1	0	0.00	0.00	-	0.09	0.00	-	0.06	0.00	-	0.02	0.00	-	0.00	0.00	-	0.02	0.00	-
	APO-2	0	0.00	0.00	-	0.12	0.00	-	0.29	0.00	-	0.15	0.00	-	0.00	0.00	-	0.09	0.00	-
	CHPO	0	0.00	0.00	-	0.09	0.00	-	0.13	0.00	-	0.03	0.00	-	0.04	0.00	-	0.09	0.00	-
	CPO	0	0.00	0.00	-	0.07	0.00	-	0.02	0.00	-	0.00	0.00	-	0.00	0.00	-	0.02	0.00	-
	PDO	0	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-
	ER-2	0	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-
	ER-1	0	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-
	PM-1	0	0.00	0.00	-	0.07	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-
	Total	0	0.00	0.00	-	0.45	0.00	-	0.50	0.00	-	0.21	0.00	-	0.05	0.00	-	0.23	0.00	-
DWTf	P-1+RV-1+RD-1+SW+SWB +Tunnel Connections	269,853	49.57	44.62	107	71.84	46.33	111	69.54	52.91	127	73.38	53.43	128	66.19	53.35	128	70.01	53.17	127
	IPS+TPS	270,052	56.64	50.68	121	80.88	52.43	125	76.82	57.59	138	81.07	58.08	139	72.79	59.46	142	78.08	57.68	138

Notes:

- 1) Meter P-2 (Accusonic) data was used for January through March 2016. Meter P-2 (ADS) data was used for April through December 2016.
- 2) [P-1] = [P-2] + [PA-2] + [PB-1] + [PC-1] + [PD-1] + (P-1 Inc. Pop. / (P-2 Cum. Pop. + PA-2 Cum. Pop. + PB-1 Cum. Pop. + PC-1 Cum. Pop. + PD-1 Cum. Pop.)) x ([P-2] + [PA-2] + [PB-1] + [PC-1] + [PD-1] + [TSO] + [CPO] + [CHPO] + [PDO] + [APO-1] + [APO-2] + [ER-1])

Appendix B

Data Summaries for 2016 DSDS Meters

METER DATA SUMMARY

This appendix summarizes the DSDS flow monitoring data for 2016, provides average daily flow rate plots for each meter, and includes charts detailing data and meter maintenance issues that occurred during 2016. The flow monitoring data were reviewed and edited as summarized on Table B-1.

Data for each DSDS meter was carried through the analysis with the following exceptions:

- The incremental flow rates for Meter TPS + IPS and P-1 districts cannot be confidently and accurately calculated because they are too small relative to the total flow rate. Therefore, the incremental flow rates for the Meter TPS+IPS and P-1 districts were estimated using a ratio of each district's incremental population to the cumulative population of the upstream meters (Meters PC-1, PD-1, PB-1, PA-2 and P-2) multiplied by the sum of the cumulative district flow rates for Meters PC-1, PD-1, PB-1, PA-2 and P-2.
- Meter PD-1 (ADS) was installed in March 2015 and dye dilution tested in August 2015. The dye dilution test was conducted during a period of very low flow. The dye dilution adjustment factor is correct during periods of low flow, but it is suspected that Meter PD-1 (ADS) underestimates the flow rate during periods of high flow. A high flow rate dye test has been attempted but was not successful due to high dye interference from the wastewater (absorbance and fluorophores). Conditions will be monitored and a high flow rate dye test will be performed, if possible. A rating curve that is supported by dye test flow rates and metered depths was developed and used to estimate the flow rates from January 1, 2016 through May 29, 2016 when flows rates from Meter DMA-2 were high due to Wayne County Airport Authority (WCAA) Pond 3 West glycol dewatering.
- Overflows to the DRSTS were calculated using the level sensor data and the previously developed ratings curves except for Meter TSO. The flow rates calculated with the area-velocity measurements were used for Meter TSO.

Figure B-1
Downriver Sewage Disposal System
2016 Data Flags

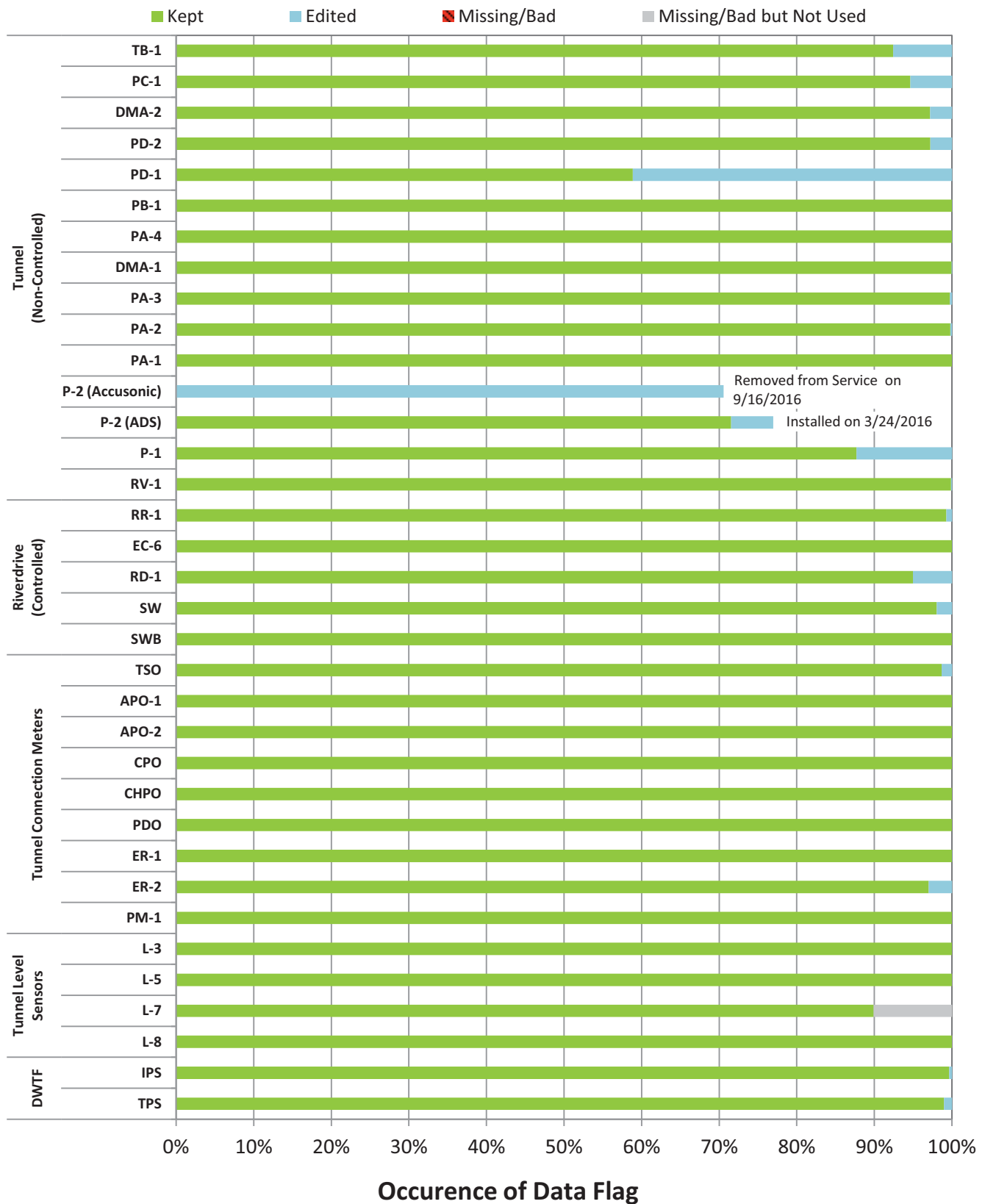


Table B-1
Downriver Sewage Disposal System
Meter Data Review and Fixes for 2016

Meter	Start	Stop	Description of the Problem	Dry Period	Wet Period	Fix
CPO	4/18/2016	4/25/2016	The Telog power supply failed.	X	X	A new power supply was installed at this location. The flow rate was assumed to be zero during this period.
DMA-2	10/10/2016	10/20/2016	Meter locked up.	X		Meter was replaced. Diurnal pattern.
ER-2	8/1/2016	8/12/2016	Meter had communication issues. Missing data was not recoverable during site visit.	X		The flow meter was replaced. Zero flow rate assumed for this period.
L-7	8/23/2016	8/27/2016	No data.	X		No fix.
	11/17/2016	12/20/2016	Meter failed.	X	X	Pulled the electronics to test. Replaced electronics on existing sensor.
P-1	5/12/2016	5/25/2016	Velocity path 1 had erratic readings.	X	X	Rating curve to depth. MCS cleaned the velocity sensors.
	9/11/2016	9/28/2016	Velocity path 1 had erratic readings. Black stringy elastic material hung up on meter. Velocity versus depth relationship deviated from rating curve of known good data.	X	X	Black stringy elastic material manually cleaned from meter. Rating curve to depth.
	11/1/2016	11/1/2016	Velocity path 1 had erratic readings.	X		Rating curve to depth.
	11/5/2016	11/5/2016		X		
	11/6/2016	11/6/2016		X		
	11/16/2016	11/16/2016		X		
	11/18/2016	11/18/2016		X		
	11/30/2016	11/30/2016		X		
P-2 (Accusonic)	1/1/2016	9/16/2016	Velocity path 1 is no longer functioning.	X	X	Rating curve to depth.
P-2 (ADS)	10/8/2016	10/18/2016	Meter locked up preventing data storage.	X		Meter was replaced. Diurnal pattern.
	12/3/2016	12/13/2016		X		
PC-1	5/17/2016	5/21/2016	Velocity path 1 had erratic readings.	X		Rating curve to depth. MCS cleaned the velocity sensors.
	7/2/2016	7/18/2016		X	X	
PD-1	1/1/2016	5/29/2016	The dye dilution test adjustment factor is not applicable when flow rates are high.	X	X	Rating curve to depth.
PD-2	5/7/2016	5/17/2016	Power to the meter was lost. When the power was restored, the meter did not reset itself.	X	X	Correlation to Meters PD-1 and DMA-2. MCS reset the meter.
PDO	4/11/2016	4/18/2016	The UPS failed.	X	X	A new UPS was installed at this location. The flow rate was assumed to be zero during this period.
RD-1	1/30/2016	2/16/2016	Data log was corrupted.	X	X	Meter was reprogrammed and the datalog was restarted. Correlation to Meter EC-6.
TB-1	1/6/2016	1/14/2016	SCADA system down.	X	X	Correlation to Meter PC-1.
TPS	11/11/2016	11/14/2016	Erroneous flow rate.	X		Set flow rate equal to zero.
TSO	2/11/2016	2/14/2016	Meter locked up.	X		The flow rate was assumed to be zero during this dry weather period. Meters firmwatre was upgraded.

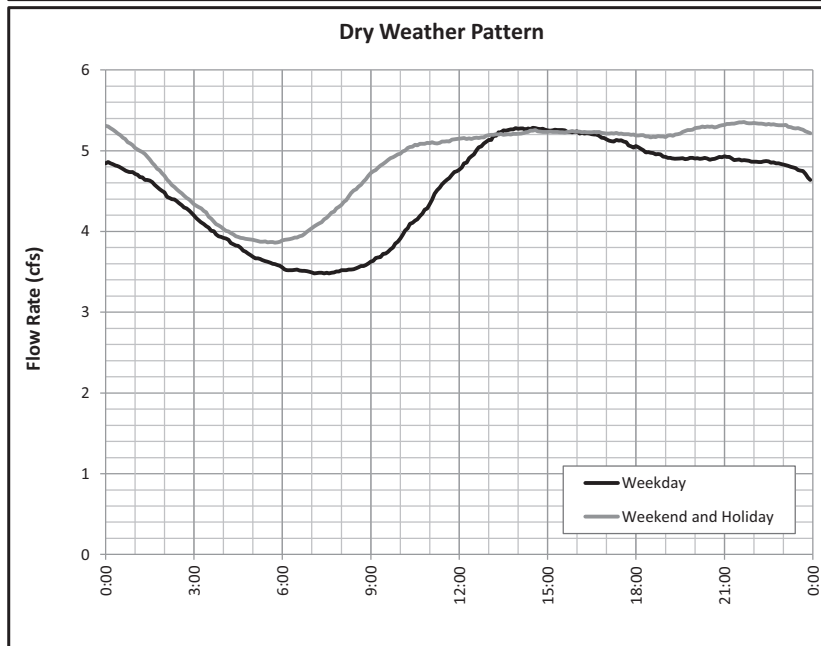
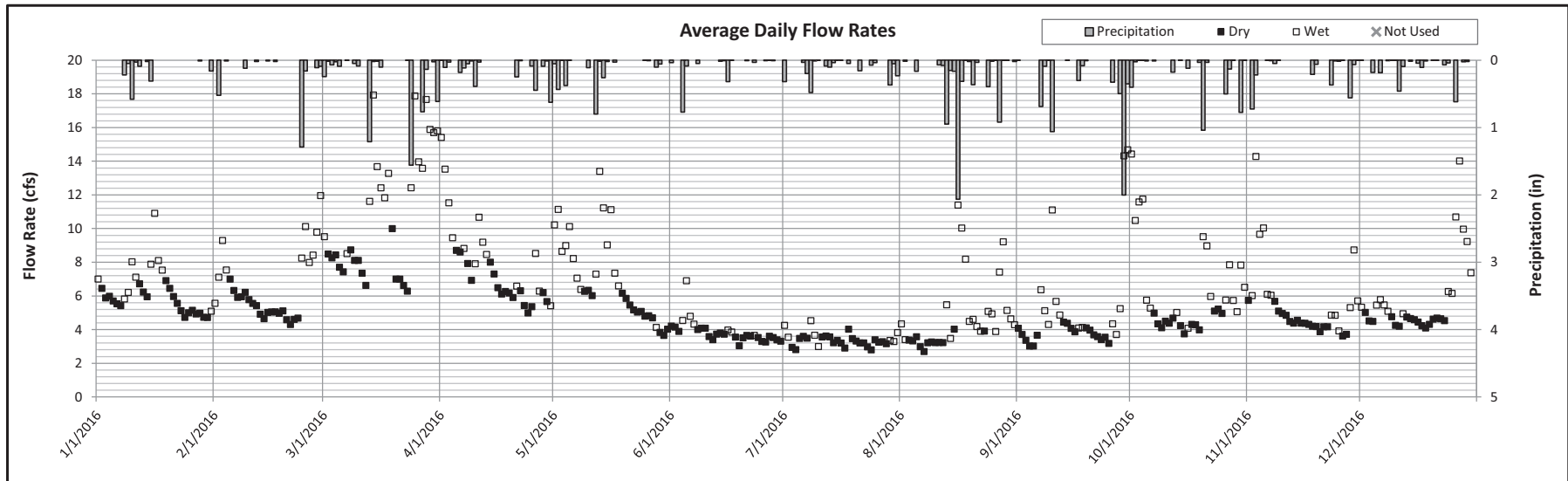
Downriver Sewage Disposal System

Meter Report

Meter: TB-1
Type: Magmeter

Location: Taylor Basin
System Meter Type: Interceptor Flow Meter

Period: 1/1/2016 through 12/31/2016



Monthly Statistics						
Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-16	6.2	123.9	5.6	112.7	21	10
Feb-16	6.5	120.9	5.3	99.7	19	10
Mar-16	10.9	218.3	7.7	155.1	15	16
Apr-16	7.8	151.3	6.6	128.2	17	13
May-16	7.0	141.0	5.1	103.1	15	16
Jun-16	3.9	75.0	3.7	70.8	23	7
Jul-16	3.4	68.1	3.3	66.1	23	8
Aug-16	4.8	95.8	3.3	66.9	12	19
Sep-16	5.0	97.6	3.7	72.0	17	13
Oct-16	6.3	125.6	4.5	89.9	14	17
Nov-16	5.5	107.5	4.5	87.0	18	12
Dec-16	5.8	112.0	4.5	87.6	17	13

Statistics for Major Wet Weather Events							
Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
A	1.23	3/13/2016	3/14/2016	18.8	3/13/2016 21:35	-	-
B	1.56	3/24/2016	3/24/2016	19.4	3/24/2016 17:50	-	-
C	2.20	8/15/2016	8/16/2016	15.1	8/16/2016 12:10	-	-
D	3.25	9/27/2016	10/1/2016	15.0	10/1/2016 17:05	-	-

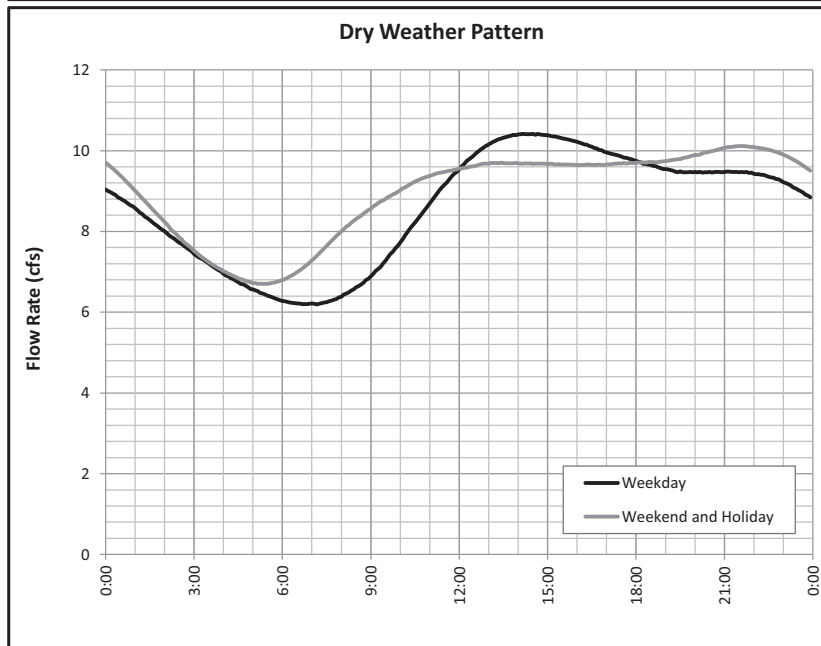
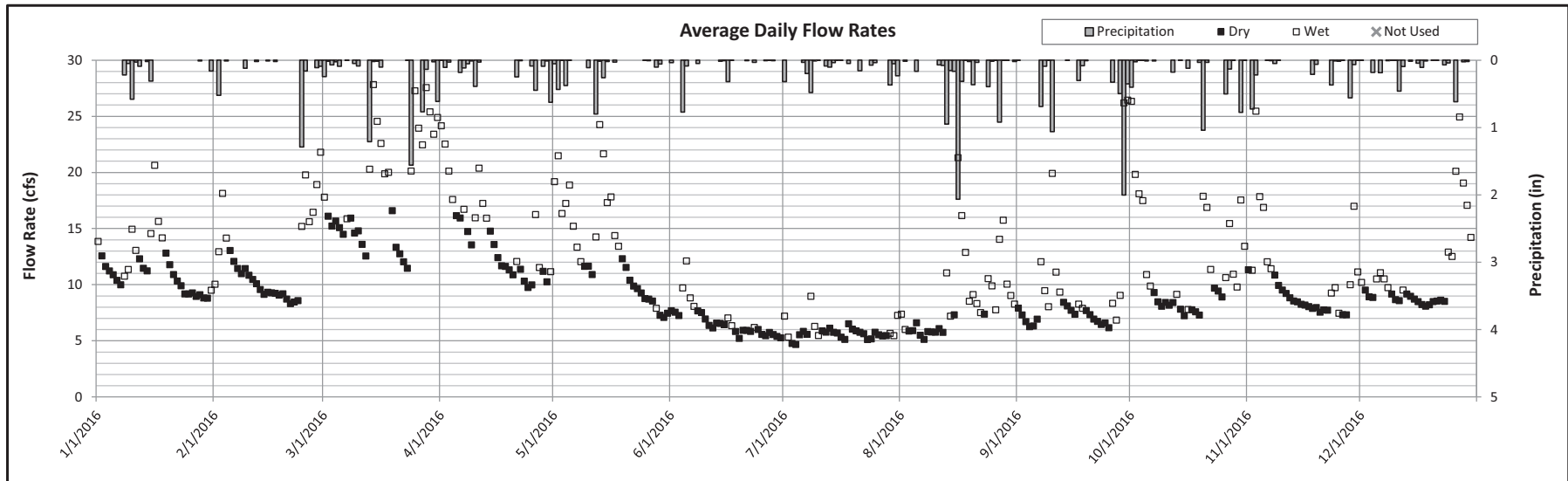
Downriver Sewage Disposal System

Meter Report

Meter: PC-1
Type: Accusonic 7510

Location: Pelham Interceptor North of Goddard Road
System Meter Type: Interceptor Flow Meter

Period: 1/1/2016 through 12/31/2016



Monthly Statistics						
Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-16	11.6	232.1	10.5	210.6	21	10
Feb-16	12.1	227.7	10.0	186.7	19	10
Mar-16	18.6	373.6	14.3	286.2	15	16
Apr-16	14.4	278.7	12.3	239.0	17	13
May-16	13.2	264.9	9.7	193.8	15	16
Jun-16	6.8	131.1	6.3	121.8	23	7
Jul-16	5.8	116.4	5.6	111.9	23	8
Aug-16	8.8	176.9	6.1	121.8	12	19
Sep-16	9.5	183.5	7.1	138.0	17	13
Oct-16	11.6	232.6	8.3	166.9	14	17
Nov-16	10.5	203.1	8.6	166.7	18	12
Dec-16	11.1	214.6	8.7	168.5	17	13

Statistics for Major Wet Weather Events							
Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
A	1.23	3/13/2016	3/14/2016	29.6	3/13/2016 14:25	4.0	3/13/2016 20:00
B	1.56	3/24/2016	3/24/2016	29.0	3/24/2016 13:00	4.7	3/24/2016 17:05
C	2.20	8/15/2016	8/16/2016	28.3	8/16/2016 3:20	4.2	8/16/2016 3:00
D	3.25	9/27/2016	10/1/2016	28.6	10/1/2016 3:55	3.8	9/29/2016 13:30

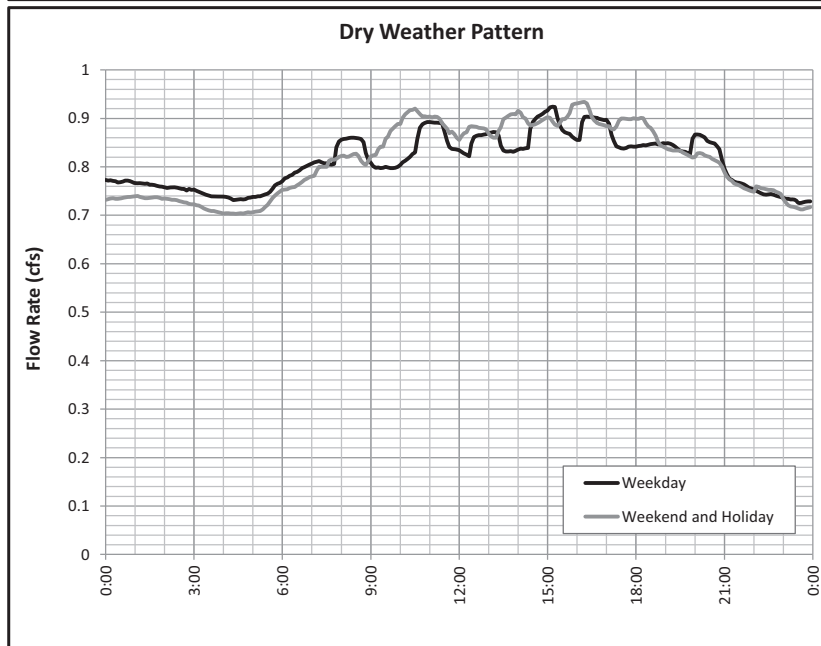
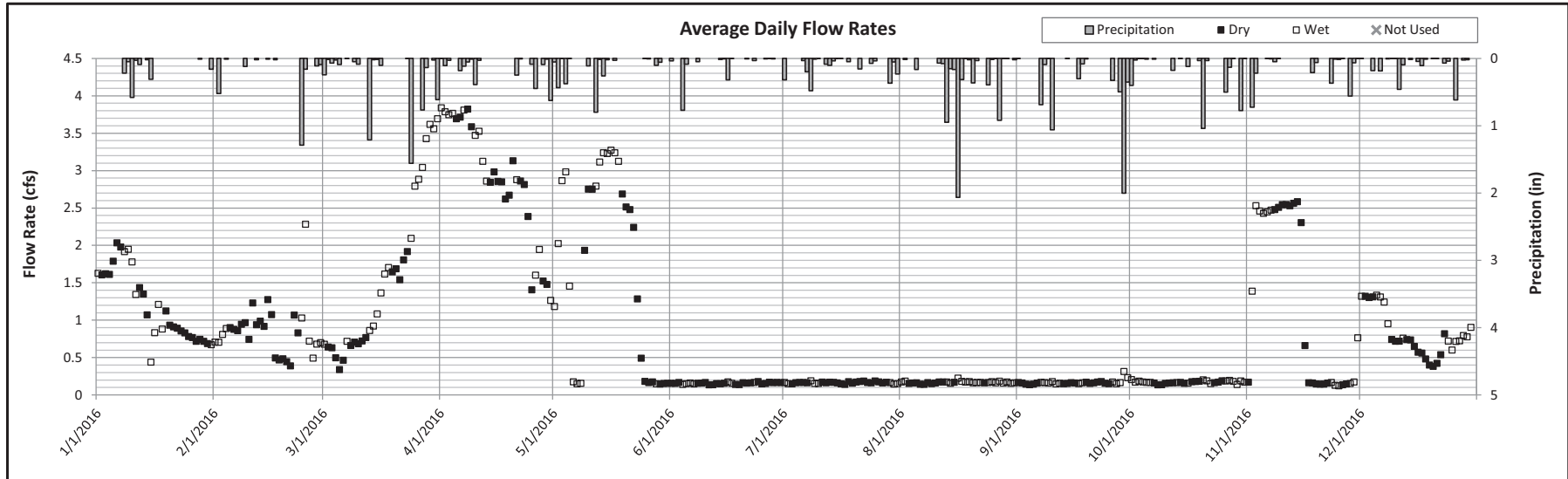
Downriver Sewage Disposal System

Meter Report

Meter: DMA-2
Type: ADS Triton

Location: Detroit Metro Airport
System Meter Type: Interceptor Flow Meter

Period: 1/1/2016 through 12/31/2016



Monthly Statistics						
Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-16	1.2	24.0	1.2	23.3	21	10
Feb-16	0.9	16.1	0.8	15.7	19	10
Mar-16	1.6	31.5	1.0	19.7	15	16
Apr-16	2.9	56.1	2.8	53.9	17	13
May-16	1.7	34.4	1.3	26.9	15	16
Jun-16	0.2	3.1	0.2	3.0	23	7
Jul-16	0.2	3.3	0.2	3.3	23	8
Aug-16	0.2	3.4	0.2	3.2	12	19
Sep-16	0.2	3.3	0.2	3.1	17	13
Oct-16	0.2	3.4	0.2	3.3	14	17
Nov-16	1.2	24.1	1.2	23.8	18	12
Dec-16	0.8	16.0	0.7	14.2	17	13

Statistics for Major Wet Weather Events							
Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
A	1.23	3/13/2016	3/14/2016	1.1	3/13/2016 15:00	0.7	3/14/2016 15:55
B	1.56	3/24/2016	3/24/2016	2.7	3/24/2016 20:40	1.1	3/24/2016 20:25
C	2.20	8/15/2016	8/16/2016	0.5	8/16/2016 2:50	0.5	8/16/2016 2:50
D	3.25	9/27/2016	10/1/2016	0.6	9/29/2016 13:30	0.5	9/29/2016 13:35

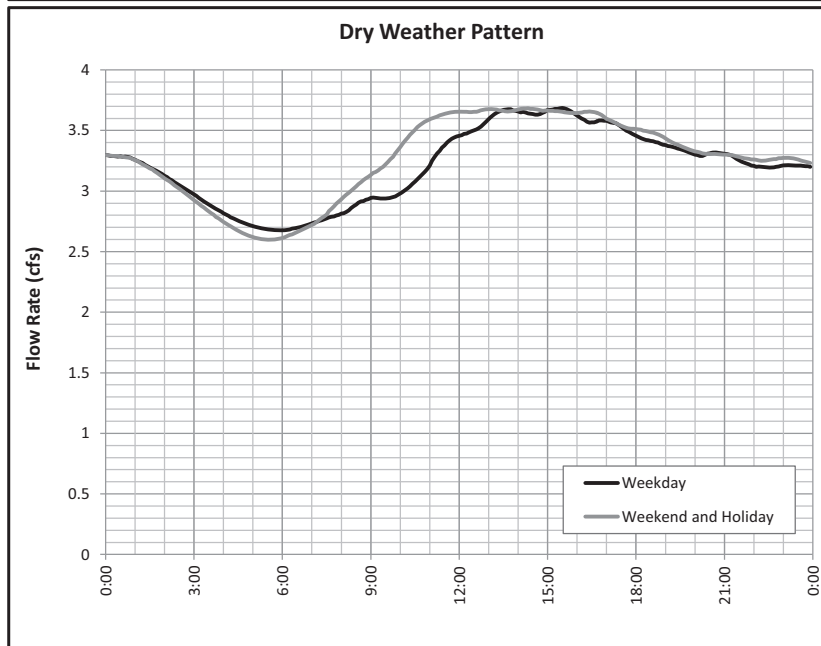
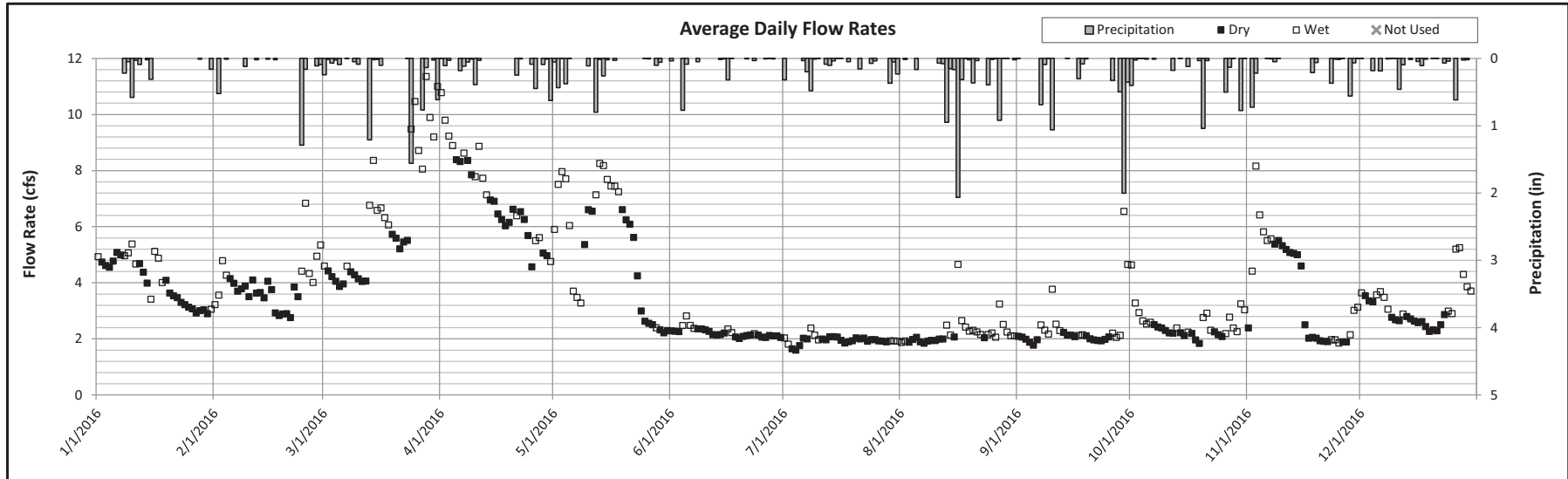
Downriver Sewage Disposal System

Meter Report

Meter: PD-2
Type: Accusonic 7510

Location: Goddard Interceptor West of Inkster Road
System Meter Type: Interceptor Flow Meter

Period: 1/1/2016 through 12/31/2016



Monthly Statistics						
Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-16	4.1	81.8	3.9	77.4	21	10
Feb-16	3.9	73.1	3.5	66.4	19	10
Mar-16	6.4	127.4	4.6	92.1	15	16
Apr-16	7.1	137.3	6.6	127.0	17	13
May-16	5.4	107.4	4.3	86.6	15	16
Jun-16	2.2	43.2	2.2	42.0	23	7
Jul-16	2.0	39.2	1.9	38.8	23	8
Aug-16	2.2	44.8	2.0	39.4	12	19
Sep-16	2.4	46.4	2.0	39.2	17	13
Oct-16	2.5	50.4	2.2	44.2	14	17
Nov-16	3.7	72.2	3.4	66.4	18	12
Dec-16	3.2	61.7	2.7	52.9	17	13

Statistics for Major Wet Weather Events							
Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
A	1.23	3/13/2016	3/14/2016	13.1	3/13/2016 22:05	1.7	3/13/2016 22:35
B	1.56	3/24/2016	3/24/2016	17.1	3/24/2016 18:15	2.0	3/24/2016 18:25
C	2.20	8/15/2016	8/16/2016	12.4	8/16/2016 3:50	1.6	8/16/2016 4:10
D	3.25	9/27/2016	10/1/2016	9.2	9/29/2016 6:45	1.4	9/29/2016 7:05

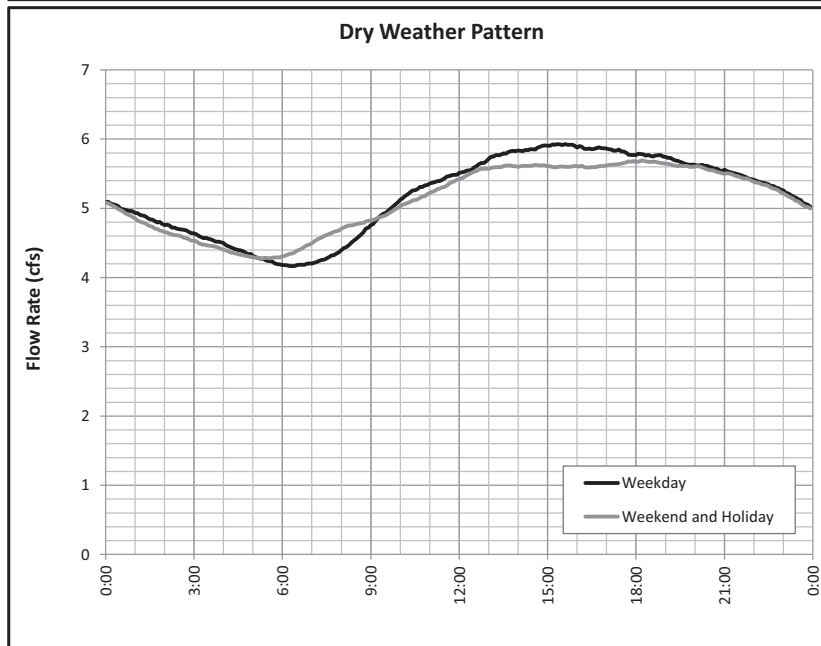
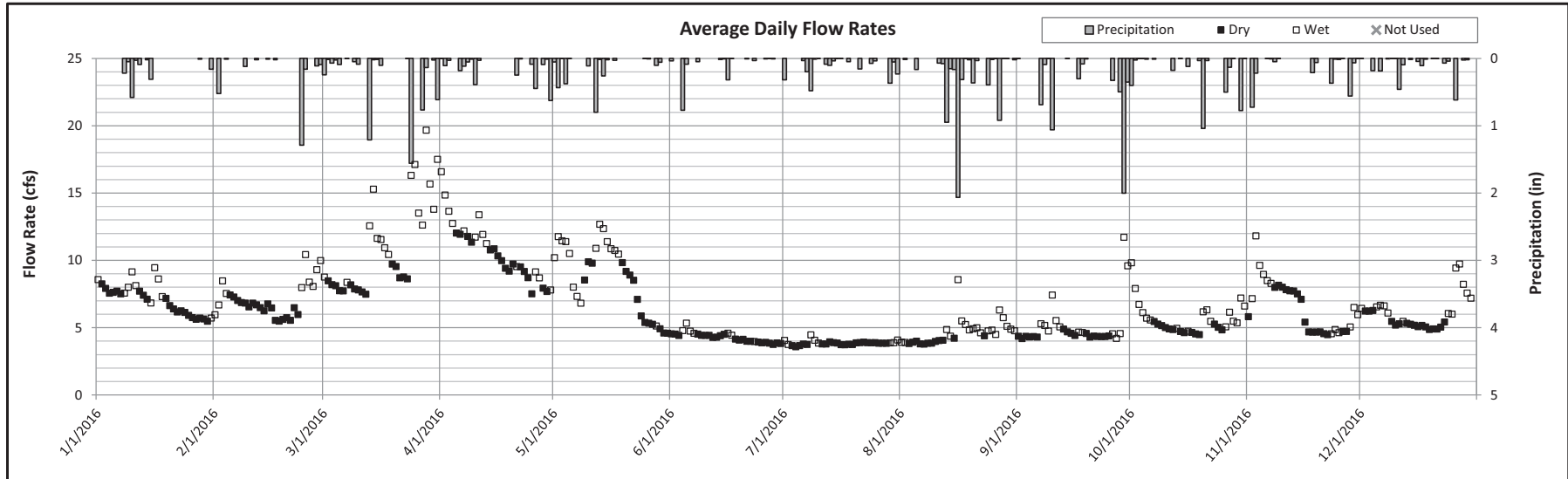
Downriver Sewage Disposal System

Meter Report

Meter: PD-1
Type: ADS Triton+

Location: Goddard Interceptor West of Allen Road
System Meter Type: Interceptor Flow Meter

Period: 1/1/2016 through 12/31/2016



Monthly Statistics						
Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-16	7.1	142.9	6.7	135.2	21	10
Feb-16	7.1	132.3	6.4	120.2	19	10
Mar-16	11.0	220.0	8.3	166.5	15	16
Apr-16	10.7	207.7	9.9	191.5	17	13
May-16	8.7	174.3	7.2	143.9	15	16
Jun-16	4.3	83.1	4.2	81.1	23	7
Jul-16	3.9	77.3	3.8	76.3	23	8
Aug-16	4.7	93.3	4.0	79.7	12	19
Sep-16	5.1	98.4	4.4	85.7	17	13
Oct-16	5.6	112.6	4.9	98.5	14	17
Nov-16	6.5	126.9	6.1	119.0	18	12
Dec-16	6.1	118.8	5.3	103.7	17	13

Statistics for Major Wet Weather Events							
Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
A	1.23	3/13/2016	3/14/2016	21.8	3/13/2016 19:40	2.0	3/13/2016 19:45
B	1.56	3/24/2016	3/24/2016	30.9	3/24/2016 16:50	2.4	3/24/2016 17:15
C	2.20	8/15/2016	8/16/2016	16.0	8/16/2016 4:55	1.9	8/16/2016 5:00
D	3.25	9/27/2016	10/1/2016	15.4	9/29/2016 13:05	1.9	9/29/2016 13:15

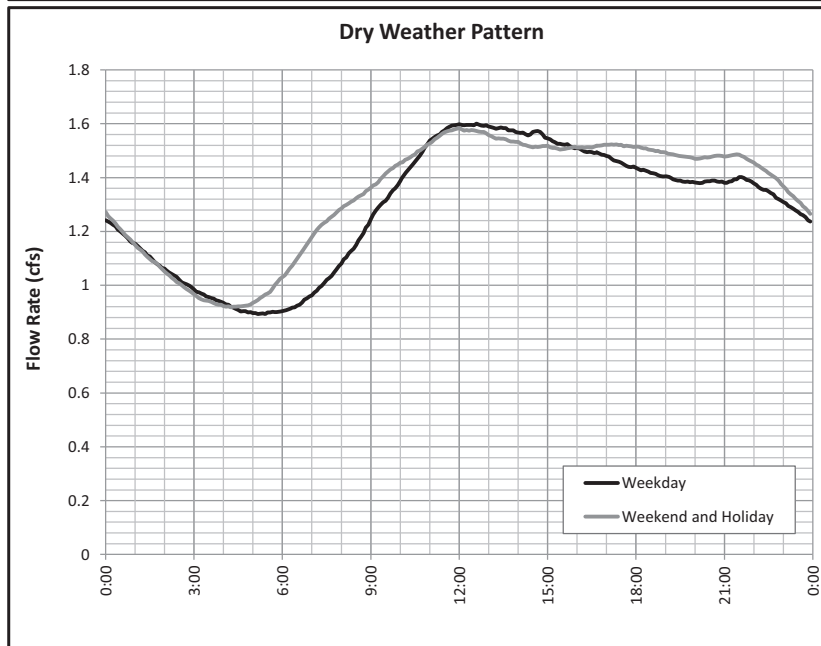
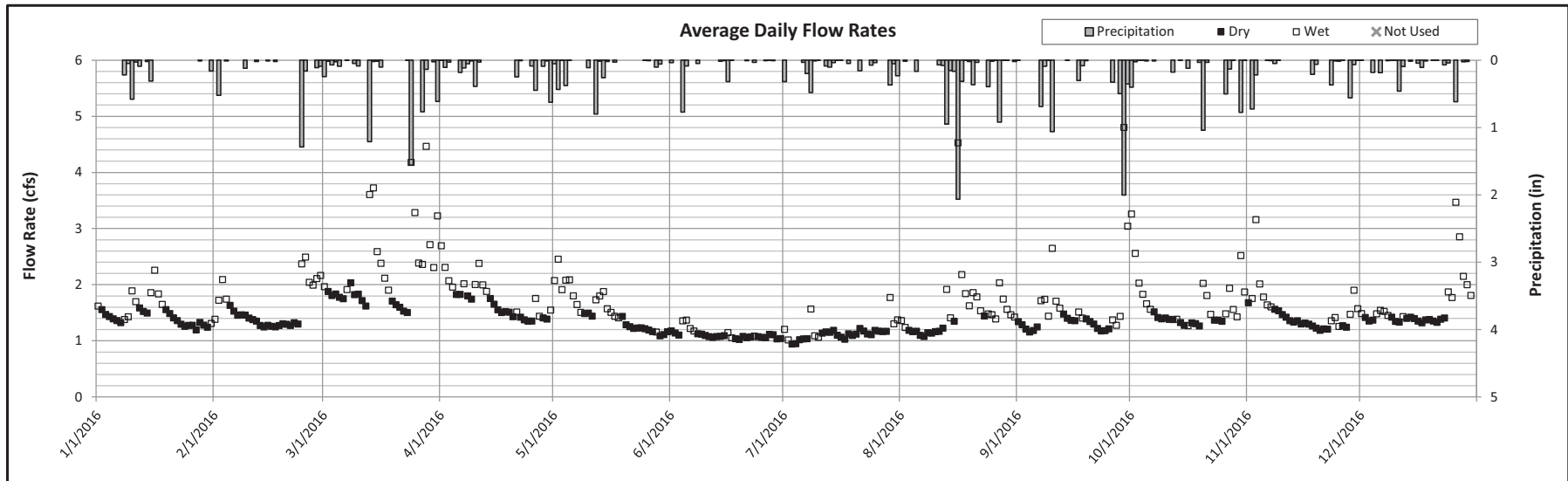
Downriver Sewage Disposal System

Meter Report

Meter: PB-1
Type: ADS Triton

Location: Northline Interceptor West of Fordline Road
System Meter Type: Interceptor Flow Meter

Period: 1/1/2016 through 12/31/2016



Monthly Statistics						
Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-16	1.5	29.7	1.4	27.8	21	10
Feb-16	1.6	29.6	1.4	25.4	19	10
Mar-16	2.3	46.0	1.7	34.8	15	16
Apr-16	1.7	33.6	1.6	30.1	17	13
May-16	1.5	30.4	1.3	25.4	15	16
Jun-16	1.1	21.5	1.1	21.0	23	7
Jul-16	1.2	23.2	1.1	22.2	23	8
Aug-16	1.6	31.1	1.2	23.9	12	19
Sep-16	1.6	30.7	1.3	24.9	17	13
Oct-16	1.6	32.8	1.4	27.3	14	17
Nov-16	1.5	29.2	1.3	26.1	18	12
Dec-16	1.6	31.2	1.4	26.6	17	13

Statistics for Major Wet Weather Events							
Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
A	1.23	3/13/2016	3/14/2016	6.9	3/13/2016 20:05	1.5	3/13/2016 20:25
B	1.56	3/24/2016	3/24/2016	9.1	3/24/2016 17:25	1.7	3/24/2016 17:50
C	2.20	8/15/2016	8/16/2016	12.9	8/16/2016 2:55	2.1	8/16/2016 3:10
D	3.25	9/27/2016	10/1/2016	7.6	9/29/2016 13:25	1.5	9/29/2016 13:40

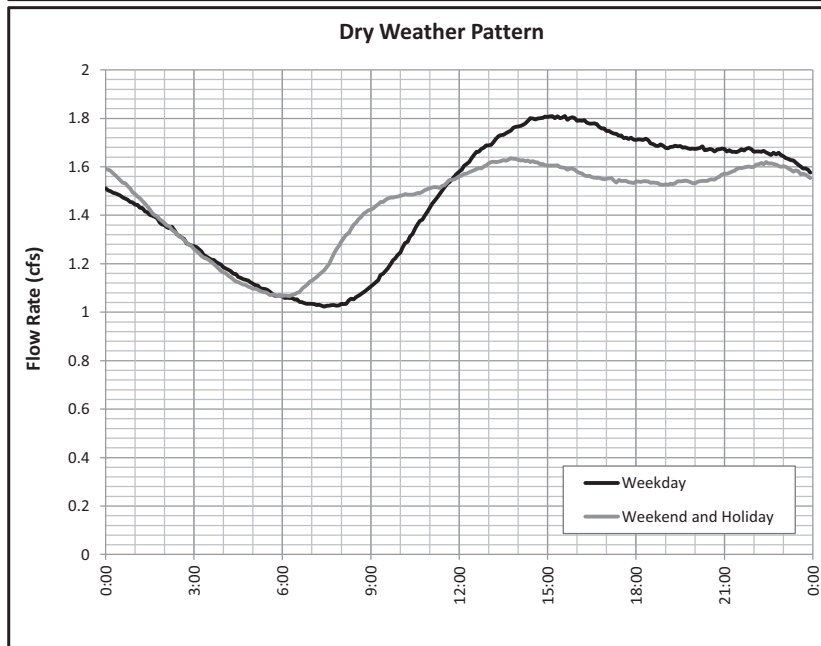
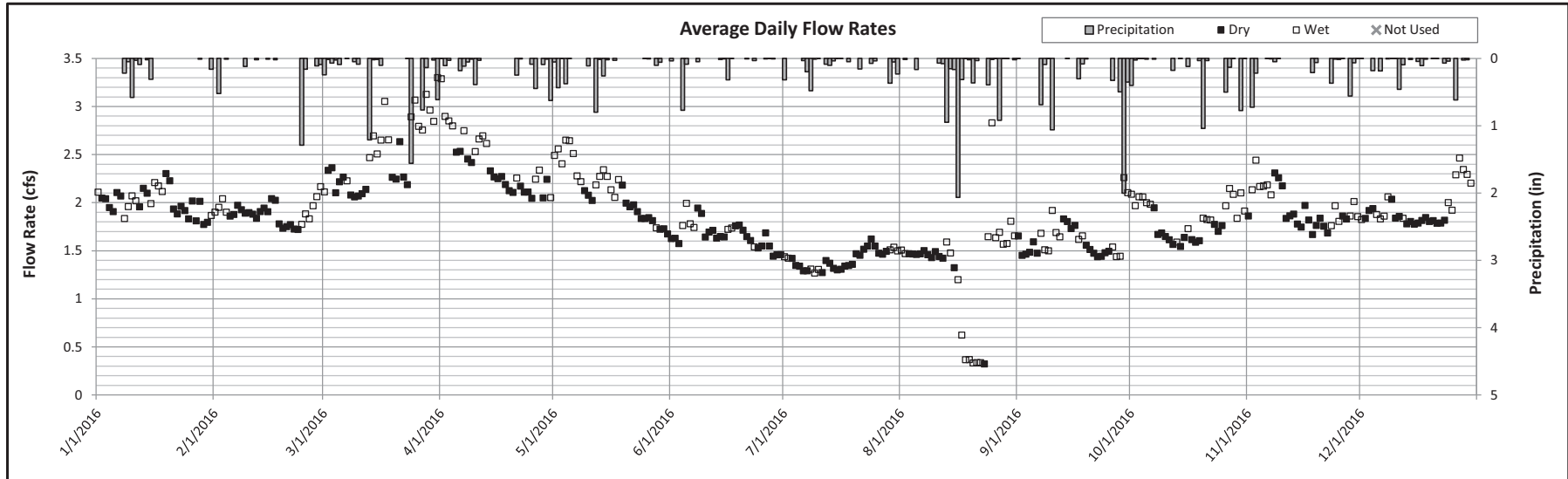
Downriver Sewage Disposal System

Meter Report

Meter: PA-4
Type: ADS Triton+

Location: Eureka Interceptor near Hannan Road
System Meter Type: Interceptor Flow Meter

Period: 1/1/2016 through 12/31/2016



Monthly Statistics						
Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-16	2.0	40.2	2.0	39.9	21	10
Feb-16	1.9	35.5	1.9	35.0	19	10
Mar-16	2.5	50.0	2.2	44.5	15	16
Apr-16	2.4	46.6	2.2	43.6	17	13
May-16	2.1	42.5	1.9	38.3	15	16
Jun-16	1.7	32.4	1.6	31.9	23	7
Jul-16	1.4	28.2	1.4	28.1	23	8
Aug-16	1.3	26.0	1.4	27.1	12	19
Sep-16	1.6	31.4	1.6	30.4	17	13
Oct-16	1.8	36.4	1.7	33.4	14	17
Nov-16	1.9	37.7	1.9	36.5	18	12
Dec-16	1.9	37.7	1.8	35.6	17	13

Statistics for Major Wet Weather Events							
Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
A	1.23	3/13/2016	3/14/2016	3.6	3/13/2016 21:05	1.1	3/13/2016 21:25
B	1.56	3/24/2016	3/24/2016	4.6	3/24/2016 18:00	1.2	3/24/2016 18:25
C	2.20	8/15/2016	8/16/2016	2.0	8/16/2016 3:15	1.0	8/16/2016 3:50
D	3.25	9/27/2016	10/1/2016	4.4	9/29/2016 7:20	1.2	9/29/2016 7:30

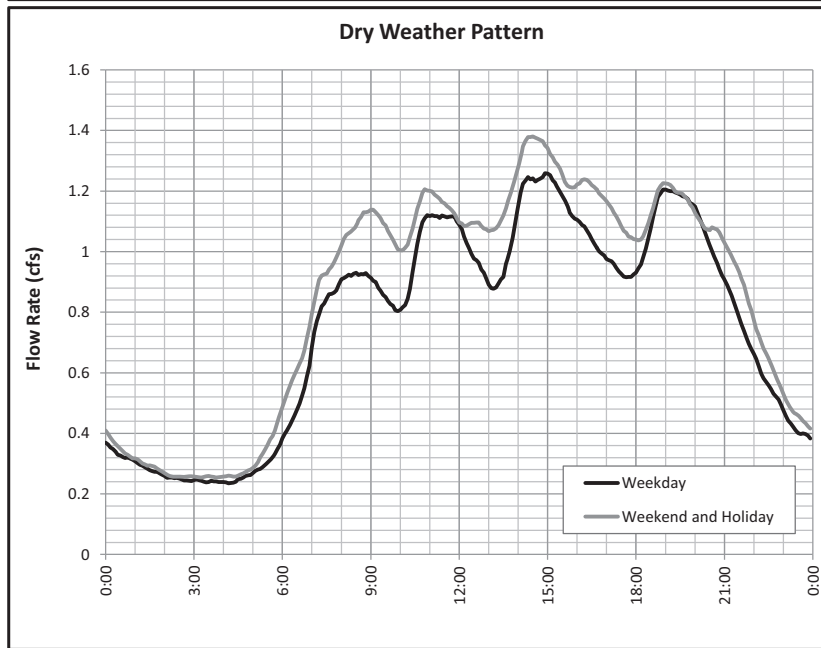
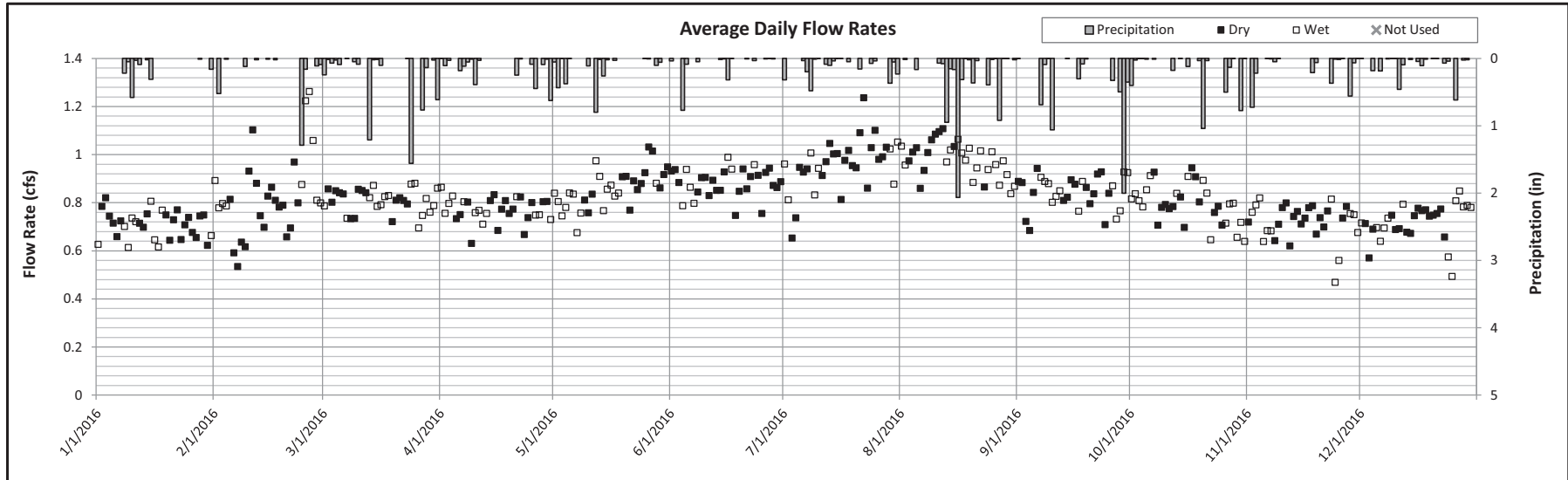
Downriver Sewage Disposal System

Meter Report

Meter: DMA-1
Type: ADS Triton+

Location: Detroit Metro Airport outlet at Eureka
System Meter Type: Interceptor Flow Meter

Period: 1/1/2016 through 12/31/2016



Monthly Statistics						
Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-16	0.7	14.2	0.7	14.4	21	10
Feb-16	0.8	15.5	0.8	14.5	19	10
Mar-16	0.8	16.2	0.8	16.2	15	16
Apr-16	0.8	14.9	0.8	14.8	17	13
May-16	0.9	17.1	0.9	17.8	15	16
Jun-16	0.9	17.1	0.9	17.1	23	7
Jul-16	1.0	19.2	1.0	19.3	23	8
Aug-16	1.0	19.6	1.0	20.1	12	19
Sep-16	0.8	16.3	0.8	16.3	17	13
Oct-16	0.8	15.9	0.8	16.0	14	17
Nov-16	0.7	14.0	0.7	14.2	18	12
Dec-16	0.7	13.9	0.7	13.9	17	13

Statistics for Major Wet Weather Events							
Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
A	1.23	3/13/2016	3/14/2016	1.4	3/13/2016 18:45	0.7	3/14/2016 18:40
B	1.56	3/24/2016	3/24/2016	1.4	3/24/2016 16:10	0.8	3/24/2016 19:20
C	2.20	8/15/2016	8/16/2016	1.8	8/16/2016 13:45	0.8	8/16/2016 14:20
D	3.25	9/27/2016	10/1/2016	1.7	9/29/2016 14:00	0.8	9/29/2016 14:40

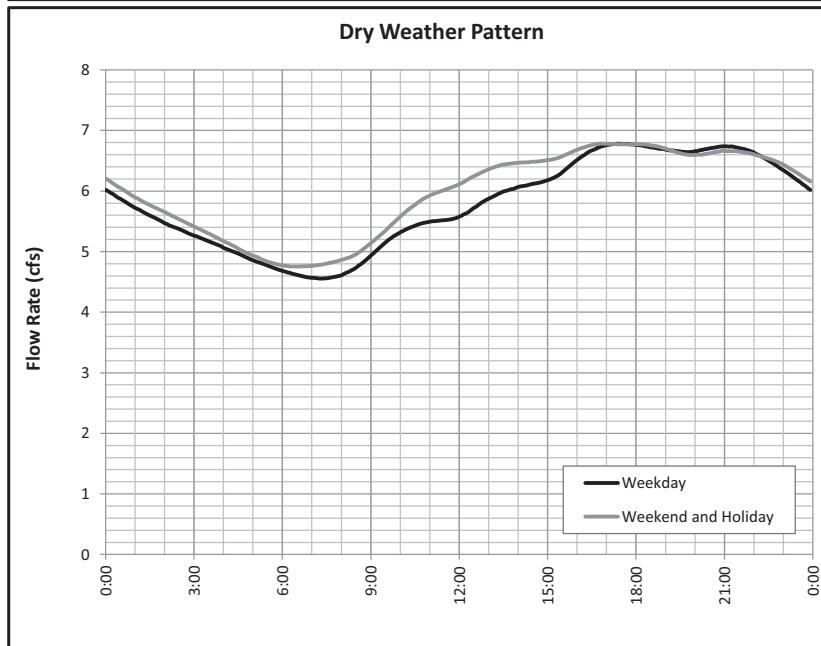
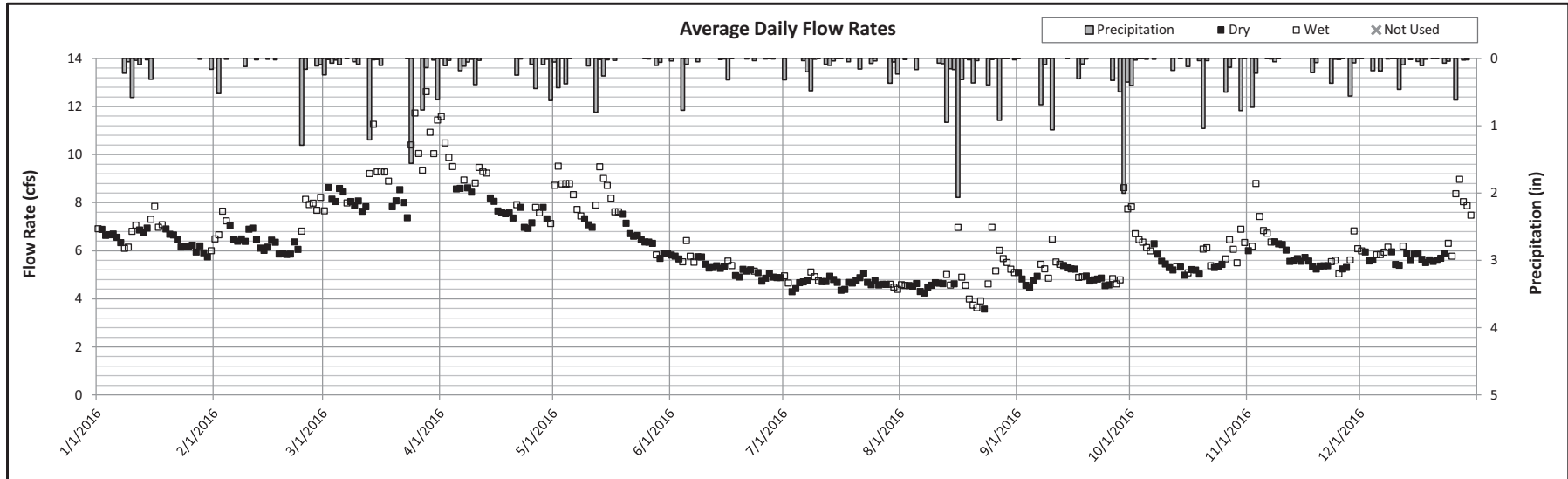
Downriver Sewage Disposal System

Meter Report

Meter: PA-3
Type: Accusonic 7510

Location: Eureka Interceptor at Inkster Road
System Meter Type: Interceptor Flow Meter

Period: 1/1/2016 through 12/31/2016



Monthly Statistics						
Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-16	6.6	131.8	6.5	129.4	21	10
Feb-16	6.7	125.9	6.3	118.4	19	10
Mar-16	9.1	181.4	8.1	161.8	15	16
Apr-16	8.3	161.5	7.8	150.8	17	13
May-16	7.5	149.5	6.6	132.1	15	16
Jun-16	5.3	103.4	5.2	101.7	23	7
Jul-16	4.7	93.9	4.7	93.5	23	8
Aug-16	4.8	95.8	4.5	89.3	12	19
Sep-16	5.2	101.2	4.9	94.8	17	13
Oct-16	5.8	116.3	5.4	108.0	14	17
Nov-16	6.0	115.6	5.7	109.7	18	12
Dec-16	6.2	120.3	5.7	110.2	17	13

Statistics for Major Wet Weather Events							
Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
A	1.23	3/13/2016	3/14/2016	14.9	3/13/2016 20:40	1.9	3/13/2016 20:40
B	1.56	3/24/2016	3/24/2016	17.4	3/24/2016 17:30	2.1	3/24/2016 17:35
C	2.20	8/15/2016	8/16/2016	11.1	8/16/2016 3:00	1.7	8/16/2016 3:15
D	3.25	9/27/2016	10/1/2016	11.2	9/29/2016 17:15	1.7	9/29/2016 17:30

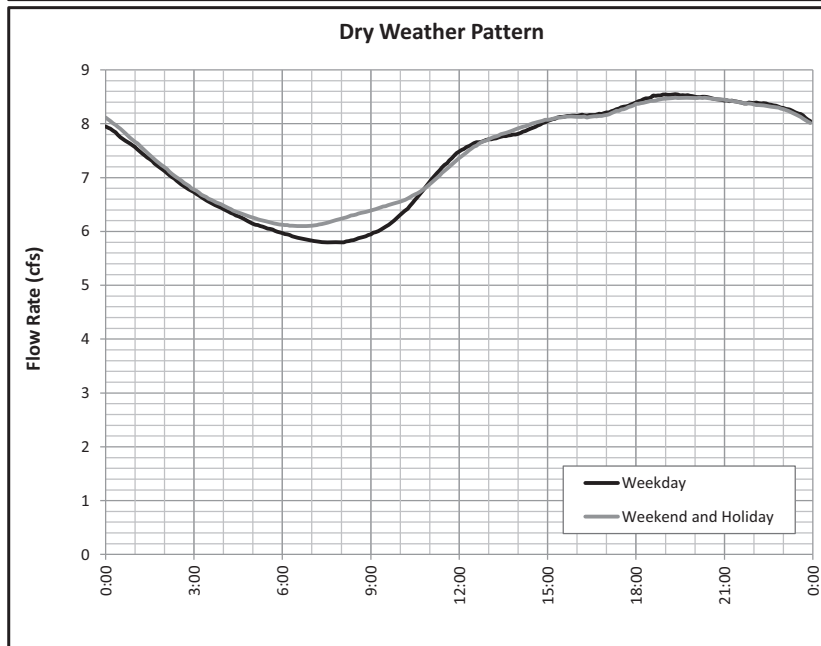
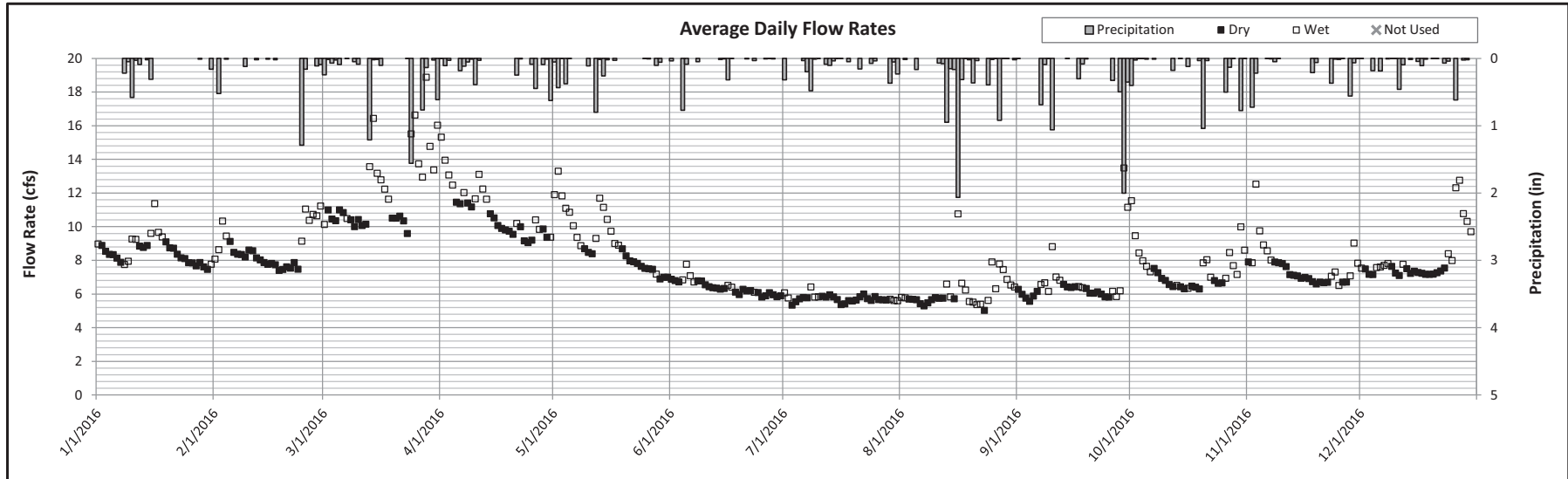
Downriver Sewage Disposal System

Meter Report

Meter: PA-2
Type: ADS Triton+

Location: Eureka Interceptor at Allen Road
System Meter Type: Interceptor Flow Meter

Period: 1/1/2016 through 12/31/2016



Monthly Statistics						
Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-16	8.6	171.4	8.3	166.2	21	10
Feb-16	8.7	162.9	8.0	150.4	19	10
Mar-16	12.2	244.7	10.4	208.8	15	16
Apr-16	10.9	211.8	10.1	196.6	17	13
May-16	9.1	182.2	7.8	156.6	15	16
Jun-16	6.4	124.1	6.3	121.9	23	7
Jul-16	5.7	114.9	5.7	114.1	23	8
Aug-16	6.2	123.7	5.6	111.8	12	19
Sep-16	6.7	130.1	6.1	118.2	17	13
Oct-16	7.4	149.0	6.7	133.9	14	17
Nov-16	7.6	147.7	7.1	138.0	18	12
Dec-16	8.1	157.3	7.3	141.6	17	13

Statistics for Major Wet Weather Events							
Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
A	1.23	3/13/2016	3/14/2016	22.5	3/13/2016 20:55	2.6	3/13/2016 21:05
B	1.56	3/24/2016	3/24/2016	27.3	3/24/2016 18:00	3.4	3/24/2016 18:25
C	2.20	8/15/2016	8/16/2016	19.3	8/16/2016 3:55	2.5	8/16/2016 4:20
D	3.25	9/27/2016	10/1/2016	17.8	9/29/2016 13:45	2.3	9/29/2016 14:00

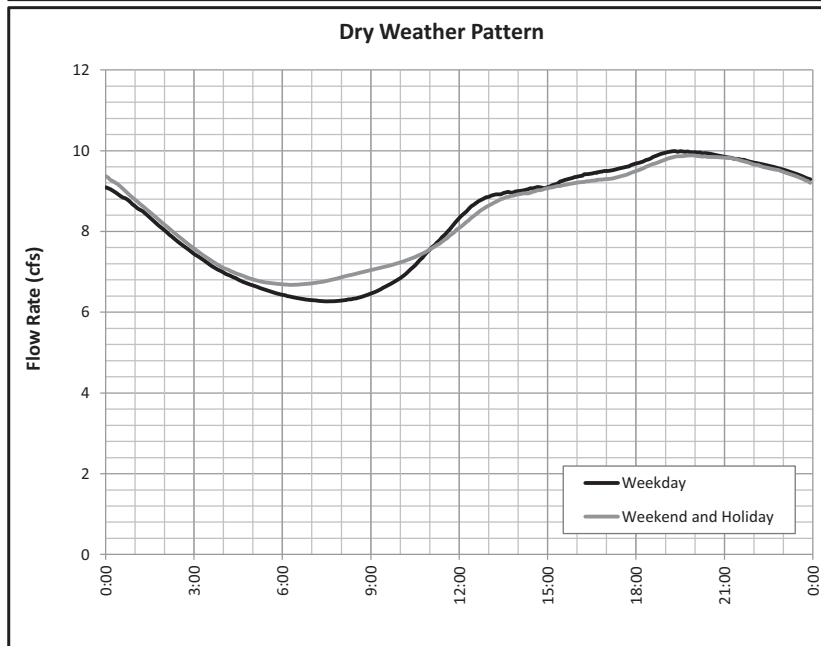
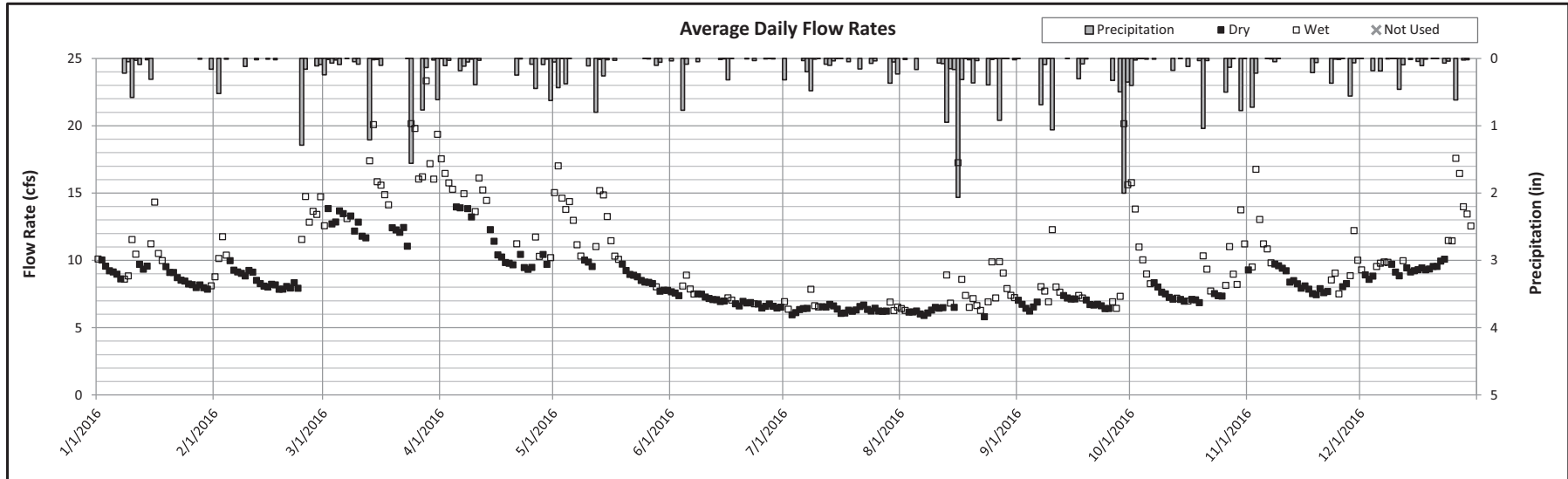
Downriver Sewage Disposal System

Meter Report

Meter: PA-1
Type: ADS Triton+

Location: Eureka Interceptor West of Fordline Road
System Meter Type: Interceptor Flow Meter

Period: 1/1/2016 through 12/31/2016



Monthly Statistics						
Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-16	9.3	187.3	8.9	177.5	21	10
Feb-16	9.8	183.5	8.5	159.7	19	10
Mar-16	14.8	297.5	12.6	251.9	15	16
Apr-16	12.3	239.3	11.0	213.8	17	13
May-16	10.8	216.7	8.8	176.1	15	16
Jun-16	7.1	138.1	7.0	135.2	23	7
Jul-16	6.5	129.3	6.3	127.2	23	8
Aug-16	7.4	147.6	6.2	124.6	12	19
Sep-16	7.9	153.2	6.8	131.6	17	13
Oct-16	8.8	177.1	7.4	147.7	14	17
Nov-16	9.3	179.8	8.4	162.4	18	12
Dec-16	10.5	203.6	9.3	180.6	17	13

Statistics for Major Wet Weather Events							
Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
A	1.23	3/13/2016	3/14/2016	30.4	3/13/2016 20:50	2.3	3/13/2016 21:05
B	1.56	3/24/2016	3/24/2016	38.0	3/24/2016 18:00	2.8	3/24/2016 18:35
C	2.20	8/15/2016	8/16/2016	34.0	8/16/2016 4:05	2.6	8/16/2016 4:30
D	3.25	9/27/2016	10/1/2016	27.3	9/29/2016 13:25	2.1	9/29/2016 13:50

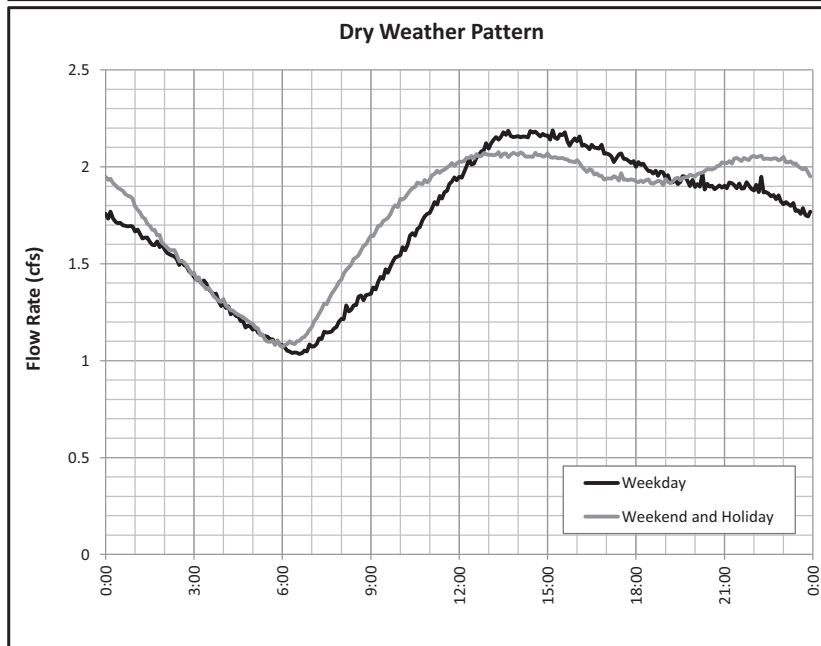
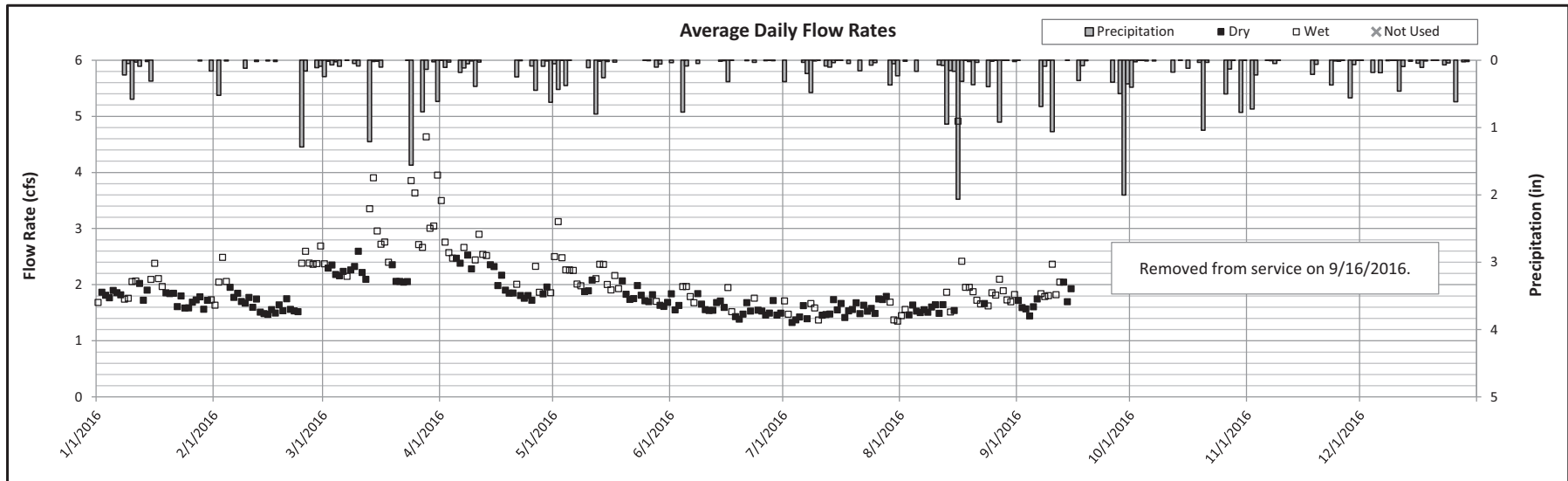
Downriver Sewage Disposal System

Meter Report

Meter: P-2 (Accusonic)
Type: Accusonic 7510

Location: Pennsylvania Interceptor East of Dix-Toledo Road
System Meter Type: Interceptor Flow Meter

Period: 1/1/2016 through 12/31/2016



Monthly Statistics						
Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-16	1.8	36.8	1.8	35.6	21	10
Feb-16	1.9	35.0	1.6	30.7	19	10
Mar-16	2.7	53.9	2.2	44.5	15	16
Apr-16	2.2	43.6	2.1	39.9	17	13
May-16	2.0	40.5	1.8	36.3	15	16
Jun-16	1.6	31.7	1.6	30.6	23	7
Jul-16	1.5	31.0	1.6	31.1	23	8
Aug-16	1.8	36.3	1.6	31.4	12	19
Sep-16	1.8	17.5	1.7	16.5	9	6
Oct-16	--	--	--	--	--	--
Nov-16	--	--	--	--	--	--
Dec-16	--	--	--	--	--	--

Statistics for Major Wet Weather Events							
Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
A	1.23	3/13/2016	3/14/2016	6.0	3/13/2016 21:00	1.3	3/13/2016 21:00
B	1.56	3/24/2016	3/24/2016	7.9	3/24/2016 18:20	2.9	3/24/2016 14:50
C	2.20	8/15/2016	8/16/2016	14.7	8/16/2016 3:45	2.1	8/16/2016 4:05
D	3.25	9/27/2016	10/1/2016	-	-	-	-

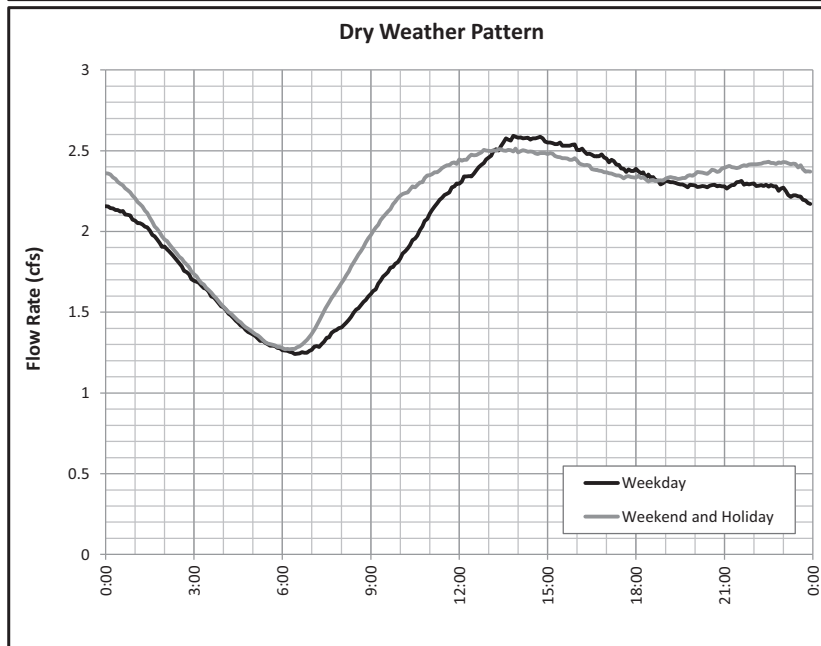
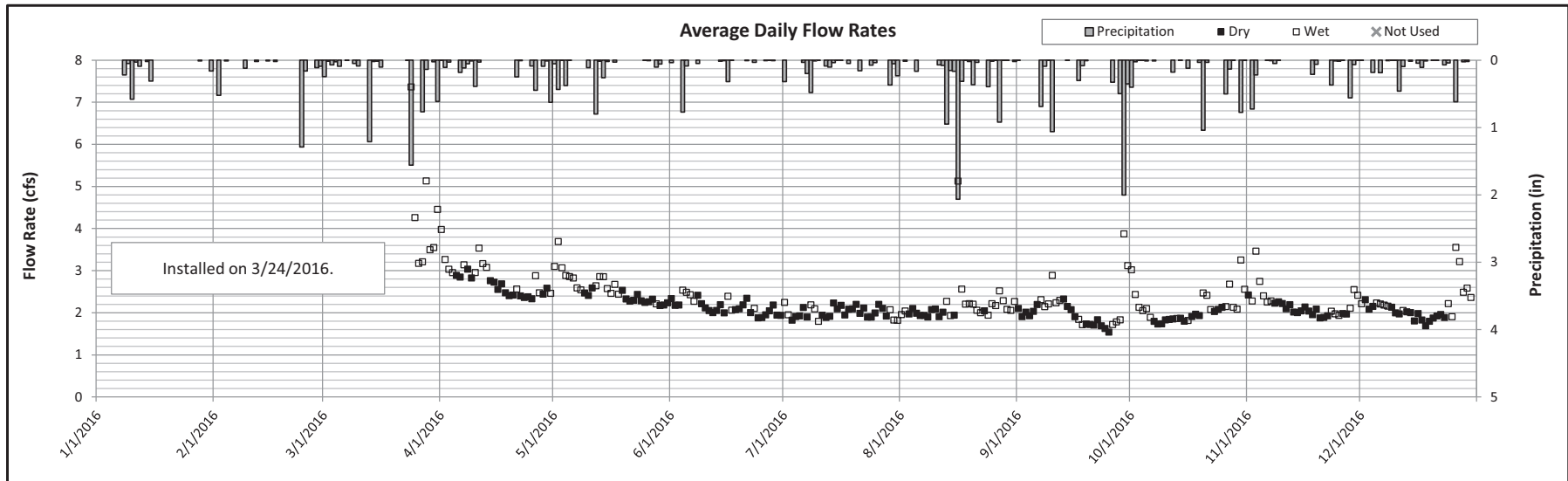
Downriver Sewage Disposal System

Meter Report

Meter: P-2 (ADS)
Type: ADS Triton+

Location: Pennsylvania Interceptor East of Dix-Toledo Road
System Meter Type: Interceptor Flow Meter

Period: 1/1/2016 through 12/31/2016



Monthly Statistics						
Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-16	--	--	--	--	--	--
Feb-16	--	--	--	--	--	--
Mar-16	4.3	22.4	--	--	0	8
Apr-16	2.8	54.0	2.6	50.3	17	13
May-16	2.6	51.3	2.3	46.8	15	16
Jun-16	2.2	41.7	2.1	40.7	23	7
Jul-16	2.0	40.3	2.0	40.4	23	8
Aug-16	2.2	44.0	2.0	39.9	12	19
Sep-16	2.1	40.4	1.9	37.1	17	13
Oct-16	2.1	42.4	1.9	37.9	14	17
Nov-16	2.2	42.5	2.1	40.2	18	12
Dec-16	2.2	41.9	2.0	38.1	17	13

Statistics for Major Wet Weather Events							
Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
A	1.23	3/13/2016	3/14/2016	-	-	-	-
B	1.56	3/24/2016	3/24/2016	8.8	3/24/2016 18:05	1.5	3/24/2016 18:30
C	2.20	8/15/2016	8/16/2016	13.5	8/16/2016 3:40	2.1	8/16/2016 4:10
D	3.25	9/27/2016	10/1/2016	6.2	9/29/2016 7:40	1.3	9/29/2016 8:10

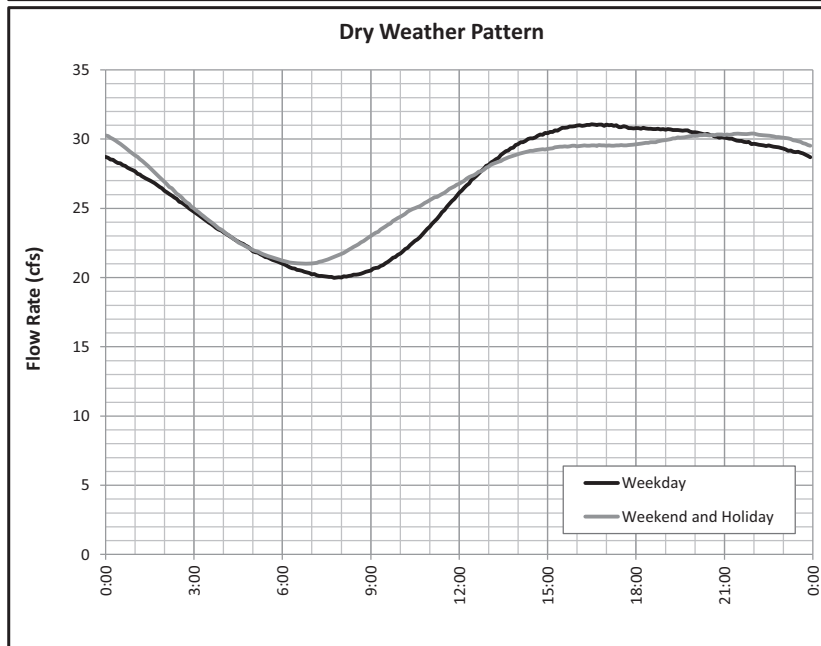
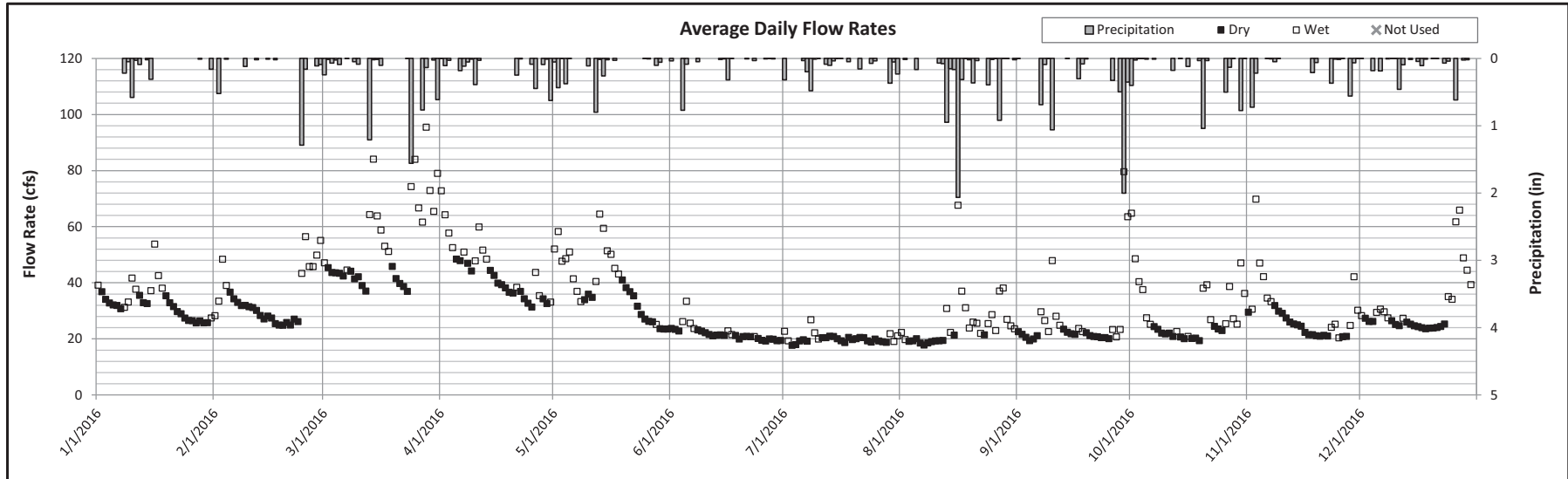
Downriver Sewage Disposal System

Meter Report

Meter: P-1
Type: Accusonic 7510

Location: Pennsylvania Interceptor East of Fort Street
System Meter Type: Interceptor Flow Meter

Period: 1/1/2016 through 12/31/2016



Monthly Statistics						
Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-16	33.0	662.0	30.6	612.7	21	10
Feb-16	34.4	644.1	29.0	543.5	19	10
Mar-16	54.6	1093.2	41.7	834.8	15	16
Apr-16	44.1	855.7	39.2	761.0	17	13
May-16	39.2	785.5	31.1	623.4	15	16
Jun-16	22.0	426.8	21.1	409.9	23	7
Jul-16	20.1	403.4	19.6	392.9	23	8
Aug-16	25.5	510.1	19.4	389.5	12	19
Sep-16	26.6	515.2	21.2	411.2	17	13
Oct-16	29.0	580.3	21.9	438.2	14	17
Nov-16	28.8	558.8	24.5	474.2	18	12
Dec-16	31.1	603.1	25.0	485.3	17	13

Statistics for Major Wet Weather Events							
Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
A	1.23	3/13/2016	3/14/2016	113.9	3/13/2016 21:15	5.2	3/13/2016 20:50
B	1.56	3/24/2016	3/24/2016	130.4	3/24/2016 20:00	6.8	3/24/2016 18:45
C	2.20	8/15/2016	8/16/2016	131.5	8/16/2016 4:00	11.5	8/16/2016 5:25
D	3.25	9/27/2016	10/1/2016	103.9	9/29/2016 14:15	4.2	9/29/2016 15:00

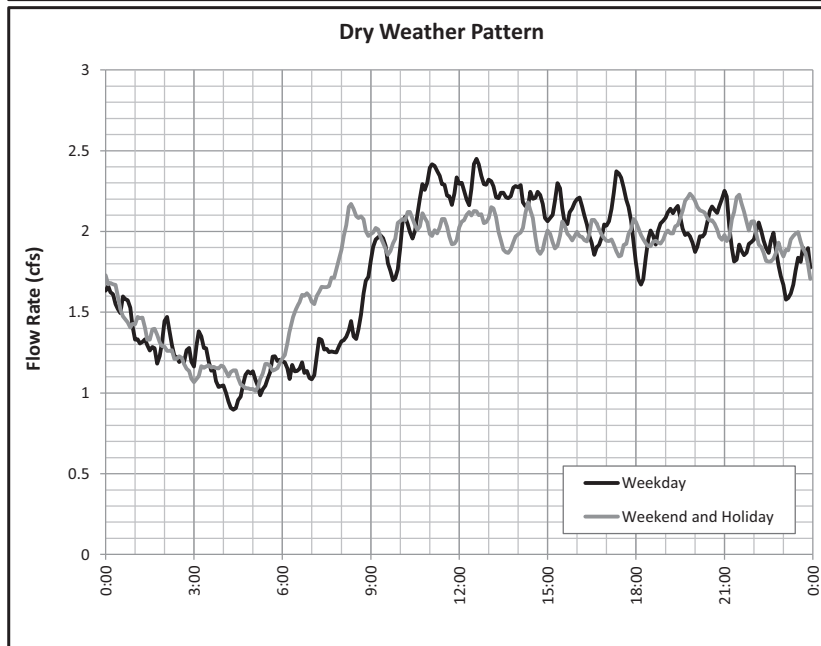
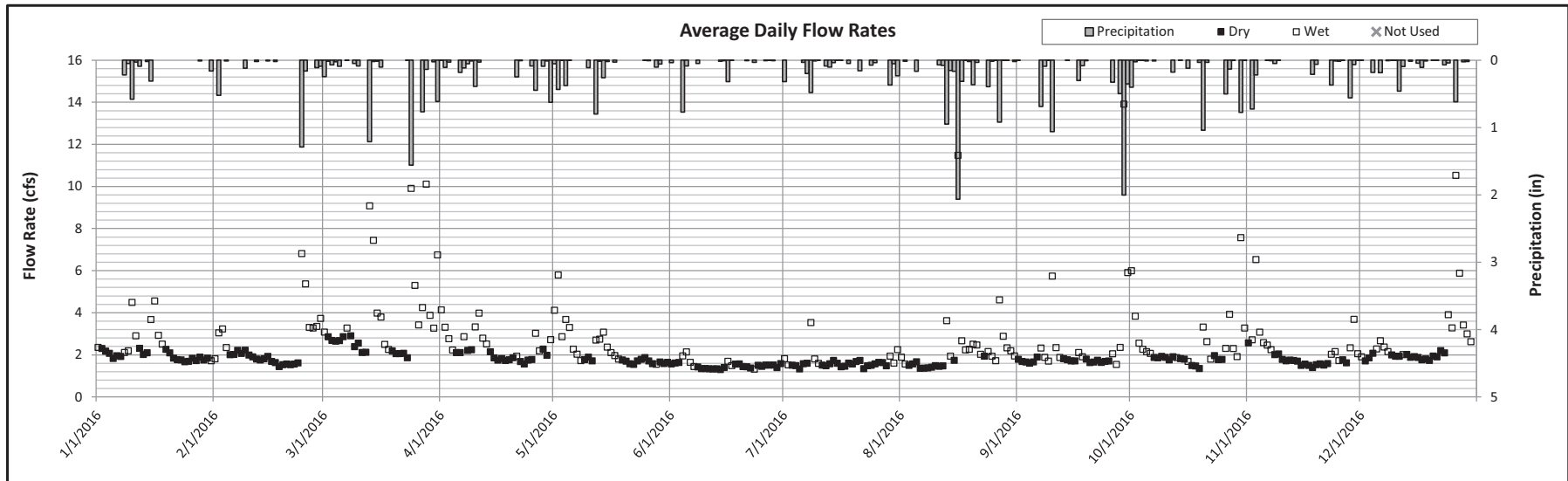
Downriver Sewage Disposal System

Meter Report

Meter: RV-1
Type: Accusonic 7510

Location: Pennsylvania Interceptor West of Jefferson Avenue
System Meter Type: Interceptor Flow Meter

Period: 1/1/2016 through 12/31/2016



Monthly Statistics						
Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-16	2.3	45.4	1.9	39.0	21	10
Feb-16	2.4	45.6	1.8	33.8	19	10
Mar-16	3.8	76.5	2.4	48.2	15	16
Apr-16	2.3	45.5	1.9	37.2	17	13
May-16	2.2	45.0	1.7	34.1	15	16
Jun-16	1.5	29.2	1.5	28.3	23	7
Jul-16	1.7	33.4	1.5	31.0	23	8
Aug-16	2.3	47.1	1.5	30.7	12	19
Sep-16	2.5	48.4	1.7	33.3	17	13
Oct-16	2.5	49.2	1.8	35.3	14	17
Nov-16	2.1	41.7	1.7	33.2	18	12
Dec-16	2.6	50.8	1.9	37.3	17	13

Statistics for Major Wet Weather Events							
Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
A	1.23	3/13/2016	3/14/2016	20.8	3/13/2016 19:40	3.8	3/13/2016 20:40
B	1.56	3/24/2016	3/24/2016	28.4	3/24/2016 16:50	4.1	3/24/2016 17:20
C	2.20	8/15/2016	8/16/2016	39.8	8/16/2016 2:55	11.3	8/16/2016 5:25
D	3.25	9/27/2016	10/1/2016	24.7	9/29/2016 6:00	2.9	9/29/2016 6:15

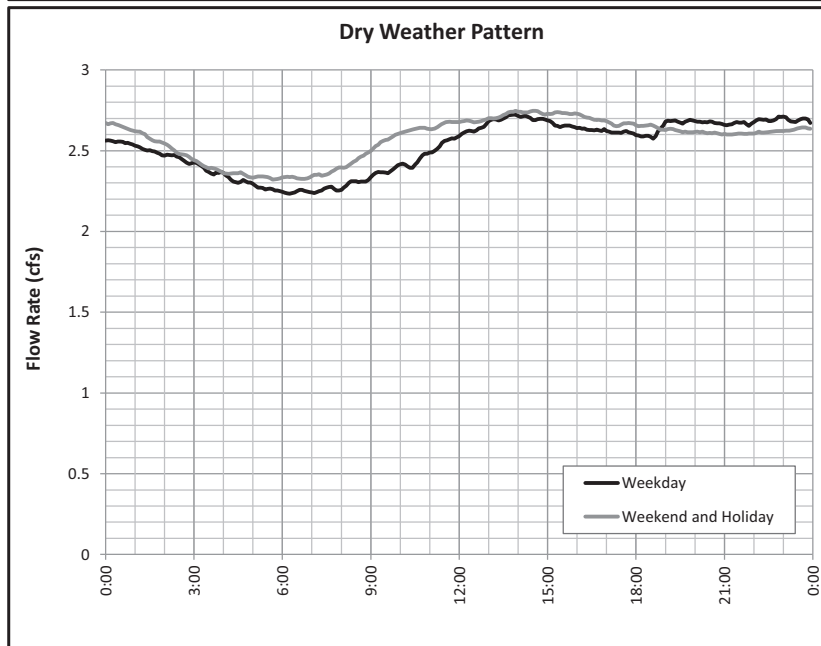
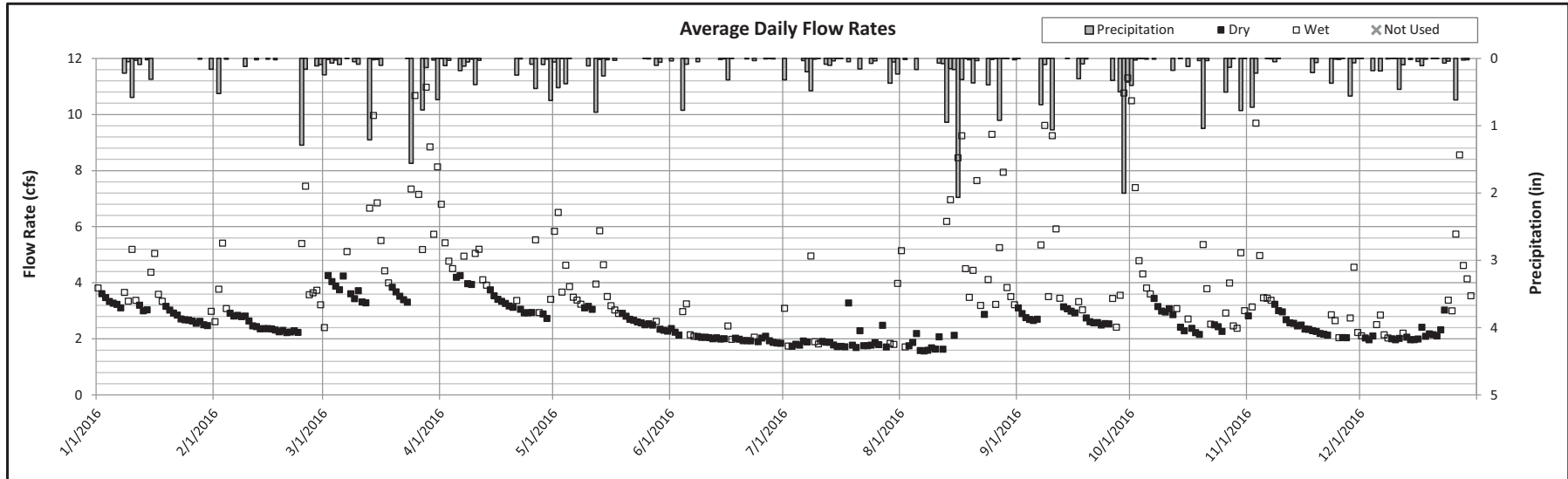
Downriver Sewage Disposal System

Meter Report

Meter: RR-1
Type: ADS Triton

Location: 17th Street near Visger Road
System Meter Type: Interceptor Flow Meter

Period: 1/1/2016 through 12/31/2016



Monthly Statistics						
Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-16	3.3	65.2	3.0	59.2	21	10
Feb-16	3.1	57.5	2.5	46.4	19	10
Mar-16	5.3	106.2	3.7	73.8	15	16
Apr-16	3.9	75.9	3.4	65.5	17	13
May-16	3.4	67.5	2.7	53.5	15	16
Jun-16	2.1	40.9	2.0	39.1	23	7
Jul-16	2.1	42.1	1.9	38.3	23	8
Aug-16	4.0	80.1	1.9	37.7	12	19
Sep-16	4.1	78.8	2.8	53.6	17	13
Oct-16	3.5	70.4	2.7	53.2	14	17
Nov-16	3.0	58.0	2.5	48.1	18	12
Dec-16	2.8	54.2	2.1	41.5	17	13

Statistics for Major Wet Weather Events							
Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
A	1.23	3/13/2016	3/14/2016	10.7	3/14/2016 0:30	2.8	3/14/2016 0:50
B	1.56	3/24/2016	3/24/2016	11.4	3/25/2016 2:05	6.7	3/24/2016 17:05
C	2.20	8/15/2016	8/16/2016	11.0	8/16/2016 14:35	10.4	8/16/2016 5:20
D	3.25	9/27/2016	10/1/2016	12.7	9/30/2016 8:30	3.8	9/29/2016 19:00

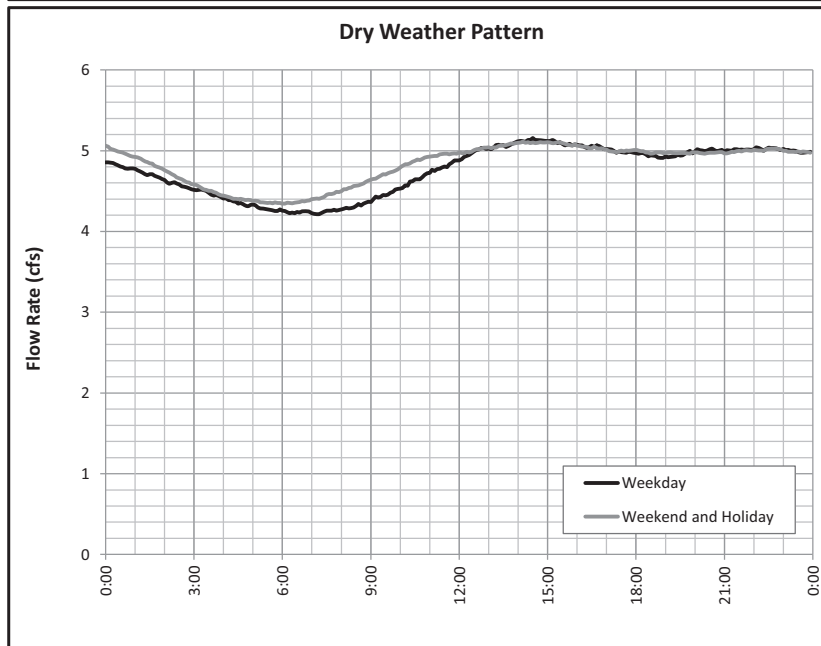
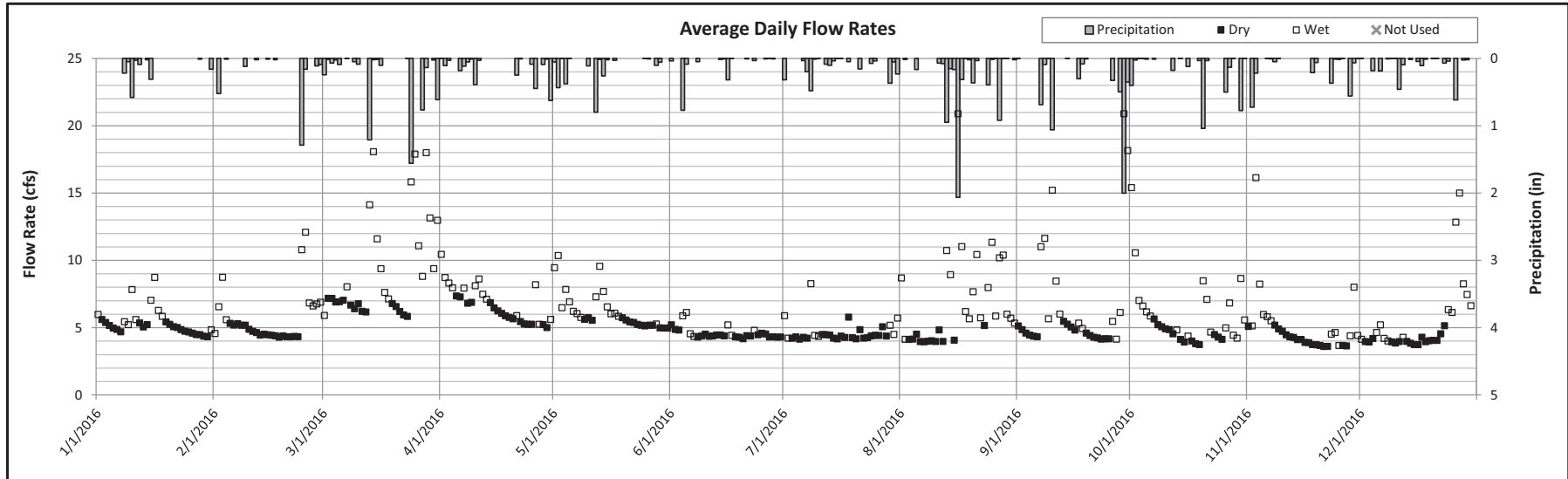
Downriver Sewage Disposal System

Meter Report

Meter: EC-6
Type: ADS Triton

Location: Riverdrive Interceptor South of Southfield Road
System Meter Type: Interceptor Flow Meter

Period: 1/1/2016 through 12/31/2016



Monthly Statistics						
Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-16	5.4	107.6	4.9	98.9	21	10
Feb-16	5.7	106.1	4.7	87.5	19	10
Mar-16	9.3	186.0	6.6	132.0	15	16
Apr-16	6.7	130.8	6.0	117.2	17	13
May-16	6.2	124.9	5.3	106.7	15	16
Jun-16	4.6	89.2	4.5	86.5	23	7
Jul-16	4.7	93.4	4.4	88.8	23	8
Aug-16	6.9	138.1	4.2	84.8	12	19
Sep-16	6.7	130.2	4.6	89.4	17	13
Oct-16	5.8	115.5	4.5	89.9	14	17
Nov-16	5.0	97.7	4.2	80.5	18	12
Dec-16	5.3	103.1	4.1	79.0	17	13

Statistics for Major Wet Weather Events							
Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
A	1.23	3/13/2016	3/14/2016	24.6	3/13/2016 23:55	8.0	3/14/2016 10:15
B	1.56	3/24/2016	3/24/2016	28.1	3/24/2016 16:45	10.4	3/24/2016 17:35
C	2.20	8/15/2016	8/16/2016	28.3	8/16/2016 2:20	13.6	8/16/2016 2:50-7:50
D	3.25	9/27/2016	10/1/2016	26.3	9/29/2016 13:45	7.5	9/29/2016 18:15

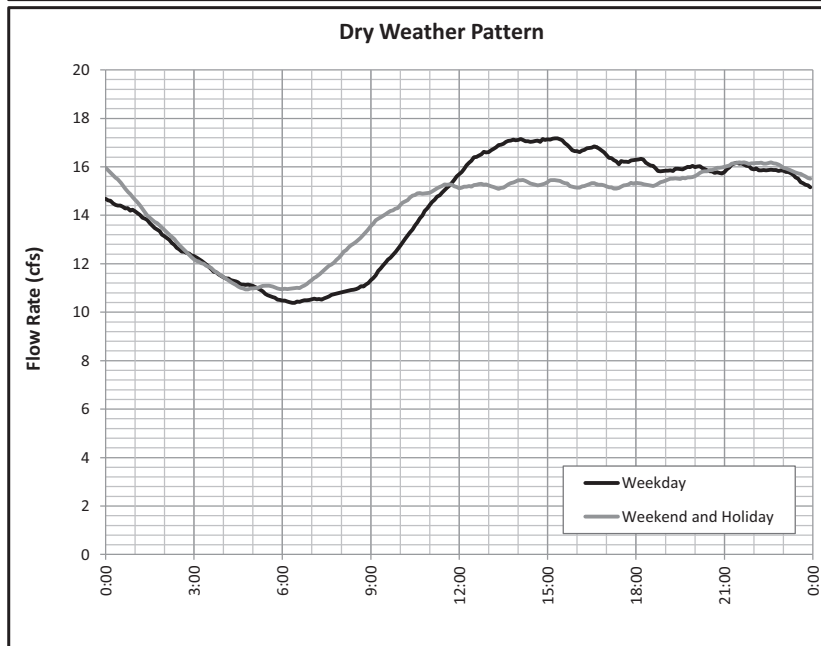
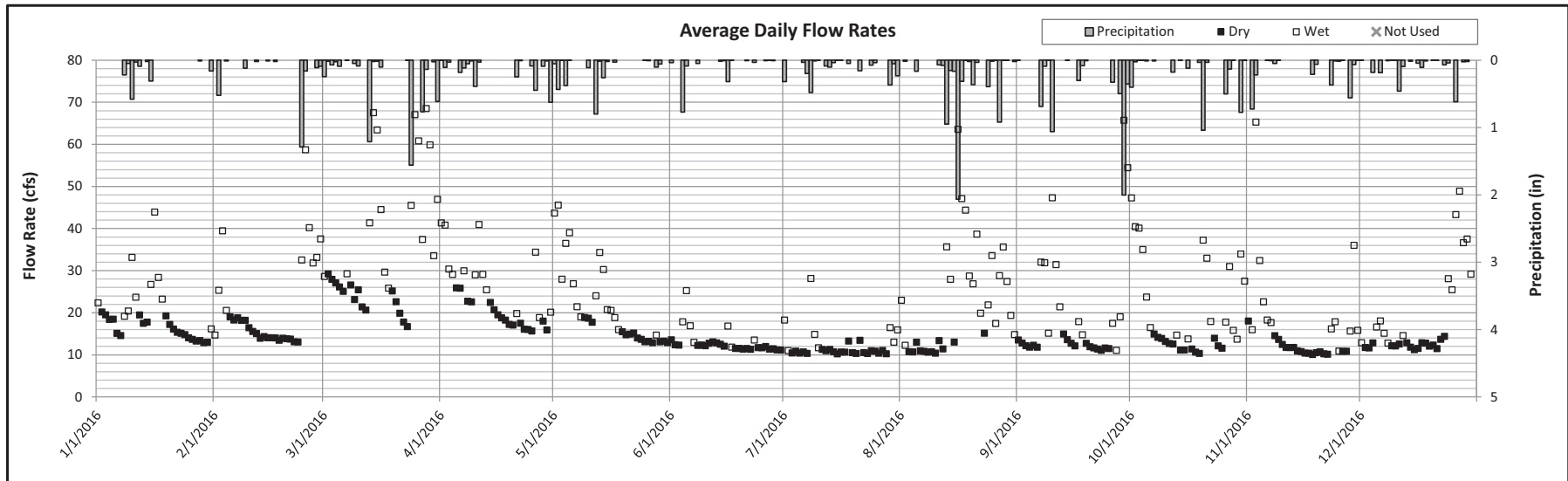
Downriver Sewage Disposal System

Meter Report

Meter: RD-1
Type: Accusonic 7510

Location: Riverdrive Interceptor North of Northline Road
System Meter Type: Interceptor Flow Meter

Period: 1/1/2016 through 12/31/2016



Monthly Statistics						
Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-16	19.2	385.5	16.2	323.7	21	10
Feb-16	21.6	404.1	15.3	287.2	19	10
Mar-16	35.6	714.1	23.7	474.1	15	16
Apr-16	24.0	465.2	19.4	376.8	17	13
May-16	21.3	427.5	14.8	296.3	15	16
Jun-16	13.0	252.9	12.0	232.8	23	7
Jul-16	12.3	245.6	10.9	218.4	23	8
Aug-16	22.8	457.7	11.8	235.5	12	19
Sep-16	19.7	381.0	12.3	239.3	17	13
Oct-16	20.4	409.3	12.4	248.7	14	17
Nov-16	16.5	319.7	11.7	226.2	18	12
Dec-16	18.5	358.1	12.4	239.7	17	13

Statistics for Major Wet Weather Events							
Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
A	1.23	3/13/2016	3/14/2016	65.5	3/13/2016 21:25	6.9	3/14/2016 10:25
B	1.56	3/24/2016	3/24/2016	69.0	3/24/2016 17:20	8.1	3/24/2016 17:45
C	2.20	8/15/2016	8/16/2016	84.1	8/16/2016 3:50	15.5	8/16/2016 5:30
D	3.25	9/27/2016	10/1/2016	69.1	9/29/2016 7:10	5.8	9/29/2016 17:55

Downriver Sewage Disposal System

Meter Report

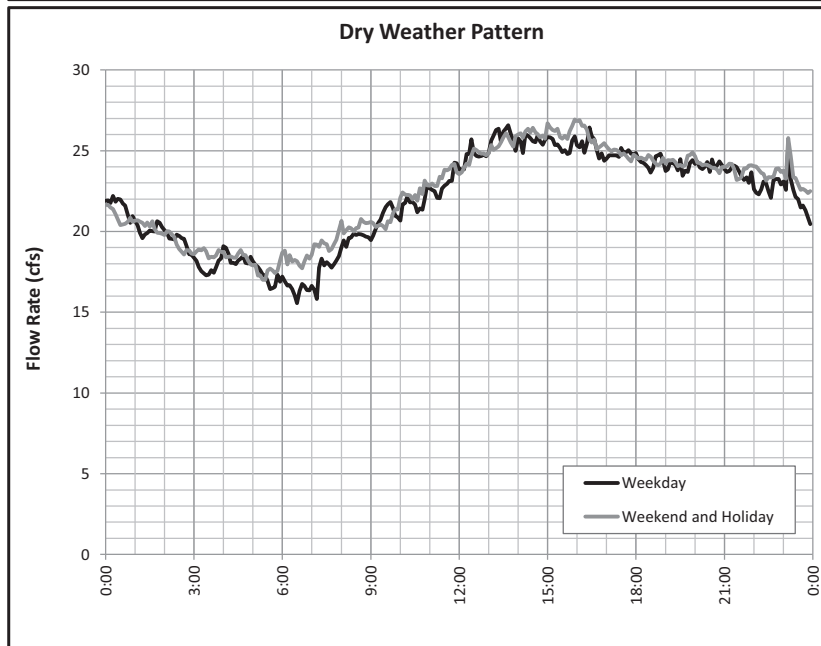
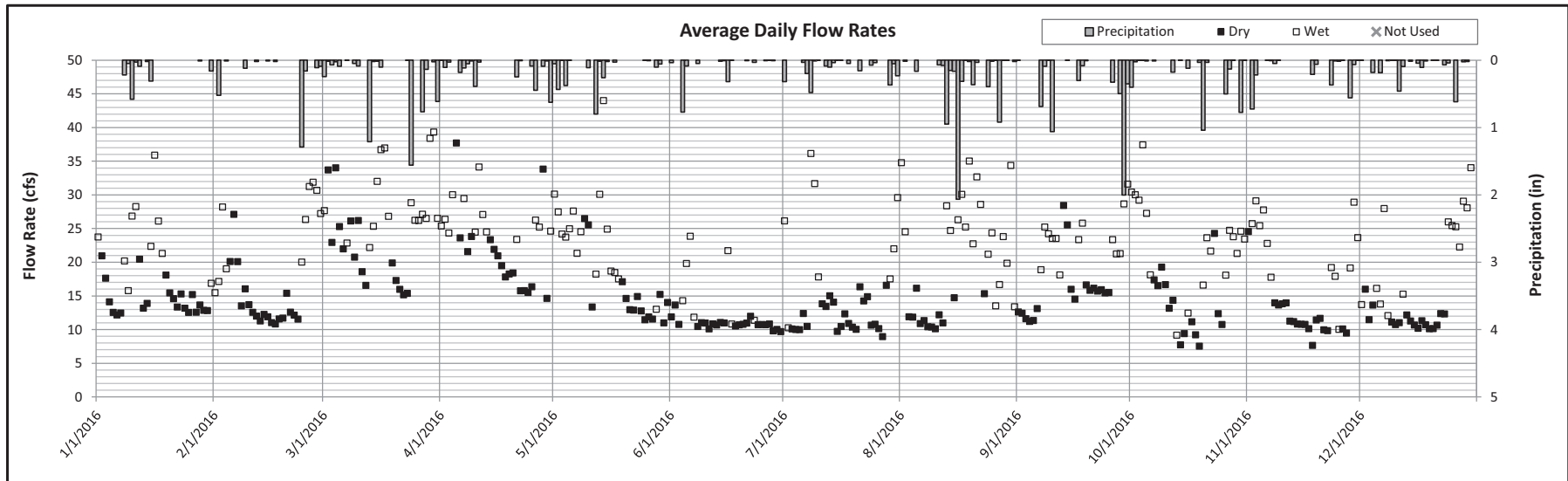
Meter: [SW] + [SWB]

Type: Accusonic 7510 (SW) & Telog 3314 (SWB)

Location: Southgate / Wyandotte

System Meter Type: Total for SWDDD

Period: 1/1/2016 through 12/31/2016



Monthly Statistics						
Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-16	17.6	351.9	14.6	293.0	21	10
Feb-16	17.7	332.7	14.1	263.8	19	10
Mar-16	25.8	516.8	22.0	440.7	15	16
Apr-16	23.5	455.1	21.1	409.3	17	13
May-16	19.8	397.3	15.1	301.6	15	16
Jun-16	12.1	235.1	10.9	210.8	23	7
Jul-16	15.1	301.8	12.0	240.3	23	8
Aug-16	20.2	405.0	12.2	244.3	12	19
Sep-16	19.2	372.9	15.8	305.7	17	13
Oct-16	18.8	376.1	13.6	271.7	14	17
Nov-16	16.1	311.9	12.0	231.7	18	12
Dec-16	16.4	318.9	11.5	223.6	17	13

Statistics for Major Wet Weather Events							
Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
A	1.23	3/13/2016	3/14/2016	32.2	3/13/2016 19:10	11.3	3/13/2016 20:40
B	1.56	3/24/2016	3/24/2016	56.5	3/24/2016 3:50	11.1	3/24/2016 14:25
C	2.20	8/15/2016	8/16/2016	41.7	8/16/2016 12:05	15.4	8/16/2016 5:30
D	3.25	9/27/2016	10/1/2016	45.4	9/30/2016 1:35	10.2	9/29/2016 4:45

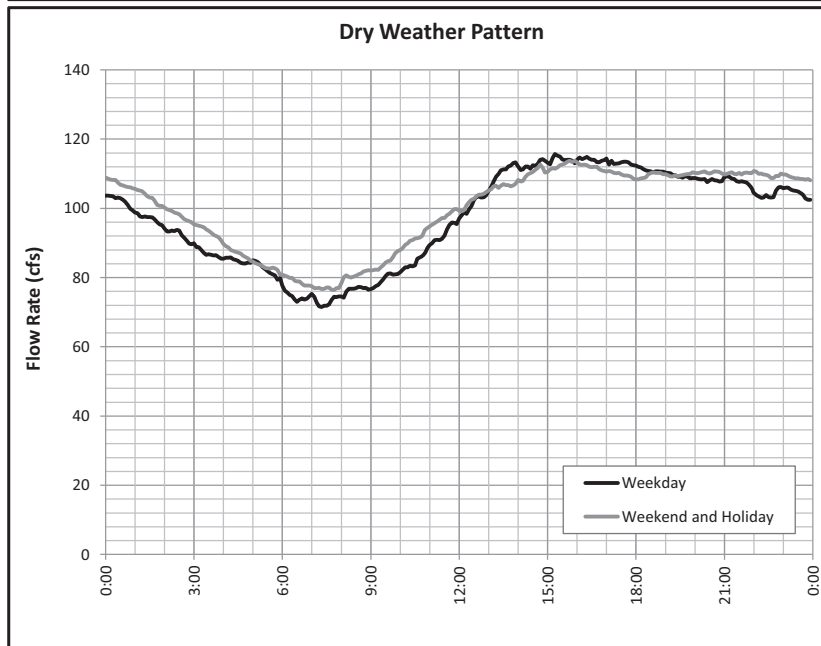
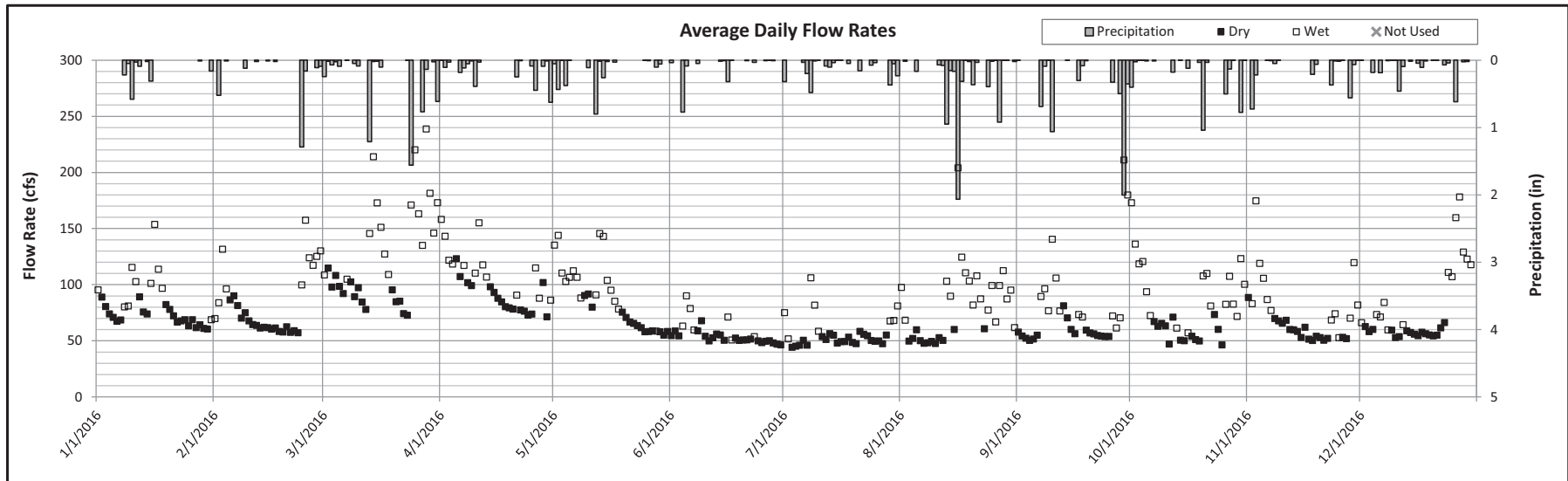
Downriver Sewage Disposal System

Meter Report

Meter: [IPS] + [TPS]
Type: Magmeters

Location: Main Influent Pump Station and Tunnel Pump Station
System Meter Type: DWTF

Period: 1/1/2016 through 12/31/2016



Monthly Statistics						
Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-16	81.1	1624.8	71.7	1435.7	21	10
Feb-16	82.6	1547.5	66.3	1241.9	19	10
Mar-16	127.0	2545.2	91.7	1837.8	15	16
Apr-16	101.2	1962.0	88.7	1719.2	17	13
May-16	87.7	1757.7	67.5	1352.7	15	16
Jun-16	55.9	1083.2	52.6	1018.9	23	7
Jul-16	56.6	1134.9	50.7	1015.4	23	8
Aug-16	80.9	1620.5	52.4	1050.4	12	19
Sep-16	76.8	1489.4	57.6	1116.7	17	13
Oct-16	81.1	1624.3	58.1	1163.7	14	17
Nov-16	72.8	1411.3	59.5	1152.8	18	12
Dec-16	78.1	1513.8	57.7	1118.4	17	13

Statistics for Major Wet Weather Events							
Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
A	1.23	3/13/2016	3/14/2016	302.7	3/13/2016 20:55	19.5	3/13/2016 20:20
B	1.56	3/24/2016	3/24/2016	306.8	3/24/2016 21:15	23.8	3/24/2016 21:50
C	2.20	8/15/2016	8/16/2016	320.4	8/16/2016 6:55	25.6	8/16/2016 8:30
D	3.25	9/27/2016	10/1/2016	319.1	9/29/2016 17:30	20.1	9/29/2016 17:20

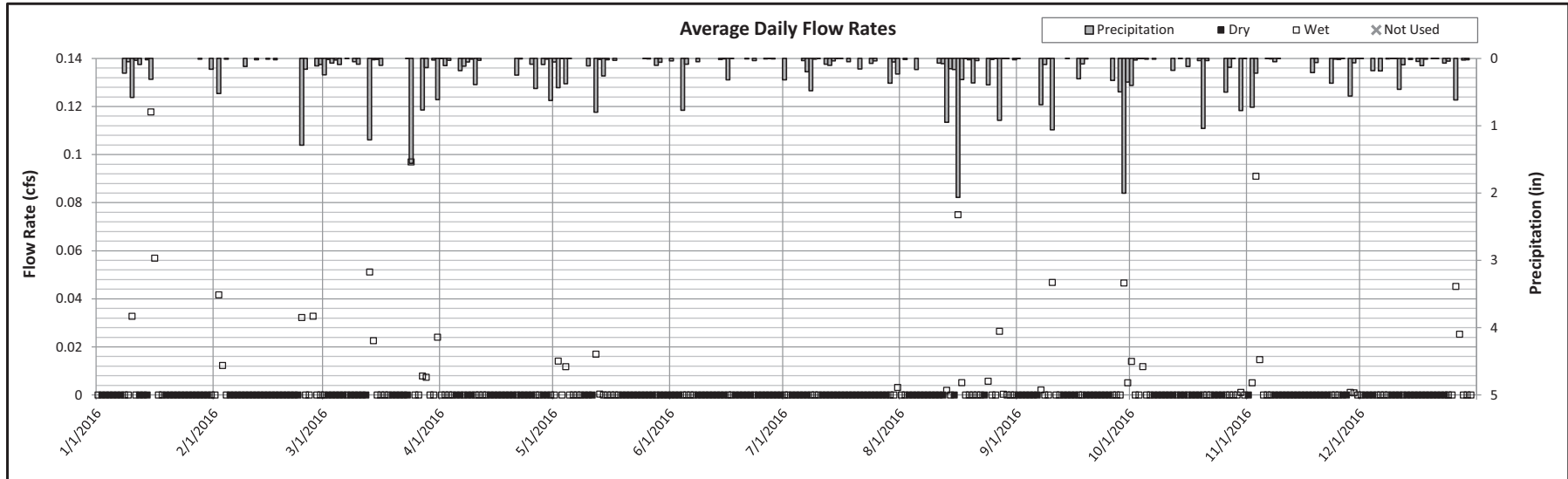
Downriver Sewage Disposal System

Meter Report

Meter: TSO
Type: ADS Triton+

Location: At Pelham Basin
System Meter Type: Tunnel System Flow Meter

Period: 1/1/2016 through 12/31/2016



Dry weather pattern not applicable to this meter

Monthly Statistics

Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-16	0.0	0.1	0.0	0.0	21	10
Feb-16	0.0	0.1	0.0	0.0	19	10
Mar-16	0.0	0.1	0.0	0.0	15	16
Apr-16	0.0	0.0	0.0	0.0	17	13
May-16	0.0	0.0	0.0	0.0	15	16
Jun-16	0.0	0.0	0.0	0.0	23	7
Jul-16	0.0	0.0	0.0	0.0	23	8
Aug-16	0.0	0.1	0.0	0.0	12	19
Sep-16	0.0	0.1	0.0	0.0	17	13
Oct-16	0.0	0.0	0.0	0.0	14	17
Nov-16	0.0	0.1	0.0	0.0	18	12
Dec-16	0.0	0.0	0.0	0.0	17	13

Statistics for Major Wet Weather Events

Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
A	1.23	3/13/2016	3/14/2016	0.1	3/13/2016 14:25	0.4	3/13/2016 13:40
B	1.56	3/24/2016	3/24/2016	0.7	3/24/2016 17:05	0.6	3/24/2016 17:25
C	2.20	8/15/2016	8/16/2016	0.8	8/16/2016 3:20	0.6	8/16/2016 3:35
D	3.25	9/27/2016	10/1/2016	0.1	9/29/2016 12:20	0.4	9/29/2016 12:50

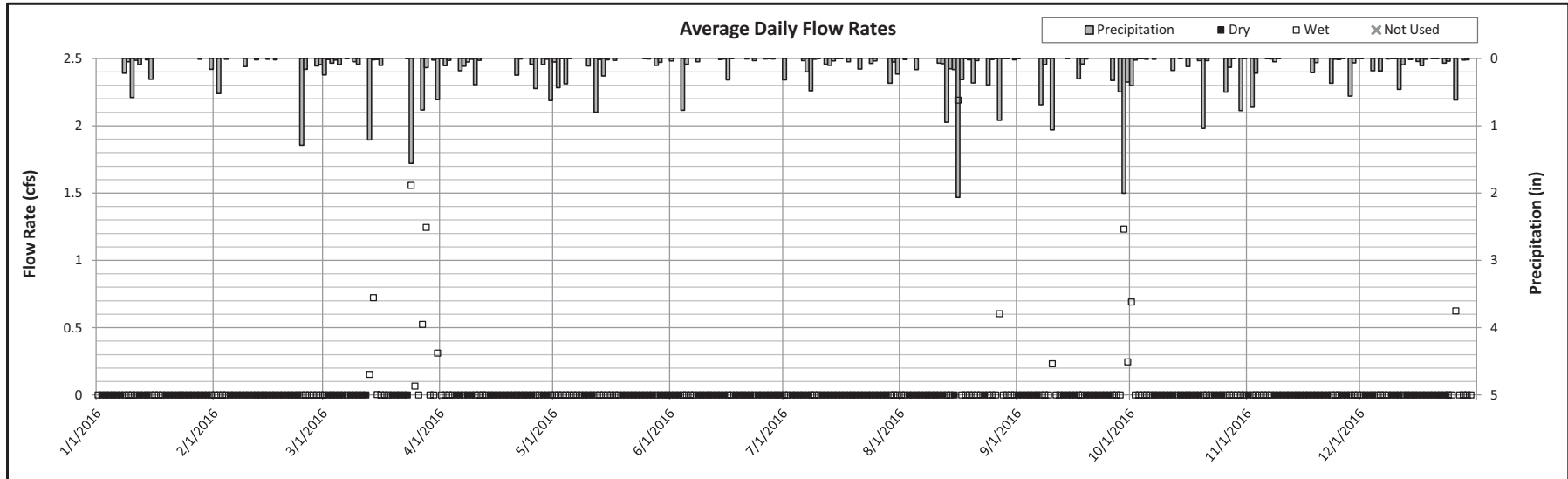
Downriver Sewage Disposal System

Meter Report

Meter: APO-1
Type: Telog 3307

Location: Belmont and Rosedale
System Meter Type: Tunnel Diversion Chamber Level Sensor

Period: 1/1/2016 through 12/31/2016



Dry weather pattern not applicable to this meter

Monthly Statistics

Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-16	0.0	0.0	0.0	0.0	21	10
Feb-16	0.0	0.0	0.0	0.0	19	10
Mar-16	0.1	3.0	0.0	0.0	15	16
Apr-16	0.0	0.0	0.0	0.0	17	13
May-16	0.0	0.0	0.0	0.0	15	16
Jun-16	0.0	0.0	0.0	0.0	23	7
Jul-16	0.0	0.0	0.0	0.0	23	8
Aug-16	0.1	1.8	0.0	0.0	12	19
Sep-16	0.1	1.1	0.0	0.0	17	13
Oct-16	0.0	0.4	0.0	0.0	14	17
Nov-16	0.0	0.0	0.0	0.0	18	12
Dec-16	0.0	0.4	0.0	0.0	17	13

Statistics for Major Wet Weather Events

Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
A	1.23	3/13/2016	3/14/2016	3.6	3/14/2016 0:45	9.2	3/14/2016 0:55
B	1.56	3/24/2016	3/24/2016	14.8	3/24/2016 16:30	9.5	3/24/2016 16:45
C	2.20	8/15/2016	8/16/2016	27.2	8/16/2016 3:50	10.2	8/16/2016 2:55
D	3.25	9/27/2016	10/1/2016	13.3	9/29/2016 12:25	9.5	9/29/2016 12:50

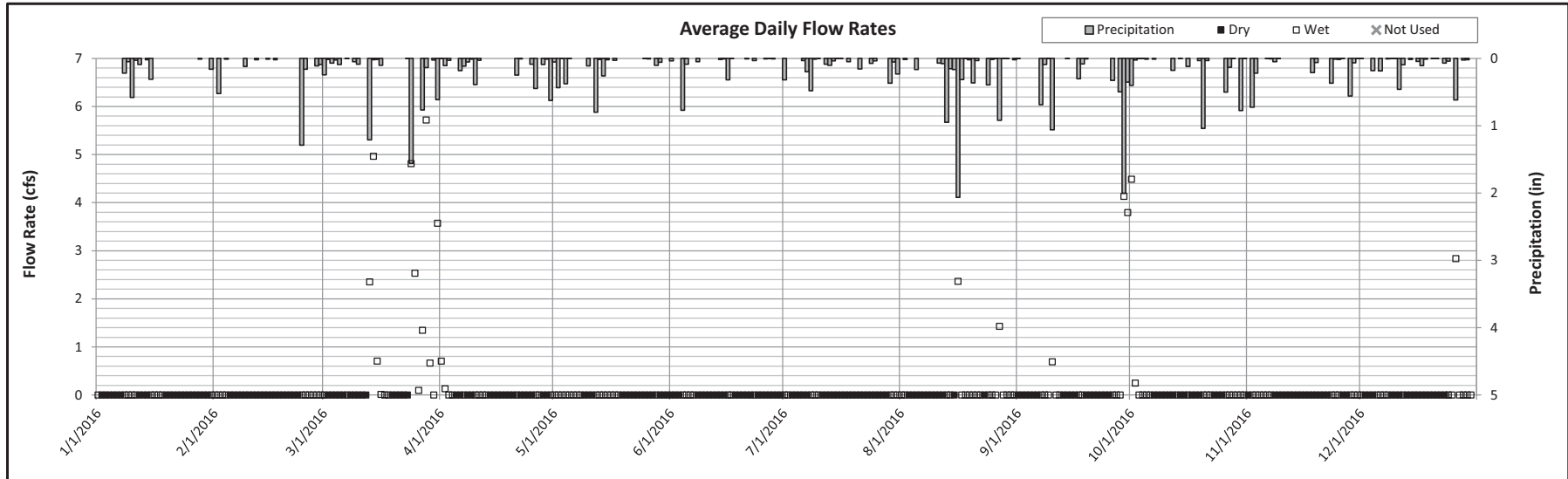
Downriver Sewage Disposal System

Meter Report

Meter: APO-2
Type: Telog 3307

Location: Belmont and Quandt
System Meter Type: Tunnel Diversion Chamber Level Sensor

Period: 1/1/2016 through 12/31/2016



Dry weather pattern not applicable to this meter

Monthly Statistics

Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-16	0.0	0.0	0.0	0.0	21	10
Feb-16	0.0	0.0	0.0	0.0	19	10
Mar-16	0.9	17.3	0.0	0.0	15	16
Apr-16	0.0	0.5	0.0	0.0	17	13
May-16	0.0	0.0	0.0	0.0	15	16
Jun-16	0.0	0.0	0.0	0.0	23	7
Jul-16	0.0	0.0	0.0	0.0	23	8
Aug-16	0.1	2.5	0.0	0.0	12	19
Sep-16	0.3	5.6	0.0	0.0	17	13
Oct-16	0.2	3.1	0.0	0.0	14	17
Nov-16	0.0	0.0	0.0	0.0	18	12
Dec-16	0.1	1.8	0.0	0.0	17	13

Statistics for Major Wet Weather Events

Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
A	1.23	3/13/2016	3/14/2016	13.5	3/13/2016 19:20	3.9	3/13/2016 19:30
B	1.56	3/24/2016	3/24/2016	30.5	3/24/2016 16:10	4.4	3/24/2016 16:40
C	2.20	8/15/2016	8/16/2016	28.4	8/16/2016 4:05	4.5	8/16/2016 4:30
D	3.25	9/27/2016	10/1/2016	21.7	9/29/2016 12:15	4.1	9/29/2016 12:30

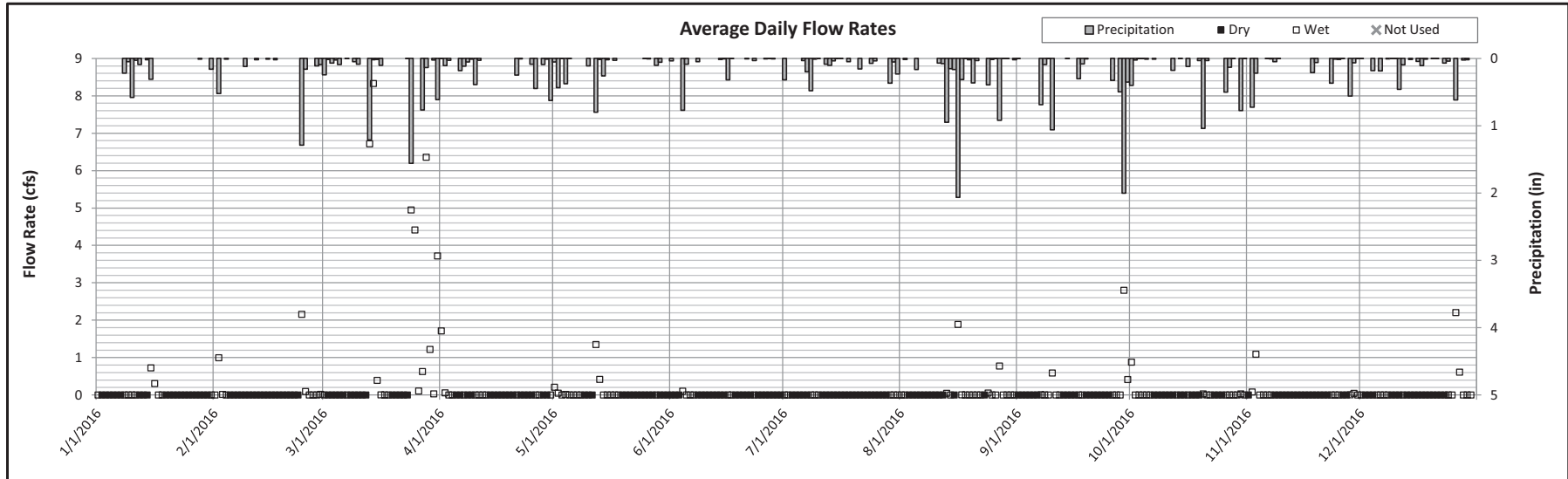
Downriver Sewage Disposal System

Meter Report

Meter: CHPO
Type: Telog 3307

Location: Pelham Road North of Haskell
System Meter Type: Tunnel Diversion Chamber Level Sensor

Period: 1/1/2016 through 12/31/2016



Dry weather pattern not applicable to this meter

Monthly Statistics

Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-16	0.0	0.7	0.0	0.0	21	10
Feb-16	0.1	2.1	0.0	0.0	19	10
Mar-16	1.2	23.8	0.0	0.0	15	16
Apr-16	0.1	1.1	0.0	0.0	17	13
May-16	0.1	1.3	0.0	0.0	15	16
Jun-16	0.0	0.1	0.0	0.0	23	7
Jul-16	0.0	0.0	0.0	0.0	23	8
Aug-16	0.1	1.8	0.0	0.0	12	19
Sep-16	0.1	2.5	0.0	0.0	17	13
Oct-16	0.0	0.6	0.0	0.0	14	17
Nov-16	0.0	0.8	0.0	0.0	18	12
Dec-16	0.1	1.8	0.0	0.0	17	13

Statistics for Major Wet Weather Events

Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
A	1.23	3/13/2016	3/14/2016	16.9	3/13/2016 19:35	4.4	3/13/2016 19:45
B	1.56	3/24/2016	3/24/2016	14.4	3/24/2016 16:40	4.3	3/24/2016 17:00
C	2.20	8/15/2016	8/16/2016	11.1	8/16/2016 2:30	4.2	8/16/2016 2:50
D	3.25	9/27/2016	10/1/2016	7.1	9/29/2016 12:35	4.0	9/29/2016 12:45

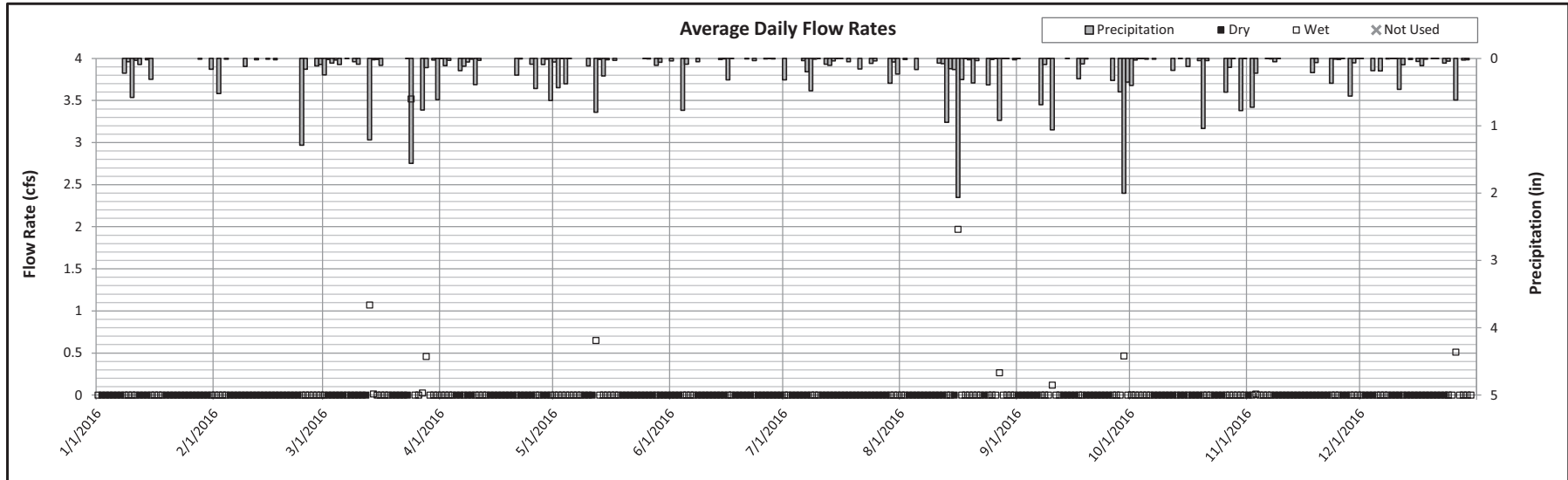
Downriver Sewage Disposal System

Meter Report

Meter: CPO
Type: Telog 3307

Location: Pelham Road South of R.R.
System Meter Type: Tunnel Diversion Chamber Level Sensor

Period: 1/1/2016 through 12/31/2016



Dry weather pattern not applicable to this meter

Monthly Statistics

Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-16	0.0	0.0	0.0	0.0	21	10
Feb-16	0.0	0.0	0.0	0.0	19	10
Mar-16	0.2	3.3	0.0	0.0	15	16
Apr-16	0.0	0.0	0.0	0.0	17	13
May-16	0.0	0.4	0.0	0.0	15	16
Jun-16	0.0	0.0	0.0	0.0	23	7
Jul-16	0.0	0.0	0.0	0.0	23	8
Aug-16	0.1	1.4	0.0	0.0	12	19
Sep-16	0.0	0.4	0.0	0.0	17	13
Oct-16	0.0	0.0	0.0	0.0	14	17
Nov-16	0.0	0.0	0.0	0.0	18	12
Dec-16	0.0	0.3	0.0	0.0	17	13

Statistics for Major Wet Weather Events

Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
A	1.23	3/13/2016	3/14/2016	5.5	3/13/2016 19:50	4.2	3/13/2016 20:05
B	1.56	3/24/2016	3/24/2016	23.3	3/24/2016 16:45	4.7	3/24/2016 17:05
C	2.20	8/15/2016	8/16/2016	22.6	8/16/2016 2:25	4.7	8/16/2016 2:50
D	3.25	9/27/2016	10/1/2016	6.9	9/29/2016 12:35	4.2	9/29/2016 12:50

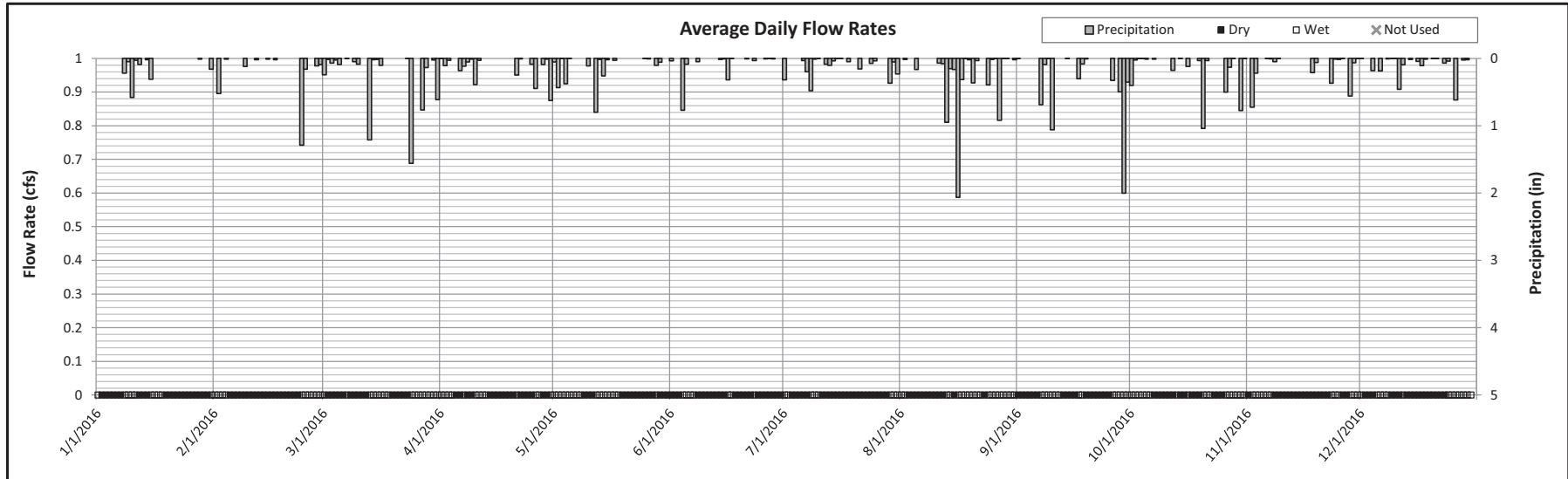
Downriver Sewage Disposal System

Meter Report

Meter: PDO
Type: Telog 3307

Location: Allen Road and Goddard
System Meter Type: Tunnel Diversion Chamber Level Sensor

Period: 1/1/2016 through 12/31/2016



Dry weather pattern not applicable to this meter

Monthly Statistics

Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-16	0.0	0.0	0.0	0.0	21	10
Feb-16	0.0	0.0	0.0	0.0	19	10
Mar-16	0.0	0.0	0.0	0.0	15	16
Apr-16	0.0	0.0	0.0	0.0	17	13
May-16	0.0	0.0	0.0	0.0	15	16
Jun-16	0.0	0.0	0.0	0.0	23	7
Jul-16	0.0	0.0	0.0	0.0	23	8
Aug-16	0.0	0.0	0.0	0.0	12	19
Sep-16	0.0	0.0	0.0	0.0	17	13
Oct-16	0.0	0.0	0.0	0.0	14	17
Nov-16	0.0	0.0	0.0	0.0	18	12
Dec-16	0.0	0.0	0.0	0.0	17	13

Statistics for Major Wet Weather Events

Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
A	1.23	3/13/2016	3/14/2016	0.0	-	1.0	3/13/2016 14:30
B	1.56	3/24/2016	3/24/2016	0.0	-	1.0	3/24/2016 16:55
C	2.20	8/15/2016	8/16/2016	0.0	-	0.7	8/16/2016 3:10
D	3.25	9/27/2016	10/1/2016	0.0	-	1.0	9/30/2016 13:00

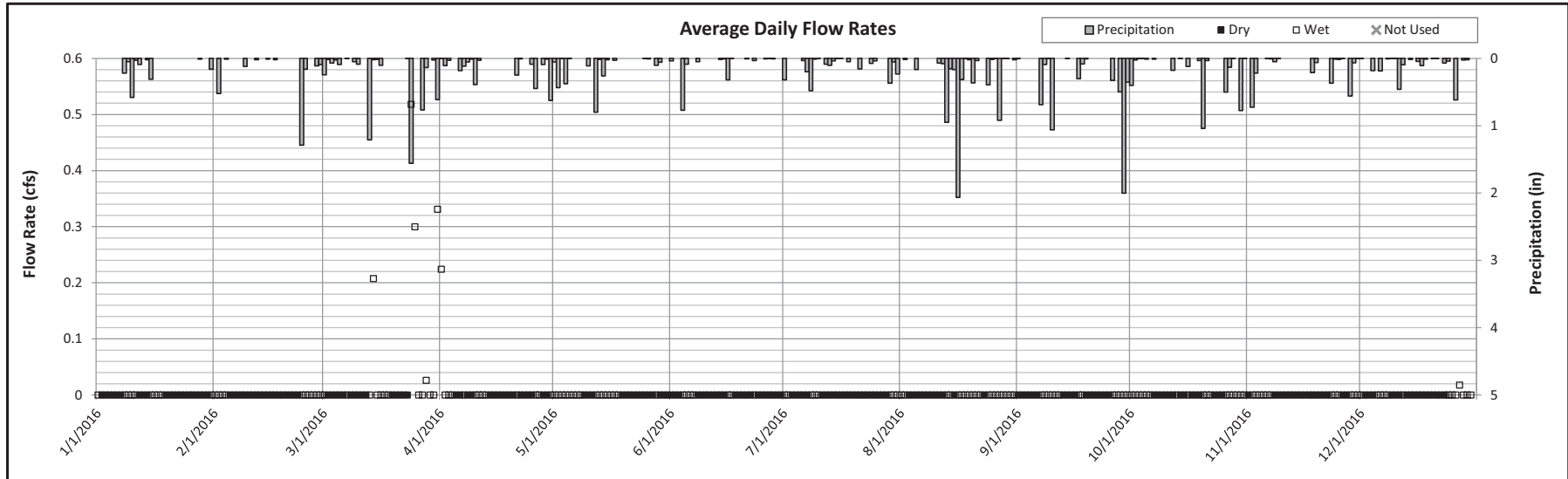
Downriver Sewage Disposal System

Meter Report

Meter: ER-2
Type: ADS Triton+

Location: Eureka Road and Inkster
System Meter Type: Tunnel System Flow Meter

Period: 1/1/2016 through 12/31/2016



Dry weather pattern not applicable to this meter

Monthly Statistics

Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-16	0.0	0.0	0.0	0.0	21	10
Feb-16	0.0	0.0	0.0	0.0	19	10
Mar-16	0.0	0.9	0.0	0.0	15	16
Apr-16	0.0	0.1	0.0	0.0	17	13
May-16	0.0	0.0	0.0	0.0	15	16
Jun-16	0.0	0.0	0.0	0.0	23	7
Jul-16	0.0	0.0	0.0	0.0	23	8
Aug-16	0.0	0.0	0.0	0.0	12	19
Sep-16	0.0	0.0	0.0	0.0	17	13
Oct-16	0.0	0.0	0.0	0.0	14	17
Nov-16	0.0	0.0	0.0	0.0	18	12
Dec-16	0.0	0.0	0.0	0.0	17	13

Statistics for Major Wet Weather Events

Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
A	1.23	3/13/2016	3/14/2016	1.0	3/14/2016 0:55	0.6	3/14/2016 1:25
B	1.56	3/24/2016	3/24/2016	2.6	3/24/2016 19:50	0.8	3/24/2016 20:40
C	2.20	8/15/2016	8/16/2016	0.0	-	0.3	8/15/2016 0:00
D	3.25	9/27/2016	10/1/2016	0.0	-	0.3	9/30/2016 0:35

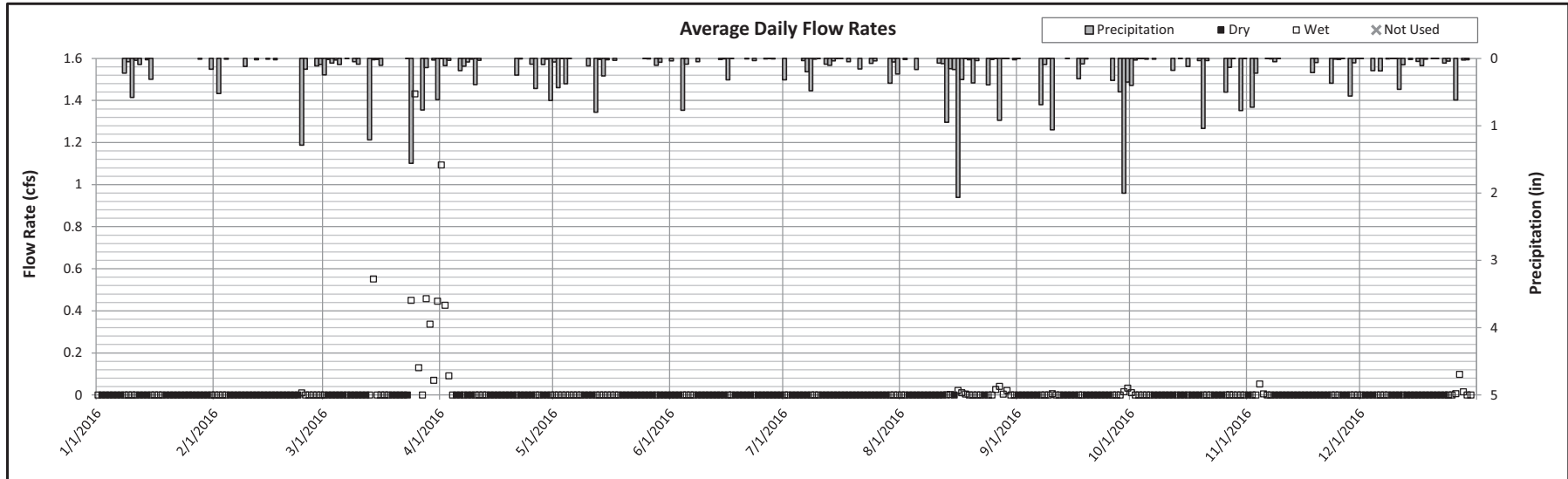
Downriver Sewage Disposal System

Meter Report

Meter: ER-1
Type: ADS Triton+

Location: Allen Road and Eureka Road
System Meter Type: Tunnel System Flow Meter

Period: 1/1/2016 through 12/31/2016



Dry weather pattern not applicable to this meter

Monthly Statistics

Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-16	0.0	0.0	0.0	0.0	21	10
Feb-16	0.0	0.0	0.0	0.0	19	10
Mar-16	0.1	2.5	0.0	0.0	15	16
Apr-16	0.1	1.0	0.0	0.0	17	13
May-16	0.0	0.0	0.0	0.0	15	16
Jun-16	0.0	0.0	0.0	0.0	23	7
Jul-16	0.0	0.0	0.0	0.0	23	8
Aug-16	0.0	0.1	0.0	0.0	12	19
Sep-16	0.0	0.0	0.0	0.0	17	13
Oct-16	0.0	0.0	0.0	0.0	14	17
Nov-16	0.0	0.0	0.0	0.0	18	12
Dec-16	0.0	0.1	0.0	0.0	17	13

Statistics for Major Wet Weather Events

Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
A	1.23	3/13/2016	3/14/2016	1.9	3/14/2016 4:30	0.4	3/14/2016 5:15
B	1.56	3/24/2016	3/24/2016	5.0	3/24/2016 23:45	0.7	3/24/2016 23:45
C	2.20	8/15/2016	8/16/2016	0.1	8/16/2016 7:40	0.2	8/16/2016 5:15
D	3.25	9/27/2016	10/1/2016	0.1	9/30/2016 13:25	0.2	9/30/2016 13:45

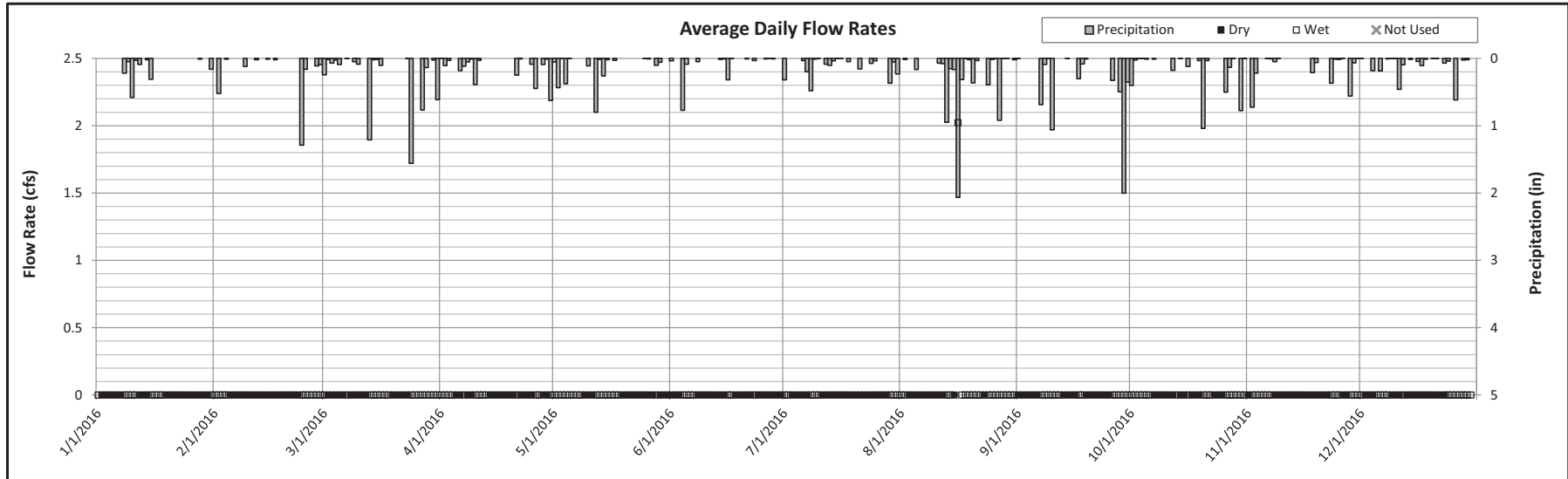
Downriver Sewage Disposal System

Meter Report

Meter: PM-1
Type: Telog 3307

Location: Pennsylvania Ave. at Fordline
System Meter Type: Tunnel Diversion Chamber Level Sensor

Period: 1/1/2016 through 12/31/2016



Dry weather pattern not applicable to this meter

Monthly Statistics

Month	All Days		Dry Days			
	Avg. (cfs)	Vol. (MG)	Avg. (cfs)	Vol. (MG)	# Dry Days	# Wet Days
Jan-16	0.0	0.0	0.0	0.0	21	10
Feb-16	0.0	0.0	0.0	0.0	19	10
Mar-16	0.0	0.0	0.0	0.0	15	16
Apr-16	0.0	0.0	0.0	0.0	17	13
May-16	0.0	0.0	0.0	0.0	15	16
Jun-16	0.0	0.0	0.0	0.0	23	7
Jul-16	0.0	0.0	0.0	0.0	23	8
Aug-16	0.1	1.3	0.0	0.0	12	19
Sep-16	0.0	0.0	0.0	0.0	17	13
Oct-16	0.0	0.0	0.0	0.0	14	17
Nov-16	0.0	0.0	0.0	0.0	18	12
Dec-16	0.0	0.0	0.0	0.0	17	13

Statistics for Major Wet Weather Events

Event No.	Rainfall (in)	Start Date	End Date	Flow Rate		Depth	
				Max. Hour (cfs)	Date/Time	Max. (ft)	Date/Time
A	1.23	3/13/2016	3/14/2016	0.0	-	4.1	3/13/2016 21:40
B	1.56	3/24/2016	3/24/2016	0.0	-	5.4	3/24/2016 18:55
C	2.20	8/15/2016	8/16/2016	37.1	8/16/2016 5:20	8.9	8/16/2016 5:30
D	3.25	9/27/2016	10/1/2016	0.0	-	3.7	9/29/2016 14:35

Appendix C

2016 Precipitation Data

Table C-1
Downriver Sewage Disposal System
Summary of Precipitation Data for Significant Storm Events

Period: 1/1/2016 through 12/31/2016

Significant Event No. ¹	Major Storm Event ²	DWTF Peak Hourly Flow Rate (cfs)	Start Date	Stop Date	Preceding Week Rainfall (inches)	Event Precipitation Depth (inches)				Coefficient of Variation ⁴
						Minimum	Average ³	Maximum	Std. Dev	
1	-	199	2/24/2016	2/25/2016	0.00	0.66	1.20	1.56	0.28	23%
2	A	303	3/13/2016	3/14/2016	0.14	0.99	1.23	1.41	0.15	12%
3	B	307	3/24/2016	3/24/2016	0.01	1.41	1.56	1.68	0.09	6%
4	-	187	5/12/2016	5/14/2016	0.11	0.74	1.04	1.50	0.23	23%
5	C	320	8/15/2016	8/16/2016	1.26	1.51	2.20	3.08	0.55	25%
6	-	204	9/10/2016	9/10/2016	0.78	0.90	1.05	1.28	0.12	11%
7	D	319	9/27/2016	10/1/2016	0.33	2.61	3.25	4.01	0.47	14%
8	-	165	10/20/2016	10/21/2016	0.15	0.86	1.05	1.42	0.14	14%

Notes:

- 1) Significant storm events are defined as those with at least 0.5 inches of rainfall occurring on a single day with an event total of at least 1.0 inch of rainfall. Significant storm events are separated by at least 2 consecutive days without precipitation over 0.1 inches. This storm event definition is based on the arithmetic mean of the rainfall recorded by all rain gages used in the analysis for that storm.
- 2) Major storm events are a subgroup of significant storm events which result in the peak hourly influent flow rate to the DWTF reaching or exceeding 175 MGD (271 cfs).
- 3) The average precipitation value is an arithmetic average of the collection of point gages listed on Table C-2.
- 4) The coefficient of variation is the ratio of the standard deviation to the average. It provides a normalized assessment of the degree of spatial variability for a given event. This allows comparisons to be made between events regarding their uniformity over the service area independent of the magnitude of each event. A low coefficient of variation means the storm event was spatially uniform over the district, high coefficient of variation means the storm event was highly variable over the district.
- 5) Table C-2 provides the recorded precipitation at each rain gage for these significant/major storm events.

Table C-2
Downriver Sewage Disposal System
Rainfall Event Summary Table

Significant Storm Event 1
Start Date: 2/24/2016
Stop Date: 2/25/2016

Gage ID	Peak Rainfall (in)								
	1-Hour	2-Hour	3-Hour	6-Hour	12-Hour	24-Hour	2-Day	3-Day	Event Total
R-14	0.00*	0.00*	0.00*	0.00*	0.00*	0.00*	0.00*	0.00*	0.00*
R-18	0.16	0.29	0.39	0.56	0.85	0.89	0.90	0.90	0.90
R-2	0.14	0.27	0.36	0.59	0.93	1.05	1.06	1.06	1.06
R-10	0.15	0.29	0.40	0.67	0.96	1.10	1.14	1.14	1.14
DTW	0.13	0.26	0.38	0.52	0.85	1.03	1.07	1.07	1.07
R-9	0.17	0.31	0.42	0.51	0.58	0.65	0.66	0.66	0.66
R-4	0.22	0.37	0.52	0.75	1.16	1.45	1.56	1.56	1.56
R-8	0.19	0.33	0.47	0.67	1.08	1.27	1.32	1.32	1.32
R-15	0.19	0.35	0.53	0.74	1.02	1.11	1.12	1.12	1.12
R-17	0.23	0.42	0.58	0.84	1.22	1.45	1.50	1.50	1.50
R-6	0.23	0.41	0.56	0.77	1.13	1.42	1.47	1.47	1.47
R-16	0.23	0.41	0.54	0.76	1.16	1.41	1.45	1.45	1.45
Minimum:	0.13	0.26	0.36	0.51	0.58	0.65	0.66	0.66	0.66
Average:	0.19	0.34	0.47	0.67	0.99	1.17	1.20	1.20	1.20
Maximum:	0.23	0.42	0.58	0.84	1.22	1.45	1.56	1.56	1.56
Standard Deviation (in):									0.28
Coefficient of Variation:									23%

X.XX* Missing data, suspect data, or calibration data (not used).

Gage ID	Recurrence Interval (years)								
	1-Hour	2-Hour	3-Hour	6-Hour	12-Hour	24-Hour	2-Day	3-Day	Maximum
R-14	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-18	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-2	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-10	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
DTW	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-9	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-4	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-8	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-15	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-17	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-6	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-16	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Minimum:	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Average:	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Maximum:	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1

- Missing data, suspect data, or calibration data (not used).

Notes:

- 1) Return periods determined from point precipitation frequency (PF) estimates from NOAA Atlas 14, Volume 8, Version 2 published in 2013. NOAA Atlas 14 is the current reference document for return frequency as of 2013.
- 2) Return periods calculated by linear interpolation between the published whole number month or year frequencies.

Table C-2 continued
Downriver Sewage Disposal System
Rainfall Event Summary Table

Significant Storm Event 2
Start Date: 3/13/2016
Stop Date: 3/14/2016

Gage ID	Peak Rainfall (in)								
	1-Hour	2-Hour	3-Hour	6-Hour	12-Hour	24-Hour	2-Day	3-Day	Event Total
R-14	0.14	0.22	0.26	0.48	0.91	0.99	0.99	1.05	0.99
R-18	0.18	0.28	0.31	0.48	0.90	0.99	0.99	1.10	0.99
R-2	0.21	0.38	0.41	0.56	0.97	1.04	1.05	1.13	1.05
R-10	0.24	0.40	0.43	0.63	1.18	1.28	1.29	1.43	1.29
DTW	0.20	0.36	0.49	0.65	1.16	1.25	1.25	1.36	1.25
R-9	0.20	0.36	0.45	0.65	1.10	1.20	1.22	1.36	1.22
R-4	0.22	0.35	0.46	0.68	1.20	1.39	1.41	1.51	1.41
R-8	0.25	0.39	0.49	0.70	1.13	1.25	1.26	1.35	1.26
R-15	0.23	0.38	0.49	0.75	1.22	1.35	1.36	1.52	1.36
R-17	0.28	0.43	0.53	0.74	1.19	1.35	1.37	1.46	1.37
R-6	0.26	0.41	0.51	0.69	1.16	1.37	1.39	1.58	1.39
R-16	0.20	0.34	0.45	0.64	1.00	1.17	1.19	1.30	1.18
Minimum:	0.14	0.22	0.26	0.48	0.90	0.99	0.99	1.05	0.99
Average:	0.22	0.36	0.44	0.64	1.09	1.22	1.23	1.35	1.23
Maximum:	0.28	0.43	0.53	0.75	1.22	1.39	1.41	1.58	1.41
Standard Deviation (in):									0.15
Coefficient of Variation:									12%
X.XX*	Missing data, suspect data, or calibration data (not used).								

Gage ID	Recurrence Interval (years)								
	1-Hour	2-Hour	3-Hour	6-Hour	12-Hour	24-Hour	2-Day	3-Day	Maximum
R-14	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-18	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-2	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-10	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
DTW	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-9	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-4	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-8	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-15	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-17	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-6	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-16	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Minimum:	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Average:	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Maximum:	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1

- Missing data, suspect data, or calibration data (not used).

Notes:

- 1) Return periods determined from point precipitation frequency (PF) estimates from NOAA Atlas 14, Volume 8, Version 2 published in 2013. NOAA Atlas 14 is the current reference document for return frequency as of 2013.
- 2) Return periods calculated by linear interpolation between the published whole number month or year frequencies.

Table C-2 continued
Downriver Sewage Disposal System
Rainfall Event Summary Table

Significant Storm Event 3
Start Date: 3/24/2016
Stop Date: 3/24/2016

Gage ID	Peak Rainfall (in)								
	1-Hour	2-Hour	3-Hour	6-Hour	12-Hour	24-Hour	2-Day	3-Day	Event Total
R-14	0.33	0.61	0.80	1.12	1.24	1.44	1.44	1.44	1.44
R-18	0.36	0.66	0.86	1.27	1.36	1.54	1.54	1.54	1.54
R-2	0.33	0.59	0.72	1.17	1.24	1.41	1.41	1.41	1.41
R-10	0.36	0.67	0.84	1.28	1.37	1.58	1.58	1.58	1.58
DTW	0.32	0.54	0.75	1.13	1.25	1.49	1.49	1.49	1.49
R-9	0.46	0.62	0.76	1.39	1.47	1.68	1.68	1.68	1.68
R-4	0.40	0.72	0.85	1.34	1.40	1.61	1.61	1.61	1.61
R-8	0.36	0.66	0.79	1.31	1.36	1.60	1.60	1.60	1.59
R-15	0.41	0.62	0.74	1.32	1.39	1.67	1.67	1.67	1.67
R-17	0.43	0.76	0.89	1.36	1.40	1.63	1.63	1.63	1.63
R-6	0.32	0.62	0.76	1.23	1.29	1.49	1.49	1.49	1.49
R-16	0.41	0.68	0.81	1.23	1.28	1.54	1.54	1.54	1.53
Minimum:	0.32	0.54	0.72	1.12	1.24	1.41	1.41	1.41	1.41
Average:	0.37	0.65	0.80	1.26	1.34	1.56	1.56	1.56	1.56
Maximum:	0.46	0.76	0.89	1.39	1.47	1.68	1.68	1.68	1.68
Standard Deviation (in):									0.09
Coefficient of Variation:									6%
X.XX*	Missing data, suspect data, or calibration data (not used).								

Gage ID	Recurrence Interval (years)								
	1-Hour	2-Hour	3-Hour	6-Hour	12-Hour	24-Hour	2-Day	3-Day	Maximum
R-14	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-18	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-2	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-10	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
DTW	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-9	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-4	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-8	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-15	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-17	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-6	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-16	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Minimum:	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Average:	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Maximum:	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1

- Missing data, suspect data, or calibration data (not used).

Notes:

- 1) Return periods determined from point precipitation frequency (PF) estimates from NOAA Atlas 14, Volume 8, Version 2 published in 2013. NOAA Atlas 14 is the current reference document for return frequency as of 2013.
- 2) Return periods calculated by linear interpolation between the published whole number month or year frequencies.

Table C-2 continued
Downriver Sewage Disposal System
Rainfall Event Summary Table

Significant Storm Event 4
Start Date: 5/12/2016
Stop Date: 5/14/2016

Gage ID	Peak Rainfall (in)								
	1-Hour	2-Hour	3-Hour	6-Hour	12-Hour	24-Hour	2-Day	3-Day	Event Total
R-14	0.47	0.72	0.78	0.78	0.78	0.78	1.04	1.06	1.04
R-18	0.25	0.46	0.47	0.47	0.47	0.61	0.88	0.88	0.88
R-2	0.94	1.20	1.23	1.23	1.24	1.24	1.53	1.54	1.50
R-10	0.49	0.74	0.75	0.75	0.76	0.79	1.04	1.07	1.04
DTW	0.66	0.94	1.02	1.02	1.02	1.02	1.25	1.29	1.25
R-9	0.77	0.94	0.95	0.95	0.95	0.97	1.24	1.25	1.24
R-4	0.42	0.48	0.50	0.51	0.51	0.57	0.82	0.83	0.82
R-8	0.46	0.58	0.58	0.59	0.59	0.61	0.90	0.92	0.86
R-15	1.01	1.17	1.18	1.18	1.18	1.28	1.28	1.28	1.28
R-17	0.38	0.43	0.45	0.45	0.45	0.49	0.74	0.76	0.74
R-6	0.45	0.49	0.52	0.52	0.52	0.58	0.83	0.85	0.83
R-16	0.54	0.60	0.63	0.63	0.63	0.67	0.96	1.00	0.94
Minimum:	0.25	0.43	0.45	0.45	0.45	0.49	0.74	0.76	0.74
Average:	0.57	0.73	0.76	0.76	0.76	0.80	1.04	1.06	1.04
Maximum:	1.01	1.20	1.23	1.23	1.24	1.28	1.53	1.54	1.50
Standard Deviation (in):									0.23
Coefficient of Variation:									23%
X.XX*	Missing data, suspect data, or calibration data (not used).								

Gage ID	Recurrence Interval (years)								
	1-Hour	2-Hour	3-Hour	6-Hour	12-Hour	24-Hour	2-Day	3-Day	Maximum
R-14	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-18	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-2	< 1	1	< 1	< 1	< 1	< 1	< 1	< 1	1
R-10	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
DTW	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-9	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-4	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-8	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-15	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	1
R-17	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-6	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-16	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Minimum:	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Average:	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Maximum:	1	1	< 1	< 1	< 1	< 1	< 1	< 1	1

- Missing data, suspect data, or calibration data (not used).

Notes:

- 1) Return periods determined from point precipitation frequency (PF) estimates from NOAA Atlas 14, Volume 8, Version 2 published in 2013. NOAA Atlas 14 is the current reference document for return frequency as of 2013.
- 2) Return periods calculated by linear interpolation between the published whole number month or year frequencies.

Table C-2 continued
Downriver Sewage Disposal System
Rainfall Event Summary Table

Significant Storm Event 5
Start Date: 8/15/2016
Stop Date: 8/16/2016

Gage ID	Peak Rainfall (in)								
	1-Hour	2-Hour	3-Hour	6-Hour	12-Hour	24-Hour	2-Day	3-Day	Event Total
R-14	0.99	1.48	1.66	1.96	1.98	2.02	2.34	2.34	2.02
R-18	0.65	1.01	1.19	1.46	1.50	1.51	2.26	2.26	1.51
R-2	1.07	1.54	1.66	1.84	1.88	1.88	2.27	2.27	1.88
R-10	1.00	1.59	1.72	1.93	1.97	1.97	2.33	2.33	1.97
DTW	1.08	1.55	1.91	2.02	2.07	2.08	2.27	2.27	2.08
R-9	1.94	2.03	2.04	2.04	2.08	2.09	2.36	2.36	2.09
R-4	1.94	2.34	2.74	2.94	3.00	3.01	3.14	3.15	3.01
R-8	1.29	1.73	1.88	2.11	2.14	2.18	2.40	2.41	2.18
R-15	1.00	1.46	1.66	1.92	1.94	1.96	2.31	2.31	1.96
R-17	1.88	2.35	2.81	3.03	3.06	3.08	3.41	3.41	3.08
R-6	0.65	0.95	1.34	1.52	1.58	1.59	1.69	1.69	1.59
R-16	1.80	2.27	2.79	3.00	3.04	3.06	3.40	3.40	3.06
Minimum:	0.65	0.95	1.19	1.46	1.50	1.51	1.69	1.69	1.51
Average:	1.27	1.69	1.95	2.15	2.19	2.20	2.52	2.52	2.20
Maximum:	1.94	2.35	2.81	3.03	3.06	3.08	3.41	3.41	3.08
Standard Deviation (in):									0.55
Coefficient of Variation:									25%
X.XX*	Missing data, suspect data, or calibration data (not used).								

Gage ID	Recurrence Interval (years)								
	1-Hour	2-Hour	3-Hour	6-Hour	12-Hour	24-Hour	2-Day	3-Day	Maximum
R-14	1	3	3	3	2	< 1	< 1	< 1	3
R-18	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-2	2	3	3	2	1	< 1	< 1	< 1	3
R-10	1	4	3	3	2	< 1	< 1	< 1	4
DTW	2	3	5	4	2	1	< 1	< 1	5
R-9	20	9	6	4	2	1	1	< 1	20
R-4	20	20	24	19	12	7	4	3	24
R-8	3	5	5	4	3	1	1	< 1	5
R-15	1	2	3	3	2	< 1	< 1	< 1	3
R-17	18	20	27	21	13	8	7	4	27
R-6	< 1	< 1	1	< 1	< 1	< 1	< 1	< 1	1
R-16	14	17	26	20	12	7	6	4	26
Minimum:	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Average:	7	7	9	7	4	3	2	2	10
Maximum:	20	20	27	21	13	8	7	4	27

- Missing data, suspect data, or calibration data (not used).

Notes:

- 1) Return periods determined from point precipitation frequency (PF) estimates from NOAA Atlas 14, Volume 8, Version 2 published in 2013. NOAA Atlas 14 is the current reference document for return frequency as of 2013.
- 2) Return periods calculated by linear interpolation between the published whole number month or year frequencies.

Table C-2 continued
Downriver Sewage Disposal System
Rainfall Event Summary Table

Significant Storm Event 6
Start Date: 9/10/2016
Stop Date: 9/10/2016

Gage ID	Peak Rainfall (in)								
	1-Hour	2-Hour	3-Hour	6-Hour	12-Hour	24-Hour	2-Day	3-Day	Event Total
R-14	0.56	0.74	0.94	1.03	1.03	1.10	1.10	1.10	1.03
R-18	0.68	0.86	1.05	1.14	1.14	1.17	1.17	1.17	1.14
R-2	0.57	0.77	0.93	0.95	0.95	0.96	0.96	0.96	0.95
R-10	0.74	0.96	1.17	1.29	1.31	1.33	1.33	1.33	1.28
DTW	0.49	0.71	0.97	1.00	1.00	1.01	1.01	1.01	1.00
R-9	0.63	0.83	1.02	1.04	1.04	1.05	1.05	1.05	1.04
R-4	0.68	0.89	1.02	1.02	1.02	1.03	1.03	1.03	1.02
R-8	0.57	0.76	0.92	0.94	0.94	0.94	0.94	0.94	0.94
R-15	0.49	0.68	0.85	0.90	0.90	0.91	0.91	0.91	0.90
R-17	0.59	0.82	0.97	0.97	0.97	0.97	0.97	0.97	0.97
R-6	0.93	1.14	1.24	1.25	1.25	1.25	1.25	1.25	1.25
R-16	0.68	0.89	1.01	1.02	1.02	1.02	1.02	1.02	1.02
Minimum:	0.49	0.68	0.85	0.90	0.90	0.91	0.91	0.91	0.90
Average:	0.63	0.84	1.01	1.05	1.05	1.06	1.06	1.06	1.05
Maximum:	0.93	1.14	1.24	1.29	1.31	1.33	1.33	1.33	1.28
Standard Deviation (in):									0.12
Coefficient of Variation:									11%
X.XX*	Missing data, suspect data, or calibration data (not used).								

Gage ID	Recurrence Interval (years)								
	1-Hour	2-Hour	3-Hour	6-Hour	12-Hour	24-Hour	2-Day	3-Day	Maximum
R-14	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-18	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-2	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-10	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
DTW	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-9	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-4	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-8	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-15	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-17	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-6	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-16	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Minimum:	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Average:	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Maximum:	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1

- Missing data, suspect data, or calibration data (not used).

Notes:

- 1) Return periods determined from point precipitation frequency (PF) estimates from NOAA Atlas 14, Volume 8, Version 2 published in 2013. NOAA Atlas 14 is the current reference document for return frequency as of 2013.
- 2) Return periods calculated by linear interpolation between the published whole number month or year frequencies.

Table C-2 continued
Downriver Sewage Disposal System
Rainfall Event Summary Table

Significant Storm Event 7
Start Date: 9/27/2016
Stop Date: 10/1/2016

Gage ID	Peak Rainfall (in)								
	1-Hour	2-Hour	3-Hour	6-Hour	12-Hour	24-Hour	2-Day	3-Day	Event Total
R-14	0.83	1.00	1.09	1.28	1.61	2.11	2.38	2.84	2.84
R-18	0.95	1.32	1.41	1.66	2.00	2.46	2.74	3.24	3.24
R-2	0.71	0.87	0.95	1.16	1.38	1.76	2.08	2.61	2.61
R-10	0.51	0.70	0.95	1.25	1.70	2.16	2.46	2.93	2.95
DTW	0.84	0.95	1.49	1.77	2.55	3.08	3.47	3.99	4.01
R-9	0.71	0.85	1.10	1.50	2.12	2.87	3.29	3.86	3.91
R-4	0.59	0.78	1.06	1.41	1.72	2.24	2.69	3.23	3.55
R-8	0.40	0.49	0.59	0.71	1.25	1.88	2.20	2.83	3.03
R-15	0.47	0.55	0.63	0.97	1.35	2.26	2.69	3.17	3.33
R-17	0.78	0.94	1.09	1.43	1.98	2.61	2.97	3.47	3.65
R-6	0.61	0.78	0.89	1.21	1.76	2.45	2.76	3.20	3.25
R-16	0.40	0.46	0.52	0.77	1.12	1.81	2.21	2.58	2.61
Minimum:	0.40	0.46	0.52	0.71	1.12	1.76	2.08	2.58	2.61
Average:	0.65	0.81	0.98	1.26	1.71	2.31	2.66	3.16	3.25
Maximum:	0.95	1.32	1.49	1.77	2.55	3.08	3.47	3.99	4.01
Standard Deviation (in):									0.47
Coefficient of Variation:									14%
X.XX*	Missing data, suspect data, or calibration data (not used).								

Gage ID	Recurrence Interval (years)								
	1-Hour	2-Hour	3-Hour	6-Hour	12-Hour	24-Hour	2-Day	3-Day	Maximum
R-14	< 1	< 1	< 1	< 1	< 1	1	1	2	2
R-18	< 1	2	1	1	2	3	2	4	4
R-2	< 1	< 1	< 1	< 1	< 1	< 1	< 1	1	1
R-10	< 1	< 1	< 1	< 1	< 1	1	1	2	2
DTW	< 1	< 1	2	2	5	7	7	9	9
R-9	< 1	< 1	< 1	< 1	2	5	5	8	8
R-4	< 1	< 1	< 1	< 1	< 1	2	2	4	4
R-8	< 1	< 1	< 1	< 1	< 1	< 1	< 1	2	2
R-15	< 1	< 1	< 1	< 1	< 1	2	2	3	3
R-17	< 1	< 1	< 1	< 1	2	4	4	5	5
R-6	< 1	< 1	< 1	< 1	< 1	3	2	3	3
R-16	< 1	< 1	< 1	< 1	< 1	< 1	< 1	1	1
Minimum:	< 1	< 1	< 1	< 1	< 1	< 1	< 1	1	1
Average:	< 1	< 1	< 1	< 1	1	3	2	4	4
Maximum:	< 1	2	2	2	5	7	7	9	9

- Missing data, suspect data, or calibration data (not used).

Notes:

- 1) Return periods determined from point precipitation frequency (PF) estimates from NOAA Atlas 14, Volume 8, Version 2 published in 2013. NOAA Atlas 14 is the current reference document for return frequency as of 2013.
- 2) Return periods calculated by linear interpolation between the published whole number month or year frequencies.

Table C-2 continued
Downriver Sewage Disposal System
Rainfall Event Summary Table

Significant Storm Event 8
Start Date: 10/20/2016
Stop Date: 10/21/2016

Stop Date: 10/21/2010

Gage ID	Peak Rainfall (in)								
	1-Hour	2-Hour	3-Hour	6-Hour	12-Hour	24-Hour	2-Day	3-Day	Event Total
R-14	0.24	0.32	0.34	0.54	0.88	1.42	1.46	1.46	1.42
R-18	0.17	0.23	0.26	0.48	0.77	1.18	1.21	1.21	1.18
R-2	0.12	0.19	0.27	0.44	0.67	1.01	1.02	1.02	1.01
R-10	0.12	0.18	0.25	0.46	0.72	1.07	1.10	1.10	1.08
DTW	0.10	0.17	0.31	0.44	0.66	1.00	1.02	1.02	1.00
R-9	0.13	0.21	0.29	0.46	0.69	1.02	1.04	1.04	1.02
R-4	0.11	0.19	0.26	0.41	0.61	0.86	0.88	0.88	0.86
R-8	0.12	0.22	0.29	0.48	0.71	1.05	1.08	1.08	1.05
R-15	0.13	0.20	0.27	0.44	0.67	1.03	1.08	1.08	1.03
R-17	0.12	0.22	0.29	0.48	0.72	1.06	1.09	1.09	1.06
R-6	0.12	0.20	0.27	0.44	0.66	0.92	0.96	0.96	0.92
R-16	0.10	0.18	0.24	0.40	0.60	0.92	0.95	0.95	0.92
Minimum:	0.10	0.17	0.24	0.40	0.60	0.86	0.88	0.88	0.86
Average:	0.13	0.21	0.28	0.46	0.70	1.05	1.07	1.07	1.05
Maximum:	0.24	0.32	0.34	0.54	0.88	1.42	1.46	1.46	1.42
Standard Deviation (in):									0.14
X.XX*	Missing data, suspect data, or calibration data (not used).						Coefficient of Variation:		14%

X.XX* Missing data, suspect data, or calibration data (not used).

Gage ID	Recurrence Interval (years)								
	1-Hour	2-Hour	3-Hour	6-Hour	12-Hour	24-Hour	2-Day	3-Day	Maximum
R-14	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-18	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-2	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-10	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
DTW	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-9	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-4	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-8	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-15	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-17	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-6	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
R-16	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Minimum:	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Average:	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Maximum:	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1

- Missing data, suspect data, or calibration data (not used).

Notes:

- 1) Return periods determined from point precipitation frequency (PF) estimates from NOAA Atlas 14, Volume 8, Version 2 published in 2013. NOAA Atlas 14 is the current reference document for return frequency as of 2013.
- 2) Return periods calculated by linear interpolation between the published whole number month or year frequencies.

Table C-3
Downriver Sewage Disposal System
Monthly Precipitation for 2016

Month	Daily Precipitation (inches)												DTW Daily Temperature (°F)		
	R-14	R-18	R-02	R-10	DTW	R-09	R-04	R-08	R-15	R-17	R-06	R-16	Max.	Min.	Avg.
January	0.00*	0.10*	1.19	1.32	1.34	1.20	1.96	1.49	1.33	1.28	1.06	1.47	35	21	28
February	0.00*	1.56	2.00	2.03	1.97	1.52	2.66	2.19	2.05	2.33	2.31	2.35	39	24	31
March	4.62	4.12	4.46	5.03	4.85	5.14	5.92	4.99	5.22	5.43	5.69	4.80	52	34	43
April	2.70	2.44	2.30	2.58	2.35	2.36	2.63	2.24	2.32	2.49	2.43	2.41	56	36	46
May	2.18	1.74	2.54	2.02	2.20	2.12	2.53	2.16	2.42*	2.12	2.66	2.20	71	51	61
June	1.83*	1.83	1.60	1.31	1.30	0.96	1.24	1.30	0.95	1.01	0.74	1.47	83	60	71
July	0.95*	1.26	1.22	1.68	1.53	1.41	2.21	3.16	2.23	3.06	3.41	3.39	87	67	77
August	5.87	4.90	5.42	5.18	5.53	4.41	6.96	6.11	5.86	6.86	4.38	6.74	86	67	77
September	5.11	5.83	4.64	5.24	6.29	5.93	5.43	5.09	5.18	5.84	5.28	5.04	77	59	68
October	3.79	3.64	3.22	3.21	2.98	3.20	3.65	3.20	3.09	3.37	3.29	2.61	65	47	56
November	2.42	2.42	1.94	2.28	2.10	2.26	1.35	1.88	2.22	2.10	1.87	1.87	56	38	47
December	1.60	1.52	1.98	1.51	2.16	2.18	0.97	1.79	1.69	2.14	2.65	2.45	35	24	29
Total	31.07*	31.36*	32.51	33.39	34.60	32.69	37.51	35.60	34.56*	38.03	35.77	36.80	62	44	53

* Missing data, suspect data, or calibration data not indicative of rainfall.

**Table C-4
Downriver Sewage Disposal System
Daily Precipitation for January 2016**

Date	Daily Precipitation (inches)												DTW Daily Temperature (°F)		
	R-14	R-18	R-02	R-10	DTW	R-09	R-04	R-08	R-15	R-17	R-06	R-16	Max.	Min.	Avg.
1/1/2016	0*	0	0	0	0	0	0	0	0	0	0	0	32	27	30
1/2/2016	0*	0	0	0	0	0	0	0	0	0	0	0	40	30	35
1/3/2016	0*	0	0	0	0	0	0	0	0	0	0	0	36	26	31
1/4/2016	0*	0	0	0	0.02	0	0.01	0	0	0	0	0	31	16	24
1/5/2016	0*	0	0	0	0	0	0	0	0	0	0	0	31	12	22
1/6/2016	0*	0	0	0	0	0	0	0	0	0	0	0	37	17	27
1/7/2016	0*	0	0	0	0	0	0	0	0	0	0	0	44	26	35
1/8/2016	0*	0.07	0.20	0.20	0.19	0.19	0.22	0.23	0.22	0.21	0.23	0.22	41	29	35
1/9/2016	0*	0.03	0.06	0.09	0.07	0.07	0.04	0.08	0.09	0.04	0.02	0.05	50	40	45
1/10/2016	0*	0*	0.37	0.39	0.38	0.32	0.98	0.64	0.39	0.52	0.39	0.58	44	18	31
1/11/2016	0*	0*	0.02	0.01	0.04	0.01	0.03	0.01	0	0.01	0	0.03	19	11	15
1/12/2016	0*	0*	0.06	0.07	0.07	0.06	0.16	0.05	0.06	0.06	0	0.09	27	15	21
1/13/2016	0*	0*	0.02	0.01	0.04	0.03	0.04	0.02	0.01	0.01	0	0	17	11	14
1/14/2016	0*	0*	0	0	0	0	0	0	0.01	0	0.02	0.02	36	17	27
1/15/2016	0*	0*	0.35	0.38	0.35	0.36	0.32	0.33	0.35	0.29	0.29	0.31	42	23	33
1/16/2016	0*	0*	0	0	0	0	0	0	0	0	0	0	38	30	34
1/17/2016	0*	0*	0	0	0.01	0	0.01	0	0	0	0	0	30	10	20
1/18/2016	0*	0*	0	0	0	0	0	0	0	0	0	0	16	8	12
1/19/2016	0*	0*	0	0	0	0	0	0	0	0	0	0	24	9	17
1/20/2016	0*	0*	0	0	0.01	0	0	0	0	0	0	0	21	12	17
1/21/2016	0*	0*	0	0	0	0	0	0	0	0	0	0	27	14	21
1/22/2016	0*	0*	0	0	0	0	0	0	0	0	0	0	29	21	25
1/23/2016	0*	0*	0	0	0	0	0	0	0	0	0	0	33	19	26
1/24/2016	0*	0*	0	0	0	0	0	0	0	0	0	0	36	18	27
1/25/2016	0*	0*	0	0.01	0	0	0	0	0	0	0.01	0	44	26	35
1/26/2016	0*	0*	0	0	0	0	0.02	0	0	0.02	0.01	0	47	32	40
1/27/2016	0*	0*	0.01	0	0	0	0	0	0	0	0	0	35	27	31
1/28/2016	0*	0*	0.01	0	0	0.01	0.02	0.01	0.01	0.01	0.02	0.01	40	28	34
1/29/2016	0*	0*	0	0	0	0	0	0	0	0	0	0	32	24	28
1/30/2016	0*	0*	0	0	0	0	0	0	0	0	0	0	51	28	40
1/31/2016	0*	0*	0.09	0.16	0.16	0.15	0.11	0.12	0.19	0.11	0.07	0.16	53	35	44
Total	0.00*	0.10*	1.19	1.32	1.34	1.20	1.96	1.49	1.33	1.28	1.06	1.47	35	21	28

* Missing data, suspect data, or calibration data not indicative of rainfall.

Table C-4 continued
Downriver Sewage Disposal System
Daily Precipitation for February 2016

Date	Daily Precipitation (inches)												DTW Daily Temperature (°F)		
	R-14	R-18	R-02	R-10	DTW	R-09	R-04	R-08	R-15	R-17	R-06	R-16	Max.	Min.	Avg.
2/1/2016	0*	0*	0	0	0	0	0	0	0	0	0	0	47	30	39
2/2/2016	0*	0.47*	0.52	0.55	0.44	0.52	0.49	0.55	0.58	0.52	0.46	0.52	41	28	35
2/3/2016	0*	0	0.03	0	0.01	0.01	0.01	0	0	0.02	0	0	56	36	46
2/4/2016	0*	0	0.03	0.03	0.03	0.03	0.06	0.01	0.04	0.02*	0.04	0.01	36	26	31
2/5/2016	0*	0	0	0	0	0*	0	0	0	0	0	0	40	20	30
2/6/2016	0*	0	0	0	0	0	0	0	0	0	0	0	39	25	32
2/7/2016	0*	0	0	0	0	0	0	0	0	0	0	0	50	28	39
2/8/2016	0*	0.01	0.02	0	0	0	0	0	0	0	0	0	42	33	38
2/9/2016	0*	0.04	0.12	0.10	0.14	0.09	0.17	0.11	0.06	0.09	0.08	0.12	33	25	29
2/10/2016	0*	0	0	0	0.01	0	0.01	0	0	0.01	0.01	0	25	13	19
2/11/2016	0*	0	0	0	0	0	0	0	0	0	0	0	23	10	17
2/12/2016	0*	0	0	0	0.02	0	0.03	0.02	0	0.01	0	0.02	26	8	17
2/13/2016	0*	0	0	0	0.01	0	0	0	0	0	0	0	15	1	8
2/14/2016	0*	0	0	0	0	0	0	0	0	0	0	0	19	-1	9
2/15/2016	0*	0.01	0.02	0.02	0.03	0.01	0.02	0.01	0.01	0.02	0.03	0.01	29	18	24
2/16/2016	0*	0	0	0	0	0	0	0	0	0	0	0	31	28	30
2/17/2016	0*	0.02	0.01	0.02	0.02	0.02	0.01	0.02	0.02	0	0.01	0.02	34	18	26
2/18/2016	0*	0	0	0	0	0	0	0	0	0	0	0	32	13	23
2/19/2016	0*	0	0	0	0.02	0	0	0	0	0	0	0	61	31	46
2/20/2016	0*	0	0	0	0	0	0	0	0	0	0	0	63	40	52
2/21/2016	0*	0	0	0	0	0	0	0	0	0	0	0	44	32	38
2/22/2016	0*	0	0	0	0	0	0	0	0	0	0	0	39	27	33
2/23/2016	0*	0	0	0	0	0	0	0	0	0	0	0	43	23	33
2/24/2016	0*	0.88	0.99	1.02	0.93	0.62	1.33	1.17	1.07	1.36	1.29	1.29	34	32	33
2/25/2016	0*	0.02	0.07	0.12	0.14	0.04	0.23	0.15	0.05	0.14	0.18	0.16	34	25	30
2/26/2016	0*	0	0	0	0	0	0	0	0	0	0	0	33	23	28
2/27/2016	0*	0	0	0	0	0	0	0	0	0	0	0	44	27	36
2/28/2016	0*	0.10	0.10	0.13	0.13	0.13	0.15	0.11	0.14	0.08	0.09	0.11	64	36	50
2/29/2016	0*	0.01	0.09	0.04	0.04	0.05	0.15	0.04	0.08	0.06	0.12	0.09	53	27	40
Total	0.00*	1.56	2.00	2.03	1.97	1.52	2.66	2.19	2.05	2.33	2.31	2.35	39	24	31

* Missing data, suspect data, or calibration data not indicative of rainfall.

Table C-4 continued
Downriver Sewage Disposal System
Daily Precipitation for March 2016

Date	Daily Precipitation (inches)												DTW Daily Temperature (°F)		
	R-14	R-18	R-02	R-10	DTW	R-09	R-04	R-08	R-15	R-17	R-06	R-16	Max.	Min.	Avg.
3/1/2016	0.12	0.11	0.23	0.20	0.29	0.17	0.39	0.34	0.18	0.35	0.19	0.34	33	21	27
3/2/2016	0	0	0	0.01	0	0	0.03	0	0.02	0.01	0.07	0.03	28	18	23
3/3/2016	0.04	0.06	0.08	0.07	0.10	0.07	0.12	0.08	0.06	0.08	0.01	0.07	30	19	25
3/4/2016	0.02	0.01	0.01	0.01	0.02	0.01	0.02	0.01	0.02	0.02	0.12	0.02	36	26	31
3/5/2016	0.09	0.09	0.09	0.09	0.10	0.08	0.09	0.08	0.08	0.08	0.11	0.11	33	28	31
3/6/2016	0	0	0	0	0	0	0	0	0	0	0	0	37	25	31
3/7/2016	0	0	0	0	0	0	0	0	0.01	0	0*	0	64	35	50
3/8/2016	0	0	0	0	0	0	0	0	0	0	0	0	71	48	60
3/9/2016	0	0.01	0.05	0.03	0.05	0.08	0.06	0.05	0.07	0.07	0.06	0.07	71	53	62
3/10/2016	0.09	0.08	0.08	0.07	0.05	0.07	0.11	0.08	0.09	0.10	0.12	0.10	59	46	53
3/11/2016	0	0	0	0	0	0	0	0	0	0	0	0	52	34	43
3/12/2016	0	0	0	0	0	0	0	0	0	0	0	0	61	30	46
3/13/2016	0.97	0.98	1.04	1.27	1.25	1.19	1.38	1.24	1.34	1.33	1.36	1.16	48	43	46
3/14/2016	0.02	0.01	0.01	0.02	0	0.03	0.03	0.02	0.02	0.04	0.03	0.03	64	43	54
3/15/2016	0.01	0.06	0.05	0	0	0.03	0.02	0	0	0	0	0	52	45	49
3/16/2016	0.05	0.05	0.03	0.14	0.11	0.11	0.08	0.09	0.16	0.09	0.19	0.11	61	44	53
3/17/2016	0	0	0	0	0	0	0	0	0	0	0	0	56	39	48
3/18/2016	0	0	0	0	0	0	0	0	0	0	0	0	52	32	42
3/19/2016	0	0	0	0	0	0	0	0	0	0	0	0	43	27	35
3/20/2016	0	0	0	0	0	0	0	0	0	0	0	0	46	28	37
3/21/2016	0	0	0	0	0	0	0	0	0	0	0	0	47	28	38
3/22/2016	0	0	0	0	0	0	0	0	0	0	0	0	63	32	48
3/23/2016	0.02	0.01	0	0.01	0.01	0	0.01	0	0	0	0	0	56	37	47
3/24/2016	1.44	1.54	1.41	1.58	1.49	1.68	1.61	1.60	1.67	1.63	1.49	1.54	57	37	47
3/25/2016	0	0	0	0	0	0	0	0	0	0	0	0	45	29	37
3/26/2016	0	0	0	0	0	0	0	0	0	0	0	0	46	29	38
3/27/2016	0.46	0.51	0.75	0.62	0.62	0.77	1.14	0.78	0.76	0.90	1.06	0.81	68	32	50
3/28/2016	0.14	0.10	0.08	0.19	0.14	0.10	0.10	0.17	0.12	0.15	0.20	0.12	50	39	45
3/29/2016	0	0	0	0	0	0	0	0	0	0	0	0	52	32	42
3/30/2016	0.02	0.03	0.03	0.02	0.02	0.03	0.04	0.01	0.02	0.02	0.02	0.02	62	34	48
3/31/2016	1.13	0.47	0.52	0.70	0.60	0.72	0.69	0.44	0.60	0.56	0.66	0.27	65	53	59
Total	4.62	4.12	4.46	5.03	4.85	5.14	5.92	4.99	5.22	5.43	5.69	4.80	52	34	43

* Missing data, suspect data, or calibration data not indicative of rainfall.

Table C-4 continued
Downriver Sewage Disposal System
Daily Precipitation for April 2016

Date	Daily Precipitation (inches)												DTW Daily Temperature (°F)		
	R-14	R-18	R-02	R-10	DTW	R-09	R-04	R-08	R-15	R-17	R-06	R-16	Max.	Min.	Avg.
4/1/2016	0	0.01	0	0	0	0	0	0	0	0	0	0	54	42	48
4/2/2016	0.10	0.06	0.09	0.09	0.09	0.09	0.15	0.13	0.11	0.11	0.12	0.13	44	26	35
4/3/2016	0.04	0.05	0.05	0.03	0.02	0.02	0.03	0.01	0.03	0.02	0.03	0.02	48	23	36
4/4/2016	0	0	0	0	0	0	0	0	0	0	0	0	37	23	30
4/5/2016	0	0	0	0	0	0	0	0	0	0	0	0	38	20	29
4/6/2016	0.19	0.16	0.18	0.14	0.14	0.20	0.24	0.18	0.17	0.17	0.22	0.17	55	32	44
4/7/2016	0.10	0.06	0.07	0.14	0.10	0.11	0.16	0.11	0.12	0.12	0.09	0.20	46	32	39
4/8/2016	0.02	0.03	0.08	0.03	0.03	0.07	0.09	0.07	0.04	0.06	0.05	0.05	43	28	36
4/9/2016	0	0	0	0	0.01	0	0	0	0	0	0.05	0.09	36	26	31
4/10/2016	0.44	0.40	0.32	0.42	0.40	0.40	0.35	0.35	0.40	0.40	0.38	0.40	46	26	36
4/11/2016	0.01	0.01	0.02	0.02	0.05	0.04	0.06	0.03	0.02	0.02	0.04	0.04	60	36	48
4/12/2016	0	0	0	0	0	0	0	0	0	0	0	0	50	32	41
4/13/2016	0	0	0	0	0	0	0	0	0	0	0	0	50	34	42
4/14/2016	0	0	0	0	0	0	0	0	0	0	0	0	56	33	45
4/15/2016	0	0	0	0	0	0	0	0	0	0	0	0	68	35	52
4/16/2016	0	0	0	0	0	0	0	0	0	0	0	0	74	43	59
4/17/2016	0	0	0	0	0	0	0	0	0	0	0	0	78	44	61
4/18/2016	0	0	0	0	0	0	0	0	0	0	0	0	81	47	64
4/19/2016	0	0	0	0	0	0	0	0	0	0	0	0	62	46	54
4/20/2016	0	0	0	0	0	0	0	0	0	0	0	0	65	44	55
4/21/2016	0.36	0.35	0.22	0.47	0.26	0.23	0.18	0.17	0.21	0.18	0.17	0.18	63	49	56
4/22/2016	0.01	0	0	0	0	0.01	0.03	0	0.01	0.01	0	0	63	43	53
4/23/2016	0	0	0	0	0	0	0	0	0	0	0	0	59	38	49
4/24/2016	0	0	0	0	0	0	0	0	0	0	0	0	66	38	52
4/25/2016	0.05	0.24	0.06	0.07	0.09	0.06	0.08	0.05	0.12	0.07	0.06	0.08	73	46	60
4/26/2016	0.58	0.28	0.44	0.41	0.41	0.46	0.46	0.48	0.38	0.59	0.48	0.39	55	43	49
4/27/2016	0	0*	0*	0*	0	0*	0	0	0	0	0	0	59	38	49
4/28/2016	0.13	0.11	0.12	0.10	0.07	0.06	0.10	0.07	0.06	0.09	0.08	0.07	50	42	46
4/29/2016	0	0	0.01	0.01	0.02	0	0.01	0	0.02	0.02	0.03	0.02	52	43	48
4/30/2016	0.66	0.67	0.63	0.63	0.62	0.60	0.68	0.58	0.62	0.63	0.62	0.57	56	41	49
Total	2.70	2.44	2.30	2.58	2.35	2.36	2.63	2.24	2.32	2.49	2.43	2.41	56	36	46

* Missing data, suspect data, or calibration data not indicative of rainfall.

Table C-4 continued
Downriver Sewage Disposal System
Daily Precipitation for May 2016

Date	Daily Precipitation (inches)												DTW Daily Temperature (°F)		
	R-14	R-18	R-02	R-10	DTW	R-09	R-04	R-08	R-15	R-17	R-06	R-16	Max.	Min.	Avg.
5/1/2016	0.05	0.03	0.04	0.07	0.04	0.05	0.05	0.07	0.06	0.06	0.07	0.04	55	48	52
5/2/2016	0.33	0.37	0.41	0.46	0.41	0.39	0.54	0.45	0.40	0.50	0.53	0.43	54	47	51
5/3/2016	0	0	0	0	0	0	0.01	0	0	0	0.01	0	63	41	52
5/4/2016	0.44	0.28	0.23	0.24	0.19	0.23	0.27	0.46	0.48	0.44	0.67	0.58	61	48	55
5/5/2016	0.01*	0	0.01	0	0.01	0.01	0	0	0	0.01*	0.01*	0	67	44	56
5/6/2016	0	0	0	0	0	0	0	0	0	0	0	0	73	46	60
5/7/2016	0	0	0	0	0	0	0	0	0	0	0	0	75	51	63
5/8/2016	0	0	0	0	0	0	0	0	0	0	0	0	70	44	57
5/9/2016	0	0	0	0	0	0	0	0	0	0	0	0	65	42	54
5/10/2016	0.12	0.14	0.12	0.12	0.09	0.08	0.18	0.09	0.08	0.12	0.11	0.10	54	50	52
5/11/2016	0	0	0	0	0	0	0	0	0	0	0	0	68	54	61
5/12/2016	0.78	0.61	1.24	0.78	1.02	0.97	0.57	0.61	1.28	0.49	0.58	0.67	78	55	67
5/13/2016	0.02	0.03	0.02	0.02	0.01	0.02	0.02	0	0*	0.02	0	0.01	69	54	62
5/14/2016	0.24	0.24	0.27	0.26	0.22	0.26	0.24	0.31	0*	0.25	0.27	0.32	56	42	49
5/15/2016	0.02	0.02	0.01	0.02	0.04	0.02	0.02	0	0*	0.03	0.03	0	50	34	42
5/16/2016	0	0	0	0	0	0	0	0	0*	0	0	0	69	38	54
5/17/2016	0	0.02*	0.10	0.02	0	0	0.05	0*	0*	0.01	0.05	0.01	64	51	58
5/18/2016	0	0	0	0	0	0	0	0	0*	0	0	0	67	45	56
5/19/2016	0	0	0	0	0	0	0	0	0*	0	0	0	71	44	58
5/20/2016	0	0	0	0	0	0	0	0	0*	0	0	0	71	47	59
5/21/2016	0	0	0	0	0	0	0	0	0*	0	0	0	73	55	64
5/22/2016	0	0	0	0	0	0	0	0	0*	0	0	0	73	52	63
5/23/2016	0	0	0	0	0	0	0	0	0*	0	0	0	76	44	60
5/24/2016	0	0	0*	0*	0	0	0*	0	0*	0	0	0*	85	52	69
5/25/2016	0	0	0	0	0	0	0.03	0	0*	0.01	0	0	86	61	74
5/26/2016	0.02	0	0	0.01	0.02	0*	0	0	0*	0.01	0	0	86	68	77
5/27/2016	0	0	0	0	0	0	0	0	0	0	0	0	82	66	74
5/28/2016	0.04	0	0.06	0.02	0.08	0.09	0.37	0.17	0.11	0.13	0.11	0.03	89	66	78
5/29/2016	0.11	0	0.03	0	0.07	0	0.18	0	0.01	0.04	0.22	0.01	86	68	77
5/30/2016	0	0	0	0	0	0	0	0	0	0	0	0	86	61	74
5/31/2016	0	0	0	0	0	0	0	0	0	0	0	0	83	62	73
Total	2.18	1.74	2.54	2.02	2.20	2.12	2.53	2.16	2.42*	2.12	2.66	2.20	71	51	61

* Missing data, suspect data, or calibration data not indicative of rainfall.

Table C-4 continued
Downriver Sewage Disposal System
Daily Precipitation for June 2016

Date	Daily Precipitation (inches)												DTW Daily Temperature (°F)		
	R-14	R-18	R-02	R-10	DTW	R-09	R-04	R-08	R-15	R-17	R-06	R-16	Max.	Min.	Avg.
6/1/2016	0.09	0.10	0.04	0.04	0.04	0.03	0.01	0.02	0.04	0.03	0	0.02	82	56	69
6/2/2016	0	0	0	0	0	0	0	0	0	0	0	0	84	62	73
6/3/2016	0	0	0	0	0	0	0	0	0	0	0	0	82	58	70
6/4/2016	1.54	1.19	0.73	0.96	0.99	0.74	0.74	0.95	0.63	0.68	0.42	0.42	78	63	71
6/5/2016	0.20	0.09	0.12	0.07	0.03	0.05	0.19	0.03	0.02	0.15	0.13	0.05	77	60	69
6/6/2016	0	0	0	0	0	0	0	0	0	0	0	0	83	59	71
6/7/2016	0	0	0	0	0	0	0	0	0	0	0	0	70	54	62
6/8/2016	0	0*	0	0	0	0*	0*	0*	0	0*	0*	0	71	48	60
6/9/2016	0	0	0	0	0	0	0	0	0	0	0	0	73	49	61
6/10/2016	0	0	0	0	0	0	0	0	0	0	0	0	81	60	71
6/11/2016	0	0	0	0	0	0	0	0	0	0	0	0	93	68	81
6/12/2016	0	0	0	0	0	0	0	0	0	0	0	0	80	57	69
6/13/2016	0	0	0	0	0	0	0	0	0	0	0	0	74	52	63
6/14/2016	0	0	0*	0	0	0	0	0	0*	0	0	0	77	61	69
6/15/2016	0	0	0.02	0	0	0	0	0	0	0.01	0.01	0.03	87	63	75
6/16/2016	0*	0.43	0.66	0.23	0.24	0.13	0.26	0.29	0.19	0.13	0.18	0.66	80	64	72
6/17/2016	0*	0	0	0	0	0	0	0	0	0	0	0	87	59	73
6/18/2016	0*	0	0	0	0	0	0	0	0	0	0	0	88	60	74
6/19/2016	0*	0	0	0	0	0	0	0	0	0	0	0	90	64	77
6/20/2016	0*	0	0	0	0	0	0	0	0	0	0	0	93	71	82
6/21/2016	0*	0	0	0*	0	0	0	0	0	0	0	0	85	61	73
6/22/2016	0*	0	0	0	0	0	0	0	0	0	0	0	85	62	74
6/23/2016	0*	0.01	0.01	0	0	0	0.03	0	0.06	0	0	0.29	78	64	71
6/24/2016	0*	0	0	0	0	0	0	0	0	0	0	0	84	56	70
6/25/2016	0*	0	0	0	0	0	0	0	0	0	0	0	86	60	73
6/26/2016	0*	0	0.02	0.01	0	0.01	0.01	0.01	0	0.01	0	0	92	67	80
6/27/2016	0*	0.01	0	0	0	0	0	0	0.01	0	0	0	94	69	82
6/28/2016	0*	0	0	0	0	0	0	0	0	0	0	0*	76	58	67
6/29/2016	0*	0	0	0	0	0	0	0	0	0	0	0	81	53	67
6/30/2016	0*	0	0	0	0	0	0	0	0	0	0	0	84	55	70
Total	1.83*	1.83	1.60	1.31	1.30	0.96	1.24	1.30	0.95	1.01	0.74	1.47	83	60	71

* Missing data, suspect data, or calibration data not indicative of rainfall.

Table C-4 continued
Downriver Sewage Disposal System
Daily Precipitation for July 2016

Date	Daily Precipitation (inches)												DTW Daily Temperature (°F)		
	R-14	R-18	R-02	R-10	DTW	R-09	R-04	R-08	R-15	R-17	R-06	R-16	Max.	Min.	Avg.
7/1/2016	0*	0.29	0.27	0.34	0.34	0.15	0.23	0.42	0.33	0.39	0.36	0.40	77	60	69
7/2/2016	0*	0	0	0	0	0	0	0	0	0	0	0	78	54	66
7/3/2016	0*	0	0	0	0	0	0	0	0	0	0	0	79	57	68
7/4/2016	0*	0	0	0	0	0	0	0	0	0	0	0	78	57	68
7/5/2016	0*	0	0	0	0	0	0	0	0	0	0	0	89	69	79
7/6/2016	0*	0	0	0	0	0	0.17	0	0	0.03	0.15	0	90	68	79
7/7/2016	0*	0.20	0.17	0.15	0.17	0.25	0.37	0.18	0.12	0	0.30	0.27	93	69	81
7/8/2016	0*	0.24	0.28*	0.59	0.67	0.58	0.40*	0.84	0.51*	0	0.72*	0.45	89	67	78
7/9/2016	0*	0	0	0.01	0	0	0.04	0.02	0.03	0	0.01	0	79	65	72
7/10/2016	0*	0	0	0.01	0	0.01	0	0.01	0	0	0	0	85	63	74
7/11/2016	0*	0	0	0	0	0	0	0	0	0	0	0	87	69	78
7/12/2016	0*	0.20	0	0.28	0.11	0.03	0.05	0.01	0.03	0.08*	0.11	0.05	93	70	82
7/13/2016	0.12*	0*	0.21	0.04*	0.03	0.10	0.17	0.06*	0.02	0.08	0.11	0.08*	91	71	81
7/14/2016	0.07	0	0.03	0	0	0	0.08	0	0	0.06	0.14	0.04	89	70	80
7/15/2016	0	0	0	0	0	0	0	0	0	0	0	0.01	83	67	75
7/16/2016	0.03	0	0	0	0.01	0	0	0	0	0	0	0	77	65	71
7/17/2016	0	0	0	0	0	0	0	0	0	0	0	0	87	63	75
7/18/2016	0.06	0.04	0.01	0.03	0.04	0.03	0.01	0.06	0.19	0.03	0.02	0.08	88	71	80
7/19/2016	0	0	0	0	0	0	0	0	0	0	0	0	88	62	75
7/20/2016	0	0	0	0	0	0	0	0	0	0	0	0	86	61	74
7/21/2016	0.39	0.11	0.08	0.06	0.02	0.10	0.14	0.23	0.05	0.28	0.16	0.27	92	70	81
7/22/2016	0	0	0	0	0	0	0	0	0	0	0	0	95	73	84
7/23/2016	0	0	0	0	0	0	0	0	0	0	0	0	98	72	85
7/24/2016	0.13	0.13	0.09	0.09	0.09	0.06	0.06	0.05	0.06	0.04	0.04	0.04	87	75	81
7/25/2016	0.05	0.02	0.04	0.02	0.03	0	0.05	0.05	0.04	0.05	0.04	0.05	93	74	84
7/26/2016	0	0	0	0	0	0	0	0	0	0	0	0	88	66	77
7/27/2016	0	0	0	0	0	0	0	0	0	0	0	0	92	67	80
7/28/2016	0	0	0	0	0	0	0	0	0	0	0	0	87	71	79
7/29/2016	0.05	0	0	0	0	0.05	0.02	0.64	0.05	1.51	0.67	1.41	87	68	78
7/30/2016	0.05	0.03	0.04	0.06	0.02	0.05	0.07	0.06	0.08	0.05	0.08	0.04	81	67	74
7/31/2016	0	0	0	0	0	0	0.35	0.53	0.72	0.46	0.50	0.20	86	67	77
Total	0.95*	1.26	1.22	1.68	1.53	1.41	2.21	3.16	2.23	3.06	3.41	3.39	87	67	77

* Missing data, suspect data, or calibration data not indicative of rainfall.

Table C-4 continued
Downriver Sewage Disposal System
Daily Precipitation for August 2016

Date	Daily Precipitation (inches)												DTW Daily Temperature (°F)		
	R-14	R-18	R-02	R-10	DTW	R-09	R-04	R-08	R-15	R-17	R-06	R-16	Max.	Min.	Avg.
8/1/2016	0	0	0	0	0	0	0	0	0	0	0	0	88	66	77
8/2/2016	0.07	0.14	0	0	0	0	0	0	0	0	0	0	88	68	78
8/3/2016	0	0	0	0	0	0	0	0	0	0	0	0	90	67	79
8/4/2016	0	0	0	0	0	0	0	0	0	0	0	0	92	67	80
8/5/2016	0.81	0.07	0.06	0.08	0.17	0.11	0.12	0.04	0.27	0.04	0.17	0.02	90	72	81
8/6/2016	0	0	0	0	0	0	0	0	0	0	0	0	87	65	76
8/7/2016	0	0	0	0	0	0	0	0	0	0	0	0	88	66	77
8/8/2016	0	0	0	0	0	0	0	0	0	0	0	0	85	62	74
8/9/2016	0	0	0	0	0	0	0	0	0	0	0	0	90	65	78
8/10/2016	0	0	0	0	0	0	0	0	0	0	0	0	96	72	84
8/11/2016	0	0	0.04	0	0	0.18	0	0.17	0.11	0.08	0	0.26	95	76	86
8/12/2016	0	0	0.38	0	0	0.01	0	0.27	0	0.12	0	0.16	95	75	85
8/13/2016	0.72	0.90	0.63	0.97	1.01	0.09	1.55	0.96	1.04	1.39	0.86*	1.16	86	73	80
8/14/2016	0.55	0.16	0.14	0.08	0.21	0.07	0.19	0.17	0.05	0.04	0.02*	0	83	69	76
8/15/2016	0.35	0.31	0.15	0.22	0.22	0.01	0.12	0.09	0.18*	0.12	0.13	0.11	79	68	74
8/16/2016	1.73	1.25	1.73	1.83	1.94	2.08	2.89	2.09	1.84	2.96	1.47	2.95	84	70	77
8/17/2016	0.32	0.75	0.39	0.36	0.19	0.27	0.13	0.22	0.35	0.33	0.10	0.34	86	67	77
8/18/2016	0	0	0	0	0	0	0.01	0.01	0	0	0	0	84	66	75
8/19/2016	0.08	0	0	0.01	0	0	0.01*	0.01	0	0.08	0.13*	0	88	69	79
8/20/2016	0.39	0.25	0.18	0.30	0.28	0.23	0.48	0.58	0.29	0.62	0.27	0.49	86	69	78
8/21/2016	0.10	0.04	0.09	0.09	0.01	0	0.03	0	0	0.03	0	0	79	61	70
8/22/2016	0	0	0	0	0	0*	0	0*	0	0	0	0*	79	58	69
8/23/2016	0	0	0	0	0	0	0	0	0	0	0	0	81	59	70
8/24/2016	0.19*	0.31*	0.41*	0.22*	0.21	0.35	0.31	0.54	0.68	0.23*	0.24	0.43	84	63	74
8/25/2016	0	0	0	0	0	0	0.12	0	0	0	0.09	0	88	69	79
8/26/2016	0	0	0.01	0	0	0	0	0	0	0	0	0	86	64	75
8/27/2016	0.56	0.72	0.99	1.01	1.29	1.00	0.98	0.96	1.05	0.81	0.89	0.79	83	70	77
8/28/2016	0	0	0	0.01	0	0.01	0.02	0	0	0.01	0.01	0	87	69	78
8/29/2016	0	0	0.01	0	0	0	0	0	0	0	0	0	84	67	76
8/30/2016	0	0	0	0	0	0	0	0	0	0	0	0	82	67	75
8/31/2016	0	0	0.21	0	0	0	0	0	0	0	0	0.03	82	62	72
Total	5.87	4.90	5.42	5.18	5.53	4.41	6.96	6.11	5.86	6.86	4.38	6.74	86	67	77

* Missing data, suspect data, or calibration data not indicative of rainfall.

Table C-4 continued
Downriver Sewage Disposal System
Daily Precipitation for September 2016

Date	Daily Precipitation (inches)												DTW Daily Temperature (°F)		
	R-14	R-18	R-02	R-10	DTW	R-09	R-04	R-08	R-15	R-17	R-06	R-16	Max.	Min.	Avg.
9/1/2016	0	0	0	0	0	0	0	0	0	0	0.01	0	75	60	68
9/2/2016	0	0	0	0	0	0	0	0	0	0	0	0	75	57	66
9/3/2016	0	0	0	0	0	0	0	0	0	0	0	0	77	55	66
9/4/2016	0	0	0	0	0	0	0	0	0	0	0	0	80	56	68
9/5/2016	0	0	0	0	0	0	0	0	0	0	0	0	84	58	71
9/6/2016	0	0	0	0	0	0	0	0	0	0	0	0	91	69	80
9/7/2016	0.83	0.80	0.45	0.69	0.81	0.54	0.75	0.93	0.68	0.51	0.37	0.87	90	73	82
9/8/2016	0.02	0.05	0.18	0.03	0.04	0.10	0.03	0.10	0.04	0.32	0.01	0.14	82	72	77
9/9/2016	0	0	0.01	0.01	0	0	0	0	0	0	0	0	81	67	74
9/10/2016	1.10	1.17	0.96	1.33	1.01	1.05	1.03	0.94	0.91	0.97	1.25	1.02	78	61	70
9/11/2016	0	0	0	0	0	0	0	0	0	0	0	0	74	56	65
9/12/2016	0	0	0	0	0	0	0*	0	0	0	0	0*	74	55	65
9/13/2016	0	0	0	0	0	0	0	0*	0*	0	0	0	82	58	70
9/14/2016	0.01*	0	0.01	0	0	0	0	0	0	0	0	0	76	59	68
9/15/2016	0	0	0	0	0	0	0	0	0	0	0	0	72	54	63
9/16/2016	0	0	0	0	0	0	0	0	0	0	0	0	77	54	66
9/17/2016	0.20	0.21	0.48	0.25	0.22	0.30	0.39	0.25	0.23	0.42	0.35	0.30	75	66	71
9/18/2016	0	0.21	0.01	0.07	0.21	0.06	0.01	0.07	0.14	0.10	0.04	0.04	80	64	72
9/19/2016	0	0.01	0	0.01	0	0.02	0	0.01	0.01	0.02	0.01	0	83	60	72
9/20/2016	0	0	0	0	0	0	0	0	0	0	0	0	84	64	74
9/21/2016	0	0	0	0	0	0	0	0	0	0	0	0	81	58	70
9/22/2016	0	0	0	0	0	0	0	0	0	0	0	0	86	64	75
9/23/2016	0	0	0	0	0	0	0	0	0	0	0	0	80	63	72
9/24/2016	0	0	0	0	0	0	0	0	0	0	0	0	70	55	63
9/25/2016	0	0	0	0	0	0	0	0	0	0	0	0	73	51	62
9/26/2016	0.42	0.45	0.29	0.22	0.27	0.32	0.33	0.40	0.31	0.28	0.32	0.33	69	53	61
9/27/2016	0	0	0	0	0	0	0	0	0	0	0	0	70	49	60
9/28/2016	0.36	0.34	0.29	0.33	0.47	0.76	0.50	0.49	0.72	0.58	0.55	0.56	60	55	58
9/29/2016	1.95	2.31	1.68	1.99	2.87	2.39	2.03	1.53	1.67	2.22	2.02	1.37	64	59	62
9/30/2016	0.22	0.28	0.28	0.31	0.38	0.39	0.36	0.37	0.47	0.42	0.35	0.41	64	58	61
Total	5.11	5.83	4.64	5.24	6.29	5.93	5.43	5.09	5.18	5.84	5.28	5.04	77	59	68

* Missing data, suspect data, or calibration data not indicative of rainfall.

Table C-4 continued
Downriver Sewage Disposal System
Daily Precipitation for October 2016

Date	Daily Precipitation (inches)												DTW Daily Temperature (°F)		
	R-14	R-18	R-02	R-10	DTW	R-09	R-04	R-08	R-15	R-17	R-06	R-16	Max.	Min.	Avg.
10/1/2016	0.33	0.35	0.36	0.32	0.29	0.37	0.66	0.64	0.47	0.44	0.33	0.27	69	56	63
10/2/2016	0.01	0.02	0	0.03	0.02	0.04	0.02	0.05	0.01	0.04	0.01	0.02	69	52	61
10/3/2016	0	0	0.01	0	0	0	0	0	0	0	0	0*	66	53	60
10/4/2016	0.01	0	0	0.01	0	0.01	0	0	0.01	0.01	0.01	0	74	52	63
10/5/2016	0	0	0.01	0	0	0	0.07	0	0	0.01	0.07	0	76	61	69
10/6/2016	0	0	0	0	0	0	0	0	0	0	0	0	79	61	70
10/7/2016	0.11	0.02	0	0	0	0	0	0	0	0	0	0	77	57	67
10/8/2016	0	0	0	0	0	0	0	0	0	0	0	0	61	43	52
10/9/2016	0	0	0	0	0	0	0	0	0	0	0	0	62	40	51
10/10/2016	0	0	0	0	0	0	0	0	0	0	0	0	60	39	50
10/11/2016	0	0	0	0	0	0	0	0	0*	0*	0	0	67	48	58
10/12/2016	0.28	0.26	0.18	0.18	0.18	0.21	0.14	0.14	0.21	0.12	0.11	0.14	78	51	65
10/13/2016	0	0	0	0	0	0	0	0	0	0	0.01*	0	58	43	51
10/14/2016	0	0	0	0.01	0	0	0	0	0	0	0	0	59	39	49
10/15/2016	0	0	0	0	0	0	0	0	0	0	0	0	73	42	58
10/16/2016	0.16	0.12	0.15	0.11	0.12	0.11	0.12	0.13	0.15	0.08	0.09	0.08	69	63	66
10/17/2016	0*	0*	0	0	0	0	0	0	0	0	0	0	81	63	72
10/18/2016	0	0	0	0	0	0	0	0	0	0	0	0	77	58	68
10/19/2016	0.08	0.09	0.01	0.06	0.05	0.02	0	0.02	0.04	0.01	0	0.01	73	51	62
10/20/2016	1.42	1.18	1.00	1.07	1.00	1.02	0.85	1.05	1.03	1.06	0.91	0.91	59	49	54
10/21/2016	0.04	0.03	0.02	0.03	0.02	0.02	0.03	0.03	0.05	0.03	0.05	0.04	54	43	49
10/22/2016	0	0	0	0	0	0	0	0	0	0	0	0	53	39	46
10/23/2016	0	0	0	0	0	0	0	0	0	0	0	0	66	44	55
10/24/2016	0	0	0	0	0	0	0	0	0	0	0	0	56	40	48
10/25/2016	0	0	0	0	0	0	0	0	0	0	0	0	54	35	45
10/26/2016	0.56	0.64	0.53	0.49	0.51	0.53	0.47	0.40	0.48	0.52	0.47	0.43	45	35	40
10/27/2016	0.12	0.08	0.08	0.17	0.14	0.12	0.15	0.15	0.12	0.17	0.17	0.10	48	42	45
10/28/2016	0	0	0.01	0.01	0	0	0	0	0	0	0	0	55	34	45
10/29/2016	0	0	0	0	0	0	0	0	0	0	0	0	72	53	63
10/30/2016	0.67	0.85	0.86	0.71	0.65	0.75	1.14	0.59	0.52	0.88	1.06	0.61	57	43	50
10/31/2016	0	0	0	0.01	0	0	0	0	0	0	0	0	53	37	45
Total	3.79	3.64	3.22	3.21	2.98	3.20	3.65	3.20	3.09	3.37	3.29	2.61	65	47	56

* Missing data, suspect data, or calibration data not indicative of rainfall.

Table C-4 continued
Downriver Sewage Disposal System
Daily Precipitation for November 2016

Date	Daily Precipitation (inches)												DTW Daily Temperature (°F)		
	R-14	R-18	R-02	R-10	DTW	R-09	R-04	R-08	R-15	R-17	R-06	R-16	Max.	Min.	Avg.
11/1/2016	0	0	0	0	0	0	0	0	0	0	0	0	78	48	63
11/2/2016	0.85	0.95	0.67*	0.78	0.81	0.84	0.48	0.69	0.72	0.70	0.53	0.63	68	56	62
11/3/2016	0.17	0.16	0.24	0.23	0.16	0.19	0.21	0.25	0.32	0.20	0.26	0.22	60	50	55
11/4/2016	0	0	0	0	0	0	0	0	0	0	0	0	57	42	50
11/5/2016	0	0	0	0	0	0	0	0	0	0	0	0	67	38	53
11/6/2016	0	0	0	0	0	0	0	0	0.01	0.01	0	0	66	43	55
11/7/2016	0.01	0.01	0	0.01	0	0.01	0.01*	0.02*	0.01	0.01	0.01	0	66	46	56
11/8/2016	0.10	0.08	0.06	0.06*	0.04	0.05	0.02	0.03	0.06	0.03	0.03	0.04	60	43	52
11/9/2016	0.01	0	0	0	0	0	0	0	0	0	0	0	54	39	47
11/10/2016	0	0	0	0	0	0	0	0	0	0	0	0	63	35	49
11/11/2016	0	0	0	0	0	0	0	0	0	0	0	0	54	33	44
11/12/2016	0	0	0	0	0	0	0	0	0	0	0	0	50	29	40
11/13/2016	0	0	0	0	0	0	0	0	0	0	0	0	58	31	45
11/14/2016	0	0	0	0	0	0*	0	0	0	0	0	0	57	31	44
11/15/2016	0	0	0	0	0	0	0	0	0	0	0	0	59	37	48
11/16/2016	0	0	0	0	0	0	0	0	0	0	0	0	59	42	51
11/17/2016	0	0	0	0	0	0	0	0	0	0	0	0	61	35	48
11/18/2016	0.02	0.02	0.02	0.01	0.02	0.02	0.01	0.01	0.01	0	0*	0	73	49	61
11/19/2016	0.02	0	0.07	0.02	0.01	0.03	0.03	0.01	0.04	0.03	0*	0.01	60	33	47
11/20/2016	0	0	0	0	0	0	0	0	0	0	0	0	36	27	32
11/21/2016	0	0	0	0	0	0	0	0	0	0	0	0	39	25	32
11/22/2016	0	0	0	0	0	0	0	0	0	0	0	0	41	21	31
11/23/2016	0.45	0.45	0.33	0.39	0.38	0.36	0.26	0.34	0.38	0.37	0.36	0.36	41	29	35
11/24/2016	0	0.01	0	0.01	0	0.01	0.02	0.02	0.01	0.02	0.03	0.02	46	39	43
11/25/2016	0.01	0.01	0.01	0.02	0.03	0.03	0	0.01	0.03	0.02	0.03	0.01	44	39	42
11/26/2016	0.01	0.01	0	0.01	0	0	0	0	0	0	0	0	43	36	40
11/27/2016	0	0	0	0	0	0	0	0	0	0	0	0	48	29	39
11/28/2016	0.72	0.69	0.49	0.68	0.61	0.65	0.26	0.45	0.56	0.61	0.52	0.48	49	36	43
11/29/2016	0.05	0.03	0.05	0.06	0.04	0.07	0.04	0.05	0.07	0.10	0.10	0.10	58	47	53
11/30/2016	0	0	0	0	0	0	0.01	0	0	0	0	0	58	40	49
Total	2.42	2.42	1.94	2.28	2.10	2.26	1.35	1.88	2.22	2.10	1.87	1.87	56	38	47

* Missing data, suspect data, or calibration data not indicative of rainfall.

Table C-4 continued
Downriver Sewage Disposal System
Daily Precipitation for December 2016

Date	Daily Precipitation (inches)												DTW Daily Temperature (°F)		
	R-14	R-18	R-02	R-10	DTW	R-09	R-04	R-08	R-15	R-17	R-06	R-16	Max.	Min.	Avg.
12/1/2016	0	0	0	0	0	0	0.01	0	0	0	0.02	0	41	36	39
12/2/2016	0*	0	0	0	0	0	0	0	0	0	0	0	41	33	37
12/3/2016	0	0	0	0	0	0	0	0	0	0	0	0	39	32	36
12/4/2016	0.19	0.17	0.18	0.16	0.18	0.19	0.13	0.19	0.19	0.19	0.21	0.19	39	33	36
12/5/2016	0	0	0	0	0	0	0	0	0	0	0	0	41	30	36
12/6/2016	0.16	0.16	0.18	0.17	0.19	0.20	0.11	0.21	0.20	0.20	0.23	0.20	41	30	36
12/7/2016	0	0	0	0	0	0	0	0	0	0	0	0	38	30	34
12/8/2016	0	0	0.01	0	0	0	0	0	0	0	0	0.09	31	25	28
12/9/2016	0	0	0	0	0	0	0	0	0	0	0.01	0	33	25	29
12/10/2016	0	0	0	0	0	0	0	0	0.01	0	0	0.01	30	23	27
12/11/2016	0.63	0.48	0.57	0.53	0.65	0.60	0	0.38	0.37	0.61	0.21	0.47	31	23	27
12/12/2016	0	0	0	0.01	0.01	0	0	0.01	0.01	0.01	0.70	0.37	36	24	30
12/13/2016	0	0	0	0	0	0	0	0	0	0	0	0	28	12	20
12/14/2016	0	0	0.03	0	0.05	0.04	0	0.04	0	0.02	0	0	19	6	13
12/15/2016	0	0	0	0	0	0	0	0	0	0	0	0	17	5	11
12/16/2016	0.01	0.03	0.06	0	0.12	0.07	0	0.08	0.03	0.06	0	0.06	22	5	14
12/17/2016	0.06	0.15	0.11	0	0.13	0.12	0.08	0.10	0.11	0.20	0.04	0.20	28	20	24
12/18/2016	0.01	0.01	0.01	0	0.01	0.01	0	0.01	0.01	0.01	0.08	0	25	13	19
12/19/2016	0	0	0	0	0	0	0	0	0	0	0	0	16	0	8
12/20/2016	0	0	0	0	0	0	0	0	0	0	0.02	0	31	3	17
12/21/2016	0	0	0	0	0	0	0	0	0	0	0.05	0	34	15	25
12/22/2016	0	0	0	0	0	0	0	0	0	0	0	0	41	29	35
12/23/2016	0.06	0.08	0.07	0.04	0.07	0.08	0.05	0.07	0.06	0.09	0.10	0.08	35	23	29
12/24/2016	0.05	0.03	0.03	0.03	0.04	0.04	0.03	0.05	0.05	0.03	0.04	0.05	39	34	37
12/25/2016	0	0	0	0	0	0	0	0	0	0	0	0	36	35	36
12/26/2016	0.38	0.38	0.70	0.57	0.67	0.78	0.52	0.62	0.61	0.65	0.85	0.67	57	35	46
12/27/2016	0	0	0	0	0	0	0	0	0	0	0	0	42	30	36
12/28/2016	0.05	0.03	0.02	0	0.02	0.03	0.02	0.01	0.02	0.03	0.03	0.02	38	30	34
12/29/2016	0	0	0.01	0	0.02	0.02	0.02	0.02	0.02	0.04	0.06	0.04	44	32	38
12/30/2016	0	0	0	0	0	0	0	0	0	0	0	0	32	28	30
12/31/2016	0	0	0	0	0	0	0	0	0	0	0	0	47	28	38
Total	1.60	1.52	1.98	1.51	2.16	2.18	0.97	1.79	1.69	2.14	2.65	2.45	35	24	29

* Missing data, suspect data, or calibration data not indicative of rainfall.

Appendix D

Supplemental Information, DSDS Response to 2016 Major Storm Events

SUMMARY OF RIVERDRIVE INTERCEPTOR AND OPERATION

This appendix includes hydrographs at select locations for the major storm events. Flow limits shown for each community on the hydrographs presented in Appendix D are from the proposed new Downriver Sewage Disposal System Service Agreement (December 4, 2014). For the controlled flow communities, maximum flow limits are specified in the existing service agreement, adjusted in April 2014 to reflect increases in DWTF capacity, transfers that have occurred between communities and proper conversions from cfs to MGD, consistent significant figures and appropriate rounding.

In addition, this appendix includes figures and tables comparing the total 96-hour volumes and precipitation for the four major storm events to the 4.42 inch design event for the non-controlled flow communities.

Table D-1
Downriver Sewage Disposal System
Controlled Flow Communities
Peak Hourly Flow Rates for Significant/Major Storm Events for 2016

Meter District =		RR-1		EC-6		RD-1		SW	
Location =		River Rouge CSO Basin Outlet		Riverdrive Interceptor South of Southfield Road		Riverdrive Interceptor North of Northline Road		SWRDDD Connection	
Total Flow Formula =		[RR-1]		[EC-6]		[RD-1]		[SW]	
Communities Included in Total Flow =		River Rouge		River Rouge, Ecorse, & Lincoln Park (part)		River Rouge, Ecorse, Lincoln Park (part), & Allen Park (part)		Southgate (part) & Wyandotte	
Incremental Flow Formula =		[RR-1]		[EC-6] - [RR-1r]		[RD-1] - [EC-6r]		[SW]	
Communities Included in Incremental Flow =		River Rouge		Ecorse & Lincoln Park (part)		Lincoln Park (part) & Allen Park (part)		Southgate (part) & Wyandotte	
		Date/Time of Occurrence	Flow Rate / Volume	Date/Time of Occurrence	Flow Rate / Volume	Date/Time of Occurrence	Flow Rate / Volume	Date/Time of Occurrence	Flow Rate / Volume
Proposed Maximum Wet Weather Flow Limits for Controlled Flow Communities									
Total Peak Hourly Flow Rate		--	11.26 cfs	--	22.36 cfs	--	65.82 cfs	--	31.73 cfs
Incremental Peak Hourly Flow Rate		--	11.26 cfs	--	11.10 cfs	--	43.46 cfs	--	31.73 cfs
Significant Storm Event 1 - February 24-25, 2016									
Total	Start of First Exceedence	--	--	--	--	2/25/16 15:25	--	2/25/16 23:30	--
	End of Last Exceedence	--	--	--	--	2/25/16 17:05	--	2/26/16 5:35	--
	Total Time of Exceedence	--	--	--	--	1:40	--	5:05	--
	Total Volume Above Maximum Flow Limit	--	--	--	--	--	0.03 MG	--	0.25 MG
	Peak Hourly Flow Rate	2/24/16 21:30	10.09 cfs	2/24/16 17:20	21.68 cfs	2/25/16 16:30	67.12 cfs	2/26/16 4:35	35.74 cfs
Incremental	Start of First Exceedence	--	--	2/24/16 14:35	--	2/24/16 14:45	--	2/25/16 23:30	--
	End of Last Exceedence	--	--	2/24/16 18:05	--	2/26/16 2:55	--	2/26/16 5:35	--
	Total Time of Exceedence	--	--	3:30	--	21:55	--	5:05	--
	Total Volume Above Maximum Flow Limit	--	--	--	0.11 MG	--	4.00 MG	--	0.25 MG
	Peak Hourly Flow Rate	2/24/16 21:30	10.09 cfs	2/24/16 15:25	12.73 cfs	2/25/16 8:45	61.04 cfs	2/26/16 4:35	35.74 cfs
Significant Storm Event 2 / Major Storm Event A - March 13-14, 2016									
Total	Start of First Exceedence	--	--	3/13/16 14:55	--	3/14/16 6:40	--	3/13/16 19:05	--
	End of Last Exceedence	--	--	3/14/16 2:40	--	3/15/16 10:25	--	3/14/16 17:05	--
	Total Time of Exceedence	--	--	10:35	--	27:45	--	2:10	--
	Total Volume Above Maximum Flow Limit	--	--	--	0.38 MG	--	2.04 MG	--	0.07 MG
	Peak Hourly Flow Rate	3/14/16 0:30	10.72 cfs	3/13/16 23:55	24.59 cfs	3/14/16 11:30	71.27 cfs	3/14/16 16:20	34.41 cfs
Incremental	Start of First Exceedence	--	--	3/13/16 13:00	--	3/13/16 13:20	--	3/13/16 19:05	--
	End of Last Exceedence	--	--	3/14/16 6:10	--	3/16/16 7:35	--	3/14/16 17:05	--
	Total Time of Exceedence	--	--	14:25	--	50:50	--	2:10	--
	Total Volume Above Maximum Flow Limit	--	--	--	0.85 MG	--	10.04 MG	--	0.07 MG
	Peak Hourly Flow Rate	3/14/16 0:30	10.72 cfs	3/13/16 15:30	14.36 cfs	3/14/16 7:20	72.39 cfs	3/14/16 16:20	34.41 cfs

Notes:

1. The Maximum Wet Weather Flow Limits for Controlled Flow Communities are from the proposed new Downriver Sewage Disposal System Service Agreement (December 4, 2014). These flow limits are specified in the existing service agreement, adjusted in April 2014 to reflect increases in DWTF capacity, transfers that have occurred between communities and proper conversions from cfs to MGD, consistent significant figures and appropriate rounding. The communities are responsible for regulating their flow rates to the Riverdrive Interceptor to the these flow limits. The flow limits for each community are listed below:

- i. The flow rate limit for River Rouge at RR-1 is 11.26 cfs.
- ii. The flow rate limit for Ecorse at EC-6 is 9.20 cfs.
- iii. The flow rate limit for Lincoln Park is 28.16 cfs.
- iv. The flow rate limit for Lincoln Park is divided between two meters 1.90 cfs at EC-6 and 26.26 cfs at RD-1.
- v. The flow rate limit for Allen Park at RD-1 (via Lincoln Park) is 17.20 cfs.

2. Significant storm events are defined as those with at least 0.5 inches of rainfall occurring on a single day with an event total of at least 1.0 inch of rainfall. Significant storm events are separated by at least 2 consecutive days without precipitation over 0.1 inches. This storm event definition is based on the arithmetic mean of the rainfall recorded by all rain gages used in the analysis for that storm.

3. Major storm events are a subgroup of significant storm events which result in the peak hourly influent flow rate to the DWTF reaching or exceeding 175 MGD (271 cfs).

4. The meter math formula for Meter District SW was changed from Meter SW plus Meter SWB to Meter SW in the January-February 2016 System Monitoring Report. Meter SWB measures the dewatering flow rate from the Southgate Wyandotte CSO Basin. During normal wet weather operations, no flow passes through Meter SWB. Consequently, the peak flow rate for Meter District SW can be estimated by only analyzing Meter SW flow rates. Meter SWB flow rates will continue to be monitored to ensure that normal wet weather operations continue. Exceedence of the proposed maximum flow limits occurred primarily after the peak of the storm event and are due to Wayne County operations at the SWRDDD facilities to minimize discharges to the Detroit River from the SWRDDD.

Legend:

XX.XX	Exceeds maximum flow limit by 0 to 20%
XX.XX	Exceeds maximum flow limit by > 20%

Table D-1 continued
Downriver Sewage Disposal System
Controlled Flow Communities
Peak Hourly Flow Rates for Significant/Major Storm Events for 2016

Meter District =		RR-1		EC-6		RD-1		SW	
Location =		River Rouge CSO Basin Outlet		Riverdrive Interceptor South of Southfield Road		Riverdrive Interceptor North of Northline Road		SWRDDD Connection	
Total Flow Formula =		[RR-1]		[EC-6]		[RD-1]		[SW]	
Communities Included in Total Flow =		River Rouge		River Rouge, Ecorse, & Lincoln Park (part)		River Rouge, Ecorse, Lincoln Park (part), & Allen Park (part)		Southgate (part) & Wyandotte	
Incremental Flow Formula =		[RR-1]		[EC-6] - [RR-1r]		[RD-1] - [EC-6r]		[SW]	
Communities Included in Incremental Flow =		River Rouge		Ecorse & Lincoln Park (part)		Lincoln Park (part) & Allen Park (part)		Southgate (part) & Wyandotte	
		Date/Time of Occurrence	Flow Rate / Volume	Date/Time of Occurrence	Flow Rate / Volume	Date/Time of Occurrence	Flow Rate / Volume	Date/Time of Occurrence	Flow Rate / Volume
Proposed Maximum Wet Weather Flow Limits for Controlled Flow Communities									
Total Peak Hourly Flow Rate		--	11.26 cfs	--	22.36 cfs	--	65.82 cfs	--	31.73 cfs
Incremental Peak Hourly Flow Rate		--	11.26 cfs	--	11.10 cfs	--	43.46 cfs	--	31.73 cfs
Significant Storm Event 3 / Major Storm Event B - March 24, 2016									
Total	Start of First Exceedence	3/25/16 0:25	--	3/24/16 12:50	--	3/24/16 16:00	--	--	--
	End of Last Exceedence	3/25/16 2:55	--	3/25/16 3:05	--	3/26/16 5:00	--	--	--
	Total Time of Exceedence	2:30	--	14:15	--	24:45	--	--	--
	Total Volume Above Maximum Flow Limit	--	0.01 MG	--	0.87 MG	--	1.70 MG	--	--
	Peak Hourly Flow Rate	3/25/16 2:05	11.40 cfs	3/24/16 16:45	28.08 cfs	3/25/16 21:20	69.95 cfs	3/24/16 11:15	30.87 cfs
Incremental	Start of First Exceedence	3/25/16 0:25	--	3/24/16 12:00	--	3/24/16 12:20	--	--	--
	End of Last Exceedence	3/25/16 2:55	--	3/25/16 2:55	--	3/26/16 21:30	--	--	--
	Total Time of Exceedence	2:30	--	14:55	--	43:00	--	--	--
	Total Volume Above Maximum Flow Limit	--	0.01 MG	--	1.41 MG	--	8.44 MG	--	--
	Peak Hourly Flow Rate	3/25/16 2:05	11.40 cfs	3/24/16 16:45	18.26 cfs	3/25/16 7:40	74.51 cfs	3/24/16 11:15	30.87 cfs
Significant Storm Event 4 - May 12-14, 2016									
Total	Start of First Exceedence	--	--	--	--	--	--	--	--
	End of Last Exceedence	--	--	--	--	--	--	--	--
	Total Time of Exceedence	--	--	--	--	--	--	--	--
	Total Volume Above Maximum Flow Limit	--	--	--	--	--	--	--	--
	Peak Hourly Flow Rate	5/12/16 23:05	9.54 cfs	5/12/16 20:55	17.76 cfs	5/13/16 0:10	62.02 cfs	5/12/16 19:10	27.86 cfs
Incremental	Start of First Exceedence	--	--	5/12/16 19:45	--	5/12/16 21:10	--	--	--
	End of Last Exceedence	--	--	5/12/16 21:10	--	5/12/16 23:55	--	--	--
	Total Time of Exceedence	--	--	1:25	--	2:45	--	--	--
	Total Volume Above Maximum Flow Limit	--	--	--	0.07 MG	--	0.18 MG	--	--
	Peak Hourly Flow Rate	5/12/16 23:05	9.54 cfs	5/12/16 20:15	13.79 cfs	5/12/16 21:45	48.91 cfs	5/12/16 19:10	27.86 cfs

Notes:

1. The Maximum Wet Weather Flow Limits for Controlled Flow Communities are from the proposed new Downriver Sewage Disposal System Service Agreement (December 4, 2014). These flow limits are specified in the existing service agreement, adjusted in April 2014 to reflect increases in DWTF capacity, transfers that have occurred between communities and proper conversions from cfs to MGD, consistent significant figures and appropriate rounding. The communities are responsible for regulating their flow rates to the Riverdrive Interceptor to the these flow limits. The flow limits for each community are listed below:

- The flow rate limit for River Rouge at RR-1 is 11.26 cfs.
- The flow rate limit for Ecorse at EC-6 is 9.20 cfs.
- The flow rate limit for Lincoln Park is 28.16 cfs.
- The flow rate limit for Lincoln Park is divided between two meters 1.90 cfs at EC-6 and 26.26 cfs at RD-1.
- The flow rate limit for Allen Park at RD-1 (via Lincoln Park) is 17.20 cfs.

2. Significant storm events are defined as those with at least 0.5 inches of rainfall occurring on a single day with an event total of at least 1.0 inch of rainfall. Significant storm events are separated by at least 2 consecutive days without precipitation over 0.1 inches. This storm event definition is based on the arithmetic mean of the rainfall recorded by all rain gages used in the analysis for that storm.

3. Major storm events are a subgroup of significant storm events which result in the peak hourly influent flow rate to the DWTF reaching or exceeding 175 MGD (271 cfs).

4. The meter math formula for Meter District SW was changed from Meter SW plus Meter SWB to Meter SW in the January-February 2016 System Monitoring Report. Meter SWB measures the dewatering flow rate from the Southgate Wyandotte CSO Basin. During normal wet weather operations, no flow passes through Meter SWB. Consequently, the peak flow rate for Meter District SW can be estimated by only analyzing Meter SW flow rates. Meter SWB flow rates will continue to be monitored to ensure that normal wet weather operations continue. Exceedence of the proposed maximum flow limits occurred primarily after the peak of the storm event and are due to Wayne County operations at the SWRDDD facilities to minimize discharges to the Detroit River from the SWRDDD.

Legend:

XX.XX	Exceeds maximum flow limit by 0 to 20%
XX.XX	Exceeds maximum flow limit by >20%

Table D-1 continued
Downriver Sewage Disposal System
Controlled Flow Communities
Peak Hourly Flow Rates for Significant/Major Storm Events for 2016

Meter District =		RR-1		EC-6		RD-1		SW	
Location =		River Rouge CSO Basin Outlet		Riverdrive Interceptor South of Southfield Road		Riverdrive Interceptor North of Northline Road		SWRDDD Connection	
Total Flow Formula =		[RR-1]		[EC-6]		[RD-1]		[SW]	
Communities Included in Total Flow =		River Rouge		River Rouge, Ecorse, & Lincoln Park (part)		River Rouge, Ecorse, Lincoln Park (part), & Allen Park (part)		Southgate (part) & Wyandotte	
Incremental Flow Formula =		[RR-1]		[EC-6] - [RR-1r]		[RD-1] - [EC-6r]		[SW]	
Communities Included in Incremental Flow =		River Rouge		Ecorse & Lincoln Park (part)		Lincoln Park (part) & Allen Park (part)		Southgate (part) & Wyandotte	
		Date/Time of Occurrence	Flow Rate / Volume	Date/Time of Occurrence	Flow Rate / Volume	Date/Time of Occurrence	Flow Rate / Volume	Date/Time of Occurrence	Flow Rate / Volume
Proposed Maximum Wet Weather Flow Limits for Controlled Flow Communities									
Total Peak Hourly Flow Rate		--	11.26 cfs	--	22.36 cfs	--	65.82 cfs	--	31.73 cfs
Incremental Peak Hourly Flow Rate		--	11.26 cfs	--	11.10 cfs	--	43.46 cfs	--	31.73 cfs
Significant Storm Event 5 / Major Storm Event C - August 15-16, 2016									
Total	Start of First Exceedence	--	--	8/16/16 1:50	--	8/16/16 2:10	--	8/16/16 0:25	--
	End of Last Exceedence	--	--	8/16/16 15:50	--	8/16/16 16:05	--	8/17/16 20:55	--
	Total Time of Exceedence	--	--	13:15	--	13:55	--	22:25	--
	Total Volume Above Maximum Flow Limit	--	--	--	0.91 MG	--	3.22 MG	--	2.27 MG
	Peak Hourly Flow Rate	8/16/16 14:35	10.98 cfs	8/16/16 2:20	28.27 cfs	8/16/16 3:50	84.12 cfs	8/16/16 12:05	41.73 cfs
Incremental	Start of First Exceedence	--	--	8/16/16 1:20	--	8/16/16 1:40	--	8/16/16 0:25	--
	End of Last Exceedence	--	--	8/16/16 16:05	--	8/18/16 12:45	--	8/17/16 20:55	--
	Total Time of Exceedence	--	--	14:45	--	17:35	--	22:25	--
	Total Volume Above Maximum Flow Limit	--	--	--	2.30 MG	--	3.83 MG	--	2.27 MG
	Peak Hourly Flow Rate	8/16/16 14:35	10.98 cfs	8/16/16 2:05	36.08 cfs	8/16/16 2:20	89.47 cfs	8/16/16 12:05	41.73 cfs
Significant Storm Event 6 - September 10, 2016									
Total	Start of First Exceedence	9/10/16 12:30	--	9/10/16 4:10	--	--	--	--	--
	End of Last Exceedence	9/10/16 19:50	--	9/10/16 7:55	--	--	--	--	--
	Total Time of Exceedence	5:00	--	3:45	--	--	--	--	--
	Total Volume Above Maximum Flow Limit	--	0.07 MG	--	0.14 MG	--	--	--	--
	Peak Hourly Flow Rate	9/10/16 16:20	12.38 cfs	9/10/16 4:50	25.22 cfs	9/10/16 5:35	64.55 cfs	9/10/16 7:45	26.13 cfs
Incremental	Start of First Exceedence	9/10/16 12:30	--	9/10/16 3:25	--	9/10/16 3:50	--	--	--
	End of Last Exceedence	9/10/16 19:50	--	9/10/16 8:15	--	9/10/16 5:35	--	--	--
	Total Time of Exceedence	5:00	--	4:50	--	1:45	--	--	--
	Total Volume Above Maximum Flow Limit	--	0.07 MG	--	0.62 MG	--	0.24 MG	--	--
	Peak Hourly Flow Rate	9/10/16 16:20	12.38 cfs	9/10/16 4:10	24.70 cfs	9/10/16 4:25	52.66 cfs	9/10/16 7:45	26.13 cfs

Notes:

1. The Maximum Wet Weather Flow Limits for Controlled Flow Communities are from the proposed new Downriver Sewage Disposal System Service Agreement (December 4, 2014). These flow limits are specified in the existing service agreement, adjusted in April 2014 to reflect increases in DWTF capacity, transfers that have occurred between communities and proper conversions from cfs to MGD, consistent significant figures and appropriate rounding. The communities are responsible for regulating their flow rates to the Riverdrive Interceptor to the these flow limits. The flow limits for each community are listed below:

- The flow rate limit for River Rouge at RR-1 is 11.26 cfs.
- The flow rate limit for Ecorse at EC-6 is 9.20 cfs.
- The flow rate limit for Lincoln Park is 28.16 cfs.
- The flow rate limit for Lincoln Park is divided between two meters 1.90 cfs at EC-6 and 26.26 cfs at RD-1.
- The flow rate limit for Allen Park at RD-1 (via Lincoln Park) is 17.20 cfs.

2. Significant storm events are defined as those with at least 0.5 inches of rainfall occurring on a single day with an event total of at least 1.0 inch of rainfall. Significant storm events are separated by at least 2 consecutive days without precipitation over 0.1 inches. This storm event definition is based on the arithmetic mean of the rainfall recorded by all rain gages used in the analysis for that storm.

3. Major storm events are a subgroup of significant storm events which result in the peak hourly influent flow rate to the DWTF reaching or exceeding 175 MGD (271 cfs).

4. The meter math formula for Meter District SW was changed from Meter SW plus Meter SWB to Meter SW in the January-February 2016 System Monitoring Report. Meter SWB measures the dewatering flow rate from the Southgate Wyandotte CSO Basin. During normal wet weather operations, no flow passes through Meter SWB. Consequently, the peak flow rate for Meter District SW can be estimated by only analyzing Meter SW flow rates. Meter SWB flow rates will continue to be monitored to ensure that normal wet weather operations continue. Exceedence of the proposed maximum flow limits occurred primarily after the peak of the storm event and are due to Wayne County operations at the SWRDDD facilities to minimize discharges to the Detroit River from the SWRDDD.

Legend:

XX.XX	Exceeds maximum flow limit by 0 to 20%
XX.XX	Exceeds maximum flow limit by > 20%

Table D-1 continued
Downriver Sewage Disposal System
Controlled Flow Communities
Peak Hourly Flow Rates for Significant/Major Storm Events for 2016

Meter District =		RR-1		EC-6		RD-1		SW	
Location =		River Rouge CSO Basin Outlet		Riverdrive Interceptor South of Southfield Road		Riverdrive Interceptor North of Northline Road		SWRDDD Connection	
Total Flow Formula =		[RR-1]		[EC-6]		[RD-1]		[SW]	
Communities Included in Total Flow =		River Rouge		River Rouge, Ecorse, & Lincoln Park (part)		River Rouge, Ecorse, Lincoln Park (part), & Allen Park (part)		Southgate (part) & Wyandotte	
Incremental Flow Formula =		[RR-1]		[EC-6] - [RR-1r]		[RD-1] - [EC-6r]		[SW]	
Communities Included in Incremental Flow =		River Rouge		Ecorse & Lincoln Park (part)		Lincoln Park (part) & Allen Park (part)		Southgate (part) & Wyandotte	
		Date/Time of Occurrence	Flow Rate / Volume	Date/Time of Occurrence	Flow Rate / Volume	Date/Time of Occurrence	Flow Rate / Volume	Date/Time of Occurrence	Flow Rate / Volume
Proposed Maximum Wet Weather Flow Limits for Controlled Flow Communities									
Total Peak Hourly Flow Rate		--	11.26 cfs	--	22.36 cfs	--	65.82 cfs	--	31.73 cfs
Incremental Peak Hourly Flow Rate		--	11.26 cfs	--	11.10 cfs	--	43.46 cfs	--	31.73 cfs
Significant Storm Event 7 / Major Storm Event D - September 27, 2016 to October 1, 2016									
Total	Start of First Exceedence	9/29/16 14:55	--	9/29/16 12:30	--	9/29/16 5:35	--	9/28/16 14:50	--
	End of Last Exceedence	10/1/16 14:55	--	9/29/16 23:20	--	9/29/16 20:15	--	10/2/16 4:40	--
	Total Time of Exceedence	18:25	--	10:50	--	11:40	--	23:40	--
	Total Volume Above Maximum Flow Limit	--	0.20 MG	--	0.75 MG	--	0.49 MG	--	2.56 MG
	Peak Hourly Flow Rate	9/30/16 8:30	12.68 cfs	9/29/16 13:45	26.29 cfs	9/29/16 7:10	69.10 cfs	9/30/16 1:35	45.40 cfs
Incremental	Start of First Exceedence	9/29/16 14:55	--	9/28/16 20:40	--	9/28/16 22:00	--	9/28/16 14:50	--
	End of Last Exceedence	10/1/16 14:55	--	9/29/16 22:40	--	9/29/16 17:30	--	10/2/16 4:40	--
	Total Time of Exceedence	18:25	--	10:45	--	15:40	--	23:40	--
	Total Volume Above Maximum Flow Limit	--	0.20 MG	--	0.81 MG	--	2.37 MG	--	2.56 MG
	Peak Hourly Flow Rate	9/30/16 8:30	12.68 cfs	9/29/16 13:45	15.59 cfs	9/29/16 3:50	54.09 cfs	9/30/16 1:35	45.40 cfs
Significant Storm Event 8 - October 20-21, 2016									
Total	Start of First Exceedence	--	--	--	--	--	--	--	--
	End of Last Exceedence	--	--	--	--	--	--	--	--
	Total Time of Exceedence	--	--	--	--	--	--	--	--
	Total Volume Above Maximum Flow Limit	--	--	--	--	--	--	--	--
	Peak Hourly Flow Rate	10/20/16 19:45	7.99 cfs	10/20/16 16:10	13.99 cfs	10/20/16 18:55	60.34 cfs	10/20/16 17:05	31.13 cfs
Incremental	Start of First Exceedence	--	--	--	--	10/20/16 13:35	--	--	--
	End of Last Exceedence	--	--	--	--	10/20/16 23:50	--	--	--
	Total Time of Exceedence	--	--	--	--	10:15	--	--	--
	Total Volume Above Maximum Flow Limit	--	--	--	--	--	0.66 MG	--	--
	Peak Hourly Flow Rate	10/20/16 19:45	7.99 cfs	10/20/16 16:10	6.64 cfs	10/20/16 15:05	47.29 cfs	10/20/16 17:05	31.13 cfs

Notes:

1. The Maximum Wet Weather Flow Limits for Controlled Flow Communities are from the proposed new Downriver Sewage Disposal System Service Agreement (December 4, 2014). These flow limits are specified in the existing service agreement, adjusted in April 2014 to reflect increases in DWTF capacity, transfers that have occurred between communities and proper conversions from cfs to MGD, consistent significant figures and appropriate rounding. The communities are responsible for regulating their flow rates to the Riverdrive Interceptor to the these flow limits. The flow limits for each community are listed below:

- The flow rate limit for River Rouge at RR-1 is 11.26 cfs.
- The flow rate limit for Ecorse at EC-6 is 9.20 cfs.
- The flow rate limit for Lincoln Park is 28.16 cfs.
- The flow rate limit for Lincoln Park is divided between two meters 1.90 cfs at EC-6 and 26.26 cfs at RD-1.
- The flow rate limit for Allen Park at RD-1 (via Lincoln Park) is 17.20 cfs.

2. Significant storm events are defined as those with at least 0.5 inches of rainfall occurring on a single day with an event total of at least 1.0 inch of rainfall. Significant storm events are separated by at least 2 consecutive days without precipitation over 0.1 inches. This storm event definition is based on the arithmetic mean of the rainfall recorded by all rain gages used in the analysis for that storm.

3. Major storm events are a subgroup of significant storm events which result in the peak hourly influent flow rate to the DWTF reaching or exceeding 175 MGD (271 cfs).

4. The meter math formula for Meter District SW was changed from Meter SW plus Meter SWB to Meter SW in the January-February 2016 System Monitoring Report. Meter SWB measures the dewatering flow rate from the Southgate Wyandotte CSO Basin. During normal wet weather operations, no flow passes through Meter SWB. Consequently, the peak flow rate for Meter District SW can be estimated by only analyzing Meter SW flow rates. Meter SWB flow rates will continue to be monitored to ensure that normal wet weather operations continue. Exceedence of the proposed maximum flow limits occurred primarily after the peak of the storm event and are due to Wayne County operations at the SWRDDD facilities to minimize discharges to the Detroit River from the SWRDDD.

Legend:

XX.XX	Exceeds maximum flow limit by 0 to 20%
XX.XX	Exceeds maximum flow limit by > 20%

Table D-2
Downriver Sewage Disposal System
Peak 96 Hour Total Volumes for Significant Storm Events Summarized by Community

Community	Meter District	Year 2010 Incremental Population	Major Storm Event A March 13-14, 2016 1.23 inches	
			Total Peak 96 Hour Incremental Volume (MG)	Peak 96 Hour Incremental Volume (MG)
Allen Park	PC-1	1,019	36.8	1.4
	P-1	3,332	18.3	4.4
	RD-1	18,179	108.6	37.6
	APO-1 + APO-2	0	5.8	5.8
	Total	22,531	169.4	49.1
Belleville	PA-4	3,993	7.1	2.9
Brownstown Twp.	P-2	10,397	8.6	8.4
	PA-2	248	11.3	0.2
	Total	10,645	19.9	8.6
Dearborn Hts.	TB-1	19,152	37.9	29.6
Ecorse	EC-6	9,515	15.8	11.3
Lincoln Park	EC-6	3,795	15.8	4.5
	RD-1	34,347	108.6	71.0
	Total	38,142	124.4	75.5
River Rouge	RR-1	7,903	19.1	19.1
Riverview	RV-1	12,486	15.9	15.9
Romulus	DMA-1	0	2.1	2.1
	PA-3	11,371	16.9	16.9
	DMA-2	0	3.4	3.4
	PD-2	9,532	15.8	15.8
	Total	20,904	38.2	38.2
Southgate	P-1	10,637	18.3	13.9
	PB-1	4,459	8.1	3.2
	SW	14,752	85.4	31.0
	TPS+IPS	199	0.3	0.3
	Total	30,047	112.0	48.4
Taylor	P-2	262	8.6	0.2
	PA-2	13,270	11.3	11.1
	PB-1	6,462	8.1	4.9
	TB-1	5,339	37.9	8.3
	PC-1	25,700	36.8	35.4
	PD-1	12,100	15.1	15.1
	Total	63,131	117.7	74.8
Van Buren Twp.	PA-4	5,719	7.1	4.2
Wyandotte	SW	25,883	85.4	54.4

Notes:

1) $[P-1] = [P-2] + [PA-2] + [PB-1] + [PC-1] + [PD-1] + (P-1 \text{ Inc. Pop.} / (P-2 \text{ Cum. Pop.} + P2-1 \text{ Cum. Pop.} + PB-1 \text{ Cum. Pop.} + PC-1 \text{ Cum. Pop.} + PD-1 \text{ Cum. Pop.})) \times ([P-2] + [PA-2] + [PB-1] + [PC-1] + [PD-1] + [TSO] + [CPO] + [CHPO] + [PDO] + [APO-1] + [APO-2] + [ER-1])$

2) $[TPS+IPS] = (TPS+TPS \text{ Inc. Pop.} / P-1 \text{ Inc. Pop.}) \times [P-1]$

Table D-2 continued
Downriver Sewage Disposal System
Peak 96 Hour Total Volumes for Significant Storm Events Summarized by Community

Community	Meter District	Year 2010 Incremental Population	Major Storm Event B March 24, 2016 1.56 inches	
			Total Peak 96 Hour Incremental Volume (MG)	Peak 96 Hour Incremental Volume (MG)
Allen Park	PC-1	1,019	36.1	1.4
	P-1	3,332	20.9	5.0
	RD-1	18,179	113.2	39.2
	APO-1 + APO-2	0	10.8	10.8
	Total	22,531	180.9	56.3
Belleville	PA-4	3,993	7.8	3.2
Brownstown Twp.	P-2	10,397	9.6	9.3
	PA-2	248	13.8	0.3
	Total	10,645	23.4	9.6
Dearborn Hts.	TB-1	19,152	41.2	32.2
Ecorse	EC-6	9,515	16.5	11.8
Lincoln Park	EC-6	3,795	16.5	4.7
	RD-1	34,347	113.2	74.0
	Total	38,142	129.6	78.7
River Rouge	RR-1	7,903	22.0	22.0
Riverview	RV-1	12,486	18.6	18.6
Romulus	DMA-1	0	2.1	2.1
	PA-3	11,371	19.7	19.7
	DMA-2	0	8.0	8.0
	PD-2	9,532	17.9	17.9
	Total	20,904	47.6	47.6
Southgate	P-1	10,637	20.9	15.9
	PB-1	4,459	9.0	3.6
	SW	14,752	70.6	25.6
	TPS+IPS	199	0.3	0.3
	Total	30,047	100.8	45.4
Taylor	P-2	262	9.6	0.2
	PA-2	13,270	13.8	13.5
	PB-1	6,462	9.0	5.4
	TB-1	5,339	41.2	9.0
	PC-1	25,700	36.1	34.7
	PD-1	12,100	16.7	16.7
	Total	63,131	126.5	79.7
Van Buren Twp.	PA-4	5,719	7.8	4.6
Wyandotte	SW	25,883	70.6	44.9

Notes:

1) $[P-1] = [P-2] + [PA-2] + [PB-1] + [PC-1] + [PD-1] + (P-1 \text{ Inc. Pop.} / (P-2 \text{ Cum. Pop.} + P2-1 \text{ Cum. Pop.} + PB-1 \text{ Cum. Pop.} + PC-1 \text{ Cum. Pop.} + PD-1 \text{ Cum. Pop.})) \times ([P-2] + [PA-2] + [PB-1] + [PC-1] + [PD-1] + [TSO] + [CPO] + [CHPO] + [PDO] + [APO-1] + [APO-2] + [ER-1])$

2) $[TPS+IPS] = (TPS+TPS \text{ Inc. Pop.} / P-1 \text{ Inc. Pop.}) \times [P-1]$

Table D-2 continued
Downriver Sewage Disposal System
Peak 96 Hour Total Volumes for Significant Storm Events Summarized by Community

Community	Meter District	Year 2010 Incremental Population	Major Storm Event C August 15-16, 2016 2.20 inches	
			Total Peak 96 Hour Incremental Volume (MG)	Peak 96 Hour Incremental Volume (MG)
Allen Park	PC-1	1,019	18.4	0.7
	P-1	3,332	11.3	2.7
	RD-1	18,179	90.6	31.3
	APO-1 + APO-2	0	2.9	2.9
	Total	22,531	123.3	37.7
Belleville	PA-4	3,993	2.3	0.9
Brownstown Twp.	P-2	10,397	7.8	7.7
	PA-2	248	5.4	0.1
	Total	10,645	13.2	7.7
Dearborn Hts.	TB-1	19,152	22.2	17.4
Ecorse	EC-6	9,515	11.7	8.3
Lincoln Park	EC-6	3,795	11.7	3.3
	RD-1	34,347	90.6	59.2
	Total	38,142	102.2	62.6
River Rouge	RR-1	7,903	16.6	16.6
Riverview	RV-1	12,486	12.1	12.1
Romulus	DMA-1	0	2.6	2.6
	PA-3	11,371	8.7	8.7
	DMA-2	0	0.5	0.5
	PD-2	9,532	7.3	7.3
	Total	20,904	19.1	19.1
Southgate	P-1	10,637	11.3	8.6
	PB-1	4,459	6.6	2.6
	SW	14,752	78.0	28.3
	TPS+IPS	199	0.3	0.3
	Total	30,047	96.2	39.9
Taylor	P-2	262	7.8	0.2
	PA-2	13,270	5.4	5.3
	PB-1	6,462	6.6	3.9
	TB-1	5,339	22.2	4.8
	PC-1	25,700	18.4	17.7
	PD-1	12,100	7.8	7.8
	Total	63,131	68.3	39.8
Van Buren Twp.	PA-4	5,719	2.3	1.3
Wyandotte	SW	25,883	78.0	49.7

Notes:

1) $[P-1] = [P-2] + [PA-2] + [PB-1] + [PC-1] + [PD-1] + (P-1 \text{ Inc. Pop.} / (P-2 \text{ Cum. Pop.} + P2-1 \text{ Cum. Pop.} + PB-1 \text{ Cum. Pop.} + PC-1 \text{ Cum. Pop.} + PD-1 \text{ Cum. Pop.})) \times ([P-2] + [PA-2] + [PB-1] + [PC-1] + [PD-1] + [TSO] + [CPO] + [CHPO] + [PDO] + [APO-1] + [APO-2] + [ER-1])$

2) $[TPS+IPS] = (TPS+TPS \text{ Inc. Pop.} / P-1 \text{ Inc. Pop.}) \times [P-1]$

Table D-2 continued
Downriver Sewage Disposal System
Peak 96 Hour Total Volumes for Significant Storm Events Summarized by Community

Community	Meter District	Year 2010 Incremental Population	Major Storm Event D September 27, 2016 to October 1, 2016 3.25 inches	
			Total Peak 96 Hour Incremental Volume (MG)	Peak 96 Hour Incremental Volume (MG)
Allen Park	PC-1	1,019	32.0	1.2
	P-1	3,332	16.1	3.8
	RD-1	18,179	93.2	32.2
	APO-1 + APO-2	0	9.6	9.6
	Total	22,531	150.8	46.9
Belleville	PA-4	3,993	5.5	2.3
Brownstown Twp.	P-2	10,397	8.1	7.9
	PA-2	248	9.6	0.2
	Total	10,645	17.6	8.0
Dearborn Hts.	TB-1	19,152	35.2	27.5
Ecorse	EC-6	9,515	16.7	11.9
Lincoln Park	EC-6	3,795	16.7	4.7
	RD-1	34,347	93.2	60.9
	Total	38,142	109.8	65.7
River Rouge	RR-1	7,903	26.1	26.1
Riverview	RV-1	12,486	19.3	19.3
Romulus	DMA-1	0	2.3	2.3
	PA-3	11,371	12.4	12.4
	DMA-2	0	0.6	0.6
	PD-2	9,532	11.8	11.8
	Total	20,904	27.0	27.0
Southgate	P-1	10,637	16.1	12.3
	PB-1	4,459	8.8	3.5
	SW	14,752	83.3	30.2
	TPS+IPS	199	0.4	0.4
	Total	30,047	108.6	46.4
Taylor	P-2	262	8.1	0.2
	PA-2	13,270	9.6	9.4
	PB-1	6,462	8.8	5.3
	TB-1	5,339	35.2	7.7
	PC-1	25,700	32.0	30.8
	PD-1	12,100	12.9	12.9
	Total	63,131	106.6	66.3
Van Buren Twp.	PA-4	5,719	5.5	3.2
Wyandotte	SW	25,883	83.3	53.0

Notes:

1) $[P-1] = [P-2] + [PA-2] + [PB-1] + [PC-1] + [PD-1] + (P-1 \text{ Inc. Pop.} / (P-2 \text{ Cum. Pop.} + P2-1 \text{ Cum. Pop.} + PB-1 \text{ Cum. Pop.} + PC-1 \text{ Cum. Pop.} + PD-1 \text{ Cum. Pop.})) \times ([P-2] + [PA-2] + [PB-1] + [PC-1] + [PD-1] + [TSO] + [CPO] + [CHPO] + [PDO] + [APO-1] + [APO-2] + [ER-1])$

2) $[TPS+IPS] = (TPS+TPS \text{ Inc. Pop.} / P-1 \text{ Inc. Pop.}) \times [P-1]$

Table D-3
Downriver Sewage Disposal System
Peak Flow Rates for Significant Storm Events

System	Meter	Location	Major Storm Event A March 13-14, 2016 1.23 inches			
			Peak Hour		Peak 96 Hour	
			Date/Time	Flow Rate (cfs)	Date/Time	Cumulative Volume (MG)
Tunnel (Non-Controlled)	TB-1	Taylor Basin	3/13/16 21:35	18.8	3/13/16 13:40	37.9
	PC-1	Pelham Interceptor North of Goddard Road	3/13/16 14:25	29.6	3/13/16 11:30	63.9
	DMA-2	Goddard near Harrison	3/13/16 15:00	1.1	3/14/16 5:55	3.4
	PD-2	Goddard Interceptor West of Inkster Road	3/13/16 22:05	13.1	3/13/16 13:55	19.1
	PD-1	Goddard Interceptor West of Allen Road	3/13/16 19:40	21.8	3/13/16 13:00	34.2
	PB-1	Northline Interceptor West of Fordline Road	3/13/16 20:05	6.9	3/13/16 10:00	8.1
	PA-4	Eureka Interceptor near Hannan Road	3/13/16 21:05	3.6	3/13/16 20:20	7.1
	DMA-1	Detroit Metropolitan Airport	3/13/16 18:45	1.4	3/13/16 11:55	2.1
	PA-3	Eureka Interceptor at Inkster Road	3/13/16 20:40	14.9	3/13/16 15:25	25.9
	PA-2	Eureka Interceptor at Allen Road	3/13/16 20:55	22.5	3/13/16 13:40	37.0
	PA-1	Eureka Interceptor West of Fordline Road	3/13/16 20:50	30.4	3/13/16 11:05	45.9
	P-2	Pennsylvania Interceptor East of Dix-Toledo Road	3/13/16 21:00	6.0	3/13/16 12:25	8.6
	P-1	Pennsylvania Interceptor East of Fort Street	3/13/16 21:15	113.9	3/13/16 12:30	180.8
	RV-1	Pennsylvania Interceptor West of Jefferson Avenue	3/13/16 19:40	20.8	3/13/16 9:15	15.9
Riverdrive (Controlled)	RR-1	River Rouge CSO Basin Outlet Jefferson North of Victoria	3/14/16 0:30	10.7	3/13/16 9:55	19.1
	EC-6	Riverdrive Interceptor South of Southfield Road	3/13/16 23:55	24.6	3/13/16 10:15	34.8
	RD-1	Riverdrive Interceptor North of Northline Road	3/13/16 21:25	65.5	3/13/16 10:25	143.5
	SW + SWB	Southgate-Wyandotte Connection	3/13/16 19:10	32.2	3/13/16 15:50	85.4
Tunnel Connection Meters	TSO	At Pelham Basin	3/13/16 14:25	0.1	3/13/16 10:20	0.0
	APO-1	Belmont and Rosedale	3/14/16 0:45	3.6	3/13/16 14:55	0.6
	APO-2	Belmont and Quandt	3/13/16 19:20	13.5	3/13/16 14:35	5.2
	CHPO	Pelham Road South of R.R.	3/13/16 19:35	16.9	3/13/16 11:40	10.0
	CPO	Pelham Road North of Haskell	3/13/16 19:50	5.5	3/13/16 13:50	0.7
	PDO	Allen Road and Goddard	-	-	-	-
	ER-2	Eureka Road and Inkster	3/14/16 0:55	1.0	3/14/16 0:25	0.1
	ER-1	Allen Road and Eureka Road	3/14/16 4:30	1.9	3/14/16 4:25	0.4
	PM-1	Pennsylvania Ave. at Fordline	-	-	-	-
DWTF	IPS + TPS	DWTF Influent	3/13/16 20:55	302.7	3/13/16 13:30	460.5

Table D-3 continued
Downriver Sewage Disposal System
Peak Flow Rates for Significant Storm Events

System	Meter	Location	Major Storm Event B March 24, 2016 1.56 inches			
			Peak Hour		Peak 96 Hour	
			Date/Time	Flow Rate (cfs)	Date/Time	Cumulative Volume (MG)
Tunnel (Non-Controlled)	TB-1	Taylor Basin	3/24/16 17:50	19.4	3/24/16 14:35	41.1
	PC-1	Pelham Interceptor North of Goddard Road	3/24/16 13:00	29.0	3/24/16 22:15	65.5
	DMA-2	Goddard near Harrison	3/24/16 20:40	2.7	3/25/16 6:55	8.0
	PD-2	Goddard Interceptor West of Inkster Road	3/24/16 18:15	17.1	3/24/16 14:45	25.9
	PD-1	Goddard Interceptor West of Allen Road	3/24/16 16:50	30.9	3/24/16 15:30	42.6
	PB-1	Northline Interceptor West of Fordline Road	3/24/16 17:25	9.1	3/24/16 11:55	9.0
	PA-4	Eureka Interceptor near Hannan Road	3/24/16 18:00	4.6	3/24/16 14:05	7.8
	DMA-1	Detroit Metropolitan Airport	3/24/16 16:10	1.4	3/24/16 3:50	2.1
	PA-3	Eureka Interceptor at Inkster Road	3/24/16 17:30	17.4	3/24/16 15:05	29.0
	PA-2	Eureka Interceptor at Allen Road	3/24/16 18:00	27.3	3/24/16 14:00	41.8
	PA-1	Eureka Interceptor West of Fordline Road	3/24/16 18:00	38.0	3/24/16 13:20	51.9
	P-2	Pennsylvania Interceptor East of Dix-Toledo Road	3/24/16 18:20	7.9	3/24/16 13:25	9.6
	P-1	Pennsylvania Interceptor East of Fort Street	3/24/16 20:00	130.4	3/24/16 14:00	207.6
	RV-1	Pennsylvania Interceptor West of Jefferson Avenue	3/24/16 16:50	28.4	3/24/16 12:05	18.6
Riverdrive (Controlled)	RR-1	River Rouge CSO Basin Outlet Jefferson North of Victoria	3/25/16 2:05	11.4	3/24/16 22:20	22.0
	EC-6	Riverdrive Interceptor South of Southfield Road	3/24/16 16:45	28.1	3/24/16 12:55	38.5
	RD-1	Riverdrive Interceptor North of Northline Road	3/24/16 17:20	69.0	3/25/16 6:55	151.6
	SW + SWB	Southgate-Wyandotte Connection	3/24/16 3:50	56.5	3/24/16 2:00	70.6
Tunnel Connection Meters	TSO	At Pelham Basin	3/24/16 17:05	0.7	3/24/16 11:30	0.1
	APO-1	Belmont and Rosedale	3/24/16 16:30	14.8	3/24/16 13:10	2.2
	APO-2	Belmont and Quandt	3/24/16 16:10	30.5	3/24/16 13:05	8.6
	CHPO	Pelham Road South of R.R.	3/24/16 16:40	14.4	3/24/16 12:45	9.2
	CPO	Pelham Road North of Haskell	3/24/16 16:45	23.3	3/24/16 13:05	2.6
	PDO	Allen Road and Goddard	-	-	-	-
	ER-2	Eureka Road and Inkster	3/24/16 19:50	2.6	3/24/16 18:40	0.5
	ER-1	Allen Road and Eureka Road	3/24/16 23:45	5.0	3/24/16 21:50	1.5
	PM-1	Pennsylvania Ave. at Fordline	-	-	-	-
DWTF	IPS + TPS	DWTF Influent	3/24/16 21:15	306.8	3/24/16 14:40	504.3

Table D-3 continued
Downriver Sewage Disposal System
Peak Flow Rates for Significant Storm Events

System	Meter	Location	Major Storm Event C August 15-16, 2016 2.20 inches			
			Peak Hour		Peak 96 Hour	
			Date/Time	Flow Rate (cfs)	Date/Time	Cumulative Volume (MG)
Tunnel (Non-Controlled)	TB-1	Taylor Basin	8/16/16 12:10	15.1	8/15/16 16:30	22.1
	PC-1	Pelham Interceptor North of Goddard Road	8/16/16 3:20	28.3	8/15/16 17:30	38.1
	DMA-2	Goddard near Harrison	8/16/16 2:50	0.5	8/15/16 15:20	0.5
	PD-2	Goddard Interceptor West of Inkster Road	8/16/16 3:50	12.4	8/16/16 1:15	7.8
	PD-1	Goddard Interceptor West of Allen Road	8/16/16 4:55	16.0	8/16/16 0:45	15.6
	PB-1	Northline Interceptor West of Fordline Road	8/16/16 2:55	12.9	8/16/16 0:30	6.6
	PA-4	Eureka Interceptor near Hannan Road	8/16/16 3:15	2.0	8/15/16 0:00	2.3
	DMA-1	Detroit Metropolitan Airport	8/16/16 13:45	1.8	8/15/16 4:15	2.6
	PA-3	Eureka Interceptor at Inkster Road	8/16/16 3:00	11.1	8/15/16 0:00	13.6
	PA-2	Eureka Interceptor at Allen Road	8/16/16 3:55	19.3	8/15/16 0:00	19.0
	PA-1	Eureka Interceptor West of Fordline Road	8/16/16 4:05	34.0	8/15/16 19:10	25.8
	P-2	Pennsylvania Interceptor East of Dix-Toledo Road	8/16/16 3:40	13.5	8/15/16 19:10	7.8
	P-1	Pennsylvania Interceptor East of Fort Street	8/16/16 4:00	131.5	8/15/16 20:15	103.2
	RV-1	Pennsylvania Interceptor West of Jefferson Avenue	8/16/16 2:55	39.8	8/15/16 23:05	12.1
Riverdrive (Controlled)	RR-1	River Rouge CSO Basin Outlet Jefferson North of Victoria	8/16/16 14:35	11.0	8/16/16 1:30	16.6
	EC-6	Riverdrive Interceptor South of Southfield Road	8/16/16 2:20	28.3	8/16/16 0:55	28.3
	RD-1	Riverdrive Interceptor North of Northline Road	8/16/16 3:50	84.1	8/16/16 0:55	118.9
	SW + SWB	Southgate-Wyandotte Connection	8/16/16 12:05	41.7	8/16/16 7:50	78.0
Tunnel Connection Meters	TSO	At Pelham Basin	8/16/16 3:20	0.8	8/16/16 1:30	0.1
	APO-1	Belmont and Rosedale	8/16/16 3:50	27.2	8/16/16 2:10	1.4
	APO-2	Belmont and Quandt	8/16/16 4:05	28.4	8/16/16 2:05	1.5
	CHPO	Pelham Road South of R.R.	8/16/16 2:30	11.1	8/16/16 1:50	1.2
	CPO	Pelham Road North of Haskell	8/16/16 2:25	22.6	8/16/16 2:00	1.3
	PDO	Allen Road and Goddard	-	-	-	-
	ER-2	Eureka Road and Inkster	-	-	-	-
	ER-1	Allen Road and Eureka Road	8/16/16 7:40	0.1	8/16/16 5:15	0.0
	PM-1	Pennsylvania Ave. at Fordline	8/16/16 5:20	37.11	8/16/16 5:05	1.31
DWTF	IPS + TPS	DWTF Influent	8/16/16 6:55	320.4	8/16/16 1:05	351.0

Table D-3 continued
Downriver Sewage Disposal System
Peak Flow Rates for Significant Storm Events

System	Meter	Location	Major Storm Event D September 27, 2016 to October 1, 2016 3.25 inches			
			Peak Hour		Peak 96 Hour	
			Date/Time	Flow Rate (cfs)	Date/Time	Cumulative Volume (MG)
Tunnel (Non-Controlled)	TB-1	Taylor Basin	10/1/16 17:05	15.0	9/28/16 20:30	35.1
	PC-1	Pelham Interceptor North of Goddard Road	10/1/16 3:55	28.6	9/28/16 21:55	64.2
	DMA-2	Goddard near Harrison	9/29/16 13:30	0.6	9/28/16 20:05	0.6
	PD-2	Goddard Interceptor West of Inkster Road	9/29/16 6:45	9.2	9/29/16 3:30	12.4
	PD-1	Goddard Interceptor West of Allen Road	9/29/16 13:05	15.4	9/29/16 2:25	25.3
	PB-1	Northline Interceptor West of Fordline Road	9/29/16 13:25	7.6	9/28/16 21:25	8.8
	PA-4	Eureka Interceptor near Hannan Road	9/29/16 7:20	4.4	9/29/16 4:50	5.5
	DMA-1	Detroit Metropolitan Airport	9/29/16 14:00	1.7	9/29/16 1:25	2.3
	PA-3	Eureka Interceptor at Inkster Road	9/29/16 17:15	11.2	9/29/16 4:40	20.1
	PA-2	Eureka Interceptor at Allen Road	9/29/16 13:45	17.8	9/29/16 3:15	29.6
	PA-1	Eureka Interceptor West of Fordline Road	9/29/16 13:25	27.3	9/29/16 2:10	42.4
	P-2	Pennsylvania Interceptor East of Dix-Toledo Road	9/29/16 7:40	6.2	9/29/16 4:05	8.1
	P-1	Pennsylvania Interceptor East of Fort Street	9/29/16 14:15	103.9	9/28/16 23:15	165.9
	RV-1	Pennsylvania Interceptor West of Jefferson Avenue	9/29/16 6:00	24.7	9/28/16 20:05	19.3
Riverdrive (Controlled)	RR-1	River Rouge CSO Basin Outlet Jefferson North of Victoria	9/30/16 8:30	12.7	9/28/16 20:35	26.1
	EC-6	Riverdrive Interceptor South of Southfield Road	9/29/16 13:45	26.3	9/28/16 20:30	42.8
	RD-1	Riverdrive Interceptor North of Northline Road	9/29/16 7:10	69.1	9/28/16 20:25	135.9
	SW + SWB	Southgate-Wyandotte Connection	9/30/16 1:35	45.4	10/1/16 8:45	83.3
Tunnel Connection Meters	TSO	At Pelham Basin	9/29/16 12:20	0.1	9/29/16 7:45	0.0
	APO-1	Belmont and Rosedale	9/29/16 12:25	13.3	9/29/16 12:15	1.4
	APO-2	Belmont and Quandt	9/29/16 12:15	21.7	9/29/16 12:05	8.2
	CHPO	Pelham Road South of R.R.	9/29/16 12:35	7.1	9/29/16 3:35	2.6
	CPO	Pelham Road North of Haskell	9/29/16 12:35	6.9	9/29/16 12:20	0.3
	PDO	Allen Road and Goddard	-	-	-	-
	ER-2	Eureka Road and Inkster	-	-	-	-
	ER-1	Allen Road and Eureka Road	9/30/16 13:25	0.1	9/29/16 10:25	0.0
	PM-1	Pennsylvania Ave. at Fordline	-	-	-	-
DWTF	IPS + TPS	DWTF Influent	9/29/16 17:30	319.1	9/28/16 20:55	453.5

Table D-4
Downriver Sewage Disposal System
Peak Hydraulic Grade Lines for Significant Storm Events

System	Meter	Location	Rim Elevation (ft)	Invert Elevation (ft)	Diameter (ft)	Major Storm Event A March 13-14, 2016 1.23 inches			
						Date/Time of Occurrence	Peak Depth (ft)	Peak HGL (ft)	
Tunnel (Non-Controlled)	PC-1	Pelham Interceptor North of Goddard Road	601.9	565.0	4.5	3/13/16 20:00	4.0	569.0	○
	PD-2	Goddard Interceptor West of Inkster Road	623.3	598.3	4.5	3/13/16 22:35	1.7	600.0	○
	PD-1	Goddard Interceptor West of Allen Road	602.2	575.5	4.0	3/13/16 19:45	2.0	577.5	○
	PB-1	Northline Interceptor West of Fordline Road	596.1	569.5	3.0	3/13/16 20:25	1.5	571.1	○
	PA-4	Eureka Interceptor near Hannan Road	656.9	635.1	3.5	3/13/16 21:25	1.1	636.2	○
	PA-3	Eureka Interceptor at Inkster Road	622.6	601.0	3.5	3/13/16 20:40	1.9	602.9	○
	PA-2	Eureka Interceptor at Allen Road	601.5	576.2	4.0	3/13/16 21:05	2.6	578.8	○
	PA-1	Eureka Interceptor West of Fordline Road	594.9	570.4	4.0	3/13/16 21:05	2.3	572.7	○
	P-2 ²	Pennsylvania Interceptor East of Dix-Toledo Road	598.9	577.3	3.0	3/13/16 21:00	1.3	578.6	○
	P-1	Pennsylvania Interceptor East of Fort Street	591.4	545.4	6.5	3/13/16 20:50	5.2	550.6	○
	RV-1	Pennsylvania Interceptor West of Jefferson Avenue	578.3	544.1	3.5	3/13/16 20:40	3.8	547.8	⊙
Riverdrive (Controlled)	RR-1	Riverdrive Interceptor South of Visger Road	582.2	566.2	3.0	3/14/16 0:50	2.8	569.0	○
	EC-6	Riverdrive Interceptor South of Southfield Road	579.3	554.5	4.5	3/14/16 10:15	8.0	562.6	⊙
	RD-1	Riverdrive Interceptor North of Northline Road	577.8	550.7	6.0	3/14/16 10:25	6.9	557.6	⊙
	SW	On Southgate-Wyandotte Connection	578.0	538.0	6.5	3/13/16 20:40	11.3	549.3	⊙
Tunnel Connection Meters	TSO	Connection to Tunnel at Pelham Basin	609.2	585.3	4.0	3/13/16 13:40	0.4	585.7	○
	APO-1	Allen Park Overflow at Belmont Road and Rosedale Road	594.6	565.5	3.0	3/14/16 0:55	9.2	574.7	⊙
	APO-2	Allen Park Overflow at Belmont Road and Quandt Road	597.2	571.0	3.0	3/13/16 19:30	3.9	574.9	⊙
	CHPO	Pelham Interceptor South of R.R.	603.0	566.5	4.5	3/13/16 19:45	4.4	570.8	○
	CPO	Pelham Interceptor North of Haskell Road	601.5	568.0	4.5	3/13/16 20:05	4.2	572.2	○
	PDO	Goddard Interceptor at Allen Road	602.0	570.0	4.0	3/13/16 14:30	1.0	570.9	○
	ER-2	Eureka Relief Sewer Extension on Eureka Road at Inkster	623.7	591.5	4.5	3/14/16 1:25	0.6	592.1	○
	ER-1	Eureka Relief Sewer at Allen Road	602.8	560.5	4.5	3/14/16 5:15	0.4	560.9	○
	PM-1	Pennsylvania Interceptor at Fordline Road	593.1	548.9	6.5	3/13/16 21:40	4.1	553.0	○
Tunnel Level Sensors	L-3	Allen and I-75 (North)	602.6	543.0	7.0	3/13/16 22:30	2.4	545.5	○
	L-5	Pelham and Champaign	601.3	546.8	7.0	3/13/16 21:00	3.1	549.9	○
	L-7	Rosedale and Belmont	593.2	552.9	6.5	3/13/16 20:30	9.0	561.8	⊙
	L-8	Pennsylvania Ave. at Fordline	592.2	537.5	7.5	3/13/16 20:30	4.4	541.9	○
DWTF	IPS	Main Influent Pump Station Wet Well	-	528.5	NA	3/13/16 20:50	15.1	543.5	○
	TPS	Tunnel Pump Station Wet Well	-	524.7	NA	3/13/16 20:20	19.5	544.2	○

Notes:

1) Elevations are referenced to the North American Vertical Datum of 1988 (NAVD 88).

2) Meter P-2 (Accusonic) data was used for January through March 2016.

Meter P-2 (ADS) data was used for April 2016.

Key

Within sewer: ○

Surcharging sewer, grade elevation unknown: ⊗

Surcharging sewer, surcharging level exceeded top of range for level sensor: ⊙

Surcharging sewer, grade elevation known: ⊙

Above grade: ●

Data not available: -

Table D-4 continued
Downriver Sewage Disposal System
Peak Hydraulic Grade Lines for Significant Storm Events

System	Meter	Location	Rim Elevation (ft)	Invert Elevation (ft)	Diameter (ft)	Major Storm Event B March 24, 2016 1.56 inches			
						Date/Time of Occurrence	Peak Depth (ft)	Peak HGL (ft)	
Tunnel (Non-Controlled)	PC-1	Pelham Interceptor North of Goddard Road	601.9	565.0	4.5	3/24/16 17:05	4.7	569.6	⊙
	PD-2	Goddard Interceptor West of Inkster Road	623.3	598.3	4.5	3/24/16 18:25	2.0	600.3	○
	PD-1	Goddard Interceptor West of Allen Road	602.2	575.5	4.0	3/24/16 17:15	2.4	577.9	○
	PB-1	Northline Interceptor West of Fordline Road	596.1	569.5	3.0	3/24/16 17:50	1.7	571.2	○
	PA-4	Eureka Interceptor near Hannan Road	656.9	635.1	3.5	3/24/16 18:25	1.2	636.3	○
	PA-3	Eureka Interceptor at Inkster Road	622.6	601.0	3.5	3/24/16 17:35	2.1	603.1	○
	PA-2	Eureka Interceptor at Allen Road	601.5	576.2	4.0	3/24/16 18:25	3.4	579.6	○
	PA-1	Eureka Interceptor West of Fordline Road	594.9	570.4	4.0	3/24/16 18:35	2.8	573.2	○
	P-2 ²	Pennsylvania Interceptor East of Dix-Toledo Road	598.9	577.3	3.0	3/24/16 14:50	2.9	580.2	○
	P-1	Pennsylvania Interceptor East of Fort Street	591.4	545.4	6.5	3/24/16 18:45	6.8	552.2	⊙
	RV-1	Pennsylvania Interceptor West of Jefferson Avenue	578.3	544.1	3.5	3/24/16 17:20	4.1	548.2	⊙
Riverdrive (Controlled)	RR-1	Riverdrive Interceptor South of Visger Road	582.2	566.2	3.0	3/24/16 17:05	6.7	572.9	⊙
	EC-6	Riverdrive Interceptor South of Southfield Road	579.3	554.5	4.5	3/24/16 17:35	10.4	564.9	⊙
	RD-1	Riverdrive Interceptor North of Northline Road	577.8	550.7	6.0	3/24/16 17:45	8.1	558.8	⊙
	SW	On Southgate-Wyandotte Connection	578.0	538.0	6.5	3/24/16 14:25	11.1	549.1	⊙
Tunnel Connection Meters	TSO	Connection to Tunnel at Pelham Basin	609.2	585.3	4.0	3/24/16 17:25	0.6	585.9	○
	APO-1	Allen Park Overflow at Belmont Road and Rosedale Road	594.6	565.5	3.0	3/24/16 16:45	9.5	575.0	⊙
	APO-2	Allen Park Overflow at Belmont Road and Quandt Road	597.2	571.0	3.0	3/24/16 16:40	4.4	575.4	⊙
	CHPO	Pelham Interceptor South of R.R.	603.0	566.5	4.5	3/24/16 17:00	4.3	570.7	○
	CPO	Pelham Interceptor North of Haskell Road	601.5	568.0	4.5	3/24/16 17:05	4.7	572.7	⊙
	PDO	Goddard Interceptor at Allen Road	602.0	570.0	4.0	3/24/16 16:55	1.0	571.0	○
	ER-2	Eureka Relief Sewer Extension on Eureka Road at Inkster	623.7	591.5	4.5	3/24/16 20:40	0.8	592.3	○
	ER-1	Eureka Relief Sewer at Allen Road	602.8	560.5	4.5	3/24/16 23:45	0.7	561.1	○
	PM-1	Pennsylvania Interceptor at Fordline Road	593.1	548.9	6.5	3/24/16 18:55	5.4	554.3	○
Tunnel Level Sensors	L-3	Allen and I-75 (North)	602.6	543.0	7.0	3/24/16 18:30	4.7	547.7	○
	L-5	Pelham and Champaign	601.3	546.8	7.0	3/24/16 19:15	8.3	555.2	⊙
	L-7	Rosedale and Belmont	593.2	552.9	6.5	3/24/16 17:45	9.9	562.7	⊙
	L-8	Pennsylvania Ave. at Fordline	592.2	537.5	7.5	3/24/16 20:00	7.3	544.8	○
DWTF	IPS	Main Influent Pump Station Wet Well	-	528.5	NA	3/24/16 14:35	15.5	543.9	○
	TPS	Tunnel Pump Station Wet Well	-	524.7	NA	3/24/16 21:50	23.8	548.5	○

Notes:

- 1) Elevations are referenced to the North American Vertical Datum of 1988 (NAVD 88).
2) Meter P-2 (Accusonic) data was used for January through March 2016.
Meter P-2 (ADS) data was used for April 2016.

Key

- Within sewer: ○
Surcharging sewer, grade elevation unknown: ⊗
Surcharging sewer, surcharging level exceeded top of range for level sensor: ⊖
Surcharging sewer, grade elevation known: ⊙
Above grade: ●
Data not available: -

Table D-4 continued
Downriver Sewage Disposal System
Peak Hydraulic Grade Lines for Major Storm Events

System	Meter	Location	Rim Elevation (ft)	Invert Elevation (ft)	Diameter (ft)	Major Storm Event C August 15-16, 2016 2.20 inches			
						Date/Time of Occurrence	Peak Depth (ft)	Peak HGL (ft)	
Tunnel (Non-Controlled)	PC-1	Pelham Interceptor North of Goddard Road	601.9	565.0	4.5	8/16/16 3:00	4.2	569.1	○
	PD-2	Goddard Interceptor West of Inkster Road	623.3	598.3	4.5	8/16/16 4:10	1.6	599.9	○
	PD-1	Goddard Interceptor West of Allen Road	602.2	575.5	4.0	8/16/16 5:00	1.9	577.5	○
	PB-1	Northline Interceptor West of Fordline Road	596.1	569.5	3.0	8/16/16 3:10	2.1	571.7	○
	PA-4	Eureka Interceptor near Hannan Road	656.9	635.1	3.5	8/16/16 3:50	1.0	636.1	○
	PA-3	Eureka Interceptor at Inkster Road	622.6	601.0	3.5	8/16/16 3:15	1.7	602.7	○
	PA-2	Eureka Interceptor at Allen Road	601.5	576.2	4.0	8/16/16 4:20	2.5	578.7	○
	PA-1	Eureka Interceptor West of Fordline Road	594.9	570.4	4.0	8/16/16 4:30	2.6	573.0	○
	P-2	Pennsylvania Interceptor East of Dix-Toledo Road	598.9	577.3	3.0	8/16/16 4:10	2.1	579.5	○
	P-1	Pennsylvania Interceptor East of Fort Street	591.4	545.4	6.5	8/16/16 5:25	11.5	556.9	⊙
Riverdrive (Controlled)	RV-1	Pennsylvania Interceptor West of Jefferson Avenue	578.3	544.1	3.5	8/16/16 5:25	11.3	555.4	⊙
	RR-1	Riverdrive Interceptor South of Visger Road	582.2	566.2	3.0	8/16/16 5:20	10.4	576.6	⊙
	EC-6	Riverdrive Interceptor South of Southfield Road	579.3	554.5	4.5	8/16/16 2:50-7:50	≥ 13.6	≥ 568.1	⊖
	RD-1	Riverdrive Interceptor North of Northline Road	577.8	550.7	6.0	8/16/16 5:30	15.5	566.2	⊙
Tunnel Connection Meters	SW	On Southgate-Wyandotte Connection	578.0	538.0	6.5	8/16/16 5:30	15.4	553.4	⊙
	TSO	Connection to Tunnel at Pelham Basin	609.2	585.3	4.0	8/16/16 3:35	0.6	585.9	○
	APO-1	Allen Park Overflow at Belmont Road and Rosedale Road	594.6	565.5	3.0	8/16/16 2:55	10.2	575.7	⊙
	APO-2	Allen Park Overflow at Belmont Road and Quandt Road	597.2	571.0	3.0	8/16/16 4:30	4.5	575.5	⊙
	CHPO	Pelham Interceptor South of R.R.	603.0	566.5	4.5	8/16/16 2:50	4.2	570.6	○
	CPO	Pelham Interceptor North of Haskell Road	601.5	568.0	4.5	8/16/16 2:50	4.7	572.7	⊙
	PDO	Goddard Interceptor at Allen Road	602.0	570.0	4.0	8/16/16 3:10	0.7	570.7	○
	ER-2	Eureka Relief Sewer Extension on Eureka Road at Inkster	623.7	591.5	4.5	8/15/16 0:00	0.3	591.7	○
	ER-1	Eureka Relief Sewer at Allen Road	602.8	560.5	4.5	8/16/16 5:15	0.2	560.7	○
Tunnel Level Sensors	PM-1	Pennsylvania Interceptor at Fordline Road	593.1	548.9	6.5	8/16/16 5:30	8.9	557.8	⊙
	L-3	Allen and I-75 (North)	602.6	543.0	7.0	8/16/16 6:00	9.1	552.1	⊙
	L-5	Pelham and Champaign	601.3	546.8	7.0	8/16/16 6:15-6:30	≥ 10.1	≥ 556.9	⊖
	L-7	Rosedale and Belmont	593.2	552.9	6.5	8/16/16 5:30	9.3	562.2	⊙
DWTf	L-8	Pennsylvania Ave. at Fordline	592.2	537.5	7.5	8/16/16 5:00-10:00	≥ 7.3	≥ 544.8	⊖
	IPS	Main Influent Pump Station Wet Well	-	528.5	NA	8/16/16 5:30	21.2	549.6	○
	TPS	Tunnel Pump Station Wet Well	-	524.7	NA	8/16/16 8:30	≥ 25.6	≥ 550.3	⊖

Notes:

- 1) Elevations are referenced to the North American Vertical Datum of 1988 (NAVD 88).
2) Meter P-2 (Accusonic) data was used for January through March 2016.
Meter P-2 (ADS) data was used for April 2016.

Key

- Within sewer: ○
Surcharging sewer, grade elevation unknown: ⊗
Surcharging sewer, surcharging level exceeded top of range for level sensor: ⊖
Surcharging sewer, grade elevation known: ⊙
Above grade: ●
Data not available: -

Table D-4 continued
Downriver Sewage Disposal System
Peak Hydraulic Grade Lines for Major Storm Events

System	Meter	Location	Rim Elevation (ft)	Invert Elevation (ft)	Diameter (ft)	Major Storm Event D September 27, 2016 to October 1, 2016 3.25 inches			
						Date/Time of Occurrence	Peak Depth (ft)	Peak HGL (ft)	
Tunnel (Non-Controlled)	PC-1	Pelham Interceptor North of Goddard Road	601.9	565.0	4.5	9/29/16 13:30	3.8	568.8	○
	PD-2	Goddard Interceptor West of Inkster Road	623.3	598.3	4.5	9/29/16 7:05	1.4	599.7	○
	PD-1	Goddard Interceptor West of Allen Road	602.2	575.5	4.0	9/29/16 13:15	1.9	577.4	○
	PB-1	Northline Interceptor West of Fordline Road	596.1	569.5	3.0	9/29/16 13:40	1.5	571.1	○
	PA-4	Eureka Interceptor near Hannan Road	656.9	635.1	3.5	9/29/16 7:30	1.2	636.3	○
	PA-3	Eureka Interceptor at Inkster Road	622.6	601.0	3.5	9/29/16 17:30	1.7	602.7	○
	PA-2	Eureka Interceptor at Allen Road	601.5	576.2	4.0	9/29/16 14:00	2.3	578.5	○
	PA-1	Eureka Interceptor West of Fordline Road	594.9	570.4	4.0	9/29/16 13:50	2.1	572.5	○
	P-2	Pennsylvania Interceptor East of Dix-Toledo Road	598.9	577.3	3.0	9/29/16 8:10	1.3	578.6	○
	P-1	Pennsylvania Interceptor East of Fort Street	591.4	545.4	6.5	9/29/16 15:00	4.2	549.6	○
	RV-1	Pennsylvania Interceptor West of Jefferson Avenue	578.3	544.1	3.5	9/29/16 6:15	2.9	546.9	○
Riverdrive (Controlled)	RR-1	Riverdrive Interceptor South of Visger Road	582.2	566.2	3.0	9/29/16 19:00	3.8	570.0	⊙
	EC-6	Riverdrive Interceptor South of Southfield Road	579.3	554.5	4.5	9/29/16 18:15	7.5	562.0	⊙
	RD-1	Riverdrive Interceptor North of Northline Road	577.8	550.7	6.0	9/29/16 17:55	5.8	556.5	○
	SW	On Southgate-Wyandotte Connection	578.0	538.0	6.5	9/29/16 4:45	10.2	548.2	⊙
Tunnel Connection Meters	TSO	Connection to Tunnel at Pelham Basin	609.2	585.3	4.0	9/29/16 12:50	0.4	585.7	○
	APO-1	Allen Park Overflow at Belmont Road and Rosedale Road	594.6	565.5	3.0	9/29/16 12:50	9.5	575.0	⊙
	APO-2	Allen Park Overflow at Belmont Road and Quandt Road	597.2	571.0	3.0	9/29/16 12:30	4.1	575.1	⊙
	CHPO	Pelham Interceptor South of R.R.	603.0	566.5	4.5	9/29/16 12:45	4.0	570.5	○
	CPO	Pelham Interceptor North of Haskell Road	601.5	568.0	4.5	9/29/16 12:50	4.2	572.2	○
	PDO	Goddard Interceptor at Allen Road	602.0	570.0	4.0	9/30/16 13:00	1.0	570.9	○
	ER-2	Eureka Relief Sewer Extension on Eureka Road at Inkster Road	623.7	591.5	4.5	9/30/16 0:35	0.3	591.8	○
	ER-1	Eureka Relief Sewer at Allen Road	602.8	560.5	4.5	9/30/16 13:45	0.2	560.6	○
	PM-1	Pennsylvania Interceptor at Fordline Road	593.1	548.9	6.5	9/29/16 14:35	3.7	552.6	○
Tunnel Level Sensors	L-3	Allen and I-75 (North)	602.6	543.0	7.0	9/29/16 15:30	2.5	545.5	○
	L-5	Pelham and Champaign	601.3	546.8	7.0	9/29/16 13:45	3.9	550.7	○
	L-7	Rosedale and Belmont	593.2	552.9	6.5	9/30/16 18:15	8.1	560.9	⊙
	L-8	Pennsylvania Ave. at Fordline	592.2	537.5	7.5	9/29/16 17:30	4.9	542.4	○
DWTF	IPS	Main Influent Pump Station Wet Well	-	528.5	NA	9/29/16 4:45	15.2	543.6	○
	TPS	Tunnel Pump Station Wet Well	-	524.7	NA	9/29/16 17:20	20.1	544.8	○

Notes:

- 1) Elevations are referenced to the North American Vertical Datum of 1988 (NAVD 88).
2) Meter P-2 (Accusonic) data was used for January through March 2016.
Meter P-2 (ADS) data was used for April 2016.

Key

- Within sewer: ○
Surcharging sewer, grade elevation unknown: ⊗
Surcharging sewer, surcharging level exceeded top of range for level sensor: ⊙
Surcharging sewer, grade elevation known: ⊙
Above grade: ●
Data not available: -

Major Storm Event A - 3/13-14/2016

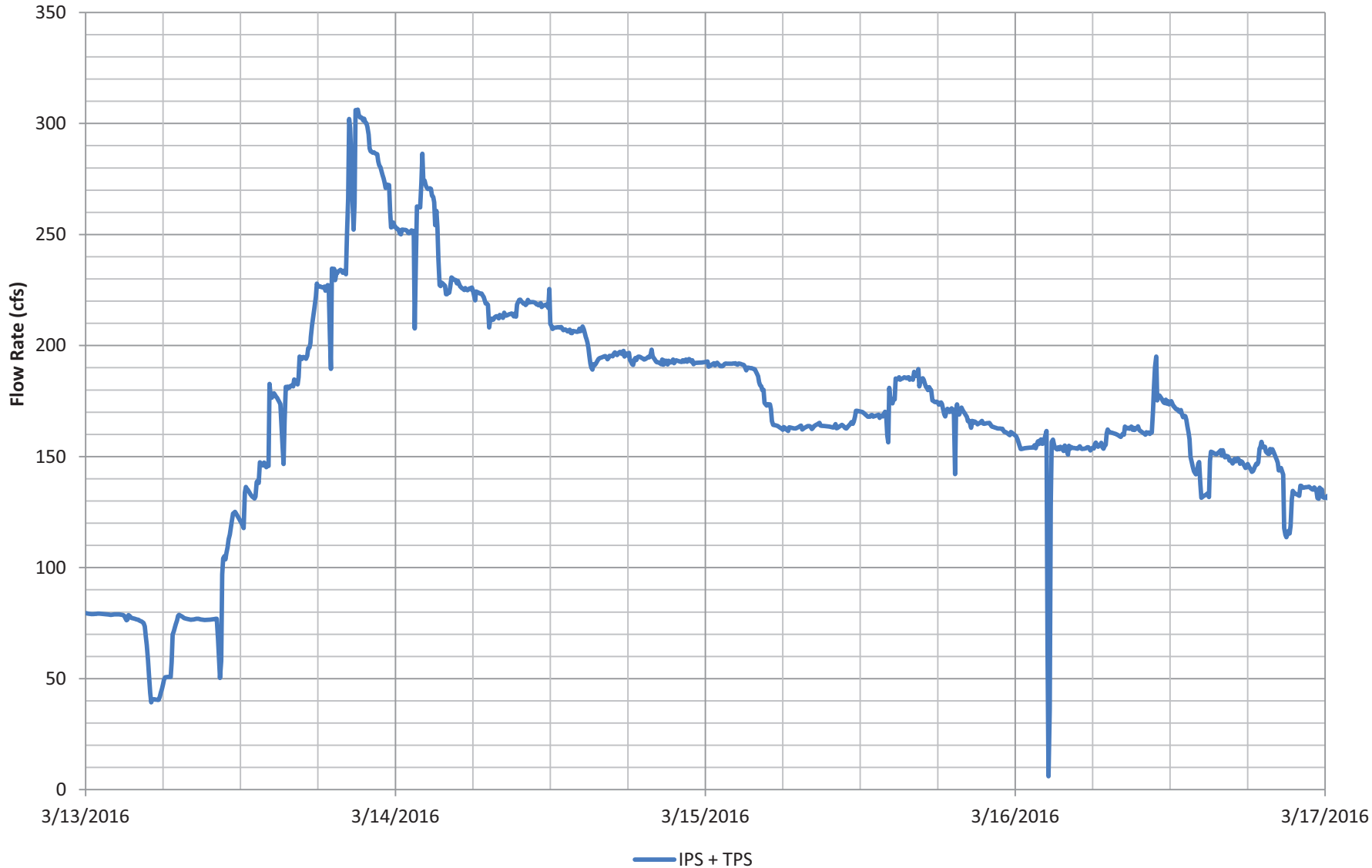


Figure D-2

Riverdrive Interceptor

Major Storm Event A - 3/13-14/2016

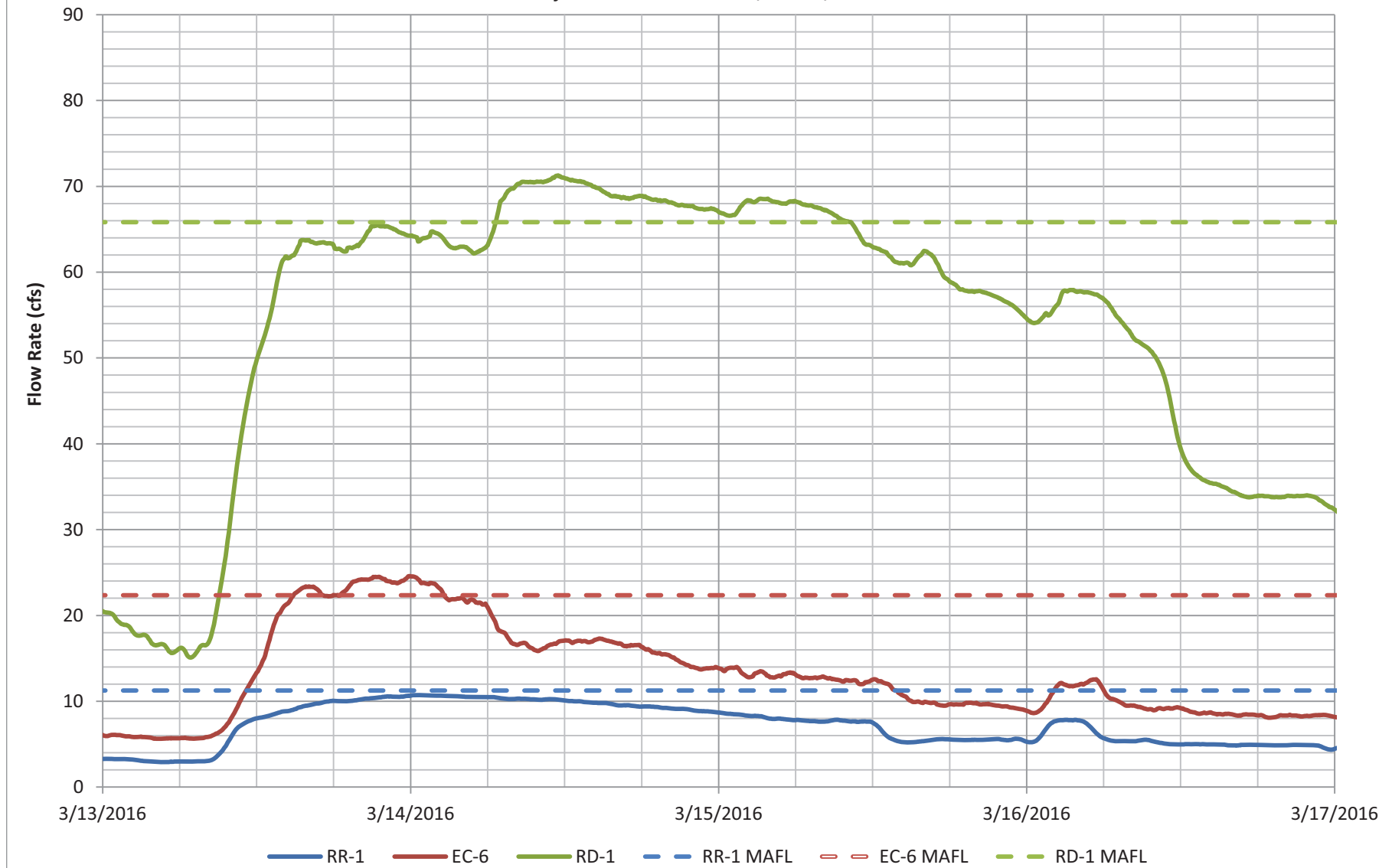


Figure D-3

Riverdrive Interceptor

Major Storm Event A - 3/13-14/2016

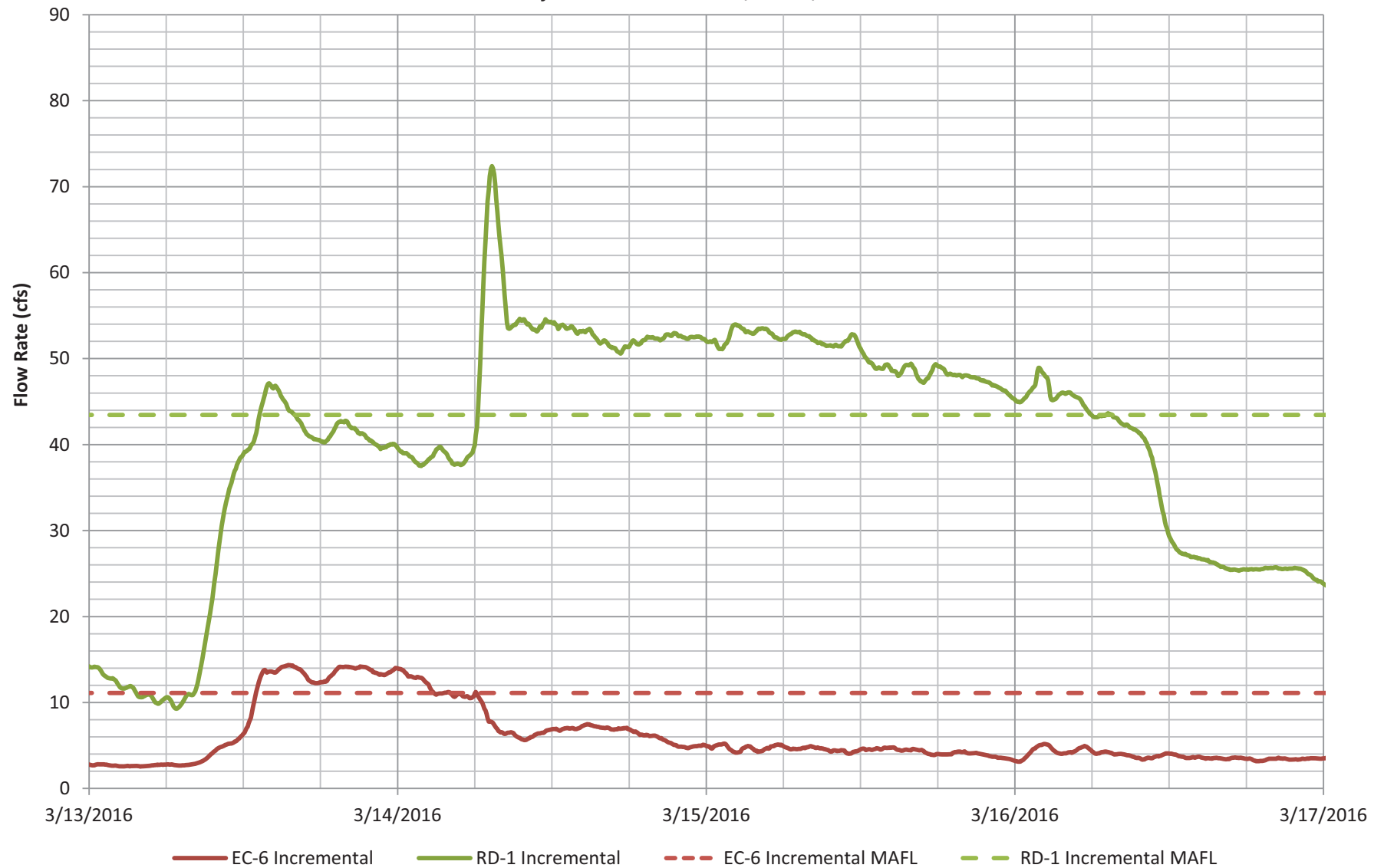


Figure D-4

SWRDDD Connection

Major Storm Event A - 3/13-14/2016

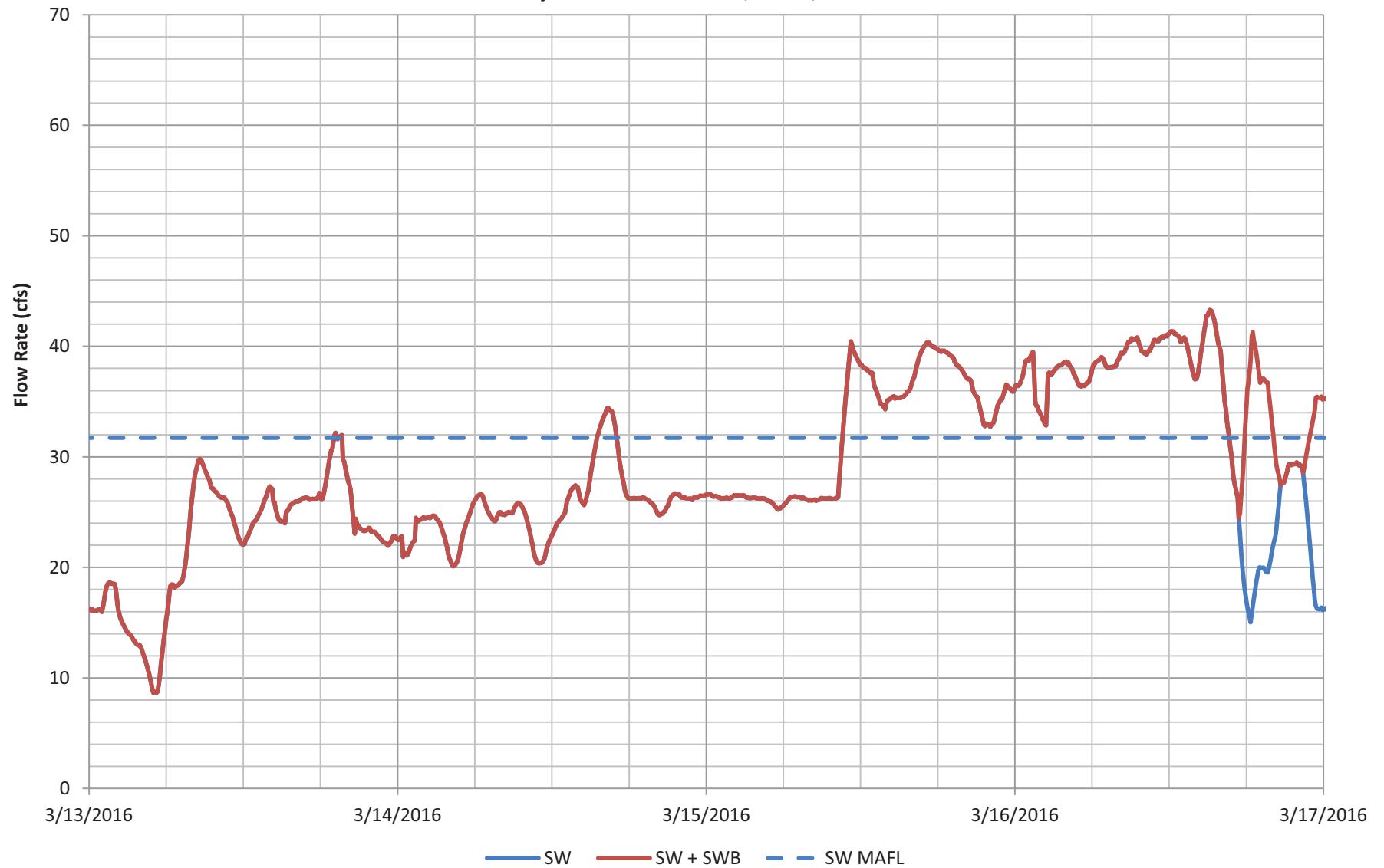


Figure D-5
Downriver Wastewater Treatment Facility
Major Storm Event B - 3/24/2016

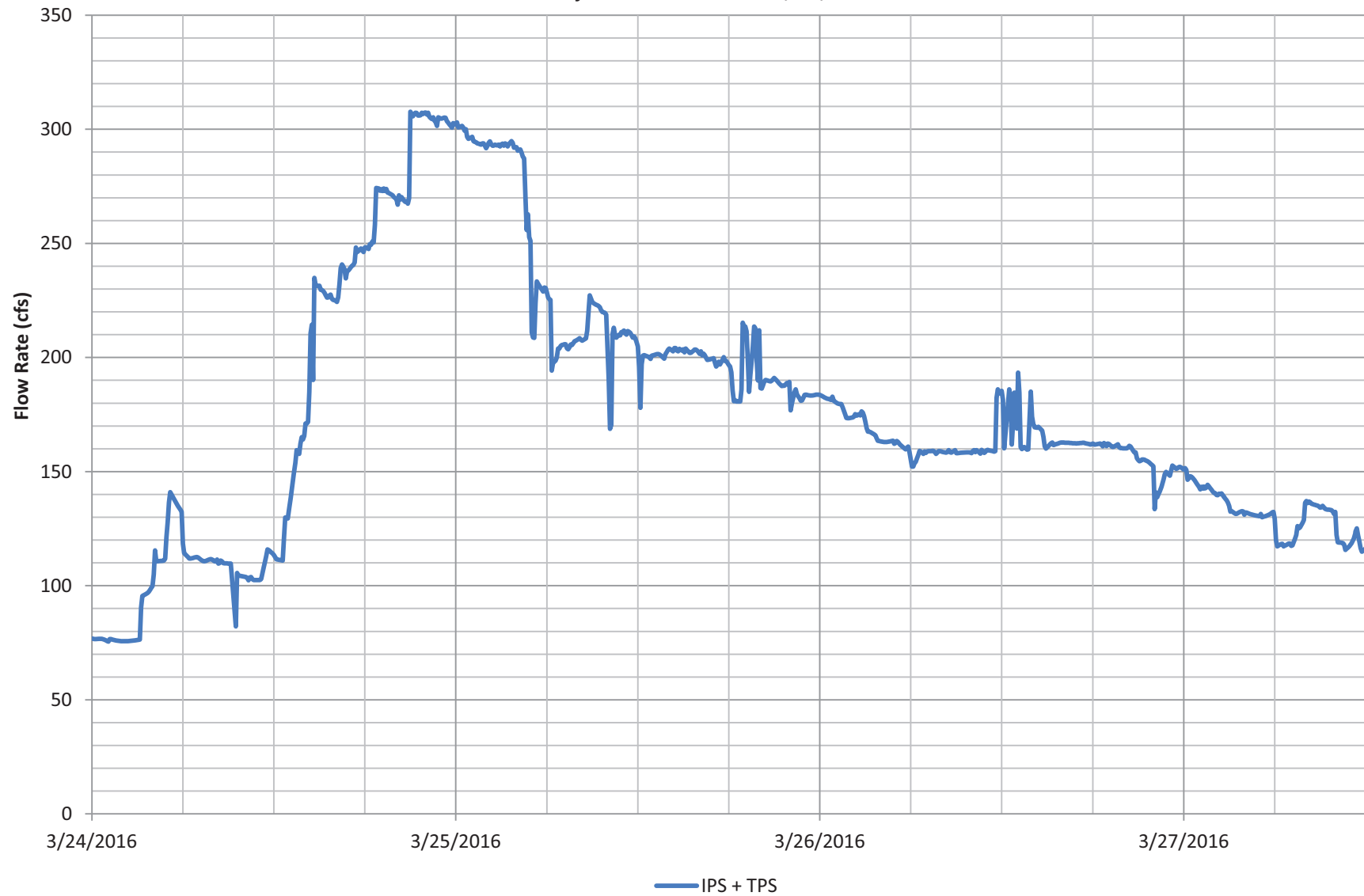


Figure D-6

Riverdrive Interceptor

Major Storm Event B - 3/24/2016

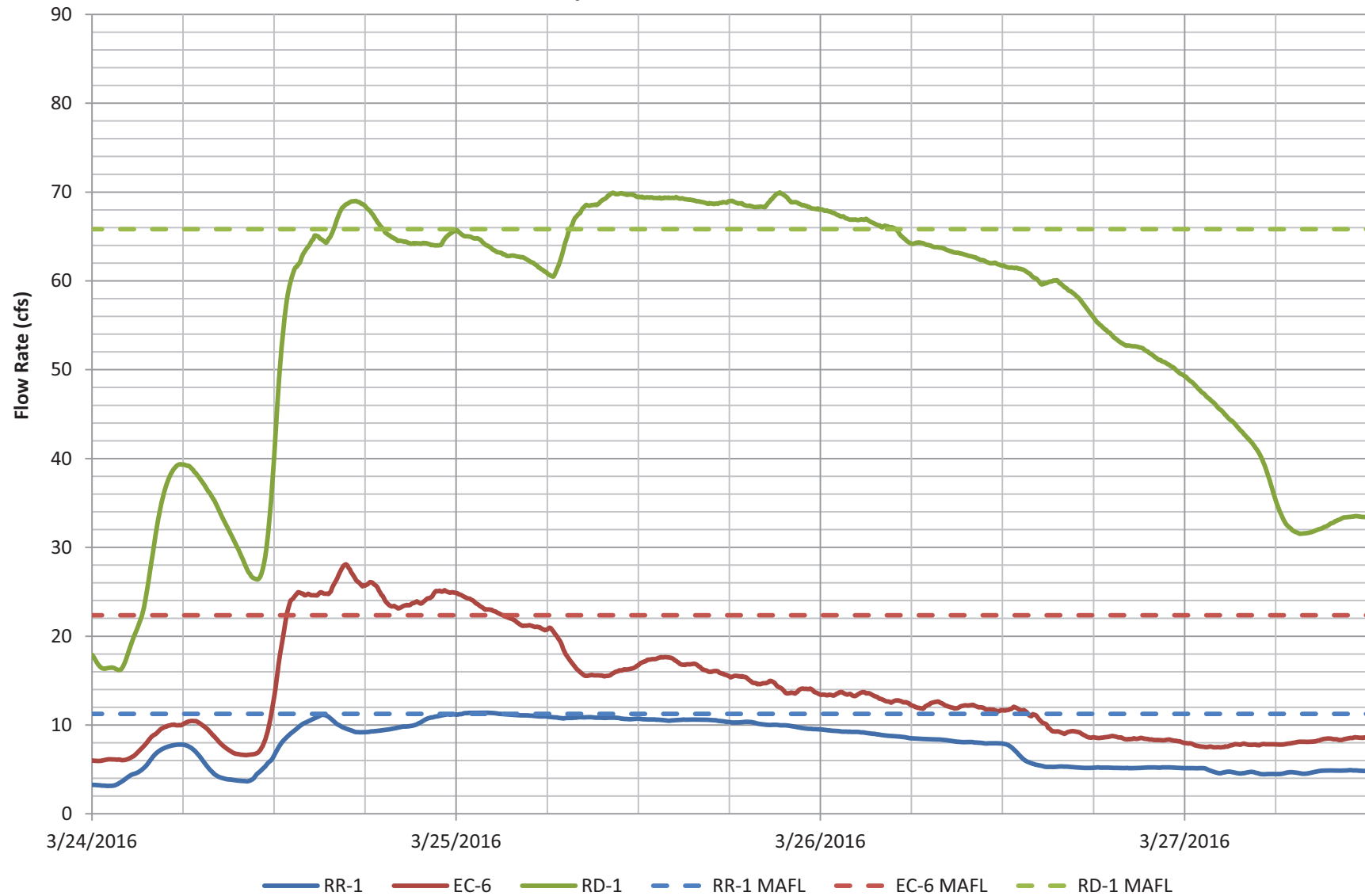


Figure D-7

Riverdrive Interceptor

Major Storm Event B - 3/24/2016

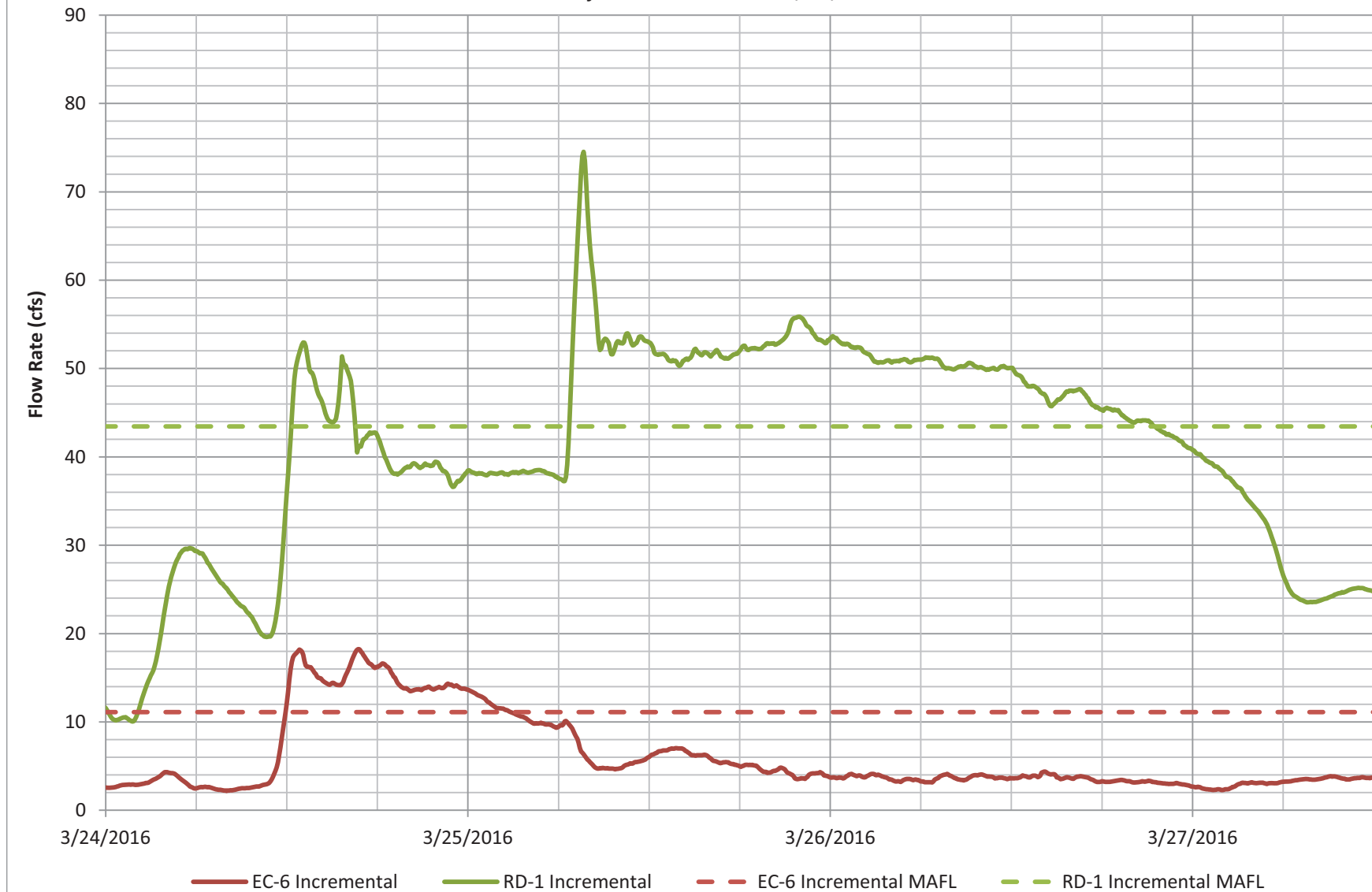


Figure D-8

SWRDDD Connection

Major Storm Event B - 3/24/2016

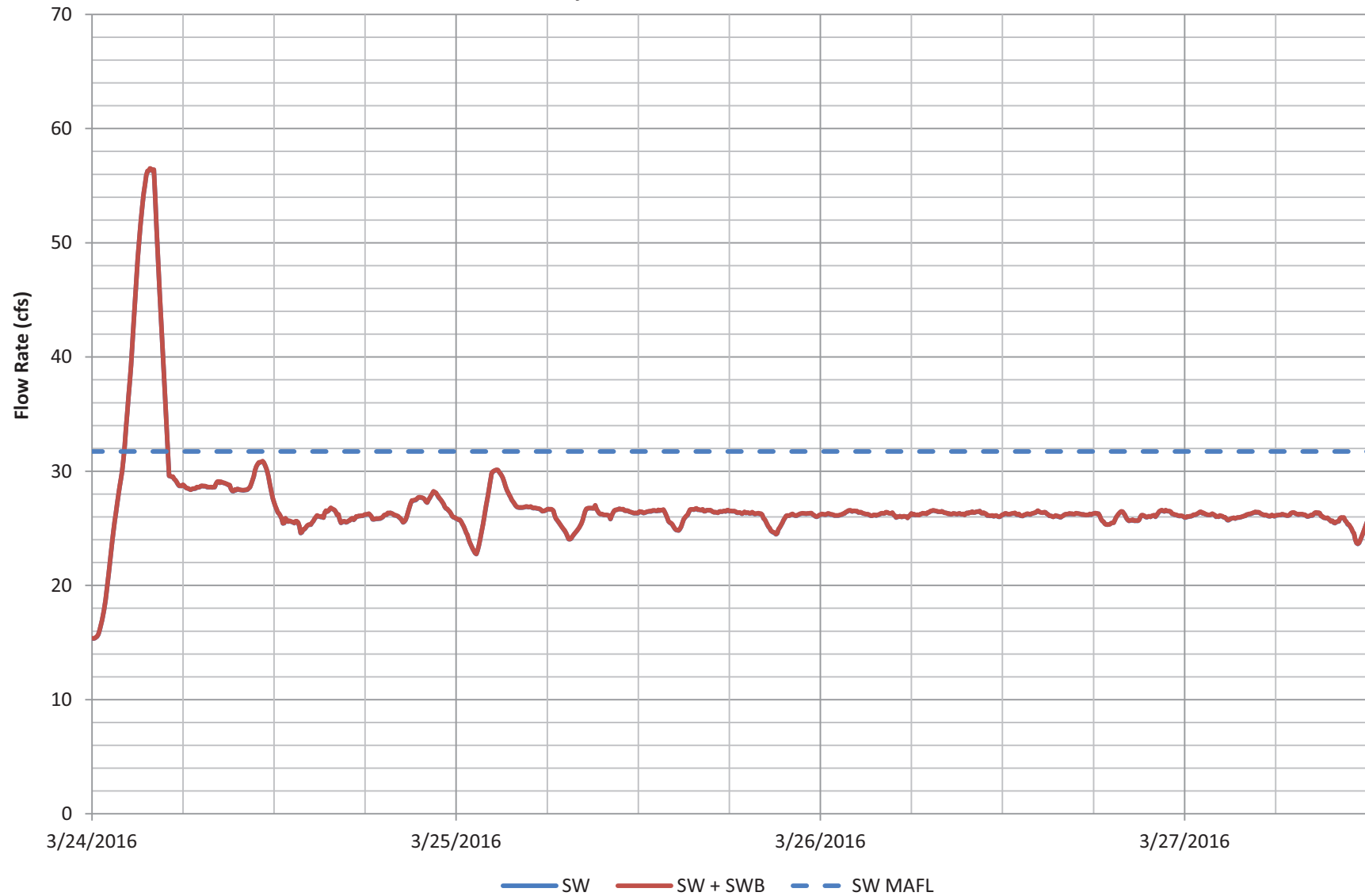


Figure D-9
Downriver Wastewater Treatment Facility
Major Storm Event C - 8/15-16/2016

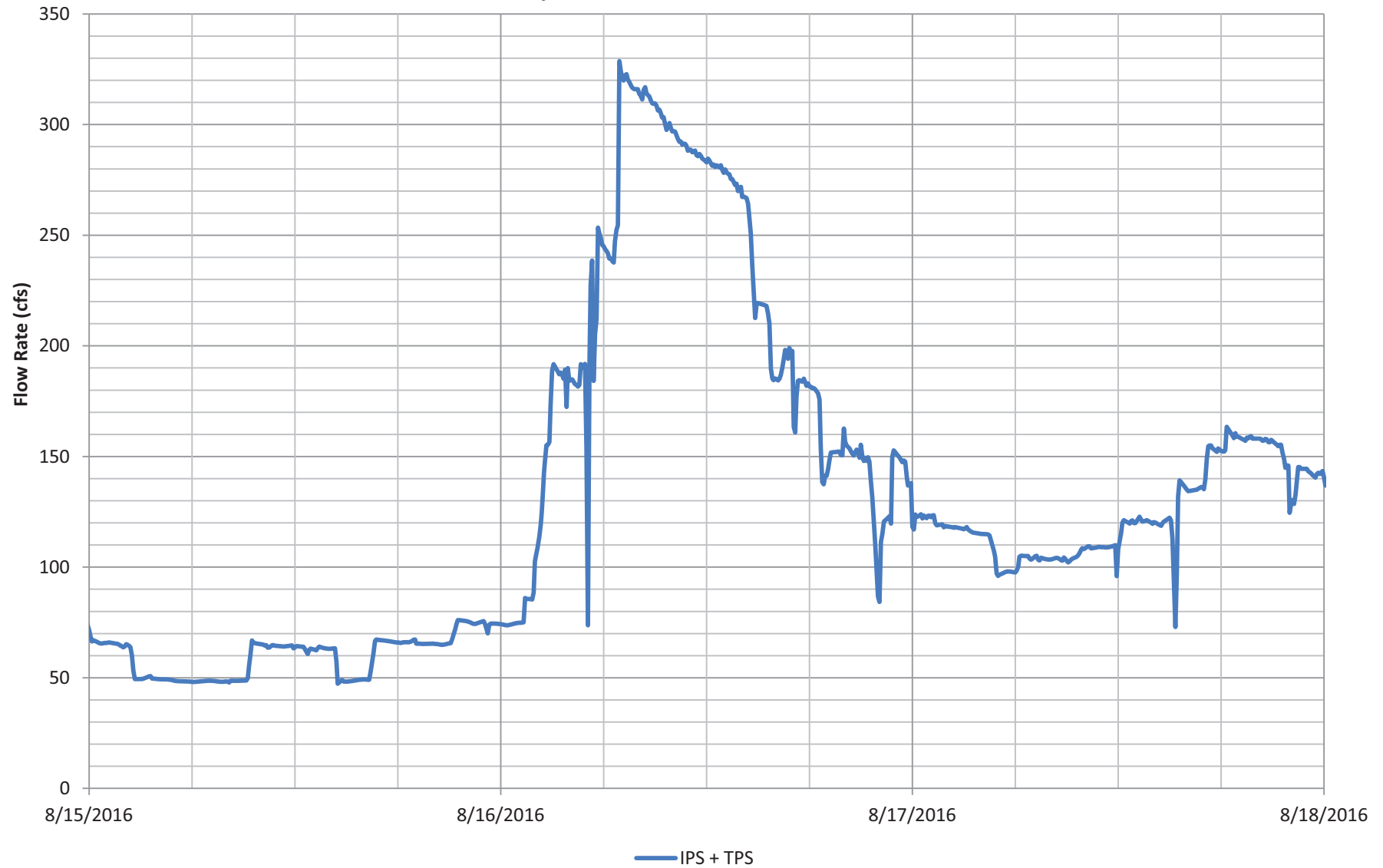


Figure D-10

Riverdrive Interceptor

Major Storm Event C - 8/15-16/2016

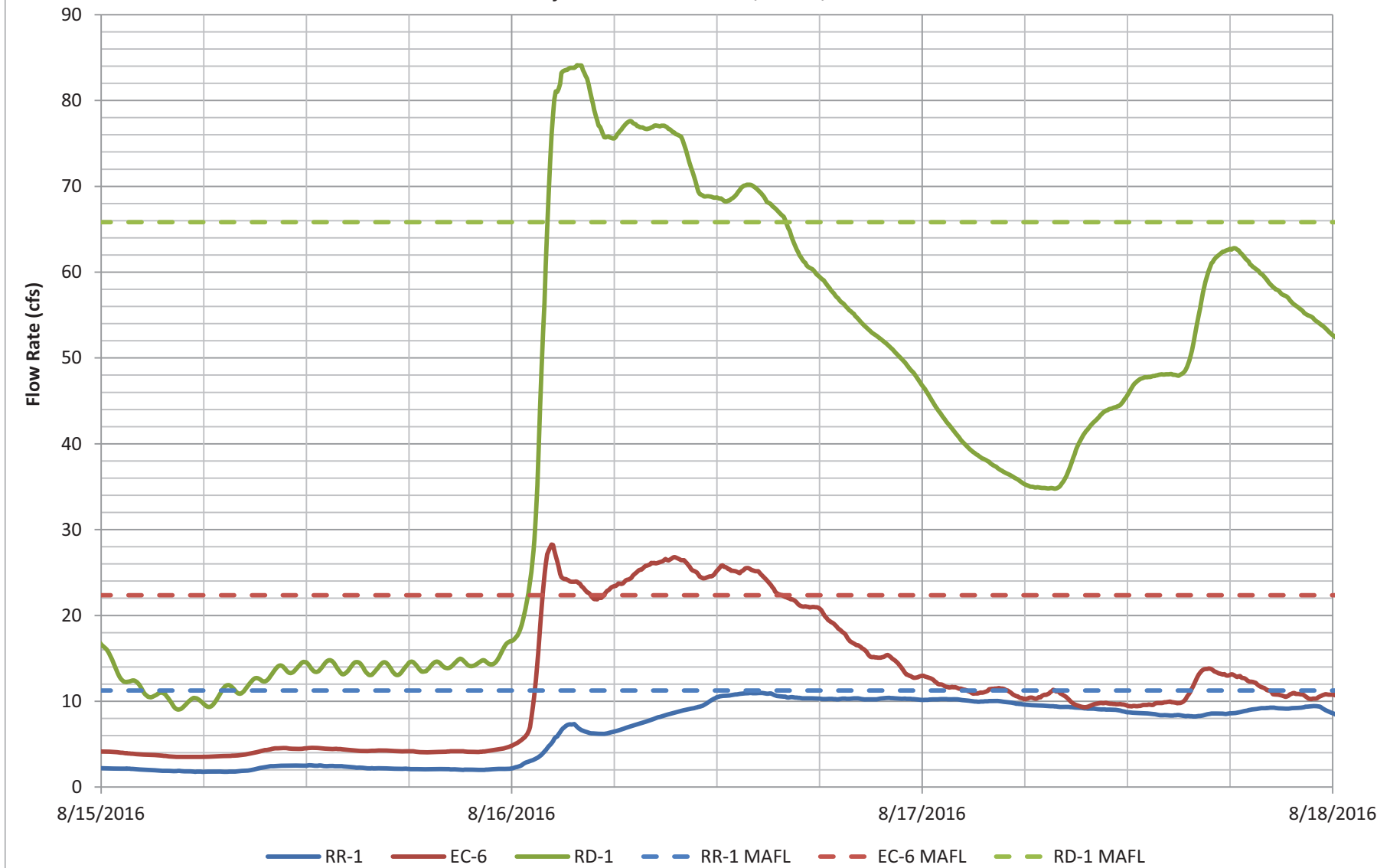


Figure D-11

Riverdrive Interceptor

Major Storm Event C - 8/15-16/2016

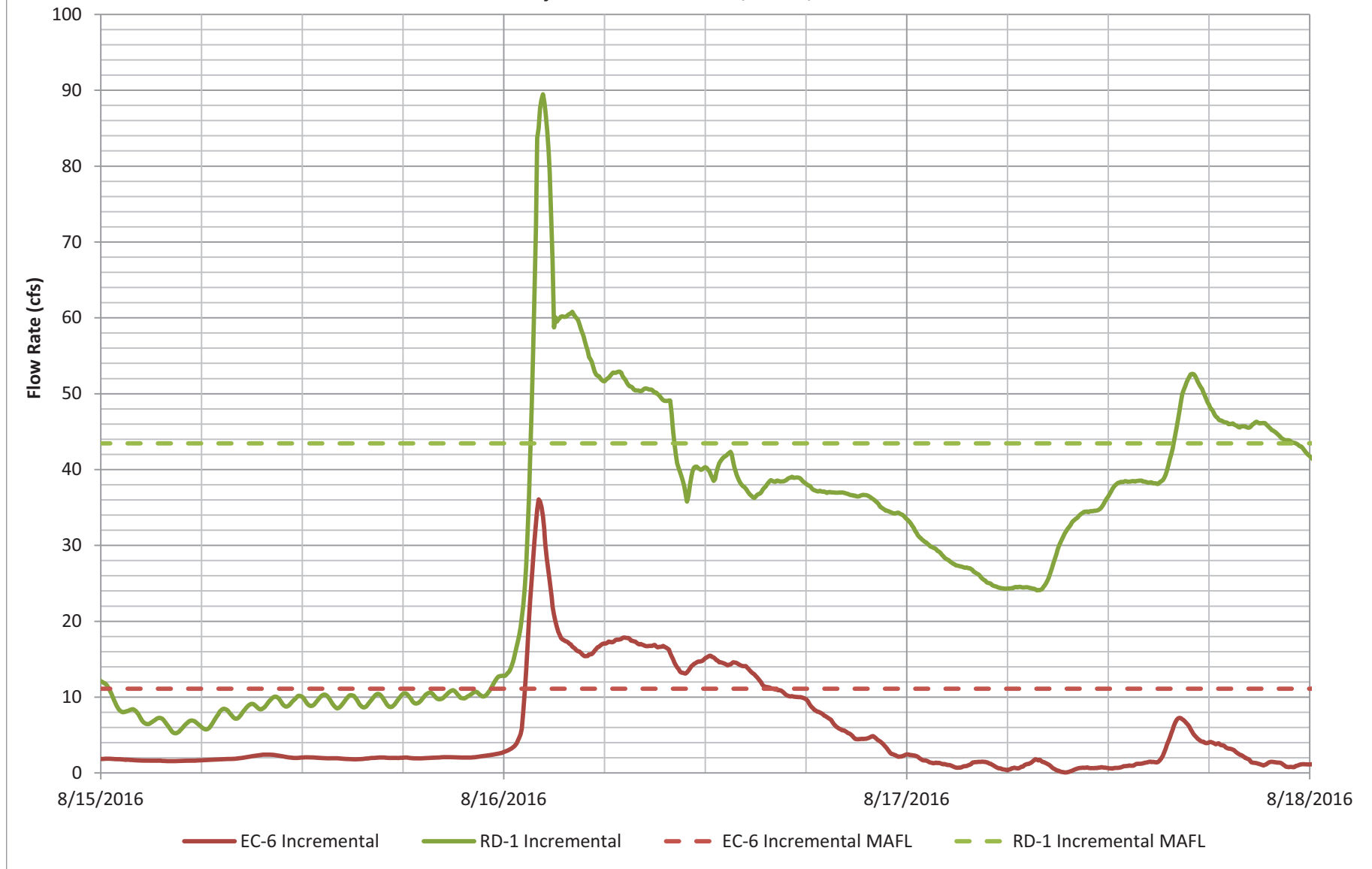


Figure D-12

SWRDDD Connection

Major Storm Event C - 8/15-16/2016

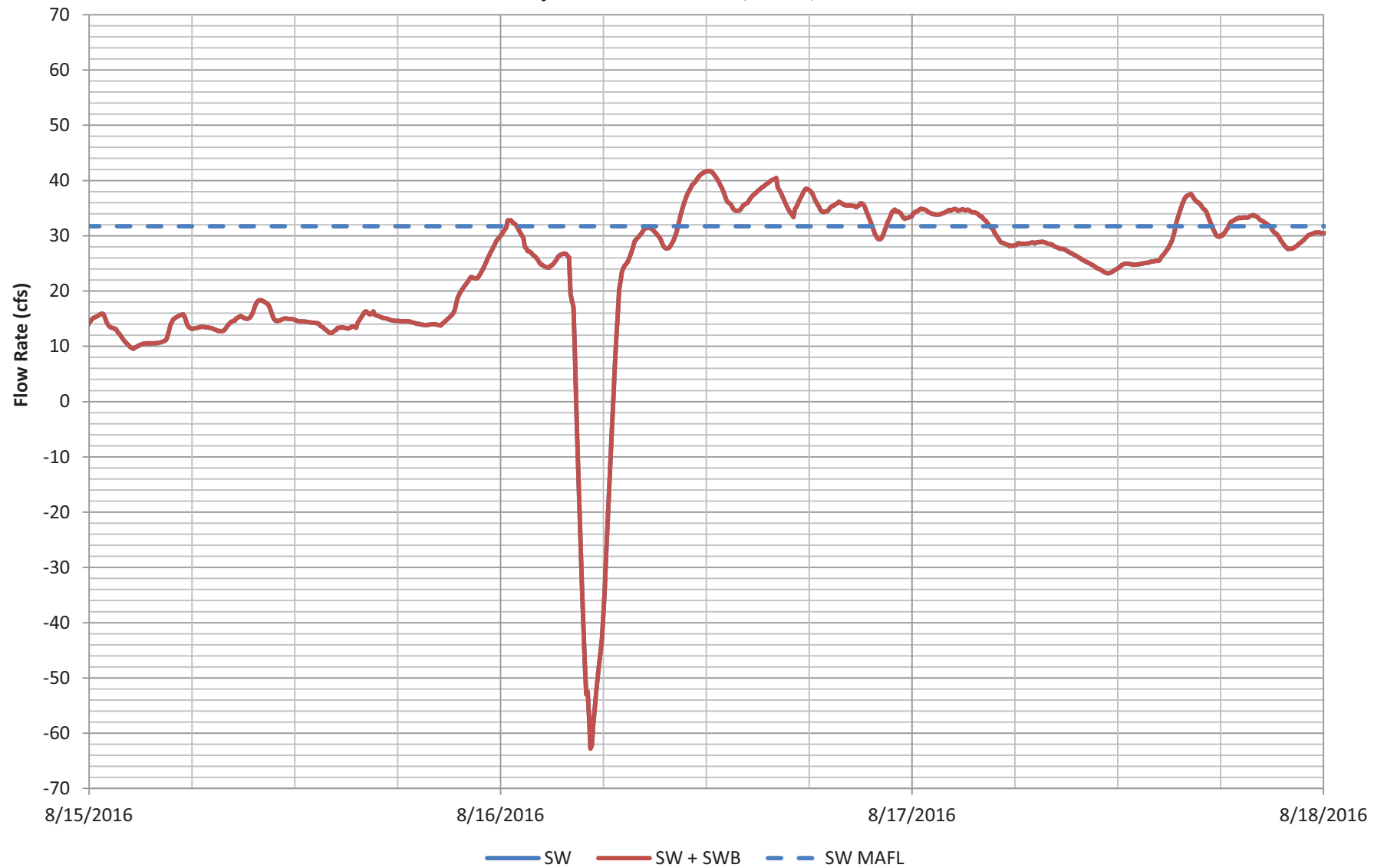


Figure D-13
Downriver Wastewater Treatment Facility
Major Storm Event D - 9/28/2016 to 10/1/2016



Figure D-14

Riverdrive Interceptor

Major Storm Event D - 9/28/2016 to 10/1/2016

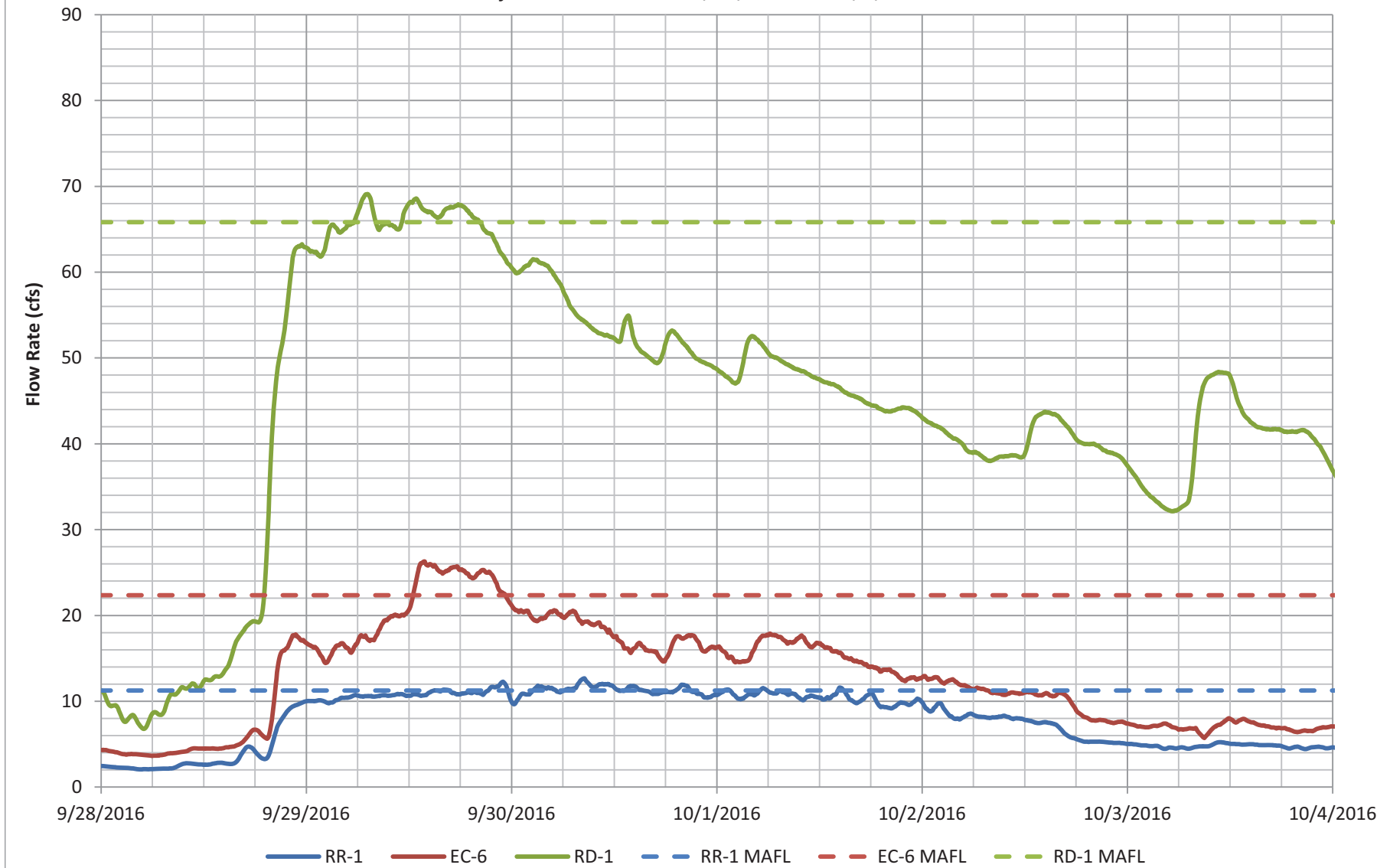


Figure D-15

Riverdrive Interceptor

Major Storm Event D - 9/28/2016 to 10/1/2016

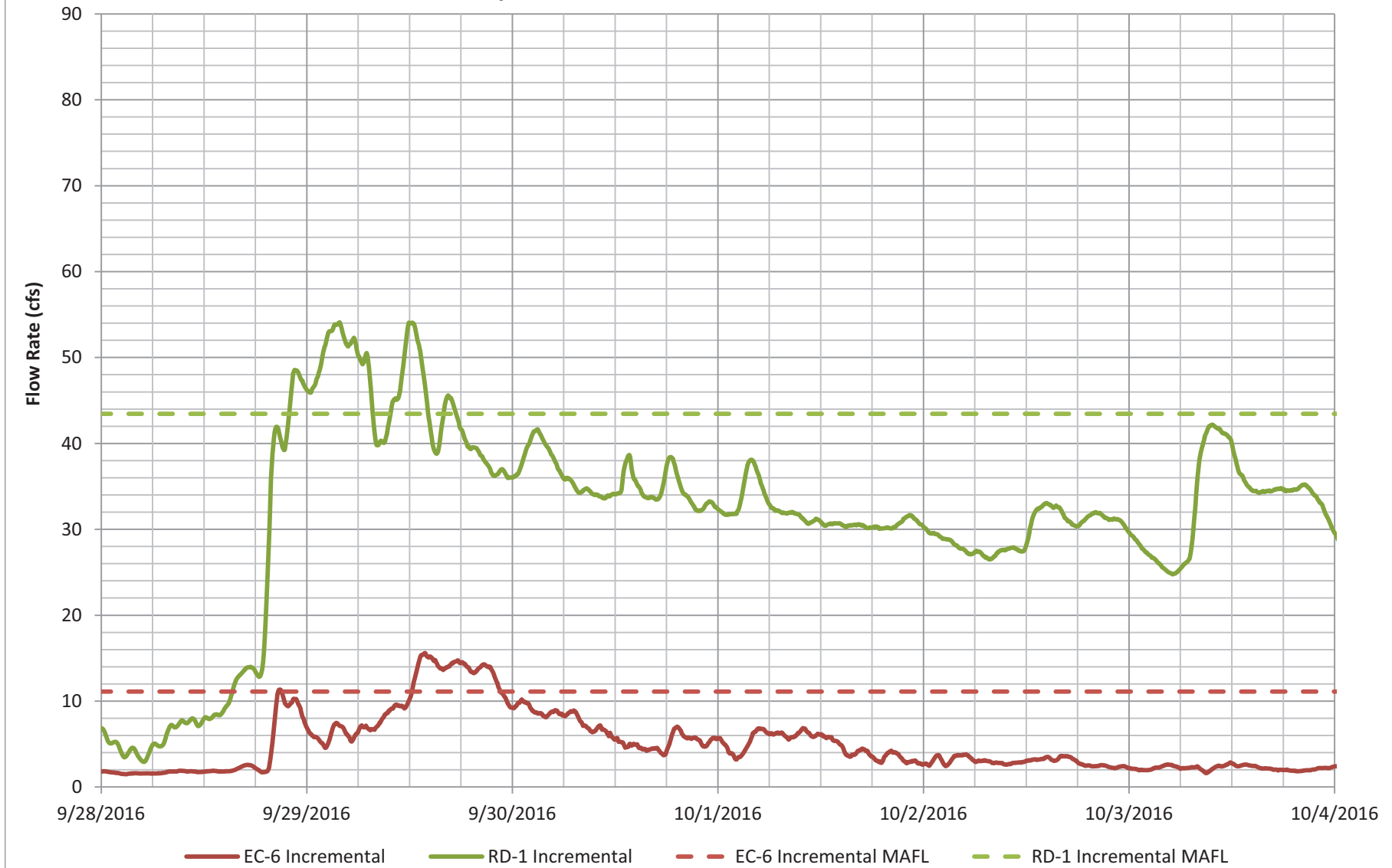


Figure D-16

SWRDDD Connection

Major Storm Event D - 9/28/2016 to 10/1/2016

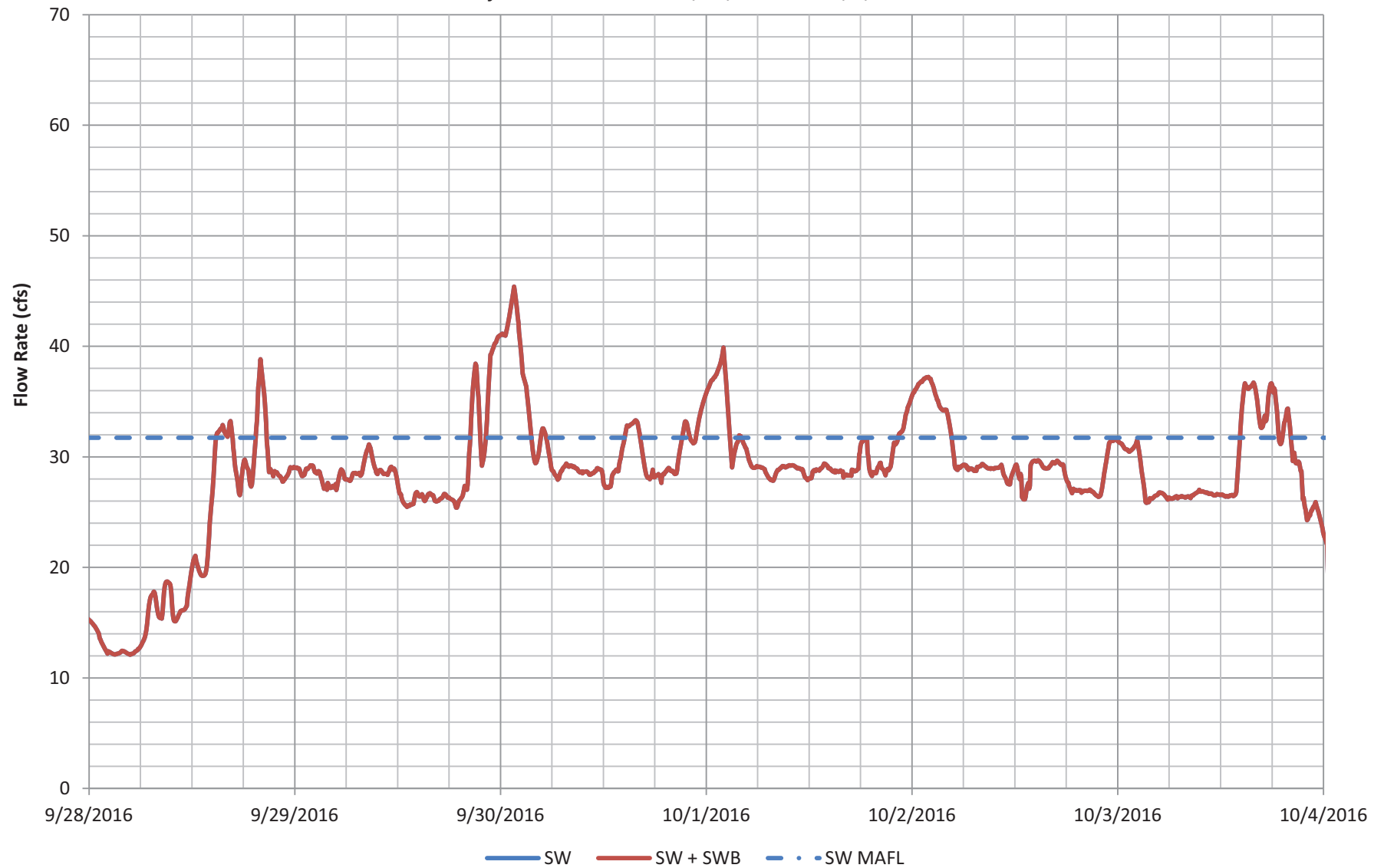
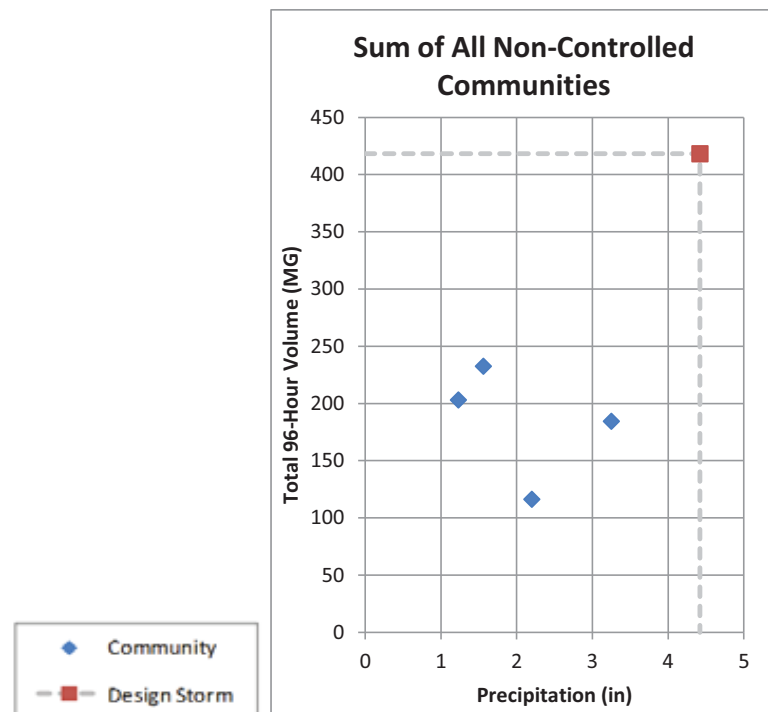


Figure D-17
Downriver Sewage Disposal System
Total 96-Hour Volume and Precipitation for Major Storm Events Summarized by Community for 2016

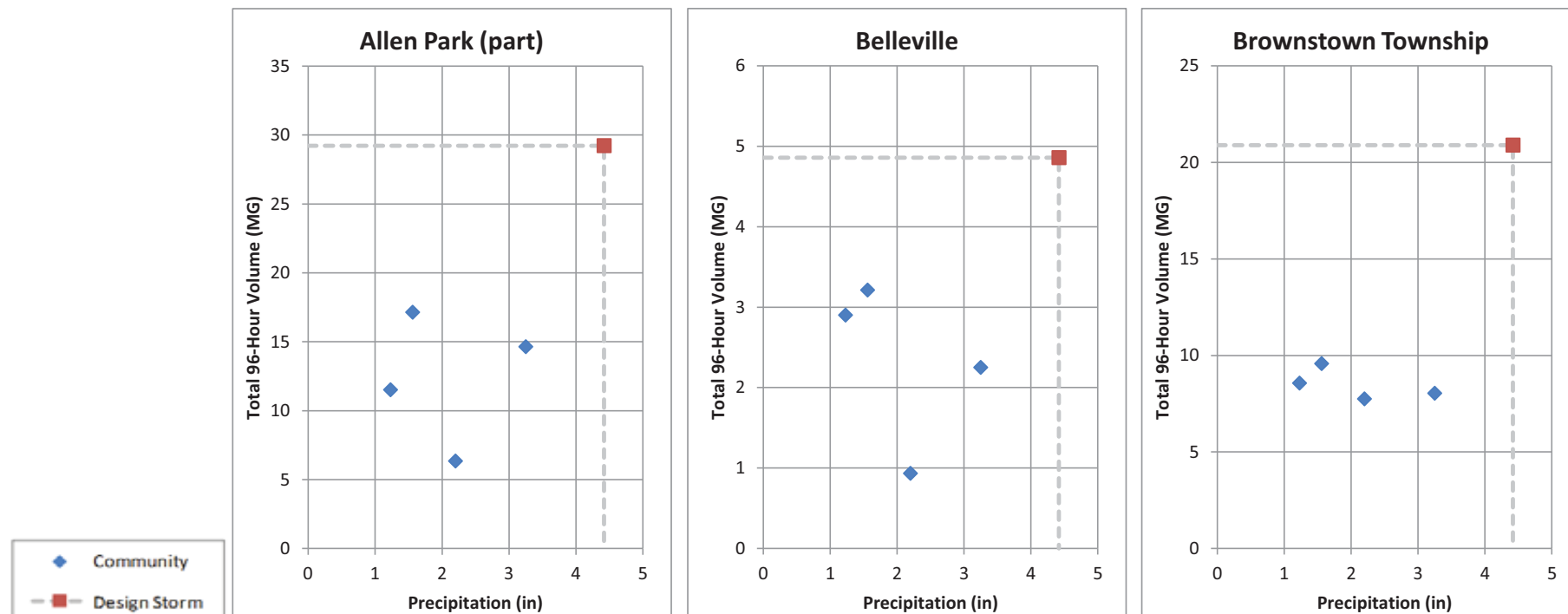


2016 Major Storm Event	Sum of All Non-Controlled Communities	
	DTW Precipitation (in)	96-hour Volume (MG)
A	1.23	203.08
B	1.56	232.53
C	2.20	116.28
D	3.25	184.44
Design Storm	4.42	418.21

Notes

1. A Major storm event has a peak 24 hour rainfall depth of at least 0.5 inches, an event total of at least 1.0 inch, and the peak hourly flow rate at DWTF reaches or exceeds 175 MGD.
2. The 4.42 inch storm event used in the design of the Downriver Regional Storage and Transport System.

Figure D-18
Downriver Sewage Disposal System
Total 96-Hour Volume and Precipitation for Major Storm Events Summarized by Community for 2016

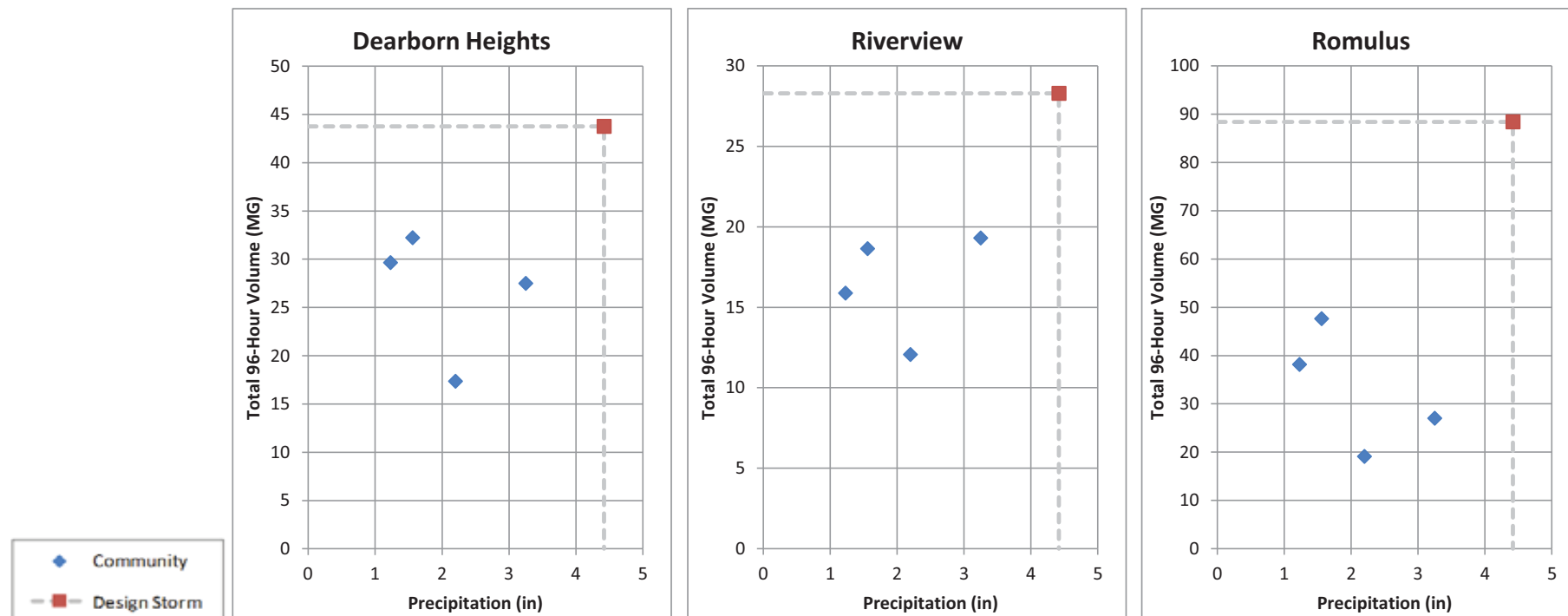


2016 Major Storm Event	Allen Park (part)		Belleville		Brownstown Township	
	DTW Precipitation (in)	96-hour Volume (MG)	DTW Precipitation (in)	96-hour Volume (MG)	DTW Precipitation (in)	96-hour Volume (MG)
A	1.23	11.52	1.23	2.90	1.23	8.57
B	1.56	17.14	1.56	3.21	1.56	9.58
C	2.20	6.35	2.20	0.93	2.20	7.75
D	3.25	14.64	3.25	2.25	3.25	8.04
Design Storm	4.42	29.23	4.42	4.86	4.42	20.90

Notes

1. A Major storm event has a peak 24 hour rainfall depth of at least 0.5 inches, an event total of at least 1.0 inch, and the peak hourly flow rate at DWTF reaches or exceeds 175 MGD.
2. The 4.42 inch storm event used in the design of the Downriver Regional Storage and Transport System.

Figure D-19
Downriver Sewage Disposal System
Total 96-Hour Volume and Precipitation for Major Storm Events Summarized by Community for 2016

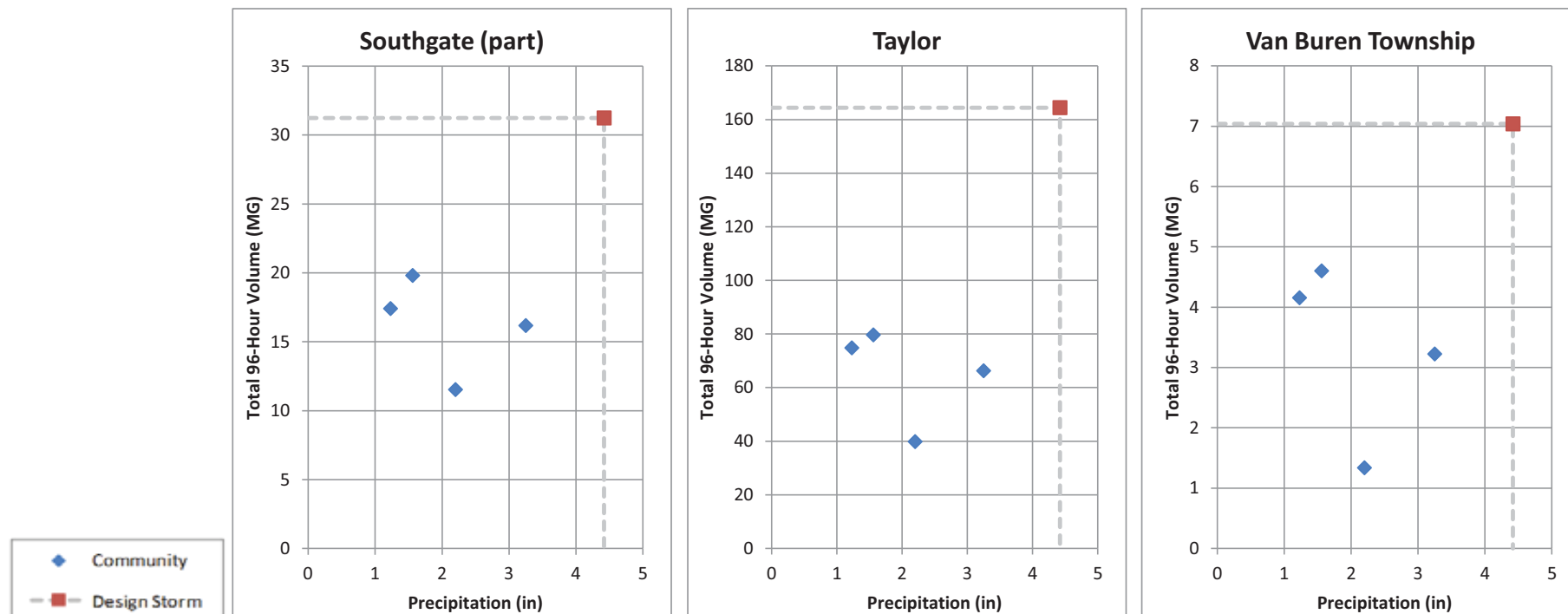


2016 Major Storm Event	Dearborn Heights		Riverview		Romulus	
	DTW Precipitation (in)	96-hour Volume (MG)	DTW Precipitation (in)	96-hour Volume (MG)	DTW Precipitation (in)	96-hour Volume (MG)
A	1.23	29.65	1.23	15.88	1.23	38.16
B	1.56	32.22	1.56	18.65	1.56	47.64
C	2.20	17.36	2.20	12.07	2.20	19.10
D	3.25	27.50	3.25	19.31	3.25	27.02
Design Storm	4.42	43.76	4.42	28.30	4.42	88.43

Notes

1. A Major storm event has a peak 24 hour rainfall depth of at least 0.5 inches, an event total of at least 1.0 inch, and the peak hourly flow rate at DWTF reaches or exceeds 175 MGD.
2. The 4.42 inch storm event used in the design of the Downriver Regional Storage and Transport System.

Figure D-20
Downriver Sewage Disposal System
Total 96-Hour Volume and Precipitation for Major Storm Events Summarized by Community for 2016



2016 Major Storm Event	Southgate (part)		Taylor		Van Buren Township	
	DTW Precipitation (in)	96-hour Volume (MG)	DTW Precipitation (in)	96-hour Volume (MG)	DTW Precipitation (in)	96-hour Volume (MG)
A	1.23	17.41	1.23	74.83	1.23	4.16
B	1.56	19.81	1.56	79.66	1.56	4.60
C	2.20	11.53	2.20	39.85	2.20	1.34
D	3.25	16.18	3.25	66.28	3.25	3.22
Design Storm	4.42	31.24	4.42	164.45	4.42	7.04

Notes

1. A Major storm event has a peak 24 hour rainfall depth of at least 0.5 inches, an event total of at least 1.0 inch, and the peak hourly flow rate at DWTF reaches or exceeds 175 MGD.
2. The 4.42 inch storm event used in the design of the Downriver Regional Storage and Transport System.