

City of Anacortes
NPDES Permit No. WA0020257
2017 CSO & Wet Weather Operation Report

The City of Anacortes currently has two combined sewer overflow (CSO) locations as identified in the NPDES Permit issued to the City of Anacortes Wastewater Treatment Plant. Both outfalls satisfy the Washington State requirement of “greatest reasonable reduction” defined in WAC 173-245-020(22) by meeting the standard of not more than one discharge event per outfall per year on average and therefore are classified as controlled CSOs.

Background

Areas within the City of Anacortes are served by a partially combined sewer system where both the storm and sanitary sewer systems are joined. The City of Anacortes has two CSOs which have the potential to allow untreated wastewater combined with stormwater to discharge to Guemes Channel during extreme storm events. The CSOs are identified as CSO Outfall 002, the “B Avenue CSO” and CSO Outfall 004, the “Q Avenue CSO”.

Outfall 002 – B Avenue CSO

The B Avenue CSO is located one-half block north of the intersection of B Avenue and 11th Street. Discharges from the CSO occur when combined stormwater and sanitary sewer levels rise high enough in the collection system to overflow a dam in the CSO manhole separating the manhole channel from the CSO outfall pipe. Flow from the CSO is discharged into Guemes Channel through a 12-inch pipe to the outfall located at latitude: 48.515278, longitude: -122.634167 as stated in the NPDES permit.

The B Avenue CSO was monitored with a Marsh-McBirney Model 256A flow meter the first part of 2017. A Flo-Tote flowmeter and flow logging system were installed to replace the Marsh-McBirney flow meter. Both flow meters measure level and velocity to determine flow which is reported to the treatment plant via a telemetry system. When the meter is active a signal is transmitted to the plant which activates an alarm in the SCADA system indicating overflow at this CSO. Flow data and totalized flow are recorded by the plant data acquisition system and are available for publishing on plant reports.

Outfall 004 – Q Avenue CSO

The Q Avenue CSO manhole is located at the intersection of 2nd Street and Commercial Avenue on Port of Anacortes property leased to Dakota Creek Industries, Inc. (DCI) who operates a shipyard on this site. This CSO is in a Residential/Commercial/Industrial zoned drainage basin. The outfall pipe is located at the northernmost end of Q Avenue directly underneath DCI's syncro lift facility which they use to haul large ships out of the water for maintenance. Discharges from this CSO occur when combined stormwater and sanitary sewer levels rise high enough in the collection system to overflow a concrete dam separating the manhole channel from the CSO outfall pipe in the CSO manhole at 2nd Street and Commercial Avenue. The concrete dam is equipped with a scum baffle to keep solids and floatables out of the CSO flow stream. Flow from the CSO is discharged into Guemes Channel through the outfall located at latitude: 48.521667, longitude: -122.609444 as stated in the NPDES permit.

The Q Avenue CSO was monitored with a Krohne Magmeter, type IFS-4000/PF the first part of the year. A Flo-Tote flowmeter and flow logging system were installed to replace the Marsh-McBirney flow meter. Both flow meters measure level and velocity to determine flow which is reported to the treatment plant via a telemetry system. Flow data and totalized flow are recorded by the plant data acquisition system and are available for publishing on plant reports. This site has a local flow totalizer as a back up to the telemetry and SCADA system. Impending overflow events are detected via a float switch which provides an alarm at the treatment plant. The float switch is activated when the level in the sewer system approaches the height of the overflow weir. The alarm alerts plant personnel of the impending CSO activity. After several calibration attempts and numerous conversations with the manufacturer, it was determined the Flo-Tote is not suitable for this location. A new flow meter is on order to replace the Flo-Tote.

Rainfall Data

Rainfall reported is recorded at the Anacortes Wastewater Treatment Plant by a tipping bucket rain gauge. Rainfall totals are reported from 7:00 a.m. on the indicated day to 6:59:59 a.m. on the following day.

Supporting Documents and Public Notice

Detailed information for the B Avenue and Q Avenue CSOs are included in later next sections of this report with applicable flow trends included in Appendix A.

Rainfall data is included in Appendix B.

Public notice announcing the availability of the Annual CSO report will be advertised in the Anacortes American, the City of Anacortes official newspaper of record.

CSO Event Summary

Table 1 summarizes CSO events in the last 5 years, 2013 through 2017. There have been no CSO events at the B Avenue CSO and 3 CSO events at the Q Avenue CSO during this period of time.

Table 1. City of Anacortes Wastewater Collection System CSO History

B Avenue CSO – Discharge 002					
Date	Duration (hours)	Overflow Total (gallons)	Precipitation During Event (inches)	Storm Duration	Comments
2013 - 2017	n/a	0			
5 Year Average Number of Events: 0			No events in the past 20 years		
Q Avenue CSO – Discharge 004					
Date	Duration (hours)	Overflow Total (gallons)	Precipitation During Event (inches)	Storm Duration	Comments
2013-2014	n/a	0			
1/5/2015	5.2	160,600	2.30		
11/17/2015	2.0	46,000	4.21		Estimated Volume
2/15/2016	5.07	76,471	3.09	28.2 hrs	
2017	n/a	0			
5 Year Average Number of Events: 0.6			Past 19 years: 8 events		
2017 Annual Rainfall: 25.63 inches					

Q Avenue CSO

Flow monitoring was installed on this CSO in January of 1998. A total of eight overflow events caused by precipitation have occurred during the twenty year time period that flow has been monitored at this site; one in 2003, two in 2007, one in 2009, one in 2010 and two in 2015, one in 2016.

The average frequency of overflow events at this CSO since flow monitoring was installed is equivalent to one event every 2.5 years, or a 40% probability of an overflow event occurring during any given year.

The NPDES permit requires that a five year moving average value for CSO events be calculated and reported. During the last five years there have been three events at this CSO. This equates to an average of 0.6 events per year, or a 60% probability that a CSO event would occur during any given year.

A chart detailing overflow events and rainfall information for this CSO site during the most recent five year period is included in Appendix A.

Sewer Line Repairs and CSO Reduction Accomplishments

In 2017 17 brick manholes were replaced with concrete manholes to provide access to rehabilitate the sewer main in 2018. The remaining sewer projects consisted of repairing sections of broken sewer mains and a project done in conjunction with a new development to extend a sewer line, making sewer service available to homes currently using onsite sewage systems. The vactor truck crew cleaned 129,989 linear feet of sewer line and the camera truck crew video inspected 74,538 linear feet of sewer lines.

In 2017, the City of Anacortes purchased and installed two laser flow meters to monitor flows in the collection system as a tool in planning and execution of the I&I reduction program. In 2017, the City expended approximately \$575,000 in sewer rehabilitation work and monitoring equipment.

Planned Improvements

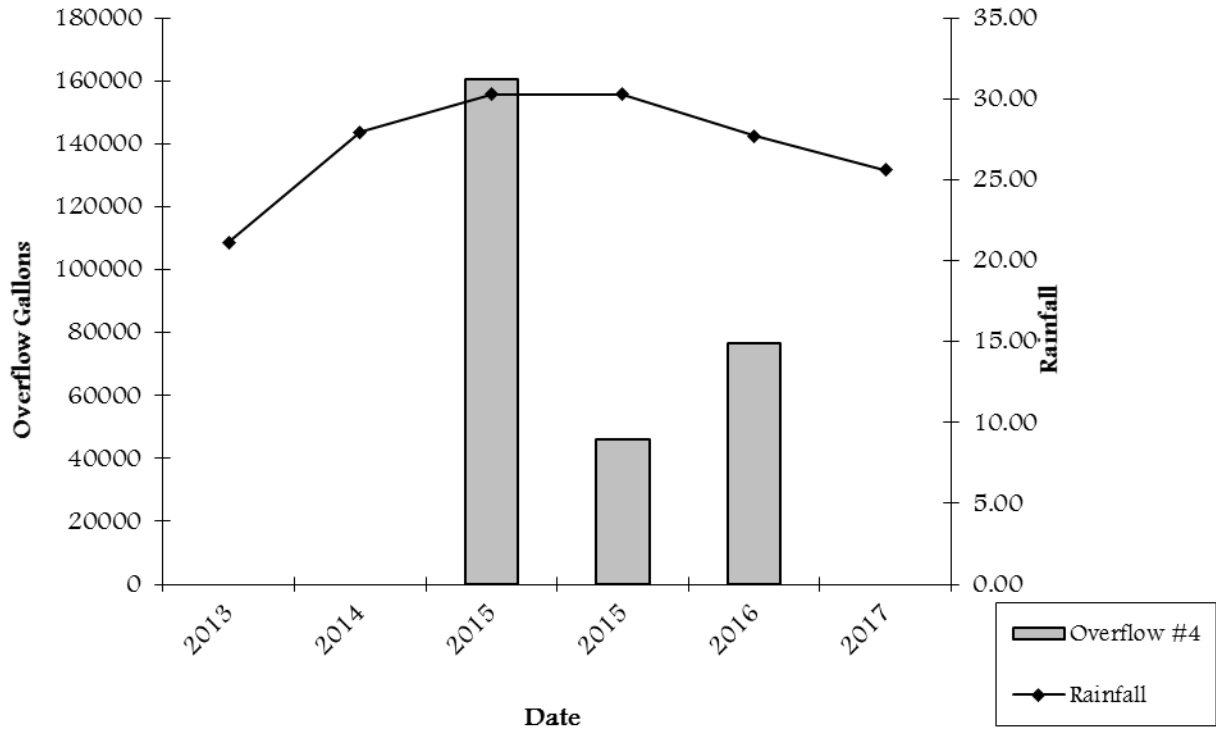
Rehabilitate or replace up to 4500 linear feet of sanitary sewer pipe. The City continues to work to reduce I&I and combined sewer overflow events.

Wet Weather Report
Summary of Secondary Bypass Events

Influent flow to the Anacortes Wastewater Treatment Plant did not exceed the capacity of the secondary treatment process during calendar year 2017.

Appendix A

Discharge 004, Q Ave CSO Annual Baseline



Appendix B

Anacortes Wastewater Plant Annual Rainfall Report 2017

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0.00	0.00	0.08	0.06	0.05	0.00	0.00	0.00	0.00	0.02	0.20	0.35
2	0.00	0.00	0.01	0.00	0.15	0.00	0.00	0.00	0.00	0.00	0.67	0.33
3	0.00	0.36	0.51	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.30	0.10	0.16	0.22	0.00	0.00	0.00	0.00	0.00	0.02	0.00
5	0.00	0.03	0.27	0.15	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.12	0.07	0.25	0.00	0.00	0.00	0.00	0.00	0.16	0.00	0.00
7	0.00	0.00	0.15	0.06	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00
8	0.31	0.52	0.23	0.14	0.00	0.37	0.00	0.00	0.22	0.00	0.00	0.00
9	0.00	0.10	0.34	0.01	0.00	0.00	0.00	0.00	0.17	0.00	0.04	0.00
10	0.00	0.05	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.03	0.00	0.00
11	0.00	0.00	0.00	0.19	0.32	0.00	0.00	0.00	0.00	0.00	0.06	0.00
12	0.00	0.00	0.15	0.15	0.00	0.00	0.00	0.06	0.00	0.09	0.55	0.00
13	0.00	0.00	0.30	0.24	0.00	0.01	0.00	0.00	0.00	0.14	0.24	0.00
14	0.00	0.02	0.01	0.02	0.15	0.01	0.00	0.00	0.00	0.00	0.11	0.06
15	0.00	0.14	0.14	0.00	0.58	0.12	0.00	0.00	0.00	0.00	0.03	0.18
16	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.08	0.20
17	0.15	0.00	0.35	0.00	0.00	0.09	0.00	0.00	0.12	0.18	0.00	0.40
18	0.68	0.07	0.10	0.00	0.00	0.09	0.00	0.00	0.02	1.13	0.00	0.73
19	0.02	0.01	0.00	0.09	0.00	0.00	0.00	0.00	0.01	0.25	0.68	0.36
20	0.00	0.04	0.11	0.00	0.00	0.00	0.00	0.00	0.06	0.09	0.18	0.00
21	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.10	0.03
22	0.01	0.00	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.04	0.26	0.00
23	0.00	0.15	0.07	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00
24	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00
25	0.00	0.65	0.02	0.04	0.00	0.00	0.00	0.00	0.00	0.28	0.05	0.00
26	0.00	0.04	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00
27	0.00	0.12	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12
28	0.00	0.23	0.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.10
29	0.01		0.15	0.08	0.00	0.00	0.00	0.00	0.39	0.00	0.09	0.80
30	0.00		0.01	0.00	0.16	0.00	0.00	0.00	0.07	0.00	0.45	0.00
31	0.00		0.10		0.10		0.00	0.00		0.00		0.00
Monthly Total	1.24	2.95	4.15	1.82	2.04	0.81	0.00	0.06	1.08	3.21	4.61	3.66
Annual Rainfall												25.63

Rainfall data represents inches of precipitation in a 24-hour period from 7 am to 7 am.