2012 Outfall Reconnaissance Inventory Summary

Tributary 0057

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INTRODUCTION

The City of Kenmore (City) was issued a Western Washington Phase II Municipal Stormwater Permit (Permit) on January 17, 2007. The Permit contains requirements to develop a Stormwater Management Program (SWMP). One of the requirements outlined in the SWMP was to develop an Illicit Discharge Detection and Elimination (IDDE) program. As part of the IDDE program, receiving waters were prioritized for visual inspection and screened for illicit connections. Three receiving waters were required to be completed prior to February 15, 2011. One receiving water was required to be completed prior to February 15, 2012 and then one each year thereafter.

In 2010, the City visually inspected the main channel of Swamp Creek and several tributaries to Swamp Creek. In 2011, the City visually inspected Sammamish River and Lake Washington shoreline. In 2012 (this report), the City visually inspected outfalls along Tributary 0057.

METHOD

Outfall Reconnaissance Inventory (ORI)

The City structured the ORI as described in the "Illicit Discharge and Elimination – A Guidance Manual for Program Development and Technical Assessments" (the Manual) by the Center for Watershed Protection and Robert Pitt released in October, 2004.

Initial mapping of the Municipal Separate Storm Sewer System (MS4) was conducted during the summer of 2010. Potential outfall locations were identified and mapped in the geographical information system (GIS) and provided to ORI staff. Additional outfalls discovered during the ORI were mapped and input into the City's GIS. 'Outfall' is defined in the Permit as a point source as defined by 40 CFR 122.2 at the point where a municipal separate storm sewer discharges to waters of the State and does not include open conveyances connecting two municipal separate sewer systems, or pipes, tunnels, or other conveyances which connect segments of the same stream or other waters of the State and are used to convey waters of the State. In reality, an outfall is not always a well defined point on the ground. Efforts were made to accurately capture each outfall, as defined, but in some cases a judgment call was required to decide where an outfall would be placed. For instance, if a stream flowed through a series of catch basins while crossing a road, an outfall was identified where the last catch basin discharged back into the natural stream channel.

Two City staff members walked sections of Tributary 0057 in August 2012. Typically, the stream was walked in an upstream direction to minimize disturbance to potential in-stream sample areas.

If flow was present at an outfall, an ORI worksheet was completed, a picture was taken and water was collected to test for the illicit discharge indicators identified in Table 1 below. Pictures of each flowing outfall can be found in Appendix A.

Table 1 – Illicit Discharge Indicators

Indicator	Instrument	Method	Accuracy	Range
Temperature	YSI 63	Thermistor Sensor	±0.1°C	
pH	YSI 63	Combination Sensor with Gel Reference	±0.1 unit within 10°C of calibration ±0.2 unit within 20°C of calibration	0-14
Conductivity	YSI 63	Four Electrode Cell Sensor	±0.5% full scale and 0.1 uS/cm resolution	0 to 499.0 us/cm
Salinity	YSI 63	ASTM document *Standard Methods of Test for Electrical Conductivity of Water and Industrial Wastewater*, ASTM Designation D1125-82, and *OIML Recommendation Number 56*	±0.1 ppt	-
Turbidity	Eye	Visual Indicator	-	-
Ammonia Nitrogen	AMTEST Labs	EPA 350.1	Refer to published EPA Analytical Methods	Refer to published EPA Analytical Methods
Fluoride	AMTEST Labs	EPA 300.0	Refer to published EPA Analytical Methods	Refer to published EPA Analytical Methods
Potassium	AMTEST Labs	EPA 200.7	Refer to published EPA Analytical Methods	Refer to published EPA Analytical Methods
Surfactants	AMTEST Labs	SM 5540C	Refer to published EPA Analytical Methods	Refer to published EPA Analytical Methods
Fecal Coliform	AMTEST Labs	SM9222D	Refer to published EPA Analytical Methods	Refer to published EPA Analytical Methods

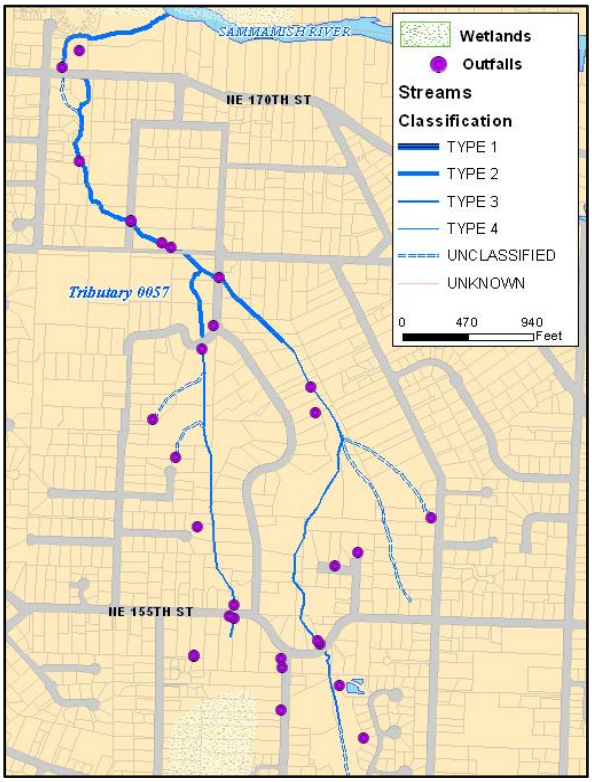
RESULTS

A total of 30 outfalls were identified in the Tributary 0057 ORI (Figure 1). One outfall had flowing water and was tested for illicit discharge indicators. Two additional samples were collected from the main stream channel and analyzed to determine background levels. Samples were analyzed at AmTest, Inc. in Kirkland, WA.

Table 2 – Outfall Illicit Discharge Indicator Results (Tributary 0057)

	Temp (°C)	pH	Conductivity (uS/cm)	Salinity (ppt)	Turbidity (NTU)	Ammonia (ppm)	Fluoride (ppm)	Potassium (ppm)	Surfactant (ppm)
CB0718 (Stream)	-	-	-	-	CLEAR	0.01	<0.2	2.2	<0.025
C2937 (Stream)	14.5	7.98	93.4	0.1	CLEAR	0.01	<0.2	2.3	<0.025
C3245 (Outfall)	19.1	7.97	0	0	CLEAR	0.01	<0.2	2	<0.025

Figure 1 – Map of Tributary 0057 Outfalls



CONCLUSION

No illicit discharges or connections were discovered during the Tributary 0057 ORI.

Table 3 shows indicator benchmark concentrations that would indicate a potential illicit discharge or connection.

Table 3 – Indicator Benchmark Concentrations

	Tributary 0057 ORI Range (Only one value)	Washington State WQ Standard 173-201A WAC (Not Stormwater)	Manual Benchmark Concentration
Temp (°C)	19.1	ND	ND
pH	7.98	6.5 – 8.5	≤ 5
Conductivity (uS/cm)	0	ND	≥ 2,000
Salinity (ppt)	0	ND	ND
Turbidity (NTU)	CLEAR	5 NTU over background (when ≤50 NTU)	≥ 1,000
Ammonia (ppm)	0.01	ND	≥50 mg/L*
Fluoride (ppm)	<0.2	ND	> 0.25 mg/L
Potassium (ppm)	2	ND	≥ 20 mg/L*
Surfactant (ppm)	<0.025	ND	> 0.25 mg/L*

* mg/L and ppm are roughly equivalent (it is equivalent with pure water)
ND – Not Determined

APPENDIX A – TRIBUTARY 0057 OUTFALL PHOTOS

	CB0718 GIS # CB0718 08/23/2012 60” Type 2 Catch Basin (No pipe outlet with open top) Energy dissipater outlet for stream overflow on north side of NE 170TH ST.
	C2937 GIS # C2937 08/23/2012 24” Concrete Drains portion of Tributary 0057 under 76TH AVE NE.
	C3245 GIS # C3245 08/23/2012 12” CMP Drains from 81ST AVE NE.