Gresham and Fairview Stormwater Monitoring Report 2020

PERMIT YEAR 25

MS4 DISCHARGE PERMIT NO. 101315 EPA REF. NO. ORS 108013

Draft for

Public Comment

CITY OF GRESHAM

November 2019

Section One--Overview of Required Elements

A. History

In accordance with Clean Water Act (CWA) requirements, the Oregon Department of Environmental Quality (DEQ) issued a National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer (MS4) Permit on September 7, 1995 to the City of Gresham and co-permittees: the City of Fairview, Multnomah County, and the Oregon Department of Transportation. This permit (101315) expired on August 31, 2000. The Oregon Department of Transportation (ODOT) sought separation from their multiple joint NPDES MS4 permits and obtained approval from DEQ to implement their own statewide permit.

The Cities of Gresham and Fairview, and Multnomah County submitted a permit renewal package (for the period September 1, 2000 through August 31, 2005) as co-permittees to DEQ in March 2000. Gresham submitted an update to its portion of that package in December 2001. On March 1, 2004, DEQ issued a renewed permit. However, several interest groups requested a petition for reconsideration on the renewed permit. On May 17, 2004, DEQ granted this request and a revised permit was reissued by DEQ on July 28, 2005, subsequently followed by submittal and approval of an updated Stormwater Monitoring Plan and Stormwater Management Plans (SWMP) for Gresham and co-permittees. These documents were approved by DEQ in July 2006 (PY 12).

On August 1, 2008, Gresham and Co-permittees submitted a permit renewal package that included the required elements as stated in Schedule B 2) c) of the permit, including an updated joint Monitoring Plan and individual Stormwater Management Plans.

On December 12, 2010 DEQ issued a renewed permit with the City of Gresham and the City of Fairview as Co-Permittees and issued a separate renewed permit to Multnomah County. DEQ authorized permittees to make minor changes to their SWMPs in order to be consistent with the final permit language by April 1, 2011. This annual report is based upon the City of Gresham and Fairview's respective final SWMPs dated April 1, 2011.

The City of Gresham and Fairview's permits expired on December 29, 2015. DEQ staff initially focused on renewing the NPDES Phase II permits and placed the Phase I renewal on administrative extension. After the Phase II permits were completed, DEQ drafted a Phase I permit that the co-permittees reviewed and provided feedback on. It is anticipated that a renewed permit will be issued in the coming year and that permittees will be required to update their SWMPs to meet the new permit requirements.

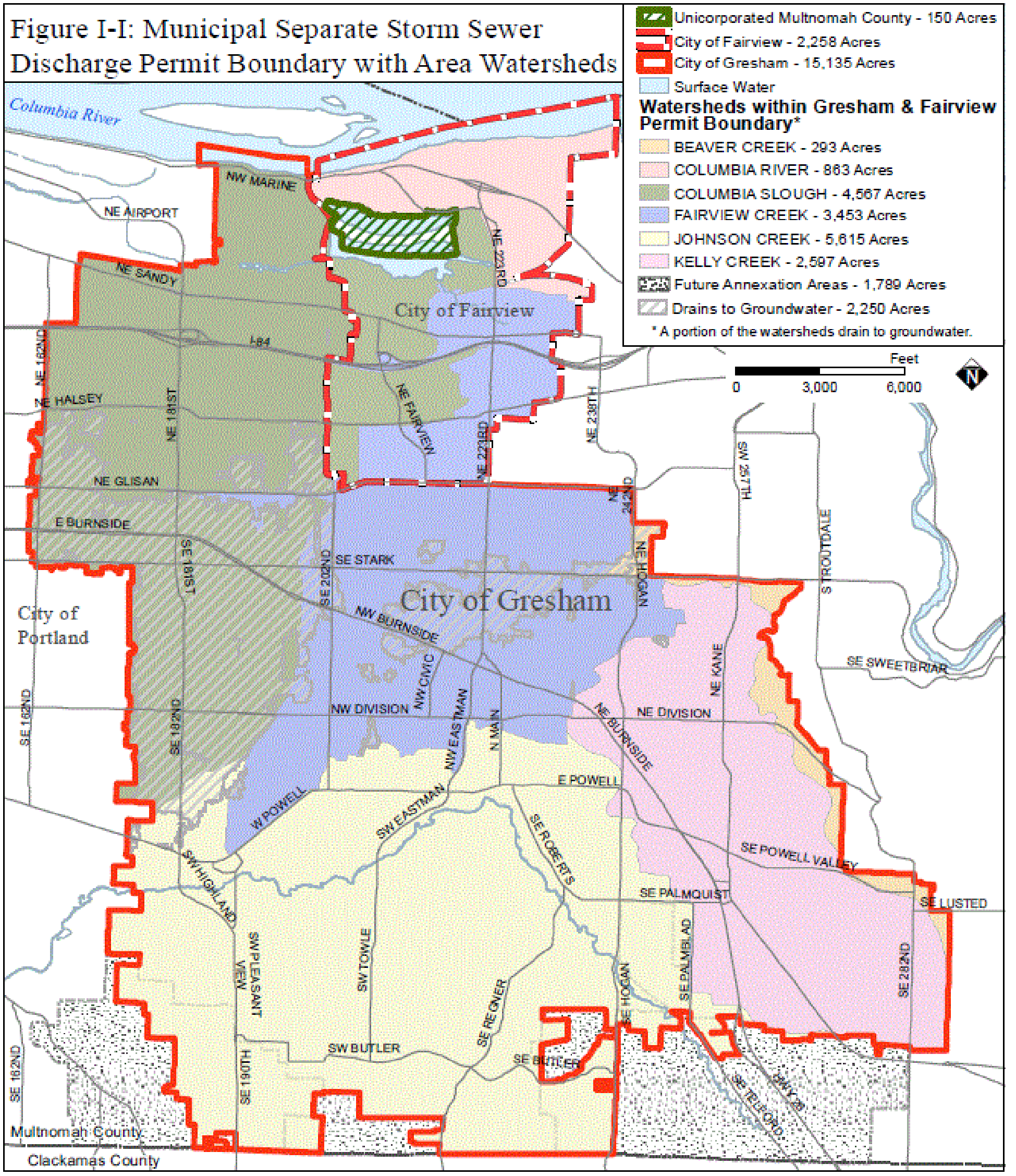
Figure I-I: Municipal Separate Storm Sewer Discharge Permit Boundary with Area Watersheds
Unicorporated Multnomah County - 150 Acres
City of Fairview - 2,258 Acres
City of Gresham - 15,135 Acres
Surface Water
Watersheds within Gresham & Fairview Permit Boundary*
BEAVER CREEK - 293 Acres
COLUMBIA RIVER - 863 Acres
COLUMBIA SLOUGH - 4,567 Acres
FAIRVIEW CREEK - 3,453 Acres
JOHNSON CREEK - 5,615 Acres
KELLY CREEK - 2,597 Acres
Future Annexation Areas - 1,789 Acres
Drains to Groundwater - 2,250 Acres
* A portion of the watersheds drain to groundwater.
Feet
0
3,000
6,000
N
Columbia River
City of Fairview
City of Gresham
City of Portland
Multnomah County
Clackamas County
NW MARINE
NE AIRPORT
NE SANDY
I-84
NE HALSEY
NE GLISAN
E BURNSIDE
SE STARK
NW BURNSIDE
NW DIVISION
NE DIVISION
E POWELL
W POWELL
SE POWELL VALLEY
SE PALMQUIST
SE LUSTED
SW BUTLER
SE BUTLER
NE 182ND
NE 181ST
SE 181ST
SE 202ND
NE 223RD
NE 238TH
NE 242ND
SW 257TH
S TROUTDALE
SE SWEETBRIAR
NE HOGAN
NE KANE
NE BURNSIDE
NW CIVIC
NW EASTMAN
N MAIN
SW EASTMAN
SE ROBERTS
SE 182ND
SW HIGHLAND
SW PLEASANT VIEW
SW TOWLE
SE REGNER
SE HOGAN
SE PALMBLAD
SE 282ND
SE 190TH
SE TELFORD
SW 257

Section Two:
Cities of Gresham & Fairview Environmental Monitoring Program Annual Report

A. History

Background

The data reported in this Annual Report reflects the Cities of Gresham and Fairview's implementation of the Environmental Monitoring Plan that was approved by DEQ and became effective in August 2008. Revisions to the original plan were submitted to DEQ in August 2010, November 2011, October 2012, November 2015 and July 2016.

The City of Gresham collects data for Multnomah County under an Intergovernmental Agreement and that data is included in this report.

B. Required Elements

This section of the Annual Compliance Report summarizes the Environmental Monitoring Plan implementation and permit requirements contained in the Stormwater permit. Schedule B) 5. states: the annual report must include:

f. A summary of monitoring program results, including monitoring data that are accumulated throughout the reporting year and/or assessments or evaluations.

g. Any proposed modifications to the monitoring plan that are necessary to ensure that adequate data and information are collected to conduct stormwater program assessments.

The environmental monitoring requirements specified in Table B-1 of the NPDES permit are summarized below in **Table 2-1**. Elements required by the permit are *italicized* text.

Table 2-1 Environmental Monitoring Requirements Summary

Monitoring Type	Monitoring Location(s)	Monitoring Frequency	Pollutant Parameter Analyte(s)	Notes
Instream Monitoring	*Three (3) sites in the Columbia Slough basin:* 1. Fairview Lake @ Lake Shore Park (FVL1) 2. Fairview Creek @ mobile estates (FCI0) 3. Fairview Creek @ Stark (FCI1)	*Four (4) events/year*	*DO, pH, temperature, conductivity, turbidity, E. coli, hardness, BOD, TSS, Chlorophyll-a (May-Oct); nutrients (nitrate, ammonia, Total P, ortho-phosporus); Total recoverable and dissolved metals (copper, lead and zinc); legacy pesticides (JC only)*	The City of Portland collects data on the entire Columbia Slough, but based on their probabilistic sampling design, locations monitored any permit year will be reported to DEQ by Portland.
	Two (2) sites in the Sandy River basin: 1. Kelly Creek @ Mt. Hood Community College Pond (KCI1) 2. Kelly Creek @ Detention Pond (KCI4)			
	Four (4) sites in the Johnson Creek subbasin: 1. Johnson Creek @ Jenne Rd (JCI1) 2. Johnson Creek @ Palmblad (JCI2) 3. Kelley Creek @ Pleasant Valley Grange (KI1) 4. Kelley Creek @ Rodlun Rd (KI2)			

Continuous Instream Monitoring	*Two (2) continuous monitoring stations:* 1. Johnson Creek @ Regner 2. Fairview Creek @ Glisan*	*Ongoing* 15-minute interval	*Temperature and flow*	Flow data collected by USGS through Joint Funding Agreement #3225. *Fairview gage does not collect temperature. City of Gresham periodically collects summer temperature at Glisan location, as well as other locations throughout city.
Monitoring Type	**Monitoring Location(s)**	**Monitoring Frequency**	**Pollutant Parameter Analyte(s)**	**Notes**
Stormwater Monitoring - Storm Event	*Three (3) sites.* Monitored 10 random and spatially balanced stormwater locations.	*Three (3) events/year* Monitored 1 event at each location (totaling 10)	*DO, pH, temperature, conductivity, turbidity, E. coli, hardness, BOD, TSS; nutrients (nitrate, ammonia, Total P, ortho-phosphorus); Total recoverable and dissolved copper, lead and zinc; pesticides*	The permit requirements as described by Schedule B)2)e)ii) would result in 9 data points annually. The City's approved monitoring approach results in 10 data points (5 fixed sites and 5 randomly selected rotating sites).
Macro-Invertebrate Monitoring	*One (1) site in the Columbia Slough basin:* 1. Fairview Creek @ mobile estates (FCI0) 2. Fairview Creek @ Stark (FCI1) *One (1) site in the Sandy River basin:* 1. Kelly Creek @ Mt. Hood Community College Pond (KCI1) 2. Kelly Creek @ Detention Pond (KCI4) *Two (2) sites in the Johnson Creek subbasin:* 1. Johnson Creek @ Jenne Rd (JCI1) 2. Johnson Creek @ Palmblad (JCI2) 3. Kelley Creek @ Pleasant Valley Grange (KI1) 4. Kelley Creek @ Rodlun Rd (KI2)	One (1) event/year during summer/low flow conditions	*Macroinvertebrates*	Collected during same week as instream water quality data collection occurred in summer.

Structural BMP Monitoring	*One (1) site - inlet and outlet:* 1. Columbia Slough Water Quality Facility 2. Brookside Regional Facility 3. Hayden's Meadows filtration stormwater planters 4. Kane Road pervious pavement	*Two (2) events/year through Dec. 31, 2013.* Monitored 1 event at 3 facilities, and 2 events at Kane Road	*DO, pH, temperature, conductivity, turbidity, E. coli, hardness, BOD, TSS; nutrients (nitrate, ammonia, Total P, ortho-phosphorus); Total recoverable and dissolved metals (copper, lead and zinc)*	

C. Summary of Monitoring Program Results

The City of Gresham and Fairview's raw data collected in PY 25 are described and illustrated in **Tables 2-1 thru 2-6 and Figures 2-1 thru 2-4** of the monitoring report. The instream data have been compared to the relevant DEQ water quality criteria. Values that do not meet the water quality standards are highlighted. Data from Stormwater (wet weather sampling) and Structural BMP (green infrastructure) Monitoring have not been compared to water quality standards because of the mixing that occurs in-stream. Sampling locations are shown in **Figures 2-1 thru 2-4.**

The raw data from the City's Illicit Discharge Detection and Elimination program monitoring is included in **Table 3-5**. A map showing the sampling site locations for fixed and rotating sites are shown **Figure 3-6** and the discussion of the findings is included in **Section 3 BMP ILL 2&3.**

Instream Monitoring

Instream monitoring results are generally within expected ranges. There were some exceedances of water quality standards for pH, temperature, total phosphorus, total Hg, E. coli, and legacy pesticides DDT and its degradates, and Dieldrin. The greatest number of exceedances were for total Hg described further below. Temperature is also commonly exceeded during summer months and, as such, is not a stormwater issue. The city's TMDL related efforts to address temperature are described in **Appendix E** and **Table 3.2**.

pH

Stream pH results were above the 8.5 standard at Fairview Lake (FVL1) during fall sampling and below the 6.5 standard in Kelley Creek during summer sampling. The high pH in Fairview Lake was likely related to photosynthesis from the abundant algae. The low pH readings may be related to recent rain events which delivered water with low pH into the streams (typical pH of rainwater ~5.6). Additionally, this site is always sampled in the mornings, which generally have lower pH levels.

Temperature

Stream temperature was above the 18°C salmon rearing standard in most streams in the summer. The City continues to focus efforts on increasing shade along streams, identifying other sources of heat (such as inline ponds), and working to reduce the impacts from those sources. We work with the Johnson Creek Watershed Council to study and identify privately-owned inline ponds which contribute substantial heat loading to the streams. In the past year, several new pond removal or retrofit projects have been initiated.

Nutrients

Fairview lake (FVL1) exceeded the Columbia Slough TMDL level for total phosphorus in the summer sampling. High phosphorus levels have been noted here before, particularly during the summer when planktonic algae is common throughout the water column in

the Lake. Cyanobacteria (a.k.a. blue-green algae) has frequently been noted in the lake in mid to late summer when the presence of phosphorus and their ability to fix nitrogen allow them to thrive in the warm lake water. We continue efforts to educate the public on the effect of fertilizers on water quality.

Mercury

All sites exceeded the total mercury instream target of 0.14 ng/L established by the December 2019 Willamette Basin TMDL. The total mercury target in the TMDL was established by modeling how total mercury concentrations relate to the biologically available form of mercury, methylmercury, and determining what levels would keep the whole body load of mercury in a resident fish (the Northern Pike Minnow) at a safe level to protect Oregonians who eat fish. Mercury comes largely from global air currents into the Pacific Northwest and is deposited onto water during the dry season from the air and also carried to water during the wet season. Major sources of mercury include the use of coal for energy, but are also the result of emissions from volcanoes and forest fires, as well as certain industrial processes, mining, forestry, and concrete manufacturing. Since total mercury is correlated with sediment, the City continues to prioritize stormwater treatment BMPs which remove suspended sediment and implements an erosion control program for land disturbing activities, partners with Metro to offer hazardous waste collection events, works with dental offices to ensure safe dental amalgum collection.

Bacteria

Three sites exceeded the 406 E. coli/100ml standard for bacteria - two on Johnson Creek and one on Fairview Creek. All of these sites are downstream from locations that have campers from the houseless population. The City of Gresham recognizes the impacts that camps can have on natural areas, water quality, and human social justice. The city responded to the Multnomah County housing crisis and houseless issue by hiring a Community Social Services specialist to help people find the resources they need to obtain housing. Find out more:
https://www.youtube.com/watch?v=DbAXduYdjpE

Pesticides

Both Johnson Creek sites exceeded the chronic water quality criteria for DDT and Dieldrin multiple times. These legacy pesticides most likely enter the creek through erosion of contaminated soil and resuspend during disturbances such as storm events. The City continues to implement a rigorous Erosion Prevention and Sediment Control Program for development to reduce soil erosion. The levels of DDT and total suspended solids are generally higher in the long-term site upstream of Gresham than in the site downstream of Gresham, indicating that much of the sediment and DDT in the Creek is originating in the upper watershed where there is historic and ongoing farming that has been observed to cause sediment-laden runoff.

Continuous Instream Monitoring

The City of Gresham collected continuous instream temperature data at several sites within the city and collaborated with other jurisdictions to collect data at several sites upstream and downstream of the city. The locations are shown in Table 2-2. Together with USGS, Multnomah County, and East Multnomah Soil and Water Conservation District, continuous temperature data was collected at 23 stream sites, representing Beaver, Kelly, Fairview, and Johnson Creek basins. Table 2-3 and Figure 2-1 show summaries of the number of days that the 7-day average of the maximum daily temperature (7DADM) at each site exceeded the salmon rearing temperature standard of 18°C, as well as the highest 7DADM temperature reached at each site.

Three sites had no exceedances (highlighted in blue), while ten sites exceeded the standard for more than 100 days (highlighted in red). The sites with no exceedances were in the forested headwaters of Kelley and Sunshine Creeks. Most of the sites with >100 days of exceedances were on the mainstem of large creeks and/or close to the outlet of an inline human-created pond. The City is aware of the impact in-line ponds can have on temperature - Fujitsu Pond is a highly ranked Natural Resource CIP project, and the City is also studying ways to reduce temperature loading from public and private ponds on Butler and Hogan Creeks. The city produced a technical memorandum this permit year which analyzed the instream pond temperature data in the Johnson Creek basin over the past

Stormwater Monitoring

Stormwater raw data is included in **Table 2-4** and site locations are shown in **Figure 2-4**. Similar to previous years, stormwater monitoring data revealed that higher traffic sites (>1000 vehicle trips per day) have higher pollutant concentrations for many pollutants in comparison to residential streets (<1000 trips/day), especially for heavy metals and PAHs. Also similar to previous years, relatively high levels of several heavy metals (including mercury, copper, and especially zinc) were found at several sites. Cars are likely a major source of these pollutants.

One site had a result of 2,4-D which was above the action level. Fate and transport modelling demonstrated that the site was still protective of groundwater. Education and outreach to the public continues to focus on reducing lawn chemicals.

Structural BMP Monitoring

The structural BMP (green infrastructure) monitoring consisted of monitoring one storm at three facilities (Columbia Slough, Hayden's Meadow and Operations yard swale). See **Figure 2-3** for locations.

The City of Gresham's **Operations Yard has a water quality swale** which underwent a retrofit completed in June 2019. The previous swale collected water from only a small portion of the yard which flowed down a narrow V-shaped grass ditch to the outlet. The retrofit collects stormwater from the entire maintenance yard and filters it through bioretention media to an underdrain. The media is a high-flow media of sand and peat moss which is not typical for Gresham. This was the first storm monitoring the effectiveness. The media effectively reduced most stormwater pollutants to the extent expected for this type of BMP. It was especially effective at reducing TSS, heavy metals, and PAHs.

Hayden's Meadow is a newly constructed neighborhood with street-side vegetated stormwater planters which were constructed in the fall of 2016. This is year four of five for sampling these facilities to assess pollutant removal performance. They were constructed with two different amended soil blends to study any differences in pollutant removal or plant survival between the two common mixes. The two mixes are: Gresham's 3-way mix of equal parts topsoil, compost, and sand and Portland's 40% compost and 60% sand mix. To date, the data indicate that both soil blends exported several pollutants during a rain event immediately after soil placement including nutrients, heavy metals, and suspended solids. However, after the initial export, the facilities are reducing many pollutants, especially suspended solids and PAHs.

The **Columbia Slough Regional Water Quality Facility** is a large constructed stormwater wetland which treats water from almost 1,000 acres of mostly commercial and industrial land. It has been monitored each year since 2011, shortly after it was built. The facility initially was not performing as well in pollutant removal as another similar facility in the City. Factors that may have contributed to lower pollutant removal include: 1) lack of emergent vegetation in portions of the facility because of design variations and 2) lower pollutant levels coming into the facility. However, the performance of this facility has increased over the past several years such that it is now generally removing pollutants at a similar rate to the other facility as reported in the PY23 Annual Report. Management actions taken by staff to improve vegetation establishment may be improving facility performance. Additionally, beavers have established themselves in this facility and are being monitored to understand how they impact the facility's performance. Our observation is that their dams appear to increase water filtration during low and moderate flow events and that they are having an overall positive impact on the facility. A comparison of pollutant removal efficiency in several storms with and without beaver dams present indicates that the facility is more effective at removing pollutants when the dams are present. This facility has been noted for its wildlife habitat value for many birds, insects, and amphibians, most of which have noticeably increased after the arrival of the

Macroinvertebrate Sampling

Macroinvertebrates were collected at all of the instream monitoring locations, except Fairview Lake and KCI3 (see Macroinvertebrate data in **Table 2-6** and illustrated in **Figure 2-2**). The Benthic Index of Biological Integrity (B-IBI) scores indicate a level of impairment. Results are generally slightly improved from previous years using this index.

Kelley Creek (K12) location's results indicate the least amount of impairment (i.e., the greatest abundance and highest number of sensitive species) with a B-IBI category of No Impairment. This site is predominantly surrounded by an undeveloped forested area.

This was the first year in which there were no sites which were classified as severely impaired. Most sites moved into the moderately impaired category, with one site in upper Johnson Creek moving into the slightly impaired category. The summer was relatively mild, which likely contributed to the improved scores. However, most sites, especially in the Johnson Creek watershed, have been consistently improving each year. The most improvement has been seen in the area where the most instream and riparian restoration has taken place.

D. Adaptive Management

Last year, we proposed allowing the option to shift monitoring resources for one storm from BMP sampling to sampling our long-term instream sampling sites during a storm, but did not implement this action. Given that our renewed permit is very close to being issued, we plan to do further assessment of our monitoring program and resource allocation after we have been given the permit.

Section 2 - Gresham and Fairview Program Raw Data

Table 2-1 Monitoring Site Locations & Criteria
Table 2-2 Longterm Instream Data
Table 2-3 Temperature Sampling Data
Figure 2-1 Map of Temperature Sampling Locations
Table 2-4 Stormwater Sampling Data
Table 2-5 Stormwater Green Infrastructure Sampling Data
Table 2-6 Macroinvertebrate Sampling Data
Figure 2-2 Longterm Instream Site Locations with Macroinvertebrate Impairment
Figure 2-3 Stormwater Green Infrastructure Monitoring Site Locations
Figure 2-4 Map of Fixed & Rotating Wet Weather Stormwater Monitoring Locations

Table 2-1: Water Quality Monitoring Site Locations & Criteria

Instream-Longterm & Macroinvertebrate Site Locations (See Fig. 2-2)	
FCI0	Fairview Creek @ West of Blue Lake Rd in Trailer Park
FCI1	Fairview Creek @ Conifer Park Subdivision, N of Stark
FVL1	Fairview Lake @ Public Dock on NE 217th
JCI1	Johnson Creek @ 174th Ave (Jenne Rd)
JCI2	Johnson Creek @ 252nd Ave. (Palmblad)
KI1	Kelley Creek @ Foster Rd. (tributary of JC)
KI2	Kelley Creek @ Rodlun Rd (tributary of JC)
KCI1	Kelly Creek @ Mt. Hood Community College Pond Outflow
KCI3	Kelly Creek @ Detention Pond Outflow
KCI4	Kelly Creek @ Detention Pond Inflow
BCI1	Beaver Creek @ Lower Bridge (Monitored on behalf of Multnomah County, not shown on Gresham Map of Instream Sites)
BCI2	Beaver Creek @ Division X Troutdale Rd. (Monitored on behalf of Multnomah County, not shown on Gresham Map of Instream Sites)

Stormwater Monitoring Site Locations (See Fig. 2-4)	
Fixed locations	5 sites monitored every year
Panel 10	5 randomly selected rotating sites monitored in PY25

Structural BMP Evaluation Monitoring Locations (See Fig. 2-3)

CSWQF-1	Columbia Slough Water Quality Facility - Stormdrain Creek
CSWQF-2	Columbia Slough Water Quality Facility - East Inlet
CSWQF-3	Columbia Slough Water Quality Facility - Outlet
HMPB121-1	Hayden's Meadow rain garden B12 Portland blend - Inlet
HMPB122-1	Hayden's Meadow rain garden B12 Portland blend - Outlet
HMGA71	Hayden's Meadow rain garden A7 Gresham blend - Inlet
HMPA21	Hayden's Meadow rain garden A2 Portland blend - Inlet
HMGA72	Hayden's Meadow rain garden A7 Gresham blend - Outlet
HMPA22	Hayden's Meadow rain garden A2 Portland blend - Outlet
HMGB112	Hayden's Meadow rain garden B11 Gresham blend - Outlet
HMGB111	Hayden's Meadow rain garden B11 Gresham blend - Inlet
HMPB121-2	Hayden's Meadow rain garden B12 Portland blend - Inlet
HMGB151	Hayden's Meadow rain garden B15 Gresham blend - Inlet
HMPB122-2	Hayden's Meadow rain garden B12 Portland blend - Outlet
HMGB152	Hayden's Meadow rain garden B15 Gresham blend - Outlet
OpsCB	Operations Swale Catch Basin
OpsNin	Operations Swale North Inlet
OpsSin	Operations Swale South Inlet
OpsOut	Operatures Swale Outlet

TMDL Constituent	Water Quality Criteria
Fairview Creek & Lake	
Temperature	No designated salmon and steelhead spawning use. Rearing: 18 degrees Celsius
E. coli	406 organisms/100mL (OAR 340-41)
Phosphorus	0.1549 mg/L (Columbia Slough 1998 TMDL)
Mercury	Aquatic life: 2.4 ug/L acute; 0.012 ug/L chronic. MCL: 2 ug/L
Johnson Creek (including Kelley Creek trib)	
Temperature	Spawning: 13 degrees Celsius (55.4 F) - October 15 to May 15. Rearing: 18 degrees Celsius
E. coli	406 organisms/100mL (OAR 340-41)
PCBs	Acute 2.0 ug/L, Chronic 0.014 ug/L (per Table 30)
PAHs	Not included in Table 40 or 41. Table 30 only lists saltwater acute level of 300 ug/L
Dieldrin	Acute 0.24 ug/L, Chronic 0.056 ug/L (per Table 30)
DDT	Acute 1.1 ug/L, Chronic 0.001 ug/L (per Table 30)
Mercury	Acute 2.4 ug/L, Chronic 0.012 ug/L (per Table 30)
Kelly Creek	
Temperature	Spawning: 13 degrees Celsius (55.4 F) - October 15 to May 15. Rearing: 18 degrees Celsius
E. coli	406 organisms/100mL (OAR 340-41)
Columbia Slough	
Temperature	No designated salmon and steelhead spawning use. Rearing: 18 degrees Celsius
E. coli	406 organisms/100mL (OAR 340-41)
pH	between pH 6.5 - 8.5
DO	No spawning
	6.5 mg/L: cool-water aquatic life (avg)
	4.0 mg/L: absolute minimum (Columbia Slough TMDL)
	5.5 mg/L: warm-water aquatic life
Phosphorus	0.1549 mg/L (Columbia Slough 1998 TMDL)
Chlorophyll-*a*	15 mg/m^3 (May-Oct only)
Pb	Based on hardness. Table 30 has formula
PCBs	Acute 2.0 ug/L, Chronic 0.014 ug/L (per Table 30)

Dieldrin	Acute 0.24 ug/L, Chronic 0.056 ug/L (per Table 30)
DDT/DDE	Acute 1.1 ug/L, Chronic 0.001 ug/L (per Table 30)
Dioxins	Fish tissue 0.07 ng/kg (Columbia Slough 1998 TMDL)
Mercury	0.14 ng/L (2019 Willamette Basin TMDL)

Non-TMDL WQ Constituents from OAR 340-41 Table 30

Metals	Based on hardness, formula in Table 30
pH	Between 6.5-8.5: same for all watersheds in the permit area (OAR 340-41)
DO	Not evaluated, since the criteria are for averages. Cold water aquatic life; spawning: 11 mg/L;

Analysis Coding for the Reported Data

Bold = < than detection value or an Estimated value for bacteria

NA = constituents not sampled due to equipment failure or other extenuating circumstance

NM= not measured

ND= not detected

MRL = method reporting limits are included at the top of each data set where they are constant. For parameters were no MRL is included, this means they vary by sample.

Dup = Duplicate Sample

FD = Field Duplicate Sample

Blank = Deionized Water Sample

Exceedance of TMDL or other water quality criteria

Chronic exceedance of metal (Table 30)

Acute exceedance of metal (Table 30)

Table 2-2 Longterm Instream Data

Sample ID	Site ID	Date	Time	24-hr Rainfall	Field DO	Field pH	Field Temp	Conductivity	Turbidity	BOD5	DOC	TSS	NH3-N	Chloro-phyll-a	NO3-N	O-PO4	TKN	Total-P	Hardness	Hg-Total	Cu-Total	Pb-Total	Zn-Total
				inches	mg/L		C	µS/cm	NTUs	mg/L	mg/L	mg/L	µg/L	mg/M3	µg/L	µg/L	µg/L	µg/L	mg CaCO3/L	µg/L	µg/L	µg/L	µg/L
Test Method										SM 5210B	SM 5310B	SM 2540D	EPA 300.0	SM 10200H	EPA 300.0	EPA 365.1	EPA 351.2	EPA 365.4	SM 2340B CAL	EPA 200.8	EPA 200.8	EPA 200.8	EPA 200.8
Method Reporting Limit										2	1	2	20	2	100	20		30	1	0.001	0.2	0.1	0.5
W19G165-01	FCI0	7/22/2019	14:36	0.00	4.59	7.36	19.1	173.3	4.36	2	2.94	3	56	2.4	1330	118	436	136	77.7	0.00087	1.37	0.239	18.7
W19G165-02	FCI1	7/22/2019	15:07	0.00	7.1	7.18	15.1	115.9	1.37	2	1	3	20	2	2600	98	400	120	56.4	0.00083	0.484	0.189	5.8
W19G165-03	JCI1	7/22/2019	9:14	0.00	8.92	6.66	20.4	107.1	9.4	4	5.11	10	20	77.1	100	36	690	92	47.7	0.00184	1.71	0.227	5.8
W19G165-04	JCI2	7/22/2019	10:47	0.00	7.2	6.9	18.4	90.2	12.8	2	3.9	8	21	12	670	38	403	62	35.4	0.00227	1.32	0.242	2.9
W19G165-05	KCI1	7/22/2019	12:44	0.00	4.79	7.26	21.5	135.7	2.24	2	5.7	3	20	2	370	49	366	58	56.8	0.00155	2.33	0.24	13.6
W19G165-06	KCI3	7/22/2019	11:36	0.00	4.8	6.83	16.8	172	6.16	2	8.35	3	52	2	180	55	504	54	77.8	0.00107	1.39	0.056	8.5
W19G165-07	KCI4	7/22/2019	11:54	0.00	5.86	7.02	18.9	162.4	15.5	2	6.59	20	34	2	3370	78	815	185	73.1	0.00204	5.73	0.258	25.2
W19G165-08	KI1	7/22/2019	9:54	0.00	5.43	6.42	16.4	133.4	20.1	2	7.2	12	197	3	100	240	635	279	69.7	0.00267	1.24	0.586	5.8
W19G165-09	KI2	7/22/2019	10:00	0.00	14.19	6.53	14	131.8	36.7	2	1.7	3	20	2	220	34	213	25	78	0.00083	0.448	0.076	3.1
W19G165-10	BCI1	7/22/2019	12:11	0.00	4.97	7.38	21.2	169.3	2.3	2	2.48	3	25	2	1040	79	292	71	79.8	0.00103	1.13	0.056	2.9
W19G165-11	BCI2	7/22/2019	13:42	0.00	6.24	7.02	18	119.3	3.83	2	5.22	3	40	2	1050	108	521	123	51.3	0.00151	1.94	0.099	3.7
W19G166	FVL1	7/22/2019	14:12	0.00	4.43	8.31	27.8	176.1	10.6	3	6.57	6	21	12	100	130	785	213	76.6	0.00108	1.17	0.249	1.76
W19G165-12	FD-FCI0	7/22/2019		0.00						2	3.05	3	42	2	1330	120	445	123	77.1	0.00091	1.58	0.276	16.8
W19J255-01	FCI0	10/29/2019	14:30	0.00	11.8	7.71	6.8	46.1	5.2	2	4.41	3	30	2	1230	80	293	96	77.2	0.00150	0.854	0.148	7.6
W19J255-02	FCI1	10/29/2019	14:58	0.00	9.16	6.96	11.1	42.2	5.34	2	1.47	3	20	4	2460	84	244	92	58.2	0.00150	0.713	0.425	15.4
W19J255-03	JCI1	10/29/2019	9:17	0.00	13.96	7.38	5.3	24.8	13.2	2	3.51	4	20	2	840	42	326	69	39.1	0.02480	6.93	0.34	11.2
W19J255-04	JCI2	10/29/2019	10:40	0.00	13.35	7.58	4.1	21.3	7.48	2	2.77	3	27	2	1500	23	381	30	28.8	0.00199	1.83	0.289	5.3
W19J255-05	KCI1	10/29/2019	12:49	0.00	10.3	7.55	7.1	31.3	6.33	2	4.47	3	52	2	560	33	398	57	47.1	0.00150	2.04	0.198	36.5
W19J255-06	KCI3	10/29/2019	11:45	0.00	11.26	7.31	4.8	35.7	4.12	2	4.06	3	37	2	700	20	280	30	61.7	0.00150	1.01	0.1	15.6
W19J255-07	KCI4	10/29/2019	11:58	0.00	13.33	7.47	5.6	38.6	14.4	2	4.54	3	38	2	1100	27	276	53	64.9	0.00150	1.39	0.1	12.6
W19J255-08	KI1	10/29/2019	9:34	0.00	23	7.13	5.1	34.8	16.5	14	5.36	24	45	5	210	71	386	217	57.8	0.00606	3	1.42	14.4
W19J255-09	KI2	10/29/2019	10:04	0.00	15.14	7.99	3.2	35.7	7.16	2	2.08	53	20	2	200	20	200	41	70.2	0.00150	0.584	0.1	1.9
W19J255-10	BCI1	10/29/2019	13:31	0.00	10.9	7.81	5.7	37.9	3.31	2	3.2	3	20	2	1880	44	265	53	62.5	0.00150	10	0.1	9.8
W19J255-11	BCI2	10/29/2019	12:20	0.00	13.85	7.61	3.8	30.1	6.33	2	3.15	3	20	6	4090	27	450	70	47.2	0.00150	21.4	0.257	6.4
W19J256-01	FVL1	10/29/2019	14:16	0.00	15.21	8.81	5.5	49.2	11.6	2	4.06	8	48	4	100	78	646	127	93	0.00150	1.75	0.337	5.97
W19J255-12	FD-BCI1	10/29/2019		0.00						2	3.12	3	20	2	1880	44	257	54	63	0.00150	10.1	0.1	9.8
W20A237-01	FCI0	1/27/2020	13:49	0.21	15.22	7.72	8.9	66.2	15.9	2	2.81	12	22	NM	960	34	386	66	45.3	0.00236	2.03	0.629	18.6
W20A237-02	FCI1	1/27/2020	14:14	0.21	13.13	6.85	9.7	41.9	72.5	2	2.15	22	42	NM	900	29	453	105	27.5	0.00637	8.59	3.59	68.7
W20A237-03	JCI1	1/27/2020	9:13	0.21	26.41	7.65	8.2	45.3	32.4	2	2.53	14	21	NM	2240	20	433	72	28.2	0.00386	1.97	0.736	11.5
W20A237-04	JCI2	1/27/2020	10:26	0.21	16.35	7.59	8	41.1	26.7	2	1.89	7	20	NM	2720	20	498	46	23.5	0.00198	1.27	0.439	6.0
W20A237-05	KCI1	1/27/2020	11:50	0.21	15.84	7.74	8.6	57.2	31.2	2	3.01	12	28	NM	1880	20	445	67	37.8	0.00371	2.35	0.559	33.5
W20A237-06	KCI3	1/27/2020	10:51	0.21	17.73	7.38	7.9	73.1	18	2	2.5	4	24	NM	3810	20	673	47	49.4	0.00150	1.43	0.275	13.2
W20A237-07	KCI4	1/27/2020	11:17	0.21	17.03	7.23	8	74.8	13.2	2	2.4	5	20	NM	4010	20	708	50	52.4	0.00161	2.48	0.311	14.3
W20A237-08	KI1	1/27/2020	9:32	0.21	26.46	7.4	7.6	49.3	15.8	2	3.54	4	29	NM	1030	20	416	62	28.4	0.00300	1.73	0.332	8.8
W20A237-09	KI2	1/27/2020	9:53	0.21	29.5	7.62	8	38.4	13	2	1.64	12	20	NM	1390	20	313	38	24.8	0.00230	1.03	0.445	10.7
W20A237-10	BCI1	1/27/2020	12:57	0.21	15.69	7.72	8.5	60.8	35.6	2	2.37	56	20	NM	3340	20	750	92	40.3	0.00436	2.38	0.745	18.9
W20A237-11	BCI2	1/27/2020	11:28	0.21	16.26	7.32	8	55.2	44.4	2	1.97	16	20	NM	4120	20	960	92	36	0.00367	1.99	0.617	7.9
W20A242	FVL1	1/27/2020	13:32	0.21	15.1	7.47	9.2	69.7	39.1	3	2.95	28	20	NM	520	20	602	93	48.6	0.00349	2.30	0.757	110
W20A237-12	FD-FCI1	1/27/2020	13:32	0.21						2	1.84	18	43	NM	930	20	463	99	28.5	0.00536	7.71	2.7	63.3
W20D165-01	FCI0	4/28/2020	13:39	0.00	5.97	7.42	15.9	127	6.62	2	2.22	5	47	NM	760	49	515	75	59.2	0.00150	1.08	0.221	9.5
W20D165-02	FCI1	4/28/2020	14:24	0.00	9.01	7.25	13.2	116.9	1.77	2	1.61	3	21	NM	2370	79	567	82	56.5	0.00150	0.615	0.12	13.4
W20D165-03	JCI1	4/28/2020	9:11	0.00	11.9	7.13	13.3	80	7.49	2	2.62	3	51	NM	780	31	486	46	37.6	0.00150	1.57	0.201	8.5
W20D165-04	JCI2	4/28/2020	10:28	0.00	9.48	7.26	12.8	61.7	8.14	2	2.16	4	27	NM	1280	20	522	49	26.3	0.00223	1.18	0.347	3.5
W20D165-05	KCI1	4/28/2020	12:03	0.00	5.93	7.4	14.7	92.1	5.32	2	4.79	3	58	NM	600	32	559	46	42.8	0.00196	2.93	0.317	23.7
W20D165-06	KCI3	4/28/2020	10:54	0.00	5.87	7.31	12.7	182.9	9.89	2	3.98	44	29	NM	720	37	342	54	50.8	0.00150	2.68	0.122	12.0
W20D165-07	KCI4	4/28/2020	11:07	0.00	8.37	7.35	12.4	99	3.3	2	3.09	3	33	NM	890	27	419	35	51.7	0.00150	2.2	0.1	8.9
W20D165-08	KI1	4/28/2020	9:30	0.00	9.09	7.13	13.2	97.2	7.7	2	3.97	3	81	NM	200	72	451	90	46.8	0.00162	1.43	0.17	4.5
W20D165-09	KI2	4/28/2020	9:51	0.00	12.6	7.72	10.6	83.5	10.7	2	1.3	6	20	NM	510	20	219	16	16.6	0.00150	0.407	0.119	3.2
W20D165-10	BCI1	4/28/2020	12:48	0.00	7.32	7.81	14.4	108.5	7.98	2	3.21	17	21	NM	1290	50	491	80	53	0.00279	2.44	0.269	10.5
W20D165-11	BCI2	4/28/2020	11:28	0.00	8.85	7.37	13.3	91	11.1	2	3.29	3	44	NM	2350	97	665	135	39.4	0.00161	3.26	0.189	3.5
W20D116	FVL1	4/28/2020	13:16	0.00	6.45	7.78	18.5	164.5	7.93	2	3.36	4	80	NM	130	42	663	80	79.6	0.00150	1.21	0.243	2.79
W20D165-12	FD-JCI1	4/28/2020								2	2.4	3	26	NM	1280	20	445	40	25.8	0.00193	0.949	0.166	1.8

Analysis Coding for the Reported Data

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Dup = Duplicate Sample
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FD = Field Duplicate Sample
For parameters where no MRL is included, this means they vary by sample.

Exceedance of TMDL or other water quality criteria

Chronic exceedance of metal (Table 30)
Acute exceedance of metal (Table 30)
Exceedance of City WPCF Permit action level

Table 2-2 Longterm Instream Data

Sample ID	Site ID	Date	Cu-Diss	Pb-Diss	Zn-Diss	E. coli	4,4'-DDD	4,4'-DDE	4,4'-DDT	Aldrin	alpha-BHC	Alpha-BHC	beta-BHC	gamma-BHC	delta-BHC	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan Sulfate	Endrin	Endrin Aldehyde	Endrin Ketone
			µg/L	µg/L	µg/L	MPN/100ml	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L
Test Method			EPA 200.8	EPA 200.8	EPA 200.8	SM 9223B	EPA 8081	EPA 8081	EPA 8081	EPA 8081	EPA 8081	EPA 8081	EPA 8081	EPA 8081	EPA 8081	EPA 8081	EPA 8081	EPA 8081	EPA 8081	EPA 8081	EPA 8081	EPA 8081
Method Reporting Limit			0.2	0.1	0.5	10	0.5-various	0.5-various	0.5-various	0.5-various	0.5-various	1.0-various	0.5-various	0.5-various	0.5-various	0.5-various	0.5-various	0.5-various	0.5-various	0.5-various	0.5-various	0.5-various
W19G165-01	FCI0	7/22/2019	0.886	**0.105**	11.1	130																
W19G165-02	FCI1	7/22/2019	0.219	**0.105**	3.98	110																
W19G165-03	JCI1	7/22/2019	1.08	**0.105**	1.14	1600	**2**	1.1	**3.1**	**1**	**1**	**1.9**	1.6	**1**	**5.1**	2.1	**1**	**1**	**1**	**1**	**1.7**	**1**
W19G165-04	JCI2	7/22/2019	0.9	**0.105**	1.21	410	**1**	2.1	**1.3**	**1**	**1**	**4**	1.1	**1**	**5.1**	4.2	**1**	**1**	**1**	**1.2**	**4.2**	0.3
W19G165-05	KCI1	7/22/2019	1.8	**0.105**	6.28	10																
W19G165-06	KCI3	7/22/2019	1.15	**0.105**	6.09	41																
W19G165-07	KCI4	7/22/2019	2.64	**0.105**	15.1	350																
W19G165-08	KI1	7/22/2019	0.518	**0.105**	2.02	85																
W19G165-09	KI2	7/22/2019	0.299	**0.105**	0.81	20																
W19G165-10	BCI1	7/22/2019	0.884	**0.105**	1.79	150																
W19G165-11	BCI2	7/22/2019	1.63	**0.105**	2.3	74																
W19G166	FVL1	7/22/2019	0.813	**0.105**	**0.527**	**10**																
W19G165-12	FD-FCI0	7/22/2019	0.964	**0.105**	11	160																
W19J255-01	FCI0	10/29/2019	0.621	**0.106**	5.6	170																
W19J255-02	FCI1	10/29/2019	0.403	**0.106**	13.3	5500																
W19J255-03	JCI1	10/29/2019	3.3	**0.106**	8.01	41	**1**	**0.42**	**3.6**	**0.42**	**0.42**	**3.2**	**1**	**0.5**	**1.8**	**0.94**	**1.2**	**0.42**	**1**	**0.92**	**0.5**	150
W19J255-04	JCI2	10/29/2019	0.707	**0.106**	3.2	10	**1**	2.5	**1**	**0.44**	**0.44**	**4.5**	**1**	**0.5**	**0.44**	1.1	**0.85**	**1.3**	**1**	**0.44**	1.3	**1.2**
W19J255-05	KCI1	10/29/2019	1.79	0.109	33.7	10																
W19J255-06	KCI3	10/29/2019	0.798	**0.106**	13.2	**10**																
W19J255-07	KCI4	10/29/2019	1.17	**0.106**	10.9	20																
W19J255-08	KI1	10/29/2019	0.89	**0.106**	2.25	63																
W19J255-09	KI2	10/29/2019	0.409	**0.106**	0.83	**10**																
W19J255-10	BCI1	10/29/2019	9.89	**0.106**	9.41	**10**																
W19J255-11	BCI2	10/29/2019	19.8	**0.106**	5.07	170																
W19J256-01	FVL1	10/29/2019	1	**0.106**	1.55	75																
W19J255-12	FD-BCI1	10/29/2019	9.34	**0.106**	8.88	**10**																
W20A237-01	FCI0	1/27/2020	1.09	**0.106**	9.89	120																
W20A237-02	FCI1	1/27/2020	2.29	0.139	36	1400																
W20A237-03	JCI1	1/27/2020	0.902	**0.106**	5.36	97	**4.5**	0.97	**1.5**	**2**	**1**	**1**	**1**	**2**	**1**	**1.1**	**1.5**	**2**	5	**1**	2.2	**1**
W20A237-04	JCI2	1/27/2020	0.599	**0.106**	3.2	63	**1.5**	**2**	**1.5**	**2**	**1**	**1.5**	**1**	**2**	**1**	**1**	**1.5**	**2**	5.7	**1**	1.7	**1**
W20A237-05	KCI1	1/27/2020	1.32	**0.106**	23.3	280																
W20A237-06	KCI3	1/27/2020	0.843	**0.106**	8.75	52																
W20A237-07	KCI4	1/27/2020	0.864	**0.106**	7.74	110																
W20A237-08	KI1	1/27/2020	1.03	**0.106**	5.63	170																
W20A237-09	KI2	1/27/2020	0.388	**0.106**	3.59	20																
W20A237-10	BCI1	1/27/2020	0.91	**0.106**	5.56	110																
W20A237-11	BCI2	1/27/2020	0.749	**0.106**	1.69	51																
W20A242	FVL1	1/27/2020	0.928	**0.106**	78.3	97																
W20A237-12	FD-FCI1	1/27/2020	2.22	0.122	35.7	2100																
W20D165-01	FCI0	4/28/2020	0.777	**0.106**	7.32	140																
W20D165-02	FCI1	4/28/2020	0.451	**0.106**	12.6	10																
W20D165-03	JCI1	4/28/2020	1.25	**0.106**	5.37	51	**2**	1.4	**1.3**	**2**	0.62	**1**	**1**	**2**	**1**	2.3	**1**	**1**	0.48	**1**	**1**	**2**
W20D165-04	JCI2	4/28/2020	0.925	**0.106**	2.7	620	**2**	4.5	3.9	**2**	**1**	**1**	**1**	**2**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**2**
W20D165-05	KCI1	4/28/2020	2.47	**0.106**	17.7	41																
W20D165-06	KCI3	4/28/2020	2.18	**0.106**	7.65	20																
W20D165-07	KCI4	4/28/2020	1.91	**0.106**	7.29	280																
W20D165-08	KI1	4/28/2020	1.11	**0.106**	2.44	110																
W20D165-09	KI2	4/28/2020	0.245	**0.106**	0.816	**10**																
W20D165-10	BCI1	4/28/2020	1.56	**0.106**	3.49	**10**																
W20D165-11	BCI2	4/28/2020	2.73	**0.106**	0.529	300																
W20D116	FVL1	4/28/2020	0.868	**0.106**	0.71	31																
W20D165-12	FD-JCI1	4/28/2020	0.708	**0.106**	0.529	450																

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Exceedance of TMDL or other water quality criteria

Chronic exceedance of metal (Table 30)
Acute exceedance of metal (Table 30)
Exceedance of City WPCF Permit action level

Table 2-2 Longterm Instream Data

Sample ID	Site ID	Date	gamma-Chlordane	Heptachlor	Heptachlor Epoxide	Methoxychlor	Toxaphene
			ng/L	ng/L	ng/L	ng/L	ng/L
Test Method			EPA 8081	EPA 8081	EPA 8081	EPA 8081	EPA 8081
Method Reporting Limit			1.0-various	0.5-various	1.0-various	0.5-various	50-various
W19G165-01	FCI0	7/22/2019					
W19G165-02	FCI1	7/22/2019					
W19G165-03	JCI1	7/22/2019	**1**	**1**	**1**	**1**	**50**
W19G165-04	JCI2	7/22/2019	**1**	**1**	**1**	**1**	**50**
W19G165-05	KCI1	7/22/2019					
W19G165-06	KCI3	7/22/2019					
W19G165-07	KCI4	7/22/2019					
W19G165-08	KI1	7/22/2019					
W19G165-09	KI2	7/22/2019					
W19G165-10	BCI1	7/22/2019					
W19G165-11	BCI2	7/22/2019					
W19G166	FVL1	7/22/2019					
W19G165-12	FD-FCI0	7/22/2019					
W19J255-01	FCI0	10/29/2019					
W19J255-02	FCI1	10/29/2019					
W19J255-03	JCI1	10/29/2019	**0.5**	**2**	**1**	**0.5**	64
W19J255-04	JCI2	10/29/2019	**0.5**	**0.77**	**1**	**0.5**	**50**
W19J255-05	KCI1	10/29/2019					
W19J255-06	KCI3	10/29/2019					
W19J255-07	KCI4	10/29/2019					
W19J255-08	KI1	10/29/2019					
W19J255-09	KI2	10/29/2019					
W19J255-10	BCI1	10/29/2019					
W19J255-11	BCI2	10/29/2019					
W19J256-01	FVL1	10/29/2019					
W19J255-12	FD-BCI1	10/29/2019					
W20A237-01	FCI0	1/27/2020					
W20A237-02	FCI1	1/27/2020					
W20A237-03	JCI1	1/27/2020	**2**	**1**	**1**	**2**	**1.6**
W20A237-04	JCI2	1/27/2020	**2**	**1**	**1**	**2**	**1.3**
W20A237-05	KCI1	1/27/2020					
W20A237-06	KCI3	1/27/2020					
W20A237-07	KCI4	1/27/2020					
W20A237-08	KI1	1/27/2020					
W20A237-09	KI2	1/27/2020					
W20A237-10	BCI1	1/27/2020					
W20A237-11	BCI2	1/27/2020					
W20A242	FVL1	1/27/2020					
W20A237-12	FD-FCI1	1/27/2020					
W20D165-01	FCI0	4/28/2020					
W20D165-02	FCI1	4/28/2020					
W20D165-03	JCI1	4/28/2020	**2**	**2**	**1**	**2**	**100**
W20D165-04	JCI2	4/28/2020	**2**	**2**	**1**	**2**	**100**
W20D165-05	KCI1	4/28/2020					
W20D165-06	KCI3	4/28/2020					
W20D165-07	KCI4	4/28/2020					
W20D165-08	KI1	4/28/2020					
W20D165-09	KI2	4/28/2020					
W20D165-10	BCI1	4/28/2020					
W20D165-11	BCI2	4/28/2020					
W20D116	FVL1	4/28/2020					
W20D165-12	FD-JCI1	4/28/2020					

Analysis Coding for the Reported Data

Bold = < than detection value

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ND= not detected
Dup = Duplicate Sample
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For parameters where no MRL is included, this means they vary by sample.

Exceedance of TMDL or other water quality criteria

Chronic exceedance of metal (Table 30)
Acute exceedance of metal (Table 30)
Exceedance of City WPCF Permit action level

Table 2-3 Continuous Temperature Monitoring

ID Number	Site	Basin	Stream	Max 7DADM (*C)	days 7DADM >18*C
1	East Fork of Sunshine	Johnson	Sunshine	16.4	0
2	West Fork of Sunshine	Johnson	Sunshine	17.4	0
3	Kelley upstream of Brookside	Beaver	Kelley	17.5	0
4	FCI1 Fairview at Stark	Fairview	Fairview	18.2	2
5	Kelly upstream of golf course	Beaver	Kelly	18.2	3
6	Brigman downstream of Meade	Johnson	Brigman	18.6	32
7	Brigman upstream of Meade	Johnson	Brigman	19.0	45
8	Burlingame at Hogan	Beaver	Burlingame	20.5	67
9	Fairview at Birdsdale	Fairview	Fairview	20.9	72
10	BCI2 Beaver at Division	Beaver	Beaver	20.5	73
11	Brigman at McNutt	Johnson	Brigman	20.4	82
12	Brigman at Hogan	Johnson	Brigman	20.6	82
13	Johnson at Hogan	Johnson	Johnson	21.8	96
14	Beaver upstream of Kelly	Beaver	Beaver	22.4	102
15	KCI2 Kelly upstream of MHCC pond	Beaver	Kelly	21.3	103
16	FCI0 Fairview at 223rd	Fairview	Fairview	20.9	104
17	JCI1 Johnson at Jenne	Johnson	Johnson	23.2	109
18	Johnson at Powell Loop	Johnson	Johnson	23.0	113
19	Johnson at Gresham Woods	Johnson	Johnson	23.5	113
20	Beaver downstream of Kelly	Beaver	Beaver	23.1	114
21	Beaver at Glen Otto	Beaver	Beaver	22.4	117
22	KCI1 Kelly downstream of MHCC por	Beaver	Kelly	22.8	117
23	Fairview at Glisan	Fairview	Fairview	28.0	150

Coding for Reported Data

Red = temperature exceedances for more than 100 days

Blue = no temperature exceedances

Temperature is not a pollutant associated with stormwater runoff since the rainy season does not coincide with summer temperatures. This data is provided to help the reader understand the general condition and impacts to streams in Gresham and Fairview. The City has a temperature TMDL plan that restores public land in an effort to provide shade and reduce streams temperatures over time. These activities are reported in **Table 3-3.**

Figure 2-1 Temperature Monitoring Site Locations

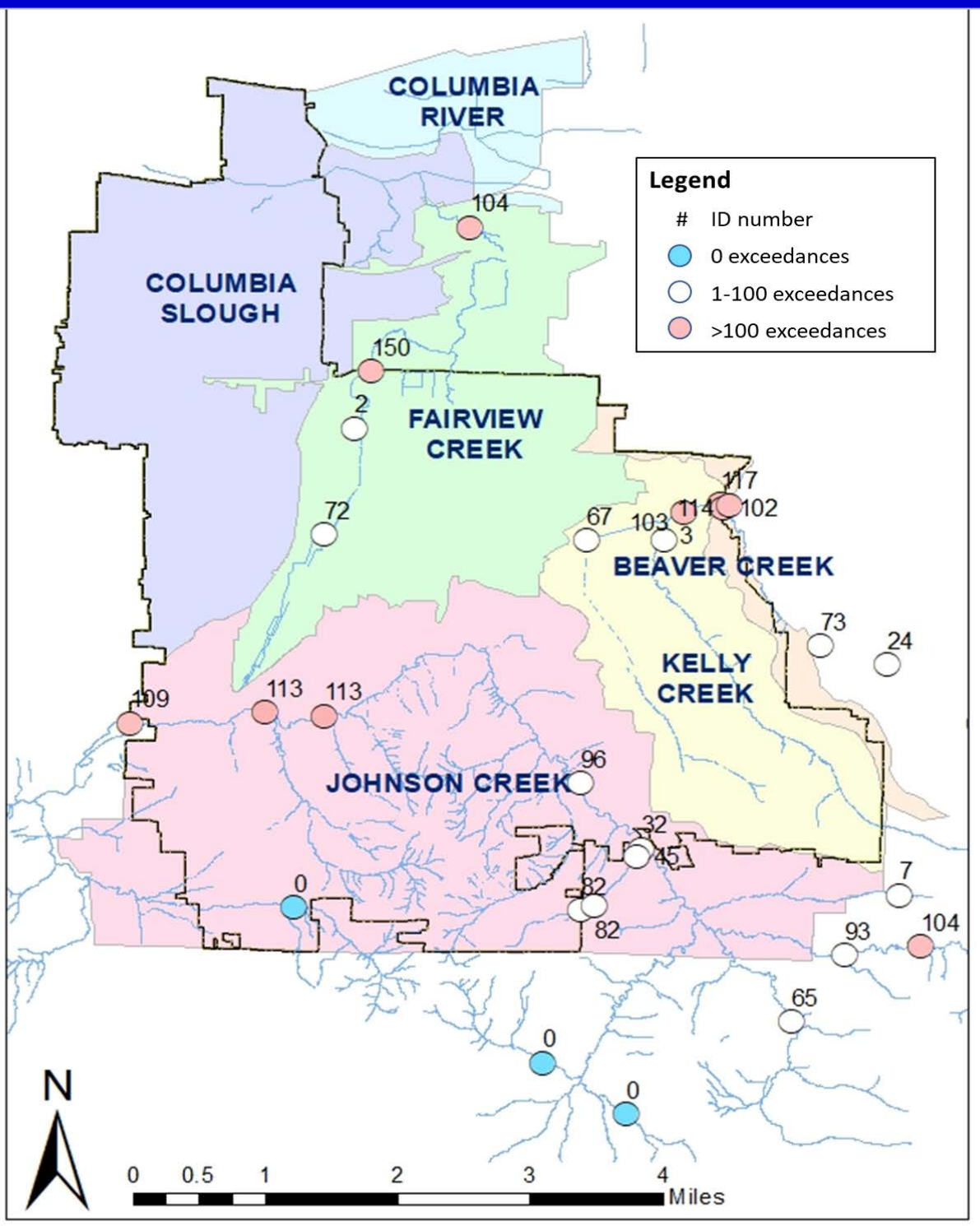

Table 2-4 Stormwater Sampling

System_ID	Trips per Day	Land Use	Functional Class	Date	Time	Rainfall Previous	DO	pH	Temp	Conduc-tivity	Turbi-dity	E. coli	BOD	DOC	TSS	Ammonia	Nitrate	ortho-P	Total Kjeldahl Nitrogen	T-Phos	Hardness	Total Antimony	Total Cadmium	Total Copper	Total Lead	Total Mercury	Total Zinc	Dissolved Copper	Dissolved Lead	Diss Zinc
Method Reporting Limit						inches/24 hrs	mg/l		°C	µS/cm	NTU	MPN/100 mL	2 mg/L	1 mg/L	mg/L	10 ug/L	ug/L	20 ug/L	200 ug/L	30 ug/L	mg/L CaCO3	0.100 ug/L	0.100 ug/L	0.200 ug/L	0.100 ug/L	0.00200 ug/L	0.500 ug/L	0.200 ug/L	ug/L	0.500 ug/L
Analytical Method												SM 9223B	SM 5210 B	SM 5310B	SM 2540D	EPA 300.0	EPA 300.0	EPA 365.1	EPA 351.2	EPA 365.4	SM 2340B CAL	EPA 200.8	EPA 200.8	EPA 200.8	EPA 200.8	EPA 200.8	EPA 200.8	EPA 200.8	EPA 200.8	EPA 200.8
3153-F-040	<1000	RES	Residential	10/16/2019	11:44	0.08	7.77	6.95	14.4	9.70	10.1	31	8	7.17	9	70	**100**	47	404	89	4.00	0.480	**0.1**	4.46	0.675	0.0109	55.2	3.180	0.117	41.9
3152-F-086	<1000	RES	Residential	10/16/2019	12:03	0.20	8.15	6.57	13.4	14.1	9.97	20	5	7.62	4	30	**100**	47	429	81	7.57	0.209	**0.1**	3.93	0.401	0.00933	133	3.220	**0.106**	123
3249-W-021	>1000	COM	Minor Arteria	10/16/2019	12:28	0.20	8.18	5.96	13.7	13.7	45.5	340	7	6.8	36	298	220	32	642	133	9.69	2.160	**0.1**	14.7	3.2	0.00906	64.8	6.670	0.12	21.4
3148-W-014	>1000	RES	Community	10/16/2019	12:46	0.20	8.56	5.90	13.2	7.80	29.7	630	3	4.52	9	162	**100**	**20**	434	52	3.21	0.904	**0.1**	6.01	0.928	0.00688	27.3	3.490	**0.106**	15.9
3248-W-014	<1000	RES	Residential	10/16/2019	13:02	0.30	7.89	5.77	13.8	12.7	13.7	4400	12	13	4	20	100	59	486	109	4.92	0.226	**0.1**	3.57	0.668	0.00762	18.7	2.790	0.173	15.8
3251-F-013	<1000	RES	Residential	10/16/2019	13:49	0.30	6.56	6.52	13.3	12.2	12.1	480	14	8.42	**3**	20	180	39	225	150	7.92	0.126	**0.1**	9.95	0.313	0.00862	94.9	8.540	**0.106**	86.7
3047-W-105	>1000	RES	Community	10/16/2019	19:17	0.38	5.73	6.33	13.2	11.5	120	140	10	3.93	228	305	100	37	692	694	25.0	3.900	0.317	52.1	20.3	0.0323	348	4.720	0.107	21.6
3049-W-011	>1000	VAC	Community	10/16/2019	19:45	0.38	6.61	6.97	13.0	16.6	41.7	360	5	4.52	34	436	140	**20**	646	98	10.2	1.760	**0.1**	15.4	2.77	0.00685	79.6	6.140	0.252	37.4
3150-F-030	<1000	RES	Residential	10/16/2019	20:06	0.40	6.24	7.07	12.9	15.8	11.4	250	11	11.6	7	20	**100**	40	502	79	8.34	0.295	**0.1**	5.42	0.456	0.00491	34.5	4.140	0.108	27.8
3151-F-064	>1000	COM	Collector	10/16/2019	20:38	0.40	5.12	7.11	13.0	62.7		2500	99	83.5	127	28	**100**	700	1950	1500	43.4	2.850	0.156	29.3	5.7	0.0176	196	9.430	0.232	52.5
3251-F-013-FD												63	5	8.39	**3**	20	190	61	357	60	5.65	0.149	**0.1**	10.4	0.146	0.00805	187	9.270	**0.106**	174

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Exceedance of TMDL or other water quality criteria
Chronic exceedance of metal (Table 30)
Acute exceedance of metal (Table 30)
Exceedance of City WPCF Permit action level

Table 2-4 Stormwater Sampling

System_ID	Trips per Day	Land Use	Functional Class	Date	Time	Rainfall Previous	Acenaph-thene	Acenaphthylene	Anthracene	Benzo-(a)-anthracene	Benzo-(a)-pyrene	Benzo(b)-fluoran-thene	Benzo(ghi)-perylene	Benzo(k)fluoran-thene	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Indeno-(1,2,3-cd)pyrene	Naphthalene	Phenan-threne	Pyrene	Butyl benzyl phthalate	Di-n-butyl phthalate	Diethyl phthalate	Dimethyl phthalate	Di-n-octyl phthalate
Method Reporting Limit						inches/24 hrs	ug/L	MPN/100 ml	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Analytical Method							EPA 8270-SIM	EPA 8270-SIM	EPA 8270-SIM	EPA 8270-SIM	EPA 8270-SIM	EPA 8270-SIM	EPA 8270-SIM	EPA 8270-SIM	EPA 8270-SIM	EPA 8270-SIM	EPA 8270-SIM	EPA 8270-SIM	EPA 8270-SIM	EPA 8270-SIM	EPA 8270-SIM	EPA 8270-SIM	EPA 8270-SIM	EPA 8270-SIM	EPA 8270-SIM	EPA 8270-SIM	EPA 8270-SIM
3153-F-040	<1000	RES	Residential	10/16/2019	11:44	0.08	**0.020**	0.025	**0.020**	**0.010**	**0.010**	**0.010**	0.017	**0.010**	**0.010**	**0.010**	0.020	**0.020**	**0.010**	**0.040**	0.029	0.033	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**
3152-F-086	<1000	RES	Residential	10/16/2019	12:03	0.20	**0.020**	**0.020**	**0.020**	**0.010**	**0.010**	**0.010**	**0.010**	**0.010**	**0.010**	**0.010**	**0.010**	**0.020**	**0.010**	**0.040**	**0.020**	0.011	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**
3249-W-021	>1000	COM	Minor Arteria	10/16/2019	12:28	0.20	**0.020**	0.024	**0.020**	0.017	0.023	0.033	0.074	**0.010**	0.030	**0.010**	0.076	**0.020**	0.021	0.051	0.067	0.130	**1.0**	**1.0**	**1.0**	**1.0**	1.2
3148-W-014	>1000	RES	Community	10/16/2019	12:46	0.20	**0.020**	**0.020**	**0.020**	**0.010**	**0.010**	**0.010**	0.022	**0.010**	**0.010**	**0.010**	0.022	**0.020**	**0.010**	0.041	0.033	0.044	**1.0**	**1.0**	**1.0**	**1.0**	0.5
3248-W-014	<1000	RES	Residential	10/16/2019	13:02	0.30	**0.020**	**0.020**	**0.020**	**0.010**	**0.010**	0.010	0.013	**0.010**	**0.010**	**0.010**	0.015	**0.020**	**0.010**	**0.040**	0.029	0.024	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**
3251-F-013	<1000	RES	Residential	10/16/2019	13:49	0.30	**0.020**	0.021	**0.020**	**0.010**	**0.010**	**0.010**	**0.010**	**0.010**	**0.010**	**0.010**	**0.010**	**0.020**	**0.010**	**0.040**	0.023	**0.010**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**
3047-W-105	>1000	RES	Community	10/16/2019	19:17	0.38	**0.020**	**0.020**	0.069	0.084	0.120	0.190	0.340	0.042	0.150	**0.010**	0.390	**0.020**	0.095	0.140	0.420	0.560	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**
3049-W-011	>1000	VAC	Community	10/16/2019	19:45	0.38	**0.020**	**0.020**	**0.020**	0.013	0.019	0.031	0.062	**0.010**	0.024	**0.010**	0.056	**0.020**	0.019	0.051	0.061	0.100	**1.0**	**1.0**	**1.0**	**1.0**	2.1
3150-F-030	<1000	RES	Residential	10/16/2019	20:06	0.40	**0.020**	**0.020**	**0.020**	**0.010**	**0.010**	**0.010**	**0.010**	**0.010**	**0.010**	**0.010**	**0.010**	**0.020**	**0.010**	**0.040**	0.021	0.011	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**
3151-F-064	>1000	COM	Collector	10/16/2019	20:38	0.40	**0.020**	0.075	**0.020**	0.017	0.018	0.032	0.043	**0.010**	0.024	**0.010**	0.074	**0.020**	0.017	0.040	0.100	0.100	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**
3251-F-013-FD							**0.020**	0.022	**0.020**	**0.010**	**0.010**	**0.010**	**0.010**	**0.010**	**0.010**	**0.010**	**0.010**	**0.020**	**0.010**	**0.040**	**0.020**	**0.010**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**

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Exceedance of TMDL or other water quality criteria
Chronic exceedance of metal (Table 30)
Acute exceedance of metal (Table 30)
Exceedance of City WPCF Permit action level

Table 2-4 Stormwater Sampling

Stormwater Sampling

System_ID	Trips per Day	Land Use	Functional Class	Date	Time	Rainfall Previous inches/24 hrs	Di-(2-ethylhexyl)-phthalate	2,4,5-T	2,4,5-TP (Silvex)	2,4-D	2,4-DB	Acifluorfen	Bentazon	3,5-Dichlorobenzoic acid	Dicamba	Dichlorprop	Dinoseb	Pentachlorophenol	Picloram
Method Reporting Limit							ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	.040 ug/L
Analytical Method							EPA 8270-SIM	EPA 515.4 mod	EPA 515.4 mod	EPA 515.4 mod	EPA 515.4 mod	EPA 515.4 mod	EPA 515.4 mod	EPA 515.4 mod	EPA 515.4 mod	EPA 515.4 mod	EPA 515.4 mod	EPA 515.4 mod	EPA 515.4 mod
3153-F-040	<1000	RES	Residential	10/16/2019	11:44	0.08	1.3	**0.1**	**0.1**	**0.2**	**0.4**	**0.2**	**0.4**	**0.2**	**0.2**	**0.4**	**0.4**	0.035	**0.2**
3152-F-086	<1000	RES	Residential	10/16/2019	12:03	0.20	**1.0**	**0.1**	**0.1**	**0.2**	**0.4**	**0.2**	**0.4**	**0.2**	**0.2**	**0.4**	**0.4**	0.028	**0.2**
3249-W-021	>1000	COM	Minor Arteria	10/16/2019	12:28	0.20	5.6	**0.1**	**0.1**	42.0	**0.4**	**0.2**	**0.4**	**0.2**	**0.2**	**0.4**	**0.4**	0.370	**0.2**
3148-W-014	>1000	RES	Community	10/16/2019	12:46	0.20	2.8	**0.1**	**0.1**	**0.2**	**0.4**	**0.2**	**0.4**	**0.2**	**0.2**	**0.4**	**0.4**	0.122	**0.2**
3248-W-014	<1000	RES	Residential	10/16/2019	13:02	0.30	1.8	**0.1**	**0.1**	0.5	**0.4**	**0.2**	**0.4**	**0.2**	**0.1**	**0.4**	**0.4**	0.054	**0.2**
3251-F-013	<1000	RES	Residential	10/16/2019	13:49	0.30	**1.0**	**0.1**	**0.1**	**0.2**	**0.4**	**0.2**	**0.4**	**0.2**	**0.2**	**0.4**	**0.4**	0.331	**0.2**
3047-W-105	>1000	RES	Community	10/16/2019	19:17	0.38	37.0	**0.1**	**0.1**	**0.2**	**0.4**	**0.2**	**0.4**	**0.2**	**0.2**	**0.4**	**0.4**	**0.040**	**0.2**
3049-W-011	>1000	VAC	Community	10/16/2019	19:45	0.38	6.5	**0.1**	**0.1**	0.5	**0.4**	**0.2**	**0.4**	**0.2**	**0.2**	**0.4**	**0.4**	1.370	**0.2**
3150-F-030	<1000	RES	Residential	10/16/2019	20:06	0.40	0.8	**0.1**	**0.1**	**0.2**	**0.4**	**0.2**	**0.4**	**0.2**	**0.2**	**0.4**	**0.4**	0.100	**0.2**
3151-F-064	>1000	COM	Collector	10/16/2019	20:38	0.40	6.7	**0.1**	**0.1**	1.3	**0.4**	**0.2**	**0.4**	**0.2**	**0.2**	**0.4**	**0.4**	0.345	**0.2**
3251-F-013-FD							**1.0**	**0.1**	**0.1**	**0.2**	**0.4**	**0.2**	**0.4**	**0.2**	**0.2**	**0.4**	**0.4**	0.053	**0.2**

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Exceedance of TMDL or other water quality criteria
Chronic exceedance of metal (Table 30)
Acute exceedance of metal (Table 30)
Exceedance of City WPCF Permit action level

Table 2-5 Stormwater Green Infrastructure Sampling Data

Sample ID	Site ID	Inlet/outlet	Date	Time	Storm	24-hr Rainfall	Field DO	Field pH	Field Temp	Conduc-tivity	Turbi-dity	NH3-N	BOD5	NO3-N	O-PO4	TKN	Total-P	TSS	Hardness	Ca	Mg	Hg-Total	DOC
						inches	mg/L		C	uS/cm	NTUs	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	mg/L as CaCO3	mg/L	mg/L	ug/L	ug/L
												EPA 300.0	SM 5210B	EPA 300.0	EPA 365.1	EPA 351.2	EPA 365.4	SM 2540D	SM 2340B CAL	EPA 200.7	EPA 200.7	EPA 200.8	SM 5310B
											0.01	20	2	100	20	100	25	2	1	0.5	0.5	0.001	1
W19I084-02	Ops yard CB	inlet	9/15/2019	9:33	1	0.72	10.81	5.53	17	18.1	114	70	**3**	**100**	29	268	168	116	7.59	1.68	0.826	0.0102	2.01
W19I084-01	Ops swale N inlet	inlet	9/15/2019	8:38	1	0.72	12.84	6.37	17.3	198.6	31.6	108	4	140	38	516	97	41	5.66	1.62	**0.391**	0.00976	5.03
W19I084-03	Ops swale S inlet	inlet	9/15/2019	9:45	1	0.72	10.95	5.66	16.5	18.4	20.1	**20**	**3**	**100**	72	260	100	11	5.48	1.59	**0.365**	0.00524	4.45
W19I084-04	Ops swale outlet	outlet	9/15/2019	10:12	1	0.72	9.12	5.3	16.4	97.4	33.2	20	**3**	200	43	342	83	20	47.6	11.8	4.41	0.00411	8.31
W19I084-05	Ops yard CB	inlet	9/15/2019	10:53	1	0.72	9.86	5.54	16.7	11.6	6.56	**20**	**3**	**100**	134	555	146	**3**	1.87	0.493	**0.155**	0.00431	4.22
W19I084-07	Ops swale N inlet	inlet	9/15/2019	11:16	1	0.72	7.91	5.31	17.1	19	12.8	115	**3**	120	58	514	83	10	5.92	1.78	**0.361**	0.00474	6.04
W19I084-06	Ops swale S inlet	inlet	9/15/2019	11:03	1	0.72	9.07	5.49	16.7	19.6	24.3	**20**	**3**	**100**	71	230	97	9	6.8	1.9	**0.498**	0.00437	4.3
W19I084-08	Ops swale outlet	outlet	9/15/2019	11:35	1	0.72	7.78	5.27	16.7	71.5	20.7	**20**	**3**	120	38	223	64	6	33.2	8.07	3.18	0.00334	7.12
W19I084-09	Ops yard CB	inlet	9/15/2019	12:21	1	0.72	6.15	5.52	18.5	10.1	26.4	80	**3**	**100**	44	438	100	71	3.17	0.899	**0.224**	0.00507	5.01
W19I084-10	Ops swale N inlet	inlet	9/15/2019	12:48	1	0.72	5.58	5.38	17.9	14.5	25.3	61	**3**	**100**	41	376	76	26	5.11	1.53	**0.313**	0.00455	4.43
W19I084-11	Ops swale S inlet	inlet	9/15/2019	12:53	1	0.72	7.9	5.38	17.3	14.9	35.1	**20**	**3**	**100**	70	224	94	16	4.95	1.37	**0.37**	0.00469	7.75
W19I084-12	Ops swale outlet	outlet	9/15/2019	13:15	1	0.72	5.13	5.39	16.6	57.3	31	**20**	**3**	110	43	200	66	10	24.5	5.96	2.33	0.00320	8.33
W19L177-01	Hayden's Meadow rain garden B12 Portland blend inlet	inlet	12/19/2019	10:31	5	0.44	19.59	7.1	6	19	12.4	**20**	**2**	**100**	**20**	215	27	14	8.54	3.01	**0.252**	0.00224	**1**
W19L177-02	Hayden's Meadow rain garden B15 Gresham blend inlet	inlet	12/19/2019	10:58	5	0.44	17.79	7.4	6.3	5.6	6.4	**20**	**2**	**100**	**20**	**200**	23	6	5.14	1.82	**0.145**	0.00224	**1**
W19L177-03	Hayden's Meadow rain garden B11 Gresham blend inlet	inlet	12/19/2019	11:01	5	0.44	17.39	7.29	6.2	13.6	14.5	25	**2**	**100**	**20**	228	21	9	10	3.68	**0.208**	0.00206	**1**
W19L177-04	Hayden's Meadow rain garden B11 Gresham blend outlet	outlet	12/19/2019	11:13	5	0.44	14.23	7.26	8.1	53.8	38.1	**20**	**2**	140	68	293	93	6	44.4	13.9	2.36	0.00386	4.01
W19L177-05	Hayden's Meadow rain garden B15 Gresham blend outlet	outlet	12/19/2019	11:34	5	0.44	18.37	7.32	8.5	31.4	11.3	**20**	**2**	890	67	579	71	3	21.8	6.27	1.48	0.00562	9.39
W19L177-06	Hayden's Meadow rain garden A7 Gresham blend inlet	inlet	12/19/2019	11:55	5	0.44	19.12	7.67	6.5	13.3	18.2	**20**	**2**	**100**	**20**	261	21	5	11	3.98	**0.26**	0.00191	**1**
W19L177-07	Hayden's Meadow rain garden A2 Portland blend inlet	inlet	12/19/2019	12:03	5	0.44	14.38	7.51	7	20	29.5	54	**2**	1010	57	514	103	10	14	4.2	0.858	0.00278	2.92
W19L177-08	Hayden's Meadow rain garden B12 Portland blend outlet	outlet	12/19/2019	12:19	5	0.44	12.24	7.04	8.2	18.9	20.5	**20**	**2**	140	34	295	53	4	17	4.95	1.13	0.00440	4.67
W19L177-09	Hayden's Meadow rain garden B12 Portland blend inlet	inlet	12/19/2019	12:23	5	0.44	12.46	7.3	6.7	8.1	18.4	**20**	**2**	**100**	**20**	208	28	15	6.88	2.37	**0.233**	0.0015	**1**
W19L177-10	Hayden's Meadow rain garden A7 Gresham blend outlet	outlet	12/19/2019	12:36	5	0.44	13.3	6.84	7.2	12.5	13.9	**20**	**2**	420	94	492	105	4	16.9	5.22	0.936	0.00383	6.7
W19L177-11	Hayden's Meadow rain garden A2 Portland blend outlet	outlet	12/19/2019	12:47	5	0.44	14.64	6.87	6.5	29.6	30.9	**20**	**2**	930	75	623	97	3	22.4	7.14	1.10	0.00486	7.88
W19L177-12	Hayden's Meadow rain garden B12 Portland blend outlet	outlet	12/19/2019	13:03	5	0.44	8	6.99	8.1	8.17	22.1	**20**	**2**	**100**	41	449	54	3	15.1	4.33	1.05	0.00358	4.89
W20B027-01	CSWQF Stormdrain Creek	inlet	2/5/2020	8:08	14	0.34	18.65	6.9	9.5	25.2	46.1	104	3	260	26	355	91	25	14.6	3.89	1.19	0.00367	2.09
W20B027-02	CSWQF East Inlet	inlet	2/5/2020	8:17	14	0.34	18.23	6.97	7.8	31.3	48.7	88	3	210	31	343	83	21	20.5	4.92	1.98	0.00395	1.64
W20B027-03	CSWQF Outlet	outlet	2/5/2020	8:32	14	0.34	17.3	7.14	8.3	74.7	32.4	91	4	1240	43	442	79	11	50.5	12.4	4.75	0.00199	3.25
W20B027-04	CSWQF Stormdrain Creek	inlet	2/5/2020	10:40	14	0.34	12.44	7.57	9.2	39.9	39.9	64	2	660	26	358	65	12	24.7	6.49	2.07	0.00338	2.28
W20B027-05	CSWQF East Inlet	inlet	2/5/2020	10:50	14	0.34	12.45	7.5	8.8	46.9	50.8	68	3	350	37	418	87	14	32.2	7.87	3.04	0.00425	2.59
W20B027-06	CSWQF Stormdrain Creek	inlet	2/5/2020	12:43	14	0.34	13.61	7.7	10.2	60.4	28.8	24	2	1430	31	353	61	4	40	10.6	3.30	0.00249	2.44
W20B027-07	CSWQF East Inlet	inlet	2/5/2020	13:00	14	0.34	12.2	7.83	9.8	73.9	26.5	60	2	760	57	443	91	5	50.4	11.9	5.04	0.00241	1.94
W20B027-08	CSWQF Outlet	outlet	2/5/2020	13:19	14	0.34	14.81	7.66	8.5	40.9	35.3	62	2	510	36	338	76	8	25.4	6.45	2.26	0.00246	1.78
W20B027-09	CSWQF Outlet	outlet	2/5/2020	15:15	14	0.34	11.94	7.51	9.2	41.2	34.3	40	**2**	500	27	355	58	7	25.8	6.54	2.29	0.00216	1.70

Analysis Coding for the Reported Data

Bold = < than detection value or an Estimated value for bacteria

NA = constituents not sampled due to equipment failure or other extenuating circumstance

NM= not measured

ND= not detected

Dup = Duplicate Sample

MRL = method reporting limits are included at the top of each data set where they are constant. For parameters were no MRL is included, this means they vary by sample.

FD = Field Duplicate Sample

Table 2-5 Stormwater Green Infrastructure Sampling Data

Sample ID	Site ID	Inlet/outlet	Date	Time	Storm	24-hr Rainfall	Field DO	Cu-Dissolved	Pb-Dissolved	Zn-Dissolved	Cu-Total	Pb-Total	Zn-Total	E. coli	2,4,5-T	2,4-D	2,4-DB	2,4,5-TP (Silvex)	Acifluor-fen	Bentazon	Dicamba
						inches	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	MPN/100ml	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
								EPA 200.8	EPA 200.8	EPA 200.8	EPA 200.8	EPA 200.8	EPA 200.8	SM 9223B	EPA 515.3	EPA 515.3	EPA 515.3	EPA 515.3	EPA 515.3	EPA 515.3	EPA 515.3
								0.2	0.1	0.5	0.2	0.1	0.5	10	0.1	0.2	0.4	0.1	0.2	0.4	0.2
W19I084-02	Ops yard CB	inlet	9/15/2019	9:33	1	0.72	10.81	1.00	0.106	2.71	6.73	2.46	34.1	**10**	NM	NM	NM	NM	NM	NM	NM
W19I084-01	Ops swale N inlet	inlet	9/15/2019	8:38	1	0.72	12.84	4.52	0.016	33.9	8.19	1.33	61.4	360	NM	NM	NM	NM	NM	NM	NM
W19I084-03	Ops swale S inlet	inlet	9/15/2019	9:45	1	0.72	10.95	2.41	0.106	10.5	3.35	0.341	15.4	990	NM	NM	NM	NM	NM	NM	NM
W19I084-04	Ops swale outlet	outlet	9/15/2019	10:12	1	0.72	9.12	3.08	0.106	2.64	4.18	0.407	5.52	500	NM	NM	NM	NM	NM	NM	NM
W19I084-05	Ops yard CB	inlet	9/15/2019	10:53	1	0.72	9.86	1.92	0.106	8.99	2.15	**0.111**	10.2	41	NM	NM	NM	NM	NM	NM	NM
W19I084-07	Ops swale N inlet	inlet	9/15/2019	11:16	1	0.72	7.91	4.48	0.106	26.4	5.72	0.424	35.8	470	NM	NM	NM	NM	NM	NM	NM
W19I084-06	Ops swale S inlet	inlet	9/15/2019	11:03	1	0.72	9.07	2.42	0.106	9.02	3.24	0.302	14.7	1300	NM	NM	NM	NM	NM	NM	NM
W19I084-08	Ops swale outlet	outlet	9/15/2019	11:35	1	0.72	7.78	2.95	0.106	2.19	3.69	0.208	4.16	240	NM	NM	NM	NM	NM	NM	NM
W19I084-09	Ops yard CB	inlet	9/15/2019	12:21	1	0.72	6.15	5.47	0.106	22.6	11.3	1.35	57.6	820	NM	NM	NM	NM	NM	NM	NM
W19I084-10	Ops swale N inlet	inlet	9/15/2019	12:48	1	0.72	5.58	3.67	0.106	23.2	6.15	0.981	41.6	370	NM	NM	NM	NM	NM	NM	NM
W19I084-11	Ops swale S inlet	inlet	9/15/2019	12:53	1	0.72	7.9	2.35	0.106	9.08	3.66	0.428	24.3	770	NM	NM	NM	NM	NM	NM	NM
W19I084-12	Ops swale outlet	outlet	9/15/2019	13:15	1	0.72	5.13	2.70	0.106	2.06	3.46	0.321	4.82	430	NM	NM	NM	NM	NM	NM	NM
W19L177-01	Hayden's Meadow rain garden B12 Portland blend inlet	inlet	12/19/2019	10:31	5	0.44	19.59	0.435	0.106	1.39	1.53	0.241	123	**10**	**0.1**	**0.2**	**0.4**	**0.1**	**0.2**	**0.4**	**0.2**
W19L177-02	Hayden's Meadow rain garden B15 Gresham blend inlet	inlet	12/19/2019	10:58	5	0.44	17.79	0.322	0.106	1.18	1.29	0.211	10.6	**10**	**0.1**	**0.2**	**0.4**	**0.1**	**0.2**	**0.4**	**0.2**
W19L177-03	Hayden's Meadow rain garden B11 Gresham blend inlet	inlet	12/19/2019	11:01	5	0.44	17.39	0.665	0.106	3.22	1.71	0.156	8.08	120	**0.1**	**0.2**	**0.4**	**0.1**	**0.2**	**0.4**	**0.2**
W19L177-04	Hayden's Meadow rain garden B11 Gresham blend outlet	outlet	12/19/2019	11:13	5	0.44	14.23	2.34	0.106	2.71	3.52	0.519	4.27	**10**	**0.1**	**0.2**	**0.4**	**0.1**	**0.2**	**0.4**	**0.2**
W19L177-05	Hayden's Meadow rain garden B15 Gresham blend outlet	outlet	12/19/2019	11:34	5	0.44	18.37	9.02	0.106	2.02	9.59	0.181	2.31	**10**	**0.1**	**0.2**	**0.4**	**0.1**	**0.2**	**0.4**	**0.2**
W19L177-06	Hayden's Meadow rain garden A7 Gresham blend inlet	inlet	12/19/2019	11:55	5	0.44	19.12	0.588	0.106	1.63	2.13	0.183	11.7	**10**	**0.1**	**0.2**	**0.4**	**0.1**	**0.2**	**0.4**	**0.2**
W19L177-07	Hayden's Meadow rain garden A2 Portland blend inlet	inlet	12/19/2019	12:03	5	0.44	14.38	5.26	0.106	6.80	14.4	0.404	12.3	150	**0.1**	**0.2**	**0.4**	**0.1**	**0.2**	**0.4**	**0.2**
W19L177-08	Hayden's Meadow rain garden B12 Portland blend outlet	outlet	12/19/2019	12:19	5	0.44	12.24	2.94	0.106	1.11	4.38	0.291	4.57	**10**	**0.1**	**0.2**	**0.4**	**0.1**	**0.2**	**0.4**	**0.2**
W19L177-09	Hayden's Meadow rain garden B12 Portland blend inlet	inlet	12/19/2019	12:23	5	0.44	12.46	0.29	0.106	2.51	1.50	0.331	10.6	**10**	**0.1**	**0.2**	**0.4**	**0.1**	**0.2**	**0.4**	**0.2**
W19L177-10	Hayden's Meadow rain garden A7 Gresham blend outlet	outlet	12/19/2019	12:36	5	0.44	13.3	3.33	0.108	3.23	4.01	0.308	4.64	**10**	**0.1**	**0.2**	**0.4**	**0.1**	**0.2**	**0.4**	**0.2**
W19L177-11	Hayden's Meadow rain garden A2 Portland blend outlet	outlet	12/19/2019	12:47	5	0.44	14.64	4.97	0.120	2.74	6.33	0.439	6.02	85	**0.1**	**0.2**	**0.4**	**0.1**	**0.2**	**0.4**	**0.2**
W19L177-12	Hayden's Meadow rain garden B12 Portland blend outlet	outlet	12/19/2019	13:03	5	0.44	8	3.07	0.106	2.56	3.91	0.322	2.74	10	**0.1**	**0.2**	**0.4**	**0.1**	**0.2**	**0.4**	**0.2**
W20B027-01	CSWQF Stormdrain Creek	inlet	2/5/2020	8:08	14	0.34	18.65	2.06	0.128	30.6	5.92	1.79	63.7	2200	**0.1**	**0.2**	**0.4**	**0.1**	**0.2**	**0.4**	**0.2**
W20B027-02	CSWQF East Inlet	inlet	2/5/2020	8:17	14	0.34	18.23	1.48	0.106	109	5.51	1.48	166	140	**0.1**	**0.2**	**0.4**	**0.1**	**0.2**	**0.4**	**0.2**
W20B027-03	CSWQF Outlet	outlet	2/5/2020	8:32	14	0.34	17.3	1.48	0.106	26.4	3.47	1.04	44.8	820	**0.1**	**0.2**	**0.4**	**0.1**	**0.2**	**0.4**	**0.2**
W20B027-04	CSWQF Stormdrain Creek	inlet	2/5/2020	10:40	14	0.34	12.44	2.11	0.128	29.6	4.54	1.33	51.6	460	**0.1**	**0.2**	**0.4**	**0.1**	**0.2**	**0.4**	**0.2**
W20B027-05	CSWQF East Inlet	inlet	2/5/2020	10:50	14	0.34	12.45	1.79	0.106	63.8	4.85	1.36	103	460	**0.1**	**0.2**	**0.4**	**0.1**	**0.2**	**0.4**	**0.2**
W20B027-06	CSWQF Stormdrain Creek	inlet	2/5/2020	12:43	14	0.34	13.61	1.77	0.158	23.9	3.40	0.95	38.1	160	**0.1**	**0.2**	**0.4**	**0.1**	**0.2**	**0.4**	**0.2**
W20B027-07	CSWQF East Inlet	inlet	2/5/2020	13:00	14	0.34	12.2	1.31	0.106	34.1	3.08	0.748	69.4	1500	**0.1**	**0.2**	**0.4**	**0.1**	**0.2**	**0.4**	**0.2**
W20B027-08	CSWQF Outlet	outlet	2/5/2020	13:19	14	0.34	14.81	1.53	0.106	24.9	4.24	3.0	45.0	490	**0.1**	**0.2**	**0.4**	**0.1**	**0.2**	**0.4**	**0.2**
W20B027-09	CSWQF Outlet	outlet	2/5/2020	15:15	14	0.34	11.94	1.54	0.106	27.0	3.24	0.896	40.6	280	**0.1**	**0.2**	**0.4**	**0.1**	**0.2**	**0.4**	**0.2**

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NA = constituents not sampled due to equipment failure or other extenuating circumstance

NM= not measured

ND= not detected

Dup = Duplicate Sample

MRL = method reporting limits are included at the top of each data set where they are constant. For parameters were no MRL is included, this means they vary by sample.

FD = Field Duplicate Sample

Table 2-5 Stormwater Green Infrastructure Sampling Data

Sample ID	Site ID	Inlet/outlet	Date	Time	Storm	24-hr Rainfall	Field DO	Picloram	Dichlorprop	Dinoseb	Pentachloro-phenol	3,5-Dichloro-benzoic acid	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene
						inches	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
								EPA 515.3	EPA 515.3	EPA 515.3	EPA 515.3	EPA 515.3	EPA 8270-SIM	EPA 8270-SIM	EPA 8270	EPA 8270	EPA 8270	EPA 8270
								0.2	0.4	0.4	0.04	0.2	0.02	0.02	0.02	0.01	0.01	0.01
W19I084-02	Ops yard CB	inlet	9/15/2019	9:33	1	0.72	10.81	NM	NM	NM	NM	NM	**0.02**	0.023	0.06	0.026	0.035	0.052
W19I084-01	Ops swale N inlet	inlet	9/15/2019	8:38	1	0.72	12.84	NM	NM	NM	NM	NM	0.1	0.1	0.4	0.014	0.024	0.035
W19I084-03	Ops swale S inlet	inlet	9/15/2019	9:45	1	0.72	10.95	NM	NM	NM	NM	NM	**0.02**	**0.02**	**0.02**	**0.01**	**0.01**	**0.01**
W19I084-04	Ops swale outlet	outlet	9/15/2019	10:12	1	0.72	9.12	NM	NM	NM	NM	NM	**0.02**	**0.02**	**0.02**	**0.01**	**0.01**	**0.01**
W19I084-05	Ops yard CB	inlet	9/15/2019	10:53	1	0.72	9.86	NM	NM	NM	NM	NM	**0.02**	**0.02**	**0.02**	**0.01**	**0.01**	**0.01**
W19I084-07	Ops swale N inlet	inlet	9/15/2019	11:16	1	0.72	7.91	NM	NM	NM	NM	NM	**0.02**	**0.02**	**0.02**	**0.01**	**0.01**	**0.01**
W19I084-06	Ops swale S inlet	inlet	9/15/2019	11:03	1	0.72	9.07	NM	NM	NM	NM	NM	**0.02**	**0.02**	**0.02**	**0.01**	**0.01**	**0.01**
W19I084-08	Ops swale outlet	outlet	9/15/2019	11:35	1	0.72	7.78	NM	NM	NM	NM	NM	**0.02**	**0.02**	**0.02**	**0.01**	**0.01**	**0.01**
W19I084-09	Ops yard CB	inlet	9/15/2019	12:21	1	0.72	6.15	NM	NM	NM	NM	NM	**0.02**	**0.02**	**0.02**	**0.01**	**0.01**	0.013
W19I084-10	Ops swale N inlet	inlet	9/15/2019	12:48	1	0.72	5.58	NM	NM	NM	NM	NM	**0.02**	**0.02**	**0.02**	**0.01**	**0.01**	0.011
W19I084-11	Ops swale S inlet	inlet	9/15/2019	12:53	1	0.72	7.9	NM	NM	NM	NM	NM	**0.02**	**0.02**	**0.02**	**0.01**	**0.01**	**0.01**
W19I084-12	Ops swale outlet	outlet	9/15/2019	13:15	1	0.72	5.13	NM	NM	NM	NM	NM	**0.02**	**0.02**	**0.02**	**0.01**	**0.01**	**0.01**
W19L177-01	Hayden's Meadow rain garden B12 Portland blend inlet	inlet	12/19/2019	10:31	5	0.44	19.59	**0.2**	**0.4**	**0.4**	**0.04**	**0.2**	**0.02**	0.021	**0.02**	**0.01**	**0.01**	0.012
W19L177-02	Hayden's Meadow rain garden B15 Gresham blend inlet	inlet	12/19/2019	10:58	5	0.44	17.79	**0.2**	**0.4**	**0.4**	**0.04**	**0.2**	**0.02**	0.021	**0.02**	**0.01**	**0.01**	**0.01**
W19L177-03	Hayden's Meadow rain garden B11 Gresham blend inlet	inlet	12/19/2019	11:01	5	0.44	17.39	**0.2**	**0.4**	**0.4**	**0.04**	**0.2**	**0.02**	0.02	**0.02**	**0.01**	**0.01**	**0.01**
W19L177-04	Hayden's Meadow rain garden B11 Gresham blend outlet	outlet	12/19/2019	11:13	5	0.44	14.23	**0.2**	**0.4**	**0.4**	**0.04**	**0.2**	**0.02**	**0.02**	**0.02**	**0.01**	**0.01**	**0.01**
W19L177-05	Hayden's Meadow rain garden B15 Gresham blend outlet	outlet	12/19/2019	11:34	5	0.44	18.37	**0.2**	**0.4**	**0.4**	**0.04**	**0.2**	**0.02**	**0.02**	**0.02**	**0.01**	**0.01**	**0.01**
W19L177-06	Hayden's Meadow rain garden A7 Gresham blend inlet	inlet	12/19/2019	11:55	5	0.44	19.12	**0.2**	**0.4**	**0.4**	**0.04**	**0.2**	**0.02**	**0.02**	**0.02**	**0.01**	**0.01**	**0.01**
W19L177-07	Hayden's Meadow rain garden A2 Portland blend inlet	inlet	12/19/2019	12:03	5	0.44	14.38	**0.2**	**0.4**	**0.4**	**0.04**	**0.2**	**0.02**	**0.02**	**0.02**	**0.01**	**0.01**	**0.01**
W19L177-08	Hayden's Meadow rain garden B12 Portland blend outlet	outlet	12/19/2019	12:19	5	0.44	12.24	**0.2**	**0.4**	**0.4**	**0.04**	**0.2**	**0.02**	**0.02**	**0.02**	**0.01**	**0.01**	**0.01**
W19L177-09	Hayden's Meadow rain garden B12 Portland blend inlet	inlet	12/19/2019	12:23	5	0.44	12.46	**0.2**	**0.4**	**0.4**	**0.04**	**0.2**	**0.02**	**0.02**	**0.02**	**0.01**	0.011	0.015
W19L177-10	Hayden's Meadow rain garden A7 Gresham blend outlet	outlet	12/19/2019	12:36	5	0.44	13.3	**0.2**	**0.4**	**0.4**	**0.04**	**0.2**	**0.02**	**0.02**	**0.02**	**0.01**	**0.01**	**0.01**
W19L177-11	Hayden's Meadow rain garden A2 Portland blend outlet	outlet	12/19/2019	12:47	5	0.44	14.64	**0.2**	**0.4**	**0.4**	**0.04**	**0.2**	**0.02**	**0.02**	**0.02**	**0.01**	**0.01**	**0.01**
W19L177-12	Hayden's Meadow rain garden B12 Portland blend outlet	outlet	12/19/2019	13:03	5	0.44	8	**0.2**	**0.4**	**0.4**	**0.04**	**0.2**	**0.02**	**0.02**	**0.02**	**0.01**	**0.01**	**0.01**
W20B027-01	CSWQF Stormdrain Creek	inlet	2/5/2020	8:08	14	0.34	18.65	**0.2**	**0.4**	**0.4**	0.262	**0.2**	**0.02**	**0.02**	**0.02**	**0.01**	0.017	0.034
W20B027-02	CSWQF East Inlet	inlet	2/5/2020	8:17	14	0.34	18.23	**0.2**	**0.4**	**0.4**	0.05	**0.2**	**0.02**	**0.02**	**0.02**	**0.01**	0.014	0.022
W20B027-03	CSWQF Outlet	outlet	2/5/2020	8:32	14	0.34	17.3	**0.2**	**0.4**	**0.4**	0.052	**0.2**	**0.02**	**0.02**	**0.02**	**0.01**	**0.01**	0.011
W20B027-04	CSWQF Stormdrain Creek	inlet	2/5/2020	10:40	14	0.34	12.44	**0.2**	**0.4**	**0.4**	0.146	**0.2**	**0.02**	**0.02**	**0.02**	**0.01**	**0.01**	0.014
W20B027-05	CSWQF East Inlet	inlet	2/5/2020	10:50	14	0.34	12.45	**0.2**	**0.4**	**0.4**	0.048	**0.2**	**0.02**	**0.02**	**0.02**	**0.01**	**0.01**	0.015
W20B027-06	CSWQF Stormdrain Creek	inlet	2/5/2020	12:43	14	0.34	13.61	**0.2**	**0.4**	**0.4**	0.086	**0.2**	**0.02**	**0.02**	**0.02**	**0.01**	**0.01**	**0.01**
W20B027-07	CSWQF East Inlet	inlet	2/5/2020	13:00	14	0.34	12.2	**0.2**	**0.4**	**0.4**	**0.04**	**0.2**	**0.02**	**0.02**	**0.02**	**0.01**	**0.01**	**0.01**
W20B027-08	CSWQF Outlet	outlet	2/5/2020	13:19	14	0.34	14.81	**0.2**	**0.4**	**0.4**	0.111	**0.2**	**0.02**	**0.02**	**0.02**	**0.01**	**0.01**	**0.01**
W20B027-09	CSWQF Outlet	outlet	2/5/2020	15:15	14	0.34	11.94	**0.2**	**0.4**	**0.4**	0.099	**0.2**	**0.02**	**0.02**	**0.02**	**0.01**	**0.01**	**0.01**

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NM= not measured

ND= not detected

Dup = Duplicate Sample

MRL = method reporting limits are included at the top of each data set where they are constant. For parameters were no MRL is included, this means they vary by sample.

FD = Field Duplicate Sample

Table 2-5 Stormwater Green Infrastructure Sampling Data

Sample ID	Site ID	Inlet/outlet	Date	Time	Storm	24-hr Rainfall	Field DO	Benzo(ghi)perylene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyre	Naphthalene	Phenanthrene	Pyrene	Butyl benzyl phthalate	Di-n-butyl phthalate	Di-n-octyl phthalate
						inches	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
								EPA 8270	EPA 8270	EPA 8270	EPA 8270	EPA 8270	EPA 8270	EPA 8270	EPA 8270-SIM	EPA 8270-SIM	EPA 8270-SIM	EPA 8270-SIM	EPA 8270-SIM	EPA 8270-SIM
								0.01	**0.01**	**0.01**	**0.01**	**0.01**	**0.02**	**0.01**	**0.04**	**0.02**	**0.01**	**1**	**1**	**1**
W19I084-02	Ops yard CB	inlet	9/15/2019	9:33	1	0.72	10.81	0.047	0.019	0.047	**0.01**	0.13	**0.02**	0.027	**0.04**	0.14	0.13	**1**	**1**	**1**
W19I084-01	Ops swale N inlet	inlet	9/15/2019	8:38	1	0.72	12.84	0.051	0.015	0.026	**0.01**	0.075	**0.2**	0.021	**0.04**	0.53	0.15	**1**	**1**	**1**
W19I084-03	Ops swale S inlet	inlet	9/15/2019	9:45	1	0.72	10.95	**0.01**	**0.01**	**0.01**	**0.01**	0.014	**0.02**	**0.01**	**0.04**	0.032	0.019	**1**	**1**	**1**
W19I084-04	Ops swale outlet	outlet	9/15/2019	10:12	1	0.72	9.12	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.02**	**0.01**	**0.04**	**0.02**	**0.01**	**1**	**1**	**1**
W19I084-05	Ops yard CB	inlet	9/15/2019	10:53	1	0.72	9.86	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.02**	**0.01**	**0.04**	**0.02**	0.012	**1**	**1**	**1**
W19I084-07	Ops swale N inlet	inlet	9/15/2019	11:16	1	0.72	7.91	**0.01**	**0.01**	**0.01**	**0.01**	0.01	**0.02**	**0.01**	**0.04**	0.057	0.023	**1**	**1**	**1**
W19I084-06	Ops swale S inlet	inlet	9/15/2019	11:03	1	0.72	9.07	**0.01**	**0.01**	**0.01**	**0.01**	0.014	**0.02**	**0.01**	**0.04**	0.023	0.019	**1**	**1**	**1**
W19I084-08	Ops swale outlet	outlet	9/15/2019	11:35	1	0.72	7.78	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.02**	**0.01**	**0.04**	**0.02**	**0.01**	**1**	**1**	**1**
W19I084-09	Ops yard CB	inlet	9/15/2019	12:21	1	0.72	6.15	0.03	**0.01**	**0.01**	**0.01**	0.017	**0.02**	**0.01**	**0.04**	0.028	0.036	**1**	**1**	**1**
W19I084-10	Ops swale N inlet	inlet	9/15/2019	12:48	1	0.72	5.58	0.02	**0.01**	**0.01**	**0.01**	0.019	**0.02**	**0.01**	**0.04**	0.072	0.045	**1**	**1**	**1**
W19I084-11	Ops swale S inlet	inlet	9/15/2019	12:53	1	0.72	7.9	**0.01**	**0.01**	0.013	**0.01**	0.019	**0.02**	**0.01**	**0.04**	0.027	0.03	**1**	**1**	**1**
W19I084-12	Ops swale outlet	outlet	9/15/2019	13:15	1	0.72	5.13	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.02**	**0.01**	**0.04**	**0.02**	**0.01**	**1**	**1**	**1**
W19L177-01	Hayden's Meadow rain garden B12 Portland blend inlet	inlet	12/19/2019	10:31	5	0.44	19.59	0.023	**0.01**	**0.1**	**0.1**	0.025	0.023	**0.01**	0.053	0.043	0.042	**1**	**1**	**1**
W19L177-02	Hayden's Meadow rain garden B15 Gresham blend inlet	inlet	12/19/2019	10:58	5	0.44	17.79	**0.01**	**0.01**	**0.1**	**0.1**	0.011	0.025	**0.01**	0.054	0.033	0.015	**1**	**1**	**1**
W19L177-03	Hayden's Meadow rain garden B11 Gresham blend inlet	inlet	12/19/2019	11:01	5	0.44	17.39	**0.01**	**0.01**	**0.1**	**0.1**	0.018	0.026	**0.01**	0.049	0.042	0.025	**1**	**1**	**1**
W19L177-04	Hayden's Meadow rain garden B11 Gresham blend outlet	outlet	12/19/2019	11:13	5	0.44	14.23	**0.01**	**0.01**	**0.1**	**0.1**	**0.1**	**0.02**	**0.01**	**0.04**	**0.02**	**0.01**	**1**	**1**	**1**
W19L177-05	Hayden's Meadow rain garden B15 Gresham blend outlet	outlet	12/19/2019	11:34	5	0.44	18.37	**0.01**	**0.01**	**0.1**	**0.1**	**0.1**	**0.02**	**0.01**	**0.04**	**0.02**	**0.01**	**1**	**1**	**1**
W19L177-06	Hayden's Meadow rain garden A7 Gresham blend inlet	inlet	12/19/2019	11:55	5	0.44	19.12	**0.01**	**0.01**	**0.1**	**0.1**	0.015	0.021	**0.01**	0.041	0.034	0.025	**1**	**1**	**1**
W19L177-07	Hayden's Meadow rain garden A2 Portland blend inlet	inlet	12/19/2019	12:03	5	0.44	14.38	**0.01**	**0.01**	**0.1**	**0.1**	**0.1**	**0.02**	**0.01**	**0.04**	0.022	0.011	**1**	**1**	**1**
W19L177-08	Hayden's Meadow rain garden B12 Portland blend outlet	outlet	12/19/2019	12:19	5	0.44	12.24	**0.01**	**0.01**	**0.1**	**0.1**	**0.1**	**0.02**	**0.01**	**0.04**	**0.02**	**0.01**	**1**	**1**	**1**
W19L177-09	Hayden's Meadow rain garden B12 Portland blend inlet	inlet	12/19/2019	12:23	5	0.44	12.46	0.024	**0.01**	**0.1**	**0.1**	0.017	**0.02**	**0.01**	**0.04**	0.033	0.033	**1**	**1**	**1**
W19L177-10	Hayden's Meadow rain garden A7 Gresham blend outlet	outlet	12/19/2019	12:36	5	0.44	13.3	**0.01**	**0.01**	**0.1**	**0.1**	**0.1**	**0.02**	**0.01**	**0.04**	**0.02**	**0.01**	**1**	**1**	**1**
W19L177-11	Hayden's Meadow rain garden A2 Portland blend outlet	outlet	12/19/2019	12:47	5	0.44	14.64	**0.01**	**0.01**	**0.1**	**0.1**	**0.1**	**0.02**	**0.01**	**0.04**	**0.02**	**0.01**	**1**	**1**	**1**
W19L177-12	Hayden's Meadow rain garden B12 Portland blend outlet	outlet	12/19/2019	13:03	5	0.44	8	**0.01**	**0.01**	**0.1**	**0.1**	**0.1**	**0.02**	**0.01**	**0.04**	**0.02**	**0.01**	**1**	**1**	**1**
W20B027-01	CSWQF Stormdrain Creek	inlet	2/5/2020	8:08	14	0.34	18.65	0.054	0.01	0.025	**0.01**	0.046	**0.02**	0.017	**0.04**	0.042	0.091	**1**	**1**	**1**
W20B027-02	CSWQF East Inlet	inlet	2/5/2020	8:17	14	0.34	18.23	0.043	**0.01**	0.019	**0.01**	0.039	**0.02**	0.011	**0.04**	0.043	0.083	**1**	**1**	**1**
W20B027-03	CSWQF Outlet	outlet	2/5/2020	8:32	14	0.34	17.3	0.018	**0.01**	**0.01**	**0.01**	0.017	**0.02**	**0.01**	**0.04**	**0.02**	0.035	**1**	**1**	**1**
W20B027-04	CSWQF Stormdrain Creek	inlet	2/5/2020	10:40	14	0.34	12.44	0.024	**0.01**	0.013	**0.01**	0.024	**0.02**	**0.01**	**0.04**	0.027	0.053	**1**	**1**	**1**
W20B027-05	CSWQF East Inlet	inlet	2/5/2020	10:50	14	0.34	12.45	0.029	**0.01**	0.015	**0.01**	0.028	**0.02**	**0.01**	**0.04**	0.033	0.061	**1**	**1**	**1**
W20B027-06	CSWQF Stormdrain Creek	inlet	2/5/2020	12:43	14	0.34	13.61	0.014	**0.01**	**0.01**	**0.01**	0.016	**0.02**	**0.01**	**0.04**	0.021	0.033	**1**	**1**	**1**
W20B027-07	CSWQF East Inlet	inlet	2/5/2020	13:00	14	0.34	12.2	0.011	**0.01**	**0.01**	**0.01**	0.014	**0.02**	**0.01**	**0.04**	**0.02**	0.027	**1**	**1**	**1**
W20B027-08	CSWQF Outlet	outlet	2/5/2020	13:19	14	0.34	14.81	0.014	**0.01**	**0.01**	**0.01**	0.014	**0.02**	**0.01**	**0.04**	**0.02**	0.03	**1**	**1**	**1**
W20B027-09	CSWQF Outlet	outlet	2/5/2020	15:15	14	0.34	11.94	0.011	**0.01**	**0.01**	**0.01**	0.011	**0.02**	**0.01**	**0.04**	**0.02**	0.027	**1**	**1**	**1**

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Dup = Duplicate Sample
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Table 2-5 Stormwater Green Infrastructure Sampling Data

Sample ID	Site ID	Inlet/outlet	Date	Time	Storm	24-hr Rainfall	Field DO	Diethyl phthalate	Dimethyl phthalate	Bis(2-ethylhexyl) phthalate
						inches	mg/L	ug/L	ug/L	ug/L
								EPA 8270-SIM	EPA 8270-SIM	EPA 8270-SIM
								1	1	1
W19I084-02	Ops yard CB	inlet	9/15/2019	9:33	1	0.72	10.81	**1**	**1**	6.5
W19I084-01	Ops swale N inlet	inlet	9/15/2019	8:38	1	0.72	12.84	**1**	**1**	6
W19I084-03	Ops swale S inlet	inlet	9/15/2019	9:45	1	0.72	10.95	**1**	**1**	**1**
W19I084-04	Ops swale outlet	outlet	9/15/2019	10:12	1	0.72	9.12	**1**	**1**	**1**
W19I084-05	Ops yard CB	inlet	9/15/2019	10:53	1	0.72	9.86	**1**	**1**	**1**
W19I084-07	Ops swale N inlet	inlet	9/15/2019	11:16	1	0.72	7.91	**1**	**1**	1.9
W19I084-06	Ops swale S inlet	inlet	9/15/2019	11:03	1	0.72	9.07	**1**	**1**	**1**
W19I084-08	Ops swale outlet	outlet	9/15/2019	11:35	1	0.72	7.78	**1**	**1**	**1**
W19I084-09	Ops yard CB	inlet	9/15/2019	12:21	1	0.72	6.15	**1**	**1**	2.5
W19I084-10	Ops swale N inlet	inlet	9/15/2019	12:48	1	0.72	5.58	**1**	**1**	3.2
W19I084-11	Ops swale S inlet	inlet	9/15/2019	12:53	1	0.72	7.9	**1**	**1**	1.2
W19I084-12	Ops swale outlet	outlet	9/15/2019	13:15	1	0.72	5.13	**1**	**1**	**1**
W19L177-01	Hayden's Meadow rain garden B12 Portland blend inlet	inlet	12/19/2019	10:31	5	0.44	19.59	**1**	**1**	**1**
W19L177-02	Hayden's Meadow rain garden B15 Gresham blend inlet	inlet	12/19/2019	10:58	5	0.44	17.79	**1**	**1**	**1**
W19L177-03	Hayden's Meadow rain garden B11 Gresham blend inlet	inlet	12/19/2019	11:01	5	0.44	17.39	**1**	**1**	2.8
W19L177-04	Hayden's Meadow rain garden B11 Gresham blend outlet	outlet	12/19/2019	11:13	5	0.44	14.23	**1**	**1**	**1**
W19L177-05	Hayden's Meadow rain garden B15 Gresham blend outlet	outlet	12/19/2019	11:34	5	0.44	18.37	**1**	**1**	**1**
W19L177-06	Hayden's Meadow rain garden A7 Gresham blend inlet	inlet	12/19/2019	11:55	5	0.44	19.12	**1**	**1**	**1**
W19L177-07	Hayden's Meadow rain garden A2 Portland blend inlet	inlet	12/19/2019	12:03	5	0.44	14.38	**1**	**1**	**1**
W19L177-08	Hayden's Meadow rain garden B12 Portland blend outlet	outlet	12/19/2019	12:19	5	0.44	12.24	**1**	**1**	**1**
W19L177-09	Hayden's Meadow rain garden B12 Portland blend inlet	inlet	12/19/2019	12:23	5	0.44	12.46	**1**	**1**	**1**
W19L177-10	Hayden's Meadow rain garden A7 Gresham blend outlet	outlet	12/19/2019	12:36	5	0.44	13.3	**1**	**1**	**1**
W19L177-11	Hayden's Meadow rain garden A2 Portland blend outlet	outlet	12/19/2019	12:47	5	0.44	14.64	**1**	**1**	**1**
W19L177-12	Hayden's Meadow rain garden B12 Portland blend outlet	outlet	12/19/2019	13:03	5	0.44	8	**1**	**1**	**1**
W20B027-01	CSWQF Stormdrain Creek	inlet	2/5/2020	8:08	14	0.34	18.65	**1**	**1**	1.9
W20B027-02	CSWQF East Inlet	inlet	2/5/2020	8:17	14	0.34	18.23	**1**	**1**	2.1
W20B027-03	CSWQF Outlet	outlet	2/5/2020	8:32	14	0.34	17.3	**1**	**1**	**1**
W20B027-04	CSWQF Stormdrain Creek	inlet	2/5/2020	10:40	14	0.34	12.44	**1**	**1**	1.1
W20B027-05	CSWQF East Inlet	inlet	2/5/2020	10:50	14	0.34	12.45	**1**	**1**	1.7
W20B027-06	CSWQF Stormdrain Creek	inlet	2/5/2020	12:43	14	0.34	13.61	**1**	**1**	**1**
W20B027-07	CSWQF East Inlet	inlet	2/5/2020	13:00	14	0.34	12.2	**1**	**1**	**1**
W20B027-08	CSWQF Outlet	outlet	2/5/2020	13:19	14	0.34	14.81	**1**	**1**	**1**
W20B027-09	CSWQF Outlet	outlet	2/5/2020	15:15	14	0.34	11.94	**1**	**1**	**1**

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FD = Field Duplicate Sample

Table 2-6 Macroinvertebrate Sampling

Order	Family	Genus	Species	Life stage	Sediment Sensitive/ Tolerant	Pollution Sensitive/ Tolerant	BCI1	Field dup. (BCI1)	BCI2	FCI0	FCI1	Lab dup. (FCI1)	JCI1	JCI2	KCI1	KCI4	KI1	KI2
Units in the columns are individuals of that taxa found and identified																		
Acari	Trombidiformes						17	14	7	2	1	2	3	8		46	46	24
Amphipoda				imm.														1
		Crangonyx					4	6		37	148	138	4	5	80	8	19	
		Hyalella								39								
		Ramellogammarus								1								
Decopoda	Astacidae	Pacifasticus					1			1	1		1	1	1		1	
Hirudinea						tolerant	1			2			1	5		37		
Hydra						tolerant									2	5		
Isopoda	Asellidae	Caecidotea				tolerant	1				5	3	1					
Mollusca																		
Mollusca	Ancylidae	Ferressia			tolerant	tolerant	21	19	9	21	3	2	40	6	59		4	
	Corbiculidae	Corbicula			tolerant	tolerant							3					
	Hydrobiidae	Fluminicola				tolerant	29	41		65			3				5	
		P hemphilli																
		Margaritifera	falcata			sensitive												
	Planoriibae	Helisoma																
		Gyraulus			tolerant	sensitive			1									
		Menetus											1		3			
	Lymnaidae				tolerant	tolerant			2									
	Physidae	Physa				tolerant				1								
	Pleuroceridae	Juga			tolerant	tolerant	18	24	256	30	29	32	88	72	46	1	25	6
	Sphaeriidae						2	1	14	92	63	74		3	18	25	71	14
Nematoda							1	2	3	3	1	2	5	3	2	9	5	
Oligochaeta					tolerant	tolerant	27	14	14	91	185	156	59	15	23	82	102	15
Ostracoda																		1
Turbellaria	Planariidae	Trepaxonemata					2	1	1				2	1	8	1		2
Ephemeroptera	Ameletidae	Ameletus																
	Baetidae			imm				2										
Ephemeroptera	Baetidae	Aentrella		imm.			5	4										
		Baetis	tricaudatus				195	154	98		59	67	39	67	142	2	4	8
		Baetis	favistriga											2				
		Centroptilum				tolerant												
		Diphetor	hageni										5	31				6
		Labiobaetis																
		Proocloeon																
	Heptageniidae																	1
		Cinygma				sensitive												
		Cinygmula																
		Epeous alberta																
		Ironodes																11
	Leptophlebidae	Neo/Paralephlebia					1								1			
	Leptophlebidae	Paraleptophlebia						1	6				84	23			14	21
		Neoleptophlebia																21
Plecoptera	Capniidae			imm.		sensitive												
	Chloroperlidae	Sweltsa							1									37
	Leuctridae			imm		sensitive												
		Perlomyia				sensitive												10
	Perlodidae																	2

Table 2-6 Macroinvertebrate Sampling

Order	Family	Genus	Species	Life stage	Sediment Sensitive/ Tolerant	Pollution Sensitive/ Tolerant	BCI1	Field dup. (BCI1)	BCI2	FCI0	FCI1	Lab dup. (FCI1)	JCI1	JCI2	KCI1	KCI4	KI1	KI2
Units in the columns are individuals of that taxa found and identified																		
		Isoperla																1
		Skwala																4
	Pteronarcyidae	Pteronarcella																5
	Nemouridae						1											
		Malenka																20
		Soyedina																7
		Zapada	cinctipes										2	19				58
		zapada oregonensis																
Coleoptera									1									
	Elmidae			imm.														
		Ampumixus		larva			1											
		Cleptelmis		adult		tolerant	1											
		Lara		imm.			1			2	2	1	1					6
		Narpus conclor																4
		Optioservus		larva		tolerant				8				44				3
		Optioservus		adult		tolerant			2					3				1
		Zaitzevia		larva		tolerant				1			1	61				2
				adult		tolerant								6				
	Dytiscidae			larva		tolerant												
Coleoptera	Hydrophilidae			larva														
	Hydrophilidae			adult														
	Hyraephilae			adult														
Lepidoptera	Pyralidae					tolerant							1					
Megaloptera		Sialis				tolerant												1
	Sisyridae								5									
Odonata				imm.														
		Aesha				tolerant												
		Cordulegaster																
	Zygoptera							1		3								
		Coengrion/Enallagma				tolerant												
		Argia				tolerant												
Trichoptera				pupa														
	Brachycentridae	Micrasema		larva														2
	Glossosomatidae	Glossosoma		larva	sensitive													9
	Glossosomatidae			pupa														
	Hydroptilidae	Hydroptila		imm.		tolerant	26	29	2						1			
	Hydroptilidae			pupa			5			1								
	Hydropsychidae			larva														
				pupa										1				1
		Cheumatopysyche				tolerant	19	9	5	1			212	44	6		13	
		Hydropsyche				tolerant							1	4				8
		Parapsyche																
		Mystacides		larva			1	3		33		1						
		Mystacides		pupa						1								
	Lepidostomatidae	Lepidostoma		larva panel				2									1	23
		Lepidostoma		larva transverse						3		1						
		Lepidostoma		pupa			1				6	3						
	Limnephilidae	Dicosmoecus							1									
		Onocosmoecus																
		Psychoglypha																
	Philopotamidae	Wormaldia			sensitive								3	45				44
	Polycentropidae	Polycentripus																
				pupa														
	Rhyacophilidae			imm.														10
				pupa														1
		Rhyacophila	betteni											1				7
		Rhyacophila	brunnea															
		Rhyacophila	narvae															5
		rhyacophila	rotunda			sensitive												

Table 2-6 Macroinvertebrate Sampling

Order	Family	Genus	Species	Life stage	Sediment Sensitive/ Tolerant	Pollution Sensitive/ Tolerant	BCI1	Field dup. (BCI1)	BCI2	FCI0	FCI1	Lab dup. (FCI1)	JCI1	JCI2	KCI1	KCI4	KI1	KI2
Units in the columns are individuals of that taxa found and identified																		
	Uenoidae	Neophylax																2
Diptera															1			1
	Ceratopogoninae			larva														3
				pupa														
	Forcipomyinae		Atrichopogon	larva														5
				pupa														
	Chironomidae			larva			106	189	65	87	45	44	89	52	113	314	212	39
				pupa			7	23	4	7	2	5	8	4	10	6	3	1
		Ablabesmyia				tolerant			1	1								
		Alotanypus								1								
		Boreochlus																
		Brillia							2	2	5	4				6	3	2
		Brundiniella														4		4
		Chironomus				tolerant											1	
		Corynoneura						1	1		2	1				2	1	
		Cricotopus					7	13										
		Cryptochironomus								4							3	
		Dicrontendipes					3	2									2	
		Diplocladius																
		Eukiefferiella	brehmi group											2				
		Eukiefferiella	claripennis group				1	2				1			1			
		Eukiefferiella	devonica grp															
		Eukiefferiella pseudomontana grp					25	73						1				
		Heterotrissocladius	marcidus grp			sensitive				2	3	1					4	
		Limnophyes				tolerant			1	1						6	1	
		Macropelopia																
		Micropsectra					1	1	2	2	5	11		2	26	218	4	10
		Nilotanypus															2	
		Nanocladius																
		Orthocladius						30				1				1		
		Orthocladius (Symposiocladius)																1
		Parametriocnemus											1	2	1		1	8
		Paratanytarsus					5	17										
		Paratendipes				tolerant										1	4	
		Phaenospectra					8	11		2	2		1			5	67	
		Polypedilum					34	13	16	10	4	5	11	23	55	9	80	1
		Procladius				tolerant				7							9	
		Prodiamesa								2	4	3					1	
		Psilometriocnemus																1
		Rheocricotopus											2	1				
		Rheotanytarsus					4	2	33				17	8	16	1		
		Synorthocladius				sensitive												4
		Stempellinella								50							7	
		Stenochironomus																
		Synorthocladius				sensitive		1			1							
		Tanytarsus					1	1	1				46	2	3		2	
		Thienemanniella																
		Thienemannimyia complex					12	7	5	3	7	6	13	7	14	27	11	
		Tvetenia bavarica group						1			10	12	1	1				2
		Zavrelimyia				tolerant											1	5
	Dixidae			pupa														
		Dixa						1									2	14
		Dixella																
		Maurnia		larva														2
		Maurnia		pupa										1				
		Meringodixa																3
	Empididae			imm.														
				pupa			1		1									
		Chelifera												1		3		
		Clinocera		larva								1						
		Clinocera		pupa														
		Hemerdromia		larva				1										
		Neoplasta		larva			1		1							2		
		Neoplasta		pupa														
		Trichiclinocera																
	Ephydridae			larva														
				pupa														
	Muscidae					tolerant												
	Pelecorhynidae	Glutops				sensitive												1

Table 2-6 Macroinvertebrate Sampling

Order	Family	Genus	Species	Life stage	Sediment Sensitive/ Tolerant	Pollution Sensitive/ Tolerant	BCI1	Field dup. (BCI1)	BCI2	FCI0	FCI1	Lab dup. (FCI1)	JCI1	JCI2	KCI1	KCI4	KI1	KI2
Units in the columns are individuals of that taxa found and identified																		
	Psychodidae																	
		Pericoma																1
		Psychoda																
		Ptychoptera																21
	Sciomyzidae			pupa														
	Simuliidae			imm.														
				pupa										1	1			
		Simulium					32	5	9		4	2	6	4	3			3
	Tabaninae					tolerant												
	Thaumaleidae																	6
	Tipulidae				tolerant													
		Tipulidae			tolerant			1										
		Antocha			tolerant		8	30							1			
		Antocha		pupa	tolerant		1	2										
		Dicanota			tolerant			1					1	5				3
		Dicranomyia																
		Hexatoma			tolerant													1
		Limonia			tolerant	tolerant												
		Limnophila			tolerant													2
		Pedicia			tolerant													
		Tipula (Holorusia hespera)			tolerant		1											1
		Tipula			tolerant											1		
		Tipula (Tipula)			tolerant											1		
		Tricyhoria																
Benthic Index of Biological Integrity (B-IBI)					**Score**		**26**	**26**	**24**	**26**	**24**	**22**	**22**	**30**	**22**	**20**	**22**	**46**
Stream Condition as Level of Impairment from B-IBI							**Moderate**	**Moderate**	**Moderate**	**Moderate**	**Moderate**	**Moderate**	**Moderate**	**Slight**	**Moderate**	**Moderate**	**Moderate**	**None**

Macroinvertebrate analysis protocol is from the Oregon Water Quality Monitoring Technical Guide Book: https://www.oregon.gov/OWEB/docs/pubs/wq_mon_guide.pdf

Score >39= no impairment, 30-39: slight impairment, 20-29: moderate impairment, <20 severe impairment

Figure 2-3 Longterm Instream Monitoring Site Locations

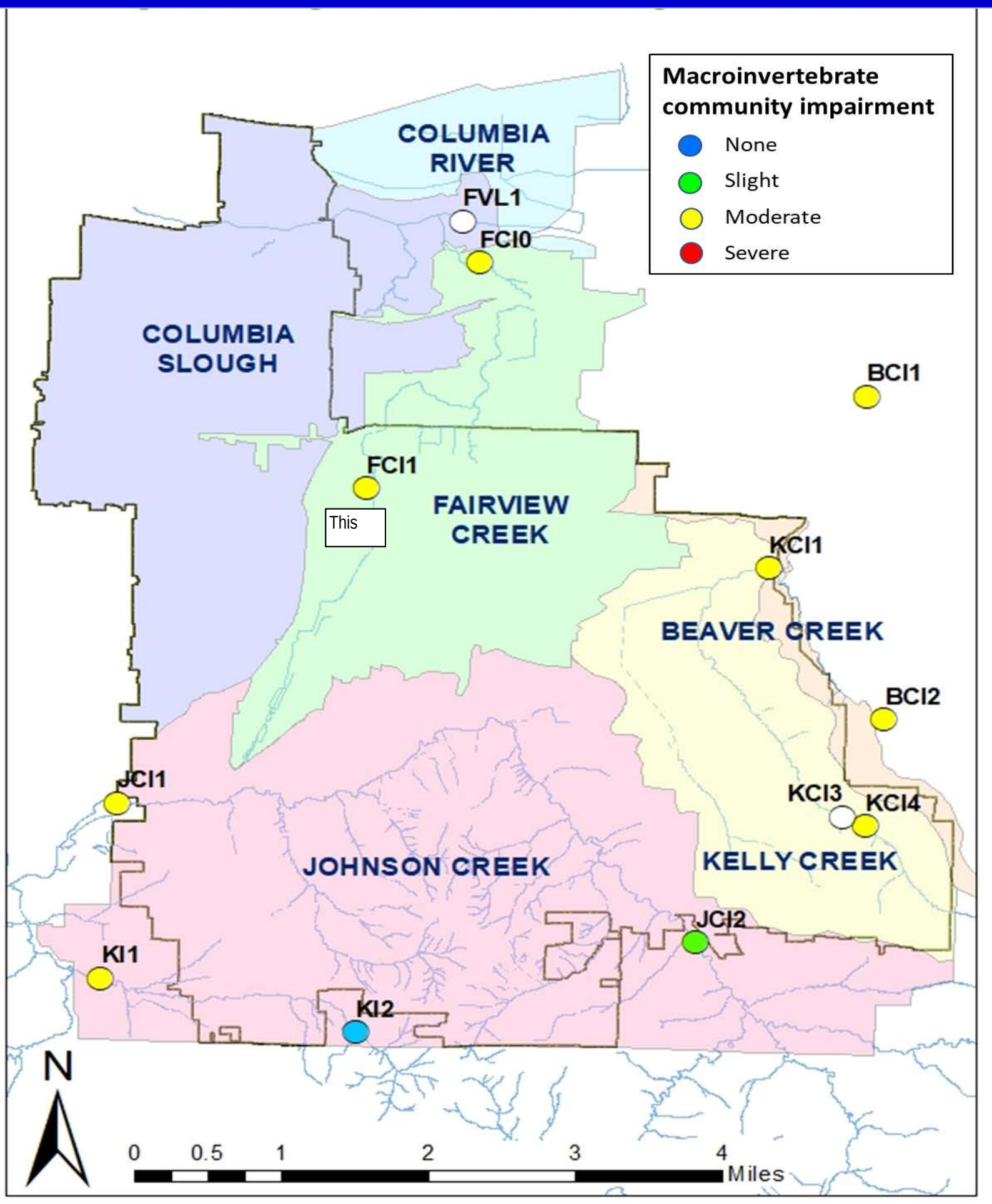

Figure 2-3 Stormwater Facility (BMP) Monitoring Site Locations

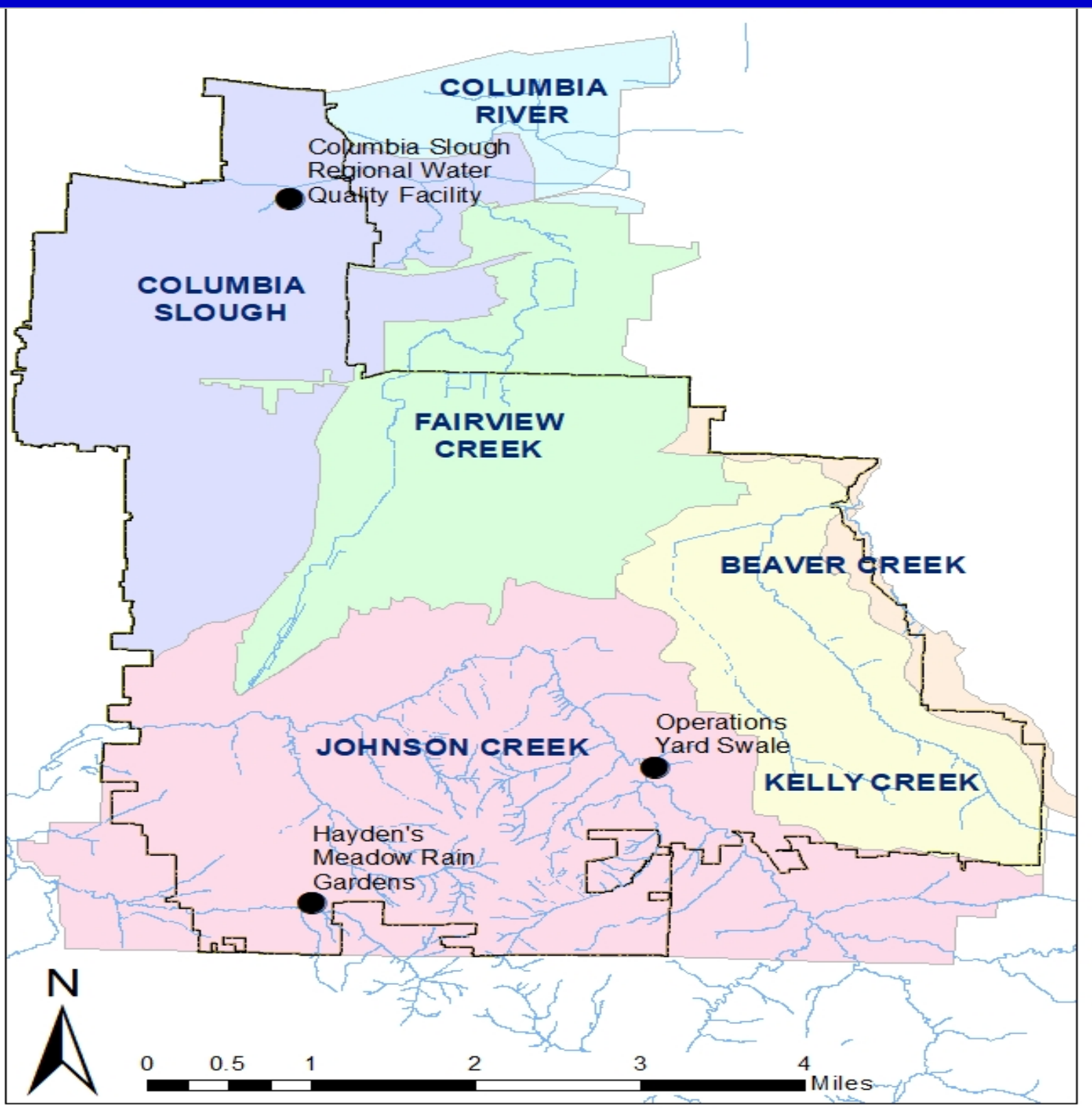

Figure 2-4 Stormwater Fixed and Rotating Monitoring Site Locations

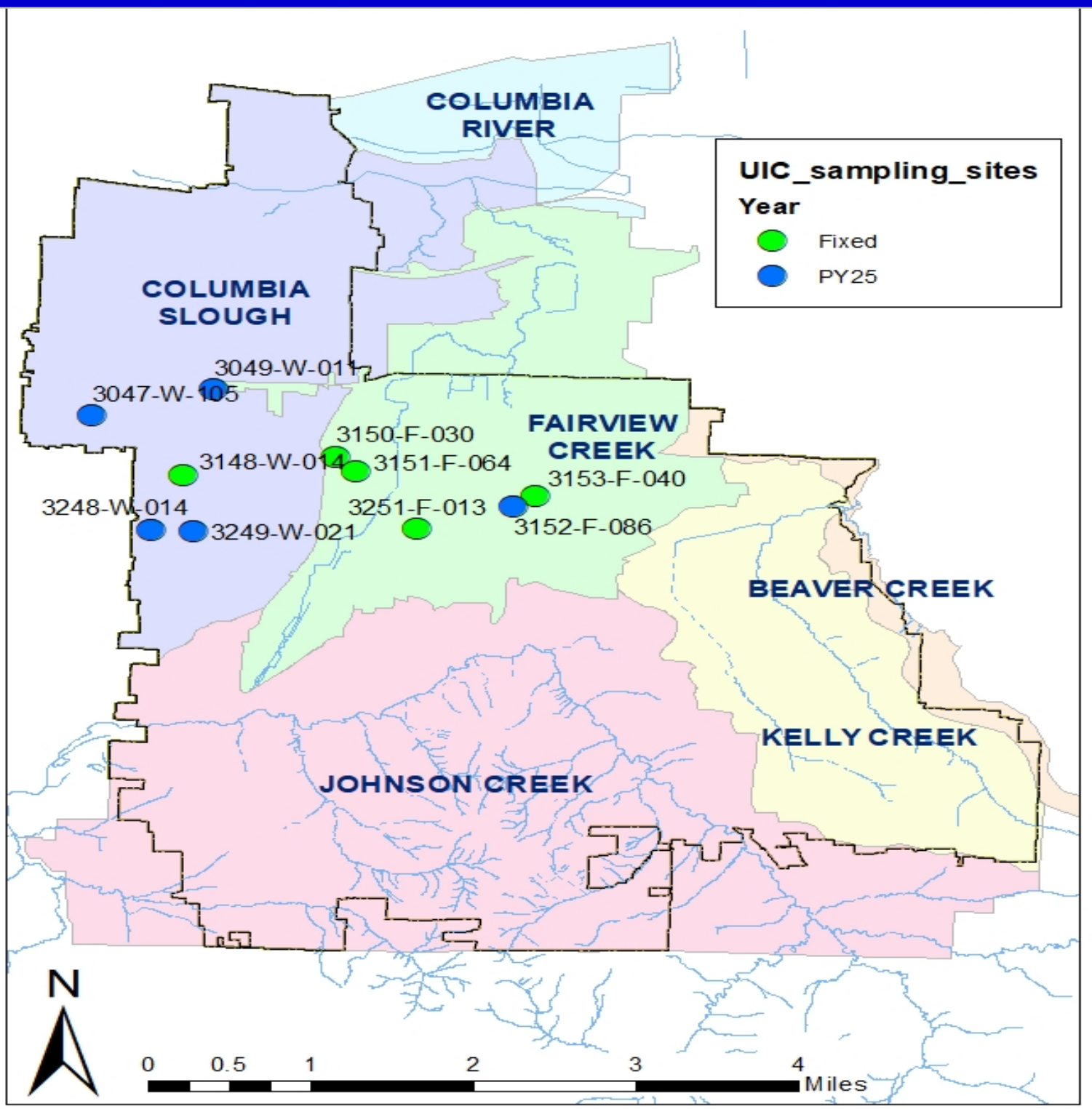

Table 3-5: Illicit Discharge Detection & Elimination--Dry Weather Screening Results and Follow-up

Basin	Site Code	Flow	Odor	Color	Clarity	Float-ables	Deposits/ Stains	Veg Cond	Structural Cond	Biolo-gical	Last Rain	DO (mg/L)	pH	Temp (*C)	Conduc-tivity (µS/cm)	Turbidity (NTU)	Total Chlorine (mg/L)	Ammonia Nitrogen (mg/L)	Observations and Outcome
Pollutant Parameter Action Levels (Table 15 of the Gresham/Fairview Monitoring Plan)												**NA**	**<6.5, >8.5**	**NA**	**>300 µS/cm**	**>15 NTU**	**>0.5 mg/L**	**>0.5 mg/L**	
Johnson Creek	3649-J-634	No																	
Johnson Creek	3650-J-603	No																	
Johnson Creek	3650-J-613	No																	
Johnson Creek	3651-J-615	No																	
Johnson Creek	3651-J-760	No																	
Johnson Creek	3652-J-605	No																	
Johnson Creek	3654-J-612	No																	
Johnson Creek	3655-J-652	No																	
Kelly Creek	3657-K-725	No																	
Kelly Creek	3657-K-740	No																	
Johnson Creek	3749-J-602	No																	
Johnson Creek	3749-J-649	No																	
Johnson Creek	3749-J-653	No																	
Johnson Creek	3754-J-612	No																	
Johnson Creek	3852-J-604	No																	
Johnson Creek	3853-J-603	No																	
Columbia Slough	2748-W-00	Yes	None	Clear	Clear	None	None	Normal	Normal	None	3-6 Days	6.44	7.22	17.8	197.2	32.6	0	0	Scraped sediment from bottom of pipe.
Columbia Slough	2749-W-64	Yes	None	Clear	Clear	None	None	Normal	Normal	None	3-6 Days	7.58	7.19	17.1	204.3	3.28	0	0	
Columbia Slough	2750-W-06	Yes	None	Clear	Clear	None	None	Normal	Normal	None	3-6 Days	6.46	7.25	19.4	244.3	2.28	0	0	
Fairview Creek	3250-F-004	Yes	None	Clear	Clear	None	None	Normal	Normal	None	3-6 Days	6.28	7.31	19.6	130.9	11.4	0	0	
Johnson Creek	3353-J-601	Yes	None	Clear	Clear	None	None	Normal	Normal	None	3-6 Days	6.8	6.84	16.9	223.3	8.6	0	0.25	More flow than observed in past years
Johnson Creek	3451-J-685	Yes	None	Orange	Fair	None	Rusty sedi	Normal	Normal	Iron bacteri	3-6 Days	7.33	7.04	16.2	198.8	23.5	0	1	Iron bacteria staining. Turbidity and ammonia were likely from natural bacteriological activity.
Johnson Creek	3453-J-621	Yes	None	Orange	Fair	None	Rusty sedi	Normal	Normal	Iron bacteri	3-6 Days	6.38	6.86	17.4	240	32.9	0	0.25	Iron bacteria staining. Turbidity and ammonia were likely from natural bacteriological activity.
Johnson Creek	3453-J-698	Yes	None	Orange	Fair	None	Rusty sedi	Normal	Normal	Iron bacteri	3-6 Days	6.21	6.86	18.3	324.9	35.5	0	1	Iron bacteria staining. Turbidity and ammonia were likely from natural bacteriological activity.
Kelly Creek	3657-K-609	Yes	None	Clear	Clear	None	None	Normal	Normal	None	3-6 Days	5.94	6.98	21.6	169	4.11	0	0	
Kelly Creek	3657-K-628	Yes	None	Clear	Clear	None	None	Normal	Normal	None	3-6 Days	7.62	7.04	21	161.2	1.47	0	0	
Johnson Creek	3749-J-695	Yes	None	Green	Fair	None	None	Normal	Normal	None	3-6 Days	8.7	5.86	17.8	166.8	34.3	0.3	0.25	Iron bacteria staining. Turbidity and ammonia were likely from natural bacteriological activity.
Johnson Creek	3751-J-631	Yes	None	Clear	Clear	None	None	Normal	Normal	None	3-6 Days	11.09	6.6	16.6	93	13.8	0	0	
Johnson Creek	3753-J-602	Yes	None	Clear	Fair	None	None	Normal	Normal	None	3-6 Days	8.66	6.63	18.8	180.5	65.6	0	0	Conductivity likely from groundwater.
Johnson Creek	3848-J-603	Yes	Sewage	Grey	Poor	Film	Film	Normal	Normal	None	3-6 Days	NM	NM	NM	NM	NM	NM	4	Strong smell of sewage; E. coli >240,000. County Sanitarian found an illicit connection from a septic tank and ow
Johnson Creek	3852-J-603	Yes	None	Clear	Clear	None	None	Normal	Normal	None	3-6 Days	3.93	6.57	18.7	170.1	14.2	0	0	
Johnson Creek	3853-J-601	Yes	None	Clear	Clear	None	None	Normal	Normal	None	3-6 Days	8.8	6.8	178.4	343	1.53	0	0	Conductivity likely from groundwater.

Key: Shaded cells are above the action level and staff conducts additional upstream investigation.

NTU=Nephelometric Turbidity Units Clean drinking water is 1NTU or less. 50 NTU would be slightly cloudy.

DO=Dissolved Oxygen Stormwater is typically >5 mg/L which rarely poses a direct threat to instream conditions. This measurement is taken in order to collect pH and conductivity.

Temperature is not associated with stormwater as a pollutant, because typically rain fall does not occur in summer months. However, temperature is measured because release of heated water is a violation of City Code. In general, summer flow in pipes is either associated with high groundwater, incidental releases of potable water such as irrigation runoff which is allowed by DEQ, or is indicative of illegal discharges.
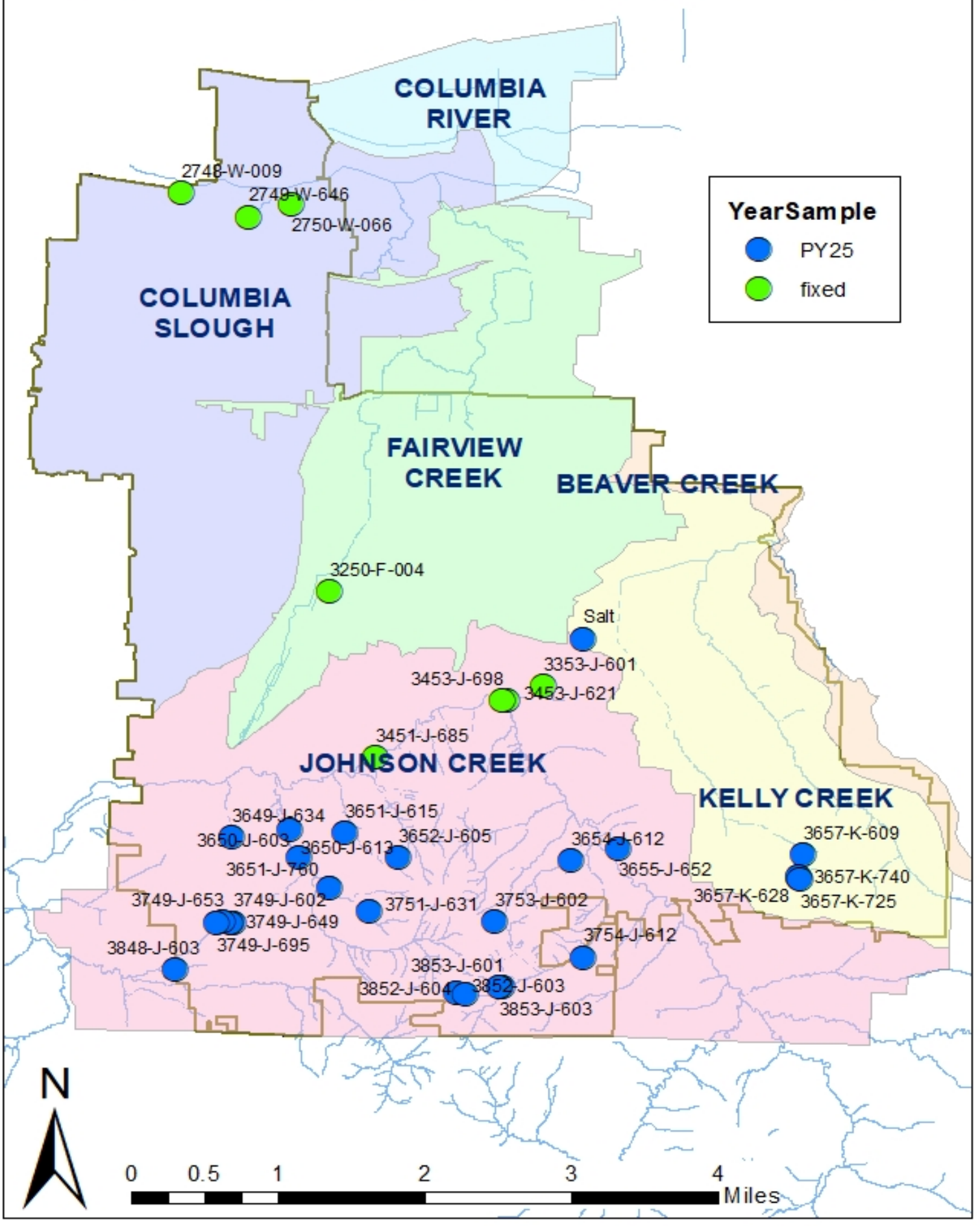
Figure 3-6 Dry Weather Screening Monitoring Site Locations