

# **Preparation for Future, Long-Term Monitoring City of Bonney Lake March, 2011**

On October 29, 2010, the Stormwater Work Group (SWG) submitted a report to the Department of Ecology (Ecology) titled: “Recommendations for Municipal Stormwater Permit Monitoring”. This report suggests specific monitoring requirements and recommendations for the next Phase II Municipal Stormwater Permit term, and is an important component in the establishment of a new Stormwater Assessment and Monitoring Program for Puget Sound (SWAMPPS).

The SWG is comprised of a divergent group of stakeholders, including Ecology, Puget Sound Partnership, State Agencies, Federal Agencies, Local Governments, Business Groups and Environmental Groups. All members of the SWG and its various caucuses have provided strong support for the “Recommendations for Municipal Stormwater Permit Monitoring” document.

Department of Ecology staff has publicly expressed their support of the SWG report referenced above, and are preparing to fashion the next reissuance of the Phase II permit and associated monitoring requirements based on the detailed recommendations provided therein. This includes monitoring focused on receiving waters rather than outfalls. Given this, the City of Bonney Lake anticipates that the stormwater monitoring design proposed in the current Phase II Municipal Stormwater Permit (S8.c, stormwater monitoring and targeted Stormwater Management Program effectiveness monitoring) will not be prescribed in the next permit cycle as it does not align with the SWG recommendations.

The following information includes “preparation for future, long-term monitoring” per section S8.C of the current permit. These are proposed monitoring programs only, and should be considered draft and subject to modification as necessary.

## **S8.C.a. Stormwater Monitoring**

The City of Bonney Lake has identified the following two (2) outfalls or conveyances where stormwater sampling could be conducted:

### **Commercial Land Use**

*Sampling Location: SR 410 / 192nd Regional Stormwater Facility (RSF) Outlet  
See Map 1*

The SR 410 / 192nd Regional Stormwater Facility (RSF) drainage basin captures runoff from the commercial midtown area of Bonney Lake and is situated at the Southeast corner of the SR 410 and 192nd Avenue East intersection. The downstream watercourse is Fennel Creek (a major watercourse inside the City of Bonney Lake and a tributary of the Puyallup River).

This site could be equipped with automated stormwater monitoring and flow monitoring equipment.

A future permit-required long-term water quality monitoring program would specify the list of stormwater contaminants to be sampled.

### **High –Density Residential Land Use**

*Sampling Location: Discharge from Lake Bonney  
See Map 2*

Lake Bonney is inside the Northwest quadrant of the City and is a delineated drainage basin of 105 acres located in a residential zone inside the City of Bonney Lake. An outfall is located at the Southeastern area of the lake where stormwater overflows through combined natural and created conveyance systems with ultimate discharge into Fennel Creek.

This site could be equipped with automated stormwater monitoring and flow monitoring equipment.

A future permit-required long-term water quality monitoring program would specify the list of stormwater contaminants to be sampled.

### **S8.C.b. Stormwater Effectiveness Monitoring**

The City of Bonney Lake has selected the following two sites where water quality monitoring may be conducted to determine the effectiveness of the Stormwater Management Program (SWMP) at controlling stormwater-related problems which are directly addressed by actions in the SWMP.

### **SR 410 / 192nd Regional Stormwater Facility (RSF) Outlet**

*SWMP component affected: S5.C.5, Pollution Prevention and Operation and Maintenance for Municipal Operations*

*Statement of the Question: Will the planned SR 410 / 192nd Regional Stormwater Facility (RSF) Retrofit project produce a measurable improvement in downstream water quality?*

*Hypothesis: The SR 410 / 192nd Regional Stormwater Facility (RSF) Retrofit project will improve water quality downstream in Fennel Creek including temperature, turbidity, B-IBI, and excessive flows/ stream channel erosion.*

*Description of the project: The proposed project will involve the following:*

- Development of improved conveyance outlet controls.
- Incorporation of additional capacity to improve flow control and add an additional level of spill control.

*How and why is this issue significant to the City of Bonney Lake and the community?*

Regional storage facilities are important part of the MS4 conveyance system. When operating properly, they help to control untreated stormwater (which may contribute elevated temperatures, toxic metals, organic compounds, and bacteria) from impacting aquatic habitat. Flow control also prevents stream bank erosion, downstream flooding and is a critical feature deployed during spill events. Federal agencies identified habitat loss from stormwater runoff as one of the primary obstacles to salmon recovery, (Ecology, 2010).

*What types of water quality sampling will provide answers regarding effectiveness?*

Water quality monitoring will be conducted at both the RSF outlet (stormwater) and at downstream Fennel Creek locations (receiving water) by Stormwater Division staff. Temperature, turbidity and benthic macro invertebrates (B-IBI) will be monitored.

*How might the results of the monitoring be significant to other MS4s?*

The proposed monitoring may inform other MS4 permittees as to the effectiveness of a RSF retrofit with the same scope, size, and downstream water quality concerns.

*What are the expected modifications to management actions based upon the outcome of the hypothesis testing?*

In order to determine whether the selected SWMP component (S5.C.5, Pollution Prevention and Operation and Maintenance for Municipal Operations) is achieving the targeted environmental outcome, the SWMP may be adjusted. Although the project design has not commenced yet, features will be installed that will allow for the regulation of flow at the outlet. The results of the on-going monitoring effort (temperature, turbidity and B-IBI) at both the RSF outlet and at downstream locations can be used in the implementation of the RSF optimum management action (i.e. decrease flow rate) that is best protective of water quality.

**IDDE Compliance Sampling**

*SWMP component affected: S5.C.3, Illicit Discharge Detection and Elimination*

*Statement of the Question:* Will water quality compliance sampling inform whether the selection of an Illicit Discharge Detection and Elimination (IDDE) compliance action is effective?

*Hypothesis:* The effectiveness of the ongoing program to detect and address non-stormwater discharges, including spills, and illicit connections into the MS4 will be assessed through the implementation of a water quality compliance sampling program.

*Description of the program:* Once an IDDE compliance investigation is initiated (based upon complaints, reports or monitoring information that indicates a potential illicit discharge, including spills), Stormwater Division staff will collect confirmatory water samples (if possible) at the time of discovery, or shortly thereafter. These initial samples will be used as a pre-enforcement baseline. Sampling will then be repeated following the completion of prohibited discharge corrective actions.

*How and why is this issue significant to the City of Bonney Lake and the community?*

Prohibited stormwater discharges occur for various reasons, including but not limited to: illicit discharges, illicit connections, illegal dumping, equipment malfunctions, and operating accidents. These incidents may result in contamination of private or public property that causes harm to public health, as well as natural, cultural and economic resources.

Illicit discharges into MS4s can often include wastes and wastewater from non-storm water sources which can enter the system through various means. This results in untreated discharges that contribute to high levels of pollutants including heavy metals, toxics, oil and grease, solvents, nutrients, viruses, and bacteria.

*What types of water quality sampling will provide answers regarding effectiveness?*

The following lists some of the most common types of water quality problems caused by prohibited stormwater discharges:

- Sewage flows produced from sewer pipes and septic systems.
- Wash wastewater flows generated from a wide variety of activities and operations. (Examples include discharges of gray water from private property and commercial sites).
- Liquid waste discharges such as oils, paints and process wastewaters that enter the storm drain system from spill events, illicit discharges or illegal dumping activity.

Stormwater Division staff will utilize various indicator parameters and analytical methods that are simple, cost effective, and safe. The exact combination of indicator parameters and methods selected will be unique for each prohibited discharge investigation.

*How might the results of the monitoring be significant to other MS4s?*

The proposed monitoring may inform other MS4 permittees as to the effectiveness of various prohibited discharge enforcement options, and the selection of appropriate BMPs to control and/or eliminate stormwater pollution.

*What are the expected modifications to management actions based upon the outcome of the hypothesis testing?*

In order to determine whether the selected SWMP component (S5.C.3, Illicit Discharge Detection and Elimination) is achieving the targeted environmental outcome, the SWMP may be adjusted. Water quality sampling results may inform the proper selection of enforcement actions that are most effective. These include: Stormwater Quality

Inspection Notices; Informal IDDE Enforcement Actions (i.e. Water Quality Warning Letters); Stormwater Discharge Voluntary Correction Agreements; and Notices of Violation and Order to Cease Activity.

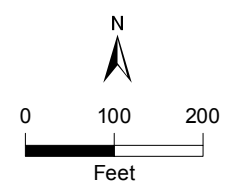
# Map 1

## SR 410 / 192nd Regional Stormwater Facility (RSF) Outlet



### Legend

- Testing Site
- Catch Basin
- Manhole
- Pipe Point
- Pipe
- Culvert
- Channel
- Stormwater Pond
- ~ Fennel Creek
- Roads



The map features are approximate and are intended only to provide an indication of said feature. Additional areas that have not been mapped may be present. This is not a survey. Orthophotos and other data may not align. The County assumes no liability for variations ascertained by actual survey. ALL DATA IS EXPRESSLY PROVIDED 'AS IS' AND 'WITH ALL FAULTS'. The County makes no warranty of fitness for a particular purpose.

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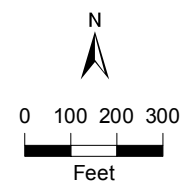
# Map 2

## High - Density Residential Land Use: Discharge From Lake Bonney



### Legend

- Testing Site
- Catch Basin
- Manhole
- Control Structure
- Pipe Point
- Channel Point
- Pipe
- Culvert
- Channel
- Stormwater Pond
- ~ Stream
- Roads



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