Completion Summary for City of Portland Outfall Basin 49

1 Summary

The City of Portland (City) has been addressing source control concerns related to the City conveyance systems for more than four decades, and several City programs have evolved to meet changing regulatory requirements and watershed health objectives. Following the 2000 listing of Portland Harbor on the National Priorities List, the City initiated a new partnership with the Oregon Department of Environmental Quality (DEQ) Cleanup Program to identify specific sources of contaminants to City stormwater conveyance systems in the harbor that were not being adequately controlled. This report summarizes the results of this collaborative effort in Outfall Basin 49.

This Completion Summary includes a weight-of-evidence evaluation to demonstrate that source identification is complete and that there are no current (or anticipated future) major sources of contaminants to the Willamette River via the Basin 49 conveyance system.

Outfall 49 discharges to the east side of the river at River Mile (RM) 6.4, near the downstream end of Willamette Cove. The drainage basin for this outfall is within a predominantly residential area in the St. Johns district. Basin 49 also includes small areas of commercial, major transportation (Oregon Department of Transportation [ODOT] Highway 30 Bypass), and open space land uses. The majority of stormwater flow from the basin is conveyed through a treatment facility that was constructed in 1995.

No known or suspected contaminant sources to the Basin 49 stormwater conveyance system have been identified. Evaluation of inriver sediment data collected near the outfall in 2002 indicated elevated mercury and polycyclic aromatic hydrocarbon (PAH) concentrations. However, subsequent reevaluation of the sediment data along with sediment data collected in 2004 by the Lower Willamette Group (LWG) indicated contaminant concentrations in the vicinity of the outfall were not significantly elevated relative to updated screening level values (SLV) and were similar to concentrations detected upstream. The City evaluated inline solids and stormwater samples from the basin and confirmed that additional source tracing in Basin 49 was not needed. The City concludes that major contaminant sources are not present and that ongoing programmatic source control measures (SCM) in the basin are sufficient for ensuring that discharges from Outfall 49 are protective of the river. Therefore, the City has met the remedial investigation (RI)/SCM objectives for Basin 49.

2 Introduction

This Completion Summary presents a weight-of-evidence evaluation of whether further source investigation is needed in Basin 49, and the rationale for concluding that current and future discharges from the basin are not likely to be significant sources of contaminants to river sediment. The purpose of this report is to demonstrate that, for Basin 49, the City has met the joint RI/SCM objectives of the August 13, 2003, intergovernmental agreement (IGA) between the City and DEQ.

This report is included in Appendix A of the *Municipal Stormwater Source Control Report for Portland Harbor* (Municipal Report), which provides additional background and detail regarding the City's harborwide source control efforts, including regulatory and non-regulatory programs to address current and future sources and to minimize recontamination potential.

3 Outfall and Basin Setting

3.1 Basin Location and Configuration

Outfall 49 discharges to the east side of the river at RM 6.4, near the downstream end of Willamette Cove. The drainage area for the Basin 49 conveyance system is approximately 33 acres located within the historical St. Johns district. Figure 1 shows the location of the outfall and drainage basin boundary and provides an overview of the associated stormwater conveyance system. As shown in Figure 1, stormwater discharge from the basin is routed through a stormwater treatment facility located approximately 500 feet upstream from Outfall 49. The City constructed this stormwater facility in 1995 as part of the City's Combined Sewer Overflow (CSO) Abatement Program; the facility treats stormwater runoff from almost the entire basin. The facility consists of a vegetated swale and sediment-removal inlets. The conveyance system also includes two small water quality swales located along N. Decatur Street that were installed in 2011 as part of pedestrian improvements affiliated with a residential redevelopment project. All three swales are designed to infiltrate stormwater and to reduce suspended sediment loading to the conveyance system. City programs that result in these types of stormwater improvements are described in detail in the Municipal Report.

Additional detail on the Outfall 49 stormwater conveyance system and associated drainage basin is included in the *Programmatic Source Control Remedial Investigation Work Plan for the City of Portland Outfalls Project* (CH2M HILL, 2004) and the *Outfall Basin 49 Inline Solids Sampling, Technical Memorandum No. OF49-1* (BES, 2006).

3.2 Land Use and Potential Upland Sources

Land use in Basin 49 is predominately residential, as shown in Figure 1. The basin also includes two small commercial areas, one small area zoned general employment[1] (occupied by an automotive service shop), a small area of major transportation (ODOT Highway 30 Bypass), and an area of open space near the outfall that is developed as the Basin 49 stormwater treatment facility. The basin is within the St. Johns Plan District, which provides a framework for strengthening St. Johns' role as the commercial and civic center of the North Portland peninsula.[2]

No current potential pollutant sources have been identified in Basin 49. The only DEQ Cleanup Program site located within the basin, as identified in DEQ's Environmental Cleanup Site Information (ECSI) database, is a small portion of the ODOT facility (ECSI #5437). ODOT is

[1] General employment is a Portland zoning category that allows a range of employment opportunities but emphasizes industrial and industrial-support uses. The zones can allow for the transition to a less industrial overall nature.

[2] The St. Johns Plan District describes the mixed-use development goals in this area (see http://www.portlandoregon.gov/bps/index.cfm?&a=53424).

conducting a source control evaluation under DEQ oversight (DEQ, 2012, 2013). No other Cleanup Program sites are located in the basin, although one Cleanup Program site, Willamette Cove (ECSI #2066) is located along the shoreline near the outfall. A plume of polycyclic aromatic hydrocarbon (PAH)-contaminated groundwater is present at the Willamette Cove site and may intersect the Basin 49 outfall pipe, based on review of existing groundwater data (GSI, 2006). Groundwater contamination at the Willamette Cove site is being evaluated by DEQ as part of the remedial investigation.

Because of the predominantly residential land use in the basin, no sites in the basin currently hold, or historically held, National Pollutant Discharge Elimination System (NPDES) permits to discharge to the Basin 49 conveyance system.

3.3 Outfall Setting

Outfall 49 discharges to an area of potential concern (AOPC 13) identified by the U.S. Environmental Protection Agency (EPA) based on elevated concentrations of metals, PAHs and other contaminants in river sediment (EPA, 2010). In addition to Outfall 49, two non-City outfalls also discharge to AOPC 13 in the vicinity of Outfall 49.

4 Basin Screening and Source Investigations

The City identified Basin 49 as a Priority 2 for source tracing, based on elevated concentrations of mercury and slightly elevated concentrations of PAHs in the surface sediment samples collected by the City near Outfall 49 in 2002 (CH2M HILL, 2004). Priority 2 designations were applied to outfalls where slightly elevated concentrations of contaminants in sediment were observed in the vicinity of the outfall, indicating that sources that could affect sediment quality may be present in the basin. No potential sources were identified within Basin 49, but two upstream contaminated sites, the Willamette Cove DEQ Cleanup Program site and the McCormick & Baxter Superfund Site, were identified as possible sources of mercury and/or PAHs to inriver sediment near Outfall 49 (CH2M HILL, 2004).

The City reevaluated the 2002 sediment data from near Outfall 49 together with sediment data collected in 2004 by the LWG (Integral, 2005) and using newly available SLVs from the Joint Source Control Strategy (DEQ/EPA, 2005). Based on this reevaluation, the City concluded that contaminant concentrations in the vicinity of the outfall were not significantly elevated and were similar to concentrations detected upstream (BES, 2006). To verify that major sources of mercury were not present in the basin, the City collected and analyzed inline solids samples from the Basin 49 conveyance system in 2005. The City collected the solids samples from the downstream ends of both major branches of the system, just upstream of the stormwater treatment swale. Mercury concentrations were either not detected or below background concentrations, demonstrating that there were no mercury sources in the basin (BES, 2006). Based on the results of the sediment reevaluation and the inline solids investigation, the City reprioritized Basin 49 as a Priority 4 basin for source tracing, the designation for basins in which the outfall does not appear to be a significant contaminant pathway to the river (BES, 2006).

As part of the City's stormwater screening evaluation (BES, 2010), the City evaluated stormwater and sediment trap data collected by the LWG in 2007 from the downstream end of the basin (i.e., representing all collective discharges to the system) (Anchor and Integral, 2008). Based on the evaluation of these data and using a conservative screening approach, no analytes

were identified as potentially warranting further source tracing in Basin 49 (BES, 2010). Mercury concentrations were all non-detect and PAH concentrations were low or not detected.

Table 1 lists investigations and evaluations completed by the City and others in the Basin 49 conveyance system.

Table 1. Investigations in the Basin 49 Stormwater Conveyance System

Data Collection Period	Party	Purpose	Documentation
2000	City	Compile basin background information to identify potential sources.	Preliminary Evaluation of City Outfalls (Eastshore) (BES, 2000)
2002	City	Evaluate inriver sediment data near City outfalls to prioritize basins for source tracing.	Programmatic Source Control Remedial Investigation Work Plan (CH2M HILL, 2004)
2005	City	Evaluate existing data on groundwater plumes and identify the potential for City conveyance systems (including Basin 49) to act as preferential pathways.	Relationships Between Upland Shallow Groundwater Plumes and the City Stormwater and Combined Conveyance System with the Portland Harbor (GSI, 2006)
2005	City	Reevaluate the original prioritization of Outfall Basin 49 based on additional sediment data and new screening level values, and collect and analyze inline solids from the basin to evaluate the possible presence of mercury sources in the basin.	City Outfall Basin 49 Inline Solids Sampling and Basin Priority Reassessment Technical Memorandum No. TM OF49-1 (BES, 2006)
2007-2008	Lower Willamette Group (LWG)	Collect stormwater and sediment trap samples representative of discharges from the whole basin to evaluate stormwater discharges representative of residential land use.	Portland Harbor RI/FS Round 3A and 3B Stormwater Data Report. Prepared for the LWG (Anchor and Integral, 2008)
2007	City	Evaluate stormwater data from City outfalls to identify additional source tracing needs.	Stormwater Evaluation Report, City of Portland Outfall Project (BES, 2010)

The City's investigation and data evaluation did not identify any current major sources of contaminants in Basin 49.

5 Completion of Source Identification

The lines of evidence evaluated to confirm that source tracing is complete include (1) results of source investigation activities and (2) land use in the basin. Findings from this evaluation are summarized below.

- *Source Investigation Results*. Results of the inline solids investigation do not indicate the presence of mercury sources in the basin (BES, 2006). In addition, the City's stormwater screening evaluation of stormwater samples representing cumulative discharges from the entire drainage basin did not identify any analytes, including mercury and PAHs, as potentially warranting further source tracing in Basin 49 (BES, 2010).

- *Land Use:* The vast majority of the basin consists of residential streets and properties. No industrial facilities are located in the basin. An automobile repair shop occupies the small portion of the basin that is zoned as general employment. Non-industrial activities are not a known or suspected major source of contaminants to the City stormwater conveyance system.

Based on these lines of evidence, the City concludes that Basin 49 source investigation is complete and there are no major contaminant sources in the basin.

6 Basin Source Controls

The primary source control in the basin is the stormwater treatment facility, constructed in 1995, which treats basin stormwater and reduces suspended solids loading to Outfall 49. ODOT is in the process of conducting a source control evaluation of facility drainage to the harbor, to determine whether additional source controls are warranted. The City and ODOT both have NPDES Municipal Separate Storm Sewer System (MS4) stormwater permits that cover basin drainage areas. Ongoing municipal programs (e.g., street sweeping, stormwater redevelopment standards) likely provide additional source control benefits in the basin and will help to address minor sources for which specific control measures have not been required. City programs that control current and future contaminant discharges to the conveyance system are described in the Municipal Report.

7 Conclusion

Based on the information summarized above, there are no major sources of contaminants in Basin 49 and future discharges from Outfall 49 are unlikely to represent a significant source of contaminants to the river. The City concludes that it has met the RI/SCM objectives of the IGA and requests a source control decision from DEQ for Basin 49.

8 References

Anchor and Integral. 2008. Portland Harbor RI/FS Round 3A and 3B Stormwater Data Report. Prepared for the Lower Willamette Group by Anchor Environmental, L.L. C. and Integral Consulting Inc. September 2008.

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BES. 2010. Stormwater Evaluation Report. City of Portland, Bureau of Environmental Services. February 2010.

CH2M HILL. 2004. Programmatic Source Control Remedial Investigation Work Plan for the City of Portland Outfalls Project. Prepared for the City of Portland, Bureau of Environmental Services, March 19, 2004.

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DEQ. 2013. Milestone Report, Upland Source Control at the Portland Harbor Superfund Site. Prepared by the Oregon Department of Environmental Quality. January 2013.

EPA. 2010. Re: Portland Harbor Superfund Site; Administrative Order on Consent for Remedial Investigation and Feasibility Study; Docket No. CERCLA-10-2001-0240. Portland Harbor Feasibility Study Source Tables. Letter from EPA to Mr. Bob Wyatt, Chairman, Lower Willamette Group. November 23, 2010.

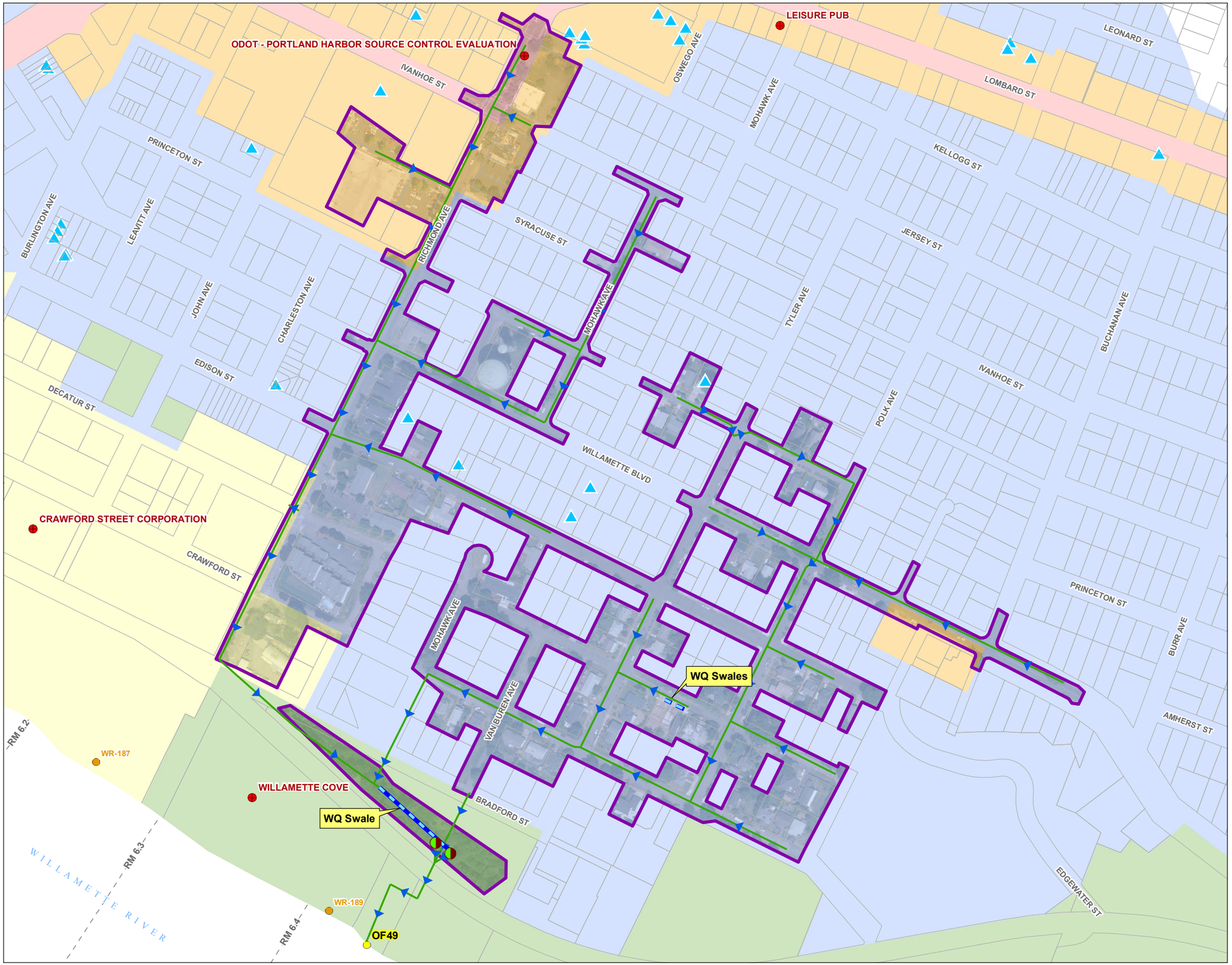
GSI. 2006. Relationships Between Upland Shallow Groundwater Plumes and the City Stormwater and Combined Conveyance System with the Portland Harbor. Technical Memorandum prepared by Groundwater Solutions, Inc., for the City of Portland Bureau of Environmental Services. March 16, 2006.

Integral. 2005. Portland Harbor RI/FS, Round 2A Sediment Site Characterization Summary Report. Prepared for the Lower Willamette Group, July 15, 2005. Integral Consulting, Inc.

List of Figures

FIGURE 1

Basin 49
Overview and Conveyance System Source Controls



- Basin 49
- DEQ ECSI Site
- Stormwater Treatment Facility

Conveyance System

- Storm Line
- Water Quality (WQ) Swale
- Sediment Removal Structure
- City Outfall
- Non-City Outfall

Land Use/Zoning

- General Employment
- Commercial
- Residential
- Parks and Open Space
- Major Transportation

All Other Data

- River Mile (RM)
- Tax Lot
- Discharges to City Outfall
- Portland Harbor Hydroboundary

N

0 140 280 420
Feet

MAP NOTES:
Date: December 31, 2013
Data Sources: BES, METRO

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