Completion Summary for City of Portland Outfall Basin 52

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 52.

This Completion Summary includes a weight-of-evidence evaluation to demonstrate that source identification is complete and a summary of source controls (implemented or planned) to control future contaminant discharges to the Willamette River.

Basin 52 is located on the east side of the river in the St. Johns district. The outfall discharges at approximately River Mile (RM) 5.7, just downstream of the St. Johns Bridge. The basin includes a mix of light industrial and commercial properties, residential areas, a portion of Cathedral Park, and drainage from the eastern half of the St. Johns Bridge (Oregon Department of Transportation [ODOT] Highway 30).

Evaluation of inriver sediment data collected near the outfall in 2002 did not indicate that the outfall was a likely significant contaminant pathway to the river. The City collected stormwater data from the basin to verify this conclusion. Because results indicated that sources of polychlorinated biphenyls (PCB) and metals were present, the City conducted source tracing in Basin 52, including sediment trap, inline solids, and surface soil investigations. Based on these investigations, the City determined that erodible soils in the vicinity of the Peninsula Iron Works (PIW) facility are contaminated with PCBs and metals, the Independent Marine Propeller site is a source of metals, and the ODOT drainage system is a source of PCBs to the basin. Source control measures (SCM) to address these sources have been implemented or are being determined under respective DEQ and City authorities.

Because the major sources of contaminants to this basin have been identified and have been referred to appropriate programs for implementation of SCMs, future discharges from Outfall 52 are unlikely to represent a significant source of contaminants to the river. Therefore, the City has met the remedial investigation (RI)/SCM objectives for Basin 52.

2 Introduction

This Completion Summary presents a weight-of-evidence evaluation of whether further source investigation is needed in Basin 52, and the rationale for concluding that 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 the City has met the RI/SCM objectives of the August 13, 2003, intergovernmental agreement (IGA) between the City and DEQ. Together the City and

DEQ identified major sources of contaminants to the basin and are using their respective authorities to ensure that source controls are implemented where needed.

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 52 discharges to the east side of the Willamette River near RM 5.7, offshore of Cathedral Park and just downstream of the St. Johns Bridge. The outfall drains approximately 24.5 acres in the St. Johns district. The Basin 52 stormwater conveyance system has three major subbasins (designated the north, central, and south branches). Figure 1 shows the location of Outfall 52 and the drainage basin boundary and provides an overview of the associated stormwater conveyance system.

As shown in Figure 1, the conveyance system includes drainage from ODOT Highway 30. The ODOT system includes a sedimentation manhole located beneath the St. Johns Bridge (see Figure 2) that is designed to settle suspended solids from the bridge stormwater runoff, reducing solids loading to Basin 52.

The basin system also includes a stormwater filter device installed in 2008 by a private contractor in a manhole at the corner of N. Crawford and N. Alta Avenue, to treat stormwater runoff from N. Alta Avenue as part of a residential redevelopment project. City programs that result in these types of stormwater improvements are described in the Municipal Report.

Additional information on the Outfall 52 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 52 Source Investigation Report* (BES, 2012).

3.2 Land Use and Potential Upland Sources

Land use in Basin 52 is a mix of industrial and commercial uses near the river within the area zoned as general employment[1], residential, major transportation (Highway 30), and open space. Industrial operations include metal fabrication (e.g., PIW), Independent Marine Propeller (repair and machine shop), and a home/commercial fixtures manufacturing facility. Other uses include major transportation (the eastern portion of the St. Johns Bridge), commercial warehouses, a truck repair/storage business, offices, a restaurant, residential areas, open space (Cathedral Park), and a railroad corridor. The basin is within the St. Johns Plan district, which

[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.

provides a framework for strengthening St. Johns' role as the commercial and civic center of the North Portland peninsula.[2]

Sites that were identified as potential sources of contaminants to the basin include three DEQ Cleanup Program sites located within or partially within the basin, as listed in DEQ's Environmental Cleanup Site Information (ECSI) database. Table 1 lists these sites and indicates the associated contaminants of interest (COI) and status of stormwater pathway evaluations. As indicated in Table 1, all three of the sites currently are conducting stormwater pathway evaluations under DEQ oversight.

Table 1. DEQ Cleanup Program Sites in Basin 52

DEQ Cleanup Program Site	Site COIs	Stormwater Pathway Evaluation (1)
Crawford Street Corporation (ECSI #2363)	VOCs, PAHs, TPH, PCBs, metals (2)	Source Control Evaluation In Progress
ODOT - Portland Harbor Source Control Evaluation (ECSI #5437)	Not listed (3)	Source Control Evaluation In Progress
Peninsula Iron Works (ECSI #5686)	Not listed (3)	Source Control Evaluation In Progress(4)

Notes:

PAHs = polycyclic aromatic hydrocarbons; TPH = total petroleum hydrocarbons; VOCs = volatile organic compounds; COIs = contaminants of interest; PCBs = polychlorinated biphenyls; ECSI = Environmental Cleanup Site Information; DEQ = Oregon Department of Environmental Quality

(1) Unless noted otherwise, the source is DEQ Milestone Report, Figure 1b, "Status of Stormwater Source Control Evaluations, January 2013" (DEQ, 2013a).

(2) Source: Appendix Q (Source Control Inventory Tables) of the Portland Harbor RI/FS Draft Feasibility Study (FS) (Anchor et al., 2012).

(3) Site is not listed in Appendix Q of the Draft FS (Anchor et al., 2012) or Table 4.2-2 of the Draft Final RI (Integral et al., 2011), and the DEQ ECSI database information does not list site COIs (DEQ, 2012, 2013b).

(4) Table 1 of the DEQ Milestone Report indicates that a source control decision is pending for this site (DEQ, 2013a).

Industrial sites covered or historically covered by National Pollutant Discharge Elimination System (NPDES) stormwater regulations also were considered as potential contaminant sources to the City conveyance system. One site historically held an NPDES permit to discharge to the Basin 52 conveyance system, as listed in Table 2. No sites have current NPDES permits to discharge to the basin. Note that the City and ODOT both have NPDES Municipal Separate Storm Sewer System (MS4) stormwater permits that cover basin drainage areas.

[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).

Table 2. Historical NPDES Permit Coverage in Basin 52

Address	Company	Permit Type	Time Period
6618 N. Alta Avenue	Peninsula Iron Works	Stormwater (1200-Z)	2001

Notes:
NPDES = National Pollutant Discharge Elimination System

3.3 Outfall Setting

Outfall 52 discharges to an area of potential concern (AOPC 11) identified by the U.S. Environmental Protection Agency (EPA) based on elevated concentrations of PCBs, metals, and other contaminants in river sediment (EPA, 2010). In addition to Outfall 52, one other City outfall (Outfall 52A) and four non-City outfalls also discharge to AOPC 11.

4 Basin Screening and Source Investigations

The City identified Basin 52 as a Priority 4 for source tracing, based on the lack of elevated contaminant concentrations detected in river sediment collected by the City in 2002 in the vicinity of the outfall (CH2M HILL, 2004). Priority 4 basins are considered the lowest priority for source investigation.

To confirm that major sources were not present, the City collected stormwater samples in 2007 from a location in Basin 52 representing cumulative discharge from the entire basin (BES, 2010). The City analyzed stormwater samples for a broad suite of chemicals to identify stormwater contaminants potentially warranting further source tracing in the basin. Based on statistical analyses of the Basin 52 stormwater results in relation to harborwide stormwater data, the City determined that total PCBs and copper potentially warranted further source tracing within the basin (BES, 2010).

Following preliminary review of the Basin 52 stormwater screening data, the City conducted source investigation activities beginning in 2008 to evaluate potential sources of PCBs and copper to the Basin 52 conveyance system (BES, 2012). The City collected samples of stormwater solids (sediment trap and inline solids) and surface soil during iterative field investigations between June 2008 and January 2011.

Results of sediment trap sampling near the downstream end of each of the three major branches (of the conveyance system) indicated current sources of PCBs, chromium, and nickel to the north and central branches. The results did not indicate the presence of major sources of metals or PCBs to the south branch (BES, 2012). Follow-up targeted source investigations included analyzing inline solids collected from the north and central branches adjacent to two suspected sources: PIW and ODOT. In addition, the City collected surface soil samples in the north branch adjacent to PIW and the railroad corridor within the drainage area for a catch basin that yielded solids with elevated PCBs and metals concentrations (BES, 2012).

Source tracing results indicated that residual PCBs in erodible surface soils on and adjacent to the PIW site were a major source of PCBs to the north branch (BES, 2012). Based on this information, DEQ requested the site to enter the DEQ Cleanup Program to undertake a stormwater source control evaluation (DEQ, 2013b). In addition, outdoor operations at the

Independent Marine Propeller facility were identified as a major source of metals to the north and central branches (BES, 2012). PCBs and metals also were detected in the ODOT drainage system affiliated with the St. Johns Bridge (BES, 2012).

Table 3 lists investigations completed by the City in the Basin 52 conveyance system.

Table 3. City Investigations in the Basin 52 Stormwater Conveyance System

Data Collection Period	Purpose	Documentation
2000	Compile basin background information to identify potential sources.	Preliminary Evaluation of City Outfalls (Eastshore) (BES, 2000)
2002	Evaluate inriver sediment data near City outfalls to prioritize basins for source tracing.	Programmatic Source Control Remedial Investigation Work Plan (CH2M HILL, 2004)
2007	Evaluate stormwater data from City outfalls to identify additional source tracing needs.	Stormwater Evaluation Report, City of Portland Outfall Project (BES, 2010)
2008, 2010, 2011	Collect inline solids, sediment trap, and surface soil samples to identify sources of PCBs and metals within the basin.	Outfall Basin 52 Source Investigation Report (BES, 2012)

Notes:
PCBs = polychlorinated biphenyls

5 Completion of Source Identification

The lines of evidence evaluated to verify that source tracing is complete and all major sources have been identified include (1) source tracing results and (2) upland site investigation coverage and land use in the basin. Findings from this evaluation are summarized below.

- *Source Tracing Results:* Results of source investigations in Basin 52 indicated sources of PCBs and metals to the basin; no other analytes were identified for further source tracing. Sediment trap and solids sampling in the three major branches of the conveyance system identified specific sources of these contaminants to the north and central branches of the system; data do not indicate that there are current major sources of contaminants to the south branch (BES, 2012).
- *Upland Investigation Coverage and Land Use*: Figure 2 displays the spatial extent of upland site investigation and other programmatic controls in the basin (see key to figures provided at beginning of this Appendix). As shown in Figure 2, the majority of sites in the north and central branches of the basin are being investigated or likely do not need investigation because of land use and existing controls. Sites in these branches of the basin are:
    - Conducting an SCE under the DEQ Cleanup Program;
    - Covered under NPDES industrial stormwater regulations; and/or
    - Monitored for stormwater exposures through periodic inspections under the City's Industrial Stormwater Program.

Land uses at sites not covered by DEQ Cleanup or Water Quality Programs consist of a warehouse/office/restaurant complex, offices, parking, residential areas, and open space. Current and future industrial activities that are exposed to stormwater are being or will be addressed by the DEQ NPDES Program; 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 52 source tracing is complete and all major sources have been identified.

6 Basin Source Controls

The City and DEQ collaborated under their respective authorities to identify control mechanisms for all identified sources to the basin. Source control for major and minor sources to Basin 52 includes ongoing City and DEQ programs that are described in detail in the Municipal Report and SCMs completed (or planned) at contaminated sites under DEQ Cleanup Program agreements. Source controls implemented in Basin 52 are displayed in Figures 1 and 2 and summarized in this section.

One type of programmatic source control is elimination of stormwater exposures to industrial activities. Following evaluation of source investigation results and in response to pollution complaints, the City's Industrial Stormwater Program provided technical assistance to the Independent Marine Propeller site to address offsite migration of metals from site operations. The site made onsite operational changes that resulted in removing historical exposures of propeller grinding operations to stormwater and issuance of an NPDES No Exposure Certification (NEC). Table 4 lists sites that hold NECs in Basin 52.

Table 4. Sites with No Exposure Certifications (NEC) in Basin 52[(1)]

Address	Company	NEC Time Period
6618 N. Alta	**Peninsula Iron Works**	2001 – Present
8638 N. Crawford	**Axiom Custom Products**	2012 – Present
8675 N. Crawford	**Independent Marine Propeller**	2012 – Present

Table 5 summarizes additional site-specific and programmatic source controls completed to date for Basin 52.

Table 5. Basin 52 Source Controls

Site/Area	Source Controls	Timeframe / Status
Source Control Measures (SCM) at DEQ Cleanup Program Sites		
Crawford Street Corporation (ECSI #2363)	To be determined	To be determined
ODOT - Portland Harbor Source Control Evaluation (ECSI #5437)	ODOT installed a sedimentation manhole to reduce solids loading from the St. Johns Bridge to Outfall 52.	2005
	Additional SCMs to be determined.	To be determined
Peninsula Iron Works (ECSI #5686)	Pending rerouting of roof drainage to reduce mobilization of contaminated erodible soils on and adjacent to site to the river. Additional SCMs to be determined.	2013; To be determined
City Conveyance System		
North branch	The City cleaned the manholes, catch basins, and catch basin laterals along N. Bradford Street right-of-way.	2010
North branch (N. Alta Ave.)	A stormwater canister filter in a manhole at N. Alta and N. Crawford treats stormwater from N. Alta Ave.	2008
South branch	The City cleaned the most downgradient manhole and all catch basin connections.	2010
Other (Programmatic Source Controls)		
Cathedral Place (NE corner of N. Baltimore and N. Bradford)	**Ecoroofs**(1)	2005
Peninsula Iron Works	**City Discharge Authorization**(2)	Ongoing
Refer to Table 4	**No Exposure Certifications**	Ongoing

Notes:

DEQ = Oregon Department of Environmental Quality; ECSI = Environmental Cleanup Site Information; ODOT = Oregon Department of Transportation

(1) The City Sustainable Stormwater program collaborated with this site owner to pilot ecoroof construction techniques on existing roof membranes.

(2) In compliance with City Code, the site prepared an Accidental Spill Prevention Plan to document measures being implemented at the site to minimize pollutant discharges to the storm system.

Other municipal programs (e.g., periodic inspection of and technical assistance to non-NPDES sites, illicit discharge monitoring, street sweeping, etc.) 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. The City and ODOT both have NPDES MS4 stormwater permits that cover basin drainage areas. City programs that control current and future contaminant discharges to the conveyance system are described in the Municipal Report.

7 Conclusion

The City completed source tracing in Basin 52 and identified the major sources of contaminants to the City conveyance system. Given that necessary source controls at identified sources have been implemented or are being determined under appropriate DEQ and City regulatory authorities, future discharges from Outfall 52 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 52.

8 References

Anchor et al. 2012. Portland Harbor RI/FS Draft Feasibility Study. Prepared for The Lower Willamette Group by Anchor QEA, LLC, Windward Environmental, LLC, Kennedy/Jenks Consultants, and Integral Consulting, Inc. February 2012.

BES. 2000. Preliminary Evaluation of City Outfalls. Portland Harbor Study Area. Notebook 1: Eastshore Stormwater and CSO Outfalls. City of Portland, Bureau of Environmental Services. December 2000.

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Integral et al. 2011. Portland Harbor RI/FS, Draft Final Remedial Investigation Report. Prepared for the LWG. Prepared by Integral Consulting Inc., Windward Environmental LLC, Kennedy/Jenks Consultants, and Anchor QEA, LLC. August 29, 2011.

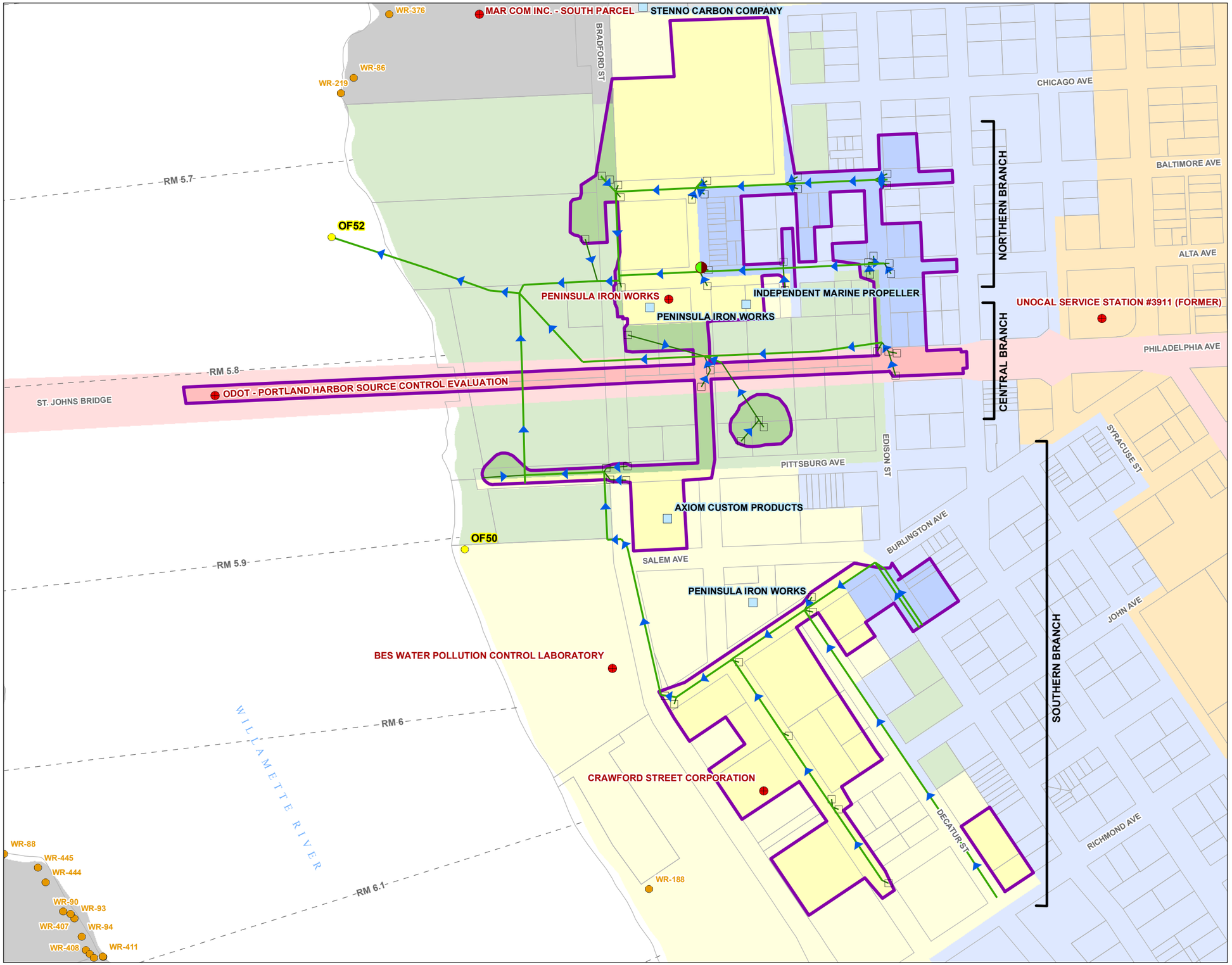
List of Figures

Figure 1: Basin 52 Overview and Conveyance System Source Controls

Figure 2: Basin 52 Upland Site Source Controls

FIGURE 1

Basin 52
Overview and Conveyance System Source Controls



- Basin 52
- DEQ ECSI Site
- NPDES No Exposure Certification

Conveyance System

- Storm Line
- Catch Basin
- Sediment Removal Structure
- City Outfall
- Non-City Outfall

Land Use/Zoning

- Heavy Industrial
- 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

ENVIRONMENTAL SERVICES
CITY OF PORTLAND
1120 SW Fifth Avenue, Room 1000
Portland Oregon, 97204-1912

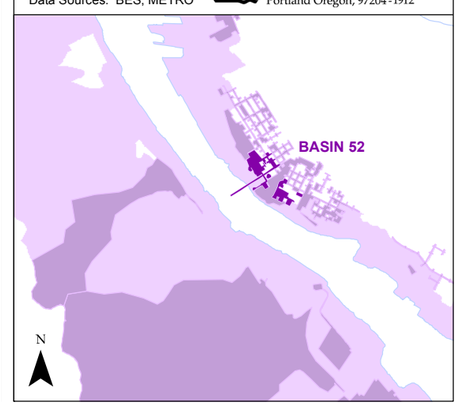


FIGURE 2

Basin 52
Upland Site Source Controls

Basin 52

Tax Lot

DEQ Stormwater SCE

SCE implemented or pending

All Other Features

NPDES No Exposure Certification

>50% of Site Area Redeveloped Under City SWMM

City Discharge Authorization

Stormwater Treatment Facility

Ecoroof

Site Inspection - BES Industrial Stormwater Program

Discharges to City Outfall

Portland Harbor Hydroboundary

N

0 140 280 420

Feet

MAP NOTES:

Date: December 31, 2013

Data Sources: BES, METRO, Aerial Photo Taken 2012

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