Completion Summary for City of Portland Outfall Basin 52C

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 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 52C.

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 52C is located adjacent to the Port of Portland's (Port) Terminal 4 (T4) and south of the International Slip area in north Portland. This shoreline area has a long history of shipping-related activities and has been used exclusively for industrial purposes since the early 1900s. The Basin 52C conveyance system was not constructed until the 1980s. It drains approximately 22 acres of light industrial land (primarily parking lot) above the bluff behind T4.

Stormwater screening results and inline solids data indicated sources of polychlorinated biphenyls (PCB) to the basin. City evaluation of basin land use did not identify potential PCB sources, so the City conducted a source investigation along N. Lombard Street to determine whether PCBs may be migrating to the basin from offsite sources. Results of the investigation indicated that vehicle tracking of contaminated erodible soils from nearby industrial sites to N. Lombard is a likely pathway for PCB-contaminated soils to enter the basin. Source control measures (SCM) to address contamination in erodible soils have been implemented recently or are being determined under DEQ oversight at a number of DEQ Cleanup Program sites in the vicinity of the basin. Major in-basin sources of PCBs or other contaminants are not present.

Because major sources of contaminants are not present in the basin, and sources of PCBs in the vicinity of the basin have been identified and are implementing SCMs under DEQ oversight, future discharges from Outfall 52C 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 52C.

2 Introduction

This Completion Summary presents a weight-of-evidence evaluation of whether further source investigation is needed in Basin 52C, 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. The City and

DEQ have identified all potential 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 52C discharges to the east side of the Willamette River near River Mile 4.4, in the T4/International Slip area. The drainage area for the outfall is approximately 22 acres located on the bluff above the T4 site. The conveyance system was constructed as a storm-only sewer in 1986. Figure 1 shows the location of the Outfall 52C drainage basin boundary and provides an overview of the associated stormwater conveyance system.

Additional detail on the Outfall 52C 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 Basins 52C and 53 North Lombard Street PCB Source Investigation Report* (BES, 2012).

3.2 Land Use and Potential Upland Sources

Outfall 52C discharges to Slip 1 of T4, but the conveyance system does not have any connections from the T4 site. Land use in Basin 52C is light industrial and approximately 80 percent of the basin consists of large paved parking areas west of N. Lombard Street that are owned by the Port and leased to Toyota for staging of new vehicles. East of N. Lombard Street, roof and parking drainage from three other properties discharge to the basin: Momentive Specialty Chemicals (formerly Borden Packaging and Industrial Products), which is a resin manufacturing operation; Pioneer Wiping Cloth Company; and the Port's Marine Facility Maintenance building. Before the 1950s, this area had residential and agricultural land uses.

The system also collects and conveys runoff from N. Lombard Street and N. Roberts Avenue. N. Lombard Street is a designated truck route serving adjacent industrial areas in the T4/International Slip area.

Sites that were identified as potential sources of contaminants to the basin include one DEQ Cleanup Program site that is partially within the basin (Borden Packaging), as listed in DEQ's Environmental Cleanup Site Information (ECSI) database; Table 1 indicates the associated contaminants of interest (COI) and status of the stormwater pathway evaluation. Only a small portion of the Borden facility discharges stormwater to Basin 52C and it is mostly roof drainage.

Table 1. DEQ Cleanup Program Site Partially in Basin 52C

DEQ Cleanup Program Site	Site COIs (1)	Stormwater Pathway Evaluation(2)
Borden Packaging and Industrial Products (ECSI #1277)	Other (e.g., chlorinated and alcohol-based solvents)	Need for Source Control Evaluation to be Determined / Low Priority

Notes:

ECSI = Environmental Cleanup Site Information; DEQ = Oregon Department of Environmental Quality; COIs = contaminants of interest

(1) Site contaminants of interest are those identified in Appendix Q (Source Control Inventory Tables) of the Portland Harbor RI/FS Draft Feasibility Study (FS) (Anchor et al., 2012).

(2) DEQ Milestone Report, Figure 1b, "Status of Stormwater Source Control Evaluations, January 2013" (DEQ, 2013).

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. Table 2 lists industrial sites that currently hold, or historically held, NPDES permits to discharge to the Basin 52C conveyance system. Figure 1 shows sites with current NPDES stormwater permits. Note that the City and the Port have NPDES Municipal Separate Storm Sewer System (MS4) stormwater permits that also cover basin drainage areas.

Table 2. Current(1) and Historical NPDES Permit Coverage in Basin 52C

Address	Company	Permit Type	Time Period
10400 N Lombard	**Toyota Logistic Services**	Stormwater (1200-Z)	1999 – Present
10915 N Lombard	Borden Chemical Company / Hexion Specialty Chemicals / **Momentive Specialty Chemicals (2)**	Cooling Water (100J)	1991 – Present

Notes:

NPDES = National Pollutant Discharge Elimination System

(1) Current permits are indicated in bold.

(2) Company name changed from Borden Chemical Company to Hexion Specialty Chemicals in 2005, and to Momentive Specialty Chemicals in 2010.

3.3 Outfall Setting

Outfall 52C discharges to an area of potential concern (AOPC 6) identified by the U.S. Environmental Protection Agency (EPA) based on elevated concentrations of PCBs and other contaminants in river sediment (EPA, 2010). In addition to OF 52C, five other non-City outfalls and various industrial dock and ramp structures are located in the eastern end of T4 Slip 1.

4 Basin Screening and Source Investigations

Basin 52C was designated as a Priority 3 basin for source investigation based on elevated concentrations of chromium, lead, polycyclic aromatic hydrocarbons, and phthalates detected in the surface sediment samples collected by the City in 2002 near Outfall 52C (CH2M HILL, 2004). Priority 3 designations were assigned to basins where significant concentrations of contaminants have been detected in sediment near the outfall and the contaminants likely are attributable to other sources outside the basin (e.g., T4) that were being investigated under DEQ oversight.

Initial source investigations conducted in the basin included stormwater and inline sediment trap sampling conducted by the Port as part of the T4 Recontamination Evaluation in 2005 (BBL, 2006). The City collected inline solids samples from the basin in 2005 to evaluate along with data collected by the Port. Results of these investigations indicated sources of PCBs to the City conveyance system (BES, 2012).

The Port collected additional stormwater and sediment trap data from Basin 52C in 2007-2008 (Ash Creek Associates/Newfields, 2009; Anchor and Integral, 2008), as part of the T4 evaluation and to support the land use loading evaluation being conducted by the Lower Willamette Group (Anchor QEA, 2011). The City evaluated the Port stormwater and sediment trap sample data to determine if data indicated that source tracing was needed in the basin.[1] Although most PCB concentrations in the Port samples were not significantly elevated, the concentrations were higher than expected given the current and historical land use. Therefore, the City determined that further source tracing was warranted in Basin 52C to identify sources of PCBs (BES, 2010). No other contaminants were identified for additional source investigation.

Because the types of land use in the basin did not indicate potential PCB source areas, the City considered the possibility that PCBs were migrating to the conveyance system from sources outside the basin via the N. Lombard Street truck route. This hypothesis was supported by several early inline solids samples collected from N. Roberts Avenue (for which PCBs were not detected) and from N. Lombard Street (for which PCBs were detected) (BES, 2012). The City subsequently conducted an investigation in 2010 in the N. Lombard Street right-of-way, both inside and outside of the basin, that included collecting catch basin solids and surface solids (sweepings) (BES, 2012). Results of this investigation, in conjunction with evaluation of data from contaminated sites in the vicinity of the basin, indicated that offsite migration of contaminated solids (e.g., vehicle drag-out) from nearby facilities with documented PCB soil contamination, to N. Lombard Street inlets, is a likely pathway for PCBs to Basin 52C (see *Outfall Basins 52C and 53 North Lombard Street PCB Source Investigation Report* [BES, 2012] for information about these offsite sources). This information was conveyed to the DEQ program managers of the identified DEQ Cleanup Program sites so that offsite migration would be included as part of the site source control evaluations. Because the potential sources of PCBs to the system have been identified and are in appropriate DEQ programs to select and implement source controls, the City concluded that no further City source investigation was needed in this basin (BES, 2012).

[1] The City identified some data quality concerns regarding portions of these data that may have warranted flagging or rejecting some analytical values that bias the calculated average concentration for total PCBs in stormwater (BES, 2008).

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

Table 3. Investigations in the Basin 52C 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	Port	Collect stormwater and stormwater solids (sediment trap) samples from the basin to evaluate recontamination potential, as part of the Terminal 4 Early Action.	Terminal 4 Recontamination Analysis (BBL, 2006)
2005	City	Collect inline solids samples within the City conveyance system to evaluate potential sources to the system.	Outfall Basins 52C and 53 North Lombard Street PCB Source Investigation Report (BES, 2012)
2007-2008	Port	Collect stormwater and sediment trap samples representative of discharges from the basin as part of the T4 evaluation and the LWG's land use loading evaluation.	Field Sampling Procedures Report, Storm Water Sampling Program Terminal 4 Upland Facility (Ash Creek Associates / Newfields, 2009) Portland Harbor RI/FS, Round 3A and 3B Stormwater Data Report (Anchor and Integral 2008)
2005, 2007-2008	City	Evaluate stormwater data from City outfalls to identify additional source tracing needs.	Stormwater Evaluation Report, City of Portland Outfall Project (BES, 2010)
2010	City	Collect catch basin and surface soil samples along N. Lombard Street to evaluate potential pathways and sources of PCBs to the basin.	Outfall Basins 52C and 53 North Lombard Street PCB Source Investigation Report (BES, 2012)

Notes:

LWG = Lower Willamette Group; PCBs = polychlorinated biphenyls; T4 = Terminal 4

5 Completion of Source Identification

The lines of evidence evaluated to verify that source tracing is complete and major sources are not present in the basin 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 52C indicated sources of PCBs to the basin; no other analytes were identified for further source tracing. Subsequent source investigation results indicate that (1) major upland sources are not present within the basin, (2) concentrations of PCBs were higher along the trucking route (N. Lombard Street) compared to the non-trucking route (N. Roberts Avenue), and (3) offsite migration of PCBs in erodible soils (e.g., via vehicle drag-out) from nearby industrial sites to basin inlets on N. Lombard Street is a likely pathway for PCBs to the

basin (BES, 2012). There are a number of industrial sites in the vicinity of the basin with known PCB soil contamination.

- *Upland Investigation Coverage and Land Use:* Figure 2 displays the spatial extent of programmatic controls (see key to figures provided at beginning of this Appendix) in the basin. A portion of one DEQ Cleanup Program site (Borden) is located within the basin; however, stormwater contributions to Basin 52C from this site are limited to runoff from a small parking lot and roof drainage, and DEQ has determined this site to be low priority for source investigation. Other sites have been inspected by the City's Industrial Stormwater Program to evaluate and provide technical assistance on industrial exposures to stormwater. Land use at sites currently not covered by DEQ Cleanup or Water Quality Programs consists of parking areas and roof drainage, with minimal industrial exposures to stormwater. Current and future industrial activities that are exposed to stormwater are being addressed by the DEQ NPDES Program.

The City has provided its basin investigation results to DEQ, so that sites outside of the basin will be encouraged to evaluate potential offsite migration of site contaminants via tracking of erodible soils, and will implement appropriate source controls under DEQ Cleanup Program oversight.

Based on these lines of evidence, the City concludes that Basin 52C source tracing is complete, that no major sources within the basin are present, and that nearby sources with potential offsite migration of PCBs to the basin have been identified and referred to DEQ.

6 Basin Source Controls

Source control for Basin 52C includes ongoing City and DEQ programs that are described in the Municipal Report. Given the likelihood of contaminant tracking into the basin from sources outside of the basin, source control measures completed (or planned) at nearby contaminated sites under DEQ Cleanup Program agreements also are believed to result in source control benefits to Basin 52C. Source controls implemented within Basin 52C are displayed in Figure 2 and summarized in Table 4. Source controls implemented at sites outside the basin that are affecting N. Lombard Street are not itemized below. See Table 1 of the *Outfall Basins 52C and 53 North Lombard Street PCB Source Investigation Report* (BES, 2012) for information about source controls at these offsite sources.

Table 4. Basin 52C Source Controls

Site/Area	Source Controls	Timeframe/Status
Source Control Measures (SCM) at DEQ Cleanup Program Sites		
Borden Packaging and Industrial Products (ECSI #1277)	Not needed(1)	To be determined
Other (Programmatic SCM)		
Momentive Specialty Chemicals, Inc.	**City Discharge Authorization**(2)	Ongoing
Toyota Logistic Services	**NPDES 1200-Z Stormwater Permit Requirements.**	Ongoing
Momentive Specialty Chemicals	**NPDES No Exposure Certification** (i.e., elimination of industrial exposures to stormwater)	Ongoing

Notes:
DEQ = Oregon Department of Environmental Quality; NPDES = National Pollutant Discharge Elimination System
(1) DEQ has determined that a source control evaluation is not needed or is a low priority at this site (DEQ, 2013).
(2) Additional site-specific stormwater pollution controls required and implemented under City Code.

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. 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 52C and determined that major sources of contaminants are not present in the basin. However, source investigation results indicate that vehicle tracking of contaminated erodible soils from nearby industrial sites is a likely pathway for PCBs into the basin. Necessary source controls at identified sources in the vicinity of the basin have been implemented or are being determined under the DEQ Cleanup Program. Future discharges from Outfall 52C 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 52C.

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.

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

Anchor QEA. 2011. Portland Harbor RI/FS – Stormwater Loading Calculation Methods. Prepared for the Lower Willamette Group (LWG) by Anchor QEA LLC. January 31, 2011.

Ash Creek Associates/Newfields. 2009. Field Sampling Procedures Report Storm Water Sampling Program Terminal 4 Upland Facility. Prepared for the Port of Portland. February 2009.

BBL. 2006. Terminal 4 Recontamination Analysis. (Appendix N to Engineering Evaluation/Cost Analysis, Port of Portland Terminal 4 Early Action, Blasland, Bouck & Lee, Inc, May 31, 2005.) November 2006.

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.

BES. 2008. Letter from D. Sanders (BES) to N. LaFranchise (Port of Portland). Subject: Stormwater Outfall Data Review. May 28, 2008.

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

BES. 2012. Outfall Basins 52C and 53 North Lombard Street PCB Source Investigation Report, City of Portland Outfall Project ECSI No. 2425. City of Portland, Bureau of Environmental Services. September 2012.

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

DEQ. 2013. Milestone Report, Upland Source Control at the Portland Harbor Superfund Site, January 2013. 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.

List of Figures

FIGURE 1

Basin 52C Overview

NORTHWEST PIPE COMPANY
NORTHWEST PIPE COMPANY
BOYDSTUN METAL WORKS, INC.
WESTERN MACHINE WORKS INC
SCHNITZER STEEL INTERNATIONAL
NORTHWEST PIPE COMPANY (PARCEL 6A)
SCHNITZER BURGARD INDUSTRIAL PARK
UNION CARBIDE CORP.
NORTHWEST CONTAINER SERVICES
INDUSTRIAL TRUCK ROUTE
BORDEN PACKAGING AND INDUSTRIAL PRODUCTS
MOMENTIVE SPECIALTY CHEMICALS,INC
CHEMCENTRAL CORP.
FLINT INK CORP.
TOYOTA LOGISTIC SERVICES
IFCO SYSTEMS
LOMBARD ST
BRUCE AVE
UPRR - ST. JOHNS TANK FARM
PORT OF PORTLAND - TERMINAL 4 SLIP 3
PORT OF PORTLAND - TERMINAL 4 SLIP 1
WILLAMETTE RIVER
RM 4.3
RM 4.4
RM 4.5
RM 4.6
RM 4.7
11040
OF52C
WR-108
WR-184
WR-183
WR-182
WR-181
WR-180
WR-178
WR-154
WR-177
WR-20
WR-176
WR-422
WR-175
WR-172
WR-173
WR-174
WR-171
WR-170
WR-169

Basin 52C
DEQ ECSI Site
NPDES Stormwater Permit
NPDES No Exposure Certification

Conveyance System
Storm Line
Catch Basin
City Outfall
Non-City Outfall

Land Use/Zoning
Heavy Industrial
Light Industrial
General Employment
Residential
Parks and Open Space

All Other Data
River Mile (RM)
Tax Lot
Discharges to City Outfall
Portland Harbor Hydroboundary

N
0 175 350 525
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

BASIN 52C
N

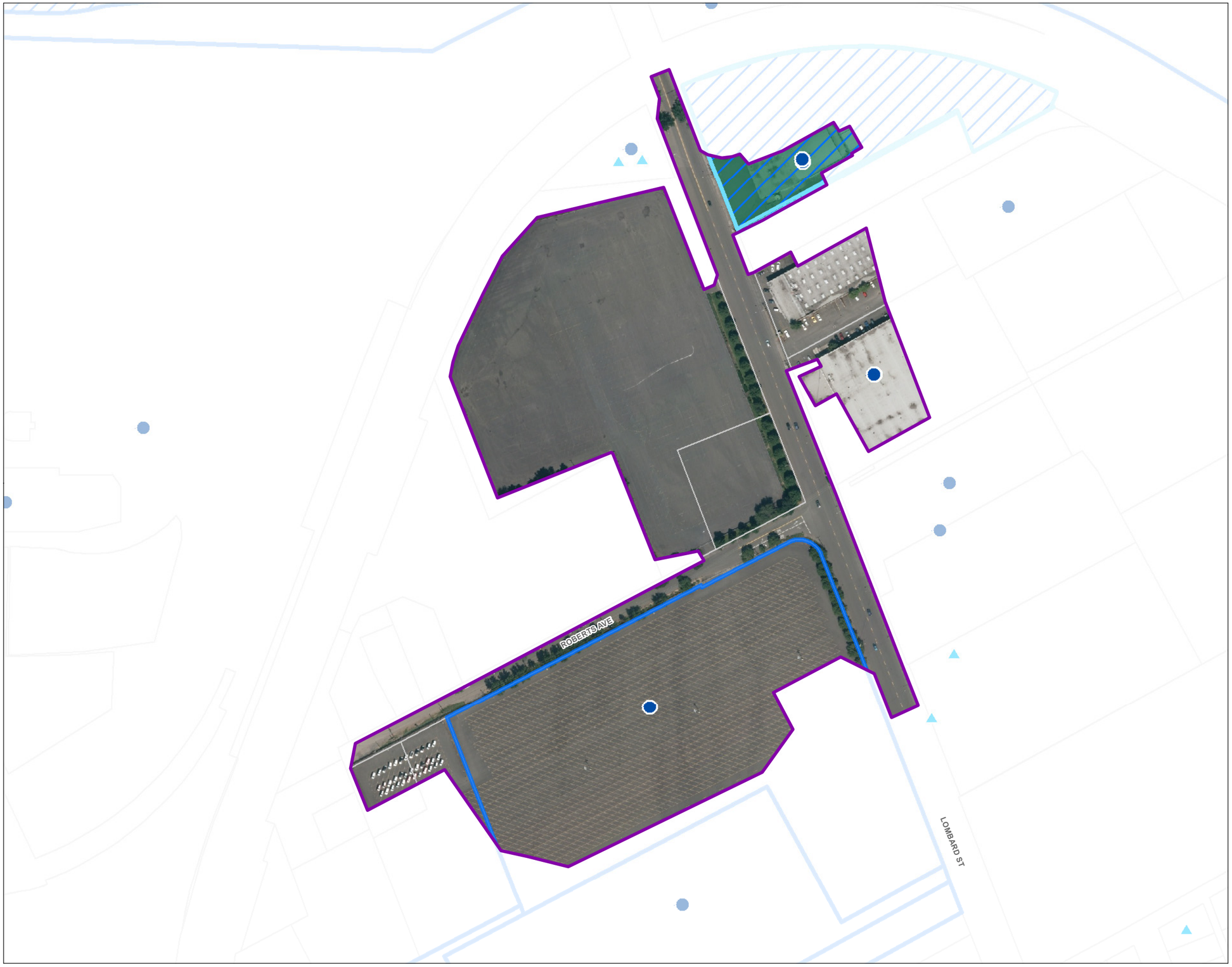

FIGURE 2

Basin 52C
Upland Site Source Controls

Basin 52C
Tax Lot

DEQ Stormwater SCE

SCE not needed or low priority

All Other Features

NPDES Stormwater Discharge Permit
City Discharge Authorization
NPDES No Exposure Certification
Stormwater Treatment Facility
Site Inspection - BES Industrial Stormwater Program
Discharges to City Outfall
Portland Harbor Hydroboundary

N

0 100 200 300
Feet

MAP NOTES:
Date: December 31, 2013
Data Sources: BES, METRO, Aerial Photo Taken 2012

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