

Completion Summary for City of Portland Outfall Basin S-2

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 S-2.

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) that will control future contaminant discharges to the Willamette River.

Basin S-2 is located on the east side of the Willamette River in the Swan Island industrial area, at the southwestern corner of Swan Island Lagoon. Basin S-2 includes a small area of the Swan Island Portland Shipyard DEQ Cleanup Program site and is primarily occupied by light industrial facilities.

Evaluation of inriver sediment data did not indicate that the outfall is a significant pathway for contaminants to Swan Island Lagoon. However, given the sensitive nature of the lagoon, the City collected and analyzed basin stormwater data to verify that source tracing was not needed. The City also conducted an inline solids investigation in the basin following a release to the system to confirm that ongoing sources were not present. Three DEQ Cleanup Program sites are located within the basin. There are two operable units (OU) of the shipyard partially in the basin; DEQ issued a source control decision at OU3 and a source control evaluation (SCE) is underway at OU1. DEQ determined that an SCE is not needed or is a low priority at the third site.

The City concludes that no further source investigation is warranted. Implementation of source control measures (SCM) at upland sites, together with the existing programmatic SCMs in the basin, are expected to provide necessary source control for Outfall S-2 discharges. Therefore, the City has met the remedial investigation (RI)/SCM objectives for Basin S-2.

2 Introduction

This Completion Summary presents a weight-of-evidence evaluation of whether further source investigation is needed in Basin S-2, 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 S-2 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 S-2 discharges to the southwestern corner of Swan Island Lagoon on the east side of the Willamette River at approximately River Mile 9.1. The drainage area for the Basin S-2 conveyance system is approximately 27 acres. 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, the basin includes a water quality drainage swale along the northwestern portion of N. Ballast Street. The City constructed this lined vegetated swale in 2012 to reduce total suspended solids loading to Outfall S-2.

Additional detail on the Outfall S-2 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 *Outfall Basin S-2 Sediment Trap Investigation, Technical Memorandum No. OF S2-1* (BES, 2012).

3.2 Land Use and Potential Upland Sources

Basin S-2 is located in the Swan Island industrial area. Current land use in the basin is mostly light industrial (see Figure 1). Industrial operations in the basin include truck servicing and repair, truck assembly and testing, light manufacturing (e.g., electrical testing equipment and stage and theater equipment), and machine shop services. Outdoor activities at several of the industrial sites in the basin are primarily vehicle parking.

Sites that were identified as potential sources include three sites that are in the DEQ Cleanup Program, 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 the status of stormwater pathway evaluations. DEQ has issued a source control decision to a portion of the Shipyard site (OU3) and a stormwater SCE is underway at OU1. DEQ determined that a stormwater pathway evaluation at the other site is either not needed or is a low priority.

Table 1. DEQ Cleanup Program Sites in Basin S-2

DEQ Cleanup Program Site	Site COIs ⁽¹⁾	Site Stormwater Pathway Evaluations ⁽²⁾
Vigor Industrial/Swan Island Portland Shipyard OU1 (ECSI #271)	VOCs, PAHs, TPH, PCBs, metals, butyltins, phthalates	Source Control Evaluation In Progress
Swan Island Portland Shipyard OU3 (ECSI #271)/Crosby and Overton (ECSI #877)	PCBs	Source Control Decision ⁽³⁾
Automatic Vending (ECSI #1430)	TPH ⁽⁴⁾	Need for Source Control Evaluation to be Determined/Low Priority

Notes:

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

(1) Unless otherwise noted, site COIs 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) Source: DEQ Milestone Report, Figure 1b, "Status of Stormwater Source Control Evaluations, January 2013" (DEQ, 2013a).

(3) DEQ issued the source control decision after the January 2013 Milestone Report was completed.

(4) Site is not listed in Appendix Q of the draft FS. ECSI database (DEQ, 2013b) lists TPH in subsurface soil as a site contaminant.

Industrial sites covered, or historically covered, by National Pollutant Discharge Elimination System (NPDES) stormwater regulations also were considered as potential sources of pollutants to the City conveyance system. Table 2 lists sites within the basin that currently hold, or historically had, NPDES permits to discharge to the Basin S-2 conveyance system. Figure 1 shows sites with current NPDES permits. Note that the City operates under an NPDES Municipal Separate Storm Sewer System (MS4) stormwater permit that also covers basin drainage areas.

Table 2. Current⁽¹⁾ and Historical NPDES Permit Coverage in Basin S-2

Address	Company	Permit Type	Time Period
5555 N Channel	Port of Portland – Ship Repair	Stormwater (1200-L)	1993 – 1996
	Cascade General	Stormwater (1200-Z)	1996 – 2008
	Vigor Industrial LLC⁽²⁾	Stormwater (1200-Z)	2008 – Present

Notes:

NPDES = National Pollutant Discharge Elimination System

(1) Current permits are indicated in bold.

(2) Multiple tenants are included in the permit coverage areas.

3.3 Outfall Setting

Outfall S-2 discharges to an area of potential concern (AOPC 17b-Slip) identified by the U.S. Environmental Protection Agency (EPA) based on elevated concentrations of PCBs, phthalates, polycyclic aromatic hydrocarbons (PAH), metals, and other contaminants in river sediment (EPA, 2010). In addition to Outfall S-2, four other City outfalls (Outfalls M-1, M-2, M-3, and S-1) and more than 50 non-City outfalls discharge to AOPC 17b-Slip. Historically, overwater ship repairs also occurred along the west shore of the lagoon.

4 Basin Screening and Source Investigations

The City identified Basin S-2 as a Priority 4 for source tracing, based on the lack of elevated contaminant concentrations in the vicinity of Outfall S-2 (CH2M HILL, 2004). Priority 4 basins are considered the lowest priority for identifying sources. However, given the sensitive nature of the lagoon, the City collected and analyzed basin stormwater data in 2007 to verify that source tracing was not needed (BES, 2010). As part of the City's stormwater screening evaluation, the City collected stormwater samples from the downstream end of the basin (i.e., representing all collective discharges to the system). 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 S-2 (BES, 2010).

In 2009, a fire at the Daimler Trucks North America (Daimler) facility in the western portion of the basin (5411 N. Lagoon) resulted in contaminant releases to the City storm system. As part of the release response, a contractor cleaned the City storm line between the site and Outfall S-2. The City analyzed solids material removed from the line for disposal. Concentrations of polychlorinated biphenyls (PCB), semivolatile organic compounds (SVOC), and metals were elevated, but it could not be determined whether contaminant concentrations were related to the release, related to historical releases, or indicative of ongoing sources to Basin S-2. In 2011, to verify that major current sources were not present, the City conducted a sediment trap investigation in the western portion of the basin. In addition, the City required the Daimler site to characterize stormwater discharged from the site to verify that additional source control was not needed.

The City analyzed solids samples for contaminants detected in the spill response cleanout as well as organotins.¹ Evaluation of the 2011 source investigation data indicated that contaminant concentrations in solids discharging to the conveyance system are low and do not suggest the current presence of major contaminant sources. The investigation also concluded that offsite migration of tributyltin from OU1 of the Swan Island Shipyard to Basin S-2 likely is occurring (BES, 2012). This pathway is discussed in more detail in the Basin S-1 Completion Summary.

Table 3 lists investigations and evaluations completed by the City in the Basin S-2 conveyance system.

¹ Organotins were not analyzed in the cleanout sample, but had been detected in soils analyzed from nearby catch basins on N. Lagoon Avenue, during a source investigation in the adjacent Basin S-1 (BES, 2012b).

Table 3. City Investigations in the Basin S-2 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)
2009	Analyze solids removed from western portion of the basin, as part of release response activities, to characterize material for disposal.	Outfall Basin S-2 Sediment Trap Investigation (TM No. OF S2-1) (BES, 2012)
2011	Investigate stormwater solids to verify that major sources were not present in the western portion of the basin.	Outfall Basin S-2 Sediment Trap Investigation (TM No. OF S2-1) (BES, 2012)

The City's investigation and data evaluation did not identify any current major sources of contaminants in Basin S-2.

5 Completion of Source Identification

The lines of evidence evaluated to confirm that source tracing is complete include (1) results of source investigation activities conducted in the basin (and upland site information) and (2) land use at remaining upland areas not undergoing DEQ Cleanup program investigation or redevelopment. Findings from this evaluation are summarized below.

- *Source Investigation Results:* The City's stormwater screening evaluation (BES, 2010) and stormwater solids investigation did not identify any analytes as potentially warranting further source tracing in Basin S-2.
- *Upland Investigation Coverage and Land Use:* The majority of the land use in Basin S-2 is light industrial (see Figure 1). Figure 2 displays the spatial extent of upland site investigation and other programmatic controls (see key to figures provided at beginning of this Appendix). As shown in Figure 2, three DEQ Cleanup Program sites are in the basin; SCE is pending at one site, a source control decision has been issued at the second site, and DEQ has determined that an SCE is not needed or is a low priority at the third site.

Land use at sites not covered by DEQ Cleanup or Water Quality Programs consists of distribution facilities and a few offices, storage, transportation, and manufacturing facilities (BES, 2000). All sites within the basin have been inspected by the City Industrial Stormwater Program to evaluate and provide technical assistance on industrial exposures to stormwater, and several sites do not have outdoor industrial operations. Current and future industrial activities that are exposed to stormwater are being 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 S-2 source investigation is complete and there are no current major contaminant sources in the basin.

6 Basin Source Controls

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

One type of programmatic source control is the elimination of stormwater exposures to industrial activities. Table 4 lists sites that hold, or historically held, an NPDES No Exposure Certification.

Table 4. Sites with No Exposure Certification (NEC) in Basin S-2⁽¹⁾

Address	Company	NEC Time Period
5050 N. Lagoon	Stagecraft Industries	2010 - Present
5061 N. Lagoon	AM for Electronics	2010 - Present
3838 N Ballast	Kach Machine Works	2000 - Present

Notes:

(1) Current NECs are indicated in bold.

Table 5 summarizes additional site-specific, programmatic, and conveyance system source controls completed to date for Basin S-2.

Table 5. Basin S-2 Source Controls

Site/Area	Source Controls	Implementation Timeframe
Source Control Measures (SCM) at DEQ Cleanup Program Sites⁽¹⁾		
Vigor Industrial/Swan Island Portland Shipyard OU1 (ECSI #271)	Site has determined that stormwater treatment is warranted at the site. Design discussions are underway with DEQ.	To be determined; SCM planning is in progress.
Swan Island Portland Shipyard OU3 (ECSI #271) / Crosby and Overton (ECSI #877)	Cleaned portions of the onsite stormwater lines, inlets, and paved areas.	2008 - 2009
Automatic Vending (ECSI #1430)	Not needed.	NA
City Conveyance System		
N. Lagoon Avenue	The western portion of the stormwater conveyance system in N. Lagoon Avenue was cleaned in response to a contaminant release from a fire at the Daimler Facility.	2009
N. Ballast Street	The City constructed a water quality swale to reduce solids loading to Basin S-2. The swale treats stormwater discharged from the northwest half of N. Ballast Street, between N. Commerce and Lagoon Avenues.	2012
Other (Programmatic Source Controls)⁽²⁾		
Daimler Corp 2 Test Center; Daimler Corp 3 Test Center; DSU-Peterbuilt & GMC	City Discharge Authorization⁽³⁾	Ongoing
See listing in Table 2	NPDES 1200-Z Stormwater Permit Requirements	Ongoing
See listing in Table 4	NPDES No Exposure Certifications	Ongoing

Notes:

DEQ = Oregon Department of Environmental Quality; NPDES = National Pollutant Discharge Elimination System; ECSI = Environmental Cleanup Site Information; NA = not applicable

(1) For upland sites, description of SCMs are based on reports on file with DEQ.

(2) Programmatic source controls are described in detail in Municipal Report.

(3) 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 S-2 and no current major sources of contaminants to the City conveyance system were identified. Therefore, future discharges from Outfall S-2 are unlikely to represent a significant source of contaminants to the river. However, given the sensitive nature of the lagoon, the City will continue to look for opportunities with existing and

future City stormwater programs to reduce suspended solids loading from the basin 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 S-2.

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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- BES. 2012. Outfall Basin S-2 Sediment Trap Investigation, Technical Memorandum No. OF S2-1. City of Portland, Bureau of Environmental Services. June 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. 2013a. Milestone Report, Upland Source Control at the Portland Harbor Superfund Site, January 2013. Prepared by the Oregon Department of Environmental Quality. January 2013.
- DEQ. 2013b. DEQ Site Summary Full Report – Details for ECSI Site ID 14301, Automatic Vending. DEQ Environmental Cleanup Site Information Database (ECSI), updated August 30, 1993; accessed January 22, 2013.
<http://www.deq.state.or.us/lq/ECSI/ecsidetail.asp?seqnbr=1430>
- 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 S-2 Overview and Conveyance System Source Controls

Figure 2: Basin S-2 Upland Site Source Controls

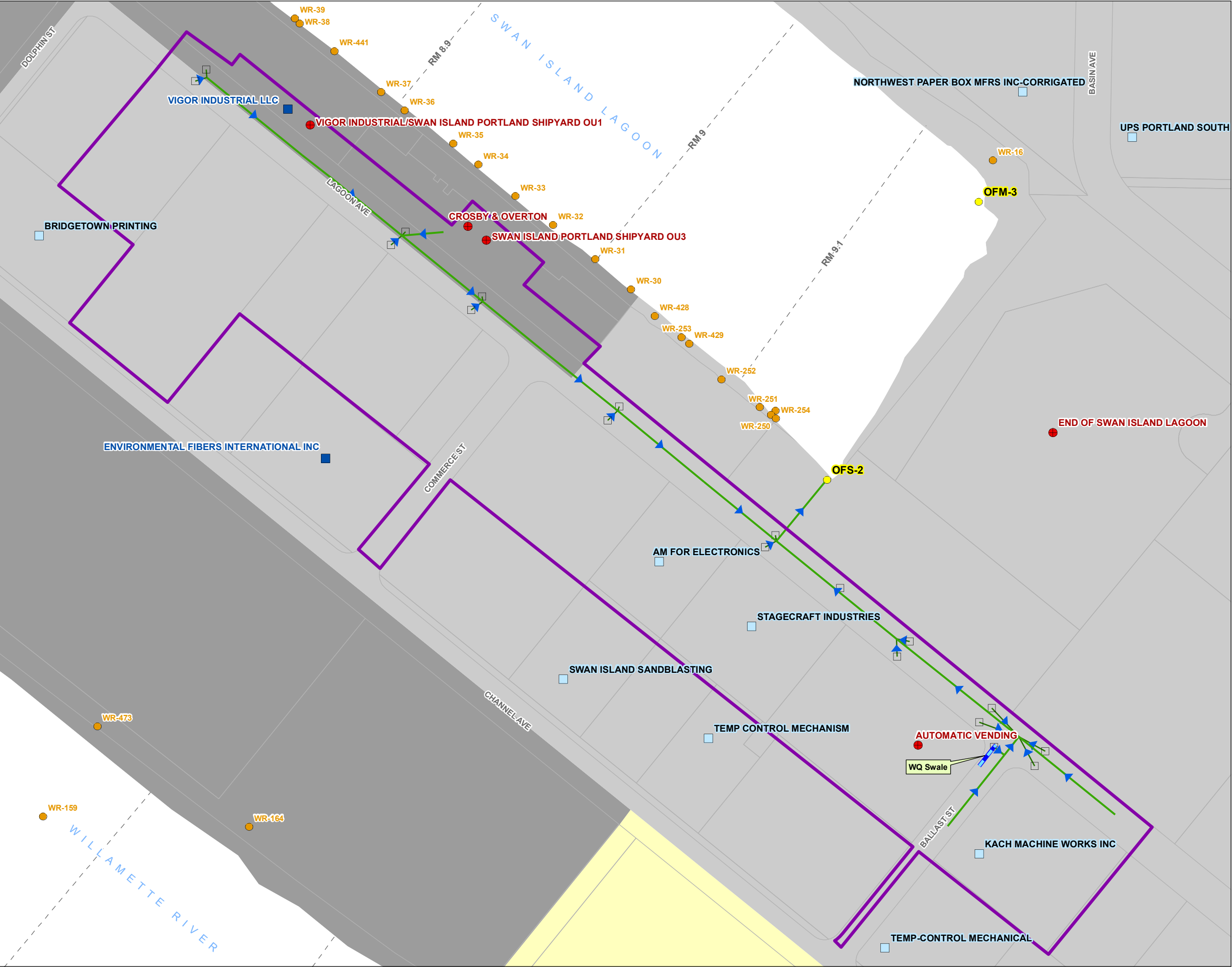
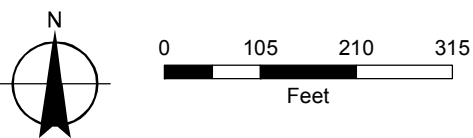


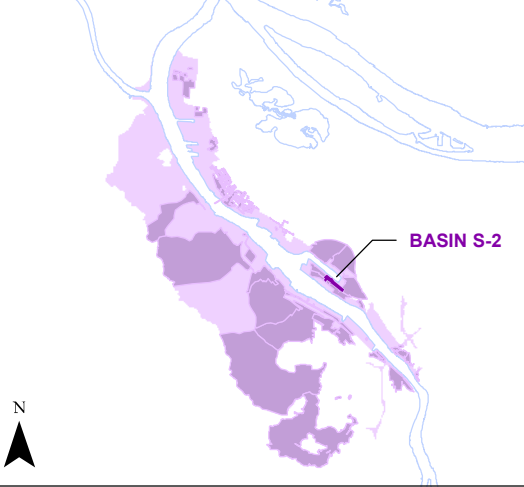
FIGURE 1
Basin S-2
Overview and Conveyance
System Source Controls

- Basin S-2
- DEQ ECSI Site
- NPDES Stormwater Permit
- NPDES No Exposure Certification
- Conveyance System**
 - Storm Line
 - Water Quality (WQ) Swale
 - Catch Basin
 - City Outfall
 - Non-City Outfall
- Land Use/Zoning**
 - Heavy Industrial
 - Light Industrial
 - General Employment
- All Other Data**
 - River Mile (RM)
 - Tax Lot
 - Discharges to City Outfall
 - Portland Harbor Hydroboundary



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



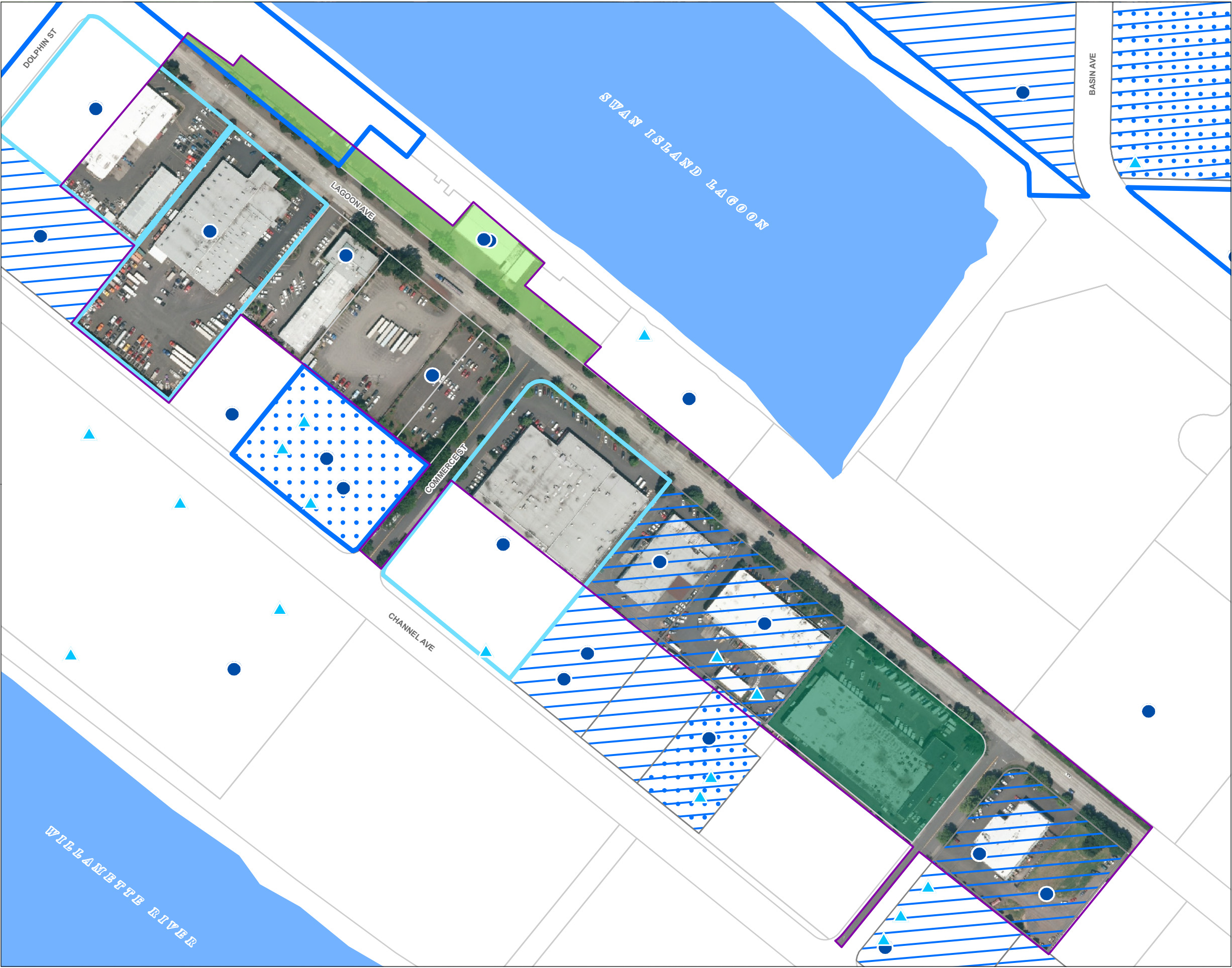
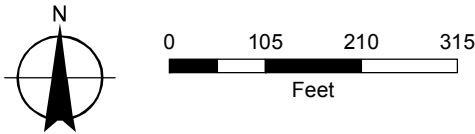


FIGURE 2
Basin S-2
Upland Site Source Controls

- Basin S-2
- Tax Lot
- DEQ Stormwater SCEs**
 - SCE implemented or pending
 - SCE not needed or low priority
- All Other Features**
 - NPDES Stormwater Discharge Permit
 - City Discharge Authorization
 - NPDES No Exposure Certification
 - >50% of Site Area Redeveloped Under City SWMM
 - Stormwater Treatment Facility
 - Site Inspection - BES Industrial Stormwater Program
 - Discharges to City Outfall
 - Portland Harbor Hydroboundary



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

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