

Completion Summary for City of Portland Outfall Basin 44

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 44.

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.

Outfall 44 is located at approximately River Mile (RM) 11.2, on the east side of the Willamette River in the historical Albina area. The outfall discharges to a reach of the river (RM11E) that has been targeted for focused inriver and upland investigations in response to detections of elevated concentrations of polychlorinated biphenyls (PCB) and other contaminants in river sediment, water, and fish tissue samples collected from this area. Current development in the basin includes an electrical power substation, light manufacturing operations (e.g., window inserts), a recycling facility, commercial buildings, artist studios, a railroad corridor, and paved roadways.

Source investigation activities included screening basin storm and solids data to determine the potential for sources to be present in the basin, and subsequent stormwater, inline solids, and surface soil sampling at selected upgradient locations to identify specific source areas in the basin. The results of the basin-level screening indicated that sources of PCBs were present in Basin 44, but not major sources of other contaminants. Subsequent investigation by the City, and by PacifiCorp at its Albina Substation, indicated that runoff from areas with contaminated erodible soils on and adjacent to the active and former substation properties likely contributed to the elevated PCB concentrations observed in the Basin 44 samples. PacifiCorp implemented source control measures (SCM) at and adjacent to the site. After completion of PacifiCorp's SCMs at the substation, the City collected stormwater samples from multiple locations in the basin; the results indicated that there are no current major PCB sources in Basin 44.

The City has identified all major sources of contaminants in the basin and necessary controls are being implemented under DEQ and/or City authority. Therefore, the City has met the remedial investigation (RI)/SCM objectives for Basin 44.

2 Introduction

This Completion Summary presents a weight-of-evidence evaluation of whether further source investigation is needed in Basin 44, 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 44, the City has met the joint 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 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 44 discharges to the east side of the Willamette River at approximately RM 11.2. The outfall conveys stormwater from an approximately 16-acre drainage basin. In addition to the main storm line to the outfall, the conveyance system includes branches along N. River and N. Loring Streets and the intersecting streets between the river and N. Interstate Avenue.

In 2002, the City completed installation of stormwater treatment in the storm line along N. Loring Street. This work was done as part of the Lower Albina Overcrossing Project, which entailed the construction of a new vehicle ramp from the Albina area up to N. Interstate Avenue. Construction of the ramp, on property acquired by the City, required implementation of stormwater treatment in accordance with the BES Stormwater Management Manual (SWMM). Because ramp stormwater discharged to multiple locations, including Basin 44, the project was allowed to implement offsite treatment to meet this requirement. The City installed a sedimentation manhole in Basin 44 to treat approximately 5 acres of basin drainage area (BES, 2010).

Figure 1 shows the location of the outfall and drainage basin boundary and provides an overview of the associated stormwater conveyance system. Additional detail on the Outfall 44 stormwater conveyance system and associated drainage basin is included in the *Albina Riverlots: City Basin Information and Source Investigation Approach Technical Memorandum* (BES, 2008) and the *Outfall Basin 44 Source Investigation Report* (BES, 2011).

3.2 Land Use and Potential Upland Sources

Basin 44 is located in the historical Albina area. The riverfront in this area has been used for industrial purposes since at least the early 1900s. Current land use in the basin is light industrial and includes an electrical power substation, light manufacturing operations (e.g., window inserts), a recycling facility, commercial buildings, artist studios, a railroad corridor, and paved roadways.

Sites that were identified as potential sources include three sites in (and one site formerly in) the basin 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 site pathway evaluations. Of the three sites in the basin, one (PacifiCorp) has completed implementation of stormwater SCMs and currently is conducting a source control evaluation (SCE) under DEQ oversight. DEQ determined that SCEs at the remaining two sites currently in the basin are not needed. Stormwater from a portion of the fourth site (Glacier Northwest) discharged to Basin 44 at the time of the City's source investigation activities, but has since disconnected from the system; this site also is conducting an SCE under DEQ oversight.

Table 1. DEQ Cleanup Program Sites in Basin 44

DEQ Cleanup Program Site	Site COIs ⁽¹⁾	Site Pathway Evaluations	
		Stormwater Pathway ⁽²⁾	Preferential Groundwater Pathway ⁽³⁾
PacifiCorp Albina Riverlots (ECSI #5117)	<i>Stormwater:</i> TPH, PCBs <i>Groundwater:</i> No Sampling Reported	Source Control Evaluation In Progress	Source Control Evaluation in Progress
Valvoline (ECSI # 3215)	<i>Stormwater:</i> No Sampling Reported ⁽⁴⁾ <i>Groundwater:</i> No Sampling Reported ⁽⁴⁾	Source Control Evaluation Not Needed	Source Control Decision Equivalent
Vermiculite Northwest, Inc. (Former) (ECSI # 2761)	Asbestos ⁽⁵⁾	Source Control Evaluation Not Needed	Not Shown
Glacier Northwest (ECSI # 5449) ⁽⁶⁾	<i>Stormwater:</i> No Sampling Reported ⁽⁴⁾ <i>Groundwater:</i> No Sampling Reported ⁽⁴⁾	Source Control Evaluation In Progress	Source Control Evaluation in Progress

Notes:

TPH = total petroleum hydrocarbons; COIs = contaminants of interest; PCBs = polychlorinated biphenyls; ECSI = Environmental Cleanup Site Information; DEQ = Oregon Department of Environmental Quality

- (1) Unless otherwise noted, 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) Source: DEQ Milestone Report, Figure 1b, "Status of Stormwater Source Control Evaluations, January 2013" (DEQ, 2013).
- (3) Source: DEQ Milestone Report, Figure 3, "Groundwater Source Control Evaluation Status, January 2013" (DEQ, 2013).
- (4) Source: Table 4.2-2 in the Portland Harbor RI/FS Draft Final Remedial Investigation Report (Integral et al., 2011).
- (5) Site is not listed in Appendix Q of the draft FS or Table 4.2-2 of the Draft Final RI. ECSI database lists asbestos as a potential hazardous substance at this site. (DEQ, 2000).
- (6) Site is no longer in Basin 44. The northwestern portion of the site (former KF Jacobsen lease area) formerly discharged to the Basin 44 conveyance system but these connections were rerouted to a private Glacier outfall in May 2011 (ERM, 2012).

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 in the basin that historically held NPDES permits to discharge to the Basin 44 stormwater conveyance system. No sites currently in the basin hold NPDES permits. Note that the City operates under an NPDES Municipal Separate Storm Sewer System (MS4) stormwater permit that covers basin drainage areas.

Table 2. Historical NPDES Permit Coverage in Basin 44⁽¹⁾

Address	Company	Permit Type	Time Period
2308 N Clark	Valvoline Co N Clark	Stormwater (1200-H)	1993 – 1996
		Stormwater (1200-Z)	1998 – 1999
1208 N River	KF Jacobsen & Co Inc-Plant ^(1,2)	Gravel Mining (WPCF 1000)	1997 – 2001
		Stormwater for Gravel Mining (1200-A)	2001 – 2011

Notes:

NPDES = National Pollutant Discharge Elimination System; WPCF = Water Pollution Control Facilities

(1) Ross Island Sand & Gravel Co. is listed as a tenant covered under this permit.

(2) KF Jacobsen & Co. operations that discharged to Basin 44 were rerouted to a private outfall in May 2011. The site no longer discharges to Basin 44.

3.3 Outfall Setting

Outfall 44 discharges to a reach of the river (referred to as RM11E) that the U.S. Environmental Protection Agency (EPA) has designated as an area of potential concern (AOPC 25) based on elevated concentrations of PCBs, metals, and pesticides (EPA, 2010). In addition to Outfall 44, 3 other City outfalls (Outfalls 43, 44A, and 45), 1 Oregon Department of Transportation outfall (WR-306), and approximately 12 private industrial outfalls also discharge to AOPC 25. Overwater activities (e.g., dock operations, material loading and unloading) occur in the AOPC in the vicinity of Outfall 44.

4 Basin Screening and Source Investigations

The City initiated phased investigations in Basin 44 in 2008 as part of its evaluation of City basins discharging to RM11E, to determine whether there were major contaminant sources in the basin (BES, 2011). During Phase 1 of the investigation, the City collected and analyzed stormwater grab samples and concurrent inline sediment trap samples in 2008-2009 to determine the potential for sources to be present in the basin. The Phase 1 stormwater samples were collected at a location representative of cumulative discharges from the basin; the samples were analyzed for a broad suite of analytes and the results evaluated using a conservative screening approach. Phase 1 basin screening results indicated the potential presence of major sources of PCBs to the Basin 44 stormwater conveyance (BES, 2011).

During Phase 2 of the investigation, the City collected additional stormwater, inline solids, and surface soil samples at selected upgradient locations to evaluate potential source areas in the basin. The highest total PCB concentration for the Phase 1 basin-level stormwater samples was detected in a sample collected during the time of a 2008-2009 transformer replacement project at PacifiCorp's Albina Substation. Additionally, the Phase 2 solids sample with the highest PCB concentration was from a catch basin that the City observed to be capturing erodible soils migrating offsite from the vicinity of the transformer replacement project. Based on these results and the spatial pattern of PCB concentrations observed throughout the basin for the Phase 2 stormwater samples, the active substation site was determined to be a major source of PCBs to the City conveyance system (BES, 2011). These sample results supported DEQ's request for PacifiCorp to enter the DEQ Cleanup Program. PacifiCorp's subsequent investigations in the vicinity of the active substation properties identified the presence of PCBs in erodible soils at and adjacent to the site (Bridgewater, 2011).

Results of Phase 2 stormwater and solids sampling at upgradient locations in the basin also indicated a potential PCB source to a manhole located in N. Clark Avenue just northeast of the railroad tracks. Based on land use and operations in the vicinity, the City was not able to identify any potential sources. To determine whether the source of the PCBs detected at this location were legacy contaminants from historical industrial operations in the area or indicative of a current major source, the City cleaned the catch basins and connecting lines discharging to this manhole, installed catch basin filters to accumulate solids discharging to the system, and then resampled inline solids in 2010. Total PCB concentrations in the post-cleanout samples were low, indicating that a major current source of PCBs is not present in this portion of the basin (BES, 2011). During the Phase 2 investigation, the City also investigated possible sources of other contaminants (e.g., chlordane and phthalates) and determined that major sources of these contaminants are not present in the basin (BES, 2011).

As a final step to confirm that current PCB sources to Basin 44 had been controlled following completion of PacifiCorp's SCMs at the Albina Substation, the City collected one round of stormwater samples from six locations within the basin in 2012 (BES, 2012). The purpose of this investigation was to supplement performance monitoring data being collected by PacifiCorp by collecting data during a large storm event – conditions in which PCB-contaminated erodible soils could be mobilized to the Basin 44 conveyance system. Results indicated that there are no current major PCB sources in Basin 44 (BES, 2012).

Table 3 lists investigations and evaluations completed by the City and others in the Basin 44 conveyance system.

Table 3. Investigations in the Basin 44 Stormwater Conveyance System

Data Collection Period	Party	Purpose	Documentation
NA	City	Describe existing inriver sediment data collected adjacent to the Albina Riverlots shoreline (RM11E), describe adjacent City basins and potential sources, and identify next steps to prioritize outfall basins for future source tracing activities.	Albina Riverlots: City Basin Information and Source Investigation Approach, Technical Memorandum (BES, 2008)
2008 – 2011	City	Collected stormwater and solids data as part of a stormwater pathway screening evaluation of Basin 44 to determine whether Basin 44 is a significant pathway for contaminant discharges from upland sources to the river.	Outfall Basin 44 Source Investigation Report, City of Portland Outfall Project, ECSI No. 2425 (BES, 2011)
2011 – 2012	PacifiCorp	As part of SCM performance monitoring for the Albina Substation, PacifiCorp collected stormwater samples from City catch basins adjacent to the site.	Interim Stormwater Source Control Measures Completion Report, Albina Substation (Bridgewater, 2011)
2012	City	Final stormwater sampling to confirm that additional source control measures are not needed in the basin.	Outfall Basins 43 and 44 Stormwater Investigations. Technical Memorandum No. OF43/44-1 (BES, 2012)

Notes:

RM = River Mile; SCM = source control measure; NA = not applicable

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) results of source tracing activities conducted in the basin (and upland site information) and (2) land use at remaining upland areas not undergoing DEQ Cleanup Program investigation. Findings from this evaluation are summarized below.

- *Source Tracing Results:* Results of the Basin 44 source investigation activities indicated a source of PCBs in the basin (BES, 2011). City source tracing results and data subsequently collected by PacifiCorp at its Albina Substation confirmed that contaminated erodible soils at and adjacent to the substation were a current source of PCBs to the basin (BES, 2011; Bridgewater, 2011). Data collected by the City and PacifiCorp following implementation of source controls indicate that this source has been controlled and that there are no current major sources of PCBs to the conveyance system (Bridgewater, 2011; BES, 2012). City source investigation results confirmed that major sources of other contaminants are not present in the basin (BES, 2011).
- *Upland Investigation and Land Use:* Figure 2 displays the spatial extent of DEQ Cleanup Program site investigation and other programmatic controls (see key to figures provided at beginning of this Appendix) in the current basin. As shown in Figure 2, almost all sites in the basin:
 - Are investigating the stormwater pathway and implementing SCMs under DEQ Cleanup Program authority;
 - Have been designated by DEQ as not needing an SCE or as a low priority for completing an SCE;
 - Are covered under NPDES industrial stormwater regulations; and/or
 - Are monitored for stormwater exposures through periodic inspections under the City's Industrial Stormwater Program.

Land use at sites not covered by DEQ Cleanup or Water Quality Programs consists of commercial operations, artist studios, and a parking lot. Industrial activities exposed to stormwater are being addressed by the DEQ Water Quality NPDES Program and non-industrial activities are not a known or suspected source of contaminants to the City stormwater conveyance system.

Based on these lines of evidence, the City concludes that the Basin 44 source investigation 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 major sources identified in the basin. Source control for major and minor sources in Basin 44 includes SCMs completed at one contaminated site under a DEQ Cleanup Program agreement, specific controls implemented in the City's shared stormwater conveyance system (e.g., targeted line cleaning), and ongoing City and DEQ programs that are described in the Municipal Report. Source controls implemented in Basin 44 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 (NEC).

Table 4. Sites with No Exposure Certification (NEC) in Basin 44 ⁽¹⁾

Address	Company	Time Period
2293 N Interstate	Stumptown Printers Worker Cooperative, Inc.	2012 – Present
2317 N Clark	Steelab LLC	2011 – Present
2223 N Randolph	Cloudburst	2012 – Present
2336 N Randolph	Forge Graphic Works	2013 - Present

Notes:

(1) Current NECs are indicated in bold.

Table 5 summarizes additional site-specific, programmatic, and conveyance system source controls for Basin 44.

Table 5. Basin 44 Source Controls

Site/Area	Source Controls	Implementation Timeframe
Source Control Measures (SCM) at DEQ Cleanup Program Sites ⁽¹⁾		
PacifiCorp Albina Riverlots (ECSI #5117)	PacifiCorp removed PCB-contaminated erodible soils from the active Albina Substation site and surrounding areas; repaved the access aprons to the site; and installed additional onsite berms to control overland stormwater runoff from the substation (Bridgewater, 2011).	2010
	PacifiCorp plugged the only onsite catch basin at the Substation that formerly connected to the Basin 44 conveyance system and installed an infiltration basin to infiltrate all stormwater from the drainage area for this catch basin. Permanent decommissioning of the catch basin is planned for 2013 (Bridgewater, 2012).	2012 - 2013
Glacier Northwest (ECSI # 5449)	Glacier Northwest/ CalPortland rerouted an approximately 1-acre portion of the site (former KF Jacobsen lease area) from Basin 44 to a private outfall, eliminating all stormwater contributions from this site to the river via Outfall 44 (ERM, 2012).	2011
Valvoline (ECSI #3215)	The site removed contaminated soil and capped the excavated area with clean fill.	2003
Vermiculite Northwest, Inc. (Former) (ECSI # 2761)	NA ⁽²⁾	NA

Site/Area	Source Controls	Implementation Timeframe
City Conveyance System		
N. Loring Street	The City installed a sedimentation manhole in the N. Loring Street line, as part of the Lower Albina Overcrossing Project. The structure reduces total suspended solids loading from approximately 5 acres in the eastern portion of the basin. The City cleaned catch basins and storm lines after completion of the ramp.	2002
N. Harding, N. Clark, and N. Lewis Avenues	As part of the localized source investigation for PCBs, the City cleaned the manholes and all associated catch basins and catch basin laterals on these streets in the drainage area between the railroad corridor and N. Interstate Avenue.	2009
N. Loring Street at N. Randolph Avenue	As part of the localized source investigation for chlordane, the City cleaned a manhole and affiliated catch basins and catch basin lateral lines at this intersection.	2009
N. Loring Street	In response to a transformer fire and oil release at the PacifiCorp Albina Substation in January 2010, PacifiCorp cleaned asphalt, sidewalks, impacted catch basins, and an adjacent City sedimentation manhole. PacifiCorp placed clean gravel in the right-of-way as a temporary SCM for contaminated erodible soils (PBS, 2010).	2010
N. River and N. Loring Streets, and vacated N. Harding Avenue	Following completion of contaminated soil removal activities at and around the Albina Substation, PacifiCorp cleaned catch basin inlets, connecting laterals, and approximately 805 linear feet of City stormwater lines in the vicinity of the site (Bridgewater, 2011).	2010
Other (Programmatic Source Controls)⁽³⁾		
Cloudburst	City Discharge Authorization⁽⁴⁾	Ongoing
See listing in Table 4	NPDES No Exposure Certifications	Ongoing

Notes:

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

(1) Descriptions of DEQ Cleanup Program site SCMs are based on information in reports on file with DEQ.

(2) DEQ has determined that a source control evaluation is not needed or is a low priority at this site (DEQ, 2013).

(3) Programmatic source controls are described in the Municipal Report.

(4) Additional site-specific stormwater pollution controls required and implemented under City Code.

All major contaminant sources have been controlled under the programs identified above. 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. For example, during the initial phase of the basin source investigation, BES conducted site inspections at a number of sites (see Figure 2) to identify possible industrial exposures and to provide assistance on implementation of stormwater best management practices. 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 44 and identified the major and potential sources of contaminants to the City conveyance system. Because necessary SCMs at identified sources have been implemented or are being determined under appropriate DEQ and City regulatory authorities, future discharges from Outfall 44 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 44.

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. 2008. Albina Riverlots: City Basin Information and Source Investigation Approach. Technical Memorandum, to K. Tarnow (DEQ) from D. Sanders and L. Scheffler (BES). [Attachment A: City Source Investigations for Basins 43, 44, and 44A, Fall 2008/Winter 2009 Sampling and Analysis Plan.] December 18, 2008.
- BES. 2009. Letter to Cloudburst Recycling, Inc., Regarding Stormwater Evaluation Inspection. June 29, 2009.
- BES. 2010. Former Tucker Building Storm System Investigation and Source Control Activities Report. City of Portland, Bureau of Environmental Services. April 2010.
- BES. 2011. Outfall Basin 44 Source Investigation Report, City of Portland Outfall Project, ECSI No. 2425. June 2011.
- BES. 2012. Outfall Basins 43 and 44 Stormwater Investigations. Technical Memorandum No. OF43/44-1. October 25, 2012.
- Bridgewater Group, Inc. 2011. Interim Stormwater Source Control Measures Completion Report, Albina Substation. Prepared for PacifiCorp Environmental Remediation Company. December 2011.
- Bridgewater Group, Inc. 2012. E-mail communication from Jeff Dresser (Bridgewater) to Dan Hafley (DEQ), Re: PacifiCorp Albina Substation Update. October 2, 2012.
- DEQ. 2000. DEQ Site Summary Full Report – Details for ECSI Site ID 2761, Vermiculite Northwest, Inc. (Former). DEQ Environmental Cleanup Site Information (ECSI) Database, updated November 2000; accessed February 14, 2013.
<http://www.deq.state.or.us/lq/ECSI/ecsidetail.asp?seqnbr=2761>
- DEQ. 2012. DEQ Site Summary Full Report – Details for ECSI Site ID 5449, Glacier Northwest. DEQ Environmental Cleanup Site Information (ECSI) Database, updated May 2012;

accessed February 14, 2013.

<http://www.deq.state.or.us/lq/ECSI/ecsidetail.asp?seqnbr=5449>

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.

ERM. 2012. Draft Storm Water Source Control Screening Evaluation, Portland Cement Terminal, Portland, Oregon. Prepared for Glacier NW, Inc., by ERM. May 2012.

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.

PBS. 2010. Letter to PacifiCorp Re: Albina Substation Environmental Soil Sampling. June 23, 2010.

List of Figures

Figure 1: Basin 44 Overview and Conveyance System Source Controls

Figure 2: Basin 44 Upland Site Source Controls

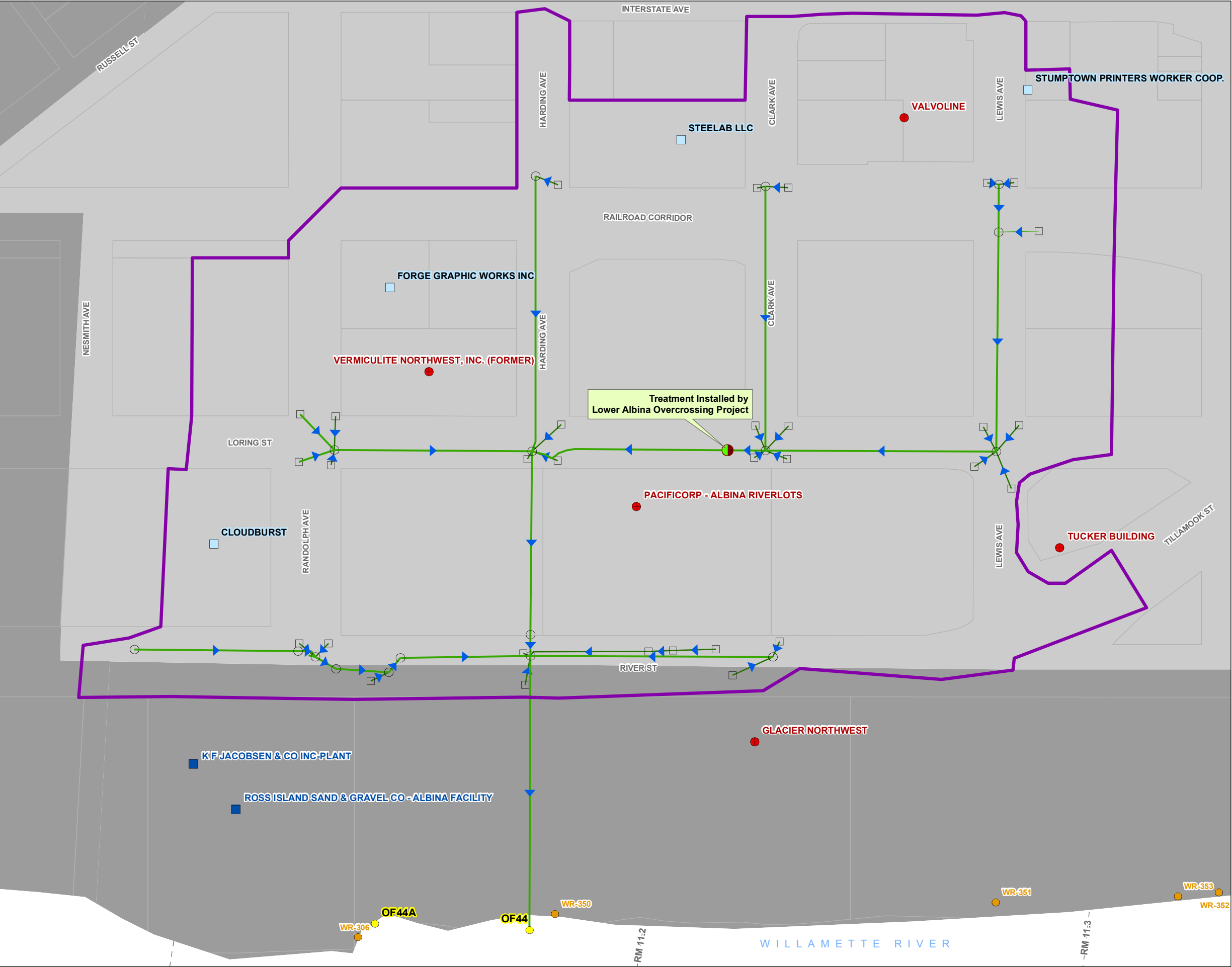
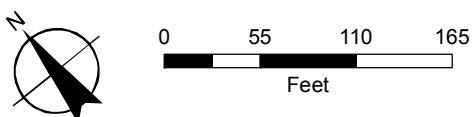


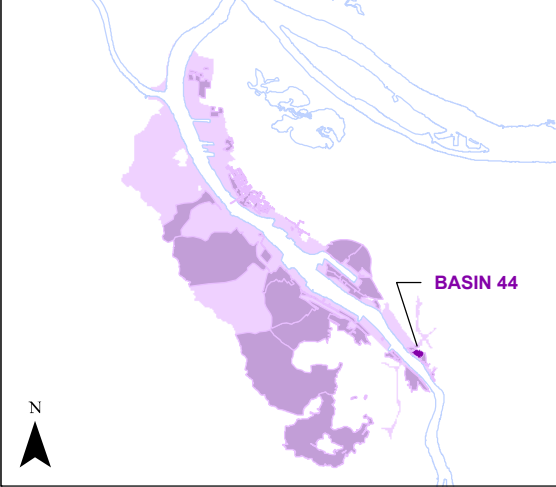
FIGURE 1
Basin 44
Overview and Conveyance
System Source Controls

- Basin 44
- DEQ ECSI Site
- NPDES Stormwater Permit
- NPDES No Exposure Certification
- Conveyance System**
 - Storm Line
 - Manhole
 - Catch Basin
 - Sediment Removal Structure
 - City Outfall
 - Non-City Outfall
- Land Use/Zoning**
 - Heavy Industrial
 - Light Industrial
- All Other Data**
 - River Mile (RM)
 - Tax Lot
 - Discharges to City Outfall
 - Portland Harbor Hydroboundary



MAP NOTES:
Date: December 19, 2013
Data Sources: BES, METRO

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



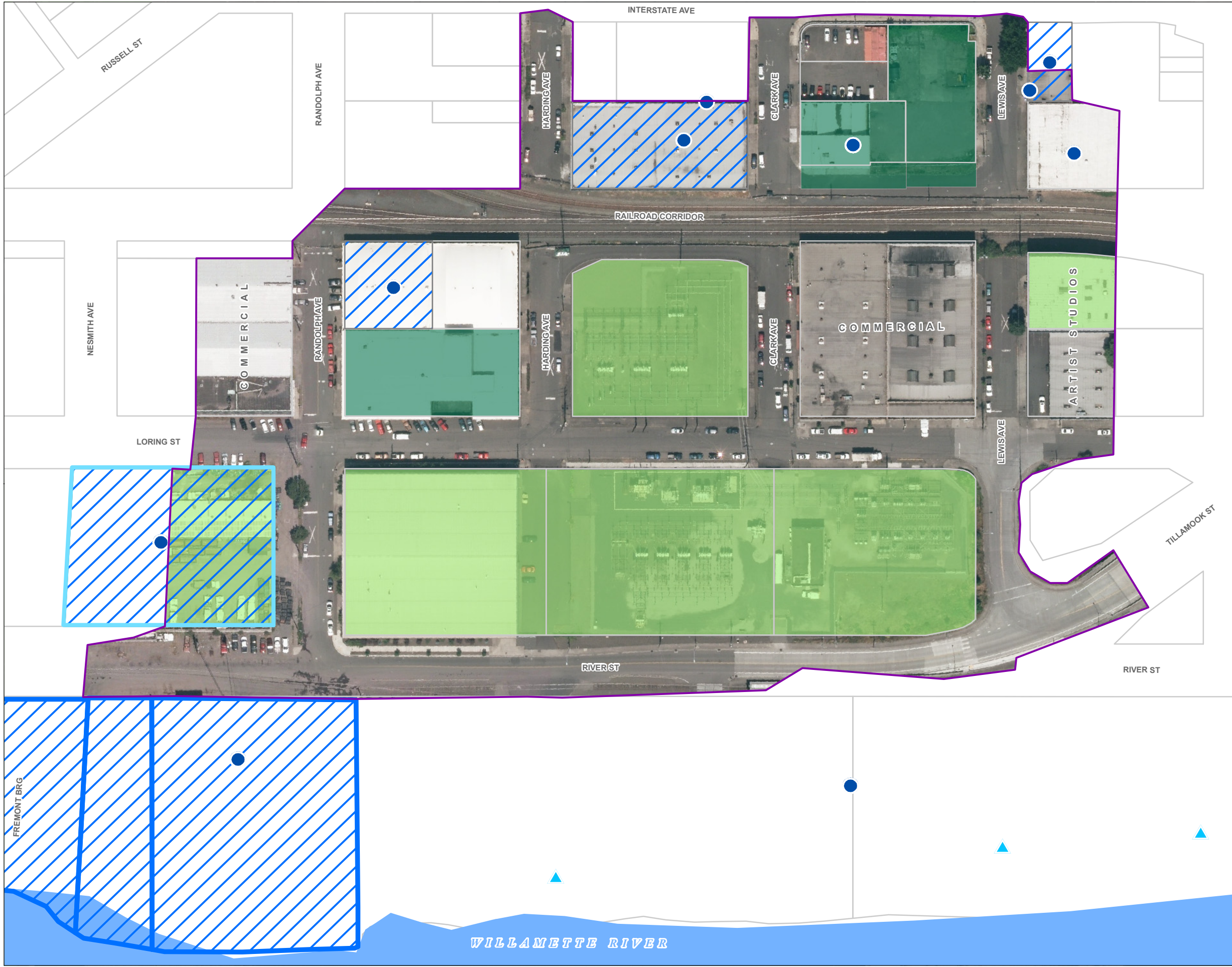
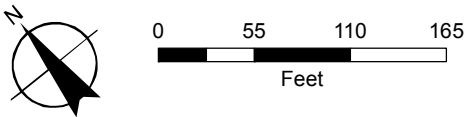


FIGURE 2
Basin 44
Upland Site Source Controls

- Basin 44
- 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
 - 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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