Lower Duwamish Waterway Source Control Status Report 2017

June 2019

Publication No. 19-09-138

Printed on recycled paper

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Lower Duwamish Waterway Source Control Status Report 2017

Produced by

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With Assistance from:
City of Seattle
King County
Port of Seattle
U.S. Environmental Protection Agency

June 2019

Waterbody No. WA-09-1010
Publication No. 19-09-138

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Acronyms and Abbreviations

2LAET	Second Lowest Apparent Effects Threshold
ASAOC	Administrative Settlement Agreement and Order on Consent
B&K	Beckwith & Kuffel
BDC	Boeing Developmental Center
BEHP	bis(2-ethylhexyl)phthalate
BMP	best management practice
CAP	Cleanup Action Plan
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CMI	corrective measures Implementation
COC	chemical of concern
cPAH	carcinogenic polycyclic aromatic hydrocarbon
CSL	cleanup screening level
CSO	combined sewer overflow
DCE	dichloroethylene
DW	dry weight
EAA	early action area
Ecology	Washington State Department of Ecology
EI	environmental indicator
EMF	Electronics Manufacturing Facility
EMJ	Earl M. Jorgensen Company
EOF	emergency overflow
EPA	U.S. Environmental Protection Agency
FS	feasibility study
GTSP	Georgetown Steam Plant
HCIM	hydraulic control interim measure
HPAH	high molecular weight polycyclic aromatic hydrocarbon
HWTR	Hazardous Waste & Toxics Reduction
ICS	Industrial Container Services
ISB	in-situ biological
ISCO	in-situ chemical oxidation
ISCR	in-situ chemical reduction
ISGP	Industrial Stormwater General Permit
KCIA	King County International Airport
KCIW	King County Industrial Waste
LAET	Lowest Apparent Effects Threshold
LDW	Lower Duwamish Waterway
LDWG	Lower Duwamish Waterway Group
LPAH	low molecular weight polycyclic aromatic hydrocarbon
LTST	long-term stormwater treatment
µg/kg	micrograms per kilogram
µg/L	micrograms per liter
mg/kg	milligrams per kilogram
mg/L	milligrams per liter

Acronyms and Abbreviations (Continued)

MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MS4	municipal separate storm sewer system
MTCA	Model Toxics Control Act
NA	not applicable
NBF	North Boeing Field
ND	not detected
ng/kg	nanograms per kilogram
NPDES	National Pollutant Discharge Elimination System
NTCRA	non-time-critical removal action
OC	organic carbon
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PCE	tetrachloroethene
PCHB	Pollution Control Hearings Board
PCUL	preliminary cleanup level
PLA	Pollutant Loading Assessment
PLP	potentially liable person
PRG	preliminary remediation goal
QAPP	Quality Assurance Project Plan
RAL	remedial action level
RCRA	Resource Conservation and Recovery Act
RI	remedial investigation
RM	river mile
ROD	Record of Decision
SAP	Sampling and Analysis Plan
SCAP	Source Control Action Plan
SCIP	Source Control Implementation Plan
SCL	Seattle City Light
SCO	sediment cleanup objective
SD	storm drain
SEPA	Washington State Environmental Policy Act
SIM	Seattle Iron and Metals
SIU	significant industrial user
SMS	Washington State Sediment Management Standards
SOW	statement of work
SPS	KCIA South Pump Station
SPU	Seattle Public Utilities
SVE	soil vapor extraction
SVOC	semivolatile organic compound
SWPPP	Stormwater Pollution Prevention Plan
TAC	Technical Advisory Committee
TCE	trichloroethylene
TCP	Toxics Cleanup Program

Acronyms and Abbreviations (Continued)

TEQ	toxic equivalency quotient
TOC	total organic carbon
TPH	total petroleum hydrocarbons
TSCA	Toxic Substances Control Act
TSS	total suspended solids
USGS	U.S. Geological Survey
UST	underground storage tank
VCP	Voluntary Cleanup Program
VOC	volatile organic compound
WANG	Washington Air National Guard
WQ	Water Quality
WSDOT	Washington State Department of Transportation
WW	wet weight

Executive Summary

This report summarizes source control activities conducted by the Lower Duwamish Waterway (LDW) Source Control Work Group between January 1 and December 31, 2017. Previous status reports provided an overview of the LDW site and a summary of source control activities conducted between 2003 and December 2016. This report contains updated information related to LDW source control, including:

- The status of source control action items, business inspections, and source tracing activities;
- The status of site assessments and cleanups;
- Other source control activities conducted during 2017 at each of the 24 identified source control areas.

Source Control Action Items

Ecology grouped the 24 source control areas that drain to the LDW Superfund site into three larger sub-areas: upper reach, middle reach, and lower reach. Ecology developed Source Control Action Plans (SCAPs) for each of the 24 source control areas between February 2003 and September 2013. The SCAP for each source control area includes a list of action items needed to identify and control contaminant sources.

A total of 710 source control action items have been identified as of the end of 2017; 489 of these action items have been completed or were no longer necessary (69 percent).

- 136 of 188 high priority action items (72 percent) have been completed;
- 205 of 330 medium priority action items (62 percent) have been completed;
- 148 of 192 low priority action items (77 percent) have been completed.

The status of 47 action items was updated to completed or canceled during the current reporting period; these are listed in Appendix B, Table B-1. The current status of action items is shown in Figure ES-1.

A total of 52 high priority action items remain to be completed (Appendix B, Table B-2); of these, 17 action items are in the upper reach, 21 are in the middle reach, and 14 are in the lower reach. High priority action items that are not yet complete are listed in Table ES-1 at the end of this section.

Source Control Implementation

Business inspections and source tracing efforts continue. During the current reporting period, Ecology's Water Quality and Hazardous Waste inspectors and Ecology Toxics Cleanup Program staff continued to coordinate facility inspections and priorities with Seattle Public Utilities (SPU) and King County inspectors to avoid overlap in the field. SPU conducted 297 inspections/site visits at 197 facilities. King County Industrial Waste inspects significant industrial users operating under a waste discharge permit once per year (18 facilities in 2017), and other industrial users at least every five years (Appendix D1). King County Stormwater Services conducted over 50 source control inspections at 23 facilities in unincorporated areas of the LDW basin in 2017 (Appendix D2). Ecology conducted 91 inspections at 65 facilities during 2017.

Source tracing activities also continued during the current reporting period. SPU and King County collected in-line storm drain sediment trap and grab samples and storm drain catch basin grab samples. King County collected solids samples in combined sewers.

Site characterization or cleanup is in progress at several facilities that are known or suspected threats to LDW sediments. The U.S. Environmental Protection Agency (EPA) is managing sites under the Resource Conservation and Recovery Act (RCRA); Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); and/or the Toxic Substances Control Act (TSCA). EPA is managing the Rainier Commons, Slip 4, Boeing Former Electronics Manufacturing Facility (EMF), Boeing Plant 2, Jorgensen Forge (outfall site and sediment site), Rhone-Poulenc, and Terminal 117 sites.

Ecology is managing the following sites under the Model Toxics Control Act (MTCA): Burlington Environmental/East of 4th Site, West of 4th Site, General Electric-Dawson Street Plant, Duwamish Marine Center, Fox Avenue Building, Whitehead Tyee Site, Crowley Marine Services 8th Avenue S, North Boeing Field/Georgetown Steam Plant (NBF-GTSP), Jorgensen Forge (upland of the EPA-managed area), Boeing Isaacson Thompson, 8801 Site, Boeing Field Chevron, Duwamish Shipyard, Glacier Northwest/Reichhold Chemical, Terminal 115 North, South Park Landfill, Douglas Management Dock, and Industrial Container Services (ICS)/Trotsky Property/Former Northwest Cooperage sites.

Other source control activities in progress or completed during this period include the following:

- Ecology published data reports summarizing sampling results for polychlorinated biphenyl (PCB) congeners and Aroclors in otter scat and groundwater samples collected in the Green-Duwamish watershed.
- Ecology and EPA continued work on the Pollutant Loading Assessment for the Green-Duwamish watershed.
- Ecology completed a statistical fingerprinting analysis for PCB congeners, using available data in sediment, surface water, tissue, storm drain solids/stormwater, air deposition, groundwater, and otter scat samples.
- SPU and King County International Airport (KCIA) cleaned storm drain lines.
- SPU continued testing new sediment trap designs to provide more effective collection of storm drain solids in small diameter pipes.
- SPU tested two treatment technologies for use at the planned South Park Water Quality Facility to treat stormwater runoff from the 7th Avenue S drainage system.
- King County continues to implement combined sewer overflow (CSO) control projects in the LDW: West Duwamish Wet Weather Storage, Georgetown Wet Weather Treatment Station, and Rainier Valley Wet Weather Storage and conveyance improvements.
- Ecology and King County worked on several studies related to contaminants and potential chemical loads associated with upstream Green River sediments and surface water.

Major source control activities completed during this reporting period are summarized below by source control area. Additional information is provided in Sections 3 through 5.

Upper Reach - East Side

River Mile (RM) 4.9 East (EAA-7: Norfolk CSO/SD)

- The Boeing Company (Boeing) collected sediment samples from the backfill area near outfall Boeing Developmental Center (BDC) outfall DC2 in September 2016 and September 2017 (Calibre 2018). Samples of accumulated sediment trap solids were collected in June 2016, October 2016, and September 2017. PCB concentrations in 2016/2017 storm drain solids were significantly higher than the previous year.
- Additional sampling was completed to evaluate conditions in upgradient portions of the south storm drain line, specifically at Building 9-101 (Calibre 2018). The supplemental samples were collected to identify potential contaminant sources to the storm drain line, and areas of concern within the stormwater conveyance system.
- In December 2017, Ecology issued an Administrative Order (Agreed Order No. DE-15600) to Boeing to address pollutants in stormwater samples that are above benchmark levels at the BDC (Ecology 2017y). This order requires Boeing to conduct monthly monitoring of several drainage areas within the RM 4.9 East source control area, including DC1, DC2 (the south storm drain), DC3, and DC4, for Industrial Stormwater General Permit (ISGP) benchmark pollutants, total suspended solids (TSS), total petroleum hydrocarbons (TPH), and PCBs. Sampling began in January 2018 (Calibre 2018).
- Boeing continues to monitor for PCBs in stormwater at the Military Flight Center pursuant to Administrative Order 10554 (Ecology 2014a). During 2017, total PCB concentrations ranged from <0.01 to 0.096 micrograms per liter (µg/L).
- Ecology issued Administrative Order 13932 in March 2017; the Order requires Boeing to submit an Engineering Report for treatment of stormwater discharges from the Military Flight Center (Ecology 2017f). Ecology did not approve the report, concluding that the engineering design does not demonstrate that the facility can meet the ISGP requirements. Implementation of stormwater treatment was due by October 31, 2017 (Ecology 2017m).
- In June 2017, Unified Grocers submitted an Engineering Report to Ecology's Water Quality program, proposing installation of engineered catch basin inserts in those portions of the property where regulated industrial activities occur (Lean Environment 2017).
- G-Logics began remedial investigation (RI) field work at the Boeing Field Chevron site on behalf of the potentially liable persons (PLPs) in September 2016. On May 23, 2017, G-Logics submitted a draft RI Report to Ecology. Based on Ecology review comments and a September 22, 2017 meeting to review Ecology's concerns, G-Logics revised the RI Report and submitted a revised draft to Ecology on November 22, 2017.
- On November 29, G-Logics submitted a work plan for additional field activities at Boeing Field Chevron; these activities were approved by Ecology on December 11, 2017 and work began in January 2018 (G-Logics 2018). Activities include collection of soil, groundwater, and soil gas samples.

RM 4.3-4.9 East (Boeing Developmental Center)

- On February 8, 2017, Ecology issued Administrative Order 14012 to the BDC (Ecology 2017b). Boeing appealed Administrative Order 14012 to the Pollution Control Hearings Board in March 2017. Ecology and Boeing negotiated Agreed Order DE-15600 and settled Boeing's appeal of Administrative Order 14012 in December 2017. Boeing completed installation of the best management practices (BMPs) (a combination of catch basin filter treatment inserts and/or metalsorb media) in December 2017.
- Under Agreed Order DE-15600, Boeing agreed to modify the Stormwater Pollution Prevention Plan (SWPPP) and begin monitoring at least once in all months when discharge occurs during BDC regular business hours at 12 of the 19 drainage areas at BDC, including DC5, DC9, DC10, DC11, DC12, DC13, and DC19 within the RM 4.3-4.9 East source control area (Ecology 2017y). Boeing is required to monitor for ISGP benchmark pollutants, TSS, TPH, and PCBs, beginning in January 2018.
- Boeing has also continued cleanup activities under RCRA at the BDC property for petroleum and chlorinated solvent contamination of groundwater.

RM 3.9-4.3 East (Slip 6)

- During quarterly stormwater monitoring at the 8801 Site in October 2017, TSS exceeded the ISGP permit effluent limit at Outfall No. 3. Insurance Auto Auctions replaced all catch basin inserts within the stormwater basin draining to Outfall No. 3, increased sweeping within the basin, and reviewed the effectiveness of BMPs in place. Insurance Auto Auctions will continue to monitor TSS concentrations (Windward 2017e).
- EPA agreed that corrective measures for the Rhone-Poulenc site East Parcel are complete, and granted a final determination of Corrective Action Complete without Controls for the East Parcel (EPA 2017a).
- EPA is working with Container Properties LLC (property owner) to continue the Corrective Measures Study at the western portion of the Rhone-Poulenc site, starting with a pilot study to inject carbon dioxide into the groundwater to assess the ability to lower pH at the site (AMEC 2017a). EPA approved the work plan for this study in 2017 but access issues to the study area delayed the start of the study until early 2018.
- In December 2017, Ecology issued an Administrative Order (Agreed Order No. DE-15600) to Boeing to address pollutants in stormwater samples that are above benchmark levels at the BDC (Ecology 2017y). This order requires Boeing to conduct monthly monitoring of several drainage areas including DC15 (within the RM 3.9-4.3 East source control area) for ISGP benchmark pollutants, TSS, TPH, and PCBs. Sampling began in January 2018 (Calibre 2018).

RM 2.8-3.7 East (EAA-4: Boeing Plant 2 to Jorgensen Forge)

- The in-water work at Boeing Plant 2 is complete. Boeing has completed the majority of interim soil cleanups and installed stormwater treatment systems to prevent contaminants from entering the LDW.

- Boeing submitted a Corrective Measures Study Phase Semiannual Shoreline Groundwater Monitoring Report to EPA in March 2017, and Quarterly Shoreline Groundwater Monitoring Results report in May 2017. These reports were not available during preparation of this Source Control Status Report, but reportedly indicate either compliance with current proposed cleanup levels, or where exceedances exist, are within 10 times the proposed final cleanup levels. Trend analysis indicates either downward or no statistically discernable trends (EPA 2017c).
- In July 2017, Ecology entered into Agreed Order DE-14143 with the Earl M. Jorgensen Company (EMJ). The Agreed Order requires EMJ to complete a Remedial Investigation/Feasibility Study (RI/FS) and to prepare a draft Cleanup Action Plan (CAP) for the upland portion of the site (Ecology 2017k).
- In April 2017, Floyd|Snider conducted a subsurface investigation to define the horizontal and vertical limits of PCB-impacted soil on the Jorgensen Forge property south of the Boeing Plant 2 OA-11 cleanup unit (Floyd|Snider 2017c). Boeing conducted an interim measure excavation at OA-11 in September 2016. A small portion of the OA-11 interim measure excavation extended onto the Jorgensen property; an unanticipated increase in PCB concentrations was discovered in samples from the southern sidewall of the excavation (on the Jorgensen property), with PCB concentrations above the 50 parts per million TSCA threshold for Subtitle C disposal.
- Phase 2 of the Jorgensen Forge Outfall Site Removal Action was completed in 2017 (Floyd|Snider 2018a). Land use restrictions will address remaining contamination left in place.
- EMJ agreed to evaluate the need for additional cleanup work to address the remaining sediment contamination under an amendment to the order (effective August 2017). Sampling is expected to take place in 2018 and 2019.

Upper Reach - West Side

RM 3.8-4.2 West (Sea King Industrial Park)

- Beckwith & Kuffel performed an RI in 2017 to delineate the nature and extent of groundwater contamination at the site, and to supplement data collected during a 2014 investigation. Several chlorinated solvents exceeded MTCA Method A or B cleanup levels.
- The Glen Acres Homeowners Association collected soil and groundwater samples in January/February 2017 at the location of a former gasoline underground storage tank. A second groundwater monitoring event was conducted in August.
- An RI/FS and Remedial Action Report were completed for the Sea Mar Community Health Center Site in 2017. Petroleum hydrocarbons, carcinogenic polycyclic aromatic hydrocarbons (cPAHs), lead, cadmium, arsenic, and chlorinated volatile organic compounds (VOCs) were identified as contaminants of concern. Approximately 2,000 tons of contaminated soil were removed, a petroleum underground storage tank (UST) was removed, and a stormwater detention vault was installed.

RM 3.4-3.8 West (EAA-5: Terminal 117)

- Ecology is negotiating an Agreed Order with South Park Marina PLPs for the completion of an RI/FS and draft CAP for the Site.
- In March 2017, the City of Seattle submitted a Terminal 117 Removal Action Construction and Completion Report for Phase 2, Adjacent Streets and Residential Yards Study, Part 2, Adjacent Streets and Stormwater to EPA (Integral 2017a). This report described the completion of a non-time-critical removal action (NTCRA) to address contaminated soil within the Phase 2 Adjacent Streets portion of the Terminal 117 Early Action Area (EAA).
- The Port of Seattle entered into an Environmental Covenant with Ecology on November 16, 2017. The purpose of the covenant is to restrict certain activities and uses for the property to protect public health and the environment and to protect the integrity of the removal action conducted at the site (Ecology 2017u).
- The Port of Seattle and the City of Seattle are developing a long-term monitoring and maintenance plan for the Terminal 117 site. The plan will address inspections of the upland area (bank and cap), monitoring of the offshore sediment and storm drain solids, and maintenance of the City's drainage/stormwater treatment system in the adjacent streets, post cleanup. The plan is expected to be completed in 2018.

Middle Reach - East Side

RM 2.8 East (EAA 3: Slip 4)

- The Crowley Marine Services 8th Avenue S property owner, Denovo Seattle, stopped work at the site due to financial difficulties in 2017. The property was placed in the hands of a court-appointed receiver. In December 2017, 8th Avenue Terminals agreed to take over work on the Agreed Order by addressing Ecology's comments on the August 2016 Draft Remedial Investigation Report. 8th Avenue Terminals worked on a revised report to be submitted to Ecology in 2018.
- Boeing conducted several additional groundwater sampling events at North Boeing Field (NBF) during 2017.
- King County completed an investigation at the Washington Air National Guard (WANG) facility, immediately upgradient from NBF, and under Willow Street. VOC contamination at WANG and Willow Street is believed to be distinct from the VOC contamination at NBF.
- Boeing conducted bioremediation treatment in selected areas at the Former Boeing EMF Site in November 2017. Boeing intends to conduct additional treatments in 2018 (King County 2018).

RM 2.3-2.8 East (Seattle Boiler Works to Slip 4)

- In February 2017, the PLPs for the Fox Avenue Building Site submitted an annual report to document the cleanup activities and monitoring that occurred in 2016 at the Fox Avenue Site (Floyd|Snider 2017a). Soluble sugar substrate was injected in selected wells in 2016, and performance monitoring was conducted in areas that had previously been injected with

soluble sugar or edible oil. Additional substrate injections and a site-wide groundwater monitoring event were planned for 2017 (Floyd|Snider 2017a).

- Seattle Iron and Metals proposed to conduct an interim action at the Whitehead Tyee site. The interim action will address limited areas of known soil contamination during installation of a stormwater conveyance and treatment system that is intended to reduce the transport of contaminants from the site to the LDW. In February 2017, Ecology issued a State Environmental Policy Act (SEPA) Determination of Nonsignificance for this interim action (Ecology 2017a). In April 2017, the PLPs submitted a final Interim Action Work Plan (Floyd|Snider 2017b).

RM 1.7-2.0 East (Slip 2 to Slip 3)

- Duwamish Marine Center continued to conduct RI activities during 2017. A Draft RI Report was due to Ecology in January 2018.
- The Georgetown Wet Weather Treatment Station is currently under construction. In 2015, prior to construction activities, an environmental site assessment was performed to evaluate the potential for environmental contamination beneath the site. Remedial actions were performed in three areas of the site in 2017 (CH2M 2017).
  - In January 2017, the Consolidated Freightways site was enrolled in the Voluntary Cleanup Program (VCP) (NW3050). Remedial excavations in four areas of the site were completed in March and April 2017. Oxygen release compound was spread across the bottoms of two excavations to enhance biodegradation of COCs in downgradient groundwater. Approximately 3,485 tons of contaminated soil and two USTs were removed from the site. Development of the property for the construction a 590,000-square foot industrial warehouse began in June 2017. The property owner planned to install monitoring wells upgradient, within, and downgradient of the groundwater plume and begin compliance groundwater monitoring to evaluate the effectiveness of the cleanup activities in 2018.
-
- A remedial excavation was performed at the Scougal Rubber site April 2017 to remove residual trichloroethylene (TCE) contamination in soil. The area of excavation was approximately 90 by 75 feet and 7 to 8 feet deep. Approximately 450 cubic yards of contaminated soil were removed from the site. Oxidation infiltration events were performed in October and November 2017 to reduce VOC concentrations remaining in soil and groundwater.
- Remedial actions were conducted at the former Kelly-Moore Site in 2015 and 2016; soil vapor extraction (SVE) and air sparge systems were installed in 2017. The SVE system began operating in October 2017. Kelly-Moore planned to start operating the air sparge system in 2018.

Middle Reach - West Side

RM 2.2-3.4 West (Riverside Drive)

- A preliminary investigation of soil, groundwater, and storm drains at Independent Metals Plant 1 and Independent Metals Storage Lot was performed in 2017. Contaminants did not exceed MTCA cleanup levels and no cracks or deformations indicating a faulty storm sewer were observed (Pacific Crest 2017).
- In 2017, The Riley Group decommissioned five USTs at the Silver Bay Logging / former Plant 2 property (RGI 2017c). Activities included a geophysical survey to identify the presence of USTs in the North Yard, East Yard, and South Yard; USTs were identified in the South and East Yards. The UST Site Assessment indicated that a release had occurred at UST5 in the East Yard; soil samples indicated the present of diesel-range hydrocarbons in soil at concentrations above MTCA Method A.

RM 2.1 West (1st Avenue S SD)

- In May 2017, Ecology's contractor collected soil and groundwater samples from several locations in the 7901 2nd Avenue S property, within the footprint of the former South Park Landfill. Ecology plans to use the results of this sampling effort to fill data gaps for PCBs, VOCs, SVOCs, TPH and metals in soil and groundwater (Leidos 2017a).
- Ecology issued a draft CAP for public review in October 2017 (Ecology 2017q). In November 2017 the PLPs submitted a supplemental SEPA Checklist for the South Park Landfill CAP. This SEPA checklist included long-term monitoring of the landfill cap/cover, landfill gas, and groundwater as well as environmental covenants to ensure long-term compliance with regulations and maintenance of the cleanup remedy (SPU 2017). Ecology signed a determination of nonsignificance for the South Park Landfill site on November 14, 2017 (Ecology 2017t).

Lower Reach - East Side

RM 1.0-1.2 East (King County Lease Parcels)

- On January 19, 2017, PSC Georgetown (Stericycle) submitted a revised In-Situ Bioremediation (ISB) and In-Situ Chemical Oxidation (ISCO) Phase II Revised Downgradient Area Pilot Study Work Plan (DOF 2017a, DOF 2017b) for the East of 4th Site. Based on results of 2016 bench scale and pilot studies, Stericycle and Ecology determined that further pilot testing was warranted before moving to full-scale remediation. ISB and additional ISCO remediation pilot test will be performed concurrently. Ecology approved the Work Plan on February 8, 2017.
- In May 2017, contractors for Stericycle conducted two studies designed to enhance the breakdown of 1,4-dioxane found in groundwater using underground methods: a (second) ISCO pilot study, and an in-situ bioaugmentation study.
- In November 2017, PSC Georgetown (Stericycle) submitted a Cleanup Implementation Report that documents the cleanup activities conducted at the East of 4th Avenue site (DOF 2017d).

- The West of 4th Site PLP Group submitted a work plan for conducting a pilot study in Site Unit 2 in April 2017. This study was designed to test the effectiveness of in-situ chemical reduction (ISCR) at reducing levels of trichloroethylene (TCE) and its degradation products in groundwater at and downgradient of 1st Avenue S. In June 2017 they submitted two work plans for pilot studies located in Site Unit 1.
- During the summer of 2017 the PLP Group and Ecology decided to abandon plans for a Site Unit 2 study in favor of an interim action to be implemented at Capital Industries' Plant 4 (located within Site Unit 2). The PLP Group prepared a new draft work plan and submitted the document to Ecology in July 2017. The interim action work plan proposed ISCO to treat soils and shallow groundwater beneath Plant 4 in areas with elevated levels of tetrachloroethene and associated degradation products.
- Ecology issued a determination of nonsignificance for an amendment to the Agreed Order, which requires new pilot studies and an interim action for the West of 4th Site, in September 2017 (Ecology 2017o). The Agreed Order amendment was finalized in November 2017 (Ecology 2017v).
- GE Aviation implemented Phase I of the ISCO remedy during March 2017 (AECOM 2018). The ISCO remedy included injection of sodium persulfate into the shallow and intermediate groundwater, continued operation of the hydraulic control system, continued operation of the vapor intrusion mitigation system, and institutional controls. Six months after injections were completed, monitoring results indicated no significant change compared to historical groundwater contamination concentration trends.
- GE Aviation conducted groundwater monitoring in November 2017. Results suggest that there were no groundwater exceedances of the cleanup levels near the Former GE Building. TCE and 1,1-dichloroethylene (DCE) were detected above the cleanup levels near the Liberty Ridge Building.

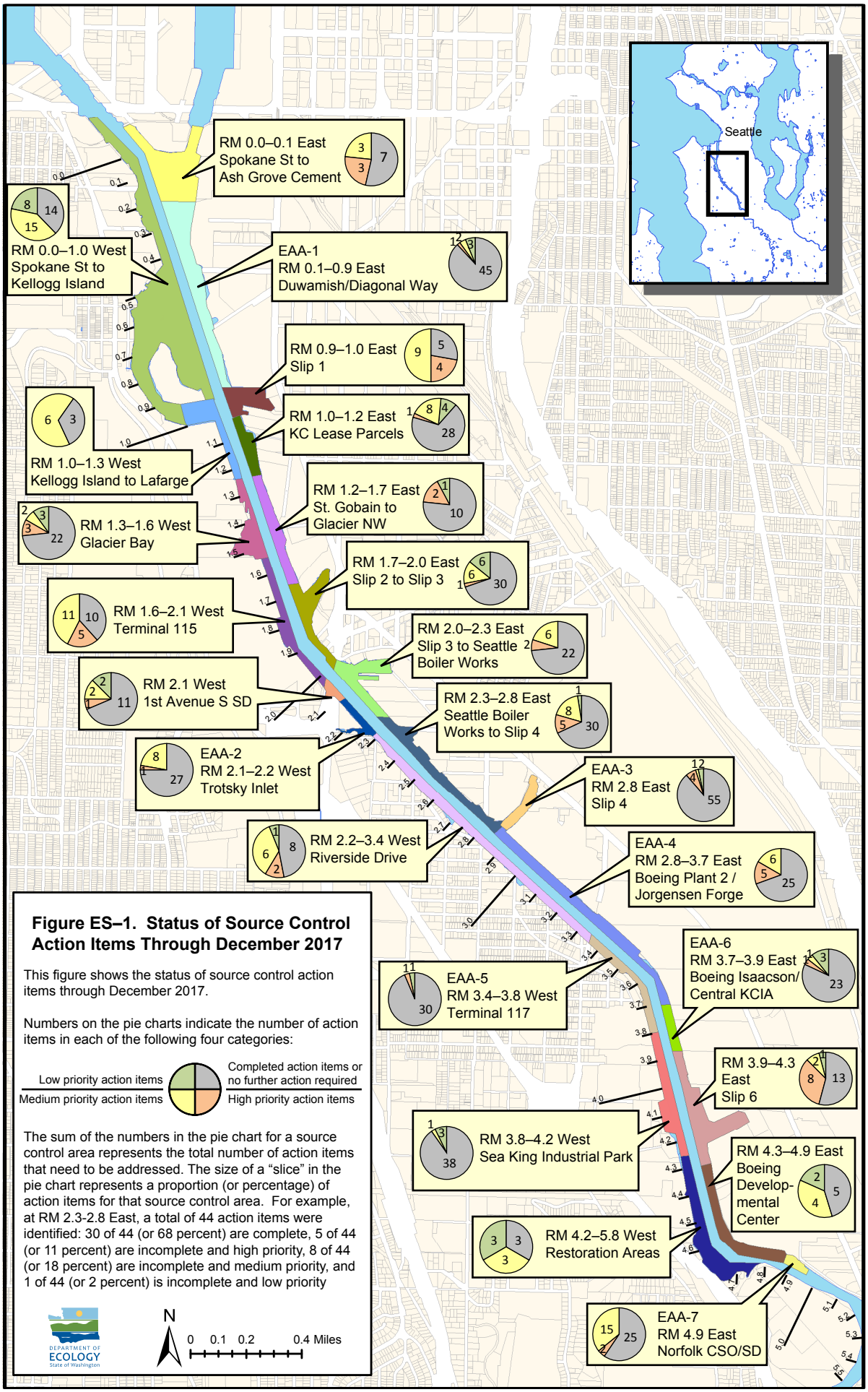
RM 0.1-0.9 East (EAA-1: Duwamish/Diagonal Way)

- On October 3, 2017, EPA sent an offer to negotiate letter to the Port of Seattle Terminals 106 and 108, along with a draft Administrative Settlement Agreement and Order on Consent (ASAOC) for Removal Action, Preliminary Assessment and Site Investigation, and Statement of Work. EPA and the Port continued to negotiate drafts of the ASAOC and Statement of Work (SOW) through 2017. The ASAOC was signed on April 5, 2018.
- A Phase IIb application was submitted to EPA in 2017 for the Rainier Commons Site. The application covers abatement of Building West, Building 7 West and South, Building 8 and 9 elevator shaft and parapet walls, Building 10 South and the catwalk. This work is under review.

Lower Reach - West Side

RM 1.3-1.6 West (Glacier Bay)

- Duwamish Shipyard submitted a revised RI Report in May 2017 (Anchor QEA 2017). Ecology subsequently provided additional comments (after the current reporting period).


RM 0.0–0.1 East
Spokane St to
Ash Grove Cement
3
3
7
RM 0.0–1.0 West
Spokane St to
Kellogg Island
8
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EAA-1
RM 0.1–0.9 East
Duwamish/Diagonal Way
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RM 0.9–1.0 East
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KC Lease Parcels
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4
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RM 1.0–1.3 West
Kellogg Island to Lafarge
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RM 1.2–1.7 East
St. Gobain to
Glacier NW
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RM 1.3–1.6 West
Glacier Bay
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RM 1.7–2.0 East
Slip 2 to Slip 3
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Boeing Plant 2 /
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EAA-7
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Norfolk CSO/SD
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2
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Seattle
Figure ES–1. Status of Source Control Action Items Through December 2017
This figure shows the status of source control action items through December 2017.
Numbers on the pie charts indicate the number of action items in each of the following four categories:
Low priority action items
Medium priority action items
Completed action items or no further action required
High priority action items
The sum of the numbers in the pie chart for a source control area represents the total number of action items that need to be addressed. The size of a "slice" in the pie chart represents a proportion (or percentage) of action items for that source control area. For example, at RM 2.3-2.8 East, a total of 44 action items were identified: 30 of 44 (or 68 percent) are complete, 5 of 44 (or 11 percent) are incomplete and high priority, 8 of 44 (or 18 percent) are incomplete and medium priority, and 1 of 44 (or 2 percent) is incomplete and low priority
DEPARTMENT OF ECOLOGY
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N
0 0.1 0.2 0.4 Miles

Table ES-1. High Priority Source Control Action Items to be Completed

Facility	Facility/ Site ID	Action Item	Action Item Category	Responsible Party	Status
Upper Reach					
RM 4.9 East (EAA-7: Norfolk CSO/SD)					
BDC-South	4581384	Continue sediment monitoring in the vicinity of the south storm drain sediment removal activities.	Cleanup	Boeing	In Progress
BDC-South	4581384	Continue monitoring storm drain solids.	Environmental Sampling	Boeing	In Progress
RM 3.9-4.3 East (Slip 6)					
8801 Site (Former PACCAR Site)	2072	Re-evaluate existing soil and groundwater data and compare to site-specific screening levels (to be developed) for metals, PAHs, petroleum hydrocarbons, PCBs, SVOCs, and VOCs as COCs in the LDW, and test for dioxin/furans.	Cleanup	Ecology, Property owner/operator	In Progress
8801 Site (Former PACCAR Site)	2072	Complete Phase 2 of the Sediment Evaluation Work, which includes sediment core sampling in selected locations in the LDW adjacent to the site.	Cleanup	Ecology, Property owner/operator	
8801 Site (Former PACCAR Site)	2072	Negotiate expanding the stormwater and storm drain solids monitoring to add COCs at the site. Review future monitoring results to determine if further actions are necessary.	Cleanup	Ecology, Property owner/operator	In Progress
Former Rhône-Poulenc Site	2150	Continue to monitor the effectiveness of the hydraulic interim control measure, and investigate the presence of elevated copper concentrations in groundwater outside the barrier wall and the potential leak in the barrier wall.	Cleanup	EPA, Property owner/operator	In Progress
Former Rhône-Poulenc Site	2150	Investigate and address shoreline bank contamination from historical site operations and releases (e.g. application of vanillin black liquor solids to the shoreline bank for weed control).	Cleanup	EPA, Property owner/operator	In Progress

Facility	Facility/ Site ID	Action Item	Action Item Category	Responsible Party	Status
Former Rhône-Poulenc Site	2150	Review the current SWPPP and Operations and Maintenance Plan. Make necessary changes and additions to prevent contaminants from potential upland sources (such as fuel leaks from damaged vehicles) from migrating to Slip 6 source control area sediments via the stormwater system.	BMP Implementation	Ecology, Property owner/operator	
Museum of Flight (MOF)	98798343	Monitor stormwater and/or storm drain solids at MOF and former BDC properties in the vicinity of USTs and associated groundwater contamination.	Environmental Sampling	Ecology, Property owner/operator	
Museum of Flight (MOF)	98798343	Identify the source and extent of groundwater contamination on the former BDC property, and conduct remedial action, as necessary.	Cleanup	Ecology, Property owner/operator	
RM 3.7-3.9 East (EAA-6: Boeing Isaacson/Central KCIA)					
Boeing Isaacson/Thompson Site	2218	If COCs in soil and groundwater are present at concentrations that pose a risk of sediment recontamination, then develop a plan for controlling these contaminant sources.	Cleanup	Ecology, Boeing	In Progress
RM 2.8-3.7 East (EAA-4: Boeing Plant 2/Jorgensen Forge)					
Boeing Plant 2	2100	Continue shoreline groundwater monitoring.	Cleanup	EPA, Boeing	In Progress
Boeing Plant 2	2100	Conduct a joint hydrologic investigation with Jorgensen Forge to provide additional hydrogeologic data at the boundary of the two facilities.	Source Assessment	Boeing, Jorgensen	
Boeing Plant 2	2100	Collect in-line sediment samples in the city of Seattle and city of Tukwila systems immediately prior to discharge to Plant 2's storm drain system.	Environmental Sampling	Ecology, Boeing	
Jorgensen Forge	2382	Develop a hydrogeologic site model as part of the source control investigation to characterize the groundwater	Source Assessment	Jorgensen, Boeing	In Progress

Facility	Facility/ Site ID	Action Item	Action Item Category	Responsible Party	Status
		system on site, including tidal influence.			
Jorgensen Forge	2382	Complete a Remedial Investigation/Feasibility Study of the upland site area	Cleanup	Jorgensen, Boeing	In Progress
RM 3.4-3.8 West (EAA-5: Terminal 117)					
Adjacent Streets/Dallas Ave.	NA	Continue monitoring of storm drain solids	Environmental Sampling	SPU, Port of Seattle	In Progress
Middle Reach					
RM 2.8 East (EAA-3: Slip 4)					
North Boeing Field / KCIA / I-5 Storm Drains	2387398, 2753918	Reinstall sediment traps and continue monitoring as needed.	Environmental Sampling	SPU, Boeing, King County	In Progress
North Boeing Field	2753918	Determine impact of remaining joint sealant material on PCB concentrations in stormwater.	Source Assessment	Ecology	In Progress
North Boeing Field	2753918	Continue source tracing in north drain line to identify and/or eliminate transport of PCBs to Slip 4.	Source Assessment	Boeing	In Progress
NBF-GTSP	2050	Conduct RI/FS and implement interim actions (as needed).	Cleanup	Ecology, Boeing, City of Seattle, King County	In Progress
RM 2.3-2.8 East (Seattle Boiler Works to Slip 4)					
S Garden Street and S Myrtle Street Storm Drains	NA	Conduct source tracing to identify potential contaminant sources to stormwater discharging to the LDW.	Source Assessment	SPU, Ecology	In Progress
Seattle Boiler Works, Inc.	17577864	Determine if the five outfalls that are not included in Seattle Boiler Work's NPDES permit are in use. If in use and Seattle Boiler Works is the source of discharge, modify the facility's stormwater permit to include these outfalls.	Inspection	Ecology	
Puget Sound Truck Lines	41684823	Determine whether the five outfalls identified at the property are active, and identify the source of discharge from these outfalls, if any.	Source Assessment	Ecology, Property owner/operator	

Facility	Facility/ Site ID	Action Item	Action Item Category	Responsible Party	Status
Crowley Marine Services	1940187	In conjunction with an Agreed Order for the Crowley Marine Services site, perform additional investigations that include collection of data on chemical concentrations in soil and groundwater at the western and southern portions of the property.	Cleanup	Property owner/operator	In Progress
Crowley Marine Services	1940187	Collect stormwater and/or solids samples from storm drain system to determine if onsite system is source of COCs found in waterway sediment.	Environmental Sampling	Ecology	In Progress
RM 2.0-2.3 East (Slip 3 to Seattle Boiler Works)					
S Brighton Street SD	NA	Conduct source tracing in the S Brighton Street SD basin.	Source Assessment	SPU, Ecology	In Progress
S River Street SD	NA	Conduct source tracing in the S River Street SD basin.	Source Assessment	SPU, Ecology	In Progress
RM 1.7-2.0 East (Slip 2 to Slip 3)					
Duwamish Marine Center	21945598	Require the property owner/operator to collect data on concentrations of chemical contaminants in river bank soils to assess the potential for sediment recontamination by erosion.	Cleanup	Ecology	
RM 2.2-3.4 West (Riverside Drive)					
Independent Metals Plant 2	16139	Request drainage information from Independent Metals or the current operator at this property for Outfalls 2109 and 2111 to determine if the outfalls are operational and to identify the drainage areas associated with the outfalls, if any.	Information Request	Ecology	
American Civil Constructors Barge Removal Ramp	NA	Request American Civil Constructors to provide information about the fill used for a barge removal ramp, to determine if the fill is a potential source of contaminants to adjacent sediments.	Information Request	EPA, USACE	

Facility	Facility/ Site ID	Action Item	Action Item Category	Responsible Party	Status
RM 2.1-2.2 West (EAA-2: Trotsky Inlet)					
2nd Avenue S SD	NA	Continue source tracing to identify sources of phthalates and other COCs.	Source Assessment	SPU	In Progress
RM 2.1 West (1st Avenue S SD)					
1st Avenue S Bridge Drains (Outfalls 2505, 2507, 2510, 2512)	NA	Request additional information from WSDOT regarding the quantity and quality of stormwater and solids discharged to the LDW through the bridge drains.	Information Request	Ecology	
Lower Reach					
RM 1.2-1.7 East (Saint Gobain to Glacier Northwest)					
Saint Gobain Containers Inc.	94925241	Determine appropriate engineering controls for the inaccessible contamination located beneath the soil/water separator described in the 1991 Limited UST Assessment.	Cleanup	Property Owner/Operator	
Longview Fibre Paper and Packaging	2226	Review the latest groundwater monitoring report regarding exceedances of diesel-range hydrocarbons.	Data Evaluation	Ecology	
RM 1.0-1.2 East (KC Lease Parcels)					
Cadman Seattle, Inc.	70313617	Require Cadman to report when discharges to Outfall No. 2244 occur to allow Ecology to track overflow events and evaluate potential impacts to the LDW.	Information Request	Ecology	
RM 0.9-1.0 East (Slip 1)					
Federal Center South	10233917	Perform Site Hazard Assessment	Source Assessment	Ecology	
Former Snopac Products Property, Manson Construction Company	3967301, 80333167	Collect additional samples from Seep 76 to determine if the arsenic concentration reported in 2004 was an anomaly. Analyze sample for all sediment COCs.	Environmental Sampling	Ecology	
Manson Construction Company	80333167	Obtain laboratory data and site plans from historical site assessment(s) and remediation performed at the property. Confirm that satisfactory completion of soil cleanup activities was achieved.	Records Review	Ecology	

Facility	Facility/ Site ID	Action Item	Action Item Category	Responsible Party	Status
		Determine if arsenic or other sediment COCs are present in soil and groundwater beneath the facility at concentrations that may recontaminate sediments.			
Manson Construction Company	80333167	If satisfactory soil cleanup was not achieved, require the property owner/operator to conduct a site assessment to determine residual concentrations of sediment COCs in soil and groundwater beneath the property.	Environmental Sampling	Ecology	
RM 0.1-0.9 East (EAA-1: Duwamish/Diagonal Way)					
Rainier Commons / Former Rainier Brewery Property	8972, 9192461	Sample and remove PCB-contaminated building materials, including interior paint, as needed.	Cleanup	EPA/Property Owner	In Progress
RM 0.0-0.1 East (Spokane Street to Ash Grove Cement)					
Port of Seattle Terminal 104	72668645	Determine how to address identified data gaps in the western portion of T-104.	Source Assessment	Ecology, Port of Seattle	
Port of Seattle Terminal 104	72668645	Review post remediation reports and annual report as part of the VCP and determine whether further action is needed.	Records Review	Ecology	
Ash Grove Cement	2142	Negotiate an agreed order for a Remedial Investigation/ Feasibility Study that will focus on potential soil and groundwater contamination at the site.	Cleanup	Ecology, Property owner/operator	
RM 1.6-2.1 West (Terminal 115)					
Terminal 115 - Port of Seattle Storm Drain Outfalls (Outfalls 2122, 2123, 2124, 2220, and POS 6146)	4040072	Negotiate an Agreed Order with the Port, to include Terminal-wide investigations to characterize the nature and extent of potential COC sources in fill material, soil, groundwater, and stormwater at Terminal 115, including specific areas identified in the Terminal 115 SCAP.	Cleanup	Ecology, Port of Seattle	

Facility	Facility/ Site ID	Action Item	Action Item Category	Responsible Party	Status
Terminal 115 - Port of Seattle Storm Drain Outfalls (Outfalls 2122, 2123, 2124, 2220, and POS 6146)	4040072	Collect storm drain solids samples from the storm drain lines discharging to Outfalls 2122, 2123, 2124, 2128, 2220, and POS 6146 and provide the data to Ecology to identify potential contaminant sources.	Environmental Sampling	Port of Seattle	In Progress
Terminal 115 - Port of Seattle Storm Drain Outfalls (Outfalls 2122, 2123, 2124, 2220, and POS 6146)	4040072	Perform a video inspection of storm drain lines to identify areas where groundwater infiltrates the storm drain system.	BMP Implementation	Port of Seattle	
Terminal 115 - Port of Seattle Storm Drain Outfalls (Outfalls 2122, 2123, 2124, 2220, and POS 6146)	4040072	Provide information regarding discharges to the deck drains north of Berth 1 to Ecology. Information to be provided will include, at minimum, a description of BMPs employed to prevent pollution of the stormwater runoff that is conveyed to the deck drains.	Information Request	Port of Seattle	
Former Foss Environmental Services	36326474	Request that Haslund MP perform an environmental investigation to characterize the nature and extent of potential sediment COCs in soil and groundwater beneath the property. Soil and groundwater contamination may be present due to historical operations by Boeing.	Environmental Sampling	Ecology	
RM 1.3-1.6 West (Glacier Bay)					
Duwamish Shipyard	2071	Conduct site investigations as specified in the Agreed Order Statement of Work.	Cleanup	Property owner/operator	In Progress
Duwamish Shipyard	2071	Review site investigation results and assess potential for sediment recontamination and need for remedial actions.	Cleanup	Ecology	In Progress
Glacier Northwest	23881883	Review site investigation results and assess potential for sediment recontamination and need for remedial actions.	Cleanup	Ecology	In Progress

1.0 Introduction

This Source Control Status Report summarizes the source control activities conducted by the Lower Duwamish Waterway (LDW) Source Control Work Group[1] from January 1, 2017 through December 31, 2017. Previous status reports provided an overview of the LDW Superfund site, the strategy for controlling sources of pollutants to the LDW, the process for developing Source Control Action Plans (SCAPs), the methods and process for implementing SCAPs, issues associated with permitted discharges, and summaries of source control activities conducted between 2003 and December 2016 (Ecology 2007, 2008a, 2008d, 2009c, 2011c, 2012b, 2013, 2014b, 2018).

This report updates relevant information related to LDW source control, including the status of source control action items and sufficiency assessments; business inspections and source tracing activities conducted during the reporting period (2017); status of site assessments and cleanups; public involvement and outreach activities; and other source control activities conducted during the current reporting period. Detailed background information on individual source control areas is provided in the Summary of Existing Information and Identification of Data Gaps (Data Gaps Reports) and SCAP for each area, as referenced in the text.

Section 1.0 summarizes background information on the LDW Superfund site. Section 2.0 describes basin-wide source control activities. Sections 3.0, 4.0, and 5.0 describe site-specific source control activities for the upper, middle, and lower reach of the LDW, respectively. Section 6.0 contains a list of references.

Appendix A provides a folio with maps of each LDW source control area. Appendix B summarizes action items that were reported as complete during the current reporting period, and action items that have not yet been completed. Appendices C, D, and E list the Seattle Public Utilities (SPU), King County, and Washington State Department of Ecology (Ecology) source control inspections conducted during the current reporting period, respectively. Appendix F and G provide SPU and King County source tracing sample results for 2017.

1.1 Lower Duwamish Waterway Site

The LDW Superfund site is approximately 5 miles long and represents the downstream portion of the Duwamish River. The Site extends from the southern tip of Harbor Island in Seattle, Washington, to just south of the turning basin near S 102nd Street in Tukwila, Washington (Figure 1-1). The source area is defined by the combined stormwater/sanitary sewer service area and the separated stormwater drainage basins, and it encompasses 20,400 acres, or approximately 32 square miles.

[1] The Source Control Work Group includes the primary public agencies responsible for source control for the LDW: the Washington Department of Ecology, the City of Seattle, King County, the Port of Seattle, the City of Tukwila, the Puget Sound Clean Air Agency, the Washington State Department of Transportation and the U.S. Environmental Protection Agency.

Chemicals of concern (COCs) in the waterway include arsenic and other metals, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), dioxins/furans, phthalates, and other organic compounds. These chemicals pose a health risk to people, fish, and/or wildlife.

The Lower Duwamish Waterway Group (LDWG), composed of the City of Seattle, King County, the Port of Seattle, and The Boeing Company (Boeing), completed a remedial investigation (RI) and feasibility study (FS) for the LDW Superfund site in July 2010 and October 2012, respectively (Windward 2010; AECOM 2012).

In 2013, the U.S. Environmental Protection Agency (EPA) issued a Proposed Plan that included a summary of the cleanup alternatives and identified EPA's preferred cleanup option for the LDW (EPA 2013). EPA issued a Record of Decision (ROD) for the site in November 2014 (EPA 2014). The ROD provides an overview of the contamination present in the LDW, summarizes the associated risks to human health and the environment, describes the cleanup alternatives considered, and identifies EPA's Selected Remedy to address these risks. In August 2015, EPA added a correction memorandum to the LDW site file, which identified a few minor errors in the ROD (EPA 2015).

The Selected Remedy is a component of an overall strategy for addressing contamination and the associated risks in the LDW. This strategy includes:

- Early identification and cleanup of the most contaminated areas in the LDW, referred to as early action areas (EAAs) (Figure 1-1).
- Controlling sources of contamination to the LDW.
- Cleanup of the remaining contamination in the LDW, including long-term monitoring to assess the success of the remedy in achieving cleanup goals.

Ecology is the lead agency for controlling sources of contamination to the LDW. The Selected Remedy will be implemented after cleanup of the EAAs has been completed, source control has been implemented that is sufficient to minimize recontamination, additional sampling and analysis have been conducted, and a remedy design has been completed. LDWG is conducting an enhanced natural recovery/activated carbon pilot study to evaluate the effectiveness and potential impacts of using this kind of treatment technology in the LDW, as well as to identify the areas that may be best suited for this technology. If pilot tests prove successful, activated carbon could be used in areas of the LDW where enhanced natural recovery remedial technology is applied (AMEC 2015). In 2016, LDWG collected baseline samples to characterize the in-situ sediment conditions prior to pilot study construction (AMEC 2017d). Surface sediment samples were collected from scour, intertidal, and subtidal test plot locations to assess concentrations of PCBs, total organic carbon (TOC), and black carbon as well as grain size distributions. Porewater samples were also collected to assess concentrations of PCBs and salinity conditions. Pilot study construction was completed in early 2017 (AMEC 2018b), and Year 0 samples were subsequently collected between January and February 2017 (AMEC 2018a). Sampling will continue annually through Year 3 of the pilot study (March through June in 2018, 2019, and 2020).

LDWG is also conducting pre-design studies to help EPA ensure that all remedial design data requirements are addressed in the correct sequence and schedule for the ROD implementation (Windward 2017d). The purpose of the pre-design studies is to:

- Establish post-EAA cleanup baseline conditions in environmental media,
- Evaluate the effectiveness of EAA cleanups and the degree to which natural recovery has occurred since the RI/FS,
- Establish baseline data for comparison to post-remedial action data,
- Aid in the evaluation of source control,
- Perform a survey of waterway users and an assessment of in-water structures to inform recovery category recommendations,
- Identify other site-wide and area-specific remedial design and remedial action information needs, and to
- Develop a strategy for remedial design phasing.

In 2017, Windward (for the LDWG) prepared project plans for collection and chemical analysis of baseline fish and crab tissue samples (Windward 2017b). Fish and crab sampling was conducted between August 29 and September 1, 2017. Species targeted for collection included English sole, shiner surfperch, Dungeness crab, and graceful crabs. A data report was published in 2018.

Project plans were also prepared for collection and chemical analysis of surface water samples (Windward 2017c). Composite grab surface water samples were planned during eight sampling events at two locations in the LDW: river mile (RM) 0.75 and RM 3.3, and at one reference location upstream of the LDW at RM 10. Sampling began in 2017 and continued through 2018. In addition, passive samplers were deployed approximately 1 meter above the sediment surface at two locations (RM 2.1 and RM 3.3) during dry baseflow conditions (August 2017 and August 2018). These samplers were used to measure freely dissolved PCB concentrations in LDW surface water. In addition, Integral (for the LDWG) prepared a work plan for a waterway user survey and an assessment of in-water structures (Integral 2017b). Waterway user interviews were conducted during 2017, with the assessment of in-water structures scheduled to occur in early 2018.

Further information about the LDW can be found at EPA's LDW website[2] and the LDWG website.[3]

1.2 Memoranda of Understanding and Agreement

EPA and Ecology signed an interagency Memorandum of Understanding (MOU) in April 2002, which was revised in 2004. The MOU defined federal and state responsibilities for the LDW (EPA and Ecology 2002, 2004). Under the MOU, EPA is the lead agency for the sediment investigation and Ecology is the lead agency for coordinating and implementing source control.

In November 2014, in conjunction with publication of the ROD, EPA and Ecology clarified their responsibilities in a Memorandum of Agreement (MOA). The MOA expanded the coordination and cooperation effort to include additional EPA Region 10 and Ecology programs, particularly

[2] https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=1002020
[3] http://www.ldwg.org/

the water quality programs (EPA and Ecology 2014). The MOA acknowledged that both source control and the in-waterway cleanup are complex, and described a collaboration framework between agencies to coordinate the in-waterway cleanup and source control activities. The MOA details both state involvement in the EPA-led cleanup of the LDW and EPA's involvement with the state-led source control work.

1.3 Lower Duwamish Waterway Source Control Strategy

Ecology developed a Source Control Strategy (herein referred to as the Strategy) for the LDW in 2004. The Strategy was revised in June 2016 (Ecology 2016b).

The Strategy is a framework for organizing the work of federal, state, and local source control agencies in the LDW as the Superfund project moves from the RI/FS phase into remedial design and construction activities for sediment cleanup. It identifies the goals and priorities of the LDW source control effort that will allow EPA to begin active sediment remediation, as described in the ROD. Implementation of these goals and priorities is largely influenced by the complex regulatory framework for controlling sources and pathways of contaminants within the 24 source control areas of the LDW basin (Figure 1-2). The Strategy clarifies the regulatory framework that Ecology and other source control partner agencies use to ensure regulatory controls are in place to minimize the potential for recontamination. The Strategy also describes the documentation, tracking, and reporting of the collective source control efforts and the external communication processes among the agencies.

The primary public agencies responsible for source control for the LDW are Ecology, the City of Seattle, King County, the Port of Seattle, the City of Tukwila, the Puget Sound Clean Air Agency, the Washington State Department of Transportation (WSDOT), and EPA. Together, they are known as the LDW Source Control Work Group.

Further information about LDW source control can be found at Ecology's LDW website.[4]

1.3.1 Source Control Implementation Plans

The Strategy calls for Ecology, King County, the City of Seattle, and EPA to develop Source Control Implementation Plans (SCIPs), which will be included as appendices in an update to the Strategy. The SCIPs describe how each agency will manage its programs to address source control.

The City of Seattle submitted its SCIP to Ecology in May 2016 (City of Seattle 2016). An annual summary of activities was submitted to Ecology in March 2018 as part of SPU's municipal separate storm sewer system (MS4) Phase 1 National Pollutant Discharge Elimination System (NPDES) annual report for 2017 (SPU 2018). Relevant information has been incorporated into this LDW Source Control Status Report.

King County submitted a revised draft SCIP to Ecology in January 2016 (King County 2016a). An annual report to Ecology describing source control activities conducted in 2017 was

[4] https://ecology.wa.gov/Spills-Cleanup/Contamination-cleanup/Cleanup-sites/Toxic-cleanup-sites/Lower-Duwamish-Waterway/Source-control

submitted by King County in December 2018 (King County 2018). Relevant information has been incorporated into this LDW Source Control Status Report.

1.4 Source Control Process

The source control process is described in detail in the Strategy (Ecology 2016b). Between February 2003 and September 2013, Ecology developed SCAPs for each of the 24 source control areas (sub-basins) that drain to the LDW Superfund site. The SCAPs identified potential contaminant sources and actions needed, and assessed the presence of ongoing sources that could recontaminate sediments after cleanup. SCAPs are available on Ecology's website.[5]

Ecology grouped the 24 source control areas into three larger sub-areas: upper reach, middle reach, and lower reach (Figure 1-3). Ecology plans to use an upstream-to-downstream approach to source control, such that EPA can most quickly begin active cleanup of LDW sediments. Ecology intends to focus on completing high-priority action items in the source control areas that comprise each sub-basin. For example, Ecology plans to complete high-priority actions first in the upper reach, then the middle reach, and finally the lower reach.

The 24 source control areas, by reach, are listed in Table 1-1.

Table 1-1. List of Source Control Areas, by Reach

Source Control Areas – East Side of LDW	Source Control Areas – West Side of LDW
Upper Reach	
RM 4.9 East (EAA-7: Norfolk CSO/SD)	RM 4.2-5.8 West (Restoration Areas)
RM 4.3-4.9 East (Boeing Developmental Center [BDC])	RM 3.8-4.2 West (Sea King Industrial Park)
RM 3.9-4.3 East (Slip 6)	RM 3.4-3.8 West (EAA-5: Terminal 117)
RM 3.7-3.9 East (EAA-6: Boeing Isaacson/Central King County International Airport [KCIA])	
RM 2.8-3.7 East (EAA-4: Boeing Plant 2/Jorgensen Forge)	
Middle Reach	
RM 2.8 East (EAA-3:Slip 4)	RM 2.2-3.4 West (Riverside Drive)
RM 2.3-2.8 East (Seattle Boiler Works to Slip 4)	RM 2.1-2.2 West (EAA-2: Trotsky Inlet)
RM 2.0-2.3 East (Slip 3 to Seattle Boiler Works)	RM 2.1 West (1st Avenue South Storm Drain)
RM 1.7-2.0 East (Slip 2 to Slip 3)	RM 1.6-2.1 West (Terminal 115)
Lower Reach	
RM 1.2-1.7 East (Saint Gobain to Glacier Northwest)	RM 1.3-1.6 West (Glacier Bay)
RM 1.0-1.2 East (King County Lease Parcels)	RM 1.0-1.3 West (Kellogg Island to Lafarge Cement)
RM 0.9-1.0 East (Slip 1)	RM 0.0-1.0 West (Spokane Street to Kellogg Island)
RM 0.1-0.9 East (EAA-1: Duwamish/Diagonal Way)	
RM 0.0-0.1 East (Spokane Street to Ash Grove Cement)	

Note: Company names are used only to designate source control area locations; source control area names are not intended to assign responsibility for contamination or to identify properties that may need remediation.

[5] https://ecology.wa.gov/Spills-Cleanup/Contamination-cleanup/Cleanup-sites/Toxic-cleanup-sites/Lower-Duwamish-Waterway/Source-control-area-map

1.4.1 Source Control Goals

The Strategy describes two primary goals for source control: a near-term goal to allow the start of active in-waterway cleanup, and a long-term goal to minimize the risk of recontaminating sediments above the sediment cleanup standards established in the ROD (Ecology 2016b). This Source Control Status Report is focused on describing progress toward the first goal.

The principal sources of information used to evaluate the status of source control, and whether sufficient source control progress has been made to proceed with in-waterway cleanup, include the following (from Section 6.3.2 of the Strategy):

- Status of high- and medium-priority action items identified in the SCAPs;
- Information collected through business inspections and spill investigations/response;
- Relevant information collected through other studies;
- Status of permit compliance, where applicable; and
- Status of upland site cleanups.

Section 2 of this Source Control Status Report summarizes new information obtained during the current reporting period (January through December 2017) in the categories listed above.

Information on permit compliance status was generally not available during preparation of this Source Control Status Report; specific programs within Ecology, including the Water Quality (WQ) and the Hazardous Waste & Toxics Reduction (HWTR) programs, maintain information about permit compliance status.

As described in the Strategy, Ecology is responsible for evaluating and documenting source control sufficiency. Ecology is currently conducting evaluations to assess whether sources have been sufficiently controlled to proceed with active sediment remediation. Ecology plans to provide source control sufficiency evaluations and recommendations to EPA.

Figure 1-1. Lower Duwamish Waterway Source Area

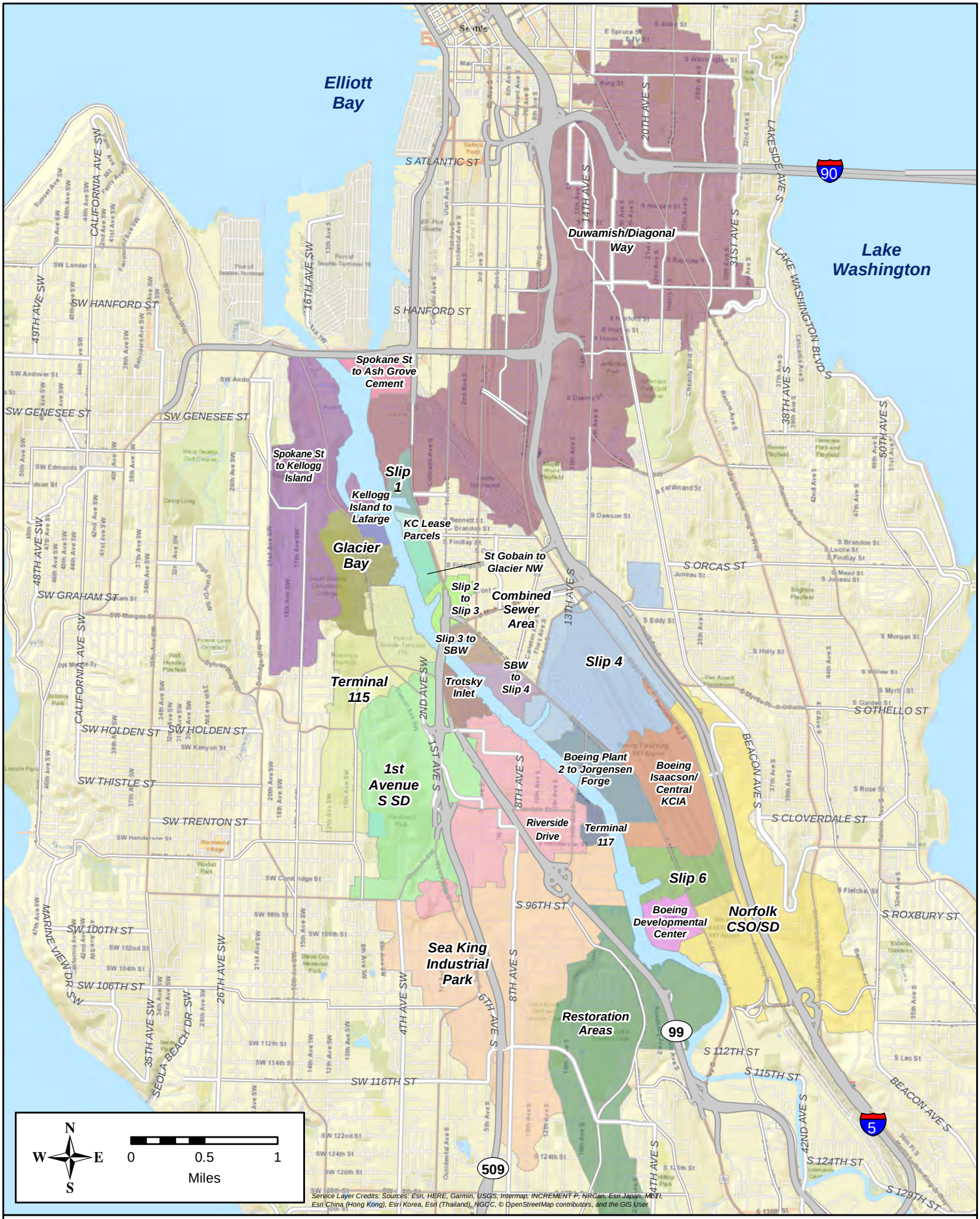

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Figure 1-2. Lower Duwamish Waterway Source Control Areas

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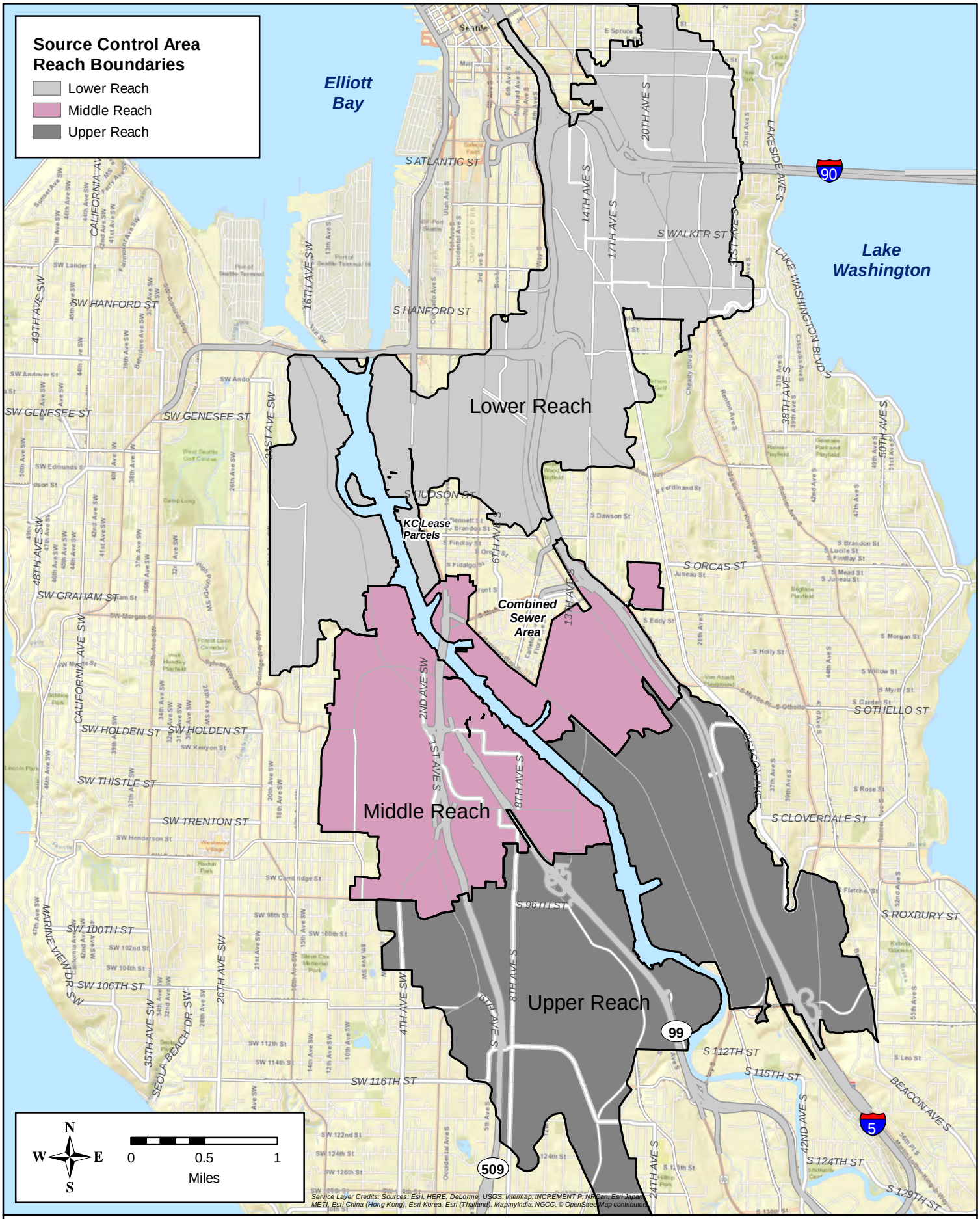

Figure 1-3. Lower Duwamish Waterway Reach Boundaries

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2.0 Basin-wide Source Control Activities

2.1 Action Item Status

The SCAP for each source control area included a list of action items needed to identify and control contaminant sources. These action items have been updated as new information was obtained, as documented in previous Source Control Status Reports. Routine functions, such as ongoing inspections and review of NPDES permits, were originally included as action items but have since been removed from the action item list. In some cases, multiple action items have been consolidated into a single action item or an action item has been split into its component parts to allow more efficient tracking. Some action items have been edited for brevity and clarity.

Follow-on action items have been added based on the outcomes of original action items published in the SCAPs. In addition, action items have been added as new information about a facility or source control area has become available. For example, if an inspection was conducted that led to additional investigation activities at a facility, these activities were added as a new action item. This Source Control Status Report identifies the action items for each source control area that were completed during the current reporting period and the action items for each source control area that have not yet been completed.

Table 2-1 lists the number of action items currently identified for each source control area. In addition, it identifies the number of completed and incomplete high priority action items for each source control area.

Table 2-1. Number of Action Items by Source Control Area

Source Control Area	Total No. of Action Items[a]	Percent of Action Items Completed[a]	No. of High Priority Action Items	Percent of High Priority Action Items Completed	No. of Incomplete High Priority Action Items
Upper Reach					
RM 4.9 East (EAA-7: Norfolk CSO/SD)	42	60%	3	33%	2
RM 4.3-4.9 East (BDC)	11	45%	2	100%	0
RM 3.9-4.3 East (Slip 6)	24	54%	16	50%	8
RM 3.7-3.9 East (EAA-6: Boeing Isaacson/Central KCIA)	28	82%	8	88%	1
RM 2.8-3.7 East (EAA-4: Boeing Plant 2/Jorgensen Forge)	36	69%	24	79%	5
RM 4.2-5.8 West (Restoration Areas)	9	33%	0	NA	0
RM 3.8-4.2 West (Sea King Industrial Park)	42	90%	4	100%	0
RM 3.4-3.8 West (EAA-5: Terminal 117)	32	94%	9	89%	1
Total – Upper Reach	224	72%	66	74%	17
Middle Reach					
RM 2.8 East (EAA-3: Slip 4)	62	89%	25	84%	4

Source Control Area	Total No. of Action Items[a]	Percent of Action Items Completed[a]	No. of High Priority Action Items	Percent of High Priority Action Items Completed	No. of Incomplete High Priority Action Items
RM 2.3-2.8 East (Seattle Boiler Works to Slip 4)	44	68%	19	74%	5
RM 2.0-2.3 East (Slip 3 to Seattle Boiler Works)	30	73%	12	83%	2
RM 1.7-2.0 East (Slip 2 to Slip 3)	43	70%	5	80%	1
RM 2.2-3.4 West (Riverside Drive)	17	47%	3	33%	2
RM 2.1-2.2 West (EAA-2: Trotsky Inlet)	36	75%	8	88%	1
RM 2.1 West (1st Avenue S SD)	16	69%	1	0%	1
RM 1.6-2.1 West (Terminal 115)	26	38%	7	29%	5
Total – Middle Reach	274	70%	80	74%	21
Lower Reach					
RM 1.2-1.7 East (Saint Gobain to Glacier Northwest)	13	77%	5	60%	2
RM 1.0-1.2 East (King County Lease Parcels)	41	68%	8	88%	1
RM 0.9-1.0 East (Slip 1)	18	28%	5	20%	4
RM 0.1-0.9 East (EAA-1: Duwamish/Diagonal Way)	51	88%	7	86%	1
RM 0.0-0.1 East (Spokane Street to Ash Grove Cement)	13	54%	7	57%	3
RM 1.3-1.6 West (Glacier Bay)	30	73%	10	70%	3
RM 1.0-1.3 West (Kellogg Island to Lafarge Cement)	9	33%	0	NA	0
RM 0.0-1.0 West (Spokane Street to Kellogg Island)	37	38%	0	NA	0
Total – Lower Reach	212	63%	42	67%	14
Total – All Reaches	710	69%	188	72%	52

[a] Includes action items that have been canceled because they were no longer needed (e.g., facility is no longer present, action is routine and ongoing, or is no longer relevant).

As of December 2017, 489 out of a total of 710 action items (69 percent) have been completed or canceled:

- 136 of 188 high priority action items (72 percent) have been resolved;
- 205 of 330 medium priority action items (62 percent) have been resolved;
- 148 of 192 low priority action items (77 percent) have been resolved.

A total of 52 high priority action items remain to be completed; of these, 17 action items are in the upper reach, 21 are in the middle reach, and 14 are in the lower reach.

The 47 action items that were identified as complete or canceled (no longer needed) during the current reporting period are listed in Appendix B, Table B-1. Action items that have not been completed as of December 2017 are shown in Appendix B, Table B-2.

The high-priority action items that remain incomplete for each source control area are listed in Table ES-1.

2.2 Business Inspections and Spill Investigations

The City of Seattle operates the local sanitary/combined sewers that collect wastewater and stormwater and route it to the King County interceptor system, and it operates the municipal storm drains within its city limits. The City of Tukwila operates the municipal storm drains within its city limits. King County operates the large interceptor pipes that convey municipal and industrial wastewater, as well as stormwater, to the West Point treatment plant. King County operates its MS4 in unincorporated King County, and conducts inspections on county-owned and/or operated parcels within the incorporated municipal boundaries.[6] The sanitary/combined sewer and storm drains (including private storm drains) within the LDW drainage basin serve an area of about 19,800 acres and 8,940 acres, respectively.

SPU, King County, and Ecology all conduct business inspections in the LDW basin:

- SPU focuses its business inspections in areas that discharge to the LDW through the City MS4 system. Inspections in the combined sanitary/storm sewer system are conducted in response to requests and complaints, and as additional resources allow. SPU's business inspection program conducts stormwater inspections and refers hazardous waste or industrial waste issues to Ecology and King County, respectively. Seattle's storm drain basins are shown in Figure 2-1.
- King County provides technical support on industrial waste and small business hazardous waste issues as needed, and it inspects facilities permitted through the King County Industrial Waste (KCIW) program. King County inspects industrial users of the sanitary sewer system, including facilities within combined sewer systems in the LDW basin that discharge to the LDW during combined sewer overflow (CSO) events. LDW CSO basins are shown in Figure 2-2. Through its Water and Land Resources Division Stormwater Services program, King County also inspects businesses in unincorporated areas, and on county-owned or operated parcels that discharge to the LDW.
- Ecology conducts water quality inspections for NPDES-permitted facilities; these inspections focus on stormwater permit compliance issues. Ecology also conducts dangerous waste inspections at regulated businesses and facilities. Under the Local Source Control Partnership, Ecology provides technical assistance and grants to local jurisdictions to conduct technical assistance visits to smaller business generators of hazardous/dangerous wastes.

In addition, Ecology, SPU, and King County work together to conduct source control inspections under the Urban Waters Initiative.

2.2.1 Seattle Public Utilities Inspections

During the current reporting period, SPU continued inspections of local businesses in the LDW service area to ensure that they are implementing appropriate pollution prevention practices and complying with local stormwater, industrial pretreatment, and hazardous waste regulations.

[6] On King County leased parcels, the tenants are responsible for maintenance activity but the County performs inspections for compliance.

Facilities inspected by SPU in the LDW basin during the current reporting are listed in Appendix C. This list includes screening visits, initial inspections, and follow-up inspections. Approximately 297 inspections/site visits at 197 facilities are listed in Appendix C. A summary of the number of facilities inspected by SPU during 2017 is shown in Table 2-2.

Table 2-2. Summary of 2017 SPU Inspections by Source Control Area

Source Control Area	Sub-Basin	No. of Facilities Inspected 2017
Upper Reach		
RM 4.9 East (EAA-7: Norfolk CSO/SD)	Norfolk CSO/SD	3
RM 3.8-4.2 West (Sea King Industrial Park)	S 96th Street SD	6
Middle Reach		
RM 2.8 East (EAA-3: Slip 4)	I-5 SD at Slip 4, KCIA SD#3/PS 44 EOF, Georgetown SD	2
RM 2.3-2.8 East (Seattle Boiler Works to Slip 4)	Duwamish East Direct, S Garden Street SD, S Myrtle Street SD	2
RM 2.0-2.3 East (Slip 3 to Seattle Boiler Works)	S Brighton Street SD, S River Street SD	10
RM 2.2-3.4 West (Riverside Drive)	Duwamish West Direct, 7th Avenue S SD, 8th Avenue S CSO	27
RM 2.1-2.2 West (EAA-2: Trotsky Inlet)	Duwamish West Direct, Trotsky Inlet, 2nd Avenue S SD	10
RM 2.1 West (1st Avenue S SD)	1st Avenue S SD	11
RM 1.6-2.1 West (Terminal 115)	Duwamish West Direct, SW Kenny SD, Highland Park Way SW SD	10
Lower Reach		
RM 0.1-0.9 East (EAA-1: Duwamish/Diagonal Way)	Diagonal Avenue S SD, Diagonal CSO/SD, S Nevada Street SD	108
RM 1.3-1.6 West (Glacier Bay)	Duwamish Direct West, SW Kenny Street SD	1
RM 0.0-1.0 West (Spokane Street to Kellogg Island)	SW Dakota Street SD, SW Idaho Street SD	7
	Total	**197**

Note: Source control areas in which no inspections were performed during the reporting period are not included in this table.

In 2017, 56 water quality complaints were reported in the LDW and East Waterway basins, which resulted in five business inspections. SPU responded to 66 spills within the LDW and East Waterway basins.

Starting in 2017, SPU conducts source control actions in King County owned and operated combined sewer basins located within Seattle. These actions include response to spills and water quality complaints, and street sweeping. During 2017, SPU tracked 26 spill reports and 18 water quality complaints in King County combined sewer basins.

2.2.2 King County Inspections

King County Industrial Waste Source Control Inspections

The KCIW Program is a state and federal delegated pretreatment program with the authority to regulate the discharge of industrial wastewater to the King County regional wastewater system (King County 2015). KCIW issues several types of discharge approvals, including waste discharge permits for significant industrial users (SIUs) and lower-level discharge authorizations for non-SIUs. Active industrial users in the LDW basin are listed in King County's Source Control Annual Report (King County 2018), and are summarized below by combined sewer basin.

In 2017, there were 18 facilities operating under waste discharge permits in the LDW basin; these facilities are inspected on an annual basis. In addition, KCIW reported 39 major discharge authorizations, 39 minor discharge authorizations, and 30 letters of authorization in 2017. KCIW conducts periodic inspections of major non-SIUs, typically once within each five-year permitting cycle or when significant facility modifications occur. Facilities inspected by KCIW during 2017 are listed in Appendix D1.

A KCIW investigator regularly attends meetings with inspectors from Ecology and SPU to coordinate and discuss source control issues at facilities in the LDW, and to identify issues of regulatory overlap. KCIW also responds to referrals related to illicit discharges and spills to the sanitary sewer.

- KCIW initiated an industrial user survey in 2016 to identify facilities with activities that may require a waste discharge permit or authorization. During 2017, King County reviewed data from 6,000 businesses that responded to the survey. As a result, six active facilities were identified in the LDW CSO basins. LDW facilities will be a priority for follow-up during 2018 (King County 2018).
- KCIW responded to seven referrals for unusual occurrences or potential illicit discharges in the Lower Duwamish area during 2017. No new control documents were issued based on the referrals.

King County Stormwater Services Inspections

King County Stormwater Services conducted an inventory of parcels in the unincorporated portion of the LDW drainage area, and ranked each parcel according to its potential to pollute and its history of stormwater inspection compliance. Over 50 inspections were conducted at 23 facilities in the LDW unincorporated area during 2017 (King County 2018). Source control inspections conducted by King County are listed in Appendix D2. These include 20 facilities in the RM 3.8-4.2 West (Sea King Industrial Park) source control area, two facilities in the RM 2.2-3.4 West (Riverside Drive) source control area, and one facility in the RM 3.4-3.8 West (EAA-5: Terminal 117) source control area. In addition, King County responded to three water quality complaints during the current reporting period.

Other King County Inspections

King County’s Local Hazardous Waste Management Program team conducted 173 site visits in the LDW drainage area in 2017. Their efforts focus on technical assistance visits for hazardous material and waste management, including discharges to sanitary and storm drains.

King County International Airport (KCIA) performed annual stormwater facility inspections in September 2017. Six KCIA tenants are also covered by the Industrial Stormwater General Permit (ISGP) and comply directly with Ecology requirements.

King County's Facilities Management Division performs inspections at properties that are under King County custodial control. During 2017, water quality inspections were performed at eight undeveloped properties; all were found to be compliance (King County 2018).

2.2.3 Ecology Inspections

Currently, 96 active NPDES permits are on record for areas within the 24 LDW source control areas.[7] These include two industrial individual permits, 85 facilities covered under the ISGP, six facilities covered under the sand and gravel general permit, one covered under the vessel deconstruction general permit, and two facilities covered under the boatyard general permit. While the permits limit and control the discharge of a number of water quality pollutants, they do not necessarily control contaminants that pose a threat to sediments, such as PCBs, PAHs, arsenic, and mercury.

The following facilities were granted coverage under a NPDES general permit during 2017:

- Mente 8075 Aviation Facility (WAR305886)
- FV Olympic Deconstruction (WAG994335)

Ecology is continuing to inspect NPDES-permitted facilities to ensure compliance with permit conditions. In addition, WQ Program inspectors visit facilities to determine whether a permit is required. Inspections continue to identify facilities in the LDW that may need to apply for NPDES permits. Ecology will follow up with these facilities to ensure they submit an application for a stormwater permit or a Conditional No Exposure Certificate, as appropriate.

During the current reporting period (2017), Ecology conducted 91 inspections at 65 facilities. Ecology inspections are listed in Appendix E and are summarized by source control area in Table 2-3 below.

Table 2-3. Summary of 2017 Ecology Inspections by Source Control Area

Source Control Area	No. of Facilities Inspected 2017
Upper Reach	
RM 4.9 East (EAA-7: Norfolk CSO/SD)	2
RM 4.3-4.9 East (BDC)	1
RM 2.8-3.7 East (EAA-4: Boeing Plant 2/Jorgensen Forge)	1
RM 4.2-5.8 West (Restoration Areas)	4
RM 3.8-4.2 West (Sea King Industrial Park)	6
RM 3.4-3.8 West (EAA-5: Terminal 117)	1
Middle Reach	
RM 2.8 East (EAA-3: Slip 4)	3
RM 2.3-2.8 East (Seattle Boiler Works to Slip 4)	5

[7] The 96 active permits do not include construction stormwater permits.

Source Control Area	No. of Facilities Inspected 2017
RM 2.0-2.3 East (Slip 3 to Seattle Boiler Works)	3
RM 1.7-2.0 East (Slip 2 to Slip 3)	2
RM 2.2-3.4 West (Riverside Drive)	4
RM 2.1-2.2 West (EAA-2: Trotsky Inlet)	2
RM 2.1 West (1st Avenue S SD)	7
RM 1.6-2.1 West (Terminal 115)	4
Lower Reach	
RM 1.2-1.7 East (St. Gobain to Glacier Northwest)	1
RM 1.0-1.2 East (King County [KC] Lease Parcels)	3
RM 0.1-0.9 East (EAA-1: Duwamish/Diagonal Way)	13
RM 1.3-1.6 West (Glacier Bay)	1
RM 0.0-1.0 West (Spokane Street to Kellogg Island)	2
Total	**65**

2.2.4 Urban Waters Initiative Inspections

The Urban Waters Initiative, a component of the Puget Sound Initiative since 2007, is a comprehensive, multi-program approach to accomplish the following:

- Identify potential sources of contamination.
- Ensure that facilities are both permitted (if applicable) and in compliance with permit conditions.
- Increase inspections of regulated facilities.
- Assist in the development of appropriate source control measures.
- Provide assistance on toxics reduction and pollution prevention.
- Build capacity at the local level to safely manage and reduce toxics at small businesses and households.

The initiative is described in more detail in the May 2008 LDW Source Control Status Report (Ecology 2008a).

During the current reporting period, Ecology's WQ and Hazardous Waste inspectors and Ecology Toxics Cleanup Program (TCP) staff continued to coordinate facility inspections and priorities with SPU and King County inspectors to avoid overlap in the field.

2.3 Source Tracing and Sampling

Source tracing activities include identification and assessment of potential sources of contaminants to the LDW through the storm drain/combined sewer systems. Source tracing is designed to identify sources by strategically collecting samples at key locations within the LDW drainage basin. A variety of sampling techniques are used because no single sampling method exists to effectively trace sources of contaminants to LDW sediments.

In this report, storm drain solids and combined sewer solids data are compared to the Washington State Sediment Management Standards (SMS) to provide a rough indication of overall quality. The SMS include the benthic Sediment Cleanup Objectives (SCOs), which identify surface sediments that have no adverse effects on biological resources, and Cleanup Screening Levels (CSLs), which are used as an upper regulatory threshold for making decisions about source control and cleanup. For most organic compounds, the SCO and CSL are presented in the SMS as organic carbon (OC) normalized concentrations. For simplicity, in this report all concentrations are presented as dry weight (DW) concentrations; storm drain and combined sewer solids data for organics are compared to the Lowest Apparent Effects Threshold (LAET) or Second Lowest Apparent Effects Threshold (2LAET) values, which are functionally equivalent to the SCO and CSL, respectively (Ecology 2017j).

To determine whether source tracing should be initiated, SPU and King County compare storm drain solids data to the CSL/2LAET values.[8] King County compares combined sewer solids data to twice the 2LAET.

For petroleum hydrocarbons, Model Toxics Control Act (MTCA) Method A soil cleanup levels are used for comparison to storm drain solids concentrations. Concentrations of carcinogenic polycyclic aromatic hydrocarbons (cPAHs) are compared to the LDW-wide Remedial Action Level (RAL) of 1 milligram per kilogram (mg/kg) toxic equivalency quotient (TEQ). Dioxin/furan concentrations are compared to the LDW-wide RAL of 25 nanograms per kilogram (ng/kg) TEQ.

In this Source Control Status Report, the values described above that are used for comparison to storm drain and combined sewer solids data are referred to as "storm drain screening levels." It should be emphasized that none of these values are applied as cleanup levels to storm drain or combined sewer solids. It is important to note that any comparison of this kind is most likely conservative given that sediments discharged from storm drains are highly dispersed in the receiving environment and mixed with the natural sedimentation taking place in the system. The storm drain screening levels are listed in Table 2-4.

Table 2-4. Storm Drain Screening Levels
(All concentrations expressed as mg/kg DW)

Chemical Class	Chemical Parameter	SCO	CSL	MTCA Method A	LDW RAL
PCBs	Total Aroclors	0.13	1.0		
Dioxins/Furans	Dioxin/furan TEQ (NDx0.5)[a]				0.000025
Metals	Arsenic	57	93		
	Cadmium	5.1	6.7		
	Chromium	260	270		
	Copper	390	390		
	Lead	450	530		
	Mercury	0.41	0.59		
	Silver	6.1	6.1		
	Zinc	410	960		

[8] Once storm drain solids are found to be below the CSL/2LAET, King County uses the SCO/LAET as well as other lines of evidence to determine the need for source tracing (King County 2016a).

Chemical Class	Chemical Parameter	SCO	CSL	MTCA Method A	LDW RAL
HPAHs	Benzo(a)anthracene[b,c]	1.3	1.6		
	Benzo(a)pyrene[b,c]	1.6	1.6		
	Benzo(g,h,i)perylene[b]	0.67	0.72		
	Chrysene[b,c]	1.4	2.8		
	Dibenz(a,h)anthracene[b,c]	0.23	0.23		
	Fluoranthene[b]	1.7	2.5		
	Indeno(1,2,3-cd)pyrene[b,c]	0.60	0.69		
	Pyrene[b]	2.6	3.3		
	Total benzofluoranthenes[b,c]	3.2	3.6		
	Total cPAH TEQ (NDx0.5)				1.0
	Total HPAH	12	17		
LPAHs	2-Methylnaphthalene	0.67	0.67		
	Acenaphthene[d]	0.50	0.50		
	Acenaphthylene[d]	1.3	1.3		
	Anthracene[d]	0.96	0.96		
	Fluorene[d]	0.54	0.54		
	Naphthalene[d]	2.1	2.1		
	Phenanthrene[d]	1.5	1.5		
	Total LPAH	5.2	5.2		
Phthalates	Bis(2-ethylhexyl)phthalate	1.3	1.9		
	Butylbenzyl phthalate	0.063	0.90		
	Diethyl phthalate	0.20	>1.2		
	Dimethyl phthalate	0.071	0.16		
	Di-n-butyl phthalate	1.4	1.4		
	Di-n-octyl phthalate	6.2	6.2		
Phenols	2,4-Dimethylphenol	0.029	0.029		
	2-Methylphenol	0.063	0.063		
	4-Methylphenol	0.67	0.67		
	Pentachlorophenol	0.36	0.69		
	Phenol	0.42	1.2		
Other SVOCs	1,2,4-Trichlorobenzene	0.031	0.051		
	1,2-Dichlorobenzene	0.035	0.050		
	1,4-Dichlorobenzene	0.11	0.11		
	Benzoic acid	0.65	0.65		
	Benzyl alcohol	0.057	0.073		
	Dibenzofuran	0.54	0.54		
	Hexachlorobenzene	0.022	0.070		
	Hexachlorobutadiene	0.011	0.12		
	N-nitrosodiphenylamine	0.028	0.040		
Petroleum Hydrocarbons	Diesel-range hydrocarbons			2,000	
	Gasoline-range hydrocarbons			30	
	Oil-range hydrocarbons			2,000	

Notes:
[a] The LDW RAL for dioxins/furans is also expressed as 25 ng/kg TEQ.
[b] Included in calculation of total HPAH.
[c] Included in calculation of total cPAH TEQ.
[d] Included in calculation of total LPAH.

Source tracing locations where samples were collected during the current reporting period (2017) are shown on Figure 2-3. Results are discussed below and as relevant in subsequent sections for the specific source control areas in which they are located.

2.3.1 SPU Source Tracing Activities

SPU collects grab samples from private onsite catch basins and catch basins located in the public right-of-way, grab samples from inline maintenance holes in the conveyance system, and inline sediment trap samples. SPU has received funding from Ecology to develop new source tracing tools. Projects include the use of dogs to detect PCBs, and the development of an improved sediment trap.

Detection Dog Pilot Test

SPU contracted with the University of Washington Conservation Canines and Windward Environmental in 2016 to conduct a pilot test to determine whether a specially trained dog can detect PCBs in the urban environment. This work was supported by an Ecology grant. In 2016, training and field testing was conducted at various sites in Seattle and Tacoma, Washington. The detection dog successfully identified PCB-contaminated caulk in buildings and in concrete pavement, as well as PCB-contaminated soil.

During 2017, SPU conducted additional training events for the detection dog/handler team. The team was used to screen areas where SPU suspected there may be PCB sources, and successfully identified PCBs in several areas that would not likely have been found by standard source tracing techniques (SPU 2018). A final report describing the pilot test results was submitted to Ecology in October 2017. SPU plans to develop a plan for continued use of a detection dog/handler team in SPU's source tracing program.

Sediment Trap Pilot Test

SPU is field testing two field prototypes of a new sediment trap design to support source tracing efforts. The traps are installed at two field locations: the S Myrtle Street storm drain (SD) and the Diagonal Avenue S CSO/SD. They were retrieved in March 2017 after a one-year deployment. Samples were analyzed for grain size. Although results were encouraging, SPU elected to conduct an additional year of physical testing before initiating chemical testing. The traps were immediately redeployed and will be retrieved in March 2018 (SPU 2018).

Collection of Source Tracing Samples

In 2017, SPU collected approximately 70 samples of storm drain solids from the City's MS4, including 22 sediment trap samples, 10 inline grab samples, 30 catch basin grab samples, six right-of-way catch basin grab samples, and three other samples (vault, tank, oil/water separator). Sample results are provided in Appendix F.

Table 2-5 lists outfalls owned by Seattle, or owned or installed by others to which the Seattle MS4 discharges. As part of the effectiveness monitoring program required under Seattle's MS4 permit, SPU is on track to install or collect one sample per calendar year from each outfall and near-end-of-pipe monitoring location listed below (SPU 2018):

Table 2-5. City of Seattle Outfalls in the LDW Basin

Outfall Name	Outfall Ownership	Separated Stormwater Drainage Basin Area (acres)	Outfall Diameter (inches)	Effectiveness Monitoring Location
East Side of LDW				
S Nevada Street	Seattle	23	18	No
Diagonal Avenue S (a)	Seattle	2,664	144	Yes
1st Avenue S (East)	Seattle	15	36	Yes
S River Street	Seattle	6.5	8	Yes
S Brighton Street	Seattle	17	30	Yes
S Myrtle Street	Seattle	6.2	30	Yes
North Boeing Field	Seattle	(b)	24	No
Georgetown	Seattle	5.9	24	Yes
Head of Slip 2	Private	12	24	Yes
S Garden Street (c)	Private	12	30	Yes
I5 SD at Slip 4	WSDOT	150 (d)	72	Yes
16th Avenue S (East)	Tukwila	12	12	No
KCIA SD#1	King County	192 (e)	30	No
S Norfolk Street (f)	Tukwila	676	84	Yes
I5 SD at S Ryan Street (g)	WSDOT	617	60	No
West Side of LDW				
SW Dakota Street	Seattle	54 (h)	30	Yes
SW Idaho Street	Seattle	423	72	Yes
SW Kenny Street (i)	Seattle	154	48	Yes
Highland Park Way SW	Seattle	289 (j)	72	Yes
S Webster Street	Seattle	(k)	6	No
7th Avenue S	Seattle	238	72	Yes
17th Avenue S	Seattle	2.9	18	Yes
Duwamish substation SD#1	Seattle	0.6	8	No
Duwamish substation SD#2	Seattle	1.3	8	No
Duwamish substation SD#3	Seattle	1.9	8	No
1st Avenue S (West)	WSDOT	603	open channel	Yes
2nd Avenue S	Private	38	24	No
S 96th Street	Unknown	1,050 (l)	72	No
West Marginal Place SW	Unknown	4.6 (m)	36	No

(a) SPU's CSO #111 and King County's Hanford #1 CSO also discharge to this outfall.
(b) Based on recent video inspection findings, there are no longer active connections to this system.
(c) Outfall ownership transferred to Seattle Iron and Metals Company in 2012.
(d) Approximately 65 acres are served by Seattle-owned storm drains. The remainder is I-5 and railroad right-of-way drainage.
(e) Approximately 86 acres are served by Seattle-owned storm drains. The remainder is I-5 right-of-way and King County Airport property.
(f) King County's S Norfolk CSO discharges to this outfall.

(g) Seattle installed a high flow bypass to the S Ryan Street system in 1992 to divert excess stormwater flow from the S Norfolk Street drainage system to prevent flooding during large storm events.
(h) 44.8 acres drains to the Seattle-owned SW Dakota Street SD system. An additional 9 acres drains to the constructed channel that discharges to the LDW downstream (east) of Seattle's outfall.
(i) King County's T115 CSO discharges to this outfall (100 acres).
(j) Does not include the approximately 7.3 acre overlap within the 1st Avenue S drainage basin.
(k) A single catch basin in S Riverside Drive is connected to this outfall.
(l) Approximately 83 acres are served by Seattle-owned storm drains. The remainder is unincorporated King County.
(m) Seattle-owned drainage only.

During 2017, SPU installed two sediment traps at the last maintenance hole before the outfall in the new 17th Avenue S drainage system that was constructed as part of the Terminal 117 early action cleanup (SPU 2018).

Sampling results are summarized below for the LDW human health risk drivers:

- Arsenic concentrations ranged from <5.4 mg/kg DW to 123 mg/kg DW. One inline sample in the Diagonal Avenue S CSO/SD exceeded the CSL for arsenic during 2017.
- Total PCB concentrations in storm drain samples ranged from <0.018 mg/kg DW to 26.300 mg/kg DW. Exceedances of the CSL (1.0 mg/kg DW) were observed in the Diagonal Avenue SD (nine samples), the Highland Park Way SW SD (one sample), the 1st Avenue S SD, west side (one sample), a right-of-way catch basin in the combined sewer line along 8th Avenue S.
- Total cPAH TEQ concentrations ranged from 0.017 mg/kg DW to 49 mg/kg DW (in sediment trap NST4 in the Norfolk CSO/SD). Exceedances of the LDW RAL (1.0 mg/kg DW) were observed in the Diagonal Avenue S SD (7 samples), the 1st Avenue S SD (1 sample), and the Norfolk CSO/SD (3 samples).
- No samples were analyzed for dioxins/furans. Other chemicals with CSL exceedances in SPU storm drain solids samples include copper, mercury, zinc, high molecular weight PAHs (HPAHs), low molecular weight PAHs (LPAHs), phthalates, 4-methylphenol, benzoic acid, benzyl alcohol, hexachlorobenzene, and phenol.

In 2018, SPU plans to:

- collect additional samples in the S Brighton Street SD to determine whether there are active sources of PCBs in this basin;
- collect additional samples in the S Myrtle Street SD basin to update information on PCB levels in this system and evaluate the effectiveness of improvements made at the Seattle Iron and Metal storage yard in 2017; and
- collect additional samples in the 2nd Avenue S SD to determine whether there are active sources of cPAHs in this basin (SPU 2018).

2.3.2 King County Source Tracing Activities

King County's Sediment Management Program has been collecting solids samples from pipes, wet wells, and outfall weir structures in the combined sewer system since 2010. During 2017, King County sampled the 8th Avenue S CSO basin. Sediment trap samples were collected in June; results are provided in Appendix G and are discussed in Section 4.5. Sediment trap samples were also collected from two locations in the Michigan CSO basin in June and December 2017. Sediment traps were deployed at Corson Avenue S and S Eddy Street, and the

South Michigan Regulator Station. Results are listed in Appendix G and are discussed in Section 4.4. In 2018 King County plans to install sediment traps for source tracing activities in the Hanford #1 combined sewer basin and near the West Marginal Pump Station for the T-115 CSO (King County 2018).

King County's Stormwater Services Section collected storm drain solids from unincorporated King County drainage basins in May 2017. Sediment trap samples were collected from three locations in the S 96th Street SD; these areas discharge stormwater into the North Fork of Hamm Creek to the LDW. Samples were analyzed for metals, semivolatile organic compounds (SVOCs), TOC, and grain size distribution. Results are provided in Appendix G, and are discussed further in Section 3.7. Sampling results for location 96-ST1 triggered further source tracing actions in the stormwater system up-pipe of this location. King County plans to collect grab solids samples from four catch basins draining to the 96-ST1 sediment trap location in 2018. Sediment trap bottles were redeployed in 2017 at all three sample locations (96-ST1, 96-ST2, and 96-ST3) (King County 2018).

King County collected sediment trap and grab samples from five locations at KCIA during 2017 (King County 2018). Results specific to each source control area are discussed in Sections 3 through 5.

2.4 Other Source Control Activities

2.4.1 Storm Drain Line Cleaning

In 2017, SPU cleaned approximately 13,000 linear feet of pipe in the 1st Avenue S (west) and 5,000 linear feet of pipe in the S Kenny Street MS4 drainage basins (SPU 2018). These were identified as priority basins in the SCIP. SPU plans to continue to inspect all catch basins in the MS4 system annually, and to perform maintenance as needed within six months. SPU will also conduct annual inspection and maintenance at Seattle-owned stormwater facilities. A minimum of 4,000 linear feet of storm drain line are cleaned each year.

In 2018, SPU will conduct line cleaning on the west side of the LDW to make use of the South Park Water Quality Facility site which will be available for solids decanting/dewatering; once construction of the pump station begins, this site will no longer be available.

King County International Airport (KCIA) is performing storm drain line cleaning in accordance with the ISGP. The 2015 ISGP requires stormwater line cleaning for permitted sites that discharge to the LDW. KCIA performs storm drain line cleaning in conjunction with their current catch basin cleaning schedule. In 2017, KCIA performed storm drain line cleaning in the KCIA West Areas (taxiways, parking lots, maintenance shop, airparks, and outfalls) (King County 2018).

2.4.2 Stormwater Treatment

SPU is planning to construct a South Park Water Quality Facility to treat stormwater runoff from the 7th Avenue S drainage system. In 2017, SPU completed pilot testing of two treatment technologies (chemically-enhanced sand filtration and ballasted flocculation), and submitted a test report to Ecology. SPU plans to select a preferred treatment technology in 2020.

Also in 2017, SPU completed a drainage system that was constructed as part of the Adjacent Streets and Stormwater Infrastructure project for the Terminal 117 EAA. The new drainage system routes stormwater from a 2.9-acre basin through nine bioretention cells and four Filterra™ tree box units. The bioretention cells are designed to infiltrate Underdrains from the Filterra™ units, and overflows from the bioretention cells are discharged to the LDW via a new 18-inch outfall.

2.4.3 CSO Control Projects

Three King County CSO control projects are currently underway in the LDW. The projects are the West Duwamish Wet Weather Storage (West Michigan and Terminal 115 CSOs), Georgetown Wet Weather Treatment Station (Brandon and Michigan CSOs) and Rainier Valley Wet Weather Storage and conveyance improvements (Hanford #1 CSO).

The objective of these projects is to control the remaining uncontrolled King County CSOs in the LDW to the state standard of no more than one untreated CSO discharge on average per year at each outfall, and will remove most of the untreated CSOs in the LDW.

King County completed a CSO Control Program Consent Decree Annual Report in 2017 (King County 2017a). This report includes the county's CSO control project and compliance activities from January through December 2016. During the current reporting period, King County continued progress toward the creation of the Georgetown Wet Weather Treatment Station, which will treat CSO discharges from the Brandon and Michigan CSOs. Construction on this treatment station is expected to be complete by the end of 2022 (King County 2017a). The Rainier Valley Wet Weather Storage project was under construction throughout 2017. Construction on this treatment station is expected to be complete by the end of 2018. During this reporting period the West Duwamish project was in predesign phase. The facility plan for this project is expected to be submitted by December 2020 (King County 2018).

2.4.4 CSO Basin Inputs Study

King County performed a CSO basin inputs pilot study to examine pathways of contaminants to combined sewer basins in the LDW. Combined sewer basins include inputs from domestic and industrial wastewater (sewage), groundwater infiltration into combined sewer lines (infiltration), and stormwater runoff (inflow). This study aims to better understand the present-day pathways for loadings of select chemicals into combined sewer basins. Specifically, the study aims to identify primary pathways of LDW COCs in combined sewers to determine whether contaminants are primarily from stormwater, sewage, or groundwater infiltration entering the basins prior to CSO control. This is done by estimating the primary pathways of contaminant sources during stormflow conditions (storm events when sewage and stormwater are both present in the system) that could lead to CSO discharge. King County selected the Brandon and Michigan combined sewer basins for this study, both of which are priorities for CSO control within the LDW.

King County summarized the findings of the Brandon CSO basin study in a May 2016 data report (King County 2016b). The Michigan Combined Sewer Basin Study Data Report was completed in 2017 (King County 2017b).

For most contaminants, stormwater contributes more of the chemical input into the Brandon and Michigan combined sewer basin than sewage, during periods of rainfall. The findings are similar

between the two combined sewer basins despite some differences in land use. Although the studies only collected and analyzed samples within the combined sewer systems, not from CSO discharges, the results suggest that efforts to reduce pollution in stormwater pathways of combined systems would be the most effective way to reduce the amount of most chemical contaminants that could be released to the waterway during an untreated CSO event (King County 2018).

2.4.5 King County Mapping Updates

King County is required to map and document the MS4 on properties it owns or operates. King County completed the mapping effort for unincorporated areas that drain to the LDW in 2016, except for locations that needed advanced investigations such as closed-circuit TV studies and engineering reviews. King County conducted a data gap analysis of the MS4 system in the unincorporated drainage area to the LDW. This analysis was conducted to better understand potential system connectivity and identified 29 locations within the drainage system that require advanced investigations to resolve system connectivity issues. This analysis also determined that no further investigations were needed for the facilities in the unincorporated drainage areas to the LDW. King County created this inventory and initiated a project to resolve these issues in 2018 and 2019. These actions will improve the stormwater asset inventory datasets in the LDW drainage area in unincorporated King County (King County 2018).

2.5 Site Assessment and Cleanup

During SCAP development, Ecology and its contractors identified contaminated properties that have the potential to cause sediment contamination. This included review of available information about each property and assessment of whether the site poses a threat to LDW sediments. The detailed information on each property is documented in either a Property Review Report (Duwamish/Diagonal Way, Terminal 117, and Slip 4 source control areas) or in a Data Gaps Report (all other source control areas). Property reviews and/or data gaps reports have been completed for all 24 source control areas. Site characterization or cleanup is in progress at several facilities that are known or suspected threats to LDW sediments.

EPA is managing sites under the Resource Conservation and Recovery Act (RCRA); Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); and/or the Toxic Substances Control Act (TSCA). These are listed in Table 2-6. Ecology is managing the cleanup sites listed in Table 2-7 (as of December 31, 2017).

The current status of cleanup at each of these sites is shown in Table 2-8. The total number of sites that will require characterization and/or cleanup in the LDW basin is unknown at this time.

Table 2-6. Cleanup Sites Under EPA Oversight

Source Control Area	Facility Name	Regulatory Authority
RM 0.1-0.9 East (EAA-1: Duwamish/Diagonal Way)	Rainier Commons	TSCA
RM 2.8 East (EAA-3: Slip 4)	Slip 4 EAA cleanup, including Georgetown Flume outfall replacement (completed in 2009)	CERCLA
RM 2.8-3.7 East (EAA-4: Boeing Plant 2/Jorgensen Forge)	Boeing Former Electronics Manufacturing Facility (EMF)	CERCLA
	Boeing Plant 2	RCRA
	Jorgensen Forge, Outfall Site (Time Critical Removal Action)	CERCLA
	Jorgensen Forge, Sediment Site	CERCLA
RM 3.9-4.3 East (Slip 6)	Rhone-Poulenc	RCRA
RM 3.4-3.8 West (EAA-5: Terminal 117)	Terminal 117	CERCLA

Table 2-7. Cleanup Sites Under Ecology Oversight

Source Control Area	Facility Name	Regulatory Authority
Combined sewer area	Burlington Environmental/East of 4th Site	RCRA Agreed Order (May 2010)
	West of 4th Site	RCRA Agreed Order (Apr 2014), Amended (Nov 2017)
	General Electric-Dawson Street Plant	RCRA Agreed Order (May 2007)
RM 1.7-2.0 East (Slip 2 to Slip 3)	Duwamish Marine Center	MTCA Agreed Order (Sep 2011)
RM 2.3-2.8 East (Seattle Boiler Works to Slip 4)	Fox Avenue Building	MTCA Agreed Orders (May 2009, Jun 2012, amended Jun 2013)
	Whitehead Tyee Site	MTCA Agreed Order (Aug 2016)
RM 2.8 East (EAA-3: Slip 4)	Crowley Marine Services 8th Avenue S	MTCA Agreed Order (Oct 2009)
	NBF-Georgetown Steam Plant (GTSP)	MTCA Agreed Order (Aug 2008)
RM 2.8-3.7 East (EAA-4: Boeing Plant 2/Jorgensen Forge)	Jorgensen Forge, upland of the EPA-managed area	MTCA Agreed Order (Jul 2007, amended Jul 2013), Enforcement Order (Mar 2015), MTCA Agreed Order (Jul 2017)
RM 3.7-3.9 East (EAA-6: Boeing Isaacson/Central KCIA)	Boeing Isaacson Thompson	MTCA Agreed Order (Apr 2010)
RM 3.9-4.3 East (Slip 6)	8801 Site	MTCA Agreed Order (Jul 2006) MTCA Agreed Order (Nov 2008, amended Aug 2017)
Combined sewer area	Boeing Field Chevron	MTCA Agreed Order (Jul 2015)
RM 1.3-1.6 West (Glacier Bay)	Duwamish Shipyard	MTCA Agreed Order (Sep 2010)
	Glacier Northwest/Reichhold Chemical	MTCA Agreed Order (May 2009)
RM 1.6-2.1 West (Terminal 115)	Terminal 115 North	MTCA Agreed Order (Mar 2011)
RM 2.1 West (1st Avenue S Storm Drain)	South Park Landfill	MTCA Agreed Order (May 2009, amended Jun 2013 and Feb 2016)
RM 2.1-2.2 West (EAA-2: Trotsky Inlet)	Douglas Management Dock	MTCA Agreed Order (May 2011)
	Industrial Container Services (ICS)/Trotsky Property	MTCA Agreed Order (May 2010)

Table 2-8. Ecology Cleanup Site Status as of December 2017

Site Name	Agreed Order	Remedial Investigation	Feasibility Study	Cleanup Action Plan	Cleanup	Interim Action
Upper Reach						
8801 Site	2006, 2008	2011	In progress	In progress		
Boeing Field Chevron	2015	In progress				
Boeing Isaacson/Thompson	2010	2014	In progress			
Jorgensen Forge	2007, 2015, 2017	In progress				2014
South Park Marina	Negotiations in progress 2016-2017					
Middle Reach						
Crowley Marine Services 8th Avenue S	2009	In progress				
Douglas Management	2011	In progress				
Duwamish Marine Center	2011	In progress				
Fox Avenue Building	1991, 2009	2011	2012	Agreed Order 2012	In progress	2009
Industrial Container Services	2011	In progress				
NBF-GTSP	2008	In progress				2011
N Terminal 115	2011	In progress				
South Park Landfill	2009	In progress	In progress	In develop-ment		2014, 2016
Whitehead Tyee	2016	In progress				
Lower Reach						
Duwamish Shipyard	2010	In progress				
Glacier Northwest/Reichhold	2009	In progress	In progress			

Table Notes: The following MTCA Cleanup Sites are not included in the schedule above; these are located in the LDW basin but are in the combined sewer area and not within the boundaries of a source control area: GE-Dawson Street Plant, East of 4th Site (Capital Industries, Art Brass Plating, Blaser Die Casting), and West of 4th Site (Burlington Environmental). The following EPA-lead sites are not included in the schedule above: Boeing Plant 2, Terminal 108, Terminal 117, Rhone-Poulenc, Rainier Commons, and Boeing Former EMF.

2.6 Additional Studies Relevant to Source Control

2.6.1 Otter Scat Analysis for PCB Congeners (Ecology)

Between July and October 2016, Dr. Michelle Wainstein, in collaboration with the Woodland Park Zoo, collected otter scat samples from eight locations within the Green-Duwamish watershed. Dr. Wainstein provided 73 scat samples to Ecology for analysis of PCB congeners by EPA Method 1668 (all samples) and PCB Aroclors by EPA Method 8082 (a subset of samples). Wildlife species such as river otters that feed and reside in the LDW are at risk from exposure to PCBs, and may provide useful indicators of PCB levels in the Green-Duwamish river system.

PCB congener concentrations in river otter scat samples were generally highest in the LDW (RM 0 to 5), and were significantly lower upstream of the LDW (Leidos and Wainstein 2017). The highest average concentration of PCBs (176 micrograms per kilogram [µg/kg] wet weight [WW]) was at sample location HAM (RM 4.5) near Hamm Creek. The highest detected individual PCB concentration (382 µg/kg WW) was at sample location SPM (RM 3.5), at South Park Marina and near Terminal 117.

Contaminant concentrations in otter scat are not directly comparable to tissue concentrations of otter prey, such as fish or shellfish, since they are accumulated through different metabolic processes. However, the general pattern of decreasing PCB congener concentrations in surface water and sediments with distance from the LDW is comparable to the pattern of decreasing concentrations in river otter scat.

2.6.2 LDW Groundwater Sampling for PCB Congeners and Aroclors (Ecology)

Groundwater at cleanup sites may be discharging PCBs to surface water and sediments; however, standard analytical methods for PCB Aroclors (EPA Method 8082) cannot measure concentrations low enough to determine if groundwater concentrations are protective of surface water and sediments. Ecology tasked Leidos with collecting groundwater samples from properties within the LDW basin and analyzing them for PCB congeners using EPA Method 1668, consistent with TCP Implementation Memorandum #12.[9] This study also provides additional data for source tracing and fingerprinting analysis (see Section 2.6.5, Green-Duwamish River PCB Congener Study).

A total of 51 groundwater samples were collected from 17 properties during March/April 2017; samples were analyzed for PCB congeners and Aroclors (Leidos 2017b). Samples were collected from existing wells at properties located within the LDW basin that are currently undergoing environmental investigations or cleanups. Surface water samples were collected from the LDW adjacent to five of these properties that are located along the LDW shoreline; samples were collected in the vicinity of the most downgradient well at each property.

PCB concentrations varied between properties. Total PCB congener concentrations in groundwater ranged from 0.000013 micrograms per liter (µg/L) to 0.994 µg/L; in surface water,

[9] Implementation Memorandum #12: When to Use EPA Method 1668 for PCB Congener Analyses (July 2015). https://fortress.wa.gov/ecy/publications/SummaryPages/1509052.html

they ranged from 0.000275 µg/L to 0.00217 µg/L. Total PCB Aroclors in groundwater ranged from 0.0050 µg/L to 0.89 µg/L; PCB Aroclors were not detected in surface water.

A strong correlation (r-squared value of 0.988) was observed between PCB congener and PCB Aroclor concentrations in samples where both were analyzed. For samples with congener concentrations less than about 0.005 µg/L, PCB Aroclor analysis was generally not able to detect the presence of PCBs.

Results for specific properties are described in Sections 3 through 5.

2.6.3 Green River Loading Studies (Ecology/USGS)

Ecology has worked in cooperation with the United States Geological Survey (USGS) to quantify sediment and toxic chemical loads associated with upstream sources in the Green River to the LDW, including high flow/high turbidity events that may contribute more to the annual loading than average flow conditions.

Between August 2016 and March 2017, USGS collected samples of filtered and unfiltered water and suspended sediment at the Foster Links Golf Course sampling location. The samples were collected during 13 periods of differing flow conditions, and analyzed for metals, dioxins/furans, SVOCs, butyltins, PCB congeners, and total and dissolved organic carbon. USGS expects to publish these results in early 2018. The results will be discussed in the next status report.

2.6.4 Green-Duwamish Pollutant Loading Assessment (Ecology/EPA)

Ecology and EPA initiated a Pollutant Loading Assessment (PLA) for the Green-Duwamish River watershed in 2014. The purpose of the PLA is to identify upstream pollution sources to the LDW and to identify strategies to reduce those sources of pollution to the entire Green-Duwamish River watershed. To accomplish these goals, the PLA is developing watershed-based models to evaluate the cumulative effects of toxic pollution, assess the relative contribution of toxic pollution from source pathways in the watershed, and help prioritize efforts to control the release of pollutants in the watershed. The PLA models and future monitoring data will support cleanup and water quality decisions for the Green-Duwamish River watershed.

Ecology and EPA are cooperatively developing the PLA with the participation of a Technical Advisory Committee (TAC). The TAC is made up of technical staff from public agencies or quasi-governmental groups. The Interested Parties Group provides input to Ecology, EPA, and the TAC; it is composed of agencies, businesses, nonprofit groups, and the general public. In 2017, Ecology and EPA solicited TAC input on existing water quality monitoring data, modeling parameter selection, modeling boundaries, and the overall technical direction.

The PLA is a long-term project which will be phased over many years. Additional information related to this project is posted on Ecology's website.[10]

[10] https://ecology.wa.gov/Water-Shorelines/Water-quality/Water-improvement/Total-Maximum-Daily-Load-process/Directory-of-improvement-projects/Green-Duwamish-Watershed-PLA

2.6.5 Green-Duwamish River Watershed PCB Congener Study: Phase 2 (Ecology)

In 2016, Ecology described how thousands of environmental samples collected in the Green-Duwamish River Watershed over the past 30 years have been analyzed for PCBs (Leidos 2016). Sampled media include surface and subsurface river sediments, soil, groundwater, surface water, stormwater, storm drain solids, building materials, fish and shellfish tissue, and air. In 2017, Ecology completed a second phase of the Green-Duwamish River Watershed PCB Congener Study; the purpose of Phase 2 was to identify the types of sources that are contributing to PCB pollution in the Green-Duwamish River and the LDW.

An initial data assessment evaluated existing congener-specific PCB data to determine whether it can be used for source apportionment modeling (Rodenburg and Leidos 2017a). The available data sets for five environmental compartments (sediment, tissue, surface water, storm drain solids/water, and air deposition) generally met the following criteria: at least as many samples as congeners; most concentrations above the detection limit; availability of surrogate recovery data; and some information about detection limits for each congener in each sample.

Positive matrix factorization, a statistical fingerprinting technique, was used to model sources of PCB contamination in the Green-Duwamish River watershed (Rodenburg and Leidos 2017b). Aroclors are the dominant source of PCBs in the system, with a small contribution from non-Aroclor sources. There are limited data available for some environmental compartments and some locations (particularly surface water in the LDW). Aroclor 1260 is the dominant PCB source type that was observed, followed by Aroclor 1254, Aroclor 1248, and a small contribution from Aroclors 1242/1016. No indication of microbial dechlorination was observed in the data that were available for this evaluation.

The study concluded that Aroclor analysis may be useful and sufficient in areas such as storm drains where PCB sources are expected to resemble specific Aroclors and the concentrations are known or expected to be high; however, comparing media concentrations to low regulatory values may warrant PCB congener analysis in some situations. For water quality modeling, additional data are needed to calibrate the models. Modeling of PCBs as homologs is recommended, specifically the tera- through hepta- homologs, which represent the bulk of the mass of PCBs in the Green-Duwamish watershed. Additional data collection is needed to provide comprehensive spatial coverage for some media, such as surface water, and to provide a sufficient data set for model calibration.

In late 2017, a source evaluation was conducted for PCB congeners in otter scat (Section 2.6.1) and groundwater samples (Section 2.6.1) obtained after the initial report was completed. Results were published as an addendum to the initial report in January 2018 (Rodenburg and Leidos 2018).

2.6.6 Green River PCB Equipment Blank Study (King County)

King County conducted a study to evaluate the potential for sampling equipment to cause contamination in samples analyzed for low-level PCBs. This study includes the collection of surface water samples from the Green River as well as autosampler and sample processing tubing equipment blank samples. These samples will help determine specific PCB congener contamination from autosampler equipment and evaluate the potential bias to middle and lower Green River surface water samples collected in previous King County Green River Watershed

studies. King County completed the sampling and analysis in 2017. The findings of this study are presented in a 2018 data report, which will be discussed in the next Source Control Status Report.

2.7 Source Control Area-Specific Activities

Ecology conducted source control evaluations for each of the 24 source control areas, including review of existing information, identification of data gaps, and preparation of a SCAP. The 24 source control areas are shown in Figure 1-2.

The potential for sediment recontamination associated with each source control area is described in detail in the Data Gaps Reports and SCAPs. These documents are available on Ecology's LDW Source Control website.[11]

Source control status reports describe source control activities that have been conducted since 2003, as follows:

- Report 1 – 2003 to June 2007 (Ecology 2007)
- Report 2 - July 2007 to March 2008 (Ecology 2008a),
- Report 3 - April to August 2008 (Ecology 2008d),
- Report 4 - September 2008 to June 2009 (Ecology 2009c),
- Report 5 - July 2009 to September 2010 (Ecology 2011c),
- Report 6 - October 2010 through December 2011 (Ecology 2012b),
- Report 7 - January 2012 through December 2012 (Ecology 2013),
- Report 8 - January through December 2013 (Ecology 2014b), and
- Report 9 –January 2014 through December 2016 (Ecology 2018).

This current Source Control Status Report (Report 10) describes source control actions that were conducted from January through December 2017.

Table B-1 lists action items that were completed during this reporting period. Table B-2 lists action items that have not yet been completed, including new source control action items that have been added since initial publication of the SCAPs. Source control activities conducted from January through December 2017 are described in Sections 3 through 5:

- Section 3: Upper Reach
- Section 4: Middle Reach
- Section 5: Lower Reach

Properties for which no source control activities were conducted during the reporting period are not discussed in this report. Site maps are presented for each of the 24 source control areas in Appendix A. These maps are intended to help identify locations discussed in the text. Additional figures are available in the referenced reports.

[11] https://ecology.wa.gov/Spills-Cleanup/Contamination-cleanup/Cleanup-sites/Toxic-cleanup-sites/Lower-Duwamish-Waterway

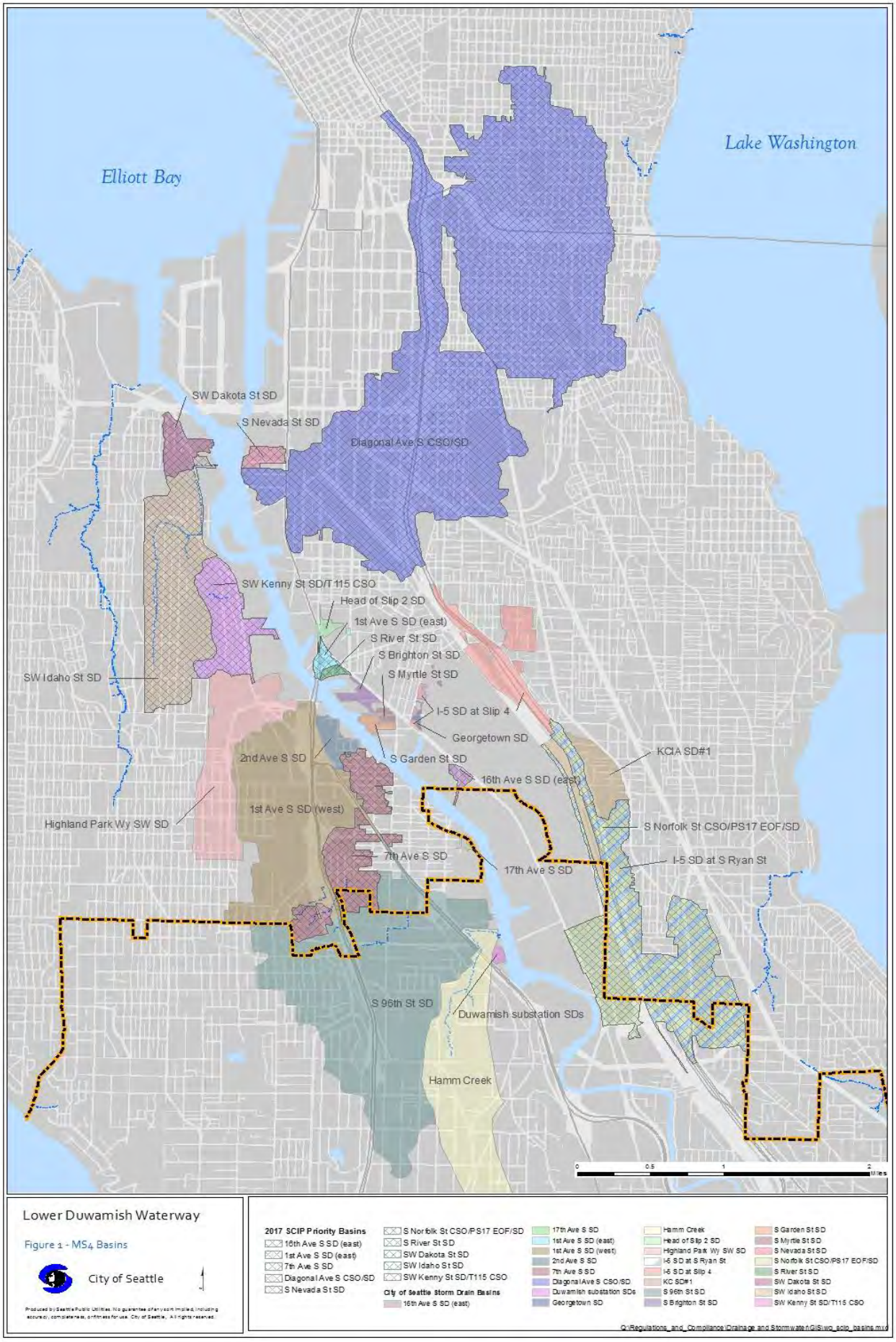
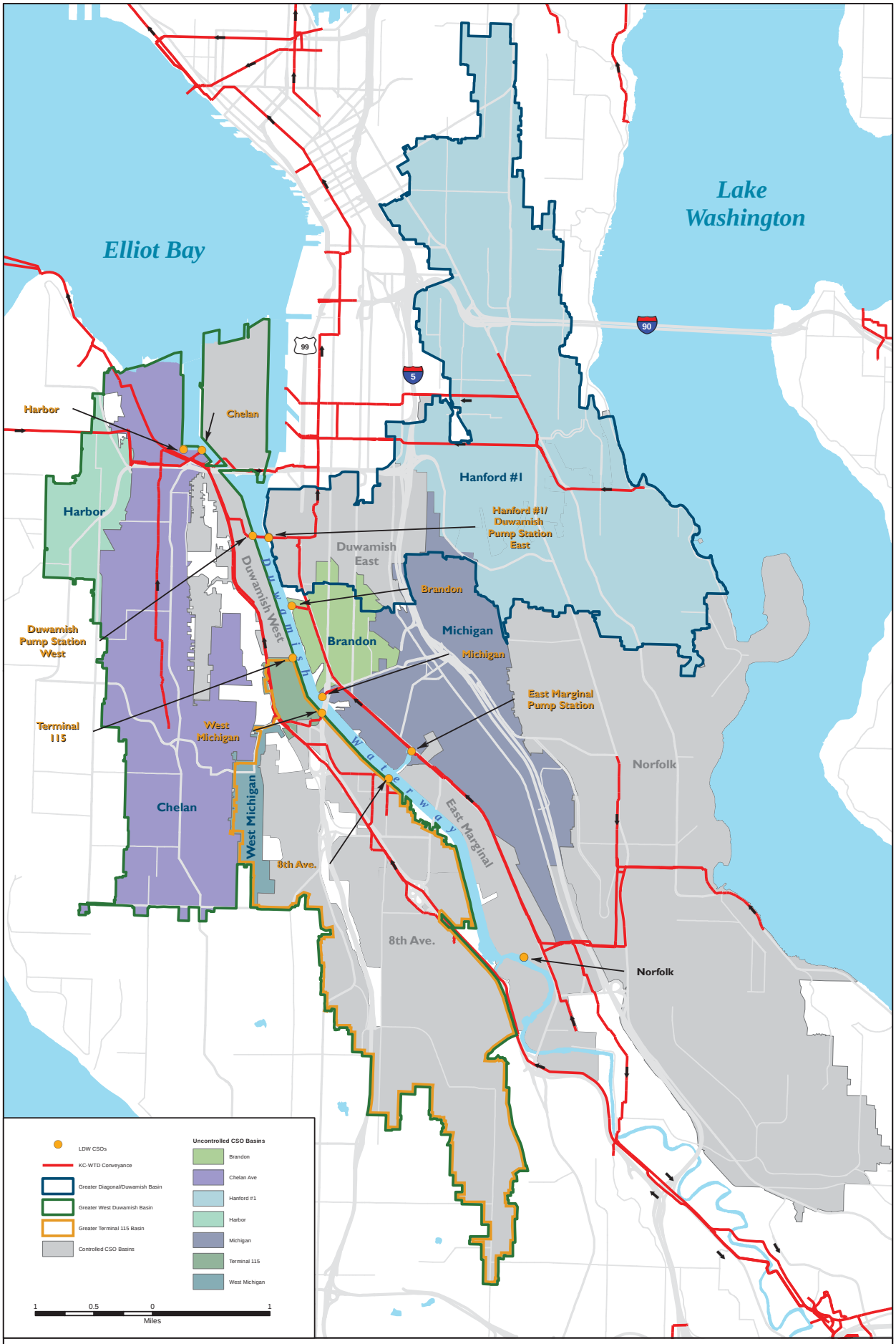


Figure 2-1. Seattle Storm Drain Basins in the Lower Duwamish Waterway



King County
Department of Natural Resources and Parks
Wastewater Treatment Division

File Name: \\dnrp1\projects\wtdfprojects\diagduam\projects\LDWCSOBasins_20140604.mxd
Shaun O'Neil 20140604

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June 2014

Figure 2-2
Lower Duwamish Waterway
Combined Sewer Overflow Basins

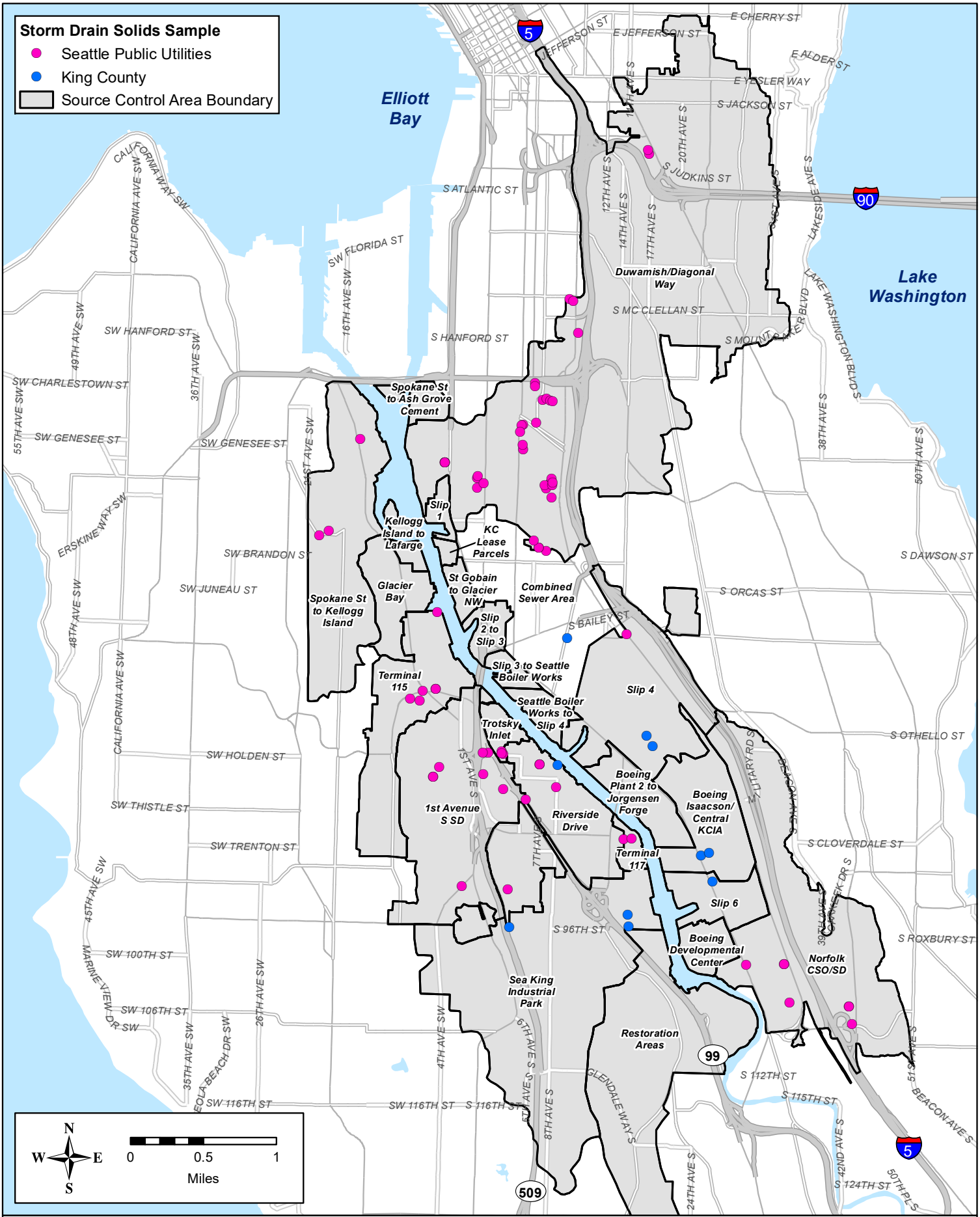

Figure 2-3. Source Tracing Sample Locations in the LDW Basin: 2017

DEPARTMENT OF ECOLOGY
State of Washington

leidos

Document Path: \GIS_Projects\Ecology Toxics Contract\WA-27 LDW SC Status\MapDocuments\SCSR_10\Figure_2-4_SourceTracingLocations

3.0 Upper Reach Source Control Areas

The upper reach includes eight source control areas, including five on the east side of the LDW and three on the west side:

East Side:	Report Section
RM 4.9 East (EAA-7: Norfolk CSO/SD)	3.1
RM 4.3 – 4.9 East (Boeing Developmental Center)	3.2
RM 3.9 – 4.3 East (Slip 6)	3.3
RM 3.7-3.9 East (EAA-6; Boeing Isaacson/Central KCIA)	3.4
RM 2.8-3.7 East (EAA-4: Boeing Plant 2 to Jorgensen Forge)	3.5
West Side:	
RM 4.2-5.8 West (Restoration Areas)	3.6
RM 3.8-4.2 West (Sea King Industrial Park)	3.7
RM 3.2-3.8 West (EAA-5: Terminal 117)	3.8

Source control activities specific to each source control area during the current reporting period are summarized in Section 3.1 through 3.8 below.

3.1 RM 4.9 East (EAA-7: Norfolk CSO/SD)

The RM 4.9 East (EAA-7: Norfolk CSO/SD) source control area includes Boeing parcels adjacent to the LDW, the southern portion of KCIA, and upland properties in the Norfolk and I-5 (Ryan Street) SD basins (Appendix A). The Norfolk CSO/SD discharges to the LDW within this source control area.

3.1.1 Business Inspections

SPU conducted four inspections at three facilities in the Norfolk CSO/SD basin during the current reporting period, including three initial inspections and one follow-up inspection (Appendix C).

Ecology conducted NPDES inspections at two facilities during the current reporting period (Appendix E):

- An inspection at Steeler, Inc., 10023 Martin Luther King Jr Way South, on March 16, 2017 identified several areas of noncompliance with the ISGP (Ecology 2017d). A warning letter was issued on April 14 (Ecology 2017h).
- An inspection was conducted at Unified Grocers, 3301 S Norfolk Street, on July 27, 2017. This facility has since discontinued operations at this location.

3.1.2 Source Tracing

During the current reporting period, SPU collected seven storm drain solids samples in this drainage basin, including five sediment trap samples and two in-line solids samples.

Complete sample results for the current reporting period are presented in Appendix F. Screening level exceedances are summarized in Table 3-1 below.

Table 3-1. RM 4.9 East: Screening Level Exceedances in SPU Source Tracing Samples

Chemical Class	Chemical	Sediment Traps	In-line Solids
Metals	Zinc	☒	×
PCBs	PCBs, total	×	×
PAHs	Individual LPAH compounds	☒	
	Individual HPAH compounds	☒	×
	Total LPAHs	☒	
	Total HPAHs	☒	
	Total cPAHs	☒	☒
Phthalates	BEHP	☒	☒
	Butylbenzyl phthalate	×	
	Dimethyl phthalate	☒	
Phenols	4-Methylphenol	☒	
Other SVOCs	Benzyl alcohol	☒	☒

Storm drain screening levels are listed in Table 2-4. Several SVOCs reported high detection limits which exceeded screening levels. These are identified in Appendix F.

× = Exceedance of SCO (lower screening level) was observed during the current reporting period (2017).
☒ = Exceedance of CSL (upper screening level) was observed during the current reporting period (2017).

3.1.3 Facility-Specific Source Control Actions

Boeing Developmental Center - South

The BDC property straddles three source control areas. BDC-South is located in the RM 4.9 East source control area and it is discussed below. BDC-Central is discussed in Section 3.2.3; BDC-North is discussed in Section 3.3.3.

Boeing performed a removal action in the LDW immediately offshore of the BDC south storm drain outfall (DC2) under Ecology's Voluntary Cleanup Program (VCP) in 2003. Boeing performs annual monitoring on a voluntary basis for PCBs in the backfill material installed during the 2003 sediment removal action and accumulated solids in the Vortechnics 9000 sediment trap unit upstream of

Address	9725 East Marginal Way S
Facility/Site ID	2101 (Boeing A&M Developmental Center)
NPDES Permit	WAR000146 (Boeing Developmental Center)
Current Operations	Research and development
Historical Operations	Aircraft manufacturing
Chemicals of Concern	PCBs, metals, solvents, petroleum hydrocarbons, and SVOCs
Media Affected	Soil, groundwater, stormwater, and sediment

outfall DC2. The monitoring data are used to evaluate the effectiveness of source control measures that have been implemented in the south storm drain system.

- Boeing collected sediment samples from the backfill area near outfall DC2 in September 2016 and September 2017 (Calibre 2018). Samples of accumulated sediment trap solids were collected in June 2016, October 2016, and September 2017. PCB concentrations in 2016/2017 storm drain solids were significantly higher than the previous years (Table 3-2).

Table 3-2. BDC South Storm Drain Line Monitoring

Sampling Date	Total PCBs in Backfill Surface Sediment (mg/kg DW)	Total PCBs in Storm Drain Solids (Vortechnics 9000 and upstream) (mg/kg DW)
Oct 2010	<0.03 – 0.56	0.16 - 22
Nov 2011	<0.03 – 0.67	1.2 - 17
Aug 2012	<0.02 – 0.24	0.24 - 15
Sep 2013	0.05 – 0.17	6.6 – 9.4
Sep 2014	<0.02 – 1.8	1.1 – 2.7
Sep 2015	<0.03 – 0.53	5.0 - 13
Sep 2016[1]	0.076 – 0.78	24 – 43
Sep 2017	0.29 – 0.92	25 - 29

[1]Storm drain solids samples were collected in June and October 2016.

- Additional sampling was completed to evaluate conditions in upgradient portions of the south storm drain line, specifically at Building 9-101 (Calibre 2018). The supplemental samples were collected to identify potential contaminant sources to the storm drain line, and areas of concern within the stormwater conveyance system. A wipe and a water sample were also collected from the opening of a drain pipe inside Building 9-101, which is upgradient of the Vortechnics unit in the south storm drain line and had been identified as a possible connection point. Six solids samples were collected from the Building 9-101 roof; total PCB concentrations in these samples ranged from 0.072 to 0.19 mg/kg DW. The drain pipe water sample contained 1.71 µg/L total PCBs; the wipe sample contained 0.97 ug/wipe total PCBs.
- In December 2017 Ecology issued an Administrative Order (Agreed Order No. DE-15600) to Boeing to address pollutants in stormwater samples that are above benchmark levels at the BDC (Ecology 2017y). This order requires Boeing to conduct monthly monitoring of several drainage areas within the RM 4.9 East source control area, including DC1, DC2 (the south storm drain), DC3, and DC4, for ISGP benchmark pollutants, total suspended solids (TSS), total petroleum hydrocarbons (TPH), and PCBs. Additional requirements under the Agreed Order are described in Section 3.2.3 (BDC-Central). Sampling began in January 2018 (Calibre 2018).

Boeing Military Flight Center

Boeing is conducting source control and cleanup work at the Military Flight Center to address PCBs present in stormwater flowing offsite from the facility, in certain building materials, and in

offsite soils. Stormwater discharges at the Military Flight Center are covered under the ISGP (WAR000150).

Source tracing samples collected in 2012 showed elevated concentrations of PCBs in storm drain solids; Boeing conducted cleanup activities of the storm drain system and surface soils in 2015 in locations impacted by PCBs (Ecology 2017f). In 2015 and 2016, discharge samples exceeded the ISGP benchmark values and chronic marine water quality criteria for zinc and copper. Despite frequent catch basin cleaning, elevated levels of copper, zinc, PCBs, and diesel-range hydrocarbons continue to be found in storm drain solids.

Address	10002 East Marginal Way S
Facility/Site ID	14532 (Boeing Military Flight Center)
NPDES Permit	WAR000150 (Boeing Military Flight Center)
Current Operations	Flight line support, including aircraft storage, preparation for flight, general servicing, maintenance, and repair
Historical Operations	Aircraft operations since 1958. Prior to 1958, the site was used for machinery salvage and farm uses and as a department store.
Chemicals of Concern	VOCs, PCBs, PAHs, metals, and petroleum hydrocarbons
Media Affected	Stormwater, storm drain solids, soil

- Boeing continues to monitor for PCBs in stormwater pursuant to Administrative Order 10554 (Ecology 2014a). During 2017, total PCB concentrations ranged from <0.01 to 0.096 µg/L.
- In January 2017 the Military Flight Center reported a TSS concentration of 62 milligrams per liter (mg/L) at Sample Point SP3, above the TSS limit of 30 mg/L. A subsequent sample collected in February 2017 (19 mg/L) was within permit limits (Boeing 2017).
- Ecology determined that the elevated pollutant levels in stormwater and storm drain solids in 2015 and 2016 strongly indicate that source control at the Boeing Military Flight Center is inadequate and may lead to the release of pollutants into the waters of the state. Ecology issued Administrative Order 13932 in March 2017; the Order requires Boeing to submit an Engineering Report for treatment of stormwater discharges from the Military Flight Center (Ecology 2017f).
- Boeing submitted a Stormwater Engineering Report to Ecology's WQ program on July 7, 2017. Ecology did not approve the report, concluding that the engineering design does not demonstrate that the facility can meet the ISGP requirements. Ecology found that the report fails to (1) propose treatment for runoff from Area 1; (2) adequately describe the pipe repair proposed for Area 4; (3) eliminate stormwater infiltration to groundwater in Area 2; (4) eliminate sheet flow of untreated runoff from Area 2; (5) propose treatment for both Area 1 and Area 2; and (6) provide sufficient treatment for Area 3. Boeing was required to address the issues, and revise and resubmit the engineering report for Ecology review and approval. Implementation of stormwater treatment was due by October 31, 2017 (Ecology 2017m).
- Various building materials and concrete joint compounds were evaluated during 2014 as a continuation of ongoing source control investigations and source control work. Boeing submitted a work plan to address PCBs in paint and caulk in April 2015; plans included removal of material containing more than 50 mg/kg PCBs from the buildings; application

of a polymeric coating; and installation of new exterior metal siding to the remaining material. The coating and siding would encapsulate the materials that contain less than 50 mg/kg PCBs to prevent future releases from the buildings. Abatement of PCB-containing materials was expected to occur during late summer and fall of 2015; no new information on the current status of this effort was available at the time this Source Control Status Report was prepared.

Unified Grocers

Unified Grocers has experienced historical exceedances of ISGP benchmarks for copper, zinc, and turbidity, requiring implementation of Level 3 best management practices (BMPs).

- In June 2017, Unified Grocers submitted an Engineering Report to Ecology's WQ program, proposing installation of engineered catch basin inserts in those portions of the property where regulated industrial activities occur (Lean Environment 2017).
- In October 2017, the ISGP was transferred from Unified Grocers to Supervalu (Ecology 2017s).

Address	3301 S Norfolk Street
Facility/Site ID	73338176 (Unified Grocers 3301 Norfolk)
NPDES Permit	WAR002040 (Terminated 9/28/2018)
Current Operations	Wholesale distribution of food products and related non-food items to retail markets and stores
Historical Operations	Truck shop, gasoline service station
Chemicals of Concern	Copper, mercury, zinc, PCBs, PAHs, cPAHs, phthalates, dioxins/furans, and petroleum hydrocarbons
Media Affected	Stormwater and storm drain solids

Boeing Field Chevron

The Boeing Field Chevron site is located south of the RM 4.9 East source control area, but is discussed here because Ecology identifies this site as an LDW cleanup site.

In July 2015, Ecology, Chevron, the RPNP Corporation, and Rajbir and Pradeep Sandhu signed Agreed Order DE-10947 for upland cleanup at this site. This includes completion of an RI/FS and draft Cleanup Action Plan (CAP) (Ecology 2015d).

Address	10805 Tukwila International Boulevard, Tukwila
Facility/Site ID	2551 (Chevron Sta 6009 3099)
NPDES Permit	None
Current Operations	Service station with underground storage of gasoline
Historical Operations	Same as current (since 1940)
Chemicals of Concern	Petroleum hydrocarbons, VOCs
Media Affected	Soil and groundwater

- G-Logics began RI field work on behalf of the potentially liable persons (PLPs) in September 2016. On May 23, 2017, G-Logics submitted a draft RI Report to Ecology. Based on Ecology review comments and a September 22, 2017 meeting to review Ecology's concerns, G-Logics revised the RI Report and submitted a revised draft to Ecology on November 22, 2017.

- G-Logics completed quarterly groundwater sampling events in July and October, 2017. Groundwater was collected from 17 monitoring wells associated with the site. Concentrations of petroleum contaminants exceeded the MTCA Method A cleanup levels in three of the wells in July (G-Logics 2017); data from the October sampling event were unavailable.
- On November 29, G-Logics submitted a work plan for additional RI field activities; these activities were approved by Ecology on December 11, 2017 and work began in January 2018 (G-Logics 2018). Activities include collection of soil, groundwater, and soil gas samples.

3.2 RM 4.3-4.9 East (Boeing Developmental Center)

The RM 4.3-4.9 East (Boeing Developmental Center) source control area is shown in Appendix A. This source control area consists of a single facility, the central portion of the BDC, referred to as BDC-Central. The BDC-South is discussed in Section 3.1.3 (RM 4.9 East); BDC-North is discussed in Section 3.3.3 (RM 3.9-4.3 East).

3.2.1 Business Inspections

Ecology conducted a follow-up stormwater compliance inspection at BDC on July 19, 2017 (Appendix E). No inspection report was available for review.

3.2.2 Source Tracing

No source tracing activities were conducted at BDC during this reporting period, except as described in Section 3.2.3 below.

3.2.3 Facility-Specific Source Control Actions

Boeing Developmental Center - Central

On February 8, 2017, Ecology issued Administrative Order 14012 to the BDC (Ecology 2017b). The Order required Boeing to revise their Stormwater Pollution Prevention Plan (SWPPP) by February 28, 2017; submit an Engineering Report for implementation of treatment BMPs by May 15, 2017; and implement the revised SWPPP, including approved treatment BMPS, by September 30, 2107.

Address	9725 East Marginal Way S
Facility/Site ID	2101 (Boeing A&M Developmental Center)
NPDES Permit	WAR000146 (Boeing Developmental Center)
Current Operations	Research and development
Historical Operations	Aircraft manufacturing
Chemicals of Concern	PCBs, metals, solvents, petroleum hydrocarbons, and SVOCs
Media Affected	Soil, groundwater, stormwater, and sediment

- Boeing appealed Administrative Order 14012 to the Pollution Control Hearings Board in March 2017.

- In June 2017, Boeing prepared and submitted an engineering report to Ecology which proposed treatment BMPs for BDC. The engineering report was later supplemented with additional information about the expected performance of catch basin inserts proposed for certain drainage areas. After a site visit by Ecology in July 2017, Boeing further supplemented the engineering report to provide for use of catch basin inserts at additional drainage areas as BDC (Ecology 2017y). Boeing completed installation of the BMPs (a combination of catch basin filter treatment inserts and/or metalsorb media) in December 2017.
- Ecology and Boeing negotiated Agreed Order DE-15600 and settled Boeing's appeal of Administrative Order 14012 in December 2017.[12]
- Under Agreed Order DE-15600, Boeing agreed to modify the SWPPP and begin monitoring at least once in all months when discharge occurs during BDC regular business hours at 12 of the 19 drainage areas at BDC, including DC5, DC9, DC10, DC11, DC12, DC13, and DC19 within the RM 4.3-4.9 East source control area (Ecology 2017y). Boeing is required to monitor for ISGP benchmark pollutants, TSS, TPH, and PCBs, beginning in January 2018. In addition, Ecology is requiring accelerated consideration of advanced stormwater treatment if future benchmark exceedances meet the trigger conditions specified in the Order.

Boeing has also continued cleanup activities under RCRA at the BDC property. Activities during the current reporting period are summarized below (Landau 2019):

- AOC-05: Full-scale nitrate injections to stimulate biodegradation of petroleum hydrocarbons in groundwater began in 2008 and Boeing has monitored performance of the interim action since that time. The last nitrate injection occurred in December 2017. Monitoring results indicate that bioremediation at AOC-05 is nearing completion; monitoring is scheduled to continue.
- SWMU-17: Anaerobic bioremediation of tetrachloroethene (PCE) in groundwater was selected as the remedial approach for this unit. Full-scale electron donor injections began in 2011. As of August 2017, chlorinated solvent concentrations were below preliminary cleanup levels at all but three wells. Additional electron donor injections were implemented at five wells in November 2017. Boeing is continuing to monitor progress.
- SWMU-20: Actions at this unit include groundwater pump and treat followed by bioremediation for PCE and trichloroethylene (TCE) in groundwater. A groundwater treatment system was in place between 1993 and 2001; a series of bioremediation injection events was performed between 2004 and 2015. Semiannual monitoring was conducted in May and November 2017.

3.3 RM 3.9-4.3 East (Slip 6)

The RM 3.9-4.3 East (Slip 6) source control area includes several properties adjacent to the LDW: the 8801 Site (also known as the former PACCAR Site, currently occupied by Insurance Auto Auctions), the former Rhone-Poulenc Site, parcels owned by the Museum of Flight, and the

[12] Agreed Order DE-15600 was signed on January 9, 2018.

northern portion of the Boeing Developmental Center (BDC-North). In addition, it includes stormwater drainage from the south-central portion of KCIA, which discharges to the LDW through KCIA SD#1. The RM 3.9-4.3 East source control area is shown in Appendix A.

3.3.1 Business Inspections

No inspections were conducted within this source control area during the current reporting period.

3.3.2 Source Tracing

King County collects annual sediment trap and inline solids samples from location KCIA1A (on the KCIA SD#1 drainage line). Samples were collected on May 31. The sediment trap sample had very limited sample mass and was only analyzed for PCBs. No analytes exceeded screening levels in either sample.

3.3.3 Facility-Specific Source Control Actions

8801 Site (Former Kenworth Truck / PACCAR)

In July 2006, PACCAR and Ecology signed Agreed Order No. DE-3599 to evaluate shoreline and nearshore sediments, seeps, and stormwater at the site. In November 2008, Ecology, PACCAR, and Merrill Creek Holdings (the property owner at that time) signed Agreed Order DE-6069 for upland cleanup, which includes completion of an RI/FS and Interim Action Work Plan (Ecology 2008c). Centerpoint Properties purchased the property from Merrill Creek holdings in 2015, and Agreed Order DE-6069 was amended to update the property owner in August 2017 (Ecology 2017l). The site is currently leased by Insurance Auto Auctions.

Address	8801 East Marginal Way S
Facility/Site ID	2072 (8801 E Marginal Way S)
NPDES Permit	WAR008681 (Insurance Auto Auctions Tukwila)
Current Operations	Damaged vehicle storage
Historical Operations	Truck manufacturing
Chemicals of Concern	PCBs, PAHs, VOCs, phenols, phthalates, petroleum hydrocarbons, metals
Media Affected	Soil, groundwater, stormwater, and sediment

- A revised Interim Action Work Plan was submitted to Ecology in January 2015. Ecology provided review comments in August 2017.
- During quarterly stormwater monitoring in October 2017, TSS was measured at 42.7 mg/L, exceeding the permit effluent limit of 30 mg/L at Outfall No. 3 (Windward 2017e). Insurance Auto Auctions replaced all catch basin inserts within the stormwater basin draining to Outfall No. 3, increased sweeping within the basin, and reviewed the effectiveness of BMPs in place. The facility treats all stormwater before it is discharged through the outfalls. Prior to the fourth quarter sampling event, pollen-like material and tree debris was observed in the Outfall No. 3 drainage basin. Insurance Auto Auctions believes that it is likely that this material contributed to the solids loading. Insurance Auto Auctions will continue to monitor TSS concentrations (Windward 2017e).
- Ecology's contractor, Leidos, collected four groundwater samples at this property in March 2017, and analyzed them for PCB congeners and Aroclors. Total PCB congeners ranged

from 0.0030 to 0.035 µg/L, which exceeded the groundwater preliminary cleanup level (PCUL) for protection of sediment (0.00034 µg/L). PCB Aroclors ranged from <0.001 to 0.024 µg/L, which exceeded the Aroclor groundwater PCUL for protection of sediment (0.022 µg/L) (Leidos 2017b).

Former Rhone-Poulenc Site (Container Properties)

The eastern portion of this site, known as the East Parcel, is currently owned by the Museum of Flight. Cleanup activities on the eastern half are complete.

Address	9229 East Marginal Way S
Facility/Site ID	2150 (Container Properties LLC)
NPDES Permit	WAR008681 (Insurance Auto Auctions Tukwila)
Current Operations	Leased to Insurance Auto Auctions for wrecked vehicle storage
Historical Operations	Glue, paint, resin, and wood preservative manufacturing; vanillin manufacturing
Chemicals of Concern	PAHs, metals (primarily copper), VOCs, PCBs, petroleum hydrocarbons
Media Affected	Soil, groundwater, sediment

- The performance of corrective measures implementation (CMI) on the East Parcel was summarized in a March 2017 Operations & Maintenance Report (AMEC 2017c). Groundwater was monitored in the first half of 2016 to evaluate toluene concentrations after the biosparge system was shut down (August 2015). The CMI was dismantled and groundwater monitoring wells, air sparge wells, and associated piping were decommissioned and removed after approval from EPA.
- EPA agreed that corrective measures for the East Parcel are complete, and granted a final determination of Corrective Action Complete without Controls for the East Parcel (EPA 2017a).

The western portion of the site is owned by Container Properties, LLC. In 2017, it was occupied by Insurance Auto Auctions for vehicle storage. Toluene, metals, and high pH affect groundwater and soil throughout the western half of the site, known as the West Parcel. PCBs affect the shoreline area and sediments in the offshore tide flats which are located within the site boundary.

- A hydraulic control interim measure (HCIM), consisting of a groundwater pump-and-treat system with a subsurface barrier wall, currently contains much of the soil and groundwater contamination at the West Parcel. Ongoing operations and maintenance of the HCIM ensures that it remains an effective interim measure.
- EPA is working with the property owners to continue the Corrective Measures Study, starting with a pilot study to inject carbon dioxide into the groundwater to assess the ability to lower pH at the site (AMEC 2017a). EPA approved the work plan for this study in 2017 but access issues to the study area delayed the start of the study until early 2018. Future work at the site will include additional groundwater sampling to verify the current levels of groundwater contamination and an update to the Preliminary Remediation Goals (PRGs) established in 2014. Information from the pilot study and sampling, along with prior

investigations and updated PRGs, will be used to help determine appropriate corrective measures for cleaning up the West Parcel.[13]

King County International Airport – South Central

The south-central area of KCIA is located within the RM 3.9 to 4.3 East source control area. The north-central portion of KCIA is discussed in Section 3.4.3. The north area is discussed in Section 4.1.3.

Address	7277 Perimeter Road S (main terminal); various tenant addresses
Facility/Site ID	2387398 (King Cnty International Airport)
NPDES Permit	WAR000343 (King County Int Airport); Tenant: WAR127177 (Charles Air Hangar Starbucks)
Current Operations	General aviation airport and related activities
Historical Operations	Military airport operations; general aviation
Chemicals of Concern	PAHs, phthalates, copper, zinc, petroleum hydrocarbons, and PCBs
Media Affected	Stormwater and, groundwater

- King County continues to collect annual sediment trap and inline solids samples at location KCIA1A in the storm drain line discharging to the LDW at KCIA SD#1 (see Section 3.3.2).
- King County performed stormwater line cleaning in the KCIA West Areas (taxiways, parking lots, maintenance shop, airparks, and outfalls) in 2017, which presumably includes areas within this source control area (King County 2018).

Boeing Developmental Center - North

The BDC property straddles three source control areas. BDC-South is located in the RM 4.9 East source control area and it is discussed below. BDC-South is discussed in Section 3.1.3; BDC-Central is discussed in Section 3.2.3.

Address	9725 East Marginal Way S
Facility/Site ID	2101 (Boeing A&M Developmental Center)
NPDES Permit	WAR000146 (Boeing Developmental Center)
Current Operations	Research and development
Historical Operations	Aircraft manufacturing
Chemicals of Concern	PCBs, metals, solvents, petroleum hydrocarbons, and SVOCs
Media Affected	Soil, groundwater, stormwater, and sediment

- In December 2017, Ecology issued an Administrative Order (Agreed Order No. DE-15600) to Boeing to address pollutants in stormwater samples that are above benchmark levels at the BDC (Ecology 2017y). This order requires Boeing to conduct monthly monitoring of several drainage areas including DC15 (within the RM 3.9-4.3 East source control area) for ISGP benchmark pollutants, TSS, TPH, and

[13] https://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.cleanup&id=1002020

PCBs. Additional requirements under the Agreed Order are described in Section 3.2.3 (BDC-Central). Sampling began in January 2018 (Calibre 2018).

3.4 RM 3.7-3.9 East (EAA-6: Boeing Isaacson / Central KCIA)

The RM 3.7-3.9 East (EAA-6: Boeing Isaacson/Central KCIA) source control area includes the Boeing Thompson and Isaacson properties adjacent to the LDW and the north-central portion of KCIA, which is within the drainage basin for KCIA SD#2/PS45 emergency overflow (EOF) (Appendix A). King County refers to this drainage as the KCIA central drainage basin (King County 2018).

3.4.1 Business Inspections

KCIA performs annual tenant inspections in accordance with its ISGP and municipal permit requirements. No other business inspections were conducted during the current reporting period.

3.4.2 Source Tracing

KCIA collected one sediment trap sample and a grab sample from location KCIA2 in May 2017. In addition, one grab sample was collected from the KCIA South Pump Station (SPS) pump vault. The SPS sampling location is considered most representative of stormwater drainage from the airport property; it is upstream of location KCIA2. The SPS sample contained total PCBs at 0.37 mg/kg, above the SQS/LAET. King County postulates that the increase in total PCBs may have been due to NBF stall construction work. The construction areas include those of known elevated PCB concentrations. Because the elevated PCBs were not observed downstream at the KCIA2 trap or grab location (non-detect results), it may have remained in the KCIA SPS or water quality vault. No other screening level exceedances were observed, although the KCIA2 sediment trap sample was analyzed for PCBs only. KCIA will continue to monitor KCIA2 and SPS sampling locations to determine if the elevated PCBs indicate an ongoing source. KCIA sampling results are presented in Appendix G.

3.4.3 Facility-Specific Source Control Actions

Boeing Isaacson / Thompson

In April 2010, Boeing and Ecology entered into Agreed Order DE-7088 to conduct an RI/FS and prepare a draft CAP (Ecology 2010a). Boeing submitted an RI Report to Ecology on April 21, 2014 (Landau 2014). Ecology delayed the final approval of this report pending decisions on responsibility for Port of Seattle property located between Boeing property and the LDW (the sliver property).

- Ecology's contractor, Leidos, collected four groundwater samples at this property in March 2017, and analyzed them for PCB congeners and Aroclors. Total PCB congeners ranged from 0.00055 to 0.0027 µg/L, which exceeded the groundwater PCUL for protection of sediment (0.00034 µg/L). PCB Aroclors were not detected (Leidos 2017b).

King County International Airport – North Central

This area of KCIA includes Drainage Basin #2, which discharges to the LDW through the KCIA SD#2 outfall (Appendix A). The City of Tukwila's East Marginal Way stormwater drainage also discharges to this outfall. Stormwater discharges at KCIA are covered under the ISGP. Several tenants within KCIA are also covered by an ISGP and comply separately with Ecology requirements.

Address	7277 Perimeter Road S (main terminal); various tenant addresses
Facility/Site ID	2387398 (King Cnty International Airport)
NPDES Permit	WAR000343 (King County Int Airport); Tenants: WAR002830 (Ameriflight Inc Hangar 5), WAR000607 (Landmark Aviation/Signature Aviation), WAR000434 (UPS Boeing Field)
Current Operations	General aviation airport and related activities
Historical Operations	Military airport operations; general aviation
Chemicals of Concern	PAHs, phthalates, copper, zinc, petroleum hydrocarbons, and PCBs
Media Affected	Stormwater and groundwater

KCIA inspects all tenant and airport common areas monthly to ensure that BMPs are properly maintained, and to ensure that there are no illicit discharges or connections. Treatment BMPs such as oil water separators, water quality vaults, and StormFilter systems have been installed and are being maintained (King County 2018). KCIA performs stormwater line cleaning in accordance with the ISGP; line inspection and cleaning in the western portion of KCIA was completed in 2017.

3.5 RM 2.8-3.7 East (EAA-4: Boeing Plant 2 to Jorgensen Forge)

The RM 2.8-3.7 East (EAA-4: Boeing Plant 2 to Jorgensen Forge) source control area consists of two facilities, Boeing Plant 2[14] and Jorgensen Forge, as shown in Appendix A. In addition, the 16th Avenue S (East) SD discharges to the LDW within this source control area.

3.5.1 Business Inspections

Ecology conducted a stormwater compliance inspection at Boeing Plant 2 on April 27, 2017 (Ecology 2017i). Several issues were identified that must be completed in order to bring the facility into compliance (Appendix E).

3.5.2 Source Tracing

No source tracing samples were collected during the current reporting period.

3.5.3 Facility-Specific Source Control Actions

Boeing Plant 2

Boeing is conducting RCRA corrective actions at Boeing Plant 2 under an Administrative Order on Consent, issued by EPA to Boeing in 1994. This includes corrective actions for both the

[14] The northern portion of Boeing Plant 2, where stormwater discharges to Slip 4, is in the RM 2.8 East (EAA-3: Slip 4) source control area (Section 4.1).

upland area and the sediment/bank areas. Cleanup elements associated with PCBs are concurrently subject to various written approvals under TSCA. In August 2011, EPA issued its Final Decision and Response to Comments for Plant 2 Sediments, containing the final remedy for the Duwamish Sediment Other Area, Southwest Bank and other Plant 2 sediment areas.

Address	7755 East Marginal Way S
Facility/Site ID	2100 (Boeing Plant 2)
NPDES Permit	WAR000482
Current Operations	Airplane parts manufacturing
Historical Operations	Same
Chemicals of Concern	VOCs, PCBs, PAHs, metals, and petroleum hydrocarbons
Media Affected	Groundwater, stormwater, soil, and sediment

In-Water Work

The in-water work is complete. Boeing continues to monitor the quality of sediment at the site.

Upland Cleanup

- Boeing has completed the majority of interim soil cleanups and installed stormwater treatment systems to prevent contaminants from entering the LDW.
- Boeing submitted a Corrective Measures Study Phase Semiannual Shoreline Groundwater Monitoring Report to EPA in March 2017, and Quarterly Shoreline Groundwater Monitoring Results report in May 2017. These reports were not available during preparation of this Source Control Status Report, but reportedly indicate either compliance with current proposed cleanup levels, or where exceedances exist, are within 10 times the proposed final cleanup levels. Trend analysis indicates either downward or no statistically discernable trends (EPA 2017c).
- EPA's RCRA Corrective Action program uses environmental indicators (EI) to track changes in the quality of the environment. Two EIs have been developed for Boeing Plant 2 to assess the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for ecological receptors is intended to be developed in the future (EPA 2017b). EIs are near-term objectives to measure progress, and do not pertain to final remedies. In 2017, EPA issued the following EI determinations:
    - Current human exposures are under control (EPA 2017b);
    - Migration of contaminated groundwater under control (EPA 2017c).
- A "current human exposures under control" EI determination indicates that there are no unacceptable human exposures to contamination. The only plausible exposure routes for soils and groundwater are for construction workers. The remainder of the site has concrete, asphalt or building covers, or has clean back fill soils (shoreline areas). Stringent security access controls and environmental construction work practices are expected to be formalized under restrictive covenants to be established as part of the final remedy selection.
- A "migration of contaminated groundwater under control" EI determination indicates that the migration of contaminated groundwater has stabilized, and that monitoring will be conducted to confirm that contaminated groundwater remains within the original area of contamination. Groundwater at select remedial areas in the uplands portion of the facility remains contaminated at levels above the current proposed cleanup levels. Constituents of

concern exceeding proposed cleanup levels include arsenic, copper, zinc, nickel, cadmium, volatile organic compounds (VOCs), BTEX, PCBs, and bis(2-ethylhexyl)phthalate (BEHP). EPA will require Boeing to continue existing shoreline groundwater monitoring activities, as well as monitoring associated with current interim measures at the uplands Remedial Area.

- A proposed final cleanup plan (or Statement of Basis) for the upland areas of the site is expected to be published by EPA in 2019.

Jorgensen Forge

The Jorgensen Forge site is divided into an upland portion and a sediment portion. Ecology is the lead agency for the upland cleanup and EPA is the lead for the sediment cleanup.

Upland Cleanup

In March 2015, Ecology issued Enforcement Order DE-11167 requiring Jorgensen Forge to complete an RI/FS and to prepare a draft CAP for the upland portion of the site (Ecology 2015c). Jorgensen Forge declared bankruptcy in 2016.

Address	8531 East Marginal Way S
Facility/Site ID	2382 (Jorgensen Forge Corp)
NPDES Permit	WAR003231 (Jorgensen Forge Corp)
Current Operations	Fabrication of specialized large-scale metal parts
Historical Operations	Fabrication of structural steel, tractor and road equipment; manufacture of Navy vessels; steel distribution
Chemicals of Concern	PCBs, VOCs, petroleum hydrocarbons, metals
Media Affected	Soil and groundwater

- Ecology's contractor, Leidos, collected three groundwater samples at this property in March 2017, and analyzed them for PCB congeners and Aroclors. Total PCB congeners were below the groundwater PCUL for protection of sediment (0.00034 µg/L). PCB Aroclors were not detected (Leidos 2017b).
- In July 2017, Ecology entered into Agreed Order DE-14143 with the Earl M. Jorgensen Company (EMJ). The Agreed Order requires EMJ to complete an RI/FS and to prepare a draft CAP for the upland portion of the site (Ecology 2017k).
- In April 2017, Floyd|Snider conducted a subsurface investigation to define the horizontal and vertical limits of PCB-impacted soil on the Jorgensen Forge property south of the Boeing Plant 2 OA-11 cleanup unit (Floyd|Snider 2017c). Boeing conducted an interim measure excavation at OA-11 in September 2016. A small portion of the OA-11 interim measure excavation extended onto the Jorgensen property; an unanticipated increase in PCB concentrations was discovered in samples from the southern sidewall of the excavation (on the Jorgensen property), with PCB concentrations above the 50 ppm TSCA threshold for Subtitle C disposal. The April 2017 investigation included collection of 45 samples from 13 soil borings; concentrations ranged from <0.1 mg/kg to 202 mg/kg.
- Floyd|Snider postulated that the bulk of the PCBs on the Jorgensen property are associated with the same surface release that impacted OA-11, between the former transformer pad at Plant 2 and the property line. The area of impact has not been fully delineated to the east or

west on the Jorgensen property. The PCB release does not appear to be associated with the 12-inch and 24-inch property line pies (Floyd|Snider 2017c).

Sediment Cleanup

An underground 24-inch pipe adjacent to the Boeing Plant 2 facility released PCBs to the LDW. The pipe and contaminated soil were excavated under CERCLA removal authorities in phases; Phase 1 was completed in 2015.

- Phase 2 of the Jorgensen Forge Outfall Site Removal Action was completed in 2017 (Floyd|Snider 2018a). Land use restrictions will address remaining contamination left in place.

Under a separate CERCLA removal action order, PCB-contaminated sediment and bank soils at the property were largely removed in 2014. Samples collected after the excavation indicated that some sediments were still contaminated.

- EMJ agreed to evaluate the need for additional cleanup work to address the remaining sediment contamination under an amendment to the order (effective August 2017). Sampling is expected to take place in 2018 and 2019.[15]

3.6 RM 4.2-5.8 West (Restoration Areas)

The RM 4.2-5.8 West (Restoration Areas) source control area includes a mixture of restored habitats and industrial properties along the LDW shoreline (Appendix A). Industrial properties adjacent to the LDW, including the city of Seattle's Duwamish substation and associated outfalls, and upland properties in the Hamm Creek SD basin are located within the RM 4.2-5.8 West source control area.

3.6.1 Business Inspections

Ecology conducted four HWTR inspections in this source control area during 2017 (Appendix E). No other inspections were conducted during the current reporting period.

3.6.2 Source Tracing

No source tracing samples were collected in the RM 4.2 to 5.8 West source control area during 2017.

3.6.3 Facility-Specific Source Control Actions

No facility-specific source control updates were identified for this source control area during the current reporting period.

[15] https://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.cleanup&id=1002020

3.7 RM 3.8-4.2 West (Sea King Industrial Park)

The RM 3.8-4.2 West (Sea King Industrial Park) source control area includes a small portion of LDW shoreline and upland facilities within the S 96th Street SD basin (Appendix A).

3.7.1 Business Inspections

SPU conducted inspections at six facilities in the S 96th Street storm drain basin during the current reporting period; all were initial inspections (Appendix C).

King County's Stormwater Services conducted 49 inspections at 20 facilities in this source control area during the current reporting period (Appendix D).

Ecology conducted stormwater compliance inspections at Delta Marine Industries (one inspection), Puget Sound Coatings (one inspection), and Samson Tug & Barge South Park (seven inspections), and three HWTR inspections within this source control area during the current reporting period (Appendix E).

- At Samson Tug & Barge, excessive discharges of turbid water to Hamm Creek were caused by truck traffic at the north entrance/exit gate (Ecology 2017g). Samson Tug & Barge agreed to direct all stormwater to a lined settling pond adjacent to the north gate; pond water would be stored and used for dust control at the site (Samson 2017). The facility is also working to enhance its stormwater treatment system.

3.7.2 Source Tracing

SPU cleaned the city-owned portions of the S 96th Street SD in 2016. During the current reporting period, King County collected three sediment trap samples in May 2017, at locations 96-ST1, 96-ST2, and 96-ST3 (King County 2018). No grab samples were collected.

- Sediment trap 96-ST1 contained BEHP, phenanthrene, and benzoic acid at concentrations above the 2LAET, and zinc and fluoranthene above the LAET. King County determined that the results for zinc and two PAH compounds, along with previous year's results, warranted source tracing in the stormwater conveyance system up-pipe of this location (King County 2018).
- In sediment trap 96-ST2, butylbenzyl phthalate exceeded the LAET. King County determined that these results did not warrant source tracing in the stormwater conveyance system up-pipe of this location. This decision was based on observation that butylbenzyl phthalate is often detected at similar levels in storm drain solids samples. Moreover, there were no SQS exceedances for this chemical in nearby LDW sediment samples (King County 2018).
- In sediment trap 96-ST3, BEHP exceeded the 2LAET, and zinc and butylbenzyl phthalate exceeded the LAET. King County determined that these results did not warrant source tracing in the stormwater conveyance system up-pipe of this location, with the same reasoning as described above for 96-ST2 (King County 2018).

Screening level exceedances are summarized in Table 3-3 below.

Table 3-3. RM 3.8-4.2 West: Screening Level Exceedances in King County Source Tracing Samples

Chemical Class	Chemical	Sediment Traps
Metals	Zinc	×
Dioxins/furans	Dioxin/furan TEQ	na
PAHs	Fluoranthene	×
	Phenanthrene	☒
Phthalates	BEHP	☒
	Butylbenzyl phthalate	×
Other SVOCs	Benzoic acid	☒
TPH	Oil-range hydrocarbons	na

Storm drain screening levels are listed in Table 2-4.

× = Exceedance of SCO (lower screening level) was observed during the current reporting period (2017).
☒ = Exceedance of CSL (upper screening level) was observed during the current reporting period (2017).
na = not analyzed

3.7.3 Facility-Specific Source Control Actions

Beckwith & Kuffel

Beckwith & Kuffel (B&K), located at 1313 S 96th Street, purchased the site in 2013 and entered the VCP on February 23, 2017 under VCP No. NW3119. B&K sells, distributes, and maintains pumps, blowers, and compressors. Most operations occur within the main office and shop building. Soil and groundwater contamination at the site is attributed to historical operations.

Address	1313 S 96th Street
Facility/Site ID	3533187 (FMH Material Handling Solutions)
NPDES Permit	None
Current Operations	Equipment repair and distribution company, office and shop
Historical Operations	Forklift maintenance facility
Chemicals of Concern	PCBs, VOCs, petroleum hydrocarbons, metals
Media Affected	Soil and groundwater

- From December 2016 to March 2017, B&K's contractor performed an RI to delineate the nature and extent of contamination in groundwater at the site and supplement the data collected during a remedial investigation performed in 2014. Groundwater samples were collected from onsite and offsite wells and 21 direct-push borings. Soil samples were not collected for chemical analysis. TCE, vinyl chloride, and cis-1,2-dichloroethylene (cis-1,2-DCE) concentrations in groundwater were detected above their respective MTCA Method A or B cleanup levels. The contamination appeared to be limited to the upper water-bearing zone (Landau 2017a).
- B&K's contractor recommended enhanced bioremediation using an electron donor material to remediate the groundwater. Following Ecology's review of the supplemental RI

report, B&K's contractor plans to prepare a Remedial Action Work Plan for Ecology's approval (Landau 2017a).

Glen Acres Golf & Country Club

The Glen Acres Golf & Country Club, located at S 112th Street, was developed in 1924. The site entered the VCP on July 12, 2013 under VCP No. NW2759. Contamination at the site is associated with a former gasoline underground storage tank (UST).

Address	1000 S 112th Street
Facility/Site ID	18369741
NPDES Permit	None
Current Operations	Golf Course & Country Club
Historical Operations	Undeveloped land
Chemicals of Concern	BTEX, petroleum hydrocarbons
Media Affected	Soil and groundwater

- In January and February 2017, the Glen Acres Homeowners' Association's contractor advanced five soil borings and installed three groundwater monitoring wells at the site. Groundwater monitoring events were performed in February and August 2017. Gasoline-range hydrocarbons, benzene, and total xylenes concentrations in soil and groundwater exceeded the respective MTCA Method A cleanup levels (Aerotech 2017a).
- The Glen Acres Homeowners' Association's contractor recommended installing four to five additional groundwater monitoring wells to define the lateral extent of groundwater contamination, performing four quarters of groundwater monitoring following the installation of additional wells, and collecting a water sample from an irrigation water retention pond (Aerotech 2017a).
- The Glen Acres Homeowners' Association's contractor conducted a second groundwater monitoring event in August 2017. Concentrations of gasoline-range hydrocarbons exceeded the MTCA Method A cleanup level in two wells. Benzene exceeded the MTCA Method A cleanup level in one of these wells (Aerotech 2017b).

Sea Mar Community Health Center Site

Sea Mar Community Health Center (Sea Mar) is the owner and operator of this property, located at 9635 Des Moines Memorial Drive S. Sea Mar entered the VCP on October 5, 2017 under VCP No. NW3172. Soil and groundwater contamination at the site is attributed to the heating oil system for a single-family residence, the former gasoline service station at the site, and migration of halogenated VOCs from an offsite source (the B&K site).

- During 2017, the office building and southern portion property were redeveloped. The building on the northern end of the property was renovated to include offices, classrooms, and meeting space for Sea Mar. Plans for redeveloping the southern portion of the property included installation of a paved parking lot and a rain garden to the west of the grocery store (RGI 2017a).
- Sea Mar's contractor completed an RI/FS and Remedial Action report for the site in 2017. The report summarized the results of environmental investigations and remedial actions performed at the site from 2007 to 2016. Based on the results of these investigations, the following COCs were identified: petroleum hydrocarbons; benzene; cPAHs, lead;

cadmium; arsenic; TCE; vinyl chloride; and cis-1,2-DCE. Remedial excavations were performed in four areas of the site where COCs were present in soil above MTCA cleanup levels. As part of the remedial action, a 300-gallon heating oil UST was removed from the site. Sea Mar requested a No Further Action determination from Ecology regarding cleanup related to the former gasoline service station and the heating oil UST (RGI 2017a).

- Sea Mar's contractor conducted a groundwater monitoring event at the site in March 2017. Concentrations of the site COCs in groundwater were below the MTCA cleanup levels, with the exception of TCE. Sea Mar's contractor recommended continued quarterly monitoring of four site monitoring wells and replacement or repair of three monitoring wells (RGI 2017b).

Address	9635 Des Moines Memorial Drive S
Facility/Site ID	22844
NPDES Permit	None
Current Operations	Office building, grocery store, single-family residence
Historical Operations	Gasoline service station, greenhouse, grocery retail, and residential
Chemicals of Concern	Petroleum hydrocarbons, cPAHs, metals, VOCs
Media Affected	Soil, groundwater, soil gas

- In 2017, Sea Mar's contractor removed a 675-gallon petroleum products UST and completed two remedial excavations in the central portion of the site in support of the installation of a stormwater detention vault. Approximately 2,000 tons of contaminated soil were removed from the site. Sea Mar requested a No Further Action determination for the site from Ecology (RGI 2017d).

3.8 RM 3.4-3.8 West (EAA-5: Terminal 117)

The RM 3.4-3.8 West (EAA-5: Terminal 117) source control area includes Port of Seattle's Terminal 117, South Park Marina, and most of Boeing's South Park facility (Appendix A). It also includes the new 17th Avenue S SD system that was constructed as part of the Terminal 117 early action cleanup (SPU 2018).

3.8.1 Business Inspections

King County conducted a source control inspections at Rick's Master Marine during the current reporting period (Appendix D).

Ecology and King County conducted a joint inspection at Rick's Master Marine during the current reporting period (Appendix E). No other inspections were reported during 2017 in this source control area.

3.8.2 Source Tracing

SPU collected solids samples from two right-of-way catch basins in January 2017 (Appendix F). Samples were collected at RCB75, in the 8600 block of 16th Avenue S, and RCB76, in the 8600 block of 17th Avenue S in the northern portion of the former Basin Oil property. Screening level exceedances are summarized below (Table 3-4).

Table 3-4. RM 3.4-3.8 West: Screening Level Exceedances in SPU Source Tracing Samples

Chemical Class	Chemical	Right-of-Way CB Solids (SPU)
Metals	Zinc	☒
Phthalates	BEHP	☒
	Butylbenzyl phthalate	×
Other SVOCs	Benzoic acid	☒
	Benzyl alcohol	☒
	Hexachlorobenzene	☒

Storm drain screening levels are listed in Table 2-4.

× = Exceedance of SCO (lower screening level) was observed during the current reporting period (2017).
☒ = Exceedance of CSL (upper screening level) was observed during the current reporting period (2017).

SPU installed two sediment traps at the last maintenance hole before the outfall in the new 17th Avenue S drainage system (SPU 2018). Samples will be collected in 2018.

3.8.3 Facility-Specific Source Control Actions

South Park Marina

South Park Marina is located on the west bank of the LDW, north of the Port of Seattle's Terminal 117. The A&B Barrel Co. conducted drum reconditioning at this location between the mid-1950s and 1961. South Park Marina has been operating at this location since 1970. Ecology began negotiating an Agreed Order for the South Park Marina site in April 2016.

Address	8604 Dallas Avenue S
Facility/Site ID	44653368
NPDES Permit	WAG030045 (Boatyard General Permit)
Current Operations	Marina with boat storage and repair
Historical Operations	Resort and marina; drum reconditioning
Chemicals of Concern	PCBs, PAHs, VOCs, dioxins/furans, phthalates, pesticides, petroleum hydrocarbons, metals
Media Affected	Stormwater and storm drain solids

- South Park Marina Limited Partnership, the Port of Seattle, and the city of Seattle have been designated as PLPs for the investigation of environmental conditions at this site.
- Agreed Order negotiations continued through 2017.

Terminal 117 and Adjacent Streets

EPA signed an Administrative Settlement Agreement and Order on Consent with the Port of Seattle and the City of Seattle to implement cleanup actions at Terminal 117 in June 2011 (EPA 2011). The Order required the Port of Seattle and the City to implement EPA's cleanup decision for the Terminal 117 EAA.

Address	8700 Dallas Avenue S
Facility/Site ID	37657495 (Malarkey Asphalt Company)

The cleanup includes the marine sediments adjacent to Terminal 117, the former industrial facility on terminal property, and 10 acres of soil in the nearby streets and residential area. Cleanup was completed in 2016.

NPDES Permit	None
Current Operations	Port of Seattle operations (International Inspection, Construction Services)
Historical Operations	Asphalt manufacturing; untreated lumber storage
Chemicals of Concern	PCBs
Media Affected	Soil, groundwater, and sediment

- In March 2017, the city of Seattle submitted a Terminal 117 Removal Action Construction and Completion Report for Phase 2, Adjacent Streets and Residential Yards Study, Part 2, Adjacent Streets and Stormwater to EPA (Integral 2017a). This report described the completion of a non-time-critical removal action (NTCRA) to address contaminated soil within the Phase 2 Adjacent Streets portion of the Terminal 117 EAA.
- In September 2017, the Port of Seattle submitted a soil management plan to EPA for removal of native soil during the Terminal 117 stormwater construction work. This plan describes the handling and removal of native soil that may be encountered during trenching activities for stormwater controls at the Sediment and Upland Areas of Terminal 117 (AECOM 2017a).
- A Removal Action Completion Report for the Phase 1 Sediment-Upland Cleanup at Terminal 117 EAA is scheduled to be completed in 2018.
- The Port of Seattle entered into an Environmental Covenant with Ecology on November 16, 2017. The purpose of the covenant is to restrict certain activities and uses for the property to protect public health and the environment and to protect the integrity of the removal action conducted at the site (Ecology 2017u).
- The Port of Seattle and the city of Seattle are developing a long-term monitoring and maintenance plan for the Terminal 117 site. The plan will address inspections of the upland area (bank and cap), monitoring of the offshore sediment and storm drain solids, and maintenance of the City's drainage/stormwater treatment system in the adjacent streets, post cleanup. The plan is expected to be completed in 2018.

4.0 Middle Reach Source Control Areas

The middle reach includes eight source control areas, including four on the east side of the LDW and four on the west side:

East Side:	Report Section
RM 2.8 East (EAA-3: Slip 4)	4.1
RM 2.3-2.8 East (Seattle Boiler Works to Slip 4)	4.2
RM 2.0-2.3 East (Slip 3 to Seattle Boiler Works)	4.3
RM 1.7-2.0 East (Slip 2 to Slip 3)	4.4
West Side:	
RM 2.2-3.4 West (Riverside Drive)	4.5
RM 2.1-2.2 West (EAA-2: Trotsky Inlet)	4.6
RM 2.1 West (1st Avenue S Storm Drain)	4.7
RM 1.6-2.1 West (Terminal 115)	4.8

Source control activities specific to each source control area during the current reporting period are summarized in Section 4.1 through 4.8 below.

Several Ecology cleanup sites are located in east side of the Middle Reach: North Boeing Field-Georgetown Steam Plant (NBF-GTSP), Crowley Marine Services 8th Avenue S, Whitehead Tyee, Fox Avenue Building, and Duwamish Marine Center. In addition, the former Boeing Electronics Manufacturing Facility (EMF), which is under EPA oversight, is located within this source control area.

Four cleanup sites under Ecology oversight are included in the west side of the Middle Reach: South Park Landfill, North Terminal 115, Industrial Container Services, and Douglas Management Dock.

4.1 RM 2.8 East (EAA-3: Slip 4)

The RM 2.8 East (EAA-3: Slip 4) source control area includes several properties adjacent to the LDW (Crowley Marine Services 8th Avenue S, Cedar Grove Composting, and the northern portion of Boeing Plant 2), the NBF-GTSP site, the northern portion of KCIA, and areas with stormwater drainage to the Georgetown and Interstate 5 (I-5) Slip 4 storm drains (Appendix A). Stormwater drainage from KCIA-North and most of the NBF-GTSP site discharges to Slip 4 via King County's KCIA SD#3. King County's East Marginal CSO Pump Station is also located at the head of Slip 4.

The City of Seattle completed a NTCRA to address contaminated sediment at the Slip 4 EAA during 2011-2012. This included the removal of contaminated bottom sediment and bank soil; creosote-treated timbers and piles; and a concrete pier structure.

- In January 2017, the City submitted a Long-Term Monitoring Data Report for Year 4 (2016). This report includes a storm flow monitoring review, a visual inspection, and institutional control update, and a review of construction activities and investigations performed by other parties. Sediment and soil samples were not collected for chemical

analysis in Year 4 (Windward 2017a). The Slip 4 sediment cap remains structurally stable, and new sediment continues to accumulate on top of the cap. Fine sediment deposits were observed throughout the cap areas, with the thickest accumulations in the slough areas and along the east-central sediment cap.

- The City completed Year 5 monitoring in July 2017 (Windward 2018). Activities included a storm flow monitoring review; a visual inspection; an aerial survey; a hydrographic survey; sediment sampling from slope and waterway cap sampling locations; an institutional control update; and a review of source control activities and investigations performed by other parties. Physical conditions observed during Year 5 were similar to those noted previously. At least one analyte (BEHP, butylbenzyl phthalate, PCBs, benzyl alcohol, or zinc) was detected at concentrations above SMS criteria at six of the eight sampling locations. The average TOC and BEHP concentrations have increased since the cap was placed; the average total PCB concentration increased between 2013 and 2015 and decreased in 2017.
- No monitoring is scheduled for 2018.

4.1.1 Business Inspections

SPU conducted three inspections at two businesses during 2017, one in the I-5 storm drain basin, and one (Cedar Grove Composting) along Slip 4 (Appendix C).

KCIW inspects the Waste Management 8th Avenue S Reload Facility (Crowley property) at least annually, since it is classified as a SIU and is regulated under a waste discharge permit.

Ecology conducted eight inspections at three facilities in the Slip 4 source control area during the current reporting period (Appendix E). These include North Boeing Field and Landmark Aviation (one inspection each) and the Duwamish Reload Facility/Crowley property (six inspections).

4.1.2 Source Tracing

Boeing, SPU, and/or KCIA have been sampling sediment traps in the storm drains discharging to Slip 4 since 2005. In 2011, Boeing installed a long-term stormwater treatment (LTST) system at North Boeing Field, which treats most of the stormwater discharging to Slip 4 from NBF and KCIA-North. The sediment traps are generally located upstream of the LTST system. In April 2017, Boeing collected sediment trap samples from locations T1, T2, T3, T4, T4A, and T5A(2)[16]. In May 2017, KCIA collected sediment trap and grab samples from locations T2A and T3A. In April 2017, SPU collected one sediment trap sample at location T6, within the I-5 storm drain basin, which discharges to Slip 4 via a separate outfall.

Boeing discontinued sediment trap sampling at North Boeing Field in 2017.

While generally decreasing over time, PCB concentrations in all sediment traps except T2A, T3A, and T6 remain at concentrations above the SCO (0.13 mg/kg DW). The concentration of PCBs at T5 was above the CSL (1.0 mg/kg DW) during the current reporting period (Table 4-1).

[16] King County refers to sample location T5A(2) as T5B in its 2017 Source Control Annual Report (King County 2018).

While not representative of discharges to Slip 4, these data help to inform source tracing efforts at the NBF-GTSP site.

Table 4-1. RM 2.8 East: PCB Concentrations in Slip 4 Sediment Traps

Sediment Trap Location	Range of All PCB Conc'ns, 2005-2017 (mg/kg DW)	2017 Samples (mg/kg DW)
T1 (Downstream end of north and north-central lateral SD)	0.62 – 420	0.93
T2 (Downstream end of south lateral SD)	0.010 – 1.5	0.48
T2A (Upstream of NBF on the south lateral SD)	<0.0061 – 1.0	<0.061
T3 (Downstream end of south-central lateral SD)	0.026 – 1.8	0.30
T3A (Upstream of NBF on the south-central lateral SD)	<0.02 – 0.73	<0.11
T4 (Downstream end of north-central lateral SD)	0.24 – 2.8	0.89
T4A (Upstream of NBF on the north-central lateral SD)	<0.011 – 5.6	0.18
T5 (Downstream end of north lateral SD)	2.1 – 800	4.2
T5A/T5A(2)/T5B (Upstream of NBF on the north lateral SD, now shifted to King County bypass line*)	0.086 – 0.67*	0.46
T6 (I-5 SD at Slip 4)	<0.019 – 7.8	0.010

* Samples collected at T5A(2) are grab samples. King County currently refers to location T5A(2) as T5B.

Screening level exceedances in King County and SPU source tracing samples are summarized in Table 4-2 below. Complete results are provided in Appendix F and G. Data from Boeing were not available for review at the time this Status Report was prepared.

Table 4-2. RM 2.8 East: Screening Level Exceedances in SPU and King County Source Tracing Samples

Chemical Class	Chemical	Sediment Traps (SPU, KCIA and Boeing)	Inline Samples (KCIA)
Metals	Copper	☒	
	Lead	×	
	Zinc	☒	×
PCBs	PCBs, total	×	×
PAHs	LPAH	☒	☒
	HPAH	☒	☒
	Total cPAHs	☒	☒
Phthalates	BEHP	☒	☒
	Butylbenzyl phthalate	☒	☒
	Di-n-octyl phthalate	☒	
Other SVOCs	Benzyl alcohol		☒
TPH	TPH-oil		☒

Table does not include storm drain solids samples collected as part of ongoing investigations at the NBF-GTSP site.

Storm drain screening levels are listed in Table 2-4.

× = Exceedance of SCO (lower screening level) was observed during the current reporting period (2017).
☒ = Exceedance of CSL (upper screening level) was observed during the current reporting period (2017).

4.1.3 Facility-Specific Source Control Actions

Crowley Marine Services 8th Avenue S

DeNovo Seattle LLC (DeNovo) purchased this property in April 2014; the property is currently leased to Waste Management, which operates the Duwamish Reload Facility. This facility is being used as a transfer facility for sediment offloading in support of sediment cleanup in the LDW and other regional sediment remediation projects. Contaminated uplands soils, predominantly petroleum-contaminated soils, are also transloaded at the facility.

Ecology and 8th Avenue Terminals negotiated Agreed Order DE-6721 in 2009 to conduct an RI/FS, implement interim actions if needed, and prepare a draft CAP (Ecology 2009d).

Address	7400 8th Avenue S, Seattle 98108
Facility/Site ID	1940187 (Crowley Marine Services, Inc. 8th Avenue S) 63123962 (Alaska Logistics LLC)
NPDES Permit	WAR302034 (ISGP)
Current Operations	Transloading
Historical Operations	Manufacture of pipe, chain, hydraulic equipment, and concrete; machinery and scrap iron storage; sawmill, lumber distribution; creosote treatment
Chemicals of Concern	Metals, PAHs
Media Affected	Sediment, soil, groundwater, and stormwater storm drain solids

- Ecology's contractor, Leidos, collected four groundwater samples at this property in March 2017, and analyzed them for PCB congeners and Aroclors. Total PCB congeners ranged from 0.00012 to 0.015 µg/L, which exceeded the groundwater PCUL for protection of sediment (0.00034 µg/L). PCB Aroclors were not detected (Leidos 2017b).
- The property owner, Denovo Seattle, stopped work at the site due to financial difficulties in 2017. The property was placed in the hands of a court-appointed receiver. In December 2017, 8th Avenue Terminals agreed to take over work on the Agreed Order by addressing Ecology's comments on the August 2016 Draft Remedial Investigation Report. 8th Avenue Terminals worked on a revised report to be submitted to Ecology in 2018.

North Boeing Field / Georgetown Steam Plant Site

Agreed Order DE-5685 for the NBF-GTSP site was signed by the PLPs (Boeing, City of Seattle, and King County) and Ecology, effective August 14, 2008 (Ecology 2008b), and was amended in February 2015 (Ecology 2015a). Under the terms of the Amended Agreed Order, the PLPs will complete an RI/FS and conduct one or more interim actions, as appropriate.

Current Operations	Aircraft finishing and testing; aircraft research and development
Historical Operations	Electrical power generation; aircraft manufacturing, maintenance, and research
Address	GTSP: 6700 13th Avenue S, Seattle 98108 NBF: 7500 East Marginal Way S, Seattle 98108
Facility/Site ID	2050 (NBF-GTSP)
Chemicals of Concern	PCBs, PAHs, petroleum hydrocarbons, VOCs, SVOCs, metals
Media Affected	Soil, groundwater, stormwater, and soil vapor

Activities conducted at the NBF-GTSP site during the current reporting period are summarized below (Table 4-3).

Table 4-3. Source Control Activities at the NBF-GTSP Site (2017)

Dates	Activity	Description
January 2017	GTSP Fifth Semiannual Groundwater Monitoring Report	Seattle City Light (SCL) completed the fifth semiannual PCB monitoring event at well GTSP-7 on August 18, 2016, representing dry-season conditions. Total PCB Aroclors were detected at 0.030 µg/L in this round (SCL 2017a). The monitoring report was submitted in 2017.
February 2017	Fenceline Area Interim Action 2016 Groundwater Compliance Report	Boeing completed a groundwater monitoring compliance report for the Fenceline Interim Action areas at NBF. PCBs were detected at up to 2.0 µg/L in groundwater in the Fenceline area adjacent to the GTSP property (Landau 2017b). The monitoring compliance report was submitted in 2017.
March 2017	NBF PCB Building and Concrete Joint Material Abatement	Boeing prepared a document summarizing requirements and plans for removal of building materials with up to 250,000 mg/kg total PCBs. Sampling of these materials was completed in January 2017 (Landau 2017f), and PCB removal was scheduled for 2018.
March 2017	Ecology Groundwater Sampling for PCBs	Ecology's contractor, Leidos, collected three groundwater samples at NBF in March 2017, and analyzed them for PCB congeners and Aroclors. Total PCB congeners ranged from 0.0056 to 0.99 µg/L, which significantly exceeded the groundwater PCUL for protection of sediment (0.00034 µg/L). PCB Aroclors ranged from 0.005 to 0.89 µg/L (Leidos 2017b).
April 2017	NBF Semiannual Groundwater Monitoring Event	Boeing completed a semiannual groundwater monitoring event at 17 wells across the NBF property in February 2017, representing wet-season conditions. Analyses included petroleum hydrocarbons, PCBs, and VOCs. In addition, a UST was removed in January at NBF to the south of the RI/FS site boundary, in Tukwila (Landau 2017c).
May 2017	GTSP Sixth Semiannual Groundwater Monitoring Event	SCL completed the sixth semiannual PCB monitoring event at well GTSP-7 on February 8, 2017, representing wet-season conditions. Total PCB Aroclors were detected at 0.035 µg/L in this round (SCL 2017b).
August 2017	NBF-GTSP Addendum No. 6 to RI/FS SAP/QAPP	Addendum No. 6 (revised) to the RI/FS SAP/QAPP summarizes the planned Phase III RI supplemental groundwater sample locations discussed and approved by Ecology during a meeting in May 2017 (Landau 2017d).
September to November 2017	NBF-GTSP Site RI Phase III Supplemental Investigation	Field activities were conducted in September and November for RI Phase III field investigations at NBF and offsite areas to the west. Field work included grab groundwater sampling from 46 geoprobe borings and 5 wells to define downgradient extent of contamination at 5 major areas of concern, including 4 wells along the western site boundary for analysis of PCB congeners.

Dates	Activity	Description
October 2017	WANG Site Investigation	A site investigation was completed for King County at the former Washington Air National Guard (WANG) facility on Ellis Avenue South, immediately upgradient from NBF. A soil and groundwater investigation at the WANG site and under Willow Street evaluated contamination by chlorinated VOCs adjacent to a VOC-contaminated area of NBF. Contamination exceeded Method B cleanup levels only for TCE (max 11 µg/L) in two push-probe grab groundwater samples under the street. The report concluded that the VOC contamination at WANG and Willow Street is distinct from the TCE contamination at NBF (Hart Crowser 2017).
October 2017	NBF Semiannual Groundwater Monitoring Event	Boeing completed a semiannual groundwater monitoring event at 17 wells across the NBF property in August 2017, representing dry-season conditions. Analyses included petroleum hydrocarbons, PCBs, and VOCs. In addition, a UST was removed in January at NBF to the south of the Agreed Order site boundary, in Tukwila (Landau 2017e).
December 2017	GTSP Seventh Semiannual Groundwater Monitoring Event	SCL completed the seventh semiannual PCB monitoring event at well GTSP-7 on August 11, 2017, representing dry-season conditions. Total PCB Aroclors were detected at 0.020 µg/L in this round (SCL 2017c).

King County International Airport - North

Address	7277 Perimeter Road S (main terminal); various tenant addresses
Facility/Site ID	2387398 (King Cnty International Airport)2051 (KCIA Maintenance Shop)
NPDES Permit	WAR000343 (King County Int Airport); Tenant: WAR010792 (KC WTD Georgetown Yard), WAR000226 (North Boeing Field)
Current Operations	General aviation airport and related activities
Historical Operations	Military airport operations; general aviation
Chemicals of Concern	PAHs, phthalates, copper, zinc, petroleum hydrocarbons, and PCBs
Media Affected	Stormwater and groundwater

Portions of KCIA are located within four separate source control areas. KCIA-North is included in the RM 2.8 East source control area and is discussed here.

This area of KCIA includes Drainage Basin #1, which discharges to the LDW through the KCIA SD#3 outfall. Stormwater discharges at KCIA are covered under the ISGP. Several tenants within KCIA are also covered by an ISGP and comply separately with Ecology requirements.

KCIA inspects all tenant and airport common areas monthly to ensure that BMPs are properly maintained, and to ensure that there are no illicit discharges or connections. Treatment BMPs such as oil water separators, water quality vaults, and StormFilter systems have been installed and are being maintained. KCIA performs stormwater line cleaning in accordance with the ISGP (King County 2018).

Data collected during sampling of stormwater structures upgradient of the Georgetown Steam Plant in 2014 identified elevated concentrations of PAH compounds, BEHP, and zinc. KCIA will develop a source tracing plan in 2018 to determine potential sources of contamination, either at

the KCIA or from stormwater up-gradient of the KCIA. KCIA intends to implement this source tracing plan in 2019 (King County 2018).

Former Boeing Electronics Manufacturing Facility

Groundwater beneath the former Boeing EMF site has been contaminated with TCE, which breaks down to vinyl chloride and other chlorinated VOCs. A plume of contaminated groundwater extends west for one-half mile, under the Boeing Plant 2 site and into the LDW. Groundwater treatment has been ongoing since 1997. In February 2007, EPA and Boeing signed a Settlement Agreement, which requires Boeing to study the extent of contamination and develop cleanup options.

- Boeing completed a draft final Engineering Evaluation/Cost Analysis in December 2015 (Calibre 2015). EPA will publish a final cleanup plan in an Action Memorandum. EPA delayed preparation of the Action Memorandum due to prioritization of other work. Boeing voluntarily initiated full scale enhanced reductive dechlorination treatment in 2015 and continues to implement the recommended cleanup alternative.

- At the shoreline in the former Building 2-40s area of the Boeing Plant 2 RCRA facility, the EMF plume vinyl chloride levels occasionally exceed the water quality criteria. The Ambient Water Quality Criterion of 0.18 µg/L for fish consumption was promulgated by the EPA for the State of Washington and became effective on December 28, 2016. Vinyl chloride was detected at 5.3 µg/L in February 2017 and 1.5 µg/L in August 2017.

Address	7355 Airport Way S or 7355 Perimeter Road S
Facility/Site ID	73142589
NPDES Permit	None
Current Operations	Property leased to United Parcel Service
Historical Operations	Prototype aircraft testing from 1940 to 1960s. Electronic circuit board manufacturing conducted during 1960s to 1982
Chemicals of Concern	Chlorinated VOCs
Media Affected	Soil and groundwater

- Boeing conducted bioremediation treatment in selected areas at the site in November 2017, and intends to conduct additional treatments in 2018 (King County 2018).

4.2 RM 2.3-2.8 East (Seattle Boiler Works to Slip 4)

The RM 2.3-2.8 East (Seattle Boiler Works to Slip 4) source control area (Appendix A) includes several properties adjacent to the LDW (Dawn Foods, Seattle Boiler Works, Seattle Iron & Metals, Pioneer Distribution, and Recology CleanScapes). In addition, it includes the S Myrtle Street and S Garden Street SD basins. Upland cleanup sites in this source control area include the Fox Avenue Building and Whitehead Tyee sites.

4.2.1 Business Inspections

SPU conducted initial inspections at Seattle Iron & Metals Truck Parking (also referred to as the Whitehead Tyee Site) in June 2017 and Seattle Iron & Metals in November 2017(Appendix C).

Ecology conducted 10 stormwater compliance inspections at five facilities in 2017, including two inspections at Recology CleanScapes, one inspection at Seattle Boiler Works, six inspections at the Whitehead Tyee (730 S Myrtle Street) site, and one inspection at Seattle Iron & Metals (Appendix E).

4.2.2 Source Tracing

No source tracing samples were collected in the RM 2.3 to 2.8 East source control area during the current reporting period.

4.2.3 Facility-Specific Source Control Actions

Fox Avenue Building

On June 18, 2012, Ecology and Fox Avenue Building LLC signed Agreed Order DE-8985 to conduct cleanup actions at the site (Ecology 2012a).

Cleanup actions at the site include thermal treatment of the chlorinated VOC compounds, followed by bio-polishing, until remediation levels are met.

- In February 2017 the PLPs submitted an annual report to document the cleanup activities and monitoring that occurred in 2016 at the Fox Avenue Site (Floyd|Snider 2017a). Soluble sugar substrate was injected in selected wells in 2016, and performance monitoring was conducted in areas that had previously been injected with soluble sugar or edible oil.
- Concentrations of chlorinated VOCs in most wells were less than the reporting limit of 250 µg/L by the end of 2016. The primary constituents are the daughter products of reductive dechlorination. Additional substrate injections and a site-wide groundwater monitoring event were planned for 2017 (Floyd|Snider 2017a).

Address	6900 Fox Avenue
Facility/Site ID	2282
NPDES Permit	None
Current Operations	Chemical distribution
Historical Operations	Chain manufacturing; chemical and petroleum repackaging and distribution
Chemicals of Concern	VOCs, dioxins/furans, petroleum hydrocarbons
Media Affected	Soil, groundwater, and stormwater

- A report documenting activities during 2017 was not identified during preparation of this Source Control Status Report.

Whitehead Tyee Site

The Whitehead Tyee site is the location of the former Tyee Lumber facility. Seattle Iron & Metals and 730 Myrtle LLC have been identified as PLPs for this site. The site is also known as Seattle Iron & Metals Truck Parking. Ecology and Seattle Iron & Metals (SIM) entered into Agreed Order DE-13458 in August 2016. Additional PLPs identified for the site include the former owners and operators and the City of Seattle. The Order requires that the current property owner/operator complete a data summary report and interim action, conduct an RI/FS, and prepare a draft CAP (Ecology 2016c).

Address	730 S Myrtle Street
Facility/Site ID	9809 (Seattle Iron & Metals Corp Truck Parking)
NPDES Permit	WAR125002 (Seattle Iron & Metals Corp Truck Parking)
Current Operations	Metal recycling
Historical Operations	Lumber finishing, refuse burning, wood treating
Chemicals of Concern	PCBs, PAHs, VOCs, pentachlorophenol, petroleum hydrocarbons, metals
Media Affected	Soil and groundwater

- SIM conducted the majority of an interim action under an approved Interim Action Work Plan. The interim action addressed limited areas of known soil contamination during installation of a stormwater conveyance and treatment system that is intended to reduce the transport of contaminants from the site to the LDW. In February 2017, Ecology issued a State Environmental Policy Act (SEPA) Determination of Nonsignificance for this interim action (Ecology 2017a).
- Ecology held a comment period on the draft interim action, SEPA checklist, and Determination of Nonsignificance from February 3 through March 4, 2017. Ecology prepared a Responsiveness Summary to address comments that were submitted during the comment period (Ecology 2017e). In April 2017, the PLPs submitted a final Interim Action Work Plan (Floyd|Snider 2017b).
- Under Administrative Order DE-13739, SIM was required to complete Phase 1 site improvements by September 30, 2017. These improvements include grading and paving of the site; installation of a stormwater collection and conveyance system, detention, and flow control structure; installation of discharge piping from the City storm drain in S Myrtle Street; installation of below-grade pretreatment; and installation of a pump station manhole. Ecology subsequently extended the due date to November 30, 2017 (Ecology 2017r). The majority of Phase 1 improvements were completed in conjunction with the interim action in December 2017; final completion was in May 2018 (SIM 2018).
- A revised Phase 2 engineering report and installation of Phase 2 stormwater treatment are scheduled to be completed in 2018 (SIM 2018).
- Ecology's contractor, Leidos, collected four groundwater samples at this property in March 2017, and analyzed them for PCB congeners and Aroclors. Total PCB congeners ranged from 0.000067 to 0.00445 µg/L, which exceeded the groundwater PCUL for protection of sediment (0.00034 µg/L). PCB Aroclors were not detected (Leidos 2017b).

Seattle Iron & Metals

Ecology issued an industrial NPDES individual permit for Seattle Iron & Metals in September 2013. It was modified and reissued in 2014. The permit was modified again in March 2015 to add water quality based effluent limits for ammonia and to correct the analytical testing protocol for PCBs (Ecology 2015b).

- Puget Soundkeeper Alliance appealed the 2013 NPDES permit to the Pollution Control Hearings Board (PCHB). The PCHB concluded in July 2015 that portions of the NPDES permit were invalid, and that revisions to the mixing zone analysis for all parameters

(except for PCBs) and modification of Conditions S1.A and S1.B are required (PCHB 2015).

Address	601 S Myrtle Street
Facility/Site ID	94727791 (SIM)
NPDES Permit	WA0031968 (Individual)
Current Operations	Metals recycling
Historical Operations	Dangerous waste transport, construction, and machine shop
Chemicals of Concern	Metals (copper, lead, mercury, and zinc), petroleum hydrocarbons, and PCBs
Media Affected	Stormwater

- Puget Soundkeeper Alliance appealed the PCHB decision to the Washington State Court of Appeals, which issued an unpublished opinion in February 2017 (WA Court of Appeals 2017). The Court of Appeals upheld the use of Method 608 for testing of PCBs, but did not support the PCHB's conclusions with regard to effluent limits for copper and zinc.
- During 2017, Seattle Iron & Metals Discharge Monitoring Reports noted 25 effluent violations, including copper, lead, zinc, TPH, and TSS (Ecology 2019).

4.3 RM 2.0-2.3 East (Slip 3 to Seattle Boiler Works)

The RM 2.0-2.3 East (Slip 3 to Seattle Boiler Works) source control area includes properties adjacent to the LDW and Slip 3 (SCS Refrigerated Services, Seattle Distribution Center, and Seatac Marine Services), as well as upland properties in the S River Street and S Brighton Street SD basins (Appendix A).

The S Brighton Street CSO formerly discharged at this location; SPU blocked this CSO in 2012 and it is no longer in use.

4.3.1 Business Inspections

SPU conducted 12 inspections at nine facilities in the S Brighton Street storm drain basin during 2017, including nine initial inspections and three follow-up inspections (Appendix C).

Ecology conducted stormwater compliance inspections at two facilities and an HWTR inspection at one facility within this source control area during the current reporting period (Appendix E).

4.3.2 Source Tracing

SPU cleaned the S River Street and S Brighton Street storm drain systems in 2010. Contaminant concentrations in samples collected between 2014 and 2017 were compared to median concentrations reported in the Seattle SCIP. Median PCB concentrations in the S River Street SD were lower than reported in the SCIP, while median PCB concentrations in the S Brighton Street SD were higher. PAH concentrations were relatively similar during 2014-2017 and as reported in the SCIP. SPU intends to collect additional samples in the S Brighton Street SD in 2018 to determine whether there are active sources of PCBs in this basin (SPU 2018).

No source tracing samples were collected in this source control area during 2017.

4.3.3 Facility-Specific Source Control Actions

No facility specific source control updates were identified during this reporting period.

4.4 RM 1.7-2.0 East (Slip 2 to Slip 3)

The RM 1.7-2.0 East (Slip 2 to Slip 3) source control area includes properties adjacent to the LDW and Slip 2, including Glacier Northwest, General Biodiesel, Samson Tug & Barge, and Duwamish Marine Center, and upland facilities in the 1st Avenue S (East) and Head of Slip 2 SD basins (Appendix A). In addition, King County's Michigan CSO (also referred to as the South Michigan CSO) discharges to the LDW at approximately RM 1.9; upland facilities associated with the Michigan combined sewer basin are included with this source control area.

4.4.1 Business Inspections

SPU conducted two inspections at one facility (Evergreen Tractor) in this source control area during 2017 (Appendix C).

Ecology conducted stormwater compliance inspections at General Biodiesel (two inspections) and Georgetown Crossroads (three inspections) within this source control area during the current reporting period (Appendix E).

4.4.2 Source Tracing

King County collected sediment trap samples at two locations within the Michigan CSO basin. The samples were collected at Corson Avenue S and S Eddy Street, and from the South Michigan Regulator Station. The samples from these locations were collected in June and December 2017. Screening level exceedances are summarized below (Table 4-4).

Table 4-4. RM 1.7-2.0 East: Screening Level Exceedances in King County Source Tracing Samples

Chemical Class	Chemical	Michigan CSO (Corson Ave S/ S Eddy St)	Michigan CSO Regulator Station
Metals	Mercury		☒
Phthalates	BEHP	×	☒
Other SVOCs	Phenol		☒

Storm drain screening levels are listed in Table 2-4.

× = Exceedance of the SCO (lower screening level) was observed during the current reporting period (2017).
☒ = Exceedance of CSL (upper screening level) was observed during the current reporting period (2017).

King County does not plan to conduct additional source tracing efforts for phthalates at this time, even though there are sediment exceedances for BEHP and butylbenzyl phthalate in sediments near the South Michigan combined sewer outfall. King County based this decision on the fluctuating concentrations within the CSO solids data, and because these phthalates are ubiquitous in the samples and therefore are not readily traceable to a particular source. King County is constructing a Georgetown Wet Weather Treatment Station to control the South Michigan CSO discharges. This is expected to greatly reduce solids discharged from the CSO

and King County anticipates that it will address the phthalates and other contaminants within the discharge (King County 2018).

No source tracing samples were collected by SPU in this source control area during 2017.

4.4.3 Facility-Specific Source Control Actions

Duwamish Marine Center

Ecology and the property owner entered into Agreed Order DE-8072 on September 2, 2011 (Ecology 2011d). The Order requires that the property owner/operator conduct an RI/FS to define the nature and extent of contamination in soil, groundwater, surface water, and sediments, and to evaluate cleanup alternatives. In addition, the property owner/operator is required to prepare a draft CAP that identifies the preferred cleanup action and develops a schedule to remediate the contamination.

Address	16 S Michigan Street; 6365 1st Avenue S
Facility/Site ID	21945598 (Duwamish Marine Center) 71371939 (Duwamish Marine Center, Inc.) 1020256 (Samson Tug & Barge)
NPDES Permit	WAR011484 (ISGP)
Current Operations	Tug and barge operations; metal fabrication
Historical Operations	Repair and maintenance of floating vessels; junk dealer; construction services; barge shipping terminal
Chemicals of Concern	PCBs, PAHs, petroleum hydrocarbons, metals
Media Affected	Soil and groundwater

- Duwamish Marine Center continued to conduct the RI during 2017. A Draft RI Report was due to Ecology in January 2018.
- Ecology's contractor, Leidos, collected three groundwater samples at the Duwamish Marine Center property in March 2017, and analyzed them for PCB congeners and Aroclors. Total PCB congeners ranged from 0.00016 to 0.015 µg/L, which exceeded the groundwater PCUL for protection of sediment (0.00034 µg/L). PCB Aroclors were not detected (Leidos 2017b).

Georgetown Wet Weather Treatment Station

The Georgetown Wet Weather Treatment Station is currently under construction. Previously, this property was referred to as Winters Investment LP/Riveretz's Auto Care. In 2015, prior to construction activities, an environmental site assessment was performed to evaluate the potential for environmental contamination beneath the site. Remedial actions were performed in 2017 (CH2M 2017).

Address	6185 4th Avenue S
Facility/Site ID	55698119
NPDES Permit	None
Current Operations	Wet Weather Treatment Station
Historical Operations	Restaurants, retail and warehouse space, auto repair, and service station
Chemicals of Concern	Metals, VOCs, petroleum hydrocarbons
Media Affected	Soil and groundwater

- During the environmental site assessment, 27 soil borings were advanced at the site. Groundwater samples were collected from 15 of the borings. Concentrations of arsenic, copper, lead, and zinc in soil exceeded natural background levels in an area to the west of the former warehouse. Arsenic and lead concentrations also exceeded the MTCA Method A cleanup levels. In groundwater, concentrations of arsenic, lead, vinyl chloride, 1,1,2,2-tetrachloroethane, and petroleum hydrocarbons exceeded MTCA Method A cleanup levels.
- Based on these results, remedial excavations were performed in three areas of the site. Excavations in Zones 3 and 5 were performed to address potential contamination from an oil/water separator and associated piping leading to an unpaved area north of the former warehouse. The excavation in Zone 7 was performed to address soil contaminated with metals and petroleum hydrocarbons in the area west of the former warehouse.
    - The Zone 3 excavation area was approximately 5 by 5 feet and 4 feet deep. Based on the analytical results of a confirmation sample collected from the bottom of the excavation, the excavated soil was used as backfill.
    - The Zone 5 excavation area was approximately 20 by 20 feet and 5 feet deep. Based on the analytical results of five confirmation soil samples, the excavated soil was used as backfill.
    - The Zone 7 excavation area was approximately 13 by 80 feet and 5 feet deep. Approximately 195 cubic yards of soil were removed from the site.
- Two heating oil USTs and approximately 4,340 cubic yards of contaminated soil were removed from the site. To evaluate the effectiveness of the UST removal action, groundwater monitoring will be performed.

Consolidated Freightways

Prologis, Inc. is the current owner of the Consolidated Freightways site. In January 2017, the site was enrolled in the VCP (NW3050). Development of the property for the construction a 590,000-square foot industrial warehouse began in June 2017.

Address	6050 East Marginal Way S
Facility/Site ID	54757868
NPDES Permit	None
Current Operations	Warehouse (to be completed 2018)
Historical Operations	Truck transport and motor freight
Chemicals of Concern	Naphthalene, VOCs, petroleum hydrocarbons
Media Affected	Soil and groundwater

Prior to the cleanup action, Ecology provided an advisory opinion approving the planned approach for the cleanup action (Ecology 2017c). The following activities were performed in 2017 (Farallon Consulting 2018).

- In February 2017, 10 pre-excavation test pits were completed to confirm the limits of soil contamination and assess the extent of soil to be removed from the site. Diesel-range hydrocarbons were present at concentrations exceeding the MTCA Method A cleanup level in two test pits.
- The first phase of remedial excavation activities was performed in March and April 2017 to remove sources of residual COCs from four areas. The residual COCs were associated with former USTs and a sand trap oil-water separator. The excavations were backfilled

with imported fill and stockpiled clean soil from the excavations. Approximately 2,995 tons of soil were removed from the site.

- A 20,000-gallon diesel UST and a 500-gallon heating oil UST were removed during the excavation activities.
- Oxygen release compound was spread across the bottoms of two excavations to enhance the biodegradation of COCs in downgradient groundwater.
- Confirmation soil samples were collected from the excavations. Detected COC concentrations were below MTCA Method A cleanup levels.
- The second phase of remedial excavation activities was performed in April and May 2017. The second phase was completed to remove petroleum-stained soil that was encountered during the first phase of remedial excavation activities. Approximately 3,485 tons of soil were removed from the site. Detected COC concentrations in confirmation samples were below MTCA Method A cleanup levels.
- Approximately 320,000 gallons of groundwater were extracted and treated during the cleanup action. Treated groundwater was discharged to the combined sewer system in accordance with King County Industrial Waste (KCIW) regulations.

Prologis, Inc. planned to install monitoring wells upgradient, within, and downgradient of the groundwater plume and begin compliance groundwater monitoring to evaluate the effectiveness of the cleanup activities.

Scougal Rubber

Scougal Rubber entered Ecology's (NW1707) and developed a Remedial Action Plan to address chlorinated solvents in soil and groundwater on this site. The following remedial actions were completed in 2017 (PGG 2017):

Address	6239 Corson Avenue
Facility/Site ID	93637295
NPDES Permit	None
Current Operations	Rubber manufacturing
Historical Operations	Same
Chemicals of Concern	Chlorinated solvents
Media Affected	Soil and groundwater

- A remedial excavation was performed at the site April 2017 to remove residual TCE contamination in soil. The area of excavation was approximately 90 by 75 feet and 7 to 8 feet deep. Approximately 450 cubic yards of contaminated soil were removed from the site. Confirmation samples were collected at 3 to 4 feet below ground surface (bgs) at 15-foot intervals along the excavation boundary. A total of 17 confirmation samples were collected. TCE was detected above the MTCA Method A cleanup level in five samples, suggesting that accessible contaminated soil was removed from the site. TCE was the only chlorinated VOC detected in the confirmation samples.
- An oxidation infiltration system was installed in the excavation to address the remaining TCE contamination in soil and residual chlorinated solvent (e.g., TCE, DCE, and vinyl chloride) contamination in groundwater. Oxidation infiltration events were performed in October and November 2017.

- Additional oxidation infiltration events were scheduled in January 2018 and spring 2018, with four quarters of performance monitoring planned following completion of the oxidation treatment.

Kelly-Moore Paint Company

Kelly-Moore Paint Company operated at this site from 1994 to 2008. Kelly-Moore entered the VCP Program (VCP NW2305) in 2010 and completed an RI/FS in 2011. The southern portion of the site was sold to JST Georgetown, LLC in 2011. The northern portion of the site was sold to NCD GeorgeTown, LLC in 2014. NCD GeorgeTown, LLC demolished the buildings and warehouses on the northern portion of the property in 2015.

Address	5410 Airport Way S
Facility/Site ID	2163
NPDES Permit	None
Current Operations	Brewery
Historical Operations	Paint manufacturing plant, auto garage and wrecking yard, service station
Chemicals of Concern	PCBs, metals, SVOCs, VOCs, petroleum hydrocarbons
Media Affected	Soil and groundwater

Following the demolition activities, Kelly-Moore's consultant performed remedial actions to address known areas of contamination that were not accessible prior to the demolition. The results of the remedial actions performed in 2015 and 2016 were documented in a 2017 RI/FS report (AMEC 2017b). The following activities were performed at the site in 2017 as part of the ongoing investigations and remedial actions at the site (Wood 2018):

- Groundwater sampling was performed at the site in September 2017 and January 2018. Diesel-range hydrocarbons exceeded the MTCA Method A cleanup level. Arsenic concentrations exceeded the natural background level of 5.0 µg/L.[17]
- Soil vapor extraction (SVE) and air sparge systems were installed from July to October 2017. The SVE system began operating on October 31, 2017. The air sparge system will not be operational until 2018.

4.5 RM 2.2-3.4 West (Riverside Drive)

The RM 2.2-3.4 West (Riverside Drive) source control area includes the 7th Avenue S SD basin and most of the 8th Avenue combined sewer basin (Appendix A). Facilities adjacent to the LDW include Pacific Pile & Marine and Independent Metals Plant 2 (now closed), and United Site Services. The city of Seattle's 7th Avenue S SD and King County's 8th Avenue CSO discharge to the LDW within this source control area. The 8th Avenue CSO is controlled to no more than one untreated discharge event per year, on average.

4.5.1 Business Inspections

SPU conducted a total of 32 inspections at 27 facilities during the current reporting period, including one screening visit, 25 initial inspections, and six follow-up inspections (Appendix C).

[17] Ecology has since adjusted the natural background level for arsenic in groundwater to 8.0 ug/L.

King County conducted five inspections at two facilities in this source control area during the current reporting period (Appendix D).

Ecology conducted two stormwater compliance inspections (Pacific Pile & Marine Main Yard and United Site Services of Nevada) and two HWTR inspections in this source control area in 2017 (Appendix E).

4.5.2 Source Tracing

King County collected sediment trap samples from a single location in the 8th Avenue CSO basin in December 2016 and June 2017. Zinc exceeded the SCO in both samples; BEHP, mercury, dibutyl phthalate, and 3,4-methylphenol exceeded the CSL/2LAET in one or both samples.

- Mercury, which was detected in the December 2016 sample at 5.2 mg/kg, is not consistently detected in the 8th Avenue CSO sediment trap samples (e.g., the December 2016 duplicate sample was 0.38 mg/kg and June 2017 samples were 0.33 and 0.27 mg/kg). SPU right-of-way catch basin data along 8th Avenue S also did not show consistent screening level exceedances for mercury. King County decided not to conduct further source tracing for mercury in this basin based on the sediment conditions, infrequent use of the outfall, and the heterogeneous nature of the source tracing samples.
- King County also decided not to pursue further source tracing for BEHP in this basin because the concentrations have been observed at levels commonly found in source tracing datasets. These levels have been characterized as ubiquitous in the samples and are not readily traceable to a particular source. Additionally, there are no sediment exceedances for BEHP near the outfall.
- Based on the sediment data near the outfall and source tracing solids data, King County is not planning to conduct further source tracing efforts for the 8th Avenue CSO basin at this time (King County 2018).
- SPU collected source tracing in the separated storm drain system in this source control area. Three sediment trap samples, one in-line solids sample, two on-site catch basin samples, and one right-of-way catch basin sample were collected during 2017 (Appendix F). Screening level exceedances are summarized in Table 4-5 below.

Table 4-5. RM 2.2-3.4 West: Screening Level Exceedances in SPU Source Tracing Samples

Chemical Class	Chemical	Sediment Traps	In-line Solids	On-site CB Solids	Right-of-Way CB Solids
Metals	Copper			☒	
	Mercury			☒	☒
	Zinc	×		☒	☒
PCBs	PCBs, total	×		×	☒
PAHs	HPAH				☒
Phthalates	BEHP	☒	☒	☒	☒
	Butylbenzyl phthalate	×	×	×	☒
	Dimethyl phthalate			×	☒

Chemical Class	Chemical	Sediment Traps	In-line Solids	On-site CB Solids	Right-of-Way CB Solids
	Dibutyl phthalate				☒
	Di-n-octyl phthalate				☒
Other SVOCs	4-Methylphenol				☒
	Benzoic acid			☒	☒
	Benzyl alcohol	☒	☒	☒	☒
	4-Methylphenol		☒		

Storm drain screening levels are listed in Table 2-4.

× = Exceedance of SCO (lower screening level) was observed during the current reporting period (2017).
☒ = Exceedance of CSL (upper screening level) was observed during the current reporting period (2017).

4.5.3 Facility-Specific Source Control Actions

Independent Metals Plant 1

Ecology sent an Early Notice Letter to Independent Metals in February 2014. Independent Metals subsequently filed for bankruptcy and ceased operations in 2014.

Address	747 S Monroe Street (Plant 1) 703 S Monroe Street (Storage Lot)
Facility/Site ID	9309618 (Plant 1) 21489 (Storage Lot)
NPDES Permit	None
Historical Operations	Scrap metals sorting, recycling, and processing.
Chemicals of Concern	PCBs, PAHs, phthalates, metals
Media Affected	Stormwater, soil, groundwater

- In 2017, Pacific Crest Environmental conducted a preliminary investigation of soil, groundwater, and storm drains at Independent Metals Plant 1 and Independent Metals Storage Lot (Pacific Crest 2017). The investigation included a storm sewer inspection and stormwater sampling; completion and sampling of six soil borings; installation of temporary wells in four of the borings; and collection of groundwater samples from these wells. The report concluded that contaminants did not exceed MTCA cleanup levels and that no cracks or deformations indicating a faulty storm sewer were observed. However, the report did not compare contaminant concentrations to screening levels for the protection of LDW sediments, and the high reported detection limits do not support a conclusion about the site's potential to cause sediment contamination.

Independent Metals Plant 2 / Silver Bay Logging

Ecology sent an Early Notice Letter to Independent Metals in February 2014. Independent Metals subsequently filed for bankruptcy and ceased operations in 2014. Ecology sent an Early Notice Letter to Silver Bay Logging (the property owner) in March 2014.

Address	816 S Kenyon Street 7814 8th Avenue S (Silver Bay Logging)
Facility/Site ID	16139 (Independent Metals Plant 2) 861945 (Silver Bay Logging)
NPDES Permit	None
Historical Operations	Scrap metals sorting, recycling, and processing.
Chemicals of Concern	PCBs, PAHs, phthalates, metals
Media Affected	Stormwater, soil, groundwater

- In 2017, The Riley Group decommissioned five USTs at the former Plant 2/Silver Bay Logging property (RGI 2017c). Activities included a geophysical survey to identify the presence of USTs in the North Yard, East Yard, and South Yard; USTs were identified in the South and East Yards. The UST Site Assessment indicated that a release had occurred at UST5 in the East Yard; soil samples indicated the present of diesel-range hydrocarbons in soil at concentrations above MTCA Method A.

4.6 RM 2.1-2.2 West (EAA-2: Trotsky Inlet)

The RM 2.1-2.2 West (EAA-2: Trotsky Inlet) source control area includes facilities adjacent to the Trotsky Inlet (Douglas Management Company and Industrial Container Services [ICS]), and numerous parcels owned by Boyer Towing along the LDW shoreline (Appendix A). In addition, it includes facilities within the 2nd Avenue S SD basin.

4.6.1 Business Inspections

SPU conducted a total of 15 inspections at 10 facilities in this source control area in 2017, including 10 initial inspections and five follow-up inspections (Appendix C)

Ecology conducted inspections at two facilities within this source control area (Boyer Logistics and Cunningham Manufacturing) during the current reporting period (Appendix E).

4.6.2 Source Tracing

SPU collected one catch basin sample from the 2nd Avenue S SD basin during 2017, near 2nd Avenue S and S Austin Street (Appendix F). Screening level exceedances are summarized below (Table 4-6).

Table 4-6. RM 2.1-2.2 West: Screening Level Exceedances in SPU Source Tracing Samples

Chemical Class	Chemical	On-site CB Solids
Metals	Mercury	☒
	Zinc	☒
PCBs	PCBs, total	×
Phthalates	BEHP	☒
	Butylbenzyl phthalate	×
	Dimethyl phthalate	☒
Other SVOCs	4-Methylphenol	☒
	Benzyl alcohol	☒

Storm drain screening levels are listed in Table 2-4.

× = Exceedance of SCO (lower screening level) was observed during the current reporting period (2017).
☒ = Exceedance of CSL (upper screening level) was observed during the current reporting period (2017).

4.6.3 Facility-Specific Source Control Actions

Industrial Container Services / Trotsky Property / Former Northwest Cooperage

Address	7152 1st Avenue S
Facility/Site ID	2154 (Industrial Container Services – WA, LLC)
NPDES Permit	None
Current Operations	Drum reconditioning
Historical Operations	Same as current operations
Chemicals of Concern	PCBs, PAHs, VOCs, pesticides, petroleum hydrocarbons, metals
Media Affected	Soil, groundwater, and sediment

Ecology entered into Agreed Order DE-6720 with Herman and Jacqualine Trotsky (owners) and ICS (operator) on May 18, 2010 (Ecology 2010b). The Agreed Order requires that the PLPs conduct an RI/FS to define the nature and extent of contamination in soil, groundwater, surface water, and sediments, and to prepare a draft CAP that identifies the preferred cleanup action and develops a schedule to remediate the contamination.

- In 2017, Ecology reviewed a draft RI Report that was submitted in October 2016.
- Ecology's contractor, Leidos, collected four groundwater samples at the ICS property in March 2017, and analyzed them for PCB congeners and Aroclors. Total PCB congeners ranged from 0.00017 to 0.197 µg/L, which exceeded the groundwater PCUL for protection of sediment (0.00034 µg/L). PCB Aroclors ranged from <0.010 to 0.27 µg/L, above the groundwater PCUL for protection of sediment for Aroclors (0.022 µg/L) (Leidos 2017b).

Douglas Management Dock / Alaska Marine Lines

Current Operations	Shipping container and equipment storage
Historical Operations	Sand and gravel batch plant; school bus parking and maintenance
Address	7100 1st Avenue S
Facility/Site ID	97573251 (Douglas Management Dock)
NPDES Permit	WAR127039 (Alaska Marine Lines)
Chemicals of Concern	PCBs, petroleum hydrocarbons, metals
Media Affected	Soil and groundwater

Ecology entered into Agreed Order DE-8258 with 7100 1st Avenue S, Seattle, LLC (owner) on May 6, 2011. The Agreed Order requires that the owner conduct an RI/FS to define the nature and extent of contamination in soil, groundwater, surface water, and sediments, and to prepare a draft CAP that identifies the preferred cleanup action and develops a schedule to remediate the contamination (Ecology 2011b).

- Ecology's contractor, Leidos, collected four groundwater samples at the Douglas Management Dock property in March 2017, and analyzed them for PCB congeners and Aroclors. Total PCB congeners ranged from 0.0013 to 0.042 µg/L, which exceeded the groundwater PCUL for protection of sediment (0.00034 µg/L). PCB Aroclors ranged from <0.010 to 0.063 µg/L, above the groundwater PCUL for protection of sediment for Aroclors (0.022 µg/L) (Leidos 2017b).

4.7 RM 2.1 West (1st Avenue S Storm Drain)

The RM 2.1 West (1st Avenue S Storm Drain) source control area includes upland facilities within the 1st Avenue S SD basin (Appendix A). There are no properties adjacent to the LDW in this source control area.

4.7.1 Business Inspections

SPU conducted a total of 15 inspections at 11 facilities in the 1st Avenue S storm drain basin during the current reporting period (Appendix C), including one screening visit, 10 initial inspections, and four follow-up inspections.

Ecology conducted 11 inspections at seven facilities within this source control area during 2017 (Appendix E).

4.7.2 Source Tracing

During the current reporting period, SPU collected four sediment trap samples, one in-line solids sample, and three onsite samples in the 1st Avenue S storm drain basin during 2017 (Appendix F). Screening level exceedances are summarized in Table 4-7 below.

Table 4-7. RM 2.1 West: Screening Level Exceedances in SPU Source Tracing Samples

Chemical Class	Chemical	Sediment Traps	In-line Solids	On-site CB Solids
Metals	Copper			☒
	Mercury			☒
	Zinc	☒		☒
PCBs	PCBs, total	☒		×
PAHs	Individual HPAH compounds	☒		☒
	Total cPAHs	☒		
Phthalates	BEHP	☒		☒
	Butylbenzyl phthalate	×		×
Other SVOCs	4-Methylphenol	☒		☒
	Benzoic acid	☒		☒
	Benzyl alcohol	☒		☒
	Phenol			×

Storm drain screening levels are listed in Table 2-4.

× = Exceedance of SCO (lower screening level) was observed during the current reporting period (2017).
☒ = Exceedance of CSL (upper screening level) was observed during the current reporting period (2017).

4.7.3 Facility-Specific Source Control Actions

Former South Park Landfill

Ecology, the City of Seattle, and South Park Property Development entered into Agreed Order DE-6706 in May 2009 to conduct an RI/FS at the former South Park Landfill property and to prepare a draft CAP (Ecology 2009a).

On February 1, 2016, Ecology and the City of Seattle signed an amendment to the Agreed Order to conduct an interim action at this site (Ecology 2016a).

Address	8200 2nd Avenue S
Facility/Site ID	2180
NPDES Permit	None
Current Operations	Solid waste transfer station, school bus parking
Historical Operations	Landfill, auto wrecking yard
Chemicals of Concern	VOCs, landfill gas, petroleum hydrocarbons, metals
Media Affected	Soil and groundwater

- Ecology's contractor, Leidos, collected four groundwater samples at South Park Landfill in March 2017, and analyzed them for PCB congeners and Aroclors. Total PCB congeners were below the groundwater PCUL for protection of sediment (0.00034 µg/L). PCB Aroclors were not detected (Leidos 2017b).
- In May 2017, Ecology's contractor collected soil and groundwater samples from several locations in the 7901 2nd Avenue S property, within the footprint of the former South Park Landfill. Ecology plans to use the results of this sampling effort to fill data gaps for PCBs, VOCs, SVOCs, TPH and metals in soil and groundwater (Leidos 2017a).
- Ecology issued a draft CAP for public review in October 2017 (Ecology 2017q). In November 2017 the PLPs submitted a supplemental SEPA Checklist for the South Park

Landfill CAP. This SEPA checklist included long-term monitoring of the landfill cap/cover, landfill gas, and groundwater as well as environmental covenants to ensure long-term compliance with regulations and maintenance of the cleanup remedy (SPU 2017). Ecology signed a determination of nonsignificance for the South Park Landfill site on November 14, 2017 (Ecology 2017t).

- Ecology held a public comment period on the Draft RI/FS, Draft CAP, revised Public Participation Plan, and Draft Consent Decree from October 30 through December 13, 2017. The public meeting took place on November 28, 2017 (Ecology 2017p).

4.8 RM 1.6-2.1 West (Terminal 115)

The RM 1.6-2.1 West (Terminal 115) source control area includes facilities associated with the Port of Seattle's Terminal 115, including Northland Services and Lineage Seafreeze (Appendix A). In addition, it includes properties located within the Highland Park Way SW SD basin and portions of the SW Kenny Street SD basin. The Terminal 115 CSO and West Michigan CSO discharge to the LDW within this source control area.

4.8.1 Business Inspections

SPU conducted a total of 19 inspections at 10 facilities in the SW Kenny SD and Highland Park Way SW SD basins, or discharging directly to the LDW, during the current reporting period (Appendix C).

Ecology conducted six inspections at four facilities within this source control area during the current reporting period (Appendix E).

4.8.2 Source Tracing

SPU collected two sediment trap samples, one in-line solids sample, and two catch basin samples in the Highland Park Way SW basin during the current reporting period. This system was cleaned in 2015. Samples exceeded screening levels for several chemicals (Appendix F and table below).

SPU collected one sediment trap samples in the SW Kenny Street SD basin during the current reporting period. The samples exceeded the CSL for BEHP, benzoic acid, and benzyl alcohol. Screening level exceedances are summarized below (Table 4-8).

Table 4-8. RM 1.6-2.1 West: Screening Level Exceedances in SPU Source Tracing Samples

Chemical Class	Chemical	Sediment Traps	In-line Solids	On-site CB Solids
Metals	Zinc	×	☒	☒
PCBs	PCBs, total	×	×	☒
Phthalates	BEHP	☒	☒	☒
	Butylbenzyl phthalate	×	×	×
	Dibutyl phthalate			☒

Chemical Class	Chemical	Sediment Traps	In-line Solids	On-site CB Solids
	Dimethyl phthalate	×	×	
Other SVOCs	4-Methylphenol	☒		
	Benzoic acid	☒		☒
	Benzyl alcohol	☒	☒	☒
	Phenol			×

Storm drain screening levels are listed in Table 2-4.

× = Exceedance of SCO (lower screening level) was observed during the current reporting period (2017).
☒ = Exceedance of CSL (upper screening level) was observed during the current reporting period (2017).

4.8.3 Facility-Specific Source Control Actions

North Terminal 115 (Former MRI Corporation)

Address	6000 West Marginal Way SW
Facility/Site ID	2177
Current Operations	Lumber distribution, vehicle storage
Historical Operations	Tin reclamation
Chemicals of Concern	PAHs, SVOCs, petroleum hydrocarbons, metals, PCBs
Media Affected	Soil and groundwater

Ecology and the Port of Seattle entered into an Agreed Order on March 2, 2011. Under Agreed Order DE-8099, the Port of Seattle is conducting an RI/FS and will prepare a draft CAP at this site (Ecology 2011a).

- The Port of Seattle submitted the first draft of the RI Report for the site in late 2017.
- Ecology's contractor, Leidos, collected three groundwater samples at North Terminal 115 in March 2017, and analyzed them for PCB congeners and Aroclors. Total PCB congeners ranged from 0.0012 to 0.0046 µg/L, which exceeded the groundwater PCUL for protection of sediment (0.00034 µg/L); PCB Aroclors were not detected (Leidos 2017b).

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5.0 Lower Reach Source Control Areas

This Lower Reach includes eight source control areas; five areas are located on the east side of the LDW, and three on the west side:

East Side:	Report Section
RM 1.2-1.7 East (Saint Gobain to Glacier Northwest)	5.1
RM 1.0-1.2 East (King County Lease Parcels)	5.2
RM 0.9-1.0 East (Slip 1)	5.3
RM 0.1-0.9 East (EAA-1: Duwamish/Diagonal Way)	5.4
RM 0.0-0.1 East (Spokane Street to Ash Grove Cement)	5.5
West Side:	
RM 1.3-1.6 West (Glacier Bay)	5.6
RM 1.0-1.3 West (Kellogg Island to Lafarge Cement)	5.7
RM 0.0-1.0 West (Spokane Street to Kellogg Island)	5.8

The east side of the Lower Reach includes several cleanup sites within the Brandon CSO: GE Aviation Division, West of 4th Site (Art Brass Plating, Blaser Die Casting, Capital Industries, and Burlington Environmental), and the Burlington Environmental/East of 4th Site. These are in the greater LDW source area although not within a source control area boundary. These cleanup sites are under Ecology HWTR oversight and are discussed with the RM 1.0-1.2 East source control area (Section 5.2).

The west side of the Lower Reach includes two Ecology cleanup sites: Glacier Northwest/Reichhold Chemical and Duwamish Shipyard.

5.1 RM 1.2-1.7 East (Saint Gobain to Glacier Northwest)

The RM 1.2-1.7 East (Saint Gobain to Glacier Northwest) source control area includes three facilities adjacent to the LDW: Ardagh Glass (formerly Saint Gobain Containers), Longview Fibre, and CertainTeed Gypsum (Appendix A). Upland facilities near this source control area are in the Brandon CSO basin; the Brandon CSO and the upland facilities within the combined sewer basin are discussed in Section 5.2 (RM 1.0-1.2 East).

5.1.1 Business Inspections

Ecology conducted a stormwater compliance inspection at Certainteed Gypsum in February 2017 (Appendix E).

King County conducts annual inspections at Ardagh Glass. In 2017, the Ardagh facility was compliant after one catch basin was cleaned (King County 2018).

5.1.2 Source Tracing

No source tracing samples were collected in this source control area during 2017.

5.1.3 Facility-Specific Source Control Actions

No facility specific source control updates were identified during this reporting period.

5.2 RM 1.0-1.2 East (King County Lease Parcels)

The RM 1.0-1.2 East (King County Lease Parcels) source control area includes three facilities adjacent to the LDW (Cadman Seattle, United Western Supply, and J.A. Jack & Sons) (Appendix A). In addition, the Brandon CSO discharges to the LDW within this source control area. Groundwater contamination associated with five facilities in the Brandon CSO basin has migrated off the properties and into the RM 1.2-1.7 East source control area (Section 5.1) and the RM 1.7-2.0 East source control area (Section 4.4).

5.2.1 Business Inspections

King County conducts annual inspections at the Lehigh-Cadman facility. Two catch basins were in need of cleaning at the time of the 2017 inspection; these were subsequently cleaned (King County 2018).

5.2.2 Source Tracing

No source tracing samples were collected within this source control area during 2017.

5.2.3 Facility-Specific Source Control Actions

East of 4th Site (Burlington Environmental / PSC Georgetown / Stericycle Georgetown)

Address	734 S Lucile Street
Facility/Site ID	47779679
NPDES Permit	None
Current Operations	Storage area for corrective actions in progress at the facility
Historical Operations	Hazardous waste treatment and storage
Chemicals of Concern	Chlorinated VOCs, 1,4-dioxane, other SVOCs, PCBs, metals
Media Affected	Soil and groundwater

Burlington Environmental operated a hazardous/dangerous waste treatment facility at this location until 2003. Soil and groundwater were contaminated by releases from past operations at the facility. Groundwater contamination has been detected on property to the east and north owned by the Union Pacific Railroad, and downgradient to the west and southwest, toward the LDW. The site is also known as PSC Georgetown (PSC is the parent company) and Stericycle Georgetown (Stericycle Environmental Solutions acquired PSC Holdings in April 2014).

In 2005, this site was administratively divided into two units. The cleanup of the eastern portion of the site, located east of 4th Avenue S, is governed by Agreed Order DE-7347 (May 2010) and its attached CAP. The area to the west of 4th Avenue S has been investigated by three additional PLPs: Art Brass Plating, Blaser Die Casting, and Capital Industries, under separate 2008 Orders. The updates below relate to the 'East of 4th' section of the PSC Georgetown site. Information about the West of 4th Site is provided in the next section.

- On January 19, 2017, PSC Georgetown (Stericycle) submitted a revised In-Situ Bioremediation (ISB) and In-Situ Chemical Oxidation (ISCO) Phase II Revised Downgradient Area Pilot Study Work Plan (DOF 2017a, DOF 2017b). Based on results of 2016 bench scale and pilot studies, Stericycle and Ecology determined that further pilot testing was warranted before moving to full scale remediation. ISB and additional ISCO remediation pilot test will be performed concurrently. Ecology approved the Work Plan on February 8, 2017.
- A multi-year bioremediation project started in April 2016 which targeted chlorinated VOCs in groundwater within the area enclosed by the facility's barrier wall (installed in 2004). This involves semi-annual injections of anaerobic-biodegradation enhancements followed by short intervals of recirculation to distribute the enhancement material. The first injection/recirculation event occurred in April 2016 and was followed by events in March and September 2017. The last event is scheduled for May 2020. In March 2017 PSC Georgetown (Stericycle) submitted an ISB Year 1 optimization memorandum to Ecology (DOF 2017c).
- In May 2017, contractors for Stericycle conducted two studies designed to enhance the breakdown of 1,4-dioxane found in groundwater using underground methods: a (second) ISCO pilot study, and an in-situ bioaugmentation study. The ISCO study utilized oxidant-containing wax "candles" inserted into three wells, which slowly released persulfate and permanganate into the contaminated groundwater. Monitoring of groundwater started about a month later and continued through 2017. The first phase of the bioaugmentation study introduced 2.5 gallons of non-native microorganisms known to degrade 1,4-dioxane into groundwater through an existing monitoring well. Groundwater monitoring at the well and at nearby points began about a week later and continued through 2017. The second phase of the bioremediation project, introducing the organisms to additional locations, was contingent on successful first-phase results.
- In November 2017, PSC Georgetown (Stericycle) submitted a Cleanup Implementation Report that documents the cleanup activities conducted at the East of 4th Avenue site (DOF 2017d).

West of 4th Site (Burlington Environmental, Art Brass Plating, Blaser Die Casting, Capital Industries)

Groundwater contamination from the PSC Georgetown facility has migrated offsite towards the LDW. Three additional companies have also released chlorinated solvents in this area: Art Brass Plating, Blaser Die Casting, and Capital Industries.

Soils are contaminated at all of these facilities; in addition, groundwater contamination has been detected at each of the

Facilities and Addresses	Art Brass Plating (5516 3rd Avenue S) Blaser Die Casting (5700 3rd Avenue S) Capital Industries (5801 3rd Avenue S) PSC Georgetown (734 S Lucile Street)
Facility/Site IDs	88531932 (Art Brass Plating), 7118747 (Blaser Die Casting), 11598755 (Capital Industries), 47779679 (Burlington Environmental LLC Georgetown)
Historical Operations	Plating, die casting, metal fabrication
Chemicals of Concern	Chlorinated solvents, 1,4-dioxane, arsenic, cadmium, copper, nickel, and zinc
Media Affected	Soil, groundwater, and surface water

properties and downgradient to the west and southwest, toward the LDW. Cleanup activities have been underway at these facilities since 2008.

- The PLP Group submitted a work plan for conducting a pilot study in Site Unit 2 in April 2017. This study was designed to test the effectiveness of in-situ chemical reduction (ISCR) at reducing levels of TCE and its degradation products in groundwater at and downgradient of 1st Avenue S. In June 2017 they submitted two work plans for pilot studies located in Site Unit 1. One of these Site Unit 1 studies was designed to test the effectiveness of raising groundwater pH through the introduction of an alkaline solution as a means of reducing toxic metals concentrations near the Art Brass Plating facility. The other study focused on groundwater contaminated with TCE and its degradation products in an area between East Marginal Way S and the LDW. The purpose of this study was to test the effectiveness of ISCR and enhanced bioremediation at reducing groundwater contamination discharged to the LDW. Ecology provided comments on all three work plans.
- During the summer of 2017, the PLP Group and Ecology decided to abandon plans for a Site Unit 2 study in favor of an interim action to be implemented at Capital Industries' Plant 4 (located within Site Unit 2). The PLP Group prepared a new draft work plan and submitted the document to Ecology in July 2017. The interim action work plan proposed ISCO to treat soils and shallow groundwater beneath Plant 4 in areas with elevated levels of PCE and associated degradation products.
- Ecology issued a Determination of Nonsignificance for an amendment to the Agreed Order, which requires new pilot studies and an interim action for the West of 4th site, in September 2017 (Ecology 2017o).
- In October 2017, Ecology solicited public comments on Agreed Order amendment and the three draft work plans described above (Ecology 2017n). The Agreed Order amendment was finalized in November 2017 (Ecology 2017v).
- Ecology provided comments on the draft work plans in November 2017. The PLP Group revised and submitted the work plans for the studies and interim action to Ecology by the end of 2017 (Aspect 2017a, Aspect 2017b, Farallon 2017).

GE Aviation

A MTCA Agreed Order (DE-5477) is in place at the former GE Aviation facility. Ecology approved a Focused Feasibility Study in 2009. A 2014 Final Consent Decree requires conducting remedial actions; these include installation of multiphased in-situ treatment, a hydraulic control system and a vapor intrusion mitigation system to meet soil, groundwater and indoor air cleanup levels.

Address	220 S Dawson Street
Facility/Site ID	2522
Current Operations	Warehouse
Historical Operations	Manufacture and repair of aircraft parts
Chemicals of Concern	TCE; PCE; 1,1,1-trichloroethane; fuels; and oil
Media Affected	Soil and groundwater

- GE Aviation implemented Phase I of the ISCO remedy during March 2017 (AECOM 2018). The ISCO remedy included injection of sodium persulfate into the shallow and intermediate groundwater, continued operation of the hydraulic control system, continued operation of the vapor intrusion mitigation system, and institutional controls. Six months after injections were completed, monitoring results indicated no significant change compared to historical groundwater contamination concentration trends.
- In October 2017, GE supplemented Phase I of the remedy by installing sodium persulfate impregnated cylinders into strategic injection and monitoring wells. The supplemental studies did not indicate a measurable or significant improvement in the historical trend of TCE groundwater concentrations (AECOM 2018).
- GE Aviation conducted groundwater monitoring in November 2017. Results suggest that there were no groundwater exceedances of the cleanup levels near the Former GE Building. TCE and 1,1-DCE were detected above the cleanup levels near the Liberty Ridge Building. Downgradient of 1st Avenue S, TCE was detected above the current cleanup levels. The next scheduled sampling event is expected to take place in February 2018 (AECOM 2017b).

5.3 RM 0.9-1.0 East (Slip 1)

The RM 0.9-1.0 East (Slip 1) source control area includes three properties adjacent to Slip 1: a portion of Federal Center South, the former Snopac Products property, and the northern part of Manson Construction (Appendix A). No public storm drain outfalls are located within RM 0.9-1.0 East.

5.3.1 Business Inspections

King County conducts annual inspections at the Manson Construction property; two catch basins needed cleaning, which was accomplished in June 2017 (King County 2018)

5.3.2 Source Tracing

No source tracing samples have been collected in this source control area.

5.3.3 Facility-Specific Source Control Actions

No facility-specific source control activities were identified during this reporting period.

5.4 RM 0.1-0.9 East (EAA-1: Duwamish/Diagonal Way)

The RM 0.1-0.9 East (EAA-1: Duwamish/Diagonal Way) source control area includes Port of Seattle Terminals 106 and 108, and the northern portion of Federal Center South (Appendix A). In addition, it includes facilities within the Diagonal Avenue S and S Nevada Street SD basins. The Diagonal Avenue S CSO/SD outfall (which includes discharges from city and county CSOs) and King County's Duwamish East/Hanford #1 combined sewer pump station are located within this source control area.

5.4.1 Business Inspections

SPU conducted a total of 174 business inspections at 108 facilities in the Diagonal Avenue S CSO/SD and S Nevada Street drainage basins during the current reporting period (Appendix C).

Ecology conducted 14 inspections at 13 facilities within this source control area during the current reporting period (Appendix E).

5.4.2 Source Tracing

SPU has collected hundreds of source tracing samples in the Diagonal Avenue S CSO/SD basin, including sediment trap samples, in-line solids samples, on-site catch basin samples, and right-of-way catch basin samples. During the current reporting period, two sediment trap samples; five in-line solids samples; 24 on-site catch basin samples; and three right-of-way catch basin samples were collected in this drainage basin.

Total PCBs were detected in catch basin sample TUL-CB3 at 26.3 mg/kg DW, over 200 times greater than the lower screening level of 0.13 mg/kg DW. No samples were collected in S Nevada Street storm drain basin during the current reporting period. SPU cleaned this storm drain system in 2015.

Complete sample results for the current reporting period are presented in Appendix F; screening level exceedances are summarized in Table 5-1 below.

Table 5-1. RM 0.1-0.9 East: Screening Level Exceedances in SPU Source Tracing Samples

Chemical Class	Chemical	Sediment Traps	In-line Solids	On-site CB Solids	Right-of-Way CB Solids
Metals	Copper			☒	
	Mercury			☒	☒
	Zinc	×		☒	☒
PCBs	Total PCBs	×	☒	☒	×
PAHs	Individual LPAH compounds		☒	☒	×
	Individual HPAH compounds		☒	☒	☒
	Total LPAHs			☒	
	Total HPAHs		×	☒	
	Total cPAHs		☒	☒	
Phthalates	BEHP	☒	×	☒	☒
	Butylbenzyl phthalate		×	☒	×
	Dimethyl phthalate	×	☒	☒	
	Di-n-butyl phthalate			☒	☒
Other SVOCs	4-Methylphenol	☒		☒	☒
	Benzoic acid			☒	☒
	Benzyl alcohol			☒	
	Pentachlorophenol				×
	Phenol	×		☒	×
TPH	Oil-range hydrocarbons				☒

Storm drain screening levels are listed in Table 2-4.
× = Exceedance of SCO (lower screening level) was observed during the current reporting period (2017).
☒ = Exceedance of CSL (upper screening level) was observed during the current reporting period (2017).

5.4.3 Facility-Specific Source Control Actions

Port of Seattle Terminals 106 and 108

ConGlobal Industries, Ash Grove Cement, and Arctic Commercial Refrigeration operate on portions of the Port of Seattle's Terminal 106. Terminal 108 is currently occupied by ConGlobal Industries.

Address	1 S Idaho Street
Facility/Site ID	54918197
NPDES Permit	ConGlobal: WAR010569 (ISGP); Port of Seattle: WAR044701 (Municipal SW Phase 1 GP)
Current Operations	Shipping container and truck chassis storage and repair
Historical Operations	Same as current
Chemicals of Concern	Copper, zinc, phthalates, other SVOCs, and petroleum hydrocarbons
Media Affected	Stormwater and storm drain solids

- On October 3, 2017, EPA sent an offer to negotiate letter to the Port of Seattle, along with a draft Administrative Settlement Agreement and Order on Consent (ASAOC) for Removal Action, Preliminary Assessment and Site Investigation, and Statement of Work (SOW). The Port responded on November 2, 2017. EPA and the Port continued to negotiate drafts of the ASAOC and SOW through 2017. The ASAOC was signed on April 5, 2018.

  The objectives of the Preliminary Assessment, as identified in the scope of work include the following:

  - Develop a comprehensive site history by expanding the work presented in the 2009 Environmental Conditions Report with newly located historical information regarding industrial operations, potential releases of hazardous materials, waste handling and disposal, and past cleanup activities at the site.
  - Evaluate site activities that may have resulted in releases at or from the site, including the use of the site for dewatering contaminated sediments that were hydraulically dredged in response to the 1974 General Services Administration spill of PCBs into the Duwamish Waterway from a barge owned by Alaska Puget United Transportation Company under contract to the U.S. Navy's Military Sea Transportation Service; the operation of the Diagonal Avenue South Sewage Treatment Plant and associated surface impoundments; and other activities either known or suspected to have released hazardous substances.
  - Evaluate all environmental data and compare it to Ecology's 2018 LDW PCUL Workbook and Supplemental Information.
  - Identify data gaps related to the comprehensive site history and current conditions.
  - Recommend additional environmental sampling at the site necessary to resolve data gaps.

  After the Preliminary Assessment is complete, EPA will determine whether additional environmental sampling is required at the site to resolve identified Preliminary Assessment

data gaps. If additional environmental sampling is required, it will initiate the next phase of work, which will be an Investigation Work Plan.

Rainier Commons / Former Rainier Brewery Property

The former Rainier Brewery property is currently known as Rainier Commons, a complex of 27 buildings. In 2004/2005, elevated concentrations of PCBs in a nearby catch basin led to the discovery of PCB-contaminated paint at this facility. The cleanup is being performed under EPA oversight.

Address	3100 Airport Way S
Facility/Site ID	9192461
Current Operations	Coffee roasting and storage, artist loft, and two restaurants
Historical Operations	Brewery
Chemicals of Concern	PCBs
Media Affected	Stormwater

Rainier Commons prepared a general work plan for removal of paint from building exterior surfaces, sampling of some substrates, and complete removal of paint from the interior stairwell area in 2013. A Phase II work plan was submitted to EPA in April 2015. Abatement was completed for Phases I and IIa, which include the west side of Buildings 10 and 11, all of Building 13, and the south side of Building 15.

- A Phase IIb application was submitted to EPA in 2017. The application covers abatement of Building West, Building 7 West and South, Building 8 and 9 elevator shaft and parapet walls, Building 10 South and the catwalk. This work is under review.
- Stormwater controls were established in 2013, including dual layer filtration (filter sock and filter fabric) for onsite catch basins, and are routinely inspected and maintained.
- When the south side of Building 15 was abated, additional catch basin monitoring took place before, during, and after Phase IIa work. A completion report for this work from Rainier is forthcoming.

5.5 RM 0.0-0.1 East (Spokane Street to Ash Grove Cement)

The RM 0.0-0.1 East (Spokane Street to Ash Grove Cement) source control area includes properties adjacent to the LDW, including Ash Grove Cement, the Port of Seattle's Terminal 104, and Terminal 102 (Harbor Marina Corporate Center) on the southern end of Harbor Island (Appendix A).

5.5.1 Business Inspections

No inspections were conducted in this source control area during 2017.

5.5.2 Source Tracing

No source tracing samples have been collected in this source control area.

5.5.3 Facility-Specific Source Control Actions

No facility-specific source control updates were identified during this reporting period.

5.6 RM 1.3-1.6 West (Glacier Bay)

The RM 1.3-1.6 West (Glacier Bay) source control area includes properties adjacent to the LDW (Alaska Marine Lines, Duwamish Shipyard, Glacier Northwest/West Marginal Way Site), and portions of the SW Kenny Street SD basin (Appendix A). The SW Kenny Street SD discharges to the LDW within the RM 1.6-2.1 West (Terminal 115) source control area, and is discussed in Section 4.8.

5.6.1 Business Inspections

SPU conducted one inspection, at Duwamish Shipyard, during 2017 (Appendix C).

Ecology conducted one inspection, at Alaska Marine Lines Seattle Terminal, during the current reporting period (Appendix E).

5.6.2 Source Tracing

No source tracing samples were collected in this source control area during the current reporting period.

5.6.3 Facility-Specific Source Control Actions

Duwamish Shipyard

Duwamish Shipyard entered into Agreed Order DE-6735 with Ecology on September 13, 2010, to conduct an RI/FS at the site (Ecology 2010c). Stormwater from this property is currently treated and discharged at the Alaska Marine Lines outfall under NPDES Permit WAR001365.

Address	5658 West Marginal Way SW
Facility/Site ID	2071 (DSI)
NPDES Permit	WAR001365 (ISGP, Alaska Marine Lines)
Current Operations	Equipment and container storage; truck access
Historical Operations	Repair and maintenance of floating vessels and equipment
Chemicals of Concern	PCBs, PAHs, SVOCs, tributyltin, dioxins/furans, petroleum hydrocarbons, metals
Media Affected	Soil, groundwater, stormwater, and sediment

- Duwamish Shipyard submitted a draft RI report to Ecology in August 2015. Ecology provided review comments in January 2017, and extended the deadline for submission of the final RI Report to May 1, 2017.
- Duwamish Shipyard submitted a revised RI Report in May 2017 (Anchor QEA 2017). Ecology subsequently provided additional comments (after the current reporting period).
- Ecology's contractor, Leidos, collected three groundwater samples at Duwamish Shipyard in March 2017, and analyzed them for PCB congeners and Aroclors. Total PCB congeners were below the groundwater PCUL for protection of sediment (0.00034 µg/L); PCB Aroclors were not detected (Leidos 2017b).

Glacier Northwest

Address	5900-5902 West Marginal Way SW
Facility/Site ID	23881883 (Glacier Northwest Seattle Terminal) 67234947 (Glacier Northwest Marginal Way Truck Shop) 89139472 (Glacier Northwest, Inc. and Reichhold MTCA)
NPDES Permit	WAG503378 (Sand & Gravel GP)
Current Operations	Cement storage and distribution
Historical Operations	Manufacture of activated charcoal, resins, glues, pentachlorophenol
Chemicals of Concern	Pentachlorophenol, dioxins/furans, metals
Media Affected	Soil, groundwater, surface water, and sediment

Glacier-Reichhold entered into Agreed Order DE-6000 with Ecology on July 28, 2009 to conduct an RI/FS at the site (Ecology 2009b).

RI field investigations were completed between March 2009 and August 2014. Glacier Northwest submitted a draft RI report to Ecology in May 2015.

- Ecology continued reviewing this report in 2017.
- Ecology's contractor, Leidos, collected three groundwater samples at Glacier Northwest in March 2017, and analyzed them for PCB congeners and Aroclors. Total PCB congeners in one sample (0.0066 µg/L) exceeded the groundwater PCUL for protection of sediment (0.00034 µg/L); PCB Aroclors were detected in one sample at 0.008 µg/L (Leidos 2017b).

5.7 RM 1.0-1.3 West (Kellogg Island to Lafarge Cement)

The RM 1.0-1.3 West (Kellogg Island to Lafarge Cement) source control area consists of a single property, Lafarge Cement (Appendix A). There are no public storm drains that discharge to the LDW within this source control area.

5.7.1 Business Inspections

KCIW inspects the Lafarge Cement facility at least annually, since it is classified as a SIU and is regulated under a waste discharge permit.

5.7.2 Source Tracing

No source tracing samples were collected during this reporting period.

5.7.3 Facility-Specific Source Control Actions

No facility-specific source control updates were identified during this reporting period.

5.8 RM 0.0-1.0 West (Spokane Street to Kellogg Island)

The RM 0.0-1.0 West (Spokane Street to Kellogg Island) source control area includes Port of Seattle Terminals 103,105 and 107; General Recycling of Washington; and Herring's House Park (Appendix A). In addition, it includes properties in the SW Dakota Street and SW Idaho Street SD basins. The Duwamish West CSO pump station is located within this source control area.

5.8.1 Business Inspections

SPU conducted 12 inspections at seven facilities in the SW Dakota Street and SW Idaho Street storm drain basins during the current reporting period, including one inspections in the SW Dakota Street SD basin and 11 inspections at six facilities in the SW Idaho Street SD basin (Appendix C).

Ecology conducted inspections at two facilities in the RM 0.0-1.0 West source control area (Fog Tite and Glacier Northwest) during the current reporting period (Appendix E).

5.8.2 Source Tracing

SPU collected three sediment trap and one right-of-way catch basin samples in the SW Idaho Street SD basin during the current reporting period (Appendix F).

Complete sample results for the current reporting period are presented in Appendix F; screening level exceedances are summarized below (Table 5-2).

Table 5-2. RM 0.0-1.0 West: Screening Level Exceedances in SPU Source Tracing Samples

Chemical Class	Chemical	Sediment Traps	Right-of-Way CB Solids
Metals	Zinc	☒	
PCBs	PCBs, total	×	
Phthalates	BEHP	☒	☒
	Butylbenzyl phthalate		×
Other SVOCs	4-Methylphenol	☒	
	Benzoic acid	☒	
	Benzyl alcohol	☒	
	Phenol	×	

Storm drain screening levels are listed in Table 2-4.

× = Exceedance of SCO (lower screening level) was observed during the current reporting period (2017).
☒ = Exceedance of CSL (upper screening level) was observed during the current reporting period (2017).

5.8.3 Facility-Specific Source Control Actions

No facility-specific source control activities were identified during the current reporting period.

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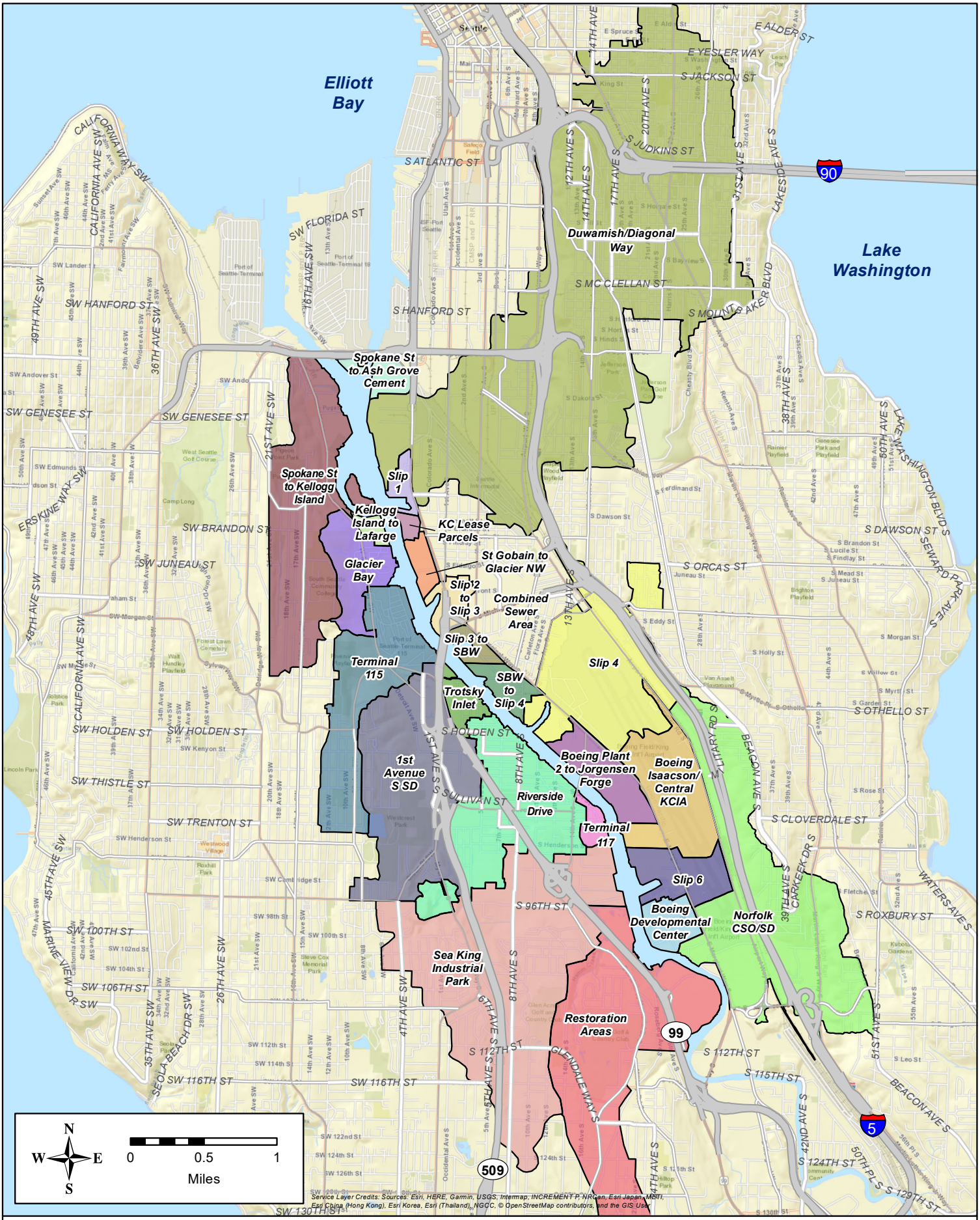
Appendix A:
Source Control Area Maps

List of Maps

Upper Reach:

Middle Reach:

Lower Reach:



DEPARTMENT OF ECOLOGY
State of Washington

Figure A-1. Lower Duwamish Waterway Source Control Areas

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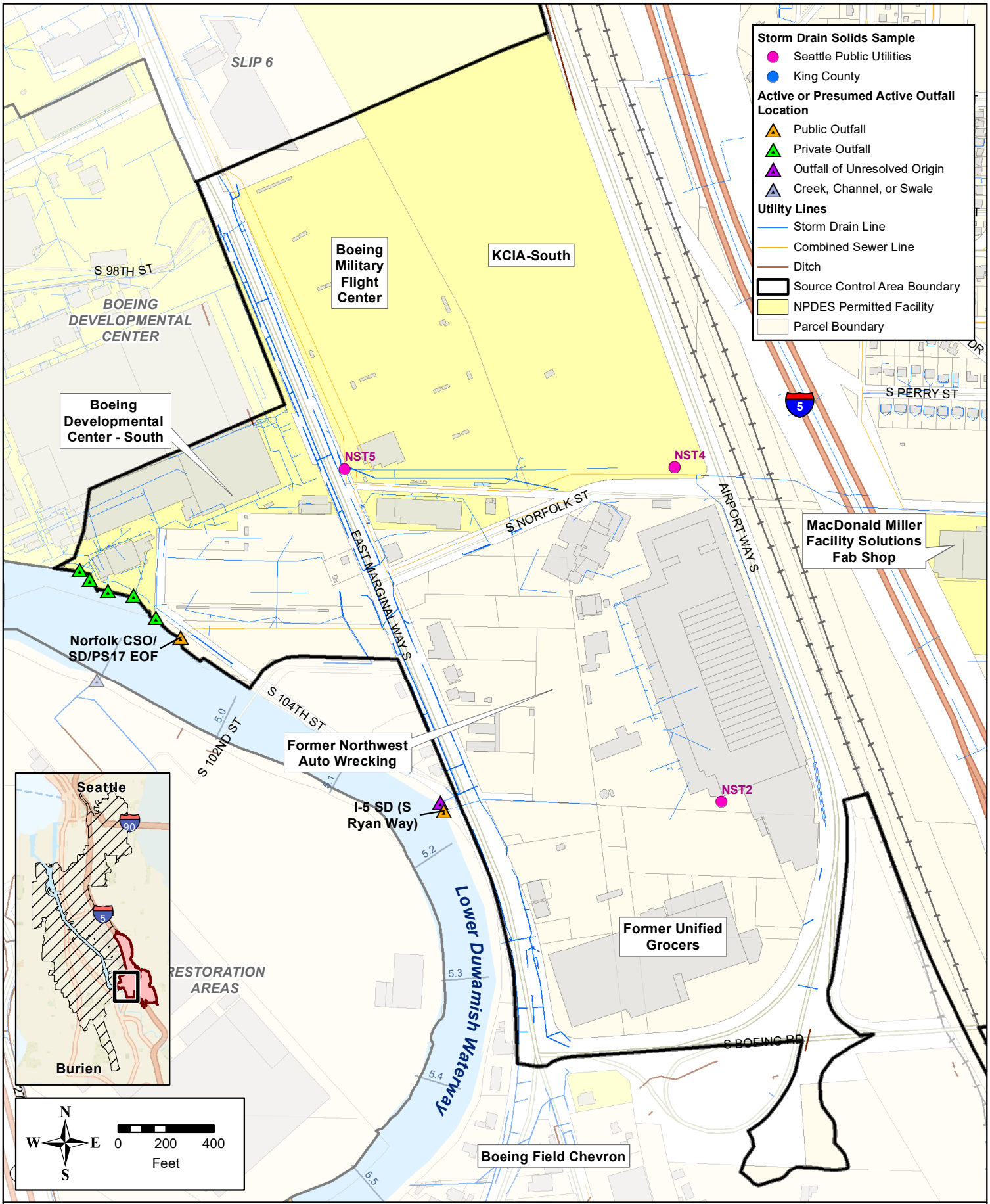

Figure A-2. RM 4.9 East
(EEA-7: Norfolk CSO/Storm Drain)
Source Control Area

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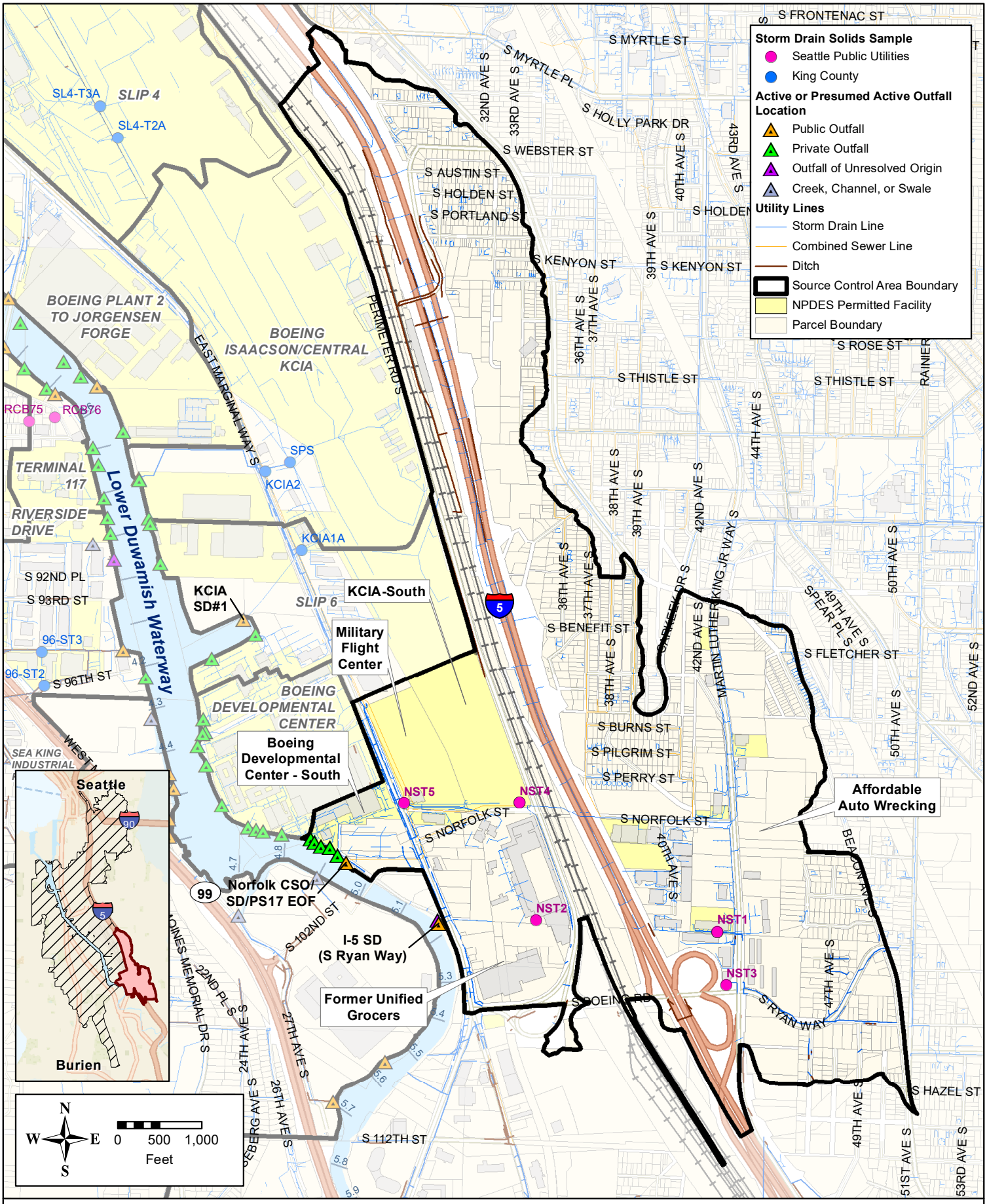

Figure A-3. RM 4.9 East
(EEA-7: Norfolk CSO/Storm Drain)
Norfolk Basin

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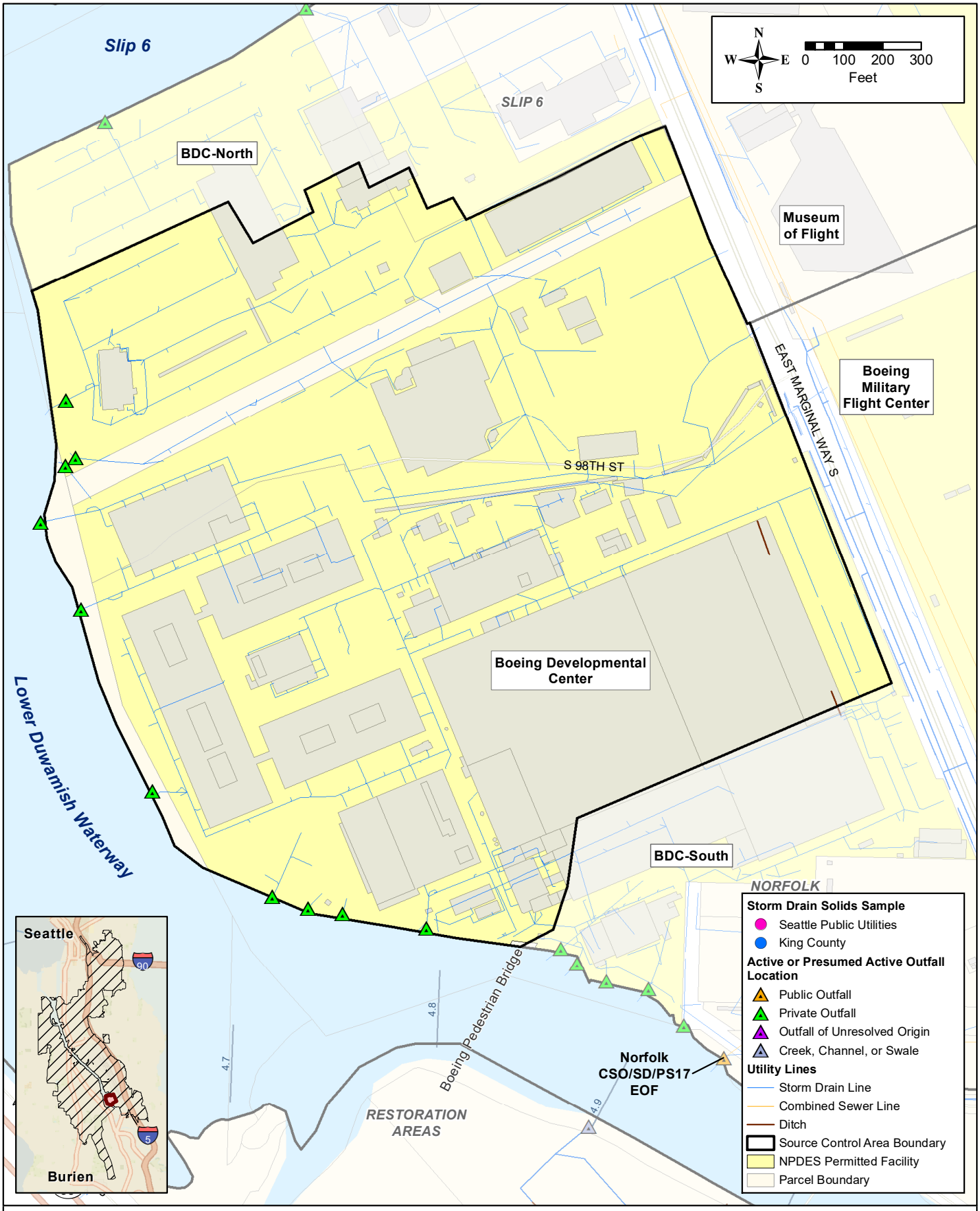

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Figure A-4. RM 4.3-4.9 East (Boeing Developmental Center) Source Control Area

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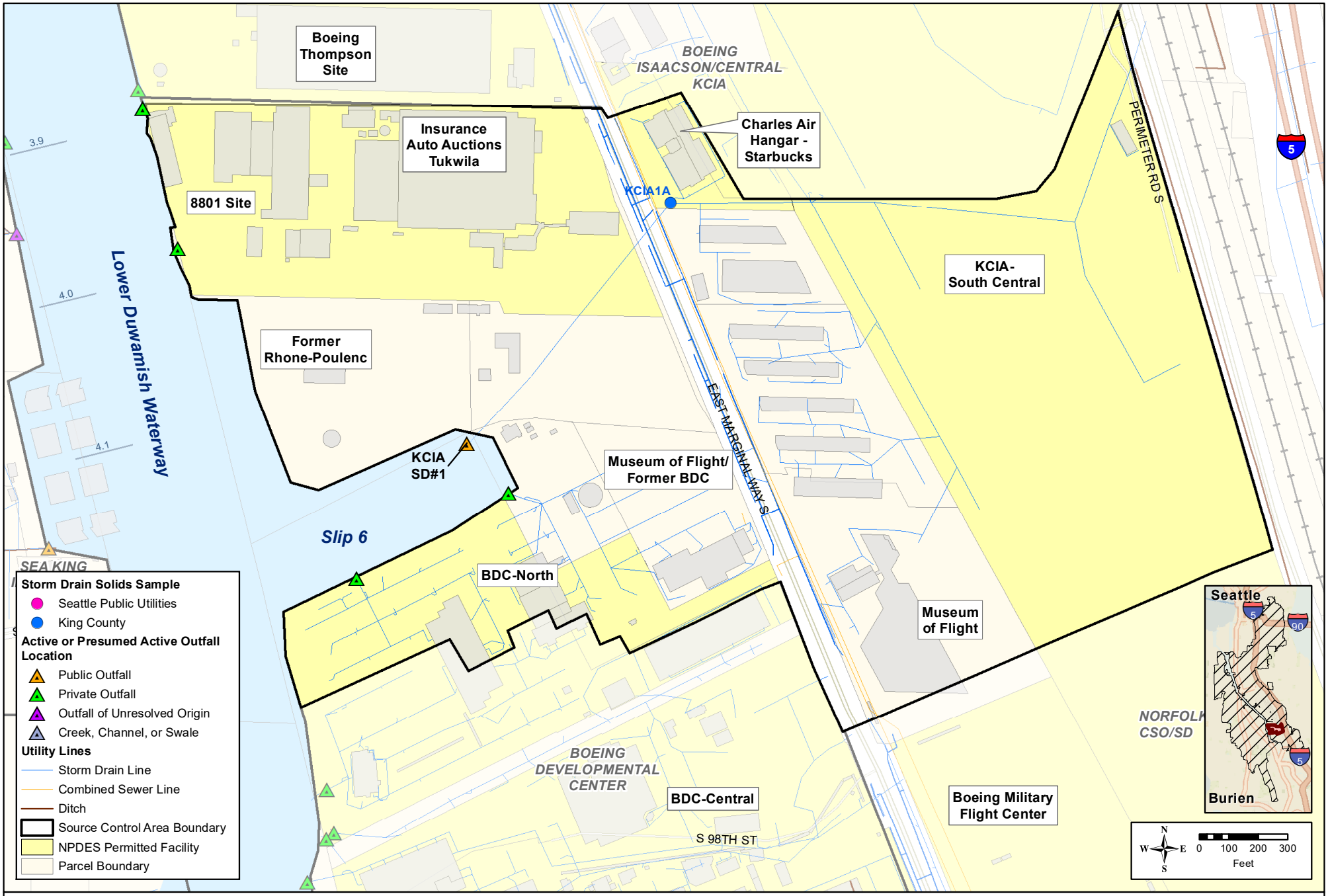

Figure A-5. RM 3.9-4.3 East (Slip 6) Source Control Area

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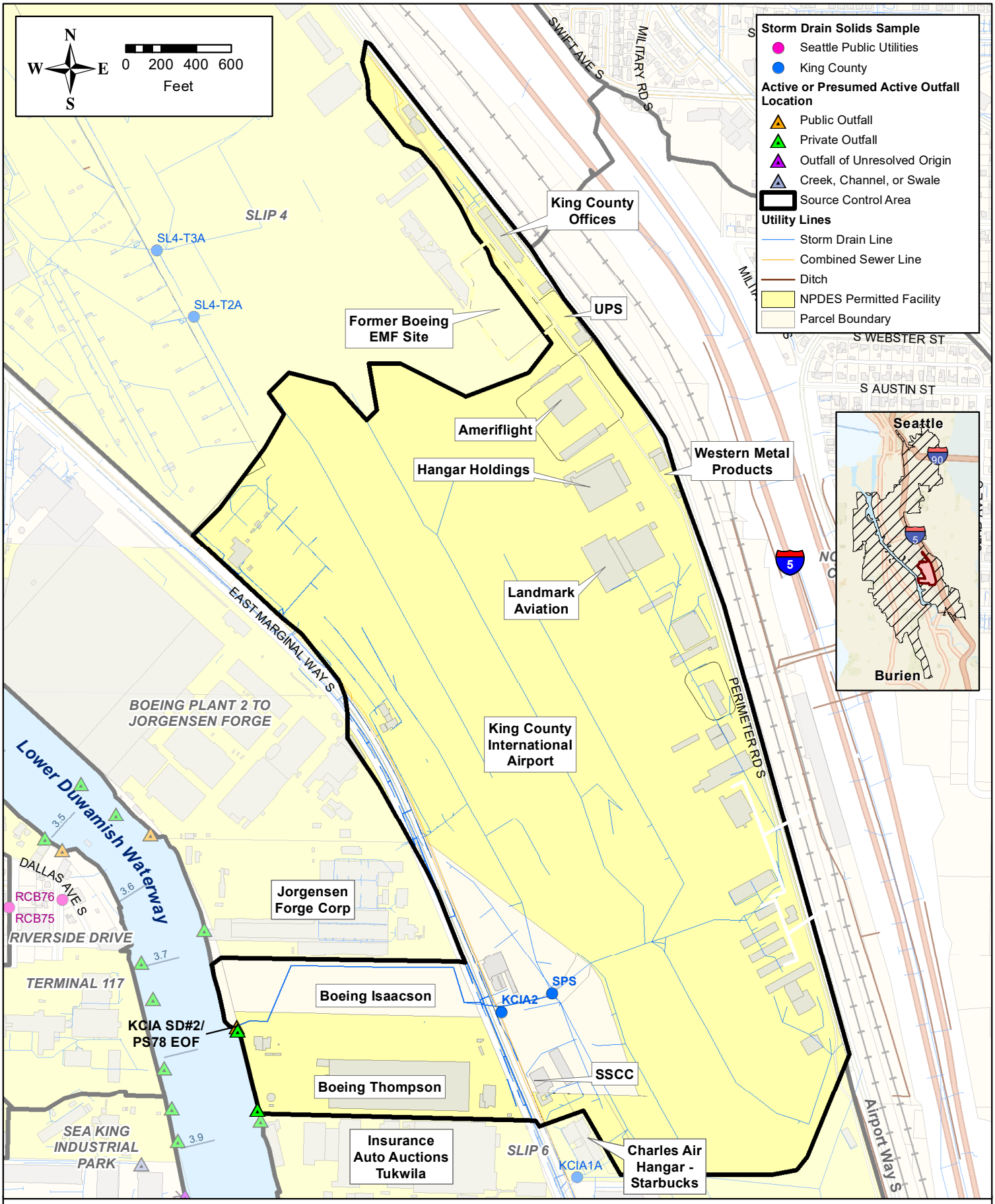

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Figure A-6. RM 3.7-3.9 East
(EAA-6: Boeing Isaacson/Central KCIA)
Source Control Area

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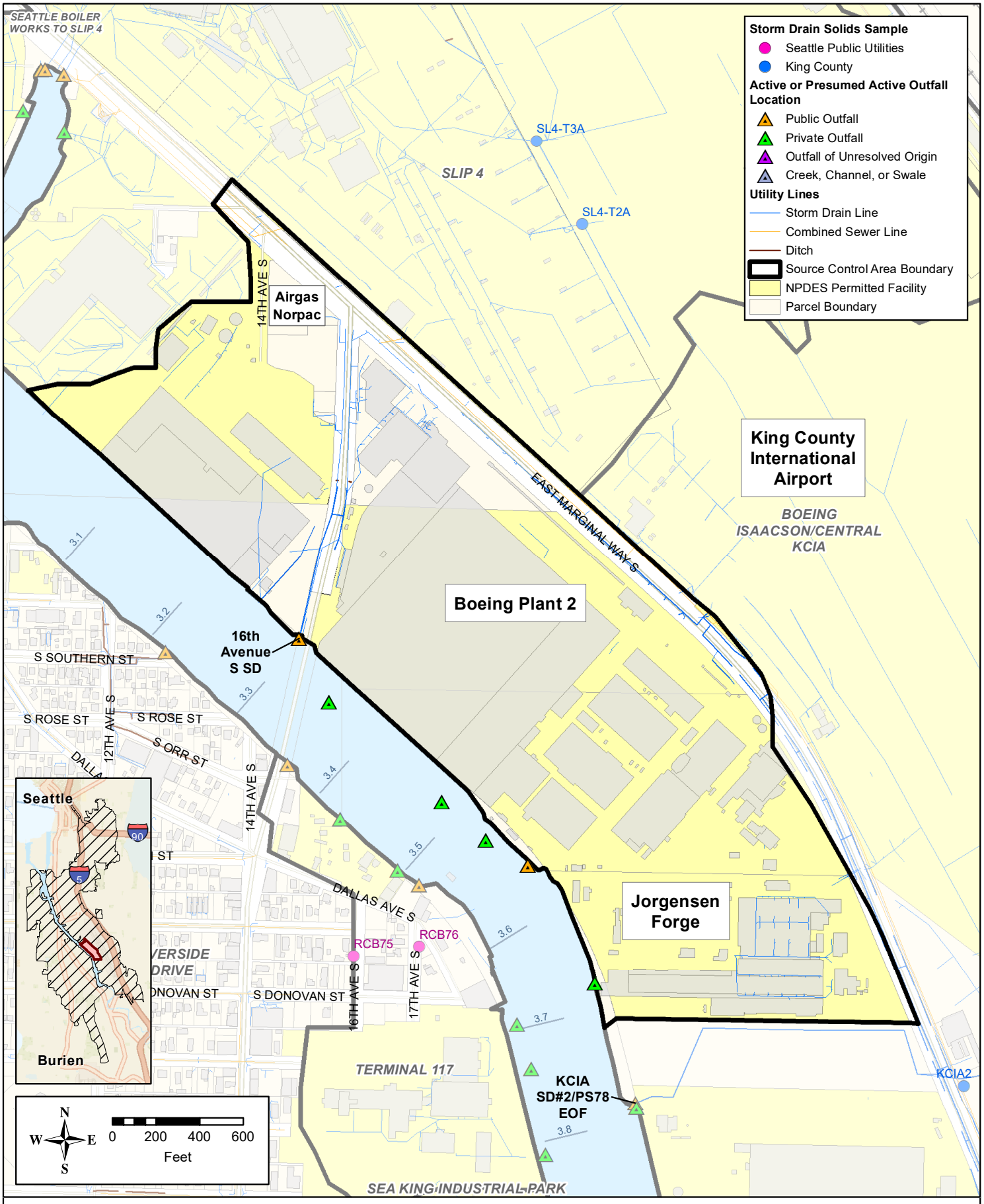

Figure A-7. RM 2.8-3.7 East
(EAA-4: Boeing Plant 2 to Jorgensen Forge)
Source Control Area

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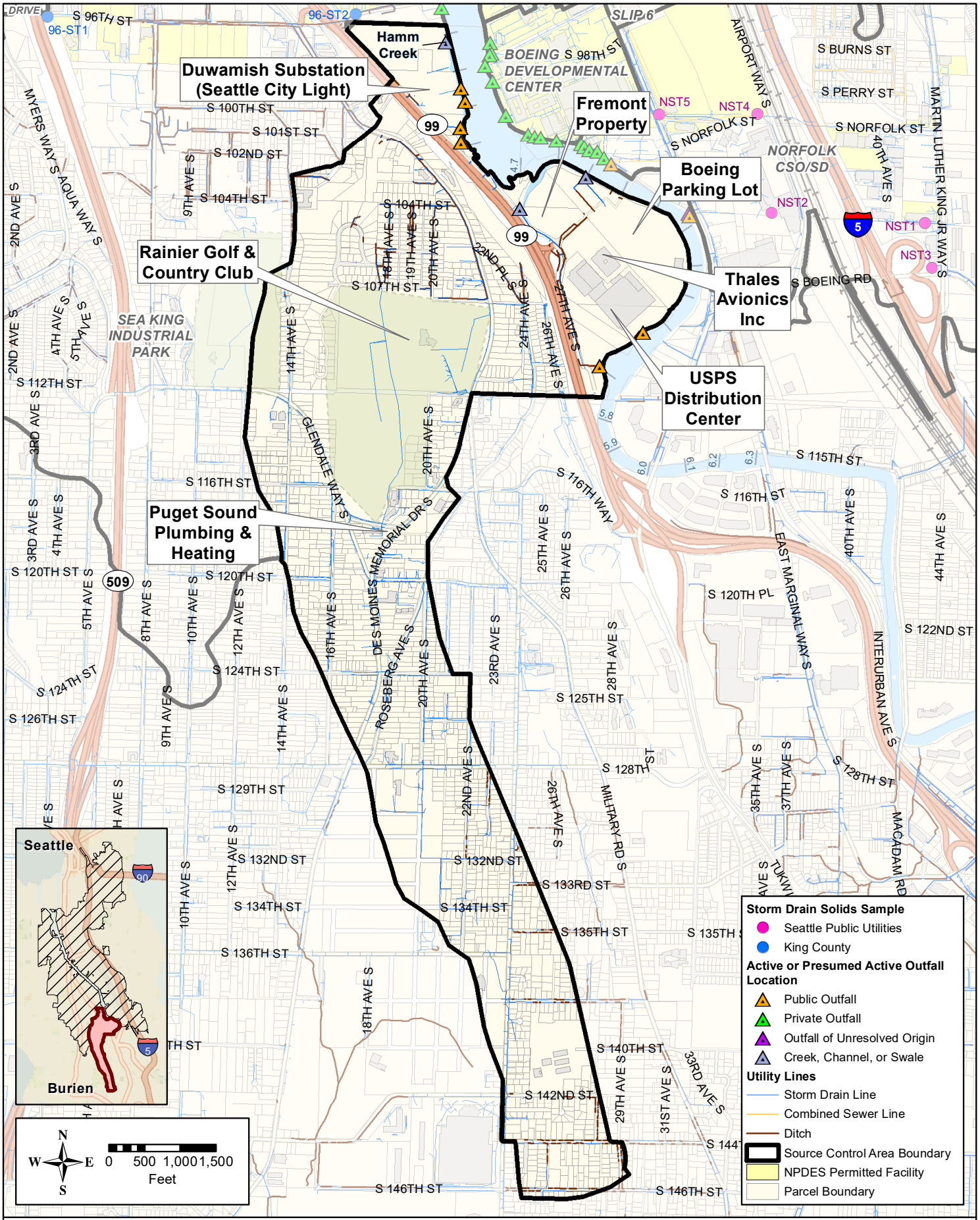

Figure A-8. RM 4.2-5.8 West (Restoration Areas) Source Control Area

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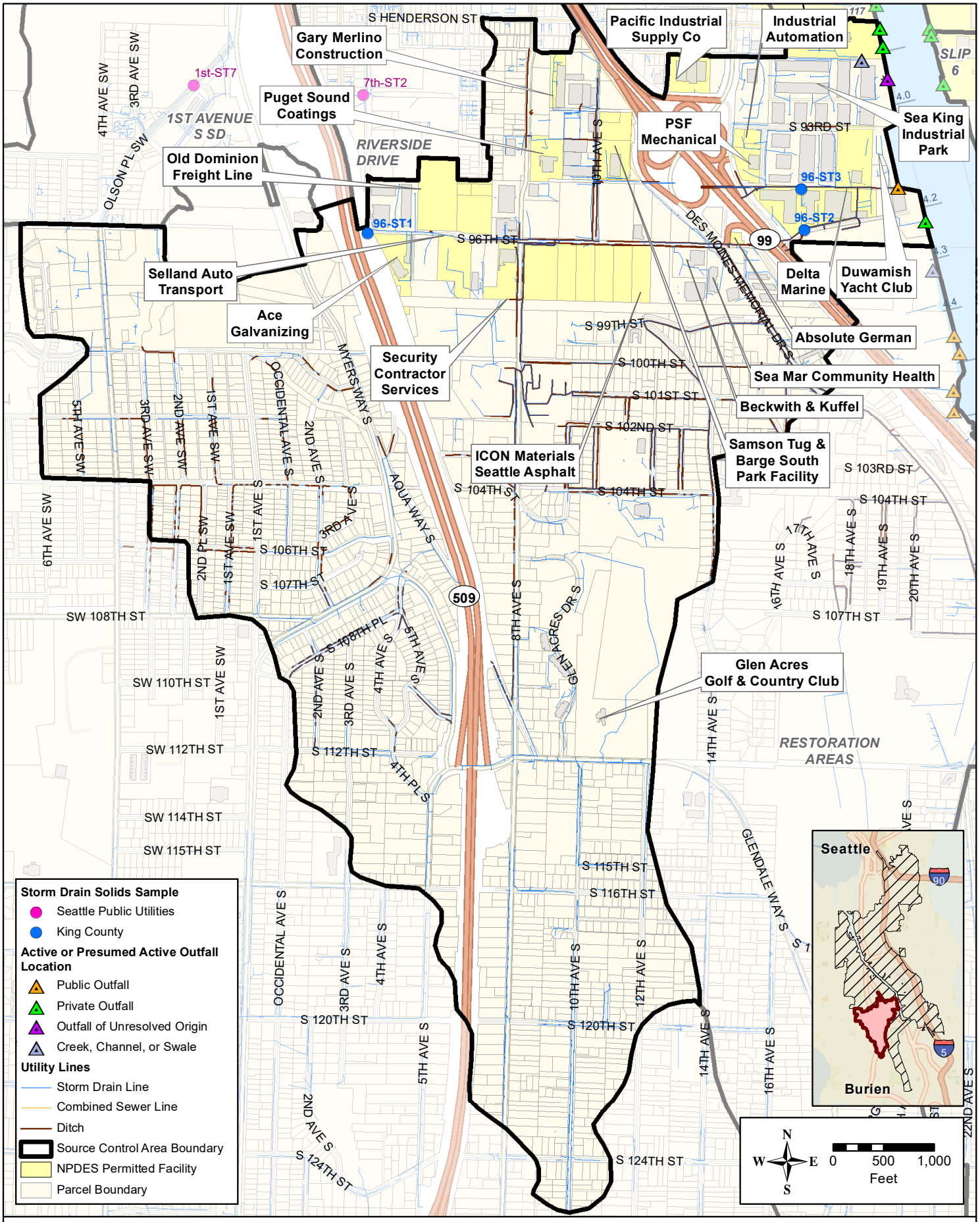

Figure A-9. RM 3.8-4.2 West (Sea King Industrial Park) Source Control Area

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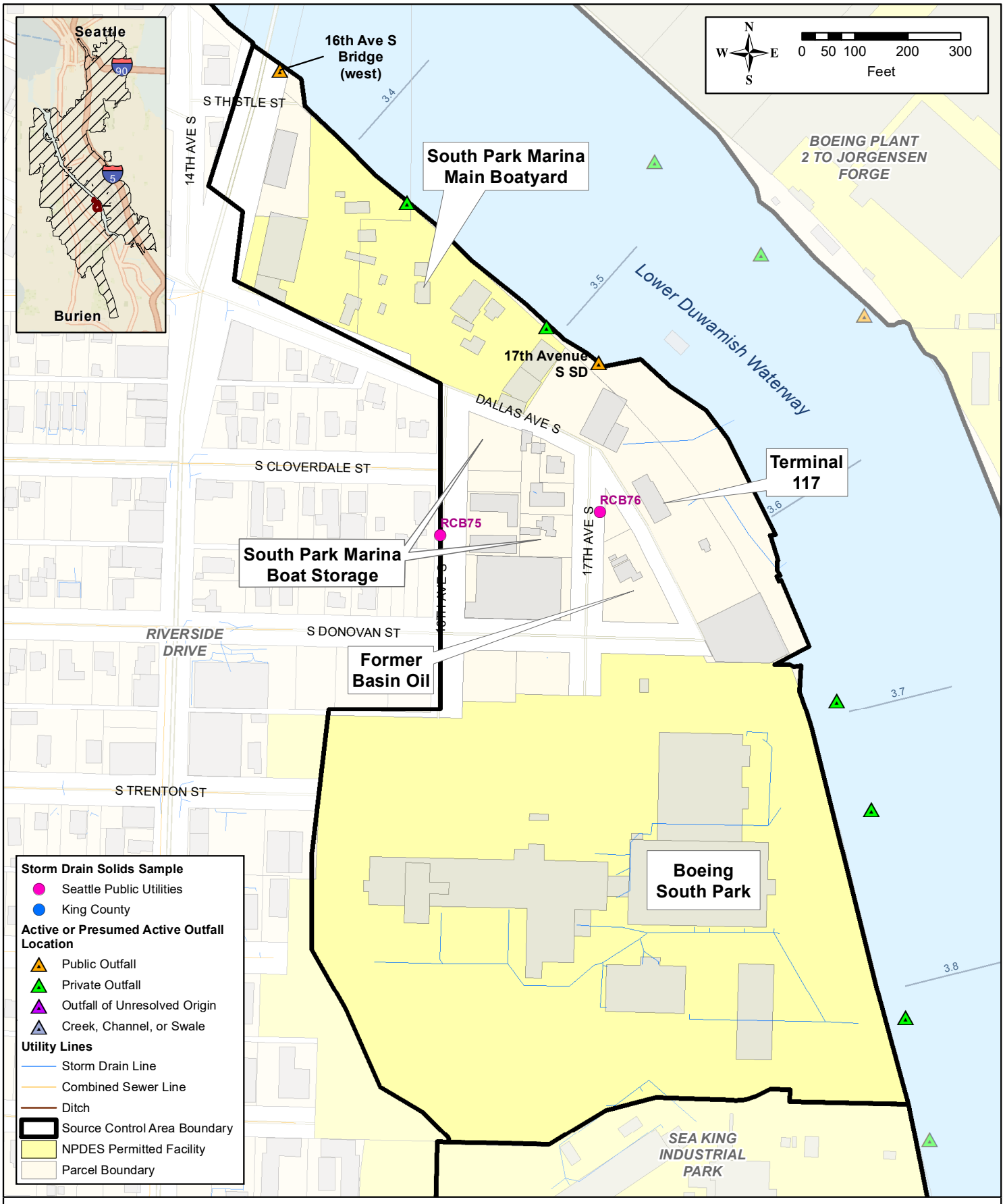

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Figure A-10. RM 3.4-3.8 West (EAA-5: Terminal 117) Source Control Area

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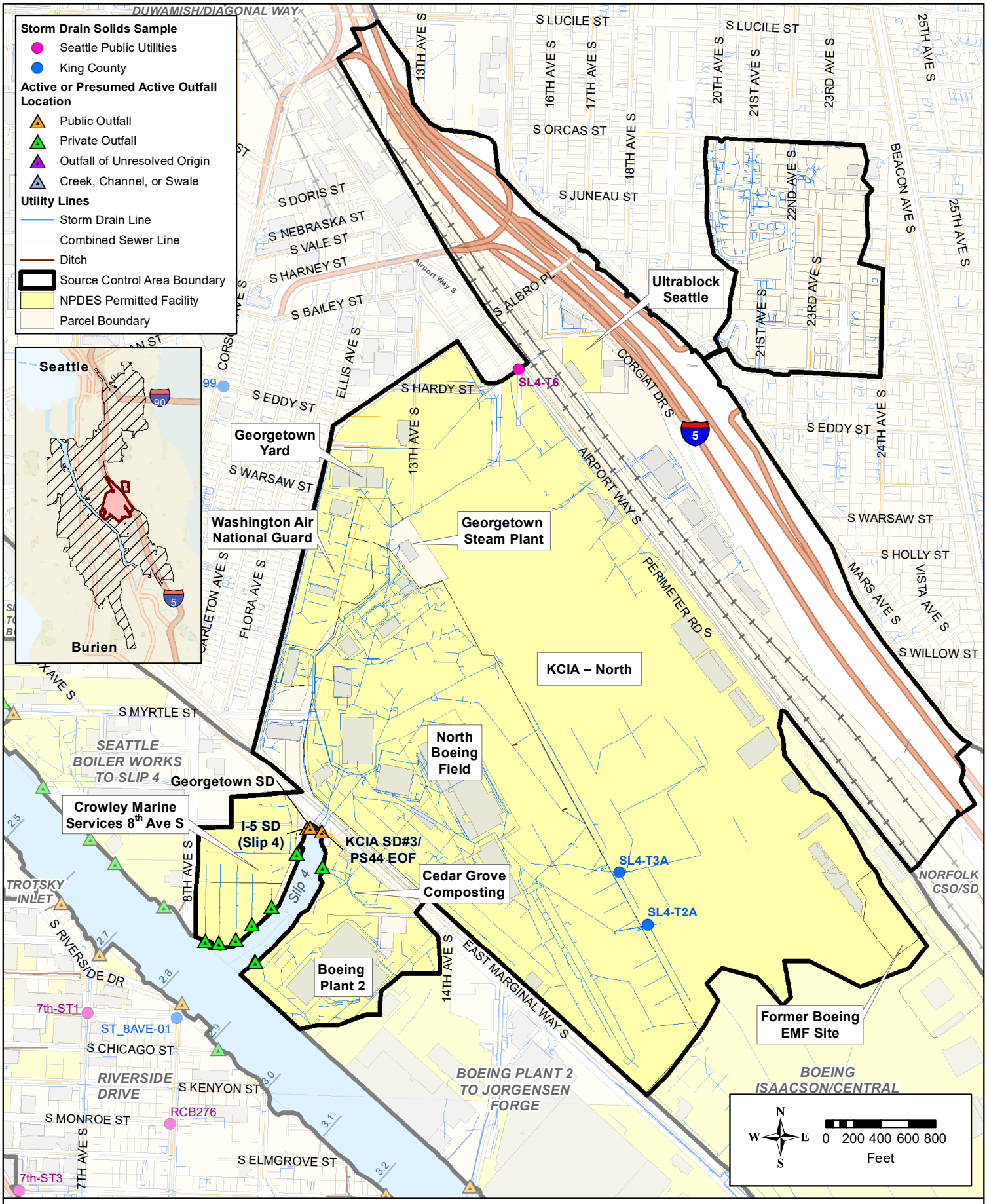

Figure A-11. RM 2.8 East (EAA-3: Slip 4) Source Control Area

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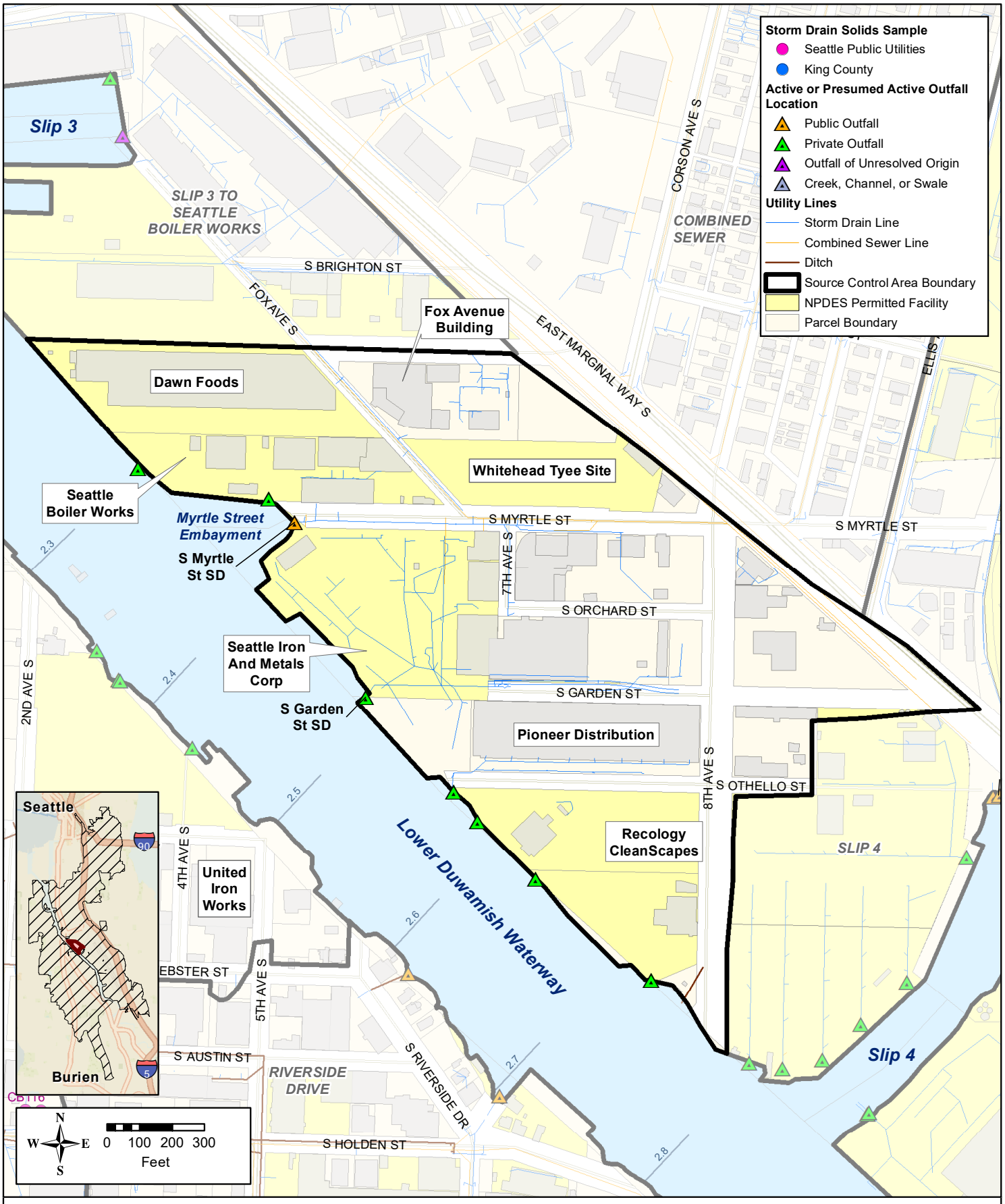

Figure A-12. RM 2.3-2.8 East (Seattle Boiler Works to Slip 4) Source Control Area

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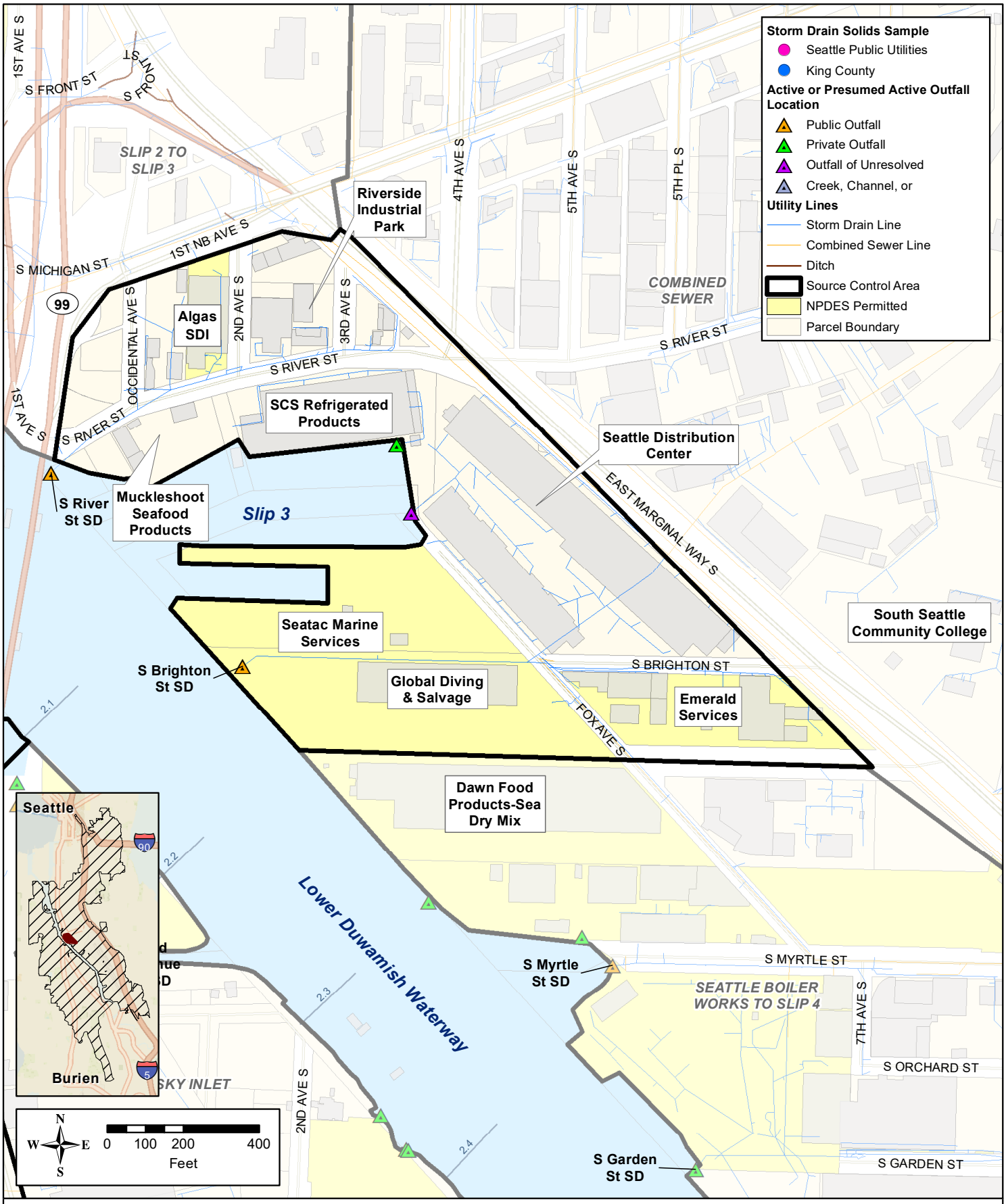

Figure A-13. RM 2.0-2.3 East (Slip 3 to Seattle Boiler Works) Source Control Area

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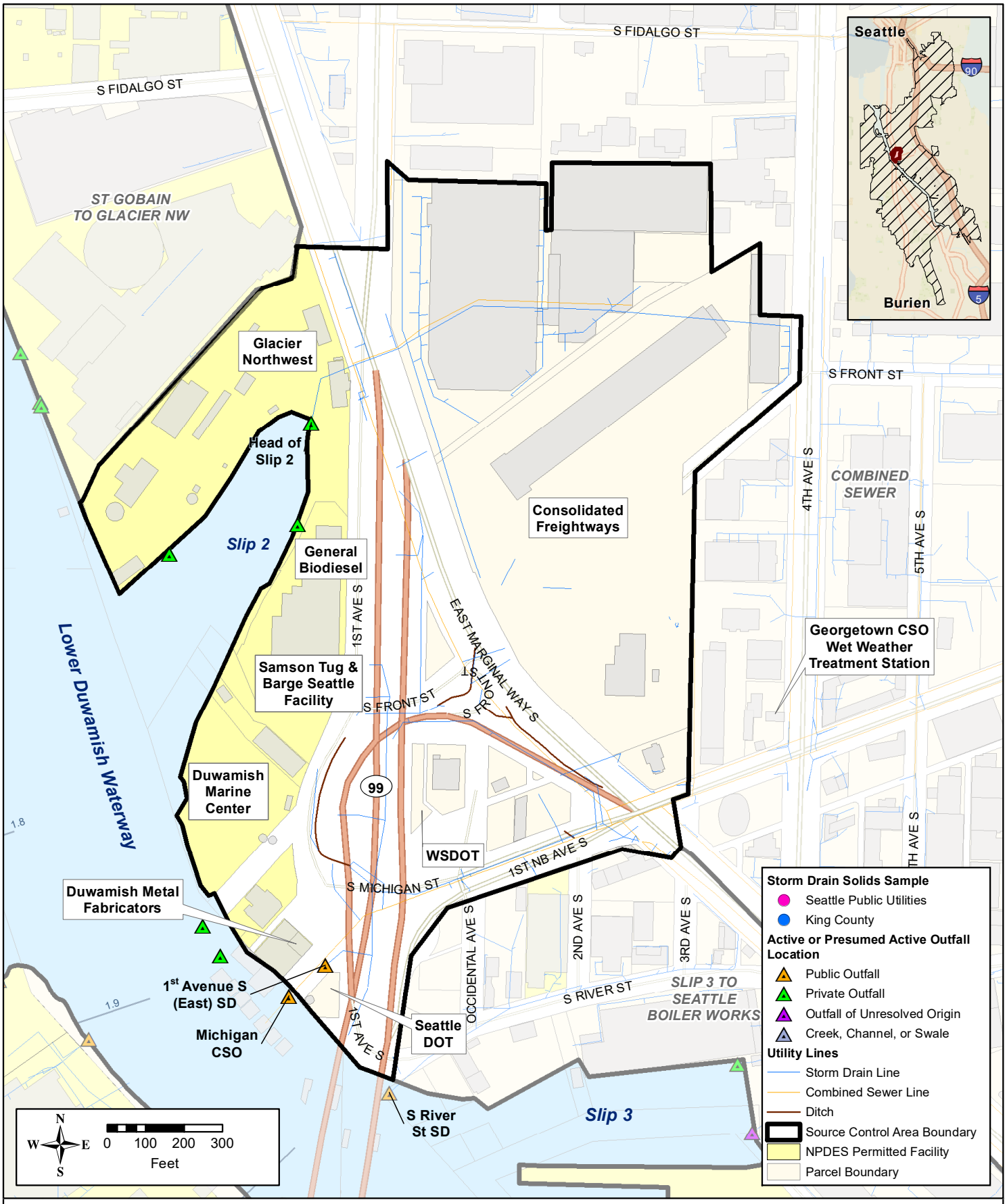

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Figure A-14. RM 1.7-2.0 East (Slip 2 to Slip 3) Source Control Area

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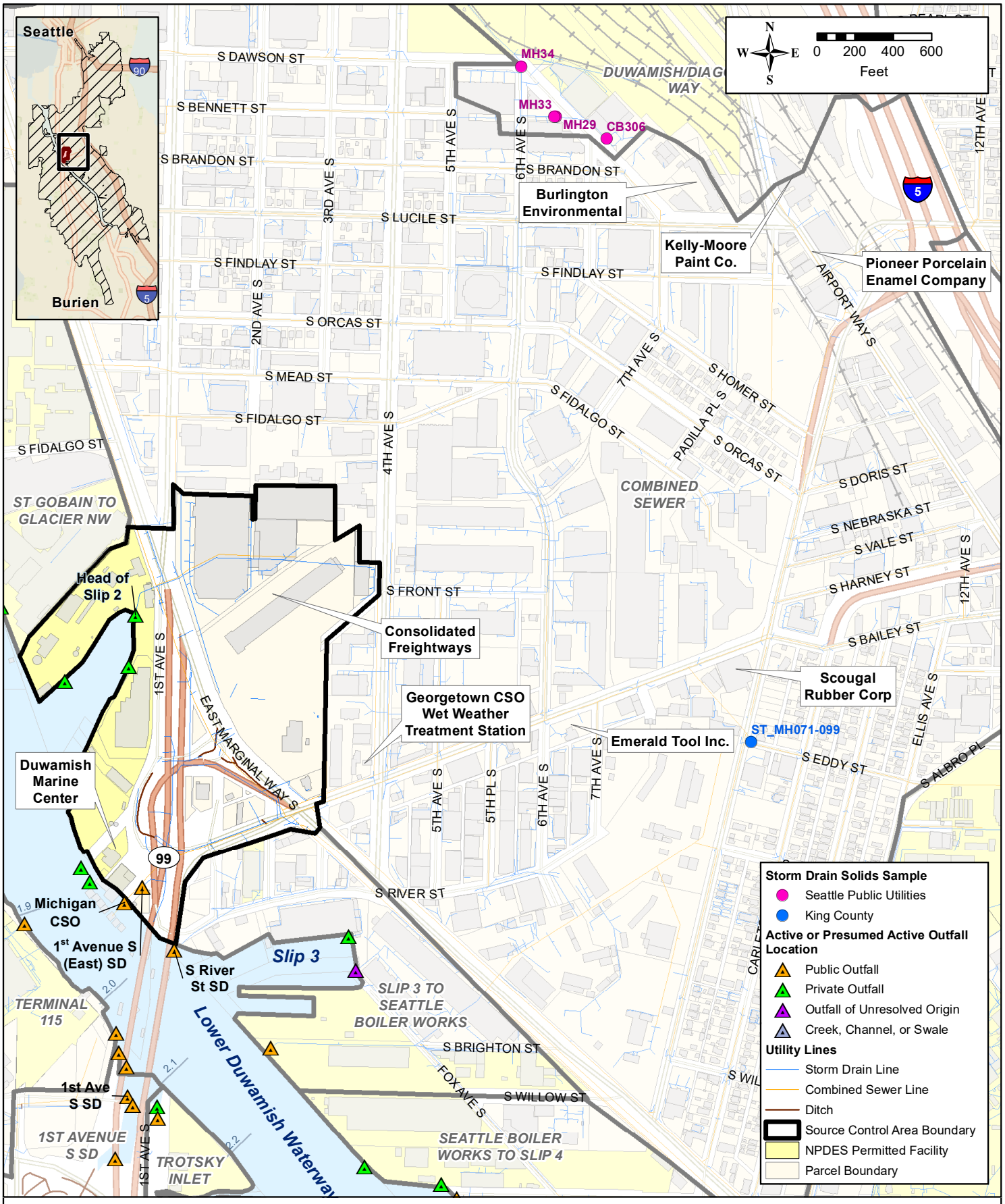

Figure A-15. RM 1.7-2.0 East (Slip 2 to Slip 3) Michigan Street CSO Basin

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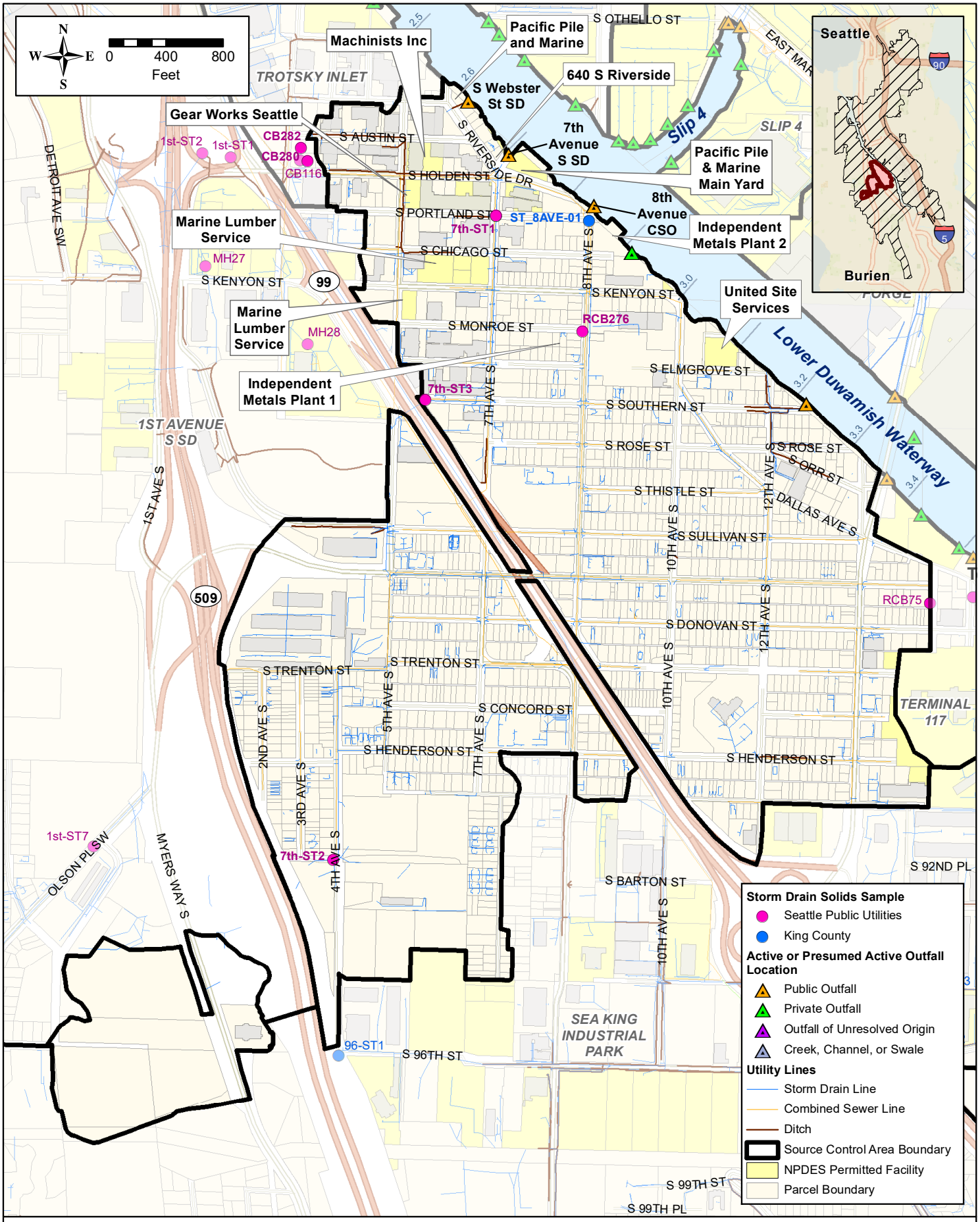

Figure A-16. RM 2.2-3.4 West (Riverside Drive) Source Control Area

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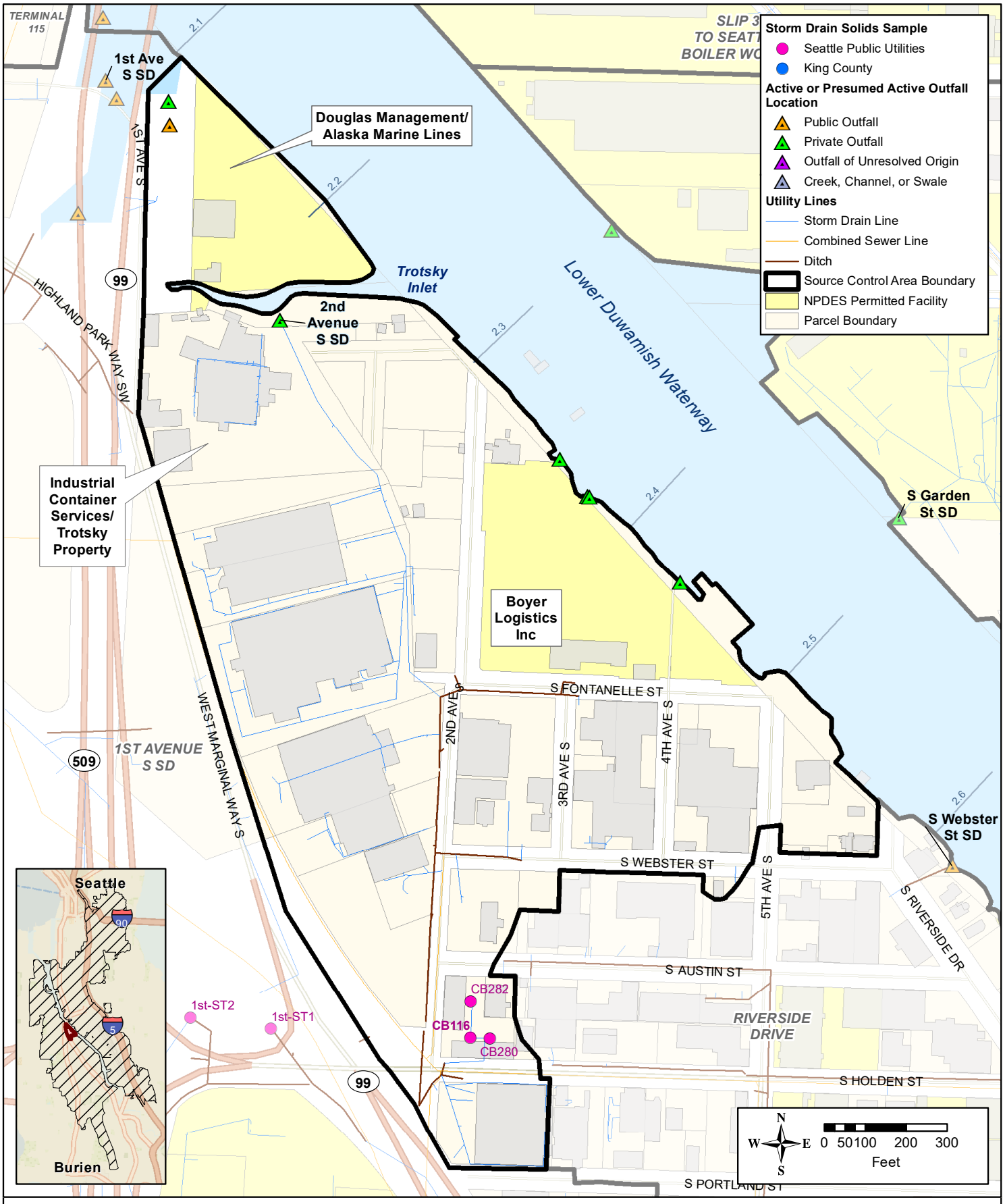

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Figure A-17. RM 2.1-2.2 West (EAA-2: Trotsky Inlet) Source Control Area

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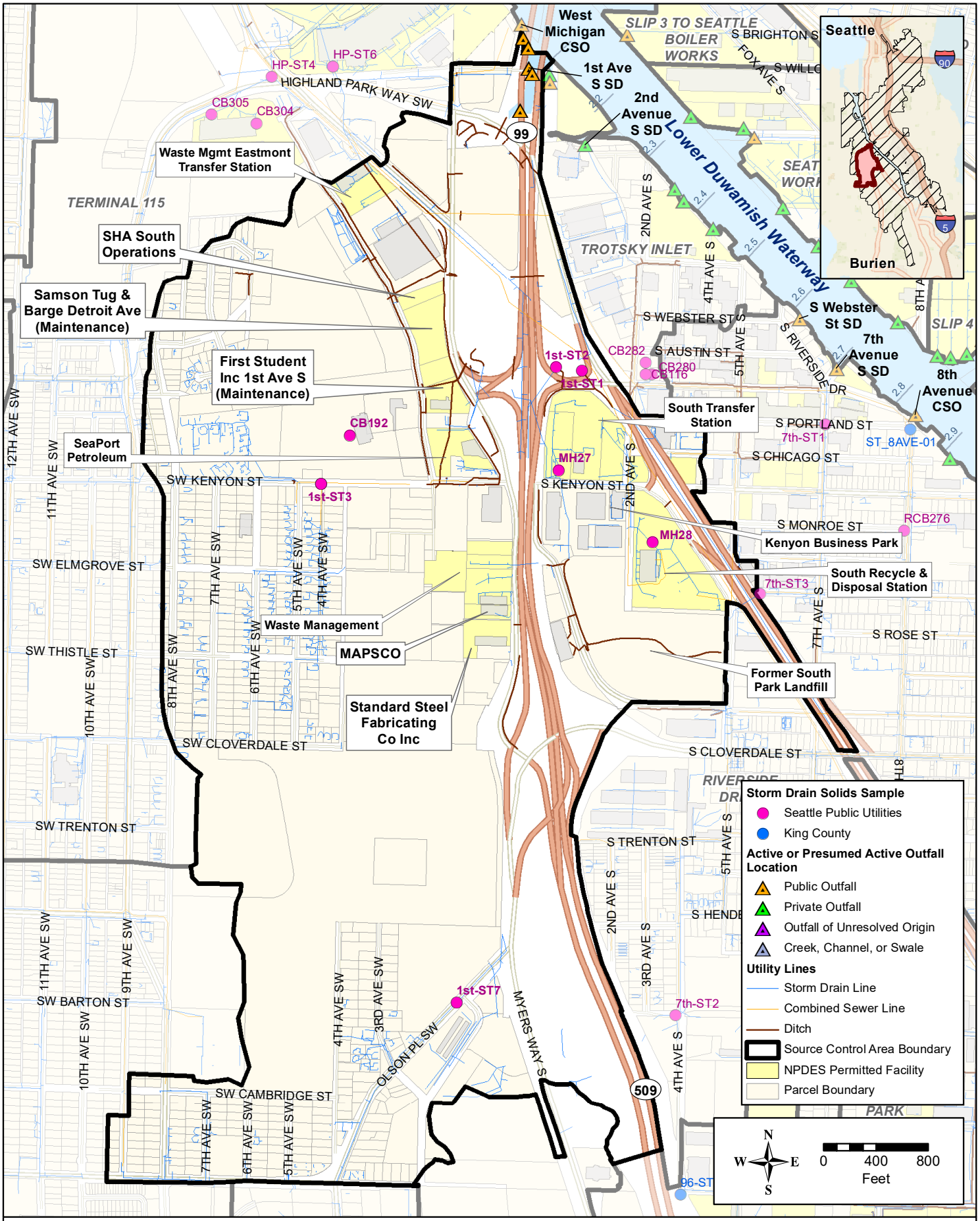

Figure A-18. RM 2.1 West (1st Avenue South Storm Drain) Source Control Area

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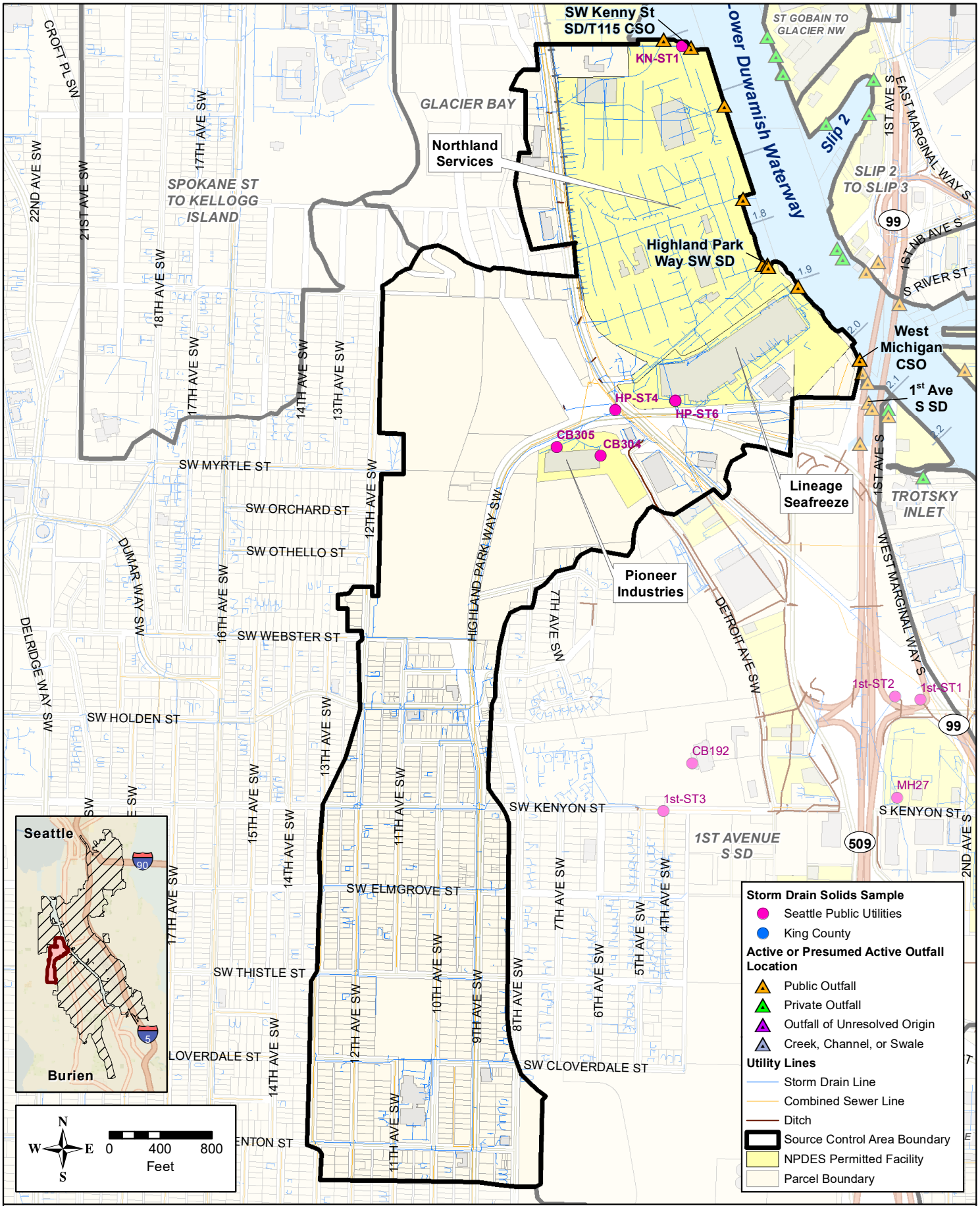

Figure A-19. RM 1.6-2.1 West (Terminal 115) Source Control Area

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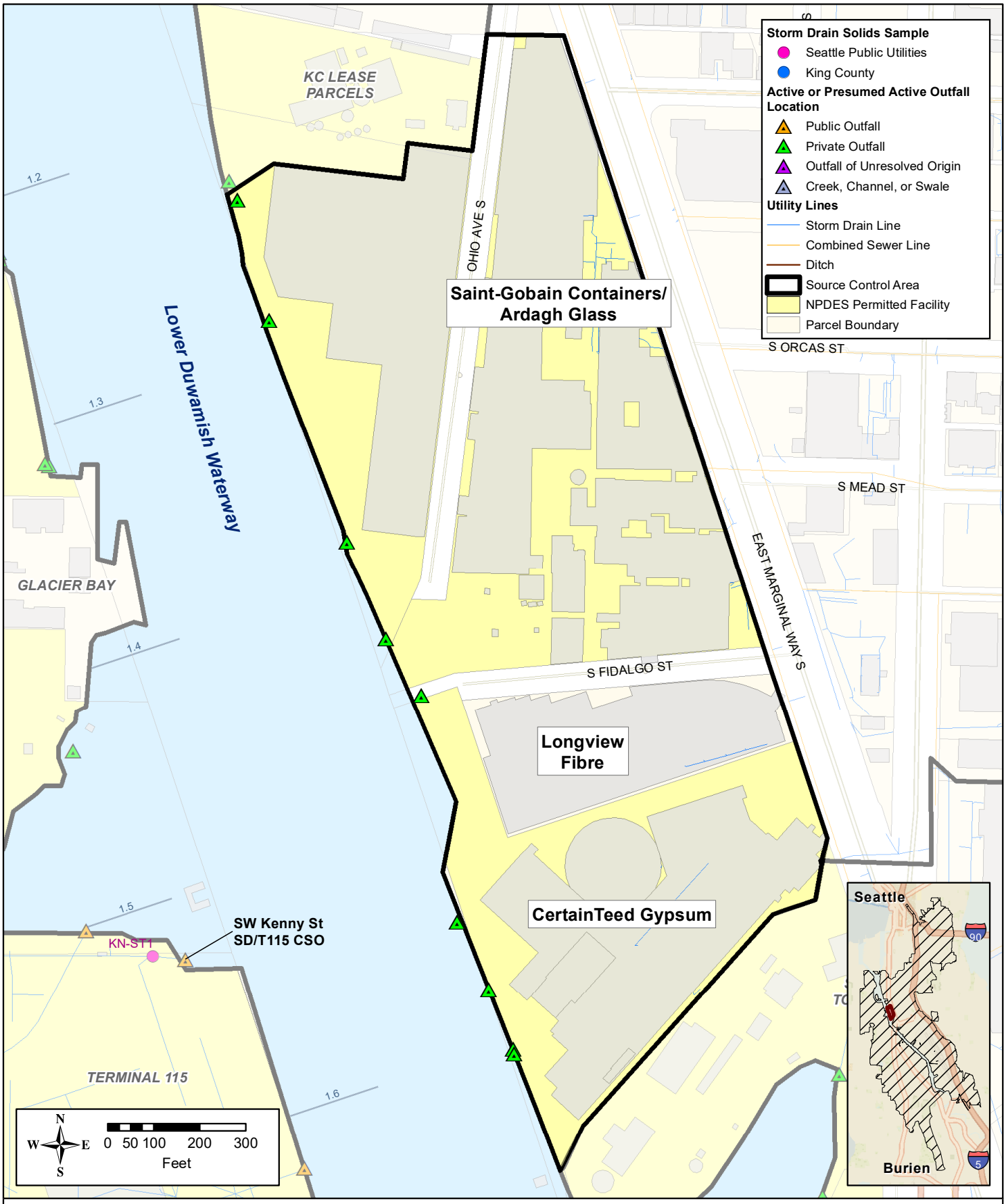

Figure A-20. RM 1.2-1.7 East (Saint Gobain to Glacier Northwest) Source Control Area

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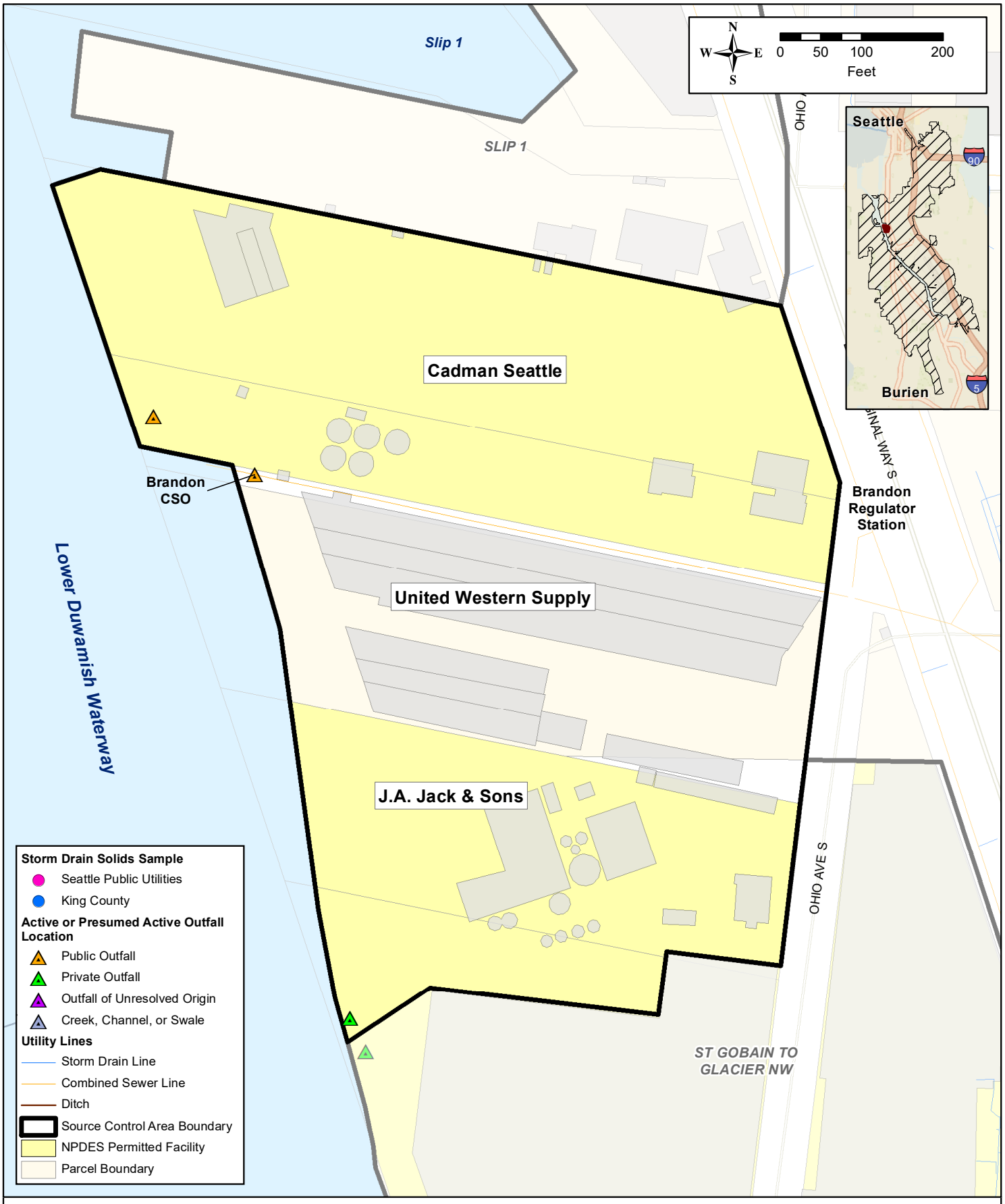

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Figure A-21. RM 1.0-1.2 East (King County Lease Parcels) Source Control Area

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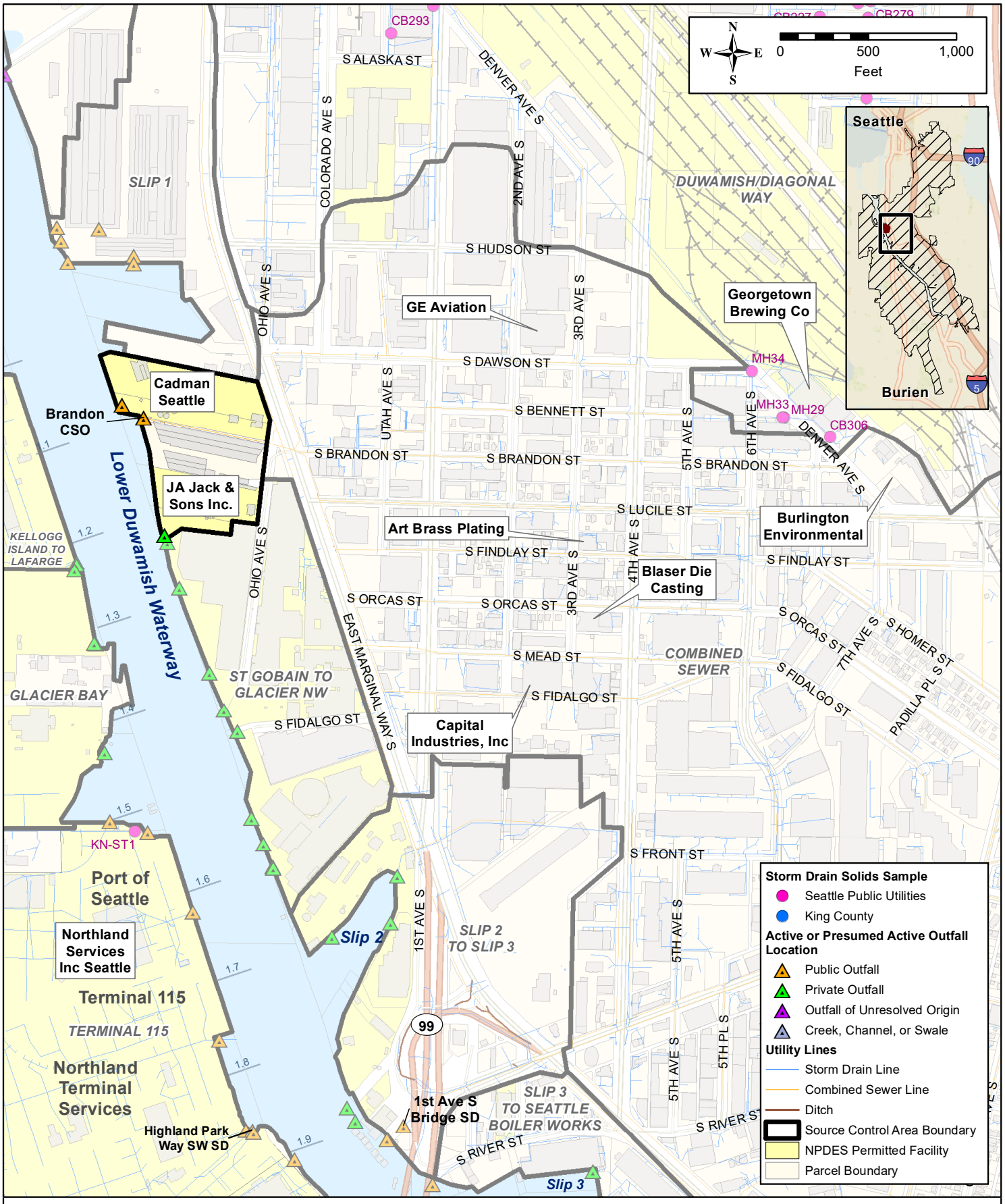

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Figure A-22. RM 1.0-1.2 East (King County Lease Parcels) Brandon CSO Basin

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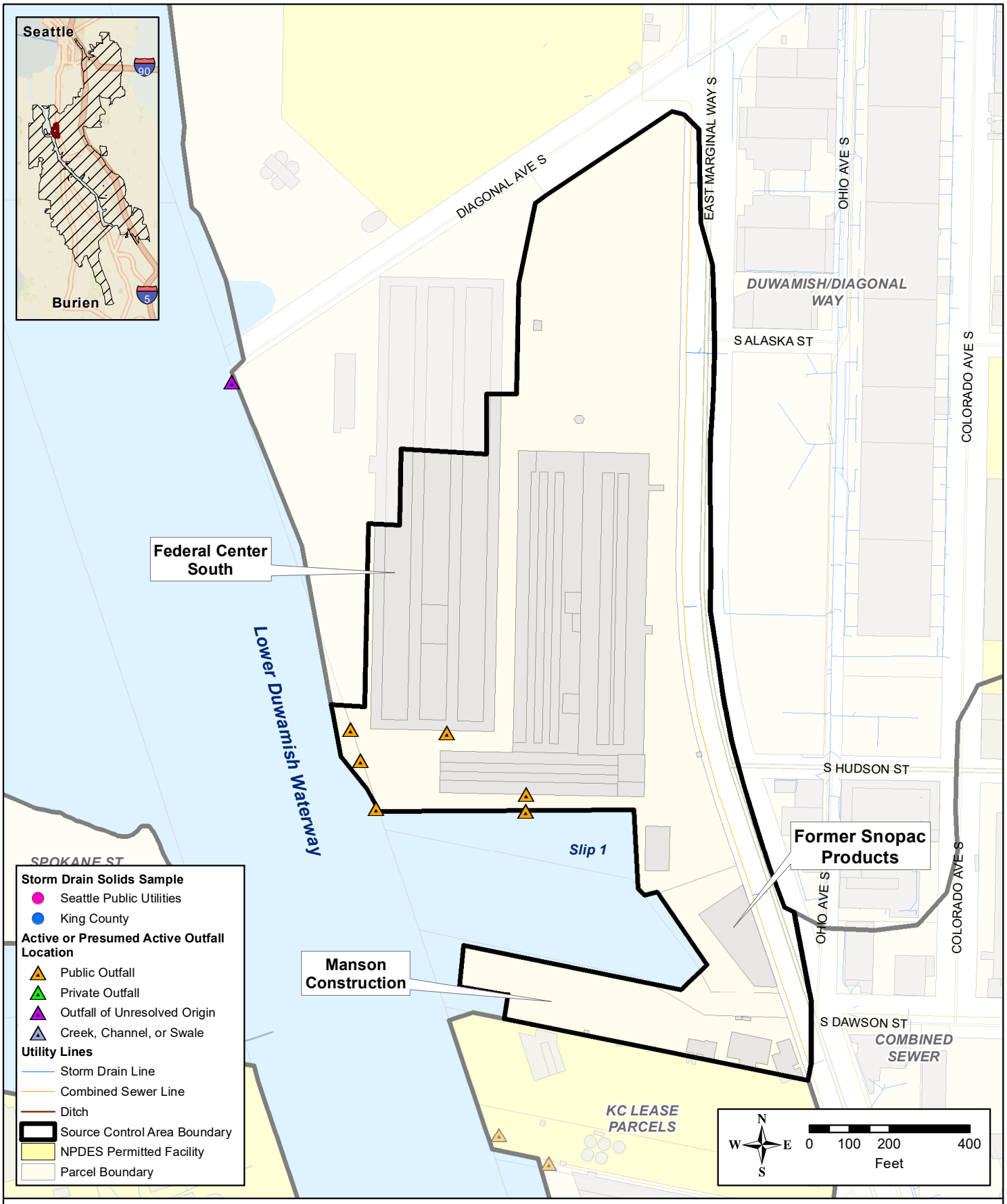

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Figure A-23. RM 0.9-1.0 East (Slip 1) Source Control Area

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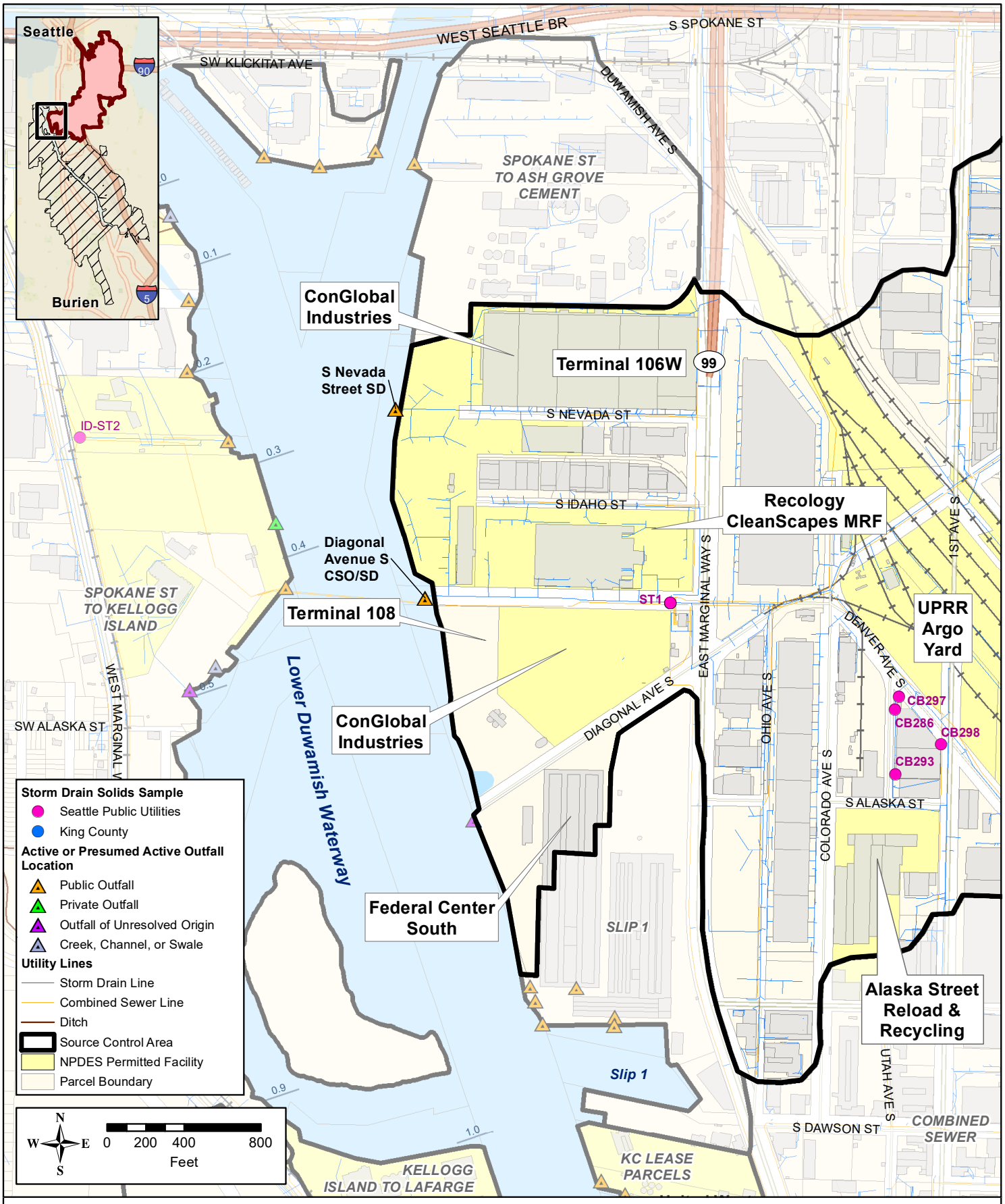

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Figure A-24. RM 0.1-0.9 East (EAA-1: Duwamish/Diagonal Way) Source Control Area

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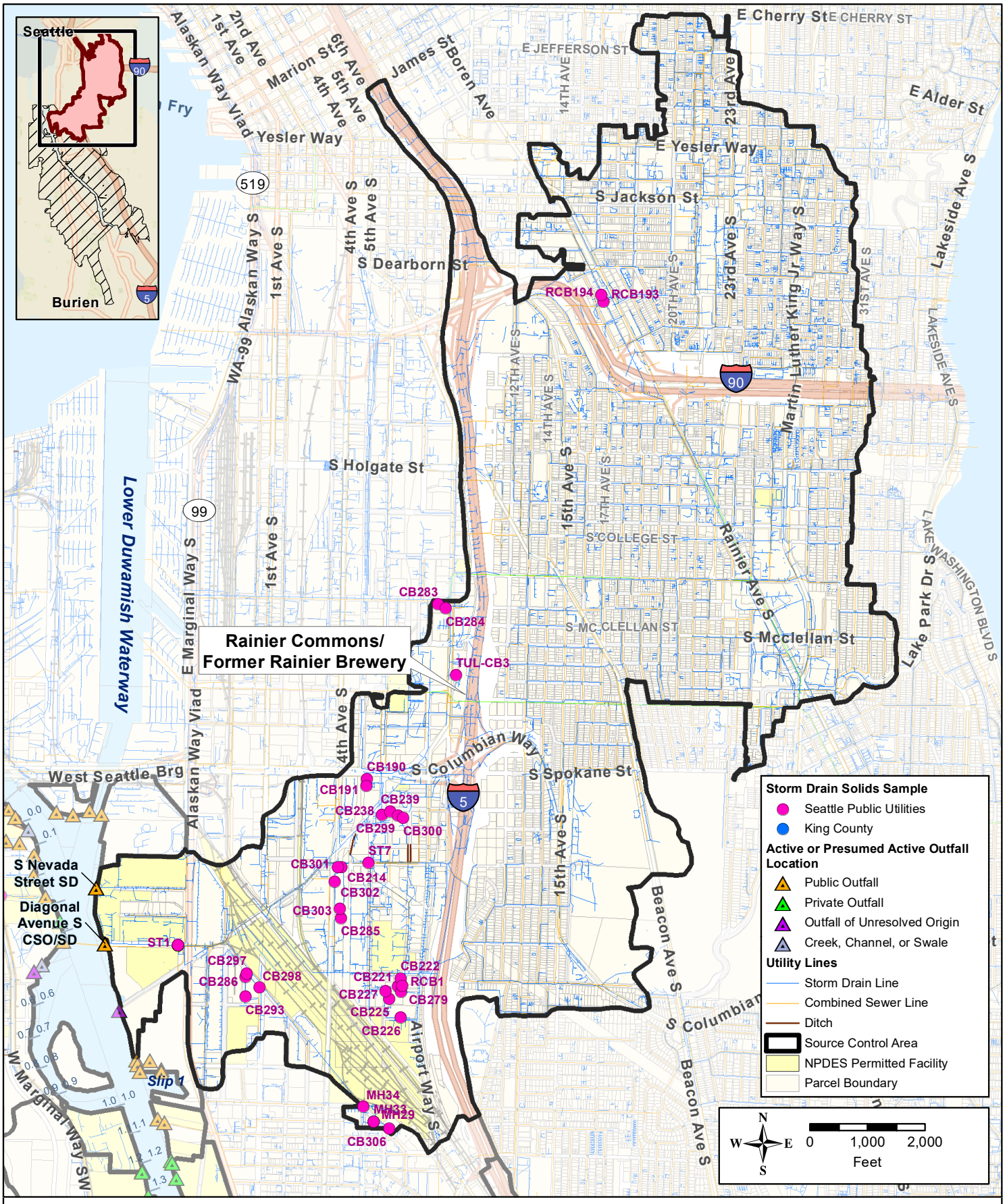

Figure A-25. RM 0.1-0.9 East
(EAA-1: Duwamish/Diagonal Way)
Diagonal Avenue S Storm Drain Basin

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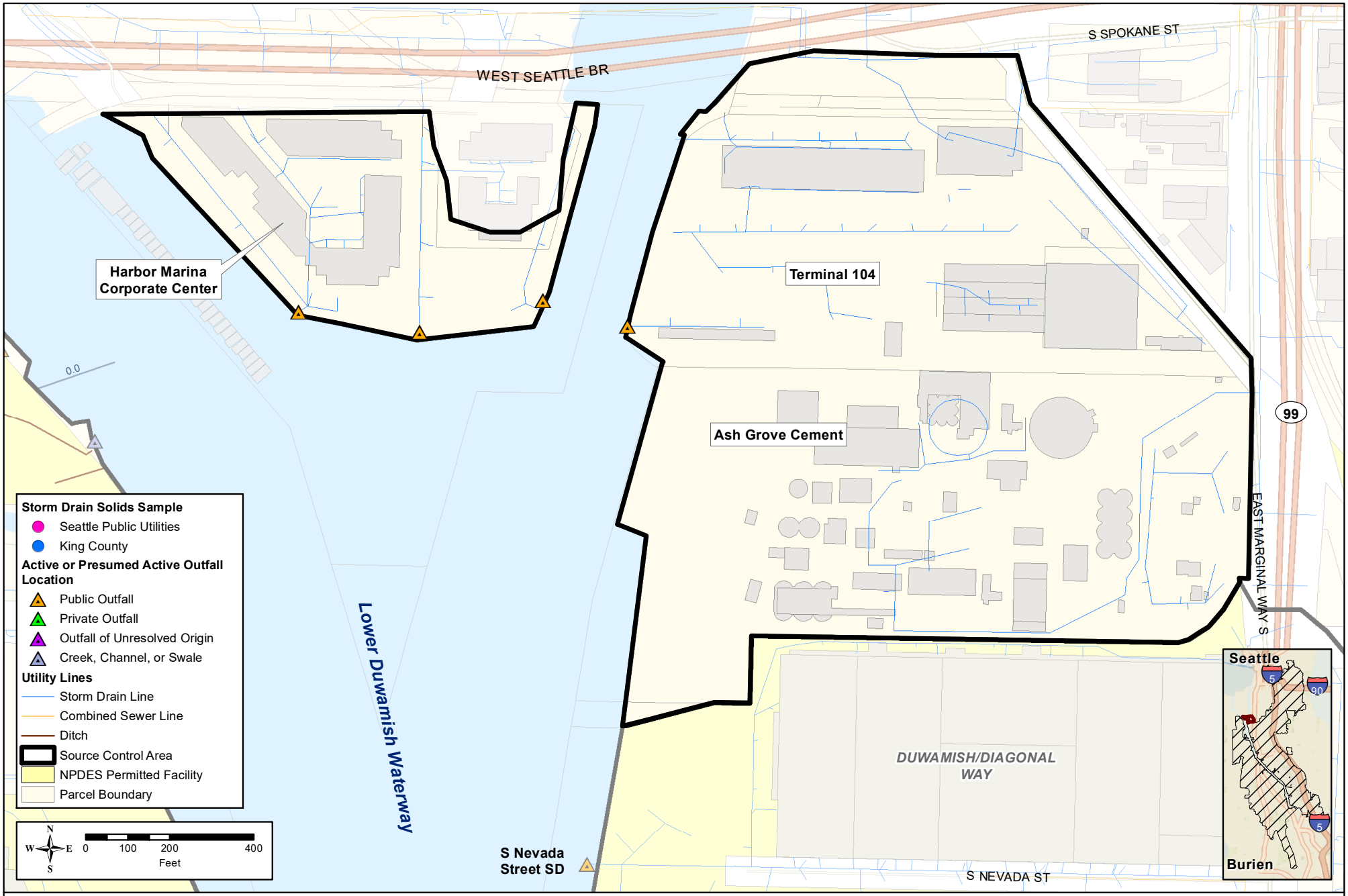

Figure A-26. RM 0.0-0.1 East
(Spokane Street to Ash Grove Cement)
Source Control Area

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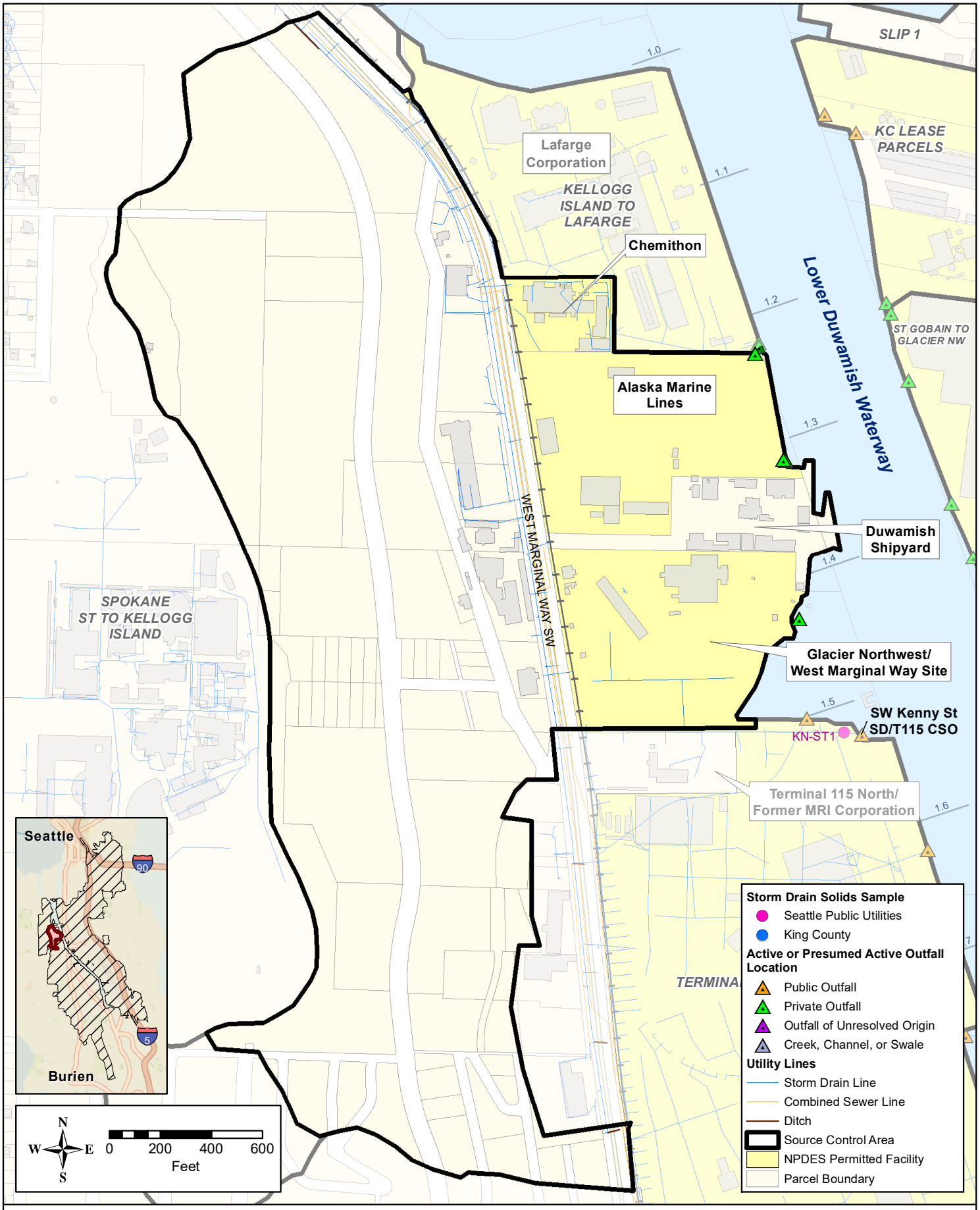

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Figure A-27. RM 1.3-1.6 West (Glacier Bay) Source Control Area

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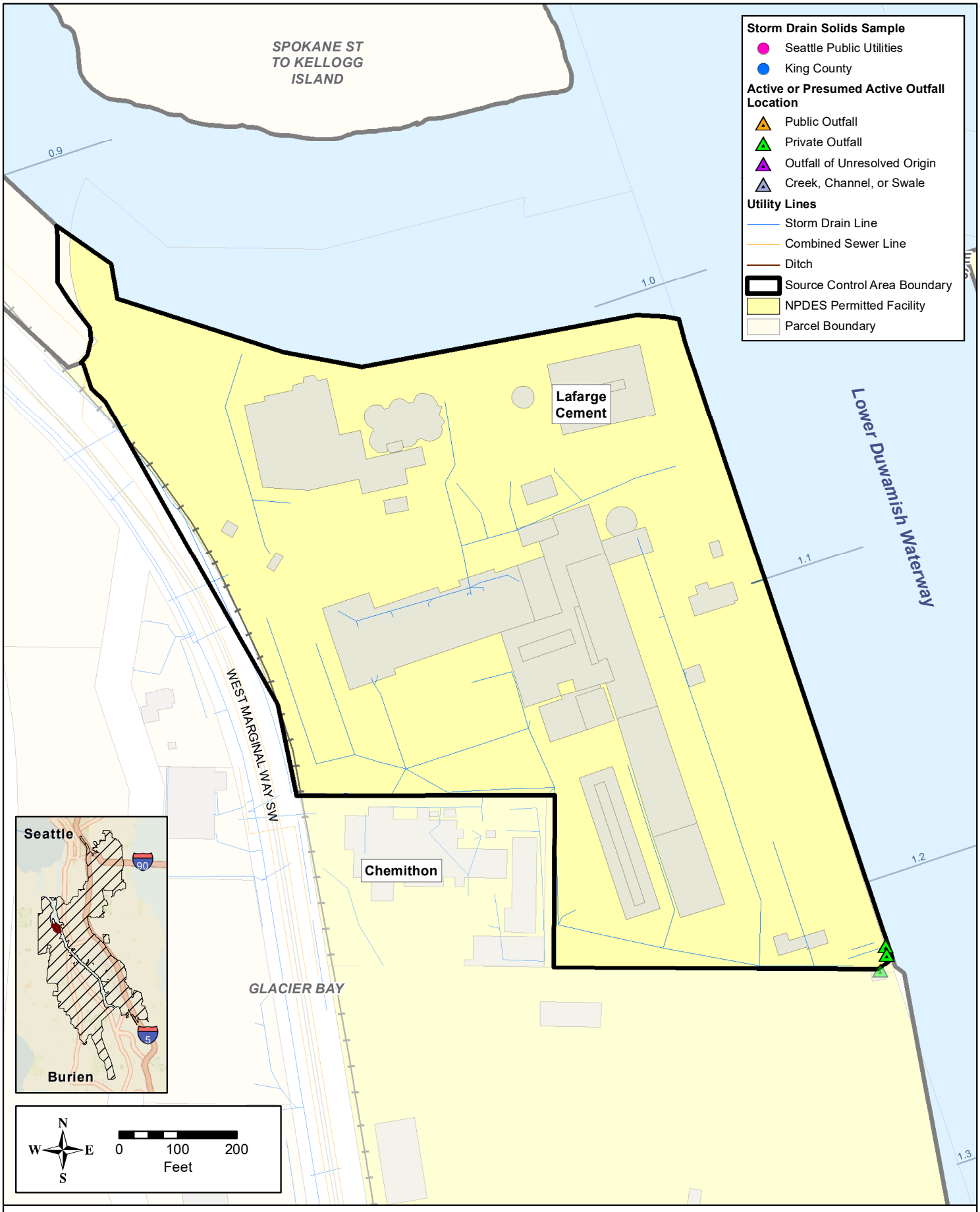

Figure A-28. RM 1.0-1.3 West (Kellogg Island to Lafarge Cement) Source Control Area

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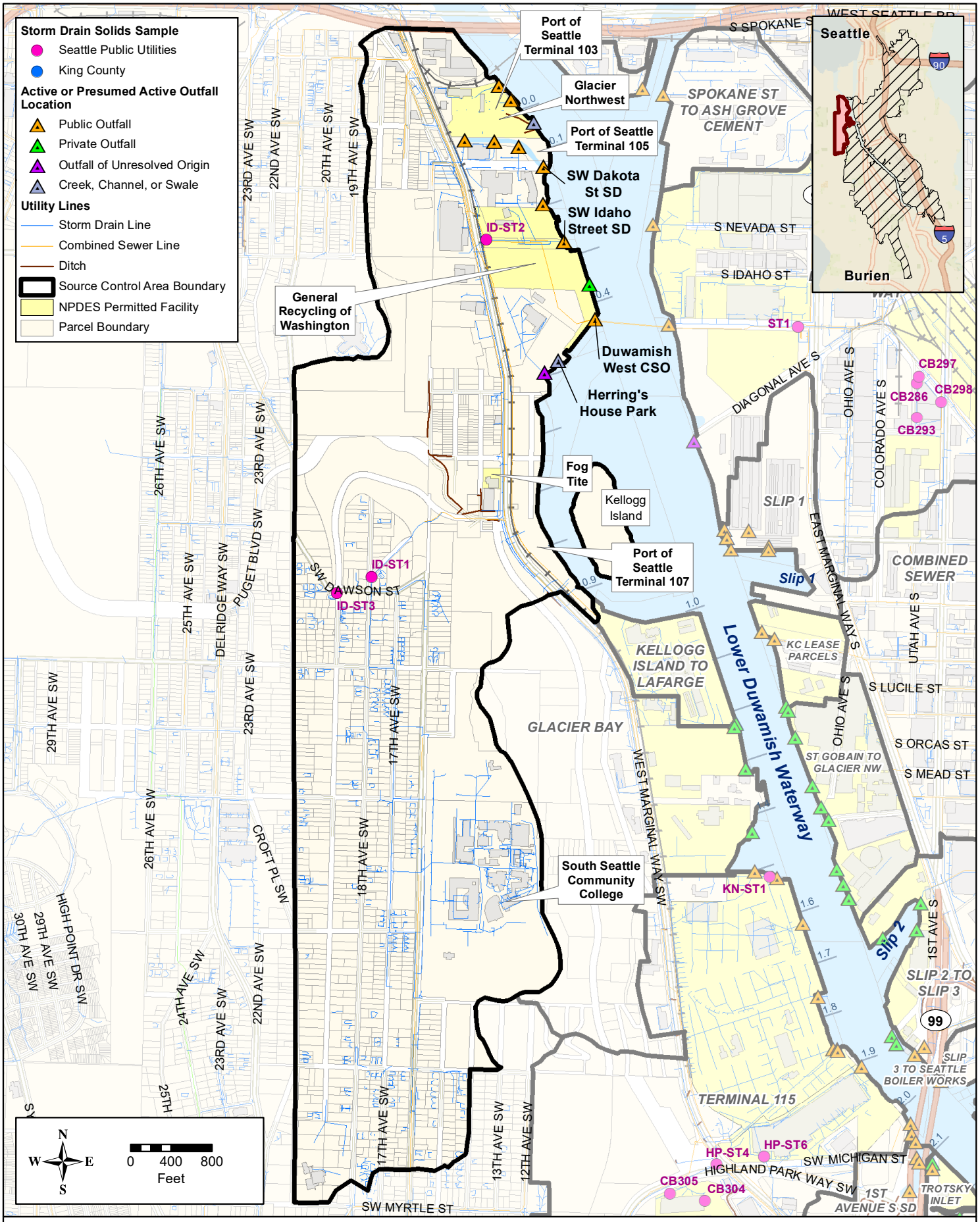

Figure A-29. RM 0.0-1.0 West (Spokane Street to Kellogg Island) Source Control Area

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Document Path: \GIS_Projects\Ecology Toxics Contract\WA-27 LDW SC Status\MapDocuments\SCSR_10\Figure_A-29_RM_0-0_1-0W_SpokanetoKellogg

Appendix B:
Action Item Status

Table B-1. Action Items Completed During 2017

Table B-2. Incomplete Action Items

Table B-1. Actions Items Completed or Canceled During 2017

Action Item No.	Action Item Category	Source Control Area	Property/ Facility/Outfall	Property Number	Facility/Site ID	NPDES Permit No.	Action Item	Priority	Responsible Party	Status	Date Completed	Comments/Follow-On Actions
A01.02.00	Inspection	RM 0.0-0.1 East (Spokane Street to Ash Grove Cement)	Harbor Marina Corporate Center / Port of Seattle Terminal 102	01002	34525399, 57949691		Determine the permitting requirements and responsible parties for each outfall. Work with adjacent property owners to confirm permit requirements for outfall HRE-1 and assign appropriate responsibility.	Medium	Ecology WQ, Port of Seattle	Complete	Jun 2019	Outfalls 2051, 2056, and HRE-1 are covered under the Port Phase 1 municipal permit. Outfall HRE-1 drains on e catch basin on Terminal 102 and two catch basins on the adjacent parce 7666701250. Outfall 2051 drains only Terminal 102. Outfall 2056 drains Terminal 102 and one catch basin on parcel 7666701250.
A02.06.01	BMP Implementation	RM 0.1-0.9 East (EAA-1: Duwamish/ Diagonal Way)	ConGlobal (formerly Container Care)	02108	8410932		Verify the installation of stormwater treatment and resolution of permit and stormwater quality issues.	Low	Ecology	Complete	Oct 2016	In December 2013, interim treatment was installed at drainage area #3 on T108 portion of ConGlobal. Ecology WQ ordered ConGlobal to install and have final treatment operational for all drainage basins by September 30, 2016 (includes one-year extension).Ecology conducted inspection on 10/20/2016 and verified treatment system was installed and operational.
A02.09.01	Source Assessment	RM 0.1-0.9 East (EAA-1: Duwamish/ Diagonal Way)	UPRR Argo Yard	02131	21429717		Conduct Site Hazard Assessment	Low	Ecology	Complete	Aug 2015	Ecology conducted an SHA at this site in 2015. SHA Rank is 5.
A02.10.01	Source Assessment	RM 0.1-0.9 East (EAA-1: Duwamish/ Diagonal Way)	Former JANCO-United, Inc.	02114	5568786		Conduct Site Hazard Assessment	Low	Ecology	Complete	Feb 2015	Ecology conducted an SHA at this site in 2015. SHA Rank is 3.
A02.27.00	Information Request	RM 0.1-0.9 East (EAA-1: Duwamish/ Diagonal Way)	Bloch Steel Industries	02011	57747142		Request Bloch Steel to provide updated information regarding groundwater monitoring activities at this facility after 2004.	Low	Ecology	Complete	Oct 2011	Facility ws granted an NFA in October 2011.
A04.03.00	Data Evaluation	RM 1.0-1.2 East (KC Lease Parcels)	S Brandon Street Combined Sewer Overflow	NA	80333167		Evaluate the 2009 effluent discharge and 2010 solids sample data to assess whether the effluent concentrations and/or solids sample concentrations represent a potential source of contaminants to sediments associated with the KC Lease Parcels source control area, and develop source control actions if necessary.	Medium	Ecology	Complete	Jun 2019	King County collected sediment trap samples in the Brandon CSO basin from 2012-2015. BEHP and BBP often above screening levels and mercury, PAHs and phenol infrequently above screening levels. No additional source tracing is planned. The Georgetown Wet Weather Treatment Station (under construction) will control Brandon CSO.
A04.04.00	Source Assessment	RM 1.0-1.2 East (KC Lease Parcels)	S Brandon Street Combined Sewer Overflow	NA	80333167		Use source tracing data to identify and evaluate possible point source contributions of LDW COCs to CSO discharges. Determine if contaminant loading analyses are necessary for King County Industrial Waste (KCIW) Program permit holders in this CSO basin.	Medium	King County	Complete	Jun 2019	King County collected sediment trap samples in the Brandon CSO basin from 2012-2015. BEHP and BBP often above screening levels and mercury, PAHs and phenol infrequently above screening levels. No additional source tracing is planned. The Georgetown Wet Weather Treatment Station (under construction) will control Brandon CSO.

Table B-1. Actions Items Completed or Canceled During 2017

Action Item No.	Action Item Category	Source Control Area	Property/ Facility/Outfall	Property Number	Facility/Site ID	NPDES Permit No.	Action Item	Priority	Responsible Party	Status	Date Completed	Comments/Follow-On Actions
A04.07.00	Records Review	RM 1.0-1.2 East (KC Lease Parcels)	Manson Construction Company	03002	80333167		Obtain and review a copy of *Environmental Site Assessment, Duwamish Properties* prepared by Boateng for King County in January 1997, to identify additional potential sources of COCs to sediment and develop appropriate source control actions, if necessary.	Medium	Ecology	Complete	Dec 2017	Ecology and King County have completed searching for this report but could not locate it. No follow-on action identified.
A04.11.00	Records Review	RM 1.0-1.2 East (KC Lease Parcels)	Cadman Seattle, Inc.	04001	70313617		Obtain and review a copy of *Environmental Site Assessment, Duwamish Properties,* prepared by Boateng for King County in January 1997, to identify additional potential sources of COCs to sediment and develop appropriate source control actions, if necessary.	Medium	Ecology	Complete	Dec 2017	Ecology and King County have completed searching for this report but could not locate it. No follow-on action identified.
A04.24.01	Inspection	RM 1.0-1.2 East (KC Lease Parcels)	Kamco Seafood	25149	24592		Perform an inspection at Kamco Seafood; this facility holds a KCIW discharge authorization but had not been assigned a Facility/Site ID number by Ecology at the time the SCAP was prepared.	Low	Ecology	Complete	Sep 2013	This site has been assigned FSID 24592. An Urban Waters inspection was conducted on 9/4/2013.
A05.07.00	Inspection	RM 1.2-1.7 East (Saint Gobain to Glacier Northwest)	Longview Fibre Paper and Packaging	05002	2226		Conduct a source control inspection to confirm compliance with regulations/permits and implementation of BMPs.	Medium	Ecology	Complete	Jan 2014	This facility was granted a Conditional No Exposure Exemption in January 2014.
A05.08.00	Environmental Sampling	RM 1.2-1.7 East (Saint Gobain to Glacier Northwest)	Longview Fibre Paper and Packaging	05002	2226		Sample catch basins as needed.	Medium	Ecology	Canceled		Facility was granted a CNE exemption in January 2014. Therefore, this action item is not needed.
A05.13.02	Cleanup	RM 1.0-1.2 East (KC Lease Parcels)	Burlington Environmental/PSC Environmental Services	25163	47779679		Finalize Agreed Order Amendment for the eastern portion of the site. The Amendment will include requirements for designing and implementing an additional cleanup action, focused on the reduction of 1,4-dioxane in groundwater.	Medium	Ecology/Property Owner/Operator	Complete	Aug 2015	The Agreed Order Amendment includes an enforceable schedule for the design, implementation, and monitoring of the selected cleanup action. Pilot and bench-scale studies were conducted in 2016/2017 and completed in 2018. The Design document for full-scale implementation is due to Ecology in April 2019.
A05.15.00	Inspection	RM 1.0-1.2 East (KC Lease Parcels)	Art Brass Plating	25161	88531932		Conduct a source control inspection to confirm compliance with regulations/permits and implementation of BMPs.	Medium	Ecology, King County	Complete	Dec 2017	SPU inspected the storm drain system at Art Brass Plating in 2017 in response to a water quality complaint. SPU sampled catch basins and Art Brass Plating cleaned the stormwater system. This site is included in the West of 4th Cleanup Site and additional source control activities will be conducted as part of that cleanup.

Table B-1. Actions Items Completed or Canceled During 2017

Action Item No.	Action Item Category	Source Control Area	Property/ Facility/Outfall	Property Number	Facility/Site ID	NPDES Permit No.	Action Item	Priority	Responsible Party	Status	Date Completed	Comments/Follow-On Actions
A06.03.00	Information Request	RM 1.7-2.0 East (Slip 2 to Slip 3)	Michigan Street CSO	NA	NA		Provide data regarding contaminant concentrations in Michigan Street CSO discharges.	Medium	King County	Complete	Dec 2017	King County collected additional sediment trap samples in the Michigan CSO basin in 2017. Mercury, BEHP, and phenol exceeded screening levels in one or more samples. No additional source tracing is planned. The Georgetown Wet Weather Treatment sStation (under construction) will greatly reduce solids discharged to the LDW and is expected to address remaining contaminants.
A06.04.00	Inspection	RM 1.7-2.0 East (Slip 2 to Slip 3)	Michigan Street CSO	NA	NA		Conduct business inspections within the Michigan Street CSO basin to identify undocumented industrial operations, if any, that may represent sediment recontamination sources.	Low	King County, Ecology	Complete	Jun 2019	Ecology/King County conducted a review of the 751 parcels identified in the S Michigan CSO basin in 2015; 141 facilities were identified as candidates for stormwater assessment; 15 facilities were visited and 4 stormwater assessments conducted in 2015. No basin-wide inspection programs are planned at this time. KCIW will continue to implement its pretreatment authority on a facility-by-facility basis within this basin. Discharges from this CSO will be controlled with the construction of the Georgetown Wet Weather Treatment Station.
A06.15.00	Records Review	RM 1.7-2.0 East (Slip 2 to Slip 3)	Seattle Biodiesel	06007	5023482		Review information submitted by Lonestar Investors LP (the property owner) in response to EPA Section 104(e) Request for Information.	Medium	Ecology	Canceled		'EPA is no longer providing 104(e) responses to Ecology, therefore no additional reviews will be performed.
A06.23.00	Other	RM 1.7-2.0 East (Slip 2 to Slip 3)	Seattle Department of Transportation Parcel	06008	5386		Complete discussions with the adjacent property owner to prevent parking and vehicle maintenance on the Seattle Department of Transportation property.	Low	SDOT	Complete	May 2019	King County is constructing the outfall from the Georgetown Wet Weather Station in this area. It is currently fenced off. Most of the area under the 1st Ave S bridge approaches on the east side of the river are currently fenced. Private property owners have also installed Ecology block along their frontage in places to deter RV parking.
A06.33.00	Source Assessment	RM 1.7-2.0 East (Slip 2 to Slip 3)	Kelly Moore Paint Company	25167	2163		Assess the current nature and extent of soil and groundwater contamination associated with this facility to determine the potential for contaminated groundwater to infiltrate the combined sewer system.	Low	Ecology	Complete	Mar 2017	An RI/FS Report was completed for this site in 2017. A soil vapor extraction system was installed and began operating in late October 2017.
A06.37.05	Source Assessment	RM 1.7-2.0 East (Slip 2 to Slip 3)	Winters Investment LP/Riveretz's Auto Care	25174	55698119		Request the property owner to provide information regarding the nature and extent of soil contamination at the site to determine if contaminants in soil may be leaching to groundwater, and if contaminated groundwater may then be infiltrating into the combined sewer system.	Low	Ecology	Complete	Oct 2011	Riveretz's Auto Care was granted a No Further Action determination in October 2011.

Table B-1. Actions Items Completed or Canceled During 2017

Action Item No.	Action Item Category	Source Control Area	Property/ Facility/Outfall	Property Number	Facility/Site ID	NPDES Permit No.	Action Item	Priority	Responsible Party	Status	Date Completed	Comments/Follow-On Actions
A07.22.00	Data Evaluation	RM 2.0-2.3 East (Slip 3 to Seattle Boiler Works)	Shultz Distributing	07007	95498891		In 1999, Cascade Columbia Distribution property owners asserted that Shultz Distributing was the source of a chlorinated solvent plume on their property. AGI reviewed data and disagreed with this conclusion. Review AGI's results and conclusions and determine whether additional investigations should be conducted.	Medium	Ecology	Complete	Jun 2012	The chlorinated solvent plume is being addressed under Agreed Order DE-8985 (Fox Avenue Building), dated June 2012.
A07.30.00	Source Assessment	RM 2.0-2.3 East (Slip 3 to Seattle Boiler Works)	R.A. Barnes	07012	NA		R.A. Barnes was located at the Glacier Marine Services property; the facility reportedly supplied sandblasting materials to shipyards. Conduct additional investigations as needed to determine facility location and potential for sediment recontamination.	Medium	Ecology	Complete	Dec 2017	No additional information available and location of historical activity unknown.
A08.13.00	Information Request	RM 2.3-2.8 East (Seattle Boiler Works to Slip 4)	Seattle Iron & Metals Corporation	08010	94727791		Obtain information documenting the status of the furnace to determine if it was relocated from the Harbor Island facility to Seattle Iron & Metals' current facility. Current furnace operations, if any, will be identified.	Medium	Ecology/PSCAA	Complete	Dec 2017	Seattle Iron & Metals does not currently operate a furnace at t his location. Most recently inspected on 6/27/2018.
A08.28.00	Records Review	RM 2.3-2.8 East (Seattle Boiler Works to Slip 4)	Fox Avenue Building	08002	2282		Review responses to EPA's July 2008 Request for Information 104(e) letter sent to Great Western Chemical Company, including evaluation of the presence and/or potential for generation of dioxin associated with former activities at the property.	Low	Ecology	Canceled		EPA is no longer providing 104(e) responses to Ecology, therefore no additional reviews will be performed.
A10.14.02	Cleanup	RM 2.8-3.7 East (EAA-4: Boeing Plant 2/Jorgensen Forge)	Jorgensen Forge	10003	2382		Contain and remove soils from upland outfall area of the 12-and 24-inch pipes.	High	EPA, Boeing, Jorgensen	Complete	Mar 2018	Soil removal action completed in summer 2017. Land use restrictions will address remaining contamination left in place.
A11.03.01	Records Review	RM 3.7-3.9 East (EAA-6: Boeing Isaacson/Central KCIA)	KC Airport SD #2/PS45 EOF (King County Storm Drain / SPU EOF)	NA	NA		Review information from KCIA to determine whether additional source control investigations are needed at central KCIA.	Medium	Ecology	Complete	Dec 2017	No additional source control investigations are needed at this time. KCIA continues to collect sediment trap and inline solids samples annually from each storm drain line to identify whether additional source control activities are needed.
A11.04.01	Environmental Sampling	RM 3.7-3.9 East (EAA-6: Boeing Isaacson/Central KCIA)	KC Airport SD #2/PS45 EOF (King County Storm Drain / SPU EOF)	11001	2218		If COCs are present in the storm drain line downstream of CB-39, collect a solids sample from CB-39 on the Boeing Thompson property.	Medium	Boeing	Complete	Sep 2011	A storm drain solids sample was collected in September 2011 at CB-39 during the RI at Boeing Isaacson-Thompson. The sample contained metals, PAHs, phthalates, other SVOCs, and PCBs above storm drain screening levels. Additional source control activities will be addressed as part of Agreed Order No. DE-7088.

Table B-1. Actions Items Completed or Canceled During 2017

Action Item No.	Action Item Category	Source Control Area	Property/ Facility/Outfall	Property Number	Facility/Site ID	NPDES Permit No.	Action Item	Priority	Responsible Party	Status	Date Completed	Comments/Follow-On Actions
A11.11.00	Source Assessment	RM 3.7-3.9 East (EAA-6: Boeing Isaacson/Central KCIA)	Boeing Isaacson/Thompson Site	11001	2218		Investigate the condition of the 48-inch KC Airport SD#2/PS45 EOF that passes through the Boeing Isaacson property.	Medium	King County	Complete	Dec 2017	Investigation was planned and implemented to clean and video the pipe in 2017. The work was the last year of a three year effort to clean stormwater lines at KCIA.
A11.21.00	Inspection	RM 3.7-3.9 East (EAA-6: Boeing Isaacson/Central KCIA)	Boeing Isaacson/Thompson Site	11001	2218		Conduct a source control inspection to clarify the nature of current activities at this property and to assess the current potential for sediment recontamination.	Low	Ecology	Complete	Apr 2015	An Urban Waters inspection was conducted on April 9, 2015. Current activities at the property were also described in the 2014 Remedial Investigation Report for the Boeing Isaacson-Thompson Site (Landau 2014).
A12.19.00	BMP Implementation	RM 3.9-4.3 East (Slip 6)	KCIA	12003	2387398		Assess and modify all tenant and airport pollutant prevention measures within KCIA.	Medium	KCIA	Complete	Dec 2018	Efforts to comply with KCIA's industrial and municipal NPDES permits are ongoing and include annual tenant assessments for potential pollutant generating sources. This is an ongoing and routine activity that will continue indefinitely. Several tenants also have Industrial NPDES Permits and are complying separately with Ecology on their requirements.
A13.01.00	Source Assessment	RM 4.3-4.9 East (Boeing Developmental Center)	BDC Outfalls	13001	2101	NA	Request Boeing to investigate the status of Outfall 2086, which appears to be abandoned.	Medium	Ecology/Boeing	Complete	Dec 2011	Outfall is abandoned, based on information reviewed during preparation of the LDW Outfall Inventory Summary Report (SAIC 2011). Photo documentation available.
A13.04.00	Source Assessment	RM 4.3-4.9 East (Boeing Developmental Center)	BDC Outfalls	13001	2101		If COCs are detected in the SD system at concentrations above the SQS, request Boeing to conduct source tracing and control as needed to reduce the potential for sediment recontamination.	High	Ecology/Boeing	Complete	Jan 2018	Ecology issued an Agreed Order (Docket #15600) to address stormwater discharges from this facility.
A14.10.00	Inspection	RM 4.9 East (EAA-7: Norfolk CSO/SD)	BDC-South	14004	4581384		Re-evaluate the Industrial Stormwater General Permit to assure that the appropriate parameters are measured to assess ongoing sources.	Low	Ecology, Boeing	Complete	Jan 2018	Ecology issued an Agreed Order (Docket #15600) to address stormwater discharges from this facility.
A14.24.00	BMP Implementation	RM 4.9 East (EAA-7: Norfolk CSO/SD)	Unified Grocers / Associated Grocers	14003	73338176		Evaluate spill prevention/cleanup plan for the two operational USTs to assure adequate control of potential spills.	Low	Ecology, Property owner	Canceled		As of September 2018, Unified Grocers is no longer operating at this location. The site is currently undergoing redevelopment.
A15.08.00	Inspection	RM 0.0-1.0 West (Spokane Street to Kellogg Island)	Port of Seattle Terminal 103	15025	94648691		Perform a facility inspection at General Construction to verify compliance with applicable regulations and source control BMPs.	Low	Port of Seattle	Complete	Mar 2017	Port tenant. This property discharges directly to the waterway via Port-owned outfalls and/or sheet flow. The Port of Seattle inspected this facility on March 6, 2017. Utility assessmentes are due to be completed in 2019.
A17.02.00	Source Assessment	RM 1.3-1.6 West (Glacier Bay)	SW Kenny SD (Glacier Bay Outfall)	NA	NA		If COCs are present in the storm drain line, conduct source tracing to identify sources of contaminants.	Medium	SPU	Canceled	Jun 2019	Duplicate of Action Item A18.01.00.
A17.20.00	Cleanup	RM 1.3-1.6 West (Glacier Bay)	Glacier Northwest	17004	23881883		Upon approval of work plans by Ecology, conduct site investigations as specified.	High	Property owner/operator	Complete	Dec 2015	Dispute Resolution was invoked and the work plan process was extended another year. Work Plan finalized in 2013, Site investigations were conducted 2012-2015.

Table B-1. Actions Items Completed or Canceled During 2017

Action Item No.	Action Item Category	Source Control Area	Property/ Facility/Outfall	Property Number	Facility/Site ID	NPDES Permit No.	Action Item	Priority	Responsible Party	Status	Date Completed	Comments/Follow-On Actions
A18.12.00	Information Request	RM 1.6-2.1 West (Terminal 115)	Terminal 115 - Port of Seattle Storm Drain Outfalls (Outfalls 2122, 2123, 2124, 2220, and POS 6146)	18014	4040072		Provide additional information to Ecology regarding stormwater drainage to the LDW from the 150 SW Michigan Street area of the Terminal 115 property. Information to be provided will include, at minimum, a map showing the area draining to the two small outfalls and a description of BMPs employed to prevent stormwater pollution.	High	Port of Seattle	Complete	Jun 2019	Maps provided by Port of Seattle. Current tenant is American Best Trucking. Covered under the Port's Phase 1 municipal permit.
A19.07.01	Information Request	RM 2.1 West (1st Avenue S SD)	MAPSCO	19016	46338473		Request additional information regarding the locations, materials, and conditions of storm drain system pipes and structures from the property owner.	Low	Ecology	Complete	Apr 2019	Facility was inspected in May 2013 and April 2019. An updated stormwater site plan was provided.
A20.15.02	Information Request	RM 2.1-2.2 West (EAA-2: Trotsky Inlet)	Douglas Management Company	20006	97573251		Verify storm drainage pathway on the southern portion of the property.	Medium	Ecology	Complete	Jan 2017	Map provided in draft RI Report.
A20.15.03	Information Request	RM 2.1-2.2 West (EAA-2: Trotsky Inlet)	Douglas Management Company	20006	97573251		Request property owner to provide a map showing current storm drainage on the entire property, including locations of storm drains, catch basins, oil/water separators, and outfalls.	Medium	Ecology	Complete	Jan 2017	Map provided in draft RI Report.
A21.06.00	Records Review	RM 2.2-3.4 West (Riverside Drive)	Independent Metals Plant 2	21032	16139		Review Independent Metals' revised SWPPP, when provided, and verify that the information identified in Ecology's October 21, 2011, corrective action letter is included in the SWPPP.	Low	Ecology	Canceled		Independent Metals Plant 2 is no longer in business. Silver Bay Logging is the current operator.
A23.03.00	Information Request	RM 3.8-4.2 West (Sea King Industrial Park)	S 96th Street SD Basin	NA	NA		Provide Ecology with updated information regarding the proposed drainage basin upgrades to divert the north and middle forks of Hamm Creek around the S 96th Street industrial area in order to discharge directly to the LDW via Hamm Creek.	Medium	King County	Canceled		King County no longer plans to implement this proposal.
A23.04.00	Inspection	RM 3.8-4.2 West (Sea King Industrial Park)	Sea King Industrial Park	23038	NA		Conduct an inspection during a storm event to determine if the S Director Street Outfall and Outfall 2101 are operational or have been abandoned. These outfalls are identified as "presumed active" in the outfall inventory. If discharge from these outfalls is observed, request that the property owners conduct dye testing to determine if storm drain lines are connected to the unresolved outfalls and delineate the associated drainage areas.	Medium	Ecology, King County	Complete	Jun 2019	Outfall 2101 is the overflow discharge from the private drainage facility bioswale and detention ponds for the Sea King Industrial property. The drainage area is Parcel # 0001600060. S. Director St. Outfall receives stormwater from the parcels immediately west of the parcel above and the drainage area extends to east side of 14th Ave S. The drainage area also includes the short section of S. Director St. ROW, east of 14th S. Dye testing is not needed.

Table B-1. Actions Items Completed or Canceled During 2017

Action Item No.	Action Item Category	Source Control Area	Property/ Facility/Outfall	Property Number	Facility/Site ID	NPDES Permit No.	Action Item	Priority	Responsible Party	Status	Date Completed	Comments/Follow-On Actions
A23.38.00	Information Request	RM 3.8-4.2 West (Sea King Industrial Park)	Sound Delivery Service	23042	26432659		Contact representatives of Rasmussen Wire Rope (former operator at Sound Delivery Service) to determine if contaminated soil was removed from the property.	Low	Ecology	Complete	Apr 2010	All issues addressed, per April 2, 2010 King County Audit Reinspection.
A24.06.00	Information Request	RM 4.2-5.8 West (Restoration Areas)	USPS Seattle Distribution Center	24025	NA		Request a facility map from the Sabey Corporation (property manager) showing the storm drain system on the property.	Medium	Ecology	Canceled		According to EPA, this facility has a "certificate of no exposure" under EPA's industrial stormwater program. EAP is the permitting authority for USPS facilities in WA.
A24.07.00	Information Request	RM 4.2-5.8 West (Restoration Areas)	USPS Seattle Distribution Center	24025	NA		Request information from the U.S. Postal Service regarding the neutralizing tank and the results from testing of sludge in the tank and waste ink/alcohol.	Low	Ecology	Complete	Feb 2018	No follow-on needed.

Table B-2. Incomplete Action Items

Action Item No.	Action Item Category	SCA	Property/ Facility/Outfall	Property Number	Facility/Site ID	NPDES Permit No.	Action Item	Priority	Type	Responsible Party	Status	Comments/Follow-On Actions
A01.04.00	Source Assessment	RM 0.0-0.1 East (Spokane Street to Ash Grove Cement)	Port of Seattle Terminal 104	01003	72668645		Determine how to address identified data gaps in the western portion of T-104.	High	SCAP	Ecology, Port of Seattle		
A01.05.00	Data Evaluation	RM 0.0-0.1 East (Spokane Street to Ash Grove Cement)	Port of Seattle Terminal 104	01003	72668645		Prepare and submit an annual report to document groundwater monitoring results and provide recommendations for future remedial efforts as stated in the VCP Cleanup Action Plan	Medium	SCAP	Port of Seattle		
A01.07.00	Records Review	RM 0.0-0.1 East (Spokane Street to Ash Grove Cement)	Port of Seattle Terminal 104	01003	72668645		Review post remediation reports and annual report as part of the VCP and determine whether further action is needed.	High	SCAP	Ecology		
A01.08.00	Cleanup	RM 0.0-0.1 East (Spokane Street to Ash Grove Cement)	Ash Grove Cement	01001	2142		Negotiate an agreed order for a Remedial Investigation/ Feasibility Study that will focus on potential soil and groundwater contamination at the site.	High	SCAP	Ecology, Property owner/operator		
A01.10.02	BMP Implementation	RM 0.0-0.1 East (Spokane Street to Ash Grove Cement)	Ash Grove Cement	01001	2142		Demonstrate appropriate separation of wastewater from storm water and install an appropriate treatment system.	Medium	SCAP	Property Owner/Operator		
A01.11.00	Source Assessment	RM 0.0-0.1 East (Spokane Street to Ash Grove Cement)	Ash Grove Cement	01001	2142		Inspect condition and operational records of the groundwater well used for cooling water to ensure that it cannot release contaminants into the aquifer.	Medium	SCAP	Ecology WQ		
A02.07.01	BMP Implementation	RM 0.1-0.9 East (EAA-1: Duwamish/Diagonal Way)	GSA / Federal Center South	03001	10233917		Clean and repair storm drain system; correct housekeeping issues	Medium	Follow-On	GSA		See also action items identified for the RM 0.9-1.0 East (Slip 1) source control area.
A02.10.02	Data Evaluation	RM 0.1-0.9 East (EAA-1: Duwamish/Diagonal Way)	Former JANCO-United, Inc.	02114	5568786		Review groundwater data collected under VCP; determine if further source control actions are needed.	Low	New	Ecology		Site has not entered the VCP; listed as 'awaiting cleanup' on CSCSL.
A02.20.04	Cleanup	RM 0.1-0.9 East (EAA-1: Duwamish/Diagonal Way)	Terminal 108	02119	2344		Implement appropriate source control actions.	Medium	Follow-On	Port of Seattle	In Progress	Sampling was conducted in 2012. EPA sent the Port of Seattle a draft Administrative Settlement Agreement and Order on Consent for a CERCLA Removal Action Preliminary Assessment and Site Investigation, and Statement of Work on October 3, 2017. The Port responded on November 2, 2017. EPA and the Port continued to negotiate drafts of the ASAOC and SOW.

Table B-2. Incomplete Action Items

Action Item No.	Action Item Category	SCA	Property/ Facility/Outfall	Property Number	Facility/Site ID	NPDES Permit No.	Action Item	Priority	Type	Responsible Party	Status	Comments/Follow-On Actions
A02.24.00	Cleanup	RM 0.1-0.9 East (EAA-1: Duwamish/Diagonal Way)	Rainier Commons / Former Rainier Brewery Property	02053	8972, 9192461		Sample and remove PCB-contaminated building materials, including interior paint, as needed.	High	New	EPA/Property Owner	In Progress	EPA approved Rainier's general work plan in December 2013. Removal will take place in phases, with each phase commencing only after EPA approves the individual phase work plan. Current estimates of remediation duration are on the order of 5 years, given the complexities in removing paint from some of the surfaces, the protective measures that must be in place, and the oversight required of both the Work Plans and Completion Reports. In 2017 Rainier Commons submitted an application for Phase II-b, paint removal of several building faces.
A02.32.00	Data Evaluation	RM 0.1-0.9 East (EAA-1: Duwamish/Diagonal Way)	North Star Casteel	02042	18301, 21195, 11628955		Review results of environmental investigations to determine if sediment COCs are present in soil and/or groundwater at concentrations that exceed screening levels, and determine if additional actions are needed for source control.	Low	New	Ecology		
A02.37.00	Records Review	RM 0.1-0.9 East (EAA-1: Duwamish/Diagonal Way)	Seattle Radiator	02086	6433026		Review discharge permit/authorization records to determine if Discharge Authorization 366 is valid.	Low	New	King County/Ecology		KCIW regulates Seattle Radiator under Minor Discharge Authorization No. 796-02 (effective through 1/7/2019).
A03.01.00	Records Review	RM 0.9-1.0 East (Slip 1)	Federal Center South	03001	10233917		Review historical property files for information regarding the status and contents of three 30,000-gallon USTs; determine if sediment COCs may be present in soil and groundwater in this area.	Medium	SCAP	Ecology		
A03.02.00	Environmental Sampling	RM 0.9-1.0 East (Slip 1)	Federal Center South	03001	10233917		If file review indicates that sediment COCs may be present in soil and/or groundwater, require the property owner/operator to perform an environmental assessment of soil and groundwater around the 30,000-gallon UST area.	Medium	SCAP	EPA		
A03.03.00	Environmental Sampling	RM 0.9-1.0 East (Slip 1)	Federal Center South	03001	10233917		Conduct a visual bank survey; collect and analyze bank soil samples for sediment COCs to evaluate the potential for sediment recontamination from bank erosion.	Medium	SCAP	Ecology, Property owner/operator		
A03.04.00	Source Assessment	RM 0.9-1.0 East (Slip 1)	Federal Center South	03001	10233917		Perform Site Hazard Assessment	High	SCAP	Ecology		
A03.06.00	Inspection	RM 0.9-1.0 East (Slip 1)	Federal Center South	03001	10233917		Determine if Federal Center South must apply for coverage under the Industrial Stormwater General Permit.	Medium	SCAP	EPA, Ecology		

Table B-2. Incomplete Action Items

Action Item No.	Action Item Category	SCA	Property/ Facility/Outfall	Property Number	Facility/Site ID	NPDES Permit No.	Action Item	Priority	Type	Responsible Party	Status	Comments/Follow-On Actions
A03.07.00	Records Review	RM 0.9-1.0 East (Slip 1)	Former Snopac Products Property	03003	3967301		Review responses to EPA's Request for Information 104(e) Letter sent to Unimar in July 2008; assess potential for historical release(s) of arsenic or other sediment COCs to soil and groundwater beneath this property.	Medium	SCAP	Ecology		
A03.08.00	Environmental Sampling	RM 0.9-1.0 East (Slip 1)	Former Snopac Products Property	03003	3967301		If there is potential for historical releases, require the property owner/operator to collect soil and groundwater samples and analyze them for sediment COCs. Prepare and implement a plan to remediate soil and/or groundwater, as needed.	Medium	SCAP	Ecology		
A03.10.00	Environmental Sampling	RM 0.9-1.0 East (Slip 1)	Former Snopac Products Property, Manson Construction Company	03003, 03002	3967301, 80333167		Collect additional samples from Seep 76 to determine if the arsenic concentration reported in 2004 was an anomaly. Analyze sample for all sediment COCs.	High	SCAP	Ecology		
A03.11.00	Environmental Sampling	RM 0.9-1.0 East (Slip 1)	Former Snopac Products Property	03003	3967301		Conduct a visual bank survey during low tide conditions; collect and analyze bank soil samples for sediment COCs to evaluate the potential for sediment recontamination from bank erosion and leaching. Reconnaissance cores should be collected along the top and bottom of the bank to determine "as is" conditions.	Medium	SCAP	Ecology		
A03.12.00	Information Request	RM 0.9-1.0 East (Slip 1)	Former Snopac Products Property	03003	3967301		Obtain information from Snopac or other historical property owners regarding the construction of the dock adjacent to the property. If no information is available, perform an evaluation of the materials used to construct the dock.	Medium	SCAP	Ecology		
A03.14.00	Records Review	RM 0.9-1.0 East (Slip 1)	Manson Construction Company	03002	80333167		Obtain laboratory data and site plans from historical site assessment(s) and remediation performed at the property. Confirm that satisfactory completion of soil cleanup activities was achieved. Determine if arsenic or other sediment COCs are present in soil and groundwater beneath the facility at concentrations that may recontaminate sediments.	High	SCAP	Ecology		
A03.15.00	Environmental Sampling	RM 0.9-1.0 East (Slip 1)	Manson Construction Company	03002	80333167		If satisfactory soil cleanup was not achieved, require the property owner/operator to conduct a site assessment to determine residual concentrations of sediment COCs in soil and groundwater beneath the property.	High	SCAP	Ecology		

Table B-2. Incomplete Action Items

Action Item No.	Action Item Category	SCA	Property/ Facility/Outfall	Property Number	Facility/Site ID	NPDES Permit No.	Action Item	Priority	Type	Responsible Party	Status	Comments/Follow-On Actions
A03.17.00	Environmental Sampling	RM 0.9-1.0 East (Slip 1)	Manson Construction Company	03002	80333167		Conduct a visual bank survey during low tide conditions; collect and analyze bank soil samples for COCs. Reconnaissance cores should be collected along the top and bottom of the bank to determine “as is” conditions.	Medium	SCAP	Ecology		
A04.09.00	Information Request	RM 1.0-1.2 East (KC Lease Parcels)	Cadman Seattle, Inc.	04001	70313617		Require Cadman to report when discharges to Outfall No. 2244 occur to allow Ecology to track overflow events and evaluate potential impacts to the LDW.	High	SCAP	Ecology		
A04.14.00	Records Review	RM 1.0-1.2 East (KC Lease Parcels)	United Western Supply	04003	9953954		Obtain and review the March 1997 environmental assessment report, prepared by Boateng, in order to identify potential sources of COCs to sediment and develop appropriate source control actions.	Medium	SCAP	Ecology		
A04.19.00	Environmental Sampling	RM 1.0-1.2 East (KC Lease Parcels)	J.A. Jack & Sons	04002	37836248		Require J.A. Jack to obtain environmental data to assess the groundwater quality in the infiltration gallery in order to determine if sediment COCs are present in groundwater and if these COCs may be transported to the LDW.	Medium	SCAP	Ecology		
A04.20.00	Inspection	RM 1.0-1.2 East (KC Lease Parcels)	J.A. Jack & Sons	04002	37836248		Conduct a visual bank survey. If bank erosion is likely, collect bank soil samples and analyze them for sediment COCs to evaluate the potential for contaminants to enter the LDW via bank erosion.	Medium	SCAP	Ecology		
A04.22.01	Records Review	RM 1.0-1.2 East (KC Lease Parcels)	Bob's Texaco Service	25094	47157762		Review information regarding LUSTs at Bob’s Texaco Service to evaluate the potential for sediment recontamination, if any, that may be associated with these facilities.	Low	SCAP	Ecology		Bob's Texaco is a state cleanup site with cleanup in progress. A Phase I ESA was conducted in 2017.
A04.22.02	Records Review	RM 1.0-1.2 East (KC Lease Parcels)	Chevron 9-0636	25101	1792892		Review information regarding LUSTs at Chevron 9-0636 to evaluate the potential for sediment recontamination, if any, that may be associated with these facilities.	Low	SCAP	Ecology		Chevron 9-0636 is a state cleanup site; status is listed as Awaiting Cleanup.
A04.23.00	Inspection	RM 1.0-1.2 East (KC Lease Parcels)	Union Pacific Motor	2131	74589256		Perform an inspection at Union Pacific Motor (a LUST facility) to verify compliance with applicable regulations and BMPs to prevent the release of contaminants to the LDW.	Low	SCAP	Ecology TCP		This is a state cleanup site; status is listed as Cleanup Started.
A04.24.02	Inspection	RM 1.0-1.2 East (KC Lease Parcels)	Seattle-SPU Materials Storage Yard	25156	NA		Perform an inspection at the SPU Materials Storage Yard; this facility holds a KCIW discharge authorization but had not been assigned a Facility/Site ID number by Ecology at the time the SCAP was prepared.	Low	SCAP	Ecology		

Table B-2. Incomplete Action Items

Action Item No.	Action Item Category	SCA	Property/ Facility/Outfall	Property Number	Facility/Site ID	NPDES Permit No.	Action Item	Priority	Type	Responsible Party	Status	Comments/Follow-On Actions
A05.02.00	Cleanup	RM 1.2-1.7 East (Saint Gobain to Glacier Northwest)	Saint Gobain Containers Inc.	05003	94925241		Determine appropriate engineering controls for the inaccessible contamination located beneath the soil/water separator described in the 1991 Limited UST Assessment.	High	SCAP	Property Owner/Operator		
A05.06.00	Data Evaluation	RM 1.2-1.7 East (Saint Gobain to Glacier Northwest)	Longview Fibre Paper and Packaging	05002	2226		Review the latest groundwater monitoring report regarding exceedances of diesel-range hydrocarbons.	High	SCAP	Ecology		If needed, require the property owner/operator to prepare a remedial action plan.
A05.12.00	Records Review	RM 1.2-1.7 East (Saint Gobain to Glacier Northwest)	Certainteed Gypsum	05001	2253		Locate and review the 500-gallon UST closure report documented in Ecology's UST database. Evaluate the potential for groundwater contamination.	Low	SCAP	Ecology		
A05.13.01	Cleanup	RM 1.0-1.2 East (KC Lease Parcels)	Burlington Environmental/PSC Environmental Services	25163	47779679		Implement Cleanup Action Plan as specified in Agreed Order and Dangerous Waste Permit.	Medium	Follow-on	Property Owner/Operator	In Progress	Ecology approved the environmental design report in the summer of 2011. Elements of the cleanup action were initiated in late 2011. Some elements (excavation) were completed in 2013; others (soil/vapor extraction) in 2014. Of the cleanup actions required by the 2010 CAP, three primary actions have yet to be completed: (1) implementation of in-situ bioremediation (groundwater behind the barrier wall), (2) establishment of an environmental covenant for the Burlington property, and (3) establishment of an environmental covenant for the adjoining UPRR property. Completion of in-situ bioremediation (1 above) is expected in May 2020.
A05.14.02	Cleanup	RM 1.0-1.2 East (KC Lease Parcels)	Art Brass Plating	25161	88531932		Complete the West of 4th Site Feasibility Study, finalize FS report and draft Cleanup Action Plan.	Medium	New	Ecology/Property Owner/Operator	In Progress	The revised West of 4th FS Report was submitted in 2016. In 2017, the 2014 Agreed Order was amended to require pilot studies and an interim action before selecting a preferred cleanup action and drafting a CAP.
A05.16.02	Cleanup	RM 1.0-1.2 East (KC Lease Parcels)	Blaser Die Casting	25162	7118747		Complete the West of 4th Site Feasibility Study, finalize FS report and draft Cleanup Action Plan.	Medium	New	Ecology/Property Owner/Operator	In Progress	The revised West of 4th FS Report was submitted in 2016. In 2017, the 2014 Agreed Order was amended to require pilot studies and an interim action before selecting a preferred cleanup action and drafting a CAP.
A05.17.02	Cleanup	RM 1.0-1.2 East (KC Lease Parcels)	Capital Industries Inc.	25164	11598755		Complete the West of 4th Site Feasibility Study, finalize FS report and draft Cleanup Action Plan.	Medium	New	Ecology/Property Owner/Operator	In Progress	The revised West of 4th FS Report was submitted in 2016. In 2017, the 2014 Agreed Order was amended to require pilot studies and an interim action before selecting a preferred cleanup action and drafting a CAP.
A05.18.00	Cleanup	RM 1.0-1.2 East (KC Lease Parcels)	Burlington Environmental/PSC Environmental Services	25163	47779679		Complete the West of 4th Site Feasibility Study, finalize FS report and draft Cleanup Action Plan.	Medium	New	Ecology/Property Owner/Operator	In Progress	The revised West of 4th FS Report was submitted in 2016. In 2017, the 2014 Agreed Order was amended to require pilot studies and an interim

Table B-2. Incomplete Action Items

Action Item No.	Action Item Category	SCA	Property/ Facility/Outfall	Property Number	Facility/Site ID	NPDES Permit No.	Action Item	Priority	Type	Responsible Party	Status	Comments/Follow-On Actions
												action before selecting a preferred cleanup action and drafting a CAP.
A06.01.00	BMP Implementation	RM 1.7-2.0 East (Slip 2 to Slip 3)	1st Avenue S Bridge Storm Drain (Outfall 2503)	NA	NA		Assess the effectiveness of the vegetated swale in treating stormwater discharged via Outfall 2503.	Medium	SCAP	Ecology		
A06.14.00	Environmental Sampling	RM 1.7-2.0 East (Slip 2 to Slip 3)	Seattle Biodiesel	06007	5023482		Collect information regarding chemical concentrations in bank soils. A 2007 spill of process mixture flowed across the bank soils at this property.	Medium	SCAP	Ecology		General Biodiesel now operates at this location.
A06.21.00	Cleanup	RM 1.7-2.0 East (Slip 2 to Slip 3)	Duwamish Marine Center	06003	21945598		Require the property owner/operator to collect data on concentrations of chemical contaminants in river bank soils to assess the potential for sediment recontamination by erosion.	High	SCAP	Ecology		To be conducted as part Agreed Order DE-8072. Bank samples have been collected as part of the RI in progress.
A06.25.00	Source Assessment	RM 1.7-2.0 East (Slip 2 to Slip 3)	Former Frank's Used Cars	06005	2337		Review the current status of cleanup activities at this site to determine whether residual soil contamination poses a risk of sediment recontamination.	Medium	SCAP	Ecology		This site is listed as 'awaiting cleanup' on the CSCSL with confirmed contamination in soil (metals, PCBs, petroleum products) and surface water (petroleum products), and suspected groundwater contamination.
A06.28.00	Inspection	RM 1.7-2.0 East (Slip 2 to Slip 3)	Fittings, Inc.	06004	22569		Determine whether this facility should apply for coverage under the Industrial Stormwater General Permit	Medium	SCAP	Ecology		SPU inspected in 2015 and found illicit connection to the storm drain discharging to Slip 2. Facility corrected the problem in 2016.
A06.30.00	Data Evaluation	RM 1.7-2.0 East (Slip 2 to Slip 3)	Former Consolidated Freightways	06002	54757868		Locate and review the results of soil and groundwater sampling proposed in 2000 (if the sampling plans were implemented), and assess the potential for sediment recontamination via groundwater transport.	Medium	SCAP	Ecology	In Progress	The current site owner (Prologis, Inc.) is conducting a cleanup of this site under the VCP (NW3050). Soil excavation and groundwater extraction/treatment began in 2017.
A06.31.00	Source Assessment	RM 1.7-2.0 East (Slip 2 to Slip 3)	Former Consolidated Freightways	06002	54757868		Search for additional information regarding the two dump areas located just east of East Marginal Way S in 1940, as identified in historical aerial photographs (Harper-Owest 1985, Item 21), and evaluate the potential for sediment recontamination associated with these areas.	Medium	SCAP	Ecology		This area of the site was covered by industrial development in 1961. It is within the boundaries of Cleanup Site 6262, which is being remediated under VCP NW3050.
A06.32.00	Inspection	RM 1.7-2.0 East (Slip 2 to Slip 3)	Emerald Tool, Inc.	25166	2084		Conduct a business inspection at this facility; request information regarding concentrations of sediment COCs in soil and catch basins at this property.	Low	SCAP	Ecology, King County		A Site Hazard Assessment conducted in 1996 confirmed the presence of contamination in soils and catch basins on the property. Facility is 'awaiting cleanup.'
A06.34.00	Cleanup	RM 1.7-2.0 East (Slip 2 to Slip 3)	Kelly Moore Paint Company	25167	2163		Determine the current status of cleanup efforts to evaluate whether additional remedial activities are required.	Low	SCAP	Ecology	In Progress	Cleanup is in progress at this site under the VCP (NW 2305).

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Action Item No.	Action Item Category	SCA	Property/ Facility/Outfall	Property Number	Facility/Site ID	NPDES Permit No.	Action Item	Priority	Type	Responsible Party	Status	Comments/Follow-On Actions
A06.37.01	Source Assessment	RM 1.7-2.0 East (Slip 2 to Slip 3)	Pioneer Porcelain Enamel Company	25168	2161		Request the property owner to provide information regarding the nature and extent of soil contamination at the site to determine if contaminants in soil may be leaching to groundwater, and if contaminated groundwater may then be infiltrating into the combined sewer system.	Low	SCAP	Ecology		This site is listed on the CSCSL as 'awaiting cleanup' with confirmed metals contamination in soil.
A06.37.02	Source Assessment	RM 1.7-2.0 East (Slip 2 to Slip 3)	Scougal Rubber corp.	25169	93637295		Request the property owner to provide information regarding the nature and extent of soil contamination at the site to determine if contaminants in soil may be leaching to groundwater, and if contaminated groundwater may then be infiltrating into the combined sewer system.	Low	SCAP	Ecology	In Progress	Site cleanup is in progress under VCP NW1707. Soil was excavated in 2017 to remove residual TCE contamination. An oxidation infiltration system was installed and began operation in 2017; additional infiltration events are planned for 2018.
A06.37.03	Source Assessment	RM 1.7-2.0 East (Slip 2 to Slip 3)	Sonn Property	25169	93637295		Request the property owner to provide information regarding the nature and extent of soil contamination at the site to determine if contaminants in soil may be leaching to groundwater, and if contaminated groundwater may then be infiltrating into the combined sewer system.	Low	SCAP	Ecology		Same FSID as Scougal Rubber above.
A06.37.04	Source Assessment	RM 1.7-2.0 East (Slip 2 to Slip 3)	Unocal Service Station 0907	25172	2825755		Request the property owner to provide information regarding the nature and extent of soil contamination at the site to determine if contaminants in soil may be leaching to groundwater, and if contaminated groundwater may then be infiltrating into the combined sewer system.	Low	SCAP	Ecology		The site is listed as 'cleanup started' on the CSCSL, with confirmed contamination of soil and groundwater (petroleum products, non-halogenated VOCs).
A07.02.00	Source Assessment	RM 2.0-2.3 East (Slip 3 to Seattle Boiler Works)	S Brighton Street SD	NA	NA		Conduct source tracing in the S Brighton Street SD basin.	High	Follow-On	SPU, Ecology	In Progress	SPU jetted and cleaned the entire drainage system in 2010 and has collected 6 samples since cleaning. Zinc (970 mg/kg), TPH-oil (3,350 mg/kg), BEHP (4.04 mg/kg DW), and dibutyl phthalate (22.1 mg/kg DW), exceeded the CSL in 1 of the 5 inline samples (2018 sample from MH 223). These concentrations are higher than what was measured in this system two years after cleaning. SPU will continue to monitor this system.

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Action Item No.	Action Item Category	SCA	Property/ Facility/Outfall	Property Number	Facility/Site ID	NPDES Permit No.	Action Item	Priority	Type	Responsible Party	Status	Comments/Follow-On Actions
A07.03.01	Records Review	RM 2.0-2.3 East (Slip 3 to Seattle Boiler Works)	S Brighton Street SD	07008	11887871, 2134,		Review VCP files pertaining to four former facilities at South Seattle Community College (Arrow Transportation, Inland Transportation Company, Ben's Truck Repair, and Hat n' Boots Gas Station). Investigate the South Seattle Community College property to determine what cleanup actions may have been conducted during development, and whether potential sources of sediment recontamination may remain onsite from the four former facilities.	Medium	SCAP	Ecology		
A07.04.00	Records Review	RM 2.0-2.3 East (Slip 3 to Seattle Boiler Works)	South Seattle Community College		NA		Based on the review of VCP files investigate, if necessary, the South Seattle Community College property to determine what cleanup actions may have been conducted during development, and whether potential sources of sediment recontamination may remain onsite from the four former facilities of concern.	Medium	SCAP	Ecology		
A07.06.00	Source Assessment	RM 2.0-2.3 East (Slip 3 to Seattle Boiler Works)	S River Street SD	NA	NA		Conduct source tracing in the S River Street SD basin.	High	Follow-On	SPU, Ecology	In Progress	SPU jetted and cleaned the entire system in 2010. Three samples were collected in 2012: HPAH concentrations were elevated in inline grab collected near end of pipe. SPU collected 13 samples and inspected 9 businesses in this basin in 2016. Elevated levels of TPH-oil and HPAH were found in multiple samples. SPU had the owner clean/jet onsite drainage system and pressure wash the paved lot in 2018. Will sample in 2019-2020 to confirm that PAHs have been controlled. SPU conducted IDDE survey in this area in 2014. Did not find any evidence of cross connections in this system. SPU sampled the downstream-most MH in 2018. TPH-oil (2,860 mg/kg) and BEHP (4.4 mg/kg DW) exceeded the City's source tracing thresholds. SPU intends to continue monitoring storm drain solids at the downstream end of this system.
A07.14.00	Records Review	RM 2.0-2.3 East (Slip 3 to Seattle Boiler Works)	V. Van Dyke	07010	68427684		Determine whether a UST may have been removed from the property without a proper closure.	Medium	SCAP	Ecology		
A07.16.00	Records Review	RM 2.0-2.3 East (Slip 3 to Seattle Boiler Works)	V. Van Dyke	07010	68427684		Locate and review additional reports related to V. Van Dyke property that are missing from Ecology's files.	Medium	SCAP	Ecology		

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A07.17.00	Environmental Sampling	RM 2.0-2.3 East (Slip 3 to Seattle Boiler Works)	V. Van Dyke	07010	68427684		Work with V. Van Dyke to complete quarterly groundwater or other monitoring suggested by Adapt, if needed.	Medium	SCAP	Ecology		
A07.20.00	Cleanup	RM 2.0-2.3 East (Slip 3 to Seattle Boiler Works)	Riverside Industrial Park	07004	6704154		Determine the status of cleanup at the facility and whether to pursue additional investigation and cleanup under an administrative order.	Medium	SCAP	Ecology		Railworks Comstock (2008) was required to develop a written spill plan and educate employees. Work completed 11/08.
A08.02.00	Source Assessment	RM 2.3-2.8 East (Seattle Boiler Works to Slip 4)	S Garden Street and S Myrtle Street Storm Drains	NA	NA		Conduct source tracing to identify potential contaminant sources to stormwater discharging to the LDW.	High	SCAP	SPU, Ecology	In Progress	SPU cleaned the entire system in 2010. S Garden Street SD: Seattle Iron and Metals (SIM) owns the downstream end of the drainage system located on their property. SPU required Seattle Iron and Metals to install a Filterra treatment unit on S Garden Street to control pollutant track out from the processing area at 701 S Orchard St. No samples were collected in 2018. S Myrtle Street SD: SPU installed sediment traps in the 2 downstream-most MHs in this system in 2016 as part of the sediment trap pilot study. Work in 2017 focused on comparing particle capture. Chemical analysis will be conducted in future years. SDOT sweeps S Myrtle Street and S Garden Street every week. SPU also required SIM to install Filterra stormwater water treatment units on S Myrtle Street adjacent to driveway to control track out. Per Puget SoundKeepers lawsuit, SIM is required to design/install a dust collection system for the shredder unit, install wind fences to capture fugitive dust emissions, and design/implement a 2-phase dust emission monitoring program (to start in 2019).
A08.06.00	Inspection	RM 2.3-2.8 East (Seattle Boiler Works to Slip 4)	Seattle Boiler Works, Inc.	08008	17577864		Determine if the five outfalls that are not included in Seattle Boiler Work's NPDES permit are in use. If in use and Seattle Boiler Works is the source of discharge, modify the facility's stormwater permit to include these outfalls.	High	SCAP	Ecology		
A08.12.01	Source Assessment	RM 2.3-2.8 East (Seattle Boiler Works to Slip 4)	Seattle Iron & Metals Corporation	08010	94727791		Review stormwater improvements, when completed, to assess the potential for transport of ASR to the LDW.	Medium	Follow-On	Ecology		Stormwater treatment upgrade has been completed, however effluent violations continue.
A08.18.00	Source Assessment	RM 2.3-2.8 East (Seattle Boiler Works to Slip 4)	Puget Sound Truck Lines	08007	41684823	WAR000949	Determine whether the five outfalls identified at the property are active, and identify the source of discharge from these outfalls, if any.	High	SCAP	Ecology, Property owner/operator		Current operator at this property is Recology CleanScapes.

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Action Item No.	Action Item Category	SCA	Property/ Facility/Outfall	Property Number	Facility/Site ID	NPDES Permit No.	Action Item	Priority	Type	Responsible Party	Status	Comments/Follow-On Actions
A08.20.00	Records Review	RM 2.3-2.8 East (Seattle Boiler Works to Slip 4)	Seattle City Light Georgetown Pump Station	08009	21369		Obtain and review information about any groundwater sampling that has been conducted at this property. Based on this review, evaluate the need for further source control actions.	Medium	SCAP	Ecology		
A08.21.00	Cleanup	RM 2.3-2.8 East (Seattle Boiler Works to Slip 4)	Crowley Marine Services	09002	1940187		In conjunction with an Agreed Order for the Crowley Marine Services site, perform additional investigations that include collection of data on chemical concentrations in soil and groundwater at the western and southern portions of the property.	High	SCAP	Property owner/operator	In Progress	To be conducted in accordance with Agreed Order No. DE-6721. A revised draft RI report is expected in 2018.
A08.25.00	Environmental Sampling	RM 2.3-2.8 East (Seattle Boiler Works to Slip 4)	Crowley Marine Services	09002	1940187		Collect stormwater and/or solids samples from storm drain system to determine if onsite system is source of COCs found in waterway sediment.	High	SCAP	Ecology	In Progress	To be conducted in accordance with Agreed Order No. DE-6721. A revised draft RI report is expected in 2018.
A08.27.01	Cleanup	RM 2.3-2.8 East (Seattle Boiler Works to Slip 4)	Fox Avenue Building	08002	2282		Conduct sitewide groundwater monitoring and continue ERD treatment and additional substrate injection in the downgradient area at Seattle Boiler Works property.	Medium	New	Property owner/operator	In Progress	Groundwater monitoring and substrate injection (including on the Seattle Boiler Works property) is continuing under Agreed Order DE-8985. Note: Action item listed as A08.27.01 in LDW Database.
A08.29.00	Cleanup	RM 2.3-2.8 East (Seattle Boiler Works to Slip 4)	Whitehead Company, Inc./Former Tyee Industries	08013	9809, 48578491		Require the property owner/operator to address the pentachlorophenol contamination in groundwater discovered by Cascade Columbia Distributions' consultant.	Medium	SCAP	Ecology	In Progress	An Agreed Order (DE-13548) was signed in August 2016 requiring Seattle Iron and Metals and 730 Myrtle LLC to implement an interim action, conduct an RI/FS, and prepare a draft CAP. The interim action for removal of some of the PCP-contaminated soils (where the stormwater treatment system is to be installed) began in 2017.
A08.31.00	Inspection	RM 2.3-2.8 East (Seattle Boiler Works to Slip 4)	Whitehead Company, Inc./Former Perkins Lot	08006	43114188		Conduct facility inspection to determine if activities conducted by businesses at 720 S Orchard Street require an NPDES permit, and to ensure compliance with applicable codes and regulations.	Medium	SCAP	Ecology, EPA	In Progress	In 2013 Taxi King was granted coverage under the NPDES ISGP; the permit was canceled in March 2014. No additional information available.
A08.34.00	Information Request	RM 2.3-2.8 East (Seattle Boiler Works to Slip 4)	Whitehead Company, Inc./Former Perkins Lot	08006	43114188		Obtain a list of previous tenants from the property owner to evaluate historical operations and to determine if these operations could have resulted in soil or groundwater contamination.	Medium	SCAP	Ecology, Property owner/operator		
A08.39.00	Source Assessment	RM 2.3-2.8 East (Seattle Boiler Works to Slip 4)	Former Sternoff Parcel	08011	2057		Evaluate the need for additional soil and groundwater samples and analyze them for sediment COCs to determine the potential for sediment recontamination via the groundwater discharge pathway.	Medium	SCAP	Ecology		

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A08.40.00	Records Review	RM 2.3-2.8 East (Seattle Boiler Works to Slip 4)	Former Sternoff Parcel	08011	2057		Locate documentation verifying that a PCB-contaminated “trash pile” and approximately 52,187 pounds of contaminated soil have been removed from the property.	Medium	SCAP	Ecology		
A08.41.00	Records Review	RM 2.3-2.8 East (Seattle Boiler Works to Slip 4)	Former Sternoff Parcel	08011	2057		Determine the disposition of petroleum-contaminated soil stockpiled at the property by Remedco and provide the documentation to Ecology.	Low	SCAP	Ecology		
A09.03.00	Environmental Sampling	RM 2.8 East (EAA-3: Slip 4)	North Boeing Field / KCIA / I-5 Storm Drains	09006, 09009	2387398, 2753918		Reinstall sediment traps and continue monitoring as needed.	High	SCAP	SPU, Boeing, King County	In Progress	Boeing has discontinued sediment trap sampling as of 2017. King County and SPU continue to reinstall and sample sediment traps at KCIA and the I-5 storm drain, respectively.
A09.04.02	Source Assessment	RM 2.8 East (EAA-3: Slip 4)	North Boeing Field	09009	2753918		Determine impact of remaining joint sealant material on PCB concentrations in stormwater.	High	Follow-On	Ecology	In Progress	Investigation of joint sealant is continuing as part of the RI/FS.
A09.08.02	Source Assessment	RM 2.8 East (EAA-3: Slip 4)	North Boeing Field	09009	2753918		Continue source tracing in north drain line to identify and/or eliminate transport of PCBs to Slip 4.	High	Follow-On	Boeing	In Progress	Source tracing is continuing as part of the RI/FS.
A09.29.00	Cleanup	RM 2.8 East (EAA-3: Slip 4)	Crowley Marine / 8th Avenue Terminals	09002	1940187		Conduct investigation and cleanup activities in accordance with the Agreed Order, including collection of groundwater and storm drain system samples as appropriate.	Medium	SCAP	8th Avenue Terminals (Crowley)	In Progress	Stormwater catch basin samples have been collected. Ecology is currently reviewing.
A09.38.00	Data Evaluation	RM 2.8 East (EAA-3: Slip 4)	Boeing Plant 2	10002	2100		Assess existing groundwater data in the area.	Low	SCAP	Ecology, EPA		Boeing conducted shoreline groundwater monitoring during 2017, however reports were not available for review.
A09.43.03	Cleanup	RM 2.8 East (EAA-3: Slip 4)	KCIA	09006	2387398		Conduct soil and groundwater investigation and cleanup under Ecology's VCP.	Low	Follow-On	KCIA, property operator	In Progress	Shultz and subtenant operators are conducting investigations at the site for eventual cleanup under the VCP. KCIA lessee and subtenant operators are conducting investigations at the site for eventual cleanup under the VCP.
A09.54.00	Cleanup	RM 2.8 East (EAA-3: Slip 4)	NBF-GTSP	09005, 09006, 09009	2050		Conduct RI/FS and implement interim actions (as needed).	High	New	Ecology, Boeing, City of Seattle, King County	In Progress	RI/FS is in progress. RI Phase III field investigations were conducted in late 2017. An interim action at the fenceline between NBF and GTSP was completed in 2016.
A10.01.00	Cleanup	RM 2.8-3.7 East (EAA-4: Boeing Plant 2/Jorgensen Forge)	Boeing Plant 2	10002	2100		Evaluate the remaining Plant 2 Corrective Measures Study study areas and continue to determine needed source control actions.	Medium	SCAP	EPA, Boeing	In Progress	Boeing has completed many of the interim soil cleanups and installed stormwater treatment systems. EPA expects to publish a proposed final cleanup plan for the upland area of Boeing Plant 2 in 2019.
A10.02.00	Cleanup	RM 2.8-3.7 East (EAA-4: Boeing Plant 2/Jorgensen Forge)	Boeing Plant 2	09006	63879778		Continue to delineate and evaluate the EMF plume.	Medium	SCAP	EPA, Boeing	In Progress	An EE/CA was completed in December 2015, and a public review period ended in August 2016. EPA has delayed preparation of the Action Memorandum due to prioritization of other sites. Monitoring in 2017

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												indicated vinyl chloride above the water quality criteria.
A10.05.00	Cleanup	RM 2.8-3.7 East (EAA-4: Boeing Plant 2/Jorgensen Forge)	Boeing Plant 2	10002	2100		Conduct monthly sampling, including groundwater sampling and vapor sampling of the DDC wells and multiple points along the vapor treatment system.	Medium	SCAP	EPA, Boeing	In Progress	
A10.06.00	Cleanup	RM 2.8-3.7 East (EAA-4: Boeing Plant 2/Jorgensen Forge)	Boeing Plant 2	10002	2100		Continue shoreline groundwater monitoring.	High	SCAP	EPA, Boeing	In Progress	Shoreline groundwater monitoring was conducted during 2017, however reports were not available for review. EPA issued a determination that migration of contaminated groundwater is under control.
A10.09.01	Source Assessment	RM 2.8-3.7 East (EAA-4: Boeing Plant 2/Jorgensen Forge)	Boeing Plant 2	10002	2100		Conduct a joint hydrologic investigation with Jorgensen Forge to provide additional hydrogeologic data at the boundary of the two facilities.	High	SCAP	Boeing, Jorgensen		Activities at Plant 2 have been completed; Jorgensen Forge investigation to be conducted under Agreed Order DE-14143.
A10.09.02	Source Assessment	RM 2.8-3.7 East (EAA-4: Boeing Plant 2/Jorgensen Forge)	Jorgensen Forge	10003	2382		Conduct a joint hydrologic investigation with Boeing to provide additional hydrogeologic data at the boundary of the two facilities.	Medium	SCAP	Boeing, Jorgensen	In Progress	Hygrogeologic investigations will be conducted separately due to project timing. Plant 2 is completed. Jorgensen will be investigated, as necessary, under new AO 14143.
A10.11.00	Environmental Sampling	RM 2.8-3.7 East (EAA-4: Boeing Plant 2/Jorgensen Forge)	Boeing Plant 2	10002	2100		Collect in-line sediment samples in the city of Seattle and city of Tukwila systems immediately prior to discharge to Plant 2's storm drain system.	High	SCAP	Ecology, Boeing		City of Seattle lines have been closed. Boeing is working with the city of Tukwila. In October 2017, EPA suspended stormwater monitoring under the Boeing RCRA Order in deference to Ecology's Water Quality Program.
A10.18.00	Source Assessment	RM 2.8-3.7 East (EAA-4: Boeing Plant 2/Jorgensen Forge)	Jorgensen Forge	10003	2382		Develop a hydrogeologic site model as part of the source control investigation to characterize the groundwater system on site, including tidal influence.	High	SCAP	Jorgensen, Boeing	In Progress	For the Jorgensen site, a tidal study/ hydrogeologic investigation and conceptual model will be conducted, as necessary, under AO 14143.
A10.33.00	Cleanup	RM 2.8-3.7 East (EAA-4: Boeing Plant 2/Jorgensen Forge)	Jorgensen Forge	10003	2382		Complete a Remedial Investigation/Feasibility Study of the upland site area	High	New	Jorgensen, Boeing	In Progress	Jorgensen submitted a draft RI work Plan to Ecology in Summer 2015 and declared bankruptcy in 2016. A new Agreed Order (DE-14143) was signed in July 2017; this action item will be completed under the Agreed Order.
A10.34.00	BMP Implementation	RM 2.8-3.7 East (EAA-4: Boeing Plant 2/Jorgensen Forge)	East Marginal Way S.	11002	NA		Install stormwater treatment for roadway runoff discharged through the newly dedicated City of Tukwila outfall (the former Plant 2 Z line)	Medium	New	City of Tukwila	In Progress	This retrofit project is funded in part by an Ecology Stormwater Financial Assistance Program grant. Project has been delayed due to funding issues.

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A11.12.00	Cleanup	RM 3.7-3.9 East (EAA-6: Boeing Isaacson/Central KCIA)	Boeing Isaacson/Thompson Site	11001	2218		Clarify the purpose, function, and configuration of the edge drains along the Boeing Isaacson shoreline.	Low	SCAP	Boeing, Port of Seattle	In Progress	To be addressed as part of Agreed Order No. DE-7088 (Ecology 2010 [6812]).
A11.14.00	Cleanup	RM 3.7-3.9 East (EAA-6: Boeing Isaacson/Central KCIA)	Boeing Isaacson/Thompson Site	11001	2218		Investigate the status and source of the unidentified outfall pipe located near the Boeing Isaacson/Jorgensen Forge property boundary (Outfall 2063).	Low	SCAP	Boeing		To be addressed as part of Agreed Order No. DE-7088.
A11.16.00	Cleanup	RM 3.7-3.9 East (EAA-6: Boeing Isaacson/Central KCIA)	Boeing Isaacson/Thompson Site	11001	2218		If COCs in soil and groundwater are present at concentrations that pose a risk of sediment recontamination, then develop a plan for controlling these contaminant sources.	High	SCAP	Ecology, Boeing	In Progress	To be addressed as part of Agreed Order No. DE-7088. Final RI submitted 4/21/2014. Supplemental Port of Seattle "sliver" property subsurface investigation conducted in 2015. PLP working on draft FS.
A11.19.00	Cleanup	RM 3.7-3.9 East (EAA-6: Boeing Isaacson/Central KCIA)	Boeing Isaacson/Thompson Site	11001	2218		Review Boeing memorandum regarding findings associated with the two drainage pipes that may be discharging to the 8801 Site, and assess the potential that these discharges may contribute to recontamination of LDW sediments.	Medium	SCAP	Ecology	In Progress	To be addressed as part of Agreed Order No. DE-7088.
A11.27.00	Source Assessment	RM 3.7-3.9 East (EAA-6: Boeing Isaacson/Central KCIA)	KCIA	11002	72811433	NA	Assess/confirm the adequate completion of cleanup activities associated with petroleum Leaking Underground Storage Tanks at Hangar Holdings.	Low	SCAP	Ecology		Site is listed as 'cleanup started' (CSID 6574), with confirmed contamination with petroleum products and non-halogenated solvents. In VCP 2003-2009 (NW1167) and 2009-2014 (NW2166).
A11.31.00	Cleanup	RM 2.8-3.7 East (EAA-4: Boeing Plant 2/Jorgensen Forge)	KCIA	09006	63879778		Monitor remedial activities at the former Boeing EMF to ensure that contaminated soil does not enter the storm drain system.	Medium	SCAP	King County, EPA	In Progress	Boeing conducted bioremediation treatment in selected areas at the site in November 2017. Boeing intends to conduct additional treatments in 2018. King County continues to monitor activities.
A12.06.00	Cleanup	RM 3.9-4.3 East (Slip 6)	8801 Site (Former PACCAR Site)	12001	2072		Re-evaluate existing soil and groundwater data and compare to site-specific screening levels (to be developed) for metals, PAHs, petroleum hydrocarbons, PCBs, SVOCs, and VOCs as COCs in the LDW, and test for dioxin/furans.	High	SCAP	Ecology, Property owner/operator	In Progress	Final RI Report submitted to Ecology in February 2012 under Agreed Order DE-6069. Draft FS was submitted 5/30/2013, and Draft IAWP submitted 4/8/2014, Ecology provided comments 8/29/2017. Ecology is working with the PLPs to complete the FS and Interim Action Work Plan for the uplands.
A12.08.00	Cleanup	RM 3.9-4.3 East (Slip 6)	8801 Site (Former PACCAR Site)	12001	2072		Complete Phase 2 of the Sediment Evaluation Work, which includes sediment core sampling in selected locations in the LDW adjacent to the site.	High	SCAP	Ecology, Property owner/operator		
A12.09.00	Cleanup	RM 3.9-4.3 East (Slip 6)	8801 Site (Former PACCAR Site)	12001	2072		Negotiate expanding the stormwater and storm drain solids monitoring to add COCs at the site. Review future monitoring results to determine if further actions are necessary.	High	SCAP	Ecology, Property owner/operator	In Progress	

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Action Item No.	Action Item Category	SCA	Property/ Facility/Outfall	Property Number	Facility/Site ID	NPDES Permit No.	Action Item	Priority	Type	Responsible Party	Status	Comments/Follow-On Actions
A12.10.00	BMP Implementation	RM 3.9-4.3 East (Slip 6)	8801 Site (Former PACCAR Site)	12001	2072		Review the current SWPPP and Operations and Maintenance Plan. Make necessary changes and additions to prevent contaminants from potential upland sources (such as fuel leaks from damaged vehicles) from migrating to Slip 6 source control area sediments via the stormwater system.	Medium	SCAP	Ecology, Property owner/operator		Facility is covered under the ISGP (WAR008681), Insurance Auto Auctions.
A12.12.00	Cleanup	RM 3.9-4.3 East (Slip 6)	Former Rhône-Poulenc Site	12005	2150		Continue to monitor the effectiveness of the hydraulic interim control measure, and investigate the presence of elevated copper concentrations in groundwater outside the barrier wall and the potential leak in the barrier wall.	High	SCAP	EPA, Property owner/operator	In Progress	The HICM is still in operation and effective. An investigation of shoreline bank contamination was completed Sept 2012. Groundwater outside the barrier wall (included in Shoreline Area of site) will be addressed as part of the future site cleanup under RCRA. EPA established PRGs in March 2014, and Respondents submitted a draft CMS work plan to EPA in Sept 2014. In 2017 EPA approved a work plan for a CO2 Injection Pilot Study to address high pH, and work will start in 2018. EPA will continue working with the property owner to conduct the pilot study, assess the current conditions of groundwater throughout the site, update the PRGs, and continue with the CMS.
A12.13.00	Cleanup	RM 3.9-4.3 East (Slip 6)	Former Rhône-Poulenc Site	12005	2150		Investigate and address shoreline bank contamination from historical site operations and releases (e.g. application of vanillin black liquor solids to the shoreline bank for weed control).	High	SCAP	EPA, Property owner/operator	In Progress	An investigation of shoreline bank contamination was completed Sept 2012. The Shoreline Area will be addressed as part of the future site cleanup under RCRA. EPA established PRGs in March 2014, and Respondents submitted a draft CMS work plan to EPA in Sept 2014. In 2017 EPA approved a work plan for a CO2 Injection Pilot Study to address high pH, and work will start in 2018. EPA will continue working with the property owner to conduct the pilot study, assess the current conditions of groundwater throughout the site, update the PRGs, and continue with the CMS.
A12.14.00	BMP Implementation	RM 3.9-4.3 East (Slip 6)	Former Rhône-Poulenc Site	12005	2150		Review the current SWPPP and Operations and Maintenance Plan. Make necessary changes and additions to prevent contaminants from potential upland sources (such as fuel leaks from damaged vehicles) from migrating to Slip 6 source control area sediments via the stormwater system.	High	SCAP	Ecology, Property owner/operator		West parcel is leased by Container Properties to Insurance Auto Auctions; activities are covered IAA's permit.

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A12.21.00	Environmental Sampling	RM 3.9-4.3 East (Slip 6)	Museum of Flight (MOF)	12004	98798343		Monitor stormwater and/or storm drain solids at MOF and former BDC properties in the vicinity of USTs and associated groundwater contamination.	High	SCAP	Ecology, Property owner/operator		
A12.22.00	Cleanup	RM 3.9-4.3 East (Slip 6)	Museum of Flight (MOF)	12004	98798343		Develop a plan to remove USTs and associated soil and groundwater contamination on the MOF property.	Medium	SCAP	Ecology, Property owner/operator		
A12.23.00	Cleanup	RM 3.9-4.3 East (Slip 6)	Museum of Flight (MOF)	12004	98798343		Identify the source and extent of groundwater contamination on the former BDC property, and conduct remedial action, as necessary.	High	SCAP	Ecology, Property owner/operator		
A12.26.00	Information Request	RM 3.9-4.3 East (Slip 6)	BDC - North	12002	2101		Investigate UST locations to determine whether any USTs are located within the Slip 6 drainage basin and whether any USTs present a source of contaminants to soil and/or groundwater.	Low	SCAP	Boeing	In Progress	The drainage basin to the two outfalls flowing into Slip 6 (DC 14 and DC 15) includes Buildings 9-05, 9-07, 9-04, 9-77, 9-08 at the BDC. The Environmental Compliance Group at the BDC was contacted regarding the presence of USTs near these buildings. The status of this inquiry is unknown.
A13.02.00	Environmental Sampling	RM 4.3-4.9 East (Boeing Developmental Center)	BDC Outfalls	13001	2101		Request Boeing to prepare a work plan for collection of subsurface sediment samples in the area of the LDW adjacent to the BDC outfalls.	Medium	SCAP	Ecology/Boeing		
A13.06.00	Cleanup	RM 4.3-4.9 East (Boeing Developmental Center)	BDC - Central	13001	2101		Continue to monitor RCRA cleanup activities to ensure contaminants present in groundwater as a result of historical releases are not entering the LDW.	Low	SCAP	Ecology	In Progress	RCRA activities will be completed under Agreed Order DE-16275 (Public Review Draft dated April 2019) as part of an RI/FS/CAP for the entire BDC Site. Cleanup activities will be completed with Ecology oversight.
A13.08.00	Information Request	RM 4.3-4.9 East (Boeing Developmental Center)	BDC - Central	13001	2101		Request additional information about the nature of BDC's emissions and air permit as they relate to deposition on impervious surfaces and the stormwater pathway to the LDW.	Low	SCAP	Boeing	In Progress	Air sampling will be conducted under Agreed Order DE-16275 as needed to address the air deposition pathway.
A13.09.00	Environmental Sampling	RM 4.3-4.9 East (Boeing Developmental Center)	BDC - Central	13001	2101		Request Boeing to collect at least one round of seep samples from the four known seepage locations to confirm that no contaminants are being discharged to the LDW via this transport pathway.	Medium	SCAP	Boeing	In Progress	Seep sampling wil be conducted under Agreed Order DE-16275 as needed to address discharge of contaminants to the LDW via this pathway.
A13.10.00	Cleanup	RM 4.3-4.9 East (Boeing Developmental Center)	BDC - Central	13001	2101		Negotiate an Agreed Order to complete an RI/FS/CAP for the entire BDC Site.	Medium	New	Ecology	In Progress	Public comment period for Agreed Order is 5/23/2019 through 6/21/2019.
A13.10.01	Cleanup	RM 4.3-4.9 East (Boeing Developmental Center)	BDC - Central	13001	2101		Implement the actions specified in Agreed Order 16275, including preparation of an RI/FS/DCAP and implementation of an Interim Action.	Medium	Follow-On	Boeing		Actions specified under the agreed order includes completion of ongoing RCRA cleanup activities.

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A14.05.00	Cleanup	RM 4.9 East (EAA-7: Norfolk CSO/SD)	BDC-South	14004	4581384		Continue sediment monitoring in the vicinity of the south storm drain sediment removal activities.	High	SCAP	Boeing	In Progress	Boeing continues to voluntarily monitor sediment in the vicinity of the 2003 removal action. Samples were collected most recently in September 2017; results are slightly higher than in previous years.
A14.07.00	Environmental Sampling	RM 4.9 East (EAA-7: Norfolk CSO/SD)	BDC-South	14004	4581384		Continue monitoring storm drain solids.	High	SCAP	Boeing	In Progress	Boeing continues to collect samples of accumulated solids in the Vortechnics sediment trap unit. Most recent samples were collected in September 2017. Results are significantly higher than the previous year.
A14.08.00	Environmental Sampling	RM 4.9 East (EAA-7: Norfolk CSO/SD)	BDC-South	14004	4581384		Determine need for cleanup of caulk and/or other building materials that may contribute PCBs to the south storm drain.	Medium	SCAP	Ecology, Boeing	In Progress	Boeing continues to sample potential contaminant sources in the south storm drain. In 2017, Boeing collected solids samples from the Building 9-101 roof (0.072 to 0.19 mg/kg DW total PCBs), and water and wipe samples from a drain pipe inside the building (1.71 ug/L and 0.97 ug/wipe total PCBs, respectively).
A14.11.00	Source Assessment	RM 4.9 East (EAA-7: Norfolk CSO/SD)	BDC-South	14004	4581384		The 2007 SCAP identified a possible historical barge operation at Parcel 0423049016. Determine whether groundwater and soil sampling are needed at this parcel to assess possible historical contamination.	Medium	SCAP	Ecology, Boeing	In Progress	The 2007 SCAP noted a barge visible in a historical aerial photo. The barge is still present (now rotten and abandoned) in the LDW adjacent to the noted parcel. Boeing has identified a historical Phase 1 assessment for this parcel and is attempting to obtain a copy of that report.
A14.15.00	Environmental Sampling	RM 4.9 East (EAA-7: Norfolk CSO/SD)	Military Flight Center	14005	14532, 72362672		Monitor stormwater for PCBs at discharge points to assess potential ongoing sources.	Medium	SCAP	Boeing	In Progress	Under Administrative Order #10554 (dated 4/3/2014), Boeing is required to monitor for PCBs in stormwater monitoring is performed at all four designated outfall locations. In 2017, the maximum detected concentration of total PCBs was 0.096 ug/L.
A14.16.00	Cleanup	RM 4.9 East (EAA-7: Norfolk CSO/SD)	Military Flight Center	14005	14532, 72362672		Discuss cleanup options for removal of caulk containing PCBs at less than 50 mg/kg.	Medium	SCAP	Ecology, Boeing		Boeing submitted a work plan to address PCBs in paint and caulk in April 2015; plans included application of a polymeric coating and installation of new exterior metal siding to encapsulate the materials that contain less than 50 mg/kg PCBs. Abatement of PCB-containing materials was expected to occur during late summer and fall of 2015; no information on the current status of this effort was available.
A14.20.00	Environmental Sampling	RM 4.9 East (EAA-7: Norfolk CSO/SD)	Unified Grocers / Associated Grocers	14003	73338176		Sample monitoring wells located near the former truck shop to evaluate current groundwater flow and extent of the contaminant plume; determine if additional monitoring wells are needed.	Medium	SCAP	Property owner		
A14.21.00	Source Assessment	RM 4.9 East (EAA-7: Norfolk CSO/SD)	Unified Grocers / Associated Grocers	14003	73338176		Re-evaluate the free product removal strategy to determine its source control effectiveness.	Medium	SCAP	Property owner		

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A14.22.00	Environmental Sampling	RM 4.9 East (EAA-7: Norfolk CSO/SD)	Unified Grocers / Associated Grocers	14003	73338176		Determine whether additional groundwater and soil assessment is needed for the maintenance building where UST removal activities took place in 1995.	Medium	SCAP	Ecology		
A14.27.00	Environmental Sampling	RM 4.9 East (EAA-7: Norfolk CSO/SD)	Northwest Auto Wrecking	14009	2287		Conduct soil, groundwater, surface water, and sediment sampling, as appropriate, to evaluate potential historical sources.	Medium	SCAP	Northwest Auto Wrecking		Review sampling results and assess potential for sediment recontamination.
A14.28.00	Data Evaluation	RM 4.9 East (EAA-7: Norfolk CSO/SD)	Northwest Auto Wrecking	14009	2287		Review results of soil, groundwater, surface water, and/or sediment sampling to assess potential for sediment recontamination.	Medium	SCAP	Ecology		
A14.33.00	Environmental Sampling	RM 4.9 East (EAA-7: Norfolk CSO/SD)	Affordable Auto Wrecking	14001	7163112		Confirmed soil and surface water contamination with metals and petroleum products. Conduct surface water, soil, and groundwater sampling to assess the potential for sediment recontamination.	Medium	SCAP	Property owner/operator		Affordable Auto Wrecking ceased operations in 2013-2014. Site is now vacant. Confirrmed soil and surface water contamination; groundwater contamination is likely. Listed on CSCSL as "awaiting cleanup."
A14.36.00	Cleanup	RM 4.9 East (EAA-7: Norfolk CSO/SD)	Affordable Auto Wrecking	14001	7163112		Determine cleanup options for removal of historically-contaminated media, as appropriate.	Medium	SCAP	Ecology, Property owner/operator		Listed on CSCSL as "awaiting cleanup."
A14.38.00	Inspection	RM 4.9 East (EAA-7: Norfolk CSO/SD)	Affordable Auto Wrecking	14001	7163112		Oversee and monitor discharges to the combined sewer system.	Medium	SCAP	KCIW		Site is vacant, but site runoff continues to discharge to sanitary sewer.
A14.39.00	Environmental Sampling	RM 4.9 East (EAA-7: Norfolk CSO/SD)	Arco Gas Station (Pacific Truck School)	14002	29429665		Conduct soil sampling in the area adjacent to the former tank farm under the Voluntary Cleanup Program, to determine if soils are impacted and if remediation is necessary to control this potential contaminant pathway.	Medium	SCAP	Arco		Cleanup Site name is Easteys ARCO (CSID 5834). Listed as "cleanup started" but no other information available.
A14.40.00	Environmental Sampling	RM 4.9 East (EAA-7: Norfolk CSO/SD)	Arco Gas Station (Pacific Truck School)	14002	29429665		Conduct additional groundwater monitoring.	Medium	SCAP	Arco		Cleanup Site name is Easteys ARCO (CSID 5834). Listed as "cleanup started" but no other information available.
A14.41.00	Data Evaluation	RM 4.9 East (EAA-7: Norfolk CSO/SD)	Arco Gas Station (Pacific Truck School)	14002	29429665		Based on results of soil and groundwater sampling, determine whether further actions are needed to address potential historical sources.	Medium	SCAP	Ecology		Cleanup Site name is Easteys ARCO (CSID 5834). Listed as "cleanup started" but no other information available.

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A15.01.00	Source Assessment	RM 0.0-1.0 West (Spokane Street to Kellogg Island)	SW Dakota Street SD Outfalls (Outfalls 2148, 2149, 2150, and 2233)	NA	NA		Continue source tracing to identify potential sources of the sediment COCs reported above screening levels in storm drain structures in the SW Dakota Street SD basin.	Medium	SCAP	SPU, Ecology	In Progress	Outfall 2149 is the City's SW Dakota Street SD; it was relocated to the habitat swale to accommodate development on land adjacent to waterway. SW Dakota Street end was vacated to Port in 2012 (Ord # 123884). SPU cleaned this system in 2016 and continues to collect samples in this basin. SPU sampled the MH near the downstream end of the system in 2018. BEHP, benzyl alcohol, and benzoic acid exceeded the CSL. This MH is severely backwatered due to sediment accumulation in the habitat swale. SPU intends to attempt to install a trap near the high water line in 2019 to collect storm drain solids. Outfall 2148 serves the Encore Oil property at 4034 West Marginal Way SW. Outfall 2150 serves the Lipsett Co property just east of Encore. SPU GIS indicates that both of these drainage systems are privately owned. Outfall 2233 is the outlet of the salt water habitat swale constructed by the Port in 1993-1994.
A15.02.00	Source Assessment	RM 0.0-1.0 West (Spokane Street to Kellogg Island)	SW Idaho Street SD Outfalls (Outfall 2147)	NA	NA		Continue source tracing to identify potential sources of the sediment COCs reported above screening levels in storm drain structures in the SW Idaho Street SD basin.	Medium	SCAP	SPU, Ecology	In Progress	SPU jetted and cleaned the entire SW Idaho Street SD system in 2013 and continues to operate 3 sediment traps in this drainage system.
A15.04.00	Inspection	RM 0.0-1.0 West (Spokane Street to Kellogg Island)	Outfalls 2140, 2141, 2142, 2153, 2144, 2145, 2146	NA	NA		Conduct an inspection during a storm event to determine if Outfalls 2140 through 2146 are operational or have been abandoned. If discharge from these outfalls is observed, request that the property owners conduct dye testing to determine if storm drain lines are connected to the unresolved outfalls and delineate the associated drainage areas.	Medium	SCAP	SPU, Ecology		Outfalls 2140-2143 are located on City property at the Port's T107 Park at 4750 W Marginal Wy SW. Outfalls 2140-2141 are upstream/downstream ends of a culvert that conveys park runoff under the path to the Herring's House habitat area. Outfalls 2142-2143 are also upstream/downstream ends of culvert that convey runoff from the parking lot. Parking lot runoff sheet flows across a vegetated area before entering the culvert. Outfalls 2144, 2145, and 2146 are located on General Recycling property at 4260 W Marginal Wy SW. General Recycling is an NPDES-permitted facility.
A15.06.00	Information Request	RM 0.0-1.0 West (Spokane Street to Kellogg Island)	Riverside Mill Property	15021	4091, 10931		Request information from the property owner regarding the 1999 excavation and removal of soil contaminated with PCBs and lead, to evaluate the potential for sediment recontamination via the groundwater discharge pathway.	Medium	SCAP	Ecology TCP		

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A15.09.00	Inspection	RM 0.0-1.0 West (Spokane Street to Kellogg Island)	Port of Seattle Terminal 103	15025	7754458		Perform a facility inspection at CalPortland to verify compliance with applicable regulations and source control BMPs.	Low	SCAP	Port of Seattle		Port tenant. This NPDES-permitted site discharges directly to the waterway via Port-owned outfalls and/or sheet flow. Inspections of NPDES-permitted sites that do not affect the City MS4 are a low priority for SPU. Inspections are scheduled only after City NPDES obligations are met. As this is a low priority for SPU, Port should inspect this property as described in Section 7 of its SWMP.
A15.12.00	Records Review	RM 0.0-1.0 West (Spokane Street to Kellogg Island)	Port of Seattle Terminal 105	15026	NA		Determine if the Liquid Disposal Corporation USTs have been removed from Terminal 105 park.	Medium	SCAP	Port of Seattle		
A15.13.00	Information Request	RM 0.0-1.0 West (Spokane Street to Kellogg Island)	Port of Seattle Terminal 105	15026	15026		Request that the Port of Seattle and Ferguson Enterprises provide information to determine if PCB-bearing dredge spoils were removed from parcel 3530 prior to the construction of the warehouse over the disposal area.	Medium	SCAP	Ecology		
A15.14.00	Source Assessment	RM 0.0-1.0 West (Spokane Street to Kellogg Island)	Port of Seattle Terminal 105	15026	15026		Assess the need for an environmental investigation at the Terminal 105 Park to characterize the nature and extent of soil and groundwater contaminated by PCBs, PAHs, and metals in order to determine the potential for sediment recontamination.	Medium	SCAP	Ecology		
A15.15.00	Source Assessment	RM 0.0-1.0 West (Spokane Street to Kellogg Island)	Encore Oils (former Pacific Rendering)	15018	10287		Assess the need for additional environmental investigations and/or cleanup of contaminated soil.	Medium	SCAP	Ecology		
A15.18.00	Information Request	RM 0.0-1.0 West (Spokane Street to Kellogg Island)	Ferguson Enterprises	15008	18675		Request that the Port of Seattle and Ferguson Enterprises provide information to determine if PCB-bearing dredge spoils were removed from parcel 3530 prior to the construction of the warehouse over the disposal area.	Medium	SCAP	Ecology		
A15.19.00	Source Assessment	RM 0.0-1.0 West (Spokane Street to Kellogg Island)	Ferguson Enterprises	15008	18675		Assess the need for additional environmental investigations and/or cleanup of contaminated soil and groundwater.	Medium	SCAP	Ecology		
A15.20.00	BMP Implementation	RM 0.0-1.0 West (Spokane Street to Kellogg Island)	General Recycling of Washington	15011	18553		Request that General Recycling update the facility SWPPP to include the chemical treatment upgrades to the stormwater treatment system. General Recycling will be required to provide the updated SWPPP to Ecology.	Medium	SCAP	Ecology		

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A15.21.00	Source Assessment	RM 0.0-1.0 West (Spokane Street to Kellogg Island)	General Recycling of Washington	15011	18553		Assess the need for additional environmental investigations and/or cleanup of contaminated soil and groundwater.	Medium	SCAP	Ecology		
A15.24.00	Source Assessment	RM 0.0-1.0 West (Spokane Street to Kellogg Island)	Former Seaboard Lumber Property	15022	88471591		Assess the need for additional environmental investigations at Evergreen Trails and Herring's House Park to define the nature and extent of residual soil and groundwater contamination at the properties to determine if LDW sediment near the properties is or has the potential to become contaminated via the groundwater discharge and bank erosion pathways.	Medium	SCAP	Ecology		
A15.25.00	Source Assessment	RM 0.0-1.0 West (Spokane Street to Kellogg Island)	Port of Seattle Terminal 107	15027	NA		Determine the potential inputs to a pipe located near the ravine in the northern portion of the Terminal 107 Park.	Medium	SCAP	Port of Seattle		
A15.26.00	Environmental Sampling	RM 0.0-1.0 West (Spokane Street to Kellogg Island)	Port of Seattle Terminal 107	15027	NA		Perform an environmental investigation to determine if soil and groundwater are contaminated due to historical industrial operations and filling activities.	Medium	SCAP	Port of Seattle		
A15.29.00	Source Assessment	RM 0.0-1.0 West (Spokane Street to Kellogg Island)	Former Fraser Properties	15010	14392257, 72321478		Assess the need for additional environmental investigations and/or cleanup of suspected soil and groundwater contamination at this property.	Low	SCAP	Ecology		
A15.32.00	Information Request	RM 0.0-1.0 West (Spokane Street to Kellogg Island)	Fromer Concrete Restoration	15005	31119678		Request additional information from Brys Auto Wrecking regarding the previous environmental investigations at the property to determine if LDW sediment COCs are present in soil and groundwater at concentrations indicating a potential for sediment recontamination.	Low	SCAP	Ecology		
A15.33.00	Source Assessment	RM 0.0-1.0 West (Spokane Street to Kellogg Island)	Fromer Concrete Restoration	15005	9688		Assess the need for additional investigations and/or cleanup of suspected soil and groundwater contamination at this property.	Low	SCAP	Ecology		
A15.34.00	Information Request	RM 0.0-1.0 West (Spokane Street to Kellogg Island)	West Seattle Estates	15030	3858982		Request information regarding cleanup and groundwater monitoring at West Seattle Estates to evaluate the potential for sediment recontamination via the groundwater discharge pathway.	Low	SCAP	Ecology		
A15.35.00	Source Assessment	RM 0.0-1.0 West (Spokane Street to Kellogg Island)	West Seattle Estates	15030	3858982		Assess the need for additional investigations and/or cleanup of soil and groundwater contamination at this property.	Low	SCAP	Ecology		

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A15.36.00	Information Request	RM 0.0-1.0 West (Spokane Street to Kellogg Island)	Puget Park	15019	2479		Request information from Seattle Parks to determine if the leachate collection trench was installed down gradient of the Puget Park Lobe.	Low	SCAP	Ecology		
A15.37.00	Source Assessment	RM 0.0-1.0 West (Spokane Street to Kellogg Island)	Puget Park	15019	2479		Assess the need for additional investigations and/or cleanup of soil and groundwater contamination at this property.	Low	SCAP	Ecology		
A16.01.00	Information Request	RM 1.0-1.3 West (Kellogg Island to Lafarge Cement)	Lafarge North America Inc. Seattle	16001	2132		Request information from Lafarge regarding the status of Outfall 001/2139 and 004.	Medium	SCAP	Ecology		
A16.03.00	Data Evaluation	RM 1.0-1.3 West (Kellogg Island to Lafarge Cement)	Lafarge North America Inc. Seattle	16001	2132		Review new sediment data from the 2009 Lafarge maintenance dredging and the 2011 surface sediment sampling conducted by Ecology to determine if additional sediment sampling is needed for sediment characterization.	Medium	SCAP	Ecology		
A16.05.00	Records Review	RM 1.0-1.3 West (Kellogg Island to Lafarge Cement)	Lafarge North America Inc. Seattle	16001	2132		Review the response to the CERCLA Section 104(e) Supplemental Information Request sent to Lafarge by EPA.	Medium	SCAP	Ecology		
A16.06.00	Environmental Sampling	RM 1.0-1.3 West (Kellogg Island to Lafarge Cement)	Lafarge North America Inc. Seattle	16001	2132		Request Lafarge to collect environmental data to determine if soil and groundwater are contaminated due to historical drum recycling and reclamation activities at the Lafarge property.	Medium	SCAP	Ecology		
A16.07.00	Environmental Sampling	RM 1.0-1.3 West (Kellogg Island to Lafarge Cement)	Lafarge North America Inc. Seattle	16001	2132		Request Lafarge to collect additional seep samples to better characterize groundwater being discharged into the LDW. Seep samples will be analyzed for sediment COCs, including PCBs.	Medium	SCAP	Ecology		
A16.09.00	Information Request	RM 1.0-1.3 West (Kellogg Island to Lafarge Cement)	Lafarge North America Inc. Seattle	16001	2132		Request Lafarge to provide additional information about the composition of material behind the bulkhead and whether or not bulkhead repairs were completed during 2006.	Medium	SCAP	Ecology		
A17.05.00	Environmental Sampling	RM 1.3-1.6 West (Glacier Bay)	Alaska Marine Lines	17001	17126		Sample groundwater along shoreline to determine whether residual site contaminants are being discharged to Glacier Bay.	Medium	SCAP	Property owner/operator		
A17.06.00	Information Request	RM 1.3-1.6 West (Glacier Bay)	Alaska Marine Lines	17001	17126		Confirm location of former USTs that were removed in 1990.	Low	SCAP	Property owner/operator		
A17.08.00	Source Assessment	RM 1.3-1.6 West (Glacier Bay)	Alaska Marine Lines	17001	17126		Verify that remediation associated with filling of graving dock was completed and all conditions met.	Low	SCAP	Ecology		

Table B-2. Incomplete Action Items

Action Item No.	Action Item Category	SCA	Property/ Facility/Outfall	Property Number	Facility/Site ID	NPDES Permit No.	Action Item	Priority	Type	Responsible Party	Status	Comments/Follow-On Actions
A17.14.00	Cleanup	RM 1.3-1.6 West (Glacier Bay)	Duwamish Shipyard	17003	2071		Conduct site investigations as specified in the Agreed Order Statement of Work.	High	SCAP	Property owner/operator	In Progress	Revised RI Report was submitted in 2017.
A17.15.00	Cleanup	RM 1.3-1.6 West (Glacier Bay)	Duwamish Shipyard	17003	2071		Review site investigation results and assess potential for sediment recontamination and need for remedial actions.	High	SCAP	Ecology	In Progress	Revised RI Report was submitted in 2017.
A17.21.00	Cleanup	RM 1.3-1.6 West (Glacier Bay)	Glacier Northwest	17004	23881883		Review site investigation results and assess potential for sediment recontamination and need for remedial actions.	High	SCAP	Ecology	In Progress	Draft Remedial Investigation Report submitted to Ecology in 2015. Ecology is reviewing.
A17.29.00	BMP Implementation	RM 1.3-1.6 West (Glacier Bay)	Chemithon	17002	41953656		Prepare and/or update the SWPPP and processes to ensure that site activities do not result in transport of contaminants to the LDW.	Low	SCAP	Property owner/operator		
A17.38.00	Cleanup	RM 1.3-1.6 West (Glacier Bay)	N Terminal 115 (Former MRI Corporation)	17006	2177		Conduct Remedial Investigation as specified in Agreed Order No. 8099.	Medium	New	Port of Seattle	In Progress	Draft RI Report submitted to Ecology in October 2017.
A18.01.00	Data Evaluation	RM 1.6-2.1 West (Terminal 115)	SW Kenny Street SD/POS SD 6132/Terminal 115 CSO (Outfall 2127)	NA	NA		Identify and evaluate potential sources of the sediment COCs reported above screening values in storm drain structures within the SW Kenny Street SD basin.	Medium	SCAP	SPU, Ecology	In Progress	SPU cleaned the entire system in 2017. The near end-of-pipe sediment trap was retrieved in 2018. BEHP (2.98 mg/kg DW and benzyl alcohol (0.19 mg/kg DW) are the only chemicals that exceeded CSL post cleaning . Samples are collected annually and results are uploaded to EIM.
A18.02.00	Data Evaluation	RM 1.6-2.1 West (Terminal 115)	Highland Park Way SW SD/POS 6162 (Outfall 2125)	NA	NA		Identify and evaluate potential sources of the sediment COCs reported above screening values in storm drain structures within the Highland Park Way SW SD basin.	Medium	SCAP	SPU, Ecology	In Progress	SPU cleaned the Highland Park Way SW SD system in 2015 and will continue to maintain 2 sediment traps in this system (Outfall 2125). 12 samples were collected in 2016-2018. Of the 9 inline samples, 5 samples exceeded CSL for TPH-oil, 7 for BEHP, 5 for benzoic acid, and 7 for benzyl alcohol.
A18.03.00	Data Evaluation	RM 1.6-2.1 West (Terminal 115)	Highland Park Way SW SD/POS 6162 (Outfall 2125)	NA	NA		Review data from storm drain solids samples collected up gradient of Outfall 2125 in April and October 2010 and May 2011, and data from sand cover samples collected from the clean sand cover placed on the maintenance dredged area in Berth 1, to evaluate the potential for sediment recontamination.	Medium	SCAP	Ecology, Port of Seattle		
A18.04.00	Data Evaluation	RM 1.6-2.1 West (Terminal 115)	West Michigan CSO (Outfall 2506)	NA	NA		Evaluate the 2009 King County effluent discharge data to assess whether the effluent discharges from the West Michigan CSO represent a potential source of contaminants to the sediments near the Terminal 115 source control area.	Medium	SCAP	Ecology		

Table B-2. Incomplete Action Items

Action Item No.	Action Item Category	SCA	Property/ Facility/Outfall	Property Number	Facility/Site ID	NPDES Permit No.	Action Item	Priority	Type	Responsible Party	Status	Comments/Follow-On Actions
A18.05.00	Data Evaluation	RM 1.6-2.1 West (Terminal 115)	Terminal 115 - Port of Seattle Storm Drain Outfalls (Outfalls 2122, 2123, 2124, 2220, and POS 6146)	18014	4040072		Review data from storm drain solids samples collected up gradient of Outfalls 2123, 2124, and 2220 in April and October 2010 and May 2011; storm drain solids samples collected up gradient of Outfall 2128 in September 2011; and data from sand cover samples collected from the clean sand cover placed on the maintenance dredged area in Berth 1 to evaluate the potential for sediment recontamination.	Medium	SCAP	Ecology, Port of Seattle		
A18.06.00	Environmental Sampling	RM 1.6-2.1 West (Terminal 115)	Terminal 115 - Port of Seattle Storm Drain Outfalls (Outfalls 2122, 2123, 2124, 2220, and POS 6146)	18014	4040072		Collect base flow samples from the portions of the Terminal 115 SD system that discharge to Outfalls 2128 and 2220 to determine if contaminants in base flow (i.e., groundwater draining into the storm drain system through French drains and groundwater drainage structures) are present at concentrations exceeding Washington State Water Quality Standards (WAC 173-201A) and/or the draft groundwater-to-sediment screening levels.	Medium	SCAP	Port of Seattle		
A18.07.00	Cleanup	RM 1.6-2.1 West (Terminal 115)	Terminal 115 - Port of Seattle Storm Drain Outfalls (Outfalls 2122, 2123, 2124, 2220, and POS 6146)	18014	4040072		Negotiate an Agreed Order with the Port, to include Terminal-wide investigations to characterize the nature and extent of potential COC sources in fill material, soil, groundwater, and stormwater at Terminal 115, including specific areas identified in the Terminal 115 SCAP.	High	SCAP	Ecology, Port of Seattle		
A18.09.00	Environmental Sampling	RM 1.6-2.1 West (Terminal 115)	Terminal 115 - Port of Seattle Storm Drain Outfalls (Outfalls 2122, 2123, 2124, 2220, and POS 6146)	18014	4040072		Collect storm drain solids samples from the storm drain lines discharging to Outfalls 2122, 2123, 2124, 2128, 2220, and POS 6146 and provide the data to Ecology to identify potential contaminant sources.	High	SCAP	Port of Seattle	In Progress	Samples were recently collected from the storm drain lines discharging to Outfalls 2123, 2124, 2128, and 2220.
A18.10.00	BMP Implementation	RM 1.6-2.1 West (Terminal 115)	Terminal 115 - Port of Seattle Storm Drain Outfalls (Outfalls 2122, 2123, 2124, 2220, and POS 6146)	18014	4040072		Perform a video inspection of storm drain lines to identify areas where groundwater infiltrates the storm drain system.	High	SCAP	Port of Seattle		
A18.11.00	Information Request	RM 1.6-2.1 West (Terminal 115)	Terminal 115 - Port of Seattle Storm Drain Outfalls (Outfalls 2122, 2123, 2124, 2220, and POS 6146)	18014	4040072		Provide information regarding discharges to the deck drains north of Berth 1 to Ecology. Information to be provided will include, at minimum, a description of BMPs employed to prevent pollution of the stormwater runoff that is conveyed to the deck drains.	High	SCAP	Port of Seattle		

Table B-2. Incomplete Action Items

Action Item No.	Action Item Category	SCA	Property/ Facility/Outfall	Property Number	Facility/Site ID	NPDES Permit No.	Action Item	Priority	Type	Responsible Party	Status	Comments/Follow-On Actions
A18.20.00	Inspection	RM 1.6-2.1 West (Terminal 115)	Seattle Engineering Department Penn Yard	18012	NA		Perform a property inspection to determine current use of the property and determine if stormwater and/or spills may be conveyed to the LDW via sheet flow or groundwater discharge.	Medium	SCAP	Ecology		
A18.21.00	Information Request	RM 1.6-2.1 West (Terminal 115)	Seattle Engineering Department Penn Yard	18012	NA		Request information from the City of Seattle Engineering Department regarding historical operations performed by the department to determine if operations may have resulted in releases of contaminants to soil and/or groundwater.	Medium	SCAP	Ecology		
A18.22.00	Information Request	RM 1.6-2.1 West (Terminal 115)	Former Foss Environmental Services	18006	36326474		Request additional information regarding the status of the utility-owned pad-mounted electrical transformer from Haslund MP to determine if it remains at the property, and if so, to determine if it contains PCB-bearing fluid.	Medium	SCAP	Ecology		
A18.23.00	Information Request	RM 1.6-2.1 West (Terminal 115)	Former Foss Environmental Services	18006	36326474		Request additional information from Haslund MP to determine the locations of storm drain lines on the former Foss Environmental property.	Medium	SCAP	Ecology		
A18.25.00	Environmental Sampling	RM 1.6-2.1 West (Terminal 115)	Former Foss Environmental Services	18006	36326474		Request that Haslund MP perform an environmental investigation to characterize the nature and extent of potential sediment COCs in soil and groundwater beneath the property. Soil and groundwater contamination may be present due to historical operations by Boeing.	High	SCAP	Ecology		
A18.27.00	Records Review	RM 1.6-2.1 West (Terminal 115)	Catholic Printery	18003	14533		Review the April 2010 local source control inspection report to determine if there is a potential for sediment recontamination via the stormwater pathway.	Medium	SCAP	Ecology		
A19.01.00	Information Request	RM 2.1 West (1st Avenue S SD)	1st Avenue S Bridge Drains (Outfalls 2505, 2507, 2510, 2512)	NA	NA		Request additional information from WSDOT regarding the quantity and quality of stormwater and solids discharged to the LDW through the bridge drains.	High	SCAP	Ecology		
A19.02.00	Information Request	RM 2.1 West (1st Avenue S SD)	1st Avenue S Storm Drain System	NA	NA		Request additional information on the configuration of pipes and drainage ditches in this area from WSDOT to support identification of potential contaminant sources to the 1st Avenue SD.	Low	SCAP	Ecology		
A19.03.00	Information Request	RM 2.1 West (1st Avenue S SD)	1st Avenue S Engineered Wetlands	NA	NA		Request information regarding monitoring and maintenance of the engineered wetlands in the 1st Avenue S SD source control area from WSDOT in order to assess the potential for discharge of sediment	Medium	SCAP	Ecology		

Table B-2. Incomplete Action Items

Action Item No.	Action Item Category	SCA	Property/ Facility/Outfall	Property Number	Facility/Site ID	NPDES Permit No.	Action Item	Priority	Type	Responsible Party	Status	Comments/Follow-On Actions
							COCs from the wetlands to LDW sediment.					
A19.04.99	Environmental Sampling	RM 2.1 West (1st Avenue S SD)	1st Avenue S Engineered Wetlands	NA	NA		Design a study to identify/evaluate sediment and water sampling locations at the confluence of the 1st Avenue S wetlands and the LDW, taking tidal fluctuations and accessibility into consideration.	Medium	SCAP	Ecology		If it is determined that sediment COCs are being released, determine what measures may be necessary to mitigate contaminant release to the LDW and re-evaluate the priority of source control actions for the upland properties within the 1st Avenue S SD basin.
A19.08.05	Inspection	RM 2.1 West (1st Avenue S SD)	Vista Pro Automotive	19012	96897184		Perform an evaluation to determine if the facility is required to obtain coverage under the ISGP or is eligible for a CNE certificate.	Low	SCAP	Ecology		
A20.08.00	Cleanup	RM 2.1-2.2 West (EAA-2: Trotsky Inlet)	Industrial Container Services	20018	2154		Evaluate the need for stormwater characterization (solids and whole water) from this facility if overflow occurs during heavy rainfall events.	Medium	SCAP	Ecology/ KCIW	In Progress	To be addressed in accordance with Agreed Order No. DE-6720. All of the production areas at this site are plumbed to the sanitary sewer and are covered by a KCIW permit. Building roof drains discharge to ground. Site is lower than street, so roof runoff remains onsite. Site does not affect City MS4. ICS has reportedly installed an overflow with discharge to waterway. KCIW is allowing contaminated stormwater to be treated and discharged to the sanitary sewer on an interim basis while RI/FS activities are being conducted.
A20.12.00	Cleanup	RM 2.1-2.2 West (EAA-2: Trotsky Inlet)	Douglas Management Company	20006	97573251		Conduct cleanup as needed to eliminate sources of contaminants to EAA-2; negotiate Agreed Order.	Medium	SCAP	Property owner/operator, Ecology	In Progress	To be conducted in accordance with Agreed Order No. DE-8258. Draft RI Report submitted in January 2017.
A20.16.00	Cleanup	RM 2.1-2.2 West (EAA-2: Trotsky Inlet)	Douglas Management Company	20006	97573251		If stormwater discharge to EAA-2 (including the Trotsky inlet to the south and the LDW shoreline to the north and east) is confirmed, assess the need for stormwater characterization (solids and whole water). Collect stormwater samples as needed.	Medium	SCAP	Ecology/ Property owner/operator		To be addressed in accordance with Agreed Order No. DE-8258. This is direct discharge. Does not affect City MS4.

Table B-2. Incomplete Action Items

Action Item No.	Action Item Category	SCA	Property/ Facility/Outfall	Property Number	Facility/Site ID	NPDES Permit No.	Action Item	Priority	Type	Responsible Party	Status	Comments/Follow-On Actions
A20.19.00	Source Assessment	RM 2.1-2.2 West (EAA-2: Trotsky Inlet)	2nd Avenue S SD	NA	NA		Continue source tracing to identify sources of phthalates and other COCs.	High	SCAP	SPU	In Progress	In 2010, SPU jetted and cleaned all catch basins culverts, and pipes in the street that connect to this private drainage system. SPU has collected 7 samples in this system since cleaning. Chemicals that exceeded the CSL included zinc (1 sample), TPH-oil (6 samples), BEHP (6 samples), other phthalates, 4-methylphenol (1 sample), and benzyl alcohol (4 samples). A diesel truck repair facility continues to be a source of oil to this drain. SPU has issued multiple NOVs to this facility.
A20.33.02	Cleanup	RM 2.1-2.2 West (EAA-2: Trotsky Inlet)	Industrial Container Services	20018	2154		Conduct RI/FS, implement interim actions (as needed), and prepare draft CAP.	Medium	Follow-On	Industrial Container Services	In Progress	To be conducted in accordance with Agreed Order No. DE-6720. Draft RI Report submitted in October 2016.
A20.35.00	Environmental Sampling	RM 2.1-2.2 West (EAA-2: Trotsky Inlet)	Douglas Management Company	20006	97573251		Conduct groundwater sampling along the LDW shoreline to assess the potential for sediment recontamination via groundwater transport.	Medium	New	Ecology		To be addressed in accordance with Agreed Order No. DE-8258. Shoreline groundwater samples have been collected from three wells.
A20.36.00	Data Evaluation	RM 2.1-2.2 West (EAA-2: Trotsky Inlet)	Boyer Towing	20002	15947, 37926748		Review source tracing data collected by SPU for the 2nd Avenue S storm drain basin to identify whether the Boyer Towing owned or leased parcels are a potential source of contaminants to the Trotsky Inlet and the LDW.	Medium	New	Ecology	In Progress	Preliminary review indicates phthalates and metals may be present at elevated concentrations.
A20.36.01	Source Assessment	RM 2.1-2.2 West (EAA-2: Trotsky Inlet)	Boyer Towing	20002	15947, 37926748		Determine if additional storm drain samples are needed.	Medium	New	Ecology		If connected, Boyer properties along 2nd Ave S would tie into the privately-owned 2nd Ave S SD system. Site does not affect City MS4.
A20.37.00	Information Request	RM 2.1-2.2 West (EAA-2: Trotsky Inlet)	Boyer Towing	20002	15947, 37926748		Request additional data regarding potential soil contamination at Parcels F and G; evaluate the need for additional characterization.	Medium	New	Ecology		Action item identified in Supplemental Data Gaps Report.
A21.01.00	Source Assessment	RM 2.2-3.4 West (Riverside Drive)	7th Avenue S SD Outfall (Outfall 2112)	NA	NA		Continue source tracing to identify potential sources of the sediment COCs reported above screening levels in storm drain structures in the 7th Avenue S SD basin.	Medium	SCAP	SPU, Ecology	In Progress	SPU jetted and cleaned the entire 7th Ave S SD system in 2013 and continues to operate 3 sediment traps in this basin. Samples in 2017 contained zinc, PCBs, phthalates, and benzyl alcohol above screening levels.
A21.02.00	Source Assessment	RM 2.2-3.4 West (Riverside Drive)	King County Outfall (Outfall 3037)	NA	NA		Conduct source tracing to identify potential sources of sediment COCs reported above screening levels in LDW sediments adjacent to Outfall 3037.	Medium	SCAP	King County		Outfall 3037 is at the terminus of S Southern Street within unincorporated King County. Samples have not been collected to date.

Table B-2. Incomplete Action Items

Action Item No.	Action Item Category	SCA	Property/ Facility/Outfall	Property Number	Facility/Site ID	NPDES Permit No.	Action Item	Priority	Type	Responsible Party	Status	Comments/Follow-On Actions
A21.03.00	Inspection	RM 2.2-3.4 West (Riverside Drive)	Private Outfalls (Outfalls 2106, 2108, and 2113)	NA	NA		Conduct an inspection during a storm event to determine if the three unresolved outfalls (Outfalls 2106, 2108, and 2113) are operational or have been abandoned.	Medium	SCAP	SPU		Outfall 2113 is the City's S Webster Street SD. This outfall serves one catch basin located on S Riverside Dr. SPU sampled this CB in 2016. LPAH, HPAH, and BEHP exceeded the CSL. Outfall 2106 is an abandoned 24" pipe that is full of sediment and no longer functional. Outfall 2107 is no longer visible along the shoreline. SPU will double check during a low tide to confirm.
A21.04.00	Source Assessment	RM 2.2-3.4 West (Riverside Drive)	Private Outfalls (Outfalls 2106, 2108, and 2113)	NA	NA		If discharge from these outfalls is observed, conduct dye testing to determine if storm drain lines are connected to the unresolved outfalls, and delineate the associated drainage areas.	Medium	SCAP	Property Owners		Outfall 2113 is the City's S Webster Street SD. This outfall serves one catch basin located on S Riverside Dr. Outfalls 2106 and 2108 remain unresolved.
A21.07.00	Information Request	RM 2.2-3.4 West (Riverside Drive)	Independent Metals Plant 2	21032	16139		Request drainage information from Independent Metals or the current operator at this property for Outfalls 2109 and 2111 to determine if the outfalls are operational and to identify the drainage areas associated with the outfalls, if any.	High	SCAP	Ecology		Independent Metals Plant 2 is no longer in business. Silver Bay Logging is the current operator. The site is on the CSCSL and is awaiting cleanup.
A21.08.00	Inspection	RM 2.2-3.4 West (Riverside Drive)	Former Long Painting – 10th Avenue S Facility	21036	71678662		Perform a facility inspection at Unity Electric to verify compliance with applicable regulations and BMPs.	Medium	SCAP	SPU		All of the commercial parcels are in the City of Seattle. The parcels in King County are either residential or vacant.
A21.09.00	Information Request	RM 2.2-3.4 West (Riverside Drive)	American Civil Constructors Barge Removal Ramp	20002	NA		Request American Civil Constructors to provide information about the fill used for a barge removal ramp, to determine if the fill is a potential source of contaminants to adjacent sediments.	High	SCAP	EPA, USACE		
A21.13.00	Inspection	RM 2.2-3.4 West (Riverside Drive)	Olympic Steel Door	21050	45787437		Request Olympic Steel Door, Redox, and All Metal Arts to obtain coverage under the ISGP or apply for a CNE.	Low	SCAP	Ecology		
A21.17.00	Environmental Sampling	RM 2.2-3.4 West (Riverside Drive)	Independent Metals Plant 1	21030	9309618		Request Independent Metals to obtain environmental data to determine if soil and groundwater is contaminated by metals from recycling operations and if COCs in soil and groundwater may be transported to the LDW.	Medium	SCAP	Ecology		Independent Metals Plant 1 is on the CSCSL and is awaiting cleanup with confirmed PCB contamination in soil and groundwater.

Table B-2. Incomplete Action Items

Action Item No.	Action Item Category	SCA	Property/ Facility/Outfall	Property Number	Facility/Site ID	NPDES Permit No.	Action Item	Priority	Type	Responsible Party	Status	Comments/Follow-On Actions
A22.01.01	Environmental Sampling	RM 3.4-3.8 West (EAA-5: Terminal 117)	Adjacent Streets/Dallas Ave.	NA	NA		Continue monitoring of storm drain solids	High	Follow-On	SPU, Port of Seattle	In Progress	City of Seattle and Port of Seattle are preparing long term maintenance and monitoring plan for EPA (due in 2018). Long term monitoring at outfall to be conducted as part of Seattle's SCIP. SPU installed a sediment trap in the downstream-most MH on the 17th Ave S SD in 2017. The trap was retrieved in 2018 and 2019. Insufficient material had accumulated to allow chemical analysis. SPU collected 5 stormwater samples from the underdrains in one bioretention cell and one Filterra unit in 2018-2019 to assess condition of the filter media. PCBs were not detected at 0.01 ug/L in any samples. Next round of underdrain sampling is scheduled for 2021.
A22.05.00	Source Assessment	RM 3.4-3.8 West (EAA-5: Terminal 117)	South Park Marina	22003	44653368		Investigate sewer connections and discharge locations of storm drains and catch basins.	Low	SCAP	Ecology		Site maps show two outfalls from South Park Marina facility to the LDW; only one is identified in the facility's NPDES permit.
A23.05.00	Information Request	RM 3.8-4.2 West (Sea King Industrial Park)	Sea King Industrial Park	23038	NA		Request clarification from King County regarding the owner and operator status for the S Director Street Outfall and Outfall 2101.	Medium	SCAP	Ecology		
A23.06.00	Information Request	RM 3.8-4.2 West (Sea King Industrial Park)	Sea King Industrial Park	23038	NA		Sea King Industrial Park is not located within the S 96th Street SD basin, but discharges to a creek along S Director Street. Request information from the property owner regarding stormwater drainage features to evaluate the potential for contaminant transport to the LDW via stormwater discharge.	Low	SCAP	Ecology		
A23.08.00	Information Request	RM 3.8-4.2 West (Sea King Industrial Park)	Sea King Industrial Park	23038	NA		Request information from the property owner regarding historical tenant operations to determine the potential for soil and/or groundwater contamination beneath the property.	Low	SCAP	Ecology		
A23.09.00	Inspection	RM 3.8-4.2 West (Sea King Industrial Park)	KRS Marine	23024	90355185		Facility is adjacent to the LDW. Perform a source control inspection to verify compliance with applicable regulations and BMPs to prevent the release of contaminants to the LDW.	Low	SCAP	Ecology		
A24.01.00	Information Request	RM 4.2-5.8 West (Restoration Areas)	Hamm Creek SD Basin	NA	NA		Request additional information from King County and the Cities of Burien and SeaTac to define the boundaries of the Hamm Creek SD basin in order to determine if the area to the east of Des Moines Memorial Drive between S 116th Way and S 124th Street and the area south of S 124th Street should be included in or excluded from the	Medium	SCAP	Ecology	In Progress	Based on Figure 3-3 in King County's Source Control Implementation Plan, the area in question is within the city of Burien.

Table B-2. Incomplete Action Items

Action Item No.	Action Item Category	SCA	Property/ Facility/Outfall	Property Number	Facility/Site ID	NPDES Permit No.	Action Item	Priority	Type	Responsible Party	Status	Comments/Follow-On Actions
							Restoration Areas source control area.					
A24.02.00	Information Request	RM 4.2-5.8 West (Restoration Areas)	Outfall 3842	NA	NA		Request additional information from the City of Tukwila to determine the drainage area associated with Outfall 3842.	Medium	SCAP	Ecology		
A24.04.00	Environmental Sampling	RM 4.2-5.8 West (Restoration Areas)	Seattle City Light Power Substation	24021	17593		Request that SCL perform an environmental assessment to address the potential arsenic, mercury, benzo(a)pyrene, and BEHP contamination in fill material.	Medium	SCAP	Ecology		
A24.05.00	Inspection	RM 4.2-5.8 West (Restoration Areas)	Boeing Parking Lot Property	24004	NA		Perform a source control inspection to verify compliance with applicable regulations and BMPs to prevent the release of contaminants to the LDW.	Low	SCAP	Ecology		
A24.08.00	Environmental Sampling	RM 4.2-5.8 West (Restoration Areas)	USPS Seattle Distribution Center	24025	NA		Request that the Sabey Corporation collect groundwater data to assess the current concentrations of metals in groundwater beneath the property.	Low	SCAP	Ecology		
A24.09.00	Records Review	RM 4.2-5.8 West (Restoration Areas)	USPS Seattle Distribution Center	24025	NA		Review the cleanup records associated with Atlas Demolition to assess the potential for sediment recontamination via the groundwater discharge pathway.	Low	SCAP	Ecology		

Appendix C:
SPU Source Control Inspections (2017)

Appendix C
SPU Source Control Inspections 2017

Facility	Address	Date Inspected	Inspection Type	Total Corrective Actions	HW	IW	SP	SW	Rank
Upper Reach									
RM 4.9 East (EAA-7: Norfolk CSO/SD)									
Cucina Fresca Inc.	8300 Military Rd S	08/29/17	Initial	0					Low
HD Supply Waterworks LTD	10013 Martin Luther King Jr Way S	06/13/17	Initial	3				3	Medium
		07/13/17	Follow Up						
Special Asphalt Products Inc	9243 Martin Luther King Jr Way S	09/11/17	Initial	0					Medium
RM 3.8-4.2 West (Sea King Industrial Park)									
Avidex	860 S Cambridge Street	04/25/17	Initial	0					Low
Johnson Western Gunite Company	833 S Director Street	08/29/17	Initial	1				1	Low
King Electrical	821 S Barton Street	12/07/17	Initial	2			1	1	Low
King Electrical Mfg. Company	9131 10th Avenue S	12/07/17	Initial	3			1	2	Medium
National Products Inc.	9243 10th Avenue S	04/25/17	Initial	3			3		Low
Samson Tug and Barge	9228 10th Avenue S	10/09/17	Initial	0					Medium
Middle Reach									
RM 2.8 East (EAA-3: Slip 4)									
Cedar Grove Composting, Inc.	7343 East Marginal Way S	12/14/17	Initial	2			1	1	Medium
Marginal Way Shell	7200 East Marginal Way S	07/11/17	Initial	1				1	High
		08/16/17	Follow Up						
RM 2.3-2.8 East (Seattle Boiler Works to Slip 4)									
Seattle Iron and Metals Corp.	601 S Myrtle Street	11/28/17	Initial	7			4	3	High
Seattle Iron and Metals Truck Parking	730 S Myrtle Street	06/29/17	Initial	0					High
RM 2.0-2.3 East (Slip 3 to Seattle Boiler Works)									
Alpine Auto Sales	6722 Fox Avenue S	04/27/17	Initial	0					Low
Amazon Flex	6701 East Marginal Way S	07/18/17	Initial	3			2	1	Low
		08/29/17	Follow Up						
American Northwest Distributor	6733 East Marginal Way S	07/17/17	Initial	3			3		Low
Emerald Services	6851 East Marginal Way S	05/08/17	Initial	0					High
Evergreen Tractor	164 S Michigan Street	05/15/17	Initial	2				2	Medium
		06/26/17	Follow Up						
Pacific Office Automation	6729 East Marginal Way S	07/17/17	Initial	4			3	1	Low
		08/31/17	Follow Up						
Rosanna Imports	6755 East Marginal Way S	08/03/17	Initial	0					Low
Stumptown Coffee Roasters	6779 East Marginal Way S	10/18/17	Initial	4			3	1	Low
West Coast Ship Supply	6767 East Marginal Way S	07/18/17	Initial	5			3	2	Medium
		08/29/17	Follow Up						
Windows Doors & More Inc	6783 East Marginal Way S	06/27/17	Initial	3			3		Low

Appendix C
SPU Source Control Inspections 2017

Facility	Address	Date Inspected	Inspection Type	Total Corrective Actions	HW	IW	SP	SW	Rank
RM 2.2 - 3.4 West (Riverside Drive)									
Akers Landscaping	309 S Cloverdale Street	03/21/17	Initial	3			3		Medium
Bagn Volpi Noemi USA LLC	309 S Cloverdale Street	01/23/17	Screening	0					None
Builtgreen Building Supply	521 S Monroe Street	03/21/17	Initial	4			1	3	Medium
		04/25/17	Follow Up						
Carevacations USA Inc	309 S Cloverdale Street	03/03/17	Initial	3			3		Low
DBA Euro Import Company	309 S Cloverdale Street	03/03/17	Initial	3			3		Low
Direct Mail Network	309 S Cloverdale Street	01/25/17	Initial	0					High
Fire King of Seattle, Inc.	240 S Holden Street	03/28/17	Initial	6		1		5	High
		04/25/17	Follow Up						
Fist Aid Supplies Online	309 S Cloverdale Street	01/23/17	Initial	0					Low
Five Stars Auto Body	523 S Elmgrove Street	06/22/17	Initial	4			3	1	Medium
		07/28/17	Follow Up						
Industrial Tire Service	540 S Holden Street	10/04/17	Initial	0					Medium
La Toscanella Bakery	309 S Cloverdale Street	03/03/17	Initial	3			3		Low
Lisa Lucas Design LLC	309 S Cloverdale Street	02/01/17	Initial	0					Low
Mercury Commercial Cleaning	309 S Cloverdale Street	03/21/17	Initial	0					low
Michaelo Espresso Inc	309 S Cloverdale Street	01/25/17	Initial	4		1	3		Medium
Piroshky Baking Company	309 S Cloverdale Street	01/27/17	Follow Up						Low
Puget Sound Inflatables	309 S Cloverdale Street	03/21/17	Initial	3			3		Low
Sea Technology Construction Inc.	309 S Cloverdale Street	03/16/17	Initial	6		1	3	2	High
		04/12/17	Follow Up						
Seattle Environmental Construction	309 S Cloverdale Street	01/23/17	Initial	4			3	1	Low
Seattle Plastics	309 S Cloverdale Street	03/03/17	Initial	1				1	Low
Seattle Powder Coat	7619 5th Avenue S	11/06/17	Initial	3			3		Low
Seattle Tree Preservation	309 S Cloverdale Street	01/25/17	Initial	0					Medium
Subsea Global Solutions	309 S Cloverdale Street	01/23/17	Initial	0					Low
Tatoosh Distillery	309 S Cloverdale Street	01/23/17	Initial	4			3	1	Medium
Team Gourmet USA	309 S Cloverdale Street	03/24/17	Initial	1			1		Low
Universal Applicators Inc	515 S Southern Street	06/19/17	Initial	3			1	2	Medium
		07/24/17	Follow Up						
Vic's Seafood	309 S Cloverdale Street	01/23/17	Initial	3			3		Low
Windows 101 LLC	722 S Portland Street	08/29/17	Initial	0					Low
RM 2.1-2.2 West (EAA-2: Trotsky Inlet)									
APP Seattle Truck Terminal	241 S Chicago Street	06/09/17	Initial	2				2	Low
		08/21/17	Follow Up						
Book It Reperatory Theater	7620 2nd Avenue S	08/14/17	Initial	0					Low

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SPU Source Control Inspections 2017

Facility	Address	Date Inspected	Inspection Type	Total Corrective Actions	HW	IW	SP	SW	Rank
Cam Grinders Inc.	7622 2nd Avenue S	08/25/17	Initial	1				1	Medium
		12/01/17	Follow Up						
Cunningham Manufacturing	318 S Webster Street	10/24/17	Initial	0					Low
Full Circle	432 S Cloverdale Street	01/19/17	Initial	4			1	3	High
		04/03/17	Follow Up						
Kidder Mathews	241 S Chicago Street	06/09/17	Initial	1				1	Low
Pierce Aluminum	501 S Elmgrove	07/24/17	Initial	4			3	1	Medium
		08/29/17	Follow Up						
		09/21/17	Follow Up						
Pioneer Human Services	7440 West Marginal Way S	09/29/17	Initial	0					Low
T H Seafood	7901 2nd Avenue S	10/31/17	Initial	0					Low
Urban Delivery Service LLC	301 S Webster Street	08/16/17	Initial	0					Low
RM 2.1 West (1st Avenue S SD)									
Seaport Food Mart	7801 Detroit Avenue SW	04/27/17	Initial	0					Medium
SHA - South Operations Facility	7500 Detroit Avenue SW	05/09/17	Initial	0					Medium
Lion Trucking, Inc.	8425 1st Avenue S	07/06/17	Initial	6		1	1	4	Medium
		08/10/17	Follow Up						
		08/28/17	Follow Up						
Bay Valve	8001 5th Avenue S	08/14/17	Screening	0					High
Public Storage	9200 Olson Pl SW	10/05/17	Initial	0					Low
MacDonald Miller Co., Inc.	7707 Detroit Avenue SW	05/05/17	Initial	6			1	5	High
		06/30/17	Follow Up						
International Lubricants Inc.	7930 Occidental Avenue S	06/13/17	Initial	0					Medium
Samson Tug and Barge	7553 Detroit Avenue SW	05/09/17	Initial	1				1	Low
		05/26/17	Follow Up						
Waste Management of Washington Inc.	8111 1st Avenue S	10/24/17	Initial	0					Medium
Waste Management of Seattle	8101 1st Avenue S	10/24/17	Initial	0					Medium
Waste Management Eastmont Transfer Station	7201 West Margninal Way S	11/02/17	Initial	4			1	3	High
		12/19/17	Follow Up						
Western Stud Welding	127 S Kenyon Street	10/31/17	Initial	0					Low
RM 1.6-2.1 West (Terminal 115)									
Catholic Printery Inc.	6327 West Marginal Way SW	11/14/17	Initial	0					Low
Emswiler Construction	6045 West Marginal Way SW	12/07/17	Initial	4				4	High
Gene Summy Lumber	6000 West Marginal Way SW	09/27/17	Initial	4			1	3	Medium
		11/21/17	Follow Up						
Lineage Seafreeze	206 SW Michigan Street	08/30/17	Initial	2			1	1	Low
		11/03/17	Follow Up						

Appendix C
SPU Source Control Inspections 2017

Facility	Address	Date Inspected	Inspection Type	Total Corrective Actions	HW	IW	SP	SW	Rank
Northwest Custom Interiors Inc.	7126 West Marginal Way SW	06/29/17	Screening						None
Northwest SeaFood Processors Inc.	206 SW Michigan Street	08/30/17	Initial	6			1	5	Medium
		10/09/17	Follow Up						
Pioneer Industries	7000 Highland Park Way SW	09/29/17	Initial	1				1	High
		10/02/17	Follow Up						
		11/27/17	Follow Up						
		12/21/17	Follow Up						
Stericycle (Formerly Kleen Enviro)	5955 West Marginal Way SW	11/01/17	Initial	2			1	1	Low
		11/02/17	Follow Up						
Tank Wise LLC	5405 West Marginal Way SW	10/04/17	Initial	2				2	Medium
		11/08/17	Follow Up						
Lower Reach									
RM 0.1-0.9 East (EAA-1: Duwamish/Diagonal Way)									
3 Form Light Art	4770 Ohio Avenue S	04/27/17	Initial	4			3	1	Low
A-1 Auto Repair & Towing, Inc.	1821 Rainier Avenue S	05/02/17	Initial	3			1	2	Medium
		06/16/17	Follow Up						
A-1 Towing Services	2106 S Holgate Street	05/11/17	Initial	4			3	1	Low
		06/16/17	Follow Up						
A Better Roofing Company Inc.	4126 Airport Way S	08/14/17	Initial	0					Low
ABC Towing	710 S Dakota Street	07/28/17	Initial	1				1	Low
		08/31/17	Follow Up						
Acme Construction Supply	4747 1st Avenue S	02/15/17	Follow Up						High
		03/24/17	Follow Up						
American Red Cross	1900 25th Avenue S	08/03/17	Initial	0					Low
Atlas Supply	611 S Charlestown Street	06/19/17	Initial	5				3	High
		08/02/17	Follow Up						
Auto-Chlor System	4315 7th Avenue S	04/19/17	Initial	2			1	1	High
		06/01/17	Follow Up						
Bader & Olson	601 S Andover Street	03/10/17	Initial	5			2	3	Medium
		04/25/17	Follow Up						
Barcodes West a Division of ID Label	2755 Airport Way S	11/14/17	Initial	0					Low
Big Leaf Manufacturing Co.	1128 Poplar Pl S	06/14/17	Initial	2				2	Medium
		07/13/17	Follow Up						
Bokrosh Studio	1905 22nd Avenue S	07/19/17	Initial	3		1	3		Low
BP Arco	2802 Rainier Avenue S	07/12/17	Initial	0					High
Bread & Circuses LLC	4660 Ohio Avenue S	08/14/17	Initial	2				2	Low

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SPU Source Control Inspections 2017

Facility	Address	Date Inspected	Inspection Type	Total Corrective Actions	HW	IW	SP	SW	Rank
Budd & Co.	800 Ranier Avenue S	04/26/17	Initial	1				1	Low
		05/17/17	Follow Up						
C & G Wines	2028 21st Avenue S	05/01/17	Initial	3			3		Low
Carpet Liquidators Inc.	4400 4th Avenue S	07/19/17	Initial	7			3	4	High
		09/27/17	Follow Up						
Cascade Machinery & Electric, Inc.	4600 East Marginal Way S	05/08/17	Initial	1				1	Low
		06/20/17	Follow Up						
CDK Investment Partnership	2326 Rainier Avenue S	08/16/17	Initial	1				1	Low
		12/05/17	Follow Up						
Chau's Complete Auto Repair	509 Rainier Avenue S	04/26/17	Initial	3				3	High
		06/01/17	Follow Up						
City of Seattle - OCC	2700 Airport Way S	09/11/17	Initial	1				1	Medium
Davis Door Service, Inc.	2021 S Grand Street	01/10/17	Follow Up						Medium
Deeny Construction Co. Inc,	2545 Rainier Avenue S	04/20/17	Initial	1				1	Low
DHL Express	4450 East Marginal Way S	01/24/17	Initial	0					Low
Dragon Auto & Transmission	2901 17th Avenue S	03/06/17	Initial	8			4	4	High
Ducky's Office Furniture	24 S Idaho Street	06/09/17	Initial	5			3	2	Low
		08/07/17	Follow Up						
Ed Wyse Beauty Supply	3701 7th Avenue S	08/18/17	Initial	1				1	Low
El Centro de la Raza	2524 16th Avenue S	10/26/17	Initial	3				3	Low
		11/28/17	Follow Up						
		12/21/17	Follow Up						
El Quetzal	3211 Beacon Avenue S	02/02/17	Initial	3			3		Low
Emergency Response Training Institute	812 S Adams Street	09/21/17	Initial	0					Low
Eritrean Association of Greater Seattle	1528 Valentine Pl S	02/03/17	Initial	3			3		Low
Essential Innovations	1802 21st Avenue S	05/02/17	Initial	3			3		High
FedEx	651 S Alaska Street	08/11/17	Initial	3				3	High
		08/25/17	Follow Up						
		09/22/17	Follow Up						
		10/19/17	Follow Up						
		11/21/17	Follow Up						
Ferrigno Hall	2105 S Grand Street	05/01/17	Initial	0					Low
Four Below	4750 Ohio Avenue S	04/04/17	Initial	3			3		Low
G S Building Supply Inc	4727 Denver Avenue S	07/07/17	Initial	1				1	High
Glassworks	927 Rainier Avenue S	05/09/17	Initial	3				3	Low
		06/05/17	Follow Up						

Appendix C
SPU Source Control Inspections 2017

Facility	Address	Date Inspected	Inspection Type	Total Corrective Actions	HW	IW	SP	SW	Rank
Grand Central Bakery	21 S Nevada Street	06/27/17	Initial	2				2	Low
		07/28/17	Follow Up						
The Green Door	708 Rainier Avenue S	02/08/17	Screening	0					None
Grease Monkey #481	2101 23rd Avenue S	11/02/17	Initial	3			1	2	High
Hallava Falafel	4660 Ohio Avenue S	08/16/17	Screening	0					None
H-E Parts International (B&G Machine)	11 S Nevada Street	11/01/17	Initial	0					Low
Hello Bicycle	3067 Beacon Avenue S	08/03/17	Initial	0					Low
Ink Knife Press	2112 S Holgate Street	05/08/17	Initial	3			3		Low
International Truck Leasing & Rental	3801 7th Avenue S	10/11/17	Initial	0					Medium
IPS Group	1222 S Weller Street	05/24/17	Initial	5			3	2	Low
		07/27/17	Follow Up						
Iron Mountain	4521 6th Avenue S	10/03/17	Initial	0					Low
Jefferson Park Community Center	3801 Beacon Avenue S	08/16/17	Initial	0					Low
Jefferson Park Horticulture	1600 S Dakota Street	07/10/17	Initial	1				1	Low
		08/31/17	Follow Up						
Judkins Park and Playfield	2150 S Norman Street	01/26/17	Initial	0					Low
Kim Ling Investment Co.	1222 S Weller Street	05/24/17	Initial	1				1	Medium
		07/27/17	Follow Up						
King County Sheriff	4632 7th Avenue S	09/26/17	Initial	0					Low
KT Building Supply	3614 6th Avenue S	04/03/17	Initial	3		1		2	High
		06/16/17	Follow Up						
Liberty Motors	2310 Rainier Avenue S	08/16/17	Initial	0					Low
Lowes Home Improvement Warehouse	2700 Rainier Avenue S	11/14/17	Initial	5			1	4	Medium
		11/28/17	Follow Up						
		12/15/17	Follow Up						
Martin Luther King 76	2801 Martin Luther King Jr Way S	04/20/17	Initial	2				2	Medium
		06/20/17	Follow Up						
Merlino Foods	4100 4th Avenue S	10/11/17	Initial	2				2	Medium
Metal Works Northwest	3834 4th Avenue S	04/04/17	Initial	5			1	4	Medium
		05/24/17	Follow Up						
Mikes East Coast Sandwiches	2822 Martin Luther King Jr Way S	07/12/17	Initial	3			3		Low
Motorcycle Cooperative	2106 S Holgate Street	05/11/17	Initial	3			1	2	Medium
		06/16/17	Follow Up						
Northwestern Machinery	1222 S Weller Street	05/24/17	Screening						None
NW Container Services Inc.	635 S Edmunds Street	08/09/17	Initial	3		1		2	Medium
		09/11/17	Follow Up						

Appendix C
SPU Source Control Inspections 2017

Facility	Address	Date Inspected	Inspection Type	Total Corrective Actions	HW	IW	SP	SW	Rank
Oberto Sausage Company	1715 Rainier Avenue S	05/31/17	Initial	1				1	Low
		06/26/17	Follow Up						
OMA Construction Inc.	2760 6th Pl S	10/20/17	Initial	10			3	7	High
		12/20/17	Follow Up						
OpenSquare	4600 Utah Avenue S	06/27/17	Initial	4			3	1	High
		07/28/17	Follow Up						
Prologis Seattle	4201 6th Avenue S	10/03/17	Initial	1				1	None
		11/27/17	Follow Up						
Promenade 23 Shopping Center	2301 S Jackson Street	02/08/17	Initial	1				1	Low
		02/17/17	Follow Up						
Puget Sound Pipe & Supply	4800 Denver Avenue S	01/31/17	Initial						Low
QFC #849	2707 Rainier Avenue S	03/02/17	Initial	5			4	1	Low
		04/25/17	Follow Up						
Rainier Auto Repair Service	1801 Rainier Avenue S	04/19/17	Initial	5			4	1	Medium
		05/25/17	Follow Up						
Rainier Cycle	4740 Airport Way S	02/13/17	Follow Up						Medium
Rainier Veterinary Hospital	815 Rainier Avenue S	05/04/17	Initial	1				1	Low
		06/05/17	Follow Up						
Ralph's Concrete Pumping	1511 Rainier Avenue S	12/05/17	Follow Up						High
Recology Cleanscapes Inc.	7 S Idaho Street	05/09/17	Initial	0					Medium
Recycling Depot	851 Rainier Avenue S	02/28/17	Initial	4				4	High
		03/06/17	Follow Up						
		03/27/17	Follow Up						
Recycling Depot (Back Lot)	851 Rainier Avenue S	02/28/17	Initial	4				4	High
		03/27/17	Follow Up						
Rite Aid #5224	2707 Rainier Avenue S	04/26/17	Initial	4			3	1	Low
		06/12/17	Follow Up						
		07/07/17	Follow Up						
RSVP International Inc.	4435 Colorado Avenue S	01/20/17	Initial	3			3		Low
Seattle Cider Company LLC	4701 Colorado Avenue S	07/28/17	Initial	2				2	High
		08/14/17	Follow Up						
Seattle DOT - Sunny Jim	4200 Airport Way S	01/13/17	Initial	0					Medium
Seattle Indian Center Inc	1265 S Main Street	11/03/17	Initial	1			1		Medium
Seattle Lighthouse for the Blind Foundation	2501 S Plum Street	05/10/17	Initial	3				3	High
		06/16/17	Follow Up						
Seattle Vocational Institute	2120 S Jackson Street	04/20/17	Initial	0					Low

Appendix C
SPU Source Control Inspections 2017

Facility	Address	Date Inspected	Inspection Type	Total Corrective Actions	HW	IW	SP	SW	Rank
SHA - Housing Operations Facility	810 Martin Luther King Jr Way S	04/28/17	Initial	6			1	5	Medium
		06/20/17	Follow Up						
Shell #111	852 Rainier Avenue S	05/03/17	Initial	6			4	2	Medium
		06/14/17	Follow Up						
Sodo Moto	2548 Airport Way S	06/01/17	Initial	4			3	1	Medium
Sound Transit LINK Operations and Maint Facility	3407 Airport Way S	03/16/17	Initial	5			3	2	Medium
Standard Brewing	2504 S Jackson Street	04/20/17	Initial	4			3	1	High
Starbucks Coffee Company #3302	2921 Martin Luther King Jr Way	07/13/17	Initial	5			3	2	Low
		08/29/17	Follow Up						
		10/13/17	Follow Up						
		11/16/17	Follow Up						
Taco Time	2212 Rainier Avenue S	04/20/17	Initial	2			1	1	Medium
		06/12/17	Follow Up	2			2		Medium
		06/20/17	Follow Up						
Takisaki Inc.	1312 S Weller Street	06/08/17	Initial	4			3	1	Low
		06/26/17	Follow Up						
The Field Roast Grain Meat Co.	3901 7th Avenue S	10/05/17	Initial	0					Low
The Melding Pot	1440 S Jackson Street	07/21/17	Initial	3			3		Medium
The Pepsi Bottling Group	2300 26th Avenue S	08/30/17	Initial	0					Medium
Todd's Trading post and Compassion Collective	1901 Rainier Avenue S	05/25/17	Initial	1				1	Low
		06/16/17	Follow Up						
Tomboy Exchange	5021 Colorado Avenue S	03/16/17	Screening	0					None
Trade Marx Sign and Display	818 S Dakota Street	04/03/17	Initial	2		1		1	Medium
		06/02/17	Follow Up						
		07/07/17	Follow Up						
Travelers Thali House	2524 Beacon Avenue S	06/02/17	Initial	3			3		Low
Union Bank	24 S Idaho Street	06/09/17	Initial	1				1	Low
		09/06/17	Follow Up						
UPS Automotive	4329 7th Avenue S	09/25/17	Initial	0					None
US Bank	2910 Rainier Avenue S	04/26/17	Initial	2				2	Low
		06/05/17	Follow Up						
Vacant	708 Rainier Avenue S	02/08/17	Screening	0					None
Veterans Affairs Health Care Seattle	1660 S Columbian Way	05/31/17	Initial	1				1	Medium
		06/08/17	Follow Up						
		06/29/17	Follow Up						
		08/14/17	Follow Up						
		09/19/17	Follow Up						

Appendix C
SPU Source Control Inspections 2017

Facility	Address	Date Inspected	Inspection Type	Total Corrective Actions	HW	IW	SP	SW	Rank
Victorola Coffee Roasters	3215 Beacon Avenue S	10/05/17	Initial	3			3		Low
Whole Foods Market Distribution Center	4250 East Marginal Way S	01/24/17	Initial	2			1	1	Low
		02/27/17	Follow Up						
Wilcor Grounding Systems	4045 7th Avenue S	10/05/17	Initial	4			1	3	Low
		11/27/17	Follow Up						
Yuen Lui Studio	1407 S Dearborn Street	10/30/17	Initial	0					Low
RM 1.3-1.6 West (Glacier Bay)									
Duwamish Shipyard	5658 West Marginal Way SW	01/20/17	Screening						None
RM 0.0-1.0 West (Spokane Street to Kellogg Island)									
Tryg Winquist Constuction Co	3839 West Marginal Way SW	06/23/17	Initial	0					Low
Fog Tite Inc	4819 West Marginal Way SW	05/03/17	Initial	1				1	Medium
		06/26/17	Follow Up						
Holcim	5101 West Marginal Way SW	01/17/17	Initial	1				1	High
		04/25/17	Follow Up						
New Finishes, Inc.	4235 West Marginal Way SW	11/09/17	Initial	1			1		Medium
Penthouse Drapery	4033 16th Avenue SW	08/14/17	Initial	2				2	Low
		09/29/17	Follow Up						
South Seattle College	6000 16th Avenue SW	09/07/17	Initial	3				3	Medium
		10/20/17	Follow Up						
Visko Enterprises	4235 West Marginal Way SW	11/09/17	Initial	1				1	Low
		12/21/17	Follow Up						

HW = hazardous waste
IW = industrial waste
SP = spill prevention
SW = stormwater

Appendix D:
King County Source Control Inspections (2017)

Appendix D1. King County Industrial Waste Inspections in LDW Basin (2017)

Facility	Authorization Number
Discharge Permits	
Art Brass Plating Inc.	7722-05
Boeing Commercial Airplane - North Field	7594-06
Boeing Company - Plant 2 Facility	7811-04
Ceradyne Inc., A 3M Company - Seattle	7507-05
Industrial Container Services - WA LLC	7130-05
Kerry Inc.	7130-05
Lafarge - Seattle Plant	7925-01
Lineage Seafreeze	7896-01
Magnetic and Penetrant Services Co.	7873-02
Marine Vacuum Service Inc.	7676-06
National Products Inc.	7834-02
Rainier Commons LLC - Old Rainier Brewery Site	7927-01
Seattle Barrel Co.	7113-04
Seattle, City of - SPU - South Transfer Station	7878-01
TLP Management Services LLC	7592-05
Vigor Shipyards Inc.	7782-07
Waste Management National Services - 8th Avenue South Reload Facility	7928-01
Discharge Authorizations	
King County FMD - Children and Family Justice Center Construction Project	4383-01
Recology Cleanscapes Inc.	850-03
Seattle, City of - SPU - Materials Storage Yard	774-02
718 Rainier LLC Construction Project	1067-01
Boeing North Field Facility - PCB Treatment System for Duwamish Area Boeing Facilities	4223-01
Cadman (Seattle) Inc.	4235-01
Classic Impressions Inc.	860-01
Coluccio Construction	779-03
Field Roast Grain Meat Co. - Seventh Ave.	4417-01
First Student Inc.	854-01
Harborview Medical Center	712-03
King County International Airport - GWR	4129-04
King County WTD - Georgetown Wet Weather Treatment Station	4402-01
Labcorp/Dyanacare Laboratories	704-04
Piroshky Baking Company LLC	200083-01
Prologis - Georgetown Crossroads LLC - Sounder Construction Project	4408-01
Quad 7 Development LLC/Signature Flight Support	849-01
Samson Tug and Barge Inc. - 9228 Tenth Avenue	4406-01
Seattle Housing Authority- Red Cedar Construction Project	1062-01
Seattle, City of - Joint Training Facility	10849-02
Seattle, City of - SPU - Storm Drainage Basin Cleaning Decant Site	4425-01
Sound Transit - E130 East Link Extension SPU Discharge Locations Construction Project	4439-01
Surplus Items Inc.	266-07
Swedish Medical Center - Cherry Hill	707-03
Two Beers Brewing Company LLC	4431-01
United Parcel Service Inc. - Seattle	4020-03
Northwest Tofu Inc.	1044-01

Source: King County 2018

Appendix D2. King County Stormwater Services Inspections (2017)

Facility Name	Address	Inspection Date	Inspection Type	Notes
RM 3.8-4.2 West (Sea King Industrial Park)				
509 Auto Repair and Electric	806 S 112th Street	1/9/2017	Source Control	No issues found.
Absolute German	9540 14th Avenue S	11/21/2017	Source Control	Joint inspection with Ecology; issues with waste disposal, spill cleanup, waste labeling, and general housekeeping.
Ace Galvanizing	429 S 96th Street	11/02/2017 11/16/2017 12/01/2017	Source Control	Joint inspection with Ecology; issues with adequately capturing contaminated stormwater for treatment, hazardous waste storage, cleanup practices, and sediment controol during construction.
Carey Limousine	1237 S Director Street	6/02/2017 8/07/2017	Source Control	Issues with Hazardous waste storage and labeling, catch basin cleaning.
Concrete Restoration Inc.	9585 8th Avenue S	11/29/2017	Source Control	One issue with drum storage, corrected
Custom Space	915 S 96th Street	6/2/2017	Source Control	Brand new structures; no problems found
Delta Marine	1608 S 96th Street	11/28/2017 12/18/2017	Source Control	Joint inspection with Ecology; issues with cover and containment, labeling, spill cleanup; ongoing technical assistance.
Diamond Painting LLC	1601 S 92nd Place	12/8/2017	Source Control	Issues with conveyance system, catch basin labeling, outdoor work, container storage, boat washing, paint filter disposal; ongoing technical assistance.
Graffix	1312 S 96th Street	10/12/2017 10/27/2017 11/13/2017 12/14/2017	Source Control	Issues with convenyance system, waste storage and labeling, outdoor storage, metal shavings; ongoing tehcnical assistance.
NRC Environmental	9520 10th Avenue S, Ste 150	12/19/2017	Source Control	Joint inspection with Ecology Hazardous Waste; catch basin labeling needed; improve liquid storage; ongoing technical assistance.
NRC Office and Shop	9520 10th Avenue S, Ste 150	12/22/2017	Source Control	Conveyance system needs cleaning; ongoing tehcnical assistance.

Appendix D2. King County Stormwater Services Inspections (2017)

Facility Name	Address	Inspection Date	Inspection Type	Notes
Old Dominion Service Shop	600 S 96th Street	11/29/2017 21/01/2017 12/04/2017 12/08/2017 12/20/2017	Source Control	Issues with liquid storage, spill cleanup, possible need for secondary containment (no) scrap storage; unsure where trench drains go (sanitary).
Pacific Industrial Supply	1231 S Director Street	5/20/2017 6/02/2017 8/07/2017 10/18/2017 11/02/2017	Source Control	Issues with waste and product storage, inoperable vehicles, waste oil, batteries.
Pacific Northwest Motor Freight Lines	515 S 96th Street	12/21/2017	Source Control	Issues with conveyance system, labeling, record keeping, waste storage; ongoing technical assistance.
Pro Weld (Advance Electroplating)	9585 8th Avenue S	5/17/2017	Source Control	Unable to access after four visits.
Puget Sound Coatings	9220 8th Avenue S	12/20/2017	Source Control	Joint inspection with Ecology; minor storage and labeling issues; ongoing technical assistance.
QualFab	1705 S 93rd Street, Bldg F Unit 11	11/01/2017 11/13/2017 12/01/2017 12/18/2017	Source Control	Joint inspection with Ecology; issues with discharges to storm drain, oily wastewater, waste storage, grindings; ongoing tehcnical assistance.
Security Contractor Services	9619 8th Avenue S	11/30/2017 12/15/2017	Source Control	Joint inspection with Ecology; minor issues with waste storage
Shell Gas Station & Bikini Espresso	9525 14th Avenue S	11/06/2017 11/13/2017 11/16/2017 11/21/2017 11/30/2017 12/04/2017 12/08/2017 12/14/2017 12/20/2017	Source Control	Issues with secondary containment and labeling, conveyance system, soil waste storage, illicit connection from espresso stand, spill cleanup; ongoing technical assistance.
Warp Corporation	631 S 96th Street	5/2/2017	Source Control	No issues found.

Appendix D2. King County Stormwater Services Inspections (2017)

Facility Name	Address	Inspection Date	Inspection Type	Notes
RM 3.4-3.8 West (EAA-5: Terminal 117)				
Rick's Master Marine	1411 S Thistle Street	12/21/2017	Source Control	Joint inspection with Ecoogy Hazardous Waste; issues with labeling, secondary containment.
RM 2.2-3.4 West (Riverside Drive)				
National Products Inc.	8410 Dallas Avenue S	5/2/2017	Source Control	No issues found.
Security Contractor Services Storage	9300-9376 4th Avenue S	10/17/2017 11/06/2017 11/13/2017 11/21/2017	Source Control	Issues with labeling, secondary containment, spill materials.

Source: King County 2018, Table 3

Appendix E:
Ecology Source Control Inspections (2017)

Appendix E. Ecology Source Control Inspections (2017)

NPDES Permit No.	Facility Name	Address	Date Inspected	Type of Inspection	Ecology Findings
Upper Reach					
RM 4.9 East (EAA-7: Norfolk CSO/SD)					
WAR125358	Steeler, Inc.	10023 MLK Jr Way South	3/16/2017	NPDES	Joint inspection with EPA. Current SWPPP not available; SWPPP incomplete. Monthly inspection reports missing. Scrap metal dumpsters uncovered or left open. Spill kits needed. O&M manual for treatment system not submitted to Ecology. (Ecology 2017 3-16-17)
WAR002040	Unified Grocers 3301 Norfolk	3301 S Norfolk Street	7/27/2017	NPDES	
RM 4.3-4.9 East (Boeing Developmental Center)					
WAR000146	Boeing Developmental Center	9725 East Marginal Way S	7/19/2017	NPDES	Follow-up inspection.
RM 2.8-3.7 East (EAA-4: Boeing Plant 2/Jorgensen Forge)					
WAR000482	Boeing Plant 2	7755 East Marginal Way S	4/27/2017	NPDES	Facility not in compliance. The following items must be completed: (1) Keep dumpsters under cover or fit with a lid that must remain closed when not in use; (2) Provide proper cover and containment for all liquid products and wastes stored outside; (3) Develop a written plan for handling stormwater from uncovered containment structures and add it to SWPPP; (4) Make sure spill kits are properly located and supplied.
RM 4.2-5.8 West (Restoration Areas)					
	Gold Co (Auto Repair Center)	12459 Des Moines Memorial Dr	8/15/2017	HWTR	
	Neighborhood Park At Seatac Community Center	13735 24th Avenue S	9/21/2017	HWTR	
	Sunrise Dental	12610 Des Moines Memorial Drive #208	12/12/2017	HWTR	
	U.S. Postal Service Seattle Distribution Center	10700 27th Avenue S	12/12/2017	HWTR	

Appendix E. Ecology Source Control Inspections (2017)

NPDES Permit No.	Facility Name	Address	Date Inspected	Type of Inspection	Ecology Findings
RM 3.8-4.2 West (Sea King Industrial Park)					
WAG030091	Delta Marine Industries	1608 S 96th Street	11/28/2017	NPDES	Scrap metal bins had a sheen leaving the bin and entering the catch basin. A welding station was also being stored outside when not in use. This area has a large amount of material storage and potential for stormwater contamination. It will need to be monitored through sampling. Unknown liquid without proper secondary containment. Sheen onsite; unknown bucket with sheet on pavement. (Ecology 2017 11-28-17)
WAR003120	Gary Merlino Construction	9125 10th Avenue S	8/17/2017	HWTR	
	NRC Environmental Services	910 S 96th Street Transfer Facility	12/19/2017	HWTR	
WAR002142	Puget Sound Coatings	9220 8th Avenue S	12/20/2017	NPDES	SWPPP and spill plans needed to be updated; missing monthly inspection reports. The treatment system O&M manual needed to be updated. Dust collection system area looked dirty and dusty. Scrap metal bins needed cover. (Ecology 2017 12-20-17)
CNE306043	Qual Fab Inc	1705 S 93rd Street	9/13/2017	HWTR	
WAR301372	Samson Tug & Barge South Park Facility	9228 10th Avenue S	3/15/2017	NPDES	BMPs not implemented or maintained. Truck traffic at north entrance/exit gate causing excessive discharges of turbid water to Hamm Creek. Plan must be developed to collect, control, and/or treat turbid stormwater discharges. Hydrant water used to clean steel plates is considered process water and cannot be discharged to surface waters or storm drains. (Ecology 2017 04-11-2017)
			3/21/2017	NPDES	
			4/5/2017	NPDES	
			4/13/2017	NPDES	
			6/13/2017	NPDES	
			8/1/2017	NPDES	
			9/7/2017	NPDES	
RM 3.4-3.8 West (EAA-5: Terminal 117)					
	Ricks Master Marine Inc	8500 Dallas Avenue S	12/21/2017	HWTR	

Appendix E. Ecology Source Control Inspections (2017)

NPDES Permit No.	Facility Name	Address	Date Inspected	Type of Inspection	Ecology Findings
Middle Reach					
RM 2.8 East (EAA-3: Slip 4)					
WAR302034	Duwamish Reload Facility	7400 8th Avenue S	8/1/2017	NPDES	
			9/26/2017	NPDES	
			10/4/2017	NPDES	
			10/30/2017	HWTR	
			11/1/2017	NPDES	
			12/27/2017	NPDES	
WAR000607	Landmark Aviation	7149 Perimeter Road S	3/1/2017	NPDES	
WAR000226	North Boeing Field	7700 East Marginal Way S	6/28/2017	NPDES	
RM 2.3-2.8 East (Seattle Boiler Works to Slip 4)					
WAR000949	Recology CleanScapes	7308 8th Avenue S	9/12/2017	NPDES	
			9/13/2017	HWTR	
WAR002208	Seattle Boiler Works	500 S Myrtle Street	2/22/2017	NPDES	
WAR305397	Seattle Iron & Metals 730 South Myrtle	730 S Myrtle Street	8/31/2017	NPDES	
			9/7/2017	NPDES	
			9/26/2017	NPDES	
			11/1/2017	NPDES	
WA0031968	Seattle Iron & Metals Corp	601 S Myrtle Street	12/19/2017	NPDES	
WAR125002	Seattle Iron & Metals Corp Truck Parking	730 S Myrtle Street	8/1/2017	NPDES	
			11/1/2017	NPDES	
RM 2.0-2.3 East (Slip 3 to Seattle Boiler Works)					
	Delta Marine Industries	6701 Fox Avenue S	1/11/2017	HWTR	
WAR302045	Emerald Services E Marginal	6851 East Marginal Way S	4/11/2017	NPDES	
WAR000962	SEATAC Marine Services	6701 Fox Avenue S	3/2/2017	NPDES	
RM 1.7-2.0 East (Slip 2 to Slip 3)					
WAR010447	General Biodiesel Seattle	6333 1st Avenue S	8/8/2017	NPDES/HWTR	
			11/1/2017	NPDES	
WAR304806	Georgetown Crossroads	6050 East Marginal Way S	6/13/2017	NPDES	
			6/15/2017	NPDES	
			8/8/2017	NPDES	
RM 2.2-3.4 West (Riverside Drive)					
	National Products Inc	8410 Dallas Avenue S	11/21/2017	HWTR	
WAR301516	Pacific Pile & Marine Main Yard	700 Riverside Drive	8/1/2017	NPDES	
	Smith Berger Marine Inc	7915 10th Avenue S	12/7/2017	HWTR	
WAR304003	United Site Services of Nevada Inc Sea	1024 S Elmgrove Street	4/5/2017	NPDES	

Appendix E. Ecology Source Control Inspections (2017)

NPDES Permit No.	Facility Name	Address	Date Inspected	Type of Inspection	Ecology Findings
RM 2.1-2.2 West (EAA-2: Trotsky Inlet)					
WAR005598	Boyer Logistics	7318 4th Avenue S	7/25/2017	NPDES/HWTR	
CNE301772	Cunningham Manufacturing	318 S Webster Street	10/24/2017	HWTR	
RM 2.1 West (1st Avenue S Storm Drain)					
WAR000581	Eastmont Transfer Station	7201 West Marginal Way SW	6/8/2017	NPDES	
			8/18/2017	NPDES	
			12/27/2017	NPDES	
	Flamespray Northwest	250 S Chicago Street	8/17/2017	HWTR	
	International Lubricants Inc	7930 Occidental Avenue S	1/4/2017	HWTR	
WAR011800	Samson Tug & Barge Detroit Ave	7553 Detroit Avenue SW	4/11/2017	NPDES	
			9/7/2017	NPDES	
WAR000737	South Recycle & Disposal Station	8100 2nd Avenue S	4/13/2017	NPDES/HWTR	
WAR125583	South Transfer Station ISW	130 S Kenyon Street	4/13/2017	NPDES	
WAR000582	Waste Management Seattle Hauling	7901 1st Avenue S	6/27/2017	NPDES	
			6/28/2017	HWTR	
RM 1.6-2.1 West (Terminal 115)					
WAR127040	Lineage Seafreeze	206 SW Michigan Street	8/30/2017	NPDES	
			11/21/2017	HWTR	
WAR000471	Northland Services	6700 West Marginal Way SW	2/8/2017	NPDES	
			2/14/2017	NPDES	
CNE126477	Northwest Custom Interiors	7126 West Marginal Way SW	8/15/2017	HWTR	
CNE126477	Northwest Seafood Processors	206 SW Michigan Street	8/30/2017	NPDES	
Lower Reach					
RM 1.2-1.7 East (St. Gobain to Glacier Northwest)					
WAR000056	Certainteed Gypsum	5931 East Marginal Way S	2/16/2017	NPDES	
RM 1.0-1.2 East (KC Lease Parcels)					
	Impression Printing	222 S Lucile Street	9/5/2017	HWTR	
	Proliance International Inc (Mason's Supply Inc.)	115 S Dawson Street	10/3/2017	HWTR	
CNE307177	Savanah Logistics	5300 1st Avenue S	11/28/2017	HWTR	
RM 0.1-0.9 East (EAA-1: Duwamish/Diagonal Way)					
	Alaska Copper & Brass	4700 Colorado Avenue S	7/5/2017	HWTR	
WAR010569	ConGlobal Industries	1 S Idaho Street	7/10/2017	HWTR	
	Evoqua Water Technologies	601 S Snoqualmie Street Transfer Facility	7/13/2017	HWTR	
	Fabriform Plastics	3300 Airport Way S	7/20/2017	HWTR	

Appendix E. Ecology Source Control Inspections (2017)

NPDES Permit No.	Facility Name	Address	Date Inspected	Type of Inspection	Ecology Findings
	Family Chiropractic Health Clinic	4346 15th Avenue S	7/20/2017	HWTR	
	Jefferson Park Golf Maintenance Building	4101 Beacon Avenue S	9/7/2017	HWTR	
CNE126399	Messenger Sign	37 S Hudson Street	11/28/2017	HWTR	
	Pacific Northwest Orthodontics	2815 S McClellan Street	10/3/2017	HWTR	
WAR000015	Recycling Depot	851 Rainier Avenue S	2/28/2017	NPDES	
	Seattle City Light MRWF	3613 4th Avenue S	11/15/2017	HWTR	
WAR000930	Skyline Electric & Manufacturing	3619 7th Avenue S	8/8/2017	NPDES/HWTR	
WAR000444	United Parcel Service WASEA	4455 7th Avenue S	9/12/2017	NPDES	
			9/13/2017	HWTR	
WAR004605	WM Alaska Street Reload Facility	70 South Alaska Street	7/25/2017	NPDES/HWTR	
RM 1.3-1.6 West (Glacier Bay)					
WAR001365	Alaska Marine Lines Seattle Terminal	5502 + 5658 West Marginal Way SW	6/13/2017	NPDES	
RM 0.0-1.0 West (Spokane Street to Kellogg Island)					
WAR000474	Fog Tite	4819 West Marginal Way SW	3/21/2017	NPDES	
WAR002227	Glacier Northwest	3838 West Marginal Way SW	3/29/2017	NPDES	

BMP = best management practice
CNE = Conditional No Exposure certification
EAA = Early Action Area
EPA = Environmental Protection Agency
NPDES = National Pollutant Discharge Elimination System
O&M = operations and maintenance
RM = river mile
SWPPP = Stormwater Pollution Prevention Plan

Appendix F:
SPU Source Tracing Data
(2017)

Table F-1. SPU Source Tracing Sample Locations

Table F-2. SPU Source Tracing Sample Results

Table F-1.
SPU Source Tracing Sample Locations (2017)

Station ID	Sample No.	Date	Type	Sewer Type	Source Control Area	Outfall	Location	X Coordinate	Y Coordinate
Upper Reach									
NST1	NST1-050417	5/4/2017	SedTrap	SD	RM 4.9 East	S Norfolk St CSO/PS17 EOF/SD	60-in line west of MLK Way	1,283,043.33	189,358.24
NST1	NST1-050417-G	5/4/2017	Inline	SD	RM 4.9 East	S Norfolk St CSO/PS17 EOF/SD	60-in line west of MLK Way	1,283,043.33	189,358.24
NST2	NST2-042517	4/25/2017	SedTrap	SD	RM 4.9 East	S Norfolk St CSO/PS17 EOF/SD	Overflow to WSDOT system	1,280,892.65	189,496.66
NST3	NST3-050417	5/4/2017	SedTrap	SD	RM 4.9 East	S Norfolk St CSO/PS17 EOF/SD	Ditch at MLK Way and Boeing Access Road	1,283,147.01	188,728.61
NST4	NST4-042517	4/25/2017	SedTrap	SD	RM 4.9 East	S Norfolk St CSO/PS17 EOF/SD	S Norfolk St at SE corner KC Airport	1,280,697.59	190,890.74
NST4	NST4-042517-G	4/25/2017	Inline	SD	RM 4.9 East	S Norfolk St CSO/PS17 EOF/SD	S Norfolk St at SE corner KC Airport	1,280,697.59	190,890.74
NST5	NST5-042517	5/1/2017	SedTrap	SD	RM 4.9 East	S Norfolk St CSO/PS17 EOF/SD	E Marginal Wy S at S Norfolk St	1,279,322.05	190,882.62
RCB75	MBS-010817-1	1/8/2017	RCB	SD	RM 3.4-3.8 West	17th Ave S SD	By the curb west side of 16th Ave S opposite 8610 16th Ave S; presettling Cell @ Bioretention cell F @ T117 cleanup project	1,274,885.55	195,417.77
RCB76	MBS-010917-1	1/9/2017	RCB	SD	RM 3.4-3.8 West	17th Ave S SD	8661 17th Ave S in northern portion of former Basin Oil property; presettling Cell on Bioretention Cell D	1,275,187.09	195,461.78
Middle Reach									
SL4-T6	SL4-042717	4/27/2017	SedTrap	SD	RM 2.8 East	I-5 SD at Slip 4	I-5 SD at Airport Way S; MH at Airport Way S and S Hardy St	1,274,989.40	202,834.00
7th-ST1	7TH-ST1-042717	4/27/2017	SedTrap	SD	RM 2.2-3.4 West	7th Ave S SD	7th Ave S at S Portland St	1,271,845.54	198,135.36
7th-ST1	7TH-ST1-042717-G	4/27/2017	Inline	SD	RM 2.2-3.4 West	7th Ave S SD	7th Ave S at S Portland St	1,271,845.54	198,135.36
7th-ST2	7TH-ST2-042717	4/27/2017	SedTrap	SD	RM 2.2-3.4 West	7th Ave S SD	4th Ave S at S Barton St, next to P-Patch	1,270,702.00	193,616.50
7th-ST3	7TH-ST3-042717	4/27/2017	SedTrap	SD	RM 2.2-3.4 West	7th Ave S SD	S Southern St just W of 7th Ave S	1,271,346.96	196,842.03
CB280	MKJ-082517-1	8/25/2017	CB	SD	RM 2.2-3.4 West	7th Ave S SD	Parking area between 7620 and 7622 2nd Ave SW; this is a deep well (possibly infiltration w/ overflow) to the east of pavement	1,270,522.46	198,520.84
CB282	MKJ-082517-3	8/25/2017	CB	SD	RM 2.2-3.4 West	7th Ave S SD	North catch basin in area between 7620 and 7622 2nd Ave SW in northern part of parcel	1,270,475.79	198,610.84
RCB276	MKJ-102617-3	10/26/2017	RCB	CS	RM 2.2-3.4 West	CS-1	Parking area between 7622 2nd Ave SW and 211 S Austin	1,272,450.45	197,326.12
CB116	MKJ-082517-2	8/25/2017	CB	SD	RM 2.1-2.2 West	2nd Ave S SD	7620 2nd Ave S	1,270,474.32	198,521.82
CB192	EJK-052617-1	5/26/2017	CB	SD	RM 2.1 West	1st Ave S SD, west	7717 Detroit Ave SW MacDonald Miller Facility Solutions, west side of building, catch basin next to dumpster and electronic waste	1,268,213.53	198,050.52
1st-ST1	1ST-ST1-052517	5/25/2017	SedTrap	SD	RM 2.1 West	1st Ave S SD, west	1st Ave S pond, N side of S Holden St - SR99 inlet	1,269,988.18	198,544.26
1st-ST2	1ST-ST2-052517	5/25/2017	SedTrap	SD	RM 2.1 West	1st Ave S SD, west	1st Ave S pond, N side of S Holden St - SR509 inlet	1,269,790.80	198,570.70
1st-ST3	1ST-ST3-052517	5/25/2017	SedTrap	SD	RM 2.1 West	1st Ave S SD, west	SW Kenyon St at 4th Ave SW	1,267,991.38	197,680.32
1st-ST3	1ST-ST3-052517-G	5/25/2017	Inline	SD	RM 2.1 West	1st Ave S SD, west	SW Kenyon St at 4th Ave SW	1,267,991.38	197,680.32
1st-ST7	1ST-ST7-050417	5/4/2017	SedTrap	SD	RM 2.1 West	1st Ave S SD, west	In turn lane of Olsen Pl SW just west of 1st Ave S	1,269,028.98	193,714.03
MH27	STS-WVAULT-0509	5/9/2017	Vault	SD	RM 2.1 West	1st Ave S SD, west	130 S Kenyon Street, SPU South Transfer Station SW portion of parcel vault structure near wheel wash	1,269,809.82	197,784.21
MH28	SRDS-OWS-050917	5/9/2017	OWS	SD	RM 2.1 West	1st Ave S SD, west	8105 5th Ave S, South Seattle Hazardous Waste Facility north of building, OWS just north of waste storage shed and transfer building	1,270,527.66	197,235.20

Table F-1.
SPU Source Tracing Sample Locations (2017)

Station ID	Sample No.	Date	Type	Sewer Type	Source Control Area	Outfall	Location	X Coordinate	Y Coordinate
CB304	EJK-100217-1	10/2/2017	CB	SD	RM 1.6-2.1 West	Highland Park Wy SW SD	7000 Highland Park Way SW in loading dock area on east side of building	1,267,501.29	200,440.35
CB305	EJK-100217-2	10/2/2017	CB	SD	RM 1.6-2.1 West	Highland Park Wy SW SD	7000 Highland Park Way SW off northwest side of building at west loading dock, coordinates plot in a grassy area	1,267,159.01	200,508.99
HP-ST4	HPST4-041117	4/11/2017	SedTrap	SD	RM 1.6-2.1 West	Highland Park Wy SW SD	NW corner of W Marginal and Highland Pk Wy	1,267,618.04	200,796.20
HP-ST6	HP-ST6-042717	4/27/2017	SedTrap	SD	RM 1.6-2.1 West	Highland Park Wy SW SD	SW Michigan St just east of W Marginal Wy S	1,268,086.32	200,870.80
HP-ST6	HP-ST6-042717-G	4/27/2017	Inline	SD	RM 1.6-2.1 West	Highland Park Wy SW SD	SW Michigan St just east of W Marginal Wy S	1,268,086.32	200,870.80
KN-ST1	KN-ST1-072417	7/24/2017	SedTrap	SD	RM 1.6-2.1 West	SW Kenny St SD/T115 CSO	Eastern end of S Kenny St, on T115	1,268,138.36	203,628.91
Lower Reach									
CB190	MKJ-040617-3	4/6/2017	CB	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	CB in parking lot of 3601 6th Ave S, Lamar west storage yard north drain	1,271,694.71	211,937.82
CB191	MKJ-040617-4	4/6/2017	CB	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	Lamar, west storage yard, south drain	1,271,694.58	211,822.52
CB214	MKJ-101217-5	10/12/2017	CB	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	4801 Rainier Ave S	1,271,256.56	210,407.79
CB221	CEW-092617-02	9/26/2017	CB	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	Taken from employee parking lot on south side of property	1,272,241.07	208,327.22
CB222	CEW-092617-01	9/26/2017	CB	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	CB at east side, north portion of lot	1,272,282.65	208,467.29
CB225	EJK082517-1	8/25/2017	CB	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	5 CB on west side of property composite sample. 3 CBs on west property line and 2 CBs at loading dock.	1,272,088.66	208,117.00
CB226	EJK082517-2	8/25/2017	CB	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	Sample composite taken from 3 FedEx CBs on south side of property	1,272,288.66	207,789.40
CB227	EJK082517-3	8/25/2017	Inline	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	Sample taken from MH on FedEx driveway which collectes parking lot runoff and neighboring property roof drains	1,272,025.10	208,250.90
CB238	JRZ-061917-1	6/19/2017	CB	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	Atlas Supply, Inc 611 S Charlestown St, loading dock catch basin	1,271,962.90	211,318.30
CB239	JRZ-061917-2	6/19/2017	CB	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	Atlas Supply, Inc 611 S Charlestown St, catch basin north of building in employee parking lot	1,272,108.77	211,366.30
CB279	EJK082517-5	8/25/2017	CB	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	FedEx Shipping Center S Alaska Street, 2 CBs at North gate @ Alaska in secured area	1,272,296.40	208,244.58
CB283	MKJ-081817-2	8/18/2017	CB	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	Mac Donald Meat Co, 2709 Airport Way S, in the north loading dock area fronting Lander Street	1,272,937.25	214,975.77
CB284	MKJ-081817-1	8/18/2017	CB	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	Mac Donald Meat Co, 2709 Airport Way S, in the east parking lot fronting Airport Way	1,273,068.91	214,905.50
CB285	CEW-072517-1	7/25/2017	CB	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	Loading dock CB near carpet cutting bay south of the warehouse at 4100 4th Avenue S	1,271,249.76	209,524.77
CB286	MKJ-070717-1	7/7/2017	CB	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	CB on west wall of bldg in front of offices at 4660 S Utah St	1,269,588.88	208,492.52
CB293	MKJ-070717-3	7/7/2017	CB	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	4600 Utah Ave S, CB just outside covered loading dock, west wall, south end old Bartell's area	1,269,591.39	208,157.08
CB297	MKJ-070717-4	7/7/2017	CB	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	4727 Denver Avenue S, in parking area in northwest corner of parcel at bottom of vehicle ramp to roof of building parking	1,269,611.39	208,561.25
CB298	MKJ-070717-5	7/8/2017	CB	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	Alley between bldg 4707 Denver Ave S and 1st Ave S overpass	1,269,829.73	208,312.08

Table F-1.
SPU Source Tracing Sample Locations (2017)

Station ID	Sample No.	Date	Type	Sewer Type	Source Control Area	Outfall	Location	X Coordinate	Y Coordinate
CB299	MKJ-101217-1	10/12/2017	CB	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	3801 7th Ave S just north of the center part of the building near offices	1,272,237.33	211,307.30
CB300	MKJ-101217-2	10/12/2017	CB	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	3801 7th Ave S off the southeast corner of the building east side of repair garage	1,272,326.91	211,262.86
CB301	MKJ-101217-4	10/12/2017	CB	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	3715 S Hudson St in parking lot north of the building, SW catch basin new building	1,271,193.07	210,407.44
CB302	MKJ-101217-6	10/12/2017	CB	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	4100 4th Avenue South in parking on west side of building closest to 4120 4th Ave S, South of Will Call door	1,271,138.18	210,156.71
CB303	MKJ-101217-7	10/12/2017	CB	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	In the parking lot south of the warehouse at 4100 4th Avenue S, in south loading dock area, east of the two CBs	1,271,228.46	209,681.99
CB306	CEW-101117-01	10/11/2017	CB	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	5300 Denver Ave S, Flow Control Maintenance Hole, in SW corner of lot	1,272,084.01	205,863.31
MH29	CEW-101117-02	10/11/2017	Tank	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	5212 6th Ave S in southeast corner of the parcel, at corner, head of line, flush tank sediment	1,271,819.39	205,978.28
MH33	CEW-110717-01	11/7/2017	Inline	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	5212 6th Ave S in southeast corner of the parcel, downstream of flush chamber	1,271,811.96	205,978.49
MH34	CEW-110717-02	11/7/2017	Inline	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	North side of S Dawson St at the top of 6th Ave S	1,271,638.53	206,240.84
RCB1	CEW-092617-04	9/26/2017	RCB	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	7th Ave S at S Snoqualmie St	1,272,312.88	208,338.09
RCB193	CEW-030617-3	3/6/2017	RCB	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	S Charles St downhill from Recycling Depot	1,275,814.30	220,233.60
RCB194	CEW-030617-2	3/6/2017	RCB	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	CB in all adjacent to Recycling Depot yard	1,275,776.10	220,353.90
ST1	ST-042717	4/27/2017	SedTrap	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	Sediment Trap 1: E Marginal Wy and S Oregon St	1,268,420.85	209,048.79
ST1	ST-042717-G	4/27/2017	Inline	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	Sediment Trap 1: E Marginal Wy and S Oregon St	1,268,420.85	209,048.79
ST1	ST1-042717	4/27/2017	SedTrap	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	Sediment Trap 1: E Marginal Wy and S Oregon St	1,268,420.85	209,048.79
ST1	ST1-042717-G	4/27/2017	Inline	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	Sediment Trap 1: E Marginal Wy and S Oregon St	1,268,420.85	209,048.79
ST7	ST7-041117	4/11/2017	SedTrap	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	Sediment Trap 7: S Dakota St and 6th Ave S	1,271,722.72	210,480.65
TUL-CB3	MBS-092117-1	9/21/2017	CB		RM 0.1-0.9 East	Diagonal Ave S CSO/SD	3100 Airport Way S	1,273,246.68	213,737.72
ID-ST1	ID-ST1-041117	4/11/2017	SedTrap	SD	RM 0.0-1.0 West	SW Idaho St SD	18th Ave SW and S Hudson St	1,264,220.16	206,583.53
ID-ST2	IDST2-041117	4/11/2017	SedTrap	SD	RM 0.0-1.0 West	SW Idaho St SD	SW Idaho St just east of W Marginal Wy S	1,265,352.84	209,905.60
ID-ST3	ID-ST3-052517	5/25/2017	SedTrap	SD	RM 0.0-1.0 West	SW Idaho St SD	North end of 19th Ave SW at SW Dawson St	1,263,879.13	206,423.86

CB = catch basin
RCB = right of way catch basin
SD = storm drain
ODS = outside diameter soil
OWS = oil-water separator

Table F-2
SPU Source Tracing Data 2017

Station ID	Outfall	Type	Date Sampled	Total Organic Carbon (%)	Arsenic (mg/kg DW)	Copper (mg/kg DW)	Lead (mg/kg DW)	Mercury (mg/kg DW)	Zinc (mg/kg DW)	Motor Oil Range HC* (mg/kg DW)	Aroclor 1248 (ug/kg DW)	Aroclor 1254 (ug/kg DW)	Aroclor 1260 (ug/kg DW)	Total PCBs (ug/kg DW)	1-Methyl-naphthalene (ug/kg DW)	2-Methyl-naphthalene (ug/kg DW)	Acenaphthene (ug/kg DW)	Acenaphthylene (ug/kg DW)	Anthracene (ug/kg DW)	Fluorene (ug/kg DW)
SCO				**NA**	**57**	**390**	**450**	**0.41**	**410**	**2,000**	**NA**	**NA**	**NA**	**130**	**NA**	**670**	**500**	**1,300**	**960**	**540**
CSL				**NA**	**93**	**390**	**530**	**0.59**	**960**	**2,000**	**NA**	**NA**	**NA**	**1,000**	**NA**	**670**	**500**	**1,300**	**960**	**540**
Upper Reach																				
NST1	S Norfolk St CSO/PS17 EOF/SD	SedTrap	5/4/2017	4.56	**10.1**	**124**	**74.3**	**0.0773 J**	**571**		18.6 U	**128**	**69 J**	**197 J**	292 U	98.7 U	292 U	292 U	292 U	**558**
NST1	S Norfolk St CSO/PS17 EOF/SD	Inline	5/4/2017	5.07	**11**	**111**	**86.8**	**0.0956 J**	**769**		**76.7**	**126**	**59.7**	**262.4**	96 U	**60.2 J**	**58.5 J**	96 U	**160**	**1,350**
NST2	S Norfolk St CSO/PS17 EOF/SD	SedTrap	4/25/2017	14.1	**29.4**	**195**	**172**	**0.2543**	**1,440**		104 U	104 U	104 U	104 U	1,580 U	292 U	1,580 U	1,580 U	1580 U	**663 J**
NST3	S Norfolk St CSO/PS17 EOF/SD	SedTrap	5/4/2017	12.3	**6.73**	**106**	**55.9**	**0.0558 J**	**605**		19.7 U	**43.1**	**25.4**	**68.5**	294 U	1,580 U	294 U	294 U	294 U	**763**
NST4	S Norfolk St CSO/PS17 EOF/SD	SedTrap	4/25/2017	4.75	16.3 U	**69.5**	**219**	**0.1553**	**208**		19.5 U	**46.4**	**47.9**	**94.3**	294 U	**300**	**695**	**2,990**	**66,300**	**42,800**
NST4	S Norfolk St CSO/PS17 EOF/SD	Inline	4/25/2017	0.89	**11.6**	**19.8**	**69.9**	**0.0307**	**95.7**		18.2 U	18.2 U	18.2 U	18.2 U	97.8 U	294 U	97.8 U	97.8 U	97.8 U	**159**
NST5	S Norfolk St CSO/PS17 EOF/SD	SedTrap	5/1/2017	11.6	43.6 U	**90**	**163**	**0.2131**	**970**						311 U	97.8 U	311 U	311 U	**158 J**	**663**
RCB75	17th Ave S SD	RCB	1/8/2017	8.63	**21**	**87.6**	**29.4**	**0.0938**	**455**		**9.6**	**32.6**	**32.1**	**74.3**	49.3 U	**24.6 J**	49.3 U	49.3 U	**46 J**	**586**
RCB76	17th Ave S SD	RCB	1/9/2017	6.13	**29.8**	**114**	**46.7**	**0.0633**	**1,090**		**13.8**	**26.1**	**45.2**	**85.1**	243 U	346 U	243 U	243 U	243 U	**482**
Middle Reach																				
SL4-T6	I-5 SD at Slip 4	SedTrap	4/27/2017	1.71	6.86 U	**87.7**	**65.4**	**0.0504**	**354**		**21.4**	**51.4**	**26.9**	**99.7**	56.6 U	**37.7 J**	**44.5 J**	**35.4 J**	**157**	**1,030**
7th-ST1	7th Ave S SD	SedTrap	4/27/2017	8.25	**22.8**	**137**	**80.8**	**0.1481**	**593**		**46.6**	**69.2**	**93.5**	**209.3**	97.4 U	**31.4 J**	289 U	97.4 U	**48.2 J**	**306**
7th-ST1	7th Ave S SD	Inline	4/27/2017	3.03	**9.03**	**71.3**	**40.1**	**0.1079**	**281**		18.9 U	**38.6**	**31.5**	**70.1**	98.6 U	289 U	97.4 U	98.6 U	98.6 U	**268**
7th-ST2	7th Ave S SD	SedTrap	4/27/2017	0.55	**17.4**	**15.8**	**12.9**	**0.0496**	**156**		18.5 U	18.5 U	18.5 U	18.5 U	19.6 U	**5.7 J**	98.6 U	19.6 U	19.6 U	**18.6 J**
7th-ST3	7th Ave S SD	SedTrap	4/27/2017	8.66	**27.1**	**132**	**97.2**	**0.2269**	**732**		19.8 U	**60.9**	**43.8**	**104.7**	99.1 U	98.6 U	19.6 U	99.1 U	**74.1 J**	**494**
CB280	7th Ave S SD	CB	8/25/2017	3.07	**29.2**	**426**	**321**	**4.3**	**862**		**67.5**	**112 J**	**291 J**	**470.5 J**	**55.6 J**	**126**	296 U	**104**	**853**	**275**
CB282	7th Ave S SD	CB	8/25/2017	6.95	**25.1**	**822**	**386**	**2.2**	**966**		**90**	**81.9 J**	**177 J**	**348.9 J**	**134 J**	**220 J**	**82.7 J**	**96.3 J**	**434**	**802**
RCB276	CS-1	RCB	10/26/2017	9.21	**7.74**	**546**	**317**	**0.8**	**1,290**		**618**	**289**	**398**	**1,305**	**81.8 J**	**167 J**	199 UJ	**82.7 J**	**207 J**	**1,680 J**
CB116	2nd Ave S SD	CB	8/25/2017	3.55	**21.8**	**375**	**348**	**2.1**	**1,630**		**99.8**	**123 J**	**338 J**	**560.8 J**	297 U	99.1 U	99.1 U	**73.2 J**	**251 J**	**578**
MH27	1st Ave S SD, west	Onsite	5/9/2017	12.5	**15.3**	**467**	**239**	**1.294**	**2,940**		10.2 U	**387**	**88.7**	**475.7**	517 U	94.3 U	160 U	517 U	**193 J**	**1,060**
MH28	1st Ave S SD, west	Onsite	5/9/2017	11.4	**8.24**	**166**	**104**	**0.3182**	**760**		3.9 U	**112 J**	3.9 U	**112 J**	99.6 U	**47.1 J**	99.6 U	99.6 U	**71.1 J**	**352**
1st-ST1	1st Ave S SD, west	SedTrap	5/25/2017	11.2	10.4 U	**245**	**106**	**0.2197**	**1,350**		**82.2**	**100**	**113**	**295.2**	98.6 U	**68.6 J**	**54.8 J**	**51.6 J**	**148 J**	**1,050**
1st-ST2	1st Ave S SD, west	SedTrap	5/25/2017	7.18	11.1 U	**75.5**	**82.9**	**0.1078**	**361**		19.1 U	**49.6**	**43.9**	**93.5**	97.3 U	298 U	243 U	97.3 U	**30.6 J**	**328**
1st-ST3	1st Ave S SD, west	SedTrap	5/25/2017	4.86	7.79 U	**48.8**	**10.6**	**0.1084**	**282**		19.1 U	19.1 U	19.1 U	19.1 U	95.9 U	100 U	97.3 U	95.9 U	**53.3 J**	**826**
1st-ST3	1st Ave S SD, west	Inline	5/25/2017	1.66	5.9 U	**31.6**	**6.14**	0.2431 U	**188**		19.8 U	19.8 U	19.8 U	19.8 U	100 U	97.3 U	95.9 U	100 U	100 UJ	**123**
1st-ST7	1st Ave S SD, west	SedTrap	5/4/2017	10.1	**11.3**	**121**	**144**	**0.108 J**	**624**		20.1 U	**752**	**606 J**	**1,358 J**	289 U	95.9 U	100 U	289 U	289 U	**1,570**
CB192	1st Ave S SD, west	CB	5/26/2017	5.77	7.43 U	**227**	**16.1**	**0.0645 J**	**988**		19.1 U	**14.7 J**	**26.3**	**41 J**	287 U	298 U	298 U	287 U	287 U	**192 J**
CB304	Highland Park Wy SW SD	CB	10/2/2017	3.4	7.34 U	**143**	**48.2**	**0.0397**	**370**		18.1 U	**471**	**1,980**	**2,451**	483 U	293 U	149 U	483 U	**288 J**	**372 J**
CB305	Highland Park Wy SW SD	CB	10/2/2017	7.58	**4.81**	**302**	**71.3**	**0.0777**	**1,150**		18.6 U	**469**	**342**	**811**	297 U	483 U	483 U	297 U	297 U	**243 J**
HP-ST4	Highland Park Wy SW SD	SedTrap	4/11/2017	3.23	**8.01**	**47.4**	**60.8**	**0.0574**	**280**		18.7 U	93.6 U	**227 J**	**227 J**	94 U	744 U	297 U	94 U	**46.6 J**	**934**
HP-ST6	Highland Park Wy SW SD	SedTrap	4/27/2017	8.8	**37.4**	**116**	**156**	**0.1678**	**660**		**81.8**	**75**	**51.8**	**208.6**	98.8 U	**36.5 J**	**137**	98.8 U	**79.8 J**	**514**
HP-ST6	Highland Park Wy SW SD	Inline	4/27/2017	5.92	**33.1**	**110**	**134**	**0.2696**	**963**		**133 J**	**85.2**	**85.1 J**	**303.3 J**	96.3 U	94 U	**104**	96.3 U	**50.5 J**	**250**
KN-ST1	SW Kenny St SD/T115 CSO	SedTrap	7/24/2017	4.63	**9.24**	**61.7**	**43.5**		**318**	**478**	**25.6**	**46.2**	**24.4**	**96.2**	160 U	**56.7 J**	94.3 U	160 U	**60.3 J**	**370**
Lower Reach																				
CB190	Diagonal Ave S CSO/SD	CB	4/6/2017	14.8	**22.2**	**182**	**103**	**0.5061**	**1,990**		**93.8**	**156**	**102 J**	**351.8 J**	290 U	297 U	297 U	290 U	290 U	**349**
CB191	Diagonal Ave S CSO/SD	CB	4/6/2017	13.5	**15.8**	**93.9**	**25.5**	**0.0574**	**1,970**		**146**	**416**	**187 J**	**749 J**	298 U	290 U	290 U	298 U	298 U	**348**
CB214	Diagonal Ave S CSO/SD	CB	10/12/2017	14	9.88 U	**82**	**54.9 J**	**0.0661**	**930**		**25.4**	**37**	**47.6**	**110**	438 U	**186 J**	287 U	438 U	**135 J**	**1,080**
CB221	Diagonal Ave S CSO/SD	CB	9/26/2017	24.4	**3.66**	**42**	**15.4**	0.0558 U	**209**		19.5 U	19.5 U	19.5 U	19.5 U	292 U	287 U	438 U	292 U	292 U	**809**
CB222	Diagonal Ave S CSO/SD	CB	9/26/2017	19.5	**8.58**	**274**	**242**	0.0713 U	**989**		19.1 U	19.1 U	**34.5 J**	**34.5 J**	290 U	292 U	**137 J**	290 U	**452**	**6,910**
CB225	Diagonal Ave S CSO/SD	CB	8/25/2017	3.45	**6.28**	**169**	**81.6**	**0.0436**	**513**		19.3 U	**19.5**	**39.7 J**	**59.2 J**	296 U	290 U	292 U	296 U	296 U	**259 J**
CB226	Diagonal Ave S CSO/SD	CB	8/25/2017	4.47	**7.99**	**122**	**96.9**	**0.0926**	**1,260**		**34.4**	**53 J**	**67.5 J**	**154.9 J**	294 U	296 U	296 U	294 U	**96.2 J**	**967**
CB227	Diagonal Ave S CSO/SD	Inline	8/25/2017	4.47	5.71 U	**69.3**	**15.3**	**0.0249**	**206**		19.1 U	19.1 U	19.1 U	19.1 U	98.6 U	294 U	**60.5 J**	98.6 U	**89.1 J**	**342**
CB238	Diagonal Ave S CSO/SD	CB	6/19/2017	5.35	8.35 U	**133**	**31**	**0.1325**	**450**		19.1 U	**22.4**	**18.8 J**	**41.2 J**	95.6 U	98.6 U	294 U	**28.8 J**	**83.3 J**	**494**
CB239	Diagonal Ave S CSO/SD	CB	6/19/2017	6.8	8.6 U	**145**	**60.4**	**0.0549**	**559**		18.5 U	**16.6 J**	**13.9 J**	**30.5 J**	96 U	95.6 U	95.6 U	96 U	96 U	**220**
CB279	Diagonal Ave S CSO/SD	CB	8/25/2017	2.72	**6.87**	**187**	**155**	**0.0727**	**592**		19 U	**23.9**	**40.0 J**	**63.9 J**	296 U	96 U	96 U	296 U	296 U	**479**
CB283	Diagonal Ave S CSO/SD	CB	8/18/2017	10.6	**8.24**	**190**	**71.4**	**0.1621**	**2,180**		29.2 U	**49**	**43.6 J**	**92.6 J**	293 U	296 U	97.7 U	293 U	**108 J**	**891**
CB284	Diagonal Ave S CSO/SD	CB	8/18/2017	5.89	**8.02**	**426**	**122**	**0.1253**	**705**		19.1 U	**34.6**	**43.9 J**	**78.5 J**	300 U	293 U	293 U	300 U	300 U	**891**

Table F-2
SPU Source Tracing Data 2017

Station ID	Outfall	Type	Date Sampled	Total Organic Carbon (%)	Arsenic (mg/kg DW)	Copper (mg/kg DW)	Lead (mg/kg DW)	Mercury (mg/kg DW)	Zinc (mg/kg DW)	Motor Oil Range HC* (mg/kg DW)	Aroclor 1248 (ug/kg DW)	Aroclor 1254 (ug/kg DW)	Aroclor 1260 (ug/kg DW)	Total PCBs (ug/kg DW)	1-Methyl-naphthalene (ug/kg DW)	2-Methyl-naphthalene (ug/kg DW)	Acenaphthene (ug/kg DW)	Acenaphthylene (ug/kg DW)	Anthracene (ug/kg DW)	Fluorene (ug/kg DW)
SCO				**NA**	**57**	**390**	**450**	**0.41**	**410**	**2,000**	**NA**	**NA**	**NA**	**130**	**NA**	**670**	**500**	**1,300**	**960**	**540**
CSL				**NA**	**93**	**390**	**530**	**0.59**	**960**	**2,000**	**NA**	**NA**	**NA**	**1,000**	**NA**	**670**	**500**	**1,300**	**960**	**540**
CB285	Diagonal Ave S CSO/SD	CB	7/25/2017	5.65	8.81 U	**200**	**84.4**	**0.1348**	**868**		**41.8**	**76.3**	**97.2 J**	**215.3 J**	401 U	**132 J**	300 U	401 U	**211 J**	**1,640**
CB286	Diagonal Ave S CSO/SD	CB	7/7/2017	7.66	**10.7**	**236**	**193**	**0.2896**	**1,520**		**229**	**716**	**647**	**1,592**	**109 J**	300 U	401 U	**108 J**	**272 J**	**1,810**
CB293	Diagonal Ave S CSO/SD	CB	7/7/2017	6.89	17.4 U	**209**	**239**	**0.3136**	**1,340**		**227**	**425**	**540**	**1,192**	283 U	290 U	290 U	283 U	**105 J**	**961**
CB297	Diagonal Ave S CSO/SD	CB	7/7/2017	6.16	23.2 U	**309**	**350**	**0.2653**	**3,080**		**174**	**512**	**533**	**1,219**	**108 J**	**167 J**	**794**	292 U	**1,500**	**7,920**
CB298	Diagonal Ave S CSO/SD	CB	7/8/2017	3.54	14.2 U	**379**	**201**	**0.2042**	**947**		**217**	**516**	**517**	**1,250**	97.1 U	283 U	283 U	97.1 U	**42.1 J**	**313**
CB299	Diagonal Ave S CSO/SD	CB	10/12/2017	5.46	11.3 U	**276**	**122**	**0.251**	**767**		**23.1**	**47.4**	**65.6**	**136.1**	446 U	97.1 U	97.1 U	446 U	446 U	**335 J**
CB300	Diagonal Ave S CSO/SD	CB	10/12/2017	8.23	24.2 U	**380**	**214**	**0.784**	**689**		18.5 U	**55.8**	**109**	**164.8**	**35.9 J**	**81.7 J**	446 U	96.4 U	96.4 U	**135**
CB301	Diagonal Ave S CSO/SD	CB	10/12/2017	5.31	**6.73**	**169**	**151 J**	**0.106**	**737**		**35.3 J**	**67.8 J**	**80.5 J**	**183.6 J**	293 U	446 U	**104 J**	293 U	**166 J**	**2,090**
CB302	Diagonal Ave S CSO/SD	CB	10/12/2017	3.37	8.68 U	**110**	**74.7 J**	**0.0844**	**484**		19.1 U	**243 J**	**3,910 J**	**4,153 J**	**132 J**	**256**	**115 J**	149 U	**263**	**2,280**
CB303	Diagonal Ave S CSO/SD	CB	10/12/2017	10.5	**8.63**	**168**	**181 J**	**0.161**	**1,100**		**93.6**	**114**	**72.4**	**280**	**206**	**325**	96.4 U	**112 J**	**301**	**2,730**
CB306	Diagonal Ave S CSO/SD	CB	10/11/2017	18.4	**17.8**	**301**	**296**	**0.202**	**1,990**		98.8 U	**1,560**	**734**	**2,294**	744 U	297 U	**934**	744 U	**1,880**	**10,100**
MH29	Diagonal Ave S CSO/SD	Inline	10/11/2017	3.59	**123**	**179**	**310**	**0.199**	**392**		97.9 U	**945**	**468**	**1,413**	**36.5 J**	66.4	**271**	**35.1 J**	**341**	**2,650**
MH33	Diagonal Ave S CSO/SD	Inline	11/7/2017	2.67	**16.3**	**125**	**181**	**0.203**	**369**		98.7 U	**7,830**	**1,900**	**9,730**	98.1 U	517 U	98.1 U	**33.1 J**	**113**	**611**
MH34	Diagonal Ave S CSO/SD	Inline	11/7/2017	1.05	6.02 U	**56.2**	**30.5**	**0.0434**	**234**		19.6 U	**69.8**	**23.8**	**93.6**	98.7 U	98.1 U	**37.2 J**	98.7 U	**83.2 J**	**947**
RCB1	Diagonal Ave S CSO/SD	RCB	9/26/2017	22.5	**5.56**	**249**	**68.2**	0.209 U	**991**		57.6 U	57.6 U	**58.2 J**	**58.2 J**	346 U	311 U	346 U	346 U	**123 J**	**1,940**
RCB193	Diagonal Ave S CSO/SD	RCB	3/6/2017	3.48	**18.5**	**131**	**76.5**	**1.032**	**964**	**3,710**	159 U	159 U	159 U	159 U	**1,940**	**4,040**	319 U	319 U	**131 J**	**1,020**
RCB194	Diagonal Ave S CSO/SD	RCB	3/6/2017	3.17	**29.4**	**141**	**88**	**0.1406**	**434**	**12,700**	**77.2**	**77.5**	**76.5 J**	**231.2 J**	**36.7 J**	**69.3 J**	98.7 U	98.7 U	98.7 U	**272**
ST1	Diagonal Ave S CSO/SD	SedTrap	4/27/2017	8.71	**12.7**	**141**	**96.9**	**0.1438**	**568**		**168**	**173**	**67.1 J**	**408.1 J**	96.3 U	243 U	96.3 U	96.3 U	**129**	**553**
ST1	Diagonal Ave S CSO/SD	Inline	4/27/2017	0.52	5.4 U	**31.7**	**15.1**	**0.0264**	**122**		17.9 U	17.9 U	17.9 U	17.9 U	19.6 U	96.3 U	19.6 U	19.6 U	19.6 U	**8.9 J**
ST1	Diagonal Ave S CSO/SD	Inline	4/27/2017	0.52	5.4 U	**31.7**	**15.1**	**0.0264**	**122**		17.9 U	17.9 U	17.9 U	17.9 U	19.6 U	96.3 U	19.6 U	19.6 U	19.6 U	**8.9 J**
ST7	Diagonal Ave S CSO/SD	SedTrap	4/11/2017	6.01	8.94 U	**135**	**84.7**	**0.0716**	**547**		**67.2**	**121**	**96.5 J**	**284.7 J**	97.6 U	**56.7 J**	**39.1 J**	**32 J**	**96.6 J**	**959**
TUL-CB3	Diagonal Ave S CSO/SD	CB	9/21/2017	13.4	41 U	**192**	**120**	**0.144**	**1,030**		966 U	**11,800**	**14,500 J**	**26,300 J**	298 U	**123 J**	**180 J**	**148 J**	**728**	**7,750**
ID-ST1	SW Idaho St SD	SedTrap	4/11/2017	7.76	**11**	**110**	**81.4**	**0.1479**	**1,060**		**48.2**	**116**	**77.9 J**	**242.1 J**	98.7 U	96.3 U	94 U	98.7 U	**110**	**1,010**
ID-ST2	SW Idaho St SD	SedTrap	4/11/2017	1.35	6.99 U	**24.6**	**12.7**	0.0316 U	**83.4**		**40.4**	**29.8**	19.5 U	**70.2**	18.9 U	98.7 U	**8 J**	18.9 U	**8.7 J**	**84.3**
ID-ST3	SW Idaho St SD	SedTrap	5/25/2017	3.69	**11.9**	**25.6**	**76.3**	**0.0640**	**215**		19.2 U	**12.3 J**	**11.9 J**	**24.2 J**	94.3 U	18.9 U	98.7 U	94.3 U	94.3 UJ	94.3 U
RCB82	SW Idaho St SD	RCB	2/3/2017	2.13	**23.9**	**61.9**	**45.7**	**0.0529**	**227**	**730**	18.3 U	18.3 U	18.3 U	18.3 U	38.6 U	**12.7 J**	**20.7 J**	38.6 U	**34 J**	**240**

Sample result is above the SCO but below the CSL

Sample result is above the CSL

Analyte was not detected, but detection limit is above the SCO.

Table F-2
SPU Source Tracing Data 2017

Station ID	Outfall	Type	Date Sampled	Naphthalene (ug/kg DW)	Phenanthrene (ug/kg DW)	Total LPAH (ug/kg DW)	Benzo(a) anthracene (ug/kg DW)	Benzo(a)pyrene (ug/kg DW)	Benzo(g,h,i) perylene (ug/kg DW)	Total Benzo-fluoranthenes (ug/kg DW)	Chrysene (ug/kg DW)	Dibenzo(a,h) anthracene (ug/kg DW)	Fluoranthene (ug/kg DW)	Indeno (1,2,3-cd) pyrene (ug/kg DW)	Pyrene (ug/kg DW)	Total HPAH (ug/kg DW)	Total cPAH (ug/kg DW)	BEHP (ug/kg DW)
SCO				**2,100**	**1,500**	**5,200**	**1,300**	**1,600**	**670**	**3,200**	**1,400**	**230**	**1,700**	**600**	**2,600**	**12,000**	**1,000**	**1,300**
CSL				**2,100**	**1,500**	**5,200**	**1,600**	**1,600**	**720**	**3,600**	**2,800**	**230**	**2,500**	**690**	**3,300**	**17,000**	**1,000**	**1,900**
Upper Reach																		
NST1	S Norfolk St CSO/PS17 EOF/SD	SedTrap	5/4/2017	292 U	**343**	**343**	**263 J**	**253 J**	**393**	**613**	**444**	292 U	292 U	**239 J**	**611**	**3,374 J**	**427.3 J**	**5,700**
NST1	S Norfolk St CSO/PS17 EOF/SD	Inline	5/4/2017	**63.6 J**	**819**	**1,179 J**	**469**	**1,400**	96 U	**1,580**	**1,420**	96 U	**77.8 J**	96 U	**1,460**	**7,679**	**1,643**	**10,600**
NST2	S Norfolk St CSO/PS17 EOF/SD	SedTrap	4/25/2017	1,580 U	1,580 U	1,580 U	1,580 U	1,580 U	1,580 U	**841 J**	**899 J**	1,580 U	1,580 U	1,580 U	**898 J**	**3,301 J**	**1,357 J**	**8,340**
NST3	S Norfolk St CSO/PS17 EOF/SD	SedTrap	5/4/2017	294 U	**390**	**390**	**338**	**381**	**563**	**910**	**542**	**108 J**	294 U	**350**	**679**	**4,634 J**	**589.4 J**	**2,350**
NST4	S Norfolk St CSO/PS17 EOF/SD	SedTrap	4/25/2017	**702**	**7,210**	**79,127**	**22,000**	**35,400**	**8,400**	**48,600**	**122,000**	**9,960**	**1,230**	**16,600**	**54,400**	**360,160**	**49,324**	734 U
NST4	S Norfolk St CSO/PS17 EOF/SD	Inline	4/25/2017	97.8 U	**66.1 J**	**66.1 J**	**81.7 J**	**86.3 J**	**131**	**242**	**172**	97.8 U	97.8 U	**98.1**	**180**	**1,150 J**	**149.8 J**	**210 J**
NST5	S Norfolk St CSO/PS17 EOF/SD	SedTrap	5/1/2017	311 U	**319**	**477 J**	**284 J**	**365**	**464**	**843**	**698**	311 U	311 U	**344**	**631**	**4,292 J**	**581.3 J**	**3,810**
RCB75	17th Ave S SD	RCB	1/8/2017	**46.6 J**	**267**	**383.4 J**	**200**	**224**	**137**	**670**	**447**	**60.7**	**23.8 J**	**95.8**	**627**	**3,048**	**349.3**	**14,500**
RCB76	17th Ave S SD	RCB	1/9/2017	243 U	**236 J**	**236 J**	**151 J**	**172 J**	**153 J**	**709**	**478**	**90.1 J**	243 U	**133 J**	**413**	**2,781 J**	**312.1 J**	**9,610**
Middle Reach																		
SL4-T6	I-5 SD at Slip 4	SedTrap	4/27/2017	**37.9 J**	**772**	**1,102 J**	**459**	**383**	**330**	**752**	**664**	**94.2**	**55.5 J**	**222**	**1,070**	**5,004**	**570.6**	**4,420**
7th-ST1	7th Ave S SD	SedTrap	4/27/2017	97.4 U	**197**	**245.2 J**	**137**	97.4 U	97.4 U	**420**	**404**	97.4 U	97.4 U	97.4 U	**398**	**1,665**	**132.8**	**5,860**
7th-ST1	7th Ave S SD	Inline	4/27/2017	98.6 U	**150**	**175.2 J**	**104**	**133**	**175**	**335**	**277**	98.6 U	**25.2 J**	**96.2 J**	**308**	**1,696 J**	**209 J**	**3,960**
7th-ST2	7th Ave S SD	SedTrap	4/27/2017	**7.1 J**	**15.3 J**	**22.4 J**	**16.4 J**	19.6 U	19.6 U	**28.4 J**	**51**	19.6 U	19.6 U	19.6 U	**31.6**	**146 J**	**19.7 J**	**97.6**
7th-ST3	7th Ave S SD	SedTrap	4/27/2017	**64 J**	**302**	**440.1 J**	**192**	**127**	99.1 U	**607**	**479**	99.1 U	99.1 U	99.1 U	**592**	**2,491**	**236.5**	**7,670**
CB280	7th Ave S SD	CB	8/25/2017	**195**	**351**	**1,577 J**	**232**	**283**	**338**	**528**	**906**	97.9	**74.2 J**	**217**	**450**	**3,327**	**428.9**	**14,700**
CB282	7th Ave S SD	CB	8/25/2017	**264 J**	**1,200**	**2,077 J**	**275**	**284 J**	**337**	**543 J**	**560**	296 U	296 U	**218 J**	**815**	**3,834 J**	**452.4 J**	**12,300**
RCB276	CS-1	RCB	10/26/2017	**173 J**	**1,080 J**	**1,677 J**	**550**	**567 J**	**727 J**	**1,340 J**	**1,580 J**	**210 J**	**134 J**	**387 J**	**2,000 J**	**9,041 J**	**894.5 J**	**26,700 J**
CB116	2nd Ave S SD	CB	8/25/2017	**126 J**	**483**	**933.2 J**	**200**	**226 J**	**327**	**521 J**	**546**	297 U	297 U	297 U	**622**	**3,020 J**	**377.8 J**	**8,390**
MH27	1st Ave S SD, west	Onsite	5/9/2017	**257 J**	**812**	**1476 J**	**347 J**	**405 J**	**1,180**	**768 J**	**861**	517 U	**214 J**	**331 J**	**1,780**	**6,732 J**	**661.6 J**	**28,600**
MH28	1st Ave S SD, west	Onsite	5/9/2017	**40.9 J**	**398**	**576.2 J**	**163**	**166**	230	**374**	**309**	99.6 U	**66.2 J**	**110**	**417**	**2,121**	**253.7**	**9,890**
1st-ST1	1st Ave S SD, west	SedTrap	5/25/2017	**116**	**1,230**	**1,600 J**	**472**	**361**	**351**	**1,190**	**1,150**	98.6 U	98.6 U	**167**	**1,420**	**6,161**	**575.1**	**15,100**
1st-ST2	1st Ave S SD, west	SedTrap	5/25/2017	**34 J**	**190**	**254.6 J**	**123**	**142**	**189**	**375**	**264**	97.3 U	97.3 U	**119**	**351**	**1,891**	**225.8**	**3,900**
1st-ST3	1st Ave S SD, west	SedTrap	5/25/2017	95.9 U	**398**	**451.3 J**	**259**	**266**	**237**	**702**	**461**	**63.2 J**	95.9 U	**185**	**675**	**3,674 J**	**410.5 J**	**735**
1st-ST3	1st Ave S SD, west	Inline	5/25/2017	100 U	**81.9 J**	**81.9 J**	**47.4 J**	**39 J**	**48 J**	**120 J**	**96.2 J**	100 U	100 U	**34.7 J**	**112**	**620.3 J**	**80.2 J**	251 U
1st-ST7	1st Ave S SD, west	SedTrap	5/4/2017	**120 J**	**733**	**853 J**	**632**	**708**	**839**	**1,690**	**1,080**	**209 J**	289 U	**583**	**1,410**	**8,721 J**	**1,093 J**	**5,190**
CB192	1st Ave S SD, west	CB	5/26/2017	287 U	**117 J**	**117 J**	**92.1 J**	**183 J**	**292**	**569 J**	**280 J**	287 U	287 U	210 J	**235 J**	**2,053 J**	**330.3 J**	**1,130**
CB304	Highland Park Wy SW SD	CB	10/2/2017	483 U	**291 J**	**579 J**	**200**	**299 J**	**540**	**305 J**	**593**	483 U	483 U	**250 J**	**671**	**3,230 J**	**477 J**	**9,920**
CB305	Highland Park Wy SW SD	CB	10/2/2017	297 U	**180 J**	**180 J**	**108**	**109 J**	**257 J**	**262 J**	**280 J**	297 U	297 U	297 U	**305**	**1,564 J**	**223.1 J**	**6,100**
HP-ST4	Highland Park Wy SW SD	SedTrap	4/11/2017	**29.3 J**	145	**220.9 J**	**355**	**156**	**134**	**419**	**493**	94 U	94 U	**67.3 J**	**848**	**3,406 J**	**263.9 J**	**3,500**
HP-ST6	Highland Park Wy SW SD	SedTrap	4/27/2017	**58.4 J**	**246**	**606.5 J**	**257**	**104**	98.8 U	**542**	**412**	98.8 U	**85.3 J**	98.8 U	**545**	**2,374**	**212.7**	**5,160**
HP-ST6	Highland Park Wy SW SD	Inline	4/27/2017	96.3 U	**123**	**357.1 J**	**82 J**	**104**	**174**	**267**	**235**	96.3 U	**79.6 J**	**83 J**	**295**	**1,490 J**	**168.8 J**	**4,120**
KN-ST1	SW Kenny St SD/T115 CSO	SedTrap	7/24/2017	**87.5 J**	**307**	**454.8 J**	**164 J**	**186**	**237**	**533**	**371**	160 U	160 U	**173**	**420**	**2,454 J**	**308.7 J**	**2,770**
Lower Reach																		
CB190	Diagonal Ave S CSO/SD	CB	4/6/2017	290 U	**358**	**358**	**113 J**	**114 J**	**176 J**	**303 J**	**281 J**	290 U	290 U	290 U	**405**	**1,741 J**	**230.9 J**	**9,890**
CB191	Diagonal Ave S CSO/SD	CB	4/6/2017	298 U	**335**	**335**	**103 J**	298 U	**211 J**	**272 J**	**310**	298 U	298 U	298 U	**363**	**1,607 J**	**264.1 J**	**65,700**
CB214	Diagonal Ave S CSO/SD	CB	10/12/2017	**309 J**	**1,120**	**1,724 J**	**369**	**394 J**	**1,080**	**788 J**	**906**	438 U	**160 J**	401 J	**1,930**	**6,948 J**	**646.5 J**	**12,900**
CB221	Diagonal Ave S CSO/SD	CB	9/26/2017	292 U	**514**	**514**	**336**	**394**	**414**	**889**	**719**	**105 J**	292 U	335	**807**	**4,808 J**	**599.2 J**	**12,300**
CB222	Diagonal Ave S CSO/SD	CB	9/26/2017	**101 J**	**3,650**	**4,519 J**	**2,630**	**3,100**	**2,120**	**6,300**	**4,710**	**790**	**179 J**	**1,920**	**5,830**	**34,310**	**4,548**	**86,200**
CB225	Diagonal Ave S CSO/SD	CB	8/25/2017	296 U	**195 J**	**195 J**	296 U	**125 J**	**343**	**261 J**	**279 J**	296 U	296 U	**135 J**	**277 J**	**1,679 J**	**241.4 J**	**1,740**
CB226	Diagonal Ave S CSO/SD	CB	8/25/2017	**103 J**	**660**	**944.5 J**	**275**	**351**	**549**	**790**	**803**	**167 J**	**85.3 J**	**293 J**	**900**	**5,095 J**	**561.6 J**	**9,890**
CB227	Diagonal Ave S CSO/SD	Inline	8/25/2017	98.6 U	**465**	**696.8 J**	**122**	**119**	**172**	**245**	**286**	**62.4 J**	**82.2 J**	**88.5 J**	**330**	**1,767 J**	**192.4 J**	**1,310**
CB238	Diagonal Ave S CSO/SD	CB	6/19/2017	95.6 U	**422**	**590.7 J**	**212**	**156**	**126**	**423**	**481**	**57.4 J**	**56.6 J**	**74.9 J**	**435**	**2,459 J**	**254.8 J**	**6,320**
CB239	Diagonal Ave S CSO/SD	CB	6/19/2017	96 U	**154**	**180.5 J**	**62.4 J**	96 U	**90.7 J**	**229**	**434**	96 U	**26.5 J**	**50 J**	**260**	**1,346 J**	**105.7 J**	**3,840**
CB279	Diagonal Ave S CSO/SD	CB	8/25/2017	296 U	**394**	**394**	**141**	**180 J**	**372**	**475 J**	**477**	296 U	296 U	**173 J**	**632**	**2,929 J**	**322.9 J**	**14,300**
CB283	Diagonal Ave S CSO/SD	CB	8/18/2017	**103 J**	**568**	**779 J**	**207**	**226 J**	**416**	**706**	**708**	293 U	293 U	**180 J**	**1,050**	**4,384 J**	**401 J**	**57,100**
CB284	Diagonal Ave S CSO/SD	CB	8/18/2017	300 U	**474**	**474**	**487**	**668**	**761**	**1,380**	**1,010**	300 U	300 U	**507**	**1,110**	**6,814**	**975.5**	**24,900**

Table F-2
SPU Source Tracing Data 2017

Station ID	Outfall	Type	Date Sampled	Naphthalene (ug/kg DW)	Phenanthrene (ug/kg DW)	Total LPAH (ug/kg DW)	Benzo(a) anthracene (ug/kg DW)	Benzo(a)pyrene (ug/kg DW)	Benzo(g,h,i) perylene (ug/kg DW)	Total Benzo-fluoranthenes (ug/kg DW)	Chrysene (ug/kg DW)	Dibenzo(a,h) anthracene (ug/kg DW)	Fluoranthene (ug/kg DW)	Indeno (1,2,3-cd) pyrene (ug/kg DW)	Pyrene (ug/kg DW)	Total HPAH (ug/kg DW)	Total cPAH (ug/kg DW)	BEHP (ug/kg DW)
SCO				**2,100**	**1,500**	**5,200**	**1,300**	**1,600**	**670**	**3,200**	**1,400**	**230**	**1,700**	**600**	**2,600**	**12,000**	**1,000**	**1,300**
CSL				**2,100**	**1,500**	**5,200**	**1,600**	**1,600**	**720**	**3,600**	**2,800**	**230**	**2,500**	**690**	**3,300**	**17,000**	**1,000**	**1,900**
CB285	Diagonal Ave S CSO/SD	CB	7/25/2017	**169 J**	**1,230**	**1,610 J**	**283 J**	**315 J**	**371 J**	**833**	**954**	401 U	401 U	**186 J**	**2,320**	**6,902 J**	**534.9 J**	**39,100**
CB286	Diagonal Ave S CSO/SD	CB	7/7/2017	**230 J**	**729**	**1,446 J**	**695**	**724**	**932**	**2,130**	**1,760**	**239 J**	**107 J**	**623**	**2,020**	**10,933 J**	**1182 J**	**19,300**
CB293	Diagonal Ave S CSO/SD	CB	7/7/2017	**149 J**	**690**	**944 J**	**338**	**388**	**505**	**850**	**680**	**121 J**	283 U	**313**	**855**	**5,011 J**	**593.3 J**	**4,920**
CB297	Diagonal Ave S CSO/SD	CB	7/7/2017	**418**	**7,710**	**11,126**	**3,010**	**2,660**	**2,080**	**5,440**	**4,410**	**574**	**704**	**1,740**	**7,010**	**34,844**	**3,953**	**15,300**
CB298	Diagonal Ave S CSO/SD	CB	7/8/2017	**49.2 J**	**215**	**306.3 J**	**116**	**150**	**268**	**388**	**265**	**31.9 J**	97.1 U	**140**	**310**	**1,982 J**	**229.8 J**	**2,200**
CB299	Diagonal Ave S CSO/SD	CB	10/12/2017	**121 J**	**276 J**	**397 J**	**159**	**164 J**	**316 J**	**369 J**	**321 J**	446 U	446 U	446 U	**472**	**2,136 J**	**331.5 J**	**9,550**
CB300	Diagonal Ave S CSO/SD	CB	10/12/2017	**63.6 J**	**129**	**192.6 J**	**71.6**	**104**	**272**	**186 J**	**154**	**57.4 J**	96.4 U	**136**	**213**	**1,329 J**	**167.9 J**	**1,740**
CB301	Diagonal Ave S CSO/SD	CB	10/12/2017	**122 J**	**1,720**	**2,281 J**	**609**	**806**	**1,070**	**1,610**	**1,390**	**275 J**	**169 J**	**782**	**2,550**	**11,182 J**	**1230 J**	**15,500**
CB302	Diagonal Ave S CSO/SD	CB	10/12/2017	**137 J**	**1,720**	**2,453 J**	**687**	**831**	**918**	**1,510**	**1,560**	**209**	**218**	**667**	**2,680**	**11,342**	**1,217**	**17,500**
CB303	Diagonal Ave S CSO/SD	CB	10/12/2017	**312**	**2,060**	**3118 J**	**993**	**1,050**	**1,040**	**2,070**	**2,020**	**264**	**333**	**561**	**3,330**	**14,058**	**1,538**	**52,700**
CB306	Diagonal Ave S CSO/SD	CB	10/11/2017	**371 J**	**6,670**	**10,630 J**	**4,610**	**5,490**	**3,700**	**10,200**	**7,830**	**1,220**	**775**	**3,460**	**9,310**	**55,920**	**7,883**	**7,930**
MH29	Diagonal Ave S CSO/SD	Inline	10/11/2017	**110**	**1,620**	**2,546 J**	**1,340**	**1,730**	**986**	**2,940**	**2,100**	**444**	**169**	**1,010**	**2,750**	**15,950**	**2,458**	**618**
MH33	Diagonal Ave S CSO/SD	Inline	11/7/2017	**56.2 J**	**331**	**558.5 J**	**299**	**340**	**459**	**847**	**683**	**124**	**25.2 J**	**302**	**595**	**4,260**	**541.2**	**950**
MH34	Diagonal Ave S CSO/SD	Inline	11/7/2017	**39.6 J**	**422**	**624.6 J**	**401**	**446**	**406**	**1,000**	**606**	**141**	**42.6 J**	**334**	**823**	**5,104**	**682**	**882**
RCB1	Diagonal Ave S CSO/SD	RCB	9/26/2017	346 U	**954**	**1,167 J**	**823**	**2**	**1,000**	**2,150**	**1,560**	**209 J**	**89.5 J**	**725**	**1,910**	**11,357 J**	**1509 J**	**6,750**
RCB193	Diagonal Ave S CSO/SD	RCB	3/6/2017	**1,530**	**925**	**2,733 J**	**541**	**616**	**633 J**	**1,120**	**1,210**	**195 J**	**147 J**	**274 J**	**1,530**	**7,139 J**	**899.6 J**	**28,800**
RCB194	Diagonal Ave S CSO/SD	RCB	3/6/2017	**53.3 J**	**247**	**363.9 J**	**104**	**111**	**148 J**	**290**	**310**	98.7 U	**63.6 J**	**97.9 J**	**382**	**1,715 J**	**183 J**	**6,570**
ST1	Diagonal Ave S CSO/SD	SedTrap	4/27/2017	**73.7 J**	**367**	**569.7 J**	**220**	**291**	96.3 U	**595**	**579**	96.3 U	96.3 U	96.3 U	**550**	**2,788**	**402.4**	**5,750**
ST1	Diagonal Ave S CSO/SD	Inline	4/27/2017	19.6 U	19.6 U	19.6 U	19.6 U	19.6 U	**11.5 J**	**15.4 J**	**12.5 J**	19.6 U	19.6 U	19.6 U	**15.7 J**	**64 J**	**17.3 J**	**236**
ST1	Diagonal Ave S CSO/SD	Inline	4/27/2017	19.6 U	19.6 U	19.6 U	19.6 U	19.6 U	**11.5 J**	**15.4 J**	**12.5 J**	19.6 U	19.6 U	19.6 U	**15.7 J**	**64 J**	**17.3 J**	**236**
ST7	Diagonal Ave S CSO/SD	SedTrap	4/11/2017	**79.5 J**	**539**	**843.4 J**	**393**	**393**	**374**	**824**	**677**	**107**	**57.2 J**	**215**	**1,050**	**4,992**	**585.8**	**7,040**
TUL-CB3	Diagonal Ave S CSO/SD	CB	9/21/2017	**352**	**3,770**	**5,511 J**	**2,520**	**2,050**	**1,930**	**5,490**	**4,640**	**467**	**333**	**1,440**	**6,370**	**32,657**	**3,228**	**48,200**
ID-ST1	SW Idaho St SD	SedTrap	4/11/2017	**57.6 J**	**542**	**709.6 J**	**422**	**558**	**631**	**1,840**	**1,120**	**157**	98.7 U	**511**	**1,040**	**7,289**	**909.3**	**7,260**
ID-ST2	SW Idaho St SD	SedTrap	4/11/2017	18.9 U	**98.3**	**122.9 J**	**24.8**	**34**	**27**	**78.3**	**52.3**	18.9 U	**7.9 J**	**25.1**	**82.9**	**408.7**	**51.1**	**122**
ID-ST3	SW Idaho St SD	SedTrap	5/25/2017	94.3 U	94.3 U	94.3 U	94.3 U	94.3 U	94.3 U	189 U	94.3 U	94.3 U	94.3 U	94.3 U	94.3 U	94.3 U	85.4 U	**155 J**
RCB82	SW Idaho St SD	RCB	2/3/2017	38.6 U	**206**	**284 J**	**70.4**	**67.9**	**97.6**	**167**	**125**	**27.7 J**	**23.3 J**	**60.1 J**	**220**	**1,076 J**	**110.0 J**	**2,680**

Sample result is above the SCO but below the CSL

Sample result is above the CSL

Analyte was not detected, but detection limit is above the SCO.

Table F-2
SPU Source Tracing Data 2017

Station ID	Outfall	Type	Date Sampled	Butylbenzyl phthalate (ug/kg DW)	Diethyl phthalate (ug/kg DW)	Dimethyl phthalate (ug/kg DW)	Di-n-butyl phthalate (ug/kg DW)	Di-n-octyl phthalate (ug/kg DW)	1,2-Dichloro-benzene (ug/kg DW)	1,4-Dichloro-benzene (ug/kg DW)	4-Methylphenol (ug/kg DW)	Benzoic acid (ug/kg DW)	Benzyl alcohol (ug/kg DW)	Bis-(2-chloroethyl) ether (ug/kg DW)	Carbazole (ug/kg DW)	Dibenzofuran (ug/kg DW)	Hexachloro-benzene (ug/kg DW)	Pentachloro-phenol (ug/kg DW)	Phenol (ug/kg DW)
SCO				**63**	**200**	**71**	**1,400**	**6,200**	**35**	**110**	**670**	**650**	**57**	**NA**	**NA**	**540**	**22**	**360**	**420**
CSL				**900**	**1,200**	**160**	**1,400**	**6,200**	**50**	**110**	**670**	**650**	**73**	**NA**	**NA**	**540**	**70**	**690**	**1,200**
Upper Reach																			
NST1	S Norfolk St CSO/PS17 EOF/SD	SedTrap	5/4/2017	**255 J**	292 U	292 U	**116 J**	**3,460**	292 U	292 U	**640**	2,920 U	**452**	292 UJ	292 UJ	292 U	292 U	1,460 U	**219 J**
NST1	S Norfolk St CSO/PS17 EOF/SD	Inline	5/4/2017	96 U	96 U	96 U	**154**	**812**	96 U	96 U	98.7 U	960 U	**87 J**	96 U	**120**	96 U	96 UJ	480 U	96 U
NST2	S Norfolk St CSO/PS17 EOF/SD	SedTrap	4/25/2017	1,580 U	1,580 U	1,580 U	1,580 U	1,580 U	1,580 U	1,580 U	96 U	15,800 U	1,580 U	1,580 U	1,580 UJ	1,580 U	1580 U	7,900 U	1,580 U
NST3	S Norfolk St CSO/PS17 EOF/SD	SedTrap	5/4/2017	294 U	294 U	294 U	294 U	294 U	294 U	294 U	**2,360**	2,940 U	294 U	294 UJ	294 UJ	294 U	294 U	1,470 U	**334**
NST4	S Norfolk St CSO/PS17 EOF/SD	SedTrap	4/25/2017	294 U	294 U	294 U	294 U	294 U	294 U	294 U	97.8 U	2,940 U	294 U	294 U	**4,000 J**	**335**	294 U	1,470 U	294 U
NST4	S Norfolk St CSO/PS17 EOF/SD	Inline	4/25/2017	98 U	97.8 U	98 U	**47.3 J**	97.8 U	98 U	98.7 U	1,580 U	978 U	98 U	97.8 UJ	97.8 UJ	97.8 U	97.8 U	489 U	97.8 U
NST5	S Norfolk St CSO/PS17 EOF/SD	SedTrap	5/1/2017	311 U	311 U	**224 J**	311 U	**1,260**	311 U	311 U	294 U	3,110 U	311 U	311 U	311 UJ	311 U	311 U	1,560 U	311 U
RCB75	17th Ave S SD	RCB	1/8/2017	**533**	49.3 U	49.3 U	**61.1**	**308**	49 U	49.3 UJ	98.7 U	**1,950**	**1,580 J**	49.3 U	**118 J**	49.3 U	**432**	**138 J**	**387**
RCB76	17th Ave S SD	RCB	1/9/2017	**298**	243 U	243 U	243 U	243 U	243 U	243 U	49.3 U	**739 J**	**5,760 J**	243 U	243 U	243 U	243 U	1,210 U	243 U
Middle Reach																			
SL4-T6	I-5 SD at Slip 4	SedTrap	4/27/2017	**392**	56.6 U	56.6 U	**95.4**	**1,770**	57 U	56.6 U	**145**	**237 J**	**98**	56.6 U	**74**	56.6 U	56.6 U	283 U	56.6 U
7th-ST1	7th Ave S SD	SedTrap	4/27/2017	97 U	97.4 U	**51.2 J**	**149**	97.4 U	97 U	97.4 U	**481**	**317 J**	**529**	97.4 U	97.4 U	97.4 U	97.4 U	487 U	**116**
7th-ST1	7th Ave S SD	Inline	4/27/2017	**113**	98.6 U	99 U	**67.3 J**	**106**	99 U	98.6 U	**1,920**	**296 J**	**205**	98.6 UJ	98.6 UJ	98.6 U	98.6 U	493 U	**242**
7th-ST2	7th Ave S SD	SedTrap	4/27/2017	19.6 U	19.6 U	19.6 U	19.6 U	19.6 U	19.6 U	19.6 U	100 U	**142 J**	**170**	19.6 U	19.6 U	19.6 U	19.6 U	97.8 U	**19.4 J**
7th-ST3	7th Ave S SD	SedTrap	4/27/2017	**488**	99.1 U	99 U	**132**	99.1 U	99 U	99.1 U	**136**	**627 J**	**311**	99.1 U	99.1 U	99.1 U	99.1 U	496 U	**270**
CB280	7th Ave S SD	CB	8/25/2017	**193**	97.7 U	**109**	**364**	**462**	98 U	97.7 U	**270**	**1,070**	**835**	97.7 U	**213**	97.7 U	97.7 U	488 U	**193**
CB282	7th Ave S SD	CB	8/25/2017	**776**	296 U	296 U	296 U	**603**	296 U	296 U	**460**	2,960 U	**417**	296 U	**219 J**	**88.5 J**	296 U	1,480 U	**199 J**
RCB276	CS-1	RCB	10/26/2017	**60,800 J**	199 UJ	**660 J**	**1,840 J**	**19,600 J**	199 UJ	199 U	**1,830 J**	**1,240 J**	**366 J**	199 UJ	**210 J**	199 UJ	199 UJ	994 UJ	**278 J**
CB116	2nd Ave S SD	CB	8/25/2017	**674**	297 U	**274 J**	**641**	**236 J**	297 U	297 U	**1,170**	2,970 U	**1,790**	**257 J**	**138 J**	297 U	297 U	1,480 U	**307**
MH27	1st Ave S SD, west	Onsite	5/9/2017	517 U	517 U	517 U	517 U	517 U	517 U	517 U	**757**	**1,790 J**	517 U	517 U	517 U	517 U	517 U	2,590 U	**625**
MH28	1st Ave S SD, west	Onsite	5/9/2017	**778**	99.6 U	99.6 U	**400**	**5,380**	**29.1 J**	**62.6 J**	**1,230**	**613 J**	**76 J**	99.6 U	**44.8 J**	99.6 U	99.6 U	498 U	**370**
1st-ST1	1st Ave S SD, west	SedTrap	5/25/2017	99 U	98.6 U	99 U	**170**	**1,070**	99 U	517 U	**419**	**617 J**	**172**	98.6 U	**145**	**54.7 J**	98.6 U	493 U	**188**
1st-ST2	1st Ave S SD, west	SedTrap	5/25/2017	**195**	97.3 U	97 U	**85.7 J**	**361**	97 U	98.6 U	**330**	**350 J**	97 U	97.3 U	97.3 U	97.3 U	97.3 U	486 U	**51.7 J**
1st-ST3	1st Ave S SD, west	SedTrap	5/25/2017	**163**	95.9 U	96 U	95.9 U	**76.5 J**	96 U	97.3 U	**1,010**	**1,050**	**910**	95.9 U	**68.7 J**	95.9 U	95.9 U	480 U	**201**
1st-ST3	1st Ave S SD, west	Inline	5/25/2017	100 U	100 U	100 U	**35.1 J**	100 U	100 U	95.9 U	19.6 U	1,000 U	100 U	100 U	100 U	100 U	100 U	502 U	100 U
1st-ST7	1st Ave S SD, west	SedTrap	5/4/2017	289 U	289 U	289 U	**113 J**	**413**	289 U	289 U	**3,600**	**1,190 J**	289 U	289 UJ	**182 J**	289 U	289 U	1,450 U	**308**
CB192	1st Ave S SD, west	CB	5/26/2017	287 U	287 U	287 U	287 U	287 U	287 U	287 U	**5,450**	**1,140 J**	287 U	287 U	287 U	287 U	287 U	1,440 U	**391**
CB304	Highland Park Wy SW SD	CB	10/2/2017	**240 J**	483 U	483 U	**18,400**	**978**	483 U	483 U	**640**	4,830 U	**4,010**	483 U	483 U	483 U	483 U	2,420 U	**566**
CB305	Highland Park Wy SW SD	CB	10/2/2017	297 U	297 U	297 U	**173 J**	**323**	297 U	297 U	**349**	**1,160 J**	**456**	297 U	297 U	297 U	297 U	1,490 U	**362**
HP-ST4	Highland Park Wy SW SD	SedTrap	4/11/2017	94 U	94 U	94 U	**57.3 J**	94 U	94 U	94 U	**704**	**391 J**	94 U	94 U	**40.5 J**	94 U	94 U	470 U	94 U
HP-ST6	Highland Park Wy SW SD	SedTrap	4/27/2017	**374**	98.8 U	**135**	**136**	**530**	99 U	98.8 U	**80.7 J**	988 U	**160**	98.8 U	98.8 U	**47.3 J**	98.8 U	494 U	**130**
HP-ST6	Highland Park Wy SW SD	Inline	4/27/2017	**195**	**89.2 J**	**73 J**	96.3 U	96.3 U	96 U	96.3 U	744 U	963 U	**335**	96.3 UJ	96.3 UJ	**31.3 J**	96.3 U	482 U	**75 J**
KN-ST1	SW Kenny St SD/T115 CSO	SedTrap	7/24/2017	160 U	160 U	160 U	**59.3 J**	**171**	160 U	160 U	**326 J**	**1,040 J**	**763**	160 UJ	160 U	160 U	160 U	802 U	**122 J**
Lower Reach																			
CB190	Diagonal Ave S CSO/SD	CB	4/6/2017	**438**	290 U	290 U	290 U	**400**	290 U	290 U	**10,700**	**17,100**	**2,030**	290 U	290 U	290 U	290 U	1,450 U	**1,620**
CB191	Diagonal Ave S CSO/SD	CB	4/6/2017	**462**	298 U	**3,460**	**156 J**	**712**	298 U	298 U	**4,170**	**1,130 J**	**12,100**	298 U	298 U	298 U	298 U	1,490 U	298 U
CB214	Diagonal Ave S CSO/SD	CB	10/12/2017	**759**	438 U	438 U	**6,710**	**871**	438 U	438 U	**1,250**	4,380 U	438 U	438 U	438 U	438 U	438 U	2,190 U	438 U
CB221	Diagonal Ave S CSO/SD	CB	9/26/2017	292 UJ	292 U	292 U	292 U	292 U	292 U	292 U	**1,420**	2,920 U	292 U	292 UJ	292 U	292 U	292 U	1,460 U	292 U
CB222	Diagonal Ave S CSO/SD	CB	9/26/2017	**372 J**	290 U	290 U	**179 J**	290 U	290 U	290 U	**840**	2,900 U	290 U	290 UJ	**596**	290 U	290 U	1,450 U	290 U
CB225	Diagonal Ave S CSO/SD	CB	8/25/2017	296 U	296 U	296 U	296 U	**130 J**	296 U	296 U	19.6 U	2,960 U	296 U	296 U	296 U	296 U	296 U	1,480 U	296 U
CB226	Diagonal Ave S CSO/SD	CB	8/25/2017	**48,000 J**	294 U	294 U	**2,290**	**4,620**	294 U	294 U	296 U	2,940 U	294 U	294 U	294 U	294 U	294 U	1,470 U	**172 J**
CB227	Diagonal Ave S CSO/SD	Inline	8/25/2017	**48.2 J**	98.6 U	**293**	**35.1 J**	**54.6 J**	99 U	98.6 U	294 U	986 U	99 U	98.6 U	98.6 U	**36.3 J**	98.6 U	493 U	98.6 U
CB238	Diagonal Ave S CSO/SD	CB	6/19/2017	**288**	95.6 U	96 U	**269**	**94.5 J**	96 U	95.6 U	**329**	956 U	96 U	95.6 U	**61.6 J**	95.6 U	95.6 U	478 U	95.6 U
CB239	Diagonal Ave S CSO/SD	CB	6/19/2017	**355**	96 U	96 U	**80.6 J**	**129**	96 U	96 U	**102**	960 U	96 U	96 U	**37.8 J**	96 U	96 U	480 U	96 U
CB279	Diagonal Ave S CSO/SD	CB	8/25/2017	**1,210**	296 U	296 U	**217 J**	**4,130**	296 U	296 U	98.6 U	**1,130 J**	296 U	296 U	296 U	296 U	296 U	1,480 U	296 U
CB283	Diagonal Ave S CSO/SD	CB	8/18/2017	**1,160**	293 U	293 U	293 U	**2,040**	293 U	293 U	**18,900**	**1,260 J**	**5,290**	**1,110**	293 U	293 U	293 U	1,470 U	**312**
CB284	Diagonal Ave S CSO/SD	CB	8/18/2017	**866**	300 U	300 U	**200 J**	**1,550**	300 U	300 U	**1,130**	3,000 U	**1,580**	300 U	300 U	300 U	300 U	1,500 U	**521**

Table F-2
SPU Source Tracing Data 2017

Station ID	Outfall	Type	Date Sampled	Butylbenzyl phthalate (ug/kg DW)	Diethyl phthalate (ug/kg DW)	Dimethyl phthalate (ug/kg DW)	Di-n-butyl phthalate (ug/kg DW)	Di-n-octyl phthalate (ug/kg DW)	1,2-Dichloro-benzene (ug/kg DW)	1,4-Dichloro-benzene (ug/kg DW)	4-Methylphenol (ug/kg DW)	Benzoic acid (ug/kg DW)	Benzyl alcohol (ug/kg DW)	Bis-(2-chloroethyl) ether (ug/kg DW)	Carbazole (ug/kg DW)	Dibenzofuran (ug/kg DW)	Hexachloro-benzene (ug/kg DW)	Pentachloro-phenol (ug/kg DW)	Phenol (ug/kg DW)
SCO				**63**	**200**	**71**	**1,400**	**6,200**	**35**	**110**	**670**	**650**	**57**	**NA**	**NA**	**540**	**22**	**360**	**420**
CSL				**900**	**1,200**	**160**	**1,400**	**6,200**	**50**	**110**	**670**	**650**	**73**	**NA**	**NA**	**540**	**70**	**690**	**1,200**
CB285	Diagonal Ave S CSO/SD	CB	7/25/2017	**1,160**	401 U	**139 J**	**369 J**	**1,240**	401 U	401 U	**329 J**	4,010 U	401 U	401 U	401 U	401 U	401 U	2,000 U	401 UJ
CB286	Diagonal Ave S CSO/SD	CB	7/7/2017	**571**	290 U	290 U	**215 J**	**1,570**	290 U	290 U	**1,040**	**1,720 J**	290 U	290 U	**116 J**	**84.6 J**	290 U	1,450 U	**313**
CB293	Diagonal Ave S CSO/SD	CB	7/7/2017	**293**	283 U	283 U	**273 J**	**213 J**	283 U	283 U	**1,010**	2,830 U	283 U	283 U	**110 J**	283 U	283 U	1,420 U	**286**
CB297	Diagonal Ave S CSO/SD	CB	7/7/2017	**1,780**	292 U	292 U	**387**	**790**	292 U	292 U	296 U	2,920 U	292 U	292 U	**841**	**370**	292 U	1,460 U	292 U
CB298	Diagonal Ave S CSO/SD	CB	7/8/2017	**463**	97.1 U	**74 J**	**277**	97.1 U	97 U	97.1 U	292 U	**564 J**	97 U	97.1 U	97.1 U	97.1 U	97.1 U	485 U	**58 J**
CB299	Diagonal Ave S CSO/SD	CB	10/12/2017	446 U	446 U	**234 J**	**157 J**	446 U	446 U	446 U	**377 J**	4,460 U	446 U	446 U	446 U	446 U	446 U	2,230 U	446 U
CB300	Diagonal Ave S CSO/SD	CB	10/12/2017	**175**	96.4 U	**375**	**435**	96.4 U	96 U	96.4 U	97.1 U	**646 J**	96 U	96.4 U	96.4 U	**23.2 J**	96.4 U	482 U	**87.8 J**
CB301	Diagonal Ave S CSO/SD	CB	10/12/2017	**333**	293 U	293 U	**371**	**1,410**	293 U	293 U	**560**	**1,170 J**	293 U	293 U	**309**	293 U	293 U	1,470 U	**154 J**
CB302	Diagonal Ave S CSO/SD	CB	10/12/2017	**674**	149 U	149 U	**80.1 J**	149 U	149 U	149 U	**257**	**818 J**	149 U	149 U	**295**	149 U	149 U	744 U	**135 J**
CB303	Diagonal Ave S CSO/SD	CB	10/12/2017	**927**	149 U	149 U	**657**	**5,500**	149 U	149 U	**1,420**	**1,680**	**1,810**	149 U	**313**	149 U	149 U	746 U	**283**
CB306	Diagonal Ave S CSO/SD	CB	10/11/2017	744 U	744 U	744 U	744 U	744 U	744 U	744 U	96.4 U	7,440 U	744 U	744 U	**771**	**356 J**	744 U	3,720 U	744 U
MH29	Diagonal Ave S CSO/SD	Inline	10/11/2017	58.5 U	58.5 U	58.5 U	**38.2 J**	58.5 U	59 U	58.5 U	18.9 U	**187 J**	59 U	58.5 U	**224**	**94.6**	58.5 U	293 U	**35.3 J**
MH33	Diagonal Ave S CSO/SD	Inline	11/7/2017	**455**	98.1 U	**208**	**128**	98.1 U	98 U	98.1 U	58.5 U	**506 J**	98 UJ	98.1 U	**68.1 J**	**26.8 J**	98.1 U	**304 J**	**148**
MH34	Diagonal Ave S CSO/SD	Inline	11/7/2017	**70 J**	98.7 U	99 U	**104**	98.7 U	99 U	97.8 U	98.1 U	987 U	99 UJ	98.7 U	**74.1 J**	98.7 U	98.7 U	493 U	98.7 U
RCB1	Diagonal Ave S CSO/SD	RCB	9/26/2017	346 UJ	346 U	346 U	**864**	**271 J**	346 U	346 U	311 U	**1,110 J**	346 U	346 UJ	**190 J**	346 U	346 U	1,730 U	**178 J**
RCB193	Diagonal Ave S CSO/SD	RCB	3/6/2017	**958**	319 U	319 U	**2,100**	**3,660**	319 U	319 U	**11,700**	**3,990**	319 U	319 U	**124 J**	319 U	319 U	1,600 U	319 U
RCB194	Diagonal Ave S CSO/SD	RCB	3/6/2017	**228**	98.7 U	99 U	**742**	**193**	99 U	98.7 U	346 U	**869 J**	99 U	98.7 U	98.7 U	98.7 U	98.7 U	**491 J**	**926**
ST1	Diagonal Ave S CSO/SD	SedTrap	4/27/2017	96 U	96.3 U	**75 J**	**127**	**592**	96 U	96.3 U	**1,400**	963 U	96 U	96.3 U	**58 J**	96.3 U	96.3 U	481 U	**259**
ST1	Diagonal Ave S CSO/SD	Inline	4/27/2017	**36.9**	19.6 U	19.6 U	19.6 U	**14 J**	20 U	19.6 U	**25.9**	196 U	19.6 U	19.6 UJ	19.6 UJ	19.6 U	19.6 U	98.2 U	19.6 U
ST1	Diagonal Ave S CSO/SD	Inline	4/27/2017	**36.9**	19.6 U	19.6 U	19.6 U	**14 J**	19.6 U	19.6 U	**25.9**	196 U	19.6 U	19.6 UJ	19.6 UJ	19.6 U	19.6 U	98.2 U	19.6 U
ST7	Diagonal Ave S CSO/SD	SedTrap	4/11/2017	98 U	97.6 U	**56.9 J**	**86.5 J**	**1,450**	98 U	97.6 U	**4,700**	**434 J**	98 U	97.6 U	**65 J**	97.6 U	97.6 U	488 U	**546**
TUL-CB3	Diagonal Ave S CSO/SD	CB	9/21/2017	**827 J**	298 U	298 U	**248 J**	298 U	298 U	298 U	**856**	**4,480**	298 U	298 UJ	**453**	**144 J**	298 U	1,490 U	**397**
ID-ST1	SW Idaho St SD	SedTrap	4/11/2017	99 U	98.7 U	99 U	98.7 U	**631**	99 U	98.7 U	**1,780**	**3,490 J**	**679**	98.7 U	**90.4 J**	98.7 U	98.7 U	493 U	**779**
ID-ST2	SW Idaho St SD	SedTrap	4/11/2017	18.9 U	18.9 U	18.9 U	18.9 U	18.9 U	18.9 U	18.9 U	96.3 U	**77.7 J**	18.9 U	18.9 U	**13.1 J**	18.9 U	18.9 U	94.7 U	**217**
ID-ST3	SW Idaho St SD	SedTrap	5/25/2017	94 U	94.3 U	94 U	**50.9 J**	94.3 U	94 U	94.3 U	**185**	943 U	**140**	94.3 U	94.3 U	94.3 U	94.3 U	471 U	94.3 U
RCB82	SW Idaho St SD	RCB	2/3/2017	**427**	38.6 U	**46.3**	**34.6 J**	**67.5**	39 U	38.6 U	**87.3**	**172 J**	38.6 U	38.6 U	**56 J**	**15.1 J**	38.6 U	193 U	38.6 U

Sample result is above the SCO but below the CSL

Sample result is above the CSL

Analyte was not detected, but detection limit is above the SCO.

Appendix G:
King County Source Tracing Data (2017)

Appendix G
King County Source Tracing Data 2017

Station ID	Outfall	Type	Date Sampled	Total Organic Carbon (%)	Arsenic (mg/kg DW)	Copper (mg/kg DW)	Lead (mg/kg DW)	Mercury (mg/kg DW)	Zinc (mg/kg DW)	Diesel Range HC (mg/kg DW)	Motor Oil Range HC* (mg/kg DW)	Aroclor 1242 (ug/kg DW)	Aroclor 1248 (ug/kg DW)	Aroclor 1254 (ug/kg DW)	Aroclor 1260 (ug/kg DW)	Total PCBs (ug/kg DW)	1-Methyl-naphthalene (ug/kg DW)	2-Methyl-naphthalene (ug/kg DW)	Acenaphthene (ug/kg DW)	Acenaphthylene (ug/kg DW)
SCO				**NA**	**57**	**390**	**450**	**0.41**	**410**	**2,000**	**2,000**	**NA**	**NA**	**NA**	**NA**	**130**	**NA**	**670**	**500**	**1,300**
CSL				**NA**	**93**	**390**	**530**	**0.59**	**960**	**2,000**	**2,000**	**NA**	**NA**	**NA**	**NA**	**1,000**	**NA**	**670**	**500**	**1,300**
Upper Reach																				
96-ST1	S 96 Street SD	SedTrap	5/4/2017	4.8	**20.5**	**49**	**36**	NA	**447**	NA	NA	NA	NA	NA	NA	NA	**41 J**	**48 J**	**267**	27 U
96-ST2	S 96 Street SD	SedTrap	5/4/2017	1.1	**5.3**	**26**	**25**	NA	**343**	NA	NA	NA	NA	NA	NA	NA	23 U	23 U	23 U	23 U
96-ST3	S 96 Street SD	SedTrap	4/25/2017	7.7	**14.5**	**82**	**68**	NA	**489**	NA	NA	NA	NA	NA	NA	NA	38 U	38 U	38 U	38 U
KCIA2 Trap	KCIA SD#2	SedTrap	5/31/2017	0.18	NA	NA	NA	NA	NA	NA	NA	58.5 U	58.5 U	58.5 U	58.5 U	58.5 U	NA	NA	NA	NA
KCIA1A Trap	KCIA SD#1	SedTrap	5/31/2017	0.94	NA	NA	NA	NA	NA	NA	NA	585 U	585 U	585 U	585 U	585 U	NA	NA	NA	NA
KCIA2 Grab	KCIA SD#2	CB	5/31/2017	0.54	**14**	**38**	**18.7**	2.1 U	**409**	252 U	50 U	76.5 U	76.5 U	76.5 U	76.5 U	76.5 U	NA	23.3 U	23.3 U	23.3 U
SPS Grab	KCIA SD#2	CB	5/31/2017	0.41	**43**	**112**	**29.7**	4.6 U	**352**	**100**	**570**	126 UJ	126 UJ	126 UJ	**367 J**	**367 J**	NA	27.5 U	27.5 U	27.5 U
KCIA1A Grab	KCIA SD#!	CB	5/31/2017	7.4	**14**	**38**	**18.7**	2.1 U	**409**	25 U	50 U	76.5 U	76.5 U	76.5 U	76.5 U	76.5 U	NA	19.8 U	19.8 U	19.8 U
Middle Reach																				
ST_8AVE-01	8th Avenue CSO	SedTrap	6/23/2017	10.7	**6.4**	**132**	**71**	**0.33 J**	**576**	NA	NA	30.9 U	10.3 U	**47.3**	**35.4**	**82.7**	100 U	100 U	100 U	100 U
S070196_TR	Michigan CSO	SedTrap	6/9/2017	11.1	**5.5**	**120**	**83 J**	**0.23 J**	**515**	**1,940 J**	**3,160**	**93**	8.9 U	**116**	**95.5**	**304**	**503**	**667**	89 U	89 U
S070196_TR	Michigan CSO	SedTrap	12/21/2017	17.3	**5.3**	**181**	**99**	**0.61 J**	**619**	NA	NA	**526**	10.8 U	**139**	**43.1**	**708**	54 U	54 U	54 U	54 U
ST_MH071-099	Michigan CSO	SedTrap	6/19/2017	8.43	**4.7**	**185**	**66**	**0.24 J**	**397**	**951 J**	**2,310**	9.3 U	9.3 U	**40.3**	**28**	**68.3**	**438**	**599**	93 U	93 U
ST_MH071-099	Michigan CSO	SedTrap	12/21/2017	12.9	**3.9**	**167**	**81**	**0.35 J**	**372**	**NA**	NA	10.3 U	10.3 U	**21.7**	**16.0**	**37.7**	52 U	52 U	52 U	52 U
SL4-T4A Trap	KCIA SD#3	SedTrap	4/28/2017	6.1	**26 J**	**503**	**460**	**0.37**	**1,590**	**399 J**	**1,710 J**	18.5 U	27.7 U	**70.9**	**112**	**183**	NA	551 U	551 U	551 U
SL4-T3A Trap	KCIA SD#3	SedTrap	5/31/2017	2.3	NA	NA	NA	NA	NA	NA	NA	107 U	107 U	107 U	107 U	107 U	NA	25.6 U	**64**	**64**
SL4-T2A Trap	KCIA SD#3	SedTrap	5/31/2017	18	NA	NA	NA	NA	NA	NA	NA	60.5 U	60.5 U	60.5 U	60.5 U	60.5 U	NA	NA	NA	NA
SL4-T5B Grab	KCIA SD#3	CB	4/28/2017	8.3	**32**	**149**	**136**	**0.28**	**525**	**871 J**	**2,740 J**	19.5 U	48.8 U	**312**	**147**	**459**	NA	294 U	294 U	294 U
SL4-T3A Grab	KCIA SD#3	CB	5/31/2017	0.26	**2.2**	**13**	**5.5**	**0.52**	**24**	**62**	**360**	17.6 U	17.6 U	17.6 U	17.6 U	17.6 U	NA	3.9 U	3.9 U	3.9 U
SL4-T2A Grab	KCIA SD#3	CB	5/31/2017	1.9	**35**	**71.5**	**218**	0.48 U	**737**	**160**	**570**	18.9 U	18.9 U	18.9 U	18.9 U	18.9 U	NA	**299**	**298**	**61.2**

Sample result is above the SCO but below the CSL

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Analyte was not detected, but detection limit is above the SCO.

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Appendix G
King County Source Tracing Data 2017

Station ID	Outfall	Type	Date Sampled	Anthracene (ug/kg DW)	Fluorene (ug/kg DW)	Naphthalene (ug/kg DW)	Phenanthrene (ug/kg DW)	Total LPAH (ug/kg DW)	Benzo(a) anthracene (ug/kg DW)	Benzo(a) pyrene (ug/kg DW)	Benzo(g,h,i) perylene (ug/kg DW)	Total Benzo-fluoranthenes (ug/kg DW)	Chrysene (ug/kg DW)	Dibenzo(a,h) anthracene (ug/kg DW)	Fluoranthene (ug/kg DW)	Indeno (1,2,3-cd) pyrene (ug/kg DW)	Pyrene (ug/kg DW)	Total HPAH (ug/kg DW)
SCO				**960**	**540**	**2,100**	**1,500**	**5,200**	**1,300**	**1,600**	**670**	**3,200**	**1,400**	**230**	**1,700**	**600**	**2,600**	**12,000**
CSL				**960**	**540**	**2,100**	**1,500**	**5,200**	**1,600**	**1,600**	**720**	**3,600**	**2,800**	**230**	**2,500**	**690**	**3,300**	**17,000**
Upper Reach																		
96-ST1	S 96 Street SD	SedTrap	5/4/2017	**613**	**280**	**74.5**	**2,520 J**	**3,750 J**	**911**	**708**	27 U	**1,140**	**1,060**	52 U	**2,380**	**375**	**2,270**	**8,844**
96-ST2	S 96 Street SD	SedTrap	5/4/2017	**54.9 J**	23 U	23 U	**223 J**	**278 J**	**147 J**	**148 J**	**77.5 J**	**327 J**	**179 J**	44 U	**348 J**	**103 J**	**299 J**	**1,630 J**
96-ST3	S 96 Street SD	SedTrap	4/25/2017	74 U	38 U	38 U	**180 J**	**180 J**	**170 J**	**191**	**92 J**	**475**	**288**	74 U	**422**	**140**	**429**	**2,210 J**
KCIA2 Trap	KCIA SD#2	SedTrap	5/31/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
KCIA1A Trap	KCIA SD#1	SedTrap	5/31/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
KCIA2 Grab	KCIA SD#2	CB	5/31/2017	23.3 U	23.3 U	466 U	**42**	**42**	**44**	23 U	**261**	**559**	**91**	23 U	**165**	**231**	**135**	**1,486**
SPS Grab	KCIA SD#2	CB	5/31/2017	27.5 U	27.5 U	550 U	**66**	**66**	**55**	**294**	**256**	**630**	**124**	**39**	**228**	**234**	**179**	**2,039**
KCIA1A Grab	KCIA SD#!	CB	5/31/2017	19.8 U	19.8 U	396 U	19.8 U	396 U	19.8 U	19.8 U	20.8 U	19.8 U	19.8 U	19.8 U	19.8 U	19.8 U	19.8 U	21 U
Middle Reach																		
ST_8AVE-01	8th Avenue CSO	SedTrap	6/23/2017	100 U	100 U	100 U	**210**	**210**	**430 J**	**224**	100 U	**510**	**218**	210 U	100 U	100 U	100 U	**1,382**
S070196_TR	Michigan CSO	SedTrap	6/9/2017	89 U	89 U	89 U	**540**	**1,207**	**340 J**	**273**	**237 J**	**594**	**308 J**	180 U	**449 J**	**170 J**	**857 J**	**3,228**
S070196_TR	Michigan CSO	SedTrap	12/21/2017	54 U	**100 J**	54 U	110 U	NA	**120 J**	**108 J**	**63 J**	**271**	**121 JG**	110 U	**100 J**	**80 J**	**199**	**1,062**
ST_MH071-099	Michigan CSO	SedTrap	6/19/2017	93 U	93 U	**203**	**526**	**1,328**	**370 J**	**317**	**265**	**655**	**368**	190 U	**593**	**213**	**701**	**3,482**
ST_MH071-099	Michigan CSO	SedTrap	12/21/2017	52 U	52 U	52 U	100 U	NA	100 U	**54 J**	52 U	**121**	**68 JG**	100 U	52 U	52 U	52 U	**243**
SL4-T4A Trap	KCIA SD#3	SedTrap	4/28/2017	**318 J**	561 U	551 U	**2,390**	**2,708**	**1,300**	**2,090**	**2,230**	**5,810**	**3,510**	**854**	**4,030**	**1,790**	**3,190**	**24,804**
SL4-T3A Trap	KCIA SD#3	SedTrap	5/31/2017	25.6 U	**90**	512 U	**1,880**	**2,098**	**1,620**	**2,730**	**3,530**	**9,140**	**3,040**	**645**	**6,130**	**3,270**	**4,440**	**34,545**
SL4-T2A Trap	KCIA SD#3	SedTrap	5/31/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SL4-T5B Grab	KCIA SD#3	CB	4/28/2017	**106 J**	294 U	294 U	**1,060**	**1,166**	**615**	**987**	**1,290**	**2,900**	**1,800**	**253 J**	**2,170**	**938**	**2,310**	**13,263 J**
SL4-T3A Grab	KCIA SD#3	CB	5/31/2017	3.9 U	3.9 U	78.2 U	**56**	**56**	**51**	**89**	**104**	**246**	**86**	**20**	**174**	**94**	**133**	**996**
SL4-T2A Grab	KCIA SD#3	CB	5/31/2017	**398**	**304**	103 U	**2,640**	**4,000**	**1,540**	**2,470**	**2,000**	**13,070**	**2,100**	**393**	**4,780**	**2,020**	**4,130**	**32,503**

Sample result is above the SCO but below the CSL

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Appendix G
King County Source Tracing Data 2017

Station ID	Outfall	Type	Date Sampled	Total cPAH (ug/kg DW)	BEHP (ug/kg DW)	Butylbenzyl phthalate (ug/kg DW)	Diethyl phthalate (ug/kg DW)	Dimethyl phthalate (ug/kg DW)	Di-n-butyl phthalate (ug/kg DW)	Di-n-octyl phthalate (ug/kg DW)	1,2-Dichloro-benzene (ug/kg DW)	1,4-Dichloro-benzene (ug/kg DW)	Benzoic acid (ug/kg DW)	Dibenzofuran (ug/kg DW)	Phenol (ug/kg DW)
SCO				**1,000**	**1,300**	**63**	**200**	**71**	**1,400**	**6,200**	**35**	**110**	**650**	**540**	**420**
CSL				**1,000**	**1,900**	**900**	**1,200**	**160**	**1,400**	**6,200**	**50**	**110**	**650**	**540**	**1,200**
Upper Reach															
96-ST1	S 96 Street SD	SedTrap	5/4/2017	**964**	**4,770**	27 U	270 UJ	52 U	27 U	27 U	27 U	27 U	**1,400 J**	**142**	130 U
96-ST2	S 96 Street SD	SedTrap	5/4/2017	**210 J**	**883**	**81 J**	230 UJ	44 U	23 U	23 U	23 U	23 U	440 U	23 U	110 U
96-ST3	S 96 Street SD	SedTrap	4/25/2017	**276 J**	**3,880**	**199 J**	380 UJ	74 U	74 U	**192**	38 U	38 U	740 U	38 U	190 U
KCIA2 Trap	KCIA SD#2	SedTrap	5/31/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
KCIA1A Trap	KCIA SD#1	SedTrap	5/31/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
KCIA2 Grab	KCIA SD#2	CB	5/31/2017	**97.0**	466 U	466 U	466 U	466 U	466 U	233 U	NA	NA	NA	NA	NA
SPS Grab	KCIA SD#2	CB	5/31/2017	**391**	550 U	550 U	550 U	550 U	550 U	275 U	NA	NA	NA	NA	NA
KCIA1A Grab	KCIA SD#!	CB	5/31/2017	14.0 U	396 U	396 U	396 U	396 U	396 U	198 U	NA	NA	NA	NA	NA
Middle Reach															
ST_8AVE-01	8th Avenue CSO	SedTrap	6/23/2017	**336 J**	**6,070**	100 U	1,000 U	210 U	100 U	100 U	100 U	100 U	2,100 U	100 U	510 U
S070196_TR	Michigan CSO	SedTrap	6/9/2017	**395 J**	**6,360**	89 U	890 U	180 U	89 U	89 U	89 U	89 U	1,800 U	89 U	**1,620**
S070196_TR	Michigan CSO	SedTrap	12/21/2017	**162 J**	**2,790**	54 U	540 U	NA	54 U	784	54 U	54 U	**9,260**	54 U	280 U
ST_MH071-099	Michigan CSO	SedTrap	6/19/2017	**454 J**	**3,990**	93 U	930 U	190 U	93 U	93 U	93 U	93 U	1,900 U	93 U	470 U
ST_MH071-099	Michigan CSO	SedTrap	12/21/2017	**79.4 J**	**1,850**	52 U	520 U	NA	52 U	**370**	52 U	**195**	**8,510**	52 U	270 U
SL4-T4A Trap	KCIA SD#3	SedTrap	4/28/2017	**3,100**	**18,100**	**3,510**	551 U	551 U	**688**	**34,100**	NA	NA	NA	NA	NA
SL4-T3A Trap	KCIA SD#3	SedTrap	5/31/2017	**4,228**	**12,000**	512 U	512 U	512 U	512 U	256 U	NA	NA	NA	NA	NA
SL4-T2A Trap	KCIA SD#3	SedTrap	5/31/2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SL4-T5B Grab	KCIA SD#3	CB	4/28/2017	**1476 J**	**27,500**	**8,660**	294 U	294 U	294 U	**3,790**	NA	NA	NA	NA	NA
SL4-T3A Grab	KCIA SD#3	CB	5/31/2017	**131**	78 U	78 U	78 U	78 U	78 U	39 U	NA	NA	NA	NA	NA
SL4-T2A Grab	KCIA SD#3	CB	5/31/2017	**4193**	**858**	103 U	103 U	103 U	103 U	51 U	NA	NA	NA	NA	NA

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