



DEPARTMENT OF  
**ECOLOGY**  
State of Washington

# **Lower Duwamish Waterway Source Control Status Report 2020**

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August 2022

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**ECOLOGY**  
State of Washington

# **Lower Duwamish Waterway Source Control Status Report 2020**

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Produced by

Toxics Cleanup Program  
Northwest Regional Office  
Washington State Department of Ecology  
Shoreline, Washington

and

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With Assistance from:

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## Acronyms and Abbreviations

2LAET	Second Lowest Apparent Effects Threshold
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
COC	chemical of concern
cPAH	carcinogenic polycyclic aromatic hydrocarbon
CSL	cleanup screening level
CSO	combined sewer overflow
CVOC	chlorinated volatile organic compounds
DCE	dichloroethene
DNS	Determination of Nonsignificance
DW	dry weight
EAA	early action area
Ecology	Washington State Department of Ecology
EMF	Electronics Manufacturing Facility
EOF	emergency overflow
EPA	U.S. Environmental Protection Agency
ESD	explanation of significant differences
FS	feasibility study
GSC	Grand Street Commons
GTSP	Georgetown Steam Plant
HPAH	high molecular weight polycyclic aromatic hydrocarbon
HWTR	Hazardous Waste & Toxics Reduction
IAA	Insurance Auto Auctions
IAWP	Interim Action Work Plan
ICS	Industrial Container Services
ISCO	in-situ chemical oxidation
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
MBHA	Mount Baker Housing Association
MFC	Military Flight Center
µg/L	micrograms per liter
mg/kg	milligrams per kilogram
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MS4	municipal separate storm sewer system
MTCA	Model Toxics Control Act

## Acronyms and Abbreviations (Continued)

NBF	North Boeing Field
ng/kg	nanograms per kilogram
NPDES	National Pollutant Discharge Elimination System
ND	not detected
OC	organic carbon
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PCE	tetrachloroethene (or perchloroethylene)
PLA	Pollutant Loading Assessment
PLP	potentially liable person
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
SCAP	Source Control Action Plan
SCIP	Source Control Implementation Plan
SCO	sediment cleanup objective
SD	storm drain
SDOT	Seattle Department of Transportation
SEPA	State Environmental Policy Act
SIM	Seattle Iron and Metals
SIU	significant industrial user
SMS	Washington State Sediment Management Standards
SPU	Seattle Public Utilities
SVOC	semivolatile organic compound
SWPPP	Stormwater Pollution Prevention Plan
TAC	Technical Advisory Committee
TCE	trichloroethene
TCP	Toxics Cleanup Program
TEQ	toxic equivalent
TOC	total organic carbon
TPH	total petroleum hydrocarbons
TSCA	Toxic Substances Control Act
UST	underground storage tank
VC	vinyl chloride
VCP	Voluntary Cleanup Program
VOC	volatile organic compound
WQ	Water Quality
WSDOT	Washington State Department of Transportation

## 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, 2020. The COVID-19 pandemic (also known as the coronavirus pandemic) was identified in March 2020. There were many local, state, and federal restrictions in place during 2020. As a result, many activities were required to stop or were conducted in a different or limited manner in 2020.

Previous status reports provided an overview of the LDW site, and a summary of source control activities conducted between 2003 and December 2019. 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 2020 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 of the waterway (Table 1-1): 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 2020; 515 of these action items (73 percent) have been completed or were no longer necessary, as specified below by priority:

- 144 of 186 high priority action items (77 percent) have been resolved;
- 220 of 331 medium priority action items (66 percent) have been resolved;
- 151 of 193 low priority action items (78 percent) have been resolved.

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

A total of 42 high priority action items remain to be completed (Appendix B, Table B-2); of these, 15 action items are in the Upper Reach, 17 are in the Middle Reach, and 10 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

During the current reporting period, Ecology's Water Quality Program (WQ) and Toxics Cleanup Program (TCP) 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 64 inspections/site visits at 50 facilities in 2020 (Appendix C). King County Industrial

Waste (KCIW) inspects significant industrial users operating under a waste discharge permit once per year, and other industrial users at least every five years; a total of 31 inspections were conducted at 30 facilities in 2020 (Appendix D, Table D-1). King County Stormwater Services conducted ten source control inspections at six facilities in unincorporated areas of the LDW basin in 2020 (Appendix D, Table D-2). This is fewer inspections than have historically been conducted within this area. Inspections were paused for approximately four months in 2020 due to the COVID-19 pandemic. When inspections resumed, inspectors avoided high-risk business sectors, including businesses at which most activities are performed indoors (King County 2021 [12519]).

Ecology's WQ Program conducted 17 inspections at 15 facilities during 2020 (Appendix E, Table E-1).

Source tracing activities also continued during the current reporting period. SPU and King County collected in-line storm drain sediment trap and grab samples, storm drain catch basin grab samples, and samples outside of drainage systems. King County collected solids samples in combined sewers and at King County International Airport (KCIA) (Appendix F and Appendix G).

Site characterization or cleanup is in progress at several facilities that are known or suspected sources of pollution 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). A list of EPA-managed cleanup sites is located in Table 2-6.

Ecology's TCP is managing 20 sites under the Model Toxics Control Act (MTCA). Ecology's HWTR Program is managing four cleanup sites. A list of Ecology managed cleanup sites is located in Table 2-7.

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

- SPU, King County, and Ecology conducted inspections.
- SPU and King County conducted source tracing.
- SPU and King County conducted in-line and catch basin storm drain solids sampling.
- SPU and King County conducted storm drain line cleaning.
- King County continued 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 EPA continued work on the Pollutant Loading Assessment (PLA) for the Green-Duwamish watershed.

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**

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

- Ecology WQ approved Boeing's stormwater treatment system design engineering report for the Boeing Developmental Center in August 2020 (Ecology 2020r [12489]).

- Ecology WQ and Boeing signed Agreed Order #19427 to achieve compliance with the Industrial Stormwater General Permit (ISGP) at the Boeing Developmental Center in November 2020 (Ecology 2020v [12488]).
- Boeing completed a plan to treat stormwater within the Boeing Military Delivery Center site and started construction in 2020. This was expected to be completed in 2021 (King County 2021 [12519]).
- Ecology approved the engineering report for advanced stormwater treatment at the Boeing Military Delivery Center in March 2020 (Ecology 2020f [12490]). Boeing started construction in 2020.
- Ecology and Prologis signed Agreed Order DE-16659 for remedial action at the Emerald Gateway Site in January 2020 (Ecology 2020a [12379]).
- Prologis submitted an Interim Action Design Report to Ecology for the Emerald Gateway Site in April 2020 (Farallon 2020 [12545]). Ecology approved this report on April 6, 2020.
- The Boeing Field Chevron site submitted the RI report to Ecology in October 2020 (G-Logics 2020 [12547]).

***River Mile (RM) 4.3-4.9 East (Boeing Developmental Center)***

- Ecology WQ approved Boeing's stormwater treatment system design engineering report for the Boeing Developmental Center in August 2020 (Ecology 2020r [12489]).
- In November 2020, Ecology WQ and Boeing signed Agreed Order #19427 to achieve compliance with the ISGP at the Boeing Developmental Center. This order amended and superseded the previous Agreed Order #15600 (Ecology 2020v [12488]).

***River Mile (RM) 3.9-4.3 (Slip 6)***

- PACCAR and Centerpoint submitted the final FS for the 8801 site to Ecology in July 2020 (Shannon & Wilson 2020d [12548]).
- Ecology WQ approved Boeing's stormwater treatment system design engineering report for the Boeing Developmental Center in August 2020 (Ecology 2020r [12489]).
- Ecology WQ and Boeing signed Agreed Order #19427 to achieve compliance with the ISGP at the Boeing Developmental Center In November 2020 (Ecology 2020v [12488]).

***River Mile (RM) 3.7-3.9 East (EAA-6; Boeing Isaacson/Central KCIA)***

- Ecology reviewed the Boeing Isaacson/Thompson Draft Final FS Report and prepared comments to send to Boeing in early 2020.

***River Mile (RM) 2.8-3.7 East (EAA-4; Boeing Plant 2 to Jorgensen Forge)***

- Boeing submitted the Boeing Plant 2 advanced stormwater treatment Engineering Report to Ecology WQ in May 2020 (Geosyntec 2020d [12518]).
- EPA proposed uplands corrective actions in 2019 and received public comments on the draft cleanup plan in 2019. In 2020 EPA worked on preparing a response to comments on the draft Statement of Basis proposed cleanup plan and its final corrective action decision

for the cleanup of this site (EPA 2020a [12428]). EPA finalized the corrective action decision in July 2022 (EPA 2022 [12484]).

- Ecology reviewed and approved the revised RI work plan for the Jorgensen Forge site and requested additional evaluation at two areas of the site.
- Jorgensen prepared an Engineering Evaluation/Cost Analysis document for the sediment cleanup at Jorgensen Forge to determine what actions can be taken at the EAA in late 2020 (EPA 2020a [12428], EPA 2020c [12553]).

***River Mile (RM) 3.8-4.2 West (Sea King Industrial Park)***

- Ecology and Precision Engineering negotiated an Agreed Order with the PLPs in the fall of 2020 to investigate environmental conditions, conduct a feasibility study, and to develop a draft clean up action plan for this site (Ecology 2020s [12424], Ecology 2020x [12585]).

***River Mile (RM) 3.4-3.8 West (EAA-5: Terminal 115)***

- The South Park Marina PLPs developed an RI work plan for the South Park Marina site in 2020. The RI is scheduled to take place in spring 2021.
- The Port of Seattle sampled sediments at Terminal 117 in March 2019. The results were summarized in a draft data report that was submitted to EPA in spring 2020 (EPA 2020a [12428]).

**Middle Reach**

***River Mile (RM) 2.8 East (EAA-3: Slip 4)***

- 8<sup>th</sup> Avenue Terminals submitted a work plan to collect additional soil and groundwater samples in early 2020. Ecology approved the work plan, and 8<sup>th</sup> Avenue Terminals subsequently collected samples. The new soil and groundwater data was included in the Draft Feasibility Study (submitted October 2020). Ecology reviewed the draft Feasibility Study.
- EPA Region 10 submitted an action memo to the EPA Superfund director in September 2020 recommending approval for a non-time critical removal action for the Boeing Electronics Manufacturing Facility (EMF) site. The proposed action involves using enhanced reductive dichlorination (ERD) in-situ technology.

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

- Ecology reviewed the Interim Action Completion Report for the Whitehead Tye site. Ecology determined that the Interim Action Completion Report was adequate to document the work conducted under the Interim Action Work Plan and that it can be finalized (Ecology 2020p 12543)].
- Ecology WQ issued a notice of compliance to Seattle Iron & Metals in October 2020 with an immediate action order 15573 (Ecology 2020u [12506]).

***River Mile (RM) 1.7-2.0 East (Slip 2 to Slip 3)***

- The Georgetown Wet Weather Treatment Station project was in the construction phase in 2020. The construction is expected to be completed by December 2022 (King County 2020a [12435]).

***River Mile (RM) 2.2-3.4 West (Riverside Drive)***

- Seattle renovated this park in 2020 and 2021. Prior to park renovations, Seattle conducted soil remediation work in the northeastern portion of the park. This work is scheduled to start in the fall of 2020. Seattle will then submit a RI Report to Ecology after the remediation work is complete. Park renovations are scheduled to be complete in the summer or fall of 2021.
- The Port of Seattle controls a portion of the commercial waterway land (Port of Seattle “sliver”) located in the northeastern area of the park. It is not known if contamination extends toward the LDW onto this Port property. Ecology conducted a reconnaissance investigation to determine whether there is contamination on the portion of the park controlled by the Port of Seattle in 2021. The results of this investigation will be included in the next Status Report.

***River Mile (RM) 2.1-2.2 West (EAA-2: Trotsky Inlet)***

- Industrial Container Services (ICS) submitted a draft Feasibility Study in March 2020 and a work plan for collecting additional samples to define contamination from the site located on the Douglas Management Dock site. Ecology reviewed the draft Feasibility Study and sampling plan.
- Ecology reviewed and approved a work plan to collect soil and sediment samples for the feasibility study in August 2020. A portion of the additional samples were collected in October and November 2020.
- On August 4, about 304 gallons of diesel fuel spilled onto the ground when a tank was overfilled during a fuel transfer at Boyer Logistics (7318 4th Ave S, Seattle WA 98108). Some diesel entered the catch basin inlet and storm drain line and about 40 gallons made it to the LDW.

***River Mile (RM) 2.1 West (1<sup>st</sup> Avenue S Storm Drain)***

- The City of Seattle notified Ecology in July 2020 that they plan to rescope the South Park Project at the Former South Park Landfill site. SPU decided to decouple constructing the recycling center from fulfilling the minimum requirements under the South Park Landfill Consent Decree. This decision will allow for a holistic planning review of needs and opportunities in south Seattle prior to making further site development decisions (SPU 2020c [12552]).

***River Mile (RM) 1.6-2.1 West (Terminal 115)***

- Ecology negotiated an Agreed Order with Boeing and the Port of Seattle for the Terminal 115 Plant 1 site in 2020 (Ecology 2020i [12566]).

## **Lower Reach**

### ***River Mile (RM) 0.9-0.1 East (Slip 1)***

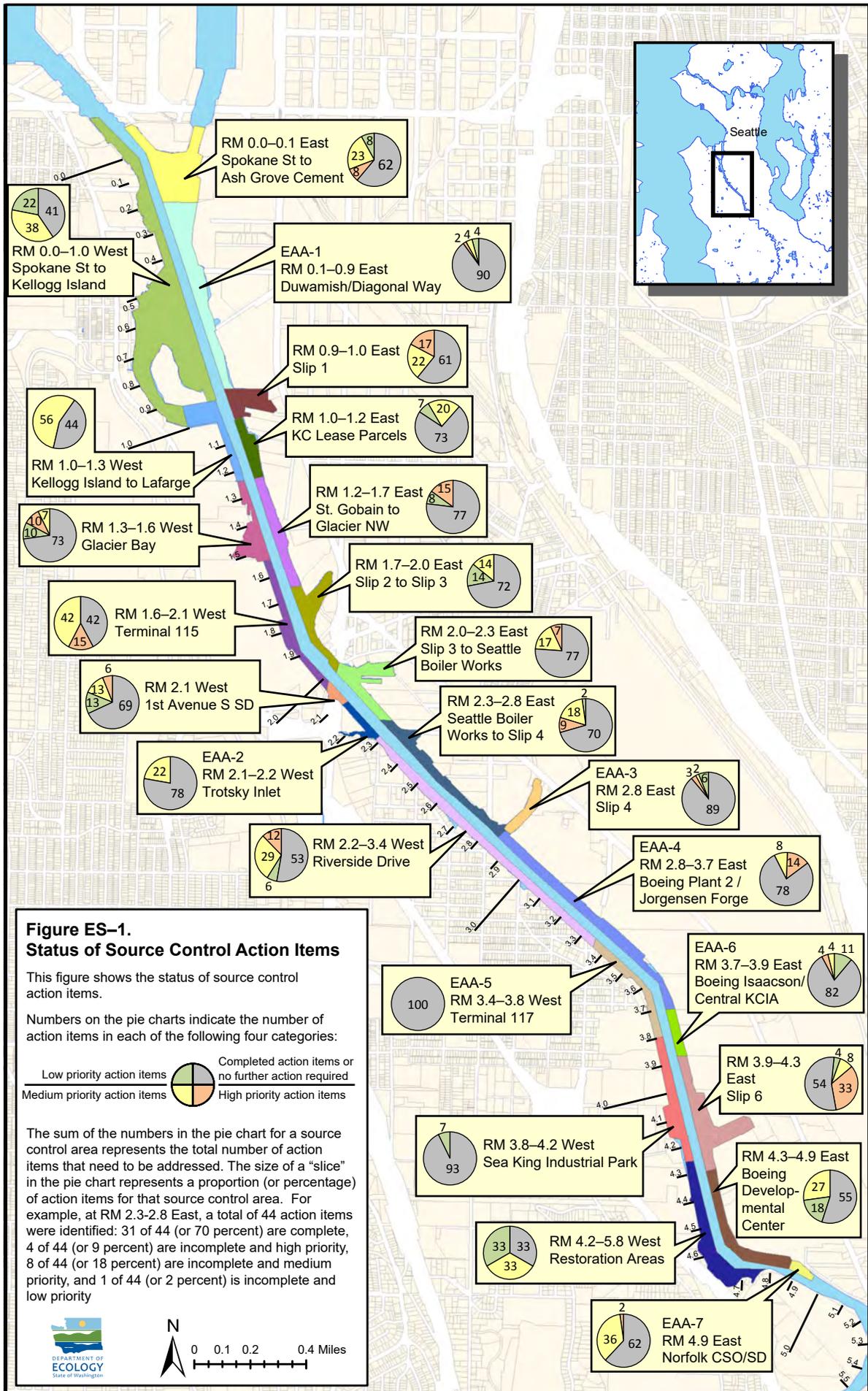
- SnoPac property submitted a final IAWP to Ecology in March 2020 (Aspect 2020c [12535]). The plan for the interim action involved demolishing the warehouse building and installing a new shoring wall to stabilize the shore-face and to facilitate the removal of spent sandblast grit-containing fill on the uplands side of the shoring wall.

### ***River Mile (RM) 0.1-0.9 East (EAA-1: Duwamish/Diagonal Way)***

- EPA determined that further investigation of the Port of Seattle Terminals 106 and 108 site is necessary. On May 26, 2020, the Port of Seattle, the City of Seattle, King County, and EPA signed an Administrative Order on Consent requiring an Engineering Evaluation/Cost Analysis (EE/CA) for a removal action at this site. (EPA 2020a [12428]). The EE/CA will study site conditions and develop cleanup options, if necessary. Field investigations are expected to start in 2022 and continue through 2024 (EPA 2020c [12553]).

### ***River Mile (RM) 1.3-1.6 West (Glacier Bay)***

- Ecology approved the Duwamish Shipyard tributyltin (TBT) and Arsenic characterization RI Addendums in May 2020. Ecology stated that both documents adequately address the supplemental investigations for TBT and arsenic as requested by Ecology (Ecology 2020k [12538]).
- Glacier Northwest submitted a Draft RI report. In 2020, Ecology reviewed the Glacier Northwest Draft RI report and worked with the PLPs to complete the RI and move forward with the FS.



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

Facility	Facility/ Site ID	Action Item	Action Item Category	Responsible Party	Status
<b>Upper Reach</b>					
<b>RM 4.9 East (EAA-7: Norfolk CSO/SD)</b>					
BDC-South	4581384	Continue sediment monitoring in the vicinity of the south storm drain sediment removal activities.	Cleanup	Boeing	In Progress
<b>RM 3.9-4.3 East (Slip 6)</b>					
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	Review future monitoring results to determine if further actions are necessary.	Cleanup	Ecology, Property owner/operator	In Progress
Former Rhone- 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 Rhone- 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
Former Rhone- 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	

Facility	Facility/ Site ID	Action Item	Action Item Category	Responsible Party	Status
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	In Progress
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	In Progress
<b>RM 3.7-3.9 East (EAA-6: Boeing Isaacson/Central KCIA)</b>					
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
<b>RM 2.8-3.7 East (EAA-4: Boeing Plant 2/Jorgensen Forge)</b>					
Boeing Plant 2	2100	Continue shoreline groundwater monitoring.	Cleanup	EPA, Boeing	In Progress
Boeing Plant 2	2100	Conduct an investigation to provide additional hydrogeologic data at the boundary of the Boeing Plant 2/Jorgensen Forge facilities.	Source Assessment	Boeing	In Progress
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, City of Tukwila	
Jorgensen Forge	2382	Develop a hydrogeologic site model as part of the source control investigation to characterize the groundwater system on site, including tidal influence.	Source Assessment	Jorgensen, Boeing	In Progress
Jorgensen Forge	2382	Complete a Remedial Investigation/Feasibility Study of the upland site area.	Cleanup	Jorgensen, Boeing	In Progress

Facility	Facility/ Site ID	Action Item	Action Item Category	Responsible Party	Status
<b>Middle Reach</b>					
<b>RM 2.8 East (EAA-3: Slip 4)</b>					
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
<b>RM 2.3-2.8 East (Seattle Boiler Works to Slip 4)</b>					
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	
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
<b>RM 2.0-2.3 East (Slip 3 to Seattle Boiler Works)</b>					
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

Facility	Facility/ Site ID	Action Item	Action Item Category	Responsible Party	Status
<b>RM 2.2-3.4 West (Riverside Drive)</b>					
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	
<b>RM 2.1 West (1st Avenue S SD)</b>					
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	
<b>RM 1.6-2.1 West (Terminal 115)</b>					
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	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	

Facility	Facility/ Site ID	Action Item	Action Item Category	Responsible Party	Status
<b>RM 1.2-1.7 East (Saint Gobain to Glacier Northwest)</b>					
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.	Environmen tal Sampling	Ecology	
<b>Lower Reach</b>					
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	
<b>RM 1.0-1.2 East (KC Lease Parcels)</b>					
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	
<b>RM 0.9-1.0 East (Slip 1)</b>					
Federal Center South	10233917	Perform Site Hazard Assessment.	Source Assessment	Ecology	

Facility	Facility/ Site ID	Action Item	Action Item Category	Responsible Party	Status
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. Determine if arsenic or other sediment COCs are present in soil and groundwater beneath the facility at concentrations that may recontaminate sediments.	Records Review	Ecology	
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	
<b>RM 0.1-0.9 East (EAA-1: Duwamish/Diagonal Way)</b>					
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
<b>RM 0.0-0.1 East (Spokane Street to Ash Grove Cement)</b>					
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	
<b>RM 1.3-1.6 West (Glacier Bay)</b>					
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<sup>1</sup> from January 1, 2020, through December 31, 2020. The COVID-19 pandemic (also known as the coronavirus pandemic) was recognized in March 2020. There were many local, state, and federal restrictions in place during 2020. As a result, many activities were required to stop or were conducted in a different or limited manner in 2020.

Previous status reports provide: an overview of the LDW Superfund site, a description of the strategy for controlling sources of pollutants to the LDW, the process for developing Source Control Action Plans (SCAPs), an overview of the methods and process for implementing SCAPs, a description of water quality permitting compliance and corrective actions associated with permitted discharges, and summaries of source control activities conducted between 2003 and December 2019 (Ecology 2007 [00021]<sup>2</sup>, 2008a [00065], 2008d [00068], 2009c [00090], 2011c [00095], 2012b [00098], 2013 [10359], 2014 [10620], 2018b [12005], 2019l [12262], 2020m [12420] and 2021 [12453]).

This report updates relevant information related to LDW source control, including:

- The status of source control action items; business inspections and source tracing activities conducted during the reporting period,
- The 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

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<sup>1</sup> 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.

<sup>2</sup> Numbers in brackets [xxxxx] refer to the LDW Source Control Document Number. For example, 'Ecology 2020a' is document number 12379. This number is provided to minimize confusion between documents with similar reference names.

control inspections conducted during the current reporting period, respectively. Appendices F and G provide SPU and King County source tracing sample results for 2020.

## 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 102<sup>nd</sup> 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. 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.

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, the benthic community, and/or wildlife.

### 1.1.1 Lower Duwamish Waterway Sediment Cleanup

In December 2000, the Lower Duwamish Waterway Group (LDWG), composed of the City of Seattle, King County, the Port of Seattle, and The Boeing Company (Boeing), entered into an Administrative Order on Consent (AOC) for a Remedial Investigation/Feasibility Study (RI/FS). LDWG completed a remedial investigation (RI) and feasibility study (FS) for the LDW Superfund site in July 2010 and October 2012, respectively (Windward 2010 [00011]; AECOM 2012 [00099]).

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 [02415]). EPA issued a Record of Decision (ROD) for the site in November 2014 (EPA 2014 [12119]). 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.

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, and
- Cleanup of the remaining contamination in the LDW, including long-term monitoring to assess the success of the remedy in achieving cleanup goals.

EPA proposed changes to some of the cleanup levels for carcinogenic polycyclic aromatic hydrocarbons (cPAHs) in the Selected Remedy. This decision is based on the results of updated health risk information. EPA released the final Toxicological Review of Benzo(a)pyrene in January 2017. Note that benzo(a)pyrene (BaP) is one of several chemicals that make up the group of cPAHs. This review updated the 1987 Integrated Risk Information System cancer slope

factor and the health risk information for BaP. The technical review indicated that the cancer risk associated with BaP is seven times less potent than previously estimated.

EPA uses BaP as an index to estimate cancer risk from exposure to mixtures of cPAHs. EPA prepared an Explanation of Significant Differences (ESD), since cPAHs, as a group, are a contaminant of concern for human health in the LDW. EPA shared the proposed draft ESD with the public in 2021. EPA held a public comment period on the draft ESD and issued a final ESD September 23, 2021 (EPA 2021a [12430], EPA 2021b [12429]).

The proposed changes affect the human cancer risk-based concentrations of total cPAHs established in the ROD as remedial action levels (RALs) and cleanup levels to achieve remedial action objectives. The proposed changes to the cleanup levels for cPAHs include the following:

- The cPAH cleanup level for the top 10 cm of sediment in intertidal and subtidal areas will change from 380 to 2,800 µg/kg dry weight (DW) across the entire site.
- The cPAH cleanup level for the top 45 cm of sediment in intertidal potential clamming areas will change from 150 to 1,100 µg/kg DW across the entire site.
- The cPAH cleanup level for the top 45 cm of sediment in beach play areas will change from 90 to 590 µg/kg DW at individual beach play areas.
- The risk-based target clam tissue level for cPAHs will change from 0.24 to 1.5 µg/kg wet weight.
- The cPAH RAL in intertidal sediments for the top 45 cm will change from 900 to 5,900 µg/kg DW.
- The cPAH RAL in intertidal (top 10 cm) and subtidal sediments for the top 10 cm and the top 60 cm (where applicable) will change from 1,000 to 5,500 µg/kg DW.

EPA estimates that these changes will reduce active cleanup in the LDW by about five acres and it will reduce the cleanup cost estimate by about \$1 million (EPA 2021a [12430], EPA 2021b [12429]).

The Selected Remedy will be implemented in phased remedial designs and remedial actions after cleanup of the EAAs has been completed, source control has been implemented that is sufficient to minimize sediment recontamination, and additional sampling and analyses have been conducted. The remedial design for the Upper Reach started when Amendment #4 of the Agreed Order on Consent was signed in July 2018. Selection of a contractor and preparation of planning documents took place in 2019. The Pre-Design investigation Phase 1 took place in 2020. Phase 2 continued in 2021.

Amendment #5 of the Agreed Order on Consent was signed in July 2021. LDWG agreed to conduct the Middle Reach design under this amendment.

### **1.1.2 Progress Toward Sediment Cleanup**

#### **Enhanced Natural Recovery/Activated Carbon Pilot Study**

LDWG conducted an enhanced natural recovery/activated carbon pilot study to evaluate the effectiveness and potential impacts of using an activated carbon treatment technology in the LDW, as well as to identify the areas that may be best suited for this technology (AMEC 2015

[11213]). This study determined whether enhanced natural recovery material impregnated with granular activated carbon can be successfully applied and if adding activated carbon improves the effectiveness of an enhanced natural recovery layer to reduce the bioavailability of PCBs in remediating contaminated sediments in the LDW.

Field work for the third year of testing occurred between June 2020 and September 2020. Year 3 monitoring of the paired plots in three pilot study areas started in June 2020. The Year 3 included a laboratory study to determine whether activated carbon reduces the amount of PCBs that clams and worms take up from field collected sediment from subtidal plot. The lab bioaccumulation test will directly measure PCB uptake from sediments to organisms (EPA 2020a [12428]). Year 3 monitoring also included the assessment of benthic community in the study plots.

### **Pre-Design Baseline Studies**

LDWG completed pre-design baseline studies. The purpose of the pre-design baseline studies was 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, and to
- Aid in the evaluation of source control (Windward 2017 [11097], EPA 2019 [12372]).

### ***Pre-Design Baseline Studies Data Evaluation***

LDWG finalized the Pre-Design Baseline studies Data Evaluations Report in 2020 (Windward 2020b [12557]). This report summarizes and interprets LDW baseline sampling of sediment, water, fish, crabs, and clams that was conducted in 2017 and 2018. This report assesses data collected relative to the data quality objectives. This evaluation also includes comparisons of baseline sediment and tissue data to existing data to provide a context for the baseline results. In addition, this report provides updated input values for the bed composition model (which was used to predict future sediment contaminant concentrations).

### **Pre-Design Investigation**

LDWG signed an agreement to design the cleanup for the Upper Reach in July 2018. LDWG continued working to design the cleanup for the Upper Reach in 2020.

LDWG started Remedial Design planning in February 2019. In December 2019 LDWG submitted the Remedial Design Work Plan for the Upper Reach to EPA (Anchor 2019 [12327]). The Remedial Design Work Plan describes the process that LDWG will use to develop detailed engineering designs for the Selected Remedy for the Upper Reach. LDWG expects to complete the Remedial Design for the Upper Reach by 2023 (Anchor 2019 [12327], Windward 2019b [12374]).

In May 2020, EPA approved the Remedial Design Quality Assurance Project Plan (QAPP) for the pre-design investigation sampling in the Upper Reach (Windward 2020a [12558] [12559] [12560]). This document supports the Remedial Design for the Upper Reach.

### ***Pre-Design Investigation Work Plan***

The design sampling will be conducted in phases.

- Phase 1 (June 2020) sediment sampling involves the collection and chemical analysis of sediment samples to delineate the extent of the RAL exceedances in surface and near-surface sediment to identify preliminary remedial action areas and make preliminary technology assignments. Samples were collected from 266 locations at one or more sample depths. The phase 1 data will be used to refine the cleanup areas in the ROD (EPA 2020a [12428]).
- Phase 2 (summer 2021) includes sediment sampling that will involve the collection and chemical analysis of samples to further refine the delineation of RAL exceedances, to assess the vertical distribution needed for design, including banks and collection of engineering data. The Phase 2 sampling will focus mostly on areas where active remediation is indicated, assessing dredging depths, geotechnical data, and other information necessary for the design. Phase 2 sample locations will be identified in an addendum to the QAPP in the spring of 2021.
- Phase 3 (2022) will be conducted if there are remaining data needs after Phase 2 is complete. Phase 3 sampling is scheduled to take place in 2022 (Windward 2019b [12374], EPA 2020a [12428]).

After each phase of sampling, LDWG will prepare a data evaluation report to interpret the information and to guide the development of subsequent design sampling phases (Windward 2020a [12558]).

Further information about the LDW sediment cleanup can be found at EPA's LDW website<sup>3</sup> and the LDWG website.<sup>4</sup>

## 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 [00008], 2004 [00009]). 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 the water quality programs (EPA and Ecology 2014 [12132]). 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 detailed both the 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 (Strategy) for the LDW in 2004. The Strategy was revised in June 2016 (Ecology 2016b [11061]).

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<sup>3</sup> <https://cumulis.epa.gov/supercpad/cursites/csinfo.cfm?id=1002020>

<sup>4</sup> <http://www.ldwg.org/project-library/>

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 sediment recontamination. The Strategy describes the documentation, tracking, and reporting of the collective source control efforts. This Status Report fulfills part of Ecology's documentation, tracking, and reporting responsibilities described in the Strategy. The Strategy also describes the process and information needed to support source control sufficiency evaluations and the external communication processes among the agencies.

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 have been active participants in coordinating source control work in the LDW. Together, they are known as the LDW Source Control Work Group (SCWG). The focus of the SCWG is to share information, discuss strategy, develop action plans, implement source control measures, and track progress through coordinated bi-monthly meetings.

Further information about LDW source control can be found at Ecology's LDW website.<sup>5</sup>

### **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 considered part of the Strategy (Ecology 2016b [11061]). The SCIPs describe how each agency will manage its programs to address source control.

The City of Seattle submitted its first SCIP to Ecology in May 2016 (Seattle 2016 [12271]). Seattle submitted their second LDW SCIP (SCIP 2) to Ecology in March 2020, and an updated final of the SCIP 2 in December 2020 (SPU 2020a [12418], SPU 2020d [12575]). SCIP 2 describes the City's planned source control activities in the LDW for the five-year period from 2021 to 2026 and it was reformatted to better align with the sufficiency analysis that Ecology will be conducting. In addition, SCIP 2 describes work conducted to identify and control sources in the LDW since the first SCIP was published in 2016 (SPU 2021 [12584]). Seattle also submitted an annual summary of activities to Ecology in March 2021 as part of SPU's municipal separate storm sewer system (MS4) Phase 1 National Pollutant Discharge Elimination System (NPDES) annual report for 2020 (SPU 2021 [12584]). Relevant information has been incorporated into this LDW Source Control Status Report.

The first King County SCIP covered the period from 2014 through 2018 (King County 2016 [11543]). King County submitted their second SCIP to Ecology in October 2019 which summarizes King County's planned source control activities in the LDW for the five-year period

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<sup>5</sup> <https://ecology.wa.gov/Spills-Cleanup/Contamination-cleanup/Cleanup-sites/Toxic-cleanup-sites/Lower-Duwamish-Waterway/Source-control>

from 2019 to 2023 (King County 2019 [12431]). In October 2021, King County submitted an annual report to Ecology describing source control activities conducted in 2020 (King County 2021 [12519]). The 2020 annual report describes King County’s implementation of actions outlined in the SCIP for 2019 to 2023. Relevant information has been incorporated into this LDW Source Control Status Report.

## 1.4 Source Control Process

The LDW source control process is described in detail in the Strategy (Ecology 2016b [11061]). 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 to fill data gaps and assessed the presence of ongoing sources that could recontaminate sediments after cleanup. SCAPs are available on Ecology’s website.<sup>6</sup>

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 so 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. More information about Ecology’s plan for completing action items can be found in the Strategy (Ecology 2016b [11051]).

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
<b>Upper Reach</b>	
RM 4.9 East (EAA-7: Norfolk CSO/SD)	RM 2.8-3.7 East (EAA-4: Boeing Plant 2/Jorgensen Forge)
RM 4.3-4.9 East (Boeing Developmental Center [BDC])	RM 4.2-5.8 West (Restoration Areas)
RM 3.9-4.3 East (Slip 6)	RM 3.8-4.2 West (Sea King Industrial Park)
RM 3.7-3.9 East (EAA-6: Boeing Isaacson/Central KCIA)	RM 3.4-3.8 West (EAA-5: Terminal 117)
<b>Middle Reach</b>	
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 (1 <sup>st</sup> Avenue South Storm Drain)
RM 1.7-2.0 East (Slip 2 to Slip 3)	RM 1.6-2.1 West (Terminal 115)
<b>Lower Reach</b>	
RM 1.2-1.7 East (Saint Gobain to Glacier Northwest)	RM 0.0-0.1 East (Spokane Street to Ash Grove Cement)
RM 1.0-1.2 East (King County Lease Parcels)	RM 1.3-1.6 West (Glacier Bay)
RM 0.9-1.0 East (Slip 1)	RM 1.0-1.3 West (Kellogg Island to Lafarge Cement)

<sup>6</sup> <https://ecology.wa.gov/Spills-Cleanup/Contamination-cleanup/Cleanup-sites/Toxic-cleanup-sites/Lower-Duwamish-Waterway/Source-control-area-map>

Source Control Areas – East Side of LDW	Source Control Areas – West Side of LDW
RM 0.1-0.9 East (EAA-1: Duwamish/Diagonal Way)	RM 0.0-1.0 West (Spokane Street to Kellogg Island)

CSO = combined sewer overflow      KCIA = King County International Airport      SD = storm drain  
RM = river mile      EAA = early action area

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.

### 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 [11061]). This Source Control Status Report is focused on describing progress toward the near-term 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 2020) in the categories listed above.

As described in the Strategy, Ecology is responsible for evaluating source control sufficiency and providing recommendations to EPA. Evaluating the sufficiency of source control actions and providing a recommendation supported by documentation will help achieve the near-term goal of source control. Source Control Status Reports capture updated information about source control progress that will be used to evaluate source control sufficiency.



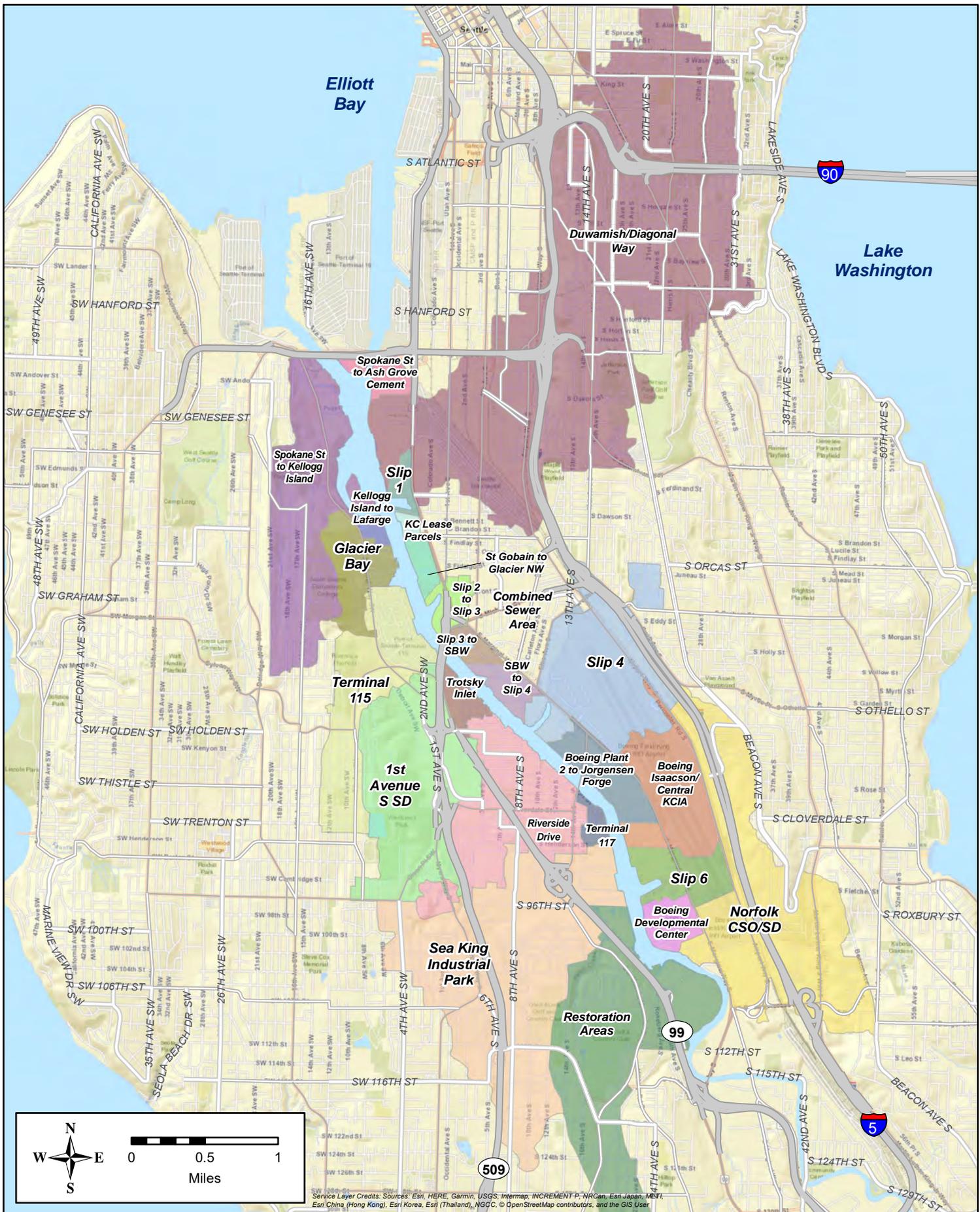
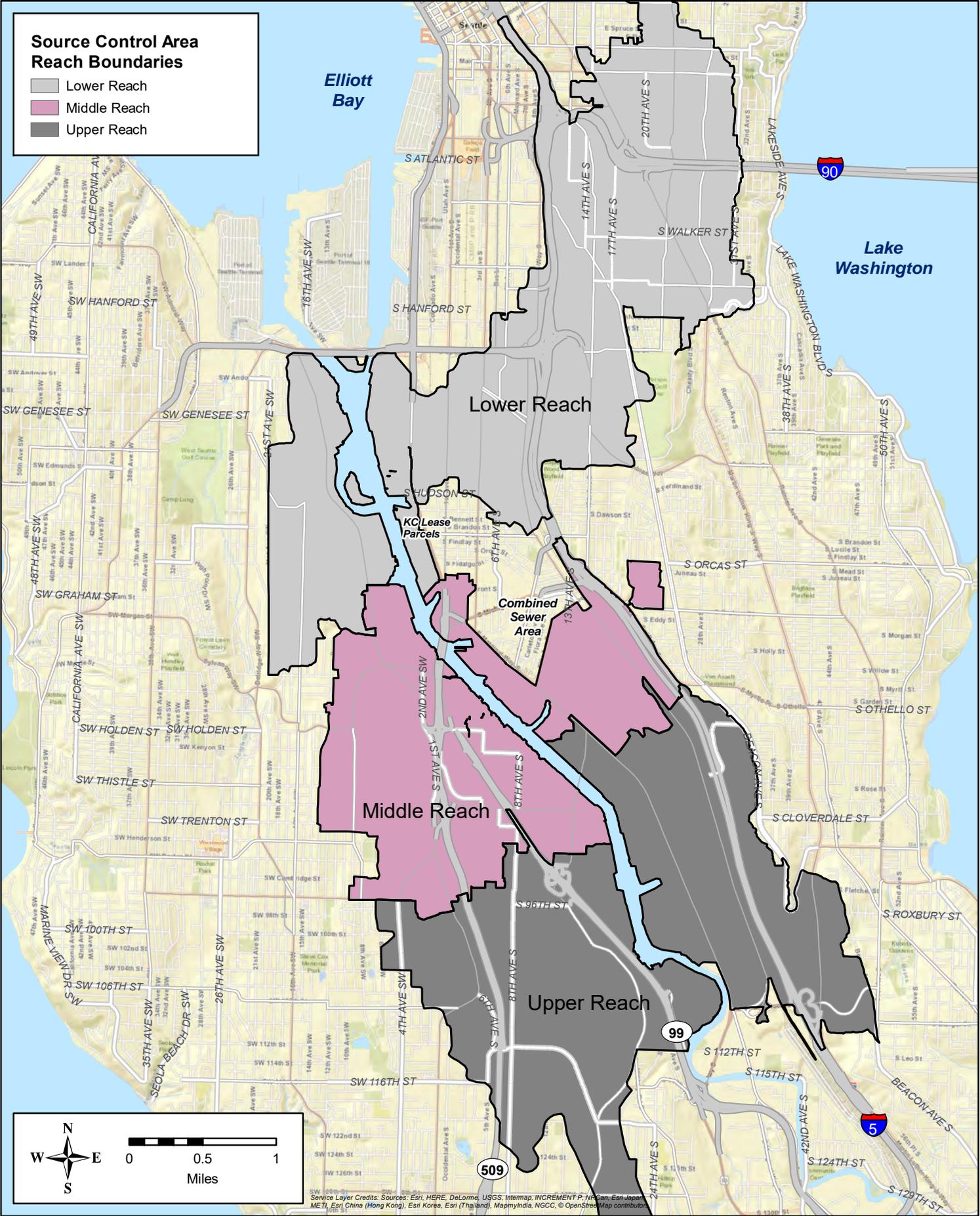


Figure 1-2. Lower Duwamish Waterway Source Control Areas



**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 <sup>a</sup>	Percent of Action Items Completed <sup>a</sup>	No. of High Priority Action Items	Percent of High Priority Action Items Completed	No. of Incomplete High Priority Action Items
<b>Upper Reach</b>					
RM 4.9 East (EAA-7: Norfolk CSO/SD)	42	62%	3	67%	1
RM 4.3-4.9 East (BDC)	11	55%	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	78%	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	93%	4	100%	0
RM 3.4-3.8 West (EAA-5: Terminal 117)	32	100%	9	100%	0
<b>Total – Upper Reach</b>	<b>224</b>	<b>76%</b>	<b>66</b>	<b>77%</b>	<b>15</b>
<b>Middle Reach</b>					
RM 2.8 East (EAA-3: Slip 4)	62	89%	25	84%	4

Source Control Area	Total No. of Action Items <sup>a</sup>	Percent of Action Items Completed <sup>a</sup>	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	70%	19	79%	4
RM 2.0-2.3 East (Slip 3 to Seattle Boiler Works)	30	77%	12	83%	2
RM 1.7-2.0 East (Slip 2 to Slip 3)	43	72%	5	100%	0
RM 2.2-3.4 West (Riverside Drive)	17	53%	3	33%	2
RM 2.1-2.2 West (EAA-2: Trotsky Inlet)	36	78%	8	100%	0
RM 2.1 West (1 <sup>st</sup> Avenue S SD)	16	69%	1	0%	1
RM 1.6-2.1 West (Terminal 115)	26	42%	7	43%	4
<b>Total – Middle Reach</b>	<b>274</b>	<b>73%</b>	<b>80</b>	<b>79%</b>	<b>17</b>
<b>Lower Reach</b>					
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	73%	8	100%	0
RM 0.9-1.0 East (Slip 1)	18	61%	5	40%	3
RM 0.1-0.9 East (EAA-1: Duwamish/Diagonal Way)	51	90%	7	86%	1
RM 0.0-0.1 East (Spokane Street to Ash Grove Cement)	13	62%	5	80%	1
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	44%	0	NA	0
RM 0.0-1.0 West (Spokane Street to Kellogg Island)	37	41%	0	NA	0
<b>Total – Lower Reach</b>	<b>212</b>	<b>69%</b>	<b>40</b>	<b>75%</b>	<b>10</b>
<b>Total – All Reaches</b>	<b>710</b>	<b>73%</b>	<b>186</b>	<b>77%</b>	<b>42</b>

<sup>a</sup> 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).

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.

A total of 515 out of 710 action items (73 percent) have been completed or canceled:

- 144 of 186 high priority action items (77 percent) have been resolved;
- 220 of 331 medium priority action items (66 percent) have been resolved;
- 151 of 193 low priority action items (78 percent) have been resolved.

A total of 42 high priority action items remain to be completed; of these, 15 action items are in the Upper Reach, 17 are in the Middle Reach, and 10 are in the Lower Reach.

Action items identified as complete or canceled (no longer needed) since publication of the last Source Control Status Report are listed in Appendix B, Table B-1. Action items that have not been completed are shown in Appendix B, Table B-2.

## 2.2 Business Inspections and Spill Investigations

The City of Seattle operates the local sanitary/combined sewers that collect wastewater and stormwater and route these waters 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.<sup>7</sup> 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, as follows:

- 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 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 meet regularly to coordinate and work together to conduct source control inspections as part of the Duwamish Inspectors Group.

### 2.2.1 Seattle Public Utilities Inspections

During the current reporting period, SPU continued inspections of local businesses in the LDW area to ensure that they are implementing appropriate pollution prevention practices and complying with local stormwater pollution prevention compliance, and triage for referrals for hazardous waste management and industrial waste management. In 2020, SPU conducted 64

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<sup>7</sup> On King County-owned parcels leased to other parties, the tenants are responsible for maintenance activity, but the County performs inspections for compliance.

inspections at 50 facilities in the LDW (see Appendix C). The inspections resulted in 40 Corrective Action Letters. SPU also inspects the flow control and treatment facility. Within the LDW, SPU inspected 34 facilities for code compliance with regard to flow control and treatment system code requirements during 2020 (SPU 2021 [12584]).

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. A summary of the number of SPU source control inspections by source control area during 2020 is shown in Table 2-2.

**Table 2-2. Summary of 2020 SPU Inspections by Source Control Area**

Source Control Area	Sub-Basin	No. of Facilities Inspected
<b>Upper Reach</b>		
RM 3.8-4.2 West (Sea King Industrial Park)	S 96 <sup>th</sup> Street SD	1
<b>Middle Reach</b>		
RM 1.7-2.0 East (Slip 2 to Slip 3)	Duwamish East Direct	1
RM 2.2-3.4 West (Riverside Drive)	Duwamish West Direct, 7 <sup>th</sup> Avenue S SD, 8 <sup>th</sup> Avenue S CSO	8
RM 2.1-2.2 West (EAA-2: Trotsky Inlet)	Duwamish West Direct, Trotsky Inlet, 2nd Avenue S SD	2
RM 2.1 West (1st Avenue S SD)	1st Avenue S SD	4
RM 1.6-2.1 West (Terminal 115)	Duwamish West Direct, SW Kenny SD, Highland Park Way SW SD	2
<b>Lower Reach</b>		
RM 0.1-0.9 East (EAA-1: Duwamish/Diagonal Way)	Diagonal Avenue S SD, Diagonal CSO/SD, S Nevada Street SD	39
RM 1.3-1.6 West (Glacier Bay)	Duwamish West CSO	3
RM 0.0-1.0 West (Spokane Street to Kellogg Island)	SW Dakota Street SD, SW Idaho Street SD	4
<b>Total</b>		<b>64</b>

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

SPU conducted source control actions in combined sewer basins located within Seattle in 2020 (this consist of the LDW drainage area plus all other combined basins within the City of Seattle served by King County and City CSOs). These actions include street sweeping and responding to spills and water quality complaints.

As part of the Street Sweeping for Water Quality Program, Seattle Department of Transportation (SDOT) swept S Myrtle Street 47 times in 2020. In August 2020, the City realized that they were not in compliance with the weekly requirement to sweep S Myrtle Street. The City did not achieve the weekly sweeping requirement due to staffing impacts from the ongoing COVID-19 pandemic in February and from April through August. To address the situation, SDOT expanded other existing sweeping routes to include the S Myrtle Street segment. The City achieved compliance of the weekly street sweeping requirement at S Myrtle Street from mid-September through the end of 2020 (SPU 2021 [12584]).

Starting in 2016, SPU expanded the arterial street sweeping program. In 2020 the City swept 23 routes an average of 29 times, covering 802 road miles in MS4 basins that discharge to the LDW. The SPU arterial street sweeping program plans to continue sweeping new arterial routes and will use SDOT's day shift staff in addition to night crew to conduct street sweeping in 2021 (SPU 2021 [12584]).

SPU inspectors respond to water quality complaints as they are received through the water quality hotline, the webpage, or through agency referrals. In 2020, 112 water quality complaints were reported in the LDW, which resulted in one business inspection (SPU 2021 [12584]).

Spills are dispatched through the SPU Operations Response Center to on-call Spill Coordinators. SPU responded to 66 spills within the LDW in 2020 (SPU 2021 [12584]).

## **2.2.2 King County Inspections**

### **King County Industrial Waste 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 [12182]).

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 2021 [12519]).

In 2020, there were 17 facilities operating under waste discharge permits in the LDW basin; these facilities are inspected on an annual basis (King County 2021 [12519]). 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 in the LDW during 2020 are listed in Appendix D, Table D-1.

A KCIW inspector participated in the Duwamish Inspectors Group which is a forum for inspectors from Ecology, SPU, King County, and other agencies to coordinate and discuss source control issues at facilities in the LDW. KCIW also responds to referrals related to illicit discharges and spills to the sanitary sewer (King County 2021 [12519]).

### **King County Stormwater Services Inspections**

King County Stormwater Services created 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. King County started conducting accelerated source control inspections in 2016. King County conducted 10 source control inspections at six facilities in the LDW unincorporated area in 2020 (King County 2021 [12519]). Source control inspections conducted by King County are listed in Appendix D, Table D-2. These include three facilities in the RM 3.8-4.2 West (Sea King Industrial Park) source control area and three facilities in the RM 2.2-3.4 West (Riverside Drive).

King County did not receive any water quality complaints in the LDW area in 2020 (King County 2021 [12519]).

## Other King County Inspections

King County's Local Hazardous Waste Management Program team did not provide services specific to the LDW drainage basin in 2020 due to reduced staff and COVID-19 pandemic field restrictions. However, they plan to continue their work in the LDW drainage basin in 2021 (King County 2021 [12519]).

King County International Airport (KCIA) performed annual stormwater facility inspections in October 2020. Five KCIA tenants are also covered by the Industrial Stormwater General Permit (ISGP) and comply directly with Ecology requirements. In October 2020, KCIA performed their annual illicit discharge/connection inspections. King County did not identify any suspected or obvious illicit connections (King County 2021 [12519]).

King County's Road Services Division conducted NPDES catch basin inspections. In 2020, they cleaned all the catch basins that failed inspection (146 catch basins). They also cleaned an additional seven catch basins through maintenance requests for a total of 153 catch basins in the LDW source control area (King County 2021 [12519]).

King County's Facilities Management Division contracts with King County's Stormwater Services Section to perform inspections at properties that are under King County custodial control. Annual facility maintenance inspections are performed on all Facilities Management Division managed properties with constructed stormwater facilities, such as catch basins or storage and treatment ponds. In 2020 they did not identify or discover additional relevant Facilities Management Division sites in the LDW source control area during construction or normal maintenance.

Annual stormwater facility inspections in the LDW included three of the five parcels with buildings and King County tenants (the Orcas Building, Barclay Dean Building and the Elections Warehouse). The two parcels on which the Youth Services Center are located were not inspected by King County in 2020 because of inaccessibility resulting from ongoing construction activity. Drainage facilities on the Youth Services Center site are currently being maintained by the contractor per the development permit through the City of Seattle. King County inspections will resume in 2021 when the final phase of construction is complete.

In addition, four businesses on leased King County property fronting on the LDW were inspected in 2020 (Manson Construction, Lehigh-Cadman, J.A. Jacks, and Ardagh Glass Company). The inspections found that businesses were either in compliance or needed a catch basin cleaning. King County confirmed that all the needed cleaning and repairs were performed (King County 2021 [12519]).

### 2.2.3 Ecology Water Quality Inspections

Currently 92 active NPDES permits are on record for areas within the 24 LDW source control areas.<sup>8</sup> These include two industrial individual permits, 82 facilities covered under the ISGP, five facilities covered under the sand and gravel general permit, one facility covered under the vessel deconstruction general permit, and two facilities covered under the boatyard general permit.

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<sup>8</sup> The 92 active permits do not include facility with coverage under the construction stormwater general permit (CSWGP).

While the permits limit and control the discharge of several water quality pollutants, they do not necessarily control contaminants that pose a threat to sediments, such as PCBs, PAHs, arsenic, and mercury.

Ecology is continuing to inspect NPDES-permitted facilities to ensure compliance with permit conditions. In addition, Ecology WQ 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 (2020), Ecology WQ conducted 17 inspections at 15 facilities, including one inspection at a facility to determine their CNE Exemption applicability. Ecology WQ inspections are listed in Appendix E, Table E-1. Additional WQ updates are listed in Appendix E, Table E-2.

Table 2-3 summarizes Ecology Water Quality inspections conducted in 2020.

**Table 2-3. Summary of 2020 Ecology Inspections by Source Control Area**

Source Control Area	No. of Facilities Inspected by WQ Program in 2020
RM 4.9 East (EAA-7: Norfolk CSO/SD)	3
RM 4.3-4.9 East (Boeing Developmental Center)	0
RM 3.9-4.3 East (Slip 6)	0
RM 3.7-3.9 East (EAA-6: Boeing Isaacson/Central KCIA)	0
RM 2.8-3.7 East (EAA-4: Boeing Plant 2/Jorgensen Forge)	2
RM 3.8-4.2 West (Sea King Industrial Park)	3
RM 2.8 East (EAA-3: Slip 4)	1
RM 2.3-2.8 East (Seattle Boiler Works to Slip 4)	0
RM 2.0-2.3 East (Slip 3 to Seattle Boiler Works)	1 (CNE inspection)
RM 1.7-2.0 East (Slip 2 to Slip 3)	0
RM 2.2-3.4 West (Riverside Drive)	2
RM 2.1-2.2 West (EAA-2: Trotsky Inlet)	1
RM 2.1 West (1 <sup>st</sup> Avenue S SD)	1
RM 1.6-2.1 West (Terminal 115)	2
RM 1.2-1.7 East (St. Gobain to Glacier Northwest)	0
RM 0.1-0.9 East (EAA-1: Duwamish/Diagonal Way)	1
RM 1.0-1.3 West (Kellogg Island to Lafarge Cement)	0
RM 0.0-1.0 West (Spokane Street to Kellogg Island)	0
<b>Total</b>	<b>17</b>

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.

## 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 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 2019t).

To determine whether source tracing should be initiated, SPU and King County compare storm drain solids data to the CSL/2LAET values.<sup>9</sup> King County compares combined sewer solids data to twice the 2LAET values.

For petroleum hydrocarbons, Model Toxics Control Act (MTCA) Method A soil cleanup levels are used for comparison to storm drain solids concentrations. Concentrations of total cPAHs are compared to the LDW-wide RAL of 1 milligram per kilogram (mg/kg) toxicity equivalents (TEQ). Total 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 screening level 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	Total Dioxin/furan TEQ (NDx0.5) <sup>a</sup>				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		
HPAHs	Benzo(a)anthracene <sup>b,c</sup>	1.3	1.6		

<sup>9</sup> 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 2019 [12431]).

Chemical Class	Chemical Parameter	SCO	CSL	MTCA Method A	LDW RAL
	Benzo(a)pyrene <sup>b,c</sup>	1.6	1.6		
	Benzo(g,h,i)perylene <sup>b</sup>	0.67	0.72		
	Chrysene <sup>b,c</sup>	1.4	2.8		
	Dibenz(a,h)anthracene <sup>b,c</sup>	0.23	0.23		
	Fluoranthene <sup>b</sup>	1.7	2.5		
	Indeno(1,2,3-cd)pyrene <sup>b,c</sup>	0.60	0.69		
	Pyrene <sup>b</sup>	2.6	3.3		
	Total benzofluoranthenes <sup>b,c</sup>	3.2	3.6		
	Total cPAH TEQ (NDx0.5)				1.0 <sup>10</sup>
LPAHs	Total HPAH	12	17		
	2-Methylnaphthalene	0.67	0.67		
	Acenaphthene <sup>d</sup>	0.50	0.50		
	Acenaphthylene <sup>d</sup>	1.3	1.3		
	Anthracene <sup>d</sup>	0.96	0.96		
	Fluorene <sup>d</sup>	0.54	0.54		
	Naphthalene <sup>d</sup>	2.1	2.1		
	Phenanthrene <sup>d</sup>	1.5	1.5		
Phthalates	Total LPAH	5.2	5.2		
	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		
Phenols	Di-n-octyl phthalate	6.2	6.2		
	2,4-Dimethylphenol	0.029	0.029		
	2-Methylphenol	0.063	0.063		
	4-Methylphenol	0.67	0.67		
	Pentachlorophenol	0.36	0.69		
Other SVOCs	Phenol	0.42	1.2		
	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	Gasoline-range hydrocarbons			30	
	Diesel-range hydrocarbons			2,000	
	Oil-range hydrocarbons			2,000	

HPAH = high molecular weight PAH

LPAH = low molecular weight PAH

ND = non-detect

Notes:<sup>a</sup> The LDW RAL for dioxins/furans is also expressed as 25 ng/kg TEQ.<sup>b</sup> Included in calculation of total HPAH.<sup>c</sup> Included in calculation of total cPAH TEQ.<sup>d</sup> Included in calculation of total LPAH.<sup>10</sup> The EPA Draft ESD proposed changes to this RAL in 2021.

Source tracing locations where samples were collected during the current reporting period (2020) 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 on-site catch basins and catch basins located in the public right-of-way, grab samples from in-line maintenance holes in the conveyance system, and in-line sediment trap samples.

#### Collection of Source Tracing Samples

Table 2-5 lists outfalls owned by Seattle or owned or installed by others to which the Seattle MS4 discharges. Outfalls are shown in Appendix A. 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 2021 [12584]):

**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
<b>East Side of LDW</b>				
S Nevada Street	Seattle	26	18	No
Diagonal Avenue S (a)	Seattle	2,666	144	Yes
1 <sup>st</sup> Avenue S (East)	Seattle	15	36	Yes
S River Street	Seattle	7.6	8	Yes
S Brighton Street	Seattle	19	30	Yes
S Myrtle Street	Seattle	8.6	30	Yes
North Boeing Field	Seattle	(b)	24	No
Georgetown	Seattle	4.5	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
16 <sup>th</sup> Avenue S (East)	Tukwila	12	12	No
KCIA SD#1	King County	192 (e)	30	No
S Norfolk Street (f)	Tukwila	676 (g)	84	Yes
I5 SD at S Ryan Street (h)	WSDOT	617 (i)	60	No
<b>West Side of LDW</b>				
SW Dakota Street	Seattle	54 (j)	30	Yes
SW Idaho Street	Seattle	423	72	Yes
SW Kenny Street (k)	Seattle	154	48	Yes
Highland Park Way SW	Seattle	296 (l)	72	Yes
S Webster Street	Seattle	(m)	6	No
7 <sup>th</sup> Avenue S	Seattle	238	72	Yes
17 <sup>th</sup> Avenue S	Seattle	2.9	18	Yes
Duwamish substation SD#1	Seattle	0.6	8	No

Outfall Name	Outfall Ownership	Separated Stormwater Drainage Basin Area (acres)	Outfall Diameter (inches)	Effectiveness Monitoring Location
Duwamish substation SD#2	Seattle	1	8	No
Duwamish substation SD#3	Seattle	1.9	8	No
1 <sup>st</sup> Avenue S (West)	WSDOT	606	open channel	Yes
2 <sup>nd</sup> Avenue S	Private	38 (n)	24	No
S 96 <sup>th</sup> Street	Private	1,050 (o)	72	No
West Marginal Place SW	Unknown	4.9 (p)	36	No

(a) SPU's CSO #111 and King County's Hanford #1 CSO also discharge to this outfall.

(b) Based on 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 114 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 and treated discharge from the Henderson/MLK Wet Weather Treatment Station discharge to this outfall.

(g) Approximately 431 acres are served by Seattle-owned storm drains. The remainder is in the City of Tukwila.

(h) Seattle installed a high flow bypass to the S Ryan Street system in 1992 to divert excess stormwater flow from the S Norfolk Street CSO/PS 17 EOF/SD drainage system to prevent flooding during large storm events.

(i) Approximately 407 acres are served by Seattle-owned storm drains. The remainder is in the City of Tukwila.

(j) 47 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.

(k) King County's T115 CSO discharges to this outfall (100 acres).

(l) Does not include the approximately 7.3 acre overlap within the 1<sup>st</sup> Avenue S drainage basin.

(m) A single catch basin in S Riverside Drive is connected to this outfall.

(n) Approximately 18.4 acres are served by Seattle-owned storm drains. The remainder is privately-owned.

(o) Approximately 99 acres are served by Seattle-owned storm drains. The remainder is unincorporated King County.

(p) Seattle-owned drainage only.

In 2020, SPU collected 71 samples of storm drain solids from the City's MS4; sample results are provided in Appendix F. Sample results are summarized below (SPU 2021 [12584]):

- No samples exceeded the CSL (93 mg/kg DW) for arsenic during 2020. More than half of samples (39 of 61) exceeded the SCO or CSL for zinc (410 mg/kg and 960 mg/kg DW, respectively).
- Total PCB concentrations in storm drain samples ranged from <0.023 to 7.1 mg/kg DW. Six samples exceeded the CSL for PCBs (1.0 mg/kg DW); these were located in the S Garden Street SD, the S Myrtle Street SD, and the Diagonal Avenue S CSO/SD. The highest concentrations were detected at RCBSTEV2 located at Airport Way S at S Stevens Street (Diagonal Avenue S CSO/SD).
- Total cPAH TEQ concentrations ranged from 0.035 to 2.1 mg/kg DW; five samples exceeded the LDW RAL (1.0 mg/kg DW). Exceedances were observed in the S Myrtle Street SD and the Diagonal Avenue S CSO/SD.
- No samples were analyzed for dioxins/furans. Other chemicals with CSL exceedances in SPU storm drain solids samples include copper, lead, mercury, various PAH compounds, phthalates, 4-methylphenol, benzoic acid, benzyl alcohol, dibenzofuran, hexachlorobenzene, and n-nitrosodiphenylamine. Diesel-range and oil-range hydrocarbons exceeded the storm drain screening levels.

SPU plans to conduct the following source tracing in 2021 (SPU 2021[12584]):

- Source tracing priorities for 2021 will largely remain the same as described in the Source Control Implementation Plan. Changes from the SCIP based on recent sampling and business inspections include:
  - Sampling to fill data gaps. The remaining data gaps are largely located in smaller areas (that range from one to five acres) within the MS4 that discharge to other larger drainage systems (16<sup>th</sup> Avenue S SD (west), the W Marginal Place SD) or areas that have been difficult to sample due to lack of solids in the system (I-5 SD at S Ryan Way).
  - Installing new low-profile sediment traps in basins with persistent concentrations of target contaminants, such as PCBs.
  - Conducting post line cleaning sampling in S Myrtle Street SD, S Norfolk Street SD, and Denver Avenue S sub-basin to fill data gaps created by line cleaning activity and to verify that cleaning has removed concentrations of contaminants of concern (SPU 2021 [12584]).

### **Data Review (July 2014 – December 2020)**

In developing the 2021-2026 SCIP, SPU compiled data collected over the past five years to evaluate conditions in the MS4. SPU compared storm drain solids data for the major risk drivers in the LDW sediment (arsenic, PCBs, and cPAHs) (SPU 2021 [12584]).

The median concentrations of arsenic in each outfall measured between July 2014 and December 2020 were either slightly lower or similar to the concentrations reported in the 2015 SCIP.

The median concentrations of PCBs measured between July 2014 and December 2020 also remained similar to the concentrations reported in the 2015 SCIP, with a few exceptions. In the 7<sup>th</sup> Avenue S SD, S River Street SD and SW Idaho Street SD, the median PCB concentrations were lower in the more recent samples. In the Diagonal Ave S CSO/SD, S Brighton Street SD, and S Myrtle Street SD, the median PCB concentrations for the samples taken between July 2014 and December 2020 were higher than the concentrations reported in the 2015 SCIP.

SPU cleaned sections of the Diagonal Avenue S CSO/SD and S Myrtle Street SD in 2020, targeting locations with elevated PCB concentrations. The median concentration of PCBs in the Diagonal Avenue S CSO/SD increased by a factor of two between 2015 to 2020. SPU believes that this change may be due to the emphasis of following up in areas where the detection dog detected PCBs or where SPU inspectors suspected potential PCB sources.

SPU installed three additional sediment traps in the S Snoqualmie sub-basin in 2018 to assist in tracing elevated levels of PCBs found in the maintenance hole located on S Snoqualmie Street at 6<sup>th</sup> Avenue S. At this point, these sediment traps have not indicated the source of the PCBs in the area. In 2020, SPU targeted areas of known elevated PCB concentration for in-line cleaning, specifically in the S Snoqualmie Street sub-basin and Denver Avenue S PCB spill location (Section 5.4.1).

The median concentrations of total cPAHs in each outfall measured between July 2014 and December 2020 were fairly similar to the concentrations reported in the 2015 SCIP. Median concentrations of cPAHs have declined in the 7<sup>th</sup> Avenue S, S Norfolk, and SW Kenny Street storm drains. SPU conducted a focused investigation in the S Norfolk basin to identify sources of

PAHs. This involved intensive inspections and sampling. SPU has identified and controlled a number of PAH sources in this system from 2015 to 2020. SPU cleaned most of the MLK Way Jr. sub-basin of the S Norfolk drainage system in 2018 to remove any residual concentrations of PAHs in the mainline pipes. SPU will conduct targeted sampling in the S Norfolk basin to confirm that cPAH levels continue to decrease. The recent data indicate that cPAH concentrations may be increasing in the 2<sup>nd</sup> Avenue S SD and that cPAH concentrations may be decreasing in the S Myrtle Street storm drains. However more data is needed to confirm this. SPU intends to continue sampling in these two basins to better understand the status of cPAHs in these systems (SPU 2021 [12584]).

### **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. King County sampled the West Michigan CSO basin in 2020. An in-line solids grab sample was collected from the West Michigan Regulator Station in August 2020 and a sediment trap sample was collected in September 2020 following an approximately 12-month deployment period; results are provided in Appendix G (King County 2021 [12519]).

The West Michigan CSO basin sediment trap sample was collected from within the collection system at Highland Park Drive and SW Holden Street. The King County 2020 source tracing samples did not contain contaminant concentrations above the CSL (2LAET) or the combined sewer system screening levels at this location.

King County source tracing activities will be focused on the Branden CSO Basin in 2021. Other actions will include source investigations in the South Michigan CSO basin to evaluate potential sources of mercury in the system close to the regulator station (King County 2021 [12519]).

In 2020, King County's Stormwater Services Section collected a sediment trap sample from three locations (96-ST1, 96-ST2, and 96-ST3) which are associated with the S 96<sup>th</sup> Street Corridor stormwater drainage basin that flows into the LDW through North Fork Hamm Creek outfall. Analytical results for the sediment trap samples analyzed by King County in 2020 are provided in Appendix G (King County 2021 [12519]).

The sediment trap samples from 96-ST1 (S 96<sup>th</sup> Street Corridor Basin), 96-ST2 (S 96<sup>th</sup> Street Corridor Basin), and 96-ST3 (S 96<sup>th</sup> Street Corridor Basin) were collected on May 27, 2020, following an approximately 1-year deployment period.

The sample from 96-ST1 had concentrations of zinc that were above the LAET. Concentrations of bis(2-ethylhexyl)phthalate (BEHP), dimethyl phthalate, and benzoic acid were above the CSL (2LAET) in this sample. The sample from 96-ST2 had concentrations of butyl benzyl phthalate that were above the LAET and zinc, BEHP, and benzoic acid was above the CSL. The sample from 96-ST3 had concentrations of zinc and benzoic acid that were above the CSL.

King County indicated that they do not plan to conduct additional source tracing actions in these locations. King County stated that zinc, BEHP, butyl benzyl phthalate, and dimethyl phthalate concentrations that were found in these sediment traps were at levels commonly observed in other storm drain solids. Benzoic acid is not targeted for source tracing based on the transient nature of this compound. King County stated that these compounds would not likely be traceable

to a particular source. In addition, there were no SMS SCO exceedances in the nearby LDW sediment samples.

King County noted that the source of the elevated zinc concentrations found at sample location 96-ST2 in 2020 could have possibly been from two upstream businesses (Ace Galvanizing, Inc. and Security Contractor Services, Inc.<sup>11</sup>) that were identified as zinc sources in the past or from other upstream sources, including runoff from Highway 509.

King County will redeploy the sediment trap bottles for these sediment trap locations (96-ST1, 96-ST2, and 96-ST3) in spring 2022. The samples will be collected from these locations in 2023 (King County 2021 [12519]).

King County collected two sediment trap samples and five in-line grab samples representing storm drain solids from locations at KCIA that drain to Slip 4 and Slip 6 during 2020. Annual sediment trap and grab sampling will continue in 2021 (King County 2021 [12519]). Analytical results are presented in Appendix G.

## **2.4 Other Source Control Activities**

### **2.4.1 Storm Drain Line Cleaning**

In 2020, SPU cleaned approximately 15,520 linear feet of pipe in the 16<sup>th</sup> Avenue South SD, S Nevada Street SD, Diagonal Avenue S SD (Denver Avenue South sub-basin), Diagonal Avenue S SD (S Snoqualmie Street sub-basin), S Myrtle Street SD, S Idaho Street sub-basin, and in the S Dakota Street sub-basin that was started in 2019. This work removed solids that have accumulated in the MS4 to prevent them from discharging into the LDW and to facilitate source tracing efforts (SPU 2021 [12584]).

SPU plans to clean at least 4,000 linear feet of storm drain lines in 2021. In 2021 SPU will focus line cleaning in the Diagonal Avenue S SD (Denver Avenue S sub-basin), the Diagonal Avenue S SD (Bush Place S sub-basin), and the 7<sup>th</sup> Avenue S SD (SPU 2021 [12584]).

In 2020, King County's Road Services Division cleaned 119 linear feet of stormwater drainage lines in the unincorporated portion of the LDW source control area (King County 2021 [12519]).

KCIA is performing storm drain line cleaning in accordance with the ISGP. The 2020 ISGP requires stormwater line cleaning for permitted sites that discharge to the LDW. Stormwater line cleaning at KCIA is expected to start in 2021 (King County 2021 [12519]).

### **2.4.2 Stormwater Treatment**

SPU is planning to construct a South Park Water Quality Facility to treat stormwater runoff from the 7<sup>th</sup> Avenue S SD. SPU decided to construct the pump station on the two properties on South Riverside Drive. In 2019, SPU started searching for alternate locations for the water quality facility. The search continued into 2020 and the team continued to refine the project design based on potential sites. The project will consider additional treatment options, including bioretention, which would require more space for construction than the mechanical treatment systems that had previously been considered (SPU 2021 [12584]).

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<sup>11</sup> King County noted Security Contractor Services vacated the property in 2020.

### **2.4.3 CSO Control Projects**

King County's CSO Control Program fulfills requirements under the NPDES permit for the West Point Treatment Plant in Seattle. The NPDES permit for the West Point Treatment Plan became effective on February 1, 2015. King County submitted the application for renewal of the West Point NPDES permit in January 2019. The current NPDES permit expired on January 31, 2020. The current permit has been administratively extended until the renewal takes place (King County 2021 [12519]).

King County entered into a consent decree with EPA and Ecology to ensure that its CSO control plan is completed by 2030. King County submitted a formal request to EPA and Ecology on October 28, 2019, to initiate negotiations to modify the consent decree to accommodate changed conditions from 2013 when the consent decree was filed (King County 2021 [12519]).

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

The West Duwamish Wet Weather Storage Project was in the design phase in 2020. The facility plan was submitted in December 2020. The Georgetown Wet Weather Treatment Station project was in the construction phase in 2020. The construction is expected to be completed by December 2022. Both projects are expected to be in operation by 2030.

The Rainier Valley Wet Weather Storage became operational in 2018. Monitoring and modeling data from 2019 showed that the Rainier Valley Wet Weather Storage Project did not achieve the performance standard. King County submitted a supplemental compliance plan in August 2020 (King County 2021 [12519]).

King County submitted their 2019 CSO Control Program Consent Decree Annual Report to Ecology in July 2020. This report includes the county's CSO control project and compliance activities from January through December 2020 (King County 2020a [12435]).

### **2.4.4 King County Mapping Updates**

King County is required to map and document the MS4 on properties it owns or operates as part of their NPDES Phase 1 Municipal Stormwater Permit. King County completed the mapping effort for unincorporated areas that drain to the LDW in 2016, with the exception of locations that needed advanced investigations such as CCTV studies and engineering reviews. King County created a stormwater asset inventory and initiated a project to resolve connectivity issues. In 2020 King County resolved four connectivity issues through closed-circuit television inspections and construction projects. King County will address the one remaining connectivity issue in 2021. King County plans to continue to improve the stormwater asset inventory datasets in the LDW drainage area in unincorporated King County (King County 2021 [12519]).

### 2.4.5 King County Waterworks Grant Funding

King County established the WaterWorks Grant Program to promote source control partnerships, to develop local expertise in water quality protection, and to enhance economic opportunities in the community. This program funds projects carried out by organizations and agencies that help to control new and ongoing sources of pollution and to reduce the volume and timing of CSOs. In 2019, King County awarded WaterWorks grant funding to 14 projects (totaling \$1,362,268) that take place in the LDW source control area. This grant program is on a 2-year cycle; therefore, no new grants were awarded in 2020 (King County 2021 [12519]).

## 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 the 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); 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.

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) (completed in 2018)	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

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.

**Table 2-7. Cleanup Sites Under Ecology Oversight**

Source Control Area	Facility Name	Regulatory Authority
<b>Upper Reach</b>		
RM 4.9 East (EAA-7: Norfolk CSO/SD)	Emerald Gateway	MTCA Agreed Order (Jan 2020)
	Boeing Field Chevron	MTCA Agreed Order (Jul 2015)
RM 4.3 – 4.9 East (Boeing Developmental Center)	Boeing Developmental Center	MTCA Agreed Order (July 2019)
RM 3.9-4.3 East (Slip 6)	8801 Site	MTCA Agreed Order (Jul 2006) MTCA Agreed Order (Nov 2008, Amended Aug 2017)
RM 3.7-3.9 East (EAA-6: Boeing Isaacson/Central KCIA)	Boeing Isaacson Thompson	MTCA Agreed Order (Apr 2010)
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 3.4-3.8 West (EAA-5: Terminal 117)	South Park Marina	MTCA Agreed Order (April 2019)
<b>Middle Reach</b>		
RM 2.8 East (EAA-3: Slip 4)	Crowley Marine Services 8 <sup>th</sup> Avenue S	MTCA Agreed Order (Oct 2009)
	North Boeing Field/Georgetown Steam Plant	MTCA Agreed Order (Aug 2008, Amended Feb 2015)
RM 2.3-2.8 East (Seattle Boiler Works to Slip 4)	Fox Avenue Building	MTCA Agreed Orders (Sept 1991, May 2009, Jun 2012, Amended May 2013)
	Whitehead Tyee Site	MTCA Agreed Order (Aug 2016)
RM 1.7-2.0 East (Slip 2 to Slip 3)	Duwamish Marine Center	MTCA Agreed Order (Sep 2011)
RM 2.1-2.2 West (EAA-2: Trotsky Inlet)	Douglas Management Dock	MTCA Agreed Order (May 2011)
	Industrial Container Services/Trotsky Property	MTCA Agreed Order (May 2010)
RM 2.1 West (1 <sup>st</sup> Avenue S Storm Drain)	South Park Landfill	MTCA Agreed Order (May 2009, Amended Jun 2013, and Feb 2016), Consent Decree (March 2019)
RM 1.6-2.1 West (Terminal 115)	North Terminal 115	MTCA Agreed Order (Mar 2011)
	Terminal 115, Plant 1	MTCA Agreed Order (July 2020)
<b>Lower Reach</b>		
RM 0.9-1.0 East (Slip 1)	Snopac Property	MTCA Agreed Order (July 2019)
RM 1.3-1.6 West (Glacier Bay)	Duwamish Shipyard	MTCA Agreed Order (Sep 2010)
	Glacier Northwest/Reichhold Chemical	MTCA Agreed Order (May 2009)
Combined sewer area	Burlington Environmental/ East of 4 <sup>th</sup> Site	RCRA Agreed Order (May 2010, Amended 2015)
	West of 4 <sup>th</sup> Site	RCRA Agreed Order (Apr 2014, Amended Nov 2017)
	General Electric-Dawson Street Plant	RCRA Agreed Order (May 2007)

Table 2-8. Ecology Cleanup Site Status

Site Name	Agreed Order	Remedial Investigation	Feasibility Study	Cleanup Action Plan	Cleanup	Interim Action
<b>Upper Reach</b>						
8801 Site	2006, 2008	2011	In progress	In progress		In progress
Boeing Field Chevron	2015	In progress	In progress			
Boeing Isaacson/Thompson	2010	2014	In progress			
Emerald Gateway	2020	In progress	In progress			In progress
Jorgensen Forge	2007, 2015, 2017	2020	In progress			2014
South Park Marina	2019			2018		
Boeing Developmental Center	2019	In progress	In progress			
<b>Middle Reach</b>						
Crowley Marine Services 8th Avenue S	2009	In progress	In progress			
Douglas Management	2011	In progress	In progress			
Duwamish Marine Center	2011	In progress	In progress			
Fox Avenue Building	1991, 2009, 2012	2011	2012	Agreed Order 2012, amended 2013	In progress	2009
Industrial Container Services	2011	In progress	In progress			
North Boeing Field/Georgetown Steam Plant	2008	In progress				2011
North Terminal 115	2011	In progress				
Terminal 115, Plant 1	2020					
South Park Landfill	2009	2017	2017	2018		2014, 2016
Whitehead Tyee	2016	In progress				2017
<b>Lower Reach</b>						
Duwamish Shipyard	2010	May 2019	In progress			
Glacier Northwest/Reichhold	2009	In progress	In progress			
Snopac Property	2019	In progress	In progress	In progress		2019

**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 4<sup>th</sup> Site (Capital Industries, Art Brass Plating, Blaser Die Casting), and West of 4<sup>th</sup> 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.

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.

## 2.6 Additional Studies Relevant to Source Control

### 2.6.1 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 source control decisions for the Green-Duwamish River watershed.

The PLA is being developed with the participation of a Technical Advisory Committee (TAC). The TAC is made up of technical staff from public agencies, quasi-governmental groups, and community. The Interested Parties Group also provides input and is composed of agencies, businesses, nonprofit groups, and the public. EPA's contract with TetraTech to develop the watershed model expired in 2018. Ecology, in coordination with modelers from King County and technical staff from the City of Seattle, started to lead the modeling effort in 2018.

The PLA TAC met in February 2020 to discuss the major updates, the QAPP updates and review process for the QAPP, the watershed model updates and sediment transport calibration process, and the watershed model preliminary results. 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 PLA website<sup>12</sup>.

## 2.7 Source Control Area-Specific Activities

Ecology conducted source control investigations 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.<sup>13</sup>

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

- Report 1 – 2003 to June 2007 (Ecology 2007 [00021]),
- Report 2 – July 2007 to March 2008 (Ecology 2008a [00065]),
- Report 3 – April to August 2008 (Ecology 2008d [00068]),
- Report 4 – September 2008 to June 2009 (Ecology 2009c [00090]),
- Report 5 – July 2009 to September 2010 (Ecology 2011c [00095]),
- Report 6 – October 2010 through December 2011 (Ecology 2012b [00098]),

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<sup>12</sup> <https://ecology.wa.gov/Water-Shorelines/Water-quality/Water-improvement/Total-Maximum-Daily-Load-process/Directory-of-improvement-projects/Green-Duwamish-Watershed-PLA>

<sup>13</sup> <https://ecology.wa.gov/Spills-Cleanup/Contamination-cleanup/Cleanup-sites/Lower-Duwamish-Waterway/Source-control>

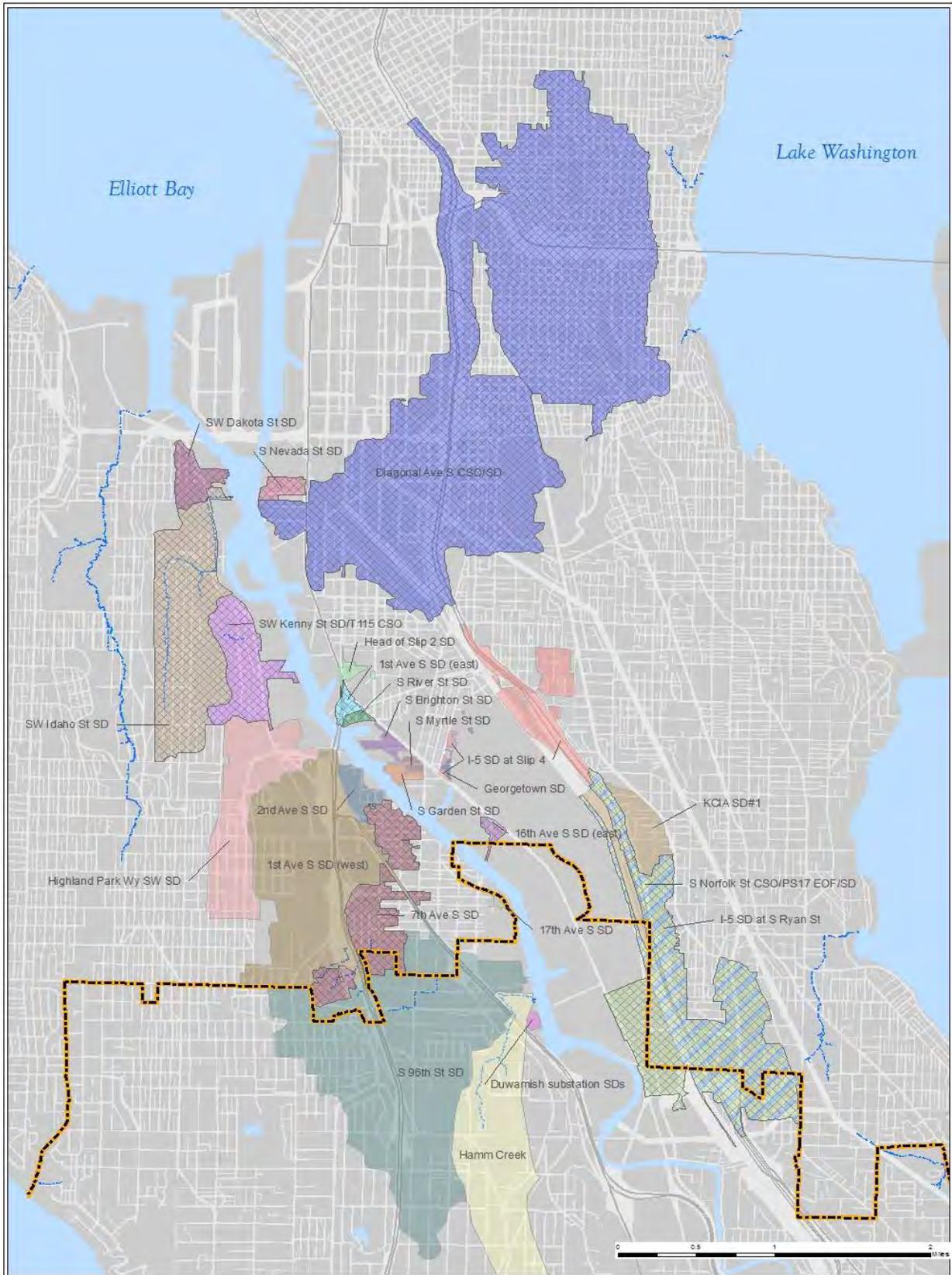
- Report 7 – January through December 2012 (Ecology 2013 [10359]),
- Report 8 – January through December 2013 (Ecology 2014 [10620]),
- Report 9 – January 2014 through December 2016 (Ecology 2018b [12005]),
- Report 10 – January through December 2017 (Ecology 2019l [12262]),
- Report 11 – January through December 2018 (Ecology 2020m [12420]), and
- Report 12 – January through December 2019 (Ecology 2021 [12453]).

This current Source Control Status Report (Report 13) describes source control actions that were conducted from January through December 2020.

Appendix B, 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 2020 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.



**Lower Duwamish Waterway**

Figure 1 - MS4 Basins

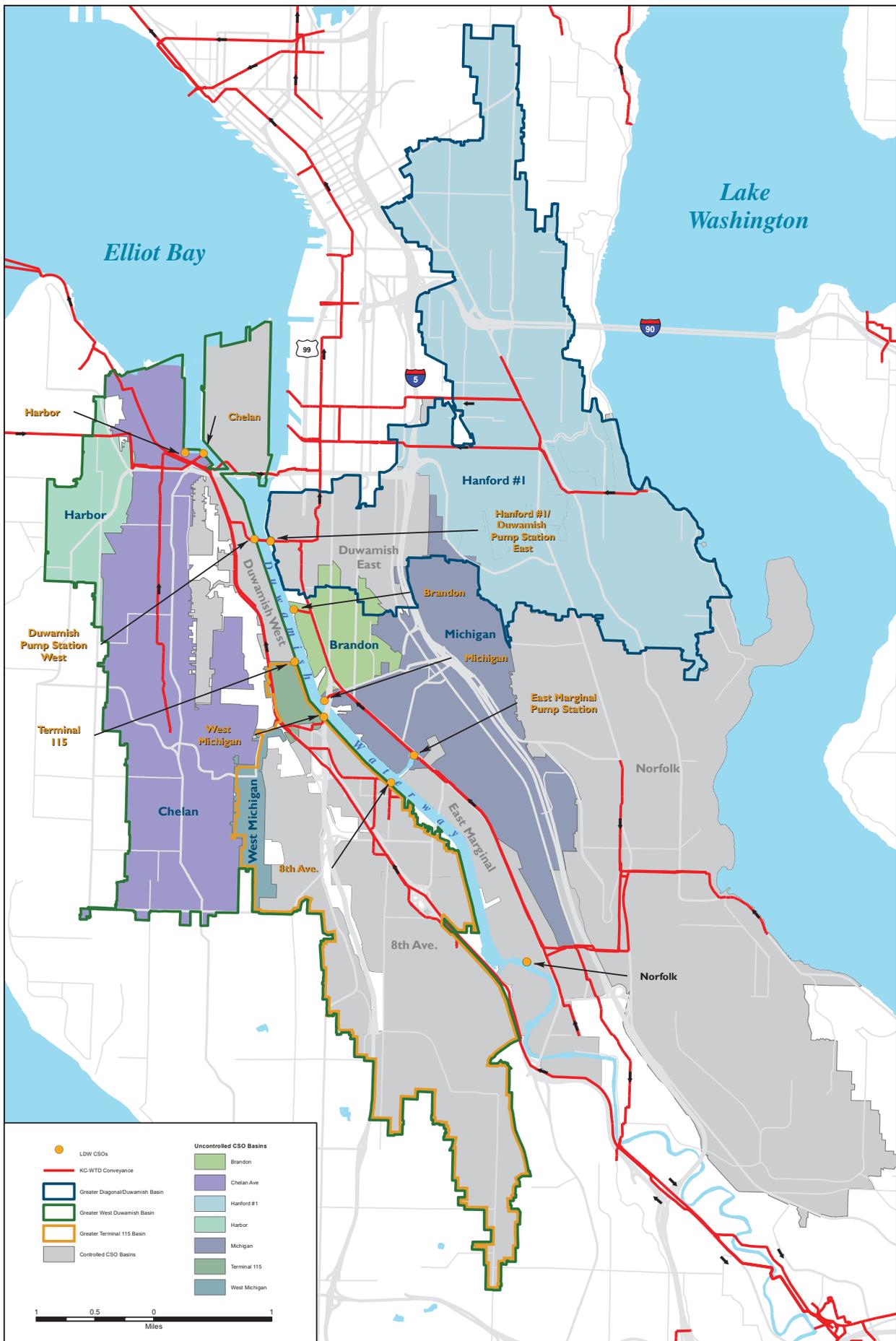
City of Seattle

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<p><b>2017 SCIP Priority Basins</b></p> <ul style="list-style-type: none"> <li>10th Ave S SD (east)</li> <li>1st Ave S SD (east)</li> <li>7th Ave S SD</li> <li>Diagonal Ave S CSO/SD</li> <li>S Nevada St SD</li> </ul>	<ul style="list-style-type: none"> <li>S Norfolk St CSO/PS17 EOF/SD</li> <li>S River St SD</li> <li>SW Dakota St SD</li> <li>SW Idaho St SD</li> <li>SW Kenny St SD/T115 CSO</li> </ul> <p><b>City of Seattle Storm Drain Basins</b></p> <ul style="list-style-type: none"> <li>16th Ave S SD (east)</li> </ul>	<ul style="list-style-type: none"> <li>17th Ave S SD</li> <li>1st Ave S SD (east)</li> <li>1st Ave S SD (west)</li> <li>2nd Ave S SD</li> <li>7th Ave S SD</li> <li>Diagonal Ave S CSO/SD</li> <li>Duwamish substation SDs</li> <li>Georgetown SD</li> </ul>	<ul style="list-style-type: none"> <li>Hamm Creek</li> <li>Head of Slip 2 SD</li> <li>Highland Park Wy SW SD</li> <li>I-5 SD at S Ryan St</li> <li>I-5 SD at Slip 4</li> <li>KC SD#1</li> <li>Duwamish substation SDs</li> <li>S 96th St SD</li> <li>S Brighton St SD</li> </ul>	<ul style="list-style-type: none"> <li>S Garden St SD</li> <li>S Myrtle St SD</li> <li>S Nevada St SD</li> <li>S Norfolk St CSO/PS17 EOF/SD</li> <li>S River St SD</li> <li>SW Dakota St SD</li> <li>SW Idaho St SD</li> <li>SW Kenny St SD/T115 CSO</li> </ul>
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**Figure 2-1. Seattle Storm Drain Basins in the Lower Duwamish Waterway**



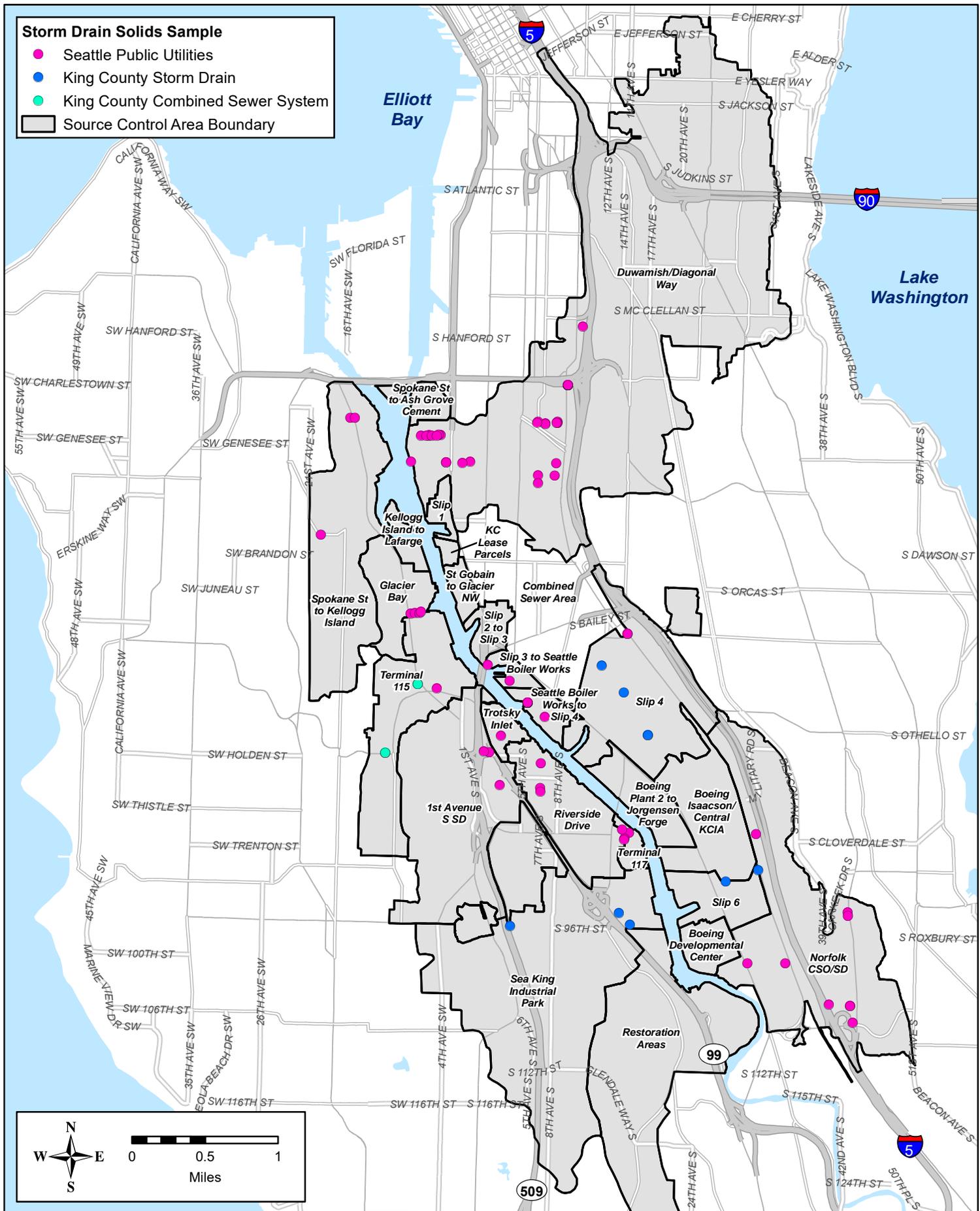


Figure 2-3. Source Tracing Sample Locations in the LDW Storm Drain Basin: 2020



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### 3.0 Upper Reach Source Control Areas

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

<b>East Side:</b>	<b>Report Section</b>
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
<b>West Side:</b>	
RM 4.2-5.8 West (Restoration Areas)	3.6
RM 3.8-4.2 West (Sea King Industrial Park)	3.7
RM 3.4-3.8 West (EAA-5: Terminal 117)	3.8

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.

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

Several Ecology cleanup sites are located on the east side of the Upper Reach: Emerald Gateway (formerly Unified Grocers), Boeing Developmental Center, Boeing Field Chevron, 8801 Site, Boeing Isaacson Thompson, and Jorgensen Forge. In addition, the former Rhone-Poulenc Site, Boeing Plant 2, and the Jorgensen Forge sediment and outfall sites, which are under EPA oversight, are located within this source control area.

One cleanup site under Ecology oversight (South Park Marina) is located on the west side of the Upper Reach. The Terminal 117 Site, which is under EPA oversight, is also located on the west side of the Upper Reach.

#### 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/PS17 EOF/SD as well as the Henderson/MLK Wet Weather Treatment Station discharge to the LDW within this source control area.

##### 3.1.1 Business Inspections

Ecology conducted two stormwater compliance inspections at MV Transportation in January 2020 and one stormwater compliance inspection at Nelson Trucking in February 2020 (Appendix E, Table E-1).

### 3.1.2 Source Tracing

During the current reporting period, SPU collected nine storm drain solids samples in this drainage basin, including five sediment trap samples, one grab sample outside drainage system, one grab in-line solids sample, and one grab catch basin sample.

Complete sample results for the current reporting period are presented in Appendix F. Screening level exceedances are summarized in Table 3-1 below. Sample locations are shown on Figures A-2 and A-3. BEHP and benzyl alcohol exceeded the CSL in four of the six samples for which they were analyzed. Benzoic acid exceeded the CSL one sample and n-nitrosodiphenylamine exceeded the CSL in 3 samples.

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

Chemical Class	Chemical	Sediment Traps	In-line Grab	Catch Basin Grab	ODS Grab
Metals	Zinc	x	x		
PCBs	PCBs, total	x	x		
Phthalates	BEHP	☒	☒		☒
	Butylbenzyl phthalate	x	x	x	x
Other SVOCs	Benzoic acid		☒		
	Benzyl alcohol	☒	☒		
	n-Nitrosodiphenylamine	☒	☒		

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

x = Exceedance of SCO (lower screening level) was observed during the current reporting period (2020).

☒ = Exceedance of CSL/RAL/Method A (upper screening level) was observed during the current reporting period (2020).

na = not analyzed.

ODS = outside drainage system

### 3.1.3 Facility-Specific Source Control Actions

#### Boeing Developmental Center - South

The Boeing Developmental Center (BDC) property straddles three source control areas. BDC-South is in the RM 4.9 East source control area, and it is discussed below. BDC-Central is discussed in Section 3.2.3 (RM 4.3-4.9 East) and BDC-North is discussed in Section 3.3.3 (RM 3.9-4.3 East).

In February 2019, Ecology notified Boeing that Ecology conducted a Site Hazard Assessment at the BDC. Ecology determined that the site was contaminated with halogenated organics, PCBs, metals, and petroleum hydrocarbons (Ecology 2019f

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

[12260], Ecology 2019g [12113], Ecology 2019e [12110]). Ecology ranked the BDC a 1 on Ecology’s Hazardous Sites List (Ecology 2019b [12115]).

In July 2019, Boeing and Ecology signed Agreed Order No. DE-16275 which requires Boeing to complete an RI, FS, IAWP, and to prepare a preliminary draft CAP at the BDC site (Ecology 2019o [12263]).

- In January 2020, Ecology notified Boeing that there was a change in the Ecology HWTR project coordinator for this site (Ecology 2020c [12384]).
- Ecology WQ approved Boeing’s stormwater treatment system design engineering report in August 2020 (Ecology 2020r [12489]).
- In November 2020, Ecology WQ and Boeing signed Agreed Order #19427 to achieve compliance with the ISGP. This order amended and superseded the previous Agreed Order #15600 (Ecology 2020v [12488]). Agreed Order #19427 defined the compliance schedule for installation and performance monitoring of four stormwater treatment systems on site, in addition to PCB sampling and source control investigation and documentation.

### Boeing Military Delivery Center, formerly Boeing Military Flight Center

Boeing has been conducting source control and cleanup work at the Military Flight Center (MFC) to address PCBs present in stormwater flowing offsite from the facility, in certain building materials, and in offsite soils. Stormwater discharges at the MFC are covered under the ISGP (WAR000150).

In January 2019, Ecology notified Boeing that Ecology conducted a Site Hazard Assessment at the Boeing MFC. Ecology determined that the site was contaminated with PCBs (Ecology 2019a [12171]).

Ecology ranked the Boeing MFC a 2 on Ecology’s Hazardous Sites List (Ecology 2019c [12180]).

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

- In February 2020, Boeing submitted an engineering report for advanced stormwater treatment at the site (Geosyntec 2020b [12516], Geosyntec 2020c [12517]). Ecology approved the engineering report for advanced stormwater treatment in March 2020 (Ecology 2020f [12490]). Boeing started construction in 2020. Construction is expected to be completed in 2021 (King County 2021 [12519]).
- In the summer of 2020, Boeing installed a stormwater treatment system at Area 3 of the site. The system was implemented in response to Administrative Order #13932 from Ecology to remove diesel range organics, copper, zinc, and total PCBs from stormwater runoff at the Site. Installation of the Area 3 treatment was completed in June 2020 and

final connections to treat stormwater were accomplished in August 2020. Boeing conducted performance monitoring for the Area 3 system for the remainder of the year. During 2020, Boeing also started installing a stormwater treatment system with media basin for Areas 2 and 6 of the site, with installation, system optimization, and performance monitoring anticipated to be completed by the end of 2021.

**Emerald Gateway (formerly Unified Grocers and Northwest Auto Wrecking)**

The former Unified Grocers property at 3301 S Norfolk Street and the former Northwest Auto Wrecking property at 10230 East Marginal Way S were purchased by Prologis-Exchange (Prologis) in 2016. The Site is now referred to as the Emerald Gateway Site. Prologis plans to redevelop this site as a warehouse and distribution center.

<b>Address</b>	3301 S Norfolk Street, Seattle 10230 East Marginal Way South, Tukwila
<b>Facility/Site ID</b>	73338176 (Unified Grocers 3301 Norfolk)
<b>NPDES Permit</b>	WAR002040 (Terminated 9/28/2018) WAR308823 (current permit version)
<b>Current Operations</b>	Warehouse and distribution center
<b>Historical Operations</b>	Commercial warehousing of food products, truck maintenance and repair operations, truck refueling facilities, gasoline service station, automobile wrecking and parts.
<b>Chemicals of Concern</b>	Copper, mercury, zinc, PCBs, PAHs, cPAHs, phthalates, dioxins/furans, and petroleum hydrocarbons
<b>Media Affected</b>	Stormwater and storm drain solids

- In January 2020, Ecology and Prologis signed Agreed Order DE-16659 for remedial action at this site. Under the Agreed Order Prologis must conduct an interim action, complete a site RI/FS, and prepare a preliminary draft CAP for the site (Ecology 2020a [12379]).
- Prologis submitted an Interim Action Design Report to Ecology in April 2020 (Farallon 2020 [12545]). Ecology approved this report on April 6, 2020. The interim action will be conducted in conjunction with the redevelopment of the property. This report includes the results from the pre-interim action design investigation and historical site investigations, summarizes the data screening process used to evaluate and select constituents or potential concern for the interim action, summarizes the soil and groundwater conditions at the interim action areas, establishes the remediation levels and provides the final design components of the interim action.
- Ecology WQ issued Administrative Order #18101 to JR Hayes & Sons for construction work conducted at the Emerald Gateway Site on April 27, 2020 (Ecology 2020h [12541]). The Administrative Order established indicator levels for the JR Hayes & Sons project.
- In November 2020, Ecology approved an extension request of the submittal of the RI work plan. Prologis requested an extension for the submittal of the draft RI work plan from Ecology due to the discovered of several underground storage tanks and previously unidentified contamination that were encountered during the interim action and site redevelopment activities. Additional sampling will need to be conducted to delineate the extent of newly encountered contamination. The new deadline for the RI work plan will be 90 days following the receipt of the last set of environmental data results for the interim action/site development activities (Ecology 2020w [12540]).

## 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 CAP (Ecology 2015d [12274]).

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

- In October 2020, the PLPs submitted the RI report to Ecology. This report includes the purpose, approach, and the results of the subsurface exploration efforts conducted to assess the nature and extent of soil, groundwater, and soil-gas impacts under the property and the site (G-Logics 2020 [12547]).
- G-Logics continued to prepare the Draft FS report through 2020.

## 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 BDC, referred to as BDC-Central, discussed below.

The BDC property straddles three source control areas. BDC-South is discussed in Section 3.1.3 (RM 4.9 East); BDC-Central is discussed in Section 3.2.3 (RM 4.3-4.9 East) and BDC-North is discussed in Section 3.3.3 (RM 3.9-4.3 East).

### 3.2.1 Business Inspections

KCIW conducted an industrial waste inspection at the Boeing Developmental Center during this reporting period (Appendix D, Table D-1).

### 3.2.2 Source Tracing

No source tracing activities were conducted at BDC during this reporting period.

### 3.2.3 Facility-Specific Source Control Actions

#### Boeing Developmental Center - Central

In February 2019, Ecology notified Boeing that Ecology conducted a Site Hazard Assessment at the BDC. Ecology determined that the site was contaminated with halogenated organics, PCBs, metals, and petroleum hydrocarbons (Ecology 2019f [12260], Ecology 2019g [12113], Ecology 2019e [12110]). Ecology ranked the BDC a 1 on Ecology's Hazardous Sites List (Ecology 2019b [12115]).

In July 2019, Boeing and Ecology signed Agreed Order No. DE-16275 which requires Boeing to complete an RI, FS, IAWP, and to prepare a preliminary draft CAP at the BDC site (Ecology 2019o [12263]).

- In January 2020, Ecology notified Boeing that there was a change in the Ecology HWTR project coordinator for this site (Ecology 2020c [12384]).
- Ecology WQ approved Boeing’s stormwater treatment system design engineering report in August 2020 (Ecology 2020r [12489]).
- In November 2020, Ecology WQ and Boeing signed Agreed Order #19427 to achieve compliance with the ISGP. This order amended and superseded the previous Agreed Order #15600 (Ecology 2020v [12488]). Agreed Order #19427 defined the compliance schedule for installation and performance monitoring of four stormwater treatment systems on site, in addition to PCB sampling and source control investigation and documentation.

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

### 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, was occupied by Insurance Auto Auctions until late November 2019), the former Rhone-Poulenc Site, parcels owned by the Museum of Flight, and the northern portion of BDC (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

KCIW conducted an industrial waste inspection at the Boeing Developmental Center during this reporting period (Appendix D, Table D-1).

#### 3.3.2 Source Tracing

In September 2020, King County collected an annual storm drain solids in-line grab sample from location KCIA1A, on the KCIA SD#1 storm drain line. The in-line trap sample did not contain any solids, so a sample could not be collected and analyzed. The in-line grab sample had concentrations of multiple HPAHs and phenanthrene above CSL, and BEHP was above the SCO. The PAHs increased from levels observed in 2019, when there were no concentrations above the SCO (King County 2021 [12519]).

In September 2020, King County collected a storm drain solids grab sample from location KCIA1UP, which is located at the upgradient boundary of the KCIA SD#1 basin along Perimeter

Road S, to evaluate the potential for offsite inputs to the KCIA drainage system (Figure A-5). There were no screening level exceedances in this sample. King County will continue to sample the upgradient location as part of its sampling program (King County 2021 [12519]). King County sampling results are provided in Appendix G.

### 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 IAWP (Ecology 2008c [06418]). Centerpoint Properties purchased the property from Merrill Creek Holdings in 2015. Agreed Order DE-6069 was amended to update the property owner in August 2017 (Ecology 2017 [11459]).

<b>Address</b>	8801 East Marginal Way S
<b>Facility/Site ID</b>	2072 (8801 E Marginal Way S)
<b>NPDES Permit</b>	WAR008681 (Insurance Auto Auctions Tukwila; terminated November 2019 when IAA vacated the site [Ecology 2019s [12434])
<b>Current Operations</b>	Damaged vehicle storage
<b>Historical Operations</b>	Truck manufacturing
<b>Chemicals of Concern</b>	PCBs, PAHs, VOCs, phenols, phthalates, petroleum hydrocarbons, metals
<b>Media Affected</b>	Soil, groundwater, stormwater, and sediment

- Ecology held a comment period from August 26 through October 9, 2019, on the public review draft FS, the draft IAWP, the SEPA checklist and the DNS (Ecology 2019j [11950]). In June 2020, Ecology published a response to comments document that addressed the comments received during the 2019 comment period (Ecology 2020n [12537]).
- The PLPs submitted the final FS to Ecology in July 2020 (Shannon & Wilson 2020d [12548]). The FS included data from previous investigations collected on the 8801 property. This data was used to identify the chemicals of concern and the distribution of the contamination. The FS also identified the remedial action objectives and evaluated and selected the remedial alternatives. The alternatives include various combinations of soil treatment removal and containment as well as groundwater treatment in specific areas of the site.
- In July 2020 Ecology requested an addendum to the FS and IAWP. The PLPs submitted an addendum to the FS and IAWP to Ecology in December 2020. The addendum focused on the western portion of the 8801 property that is immediately adjacent to the LDW and presents an evaluation of remedial alternatives and the selection of a preferred remedial action for the shoreline area that differs from the remedial action proposed in the IAWP. The selected remedy for the shoreline area consists of excavation of soil in three hotspot areas, placing a clay cap, laying a drainage blanket, installing landscaping within the 100-foot river buffer, maintaining pavement outside the river buffer and establishing institutional controls (Shannon & Wilson 2020f [12549]).

## King County International Airport (KCIA) – 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.

- King County continued to collect annual sediment trap and in-line solids samples at location KCIA1A in the storm drain line discharging to the LDW at KCIA SD#1 in 2020 (see Section 3.3.2).
- 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 and a water quality vault, are being maintained. KCIA performs stormwater line cleaning in accordance with the ISGP. All stormwater line cleaning was completed in 2017. Stormwater line cleaning is expected to start in 2021 (King County 2021 [12519]).

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

## Boeing Developmental Center – North

In February 2019, Ecology notified Boeing that Ecology conducted a Site Hazard Assessment at the BDC. Ecology determined that the site was contaminated with halogenated organics, PCBs, metals, and petroleum hydrocarbons (Ecology 2019f [12260], Ecology 2019g [12113], Ecology 2019e [12110]). Ecology ranked the BDC a 1 on Ecology's Hazardous Sites List (Ecology 2019b [12115]).

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

In July 2019, Boeing and Ecology signed Agreed Order No. DE-16275 which requires Boeing to complete an RI, FS, IAWP, and to prepare a preliminary draft CAP at the BDC site (Ecology 2019o [12263]).

- In January 2020, Ecology notified Boeing that there was a change in the Ecology HWTR project coordinator for this site (Ecology 2020c [12384]).
- Ecology WQ approved Boeing's stormwater treatment system design engineering report in August 2020 (Ecology 2020r [12489]).

- In November 2020, Ecology WQ and Boeing signed Agreed Order #19427 to achieve compliance with the ISGP. This order amended and superseded the previous Agreed Order #15600 (Ecology 2020v [12488]).

### 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 2020b [12426]).

#### 3.4.1 Business Inspections

No business inspections were conducted in this source control area during this reporting period.

#### 3.4.2 Source Tracing

No source tracing activities were conducted in this source control area during this reporting period.

#### 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 [06812]). Boeing submitted an RI Report to Ecology in April.

Boeing submitted a Draft Final FS to Ecology in October 2019 (Landau 2019 [11993]).

- Ecology reviewed the Draft Final FS Report and prepared comments to send to Boeing in early 2020.

<b>Address</b>	8625-8811 East Marginal Way S, Tukwila
<b>Facility/Site ID</b>	Facility Site ID: 2218 Cleanup Site ID: 1944
<b>Current Operations</b>	Storage of surplus vehicles
<b>Historical Operations</b>	Steel melting, forging, and fabricating, lumber
<b>Chemicals of Concern</b>	Antimony, arsenic, barium, cadmium, chromium, lead, mercury, nickel, zinc, PCBs, PAHs,
<b>Media Affected</b>	Soil, groundwater, stormwater

##### 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.

- KCIA did not collect annual in-line sediment trap grab samples at locations KCIA2 and KC-SPS in 2020. King County deferred annual sampling for 2 years starting in 2019 due to consistent low contaminant concentrations below LAET. Stormwater solids sampling will resume in 2021 to assess if conditions remain below the levels of concern for this basin (King County 2021 [12519]).

<b>Address</b>	7277 Perimeter Road S (main terminal); various tenant addresses
<b>Facility/Site ID</b>	2387398 (King Cnty International Airport)
<b>NPDES Permit</b>	WAR000343 (King County Int Airport); Tenants: WAR002830 (Ameriflight Inc Hangar 5), WAR000607 (Landmark Aviation/Signature Aviation), WAR000434 (UPS Boeing Field), WAR305886 (Mente Hangar)
<b>Current Operations</b>	General aviation airport and related activities
<b>Historical Operations</b>	Military airport operations; general aviation
<b>Chemicals of Concern</b>	PAHs, phthalates, copper, zinc, petroleum hydrocarbons, and PCBs
<b>Media Affected</b>	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 are being maintained. KCIA performs stormwater line cleaning in accordance with the ISGP. All stormwater line cleaning was completed in 2017. Stormwater line cleaning is expected to start in 2021 (King County 2021 [12519]).

### 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<sup>14</sup> and Jorgensen Forge, as shown in Appendix A. In addition, the 16<sup>th</sup> Avenue S (East) SD discharges to the LDW within this source control area.

#### 3.5.1 Business Inspections

Ecology conducted stormwater compliance inspections at Jorgensen Forge in February and November 2020 (see Section 3.5.3 and Appendix E, Table E-1).

KCIW conducted industrial waste inspections at Boeing Plant 2 and Jorgensen Forge (Star Forge) in 2020 (Appendix D, Table D-1).

#### 3.5.2 Source Tracing

No source tracing activities were conducted in this source control area during this reporting period.

<sup>14</sup> 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).

### 3.5.3 Facility-Specific Source Control Actions

#### Boeing Plant 2

Boeing is conducting RCRA corrective actions at Boeing Plant 2 under an AOC, issued by EPA to Boeing in 1994. This included corrective actions for both the 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. In-water sediment remediation activities were approved, completed, and accepted (work took place between 2013 and 2015, with the project completion report dated June 2016).

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

- A previous source evaluation determined that galvanized conveyance piping within Plant 2’s 2-122 building is a source of elevated levels of zinc to the stormwater. Boeing submitted an advanced stormwater treatment Engineering Report for the North Stormwater System to Ecology WQ in May 2020. This report was completed for stormwater discharges from outfall P2A at Boeing Plant 2. This outfall discharges stormwater runoff from Building 2-122 and the surrounding area, known as Drainage Basin A. This report proposes the use of MetalRx with enhanced operational improvements to treat the stormwater runoff from the north system of Boeing Plant 2 (Geosyntec 2020d [12518]).
  - The Engineering Report specified four alternatives for stormwater management at the P2A drainage area that could be implemented as a Level 3 Corrective Action to address high zinc and copper loadings. At that time, Boeing had already implemented replacement of the Contech roof drain filters with MetalRx media and an enhanced filter cartridge replacement schedule.
  - Boeing determined that retrofitting the existing bioswales would be the most cost effective and reliable long-term solution for this drainage area.
  - In 2020, Boeing planned and executed a media exhaustion study to measure the performance and useful life of a range of engineered media that could be added to the bioswales that discharge to outfall P2A.
  - Boeing also planned and initiated a pilot study to indicate expected performance using site stormwater. The pilot test components were installed, equipment was tested, site runoff was routed, and flow monitoring began in November and December of 2020. Water quality samples were collected, and the pilot test concluded in the first quarter of 2021.

#### *Upland Cleanup*

- EPA proposed uplands corrective actions in 2019 and received public comments on the draft cleanup plan in 2019. In 2020 EPA worked on preparing a response to comments on

the draft Statement of Basis proposed cleanup plan and its final corrective action decision for the cleanup of this site (EPA 2020a [12428]). EPA finalized the corrective action decision in July 2022 (EPA 2022 [12484]).

## 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, EPA is the lead for the sediment cleanup.

On April 18, 2018, Jorgensen Forge announced that it will end operations at this location in 2018 (Jorgensen Forge 2018 [11521]).

Jorgensen Forge intended to fully vacate this location by December 2019 (Ecology 2019m [12347]).

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

- On February 21, 2020, Ecology WQ issued a Warning Letter for non-compliance with the ISGP based on violations observed during a stormwater compliance inspection conducted by Ecology on February 14, 2020.
- On April 9, 2020, Ecology WQ issued Administrative Order Docket #18074 (Ecology 2020g [12493]). This Administrative Order was issued following Ecology’s determination that violations occurred, including the discharge of PCBs in stormwater to the Duwamish River. The AO requires sampling for additional pollutants beyond the standard parameters identified in the ISGP, batch collection, treatment, and sampling of all stormwater prior to discharge, and other immediate pollution preventing actions.
- On July 29, 2020, Ecology WQ issued an Amended Administrative Order docket #18160. This Administrative Order was issued to amend Administrative Order Docket #18074 (dated April 4, 2020) (Ecology 2020q [12949]). The Amended Administrative Order #18160 was issued in response to the request for modification to the indicator levels for barium and chromium established by Administrative Order #18074. Administrative Order #18160 includes new indicator levels for barium and chromium, along with the required analytical methods, detection limits and quantitation levels for these parameters. All other corrective actions and monitoring requirements from Administrative Order #18074 remain unchanged.

### *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 [12172]). Jorgensen Forge declared bankruptcy in 2016.

- In April 2020, Jorgensen submitted a response to comments memorandum. In this memorandum Jorgensen addressed Ecology’s December 20, 2019, comments on the Draft RI work plan (Shannon & Wilson 2020c [12550]).

- Jorgensen submitted a revised RI work plan to Ecology in April 2020 (Shannon & Wilson 2020a [12562], Wilson 2020b [12561]). The proposed RI activities include collection of soil samples from borings, installation of groundwater monitoring wells, groundwater sampling and light non-aqueous phase liquid (LNAPL) monitoring and LNAPL delineation and transmissivity testing.
- Ecology reviewed the revised RI work plan. In September 2020 Ecology approved the RI work plan and requested additional evaluation at two areas of the site. Ecology requested that Jorgensen provide an addendum that addresses their comments and resolves the remaining data gaps (Ecology 2020t [12542]).
- In October 2020, Jorgensen submitted an addendum memorandum to respond to Ecology's request for additional sampling work and to provide information related to the RI (Shannon & Wilson 2020e [12551]).

### ***Sediment Cleanup***

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.

- Jorgensen conducted sampling to assess the need for further cleanup at this site in spring 2019. In 2020, Jorgensen provided EPA with a draft Data Summary Report with results from the 2019 sampling effort (EPA 2020a [12428]).
- Jorgensen prepared an Engineering Evaluation/Cost Analysis document in late 2020 to determine what actions can be taken at the EAA (EPA 2020a [12428], EPA 2020c [12553]).

## **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 basin are located within the RM 4.2-5.8 West source control area.

### **3.6.1 Business Inspections**

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

### **3.6.2 Source Tracing**

No source tracing activities were conducted in this source control area during this reporting period.

### **3.6.3 Facility-Specific Source Control Actions**

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

### 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 96<sup>th</sup> Street SD basin (Appendix A).

#### 3.7.1 Business Inspections

SPU conducted one follow-up inspection, at King Electrical Mfg. Company, during the current reporting period (Appendix C).

King County conducted seven source control inspections at three facilities in this source control area during the current reporting period (Appendix D, Table D-2).

Ecology conducted a stormwater compliance inspection at Delta Marine Industries in February 2020 and stormwater compliance inspections at PSF Mechanical in July and October 2020 (Appendix E, Table E-1).

#### 3.7.2 Source Tracing

King County collected three sediment trap samples in the S 96<sup>th</sup> Street SD basin in May 2020 (Figure A-9) (King County 2021 [12519]). Zinc, phthalates, and benzoic acid exceeded the SCO or CSL in one or more of the three samples. King County sample results are provided in Appendix G. Screening level exceedances are summarized in Table 3-2 below.

**Table 3-2. RM 3.8-4.2 West: Screening Level Exceedances in King County Source Tracing Samples (S 96<sup>th</sup> Street SD)**

Chemical Class	Chemical	Sediment Trap
Metals	Zinc	☒
Phthalates	BEHP	☒
	Butylbenzylphthalate	×
	Dimethyl phthalate	☒
Other SVOCs	Benzoic acid	☒

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

× = Exceedance of SCO (lower screening level) was observed during the current reporting period (2020).

☒ = Exceedance of CSL/RAL/Method A (upper screening level) was observed during the current reporting period (2020).

#### 3.7.3 Facility-Specific Source Control Actions

##### Precision Engineering

In October 2019, Ecology identified CL Frazier Properties, Dick Morgan, and Precision Engineering as PLPs for the release of hazardous substances at the Precision Engineering site (Ecology 2019p [11964], Ecology 2019q [11965], Ecology 2019r [11966]).

- In the fall of 2020, Ecology and Precision Engineering negotiated an Agreed Order with the PLPs to investigate environmental conditions, conduct a feasibility study, and to develop a draft clean up action plan for this site (Ecology 2020s [12424], Ecology 2020x [12585]).
- Ecology held a public comment period for the draft Agreed Order and the draft Public Participation Plan from November 9 through December 8, 2020. Ecology reviewed the comments and prepared a response to comment document in December 2020 (Ecology 2020y [12593]).

<b>Address</b>	1231 South Director Street Seattle
<b>Facility/Site ID</b>	Facility Site ID: 2056 Cleanup Site ID: 4532
<b>Current Operations</b>	Industrial Light Manufacturing
<b>Historical Operations</b>	Heavy machining and equipment repair services shop from 1968 through 2005.
<b>Chemicals of Concern</b>	Chlorinated solvents (TCE), Chromium, oil, and diesel-range organics
<b>Media Affected</b>	Soil, groundwater

### 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 17<sup>th</sup> Avenue S SD system that was constructed as part of the Terminal 117 early action cleanup.

#### 3.8.1 Business Inspections

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

#### 3.8.2 Source Tracing

SPU collected two catch basin grab samples and one grab sample outside the drainage system in April 2020 and one sediment trap sample in October 2020 in the 17th Avenue S SD basin. The sediment trap was analyzed only for PCB Aroclors. Only Aroclor 1260 was detected in this sample (0.6 mg/kg DW), which is above the SCO but below the CSL for total PCB Aroclors. No screening levels were exceeded in the sample taken outside the drainage system (SPU 2021 [12584]). Screening level exceedances are summarized in Table 3-3 below.

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

Chemical Class	Chemical	Sediment Trap	Catch Basin Grab
Metals	Zinc	na	×
PCBs	Total PCB Aroclors	×	×
Phthalates	BEHP	na	☒
	Butylbenzyl phthalate	na	×
	Dimethyl phthalate	na	☒
Other SVOCs	Benzoic acid	na	☒
	Benzyl alcohol	na	☒

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

× = Exceedance of SCO (lower screening level) was observed during the current reporting period (2020).  
 ☒ = Exceedance of CSL/RAL/Method A (upper screening level) was observed during the current reporting period (2020).  
 na = not analyzed.

### 3.8.3 Facility-Specific Source Control Actions

#### South Park Marina

Ecology finalized Agreed Order No. DE 16185 to perform an RI at the South Park Marina Site in April 2019 (Ecology 2019i [11971]). The PLPs for this site are South Park Marina Limited Partnership, the City of Seattle, and the Port of Seattle.

- In 2020 the PLPs developed an RI work plan for this site. The RI is scheduled to take place in spring 2021.

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

#### 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. The Order required the Port of Seattle and the City to implement EPA's cleanup decision for the Terminal 117 EAA.

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. The cleanup was completed in 2016.

- The Port of Seattle sampled sediments at Terminal 117 in March 2019. The results were summarized in a draft data report that was submitted to EPA in spring 2020 (EPA 2020a [12428]).
- In 2020 the Port of Seattle started construction of a habitat restoration and public access project on the shoreline south of T-117. The project is scheduled to focus on habitat restoration in the Terminal 117 cleanup area in 2021 (EPA 2020c [12553]).

<b>Address</b>	8700 Dallas Avenue S
<b>Facility/Site ID</b>	37657495 (Malarkey Asphalt Company)
<b>NPDES Permit</b>	None
<b>Current Operations</b>	Port of Seattle operations (International Inspection, Construction Services)
<b>Historical Operations</b>	Asphalt manufacturing; untreated lumber storage
<b>Chemicals of Concern</b>	PCBs
<b>Media Affected</b>	Soil, groundwater, and sediment

## 4.0 Middle Reach Source Control Areas

The Middle Reach includes eight source control areas; four areas are located on the east side of the LDW and four areas are located on the west side:

<b>East Side:</b>	<b>Report Section</b>
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
<b>West Side:</b>	
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 (1 <sup>st</sup> Avenue S Storm Drain)	4.7
RM 1.6-2.1 West (Terminal 115)	4.8

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.

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

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

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

Slip 4 is a cleanup site under EPA oversight within the Middle Reach.

### 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 8<sup>th</sup> 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 Year 7 long-term monitoring sampling associated with the Slip 4 Early Action sediment cleanup took place on August 1, 2019. EPA approved the Year 7 monitoring report in the summer of 2020 (EPA 2020a [12428]).

The monitoring results indicated that the sediment cap remains structurally sound, and sediment continues to accumulate on top of the cap. Concentrations of some contaminants were not below

applicable sediment quality standards at all sample locations in Slip 4. Concentrations of BEHP exceeded SMS criterion in two samples, concentrations of BBP exceeded SMS criterion in two samples, concentrations of total PCBs exceeded SMS criterion in three samples, concentrations of fluoranthene exceeded SMS criterion in one sample, and zinc exceeded SMS criterion in one sample (Windward 2019a [12376a], [12376b]).

At the monitoring stations closest to the head of Slip 4, concentrations of BEHP and BBP were above the SMS benthic CSL and concentrations of PCBs, fluoranthene, and zinc were above the SMS criteria (King County 2020b [12426]). Sediment sampling is schedule to take place in 2022 (EPA 2020c [12553]).

#### **4.1.1 Business Inspections**

Ecology conducted a stormwater compliance inspection at UPS BFI Gateway in November 2020 (Appendix E, Table E-1).

KCIW conducted industrial waste inspections at North Boeing Field, Marine Vacuum Service, and the Waste Management Duwamish Reload Facility in 2020 (Appendix D, Table D-1).

#### **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 (Table 4-1). In 2011, Boeing installed a long-term stormwater treatment (LTST) system at NBF, 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. Boeing discontinued sediment trap sampling at NBF in 2017. KCIA and SPU collected samples from sediment traps with available solids in 2020.

In September 2020, KCIA collected sediment trap and in-line grab samples from at the south-central and south subdrainage areas that are upgradient of the NBF Site. KCIA also collected samples from the upgradient portions of the north and north-central subdrainage areas in 2020 (Boeing previously collected samples from these locations until 2017. KCIA resumed sampling in these two subdrainage areas in 2019 King County 2021 [12519]). It should be noted that King County collects samples upgradient of the NBF site. These samples do not represent inputs to the lateral lines from the NBF facility.

King County sampled 3 of the locations but only one via a sediment trap (T3A was sampled via a trap and a grab). T3A samples were not analyzed for PCBs due to limited sample mass. King County sampled T4B and T5C via catch basin grabs. King County plans to conduct Slip 4 basin source tracing in 2021 to 2022 to determine whether specific sources of contaminants are originating with the airport (King County 2021 [12519]). T2A was monitored but did not have any samples mass in the sediment trap or within the line for a grab sample.

SPU collected two sediment trap samples at location T6 along the I-5 SD (Figure A-11). The I-5 SD discharges to Slip 4. PCBs were detected in one of the two sediment trap samples and was below the SCO. Sediment trap results are shown in Table 4-1 below.

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

Sediment Trap Location	Range of All PCB Concentrations, 2005-2018 (mg/kg DW)	2019 Samples (mg/kg DW)	2020 Samples (mg/kg DW)
T1 (Downstream end of north and north-central lateral SD)	0.62 – 420	ns	ns
T2 (Downstream end of south lateral SD)	0.010 – 1.5	ns	ns
T2A (Upstream of NBF on the south lateral SD)	<0.0061 – 1.0	<0.91	na
T3 (Downstream end of south-central lateral SD)	0.026 – 1.8	ns	ns
T3A (Upstream of NBF on the south-central lateral SD)	<0.02 – 0.73	<0.30	na
T4 (Downstream end of north-central lateral SD)	0.24 – 2.8	ns	ns
T4A (Upstream of NBF on the north-central lateral SD)	<0.011 – 5.6	<0.070*	ns
T4B (Upstream of NBF on the south-central lateral SD)	ns	ns	<0.11*
T5 (Downstream end of north lateral SD)	2.1 – 800	ns	ns
T5A/T5A(2)/T5B/T5C (Upstream of NBF on the north lateral SD, now shifted to King County bypass line*)	0.086 – 0.67*	<0.069*	<0.091*
T6 (I-5 SD at Slip 4)	<0.019 – 7.8	0.28	<0.02 - 0.11

ns = not sampled      na = sampled but not analyzed for PCBs due to limited sample mass

\* Grab samples; no sediment trap samples collected.

King County reported that KCIA collected a grab and in-line trap sample from south-central lateral/SL4-T3A but there was limited mass available, so the analysis was focused on mercury, PAHs, and phthalates and conventional parameters. The sediment trap had very low total solids and, as such, the detection limits were elevated on a dry weight basis. Also, there were no solids within the in-line trap sample nor any solids within the line for a grab sample from the south lateral/SL4-T2A (King County 2021 [12519]). Screening level exceedances in King County and SPU source tracing samples in RM 2.8 East source control area are summarized in Table 4-2 below. Complete results are provided in Appendix F and G.

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

Chemical Class	Chemical	Sediment Traps	Grab Samples
Metals	Zinc	×	☒
PAHs	Individual LPAH compounds	☒	
	Individual HPAH compounds	☒	☒
	Total HPAHs	☒	
	Total cPAH TEQ	☒	
Phthalates	BEHP	☒	
	Butylbenzyl phthalate	×	
	Dimethyl phthalate	×	☒

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 (2020).

☒ = Exceedance of CSL/RAL/Method A (upper screening level) was observed during the current reporting period (2020).

### 4.1.3 Facility-Specific Source Control Actions

#### Crowley Marine Services 8<sup>th</sup> 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 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 this facility.

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

Ecology and property owner 8<sup>th</sup> 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 [06804]).

- 8<sup>th</sup> Avenue Terminals submitted a work plan to collect additional soil and groundwater samples in early 2020. Ecology approved the work plan, and 8<sup>th</sup> Avenue Terminals subsequently collected samples. The new soil and groundwater data was included in the Draft Feasibility Study (submitted October 2020). Ecology reviewed the draft Feasibility Study.

#### North Boeing Field / Georgetown Steam Plant Site

Agreed Order DE-5685 for the Norther Boeing Field-Georgetown Steam Plan (NBF-GTSP) site was signed by the PLPs (Boeing, City of Seattle, and King County) and Ecology, effective August 14, 2008 (Ecology 2008b [03425]), and was amended in February 2015 (Ecology 2015a [10933]). Under the terms of the Amended Agreed Order, the PLPs will complete an RI/FS and conduct interim actions, as appropriate.

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

- Semi-annual groundwater monitoring was conducted at NBF in February 2020 and August 2020. In addition, most of the stormwater from this site and upgradient from the northern portion of KCIA is actively being treated prior to discharge to Slip 4.
- The RI report for this site was worked on during 2020.

## King County International Airport (KCIA) - North

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.

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

- King County continued to collect annual sediment trap and in-line grab samples from the south-central and south subdrainage areas that are upgradient of the NBF Site. KCIA also collected samples from the upgradient portions of the north and north-central subdrainage areas in 2020 (see Section 4.1.2).
- 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, and water quality vaults are being maintained. KCIA performs stormwater line cleaning in accordance with the ISGP. All stormwater line cleaning was completed in 2017. Stormwater line cleaning is expected to start in 2021 (King County 2021 [12519]).
- KCIA performed data gap sampling of stormwater structures upgradient of the NBF-GTSP site in fall 2014. The sampling results identified elevated concentrations of PAH compounds, BEHP, and zinc. KCIA developed a source tracing plan for Slip 4 in 2018 to determine potential sources of contamination either at the KCIA or from stormwater upgradient of the KCIA. King County will implement this plan in 2021 through 2022 (King County 2021 [12519]).

## 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 performed a sampling event in 2020 prior to removal of on-site monitoring and injection wells (King County 2021 [12519]).

- In 2020, EPA approved the postponement of activities until construction of tenant and airport development around the EMF site was completed in 2022 to 2023 (EPA 2020a [12428], King County 2021 [12519]).

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

- In September 2020, EPA Region 10 submitted an action memo to the EPA Superfund director to recommend approval for a non-time critical removal action for the Boeing Electronics

Manufacturing Facility (EMF) site. The proposed action involves using enhanced reductive dichlorination (ERD) in-situ technology. For ERD, anaerobic reductive dichlorination is a naturally occurring biodegradation process where microbes can degrade chlorinated VOCs in groundwater. The proposed non-time critical removal action will treat hazardous substances in groundwater and reduce the likelihood of human, animal, or food chain exposure, and abate or eliminate the release or threat of release of hazardous substances or pollutants at the site (EPA 2020b [12474] [12475]).

## 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 (SIM), 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 Tye sites.

SDOT swept S Myrtle Street 47 times in 2020. In August 2020, the City became aware of noncompliance with the weekly requirement to sweep S Myrtle Street. In February and April through August, the City did not achieve the weekly sweeping requirement due to staffing impacts from the ongoing COVID-19 pandemic. To address the situation, SDOT expanded other existing sweeping routes to include the S Myrtle Street segment. The City achieved compliance of the weekly street sweeping requirement from mid-September through the end of 2020 (SPU 2021 [12584]).

SPU also conducted quarterly inspections of catch basins and mainline maintenance holes from 2011 through 2020. SPU evaluated the data for catch basin and mainline maintenance hold measurements from 2011 to 2017. The evaluation determined that the catch basins on S Myrtle Street accumulate solids or require maintenance similar to those in the rest of the LDW basins. SPU will continue quarterly inspections of catch basins and mainline maintenance holes, per Ecology’s direction (SPU 2021 [12584]).

### 4.2.1 Business Inspections

KCIW conducted an industrial waste inspection at Cascade Columbia Distribution in this source control area on August 26, 2020.

### 4.2.2 Source Tracing

SPU collected five sediment trap solids samples from the S Myrtle Street SD and one sediment trap solids sample in the S Garden Street SD during 2020 (Figure A-12). Sampling results are provided in Appendix F, and screening level exceedances are summarized below. The highest PCB detection was 2.0 mg/kg DW, two times the CSL of 1.0 mg/kg DW.

**Table 4-3. RM 2.3-2.8 East: Screening Level Exceedances in SPU Source Tracing Samples**

Chemical Class	Chemical	Sediment Trap
Metals	Copper	☒
	Lead	☒
	Mercury	☒
	Zinc	☒
PCBs	PCBs, total	☒
PAHs	Individual LPAHs	☒
	Individual HPAHs	☒
	Total HPAHs	×
	Total cPAH TEQ	☒
Phthalates	BEHP	☒
	Butylbenzyl phthalate	☒
	Dimethyl phthalate	☒
Other SVOCs	Benzoic acid	☒
	Benzyl alcohol	☒
	n-Nitrosodiphenylamine	☒
	Phenol	×
Petroleum Hydrocarbons	Diesel-range hydrocarbons	☒
	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 (2020).

☒ = Exceedance of CSL/RAL/Method A (upper screening level) was observed during the current reporting period (2020).

### 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 [09837]).

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

- Ecology will conduct a periodic review for this site in 2021.

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

#### Whitehead Tye Site

The Whitehead Tye Site is the location of the former Tye Lumber facility. SIM and 730 Myrtle LLC have been identified as PLPs for this site. The site is also known as SIM Truck Parking. Ecology and SIM entered into Agreed Order DE-13458 in August 2016. The Order requires that the current property owner/operator complete a data summary report, an interim action, conduct an RI/FS, and prepare a draft CAP (Ecology 2016c [11068]).

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

Ecology identified the following additional PLPs for this site in July 2018: the Fox Avenue Building, the Whitehead Company, Roberston-Ceco II Corporation and RCH Newco II, the City of Seattle, and the Reliable Transfer and Storage Company (Ecology 2018c [11305], 2018d [11306], 2018e [11307], 2018f [11308], and 2018g [11309]).

SIM conducted an interim action from July through December 2017. The interim action addressed limited areas of known soil contamination encountered during installation of a stormwater conveyance and treatment system. SIM submitted a draft Interim Action Completion Report to Ecology in March 2019.

- Ecology reviewed the Interim Action Completion Report and responded to SIM in July 2020. Ecology determined that the Interim Action Completion Report was adequate to document the work conducted under the Interim Action Work Plan and that it can be finalized (Ecology 2020p 12543).
- In August 2020, SIM resubmitted the Interim Action Completion Report to Ecology. This version included revisions to pages 3-13 (Floyd|Snider 2020 [12546]).

- In May 2020, SIM began the process of installing a chitosan-enhanced sand filtration stormwater treatment system, to replace the Modular Wetland System. Ecology had approved the engineering report on May 5, 2020, and the new system became operational on June 12, 2020.

### Seattle Iron & Metals

Ecology issued an industrial NPDES individual permit for SIM in September 2013. The individual permit 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 [12205]).

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

- In October 2020, Ecology WQ issued a notice of compliance with immediate action order 15573 (Ecology 2020u [12506]).

### 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

No business inspections took place in this source control area during this reporting period.

#### 4.3.2 Source Tracing

SPU collected two storm drain solids samples in this source control area during the current reporting period, including one location in the S River Street SD and one in the S Brighton Street SD (Figure A-13). No PAHs exceeded the screening levels. Results are presented in Appendix F; screening level exceedances are summarized below.

**Table 4-4. RM 2.0-2.3 East: Screening Level Exceedances in SPU Source Tracing Samples**

Chemical Class	Chemical	Catch Basin Grab Samples
Metals	Zinc	☒
PCBs	PCBs, total	×
Phthalates	BEHP	☒
	Butylbenzyl phthalate	×
	Dimethyl phthalate	×
Other SVOCs	n-Nitrosodiphenylamine	☒

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

× = Exceedance of SCO (lower screening level) was observed during the current reporting period (2020).

☒ = Exceedance of CSL/RAL/Method A (upper screening level) was observed during the current reporting period (2020).

### 4.3.3 Facility-Specific Source Control Actions

#### Riverside Industrial Park

This property (formerly Big John's Truck Repair and Carmody Truck Repair) is enrolled in the VCP (No. NW2412).

In May 2019 work was conducted to address data gaps that were previously identified by Ecology and to monitor the effectiveness of the selected remedial option.

<b>Address</b>	6533 Third Avenue South Seattle
<b>Facility/Site ID</b>	6704154
<b>Current Operations</b>	Commercial buildings, warehouse
<b>Historical Operations</b>	Single family residence, truck maintenance facility, cabinet manufacturing shop
<b>Chemicals of Concern</b>	Petroleum hydrocarbons, lead
<b>Media Affected</b>	Soil, groundwater

- In February 2020, Toth Enterprises submitted a project summary and closure report to Ecology for review and consideration of a No Further Action determination for this site. In this report, they stated that the oil sample results indicated that the contaminants documented in previous investigations attenuated to concentrations below MTCA Method A cleanup levels. (GeoDesign 2020a [12392]).
- In February 2020, Ecology notified Riverside Industrial Park that there was a change in the Ecology VCP site manager for this site (Ecology 2020e [12398]).

## 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 1<sup>st</sup> 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 one initial inspection at Pivot Fabrication Inc. during 2020 (Appendix C).

#### 4.4.2 Source Tracing

No source tracing samples were collected in this source control area during 2020.

In 2021, King County plans to conduct source investigations in the South Michigan CSO basin to evaluate potential sources of mercury in the system close to the regulator station (King County 2021 [12519]).

#### 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 [07731]). 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.

- Duwamish Marine Center submitted a draft Remedial Investigation Report in September 2020. Ecology reviewed and commented on this report.
- In September 2020, Duwamish Marine Center submitted a work plan for additional sampling for the Feasibility Study. Ecology approved the work plan and samples were collected in late 2020.
- Samson Tug & Barge (1<sup>st</sup> Ave, Seattle, location) triggered Level 3 Corrective Action in 2019 because turbidity in the stormwater that discharged from outfall 002 exceeded the ISGP benchmark in three quarters that year. The corrective actions expected to comply with the permit included ensuring that all remaining site stormwater be diverted to the existing treatment system. On May 12, 2020, Samson Tug & Barge submitted an extension request to Ecology to complete the actions. On December 1, 2020, Ecology granted the extension and required actions be completed no later than September 1, 2021.

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

##### Georgetown Wet Weather Treatment Station

King County is developing four parcels as the site of the Georgetown Wet Weather Treatment Station. Previously, this property was formally owned by Winters Investment LP (mix use auto shop & McDonalds), Mallard Properties LLC (Ducky’s Office Furniture) and Frank J. Tonkin Jr. (Taco Time). The Georgetown Wet Weather Treatment Station is currently under construction.

On-site work started in April 2017 and construction is expected to be completed in 2022. This project involves a significant dewatering and soil excavation project.

King County designed the Georgetown Wet Weather Treatment Station to reduce the discharge of pollutants to the LDW by controlling combined sewer overflows from outfalls located at the ends of S Michigan Street and S Brandon Street.

<b>Address</b>	6185 4 <sup>th</sup> Avenue S
<b>Facility/Site ID</b>	55698119 (Riveretz's Auto Care) Cleanup Site ID: 14744
<b>NPDES Permit</b>	None
<b>Current Operations</b>	Wet Weather Treatment Station
<b>Historical Operations</b>	Restaurants, retail and warehouse space, auto repair, and service station
<b>Chemicals of Concern</b>	Metals, VOCs, petroleum hydrocarbons
<b>Media Affected</b>	Soil and groundwater

The project includes the construction of the Wet Weather Treatment Station at the corner of 4<sup>th</sup> Avenue S and S Michigan Street. The project also includes modifying the combined sewer conveyance pipe network in the area and will install a new outfall structure adjacent to the 1<sup>st</sup> Avenue S Bridge to release the treated water into the LDW.

- The Georgetown Wet Weather Treatment Station project was in the construction phase in 2020. The construction is expected to be completed by December 2022 (King County 2020a [12435]).

#### 4.5 RM 2.2-3.4 West (Riverside Drive)

The RM 2.2-3.4 West (Riverside Drive) source control area includes the 7<sup>th</sup> Avenue S SD basin and most of the 8<sup>th</sup> 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 7<sup>th</sup> Avenue S SD and King County's 8<sup>th</sup> Avenue CSO discharge to the LDW within this source control area. The 8<sup>th</sup> 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 eight inspections at five facilities during the current reporting period, including five initial inspections, and three follow-up inspections (Appendix C).

KCIW conducted industrial waste inspections at Machinists Inc Plant 5 and National Products Inc. in 2020 (Appendix D, Table D-1). King County conducted a source control inspection at the Revere Group, Regal Ideas, and at Universal Intermodal in October 2020 (Appendix D, Table D-2).

Ecology conducted stormwater compliance inspections at American Gypsum Recycling in October 2020 and at Pacific Pile & Maine in January 2020 (Appendix E, Table E-1).

##### 4.5.2 Source Tracing

SPU collected one sediment trap sample and two catch basin grab samples in the 7<sup>th</sup> Avenue S SD during 2020 (Figure A-16). Results are provided in Appendix F; screening level exceedances for the sediment trap and catch basin samples 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 Trap	Catch Basin Grab
Metals	Copper	☒	
PCBs	PCBs, total	×	×
Phthalates	BEHP	☒	☒
	Butylbenzyl phthalate	×	×
Other SVOCs	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 (2020).

☒ = Exceedance of CSL/RAL/Method A (upper screening level) was observed during the current reporting period (2020).

### 4.5.3 Facility-Specific Source Control Actions

#### Duwamish Waterway Park

The Seattle Parks and Recreation Department (Seattle) investigated soil contamination at the portion of the Duwamish Waterway Park located on Seattle City land in 2014 and 2019 (Ecology 2020d [12383]).

Surface soil samples collected in 2014 contained concentrations of arsenic that exceeded MTCA Method A cleanup levels. Deeper soil samples were collected in 2019. Concentrations of arsenic and lead exceeded the Method A cleanup level in some of the deeper soil samples (ECC 2019a [12385], ECC 2019b [12387]).

<b>Address</b>	7900 10 <sup>th</sup> Avenue S, Seattle
<b>Facility Site ID</b>	49919
<b>Cleanup Site ID</b>	15139
<b>Current Operations</b>	Public park
<b>Chemicals of Concern</b>	Arsenic, lead
<b>Media Affected</b>	Soil

Ecology sent an Early Notice Letter to Seattle Parks and Recreation in February 2019. Ecology determined that contamination exists on this property and cleanup is required at this site (Ecology 2019d [12386]).

- Seattle renovated this park in 2020 and 2021. Prior to park renovations, Seattle conducted soil remediation work in the northeastern portion of the park. This work is scheduled to start in the fall of 2020. Seattle will then submit a RI Report to Ecology after the remediation work is complete. Park renovations are scheduled to be complete in the summer or fall of 2021.
- The Port of Seattle controls a portion of the commercial waterway land (Port of Seattle “sliver”) located in the northeastern area of the park. It is not known if contamination extends toward the LDW onto this Port property. Ecology conducted a reconnaissance investigation to determine whether there is contamination on the portion of the park controlled by the Port of Seattle in 2021. The results of this investigation will be included

in the next Status Report. The results from this investigation may result in the need for additional remediation to be conducted before the City can open the park to the public.

## 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 ICS), and numerous parcels owned by Boyer Towing along the LDW shoreline (Appendix A). In addition, it includes facilities within the 2<sup>nd</sup> Avenue S SD basin and the 8<sup>th</sup> Ave CSO.

### 4.6.1 Business Inspections

SPU conducted an initial and follow-up inspection at Boyer Logistics in 2020 (Appendix C).

KCIW conducted industrial waste inspections in this source control area in 2020, at Kerry Inc. (DaVinci Gourmet) and Industrial Container Services (Appendix D, Table D-1).

Ecology conducted a stormwater compliance inspection, at Boyer Towing and Logistics in August 2020 (Appendix E, Table E-1). Additional WQ updates are listed in Appendix E, Table E-2.

### 4.6.2 Source Tracing

SPU collected one catch basin grab sample in the 2<sup>nd</sup> Avenue S SD during 2020 (Figure A-16). Results are provided in Appendix F; screening level exceedances for the catch basin sample is 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	Catch Basin Grab
Metals	Zinc	×
PCBs	PCBs, total	×
Phthalates	BEHP	☒
	Butylbenzyl phthalate	×
Other SVOCs	Benzoic acid	☒
	n-Nitrosodiphenylamine	☒

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

× = Exceedance of SCO (lower screening level) was observed during the current reporting period (2020).

☒ = Exceedance of CSL/RAL/Method A (upper screening level) was observed during the current reporting period (2020).

### 4.6.3 Facility-Specific Source Control Actions

#### Industrial Container Services / Trotsky Property / Former Northwest Cooperage

Ecology entered into Agreed Order DE-6720 with Herman and Jacqueline Trotsky (owners) and ICS (operator) on May 18, 2010 (Ecology 2010b [06806]). 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.

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

- ICS submitted a draft Feasibility Study in March 2020 and a work plan for collecting additional samples to define contamination from the site located on the Douglas Management Dock site. Ecology reviewed the draft Feasibility Study and sampling plan.
- In August 2020, Ecology reviewed and approved a work plan to collect soil and sediment samples for the feasibility study. A portion of the additional samples were collected in October and November 2020.

#### Douglas Management Dock / Alaska Marine Lines

Ecology entered into Agreed Order DE-8258 with 7100 1<sup>st</sup> 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 [06425]).

Douglas Management submitted a work plan for additional soil and groundwater sampling for the Feasibility Study in early 2020. Ecology reviewed the work plan.

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

#### Boyer Towing and Logistics

- On August 4, about 304 gallons of diesel fuel spilled onto the ground when a tank was overfilled during a fuel transfer at Boyer Logistics (7318 4th Ave S, Seattle WA 98108). Some diesel entered the catch basin inlet and storm drain line and about 40 gallons made it to the LDW. The tide was out at the time, so most of diesel that exited the pipe at the outfall impacted the exposed intertidal area. A much smaller volume entered the LDW. About 38 gallons were recovered during the cleanup operations.

- The fueling operator immediately reported the spill to the National Response Center and Ecology’s Environmental Report Tracking System. Cleanup crews deployed absorbent pads on the intertidal sediment and a boom on the water to catch any fuel that entered the river, and then cleaned out the storm drain lines, catch basin inlet, oil-water separator, and the on-site stormwater treatment system to remove all residual diesel.
- Ecology’s Spill Response Team provided cleanup oversight and coordination with other agencies. Ecology’s WQ Inspector visited the property during cleanup operations to review the causes of the spill, identify any operational or structural pollution prevention deficiencies, and determine follow-up spill prevention and response actions. Ecology’s WQ Inspector also provided that information to Boyer in the form of a Corrections Required Notice on August 5, 2020.

## 4.7 RM 2.1 West (1<sup>st</sup> Avenue S Storm Drain)

The RM 2.1 West (1<sup>st</sup> Avenue S Storm Drain) source control area includes upland facilities within the 1<sup>st</sup> 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 four inspections at two facilities in the 1<sup>st</sup> Avenue S storm drain basin during the current reporting period (Appendix C), including one initial inspection and four follow-up inspections.

KCIW conducted one industrial waste inspection in this source control area in 2020, at Magnetic and Penetrant Services Company (MAPSCO) (Appendix D, Table D-1).

Ecology conducted a stormwater compliance inspection at Eastmont Transfer station in January 2020 (Appendix E, Table E-1). Additional WQ updates regarding Waste Management Seattle Hauling Co. Gypsum Manufacturing are listed in Appendix E, Table E-2.

### 4.7.2 Source Tracing

SPU collected one sediment trap sample and two in-line solids samples in the 1<sup>st</sup> Avenue S SD basin during 2020 (Figure A-18). Results are provided in Appendix F; screening level exceedances are summarized in Table 4-6 below.

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

Chemical Class	Chemical	Sediment Traps	In-line Solids
Metals	Zinc	☒	×
PCBs	PCBs, total	×	
Phthalates	BEHP	☒	☒
	Butylbenzyl phthalate	×	×
Other SVOCs	Benzyl alcohol	☒	☒
	n-Nitrosodiphenylamine	☒	

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

× = Exceedance of SCO (lower screening level) was observed during the current reporting period (2020).

☒ = Exceedance of CSL/RAL/Method A (upper screening level) was observed during the current reporting period (2020).

### 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 CAP for this site (Ecology 2009a [06677]).

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 [12280]).

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

Ecology issued a Final CAP for this site in March 2018. The CAP describes the cleanup action approved by Ecology for the “Settlement Area” portion of this site. The cleanup action for this portion of the site consists of a landfill cap/cover, landfill gas controls, stormwater controls, long-term monitoring of groundwater, long-term monitoring of the cap/cover, the landfill gas controls, and the groundwater, and environmental covenants (Ecology 2018a [11904]).

Ecology, the City of Seattle, and South Park Property Development signed a Consent Decree to conduct remedial actions and implement the CAP on March 26, 2019 (Ecology 2019h [12438]).

- The City installed six monitoring wells in 2019 and conducted two rounds of groundwater sampling between October 2019 and January 2020. The second round of groundwater sampling, using, low-flow sampling technical in the six new monitoring wells was conducted on January 24, 2020 (Aspect 2020b [12536]). SPU submitted a draft supplemental groundwater investigation report to Ecology in March 2020.
- In July 2020, the City of Seattle notified Ecology that that they plan to rescope the South Park Project. SPU decided to decouple constructing the recycling center from fulfilling the minimum requirements under the South Park Landfill Consent Decree. This decision will allow for a holistic planning review of needs and opportunities in south Seattle prior to making further site development decisions (SPU 2020c [12552]).

## 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 CSO/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 an initial inspection at Associated Petroleum Products Inc. and Caffe Umbria during the current reporting period (Appendix C).

KCIW conducted one industrial waste inspection within this source control area during the current reporting period, at Lineage Seafreeze (Appendix D, Table D-1).

Ecology conducted stormwater compliance inspections at Lineage Seafreeze and at Orca Bay Foods in November 2020 (Appendix E, Table E-1).

#### 4.8.2 Source Tracing

SPU collected one sediment trap sample in the Highland Park Way SW basin during the current reporting period. In the SW Kenny Street SD basin, SPU collected four grab samples during from right-of-way catch basins during the current reporting period.

The West Michigan CSO basin was sampled for this reporting period. An in-line solids grab sample was collected from the West Michigan Regulator Station in August 2020 and a sediment trap sample was collected in September 2020 following an approximately 12-month deployment period. The sediment trap sample was collected from within the collection system at Highland Park Drive and SW Holden Street. This was the most accessible location closest to the regulator station where solids could be characterized using a sediment trap within the West Michigan CSO basin (King County 2021 [12519]).

Results are presented in Appendix F and G, and screening level exceedances are summarized in Table 4-7 below.

**Table 4-7. RM 1.6-2.1 West: Screening Level Exceedances in King County and SPU Source Tracing Samples**

Chemical Class	Chemical	Highland Park Way SW SD	SW Kenny Street SD T115 CSO	West Michigan CSO	
		Sediment Traps	Catch Basin Grab	Sediment Trap	In-Line Grab
Metals	Lead		☒		
	Mercury		×		
	Zinc	☒	☒		
PCBs	PCBs, total	×	×		
Phthalates	BEHP	☒	☒	×	
	Butylbenzyl phthalate	×	×		
	Dimethyl phthalate	☒			
Other SVOCs	4-Methylphenol		☒		
	Benzoic acid		☒	☒	☒
	Benzyl alcohol	☒	☒		
	n-Nitrosodiphenylamine	☒	☒		

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

× = Exceedance of SCO (lower screening level) was observed during the current reporting period (2020).

☒ = Exceedance of CSL/RAL/Method A (upper screening level) was observed during the current reporting period (2020).

### 4.8.3 Facility-Specific Source Control Actions

#### North Terminal 115 (Former MRI Corporation)

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 [06472]). The Port of Seattle submitted the first draft of the RI Report for the site in late 2017.

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

- In 2020, Ecology required the Port of Seattle to submit a second Draft RI.

#### Terminal 115, Plant 1

The Terminal 115, Plant 1 site is located between the North Terminal 115 site and the Glacier Northwest site. A portion of the site was the location of the former Boeing Plant 1 facility.

<b>Address</b>	6000 West Marginal Way SW
<b>Facility/Site ID</b>	11307
<b>Current Operations</b>	Retail fuels sales, cargo transfer, seafood processing, limited vehicle, and cargo container maintenance.
<b>Historical Operations</b>	Aircraft Manufacturing including plating, assembly, engine and fuel testing and metal working and concrete production.
<b>Chemicals of Concern</b>	VOCs, SVOCs, petroleum, metals
<b>Media Affected</b>	Soil and groundwater

- In 2020, Ecology negotiated an Agreed Order with Boeing and the Port of Seattle for the Terminal 115 Plant 1 site. In April 2020, Ecology held a public comment period on the Agreed Order and Public Participation Plan (Ecology 2020i [12566]).
- Ecology, the Port of Seattle, and Boeing entered into an Agreed Order on July 6, 2020. Under Agreed Order DE-18064, the PLPs will prepare an RI/FS and a draft CAP at this site (Ecology 2020o [12565]).

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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 areas on the west side:

<b>East Side:</b>	<b>Report Section</b>
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
<b>West Side:</b>	
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

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.

The east side of the Lower Reach includes one Ecology TCP cleanup site (Snopac Property) and several Ecology HWTR cleanup sites within the Brandon CSO drainage basin: 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 sites are in the greater LDW source area although not within a source control area boundary; they are discussed with the RM 1.0-1.2 East source control area (Section 5.2). In addition, the Rainier Commons site is an EPA-lead cleanup site under TSCA.

The west side of the Lower Reach includes two Ecology TCP 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). Many 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

SPU and King County did not conduct any inspections in this source control area during this reporting period.

Ecology did not conduct any stormwater compliance inspections in this source control area in 2020. Additional WQ updates regarding CertainTeed Gypsum Manufacturing are listed in Section 5.1.3 and in Appendix E, Table E-2.

## 5.1.2 Source Tracing

### 5.1.3 Facility-Specific Source Control Actions

#### Saint Gobain / Ardagh Glass

Ardagh Glass triggered Level 3 corrective actions in 2018 for exceeding the ISGP benchmarks for copper, turbidity and zinc in the facility’s stormwater discharges. Due to the complex design upgrades necessary such as the need to consolidate multiple basins, on May 17, 2019, Ardagh Glass requested an extension to the stormwater treatment installation deadline.

<b>Current Operations</b>	Glass manufacturer
<b>Historical Operations</b>	Glass plant
<b>Address</b>	5801 East Marginal Way South
<b>Facility/Site ID</b>	94925241
<b>NPDES Permit</b>	WAR001134 (ISGP)
<b>Chemicals of Concern</b>	Chromium compounds, ethylene glycol, and lead compounds
<b>Media Affected</b>	Stormwater and air emissions

- Ecology granted a one-year time extension making treatment installation due by September 30, 2020, per Administrative Order #16599.
- Ardagh Glass successfully completed installation of the Basin 1 and 2 treatment system before the extended deadline; however, due to COVID-19 and staff turnover within the City of Seattle’s permitting department, the issuance of City permits to install conveyance piping and the treatment system for Basins 3 and 4 was significantly delayed and was not completed in 2020.

#### CertainTeed Gypsum

Violations of the ISGP and RCW 90.48.080 identified by Ecology’s WQ inspector during a December 11, 2018, inspection led to the issuance of Administrative Order #16895 on January 27, 2020. The Order requires CertainTeed to complete conveyer belt improvement and relocate water lines by May 15, 2020 and evaluate the dust collection system by September 15, 2020. Delays were experienced as a result of COVID-related material availability issues and City permitting challenges which meant that the 2020 deadlines were unable to be met.

## 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.

### 5.2.1 Business Inspections

No business inspections were conducted in this source control area during this reporting period.

### 5.2.2 Source Tracing

No source tracing samples were collected within this source control area during 2020.

### 5.2.3 Facility-Specific Source Control Actions

#### East of 4<sup>th</sup> Site (Burlington Environmental / PSC Georgetown / Stericycle Georgetown)

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.

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

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 4<sup>th</sup> Avenue S, is administered under Agreed Order DE-7347 (May 2010; amended July 2015) and its attached CAP.

The area to the west of 4<sup>th</sup> 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 4<sup>th</sup> section of the PSC Georgetown site. Information about the West of 4<sup>th</sup> Site is provided in the next section.

- A multi-year bioremediation project started in April 2016, targets 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. Two injection/recirculation events occurred in 2019. The last event is scheduled for May 2020.
- Stericycle submitted the revised Full Scale ISCO Work Plan to Ecology in July 2019. This work plan summarizes the results of the ISCO pilot and bench testing as well as more recent data that has been collected in support of full-scale implementation design (DOF 2019 [11948]).

In December 2019 and January 2020, contractors working for Stericycle started implementing the groundwater cleanup action using ISCO to reduce levels of 1,4-dioxane in groundwater. This cleanup action involves injecting oxidant (sodium persulfate and hydrogen peroxide) into the groundwater contaminated with 1,4-dioxane. Groundwater monitoring was planned to begin immediately after the injections (Ecology 2019u [11949]).

## West of 4<sup>th</sup> Site (Burlington Environmental, Art Brass Plating, Blaser Die Casting, Capital Industries)

Groundwater contamination from the PSC Georgetown facility has migrated offsite toward 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 properties and downgradient to the west and southwest, toward the LDW. Cleanup activities have been underway at these facilities since 2008. The FS stage of the West of 4th Site cleanup is administered under Agreed Order DE-10402 (April 2014; amended November 2017).

<b>Facilities and Addresses</b>	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)
<b>Facility/Site IDs</b>	88531932 (Art Brass Plating), 7118747 (Blaser Die Casting), 11598755 (Capital Industries), 47779679 (Burlington Environmental LLC Georgetown)
<b>Historical Operations</b>	Plating, die casting, metal fabrication
<b>Chemicals of Concern</b>	Chlorinated solvents, 1,4-dioxane, arsenic, cadmium, copper, nickel, and zinc
<b>Media Affected</b>	Soil, groundwater, and surface water

- The PLP Group plans to work on completing a joint FS in 2020.

### 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

No business inspections were conducted in this source control area during this reporting period.

#### 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

##### Snopac Property

Ecology and 5055 Properties entered into an Agreed Order on July 15, 2019. Under Agreed Order DE-16300, 5055 Properties will complete an RI/FS, prepare a draft CAP for the site, and complete and implement a supplemental RI Work plan for an Interim Action (Ecology 2019n [12400]).

- The PLPs submitted a final IAWP to Ecology in March 2020 (Aspect 2020c [12535]). The plan for the interim action involved demolishing the warehouse building and installing a new shoring wall to stabilize the shore-face and to facilitate the removal of spent sandblast grit-containing fill on the uplands side of the shoring wall.

Data collected during site investigation work indicates that fill soils located east of the shoring wall contain spent sandblast grit (SBG). This area is targeted for removal in the interim action. The estimated weight of SBG-containing fill soil to be excavated from the uplands during the interim action is approximately 3,500 tons.

<b>Address</b>	5053-5055 East Marginal Way S
<b>Facility/Site ID</b>	1523145, 3967301
<b>Cleanup Site ID</b>	12463
<b>Current Operations</b>	Construction equipment warehouse
<b>Historical Operations</b>	Disposal of spent sandblast grit, fish packing, marine equipment storage
<b>Chemicals of Concern</b>	Metals, PAHs, PCBs, petroleum hydrocarbons
<b>Media Affected</b>	Soil, groundwater, sediment

The uplands interim action cleanup east of the shoring wall includes shoring wall installation, removal of contaminated fill landward (east) of the shoring wall, engineering controls, and contingency removal. The shoring wall installation was scheduled to be completed in July 2019. The excavation and disposal of contaminated fill materials, dewatering and water management and excavation of backfill was expected to take place in August and September 2019 (Aspect 2020c [12535]).

- The PLPs submitted a public review draft RI report to Ecology in July 2020. This report included both the uplands and in-water sediments portions of the site. The uplands portion of the site is regulated by Ecology while the in-water portion of the site is regulated by EPA.

Sediment data collected from the intertidal and subtidal sediments of this site confirm that arsenic and metals are the primary COCs driving the need for remediation at this site. The other COCs (PAHs and total PCBs) that were observed in surface sediments within the head of the slip are co-located with the arsenic and metals. PAHs are found in one subtidal and one intertidal surface sediment sample. PCBs were found in one subtidal and four intertidal surface sediment samples. The elevated metals concentrations extend from the upland and intertidal area at the head of Slip 1 into the adjacent subtidal area.

- The PLP’s submitted an agency review draft of the Sediment FS to Ecology in September 2020. The sediment FS presents the preferred remedy for the site. The preferred remedy for this site consists of the following: partial dredge and cap, ENR, excavation, and restoration of shore-face below mean higher high water, monitoring, and institutional controls.

#### 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 CO #111 and county CSO Hanford #1) and King County's Duwamish East pump station outfall are both located within this source control area.

### 5.4.1 Business Inspections

SPU conducted a total of 39 business inspections at 33 facilities in this source control area during the current reporting period (Appendix C).

KCIW conducted industrial waste inspections at five facilities in this source control area during the current reporting period (Appendix D, Table D-1).

Ecology conducted a stormwater compliance inspection at The Lighthouse for the Blind in July 2020 (Appendix E, Table E-1).

#### *Denver Avenue S PCB Spill*

In June 2019, an SPU inspector discovered a PCBs spill in the right-of-way along Denver Avenue S between 1<sup>st</sup> Avenue S and 2<sup>nd</sup> Avenue S. Sampling confirmed that surface soil along the shoulder of Denver Avenue S contained up to 40,300 mg/kg DW PCBs. Solids in storm drain inlet on Denver Ave S contained 6,970 mg/kg DW PCBs.

The contaminated soil included an area 38 feet by 530 feet with PCB concentrations ranging from 0.1 to 14 mg/kg DW in the top six inches of soil. PCBs in the storm drain downstream of the inlet where soil initially entered the drainage system ranged from 4 to 69.4 mg/kg DW PCBs.

SPU and SDOT conducted an EPA approved cleanup under TSCA in July and August 2019. SPU removed approximately 981 tons of non-regulated PCB-contaminated soil. Approximately 40 tons of regulated PCB-contaminated soil/storm drain solids were removed from the site and approximately 1,500 feet of pipe and associated structures on Denver Ave S were jetted and cleaned. SDOT backfilled and paved the road shoulder after the contaminated soil was removed. The soil samples collected at the bottom of the excavation prior to backfill contained <0.05 to 0.086 mg/kg DW PCBs (SPU 2019 [11549], SPU 2021 [12584]).

SPU received approval from the EPA TSCA program that the upland cleanup and line cleaning of the Denver Avenue S SD were complete. In 2020, SPU conducted in-water sampling of sediments in the vicinity of the Diagonal CSO/SD to determine whether PCBs from the Denver Avenue S spill impacted the sediments in the LDW. Sampling results from this effort indicated that there were no measurable impacts to the sediments in the LDW off the shore of the Diagonal CSO/SD. EPA TSCA approved the in-water sampling report and considered this task to be complete (SPU 2021 [12584]).

The remaining task for this effort is to conduct an evaluation of the upland and in-water data to determine whether additional actions are needed in the Diagonal CSO/SD. SPU plans to submit this report to EPA in 2021 (SPU 2021 [12584]).

### 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, 4 sediment trap samples; 5 in-line solids samples; 11 right-of-way catch basin samples; and 4 surface debris samples were collected in this drainage basin (Figure A-25). In addition, five sediment trap samples were collected as part of SPU's sediment trap pilot study.

In 2020, the sample with the highest total PCBs detected (7.1 mg/kg DW) was a grab sample collected from a right-of-way catch basin at Airport Way S at S Stevens Street.

Complete SPU 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	Right-of-Way CB Solids	Surface Debris
Metals	Arsenic				
	Copper	☒			
	Lead				
	Mercury				
	Zinc	☒	☒	☒	☒
PCBs	Total PCBs	x		☒	☒
PAHs	Individual LPAH compounds		☒	☒	
	Individual HPAH compounds	x	☒	☒	
	Total HPAHs	x	x	x	
	Total cPAH TEQ		☒	☒	
Phthalates	BEHP	☒	☒	☒	x
	Butylbenzyl phthalate	x	☒	☒	x
	Dibutyl phthalate	☒			
	Dimethyl phthalate	x		☒	
Other SVOCs	4-Methylphenol	☒	☒	☒	
	Benzoic acid	☒	☒	☒	
	Benzyl alcohol	☒	☒	☒	
	Dibenzofuran			☒	
	n-Nitrosodiphenylamine	☒	☒	☒	
	Phenol			x	
Petroleum hydrocarbons	Diesel-range hydrocarbons			☒	
	Motor-oil range hydrocarbons			na	

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

na = not analyzed

x = Exceedance of SCO (lower screening level) was observed during the current reporting period (2020).

☒ = Exceedance of CSL/RAL/Method A (upper screening level) was observed during the current reporting period (2020).

### 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.

EPA and the Port of Seattle signed an Administrative Settlement Agreement and Order on Consent for Removal Action, Preliminary Assessment and Site Investigation at Terminal 108 on April 5, 2018.

- EPA determined that further investigation of the site is necessary.
- On May 26, 2020, the Port of Seattle, the City of Seattle, King County, and EPA signed an AOC requiring an Engineering

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

Evaluation/Cost Analysis (EE/CA) for a removal action at this site. (EPA 2020a [12428]). The EE/CA will study site conditions and develop cleanup options, if necessary. Field investigations are expected to start in 2022 and continue through 2024 (EPA 2020c [12553]).

### 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.

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.

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

- EPA approved the second phase of the PCB abatement in the spring of 2020. Rainier Commons submitted an application to complete the third phase of abatement work with includes the remainder of the buildings. EPA reviewed the planning documents for Phase 3 in 2020. Rainier Commons plans to start work once the third phase is approved (EPA 2020a [12428], EPA 2020c [12553]).
- EPA expects the final phase of paint abatement to start in June 2022 and it will take approximately 2 years to complete.

## Mount Baker Properties

The Mount Baker Housing Association (MBHA) plans to redevelop the cluster of lots where S McClellan Street intersects with Martin Luther King Jr Way S. This is located one block from Sound Transit's Mount Baker Link light rail station. MBHA plans to build 166 affordable housing units with street level retail.

<b>Address</b>	2800 MLK Jr. Way S, 2864 S McClellan Street, 2810 S McClellan Street, 2806 S McClellan Street, and 2802 S McClellan Street
<b>Facility/Site ID</b>	Facility Site ID: 96127971 / Cleanup Site ID: 13054
<b>NPDES Permit</b>	None
<b>Current Operations</b>	Housing Development
<b>Historical Operations</b>	Dry Cleaners, Gas Station, Auto Repair
<b>Chemicals of Concern</b>	Chlorinated solvents, petroleum hydrocarbons
<b>Media Affected</b>	Soil, groundwater, soil vapor

Ecology entered into a Prospective Purchaser Consent Decree with MBHA in 2016 which was amended and filed February 24, 2017. The Consent Decree requires MBHA to complete an RI and FS for the site.

MBHA submitted a draft RI/FS to Ecology in September 2019 (Aspect 2019b [11940]). As part of the RI, the PLPs completed soil explorations, monitoring well installations, and soil, groundwater, and soil gas sampling at the site. Cleanup is necessary to remediate the contaminated soil, groundwater, and soil vapor. The FS describes five cleanup alternatives and includes a disproportionate cost analysis.

- In January 2020, MBHA submitted the final CAP to Ecology (Aspect 2020a [12568]). The CAP describes the cleanup identified in the FS. The plan includes soil excavation, institutional controls, in-situ chemical reduction, in-situ soil solidification, monitored natural attenuation, and monitoring all treatments following cleanup.
- In May 2020, Ecology sent MBHA a letter in response to MBHA's request for specific F002 listed waste PCE contaminated soils to be excavated during cleanup remedial actions.
  - Ecology determined that approximately 243 tons of F002 (PCE) listed waste contaminated soils will be excavated, managed, and disposed of as F002 listed dangerous waste.
  - Ecology determined that 14,300 tons of PCE contaminated soils to be excavated during remedial actions are contaminated with F002 listed dangerous waste constituents (PCE) at concentrations that do not warrant management as dangerous wastes. Ecology will not require disposal of these 14,300 tons of PCE contaminated soils as F002 listed dangerous wastes at a RCRA permitted dangerous waste treatment, storage, and disposal facility, if all the conditions listed in the letter are implemented (Ecology 2020j [12567]).
- In July 2020, MBHA submitted a draft Compliance Monitoring Plan and a draft Engineering Design Report to Ecology. Ecology reviewed these reports in 2020.

## Grand Street Commons

Grand Street Commons (GSC) plans to redevelop several properties in southeast Seattle for a mix of affordable and market-rate housing project. GSC is a partnership between MBHA, Lake Union Partners, and HAL Real Estate. This project is expected to be completed by 2023 when the new East Link light rail station is scheduled to open nearby. As part of the project, they plan to clean up about 3.2 acres of contaminated property.

<b>Address</b>	1750 22 <sup>nd</sup> Avenue S Seattle
<b>Facility/Site ID</b>	Facility Site ID: 97763114/Cleanup Site ID: 3018
<b>NPDES Permit</b>	None
<b>Current Operations</b>	Housing development
<b>Historical Operations</b>	Manufacturing, welding, foundry, commercial dry cleaning, vehicle repair, service station
<b>Chemicals of Concern</b>	Petroleum hydrocarbons, benzene, xylenes, cadmium, lead, naphthalene, chlorinated solvents
<b>Media Affected</b>	Soil, groundwater

Ecology entered into Prospective Purchaser Consent Decrees with GSC and MBHA. The consent decrees require GSC and MBHA to complete an RI and FS to evaluate the extent of the contaminated area and to develop cleanup options.

Ecology approved the RI work plan on March 14, 2019 (Aspect 2019a [11935]).

- The PLPs submitted a draft FS and a draft CAP to Ecology. Ecology will review these draft documents and will hold a comment period and public meeting on these draft documents in the spring of 2021.

## 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 business inspections were conducted in this source control area during the current reporting period.

### 5.5.2 Source Tracing

No source tracing samples were collected during this reporting period.

### 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 an initial and a follow-up business inspection at Alaska Marine Lines Ince and an initial business inspection at Stericycle Environmental Solutions, Inc. during the current reporting period (Appendix C).

### 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 [06819]). Stormwater from this property is currently treated and discharged at the Alaska Marine Lines outfall under NPDES Permit WAR001365.

Ecology requested that Duwamish Shipyard perform two supplemental investigations: a tributyltin (TBT) investigation to collect data for the development of a site-specific TBT sediment cleanup level; and additional investigation of arsenic contamination in groundwater in the southwest portion of the property (Ecology 2019k [12269]).

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

- The PLPs submitted a memorandum with the RI addendum TBT study data summary in March 2020 (Anchor 2020a [12533]). The TBT study was designed to assess the bioavailability of TBT in site sediments. TBT concentrations ranged from 33 to 119 ug/kg. The highest TBT concentration was detected at location BT-04. The TBT sediment concentrations were lower than historical data. It appears that the surface sediment TBT concentrations adjacent to the Duwamish Shipyard are decreasing over time. The decision was made to end further work on the TBT study and apply the East Waterway TBT CUL to this site (Anchor 2020a [12533]).

- The PLPs submitted a memorandum with the RI addendum arsenic characterization study data in April 2020 (Anchor 2020b [12534]). The arsenic study was designed to further characterize groundwater, soil, and geochemical conditions to identify the potential source of elevated arsenic concentrations in groundwater in the southwest portion of the site.
  - The groundwater arsenic concentrations in this study did not replicate the similar elevated concentrations in nearby wells. This indicates that the elevated groundwater arsenic concentrations observed during the 2015-2015 RI sampling are likely a local anomaly confined to a small area.
  - The arsenic study did not find high soil arsenic concentrations that could explain the prior elevated groundwater concentrations.
  - The geochemical lines of evidence suggest that the elevated arsenic may have resulted from localized reducing conditions related to organic rich subsurface soils and enhanced microbial mobilization of iron and arsenic (Anchor 2020b [12534]).
- Ecology approved the TBT and Arsenic characterization RI Addendums in May 2020. Ecology stated that both documents adequately address the supplemental investigations for TBT and arsenic as requested by Ecology (Ecology 2020k [12538]).

### Glacier Northwest

Glacier-Reichhold entered into Agreed Order DE-6000 with Ecology on July 28, 2009, to conduct an RI/FS at the site (Ecology 2009b [06908]).

- The PLPs submitted the Draft RI report. In 2020, Ecology reviewed the Draft RI report and worked with the PLPs to complete the RI and move forward with the FS.

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

## 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 significant industrial user and is regulated under a waste discharge permit. The facility was inspected during the current reporting period on November 25, 2020 (Appendix D, Table D-1).

### **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 is located within this source control area.

### **5.8.1 Business Inspections**

SPU conducted four business inspections at three facilities within this source control area in 2020, including three initial inspections and one follow-up inspection (Appendix C).

### **5.8.2 Source Tracing**

SPU collected one sediment trap samples in the SW Idaho Street SD basin and two in-line grab samples in the SW Dakota Street SD during the current reporting period (Figure A-29). Sample results are presented in Appendix F; screening level exceedances are summarized in Table 5-2 below.

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

Chemical Class	Chemical	Sediment Trap	In-line Grab
Metals	Zinc		☒
PCBs	PCBs, total		×
Phthalates	BEHP	☒	☒
	Butylbenzyl phthalate	×	×
	Dimethyl phthalate		×
Other SVOCs	Benzyl alcohol	☒	☒
	n-Nitrosodiphenylamine		☒

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

× = Exceedance of SCO (lower screening level) was observed during the current reporting period (2020).

☒ = Exceedance of CSL/RAL/Method A (upper screening level) was observed during the current reporting period (2020).

### 5.8.3 Facility-Specific Source Control Actions

#### Jim Clark Marina Incident

A fire started late into the evening on March 27, 2020, at Jim Clark Marina, located at 1317 SW Spokane Street, Seattle WA 98134, which is at the southern tip of Harbor Island and is the start of the LDW 5-mile stretch. City of Seattle fire crews, harbor patrol, Ecology's Spill Response Team, and the U.S. Coast Guard all responded to the fire. Three boat houses, supporting dock structures, and approximately 8 vessels were destroyed in the fire. Due to safety concerns, access to perform an assessment of fuel release was initially not possible. Soon after emergency calls were placed, the U.S. Coast Guard contractor's deployed hard booms to contain and recover fuel released. This was effective because no oil was observed outside of the containment boom once in place, as verified by drone footage. However, a minor sheen was observed near the mouth of the Duwamish River on the West Waterway which was determined to be from a vessel which broke free very early on in the fire and had become grounded near the shoreline downriver from the marina; this source was later secured. Ecology's spill responders returned to the scene daily until impacted vessels, debris and fuel were recovered.

In total, approximately 600 gallons of fuel (gasoline and diesel) from sunken and damaged floating vessels and approximately 150 gallons of oil from the water surface were recovered. Approximately 2,000 pounds of oily surface debris, which consisted of burned structures, were removed over the course of the response.

## 6.0 References

- AECOM. 2012. Final Feasibility Study, Lower Duwamish Waterway, Seattle, Washington. Prepared for the Lower Duwamish Waterway Group. October 31, 2012. [00099]
- AMEC (Amec Foster Wheeler). 2015. Lower Duwamish Waterway Group, Narrative Design Report, Enhanced Natural Recovery/Activated Carbon Pilot Study, Lower Duwamish Waterway. December 2015. [11213]
- Anchor. 2019. Remedial Design Work Plan for the Lower Duwamish Waterway Upper Reach. Prepared by Anchor for the Lower Duwamish Waterway Group. December 16, 2019. [12327]
- Anchor. 2020a. Memorandum from David Templeton (Anchor) to Jing Lui (Ecology) Re: Duwamish Shipyard, Inc. Site – Remedial Investigation Addendum Tributyltin Study Data Summary Memorandum March 20, 2020. [12533]
- Anchor. 2020b. Memorandum from Julia Fitts (Anchor) to Jing Lui (Ecology) Re: Duwamish Shipyard, Inc. Site – Remedial Investigation Addendum Arsenic Characterization Study Memorandum. April 10, 2020. [12534]
- Aspect Consulting. 2019a. Letter from Dave Cook and Fasih Khan (Aspect) to Ching-Pi Wang (Ecology) Re: Progress Report No. 9 Grand Street Commons Project – March 2019. April 10, 2019. [11935]
- Aspect Consulting. 2019b. Remedial Investigation and Feasibility Study Mount Baker Properties Site. Prepared for Mt. Baker Housing Association. September 13, 2019. [11940]
- Aspect Consulting. 2020a. Cleanup Action Plan Mount Baker Properties Site S. McClellan Street and Martin Luther King Jr. Way S. Seattle, Washington. January 6, 2020. [12568]
- Aspect Consulting. 2020b. Letter from David Unruh (Aspect) to Jerome Cruz (Ecology) Re: Progress Report No. 2, Supplemental Groundwater Investigation South Recycling and Disposal Station, South Park Landfill Site. February 25, 2020. [12536]
- Aspect Consulting. 2020c. Interim Action Work Plan Snopac Property. Prepared for 5055 Properties. March 10, 2020. [12535]
- DOF (Dalton, Olmsted, & Fuglevand). 2019. Technical Memorandum: Revised Full Scale ISCO Work Plan Georgetown Facility Seattle Washington. Prepared for Stericycle Environmental Solutions. July 15, 2019. [11948]
- Eco Compliance Corporation (ECC). 2019a. Letter from Bill Kane (ECC) to Lise Ward (Seattle Parks and Recreation) Re: Soil Sample Results for Duwamish Waterway Park. January 28, 2019. [12385]
- ECC. 2019b. Letter from Bill Kane (ECC) to Lise Ward (Seattle Parks and Recreation) Re: Soil Sample Results for Duwamish Waterway Park, Seattle. March 1, 2019. [12387]
- Ecology (Washington State Department of Ecology). 2007. Lower Duwamish Waterway Source Control Status Report, 2003 to June 2007. Publication No. 07-09-064. Toxics Cleanup Program, Washington State Department of Ecology, and Science Applications International Corporation. July 2007. [00021]

- Ecology. 2008a. Lower Duwamish Waterway Source Control Status Report, July 2007 to March 2008. Publication No. 08-09-063. Toxics Cleanup Program, Washington State Department of Ecology, and Science Applications International Corporation. May 2008. [00065]
- Ecology. 2008b. Agreed Order No. DE-5685. North Boeing Field/Georgetown Steam Plant. Effective August 14, 2008. [03425]
- Ecology. 2008c. Agreed Order No. DE-6069. PACCAR, Inc. and Merrill Creek Holdings, LLC. Effective September 15, 2008. [06418]
- Ecology. 2008d. Lower Duwamish Waterway Source Control Status Report, April 2008 through August 2008. Publication No. 08-09-068. Toxics Cleanup Program, Washington State Department of Ecology, and Science Applications International Corporation. October 2008. [00068]
- Ecology. 2009a. Agreed Order No. DE-6706. South Park Landfill (City of Seattle and South Park Property Development, LLC). Effective May 4, 2009. [06677]
- Ecology. 2009b. Agreed Order No. DE-6000. Glacier Northwest, Inc. and Reichhold Chemical, Inc. Effective May 14, 2009. [06908]
- Ecology. 2009c. Lower Duwamish Waterway Source Control Status Report, September 2008 through June 2009. Publication No. 09-09-183. Toxics Cleanup Program, Washington State Department of Ecology, and Science Applications International Corporation. August 2009. [00090]
- Ecology. 2009d. Agreed Order No. DE-6721. 8<sup>th</sup> Avenue Terminals, Inc. (Crowley Marine Services). Effective October 12, 2009. [06804]
- Ecology. 2010a. Agreed Order No. DE-7088. Boeing Isaacson Thompson Site, 8625-8811 E. Marginal Way S., Tukwila, Washington. Effective April 23, 2010. [06812]
- Ecology. 2010b. Agreed Order No. DE-6720. Herman and Jacqueline Trotsky and Industrial Container Services – WA, LLC. Effective May 18, 2010. [06806]
- Ecology. 2010c. Agreed Order No. DE-6735. Duwamish Shipyard, Inc. Effective September 13, 2010. [06819]
- Ecology. 2011a. Agreed Order No. DE-8099. Port of Seattle North Terminal 115. Effective March 2, 2011. [06472]
- Ecology. 2011b. Agreed Order No. DE-8258. 7100 First Avenue South, Seattle – WA, LLC. Effective May 6, 2011. [06425]
- Ecology. 2011c. Lower Duwamish Waterway Source Control Status Report, July 2009 through September 2010. Publication No. 11-09-169. Toxics Cleanup Program, Washington State Department of Ecology, and Science Applications International Corporation. August 2011. [00095]
- Ecology. 2011d. Agreed Order No. DE-8072. James D. Gilmur and Jacqueline H. Gilmur, as Trustees of the James D. and Jacqueline H. Gilmur Living Trust; Duwamish Marine Center Site. Effective September 2, 2011. [07731]

- Ecology. 2012a. Agreed Order No. DE-8985. Fox Avenue Building, LLC. Effective June 18, 2012. [09837]
- Ecology. 2012b. Lower Duwamish Waterway Source Control Status Report, October 2010 through December 2011. Publication No. 12-09-131. Publication No.13-09-136. Toxics Cleanup Program, Washington State Department of Ecology, and Science Applications International Corporation. July 2012. [00098]
- Ecology. 2013. Lower Duwamish Waterway Source Control Status Report, January 2012 through December 2012. Publication No.13-09-136. Toxics Cleanup Program, Washington State Department of Ecology, and Science Applications International Corporation. June 2013. [10359]
- Ecology. 2014. Lower Duwamish Waterway Source Control Status Report January through December 2013. Publication No. 14-09-337. Toxics Cleanup Program, Washington State Department of Ecology, and Leidos. June 2014. [10620]
- Ecology. 2015a. First Amendment to North Boeing Field/Georgetown Steam Plant Agreed Order No. DE-5685, in the matter of Remedial Action by The Boeing Company, King County, and the City of Seattle. February 6, 2015. [10933]
- Ecology. 2015b. National Pollutant Discharge Elimination System Waste Discharge Permit No. WA0031968 Modification No. 2. Issued to Seattle Iron and Metals Corporation. March 12, 2015. [12205]
- Ecology. 2015c. Enforcement Order No. DE-11167, in the matter of Remedial Action by Jorgensen Forge Corporation. March 16, 2015. [12172]
- Ecology. 2015d. Agreed Order No. DE-10947. Mr. Rajbir Sandhu and Ms. Pradeep Sandhu, RPNP Corporation, and Chevron Environmental Management Company. Effective July 13, 2015. [12274]
- Ecology. 2016a. Second Amendment to South Park Landfill Agreed Order No. DE-6706, in the matter of Remedial Action by and South Park Property Development, LLC. February 1, 2016. [12280]
- Ecology. 2016b. Lower Duwamish Waterway Source Control Strategy. Prepared by Northwest Regional Office, Washington State Department of Ecology, and Leidos. Publication No. 16-09-339. June 2016. [11061]
- Ecology. 2016c. Agreed Order No. DE-13458. Seattle Iron and Metals Corporation and 730 Myrtle LLC (Whitehead Tyee Site). Effective August 25, 2016. [11068]
- Ecology. 2017. Agreed Order No. DE-6069 First Amendment to Agreed Order to Substitute Centerpoint 8801 Marginal LLC, for Merrill Creek Holdings, LLC. Effective August 1, 2017. [11459]
- Ecology. 2018a. South Park Landfill: Final Cleanup Action Plan. Issued by the Washington State Department of Ecology, Toxics Cleanup Program, Southwest Regional Office, Olympia, Washington. March 2018. [11904]
- Ecology. 2018b. Lower Duwamish Waterway Source Control Status Report, January 2014 through December 2016. Publication No. 17-09-266. Toxics Cleanup Program, Washington State Department of Ecology, and Leidos. June 2018. [12005]

- Ecology. 2018c. Letter from Robert Warren (Ecology) to Robert Code (Fox Avenue Building) Re: Final Determination of Liability for Release of Hazardous Substances at the Following Contaminated Site: Whitehead Tyee, 730 S Myrtle Street, Seattle WA. July 10, 2018. [11305]
- Ecology. 2018d. Letter from Robert Warren (Ecology) to Howard and Beth Giske (Whitehead Company) Re: Final Determination of Liability for Release of Hazardous Substances at the Following Contaminated Site: Whitehead Tyee, 730 S Myrtle Street, Seattle WA. July 10, 2018. [11306]
- Ecology. 2018e. Letter from Robert Warren (Ecology) to Bradley Graham (Robertson-Ceco II Corporation and RCH Newco II) Re: Final Determination of Liability for Release of Hazardous Substances at the Following Contaminated Site: Whitehead Tyee, 730 S Myrtle Street, Seattle WA. July 10, 2018. [11307]
- Ecology. 2018f. Letter from Robert Warren (Ecology) to Jenny Durkan (Mayor of Seattle) Re: Final Determination of Liability for Release of Hazardous Substances at the Following Contaminated Site: Whitehead Tyee, 730 S Myrtle Street, Seattle WA. July 10, 2018. [11308]
- Ecology. 2018g. Letter from Robert Warren (Ecology) to Dean Whitehead (Reliable Transfer and Storage Company) Re: Final Determination of Liability for Release of Hazardous Substances at the Following Contaminated Site: Whitehead Tyee, 730 S Myrtle Street, Seattle WA. July 10, 2018. [11309]
- Ecology. 2019a. Letter from Donna Musa (Ecology) to the Boeing Company Re: Site Hazard Assessment: Facility Site ID 14532 Boeing Developmental Center 10002 East Marginal Way South, Tukwila WA 98108. January 23, 2019. [12171]
- Ecology. 2019b. Site Hazard Assessment Worksheet 1 Summary Score Sheet, Boeing Developmental Center, 9725 East Marginal Way South, Tukwila, King County, WA. February 1, 2019. [12115]
- Ecology. 2019c. Site Hazard Assessment Worksheet 1 Summary Score Sheet, Boeing Military Center, 10002 East Marginal Way South, Tukwila, King County, WA. February 1, 2019. [12180]
- Ecology. 2019d. Letter from Louis Bardy (Ecology) to Lise Ward (Seattle Parks & Recreation) Re: Early Notice Letter Regarding a Release of Hazardous Substances: Duwamish Waterway Park, Facility Site ID: 49919, Cleanup Site I: 14139. February 5, 2019. [12386]
- Ecology. 2019e. Letter from Donna Musa (Ecology) to Boeing Company Re: Site Hazard Assessment: Facility Site ID 2101 Boeing Developmental Center 9725 East Marginal Way South, Tukwila WA 98108. February 13, 2019. [12110]
- Ecology. 2019f. Letter from Donna Musa (Ecology) to Desimone Trust Boeing Re: Site Hazard Assessment: Facility Site ID 2101 Boeing Developmental Center 9725 East Marginal Way South, Tukwila WA 98108. February 13, 2019. [12260]
- Ecology. 2019g. Letter from Donna Musa (Ecology) to D&T Enterprises Re: Site Hazard Assessment: Facility Site ID 2101 Boeing Developmental Center 9725 East Marginal Way South, Tukwila WA 98108. February 13, 2019. [12113]

- Ecology. 2019h. Consent Decree Washington State Department of Ecology v. City of Seattle and South Park Property Development. Effective March 26, 2019. [12438]
- Ecology. 2019i. Agreed Order No. DE-16185. South Park Marina, LP; the Port of Seattle; and the City of Seattle. Effective April 3, 2019. [11971]
- Ecology. 2019j. Fact Sheet: 8801 E Marginal Way S Site. Washington State Department of Ecology, Toxics Cleanup Program. Publication Number 19-09-139. May 2019. [11950]
- Ecology. 2019k. Letter from Jing Liu (Ecology) to David Templeton (Anchor QEA LCC) Re: Approval of the April 2019 Remedial Investigation Report, Public Review Draft, Duwamish Shipyard, Inc., prepared by Anchor QEA LLC. May 20, 2019. [12269]
- Ecology. 2019l. Lower Duwamish Waterway Source Control Status Report, 2017. Publication No. 19-09-145. Toxics Cleanup Program, Washington State Department of Ecology and Leidos. July 2019. [12262].
- Ecology. 2019m. Stormwater Compliance Inspection Report, Jorgensen Forge. July 9, 2019. [12347]
- Ecology. 2019n. Agreed Order No. DE-16300. 5055 Properties LLC. Effective July 15, 2019. [12400]
- Ecology. 2019o. Agreed Order No. DE-16275. Boeing Developmental Center. Effective July 23, 2019. [12263]
- Ecology. 2019p. Letter from Robert Warren (Ecology) to C. Leon Frazier (CL Frazier Properties) Re: Final Determination of Liability for Release of Hazardous Substances at the following Contaminated Site: Precision Engineering. October 21, 2019. [11964]
- Ecology. 2019q. Letter from Robert Warren (Ecology) to Dick Morgan Re: Final Determination of Liability for Release of Hazardous Substances at the following Contaminated Site: Precision Engineering. October 21, 2019. [11965]
- Ecology. 2019r. Letter from Robert Warren (Ecology) to Mark Okel (Precision Engineering) Re: Final Determination of Liability for Release of Hazardous Substances at the following Contaminated Site: Precision Engineering. October 21, 2019. [11966]
- Ecology. 2019s. Letter from Vince McGowan (Ecology) to John Kett (Insurance Auto Auctions Tukwila) Re: Notice of Termination of Coverage under the Industrial Stormwater General Permit. November 22, 2019. [12434]
- Ecology. 2019t. Sediment Cleanup User's Manual (SCUM): Guidance for Implementing the Cleanup Provisions of the Sediment Management Standards, Chapter 173-204 WAC. Toxics Cleanup Program. Publication No. 12-09-057. Revised December 2019.
- Ecology. 2019u. Fact Sheet: Stericycle – Georgetown Site Groundwater Cleanup to Begin. December 2019. [11949]
- Ecology. 2020a. Agreed Order No. DE-16659. Prologis-Exchange3301 South Norfolk LLC. Effective January 15, 2020. [12379]
- Ecology. 2020b. Recommendation for Enforcement Action Order Docket No. 16895, Water Quality Program, CertainTeed Gypsum Manufacturing 5931 E. Marginal Way S. January 22, 2020. [12492]

- Ecology. 2020c. Letter from Raman Iyer (Ecology) to Katie Moxley (Boeing) Re: Boeing Developmental Center (WAD 093 639 946). January 27, 2020. [12384]
- Ecology. 2020d. Initial Investigation Field Report Duwamish Waterway Park. January 28, 2020. [12383]
- Ecology. 2020e. Letter from Josh Morman (Ecology) to Erik Toth (Toth Enterprises) Re: Site Manager change for the following site: Riverside Industrial Park. February 27, 2020. [12398]
- Ecology. 2020f. Letter from (Ecology) to John Sherman (Boeing) Re: Stormwater Treatment System Design Engineering Report Approval NPDES Permit No. WAR000150 & Docket No. 13932 Boeing Military Flight Center at 10002 E. Marginal Way S, Tukwila, WA. March 2, 2020. [12490]
- Ecology. 2020g. Administrative Order Docket No. 18074. Jorgensen Forge. Effective April 9, 2020. [12493]
- Ecology. 2020h. Administrative Order Docket No. 18101. JR Hayes & Sons. Effective April 27, 2020. [12541]
- Ecology. 2020i. Fact Sheet: Terminal 115 Plant 1 Cleanup Site. Publication No. 20-09-171. April 2020. [12566]
- Ecology. 2020j. Letter from Dean Yasuda (Ecology) to Conor Hansen (Mt. Baker Housing Association) Re: Contained-In Determination for F002 Contaminated Soils at the Mt. Baker Housing parcels located at 2802, 2806, 2810 and 2864 South McClellan Street, Seattle, Washington (WAD081927550, Facility Site ID #96127971, Cleanup Site ID #13054). May 7, 2020. [12567]
- Ecology. 2020k. Letter from Jing Lui (Ecology) to David Templeton (Anchor) Re: Approval of the Remedial Investigation Addendums – Arsenic Characterization Study Memorandum and Tributyltin Study Data Summary Memorandum, Duwamish Shipyard, Inc. Site, Agreed Order No. DE 6735. May 12, 2020. [12538]
- Ecology. 2020l. Letter from Rachel McCrea (Ecology) to Carlton Paulmier (Waste Management Seattle Hauling) Re: Stormwater Treatment System Design Engineering Report Approval – Waste Management Seattle Hauling Facility at 8111 1<sup>st</sup> Avenue South, Seattle, WA. June 30, 2020. [12512]
- Ecology. 2020m. Lower Duwamish Waterway Source Control Status Report, 2018. Publication No. 20-09-172. Toxics Cleanup Program, Washington State Department of Ecology and Leidos. June 2020. [12420].
- Ecology. 2020n. Response to Comments Remedial Investigation Report, Feasibility Study Report, Interim Action Work Plan, SEPA Checklist & DNS, 8801 E. Marginal Way S Cleanup Site Tukwila, WA. June 2020. [12537]
- Ecology. 2020o. Agreed Order No. DE-18064. The Port of Seattle and The Boeing Company, Terminal 115 Plant 1. Effective July 6, 2020. [12565]
- Ecology. 2020p. Letter from Maureen Sanchez (Ecology) to Allison Geiselbrecht (Whitehead Tyee Site) Re: Ecology Comments on Interim Action Completion Report, Whitehead

- Tyee Site. Prepared for 730 Myrtle LLC and Seattle Iron 7 Metals Corp., Agreed Order No. DE 13458. July 22, 2020. [12543]
- Ecology. 2020q. Administrative Order Docket No. 18160. Jorgensen Forge. Effective July 29, 2020. [12949]
- Ecology. 2020r. Letter from Rachel McCrea (Ecology) to Will Station (Boeing) Re: Stormwater Treatment System Design Engineering Report Approval NPDES Permit No. WAR000146 & Docket no. 15600 Boeing Development Center at 9725 Marginal Way South, Tukwila, WA. August 7, 2020. [12489]
- Ecology. 2020s. Fact Sheet: Lower Duwamish Cleanup Sites Update. Publication No. 20-09-173. August 2020. [12424]
- Ecology. 2020t. Letter from Maureen Sanchez (Ecology) to Meg Strong (Shannon & Wilson) Re: Department of Ecology comments on the Remedial Investigation Work Plan, Jorgensen Forge Corporation Property, Tukwila, Washington, Dated April 15, 2020 for Jorgensen Forge Corp Site. September 15, 2020. [12542]
- Ecology. 2020u. Letter from Rachel McCrea (Ecology) to Alan Sidell (Seattle Iron & Metals Corp.) RE: Seattle Iron & Metals Corp., 601 South Myrtle Street, Seattle, WA 98108 Immediate Action Order #15573. October 8, 2020. [12506]
- Ecology. 2020v. Agreed Order No. DE-19427. Boeing Developmental Center. Effective November 4, 2020. [12488]
- Ecology. 2020w. Letter from Jing Lui (Ecology) to Pete Kingston (Farallon) Re: Schedule Extension for Submittal of Draft Remedial Investigation Work Plan, Agreed Order No. DE 16659, Emerald Gateway CSID: 6584. November 17, 2020. [12540]
- Ecology. 2020x. Fact Sheet: Precision Engineering Inc. Cleanup Site. Publication No. 20-09-174. November 2020. [12585]
- Ecology. 2020y. Response to Comments Draft Agreed Order and Draft Public Participation Plan, Precision Engineering Inc. Cleanup Site Seattle WA. [12593]
- Ecology. 2021. Lower Duwamish Waterway Source Control Status Report, 2019. Publication No. 21-09-174. Toxics Cleanup Program, Washington State Department of Ecology and Leidos. November 2021. [12453].
- EPA (U.S. Environmental Protection Agency). 2013. Proposed Plan, Lower Duwamish Waterway Superfund Site. February 28, 2013. [02415]
- EPA. 2014. Record of Decision, Lower Duwamish Waterway Superfund Site. November 2014. [12119]
- EPA. 2019. Lower Duwamish Waterway Roundtable Draft Meeting Summary May 29, 2019. July 7, 2019. [12372]
- EPA. 2020a. Update from EPA on the Duwamish Superfund Cleanup. Collection of emails sent to LDW list serve in 2020. August 2020. [12428]
- EPA. 2020b. Action Memo from Laura Castrilli to Calvin J. Terada. Removal Action Determination for Boeing Electronics Manufacturing Facility Site Tukwila, King County, Washington. September 23, 2020. [12474] [12475]

- EPA. 2020c. Fact Sheet: Cleanup Currents: Lower Duwamish Waterway Superfund Site. October 2020. [12553]
- EPA. 2021a. Proposed Explanation of Significant Differences Draft for Public Comment, Lower Duwamish Waterway Superfund Site. January 2021. [12430]
- EPA. 2021b. Fact Sheet: Proposed Changes to the Lower Duwamish Cleanup. February 2021. [12429]
- EPA. 2022. Response to Comments and Final Corrective Action Decision Boeing Plant 2 – Uplands Source Control and Corrective Action Revision 8. July 2022. [12484]
- EPA and Ecology. 2002. Lower Duwamish Waterway Site, Memorandum of Understanding between the U.S. Environmental Protection Agency and the Washington Department of Ecology. April 2002. [00008]
- EPA and Ecology. 2004. Lower Duwamish Waterway, Site Memorandum of Understanding between the U.S. Environmental Protection Agency and the Washington Department of Ecology. Updated April 2004. [00009]
- EPA and Ecology. 2014. Lower Duwamish Waterway Site, Memorandum of Agreement between the U.S. Environmental Protection Agency and the Washington State Department of Ecology. November 20, 2014. [12132]
- Farallon Consulting. 2020. Interim Action Design Report Emerald Gateway Site. Submitted to the Washington State Department of Ecology by Farallon Consulting on behalf of Prologis-Inc. April 2, 2020. [12545]
- Floyd|Snider. 2020. Whitehead Tye Site Interim Action Completion Report. Prepared for 730 Myrtle, LLC and Seattle Iron & Metals Corp. March 2019. Revised Page 3-13 August 2020. [12546]
- GeoDesign. 2020a. Project Summary and Closure Report Riverside Industrial Park 220 South River Street and 6533 3<sup>rd</sup> Avenue South Seattle, Washington. Prepared for the Washington State Department of Ecology. February 7, 2020. [12392]
- GeoSyntec Consultants. 2020b. Engineering Report Advanced Stormwater Treatment Boeing Military Delivery Center East Flightline (Areas 2 and 6) Tukwila, WA. Prepared for the Boeing Company by Geosyntec Consultants. February 15, 2020. [12516]
- GeoSyntec Consultants. 2020c. Engineering Report Stormwater Treatment Boeing Military Delivery Center East Area 3 Tukwila, WA. Prepared for the Boeing Company by Geosyntec Consultants. February 15, 2020. [12517]
- GeoSyntec Consultants. 2020d. Engineering Report Advanced Stormwater Treatment Boeing Plant 2- North Seattle, WA. May 13, 2020. [12518]
- G-Logics. 2020. Remedial Investigation Report Boeing Field Chevron. October 7, 2020. [12547]
- Jorgensen Forge. 2018. Press Release: Jorgensen Forge Closing Operations in 2018 at Tukwila Facility. April 18, 2018. [11521]
- King County. 2015. Fact Sheet: Discharging Industrial Wastewater to the King County Sewer System, King County Industrial Waste Program. January 2015. [12182]

- King County. 2016. Lower Duwamish Waterway Source Control Implementation Plan, 2014-2018. Revised Draft. Prepared June 2014, updated January 2016. [11543]
- King County. 2019. King County Lower Duwamish Waterway Source Control Implementation Plan, 2019-2023. Prepared by Department of Natural Resources and Parks, Department of Executive Services, Department of Local Services and Department of Health. October 2019. [12431]
- King County. 2020a. Combined Sewer Overflow Control Program 2019 Annual CSO and Consent Decree Report. July 2020. [12435]
- King County. 2020b. King County Lower Duwamish Waterway Source Control Annual Report-Year 2019. Prepared by Department of Natural Resources and Parks, Department of Executive Services, Department of Local Services, and Department of Health. Prepared for the Washington State Department of Ecology. November 2020. [12426]
- King County. 2021. King County Lower Duwamish Waterway Source Control Annual Report-Year 2020. Prepared by Department of Natural Resources and Parks, Department of Executive Services, Department of Local Services, and Department of Health. Prepared for the Washington State Department of Ecology. October 2021. [12519]
- Landau. 2019. Draft Final Feasibility Study Report Isaacson-Thompson Site Tukwila, Washington. Prepared for the Boeing Company. October 1, 2019. [11993]
- Landau. 2020. Stormwater Treatment Engineering Report Waste Management Seattle Hauling Facility 8111 1<sup>st</sup> Avenue South Seattle, Washington. Prepared for Waste Management of Washington. May 14, 2020. [12520]
- Lean Environment. 2020. Stormwater Engineering Report: Level III Treatment System for the Lighthouse for the Blind, Inc. Prepared for the Lighthouse for the Blind. December 4, 2020. [12521]
- Seattle. 2016. Seattle's Source Control Plan for the Lower Duwamish Waterway (2015-2020). May 2016. [12271]
- Shannon & Wilson. 2020a. Remedial Investigation Work Plan Jorgensen Forge Corporation Property Tukwila, Washington Part 1 of 2. Prepared for Earle M. Jorgensen Company by Shannon & Wilson. April 15, 2020 [12562]
- Shannon & Wilson. 2020b. Remedial Investigation Work Plan Jorgensen Forge Corporation Property Tukwila, Washington Part 2 of 2. Prepared for Earle M. Jorgensen Company by Shannon & Wilson. April 15, 2020 [12561]
- Shannon & Wilson. 2020c. Memorandum from Meg Strong (Shannon & Wilson) to Maureen Sanchez (Ecology) Subject: Response to Comments on the Draft RI Work Plan. April 15, 2020. [12550]
- Shannon & Wilson. 2020d. Final Feasibility Study 8801 East Marginal Way S., Tukwila, Washington. July 27, 2020. [12548]
- Shannon & Wilson. 2020e. Memorandum from Meg Strong (Shannon & Wilson) to Maureen Sanchez (Ecology) Subject: Revised Response to Remedial Investigation Work Plan Comments Letter Dated September 15, 2020. October 26, 2020. [12551]

- Shannon & Wilson. 2020f. Addendum to Feasibility Study and Interim Action Work Plan 8801 E. Marginal Way South Tukwila, Washington. December 11, 2020. [12549]
- SPU (Seattle Public Utilities). 2019. News Release: Seattle Public Utilities Detects PCBs in South Seattle Industrial Areas, Take Immediate Action to Coordinate Cleanup with SDOT. July 2, 2019. [11549]
- SPU. 2020a. Seattle's Source Control Plan for the Lower Duwamish Waterway (2021-2026) March 2020 Draft. March 2020. [12418]
- SPU. 2020b. 90b – Status of Implementation Actions Taken Pursuant to S4F.3.D for Discharges of City of Seattle Municipal Separate Stormwater System (MS4) to Lower Duwamish Waterway. 2019 Annual Report. March 31, 2020. [12419]
- SPU. 2020c. Letter from Jeff Neuner (SPU) to Jerome Cruz (Ecology) Re: South Recycling Center and South Park Landfill Regulatory Considerations under the Consent Decree. July 15, 2020. [12552]
- SPU. 2020d. Seattle's Source Control Plan for the Lower Duwamish Waterway (2021-2026) December 2020 Update. December 2020. [12575]
- SPU. 2021. 90b – Status of Implementation Actions Taken Pursuant to S4F.3.D for Discharges of City of Seattle Municipal Separate Stormwater System (MS4) to Lower Duwamish Waterway. 2020 Annual Report. March 31, 2021. [12584]
- Windward (Windward Environmental). 2010. Lower Duwamish Waterway Remedial Investigation Report. Final. Prepared for the Lower Duwamish Waterway Group. July 9, 2010. [0011]
- Windward. 2017. Pre-Design Studies Work Plan. Prepared for the Lower Duwamish Waterway Group for submittal to the U.S. Environmental Protection Agency. August 28, 2017. [11097]
- Windward. 2019a. Lower Duwamish Waterway Slip 4 Early Action Area Long-Term Monitoring Data Report for the Slip 4 Early Action Area: Year 7 (2019). Prepared for the City of Seattle for submittal to U.S. Environmental Protection Agency. November 22, 2019. [12376a], [12376b]
- Windward. 2019b. Pre-Design Investigation Work Plan for the Lower Duwamish Waterway Upper Reach. Prepared by Windward for the Lower Duwamish Waterway Group. December 16, 2019. [12374]
- Windward. 2020a. Lower Duwamish Waterway Quality Assurance Project Plan for Remedial Design of Upper Reach: Pre-Design Investigation. Prepared by Windward for the Lower Duwamish Waterway Group. May 19, 2020. [12558] [12559] [12560]
- Windward. 2020b. Lower Duwamish Waterway Pre-Design Studies Data Evaluation Report (Task 6). Prepared by Windward for the Lower Duwamish Waterway Group. June 26, 2020. [12557]

# **Appendix A: Source Control Area Maps**

## List of Maps

Figure A-1. Lower Duwamish Waterway Source Control Areas

### Upper Reach:

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

Figure A-3. RM 4.9 East (EAA07: Norfolk CSO/Storm Drain) Norfolk Basin

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

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

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

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

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

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

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

### Middle Reach:

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

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

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

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

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

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

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

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

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

### Lower Reach:

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

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

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

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

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

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

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

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

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

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

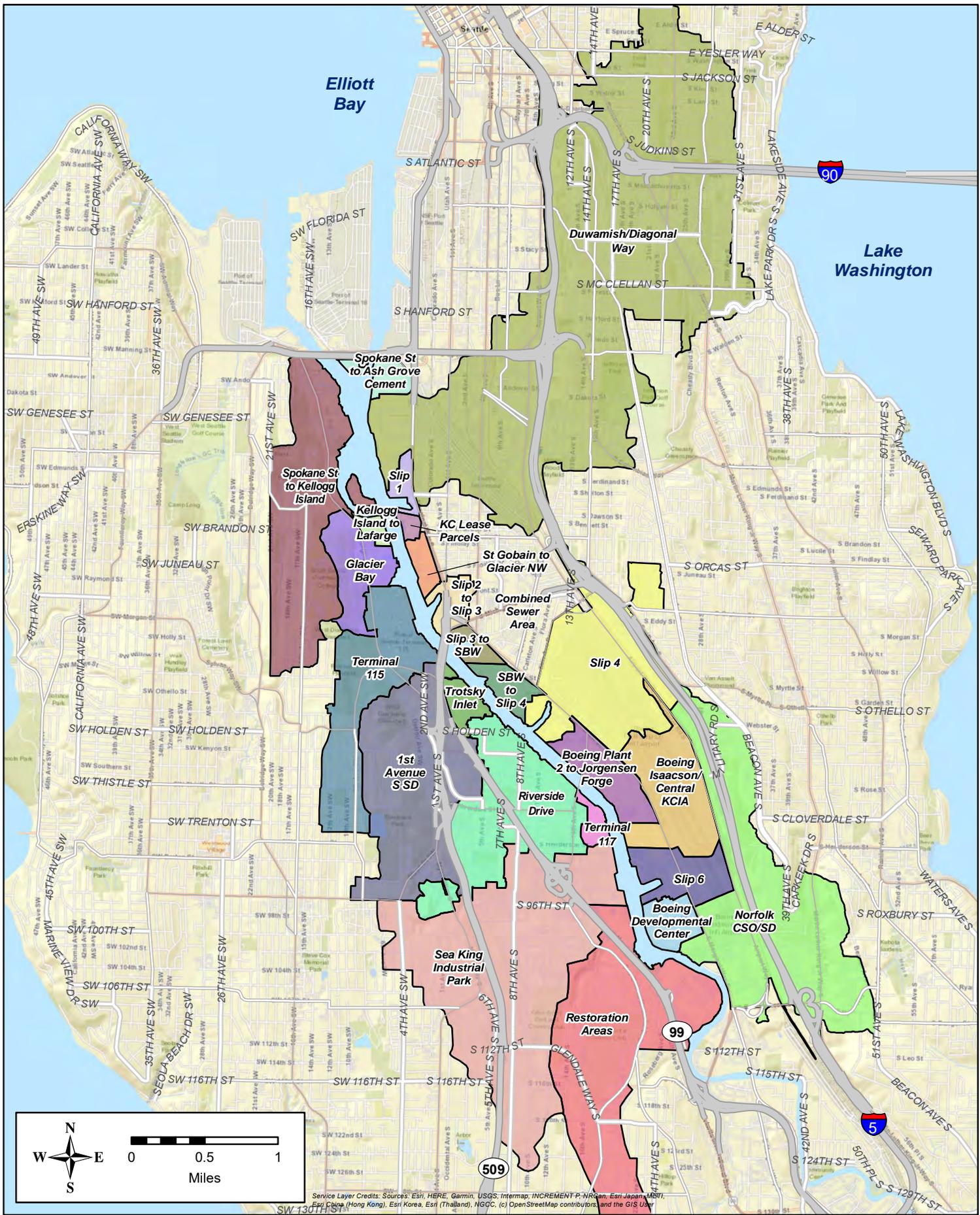


Figure A-1. Lower Duwamish Waterway Source Control Areas

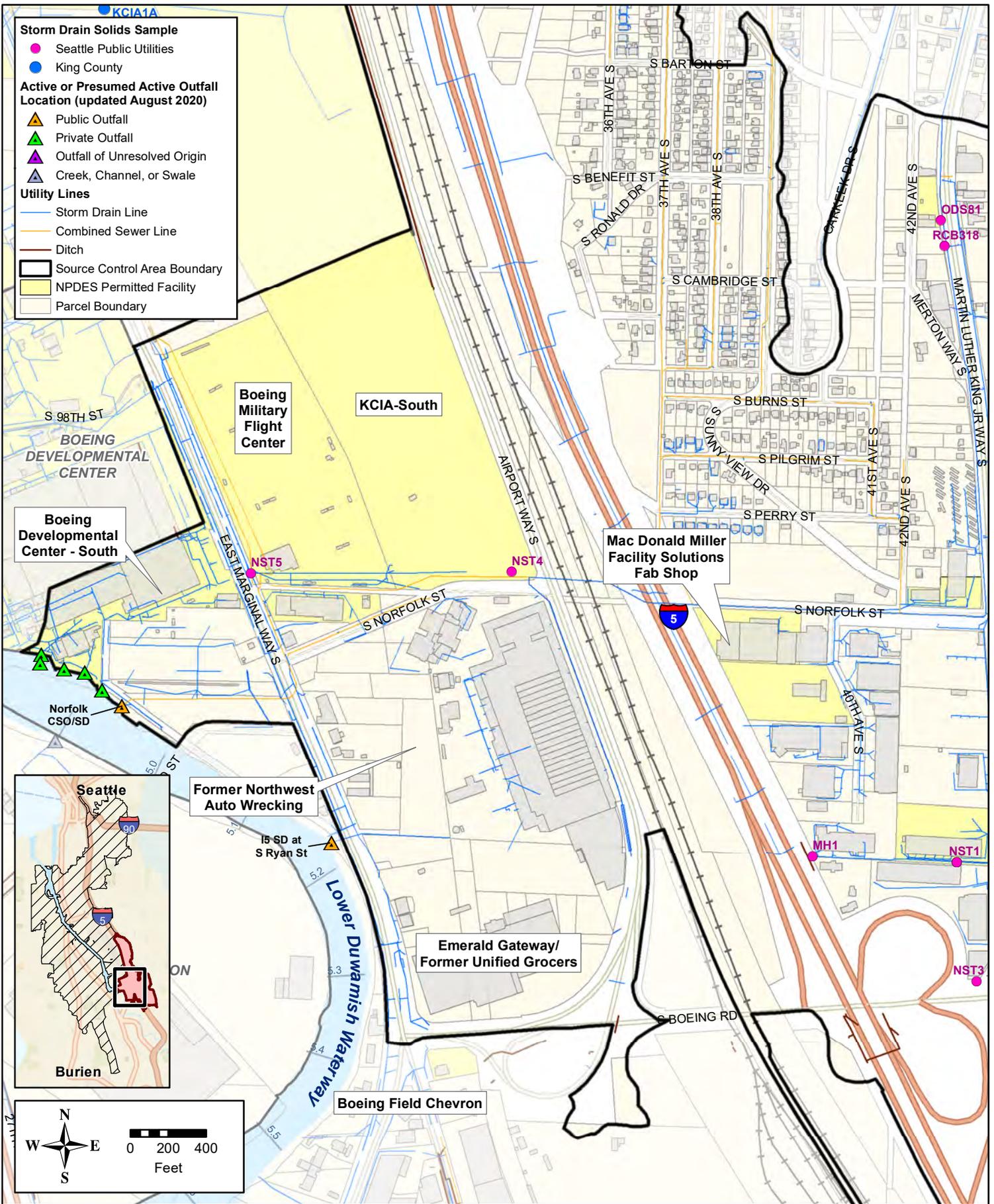


Figure A-2. RM 4.9 East  
(EEA-7: Norfolk CSO/Storm Drain)  
Source Control Area



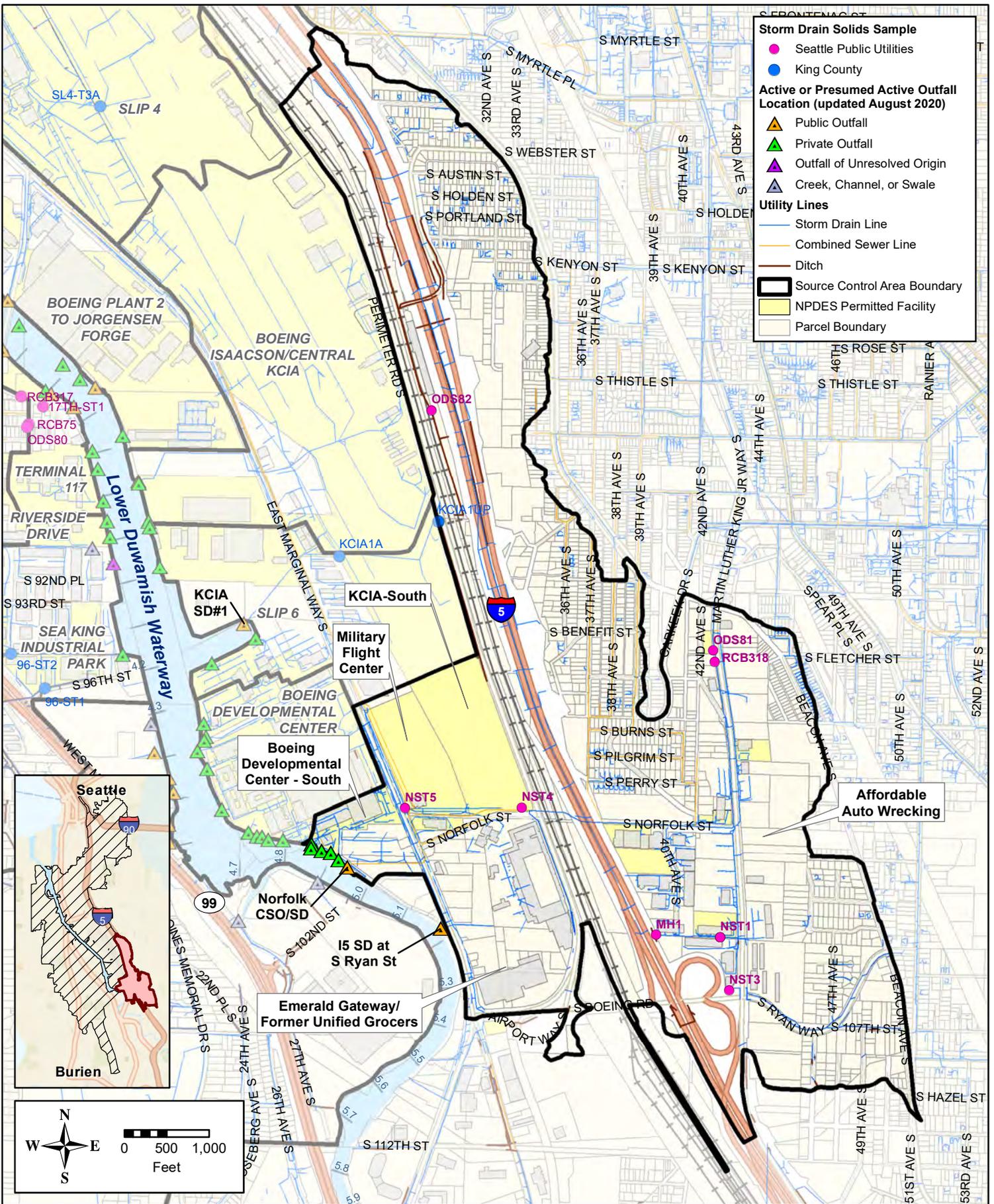


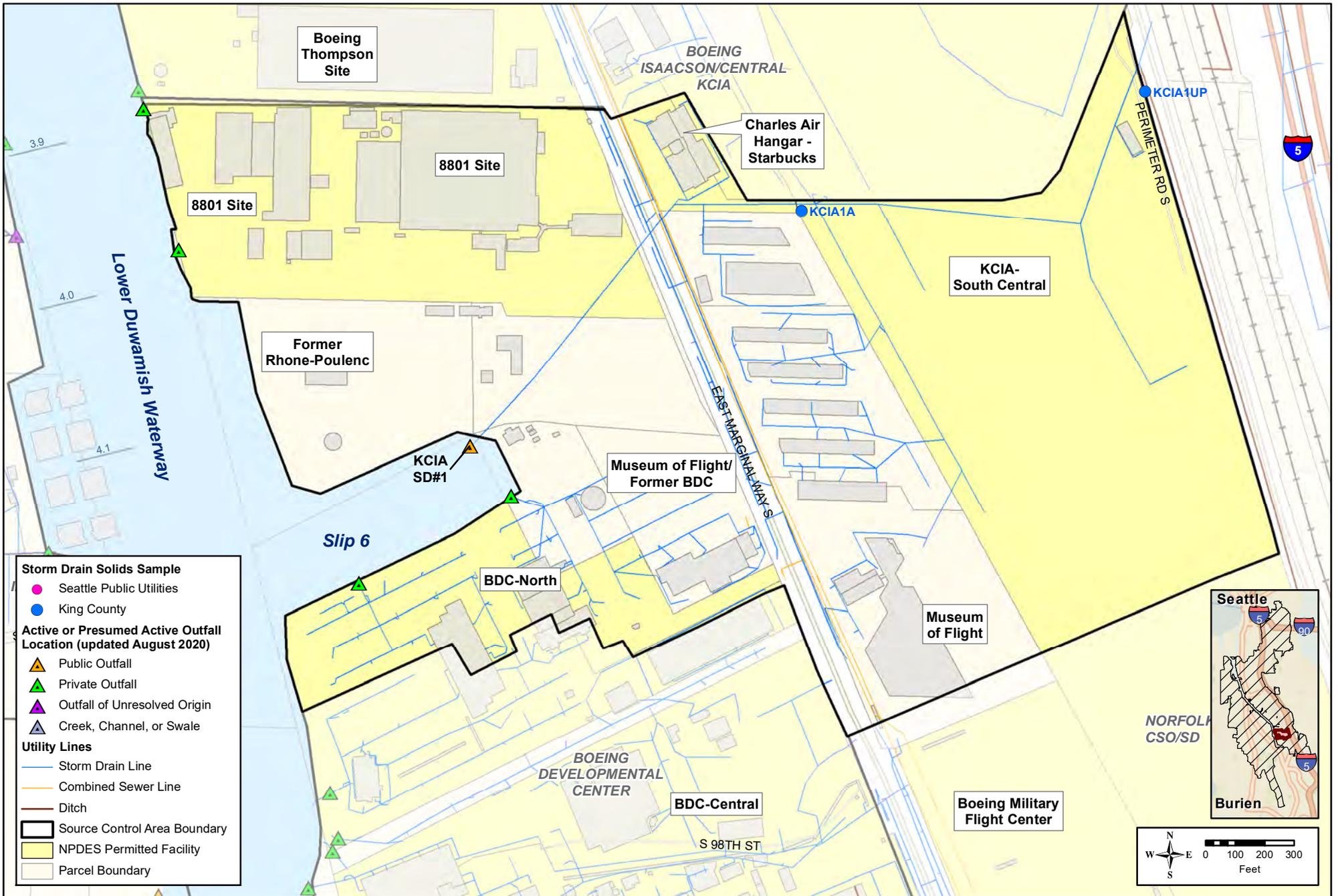
Figure A-3. RM 4.9 East  
 (EEA-7: Norfolk CSO/Storm Drain)  
 Norfolk Basin



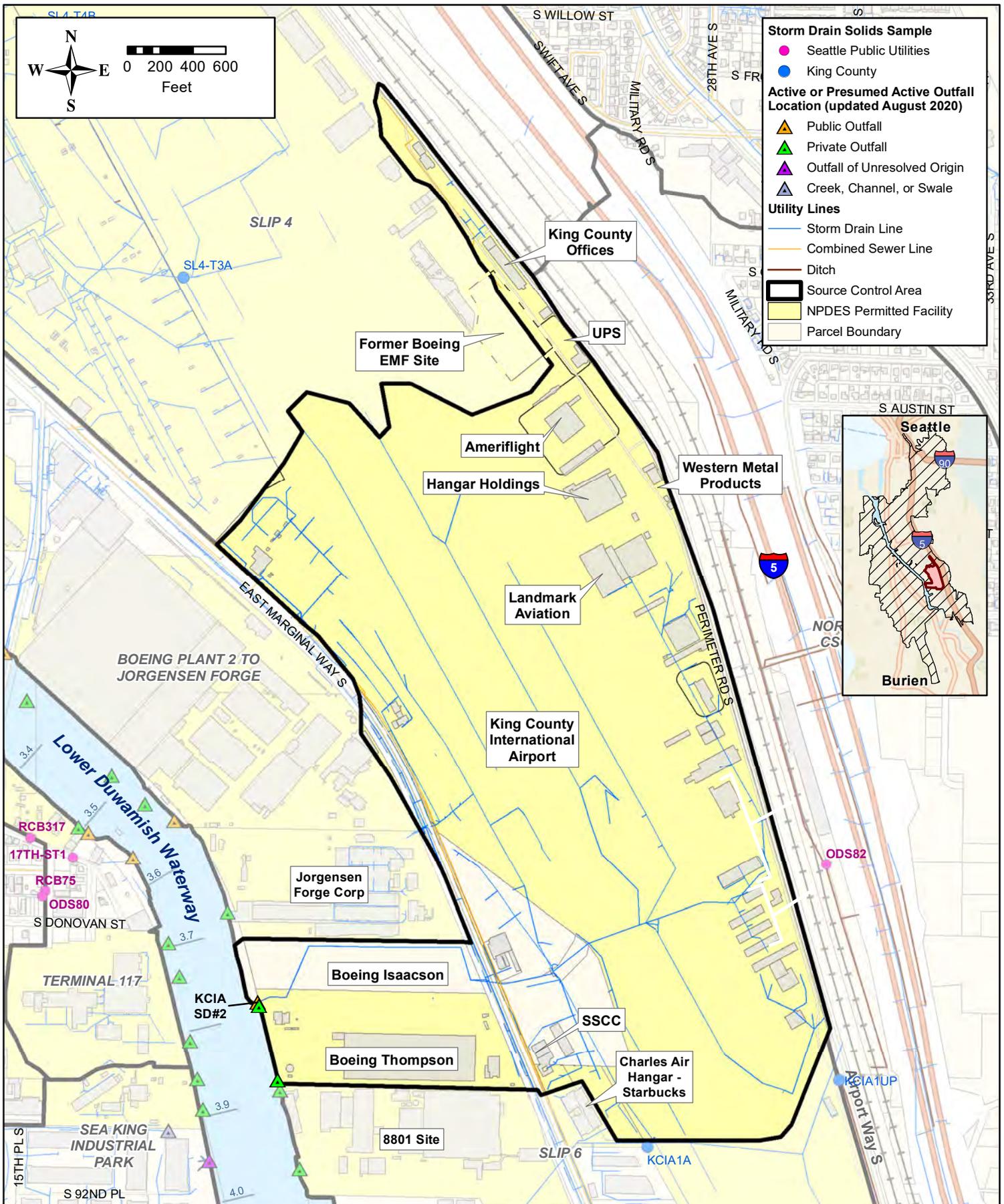


**Figure A-4. RM 4.3-4.9 East  
(Boeing Developmental Center)  
Source Control Area**





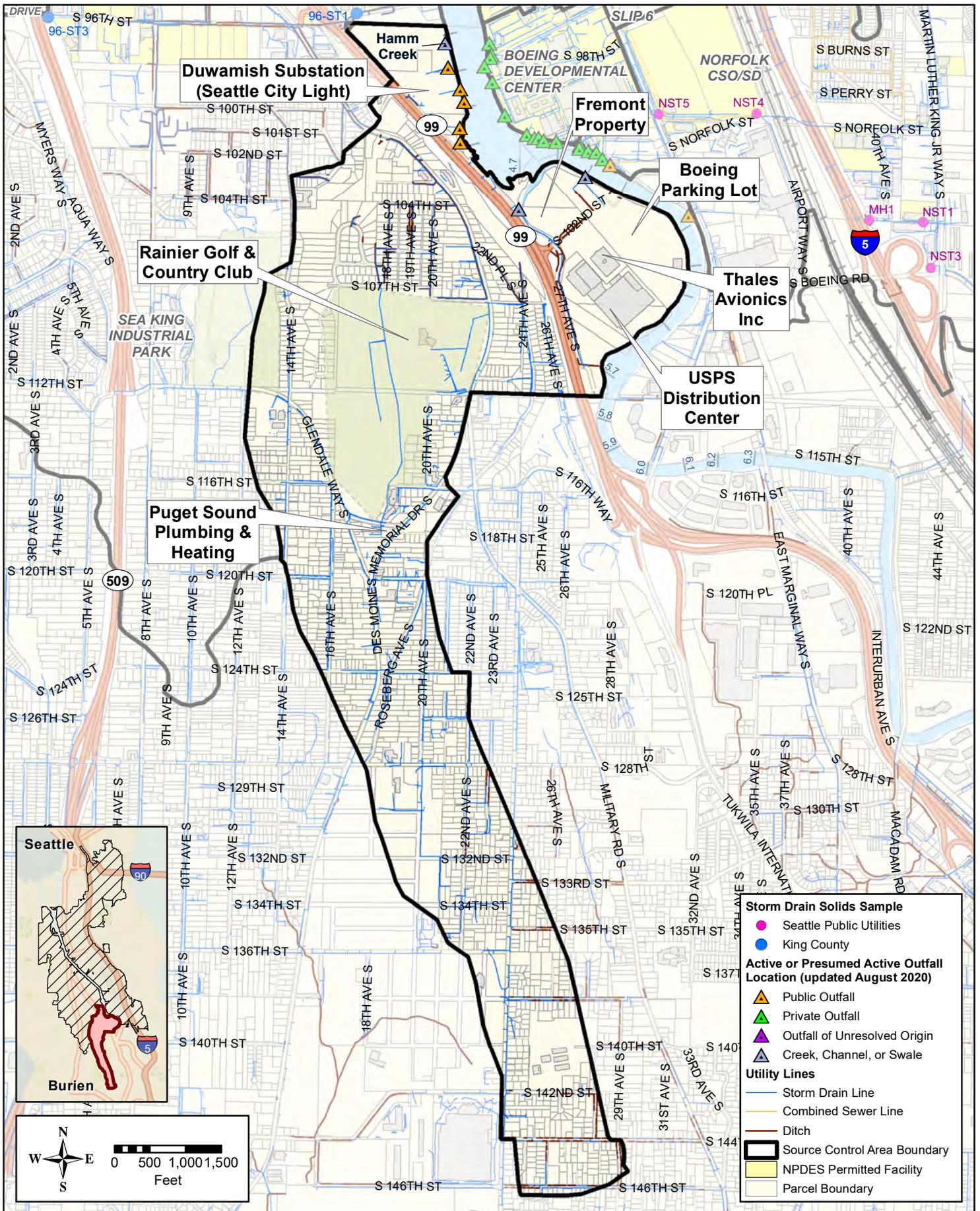
**Figure A-5. RM 3.9-4.3 East (Slip 6) Source Control Area**



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

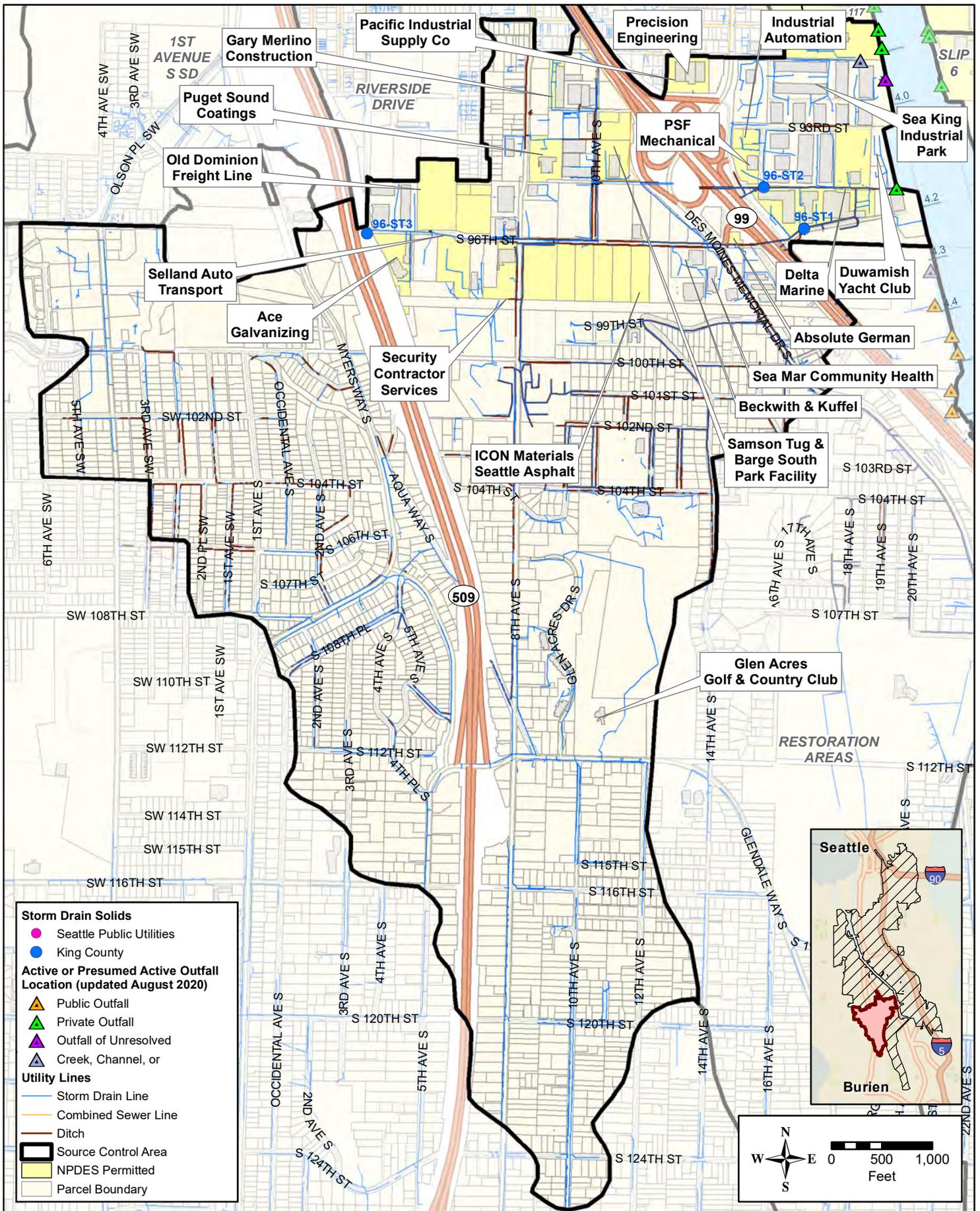






**Figure A-8. RM 4.2-5.8 West  
(Restoration Areas)  
Source Control Area**





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



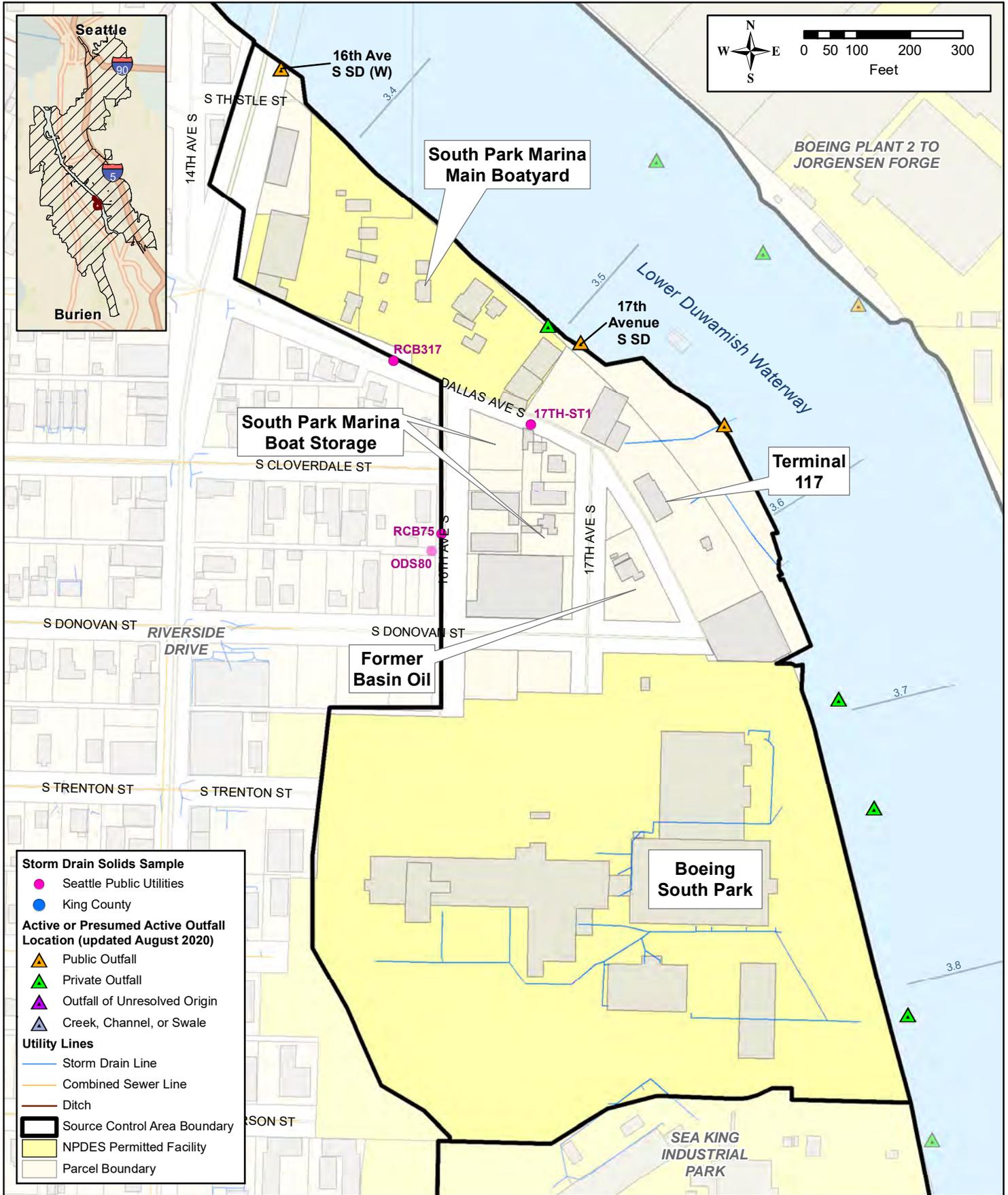
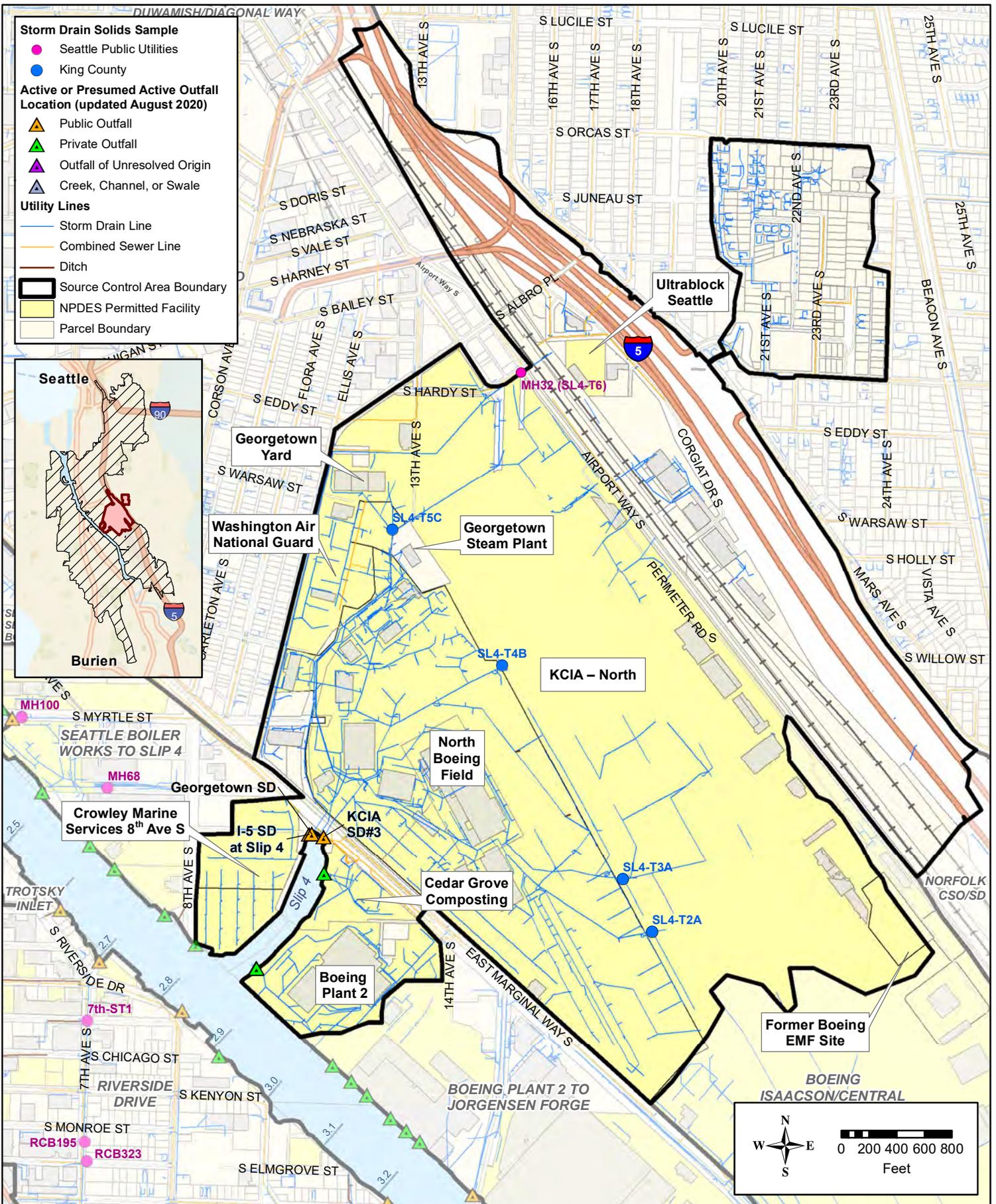
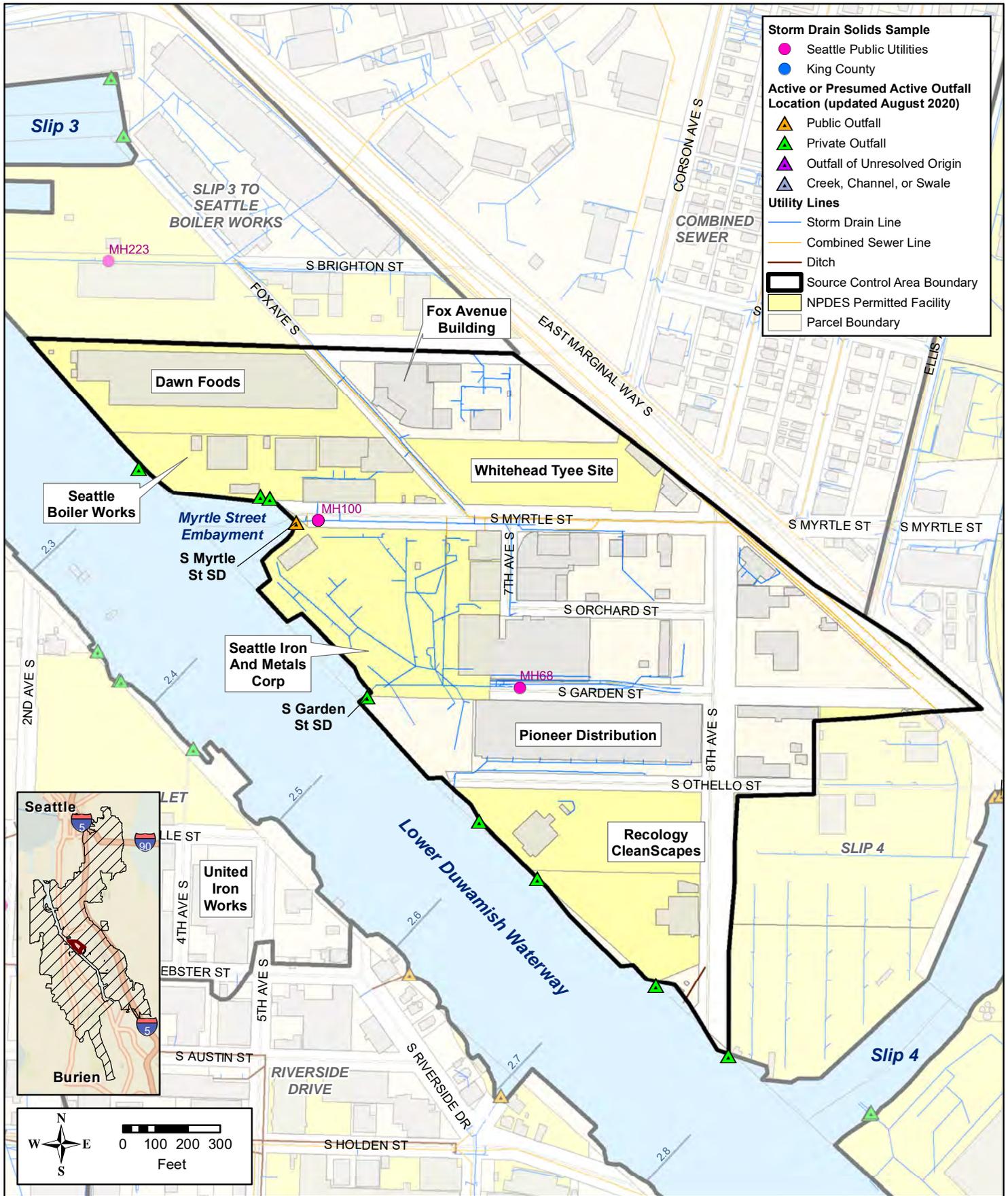


Figure A-10. RM 3.4-3.8 West  
(EAA-5: Terminal 117)  
Source Control Area



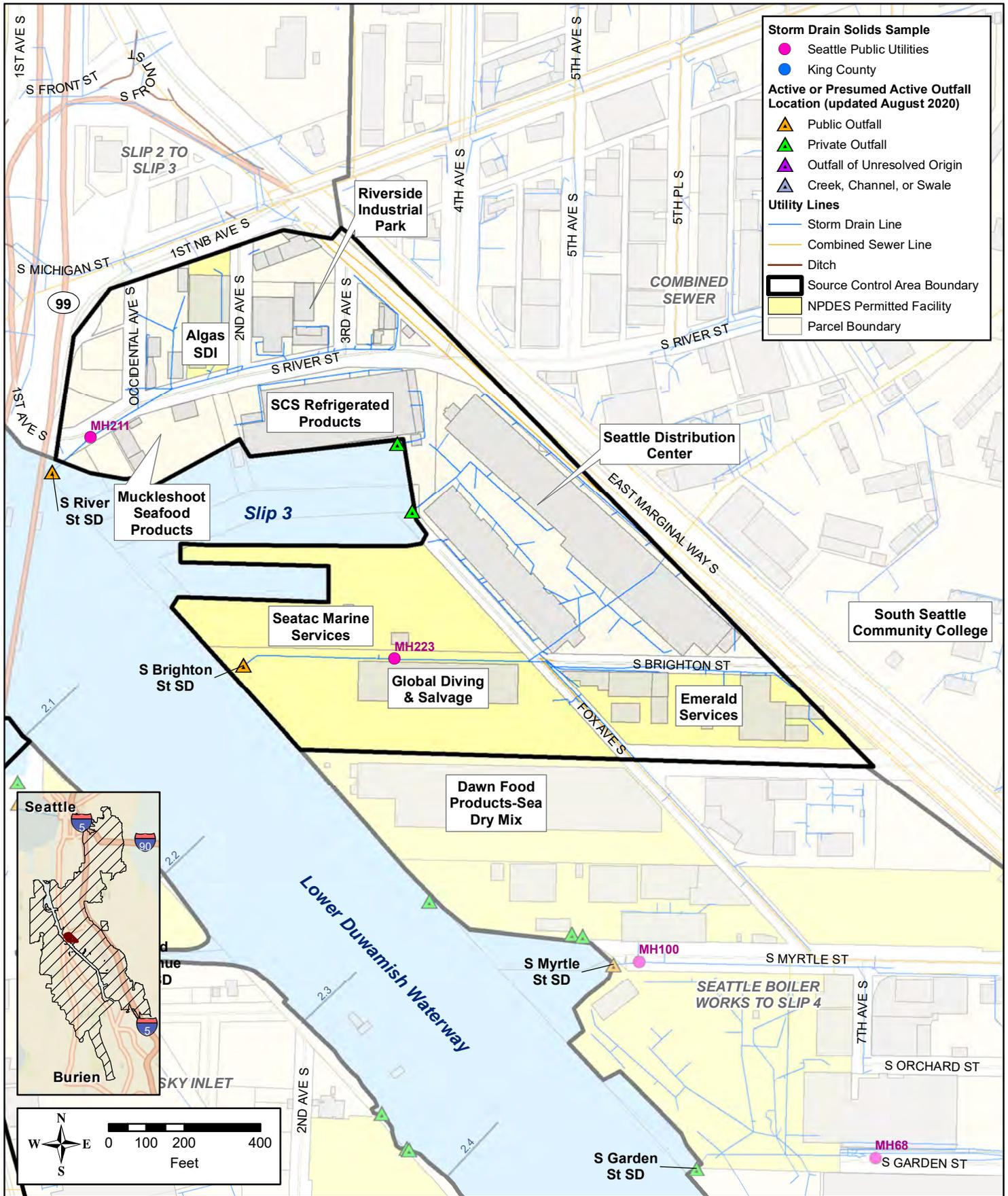
**Figure A-11. RM 2.8 East  
(EAA-3: Slip 4)  
Source Control Area**





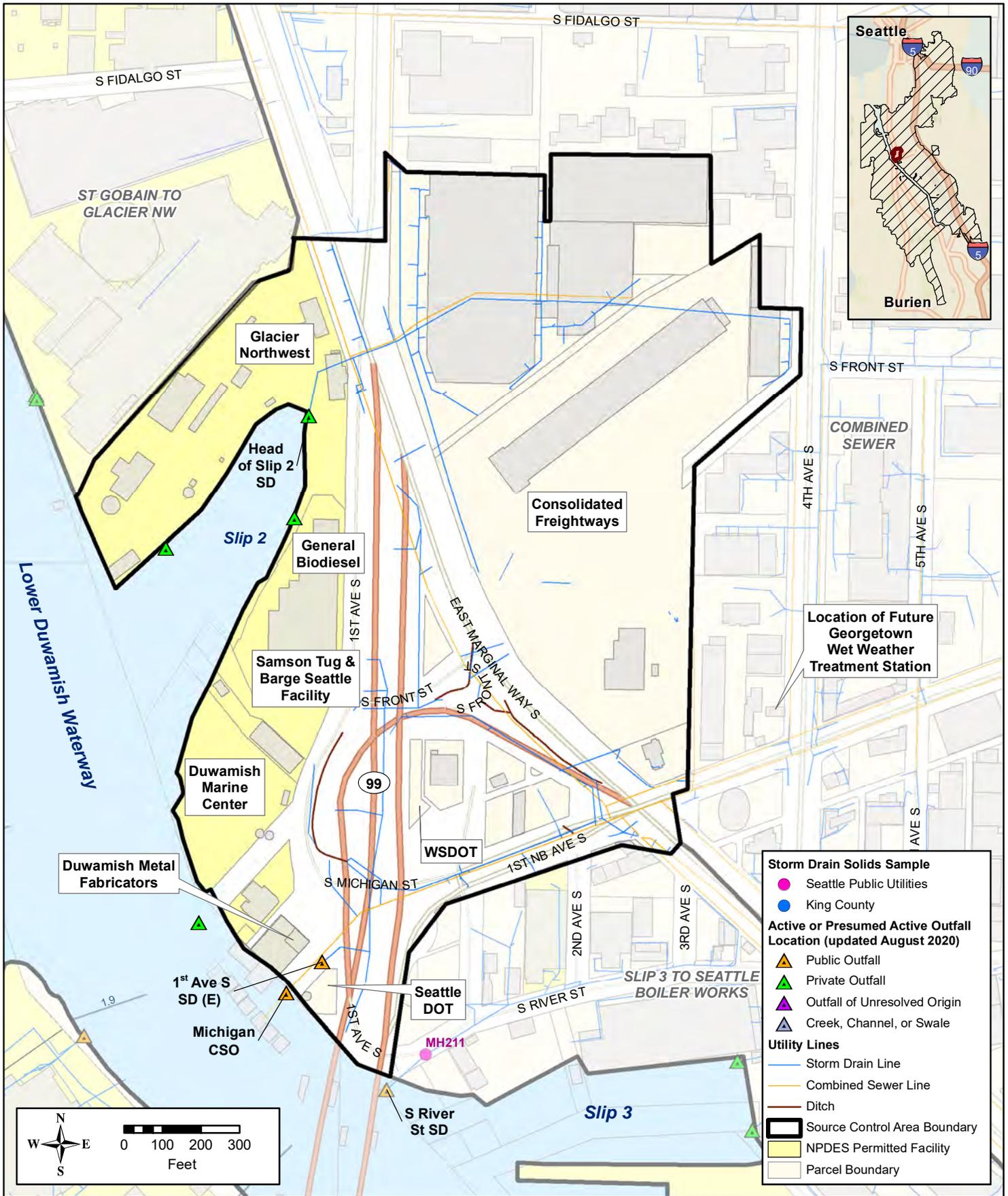
**Figure A-12. RM 2.3-2.8 East  
(Seattle Boiler Works to Slip 4)  
Source Control Area**





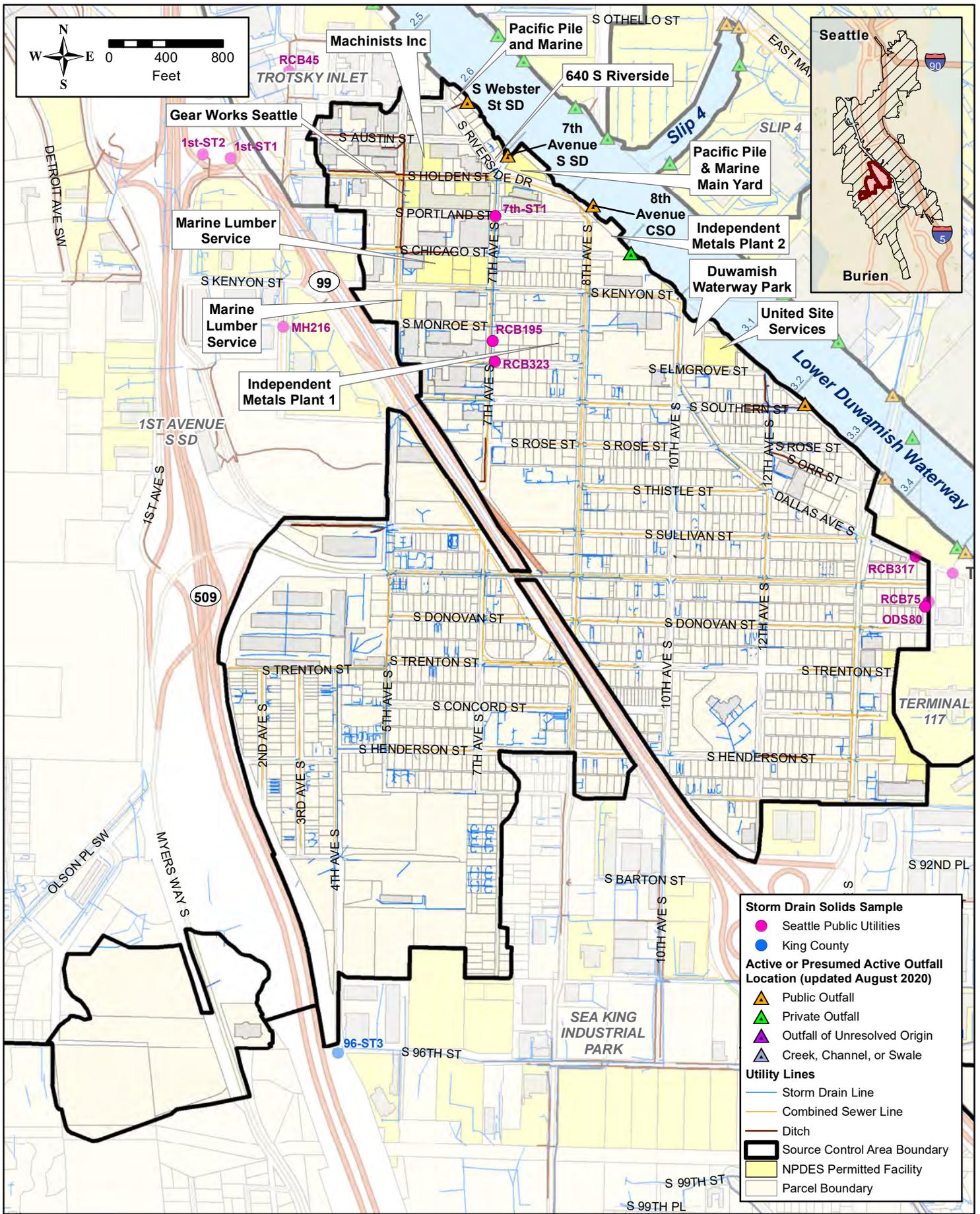
**Figure A-13. RM 2.0-2.3 East  
(Slip 3 to Seattle Boiler Works)  
Source Control Area**





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





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



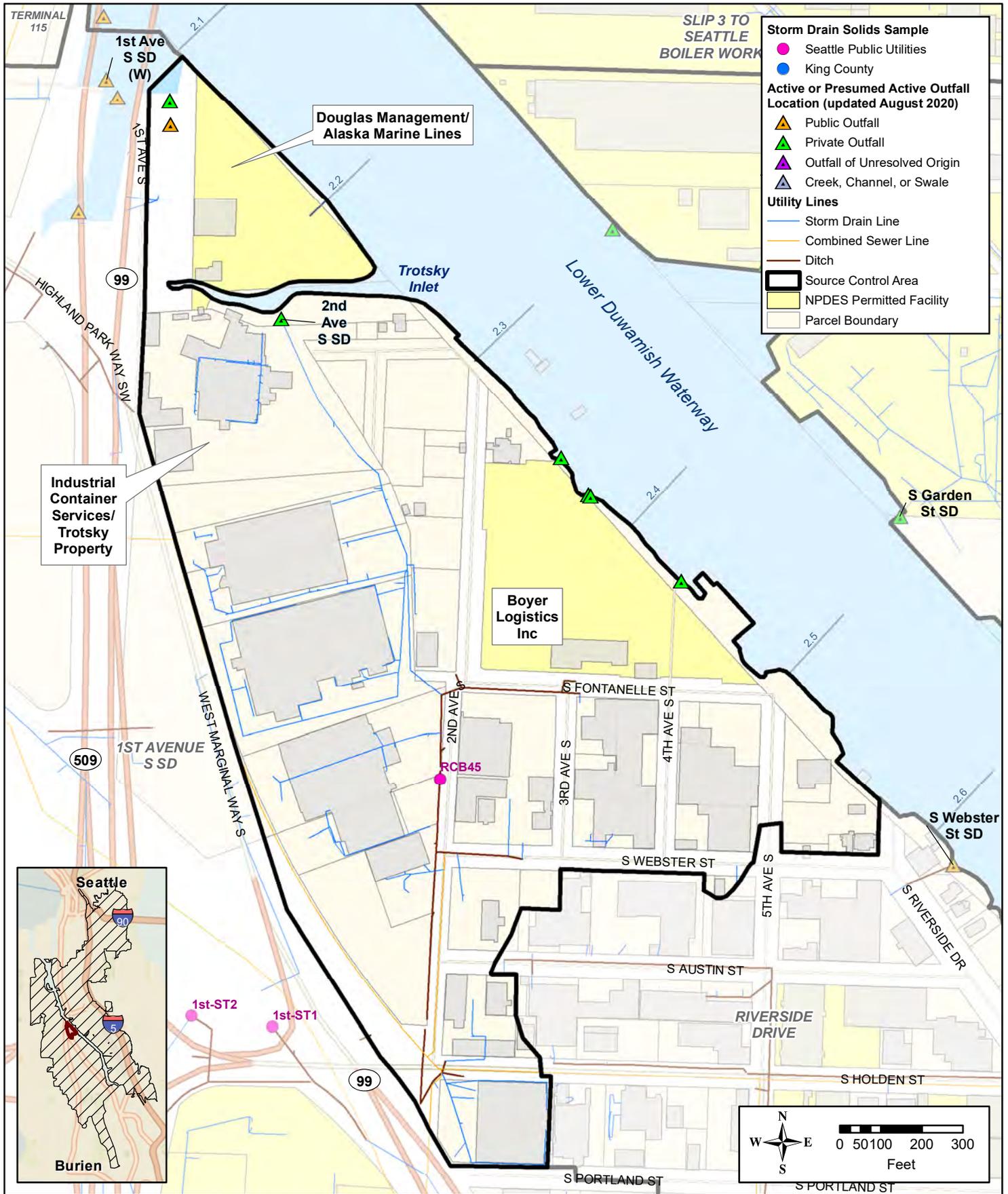
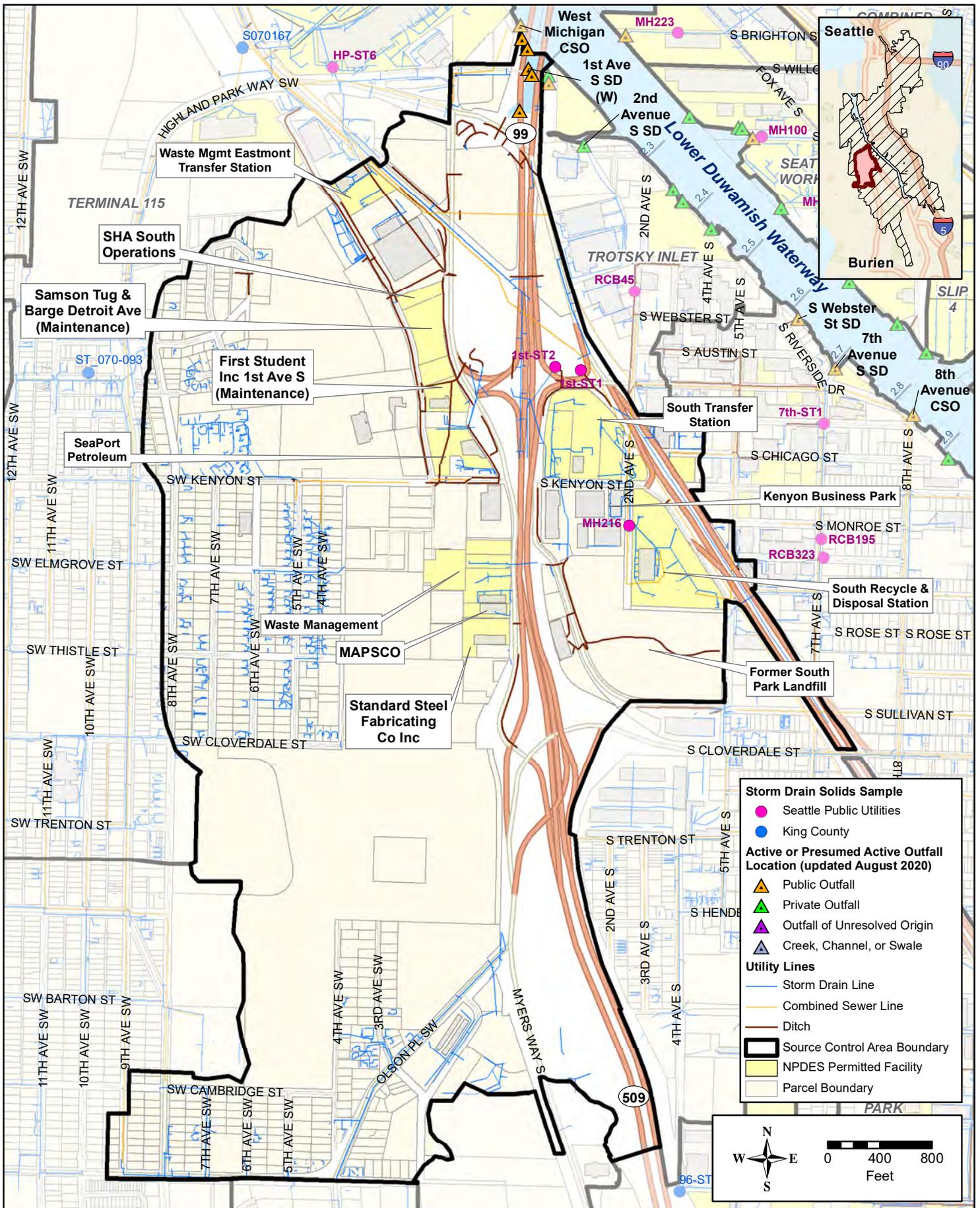


Figure A-17. RM 2.1-2.2 West  
(EAA-2: Trotsky Inlet)  
Source Control Area





**Figure A-18. RM 2.1 West  
(1<sup>st</sup> Avenue South Storm Drain)  
Source Control Area**

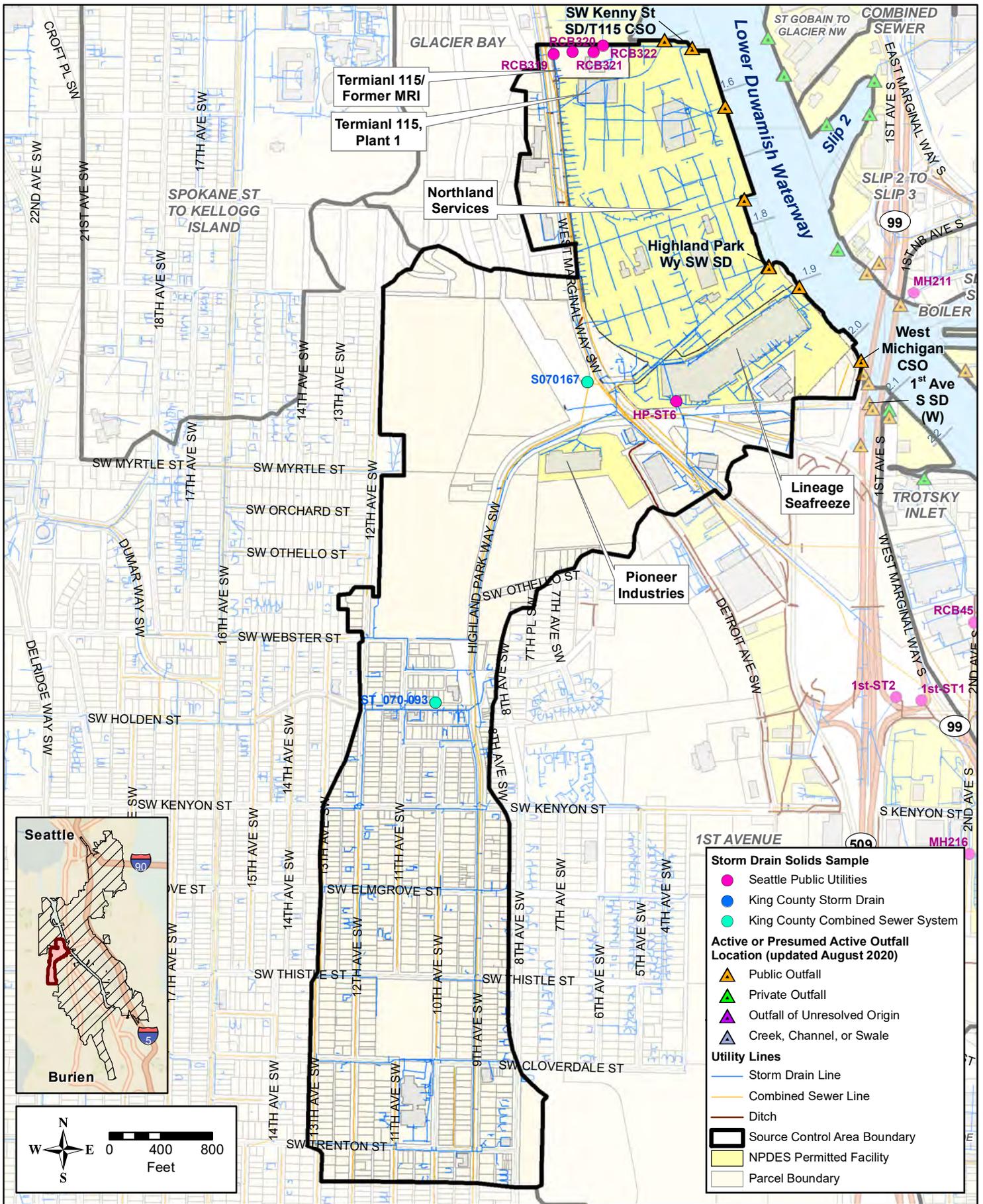
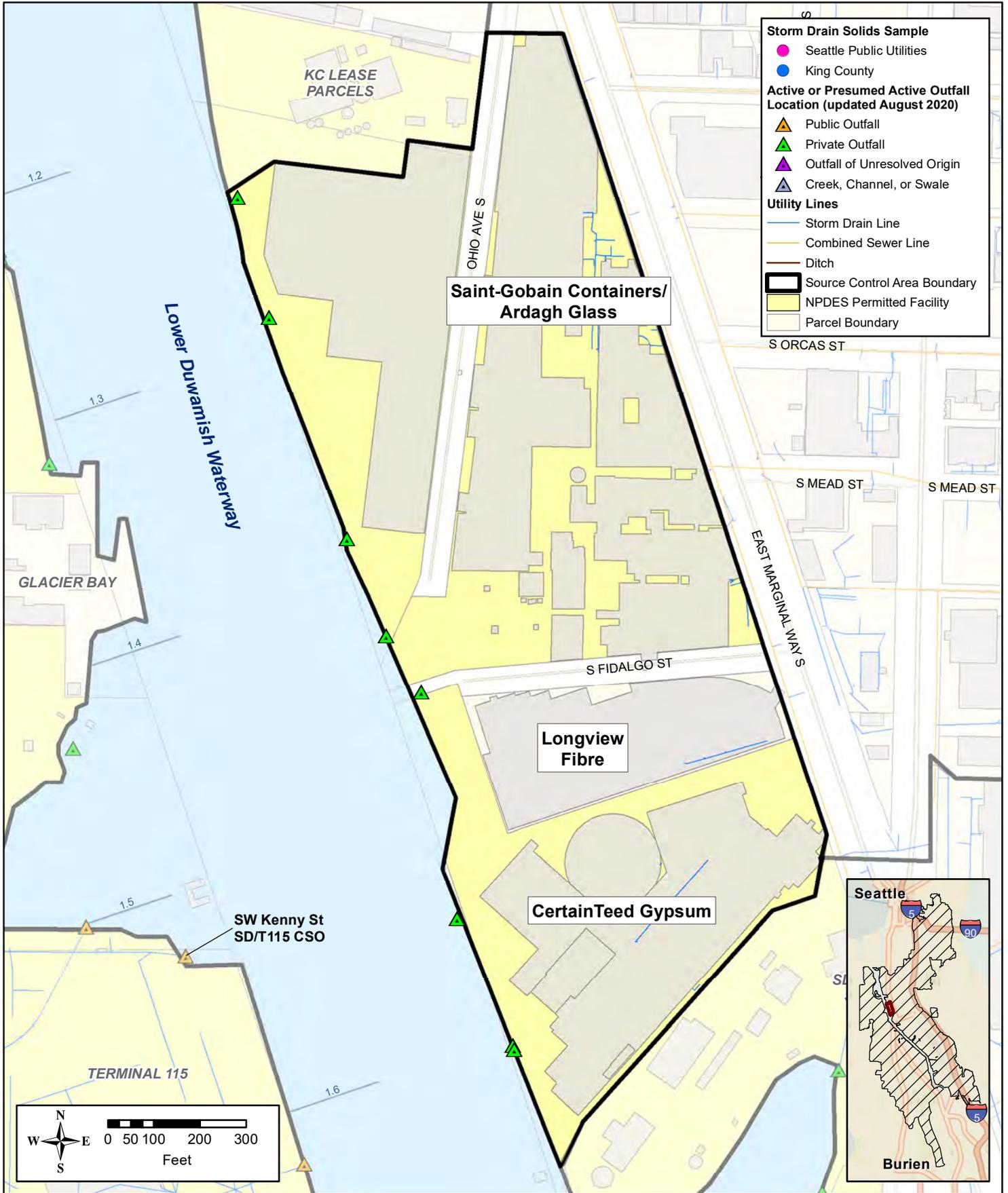


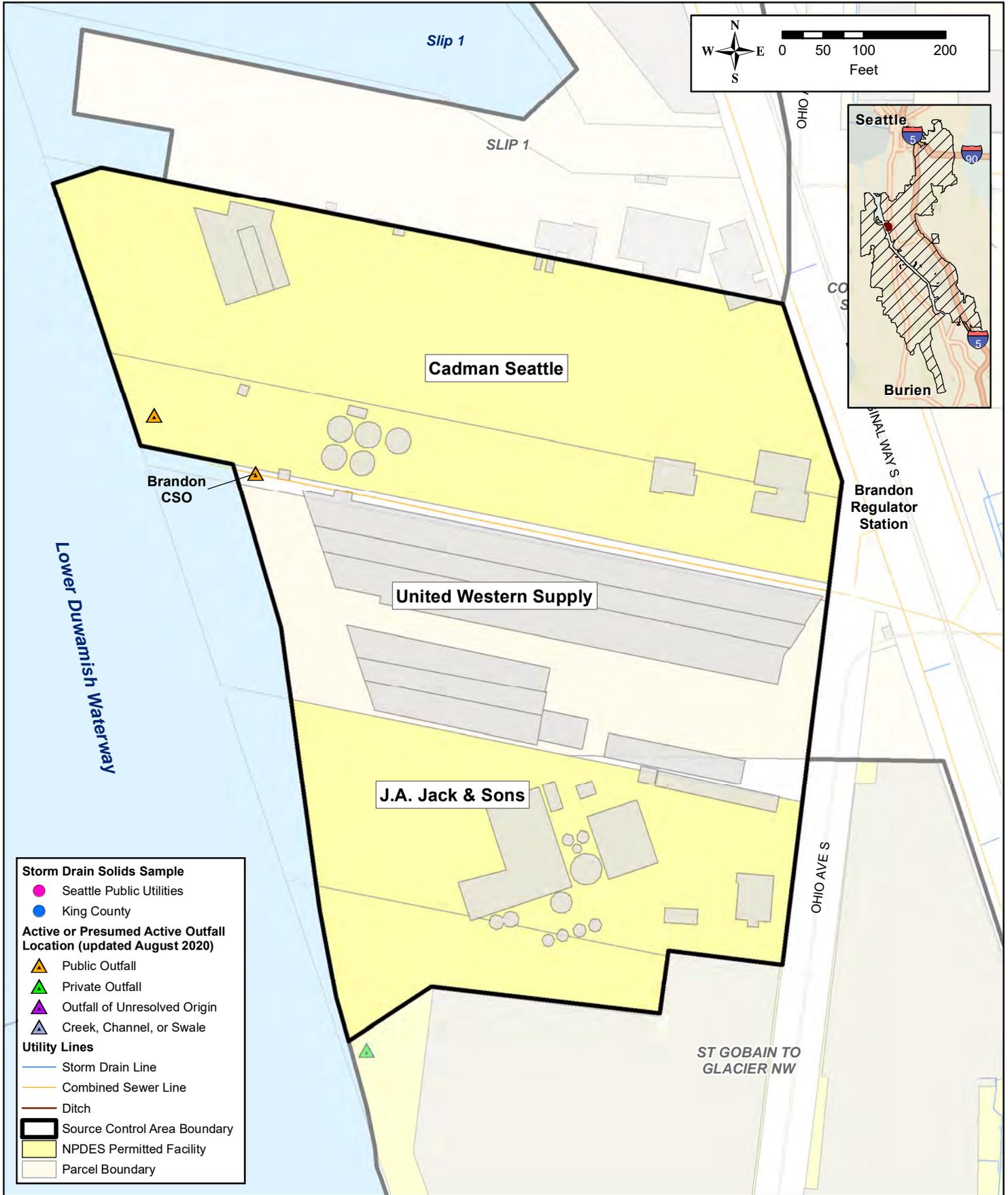
Figure A-19. RM 1.6-2.1 West  
(Terminal 115)  
Source Control Area





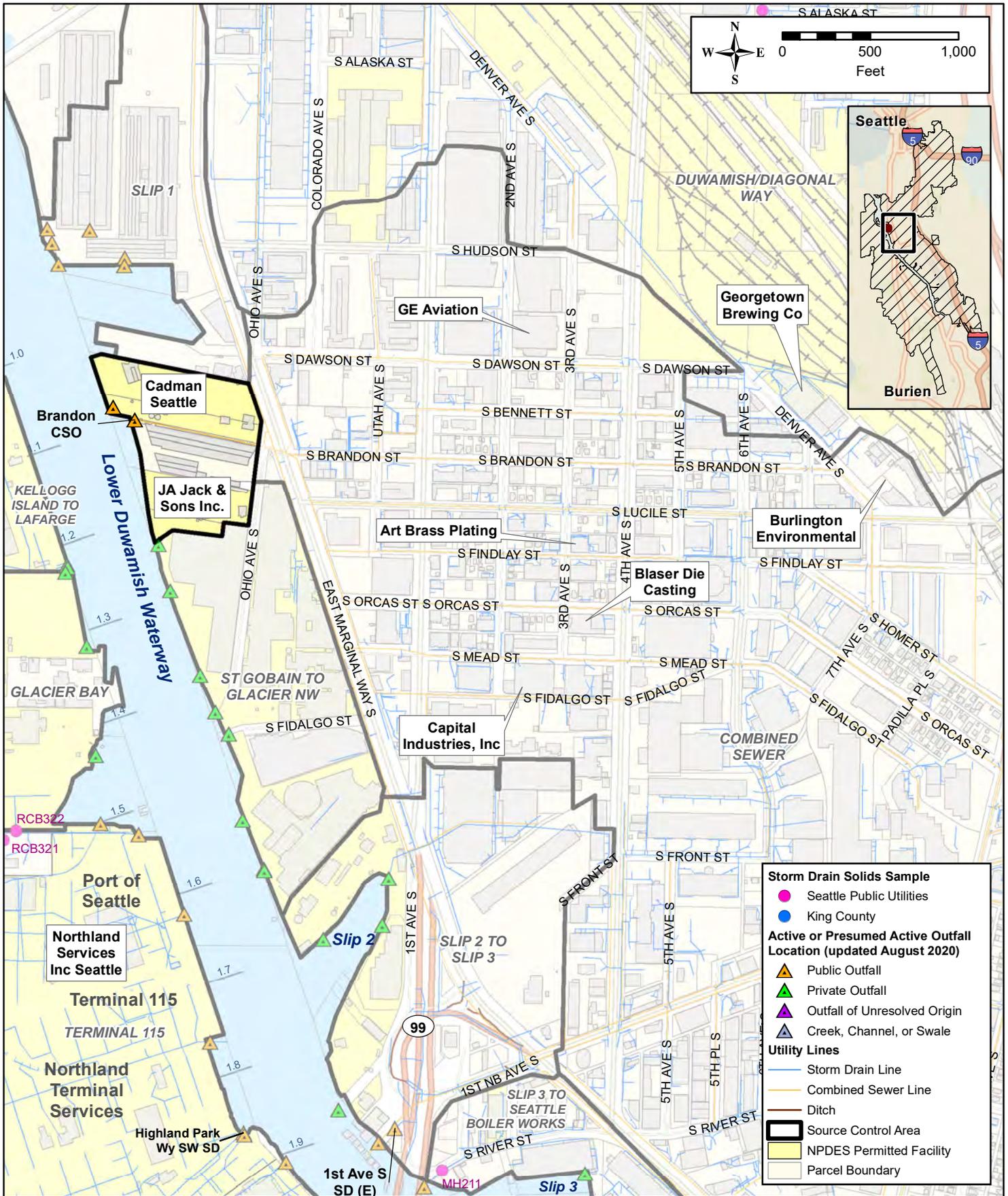
**Figure A-20. RM 1.2-1.7 East  
(Saint Gobain to Glacier Northwest)  
Source Control Area**





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





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



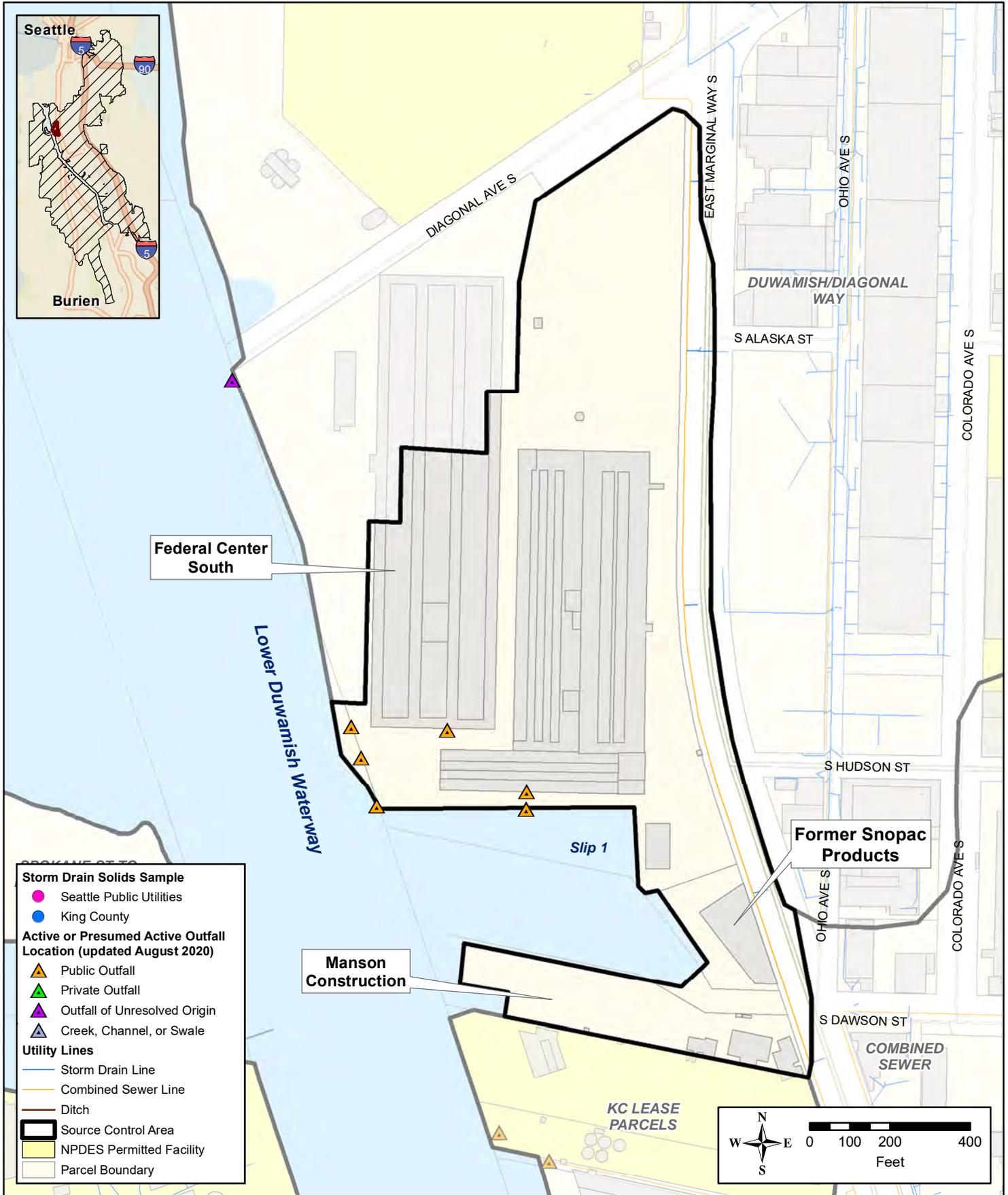
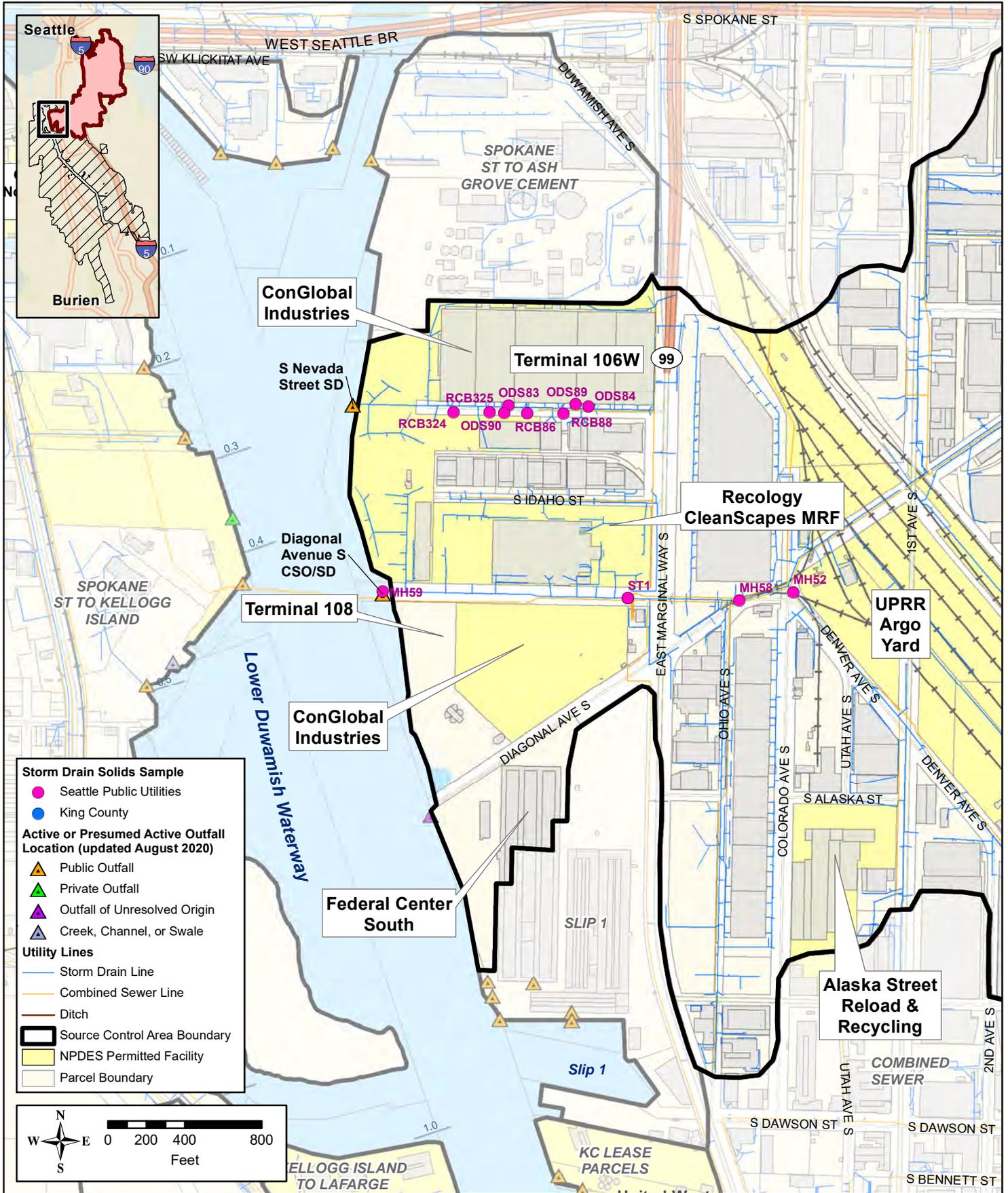


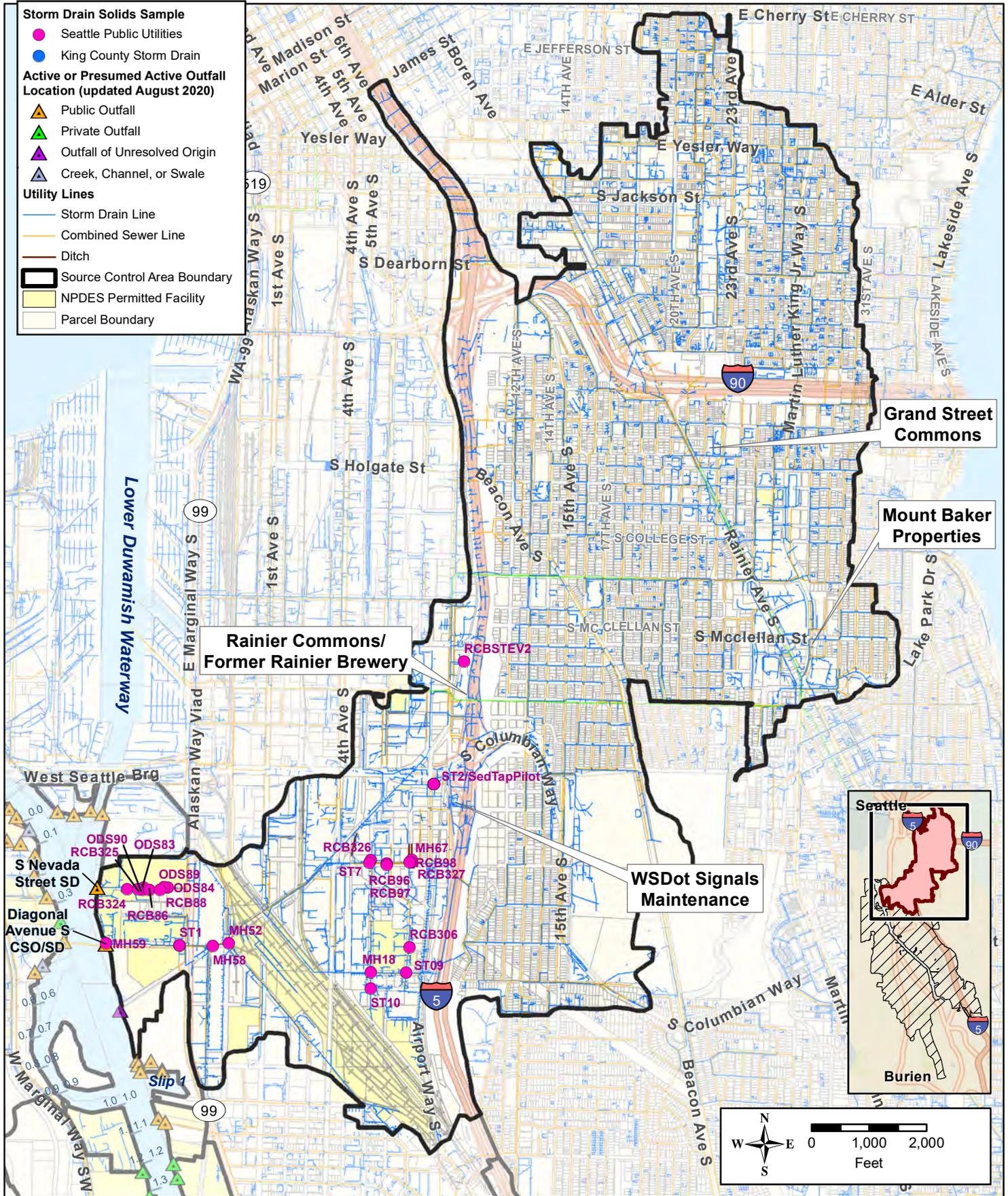
Figure A-23. RM 0.9-1.0 East (Slip 1) Source Control Area





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





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



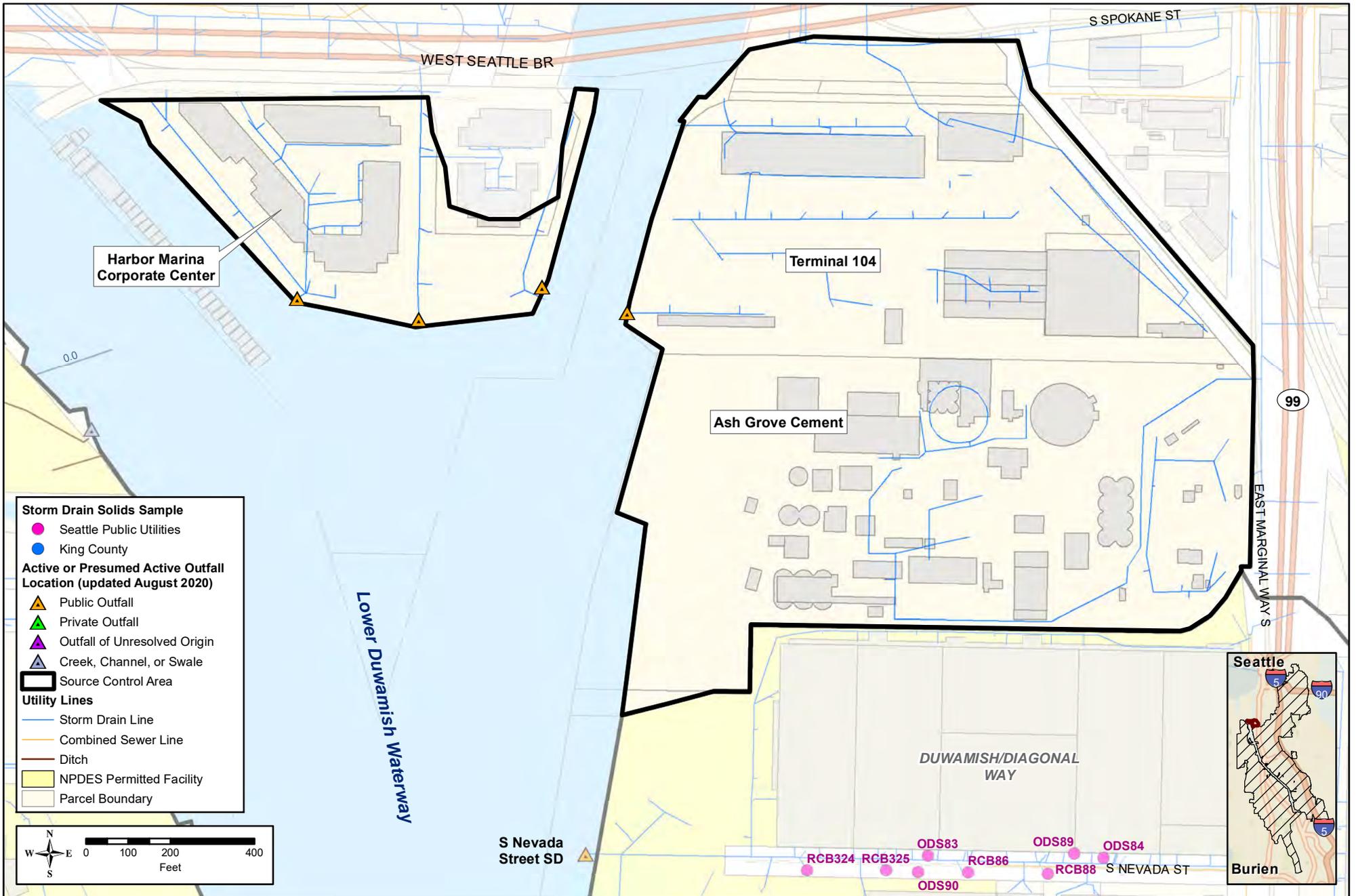
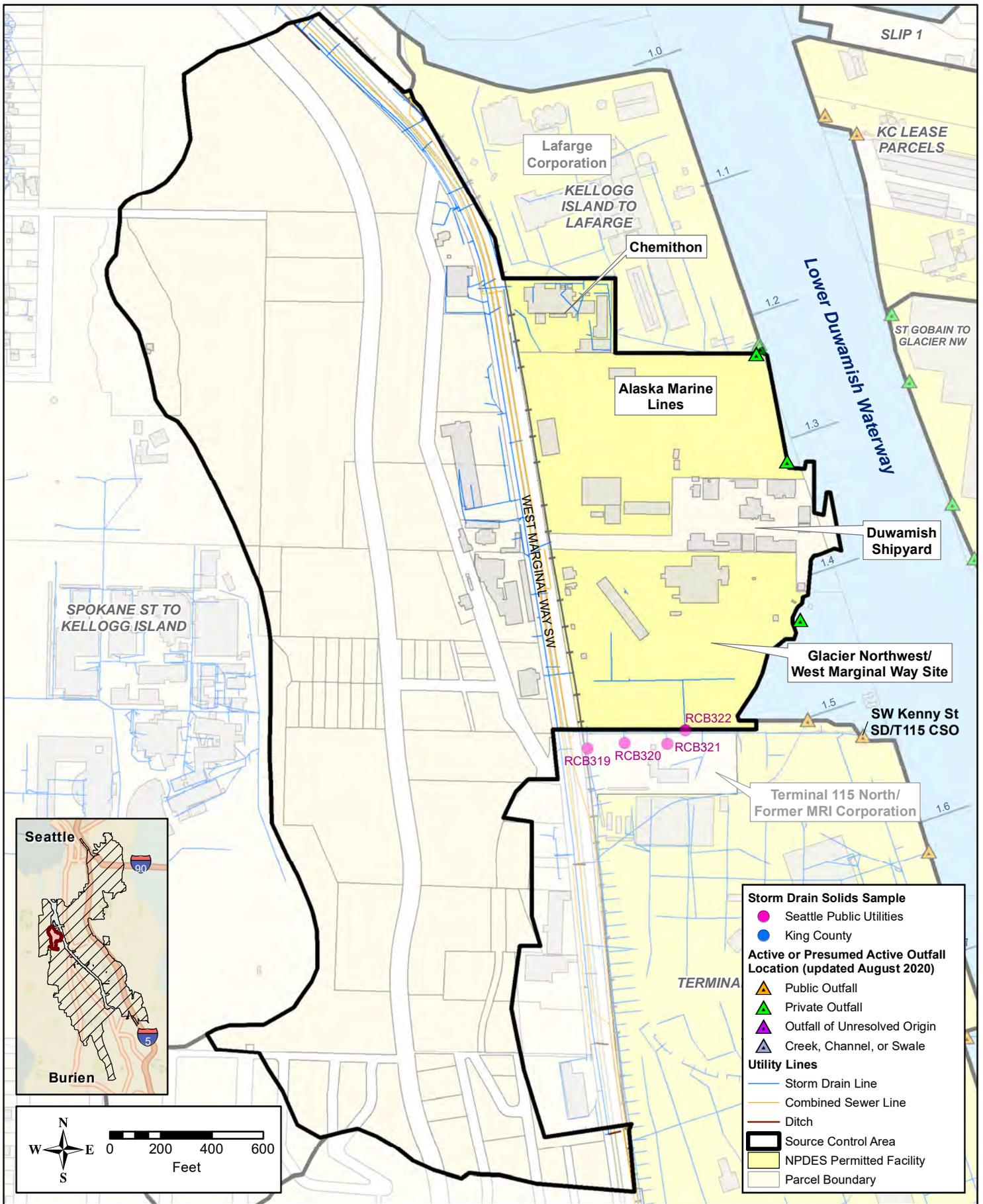
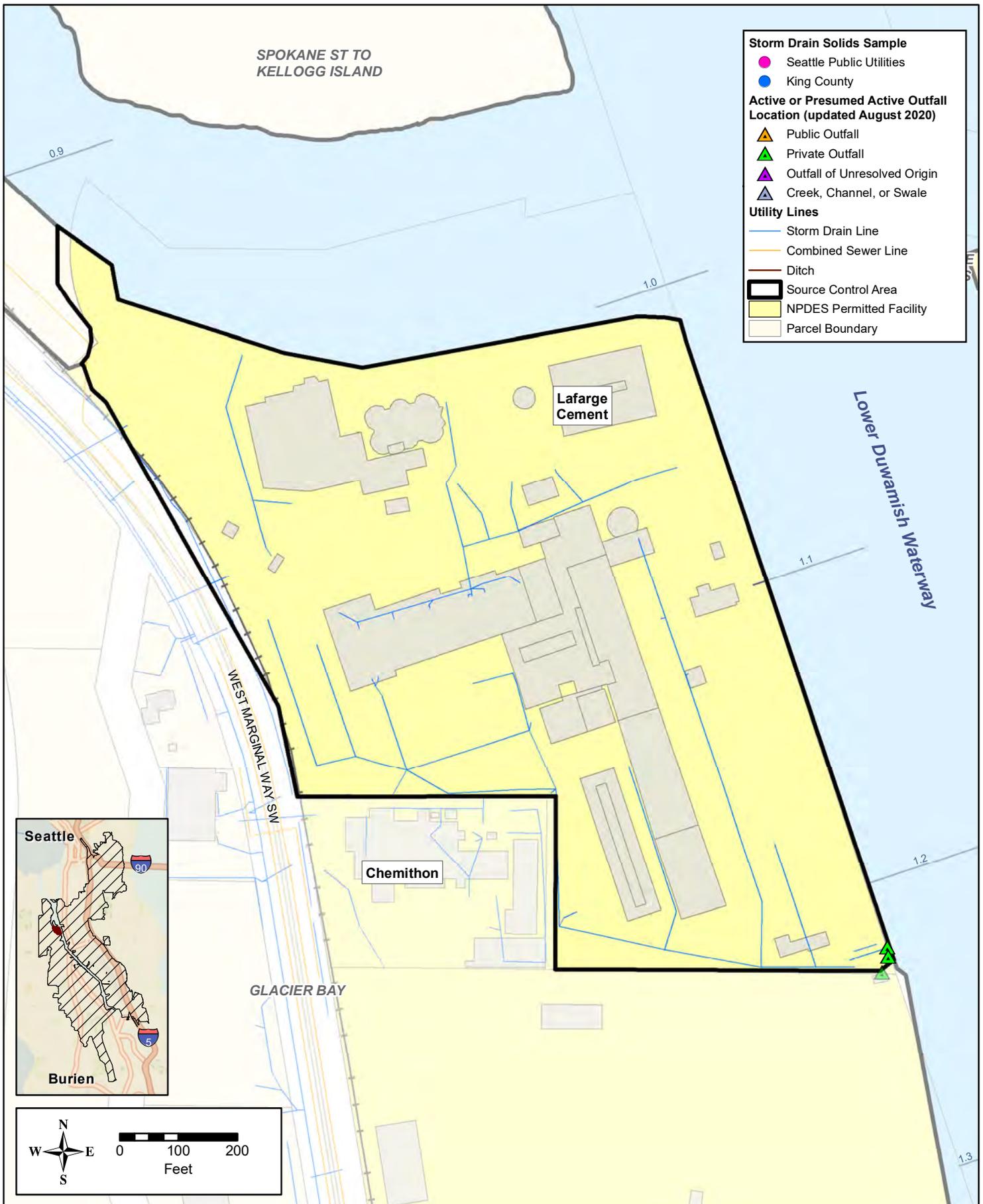


Figure A-26. RM 0.0-0.1 East  
(Spokane Street to Ash Grove Cement)  
Source Control Area

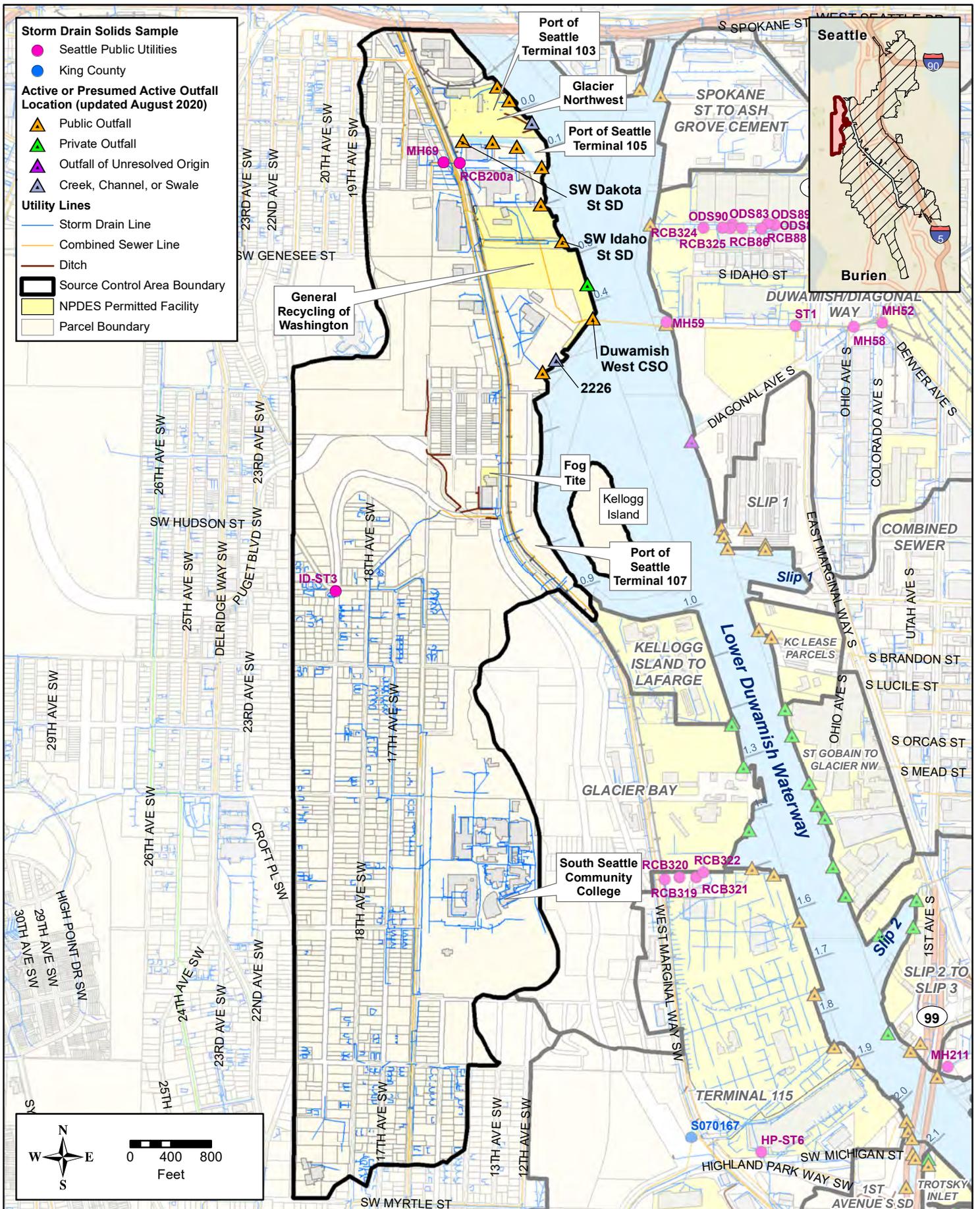


**Figure A-27. RM 1.3-1.6 West (Glacier Bay) Source Control Area**





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



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



## **Appendix B: Action Item Status**

**Table B-1. Action Items Completed During 2020**

**Table B-2. Incomplete Action Items**

**Table B-1. Action Items Completed or Canceled During This Reporting Period**

Action Item No.	Action Item Category	Source Control Area	Property/ Facility/ Outfall	Property Number	Facility/ Site ID	Action Item	Priority	Responsible Party	Status	Date Completed	Comments/Follow-On Actions
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	Ecology	Cancelled	6/30/2022	Jessica Huybregts (Ecology WQ) recommended canceling this action item in a comment to Rick Thomas on 6/30/22 since under condition G4 of the Sand & Gravel Permit, under which this facility has coverage, the facility is required to notify Ecology of treatment bypass events. As a result, this is already tracked following existing processes.
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	EPA, Boeing	Complete	6/27/2022	All interim measures have been completed, or will be continued as final corrective measures. EPA issued the Boeing Plant 2 Final Corrective Action Decision and Response to Comments Rev 8 July 2022 (EPA 2022 [12484]).
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	EPA, Boeing	Cancelled	6/27/2022	Dave Bartus (EPA) recommended cancelling this action item in an email to Rick Thomas on 6/29/22.
A14.07.00	Environmental Sampling	RM 4.9 East (EAA-7: Norfolk CSO/SD)	BDC-South	14004	2101	Continue monitoring storm drain solids.	High	Boeing	Cancelled	6/30/2022	Jessica Huybregts (Ecology WQ) recommended cancelling this action item in a comment to Rick Thomas on 6/30/22 because this is routine/ongoing sampling.
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	SPU	Cancelled	6/30/2022	Jessica Huybregts (Ecology WQ) recommended canceling this action item in a comment to Rick Thomas on 6/30/22 because this is routine/ongoing sampling. On-going source tracing samples collected as part of Seattle's SCIP. In Progress (right of way catch basin samples at location RCB45) will continue to be monitored, as described in City of Seattle's SCIP. The most recent sample here was on 7/17/2020.
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	SPU, Port of Seattle	Cancelled	6/30/2022	Jessica Huybregts (Ecology WQ) recommended canceling this action item in a comment to Rick Thomas on 6/30/22 because this is routine/ongoing sampling. City of Seattle and Port of Seattle completed the long-term maintenance and monitoring plan for EPA in 2018. Long-term monitoring of storm drain solids near the 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 but 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 to assess condition of the filter media. PCBs were not detected at 0.01 ug/L in any samples. Most recent PCB sample from 17th-ST1 trap was collected on 10/16/2020. 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	Ecology	Complete	5/12/2016	Site maps show two outfalls from South Park Marina facility to the LDW; only one is identified in the facility's NPDES permit. To be addressed in accordance with Agreed Order No. DE-16185 (signed April 2019). Work conducted by property owner (Bowerman 2016 [12000]).

### Table B-2. Incomplete Action Items

Action Item No.	Action Item Category	Source Control Area	Property/ Facility/ Outfall	Property Number	Facility/ Site ID	Action Item	Priority	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.	Low	Ecology, Port of Seattle		Specific data gaps could not be identified. One outfall discharges to the LDW; it drains a 1.3-acre area in the southwest corner of the property. The tenant in this area is Pacific Coast Container (PCC), which operates under an ISGP (WAR125003). A 2018 stormwater utility assessment indicated some pipes that need repair, but considered low priority.
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	Port of Seattle		Project is currently in final stages of property/project transfer to City of Seattle SDOT.
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	Ecology		Project is currently in final stages of property/project transfer to City of Seattle SDOT.
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.	Medium	Ecology, Property owner/operator		Additional information about current soil and groundwater conditions is needed before negotiation of an Agreed Order
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	Ecology WQ		It is unknown whether this well is currently active.
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	GSA		This action item was based on a 2004 inspection. Major storm drain system revisions were completed during construction of a new building at the site, based on design drawings dated August 2010 received from B. Schmoyer. An August 2010 Urban Waters inspection (during construction) found some issues. No inspection since 2010. Outfall inventory indicates there are still questions about which outfalls have been permanently plugged and which are currently active.
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	Ecology		Site is listed on CSCSL as Lennox Industries; status is 'awaiting cleanup.' Arsenic and 1,4-dichlorobenzene were detected in groundwater above MTCA Method A or B levels in 2009.
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	Port of Seattle	In Progress	EPA and the Port of Seattle completed and EPA approved a Preliminary Assessment Report (PA-SI) in February 2019. The Port, City and County signed an ASAO in 2020 to perform an EE/CA, which includes an evaluation of the need for a future removal action to address human health risks or source control.
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	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 after EPA approves the individual phase work plan. In 2019 Rainier Commons submitted the Exterior Paint Abatement Phase 1 Close-out Report and Supplemental Documents to EPA. In May 2019 EPA determined that the Exterior Paint Abatement Phase 1 is complete. Work continued on the phased removal of PCB-containing paint from outdoor and indoor surfaces at these buildings in the fall of 2019.
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	Ecology		
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	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	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	EPA, Ecology		
A03.08.00	Environmental Sampling	RM 0.9-1.0 East (Slip 1)	Former Snopac Products Property	03003	1523145, 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	Ecology	In Progress	Samples were collected and analyzed; soil and groundwater remediation will be implemented as part of Agreed Order DE-16300. The PLP's conducted additional sampling to characterize soil under the existing warehouse and to assess groundwater quality within the uplands portion of the site in August 2019. An RI report was submitted to Ecology in October 2019.

### Table B-2. Incomplete Action Items

Action Item No.	Action Item Category	Source Control Area	Property/ Facility/ Outfall	Property Number	Facility/ Site ID	Action Item	Priority	Responsible Party	Status	Comments/Follow-On Actions
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	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	Ecology		
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	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	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	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	Ecology		
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	Ecology		Chevron 9-0636 is a state cleanup site; status is listed as Awaiting Cleanup. An SHA was performed in 2015, and the site was assigned a rank of 4. Contaminants are TPH and benzene.
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	Ecology TCP		This is a state cleanup site; status is listed as Cleanup Started. An SHA was performed in 2015, and the site was assigned a rank of 5. A stormwater compliance inspection was conducted in February 2019; several permit violations were identified.
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	Ecology		
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	Property Owner/Operator		This is a state cleanup site; status is listed as Cleanup Started.
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	Ecology		If needed, require the property owner/operator to prepare a remedial action plan. This is a state cleanup site; status is listed as Cleanup Started. Most recent groundwater sampling was in 2012; diesel-range hydrocarbons exceeded MTCA and PCULs in one well.
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	Ecology		This is a state cleanup site; status is listed as Cleanup Started.
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	Property Owner/Operator	In Progress	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	Ecology/Property Owner/Operator	In Progress	Pilot studies and interim action activities were initiated in the second half of 2018 and are scheduled to continue through 2019. PLP Group plans to work on completing a joint Feasibility Study (FS) in 2020.
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	Ecology/Property Owner/Operator	In Progress	Pilot studies and interim action activities were initiated in the second half of 2018 and are scheduled to continue through 2019. PLP Group plans to work on completing a joint Feasibility Study (FS) in 2020.
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	Ecology/Property Owner/Operator	In Progress	Pilot studies and interim action activities were initiated in the second half of 2018 and are scheduled to continue through 2019. PLP Group plans to work on completing a joint Feasibility Study (FS) in 2020.

### Table B-2. Incomplete Action Items

Action Item No.	Action Item Category	Source Control Area	Property/ Facility/ Outfall	Property Number	Facility/ Site ID	Action Item	Priority	Responsible Party	Status	Comments/Follow-On Actions
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	Ecology/Property Owner/Operator	In Progress	Pilot studies and interim action activities were initiated in the second half of 2018 and are scheduled to continue through 2019. PLP Group plans to work on completing a joint Feasibility Study (FS) in 2020.
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	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	Ecology		General Biodiesel now operates at this location.
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	Ecology		This site is listed as 'awaiting cleanup' on the CSCSL. An SHA conducted at this site in 2015 assigned a rank of 4 due to arsenic, cadmium, lead, PCBs and BTEX in shallow soil.
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	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	Ecology	In Progress	The current site owner (Prologis, Inc.) is conducting a cleanup of this site under the VCP (NW3050). A cleanup action closure report was submitted to Ecology in July 2018. Further remedial action is needed.
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	Ecology		This area of the site was covered by industrial development in 1961. It is within the boundaries of Cleanup Site 6262 (Consolidated Freightways), 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	Ecology		In 2018, a site investigation at an adjoining property found chlorinated solvents in groundwater above MTCA cleanup levels; Ecology concluded that contaminants likely migrated from Emerald Tool.
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	Ecology	In Progress	Cleanup is in progress at this site under the VCP (NW 2305). Kelly Moore submitted the Additional Monitoring Well Installation Work Plan to Ecology in April 2019. In October 2019 Kelly Moore submitted the 2018 Summary of Investigations and Remedial Actions to Ecology. In November 2019 Ecology VCP determined that additional work is needed to characterize the groundwater plume at this site.
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	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	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; infiltration events were planned for 2018 and 2019.
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	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	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	SPU, Ecology	In Progress	SPU jetted and cleaned the entire drainage system in 2010. In 2018, 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 an inline sample at MH223. 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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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	Ecology		Inland Transportation (Arrow Transportation) is a cleanup site (CSID 5061). Ecology has determined that no further action is needed at this site.
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	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	SPU, Ecology	In Progress	A sediment trap is planned to be installed in 2022. An inline grab sample was last collected on 6/17/2020. A potential source is still yet to be determined.
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	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	Ecology		A sediment trap is planned to be installed in 2022. An inline grab sample was collected on 6/17/2020. A potential source is still yet to be determined.
A07.20.00	Cleanup	RM 2.0-2.3 East (Slip 3 to Seattle Boiler Works)	Riverside Industrial Park	07004	37289288, 44383713	Determine the status of cleanup at the facility and whether to pursue additional investigation and cleanup under an administrative order.	Medium	Ecology		This is a state cleanup site (CSID 4178); status is listed as 'Cleanup Started'. It is currently enrolled in the VCP Program.
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	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 5 styles of sediment traps in the 2 downstream-most MHs in this system in 2016 as part of the sediment trap pilot study. Samples collected from 3 of the traps in 2018 contained elevated levels of copper (540 to 660 mg/kg), lead (540 to 620 mg/kg), mercury (1.4 to 1.9 mg/kg), PCBs (2.3 to 2.9 mg/kg DW), and TPH-oil (8,000 mg/kg).  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	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	Ecology		Stormwater treatment upgrade has been completed, however effluent violations continue. Effluent violations continued in 2019. On 2/11/19 Ecology issued a Notice of Penalty to SIM for effluent violations and fined Seattle Iron & Metal \$98,000. Ecology sent the facility a warning letter on 9/18/19.
A08.18.00	Source Assessment	RM 2.3-2.8 East (Seattle Boiler Works to Slip 4)	Puget Sound Truck Lines)	08007	41684823	Determine whether the five outfalls identified at the property are active, and identify the source of discharge from these outfalls, if any.	High	Ecology, Property owner/operator		Current operator at this property is Recology 8th Avenue. (ISGP permit # WAR000949). The site map from 2014 indicated 3 active outfalls (A, B and D; with C being plugged). Jessica Huybrechts (Ecology WQ) asked the permittee to provide an updated site map to identify any outfalls.
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	Ecology		

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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	Property owner/operator	In Progress	To be conducted in accordance with Agreed Order No. DE-6721. A Public Review Draft RI Report was completed in 2019. A supplemental investigation for the draft FS is in progress.
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	Property owner/operator	In Progress	Groundwater monitoring and substrate injection (including on the Seattle Boiler Works property) is continuing under Agreed Order DE-8985.
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	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) was completed in 2018. The Interim Action Completion report is expected to be finalized in early 2020.
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	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	Ecology, Property owner/operator		An NFA determination was made for this site (CSID 1257) by Ecology in 2006.
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	Ecology		This cleanup site (CSID 4466) is listed as 'awaiting cleanup.'
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	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	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	SPU, Boeing, King County	In Progress	Boeing 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. In 2019, SPU collected one sediment trap sample and in inline grab sample at T6 (along the I-5 SD to Slip 4). The PCB concentration in the T6 sediment trap exceeded the SCO. Downstream sediment traps were not sampled in 2019.
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	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	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	8th Avenue Terminals (Crowley)	In Progress	Stormwater catch basin samples have been collected. Results are reported in the Public Review Draft RI (August 2019). The tenant, Waste Management, installed stormwater treatment in early 2019. A supplemental investigation for the draft FS is in progress.
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	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	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	Ecology, Boeing, City of Seattle, King County	In Progress	RI/FS is in progress. In 2019, groundwater sampling events were conducted in February and August at NBF. Off-property soil vapor and groundwater sampling along Ellis Avenue were conducted in September 2019.
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	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.
A10.05.00	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	EPA, Boeing	In Progress	

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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	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 an investigation to provide additional hydrogeologic data at the boundary of the Boeing Plant 2/Jorgensen Forge facilities.	High	Boeing	In Progress	Activities at Plant 2 have reportedly been completed, however no documentation has been provided.
A10.09.02	Source Assessment	RM 2.8-3.7 East (EAA-4: Boeing Plant 2/Jorgensen Forge)	Jorgensen Forge	10003	2382	Conduct an investigation to provide additional hydrogeologic data at the boundary of the Boeing Plant 2/Jorgensen Forge facilities.	Medium	Jorgensen Forge	In Progress	Jorgensen Forge will be investigated, as necessary, under new Agreed Order DE-14143, and results will be presented in the RI Report.
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	Ecology, City of Tukwila	In Progress	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	Jorgensen, Boeing	In Progress	For the Jorgensen site, a tidal study/hydrogeologic investigation and conceptual model will be conducted, as necessary, under Agreed Order DE-14143. Results will be presented in the RI Report.
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	Jorgensen, Boeing	In Progress	Agreed Order (DE-14143) was signed in July 2017; this action item will be completed under the Agreed Order, and will be presented in the RI Report.
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	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.
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	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	Boeing	In Progress	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	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 "silver" 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	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	Assess/confirm the adequate completion of cleanup activities associated with petroleum Leaking Underground Storage Tanks at Hangar Holdings.	Low	Ecology	In Progress	Site is listed as 'cleanup started' (CSID 6574), with confirmed contamination with petroleum products and non-halogenated solvents.
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	King County, EPA	In Progress	In 2019, a KCIA tenant planned to conduct developments in the vicinity of the EMF site. EPA approved the redevelopments and temporary postponement of EMF cleanup activities until the redevelopments are completed. Installation of new treatment and monitoring wells will occur when the EMF cleanup activities resume.
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	Ecology, Property owner/operator	In Progress	A Public Review Draft FS and Interim Action Work Plan (IAWP) were submitted to Ecology in June 2019. Ecology expects an engineering design report for the work described in the IAWP is expected in 2002.
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	Ecology, Property owner/operator	In Progress	
A12.09.00	Cleanup	RM 3.9-4.3 East (Slip 6)	8801 Site (Former PACCAR Site)	12001	2072	Review future monitoring results to determine if further actions are necessary.	High	Ecology, Property owner/operator	In Progress	
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 sediments via the stormwater system.	Medium	Ecology, Property owner/operator	In Progress	In November 2019 Insurance Auto Auctions (IAA) lease expired and they vacated this location at that time. IAA submitted a Notice of Termination for ISGP (WAR008681); Ecology terminated this permit on 11/22/19.

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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 control interim measure, and investigate the presence of elevated copper concentrations in groundwater outside the barrier wall and the potential leak in the barrier wall.	High	EPA, Property owner/operator	In Progress	The HCIM 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 Corrective Measures Study (CMS) and site cleanup under RCRA. A CO2 Injection Pilot Study to investigate a technique to address high pH was completed in 2020. EPA will continue working with the property owner to assess the current conditions throughout the site, update the Preliminary Remediation Goals (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	EPA, Property owner/operator	In Progress	An investigation of shoreline bank contamination was completed September 2012. The Shoreline Area will be addressed as part of the future CMS and site cleanup under RCRA. A CO2 Injection Pilot Study to investigate a technique to address high pH was completed in 2020. EPA will continue working with the property owner to assess the current conditions of contamination 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	Ecology, Property owner/operator	Ongoing	The west parcel is no longer leased by Container Properties to Insurance Auto Auctions (IAA); IAA's coverage under the Industrial Stormwater General Permit was terminated as of July 9, 2020. King County started leasing the property from Container Properties in 2020.
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	Ecology, Property owner/operator	In Progress	Boeing is responsible for the former BDC property (west of East Marginal Way). Stormwater will be monitored under WQ AO 15600. Historical storm drain solids sampling data for the former BDC property will be reviewed under MTCA AO DE 16275. The presence of USTs at the former BDC property will be investigated by Boeing.
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	Ecology, Property owner/operator		If any USTs are identified on the former BDC property, Boeing will be required to develop a UST removal and soil/GW investigation plan. Presence of USTs in the MOF property east of East Marginal Way needs to be investigated separately.
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	Ecology, Property owner/operator	In Progress	Will be identified during the RI; remedial action will be conducted if needed.
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	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 RI will include investigation of the presence of USTs.
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	Ecology/Boeing	In Progress	Subsurface sediment sampling will be conducted during the RI.
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	Ecology	In Progress	RCRA activities will be completed under Agreed Order DE-16275 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	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	Boeing	In Progress	Seep sampling will be conducted under Agreed Order DE-16275 to address discharge of contaminants to the LDW via this pathway.
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	Boeing	In Progress	Actions specified under the agreed order include completion of ongoing RCRA cleanup activities.
A14.05.00	Cleanup	RM 4.9 East (EAA-7: Norfolk CSO/SD)	BDC-South	14004	2101	Continue sediment monitoring in the vicinity of the south storm drain sediment removal activities.	High	Boeing	In Progress	Boeing continues to voluntarily monitor sediment in the vicinity of the 2003 removal action. Samples were collected in September 2017; results are slightly higher than in previous years.
A14.08.00	Environmental Sampling	RM 4.9 East (EAA-7: Norfolk CSO/SD)	BDC-South	14004	2101	Determine need for cleanup of caulk and/or other building materials that may contribute PCBs to the south storm drain.	Medium	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).

### Table B-2. Incomplete Action Items

Action Item No.	Action Item Category	Source Control Area	Property/ Facility/ Outfall	Property Number	Facility/ Site ID	Action Item	Priority	Responsible Party	Status	Comments/Follow-On Actions
A14.11.00	Source Assessment	RM 4.9 East (EAA-7: Norfolk CSO/SD)	BDC-South	14004	2101	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	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	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	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. In an inspection on 8/13/19 Ecology directed Boeing to update the facility's SWPPP to identify any remaining areas of PCB contamination that may contribute to stormwater and BMPs to address the sources.
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	Property owner		To be addressed as part of Agreed Order No. DE-16659.
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	Property owner		To be addressed as part of Agreed Order No. DE-16659.
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	Ecology		To be addressed as part of Agreed Order No. DE-16659.
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	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	Ecology		To be addressed as part of Agreed Order No. DE-16659.
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	Property owner/operator		
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	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	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	Arco		Cleanup Site name is Easteys ARCO (CSID 5834). Listed as "cleanup started" but no other information available. SHA was completed in 2015.
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	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	Ecology		Cleanup Site name is Easteys ARCO (CSID 5834). Listed as "cleanup started" but no other information available.
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	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.

## Table B-2. Incomplete Action Items

Action Item No.	Action Item Category	Source Control Area	Property/ Facility/ Outfall	Property Number	Facility/ Site ID	Action Item	Priority	Responsible Party	Status	Comments/Follow-On Actions
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	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. 2018 samples exceeded the CSL for zinc (1,200 mg/kg), BEHP (6.5 mg/kg DW), cPAH (1.1 mg/kg DW), benzoic acid (2.4 mg/kg DW), and benzyl alcohol (1.1 mg/kg DW) at ID-ST1; and BEHP (1.9 mg/kg DW), 4-methylphenol (.71 mg/kg DW), benzoic acid (8.5 mg/kg DW), and benzyl alcohol (1.6 mg/kg DW) at ID-ST3.
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	Ecology TCP		
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	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	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	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	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	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	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	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	Ecology		
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	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	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	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	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	Ecology		

### Table B-2. Incomplete Action Items

Action Item No.	Action Item Category	Source Control Area	Property/ Facility/ Outfall	Property Number	Facility/ Site ID	Action Item	Priority	Responsible Party	Status	Comments/Follow-On Actions
A15.32.00	Information Request	RM 0.0-1.0 West (Spokane Street to Kellogg Island)	Former 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	Ecology		
A15.33.00	Source Assessment	RM 0.0-1.0 West (Spokane Street to Kellogg Island)	Former Concrete Restoration	15005	9688	Assess the need for additional investigations and/or cleanup of suspected soil and groundwater contamination at this property.	Low	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	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	Ecology		
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	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	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	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	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	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	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	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	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	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	Ecology		
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	Property owner/operator	In Progress	In 2019 the Public Review Draft RI Report was submitted and. PLPs worked on the Draft FS.
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	Ecology	In Progress	In 2019 the Public Review Draft RI Report was submitted and. PLPs worked on the Draft FS.
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	Ecology	In Progress	In 2019 Ecology reviewed the draft RI and worked with the PLP to complete the RI and move forward with the FS.
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	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	Port of Seattle	In Progress	Draft RI Report submitted to Ecology in October 2017.

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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	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	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). Of the 3 sediment trap samples collected in 2018, 2 exceeded the screening level for TPH-oil; 2 exceeded the CSL for zinc, 1 for benzoic acid, and 3 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	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	Ecology		Sediment traps within combined sewer collection system within this basin were installed in 2019, to be retrieved in 2020.
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	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	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	Ecology, Port of Seattle	In Progress	Ecology and the PLPs (Port of Seattle and Boeing) have completed MTCA Agreed Order negotiations to perform an RI/FS/CAP, and are expecting to sign the Order by the end of 2020.
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	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	Port of Seattle		
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	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	Ecology		

**Table B-2. Incomplete Action Items**

Action Item No.	Action Item Category	Source Control Area	Property/ Facility/ Outfall	Property Number	Facility/ Site ID	Action Item	Priority	Responsible Party	Status	Comments/Follow-On Actions
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	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	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	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	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	Ecology		Ecology WQ will request this information from WSDOT.
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	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 COCs from the wetlands to LDW sediment.	Medium	Ecology		
A19.04.00	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	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	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	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. 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.	Medium	Property owner/operator, Ecology	In Progress	To be conducted in accordance with Agreed Order No. DE-8258. The RI Report was completed in 2019. A supplemental investigation for the draft FS is in progress.
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	Ecology/ Property owner/operator		To be addressed in accordance with Agreed Order No. DE-8258. This is direct discharge. Does not affect City MS4.
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	Industrial Container Services	In Progress	To be conducted in accordance with Agreed Order No. DE-6720. RI Report was completed in 2019.
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	Ecology		To be addressed in accordance with Agreed Order No. DE-8258. The RI Report was completed in 2019. Shoreline groundwater samples have been collected from three wells; data is included in the RI Report. Supplemental sampling for the FS is in progress.
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	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	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.

### Table B-2. Incomplete Action Items

Action Item No.	Action Item Category	Source Control Area	Property/ Facility/ Outfall	Property Number	Facility/ Site ID	Action Item	Priority	Responsible Party	Status	Comments/Follow-On Actions
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	Ecology		Action item identified in Supplemental Data Gaps Report.
A21.01.00	Source Assessment	RM 2.2-3.4 West (Riverside Drive)	7 <sup>th</sup> 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 7 <sup>th</sup> Avenue S SD basin.	Medium	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. SPU collected 13 trap samples between 2014 and 2018. Chemicals exceeding a CSL included cPAH (1 sample), BEHP (7 samples), dimethylphthalate (1 sample), 4-methylphenol (1 sample), benzoic acid (5 samples), and benzyl alcohol (10 samples). TPH-oil also exceeded the screening level (4 samples).
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	SPU	In Progress	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. SPU will clean this CB in 2020. 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	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	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. The 2020 outfall inventory did not include outfalls 2109 or 2111. WQ requested site map to verify outfalls.
A21.08.00	Inspection	RM 2.2-3.4 West (Riverside Drive)	Former Long Painting – 10 <sup>th</sup> Avenue S Facility	21036	71678662	Perform a facility inspection at Unity Electric to verify compliance with applicable regulations and BMPs.	Medium	SPU, King County		All of the commercial parcels are in the City of Seattle and drain to the combined sewer system. 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	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	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	Ecology		Independent Metals Plant 1 is on the CSCSL and is awaiting cleanup with confirmed PCB contamination in soil and groundwater.
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	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	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	Ecology		King County investigated KRS Marine on 4/19/19 and 7/16/19 and found the facility had made improvements in labeling, record keeping and portable secondary containment.
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 Restoration Areas source control area.	Medium	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.
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	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	Ecology		

**Table B-2. Incomplete Action Items**

Action Item No.	Action Item Category	Source Control Area	Property/ Facility/ Outfall	Property Number	Facility/ Site ID	Action Item	Priority	Responsible Party	Status	Comments/Follow-On Actions
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	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	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	Ecology		

**Appendix C:  
SPU Source Control Inspections  
(2020)**

**Appendix C**  
**SPU Source Control Inspections - 2020**

Facility	Address	Date Inspected	Inspection Type	Corrective Actions					Rank
				Total	HW	IW	SP	SW	
<b>Upper Reach</b>									
<b>RM 3.8-4.2 West (Sea King Industrial Park)</b>									
King Electrical Mfg. Company	821 S Barton Street	2/27/2020	Follow Up	0					High
<b>Middle Reach</b>									
<b>RM 1.7-2.0 East (Slip 2 to Slip 3)</b>									
Pivot Fabrication Inc. - 16 S Michigan St	16 S Michigan Street	10/26/2020	Initial	0					Low
<b>RM 2.2-3.4 West (Riverside Drive)</b>									
Artisan Premades LLC	45 S Sullivan Street	11/6/2020	Initial	2				2	Low
		12/18/2020	Follow Up	0					
Full Circle Farms	432 S Cloverdale Street	11/6/2020	Initial	3				3	Low
		12/31/2020	Follow Up	0					
Industrial Tire of WA Inc.	540 S Holden Street	11/19/2020	Initial	0					Medium
Lang Towing	271 S Portland Street	3/12/2020	Initial	1	1				Medium
		10/21/2020	Follow Up	0					
Modern Machine Co.	524 S Southern Street	10/29/2020	Initial	0					Medium
<b>RM 2.1-2.2 West (EAA-2: Trotsky Inlet)</b>									
Boyer Logistics	7421 5th Avenue S	10/9/2020	Initial	2			1	1	Medium
		11/5/2020	Follow Up	0					High
<b>RM 2.1 West (1st Avenue Bridge South)</b>									
Bay Area Concrete LLC	7245 West Marginal Way SW	2/11/2020	Follow Up	0					Medium
		3/5/2020	Follow Up	0					
Western Crane	7245 West Marginal Way SW	2/18/2020	Initial	3	1		1	1	Medium
		3/12/2020	Follow Up	0					
<b>RM 1.6-2.1 West (Terminal 115)</b>									
Associated Petroleum Products Inc. - 6760 West Marginal Way SW	6760 West Marginal Way SW	3/4/2020	Initial	0					Medium
Caffe Umbria Inc	8620 16th Avenue S	3/9/2020	Initial	1			1		Low
<b>Lower Reach</b>									
<b>RM 0.1-0.9 East (EAA-1: Duwamish/Diagonal Way)</b>									
A & R Solar Corp	3211 Martin Luther King Jr Way S	1/29/2020	Initial	2			1	1	Low

**Appendix C**  
**SPU Source Control Inspections - 2020**

Facility	Address	Date Inspected	Inspection Type	Corrective Actions					Rank
				Total	HW	IW	SP	SW	
Autosalon On 23rd LLC	1922 23rd Avenue S	1/28/2020	Initial	0					Low
Burger King	2021 Rainier Avenue S	1/15/2020	Initial	2			1	1	High
Casa Latina	317 17th Avenue S	1/28/2020	Initial	0					None
Causey's Learning Center	1855 S Lane Street	2/10/2020	Initial	0					Low
Columbia City Market LLC	3925 Martin Luther King Jr Way S	1/28/2020	Initial	1			1		Low
Consolidated Press	600 S Spokane Street	2/14/2020	Initial	2				2	Low
		7/1/2020	Follow Up	0					
Craft Canning LLC	4701 Colorado Avenue S	2/11/2020	Initial	0					Low
Dearborn Dynasty LLC	1406 S Dean Street	1/23/2020	Initial	1				1	Low
		10/21/2020	Follow Up	0					
Downtown Emergency Service Center	1600 S Lane Street	2/11/2020	Initial	0					Low
ENGINEERING SYSTEMS INC	700 S Industrial Way	2/14/2020	Initial	0					Low
First Commercial Investments	3828 4th Avenue S	11/6/2020	Initial	0					Low
H & Q Corp	520 12th Avenue S	2/10/2020	Initial	0					Medium
JOMX Inc	3701 7th Avenue S	2/14/2020	Initial	0					Low
JSH Properties Inc.	2601 S McClellan Street	2/4/2020	Initial	1				1	Low
		3/18/2020	Follow Up	0					
Kasher Corp - 2802 Rainier Ave S	2802 Rainier Avenue S	2/14/2020	Initial	0					Medium
King's Oriental Foods CO LTD - 1328 S Weller St	1328 S Weller Street	2/10/2020	Initial	1			1		Medium
Lead Pencil Studio LLC	109 18th Avenue S	3/6/2020	Initial	0					Low
Ly Minh T	2116 22nd Avenue S	2/4/2020	Initial	1				1	Low
Messenger Corporation	37 S Hudson Street	1/29/2020	Initial	2			2		Low
P&S Food Company LLC	1300 S Weller Street	2/10/2020	Initial	2	1		1		Medium
		10/21/2020	Follow Up	0					
Seattle Cider Company LLC	4700 Ohio Avenue S	1/29/2020	Initial	1				1	Medium
Seattle City Light - South Service Center - 3613 4th Ave S	3613 4th Avenue S	5/19/2020	Initial	0					High
Seattle Economic Development Fund	1437 S Jackson Street	2/4/2020	Initial	1				1	Low
		2/18/2020	Follow Up	0					
Seattle Parks Dept - Bradner Gardens Park	1730 Bradner Place S	2/14/2020	Initial	0					Low

**Appendix C**  
**SPU Source Control Inspections - 2020**

Facility	Address	Date Inspected	Inspection Type	Corrective Actions					Rank
				Total	HW	IW	SP	SW	
Seattle Parks Dept. - Medgar Evers Pool	500 23rd Avenue	2/18/2020	Initial	0					Low
Seattle Towing LLC	3834 4th Avenue S	10/29/2020	Initial	0					Medium
Sound Transit Operations and Maintenance Facility	3407 Airport Way S	3/5/2020	Initial	2			2		Medium
Therapeutic Health SVCS	1901 Martin Luther King Jr Way S	2/4/2020	Initial	0					Low
Thousand Oaks Park Group Inc	4000 7th Avenue S	3/12/2020	Initial	0					Low
Torah Day School	1625 S Columbian Way	2/4/2020	Initial	0					Low
Turner Construction Co - 4201 Airport Way S	4201 Airport Way S	2/14/2020	Initial	3	1			2	Low
		2/21/2020	Follow Up	0					
Two Beers Brewing Co. LLC	4700 Ohio Avenue S	1/29/2020	Initial	1				1	Medium
<b>RM 1.3-1.6 West (Glacier Bay)</b>									
Alaska Marine Lines Inc. - 5600 West Marginal Way SW	5600 West Marginal Way SW	8/26/2020	Initial	1				1	Medium
		9/8/2020	Follow Up	0					
Stericycle Environmental Solutions, Inc.	5955 West Marginal Way SW	3/4/2020	Initial	0					Low
<b>RM 0-1.0 West (Spokane Street to Kellogg Island)</b>									
Airclean Technologies Inc	4725 West Marginal Way SW	10/15/2020	Initial	0					Medium
South Seattle College - 6001 16th Ave SW	6000 16th Avenue SW	3/9/2020	Initial	2				2	Medium
SPU South Operations Center	4500 West Marginal Way SW	3/4/2020	Initial	2			1	1	Medium
		3/18/2020	Follow Up	0					

Source: SPU 2021 [12584]

HW = hazardous waste

IW = industrial waste

SP = spill prevention

SW = stormwater

**Appendix D:  
King County Source Control Inspections  
(2020)**

**Table D-1. King County Industrial Waste Inspections in LDW Basin (2020)**

Facility	Authorization Type	Authorization Number	Inspection Date	CSO Basin
Industrial Container Services - WA LLC	Permit	7929-01	6/17/2020	8th Avenue
Kerry, Inc.	Permit	7854-04	9/23/2020	8th Avenue
Machinists, Inc. Plant 5	Permit	7892-03	8/26/2020	8th Avenue
Magnetic and Penetrant Services Co.	Permit	7873-03	3/5/2020	8th Avenue
National Products Inc.	Permit	7834-03	6/24/2020	8th Avenue
Art Brass Plating Inc.	Discharge Authorization or Miscellaneous Inspection	7722-07	3/13/2020	Brandon
Art Brass Plating Inc.	Permit	7722-07	8/26/2020	Brandon
Cascade Designs Inc.	Discharge Authorization or Miscellaneous Inspection	4179-02	6/22/2020	Duwamish East
M Bloch & Co., Inc.	Discharge Authorization or Miscellaneous Inspection	4085-04	7/31/2020	Duwamish East
Seattle Barrel Co.	Permit	7113-05	10/22/2020	Duwamish East
Seattle University - Center for Science and Innovation	Discharge Authorization or Miscellaneous Inspection	1095-01	2/4/2020	Duwamish East
Waste Management Inc. Alaska Street Facility	Discharge Authorization or Miscellaneous Inspection	691-04	10/6/2020	Duwamish East
Lafarge - Seattle Plant	Permit	7925-02	11/25/2020	Duwamish West
Seattle, City of - SDOT West Seattle Bridge Emergency Repair Project	Discharge Authorization or Miscellaneous Inspection	1125-01	6/29/2020	Duwamish West
TLP Management Services LLC	Permit	7592-05	7/8/2020	Duwamish West
Vigor Shipyards Inc.	Permit	7782-08	11/13/2020	Duwamish West
Thanh Son Tofu King Street	Discharge Authorization or Miscellaneous Inspection	4517-01	3/19/2020	Duwamish East/Hanford 1 & 2/Lander
Yesler Terrace, LLC- Phase 1	Discharge Authorization or Miscellaneous Inspection	4502-01	2/26/2020	Duwamish East/Hanford 1 & 2/Lander
Boeing Company - Plant 2 Facility	Permit	7811-04	12/3/2020	E Marginal
Boeing Defense, Space & Security - Developmental Center	Discharge Authorization or Miscellaneous Inspection	526-07	10/2/2020	E Marginal
Star Forge Corp., DBA Jorgensen Forge	Discharge Authorization or Miscellaneous Inspection	1122-01	6/3/2020	E Marginal
Boeing Commercial Airplane - North Field	Permit	7594-07	5/8/2020	E Marginal or Michigan

**Table D-1. King County Industrial Waste Inspections in LDW Basin (2020)**

Facility	Authorization Type	Authorization Number	Inspection Date	CSO Basin
Field Roast Grain Meat Co. Seventh Avenue	Discharge Authorization or Miscellaneous Inspection	4417-01	3/13/2020	Hanford #1
Rainier Commons LLC - Old Rainier Brewery Site	Permit	7927-01	7/22/2020	Hanford #1
Cascade Columbia Distribution	Discharge Authorization or Miscellaneous Inspection	4156-03	8/26/2020	Michigan
Ceradyne Inc., a 3M Company - Seattle	Permit	7507-05	10/6/2020	Michigan
Elysian Brewing Company - Airport Way S.	Permit	7951-01	11/5/2020	Michigan
King County WTD - Georgetown Wet Weather Treatment Station Conveyance Construction Project	Permit	7948-01	7/6/2020	Michigan
Marine Vacuum Service Inc.	Permit	7676-07	3/3/2020	Michigan
Waste Management National Services - Duwamish Reload Facility	Permit	7928-02	12/7/2020	Michigan
Seafreeze Acquisition, LLC (aka Lineage Logistics - Seattle Michigan Facility)	Permit	7896-02	7/1/2020	Terminal 115

Source: King County 2021, Table A-2 [12519]

**Table D-2. King County Stormwater Services Inspections in LDW Basin (2020)**

Facility Name	Address	Inspection Date	Inspection Type	Notes
<b>RM 3.8-4.2 West (Sea King Industrial Park)</b>				
Delta Marine Shipyard	1608 S 96th Street	2/14/2020 3/09/2020	Source Control	Storm Drains cleaned, labeled, and inserts maintained. Leak from crane addressed. Uncovered dumpsters moved indoors. Leaking dumpster addressed.
Park South Apartments East	10102 8th Avenue S	8/10/2020 9/21/2020 10/26/2020 11/23/2020	Source Control	Replaced dumpster with broken lid. Worked to keep dumpster lids closed when not in use.
Sherwin-Williams	9530 10th Avenue S	10/22/2020	Source Control	No issues.
<b>RM 2.2-3.4 West (Riverside Drive)</b>				
Regal Ideas	9320 4th Avenue S	10/22/2020	Source Control	No issues.
The Revere Group	9310 4th Avenue S	10/22/2020	Source Control	Improperly stored portable containers of liquid were observed and addressed during the inspection.
Universal Intermodal	9301 4th Avenue S	10/22/2020	Source Control	No issues.

Source: King County 2021, Table 3 [12519]

**Appendix E:  
Ecology Source Control Inspections  
(2020)**

**Table E-1. Ecology LDW Water Quality Inspections (2020)**

NPDES Permit No.	Facility Name	Address	Date Inspected	Ecology Findings
<b>Upper Reach</b>				
<b>RM 4.9 East (EAA-7: Norfolk CSO/SD)</b>				
WAR307006	MV Transportation	9833 40th Avenue S	1/6/2020	Some chemical containers without secondary containment and some drums outside without cover or secondary containment or bung caps. Miscellaneous vehicle components on the ground outside the maintenance shop (Ecology 2020 [12433]).
			1/22/2020	MV Transportation did not have the required ISGP compliance paperwork and stated that have not conducted any discharge monitoring at the site because a consultant told them that the property owner would handle these compliance activities. No spill log; inadequate employee training; no inspection documentation; inadequate SWPPP (Ecology 2020 [12433]). Ecology terminated coverage under the ISGP as of November 23, 2020, because the company discontinued using the site and removed vehicles, equipment and all associated industrial activities.
WAR125421	Nelson Trucking - MLK Jr Way S	9747 Martin Luther King Jr Way S	2/11/2020	Several SWPPP deficiencies and no evidence of required annual employee training. Garbage in ditches on south and west side of property. Piles of leaf debris near catch basins. DEF nozzle leaking. Spill kit full of garbage. Lot appeared recently swept (Ecology 2020 [12500]).
<b>RM 2.8-3.7 East (EAA-4: Boeing Plant 2/Jorgensen Forge)</b>				
WAR003231	Jorgensen Forge Corp	8531 East Marginal Way S	2/14/2020	The purpose of this inspection was to follow-up on the reported PCBs in Jorgensen Forge's treated stormwater discharge, determine the facility's compliance with the ISGP, and provide technical assistance as appropriate. Because roof panels and walls have been removed from several buildings onsite, some areas containing "process waste" and exposed soil are now exposed to precipitation and have the potential to contaminate stormwater. Throughout the site, containers of hazardous substances, petroleum products, and other chemical liquid and solid materials with the potential to contaminate stormwater were stored without secondary containment. Evidence of chemical and petroleum leaks and spills was observed in multiple locations on-site where spilled material could result in stormwater contamination. Waste debris from demolition activities was not being stored in a manner that minimizes exposure to precipitation and reduces the potential for contamination of stormwater runoff. Piles of metal turnings mixed with soil/debris that appeared to contain an oily residue were left on the ground outdoors. The inspector determined that the SWPPP had not been updated since the facility was shut down and that it must immediately implement all necessary BMPs to prevent the discharge of pollutants to waters of the state (Ecology 2020 [12380]).
WAR003231	Jorgensen Forge Corp	8531 East Marginal Way S	11/19/2020	The facility was cleaner than during the previous inspection but there is still dust and process waste with the potential for stormwater exposure. Temporary berms will be installed in areas where there are gaps in the concrete footings (such as doorways). Over 20 additional frac tanks have been brought on-site to allow for batch treatment of stormwater. Most areas appeared well swept except for a location in the southeast portion of the site where sediment was accumulating on the ground around a catch basin. The facility will need to continue to employ BMPs to prevent stormwater contamination (Ecology 2020 [12495]).

**Table E-1. Ecology LDW Water Quality Inspections (2020)**

NPDES Permit No.	Facility Name	Address	Date Inspected	Ecology Findings
<b>RM 3.8-4.2 West (Sea King Industrial Park)</b>				
WAG030091	Delta Marine Industries	1608 S 96th St	2/14/2020	Equipment leaks were observed. Dust track out from one of the shops where boat work is conducted. Inspectors observed an area which is being leased to a boat painting company which had a storm drain, paint and other debris on the pavement, and signs that washing into the drain had occurred. Several boats being worked on lacked tarps or sheeting to prevent dust or debris from landing on pavement and contaminating stormwater. The facility needed to implement secondary containment for all liquids (Ecology 2020 [12432]).
WAR000264	PSF Mechanical	9322 14th Avenue S	7/22/2020	During the inspection the site appeared well swept. Sweeping was increased in response to the first benchmark exceedance in 2019. The facility needs to implement Level 2 Corrective Actions for zinc exceedances (Ecology 2020 [12504]).
			10/27/2020	The PSF site has 6 catch basins, a catch-basin like sump structure, and a number of roof drains. PSF previously believed that all stormwater on-site flowed to one of two above ground treatment systems. However, they have since learned that runoff from only two of the catch basins (CBs #3 & #6) flows to treatment. Runoff from CB's #1, #2, #4, #5, the sump structure, and the majority of downspouts does not go through treatment. Sampling locations may need to be updated to ensure representative samples are taken (Ecology 2020 [12505]).
<b>Middle Reach</b>				
<b>RM 2.0-2.3 East (Slip 3 - Seattle Boiler Works)</b>				
CNE308712	Talon 303 River LLC	303 S River Street	1/22/2020	The purpose of this inspection was to determine if the site was eligible for a Conditional No Exposure (CNE) Exemption to the NPDES permit coverage. Ecology's inspector reported that no industrial exposure was observed and the CNE was approved on March 2, 2020.
<b>RM 2.8 East (EAA-3: Slip 4)</b>				
WAR309524	UPS BFI Gateway	7300 Perimeter Road S	11/3/2020	On the date of the inspection CSGP coverage had not been issued but SeaCon personnel on site stated construction had been ongoing for 2 or 3 months. Runoff from construction areas was discharging to unprotected catch basins. Drums did not have secondary containment; one drum was uncovered. Concrete washout in uncovered eco-pans was observed on the ground. No discharge monitoring conducted despite significant rain events (Ecology 2020 [12509]). On 11/12/20, Ecology issued a Warning Letter and Corrections Required Notice to the construction company working onsite (SeaCon) for non-compliance with RCW 90.48 and the Construction Stormwater General Permit (CSWGP).

**Table E-1. Ecology LDW Water Quality Inspections (2020)**

NPDES Permit No.	Facility Name	Address	Date Inspected	Ecology Findings
<b>RM 2.2-3.4 West (Riverside Drive)</b>				
WAR308860	American Gypsum Recycling Kenyon (formerly Independent Metals Plant 2)	816 S Kenyon Street	10/8/2020	Middle section of property around treatment system appears to have the potential for uncontrolled direct discharge through vegetation into the Duwamish River. Covered storage area overflowing. Several very large piles of gypsum uncovered and not contained or overflowing the berm. Truck's and equipment travel through pervious soil area covered in Gypsum dust and have a high potential for track out in wet weather. This also causes airborne dust to travel off site. Facility representative stated they were working with the landlord to pave that area. A misting system to mitigate dust leaving the indoor facility was installed after the inspection (no date given but document has date of 11/17/21 in header) (Ecology 2020 [12487]).
WAR301516	Pacific Pile & Marine	700 S Riverside Drive	1/22/2020	Ecology inspectors observed visibly turbid water being pumped onto South Portland Street. The turbid water was running off of Pacific Pile & Marine's storage yard and onto a neighboring property. The neighboring business was then pumping the water into the street to prevent damage. Testing showed the discharge had a turbidity more than 22 times higher than the benchmark in the ISGP. The major source of the turbidity at Pacific Pile & Marine is likely exposed soils that are present throughout the storage yard. In the past, the soils in the yard have been stabilized with a layer of crushed rock and gravel, but the crushed rock/gravel have become degraded and unstabilized soils were present throughout the yard. The facility needs to implement additional or improved erosion and sediment control BMPs at the storage yard. (Ecology 2020 [12502]).
<b>RM 2.1-2.2 West (EAA-2: Trotsky Inlet)</b>				
WAR005598	Boyer Towing	7318 4th Avenue South	8/4/2020	Inspection was performed due a reported spill. On August 4, 2020, an ISO tank overflowed during diesel transfer operations. An estimated 304 gallons of diesel were spilled. Some the spilled diesel entered the on-site storm system and an estimated 30-40 gallons were discharged to the Duwamish River. The catch basin in the area where the diesel transfer took place was not blocked prior to beginning transfer operations. The catch basin had not been blocked because the ISO tank was staged directly on top of it (Ecology 2020 [12491]).
<b>RM 2.1 West (1st Avenue S Storm Drain)</b>				
WAR011078	Eastmont Transfer Station	7155 West Marginal Way SW	1/6/2020	Oil staining and buildup of petroleum-contaminated sediment/sludge was observed on the ground in the equipment parking area on the south side of the maintenance shop. The oily sediment/sludge buildup was thick enough that it could be scraped up from the ground. An oil sheen was present on stormwater flowing in this area and discharging into catch basin #3. Small metal drip trays were present in the parking area to place beneath leaky equipment, however, the drip trays were not bermed and were therefore not appropriate for use in areas exposed to precipitation (Ecology 2020 [12513]).

**Table E-1. Ecology LDW Water Quality Inspections (2020)**

NPDES Permit No.	Facility Name	Address	Date Inspected	Ecology Findings
<b>RM 1.6-2.1 West (Terminal 115)</b>				
WAR127040	Lineage Seafreeze	206 SW Michigan Street	11/10/2020	The purpose of this inspection was to assess the facility's compliance with the ISGP, discuss Lineage's outstanding Level 2 (copper and zinc) Corrective Action from 2019, and to provide technical assistance as appropriate. As of this inspection, additional required BMPs to address the Level 2 Corrective Action had not been implemented. A trail of oil sheen patches was observed running through the site that appeared to come from a leak in an off-site vehicle (possible a haul truck or garbage truck). The inspector recommended damaged asphalt be repaired; targeted broom sweeping in areas unreachable by the sweeper truck; coating galvanized building materials and equipment; and removing nuisance vegetation and leaf litter. Lineage and Orca Bay Foods should consider relocating their discharge sampling points if current locations are sampling comingled stormwater. In addition, the Ecology inspector discussed options for relocating the discharge sampling points at each facility to ensure that neither company is sampling the other facility's stormwater runoff (Ecology 2020 [12499]).
WAR308432	Orca Bay Foods	206 SW Michigan Street	11/10/2020	Orca Bay Foods (OBF) leases their facility from Lineage Logistics. OBF conducts industrial operations in the northeast portion of the property, and Lineage conducts industrial operations across the rest of the site. OBF and Lineage have divided the site to identify the areas in which each company is responsible for ISGP compliance, and have established separate discharge monitoring points for their respective permits. Inspector recommendations described for Lineage apply also to OBF (Ecology 2020 [12501]).
<b>Lower Reach</b>				
<b>RM 0.1-0.9 East (EAA-1: Duwamish/Diagonal Way)</b>				
WAR009970	The Lighthouse for the Blind	2501 South Plum Street	7/30/2020	The purpose of this inspection was to follow-up on three missing quarterly DMRs and 2019 Annual Report, determine the facility's compliance with the ISGP, and provide technical assistance as appropriate. Metallic flakes observed on the ground outside of the rollup doors at the southeast manufacturing building are a likely contributor to copper and zinc exceedances at the facility. The facility needs to implement additional BMPs to prevent further TSS exceedances and complete an engineering report for Level 3 treatment BMPs (Ecology 2020 [12497]). On December 4, 2020 Lighthouse for the Blind submitted a stormwater engineering report for Level 3 treatment system to Ecology (Lean Environment 2020 [12521]).

BMP = best management practice  
 CNE = Conditional No Exposure  
 DMR = discharge monitoring report  
 EAA = Early Action Area  
 ISGP = Industrial Stormwater General Permit  
 LDW = Lower Duwamish Waterway

NPDES = National Pollutant Discharge Elimination System  
 O&M = operations and maintenance  
 RM = river mile  
 SWPPP = Stormwater Pollution Prevention Plan  
 TSS = total suspended solids

**Table E-2. Additional Ecology Water Quality Information (2020)**

NPDES Permit No.	Facility Name	Address	Miscellaneous Water Quality Updates
<b>Middle Reach</b>			
<b>RM 2.1 West (1st Avenue S Storm Drain)</b>			
WAR000582	Waste Management Seattle Hauling Co.	7901 1st Avenue S	Waste Management submitted a Stormwater Treatment Engineering Report in May 2020 (Landau 2020 [12520]). The proposed treatment involved using a Chitosan Enhanced Sand Filtration system to comply with Level 3 Corrective Action requirements in the ISGP. Ecology WQ approved the stormwater treatment System Design Engineering Report in June 2020 (Ecology 2020I [12512]).
<b>Lower Reach</b>			
<b>RM 1.2-1.7 East (St. Gobain to Glacier Northwest)</b>			
WAR000056	Certainteed Gypsum Manufacturing	5931 East Marginal Way S	Ecology WQ recommended issuing an Administrative Order to Certainteed Gypsum as an enforcement action for discharging gypsum to the Duwamish in January 2020. The proposed Administrative Order will establish a compliance timeline to complete necessary modifications to their conveyor belt system, require that they conduct an evaluation of their gypsum dust collection system, and require ongoing inspections of the conveyor belt system and monitoring of gypsum unloading activities to prevent future illicit discharges of gypsum (Ecology 2020b [12492]).

BMP = best management practice  
 EAA = Early Action Area

ISGP = Industrial Stormwater General Permit

**Appendix F:  
SPU Source Tracing  
Data (2020)**

**Appendix F-1.  
SPU Source Tracing Sample Locations (2020)**

Station ID	Sample No.	Date	Type	Sewer Type	Source Control Area	Outfall	Location	X Coordinate	Y Coordinate
<b>UPPER REACH</b>									
MH1	NCH-022620-2	2/26/2020	Grab	SD	RM 4.9 East	Norfolk CSO/SD	Norfolk-MLK Way SD 36-inch outfall to ditch	1282284.10	189388.74
NST1	NST1-102020-G	10/20/2020	SedTrap	SD	RM 4.9 East	Norfolk CSO/SD	60-in line west of MLK Way	1283043.33	189358.24
NST1	NST1-102020	10/20/2020	SedTrap	SD	RM 4.9 East	Norfolk CSO/SD	60-in line west of MLK Way	1283043.33	189358.24
NST3	NST3-101620	10/16/2020	SedTrap	SD	RM 4.9 East	Norfolk CSO/SD	Ditch at MLK Way and Boeing Access Road	1283147.01	188728.61
NST4	NST4-102020	10/20/2020	SedTrap	SD	RM 4.9 East	Norfolk CSO/SD	S Norfolk St at SE corner KC Airport	1280697.58	190890.74
NST5	NST5-101620	10/16/2020	SedTrap	SD	RM 4.9 East	Norfolk CSO/SD	East Marginal Way S at S Norfolk Street	1279322.05	190882.62
ODS81	MKJ-061520-2	6/15/2020	Grab	SD	RM 4.9 East	Norfolk CSO/SD	Planting strip in SE corner sidewalk at 9243 M L King Jr Way S	1282960.19	192743.61
ODS82	MKJ-061520-4	6/15/2020	Grab	SD	RM 4.9 East	Norfolk CSO/SD	Culvert outflow to ditch at southern end of 8300 Military Rd S	1279637.06	195582.03
RCB318	MKJ-061520-3	6/15/2020	Grab	SD	RM 4.9 East	Norfolk CSO/SD	CB South of 9243 M L King Jr Way S in curb on west side of street	1282979.88	192608.73
17TH-ST1	17TH-ST1-101620	10/16/2020	SedTrap	SD	RM 3.4-3.8 West	17th Ave S SD	Dallas Avenue just outside SE corner of South Park Marina property	1275054.02	195624.02
ODS80	NCH-042920-2	4/29/2020	Grab	SD	RM 3.4-3.8 West	17th Ave S SD	In alleyway near CB	1274866.57	195385.68
RCB317	NCH-042920-3	4/29/2020	Grab	SD	RM 3.4-3.8 West	17th Ave S SD	Presettling Cell on Bioretention Cell A @ T117	1274794.70	195744.54
RCB75	NCH-042920-1	4/29/2020	Grab	SD	RM 3.4-3.8 West	17th Ave S SD	Presettling Cell @ Bioretention cell F @ T117 cleanup project	1274885.55	195417.77
<b>MIDDLE REACH</b>									
MH32 (SL4-T6)	SL4-T6-041619	10/16/2020	SedTrap	SD	RM 2.8 East	I-5 SD (Slip 4)	Maintenance hole at Airport Way S and S Hardy Street	1274989.40	202834.00
MH32 (SL4-T6)	SL4-T6-041619-G	10/16/2020	SedTrap	SD	RM 2.8 East	I-5 SD (Slip 4)	Maintenance hole at Airport Way S and S Hardy Street	1274989.40	202834.00
MH100	HAMLIN-M-102820	10/28/2020	SedTrap	SD	RM 2.3-2.8 East	S Myrtle St SD	Manhole at W end S Myrtle Street opposite Seattle Iron and Metals	1271369.99	200335.70
MH100	MYR-ST1-102820	10/28/2020	SedTrap	SD	RM 2.3-2.8 East	S Myrtle St SD	Manhole at W end S Myrtle Street opposite Seattle Iron and Metals	1271369.99	200335.70
MH100	RORY-M-102820	10/28/2020	SedTrap	SD	RM 2.3-2.8 East	S Myrtle St SD	Manhole at W end S Myrtle Street opposite Seattle Iron and Metals	1271369.99	200335.70
MH100	SIFT-M-102820	10/28/2020	SedTrap	SD	RM 2.3-2.8 East	S Myrtle St SD	Manhole at W end S Myrtle Street opposite Seattle Iron and Metals	1271369.99	200335.70
MH100	TRENT-M-102820	10/28/2020	SedTrap	SD	RM 2.3-2.8 East	S Myrtle St SD	Manhole at W end S Myrtle Street opposite Seattle Iron and Metals	1271369.99	200335.70
MH68	MKJ-061720-1	6/17/2020	SedTrap	SD	RM 2.3-2.8 East	S Garden St SD	S Garden Street by SIM (601 S Myrtle St), composite of two MHs	1271990.87	199819.88
MH211	MKJ-061720-2	6/17/2020	Grab	SD	RM 2.0-2.3 East	S River St SD	Last maintenance hole on line	1269926.63	201715.30
MH223	MKJ-091720-2	9/17/2020	Grab	SD	RM 2.0-2.3 East	S Brighton St SD	Immediately u/s of MH222	1270726.75	201133.36
7th-ST1	7TH-ST1-101520-G	10/15/2020	SedTrap	SD	RM 2.2-3.4 West	7th Ave S SD	7th Avenue S at S Portland Street, SPU #599721	1271845.54	198135.36
RCB195	MKJ-071720-2	7/17/2020	Grab	SD	RM 2.2-3.4 West	7th Ave S SD	Independent Metals storage lot at 703 S Monroe Street, inlet on the east side of 7th Avenue S and midway between S Monroe Street and S Elmgrove Street	1271826.68	197255.04
RCB323	MKJ-071720-3	7/17/2020	Grab	SD	RM 2.2-3.4 West	7th Ave S SD	Inlet north side of S Elmgrove, east of 7th Avenue S	1271842.96	197112.51
RCB45	MKJ-071720-1	7/17/2020	Grab	SD	RM 2.1-2.2 West	2nd Ave S SD	2nd Avenue S at Ditch upstream of tide gate	1270397.69	199150.21
1st-ST1	1ST-ST1-101620	10/16/2020	SedTrap	SD	RM 2.1 West	1st Ave S SD	1st Avenue S pond, N side of S Holden St--SR99 inlet	1269988.18	198544.26
1st-ST2	1ST-ST2-090220	9/2/2020	Grab	SD	RM 2.1 West	1st Ave S SD	1st Avenue S pond, north side of S Holden St--SR509 inlet, SPU #786737	1269790.80	198570.70
MH216	AGP-061820-8	6/18/2020	Grab	SD	RM 2.1 West	1st Ave S SD	2nd Avenue S south of S Kenyon (by South Park transfer station)	1270357.31	197352.44
HP-ST6	HP-ST6-101520-G	10/15/2020	SedTrap	SD	RM 1.6-2.1 West	Highland Park Way SW SD	SW Michigan Street just east of West Marginal Way S	1268086.32	200870.80
RCB319	MKJ-071620-3	7/16/2020	Grab	SD	RM 1.6-2.1 West	SW Kenny St SD/T115 CSO	Southeast corner of West Marginal Way SW and S Front Street	1267132.58	203570.49
RCB320	MKJ-071620-5	7/16/2020	Grab	SD	RM 1.6-2.1 West	SW Kenny St SD/T115 CSO	South side of SW Front Street, east of West Marginal Way SW	1267277.54	203592.19
RCB321	MKJ-071620-6	7/16/2020	Grab	SD	RM 1.6-2.1 West	SW Kenny St SD/T115 CSO	South side of SW Front Street mid-block north of Port warehouse	1267444.21	203588.72
RCB322	MKJ-071620-7	7/16/2020	Grab	SD	RM 1.6-2.1 West	SW Kenny St SD/T115 CSO	North side of SW Front St, both sides of driveway	1267514.52	203641.67
<b>LOWER REACH</b>									
MH18	NCH-061620-1	6/16/2020	Grab	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	6th Avenue S and S Snoqualmie Street	1271741.79	208576.18
MH52	NCH-022620-1	2/26/2020	Grab	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	Various lids in location. Taken from maintenance hole in SE of north junction, just upstream from flap gate	1269281.61	209080.07
MH58	NCH-062320-3	6/23/2020	Grab	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	NE of Ohio Avenue S, at mainline bend	1268999.40	209038.58
MH59	NCH-062320-1	6/23/2020	Grab	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	Maintenance hole at Diagonal outfall, 5 feet from river	1267147.11	209084.83
MH67	MKJ-061520-1	6/15/2020	Grab	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	Sandbox junction box on ditch/culvert to east side of 7th, NE of corner of 7th and Dakota	1272457.71	210528.94
ODS83	AGP-061820-1	6/18/2020	Grab	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	Street gutter on North side of S Nevada Street, north of customs	1267801.25	210052.41
ODS84	AGP-061820-2	6/18/2020	Grab	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	Street gutter on North side of S Nevada Street, northwest of Bakery	1268217.22	210047.55
ODS89	AGP-120820-1	12/8/2020	Grab	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	Garage Door #2	1268147.91	210057.99
ODS90	AGP-120820-2	12/8/2020	Grab	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	Base of yellow bars, NW corner, US Customs and Border Protection	1267777.77	210013.51
RCB306	NCH-061620-2	6/16/2020	Grab	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	7th Avenue S & S Oregon Street, NE Corner	1272415.41	209016.20
RCB324	AGP-061820-3	6/18/2020	Grab	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	CB on south side of Nevada, western most CB	1267515.14	210017.69

**Appendix F-1.  
SPU Source Tracing Sample Locations (2020)**

Station ID	Sample No.	Date	Type	Sewer Type	Source Control Area	Outfall	Location	X Coordinate	Y Coordinate
RBC325	AGP-061820-4	6/18/2020	Grab	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	CB on south side of Nevada, 2nd CB from west end	1267702.64	210017.69
RBC326	MKJ-090320-1	9/3/2020	Grab	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	CB east of 4021 6th Avenue S, on west side of 6th	1271741.66	210526.43
RBC327	AGP-031920-7	3/19/2020	Grab	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	Junction box in NE corner of intersection of S Dakota Street and 7th Avenue S	1272452.79	210484.21
RBC86	AGP-061820-6	6/18/2020	Grab	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	South side of Nevada Street at edge of Mary's Place donation parking area	1267896.54	210012.75
RBC88	AGP-061820-7	6/18/2020	Grab	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	South side of Nevada Street near western edge of 11 S Nevada Street property	1268085.61	210009.63
RBC96	AGP-031920-4	3/19/2020	Grab	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	North side of S Dakota Street at 620 S Dakota Street	1272021.96	210469.99
RBC97	AGP-031920-5	3/19/2020	Grab	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	South Side of S Dakota St north of 620 S Industrial Way, inlet	1272020.41	210439.81
RBC98	AGP-031920-6	3/19/2020	Grab	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	RCB in NW Corner of S Dakota and 7th Avenue S	1272416.93	210490.51
RBCSTEV2	AGP-061920-1	6/19/2020	Grab	SD	RM 0.1-0.9 East	Diagonal Ave S CSO/SD	Airport Way S at S Stevens Street	1273367.78	213984.41
ST1	NCH-062320-2	6/23/2020	Grab	SD	RM 0.1-0.9 East	2155	Sediment Trap 1: E Marginal Wy and S Oregon St	1268420.84	209048.79
ST09	NCH-111220-1	11/12/2020	SedTrap	SD	RM 0.1-0.9 East	2155	In maintenance hole in center of 7th Avenue S and S Snoqualmie Street, in mainline entering from the north, taking flow from 7th Avenue S	1272356.02	208569.68
ST1	ST1-062320	6/23/2020	SedTrap	SD	RM 0.1-0.9 East	2155	Sediment Trap 1: E Marginal Wy and S Oregon St	1268420.84	209048.79
ST10	NCH-111220-2	11/12/2020	SedTrap	SD	RM 0.1-0.9 East	2155	Intersection of 6th Avenue S and S Alaska Street	1271739.35	208296.24
ST2/SedTapPilo	DIAG-ST1-102820	10/28/2020	SedTrap	SD	RM 0.1-0.9 East	2155	Sediment Trap 2: Airport Way S and 6th Ave S (I-5 SB RP)	1272836.86	211846.87
ST2/SedTapPilo	HAMLIN-D-102820	10/28/2020	SedTrap	SD	RM 0.1-0.9 East	2155	Sediment Trap 2: Airport Way S and 6th Ave S (I-5 SB RP)	1272836.86	211846.87
ST2/SedTapPilo	RORY-D-102820	10/28/2020	SedTrap	SD	RM 0.1-0.9 East	2155	Sediment Trap 2: Airport Way S and 6th Ave S (I-5 SB RP)	1272836.86	211846.87
ST2/SedTapPilo	SIFT-D-102820	10/28/2020	SedTrap	SD	RM 0.1-0.9 East	2155	Sediment Trap 2: Airport Way S and 6th Ave S (I-5 SB RP)	1272836.86	211846.87
ST2/SedTapPilo	TRENT-D-102820	10/28/2020	SedTrap	SD	RM 0.1-0.9 East	2155	Sediment Trap 2: Airport Way S and 6th Ave S (I-5 SB RP)	1272836.86	211846.87
ST7	ST7-101520-G	10/15/2020	SedTrap	SD	RM 0.1-0.9 East	2155	Sediment Trap 7: S Dakota St and 6th Ave S	1271722.72	210480.65
ID-ST3	ID-ST3-090220	9/2/2020	SedTrap	SD	RM 0.0-1.0 West	2147	North end of 19th Ave SW at SW Dawson St	1263879.13	206423.86
MH69	MKJ-071620-2	7/16/2020	Grab	SD	RM 0.0-1.0 West	SW Dakota St SD/Ditch	MH on SW Dakota Street to the East of 16th Avenue SW	1264945.22	210670.78
RBC200a	MKJ-071620-1	7/24/2020	Grab	SD	RM 0.0-1.0 West	2233	SW Dakota Street just east of West Marginal Way SW	1265107.54	210662.85

SedTrap - sediment trap

CB - catch basin

CSO - combined sewer overflow

KCIA - King County International Airport

MH - maintenance hole

SD - storm drain

**Appendix F-2.**  
**SPU Source Tracing Results (2020)**  
 (All concentrations in mg/kg except as noted.)

Station ID	Outfall	Date Sampled	Sample Type	Total Organic Carbon (%)	Arsenic	Copper	Lead	Mercury	Zinc	Diesel Range HC*	Motor Oil Range HC*	Aroclor 1242	Aroclor 1248	Aroclor 1254
SCO				--	57	390	450	0.41	410	2,000	2,000	--	--	--
CSL/RAL/Method A				--	93	390	530	0.59	960	2,000	2,000	--	--	--
<b>UPPER REACH</b>														
MH1	Norfolk CSO/SD	2/26/2020	Grab	10.2	21	160	100	0.18	940	1,360 J	na	0.02 U	0.09	0.17
NST1	Norfolk CSO/SD	10/20/2020	SedTrap	4.01	8.9 U	110 J	52	0.066	430	581	na	0.019 U	0.019 U	0.05
NST1	Norfolk CSO/SD	10/20/2020	SedTrap	8.62	9.8 U	190	93	0.13	790	995	na	0.019 U	0.065	0.12
NST3	Norfolk CSO/SD	10/16/2020	SedTrap	3.89	6.4	50	26	0.031	250	60.9 J	na	0.02 U	0.02 U	0.02 U
NST4	Norfolk CSO/SD	10/20/2020	SedTrap	3.56	na	na	na	na	na	na	na	0.085 U	0.085 U	0.085 U
NST5	Norfolk CSO/SD	10/16/2020	SedTrap	3.23	na	na	na	na	na	na	na	0.038 U	0.038 U	0.038 U
ODS81	Norfolk CSO/SD	6/15/2020	Grab	9.25	7.3	80	25	0.045	330	90.7	na	0.02 U	0.02 U	0.02 U
ODS82	Norfolk CSO/SD	6/15/2020	Grab	16.1	23 U	130	240	0.19	720	249	na	0.02 U	0.042	0.1
RCB318	Norfolk CSO/SD	6/15/2020	Grab	1.33	7 U	37	18	0.014 J	120	81	na	0.02 U	0.02 U	0.02 U
17TH-ST1	17th Ave S SD	10/16/2020	SedTrap	13.1	na	na	na	na	na	na	na	0.2 U	0.2 U	0.2 U
ODS80	17th Ave S SD	4/29/2020	Grab		8.6	34	13	0.023 J	83	na	na	0.02 U	0.02 U	0.02 U
RCB317	17th Ave S SD	4/29/2020	Grab	16.2	14	250	73	0.11	680	470	na	0.02 U	0.053	0.054
RCB75	17th Ave S SD	4/29/2020	Grab	17	9.7	110	41	0.045	670	535	na	0.02 U	0.029	0.046
<b>MIDDLE REACH</b>														
SL4-T6	I-5 SD (Slip 4)	10/16/2020	SedTrap	5.08	12	120	57	0.043	470	214 J	na	0.02 U	0.036	0.03
SL4-T6	I-5 SD (Slip 4)	10/16/2020	SedTrap	0.94 J	2.4	100	320	0.011 J	340	34.8	na	0.02 U	0.02 U	0.02 U
MH100B	S Myrtle St SD	10/28/2020	SedTrap	11.1	16	790	640	1.2	4,800	1,280	na	0.02 U	0.31	0.23
MH100B	S Myrtle St SD	10/28/2020	SedTrap	12.6 J	21	620	530	1.1	3,600	4,340	18,000	1.3	0.053 U	0.33
MH100B	S Myrtle St SD	10/28/2020	SedTrap	10.7	19	740	530	1.2	2,600	2,160	na	0.02 UJ	0.28 J	0.2 J
MH100B	S Myrtle St SD	10/28/2020	SedTrap	13.1	15	790	570	1.2	3,600	2,150	na	0.02 UJ	0.47 J	0.25 J
MH100B	S Myrtle St SD	10/28/2020	SedTrap	12 J	32 U	690	550	1.2	3,900	2,990	na	1.5	0.049 U	0.37
MH68	S Garden St SD	6/17/2020	SedTrap	7.61	20 U	230	230	0.4	1,100	141	na	0.02 U	0.19	0.25
MH211	S River St SD	6/17/2020	Grab	6.32	20	110	79	0.13	510	309	na	0.02 UJ	0.036 J	0.034 J
MH223	S Brighton St SD	9/17/2020	Grab	16.1	37	200	190	0.29	1,100	984	na	0.02 U	0.067	0.088
7th-ST1	7th Ave S SD	10/15/2020	SedTrap	4.7	13	760	62	0.088	360 J	311	na	0.02 U	0.029	0.029
RCB195	7th Ave S SD	7/17/2020	Grab	1.54	22	96	55	0.11	210	113	na	0.02 U	0.075	0.095
RCB323	7th Ave S SD	7/17/2020	Grab	1.45	15 U	89	30	0.025 J	150	711	na	0.02 U	0.02 U	0.02 U
RCB45	2nd Ave S SD	7/17/2020	Grab	7.05	21	180	110	0.15	750	852	na	0.02 U	0.13	0.096
1st-ST1	1st Ave S SD	10/16/2020	SedTrap	19.9	19	280	110	0.21	1,500	1,300 J	na	0.02 UJ	0.04 J	0.046 J
1st-ST2	1st Ave S SD	9/2/2020	Grab	10.7 J	15 U	110	90	0.13	510	295 J	na	0.02 U	0.02	0.048
MH216	1st Ave S SD	6/18/2020	Grab	0.85	7.6	75	68	0.037	340	69.1	na	0.02 U	0.02 U	0.02 U
HP-ST6	Highland Park Way SW SD	10/15/2020	SedTrap	7.11	27	99	130	0.23	1,000 J	312	na	0.02 U	0.055	0.037
RCB319	SW Kenny St SD/T115 CSO	7/16/2020	Grab	5.56	31	170	87	0.15	740	337	na	0.24	0.02 U	0.073
RCB320	SW Kenny St SD/T115 CSO	7/16/2020	Grab	16.2	17 U	84	690	0.45	1,900	257	na	0.02 U	0.032	0.023
RCB321	SW Kenny St SD/T115 CSO	7/16/2020	Grab	13.2	22	120	53	0.093	680	694	na	0.02 U	0.02 U	0.02 U
RCB322	SW Kenny St SD/T115 CSO	7/16/2020	Grab	13.4	21	140	680	0.39	3,200	827	na	0.02 U	0.053	0.04

**Appendix F-2.**  
**SPU Source Tracing Results (2020)**  
 (All concentrations in mg/kg except as noted.)

Station ID	Outfall	Date Sampled	Sample Type	Total Organic Carbon (%)	Arsenic	Copper	Lead	Mercury	Zinc	Diesel Range HC*	Motor Oil Range HC*	Aroclor 1242	Aroclor 1248	Aroclor 1254
SCO				--	57	390	450	0.41	410	2,000	2,000	--	--	--
CSL/RAL/Method A				--	93	390	530	0.59	960	2,000	2,000	--	--	--
<b>LOWER REACH</b>														
MH18, SQ3	Diagonal Ave S CSO/SD	6/16/2020	Grab	1.79	6.9 U	79	46	0.14	210	342	na	0.02 U	0.13	0.092
MH52	Diagonal Ave S CSO/SD	2/26/2020	Grab	7.25	16	110	160	0.14	1,100	1,630 J	na	0.02 UJ	4.8 R	1.3 R
MH58	Diagonal Ave S CSO/SD	6/23/2020	Grab	0.42	6.3 U	37	81	0.036	150	35.3	na	0.023	0.02 U	0.02 U
MH59	Diagonal Ave S CSO/SD	6/23/2020	Grab	0.72	7.6	42	16	0.028	190	57.4	na	0.063	0.019 U	0.019 U
MH67	Diagonal Ave S CSO/SD	6/15/2020	Grab	2.84	6.2 U	20	14	0.031	98	10.9	na	0.02 U	0.02 U	0.02 U
ODS83	Diagonal Ave S CSO/SD	6/18/2020	Grab	9.14	17 U	110	95	0.1	1,200	42.1	na	0.02 U	0.03	0.065
ODS84	Diagonal Ave S CSO/SD	6/18/2020	Grab	9.91	22 U	110	85	0.098	1,200	63.8	na	0.02 U	0.038	0.055
ODS89	Diagonal Ave S CSO/SD	12/8/2020	Grab	na	na	na	na	na	na	na	na	0.2 U	0.2 U	0.2 U
ODS90	Diagonal Ave S CSO/SD	12/8/2020	Grab	na	na	na	na	na	na	na	na	0.02 U	0.02 U	0.047
RCB306	Diagonal Ave S CSO/SD	6/16/2020	Grab	16.2	12 U	56	21	0.03 J	670	203	na	0.02 U	0.02 U	0.02
RCB324	Diagonal Ave S CSO/SD	6/18/2020	Grab	17.4	21	290	170	0.11	2,200	1,870	na	0.02 U	0.12	0.16
RCB325	Diagonal Ave S CSO/SD	6/18/2020	Grab	11	14	310	170	0.1	2,000	4,150	na	0.02 U	0.12	0.3
RCB326	Diagonal Ave S CSO/SD	9/3/2020	Grab	9.64	7.7 U	67	25	0.023 J	320	327	na	0.02 U	0.02 U	0.02 U
RCB327	Diagonal Ave S CSO/SD	3/19/2020	Grab	1.3	6.2 U	42	19	0.024	110	69.7	na	0.02 U	0.02 U	0.02 U
RCB86	Diagonal Ave S CSO/SD	6/18/2020	Grab	5.52	11	110	290	0.056	630	584	na	0.02 U	0.09	0.14
RCB88	Diagonal Ave S CSO/SD	6/18/2020	Grab	9.01	9.9 U	91	33	0.057	590	1,770	na	0.02 U	0.076	0.05
RCB96	Diagonal Ave S CSO/SD	3/19/2020	Grab	8.44	12 U	62	23	0.042 J	330	594	na	0.02 U	0.024	0.051
RCB97	Diagonal Ave S CSO/SD	3/19/2020	Grab	4.99	9.2 U	56	120	0.026 J	180	381	na	0.02 U	0.02 U	0.051
RCB98	Diagonal Ave S CSO/SD	3/19/2020	Grab	1.61	6.4	65	12	0.024	84	112	na	0.02 U	0.02 U	0.02 U
RCBSTEV2	Diagonal Ave S CSO/SD	6/19/2020	Grab	5.77	32 U	130	59	0.16	510		na	0.2 U	0.2 U	3.4
ST1	Diagonal Ave S CSO/SD	6/23/2020	Grab	0.83	7.9	42	25	0.059	190	82.9	na	0.047	0.02 U	0.02 U
ST1	Diagonal Ave S CSO/SD	6/23/2020	SedTrap	12.7	19	180	97	0.18	750	686	na	0.36	0.019 U	0.088
ST09	Diagonal Ave S CSO/SD	11/12/2020	SedTrap	na	na	na	na	na	na	1,510	na	0.046 U	0.088	0.13
ST10	Diagonal Ave S CSO/SD	11/12/2020	SedTrap	na	na	na	na	na	na	649	na	0.032 U	0.053	0.063
ST2/SedTapPilot	Diagonal Ave S CSO/SD	10/28/2020	SedTrap	6.67 J	12	230	63	0.04	640	500	na	0.097	0.02 U	0.02 U
ST2/SedTapPilot	Diagonal Ave S CSO/SD	10/28/2020	SedTrap	1.98	7	160	37	0.03	290	110	na	0.02 U	0.041	0.025
ST2/SedTapPilot	Diagonal Ave S CSO/SD	10/28/2020	SedTrap	11.9 J	16	190	100	0.11	790	734	na	0.14	0.053 U	0.053 U
ST2/SedTapPilot	Diagonal Ave S CSO/SD	10/28/2020	SedTrap	8.52	8.4 U	130	62	0.034 J	660	622	na	0.02 U	0.057	0.037
ST2/SedTapPilot	Diagonal Ave S CSO/SD	10/28/2020	SedTrap	11.3	42 U	540	290	0.19	2,100	881	na	0.02 U	0.073	0.049
ST7	Diagonal Ave S CSO/SD	10/15/2020	SedTrap	0.94	6 U	61	19	0.023 J	180 J	68.2	na	0.02 U	0.026	0.026
ID-ST3	SW Idaho St SD	9/2/2020	SedTrap	5.84 J	11 U	22	33	0.096	170	59.7 J	na	0.02 U	0.02 U	0.039
MH69	SW Dakota St SD/Ditch	7/16/2020	Grab	13.5	20 U	240	120	0.22	1,900	304	na	0.02 U	0.11	0.13
RCB200a	SW Dakota St SD/Ditch	7/24/2020	Grab	10.4	19	180	140	0.25	1,200	345	na	0.02 UJ	0.08 J	0.051 J

**Appendix F-2.**  
**SPU Source Tracing Results (2020)**  
 (All concentrations in mg/kg except as noted.)

Station ID	Outfall	Aroclor 1260	Total PCB Aroclors	1-Methyl-naphthalene	2-Methyl-naphthalene	Acenaph-thene	Acenaph-thylene	Anthra-cene	Fluorene	Naphtha-lene	Phenan-threne	Total LPAHs	Benzo(a)anthracene
SCO		--	0.13	--	0.67	0.5	1.3	0.96	0.54	2.1	1.5	5.2	1.3
CSL/RAL/Method A		--	1.0	--	0.67	0.5	1.3	0.96	0.54	2.1	1.5	5.2	1.6
<b>UPPER REACH</b>													
MH1	Norfolk CSO/SD	<b>0.065</b>	<b>0.33</b>	<b>0.04 J</b>	<b>0.077 J</b>	<b>0.06 J</b>	<b>0.041 J</b>	<b>0.38 J</b>	<b>0.11 J</b>	<b>0.096 J</b>	<b>0.72 J</b>	<b>1.4 J</b>	<b>0.5</b>
NST1	Norfolk CSO/SD	<b>0.028</b>	<b>0.078</b>	0.099 U	<b>0.032 J</b>	<b>0.039 J</b>	0.099 U	<b>0.07 J</b>	<b>0.067 J</b>	<b>0.044 J</b>	<b>0.39</b>	<b>0.61 J</b>	<b>0.28</b>
NST1	Norfolk CSO/SD	<b>0.049</b>	<b>0.23</b>	0.3 U	0.3 U	0.3 U	0.3 U	<b>0.11 J</b>	<b>0.11 J</b>	0.3 U	<b>0.58</b>	<b>0.79 J</b>	<b>0.39</b>
NST3	Norfolk CSO/SD	0.02 U	0.02 U	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	<b>0.082 J</b>	<b>0.082 J</b>	<b>0.064</b>
NST4	Norfolk CSO/SD	0.085 U	0.085 U	na	na	na	na	na	na	na	na	na	na
NST5	Norfolk CSO/SD	<b>0.074</b>	<b>0.074</b>	na	na	na	na	na	na	na	na	na	na
ODS81	Norfolk CSO/SD	0.02 U	0.02 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	<b>0.13</b>	<b>0.13</b>	<b>0.12</b>
ODS82	Norfolk CSO/SD	<b>0.081</b>	<b>0.23</b>	0.1 U	<b>0.035 J</b>	0.1 U	<b>0.043 J</b>	<b>0.083 J</b>	<b>0.031 J</b>	<b>0.05 J</b>	<b>0.35</b>	<b>0.56 J</b>	<b>0.33</b>
RCB318	Norfolk CSO/SD	0.02 U	0.02 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	<b>0.078 J</b>	<b>0.078 J</b>	<b>0.053</b>
17TH-ST1	17th Ave S SD	<b>0.6</b>	<b>0.6</b>	na	na	na	na	na	na	na	na	na	na
ODS80	17th Ave S SD	<b>0.042</b>	<b>0.042</b>	0.02 U	0.02 U	0.02 U	<b>0.0055 J</b>	<b>0.011 J</b>	0.02 U	<b>0.0084 J</b>	<b>0.047</b>	<b>0.072 J</b>	<b>0.052</b>
RCB317	17th Ave S SD	<b>0.087</b>	<b>0.19</b>	0.1 U	<b>0.041 J</b>	0.1 U	<b>0.028 J</b>	<b>0.036 J</b>	0.1 U	<b>0.087 J</b>	<b>0.27</b>	<b>0.42 J</b>	<b>0.15</b>
RCB75	17th Ave S SD	<b>0.068</b>	<b>0.14</b>	0.1 U	<b>0.054 J</b>	0.1 U	0.1 U	<b>0.051 J</b>	<b>0.029 J</b>	<b>0.097 J</b>	<b>0.43</b>	<b>0.6 J</b>	<b>0.16</b>
<b>MIDDLE REACH</b>													
SL4-T6	I-5 SD (Slip 4)	<b>0.048</b>	<b>0.11</b>	0.1 UJ	<b>0.029 J</b>	<b>0.056 J</b>	0.1 UJ	<b>0.076 J</b>	<b>0.083 J</b>	<b>0.044 J</b>	<b>0.44 J</b>	<b>0.7 J</b>	<b>0.19</b>
SL4-T6	I-5 SD (Slip 4)	0.02 U	0.02 U	0.1 U	0.1 U	0.1 U	0.1 U	<b>0.041 J</b>	0.1 U	0.1 U	<b>0.032 J</b>	<b>0.072 J</b>	0.1
MH100B	S Myrtle St SD	<b>0.13</b>	<b>0.67</b>	<b>0.077 J</b>	<b>0.15</b>	<b>0.033 J</b>	<b>0.047 J</b>	<b>0.19</b>	<b>0.027 J</b>	<b>0.18</b>	<b>0.44</b>	<b>0.92 J</b>	<b>1.3</b>
MH100B	S Myrtle St SD	<b>0.17</b>	<b>1.8</b>	<b>0.36</b>	<b>0.7</b>	<b>0.076 J</b>	0.26 U	<b>0.18 J</b>	<b>0.12 J</b>	<b>0.55</b>	<b>0.76</b>	<b>1.7 J</b>	<b>0.39</b>
MH100B	S Myrtle St SD	<b>0.1 J</b>	<b>0.58 J</b>	<b>0.077 J</b>	<b>0.19</b>	0.1 U	0.1 U	<b>0.074 J</b>	<b>0.033 J</b>	<b>0.17</b>	<b>0.31</b>	<b>0.58 J</b>	<b>0.22</b>
MH100B	S Myrtle St SD	<b>0.11 J</b>	<b>0.83 J</b>	<b>0.12</b>	<b>0.23</b>	<b>0.039 J</b>	<b>0.028 J</b>	<b>0.087 J</b>	<b>0.038 J</b>	<b>0.23</b>	<b>0.46</b>	<b>0.88 J</b>	<b>0.29</b>
MH100B	S Myrtle St SD	<b>0.17</b>	<b>2.0</b>	<b>0.11</b>	<b>0.22</b>	<b>0.052 J</b>	<b>0.043 J</b>	<b>0.15</b>	<b>0.058 J</b>	<b>0.31</b>	<b>0.6</b>	<b>1.2 J</b>	<b>0.35</b>
MH68	S Garden St SD	<b>0.94</b>	<b>1.4</b>	0.1 U	<b>0.054 J</b>	0.1 U	0.1 U	<b>0.047 J</b>	0.1 U	<b>0.069 J</b>	<b>0.18</b>	<b>0.3 J</b>	<b>0.11</b>
MH211	S River St SD	<b>0.05 J</b>	<b>0.12 J</b>	0.1 U	<b>0.035 J</b>	0.1 U	<b>0.034 J</b>	<b>0.12</b>	0.1 U	<b>0.057 J</b>	<b>0.25</b>	<b>0.46 J</b>	<b>0.43</b>
MH223	S Brighton St SD	<b>0.17</b>	<b>0.32</b>	0.1 U	<b>0.039 J</b>	<b>0.28</b>	<b>0.048 J</b>	<b>0.19</b>	<b>0.05 J</b>	0.1 U	<b>0.35</b>	<b>0.91 J</b>	<b>0.47</b>
7th-ST1	7th Ave S SD	<b>0.079</b>	<b>0.14</b>	0.1 U	0.1 U	0.1 U	0.1 U	<b>0.033 J</b>	0.1 U	<b>0.032 J</b>	<b>0.13</b>	<b>0.19 J</b>	<b>0.11</b>
RCB195	7th Ave S SD	<b>0.082</b>	<b>0.25</b>	0.099 U	0.099 U	<b>0.028 J</b>	0.099 U	<b>0.084 J</b>	0.099 U	<b>0.033 J</b>	<b>0.34</b>	<b>0.48 J</b>	<b>0.26</b>
RCB323	7th Ave S SD	0.02 U	0.02 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1
RCB45	2nd Ave S SD	<b>0.12</b>	<b>0.35</b>	0.1 U	<b>0.035 J</b>	0.1 U	0.1 U	<b>0.072 J</b>	0.1 U	<b>0.063 J</b>	<b>0.18</b>	<b>0.31 J</b>	<b>0.17</b>
1st-ST1	1st Ave S SD	<b>0.078 J</b>	<b>0.16 J</b>	0.1 UJ	<b>0.044 J</b>	0.1 UJ	<b>0.035 J</b>	<b>0.079 J</b>	<b>0.043 J</b>	<b>0.09 J</b>	<b>0.47 J</b>	<b>0.71 J</b>	<b>0.27</b>
1st-ST2	1st Ave S SD	<b>0.045</b>	<b>0.11</b>	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	<b>0.16 J</b>	<b>0.16 J</b>	<b>0.12</b>
MH216	1st Ave S SD	<b>0.027</b>	<b>0.027</b>	0.1 U	0.1 U	<b>0.067 J</b>	0.1 U	<b>0.071 J</b>	<b>0.097 J</b>	0.1 U	<b>0.54</b>	<b>0.78 J</b>	<b>0.032</b>
HP-ST6	Highland Park Way SW SD	<b>0.055</b>	<b>0.15</b>	0.1 U	0.1 U	<b>0.13</b>	<b>0.024 J</b>	<b>0.18</b>	<b>0.071 J</b>	<b>0.061 J</b>	<b>0.15</b>	<b>0.62 J</b>	<b>0.18</b>
RCB319	SW Kenny St SD/T115 CSO	<b>0.061</b>	<b>0.37</b>	0.1 U	0.1 U	0.1 U	<b>0.025 J</b>	<b>0.098 J</b>	<b>0.026 J</b>	<b>0.04 J</b>	<b>0.17</b>	<b>0.35 J</b>	<b>0.12</b>
RCB320	SW Kenny St SD/T115 CSO	<b>0.028</b>	<b>0.083</b>	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	<b>0.11</b>	<b>0.11</b>	<b>0.054</b>
RCB321	SW Kenny St SD/T115 CSO	<b>0.025</b>	<b>0.025</b>	0.1 U	0.1 U	0.1 U	0.1 U	<b>0.034 J</b>	0.1 U	<b>0.036 J</b>	<b>0.18</b>	<b>0.25 J</b>	<b>0.074</b>
RCB322	SW Kenny St SD/T115 CSO	<b>0.04</b>	<b>0.13</b>	<b>0.051 J</b>	<b>0.079 J</b>	0.1 U	0.1 U	<b>0.066 J</b>	<b>0.043 J</b>	<b>0.09 J</b>	<b>0.36</b>	<b>0.56 J</b>	<b>0.16</b>

**Appendix F-2.**  
**SPU Source Tracing Results (2020)**  
 (All concentrations in mg/kg except as noted.)

Station ID	Outfall	Aroclor 1260	Total PCB Aroclors	1-Methyl-naphthalene	2-Methyl-naphthalene	Acenaph-thene	Acenaph-thylene	Anthra-cene	Fluorene	Naphtha-lene	Phenan-threne	Total LPAHs	Benzo(a)anthracene
SCO		--	0.13	--	0.67	0.5	1.3	0.96	0.54	2.1	1.5	5.2	1.3
CSL/RAL/Method A		--	1.0	--	0.67	0.5	1.3	0.96	0.54	2.1	1.5	5.2	1.6
<b>LOWER REACH</b>													
MH18, SQ3	Diagonal Ave S CSO/SD	<b>0.076</b>	<b>0.3</b>	<b>0.047 J</b>	<b>0.064 J</b>	<b>0.11</b>	<b>0.026 J</b>	<b>0.34</b>	<b>0.093 J</b>	<b>0.055 J</b>	<b>1.8</b>	<b>2.4 J</b>	<b>1.3</b>
MH52	Diagonal Ave S CSO/SD	<b>0.28 J</b>	6.4 R	<b>0.18 J</b>	<b>0.24 J</b>	<b>0.37 J</b>	<b>0.1 J</b>	<b>0.47 J</b>	<b>0.23 J</b>	<b>0.38 J</b>	<b>2.2 J</b>	<b>3.8 J</b>	<b>0.97</b>
MH58	Diagonal Ave S CSO/SD	0.02 U	<b>0.023</b>	0.02 U	0.02 U	0.02 U	0.02 U	<b>0.007 J</b>	0.02 U	0.02 U	<b>0.037</b>	<b>0.044 J</b>	<b>0.026</b>
MH59	Diagonal Ave S CSO/SD	0.019 U	<b>0.063</b>	<b>0.007 J</b>	<b>0.0081 J</b>	<b>0.059</b>	0.02 U	<b>0.19</b>	<b>0.079</b>	<b>0.094</b>	<b>0.73</b>	<b>1.2</b>	<b>0.26</b>
MH67	Diagonal Ave S CSO/SD	0.02 U	0.02 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	<b>0.025 J</b>	<b>0.025 J</b>	<b>0.03</b>
ODS83	Diagonal Ave S CSO/SD	<b>0.081</b>	<b>0.18</b>	0.1 U	<b>0.036 J</b>	0.1 U	0.1 U	<b>0.035 J</b>	0.1 U	<b>0.04 J</b>	<b>0.4</b>	<b>0.47 J</b>	<b>0.18</b>
ODS84	Diagonal Ave S CSO/SD	<b>0.065</b>	<b>0.16</b>	0.1 U	<b>0.03 J</b>	0.1 U	0.1 U	<b>0.04 J</b>	0.1 U	<b>0.038 J</b>	<b>0.4</b>	<b>0.48 J</b>	<b>0.19</b>
ODS89	Diagonal Ave S CSO/SD	<b>3.6</b>	<b>3.6</b>	na	na	na	na	na	na	na	na	na	na
ODS90	Diagonal Ave S CSO/SD	<b>0.12</b>	<b>0.17</b>	na	na	na	na	na	na	na	na	na	na
RCB306	Diagonal Ave S CSO/SD	<b>0.031</b>	<b>0.051</b>	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	0.099 U	<b>0.17</b>	<b>0.17</b>	<b>0.079</b>
RCB324	Diagonal Ave S CSO/SD	<b>0.19</b>	<b>0.47</b>	<b>0.049 J</b>	<b>0.088 J</b>	<b>0.034 J</b>	<b>0.049 J</b>	<b>0.1</b>	<b>0.091 J</b>	<b>0.14</b>	<b>0.78</b>	<b>1.2 J</b>	<b>0.34</b>
RCB325	Diagonal Ave S CSO/SD	<b>0.91</b>	<b>1.3</b>	<b>0.058 J</b>	<b>0.14</b>	<b>0.097 J</b>	<b>0.035 J</b>	<b>0.14</b>	<b>0.17</b>	<b>0.12</b>	<b>1.6</b>	<b>2.1 J</b>	<b>0.56</b>
RCB326	Diagonal Ave S CSO/SD	<b>0.057</b>	<b>0.057</b>	0.1 U	<b>0.029 J</b>	0.1 U	0.1 U	<b>0.068 J</b>	<b>0.053 J</b>	<b>0.056 J</b>	<b>0.5</b>	<b>0.67 J</b>	<b>0.26</b>
RCB327	Diagonal Ave S CSO/SD	0.02 U	0.02 U	0.1 U	<b>0.031 J</b>	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	<b>0.15</b>	<b>0.15</b>	<b>0.051</b>
RCB86	Diagonal Ave S CSO/SD	<b>0.71</b>	<b>0.93</b>	<b>0.35</b>	<b>0.3</b>	<b>3.7</b>	<b>0.28</b>	<b>6.3</b>	<b>3.6</b>	<b>0.81</b>	52 R	67 R	18
RCB88	Diagonal Ave S CSO/SD	<b>0.12</b>	<b>0.25</b>	<b>0.087 J</b>	<b>0.13</b>	<b>0.21</b>	<b>0.067 J</b>	<b>0.35</b>	<b>0.23</b>	<b>0.16</b>	<b>3.2</b>	<b>4.2 J</b>	<b>1</b>
RCB96	Diagonal Ave S CSO/SD	<b>0.033</b>	<b>0.11</b>	0.15 U	0.15 U	<b>0.045 J</b>	0.15 U	<b>0.07 J</b>	<b>0.057 J</b>	<b>0.052 J</b>	<b>0.48</b>	<b>0.71 J</b>	<b>0.25</b>
RCB97	Diagonal Ave S CSO/SD	<b>0.026</b>	<b>0.077</b>	0.1 U	0.1 U	<b>0.037 J</b>	0.1 U	<b>0.063 J</b>	<b>0.031 J</b>	<b>0.042 J</b>	<b>0.39</b>	<b>0.56 J</b>	<b>0.26</b>
RCB98	Diagonal Ave S CSO/SD	0.02 U	0.02 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	<b>0.027 J</b>	<b>0.027 J</b>	0.1
RCBSTEV2	Diagonal Ave S CSO/SD	<b>3.7</b>	<b>7.1</b>	na	na	na	na	na	na	na	na	na	na
ST1	Diagonal Ave S CSO/SD	0.02 U	<b>0.047</b>	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	<b>0.036 J</b>	<b>0.036 J</b>	<b>0.021</b>
ST1	Diagonal Ave S CSO/SD	<b>0.05</b>	<b>0.49</b>	0.098 U	0.098 U	0.098 U	0.098 U	<b>0.047 J</b>	0.098 U	0.048 J	<b>0.23</b>	<b>0.32 J</b>	<b>0.16</b>
ST09	Diagonal Ave S CSO/SD	<b>0.061</b>	<b>0.28</b>	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U	<b>0.71 J</b>	<b>0.71 J</b>	<b>1</b>
ST10	Diagonal Ave S CSO/SD	<b>0.074</b>	<b>0.19</b>	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	<b>0.42 J</b>	<b>0.42 J</b>	<b>0.24</b>
ST2/SedTapPilot	Diagonal Ave S CSO/SD	0.02 U	<b>0.097</b>	<b>0.057 J</b>	<b>0.088 J</b>	<b>0.057 J</b>	0.1 U	<b>0.07 J</b>	<b>0.078 J</b>	<b>0.15</b>	<b>0.45</b>	<b>0.81 J</b>	<b>0.15</b>
ST2/SedTapPilot	Diagonal Ave S CSO/SD	0.02 U	<b>0.067</b>	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	<b>0.042 J</b>	<b>0.042 J</b>	<b>0.033</b>
ST2/SedTapPilot	Diagonal Ave S CSO/SD	0.053 U	<b>0.14</b>	0.1 U	<b>0.049 J</b>	0.1 U	<b>0.027 J</b>	<b>0.05 J</b>	0.1 U	<b>0.088 J</b>	<b>0.33</b>	<b>0.49 J</b>	<b>0.16</b>
ST2/SedTapPilot	Diagonal Ave S CSO/SD	0.02 U	<b>0.094</b>	0.1 U	<b>0.04 J</b>	0.1 U	<b>0.031 J</b>	<b>0.067 J</b>	<b>0.032 J</b>	<b>0.078 J</b>	<b>0.4</b>	<b>0.61 J</b>	<b>0.22</b>
ST2/SedTapPilot	Diagonal Ave S CSO/SD	0.02 U	<b>0.12</b>	<b>0.057 J</b>	<b>0.086 J</b>	<b>0.029 J</b>	<b>0.027 J</b>	<b>0.057 J</b>	<b>0.043 J</b>	<b>0.091 J</b>	<b>0.41</b>	<b>0.65 J</b>	<b>0.19</b>
ST7	Diagonal Ave S CSO/SD	0.02 U	<b>0.052</b>	0.1 U	0.1 U	0.1 U	0.1 U	<b>0.12</b>	0.1 U	0.1 U	<b>0.094 J</b>	<b>0.21 J</b>	<b>0.17</b>
ID-ST3	SW Idaho St SD	0.02 U	<b>0.039</b>	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	<b>0.032 J</b>	<b>0.032 J</b>	0.1
MH69	SW Dakota St SD/Ditch	<b>0.12</b>	<b>0.36</b>	0.1 U	<b>0.044 J</b>	0.1 U	<b>0.043 J</b>	<b>0.075 J</b>	<b>0.079 J</b>	<b>0.079 J</b>	<b>0.63</b>	<b>0.9 J</b>	<b>0.2</b>
RCB200a	SW Dakota St SD/Ditch	<b>0.054 J</b>	<b>0.18 J</b>	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	<b>0.39 J</b>	<b>0.39 J</b>	<b>0.28</b>

**Appendix F-2.**  
**SPU Source Tracing Results (2020)**  
 (All concentrations in mg/kg except as noted.)

Station ID	Outfall	ne	Benzo(a) pyrene	Benzo(g,h,i) perylene	Total Benzo- fluoranthenes	Chrysene	Dibenzo(a,h) anthracene	Fluoran- thene	Indeno (1,2,3-cd) pyrene	Pyrene	Total HPAHs	Total cPAH TEQ	BEHP
SCO			1.6	0.67	3.2	1.4	0.23	1.7	0.60	2.6	12	1.0	1.3
CSL/RAL/Method A			1.6	0.72	3.6	2.8	0.23	2.5	0.69	3.3	17	1.0	1.9
<b>UPPER REACH</b>													
MH1	Norfolk CSO/SD	J	0.71 J	0.47 J	1.7 J	1.1 J	0.13 J	1.6 J	0.38 J	1.6 J	8.2 J	0.99 J	11 J
NST1	Norfolk CSO/SD		0.35	0.43	0.74	0.54	0.083 J	0.79	0.32	0.91	4.4 J	0.5 J	4.7
NST1	Norfolk CSO/SD		0.48	0.64	1.1	0.81	0.16 J	1.1	0.45	1.2	6.3 J	0.7 J	8.1
NST3	Norfolk CSO/SD	J	0.13 J	0.22 J	0.3 J	0.18 J	0.1 UJ	0.2 J	0.12 J	0.21 J	1.4 J	0.19 J	1 J
NST4	Norfolk CSO/SD		na	na	na	na	na	na	na	na	na	na	na
NST5	Norfolk CSO/SD		na	na	na	na	na	na	na	na	na	na	na
ODS81	Norfolk CSO/SD		0.2	0.2	0.38	0.36	0.046 J	0.27	0.11	0.29	2 J	0.27 J	1.3
ODS82	Norfolk CSO/SD		0.42	0.23	1.1	0.91	0.095 J	0.83	0.18	0.81	4.8 J	0.6 J	6
RCB318	Norfolk CSO/SD	J	0.048 J	0.066 J	0.13 J	0.091 J	0.099 U	0.14	0.036 J	0.15	0.7 J	0.076 J	1.3
17TH-ST1	17th Ave S SD		na	na	na	na	na	na	na	na	na	na	na
ODS80	17th Ave S SD		0.052	0.041	0.096	0.08	0.0097 J	0.097	0.031	0.12	0.57 J	0.072 J	0.13
RCB317	17th Ave S SD		0.21	0.27	0.56	0.5	0.045 J	0.51	0.13	0.58	3 J	0.3 J	5.1
RCB75	17th Ave S SD		0.2	0.32	0.64	0.48	0.044 J	0.74	0.14	0.68	3.4 J	0.3 J	5.4
<b>MIDDLE REACH</b>													
SL4-T6	I-5 SD (Slip 4)	J	0.18 J	0.26 J	0.41 J	0.34 J	0.056 J	0.64 J	0.15 J	0.65 J	2.9 J	0.26 J	7.7 J
SL4-T6	I-5 SD (Slip 4)	U	0.1 U	0.035 J	0.057 J	0.034 J	0.1 U	0.037 J	0.1 U	0.053 J	0.22 J	0.071 J	0.41
MH100B	S Myrtle St SD		1.6	0.71	2.8	2.3	0.25	2.3	0.57	3	15	2.1	9.3
MH100B	S Myrtle St SD		0.42	0.55	0.72	0.84	0.095 J	0.98	0.29	1.4	5.7 J	0.58 J	26
MH100B	S Myrtle St SD		0.27	0.33	0.64	0.46	0.078 J	0.41	0.18	0.54	3.1 J	0.39 J	9.5
MH100B	S Myrtle St SD		0.34	0.35	0.8	0.68	0.077 J	0.61	0.19	0.9	4.2 J	0.48 J	19
MH100B	S Myrtle St SD		0.34	0.28	0.81	0.89	0.063 J	0.93	0.16	1.3	5.1 J	0.49 J	26
MH68	S Garden St SD		0.24	0.21	0.47	0.29	0.048 J	0.25	0.12	0.36	2.1 J	0.32 J	4.3
MH211	S River St SD		0.53	0.37	1.4	0.76	0.11	1.1	0.25	1.1	6	0.76	2.6
MH223	S Brighton St SD		0.49	0.79 J	1.2	0.92	0.13 J	1.7	0.43 J	1.4	7.4 J	0.72 J	4.3
7th-ST1	7th Ave S SD		0.11	0.17	0.3	0.25	0.032 J	0.28	0.089 J	0.32	1.7 J	0.17 J	2.8
RCB195	7th Ave S SD		0.29	0.25	0.51	0.37	0.071 J	0.6	0.19 J	0.59	3.1 J	0.4 J	1.4
RCB323	7th Ave S SD	U	0.1 U	0.037 J	0.052 J	0.039 J	0.1 U	0.033 J	0.1 U	0.038 J	0.2 J	0.071 J	12 J
RCB45	2nd Ave S SD		0.24	0.31	0.51	0.37	0.065 J	0.43	0.17 J	0.57	2.8 J	0.34 J	7.1
1st-ST1	1st Ave S SD	J	0.31 J	0.5 J	0.83 J	0.82 J	0.099 J	0.85 J	0.22 J	1.3 J	5.2 J	0.46 J	14 J
1st-ST2	1st Ave S SD	J	0.15 J	0.23 J	0.3 J	0.23 J	0.066 J	0.29 J	0.14 J	0.31 J	1.8 J	0.21 J	2.7 J
MH216	1st Ave S SD	J	0.1 U	0.1 U	0.2 U	0.054 J	0.1 U	0.21	0.1 U	0.14	0.44 J	0.074 J	0.27
HP-ST6	Highland Park Way SW SD		0.19	0.28	0.45	0.41	0.045 J	0.48	0.15	0.59	2.8 J	0.28 J	3.4
RCB319	SW Kenny St SD/T115 CSO		0.16	0.17	0.49	0.44	0.035 J	0.39	0.093 J	0.42	2.3 J	0.24 J	6.2
RCB320	SW Kenny St SD/T115 CSO	J	0.069 J	0.11	0.2	0.21	0.1 U	0.17	0.057 J	0.21	1.1 J	0.11 J	1.4
RCB321	SW Kenny St SD/T115 CSO	J	0.12	0.14	0.34	0.32	0.1 U	0.34	0.058 J	0.41	1.8 J	0.18 J	1.9
RCB322	SW Kenny St SD/T115 CSO		0.16	0.28	0.44	0.51	0.1 U	0.53	0.092 J	0.78	2.9 J	0.24 J	6.3

**Appendix F-2.**  
**SPU Source Tracing Results (2020)**  
 (All concentrations in mg/kg except as noted.)

Station ID	Outfall	Fluorene	Benzo(a)pyrene	Benzo(g,h,i)perylene	Total Benzo-fluoranthenes	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Indeno (1,2,3-cd)pyrene	Pyrene	Total HPAHs	Total cPAH TEQ	BEHP
SCO			1.6	0.67	3.2	1.4	0.23	1.7	0.60	2.6	12	1.0	1.3
CSL/RAL/Method A			1.6	0.72	3.6	2.8	0.23	2.5	0.69	3.3	17	1.0	1.9
<b>LOWER REACH</b>													
MH18, SQ3	Diagonal Ave S CSO/SD		1.3	0.65	2.8	1.7	0.19	3.3	0.6	2.6	14	1.8	3.8
MH52	Diagonal Ave S CSO/SD	J	0.89 J	0.7 J	2 J	1.8 J	0.15 J	3.3 J	0.43 J	3.1 J	13 J	1.3 J	21 J
MH58	Diagonal Ave S CSO/SD		0.028	0.022	0.053	0.045	0.02 U	0.066	0.019 J	0.069	0.33 J	0.039 J	0.46
MH59	Diagonal Ave S CSO/SD		0.23	0.14	0.38	0.31	0.053	0.66	0.13	0.58	2.7	0.32	0.72
MH67	Diagonal Ave S CSO/SD	J	0.042 J	0.055 J	0.11 J	0.05 J	0.099 U	0.061 J	0.039 J	0.059 J	0.45 J	0.065 J	0.25 U
ODS83	Diagonal Ave S CSO/SD		0.26	0.37	0.49	0.39	0.07 J	0.6	0.19	0.5	3 J	0.36 J	1.5
ODS84	Diagonal Ave S CSO/SD		0.27	0.4	0.54	0.37	0.049 J	0.63	0.21	0.52	3.2 J	0.37 J	0.61
ODS89	Diagonal Ave S CSO/SD		na	na	na	na	na	na	na	na	na	na	na
ODS90	Diagonal Ave S CSO/SD		na	na	na	na	na	na	na	na	na	na	na
RCB306	Diagonal Ave S CSO/SD	J	0.093 J	0.15	0.32	0.16	0.099 U	0.28	0.071 J	0.37	1.5 J	0.15 J	3.9
RCB324	Diagonal Ave S CSO/SD		0.43	0.41	0.75	0.84	0.063 J	0.84	0.16	1.2	5 J	0.57 J	8.3
RCB325	Diagonal Ave S CSO/SD		0.76	0.53	1.5	1.2	0.14	1.9	0.33	1.9	8.7	1	25
RCB326	Diagonal Ave S CSO/SD		0.26	0.31	0.62	0.53	0.066 J	0.97	0.21	0.9	4.1 J	0.38 J	11
RCB327	Diagonal Ave S CSO/SD	J	0.052 J	0.04 J	0.11 J	0.076 J	0.1 U	0.13	0.036 J	0.13	0.62 J	0.077 J	0.5
RCB86	Diagonal Ave S CSO/SD	R	22 R	8.6	36 R	23 R	3.2	64 R	8.8	48 R	230 R	1.2	7.4
RCB88	Diagonal Ave S CSO/SD		1.3	0.75	2.3	1.7	0.12	3.8	0.57	3.6	15	1.7	26
RCB96	Diagonal Ave S CSO/SD		0.34	0.36	0.96	0.59	0.08 J	0.76	0.27	0.75	4.3 J	0.5 J	9.8
RCB97	Diagonal Ave S CSO/SD		0.32	0.26	0.87	0.53	0.069 J	0.74	0.18	0.67	3.9 J	0.46 J	4
RCB98	Diagonal Ave S CSO/SD	U	0.1 U	0.04 J	0.055 J	0.054 J	0.1 U	0.038 J	0.1 U	0.048 J	0.24 J	0.071 J	0.45
RCBSTEV2	Diagonal Ave S CSO/SD		na	na	na	na	na	na	na	na	na	na	na
ST1	Diagonal Ave S CSO/SD	J	0.022 J	0.035 J	0.062 J	0.05	0.04 U	0.061	0.019 J	0.071	0.34 J	0.035 J	2.5
ST1	Diagonal Ave S CSO/SD		0.19	0.28	0.37	0.3	0.055 J	0.41	0.13	0.47	2.4 J	0.26 J	3
ST09	Diagonal Ave S CSO/SD		1	1.4	2.3	1.8	0.92 U	2.2	0.7 J	2.7	13 J	na	9.3
ST10	Diagonal Ave S CSO/SD	J	0.24 J	0.67	0.6 J	0.77	0.64 U	0.66	0.24 J	0.88	4.3 J	na	5.3
ST2/SedTapPilot	Diagonal Ave S CSO/SD		0.16	0.26	0.34	0.29	0.042 J	0.51	0.14	0.57	2.5 J	0.23 J	5.9
ST2/SedTapPilot	Diagonal Ave S CSO/SD	J	0.043 J	0.081 J	0.097 J	0.084 J	0.1 U	0.084 J	0.036 J	0.12	0.58 J	0.065 J	1.4
ST2/SedTapPilot	Diagonal Ave S CSO/SD		0.19	0.24	0.46	0.41	0.033 J	0.57	0.12	0.77	2.9 J	0.27 J	9.4
ST2/SedTapPilot	Diagonal Ave S CSO/SD		0.23	0.28	0.52	0.44	0.078 J	0.67	0.15	0.8	3.4 J	0.33 J	8.2
ST2/SedTapPilot	Diagonal Ave S CSO/SD		0.23	0.27	0.54	0.44	0.053 J	0.61	0.13	0.83	3.3 J	0.33 J	9.7
ST7	Diagonal Ave S CSO/SD		0.12	0.088 J	0.25	0.26	0.1 U	0.34	0.06 J	0.31	1.6 J	0.18 J	0.94
ID-ST3	SW Idaho St SD	UJ	0.035 J	0.098 J	0.1 J	0.064 J	0.1 UJ	0.055 J	0.041 J	0.056 J	0.45 J	0.06 J	0.56 J
MH69	SW Dakota St SD/Ditch		0.27	0.35	0.67	0.68	0.08 J	1.2	0.19	1	4.6 J	0.39 J	18
RCB200a	SW Dakota St SD/Ditch	J	0.34 J	0.51	0.7 J	0.66	0.5 U	0.83	0.26 J	0.89	4.5 J	0.5 J	7.4

**Appendix F-2.**  
**SPU Source Tracing Results (2020)**  
 (All concentrations in mg/kg except as noted.)

Station ID	Outfall	Butylbenzyl phthalate	Dibutyl phthalate	Dimethyl phthalate	Di-n-octyl phthalate	1,4-Dichloro-benzene	4-Methyl-phenol	Benzoic acid	Benzyl alcohol	Bis(2-chloroethyl) ether	Carbazole	Dibenzo-furan
SCO		0.063	1.4	0.071	6.2	0.11	0.67	0.65	0.057	--	--	0.54
CSL/RAL/Method A		0.90	1.4	0.16	6.2	0.11	0.67	0.65	0.073	--	--	0.54
<b>UPPER REACH</b>												
MH1	Norfolk CSO/SD	0.2 J	0.14 J	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.58 J	0.3 J	0.1 UJ	0.097 J	0.06 J
NST1	Norfolk CSO/SD	0.089 J	0.084 J	0.099 U	1.4	0.099 U	0.099 U	0.99 U	0.22	0.099 U	0.051 J	0.03 J
NST1	Norfolk CSO/SD	0.28 J	0.15 J	0.3 U	4.3	0.3 U	0.3 U	3 U	0.35	0.3 U	0.3 U	0.3 U
NST3	Norfolk CSO/SD	0.1 UJ	0.067 J	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ
NST4	Norfolk CSO/SD	na	na	na	na	na	na	na	na	na	na	na
NST5	Norfolk CSO/SD	na	na	na	na	na	na	na	na	na	na	na
ODS81	Norfolk CSO/SD	0.14	0.12	0.1 U	0.1 U	0.1 U	0.1 U	1 U	0.1 U	0.1 U	0.1 U	0.1 U
ODS82	Norfolk CSO/SD	0.16	0.078 J	0.1 U	0.059 J	0.1 U	0.14	1.6	0.45	0.1 U	0.065 J	0.033 J
RCB318	Norfolk CSO/SD	0.042 J	0.089 J	0.099 U	0.057 J	0.099 U	0.99	0.99 U	0.099 U	0.099 U	0.099 U	0.099 U
17TH-ST1	17th Ave S SD	na	na	na	na	na	na	na	na	na	na	na
ODS80	17th Ave S SD	0.02 U	0.0066 J	0.0072 J	0.02 U	0.02 U	0.02 U	0.2 U	0.02 U	0.02 U	0.02 U	0.02 U
RCB317	17th Ave S SD	0.64	0.47	0.33	0.21	0.1 U	0.1 U	1 U	0.45	0.1 U	0.053 J	0.026 J
RCB75	17th Ave S SD	0.44	0.26	0.15	0.26	0.1 U	0.11	3.4	2.3	0.1 U	0.077 J	0.03 J
<b>MIDDLE REACH</b>												
SL4-T6	I-5 SD (Slip 4)	0.39 J	0.074 J	0.11 J	0.35 J	0.1 UJ	0.19 J	1 UJ	0.1 UJ	0.1 UJ	0.08 J	0.033 J
SL4-T6	I-5 SD (Slip 4)	0.1 U	0.063 J	0.1 U	0.1 U	0.1 U	0.1 U	1 U	0.1 U	0.1 U	0.1 U	0.1 U
MH100B	S Myrtle St SD	1.8	0.51	0.99	0.62	0.1 U	0.1 U	0.33 J	0.1 U	0.1 U	0.053 J	0.033 J
MH100B	S Myrtle St SD	1.8	0.74	0.66	1.2	0.26 U	0.36	4.1	0.35	0.26 U	0.26 U	0.082 J
MH100B	S Myrtle St SD	1.2	0.48	0.47	0.74	0.1 U	0.1 U	1 U	0.1 U	0.1 U	0.042 J	0.025 J
MH100B	S Myrtle St SD	2.2	0.65	1.1	0.9	0.026 J	0.15	0.58 J	0.09 J	0.1 U	0.1 U	0.042 J
MH100B	S Myrtle St SD	1.5	0.56	0.89	1.4	0.1 U	0.15	1.1	0.2	0.1 U	0.057 J	0.054 J
MH68	S Garden St SD	0.43	0.31	0.11	0.14	0.1 U	0.1 U	1 U	0.1 U	0.1 U	0.1 U	0.029 J
MH211	S River St SD	0.091 J	0.11	0.092 J	0.069 J	0.1 U	0.1 U	1 U	0.1 U	0.1 U	0.086 J	0.028 J
MH223	S Brighton St SD	0.52	0.98	0.13	0.35	0.1 U	0.1 U	0.4 J	0.1 U	0.1 U	0.087 J	0.055 J
7th-ST1	7th Ave S SD	0.1	0.083 J	0.034 J	0.17	0.1 U	0.087 J	1 U	0.26	0.1 U	0.1 U	0.1 U
RCB195	7th Ave S SD	0.43	0.19	0.099 U	0.053 J	0.099 U	0.15	0.99 U	0.17	0.099 U	0.048 J	0.099 U
RCB323	7th Ave S SD	0.1 U	0.22	0.1 U	0.1 U	0.1 U	0.1 U	1 U	0.1 U	0.1 U	0.1 U	0.1 U
RCB45	2nd Ave S SD	0.22	0.13	0.1 U	0.82	0.1 U	0.1 U	1.1	0.1 U	0.1 U	0.039 J	0.025 J
1st-ST1	1st Ave S SD	0.34 J	0.077 J	0.06 J	0.48 J	0.1 UJ	0.22 J	0.39 J	0.1 J	0.1 UJ	0.047 J	0.049 J
1st-ST2	1st Ave S SD	0.14 J	0.086 J	0.1 UJ	0.22 J	0.1 UJ	0.15 J	1 UJ	0.2 J	0.1 UJ	0.1 UJ	0.1 UJ
MH216	1st Ave S SD	0.1 U	0.092 J	0.1 U	0.1 U	0.1 U	0.1 U	1 U	0.1 U	0.1 U	0.1 U	0.049 J
HP-ST6	Highland Park Way SW SD	0.19	0.07 J	0.21	0.049 J	0.1 U	0.1 U	0.38 J	0.17	0.1 U	0.052 J	0.068 J
RCB319	SW Kenny St SD/T115 CSO	0.57	0.11	0.066 J	0.053 J	0.1 U	0.1 U	4.6	0.22	0.1 U	0.1 U	0.027 J
RCB320	SW Kenny St SD/T115 CSO	0.1 U	0.056 J	0.1 U	0.1 U	0.1 U	3.7	1.6	0.1 U	1.9	0.075 J	0.1 U
RCB321	SW Kenny St SD/T115 CSO	0.11	0.078 J	0.1 U	0.12	0.1 U	0.15	0.41 J	0.53	0.1 U	0.1 U	0.025 J
RCB322	SW Kenny St SD/T115 CSO	0.33	0.33	0.053 J	0.1 U	0.1 U	3.8	0.76 J	0.5	0.1 U	0.046 J	0.1 U

**Appendix F-2.**  
**SPU Source Tracing Results (2020)**  
 (All concentrations in mg/kg except as noted.)

Station ID	Outfall	Butylbenzyl phthalate	Dibutyl phthalate	Dimethyl phthalate	Di-n-octyl phthalate	1,4-Dichloro-benzene	4-Methyl-phenol	Benzoic acid	Benzyl alcohol	Bis(2-chloroethyl) ether	Carbazole	Dibenzo-furan
SCO		0.063	1.4	0.071	6.2	0.11	0.67	0.65	0.057	--	--	0.54
CSL/RAL/Method A		0.90	1.4	0.16	6.2	0.11	0.67	0.65	0.073	--	--	0.54
<b>LOWER REACH</b>												
MH18, SQ3	Diagonal Ave S CSO/SD	<b>0.31</b>	<b>0.11</b>	0.1 U	<b>0.094 J</b>	0.1 U	0.1 U	1 U	0.1 U	0.1 U	<b>0.35</b>	<b>0.079 J</b>
MH52	Diagonal Ave S CSO/SD	<b>1.3 J</b>	0.3 UJ	0.3 UJ	<b>3.1 J</b>	0.3 UJ	<b>2.7 J</b>	<b>2.1 J</b>	0.3 UJ	0.3 UJ	<b>0.21 J</b>	<b>0.2 J</b>
MH58	Diagonal Ave S CSO/SD	0.013 J	0.02 U	0.02 U	<b>0.032</b>	0.02 U	0.02 U	0.2 U	0.02 U	0.02 U	0.02 U	0.02 U
MH59	Diagonal Ave S CSO/SD	0.016 J	0.02 U	<b>0.028</b>	<b>0.024</b>	<b>0.007 J</b>	0.02 U	<b>0.32</b>	0.02 U	0.02 U	<b>0.048</b>	<b>0.033</b>
MH67	Diagonal Ave S CSO/SD	0.099 U	<b>0.084 J</b>	0.099 U	0.099 U	0.099 U	0.099 U	0.99 U	<b>0.25</b>	0.099 U	0.099 U	0.099 U
ODS83	Diagonal Ave S CSO/SD	<b>0.084 J</b>	<b>0.25</b>	0.1 U	0.1 U	0.1 U	0.1 U	<b>0.64 J</b>	0.1 U	0.1 U	<b>0.054 J</b>	<b>0.027 J</b>
ODS84	Diagonal Ave S CSO/SD	<b>0.14</b>	<b>0.8</b>	0.1 U	0.1 U	0.1 U	0.1 U	1 U	0.1 U	0.1 U	<b>0.055 J</b>	<b>0.025 J</b>
ODS89	Diagonal Ave S CSO/SD	na	na	na	na	na	na	na	na	na	na	na
ODS90	Diagonal Ave S CSO/SD	na	na	na	na	na	na	na	na	na	na	na
RCB306	Diagonal Ave S CSO/SD	<b>0.1</b>	<b>0.11</b>	0.099 U	0.099 U	0.099 U	<b>1.1</b>	0.99 U	0.099 U	0.099 U	0.099 U	0.099 U
RCB324	Diagonal Ave S CSO/SD	<b>0.31</b>	<b>0.19</b>	0.091 U	<b>0.22</b>	0.091 U	<b>0.25</b>	0.91 U	<b>0.23</b>	0.091 U	0.091 U	<b>0.052 J</b>
RCB325	Diagonal Ave S CSO/SD	<b>1.2</b>	<b>0.86</b>	<b>0.27</b>	<b>1.6</b>	0.099 U	<b>0.33</b>	0.99 U	<b>0.15</b>	0.099 U	<b>0.2</b>	<b>0.096 J</b>
RCB326	Diagonal Ave S CSO/SD	<b>0.35</b>	<b>0.064 J</b>	<b>0.04 J</b>	0.1 U	0.1 U	<b>0.23 J</b>	<b>2.6 J</b>	0.1 U	0.1 U	<b>0.077 J</b>	<b>0.028 J</b>
RCB327	Diagonal Ave S CSO/SD	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	1 U	0.1 U	0.1 U	0.1 U	0.1 U
RCB86	Diagonal Ave S CSO/SD	<b>0.3</b>	<b>0.45</b>	0.1 U	<b>0.58</b>	0.1 U	<b>0.32</b>	1 U	<b>0.22</b>	0.1 U	<b>9.8</b>	<b>2.2</b>
RCB88	Diagonal Ave S CSO/SD	<b>0.48</b>	<b>0.44</b>	0.099 U	<b>0.69</b>	0.099 U	<b>5.7</b>	0.99 U	<b>0.44</b>	0.099 U	<b>0.4</b>	<b>0.16</b>
RCB96	Diagonal Ave S CSO/SD	<b>0.48</b>	<b>0.12 J</b>	<b>0.23</b>	<b>0.33</b>	0.15 U	<b>0.72</b>	<b>0.78 J</b>	<b>0.12 J</b>	0.15 U	<b>0.11 J</b>	<b>0.051 J</b>
RCB97	Diagonal Ave S CSO/SD	<b>0.5</b>	<b>0.094 J</b>	0.1 U	<b>0.17</b>	0.1 U	<b>0.32</b>	<b>0.84 J</b>	<b>0.28</b>	0.1 U	0.1 U	<b>0.031 J</b>
RCB98	Diagonal Ave S CSO/SD	<b>0.12</b>	<b>0.061 J</b>	0.1 U	<b>0.087 J</b>	0.1 U	0.1 U	1 U	0.1 U	0.1 U	0.1 U	0.1 U
RCBSTEV2	Diagonal Ave S CSO/SD	na	na	na	na	na	na	na	na	na	na	na
ST1	Diagonal Ave S CSO/SD	<b>0.11</b>	0.04 U	<b>0.014 J</b>	<b>1.5</b>	0.04 U	0.04 U	0.4 U	<b>0.047</b>	0.04 U	0.04 U	0.04 U
ST1	Diagonal Ave S CSO/SD	<b>0.096 J</b>	<b>0.052 J</b>	0.098 U	<b>0.21</b>	0.098 U	<b>0.44</b>	<b>0.36 J</b>	<b>0.12</b>	0.098 U	<b>0.047 J</b>	0.098 U
ST09	Diagonal Ave S CSO/SD	<b>0.58 J</b>	<b>1.5</b>	0.92 U	0.92 U	0.92 U	0.92 U	9.2 U	0.92 U	0.92 U	0.92 U	0.92 U
ST10	Diagonal Ave S CSO/SD	<b>0.32 J</b>	<b>0.83</b>	0.64 U	0.64 U	0.64 U	0.64 U	6.4 U	0.64 U	0.64 U	0.64 U	0.64 U
ST2/SedTapPilot	Diagonal Ave S CSO/SD	<b>0.3</b>	<b>0.097 J</b>	0.1 U	<b>0.092 J</b>	0.1 U	<b>0.42</b>	<b>0.56 J</b>	<b>0.083 J</b>	0.1 U	<b>0.071 J</b>	<b>0.048 J</b>
ST2/SedTapPilot	Diagonal Ave S CSO/SD	<b>0.088 J</b>	<b>0.051 J</b>	<b>0.047 J</b>	0.1 U	0.1 U	0.1 U	1 U	0.1 U	0.1 U	0.1 U	0.1 U
ST2/SedTapPilot	Diagonal Ave S CSO/SD	<b>0.26</b>	<b>0.1</b>	<b>0.052 J</b>	<b>0.36</b>	0.1 U	<b>1.2</b>	<b>0.72 J</b>	<b>0.14</b>	0.1 U	<b>0.037 J</b>	<b>0.024 J</b>
ST2/SedTapPilot	Diagonal Ave S CSO/SD	<b>0.33</b>	<b>0.1 J</b>	<b>0.13</b>	<b>0.48</b>	0.1 U	<b>0.15</b>	1 U	<b>0.15</b>	0.1 U	<b>0.054 J</b>	0.1 U
ST2/SedTapPilot	Diagonal Ave S CSO/SD	<b>0.43</b>	<b>0.12</b>	<b>0.043 J</b>	<b>0.8</b>	0.1 U	<b>0.17</b>	1 U	<b>0.087 J</b>	0.1 U	<b>0.056 J</b>	<b>0.033 J</b>
ST7	Diagonal Ave S CSO/SD	<b>0.13</b>	<b>0.041 J</b>	0.1 U	<b>0.062 J</b>	0.1 U	0.1 U	1 U	0.1 U	0.1 U	0.1 U	0.1 U
ID-ST3	SW Idaho St SD	<b>0.072 J</b>	<b>0.074 J</b>	0.1 UJ	0.1 UJ	0.1 UJ	<b>0.08 J</b>	1 UJ	<b>0.23 J</b>	0.1 UJ	0.1 UJ	0.1 UJ
MH69	SW Dakota St SD/Ditch	<b>0.32</b>	<b>0.22</b>	<b>0.09 J</b>	<b>5.9</b>	0.1 U	<b>0.18</b>	<b>0.53 J</b>	<b>0.082 J</b>	0.1 U	<b>0.066 J</b>	<b>0.053 J</b>
RCB200a	SW Dakota St SD/Ditch	<b>0.41 J</b>	<b>0.15 J</b>	0.5 U	<b>0.66</b>	0.5 U	0.5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U

**Appendix F-2.**  
**SPU Source Tracing Results (2020)**  
 (All concentrations in mg/kg except as noted.)

Station ID	Outfall	Hexachloro- benzene	n-Nitroso- diphenyl- amine	Pentachloro- phenol	Phenol
SCO		0.022	0.028	0.36	0.42
CSL/RAL/Method A		0.070	0.040	0.69	1.2
<b>UPPER REACH</b>					
MH1	Norfolk CSO/SD	0.1 UJ	<b>0.18 J</b>	0.5 UJ	0.1 UJ
NST1	Norfolk CSO/SD	0.099 U	<b>0.11</b>	0.5 U	<b>0.1</b>
NST1	Norfolk CSO/SD	0.3 U	<b>0.24 J</b>	1.5 U	0.3 U
NST3	Norfolk CSO/SD	0.1 UJ	0.1 UJ	0.5 UJ	0.1 UJ
NST4	Norfolk CSO/SD	na	na	na	na
NST5	Norfolk CSO/SD	na	na	na	na
ODS81	Norfolk CSO/SD	0.1 U	0.1 U	0.5 U	<b>0.047 J</b>
ODS82	Norfolk CSO/SD	0.1 U	0.1 U	0.5 U	<b>0.096 J</b>
RCB318	Norfolk CSO/SD	0.099 U	0.099 U	0.49 U	0.099 U
17TH-ST1	17th Ave S SD	na	na	na	na
ODS80	17th Ave S SD	0.02 U	0.02 U	0.1 U	<b>0.014 J</b>
RCB317	17th Ave S SD	0.1 U	0.1 U	<b>0.24 J</b>	<b>0.2</b>
RCB75	17th Ave S SD	0.1 U	0.1 U	<b>0.37 J</b>	<b>0.29</b>
<b>MIDDLE REACH</b>					
SL4-T6	I-5 SD (Slip 4)	0.1 UJ	0.1 UJ	0.5 UJ	<b>0.058 J</b>
SL4-T6	I-5 SD (Slip 4)	0.1 U	0.1 U	0.5 U	0.1 U
MH100B	S Myrtle St SD	0.1 U	0.1 U	0.5 U	<b>0.49</b>
MH100B	S Myrtle St SD	0.26 U	0.26 U	0.52 J	<b>0.74</b>
MH100B	S Myrtle St SD	0.1 U	<b>0.14</b>	0.5 U	<b>0.19</b>
MH100B	S Myrtle St SD	0.1 U	<b>0.21</b>	0.5 U	<b>0.42</b>
MH100B	S Myrtle St SD	0.1 U	0.1 U	0.5 U	<b>0.39</b>
MH68	S Garden St SD	0.1 U	0.1 U	0.5 U	<b>0.13</b>
MH211	S River St SD	0.1 U	0.1 U	0.5 U	<b>0.084 J</b>
MH223	S Brighton St SD	0.1 U	<b>0.07 J</b>	0.5 U	<b>0.12</b>
7th-ST1	7th Ave S SD	0.1 U	0.1 U	0.5 U	<b>0.092 J</b>
RCB195	7th Ave S SD	0.099 U	0.099 U	0.5 U	<b>0.069 J</b>
RCB323	7th Ave S SD	<b>0.08 J</b>	0.1 U	0.5 U	0.1 U
RCB45	2nd Ave S SD	0.1 U	<b>0.14 J</b>	0.5 U	<b>0.13</b>
1st-ST1	1st Ave S SD	0.1 UJ	<b>0.16 J</b>	0.5 UJ	<b>0.12 J</b>
1st-ST2	1st Ave S SD	0.1 UJ	0.1 UJ	0.5 UJ	<b>0.065 J</b>
MH216	1st Ave S SD	0.1 U	0.1 U	0.5 U	0.1 U
HP-ST6	Highland Park Way SW SD	0.1 U	<b>0.07 J</b>	0.5 U	<b>0.097 J</b>
RCB319	SW Kenny St SD/T115 CSO	0.1 U	0.1 U	0.5 U	<b>0.14</b>
RCB320	SW Kenny St SD/T115 CSO	0.1 U	0.1 U	0.5 U	<b>0.29</b>
RCB321	SW Kenny St SD/T115 CSO	0.1 U	0.1 U	0.5 U	<b>0.12</b>
RCB322	SW Kenny St SD/T115 CSO	0.1 U	<b>0.11</b>	0.5 U	<b>0.13</b>

**Appendix F-2.**  
**SPU Source Tracing Results (2020)**  
 (All concentrations in mg/kg except as noted.)

Station ID	Outfall	Hexachloro benzene	n-Nitroso-diphenyl-amine	Pentachloro-phenol	Phenol
SCO		0.022	0.028	0.36	0.42
CSL/RAL/Method A		0.070	0.040	0.69	1.2
<b>LOWER REACH</b>					
MH18, SQ3	Diagonal Ave S CSO/SD	0.1 U	0.1 U	0.5 U	<b>0.071 J</b>
MH52	Diagonal Ave S CSO/SD	0.3 UJ	<b>0.28 J</b>	1.5 UJ	0.3 UJ
MH58	Diagonal Ave S CSO/SD	0.02 U	0.02 U	0.1 U	0.02 U
MH59	Diagonal Ave S CSO/SD	0.02 U	0.02 U	0.099 U	<b>0.012 J</b>
MH67	Diagonal Ave S CSO/SD	0.099 U	0.099 U	0.5 U	0.099 U
ODS83	Diagonal Ave S CSO/SD	0.1 U	0.1 U	0.5 U	0.1 U
ODS84	Diagonal Ave S CSO/SD	0.1 U	0.1 U	0.5 U	<b>0.11</b>
ODS89	Diagonal Ave S CSO/SD	na	na	na	na
ODS90	Diagonal Ave S CSO/SD	na	na	na	na
RCB306	Diagonal Ave S CSO/SD	0.099 U	<b>0.061 J</b>	0.5 U	0.099 U
RCB324	Diagonal Ave S CSO/SD	0.091 U	<b>0.19 J</b>	0.46 U	<b>0.12</b>
RCB325	Diagonal Ave S CSO/SD	0.099 U	<b>0.16 J</b>	0.5 U	<b>0.21</b>
RCB326	Diagonal Ave S CSO/SD	0.1 U	0.1 U	0.5 U	0.1 J
RCB327	Diagonal Ave S CSO/SD	0.1 U	0.1 U	0.5 U	0.1 U
RCB86	Diagonal Ave S CSO/SD	0.1 U	0.1 U	0.5 U	<b>0.2</b>
RCB88	Diagonal Ave S CSO/SD	0.099 U	<b>0.11 J</b>	0.5 U	<b>0.7</b>
RCB96	Diagonal Ave S CSO/SD	0.15 U	0.15 U	0.75 U	<b>0.37</b>
RCB97	Diagonal Ave S CSO/SD	0.1 U	0.1 U	0.5 U	<b>0.16</b>
RCB98	Diagonal Ave S CSO/SD	0.1 U	0.1 U	0.5 U	0.1 U
RCBSTEV2	Diagonal Ave S CSO/SD	na	na	na	na
ST1	Diagonal Ave S CSO/SD	0.04 U	0.04 U	0.2 U	<b>0.02 J</b>
ST1	Diagonal Ave S CSO/SD	0.098 U	0.098 U	0.49 U	<b>0.13</b>
ST09	Diagonal Ave S CSO/SD	0.92 U	0.92 U	4.6 U	0.92 U
ST10	Diagonal Ave S CSO/SD	0.64 U	0.64 U	3.2 U	0.64 U
ST2/SedTapPilot	Diagonal Ave S CSO/SD	0.1 U	0.1 U	0.5 U	<b>0.12</b>
ST2/SedTapPilot	Diagonal Ave S CSO/SD	0.1 U	0.1 U	0.5 U	0.1 U
ST2/SedTapPilot	Diagonal Ave S CSO/SD	0.1 U	<b>0.077 J</b>	0.5 U	<b>0.12</b>
ST2/SedTapPilot	Diagonal Ave S CSO/SD	0.1 U	<b>0.078 J</b>	0.5 U	<b>0.11</b>
ST2/SedTapPilot	Diagonal Ave S CSO/SD	0.1 U	<b>0.17</b>	0.5 U	<b>0.11</b>
ST7	Diagonal Ave S CSO/SD	0.1 U	0.1 U	0.5 U	0.1 U
ID-ST3	SW Idaho St SD	0.1 UJ	0.1 UJ	0.5 UJ	<b>0.075 J</b>
MH69	SW Dakota St SD/Ditch	0.1 U	<b>0.048 J</b>	0.5 U	<b>0.34</b>
RCB200a	SW Dakota St SD/Ditch	0.5 U	0.5 U	2.5 U	0.5 U

**Sample result is above the CSL/RAL/Method A screening level**

Sample result is above the SCO but below the CSL

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

Screening levels are presented in Table 2-4.

Only analytes detected in at least one sample are shown.

Detections are shown in **bold** font.

J - estimated

U - not detected

R - rejected

na - not analyzed

**Appendix G:  
King County Source Tracing Data  
(2020)**

**Appendix G-1  
King County Source Tracing  
Sample Locations (2020)**

Station ID	Sample No.	Date	Type	Sewer Type	Source Control Area	Outfall	Description	X Coordinate	Y Coordinate
<b>Upper Reach</b>									
KCIA1A	KCIA1A Grab	9/1/2020	Catch Basin Grab	SD	RM 3.9-4.3 East (Slip 6)	KCIA SD#1	KC Airport SD #1 at Slip 6, MH east of E Marginal Wy S, upstream of former sampling location KCIA1	1278547.80	193860.70
KCIA1UP	KCIA1UP Grab	9/1/2020	Catch Basin Grab	SD	RM 3.9-4.3 East (Slip 6)	KCIA SD#1	KC Airport SD#1 at upstream boundary of KCIA along Perimeter Road S	1279714.80	194265.00
96-ST1	L74668-1	5/27/2020	Sediment Trap	SD	RM 3.8-4.2 West (Sea King Industrial Area)	S 96th Street SD	Traps in 8-ft deep type 2 catch basin with slotted lid, just east of the lawn of Delta Marine's admin building and just north of S 96th Street	1275076.00	192295.60
96-ST2	L74668-2	5/27/2020	Sediment Trap	SD	RM 3.8-4.2 West (Sea King Industrial Area)	S 96th Street SD	Traps in 14-foot deep type-2 catch basin with vaned, slotted lid near NE corner of 15th Avenue S and S 96th Street. Downstream of 96-ST3.	1274675.00	192705.00
96-ST3	L74668-3	5/27/2020	Sediment Trap	SD	RM 3.8-4.2 West (Sea King Industrial Area)	S 96th Street SD	Traps on south wall of 13-ft deep stormwater vault at corner of 4th Avenue S and S 96th Street. Upstream of 96-ST2.	1270741.00	192246.70
<b>Middle Reach</b>									
SL4-T3A	SL4-T3A Trap	9/1/2020	Sediment Trap	SD	RM 2.8 East (EAA-3: Slip 4)	KCIA SD#3	KCIA SD#3, south-central lateral, upstream of NBF, downstream of KCIA runway	1275726.22	199160.79
SL4-T3A	SL4-T3A Grab	9/1/2020	Catch Basin Grab	SD	RM 2.8 East (EAA-3: Slip 4)	KCIA SD#3	KCIA SD#3, south-central lateral, upstream of NBF, downstream of KCIA runway	1275726.22	199160.79
SL4-T4B	SL4-T4B Grab	9/1/2020	Catch Basin Grab	SD	RM 2.8 East (EAA-3: Slip 4)	KCIA SD#3	KCIA SD#3, north-central lateral, upstream of NBF, downstream of KCIA runway	1274851.00	200710.00
SL4-T5C	SL4-T5C Grab	9/1/2020	Catch Basin Grab	SD	RM 2.8 East (EAA-3: Slip 4)	2049	Upstream of NBF north lateral SD	1274054.98	201694.24
S070167	L75171-1	8/11/2020	In-Line Grab	CS	RM 1.6-2.1 West (Terminal 115)	West Michigan CSO	West Michigan Regulator Station: West Marginal Way just west of Highlad Pkwy/Michigan UP SM Driveway	1267395.00	201021.00
S070167	L75171-3	8/11/2020	In-Line Grab	CS	RM 1.6-2.1 West (Terminal 115)	West Michigan CSO	West Michigan Regulator Station: West Marginal Way just west of Highlad Pkwy/Michigan UP SM Driveway	1267395.00	201021.00
ST_070-093	L75530-1	9/15/2020	Sediment Trap	CS	RM 1.6-2.1 West (Terminal 115)	West Michigan CSO	MH-070-093 at Highland Park Drive and Holden	1266214.55	198527.15
ST_070-093	L75530-2	9/15/2020	Sediment Trap	CS	RM 1.6-2.1 West (Terminal 115)	West Michigan CSO	MH-070-093 at Highland Park Drive and Holden	1266214.55	198527.15

SD = storm drain  
CS = combined sewer

**Appendix G-2**  
**King County Source Tracing Sample Results (2020)**  
All concentrations in mg/kg DW except as noted

Station ID	Date Sampled	Total Organic Carbon (Percent)	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Silver	Vanadium	Zinc	Oil Range HC	Aroclor 1254
SCO		NA	57	5.1	260	390	450	0.41	--	6.1	--	410	2,000	--
CSL/RAL/Method A		NA	93	6.7	270	390	530	0.59	--	6.1	--	960	2,000	--
<b>Upper Reach</b>														
KCIA1A	9/1/2020	2.43	<b>28</b>	na	na	<b>26</b>	<b>270</b>	na	na	na	na	<b>260</b>	na	na
KCIA1UP	9/1/2020	1.31	<b>20</b>	na	na	<b>110</b>	<b>91</b>	na	na	na	na	<b>230</b>	<b>130</b>	na
96-ST1	5/27/2020	4.41	<b>23</b>	0.37 U	<b>88 J</b>	<b>46</b>	<b>37</b>	na	<b>62 J</b>	0.73 U	<b>43</b>	<b>460</b>	na	na
96-ST2	5/27/2020	5.21	<b>12</b>	<b>0.54</b>	<b>91</b>	<b>69</b>	<b>63</b>	na	<b>50</b>	0.78 U	<b>43</b>	<b>980</b>	na	na
96-ST3	5/27/2020	6.79	<b>16</b>	0.5 UJ	<b>40</b>	<b>44</b>	<b>40</b>	na	<b>44</b>	1 UJ	<b>58</b>	<b>920</b>	na	na
<b>Middle Reach</b>														
SL4-T3A Trap	9/1/2020	4.59	na	na	na	na	na	1.8 U	na	na	na	na	na	na
SL4-T3A Grab	9/1/2020	0.707	na	na	na	na	na	0.48 U	na	na	na	na	na	na
SL4-T4B	9/1/2020	1.19	<b>29</b>	na	na	<b>84</b>	<b>74</b>	na	na	na	na	<b>1,100</b>	na	0.11 U
SL4-T5C	9/1/2020	0.232	<b>3.5</b>	na	na	<b>12</b>	<b>17</b>	na	na	na	na	<b>59</b>	<b>90</b>	0.091 U
S070167	8/11/2020	1.63	<b>16</b>	<b>0.36</b>	<b>90</b>	<b>140</b>	<b>83</b>	<b>0.04</b>	<b>87</b>	<b>0.22</b>	<b>76</b>	<b>220</b>	na	0.002 U
ST_070-093	9/15/2020	3.48	<b>3.9</b>	<b>0.48</b>	<b>26</b>	<b>60</b>	<b>84</b>	<b>0.12</b>	<b>26</b>	<b>4.2</b>	<b>35</b>	<b>210</b>	na	<b>0.01</b>

**Appendix G-2**  
**King County Source Tracing Sample Results (2020)**  
All concentrations in mg/kg DW except as noted

Station ID	Aroclor 1260	Total PCB Aroclors	Acenaphthene	Anthracene	Fluorene	Naphthalene	Phenanthrene	Total LPAH	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(g,h,i)perylene	Total Benzo-fluoranthenes	Chrysene
SCO	--	0.13	0.50	0.96	0.54	2.1	1.5	5.2	1.3	1.6	0.67	3.2	1.4
CSL/RAL/Method A	--	1.0	0.50	0.96	0.54	2.1	1.5	5.2	1.6	1.6	0.72	3.6	2.8
<b>Upper Reach</b>													
KCIA1A	na	na	0.11 U	0.11 U	0.11 U	0.11 U	<b>3.2</b>	<b>3.2</b>	<b>1.5</b>	<b>1.7</b>	<b>1.4</b>	<b>6.3</b>	<b>2</b>
KCIA1UP	na	na	0.047 U	0.047 U	0.047 U	0.047 U	<b>0.78</b>	<b>0.78</b>	<b>0.39</b>	<b>0.39</b>	<b>0.25</b>	<b>1.4</b>	<b>0.48</b>
96-ST1	na	na	<b>0.088 J</b>	<b>0.22 J</b>	<b>0.11 J</b>	0.049 U	<b>1 J</b>	<b>1.4 J</b>	<b>0.47 J</b>	<b>0.44 J</b>	<b>0.21</b>	<b>0.91 J</b>	<b>0.57 J</b>
96-ST2	na	na	<b>0.04 J</b>	<b>0.32 J</b>	<b>0.088 J</b>	0.052 U	<b>0.8 J</b>	<b>1.2 J</b>	<b>0.57 J</b>	<b>0.55 J</b>	<b>0.25</b>	<b>1.2 J</b>	<b>0.83 J</b>
96-ST3	na	na	0.067 UJ	0.067 UJ	0.067 UJ	0.067 U	<b>0.069 J</b>	<b>0.069 J</b>	<b>0.097 J</b>	<b>0.11 J</b>	<b>0.088</b>	<b>0.27 J</b>	<b>0.16 J</b>
<b>Middle Reach</b>													
SL4-T3A Trap	na	na	1 U	1 U	1 U	1 U	<b>1.7</b>	<b>1.7</b>	<b>1.5</b>	<b>2.3</b>	<b>2.7</b>	<b>11.1</b>	<b>3.5</b>
SL4-T3A Grab	na	na	0.065 U	0.065 U	0.065 U	<b>0.39</b>	<b>0.69</b>	<b>1.1</b>	<b>0.29</b>	<b>0.41</b>	<b>0.43</b>	<b>1.8</b>	<b>0.53</b>
SL4-T4B	0.11 U	0.11 U	0.052 U	0.052 U	0.052 U	<b>0.16</b>	<b>0.48</b>	<b>0.64</b>	<b>0.22</b>	<b>0.32</b>	<b>0.31</b>	<b>1.2</b>	<b>0.37</b>
SL4-T5C	0.091 U	0.091 U	0.049 U	0.049 U	0.049 U	0.049 U	<b>0.5</b>	<b>0.5</b>	<b>0.71</b>	<b>0.91</b>	<b>0.9</b>	<b>3.1</b>	<b>1</b>
S070167	0.0016 U	0.005 U	0.065 U	0.065 U	0.065 U	0.065 U	0.13 U	0.13 U	0.16 U	0.065 U	0.065 U	0.065 U	0.065 U
ST_070-093	<b>0.0048</b>	<b>0.014</b>	0.074 U	<b>0.06 J</b>	0.074 U	0.074 U	<b>0.21</b>	<b>0.27 J</b>	<b>0.2</b>	<b>0.19</b>	<b>0.13</b>	<b>0.45</b>	<b>0.23</b>

**Appendix G-2**  
**King County Source Tracing Sample Results (2020)**  
All concentrations in mg/kg DW except as noted

Station ID	Dibenzo(a,h)anthracene	Fluoranthene	Indeno (1,2,3-cd)pyrene	Pyrene	Total HPAH	Total cPAH TEQ	BEHP	Butylbenzyl phthalate	Dimethyl phthalate	Di-n-octyl phthalate	3, 4-Methylphenol	Benzoic acid	Benzyl alcohol	Carbazole
SCO	0.23	1.7	0.60	2.6	12	1.0	1.3	0.063	0.071	6.2	--	0.65	0.057	--
CSL/RAL/Method A	0.23	2.5	0.69	3.3	17	1.0	1.9	0.90	0.16	6.2	--	0.65	0.073	--
<b>Upper Reach</b>														
KCIA1A	<b>0.46</b>	<b>4.1</b>	<b>1.2</b>	<b>3.2</b>	<b>22</b>	<b>2.7</b>	<b>1.4</b>	0.14 U	0.14 U	0.14 U	na	na	na	na
KCIA1UP	<b>0.12</b>	<b>0.94</b>	<b>0.23</b>	<b>0.78</b>	<b>5</b>	<b>0.61</b>	0.062 U	0.058 U	0.058 U	0.058 U	na	na	na	na
96-ST1	0.06 U	<b>1.6 J</b>	<b>0.31</b>	<b>1.4 J</b>	<b>5.9 J</b>	<b>0.62 J</b>	<b>3.5</b>	0.073 U	<b>0.19 J</b>	0.098 U	0.25 U	<b>1.2 J</b>	0.25 U	<b>0.15</b>
96-ST2	<b>0.095 J</b>	<b>1.6 J</b>	<b>0.4</b>	<b>1.4 J</b>	<b>6.9 J</b>	<b>0.78 J</b>	<b>2.9</b>	<b>0.37</b>	0.26 U	0.1 U	0.26 U	<b>1.1 J</b>	<b>0.11 J</b>	<b>0.15</b>
96-ST3	0.13 U	<b>0.27 J</b>	<b>0.13</b>	<b>0.25 J</b>	<b>1.4 J</b>	<b>0.17 J</b>	<b>1.3</b>	<b>0.061 J</b>	0.34 U	0.13 U	0.34 U	<b>1.4 J</b>	0.34 U	0.067 U
<b>Middle Reach</b>														
SL4-T3A Trap	1 U	<b>5</b>	<b>2.1</b>	<b>4</b>	<b>32</b>	<b>3.8</b>	<b>4.4</b>	1.3 U	1.3 U	1.3 U	na	na	na	na
SL4-T3A Grab	0.065 U	<b>0.88</b>	<b>0.35</b>	<b>0.69</b>	<b>5.4</b>	<b>0.66</b>	<b>0.3</b>	0.081 U	0.081 U	0.081 U	na	na	na	na
SL4-T4B	<b>0.1</b>	<b>0.54</b>	<b>0.25</b>	<b>0.48</b>	<b>3.8</b>	<b>0.5</b>	<b>0.34</b>	0.066 U	0.066 U	<b>0.34</b>	na	na	na	na
SL4-T5C	<b>0.28</b>	<b>1.8</b>	<b>0.75</b>	<b>1.4</b>	<b>11</b>	<b>1.4</b>	<b>0.074</b>	0.061 U	<b>0.34</b>	0.061 U	na	na	na	na
S070167	0.13 U	0.07 U	0.065 U	0.065 U	0.16 U	0.05 U	<b>0.73</b>	0.097 U	0.32 U	0.13 U	<b>0.49</b>	<b>1.3 J</b>	0.32 U	0.065 U
ST_070-093	0.15 U	<b>0.44</b>	<b>0.14</b>	<b>0.37</b>	<b>2.2</b>	<b>0.28</b>	<b>1.6</b>	0.11 U	0.37 U	0.15 U	0.37 U	<b>1.4 J</b>	0.37 U	0.074 U

**Sample result is above the CSL/RAL/Method A screening level**

Sample result is above the SCO but below the CSL

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

Screening levels are presented in Table 2-4.

na - not analyzed

Only analytes detected in at least one sample are shown.

Detections are shown in **bold** font.

Note: some values may differ slightly from King County report due to rounding.