Lower Duwamish Waterway Group

City of Seattle / King County / The Boeing Company

COMMUNITY IMPACTS MITIGATION PLAN FOR LOWER DUWAMISH WATERWAY UPPER REACH

DRAFT

For submittal to

U.S. Environmental Protection Agency
Seattle, WA

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Prepared by:

ANCHOR QEA

1201 3rd Avenue • Suite 2600
Seattle, Washington • 98101

in association with

S&A COMMUNICATIONS

2815 2nd Avenue • Suite 555
Seattle, Washington • 98121

DRAFT

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ABBREVIATIONS

ANLMP	Air, Noise, and Light Monitoring Plan
BMP	best management practice
CIMP	*Community Outreach and Communications Plan*
COCP	*Community Impacts Mitigation Plan*
Contractor	Pacific Pile and Marine
cPAH	carcinogenic polycyclic aromatic hydrocarbon
CQAP	*Construction Quality Assurance Plan for the Lower Duwamish Waterway Upper Reach*
EPA	U.S. Environmental Protection Agency
LDW	Lower Duwamish Waterway
LDWG	Lower Duwamish Waterway Group
MIDP	Monitoring and Inadvertent Discovery Plan
PCB	polychlorinated biphenyl
QA	quality assurance
QC	quality control
RAWP	Remedial Action Work Plan
Sediment QAPP	Construction Sediment Sampling Quality Assurance Project Plan
WQMP	Water Quality Monitoring Plan

1 Introduction

The Lower Duwamish Waterway (LDW) has served as Seattle's major industrial corridor since the early 1900s, resulting in the presence of chemical contaminants in its sediment, fish, and shellfish. Of the contaminants, most of the health risks come from polychlorinated biphenyls (PCBs), arsenic, and carcinogenic polycyclic aromatic hydrocarbons (cPAHs), as well as dioxins and furans. Consumption of resident fish and shellfish, as well as contact with contaminated sediments, poses risks to human and environmental health. The contaminated sediment also creates risk to some animals that live in and use the waterway.

Since 2000, the Lower Duwamish Waterway Group (LDWG) has worked with the U.S. Environmental Protection Agency (EPA) and the Washington State Department of Ecology on a coordinated investigation of LDW sediments. The members of LDWG are the City of Seattle, King County, and The Boeing Company, and they will be implementing the cleanup action for the upper reach. In 2001, the EPA declared the LDW a Superfund site, and in 2014, it issued the sediment cleanup plan in its LDW Record of Decision (EPA 2014).

The remedial construction, supervised by the EPA, will extend over approximately 10 years and consists of three distinct design and construction projects targeting the upper, middle, and lower reaches of the waterway. The cleanup will begin in the upper reach and progressively move downstream.

2 Overview

This section describes the purpose of this *Community Impacts Mitigation Plan* (CIMP) and presents community uses and environmental justice considerations during the upper reach LDW remedial construction. It also provides a brief description of the LDW upper reach cleanup activities, including selected remedial technologies, planned construction activities, and anticipated implementation schedule.

2.1 Purpose of This Community Impacts Mitigation Plan

The CIMP incorporates and builds upon the LDW upper reach *Community Outreach and Communications Plan* (COCP; Anchor QEA 2024). The purpose of this CIMP is to identify potential impacts to the community during upper reach LDW remedial (cleanup) construction and, subsequently, ways in which the EPA, members of LDWG (referred herein as "LDWG"), and the construction Contractor (Pacific Pile and Marine; referred herein as "Contractor") will work to address and manage impacts. LDWG, its representatives, and the EPA will utilize this information to address concerns about construction activities to the best of their ability. As LDW upper reach construction proceeds, this CIMP may be updated as more information is learned by the Contractor and from the community.

2.2 Community Context and Environmental Justice

The Duwamish River has a rich history as Seattle's only river, and it continues to serve as a place for culture, recreation, wildlife, and commerce. It is the traditional land of the Duwamish People, past and present. The LDW is one of the locations of the Muckleshoot Indian Tribe's usual and accustomed fishing areas, and the Tribe uses the area for commercial net fishery for salmon, as well as ceremonial and subsistence fishery. The Suquamish Tribe also actively manages aquatic resources north of the Spokane Street Bridge, just north of the LDW.

The Duwamish Valley is home to vibrant communities that deeply value the health and wellbeing of the people, fish, and habitat that make the Duwamish Valley home. The communities most affected by the LDW cleanup are the Georgetown and South Park neighborhoods, Tribal members, waterway-dependent businesses, and people who fish from the Duwamish River.

The neighborhoods in the Duwamish Valley have been disproportionately burdened by a variety of environmental and health impacts from pollution, including the contamination in the LDW, and other impacts associated with transportation, nearby industrial facilities, and the heavily urbanized landscape. Those living in the area have an increased exposure to pollutants, including diesel particulate matter, which is related to the proximity of high traffic and volume moving through their communities. They also have an increased cancer risk, as well as increased exposure to respiratory and neurological hazards (EPA 2016).

What is Environmental Justice?

The EPA defines environmental justice as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations and policies. Fair treatment means no group of people should bear a disproportionate share of the negative environmental consequences resulting from industrial, governmental, and commercial operations or policies.

Source: Environmental Protection Agency

2.2.1 Community Use Areas

The CIMP describes activities to reduce the impacts of cleanup activities in "community use areas." For the purposes of this CIMP, "community use areas" are defined as properties owned by the Cities of Seattle and Tukwila, King County, or Washington State; right of way; residential areas; playgrounds; healthcare facilities; parks and trails; waterways; schools; or recreational or impacted public areas that can be impacted by cleanup activities. Community use areas do not apply to private property, residential or commercial.

2.2.2 Waterway Usage

The LDW supports a variety of usages, including the following:

- Tribal use and treaty rights
- Recreational boating, like kayaking or canoeing
- Waterway-dependent uses (waterway commerce and waterfront property owners and their tenants)
- Beach play
- Public shoreline access
- Habitat for fish and wildlife (including a migration corridor for five species of salmon)
- Fishing

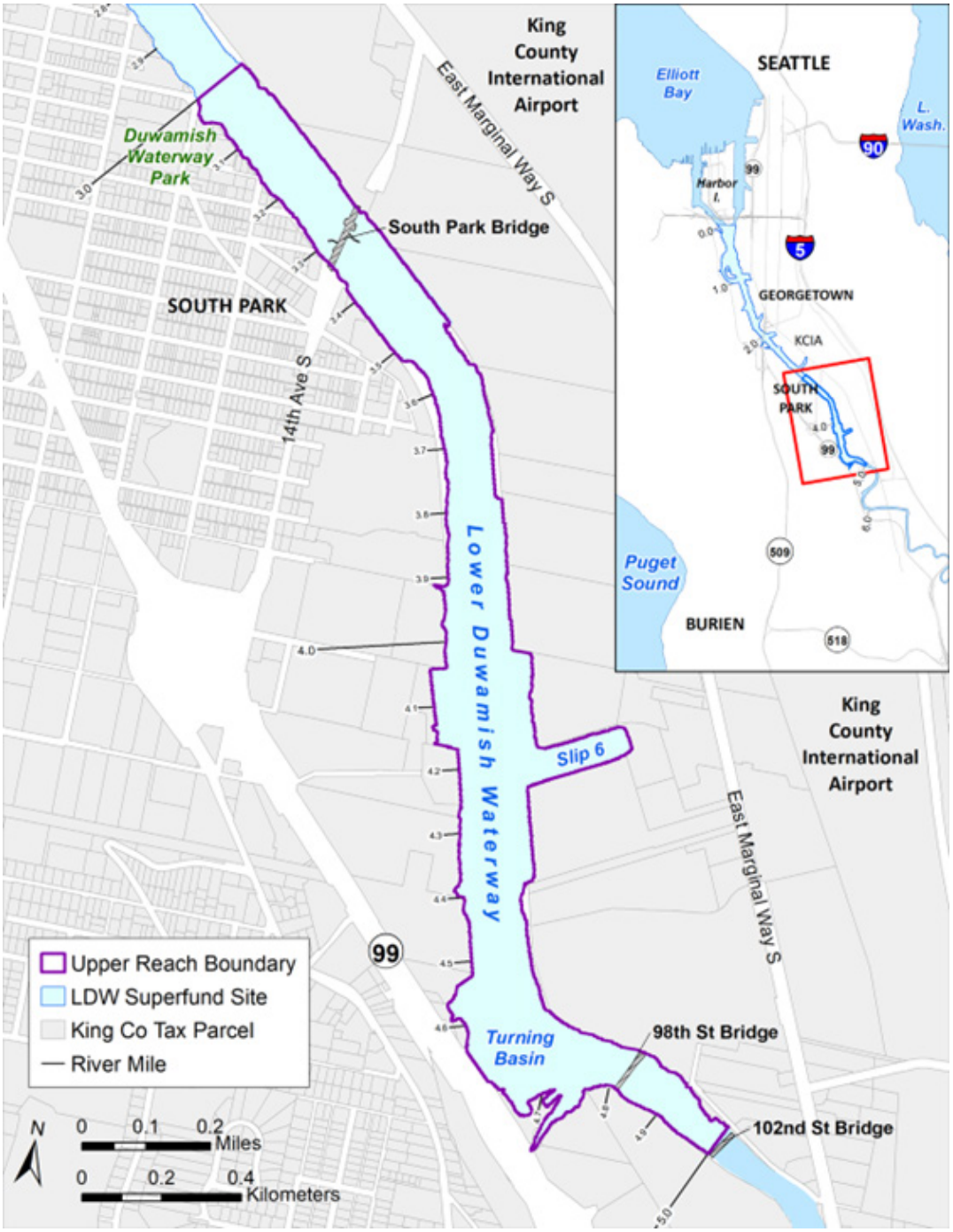
2.3 Upper Reach Cleanup Description

The upper reach of the LDW extends from river mile 3.0 at Duwamish Waterway Park to river mile 5.0 near the South 102nd Street bridge (see Figure 2-1). In this segment, the banks of the LDW include public and private properties that support industrial and marine activities, as well as public access, utility corridors, street ends, and bridge crossings.

The uplands surrounding the LDW upper reach are mixed industrial, commercial, residential, and some park/open space. The northern extent of the LDW upper reach is bordered by the South Park

neighborhood on the west bank and the Georgetown neighborhood on the east bank. The City of Tukwila and parts of unincorporated King County also border parts of the LDW upper reach.

Figure 2-1
Upper Reach of the Lower Duwamish Waterway Superfund Site

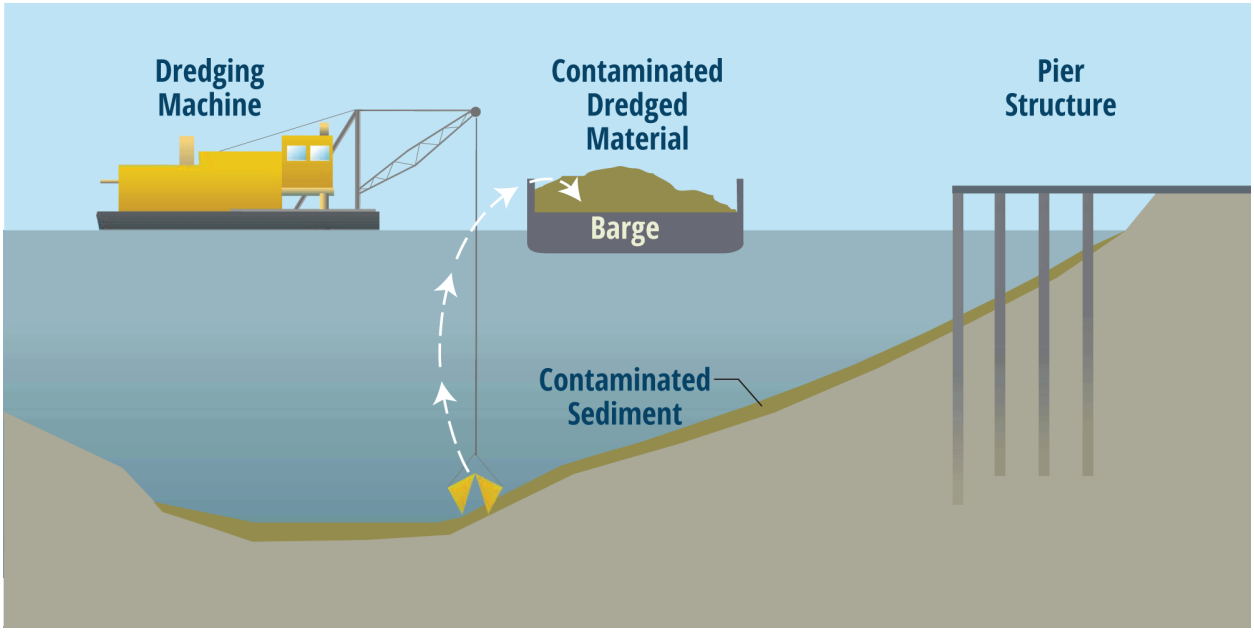


2.3.1 Selected Remedial Technologies

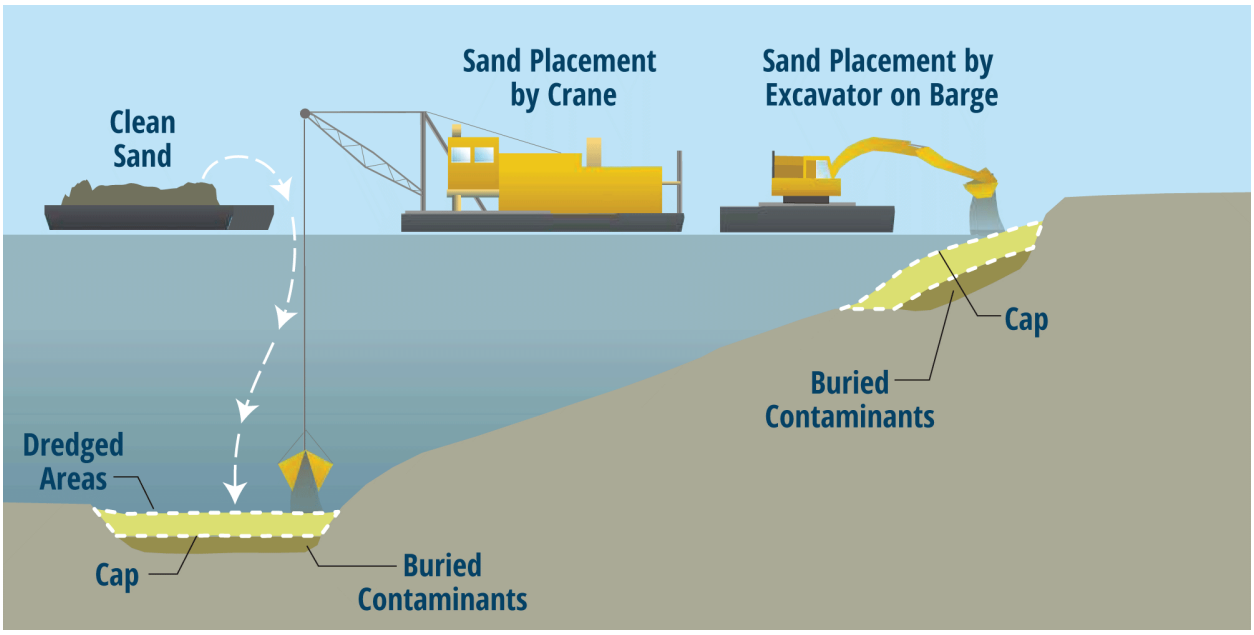
The remedial activities in the LDW upper reach include a combination of active and other remedial technologies outlined in this section. Active remedial (or cleanup) activities include the use of construction equipment.

2.3.1.1 Active Remedial Technologies

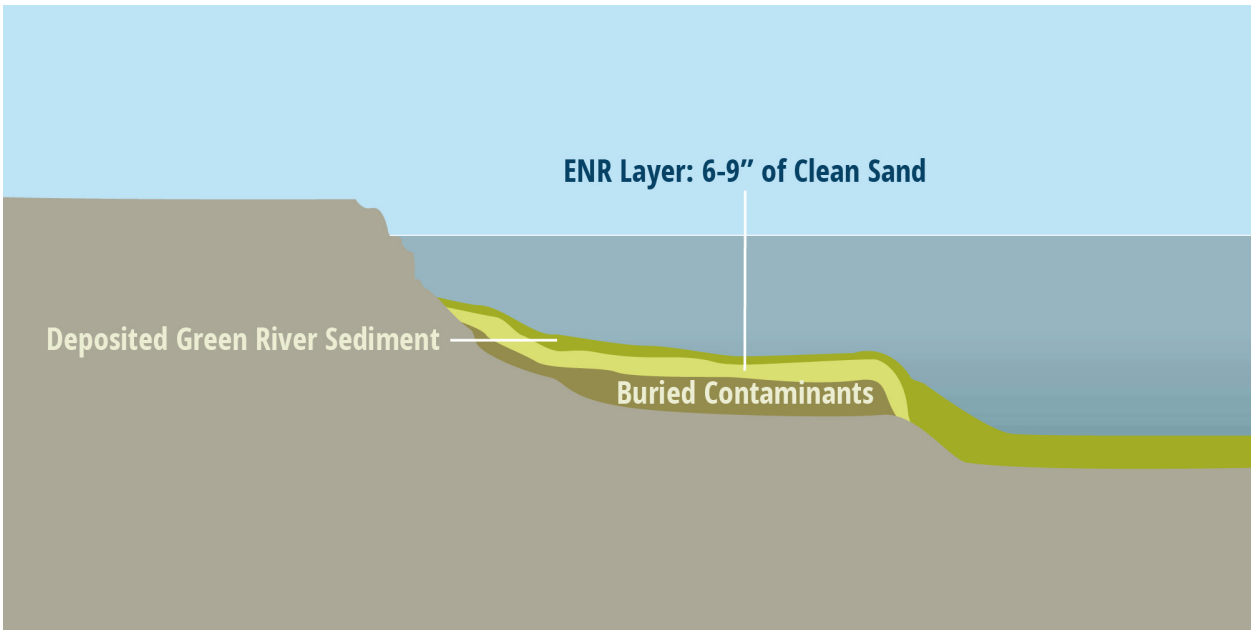
Dredging removes contaminated sediments from the waterway. Cleanup actions using dredging will generally occur working from upstream to downstream. After removal, dredged material will typically be moved by barge to a transloading facility. The dredged material is then transported from the transloading facility via rail to the permitted landfill where it is disposed. For specific areas of the upper reach where land-based excavation is required, dredge material will be placed directly into trucks for transportation to the transloading facility, then transported by rail to a permitted landfill.



Capping covers the contaminated sediments with engineered layers of sand, gravel, and rock to contain and isolate the contamination.



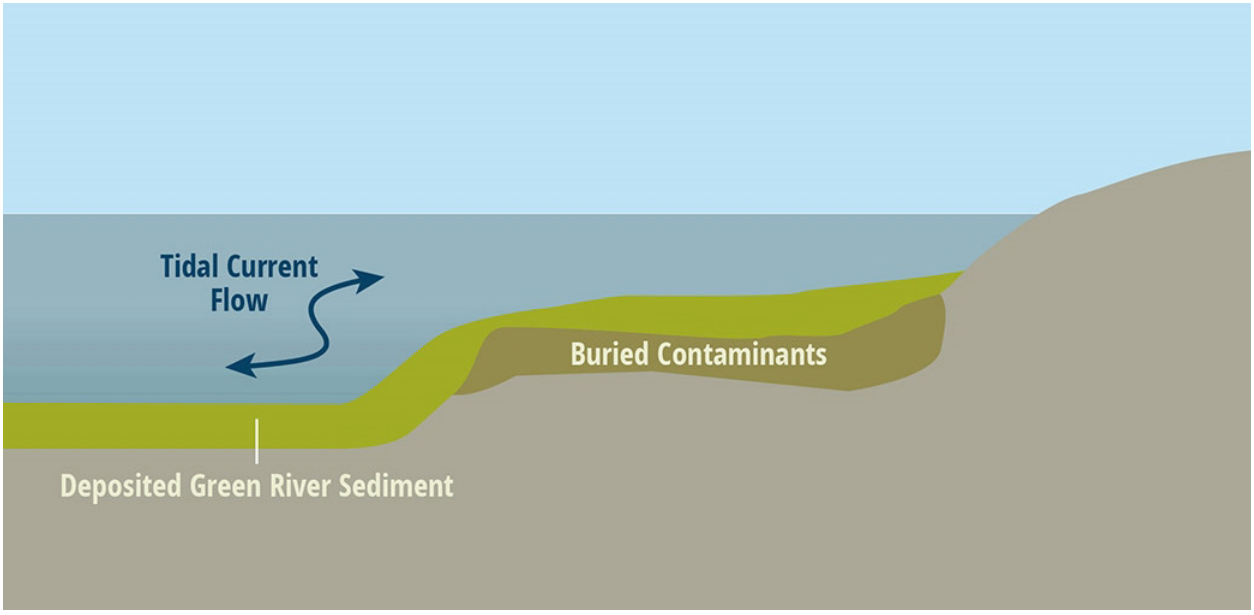
Enhanced natural recovery uses a thin layer of clean sand to speed up the natural recovery process.



Location-specific technologies will also be used in areas with restricted access—like adjacent to a structure such as a bridge or a bulkhead wall—where equipment cannot safely remove material.

2.3.1.2 Other Remedial Technologies

Monitored natural recovery relies on the movement of cleaner sediments from upriver to mix with low to moderately contaminated sediments in the waterway, ultimately reducing concentrations in surface sediments. The sediments are monitored to measure contamination reduction over time.



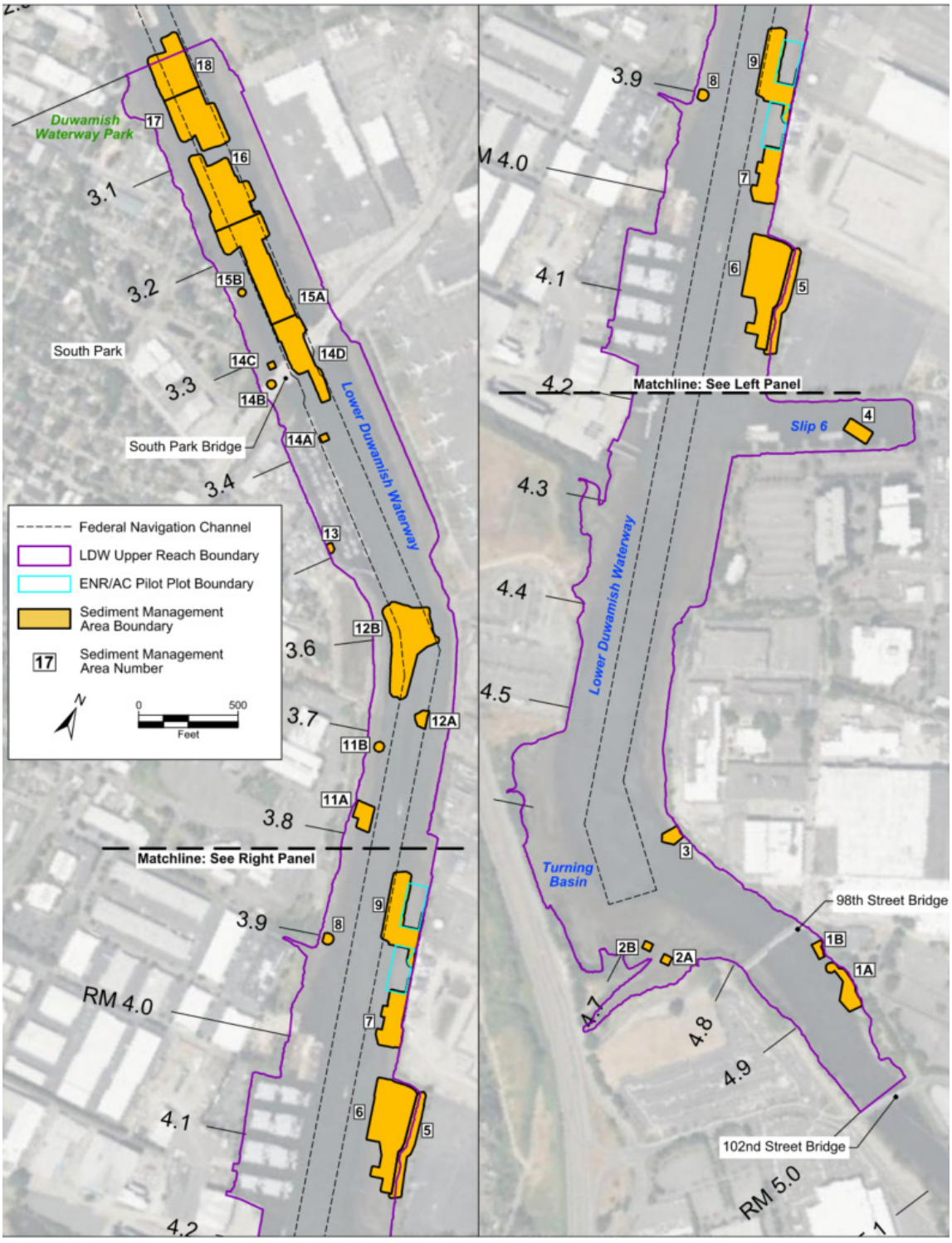
2.3.2 Planned Construction Activities

Construction activities will occur within the LDW upper reach in sediment management areas, as shown in Figure 2-2, and include the following:

- **Preparation of the upland site support areas used for staging of equipment and materials:** Setting up temporary facilities, staging of equipment, and storing clean materials before use in construction
- **Clearing and grubbing:** Removing vegetation and debris to prepare the work site for remedial activities
- **Removal of contaminated sediments**: Via dredging and excavation methods
- **Transload**: Transferring materials (like dredged sediment and debris) from one mode of transportation to another, such as from a barge or a truck to a train
- **Transportation of contaminated materials**: Transporting dredged sediment and debris from one location to another, including by barge, rail, or truck
- **Disposal of contaminated materials**: Disposing of dredge sediment and debris at a permitted commercial landfill
- **Placement of clean imported materials:** Placing clean sand, gravel, and/or armor materials

- **Survey and inspections:** Documenting the condition of the work sites and surrounding areas, as well as the progress of construction before, during, and after construction
- **Removal of piles and debris:** Removing piles where required and any debris from dredged areas
- **Monitoring and sampling during construction:** Collecting sediment and water samples to confirm dredging has removed the contaminated sediment as required by the design and that water quality is protected
- **Installation of replacement piles, reinforcement of bulkhead structure, and installation of outfall erosion control:** Replacing any Tribal fishing piles that are temporarily removed for construction access, reinforcing shoreline bulkheads to allow dredging adjacent to an existing bulkhead, and installing outfall erosion control measures
- **Site demobilization and cleanup:** Removing construction equipment and materials from the work site and restoring the work site to pre-construction conditions

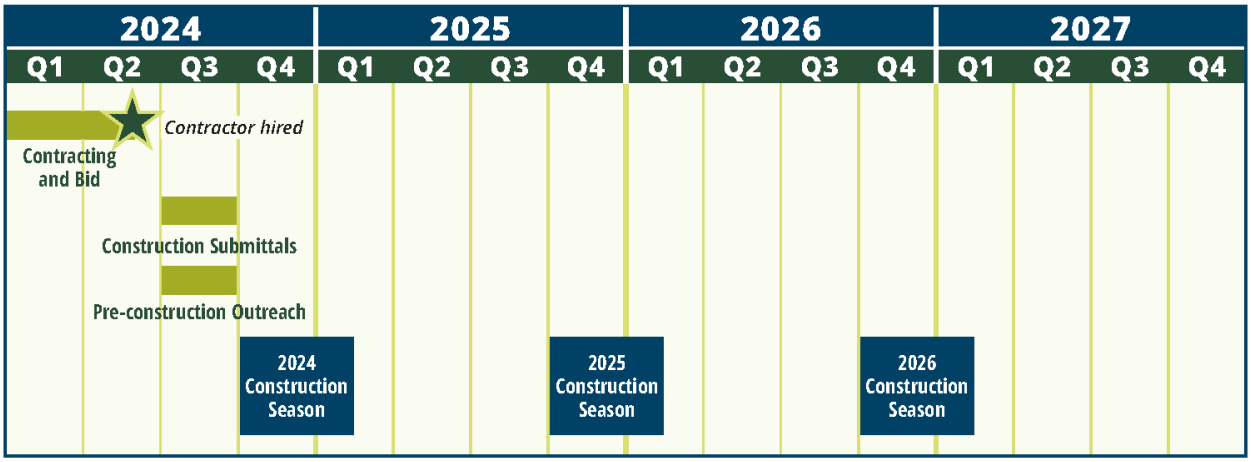
Figure 2-2
Remedial Construction Locations in the Upper Reach Lower Duwamish Waterway



2.3.3 Upper Reach Cleanup Activities Schedule

The final remedial design for the LDW upper reach was completed and approved by the EPA in January 2024. The Contractor will begin preparation for cleanup activities by first drafting a Remedial Action Work Plan (RAWP). Active construction will begin in the fall of 2024. In-water construction for the LDW upper reach is planned to take place from the months of October through February each year for approximately three construction seasons. Per the construction specifications, standard construction work hours are 7:00 a.m. to 7:00 p.m., Monday through Friday, and 9:00 a.m. to 7:00 p.m. on Saturdays. The Contractor has proposed a 5-day week (Monday through Friday, 7:00 a.m. to 5:00 p.m.) in their RAWP; the Contractor may add work on Saturdays as allowed by the contract. However, if the Contractor anticipates needing to conduct work during the night or on Sundays and legal holidays to support progress of remedial activities, the Contractor will make a request to the project team with advanced notification to obtain approval. The implementation schedule for cleanup will be updated throughout construction based on the Contractors' working schedules and will be available to the public on the project website (see Section 5.4.1).

Figure 2-3
LDW Upper Reach Cleanup Activities Schedule



3 Process for Identifying Construction Impacts During Design

This section describes the outreach and engagement process performed during design, which helped identify key community concerns associated with the construction impacts of cleanup activities. This section also presents the known construction impacts and how those are addressed through the remedial design.

3.1 Community Outreach Performed

To understand the community's concerns about potential impacts during remedial construction, LDWG conducted engagement within Duwamish Valley communities in 2023 (including neighborhoods generally of South Park and Georgetown). During this engagement, LDWG did the following:

- Conducted several conversations with businesses and organizations
- Attended community events to speak with the public, in partnership with the EPA
- Distributed a mailer to properties within South Park and parts of Georgetown
- Distributed flyers at community gathering hubs in South Park and Georgetown
- Hosted a community survey in multiple languages

This engagement culminated in feedback to inform development of the draft COCP, which was part of the 100% remedial design package submitted to and approved by the EPA in January 2024 (Anchor QEA 2024).

The COCP guides community outreach and communications during upper reach remedial action (i.e., construction). The COCP also illustrates community priorities and concerns expressed about cleanup activities. Specifically, LDWG documented concerns learned from the community and corresponding mitigation actions within the COCP Table B-1. These concerns are carried forward into this CIMP (see Section 3.2). The COCP can be viewed at: www.ldwg.org.

While the COCP focuses on community outreach and communications during construction, this CIMP focuses on mitigating concerns voiced by the community. Recognizing the immense history of LDW engagement in the Duwamish Valley over the last two decades, content within this plan is heavily informed by previous engagement plans, such as the *Lower Duwamish Waterway Superfund Site Community Involvement Plan* (EPA 2016) and by feedback from the EPA's Lower Duwamish Waterway Roundtable event in 2022 (EPA 2024). Refer to Section 3.2 for a full list of resources resulting from previous engagement efforts.

Feedback gathered during COCP outreach in 2023 was also used to inform this CIMP. This CIMP presents the actions that the EPA and LDWG will take during construction to reduce impacts, where possible, on the community (e.g., residents, businesses, fishers, and waterway users) resulting from

the LDW upper reach remedial construction activities. This document will be updated during construction as appropriate if new concerns arise.

3.2 Community Concerns Identified Through Engagement

Engagement with Duwamish Valley communities on the LDW cleanup has been an ongoing effort for more than 20 years. LDWG, federal, state, and local agencies, as well as local community groups like Duwamish River Community Coalition, have conducted this engagement.

LDWG acknowledges the rich resources of data available through previous engagement efforts. Below is a list of resources reviewed and used for the compiling of community concerns and priorities on the following pages:

- Lower Duwamish Waterway Superfund Site Community Involvement Plan (EPA 2016)
- Lower Duwamish Waterway Fishers Study (Windward 2016)
- Community Roundtables (EPA 2021, 2022, and 2023; website accessed 2024)
  - The Roundtable is a forum for those affected by the cleanup to provide input to the EPA during design and construction. The Roundtable provides an opportunity for participation by the following: federal, state, and local government agencies; environmental groups; residents; neighborhood associations and community-based organizations; fishers; recreational users; businesses; resource members; industry and labor; Tribes; Potentially Responsible Parties (government, and, separately, nongovernment); and community advisory groups.
- Health Impact Assessment, (UW et al. 2013)
- The Duwamish Valley Cumulative Health Impacts Analysis (Gould and Cummings 2013)
- Duwamish Valley Climate Resilience Survey (SASPER 2023)
- Boeing Plant 2 Community Involvement Plan (EPA 2011)
- *Terminal 117 Cleanup Community Health and Safety Plan Phase 1: Sediment and Upland Cleanup* (2012)
- Final (100%) Remedial Design Basis of Design Report for the Lower Duwamish Waterway Upper Reach (Anchor QEA and Windward 2024a)
- Construction Quality Assurance Plan for the Lower Duwamish Waterway Upper Reach (CQAP; Anchor QEA and Windward 2024b)

Table 3-1 outlines known community concerns related to upper reach remedial construction activities. Please note that not all concerns listed in Table 3-1 have solutions or can be mitigated by the project.

Table 3-1
Community Concerns Identified Through Engagement

Topic	General Theme of Community Feedback
Water Quality and Intertidal/Shallow Subtidal Habitat	
Sediment resuspension management	• The community is concerned that sediment will be disturbed during construction activities.
Intertidal and shallow subtidal habitat	• The community is concerned about intertidal habitat impacts from construction.
Quality of Life and Community	
Light, noise, air quality, and odor	• Residents are concerned about increased light, noise, air quality impacts, and odor during construction.
Activities of people who live and gather in the area	• The community has concerns regarding waterway and park access along the upper reach during construction for residents and people experiencing homelessness. They also expressed concerns about possible contamination of shorelines and parks. • The community has concerns regarding access being restricted at nearby parks and points of public access. • The community is concerned that construction may impact community festivals and gatherings.
Marinas and liveaboards	• People living at or managing marinas are concerned that construction will impact people who live aboard their boats in the marinas with respect to noise, light, and wake created by construction vessels. • These audiences are concerned that construction activities may overlap with planned dredging at their properties.
Impacts to fishers and fish	• The community has concerns regarding accessibility of fishing sites during cleanup and the safety of consuming fish from the LDW during cleanup activities. • The community is concerned that cleanup activities will disrupt Tribal fishing.
Traffic	
Maritime traffic	• Water-dependent businesses and recreational users have concerns about increased vessel traffic, access to properties via the waterway, vessel speeds, and safety for small watercraft, like kayakers.
Roadway traffic	• The community has concerns about increased roadway traffic, parking impacts, road and bridge closures, and contamination tracking or spilling along haul routes, including those near the landfill.
Waterway Users	
Shoreline access to waterway users	• The community has concerns regarding access being restricted at nearby boat ramps and launches. • Community members request access to alternative greenspaces if shorelines are inaccessible.

Topic	General Theme of Community Feedback
Economy and Jobs	
Opportunities for living wage jobs	• The community wants the cleanup to generate local green jobs and ensure worker safety while minimizing disruptions to maritime and industrial activities in the area.
Public Communications During Construction	
Access to project information	• Community members desire access to clear, timely project information and potential construction impacts. • The community requests information about how this project relates to other ongoing cleanup efforts in and around the project area.
Cataloguing complaints	• The community recommends having a system to catalog community complaints during construction.

Note:
LDW: Lower Duwamish Waterway

3.3 Known Construction Impacts

In general, the public can expect the following during remedial construction:

- Construction equipment on the river, including barges for carrying clean sand or contaminated dredged sediment, barges with a crane and/or excavator attached (for dredging and material placement), and tugboats to move the barges around
- Construction workers using certain shoreline areas adjacent to the LDW for storing construction equipment and transferring dredged sediment from barges to the shoreline area and then to railcars for transport to the landfill
- Workers driving vehicles, parking, moving barges on the river with tugboats, and using heavy equipment
- Boats with workers on the waterway collecting samples of water and sediment for testing
- Due to tides and other factors, there may be times when workers have to work outside of the standard construction work hours.
- Workers using lights for safety, and construction equipment that will generate air emissions and noise

Figure 2-2 illustrates the specific areas where sediment contamination exists that will be cleaned up through upper reach construction activities.

3.4 Construction Impacts Addressed During Remedial Design Process

As outlined in Table 3-1, the design team has identified community issues, concerns, and priorities prior to sediment cleanup to help minimize construction impacts to the extent possible. As part of

the remedial design process, the design team developed a series of Contractor requirements in coordination with the EPA to mitigate construction impacts during cleanup implementation.

The construction specifications are written documents for the Contractor that detail the work and describe specific materials to be used, methods during construction, and procedures to follow. The construction specifications also list specific regulatory requirements that the Contractor is required to follow during construction. Therefore, the construction specifications outline specific requirements to minimize construction impacts (see *Final [100%] Remedial Design, Volume III – Final [100%] Specifications* at ldwg.org; Anchor QEA and Windward 2024c).

Per the specifications, the Contractor will be required to develop a RAWP that outlines the Contractor's means and methods for completing the remedial construction activities to comply with the construction specifications and applicable regulations. The EPA will review and approve the RAWP prior to allowing any remedial action to occur. Furthermore, environmental monitoring will be implemented during construction activities to regularly monitor construction activities, as described in Sections 5.1 and 5.2.

4 Process for Identifying and Addressing Construction Impacts During Cleanup Activities

This section describes construction communications and outreach that will occur during the remedial construction process to allow the community to voice new concerns that may arise during active remedial construction. This section also presents the steps the project team (LDWG, its design consultant, and its construction management quality assurance [QA] team) will take or direct the Contractor to take to address community concerns during construction.

4.1 Community Outreach and Engagement Process

Construction communications and outreach will be performed through a variety of methods, including digital and in-person activities. The community will not only be informed of construction updates and information through these methods but also be able to share questions and concerns with the project team through various platforms. Methods of communication and outreach are further described in the following section. This information can be further explored in the COCP, found at www.ldwg.org.

4.1.1 Digital Materials

- **Website:** A project-related website will be maintained regularly with the most up-to-date construction information. The website will have a page dedicated to construction and include information on how the public can submit an email or call the project team. The website will link to some materials that are translated into Spanish, Vietnamese, and Khmer.
- **Email updates:** The project team will distribute email updates on a regular basis (likely monthly from September through February) to provide progress updates on the construction. The email updates will include construction progress and milestones and clear descriptions of the cleanup activities and their possible impacts. The email updates will also include information on how the public can submit questions and concerns during construction to the project team and how we are addressing general feedback or concerns from the community.
- **Phone line:** A phone number will be made public for community members to share questions and concerns about construction. The phone line number will be displayed on construction notices, the website, and project email updates. This phone line will be monitored during construction work hours. Callers can leave a voicemail outside of the standard construction operating hours or when outreach staff are unavailable.
- **Email inbox:** An email address will be made public for community members to share questions and concerns about construction. A project team member will respond to all emails.
- **Social media:** As relevant and necessary, the project team may use social media platforms to share project updates and upcoming outreach opportunities with the community.

- **Multicultural media:** As relevant and necessary, the team may coordinate with multicultural media during construction to share information about major milestones and/or significant impacts that need to be broadly shared.

4.1.2 Physical Materials

- **Notifications, door hangers, and flyers:** When appropriate, the project team will develop plain-language notifications and flyers to reach the community as a notice of upcoming construction impacts. These resources are intended to be used for specific audiences on an as-needed basis. For example, they may be used if the project team anticipates upcoming temporary impacts that affect people living directly on the shoreline or waterway (e.g., marina liveaboards). Materials would include translations into Spanish, Khmer, and Vietnamese.
- **Educational signage at select public access points:** The project team will develop and post educational signage about active construction at select public access locations that may be impacted by construction in the upper reach or where construction activities are most visible (locations have yet to be determined). The signage will include a QR code to direct people to the project website. Signage would include translations of Spanish, Khmer, and Vietnamese.

4.1.3 Activities

- **Community events:** The project team will participate in local community events such as festivals, fairs, and markets to interact with the community and provide an opportunity to ask questions and give feedback.
- **Briefings with community groups:** When requested, the project team will conduct informal briefings with various community-based organizations and at neighborhood association meetings in the immediate project area to provide updates and information about construction. These briefings will be tailored to the specific needs and interests of each group and may include presentations, question and answer sessions, and/or interactive activities.
- **Office hours (virtual):** The project team will host virtual office hours on a trial basis. This is an opportunity for members of the public to have direct access to project staff and ask questions. The cadence of office hours will be decided later; however, it is recommended to do these monthly, during the months of October through February. These may continue in the second and third construction seasons based on demand.
- **Boat tour:** The boat tour is sponsored by LDWG and hosted annually in collaboration with local community organizations, government, and project partners. This annual event provides an opportunity to share updates on cleanup progress.
- **Collaboration with EPA events:** The project team will coordinate with the EPA to participate in existing events, like the LDW Community Roundtable to minimize engagement requests put on the community during this time.

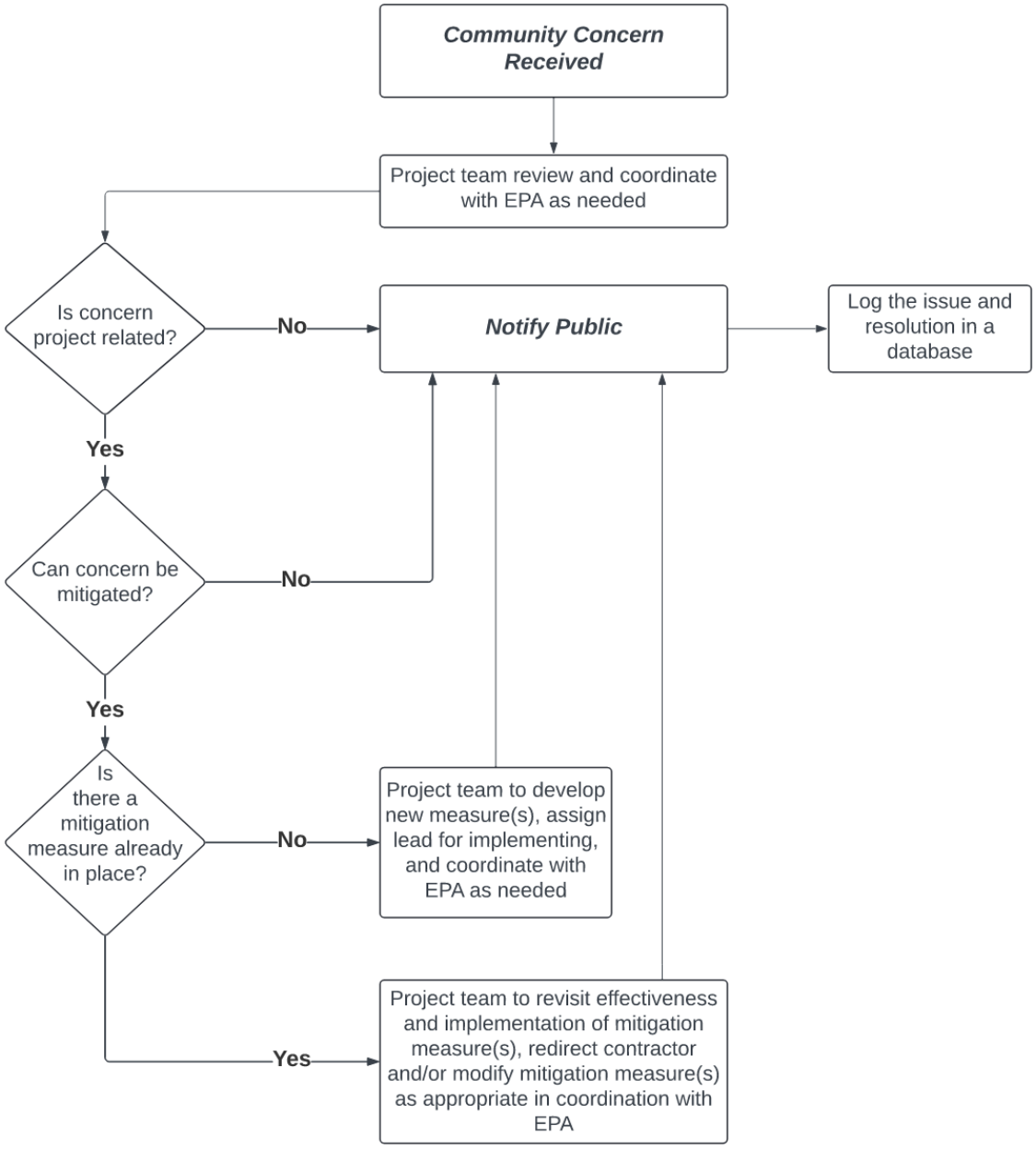
4.2 Steps to Address Community Concerns During Construction

Community members will have the opportunity to learn about construction updates and submit questions and concerns through the project phone line, email, and through community activities as described in Section 4.1. The project team will respond to all inquiries received during construction. Generally, the following steps will occur to respond to community concerns during construction:

1. **Receive community concern:** The project team may receive a community concern through email, telephone, community events, or other forms of communication, such as in-person outreach.
2. **Project team review and evaluate:** The project team will review, evaluate, and respond to all community concerns with applicable members of the project team as appropriate for the nature of the concern. Project representatives will follow the general process in Figure 4-1 to evaluate the nature of the concern, identify the mitigation lead (LDWG or the Contractor), and determine whether mitigation may need to be enhanced, revised, or developed.
3. **Coordinate and respond:** The project team will collaborate with the required team members or the EPA to respond to and resolve community concerns.
4. **Log in database:** The project team will log all concerns received and their resolutions in a project communications database.

The flowchart (Figure 4-1) shows the general process and parties involved in screening and addressing community concerns received during construction.

Figure 4-1
Process for Addressing Community Concerns



5 Ways to Reduce and Manage Construction Impacts During Cleanup Activities

This section describes ways to reduce and manage identified impacts during cleanup activities through Contractor requirements as described in the construction specifications, environmental compliance monitoring activities, and best management practices (BMPs).

5.1 Environmental Compliance by the Contractor

This subsection describes the environmental protection measures and inspection activities that the Contractor will be required to implement during construction for the upper reach remedial action implementation. The Contractor will be required to submit various environmental compliance plans in the Environmental Mitigation Binder, which will be prepared as part of its Remedial Action Work Plan (RAWP), prior to the start of construction that will describe environmental protection measures and inspection activities that the Contractor will implement during construction. The Contractor's Environmental Mitigation Binder will include the following plans, as required by Specification Section 01 35 43 (Environmental Procedures):

- Water Quality Protection Plan
- Erosion and Sediment Control Plan
- Stormwater Pollution Prevention Plan
- Water Management Plan
- Spill Prevention, Control and Countermeasure Plan
- Air Pollution and Odors Control Plan
- Personnel and Equipment Decontamination Plan
- Traffic Control Plan

The EPA will review and approve the Environmental Mitigation Binder as part of the RAWP prior to the start of construction activities.

During remedial construction activities, the Contractor will be required to complete a daily record of compliance with air, light, noise, and odor criteria, as well as a daily record of environmental inspection activities for water quality protection, stormwater pollution prevention, spill control, and water management as part of a Daily Construction Report. These Daily Construction Reports will also describe any mitigation measures, controls, and actions implemented to address any concerns identified as part of remedial construction activities. The Contractor will also complete an environmental inspection report on a weekly basis (as part of the weekly construction report) that summarizes the week's compliance with environmental criteria and tracks mitigation that has been implemented or outstanding concerns (if applicable).

5.2 Quality Assurance Inspection and Environmental Monitoring Program by Construction Management Quality Assurance Team

This subsection describes the QA inspection and environmental monitoring program for the upper reach remedial action implementation that will be conducted by the construction management QA team (independent consultant team completing QA oversight during construction activities). The construction management QA team will inspect and monitor the Contractor's compliance with the contract documents. One objective of the program is to conduct environmental monitoring as required by the contract documents and to verify that the Contractor's work is being carried out in accordance with Applicable or Relevant and Appropriate Requirements and approved environmental monitoring plans.

Quality-of-life monitoring will occur during construction to reduce the effects of remedial construction activities on the local community. Quality-of-life considerations include the following topics:

- Air, noise, and light quality
- Equipment and material transportation through residential areas
- Construction work hours

During construction, the construction management QA team will implement an environmental monitoring program as described in Table 5-1 that will include the following elements, as documented in the *Construction Quality Assurance Plan for the Lower Duwamish Waterway Upper Reach* (CQAP; Anchor QEA and Windward 2024b):

- Water Quality Monitoring Plan (WQMP; Appendix A of the CQAP)
- Construction Sediment Sampling Quality Assurance Project Plan (Sediment QAPP; Appendix B of the CQAP)
- Air, Noise, and Light Monitoring Plan (ANLMP; Appendix C of the CQAP)
- Cultural resources monitoring as identified in the Monitoring and Inadvertent Discovery Plan (MIDP; Appendix D of the CQAP)

The construction management QA team will report monitoring results to the EPA and implement contingency or corrective actions as approved by the EPA as necessary. If new or unexpected community concerns are identified during construction, the project team will review and respond to the concerns in coordination with the EPA as shown in Figure 4-1.

In addition to environmental monitoring, the construction management QA team will perform QA inspection of the Contractor's work and will document construction QA activities in a Daily Field Activity Report and summarize weekly progress to the EPA with a Weekly Field Activity Report, as

required by the CQAP (Anchor QEA and Windward 2024b). Table 5-1 identifies required construction inspection activities by the construction management QA team.

Table 5-1
Summary of Quality Assurance Inspection and Monitoring Requirements by Construction Activity

Construction Activity	Required Construction Inspection and Structures Monitoring Activities[1]	Required Environmental Monitoring Activities
Dredging and Excavation	• Provide daily inspection. • Review Contractor's bathymetric and topographic surveys (progress and post-dredge). • Review Contractor's bucket plots, barge displacement tonnages, disposal weight tickets, and other QC information.	• Construction sediment sampling per Sediment QAPP • Water quality monitoring per WQMP • Cultural resources monitoring per MIDP • Air, noise and light monitoring per ANLMP
Transloading, Upland Transportation, and Disposal at Transload Facility	• Provide regular inspection of transload facility operations. • Conduct site visit of disposal facility, if requested.	• None
Material Placement	• Provide daily inspection. • Review Contractor's bathymetric and topographic surveys (progress and post-material placement). • Review Contractor's bucket plots, placement tonnage estimates, and other QC information. • Review import material testing gradation and chemistry analytical results. • Inspect import material borrow facilities (as necessary). • Inspect amended cover mix for specifications compliance. • Inspect on-site import material stockpiles.	• Water quality monitoring per WQMP • Air, noise, and light monitoring per ANLMP
Demolition and Removal (Identified Debris and Piling)	• Provide daily inspection. • Confirm that debris and pile removal is performed at correct locations. • Conduct structures monitoring.	• Water quality monitoring per WQMP • Air, noise, and light monitoring per ANLMP

Construction Activity	Required Construction Inspection and Structures Monitoring Activities[1]	Required Environmental Monitoring Activities
Modifications of Existing Structures, Outfalls, Utilities, and Pile Installation	• Provide daily inspection. • Inspect pile installation. • Inspect outfall scour protection installation. • Inspect temporary shoring installation. • Inspect work to confirm Contractor does not impact existing structures and utilities. • Conduct structures monitoring.	• Air, noise, and light monitoring per ANLMP

Notes:

1. Required QA construction inspection, structures monitoring, and environmental monitoring activities include daily observation and photographic documentation of work completed, review of the Contractor Daily Construction Reports and Weekly Construction Reports, and development of Daily Field Activity Reports and Weekly Field Activity Reports for QA documentation.

ANLMP: Air, Noise, and Light Monitoring Plan
MIDP: Monitoring and Inadvertent Discovery Plan
QA: quality assurance
QC: quality control
Sediment QAPP: Construction Sediment Sampling Quality Assurance Project Plan
WQMP: Water Quality Monitoring Plan

5.3 Mitigation for Potential Community Impacts

For each potential community impact included in Table 3-1, this subsection will describe the Contractor mitigation requirements, recommended BMPs, and monitoring to be performed to mitigate construction impacts during cleanup activities.

Communication with the public will occur during construction activities through the project website and other means discussed in Section 4.1 to inform them on construction updates (see Section 5.4.1).

5.3.1 Sediment Resuspension Management

Mitigation to address sediment resuspension includes the following:

- **Comply with BMPs:** The project team recognizes that dredging will disturb sediment. The Contractor will be required to use BMPs to minimize potential impacts from this disturbance. BMPs are operational and engineering controls that aim to reduce construction's environmental impact and limit potential recontamination. At a minimum, the Contractor is required to implement the following BMPs as required by the construction specifications:
  - Multiple "bites" by the dredge bucket on the sediment bed before rising to the surface are not allowed so that the sediment bed disturbance is reduced.
  - Watertight barges will be used to transport dredged sediment to the transloading facility, so material is not released into the river during transportation.
  - A sealed environmental digging bucket will be used as the primary tool for dredging to minimize the loss of sediment from the bucket during construction.

  - "Sweeping" (i.e., dragging a bucket or beam) or leveling of the waterway bed by pushing bottom contaminated sediments around with the dredge bucket to knock down high spots to achieve required elevations/thicknesses is prohibited.
  - Interim underwater stockpiling of dredge material is prohibited (i.e., taking small dredge cuts and temporarily stockpiling material on the riverbed in a mound to allow the dredge operator to grab a fuller bucket).
  - Measures will be taken to reduce the potential of overfilling the dredge bucket.
- **Protect water quality:** The Contractor is required to comply with Washington State water quality standards, and the construction management QA team will conduct water quality monitoring in accordance with the EPA-approved WQMP (Appendix B of the CQAP; Anchor QEA and Windward 2024b) during construction to determine whether construction operations need to be modified or BMPs need to be enhanced for compliance.
- **Minimize contamination spread:** The Contractor is required to control its work to minimize the potential for spreading contamination. This includes using tools such as an environmental (closed) dredging bucket as the primary technology for dredging.

Environmental Bucket

- **Sample sediment post -dredging:** After dredging, the construction management QA team will sample sediment in accordance with the EPA-approved Sediment QAPP (Appendix A of the CQAP; Anchor QEA and Windward 2024b) within and outside the dredged area to determine whether and where clean material placement is needed to address typical dredge-related residual contamination that has settled on the surface.

5.3.2 Impacts on Intertidal and Shallow Subtidal Habitat

Mitigation to address impacts on intertidal and shallow subtidal habitat includes the following:

- **Restore intertidal habitat post-construction:** The Record of Decision requires that in habitat areas in intertidal and shallow subtidal areas, the remediated areas that before construction are above -10 feet mean lower low water elevation are returned to the pre-construction surface elevations. The Contractor will place clean, rounded, gravelly sand

material to restore the sediment bed elevations to pre-construction elevations and to benefit fish foraging.

5.3.3 Impacts on Air Quality, Odor, Noise, and Light

Mitigation to address the impact on air quality, odor, noise, and light includes the following:

- **Comply with federal, state, and local ordinances:** The Contractor is required to comply with applicable federal, state, and local ordinances for air quality, noise, and light.
- **Comply with air pollution requirements:** The specifications require the Contractor to incorporate green remediation principles into its construction activities to achieve improvements on the environmental footprint generated by the remedial action, especially associated with air emission impacts. For air pollution compliance, minimum EPA-Tier engine specifications requirements will be required to be met by the Contractor based on each construction activity.
- **Comply with BMPs:**
  - **Air quality:** Examples of air quality specification requirements include the following BMPs:
    - Limit engine idling time of on-road vehicles, including delivery and haul trucks, to 5 minutes maximum (not a requirement for heavy marine construction equipment).
    - Use clean diesel technologies in all off-road equipment.
    - Use electrically powered equipment or equipment that uses alternative fuels (e.g., biofuels and biodiesel blends) or fuel additives (e.g., emulsified diesel) over traditional fossil fuels, where practicable.
    - Employ effective fleet management by planning to minimize fuel consumption through efficient transportation routes, transfer of only full loads when feasible, selection of appropriately sized vehicles, and encouragement of low-carbon commuting and travel by workers.
    - Provide preventative vehicle maintenance to ensure peak operating efficiency. When exhaust emissions are determined to be excessive by the construction management QA team, the Contractor shall repair or replace equipment.
    - Where practicable, use low-carbon-emission construction materials (sheet pile and steel pipe piling).
  - **Dust control:** The Contractor will be required to prevent the migration of dust particles from construction activities. Examples of dust management specification requirements include the following BMPs:
    - Wetting of excavation areas and soil stockpiles if needed for dust control
    - Covering truck loads to prevent the escape of dust-bearing materials
    - Covering stockpiles with plastic sheeting when loading and stockpiling activities are not occurring or if nuisance odors are encountered prior to transportation off site

- **Odor:** The Contractor will be required, per the specifications, to transport dredged materials emitting odors off site as soon as practicable. In addition, covering stockpiles as described previously will minimize odors. The Contractor is required to comply with applicable air quality regulations to address potential odors from remedial construction activities.
- **Noise:** General construction noise will occur throughout the project due to the use of heavy equipment. Based on past remediation projects conducted on the LDW, noise monitoring has shown that the anticipated equipment for the upper reach cleanup will comply with local ordinance noise requirements. The Contractor will be required per the specifications to comply with all local noise ordinances.
- **Light:** Artificial lighting may be used during morning and evening work to illuminate work areas and provide safe working conditions. Lighting will be directed to the work area to reduce the amount of light that affects the nearby community. Lighting systems will be repositioned as necessary to reduce impact. The Contractor may propose working outside of standard work hours when work activities require certain tidal elevations or to reduce traffic impacts on the public (such as during extended bridge openings). The Contractor will be required per the specifications to comply with all local light ordinances.

5.3.4 Impacts on Activities of the Nearby Community

Mitigations to address impacts on activities of the nearby community includes the following:

- **Limit activities that impact public access:** Most construction activities are happening on the waterway, and private, controlled properties will be used for staging, so upland public access to parks and shorelines will not be restricted. Temporary restrictions to public access to water may occur at active construction locations. However, the Contractor will store its equipment in designated location(s) that avoid restricting access to the waterway users. The project team does not expect any significant construction impacts on people experiencing homelessness because the construction is occurring on the waterway.
- **Interruptions to businesses:** The project team will communicate with nearby affected businesses on the waterway throughout construction in order to reduce impacts on business operations. LDWG is directly coordinating with waterfront property owners where construction site access is needed in order to develop any required temporary construction easements or other agreements.
- **Prioritize worker health and safety:** Workers performing construction or oversight must follow a site-specific health and safety plan prepared by the Contractor. The Contractor is required to have a health and safety officer who will verify compliance with the plan. The construction management QA team also will be following their health and safety plans.

- **Provide consistent cleanup outreach and communications:** The project team will provide consistent communications about the cleanup and potential impacts, including educational signage at some public access points, the project website, regular emails to interested audiences, and ways for the nearby community to reach the project team should concerns arise.

5.3.5 Impacts on Marinas and Liveaboards

Mitigation to address impacts on marinas and liveaboards includes the following:

- **Provide advanced notice of nighttime work:** The project team will notify affected marinas and people who live aboard their boats in advance of nighttime work that may impact them. Additional mitigation measures may be developed and implemented if nighttime work is unavoidable due to the need to work during low-tide periods.
- **Comply with local navigation and speed requirements:** The Contractor must comply with local regulations regarding navigation and LDW vessel speed limits.
- **Coordinate overlapping construction activities, as needed:** The Contractor will communicate with the project team regarding its planned work locations and schedule so that overlapping work, if identified, can be coordinated in advance.
- **Comply with quality-of-life requirements:** The Contractor will be required to comply with quality-of-life considerations like air quality, odor, light, and noise (see Section 5.3.6).

5.3.6 Impacts on Fishers and Fish

Mitigation to address potential impacts on fish and people who fish from the LDW include the following:

- **Reaffirm the EPA's seafood consumption guidance:** The EPA's Seafood Consumption Institutional Control Program for LDW provides guidance to people who fish in the area about the potential risks associated with consuming resident fish and shellfish from the LDW and about safe alternatives. This program is known as "Safe to Catch, Toxic to Eat" (King County 2024). This remains in place during construction. The project team will continue to point to the program as a reference during outreach.
- **Avoid heavy construction equipment activities during in-water work windows for fish protection:** The upper reach in-water construction schedule is established to limit impacts to certain fish species based on the resource agencies (e.g., National Marine Fisheries Service)-established fish work window.
- **Coordinate with local Tribes regarding tribal fishing:** The project team is coordinating directly with the Muckleshoot Indian and Suquamish Tribes regarding Tribal fishing to limit interactions and mitigate damages.

- **Monitor the conditions of local fish:** The Contractor is required to monitor for distressed or dying fish during remedial construction and will notify the project team if distressed or dying fish are observed.

5.3.7 Impacts on Maritime Traffic

Mitigations to address impacts on marine traffic include the following:

- **Develop Vessel Management Plan:** The Contractor is required, per the specifications, to develop a Vessel Management Plan as part of the RAWP that describes the Contractor's process for planning and coordinating vessel movement and safe vessel transit. Construction operations are not stopped for recreational users. However, a safety buffer zone will be established by the Contractor around in-water construction equipment to create a safe distance for recreational users.
- **Monitor and adapt operations as needed to protect waterway users:** The Contractor is required to continuously monitor work areas for the presence of other waterway users and will warn waterway users (e.g., commercial and recreational users) of work activities occurring nearby. The Contractor is required to temporarily adjust activities if necessary to protect the safety of other waterway users. A safety buffer zone will be established by the Contractor around in-water construction equipment to create a safe distance for recreational users. There may be short periods of time when construction is occurring adjacent to a public waterway access point. During these times, recreational craft may not be able to pass safely, so access will be restricted until the Contractor allows access to waterway users to specific areas of public interest within the LDW.
- **Monitor and adapt operations as needed for nearby commercial vessels:** The Contractor is required per the specifications to monitor and move their equipment for the passage of commercial vessels and to prevent unsafe transit around the Contractor's equipment.
- **Comply with local navigation and speed requirements:** The Contractor must comply with local regulations regarding navigation and waterway vessel speed limits.
- **Construction schedule**: The Contractor will provide a construction schedule to the project team. The project team will provide updates to the public as described in Section 4.1.

5.3.8 Impacts on Roadway Traffic

Mitigation to reduce construction truck traffic through local streets and other construction related impacts to local roadway traffic include the following:

- **Utilize barge and rail transportation to limit truck traffic on roadways:** Local truck traffic is minimized by using barges to transport dredged material to a transload facility. The Contractor transload facility is the Duwamish Reload Facility (operated by Waste Management), located at 7400 8th Avenue South, Seattle, Washington 98108. The dredged

material is then required per the specifications to be transported primarily by rail to a permitted landfill. The permitted landfill is the Columbia Ridge Landfill (operated by Waste Management), located at 18177 Cedar Springs Lane, Arlington, Oregon.

- **Identify and share haul routes and anticipated volume of trucks:** In limited locations, sediment excavation must be accomplished from the land and hauled by truck to the transload facility. Haul routes and the daily truck trips per day are identified in the Contractor's RAWP and will be shared with community once finalized. The EPA-approved 100% remedial design included pre-approved truck routes (on routes where other commercial truck traffic occurs). If additional routes are proposed by the Contractor, the Contractor is required per the specifications to provide those to the project team and the EPA for approval.
- **Minimize parking impacts:** Significant parking impacts are not anticipated during remedial construction. The Contractor will park its vehicles on its property or in designated areas identified in the Contractor's RAWP.
- **Provide advance notice of prolonged bridge openings:** Vessel transit under the South Park Bridge may require short duration bridge openings to allow safe passage, like any other tall vessel. However, the Contractor is required to provide notice to the project team for extended bridge openings, which will be communicated in advance to the public.
- **Coordinate with King County Roads on construction activities:** There is planned remedial action adjacent to and under the South Park Bridge. The project team is coordinating with King County Roads on temporary bridge closures to allow the remedial actions to take place, while reducing bridge traffic disruptions during heavy transit periods. Advance notice will be given for bridge closures beyond vessel passage.
- **Utilize best practices to prevent spills on roadways or rail lines:** The Contractor is required to follow BMPs. For example, trucks or railcars used to transport contaminated materials will be lined or sealed and covered during transport. In addition, trucks will have their wheels cleaned prior to leaving any upland staging area. If a spill occurs, the Contractor is required to clean it up in compliance with local, state, and federal regulations. These requirements apply throughout the entire haul route, including near and at the permitted landfill.
- **Green transportation requirements:** Per specifications requirements, the Contractor shall offer incentives for green methods of transportation (e.g., public transportation or carpooling) for its staff to minimize roadway traffic and air pollution emissions.

5.3.9 Impacts on Shoreline Access to Waterway Users

Mitigation to address impacts on waterway users include the following:

- **Minimize waterway property access impacts:** Impacts to property access from the waterway will typically be short in duration and will be communicated with property owners where remedial action occurs to minimize potential impacts.

- **Post informational materials**: Educational signage will be used at parks or public access points, as described in Section 4.1.

5.3.10 Opportunities for Living Wage Jobs

Opportunities to address living wage jobs include the following:

- **Identify local job training opportunities:** The EPA is working on community outreach for participation in job training that could be helpful to hiring programs related to the cleanup or other employment opportunities (see Section 6).

5.4 Public Communications During Construction

Communication with the public will occur during construction activities to inform the public on construction updates. Public complaints will be monitored and responded to according to Figure 4-1.

5.4.1 Access to Project Information

Actions that allow for public access to project information include the following:

- **Provide regular updates:** Construction communications will provide the public with updates on current construction progress, information on potential impacts and activities, and ways to communicate with the project team.
- **Develop accessible project materials:** Project materials will clearly state the project area and scope of the project to eliminate confusion between separate upland and in-water cleanup, climate adaptation, and flooding reduction efforts.

5.4.2 Cataloguing Complaints

Complaints will be catalogued using the following methods:

- **Establish database to log community inquiries:** The project team will document and track community questions, comments, and complaints in a database.
- **Share gathered community input regularly:** The project team will summarize and regularly communicate community input and project team responses.
- **Monitor incoming calls and emails:** The project team will manage a phone line and email during construction work hours.

5.5 Adaptive Management During Cleanup Activities to Reduce and Manage Construction Impacts on Community Use Areas

Throughout the construction process, the EPA and LDWG will actively monitor and listen to community concerns. Recognizing the importance of keeping the community informed, the EPA and LDWG have implemented various communications channels to allow the community's voices to be heard and their concerns considered. A key aspect of that approach involves regularly

communicating with the community to provide updates on construction activities and to gather feedback should any issues occur.

To facilitate a two-way dialogue, LDWG has established a phone line where community members can easily reach out with questions, comments, or concerns. A project team member will be available to take calls during construction hours. Outside of construction hours, callers can leave a voicemail for a response the next business day.

Additionally, LDWG will maintain an email inbox to accommodate those who prefer written communication. Every correspondence is responded to, logged, and tracked to ensure that no concern goes unattended.

Furthermore, the EPA and LDWG will establish a response protocol to promptly address topics or concerns received by the project team that necessitate further clarification or attention. This includes identifying protocols and clear steps for action when the project team receives comments about noise, light, odor, safety, or other urgent issues. Refer to Section 4.2 for steps to resolve community concerns during construction.

The project team recognizes that transparency is important to the community. As described in Section 4.1, the project team will implement a variety of platforms to engage the community. The project team will provide regular email updates to keep the community informed of progress and construction updates and maintain a construction webpage at: www.ldwg.org. The project team will also host virtual "office hours" on a trial basis during the first construction season. This is an opportunity for members of the public to have direct access to project staff and ask questions during remedial construction.

5.6 Restoring Community Resources

As described in the construction specifications, the Contractor is required to clean items affected by the work after each construction season. Once the remedial action is completed, the Contractor will restore the property to pre-construction conditions as indicated in the specifications and construction drawings.

In addition, vegetation that will need to be removed to facilitate access to a bank along the waterway will be replanted with native species as part of the construction activities. Bank reconstruction with vegetation plantings has been identified in one sediment management area (i.e., Sediment Management Area 5).

6 Community Engagement Through Job Training, Apprenticeship, and Business Participation

The cleanup work includes elements to allow more small-business participation, to include apprenticeship hires, and to provide opportunity to participate in training that may be helpful in the hiring of local workers. This is accomplished by the following types of programs.

The EPA has a program called the Superfund Job Training Initiative Program, which is designed to help community members that are impacted by a Superfund site to have relevant training that may help them in being hired to do work during the cleanup. The EPA will be offering training to local community under this program.

The construction contract by King County includes requirements related to its Community Workforce Development program. The Community Workforce Agreement is a labor agreement with targeted priority hiring requirements to include workers from the designated economically distressed areas, including the Duwamish Valley. This agreement is between King County and representatives of the Seattle-King County Building Trades Council, with targeted priority hiring requirements for journey-level and apprentice workers. A "Priority Hire Worker" means an individual prioritized for recruitment, training, and employment opportunities because the individual is a resident in an economically distressed area, including the Duwamish Valley. King County will be working with the Contractor to implement these requirements in the contract.

The construction contract by King County also has requirements for Certified Small Contractors and Suppliers utilization to provide materials, supplies, and services. This supports small-business participation in the work. The City of Seattle contract for construction management support also has goals to increase the use of women- and minority-owned businesses in the project work.

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