DUWAMISH RIVER
COMMUNITY COALITION

Elevating the voices of those impacted by the Duwamish River pollution and other environmental injustices to advocate for a clean, healthy, and equitable environment for people and wildlife. Promoting place-keeping and prioritizing community capacity and resilience.

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Beau Johnson
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Site Manager
Washington Department of Ecology

RE: Boeing Isaacson Thompson Draft Cleanup Action Plan (dCAP)

To Mr. Johnson,

Thank you for the opportunity to comment on the *Boeing Isaacson Thompson Draft Cleanup Plan*. It is vitally important that community voices are heard on the issues that directly impact them. The Duwamish River Community Coalition (DRCC) has long been a community steward for environmental justice in the Duwamish Valley, which is one of the most polluted areas in the entire Pacific Northwest following over a century of industrial dumping and release of toxic waste. We seek to amplify the will and voices of community members harmed by the combined impacts of environmental, economic, and health inequities present in the Duwamish Valley.

Public Participation

It is not clear to what extent public involvement occurred during the development of the plan or will occur during the cleanup. The US EPA and LDWG developed a Community Impacts Mitigation Plan which outlines a series of actions that will be taken to improve transparency, community involvement, monitoring, and communications during the cleanup, including community reporting of violations. We advocate for Ecology using this model and have attached it as an Appendix to this letter.

Incorporating environmental justice considerations by complying with HEAL Act: For the next stage of the MTCA process, all cleanup decisions should include an environmental justice analysis, especially for MTCA sites in overburdened communities, as required by the HEAL Act. Ecology should explain in detail in that document how the Healthy Environment For All (HEAL) Act informed and guided the creation of the FS as mandated by law. Additionally, the Department of Ecology should provide examples of how planning for this site meaningfully prioritizes vulnerable environmental justice communities outlined in the HEAL Act, which were absent from previous site plans created prior to the passage and implementation of the Act.

Future Use of Shoreline

The conceptual remedy design assumes the Permeable Reactive Barrier (PRB) wall to be 5 ft thick, 25 ft deep, and 700 ft long, set back from the shoreline/western Boeing property line approximately 50–100 ft to allow space to evaluate the performance of the PRB in treating groundwater contamination. The Shoreline Area excavation will include soil excavation of the entire Port Sliver property to 18 feet below ground and between the property and the PRB to prevent recontamination of treated groundwater, which includes removal of 15,000 cubic yards of soil. Based on this and Figure 5-1, the excavation includes a width of at least 100 feet from the water's edge inland.

- The future use of the shoreline is in the interest of the public trust and cleanup should reflect this. We disagree with the construction of a replacement bulkhead along the shoreline and request instead that the shoreline be used for habitat restoration. If a bulkhead is pursued, we request long-term bond (100 yrs) for protection and maintenance of any constructed bulkhead to ensure that remains protective for the long term and is maintained through unanticipated changes to sea level rise and other river dynamics resulting from climate change.

- We believe that, at a minimum, the cleanup should designate this 100 foot shoreline buffer as terrestrial and/or aquatic habitat that will be in the best interest of the public trust. Additional rationale for this request are below.

Policies that prioritize the public trust and ecological benefits

In the January 2024 comments from the Port of Seattle on the Boeing Isaacson-Thompson Site Remedial Investigation ("RI") and Feasibility Study ("FS") Port states they have " no power to lease [or alienate] any area within the 500-foot right of way," and adjacent landowners have a right of access to the extent that neither

navigation ***nor any other right of the general public*** is interfered with." Commercial Waterway Dist. No. 1 v. Permanente Cement Co., 61 Wn.2d 525 (1963).

- Further, Washington State Shoreline Management Act of 1971 (SMA) considers the basic policy areas: shoreline use, environmental protection, and public access. It establishes the concept of preferred shoreline uses that are consistent with controlling pollution, preventing damage to the natural environment, and promoting water-dependent industrial and commercial developments, ports, developments that provide public access opportunities, recreational uses, and single-family residences. The SMA is intended to ensure the development of shorelines in a manner that will ***promote and enhance the public interest and that will protect shorelines of the state, including the land, vegetation, wildlife, and aquatic habitats, against adverse environmental effects***. Additionally, the SMA (RCW 90. 58) establishes a hierarchy of preference for uses in shorelines of state-wide significance: recognizing and protecting the state-wide interest over local interest; preserving the natural character of the shoreline; resulting in long term over short term benefit; protecting the resources and ecology of the shoreline; increasing public access to publicly owned areas of the shorelines; increasing recreational opportunities for the public in the shoreline; and providing for any other element as defined in RCW 90. 58. 100 deemed appropriate or necessary.

Support for a bioengineered shoreline

The dCAP states that the costs of Alternatives 4 and 5 are disproportionate to their benefits, and the benefits of Alternatives 1 and 2 were disproportionately lower than for Alternative 3, and thus Alternative 3 uses permanent solutions to the maximum extent practicable. It is not clear if Ecology fully took into consideration the public trust benefits of more thorough remedial action alternatives that would meet the requirements of the SMA. The public trust benefits to the State and aquatic and terrestrial habitat is a critical consideration along the Duwamish.

The State of Washington should consider the public trust and interest and the needs of the State's wildlife in the cleanup of the site. The current Port Sliver is 60 feet wide, and the proposed soil excavation would add an additional width of about 40 feet. At a bare minimum, and to meet the standards and intent of the SMA, Ecology should design for habitat restoration in this 100 foot buffer. The Boeing 2-122 site was able to successfully create both marsh and upland habitat, as well as provide public viewpoints with only a 150 foot buffer and provide pollution control, meeting the State requirements to serve the public trust. Because the Port Sliver has been left unmaintained for a number of

years, it is clear that the property is not needed to meet other needs identified in the SMA such as industrial or commercial development or single-family residences. In addition, habitat restoration could help buffer noise and air pollution impacts from the airport and other industrial activities for neighboring communities, including South Park. In this way, taking public benefits into account can support the intent of the HEAL Act.

The dCAP states “Focused excavation of soil along the shoreline permanently removes contaminated soil along the Site’s shoreline and protects sediments from migration of contaminated soil.” Because of this it seems that the site would be primed for any future use, including habitat restoration. However, the dCAP proposes to remove the bulkhead and replace it with a steel bulkhead or other engineered shoreline. We advocate for development of an ecologically engineered shoreline that supports aquatic and terrestrial habitat.

Cleanup Process

Alternative 3 physically removes some of the Site soil contamination; however, the ***majority of the contaminated soil (including the stabilized soil area and most of the former Slip 5 fill material)*** will remain in place.

The dCAP notes that dissolved arsenic exceedances occurred in groundwater throughout the Site (Figure 2-14), with the highest exceedances occurring north of the former Slip 5 area and mostly within and downgradient of the Stabilized Soil Area. Additionally, the dCAP notes that the highest arsenic concentrations in the shoreline area occurred at wells MW-19, MW-20, and I-104(s), which are located downgradient of the Stabilized Soil Area. Considering that the soil from these areas will be left in place, and that dissolved arsenic is highest in these locations, we question whether the proposed cleanup will lead to future recontamination. ***We would like to see a thorough recontamination analysis for this Alternative. If Ecology does not require this, we expect sampling to happen more frequently often and for a longer duration.***

The dCAP proposes the alternative to full excavation of contamination is the installation of a PRB containing a mix of ZVI and granular activated carbon to provide long-term groundwater treatment for Site COCs and reduce the risk of contaminant migration from Site groundwater to the LDW. While PRB systems have been utilized for decades, these systems have had mixed outcomes. Certain characteristics can clog pores of PRBs such as nitrates in the groundwater that lead to a 41% reduction in effectiveness at the Oak Ridge National Laboratory site.[1] Considering the levels of contaminants that will be left in place, and controlled by the PRB, the pilot technology evaluation will be

[1] https://link.springer.com/article/10.1007/s13762-022-04536-7

important, and there should be an evaluation of potential long term chemical reactions that could lead to changes in absorption, adsorption, and/or porosity that could affect long term performance of the PRB.

Climate Change Vulnerability Assessment

To our knowledge a Climate Change Vulnerability Assessments (CCVA) was not conducted. Revised MTCA (WAC 173-340) regulations call for attention to climate change at MTCA clean up sites. Please provide any documents related to this analysis that were reviewed regarding potential climate change impacts and vulnerabilities. Thefollowing climate impacts and vulnerabilities need to be taken into account to assume long term stability of the site and protection of human health and the environment.

Ecology developed a guidance document for Addressing Sea Level Rise in Shoreline Master Programs that includes:

- Taking into account the effects of rising sea levels on existing and projected development.
- Recognizing the role that shoreline erosion and accretion play in preserving ecological functions, and to encourage softer armoring techniques where appropriate.
- Sea level rise predictions should be factored into restoration planning, perhaps including larger inland areas in restoration or habitat protection efforts to accommodate increasing inundation and to allow the shoreline to shift farther inland.

According to Seattle Public Utilities Sea Level Rise Viewer, impacts from sea level rise could occur at the site and adjacent properties within two to three feet of rise. However, note that this viewer does not account for rising groundwater levels that are often exacerbated with sea level rise. This will be a necessary consideration at this site.

In 2024, the U.S. Geological Survey (USGS), in cooperation with the Washington State Department of Ecology (Ecology), conducted a study to describe the surface-water interactions in the lower Duwamish Waterway.[2] This study evaluated shallow and deep groundwater wells and responses to tides and precipitation, both of which will be affected by climate change.

[2] https://pubs.usgs.gov/publication/sir20245046

The shallow wells had a pronounced seasonal variability, with high water levels in winter and low water levels in summer. Data from the deep wells showed far less seasonal variability, with slight increases in winter and a near-constant water level from spring to autumn. In general, shallow wells indicate a downward vertical gradient and deeper wells indicate an upward direction. The downward vertical gradient was greatest in winter when water levels in the shallow wells rose owing to increased rainfall. In addition to the seasonal increase in water levels, water levels in the shallow and deep wells showed a similar short-term increase following heavy precipitation.

Because of this, the CCVA and the subsequent remedial design needs to consider the complex climate interactions with groundwater at the site related to changes in amount and intensity of precipitation combined with changes in sea level rise and coastal wave dynamics. This should address seasonal impacts, extreme events, and interactions between shallow and deep groundwater and the nearshore mixing zone.

A mixing zone forms at the interface between discharging groundwater and receiving surface water and also extends inland by a few feet to a few tens of feet. Recirculating surface water in the mixing zone introduces oxygen to the aquifer materials, thereby modifying geochemical conditions (such as redox) and the amounts and types of organic matter, major ions, nutrients, and bacteria. These conditions, in turn, can modify the characteristics of contaminant transport; for example, the conditions under which sorption and biodegradation occur can be episodically or permanently altered. Furthermore, preferential flow paths can exist that route fresh groundwater directly to the receiving surface water (for example, some groundwater seeps), or, conversely, allow seawater to infiltrate farther inland than the mixing zone and interact with previously uncontacted aquifer materials. Dynamic redox conditions in the mixing zone (e.g., created by redox potential, dissolved oxygen, iron and sulfate, dissolved organic carbon, etc.) strongly influence the role of contaminant sorption and transformation processes in this zone. The USGS cites a number of studies showing how the mixing zone affected the movement of arsenic and zinc such as mobilization due to chemical reactions in the mixing zone and mobilization caused by higher salinity.

- Ecology should evaluate the mixing zone at the site, and the potential influence of historical flow paths such as the former channel and former Slip 5. As noted in the dCAP the Site includes 2 to 19.5 ft of fill overlying river deposits with the thickest layers of fill occurring in the former Slip 5 area. The fill generally consists of silty sand to sandy gravel. Fill materials within the former Slip 5 area include bricks, wood debris, and slag material from unknown sources. This likely provides additional opportunities for surface-groundwater interactions, and the

USGS noted that these types of conditions can serve as places where exchange between groundwater and the river increases.

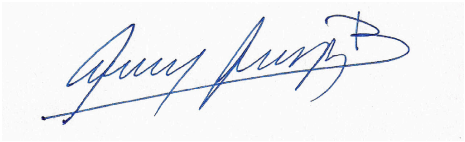
- The dCAP notes that saltwater intrudes from the LDW to groundwater at properties along its shoreline, and saltwater of the LDW tends to concentrate the outflow of the surficial aquifer into the intertidal areas.The dCAP further notes that tidal fluctuations generally do not occur more than 400 ft from the LDW. However, this could increase inland with future sea level rise and extreme events, and should be taken into account in the design. This would support
- greater setbacks from the river for the PRB.

Coordination

The dCAP notes that the RI found Site related contamination in the adjacent sediments. Since MTCA defines a Site as "where contamination has come to be located", the adjacent sediments are a part of the Boeing Isaacson-Thompson Site. However, these adjacent sediments (below the mean higher high-water level) will be addressed under the US Environmental Protection Agency (EPA)-led LDW Superfund Site cleanup and are not addressed under this draft Cleanup Action Plan.

Additional details are needed to understand how coordination with EPA will occur and any risks of recontamination from the site will be reduced. Coordination regarding a bioengineered shoreline should also occur.

We appreciate this opportunity to provide comments. Please do not hesitate to contact us if you have any questions.



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