Comment Response Matrix
Draft Basis of Design Report
Willamette Cove Uplands

Comments from the DEQ – 2/18/2025				
Comment No.	Topic	Section/ Table/ Figure No.	DEQ Comment	Port Response/Action
General 1	Hot Spots	N/A	All human health hot spots and ecological non-dioxin/furan hot spots (i.e., metal hot spots) will be removed as required by the ROD.	The BODR was revised as necessary to indicate the design will remove human health hot spots and ecological non-dioxin/furan hot spots.
General 2	Removal Extent	N/A	The remedial design investigation (RDI) results are representative of the decision unit (DU) and depth interval from which they were collected, and should not be further interpolated to refine removal extents. Specifically, DEQ recommends complete removal of DUs containing hot spots. If further refinement of the removal extents is pursued, additional sampling should be performed during design to support DU refinement both laterally and vertically. DEQ does not support further refinement during construction.	As discussed in response to Specific Comment 14, partial layer removal will be pursued in design. The 30% design will identify DUs that are candidates for partial removal. Sampling will be conducted prior to final design to verify those layers that will be targeted for partial removal.
General 3	Sampling Approach	N/A	A comprehensive sampling approach will be necessary to demonstrate deeper subsurface material is below the upland cleanup levels and suitable for reuse onsite, particularly as cap material.	Acknowledged. The Port and Metro are developing a sampling approach during RD to evaluate soil to be excavated for bank layback. Results from that evaluation will inform future proposed sampling for other areas such as beneath the concrete slabs. These results are expected to be included in the 60% design.
General 4	Ecological Cumulative Contaminant Risk	N/A	The BODR should be revised to adequately address ecological cumulative contaminant risk, in addition to individual contaminant risk to inform soil excavation and capping scenarios. The following is expected to address excess ecological risk for an individual contaminant hazard quotient (HQ) and a cumulative contaminant hazard index (HI): a. Three-foot cap with demarcation for HQ >5. b. Additional removal or three-foot cap for HI >10. c. One foot top soil with no demarcation layer would be acceptable in areas with HQ < 5 and HI <10.	Acknowledged. Section 3.3.3 was revised to incorporate these requirements for cap thickness design.
General 5	Demarcation Layer	N/A	A demarcation layer is required in all areas with a HQ >5 to manage ecological residual risk, in addition to other considerations for long-term site management. It is imperative that the future underlying contaminated soil left in place is easily identifiable in perpetuity.	Section 3.3.3 was revised to indicate that a demarcation layer will be used in all areas with a HQ >5 and where the cap thickness is 3 feet.
General 6	Use Risk Assessment	N/A	With the introduction of more active uses under consideration for the future Willamette Cove park than previously identified by Metro, DEQ reviewed previous risk assessment assumptions to ensure consistency with the ROD. DEQ is comfortable with more active recreational uses if evaluated and managed properly. As Metro's master planning for the property evolves, "active" use areas (e.g., play areas, picnicking, etc.) when identified, will need to consider potential risk over refined exposure areas to determine whether additional engineering or institutional measures are necessary to ensure protectiveness. At minimum, residual human risk (based on the refined spatial area respective to the special and/or more intense use) will require a minimum three-foot soil cap (or hardscape) with an underlying demarcation layer.	See response to Specific Comment 4.
General 7	Footnotes	N/A	There are numerous footnotes which also run into subsequent pages and makes it difficult for the reader to follow and many are important to the report content. Please limit footnotes.	The number and length of footnotes were revised by incorporating content into the text, where appropriate.
Specific 1	Extent of the Site	Section 2.1.1	EPA is providing oversight of the riverbank remediation/stabilization; however, the current scope is limited to the Portland Harbor Superfund in-water cleanup criteria. DEQ has recommended on several occasions to EPA that upland (human health and ecological) risk-based criteria for anticipated uses at the Willamette Cove site be evaluated during the in-water remedial design to inform the extent of cleanup necessary for riverbanks to ensure one comprehensive cleanup is implemented for the Willamette Cove riverbanks. While remedial design of the riverbanks continues to evolve under EPA oversight, it is DEQ's current understanding that upland cleanup levels are not being considered and there is no commitment by the combined in-water parties at this time to provide a leave surface on riverbanks that would also be protective of future park users and wildlife. Accordingly, DEQ has requested that the Port and Metro conduct a parallel	The Port and Metro understand the DEQ's concern that riverbanks above ordinary high water meet upland remediation goals. The Port and Metro agreed to conduct an evaluation of riverbank data and the in-water remedy to assure that riverbanks will be protective of upland receptors following completion of the in-water remedy (see letter to DEQ "Riverbank Soil Reuse Characterization and Upland Receptor Screening" dated February 15, 2025). Text was added to the end of Section 2.1.1 acknowledging that data between the top of bank and mean high water will be screened against upland remediation goals, and if there are exceedances, the upland team will work with the in-water team to assure that riverbank restoration is protective of upland receptors.

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Specific 1 (Continued)			evaluation as information comes available to identify potential riverbank areas that may not achieve upland cleanup levels and may require additional cleanup (after or in coordination with the in-water cleanup). This evaluation is also contingent upon a rigorous leave surface evaluation that includes comparison of remaining riverbank soil concentrations to upland cleanup levels. The BODR should acknowledge these potential gaps to satisfy upland/in-water cleanup criteria in overlapping riverbank areas and coordination that will be required to ensure the combined cleanup projects align to achieve protective conditions that satisfy upland cleanup levels, in addition to in-water criteria.	
Specific 2	Surrounding Properties	Section 2.1.5	DEQ is seeking additional information regarding the North Richmond Avenue parcel which is also owned by Metro and borders the West Parcel Willamette Cove site. It is our current understanding this lot will be incorporated as part of the planned Willamette Cove nature park and/or will function as supporting infrastructure.	The North Richmond Avenue parcel will be addressed in the remedial design and remedial action. The Port and Metro are developing the plan of action.
Specific 3	Cultural Resources	Section 2.1.6	Per recent discussions with the State Historic Preservation Offices (SHPO), a new/updated Independent Discovery Plan (IDP) is recommended every few years and updating the notification list every 2-3 months during earth-disturbing activities.	The Inadvertent Discovery Plan used during the Remedial Design Investigation implementation will be updated for the Remedial Design (likely at the 60% Design stage).
Specific 4	Existing Conditions and Site Use	Section 2.1.8	The report describes anticipated future uses as low-impact recreational activities; however, some of the listed activities DEQ considers to be moderate to high use. Metro previously identified that the property would be redeveloped as a nature park that encourages habitat uses with a regional trail across the site but would not include attractive features that would increase human uses beyond the paved regional trail (e.g., no picnic tables, play areas, etc.). These uses are consistent with what DEQ considers to be low-impact or "passive" uses evaluated in the upland risk assessment. More recent information shared by Metro, including preliminary park master planning and public community outreach conducted in 2024, considers uses that are substantially more dynamic than previously articulated passive nature park uses. The vision for the nature park has evolved and it's our understanding may include attractive features, greater site access including paths/trails to the Willamette River and dock(s), and interactive orientated uses. DEQ would consider picnic and play areas to be "active" moderate to high use areas. DEQ can accommodate changes in site use if the use areas are clearly identified and appropriate actions are followed. DEQ reviewed previous risk assessment assumptions used to inform the feasibility study and ROD. Specifically, previous human health risk evaluations have been conducted assuming passive park uses and accordingly human risk has been assessed over larger exposure areas, generally parcel-wide. Therefore, DEQ recommends when more active and/or special uses are incorporated as part of forthcoming park development or future site improvements, human health risk is reevaluated over the appropriate spatial scale of the planned use (e.g., where exposure occurs) for comparison to the upland cleanup levels, or a three-foot soil cap (or hardscape) with underlying demarcation layer is constructed. Note, the preliminary cap thickness presented in the BODR (and shown on Figure 13) identifies a three-foot soil cap for a large portion of the site. Identify in the revised BODR how more active park uses will be considered during RD/RA to ensure cleanup is protective at construction completion and long-term. This will require Metro to identify potential active use areas and ensure expanded uses will be built into master planning (and future park improvements) to retain site protectiveness following construction completion of the remedy. This may warrant additional focused soil removal or more	To clarify, as shown by the following points, there have been no changes to planned uses at Willamette Cove since the completion of the human health risk assessment (HHRA) in 2013 and issuance of the ROD in 2020: ○ Human health risks were appropriately evaluated for the future planned use consistent with the ROD. Exposure parameters used in the HHRA (that are the basis for development of the RGs) were the residential exposure parameters (including both children and adults) except the exposure frequency was adjusted to 104 day/yr (2 days per week). Residential exposure parameters are conservative relative to the most intensive future uses proposed for the park. ○ During ROD development, Metro Council submitted a seven-signature letter on November 4, 2020, identifying the intended uses for the site. These uses were reiterated in the ROD (end of Section 2.1): "Metro Council affirms its support of and commitment to explore trail development, habitat restoration, and a broad range of passive recreational activities at Willamette Cove consistent with its use as a natural area, for example but not limited to, walking, hiking, bicycling, beach access, wildlife viewing, picnicking, and cultural interpretation" ○ Metro is currently developing the park master plan, and proposed uses of the upland area are consistent with the above descriptions. The park will not have child play areas. Section 3.3.2.2 was revised to indicate that residual COC concentrations in individual DUs will be screened against human health RGs. Where point concentrations or RGs are exceeded, multiple lines of evidence (to include at a minimum the relative exceedances and locations compared to proposed future park uses) will be evaluated to identify if further excavation is warranted.

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Specific 4 (Continued)			robust caps in active use areas, and greater emphasis on monitoring and maintenance of caps.	
Specific 5	Remedial Design Dataset	Section 2.2	The PDI data collected is of high quality and systematic; however, inherently there will be variability to consider. Independent field replicate samples (offset locations) were collected from each depth interval in 20 percent (or 10 DUs) to determine the error associated with the measured mean concentrations. Relative Standard Deviations (RSDs) for the decision units with replicates are identified in Table 1-1 of *Remedial Design Investigation Evaluation Report Willamette Cove Upland Facility Portland, Oregon* (RDIR). Data uncertainty in relation to the replicate RSD should be recognized in the BODR and used in the interpretation of the data for remedial design decisions. DEQ has provided previous direction (see July 2024 Specific Comment 1), including using the maximum concentration of replicate DUs.	As recommended by DEQ, data evaluation used the maximum replicate concentration for DUs where replicates were collected. Section 2.2 was expanded and a new Section 3.3.2.4 was added to clarify that replicate data would be used to define adjusted concentrations to be used as one line of evidence in the excavation design.
Specific 6	Vertical Concentration Trends	Section 2.3.2	The RDI results are representative of the DU and depth interval from which they were collected, and DEQ recommends making decisions by DU using the already high quality data collected. Specifically, DEQ recommends complete removal of DUs containing hot spots. Accordingly, we do not support further interpolation to refine removal extents. We also find several flaws and uncertainty with the vertical trend analysis presented. Variability in the dataset as demonstrated by the RSDs for replicates, does not support conclusions for several DUs (particularly West and Central Parcels) that risk driver contaminants of concern (COCs) demonstrate reliable assumptions of decreasing concentration with depth. In contrast to what is presented, the CSM does suggests that deeper contamination may be present due to historical fill placement and operations, particularly the West and Central Parcels. In general, this section if retained should also be revised to account for data uncertainty including mean concentrations. For example, sampling depths and COCs with RSD >35% for mean concentrations are summarized and shown below. The largest uncertainty is found within the Central Parcel, where several COCs have RSDs>35%, particularly within the 1-2 ft interval. If a defensible rationale is provided and partial excavation is pursued, the remaining DU layer left behind will require comprehensive sampling (i.e., incremental sampling methodology and the depth interval left behind of 0.5 feet). Iterative sampling events is least preferred and may also result in the same outcome. DEQ does not support further refinement during construction.	Section 2.3.2 presents a conceptual model for site filling and factual evaluation of the COC concentration trends with depth. It is unclear to what "flaws" DEQ is referring. Section 2.3.2 acknowledges that the West Parcel (and potentially the western portion of the Central Parcel) is not expected to exhibit a regular trend in concentration versus depth. Data uncertainty will be considered if evaluating partial removal of soil layers. See response to Specific Comment 5. See response to Specific Comment 14 for discussion of partial removal of soil layers and how data uncertainty will be addressed during design.
Specific 7	Preliminary Assessment of On-Site Borrow Potential	Section 2.3.3	It is reasonable to explore potential sources of clean soil onsite that could be repurposed (rather than importing clean fill) for the cleanup and future park redevelopment but DEQ cautions it is too early to strongly advocate or rely on potential onsite borrow sources. Extrapolation contains high uncertainty and is not an acceptable approach to demonstrate material is suitable for reuse onsite. In general, the estimated potential borrow volume appears optimistic in absence of sufficient data at greater depths. DEQ recommends a conservative approach and proactive planning including identifying potential onsite sources but also offsite. Reuse of soil onsite will require comprehensive sampling, preferably to the extent possible collected in advance to assess appropriateness for reuse onsite. We recommend scoping early in the remedial design stages what would be sufficient data to assess potential reuse of onsite soils to ensure we are on common ground the extent of sampling that may be necessary.	Acknowledged. This section is not advocating for re-use of on-site material. It is merely an assessment of the potential volume of soil that may be available to evaluate and if further investigation is warranted. The Port and Metro support detailed evaluation of potential borrow prior to remedial action construction. See response to General Comment 3. The Port and Metro are implementing an approach for evaluating soil to be removed during the bank layback activities for potential reuse. The results of the bank layback soil evaluation will be used to develop an approach for evaluating the soil beneath the concrete slabs in the East Parcel for potential reuse.

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Specific 8	Data Gap Evaluation	Section 2.4	For berms other than under DU-41, additional soil piles are present along the east edge of the East Parcel within DU-30 and DU-31, and Central Parcel DU-21. These soil piles were not independently characterized as part of the PDI incremental sampling. Unless above-grade piles in this area are slated for removal, sampling is also necessary to determine their final placement (on- or off-site). Please clarify.	The reference to the soil pile on DU-41 in Section 2.4 is related to the data gap in underlying soil. DU-41 is the only DU where as many as a third of the sample increments were collected within the soil pile, so that DU was called out as a data gap for the underlying soil. The soil piles in DU-21, DU-30, DU-31, and DU-41 will be removed in their entirety prior to excavation of the DUs. Design excavation depths in DUs where soil piles are present will begin at the level of the adjacent grade surrounding the soil piles. Section 3.3.2.1 was expanded to clarify that soil piles will be removed prior to excavation of the underlying soil.
Specific 9	Preliminary Remedial Design	Section 3.1	Please correct footnote 3 which currently states: ROD does not require off-site disposal of dioxin/furan ecological hot spots, but those hot spots are required to be excavated and placed into the consolidation cell. The ROD identified a preference for dioxin/furan ecological hot spots to be placed in the consolidation area with the engineering cap; however, also allowed for in-place capping.	Footnote 3 was revised to clarify that consolidation of dioxin/furan hot spots was preferred, and the content of footnote 3 was incorporated into Section 3.1.
Specific 10	Remedial Action Objectives	Section 3.2.1	ROD RAOs should be used verbatim. If there is need to provide further explanation for the reader, additional context be presented in the following paragraphs. Update RAO 1 to reflect what is identified in the ROD.	RAO 1 in Section 3.2.1 was revised.
Specific 11	Cleanup Levels (CULs)	Section 3.2.2	a. As previously discussed, please use an alternative to CULs to prevent confusion with in-water PHSS CULs. DEQ recommends “Remediation Goals” but is open to other considerations. b. Lead cleanup levels documented the ROD and respective tables occurred prior to EPA’s more recent updates regarding the human health risk value for lead which has a profound impact for children. It is DEQ’s understanding that the planned remedial action will adequately address lead to EPA’s protective levels and correspondingly it would be helpful to document this intention. c. The plant and invertebrate RBCs for chromium are for chromium VI and therefore are well below background when compared to total chromium. This mis-match is skewing the analysis of plant and invertebrate risk and the presentation of magnitude of risk exceedance (e.g., hazard quotients at 50 to 100x), cumulative risk, and hot spot identification for DU-1 and DU-5 where ISM mean concentrations are only slightly elevated above background for total chromium (41.3 to 53.3 mg/kg; background ISM background 39 mg/kg). The plant and invertebrate RBCs are from DEQ's 2001 guidance tables, which were not clear that the RBCs were based on chromium VI, which is the more toxic form. DEQ's updated 2020 tables clearly distinguish between RBCs for plants and invertebrates for total chromium (not available) and chromium VI (4 ppm plants and 3.4 ppm invertebrates). Since the analytical characterization and background results are based on total chromium, please remove the chromium VI plant and invertebrate RBCs as RGs for use in the HQ and HI analysis and use ISM background for chromium of 39 mg/kg. The bird and mammal values should remain the same. If chromium VI is likely to be present, future analytical results should target this form specifically to accurately evaluate the risk. d. For ecological risk, defaulting to the lowest receptor specific PRG to inform remedial actions is one approach to simplify the application of multiple PRGs for different species. Remedial decision making using this approach over a pre-determined area or "decision unit" (0.5 acres in this case) simplifies the assessment. However, this section describes using a residual risk assessment to inform the remedial decision process without a risk screening of the data collected in the *Remedial Investigation Evaluation Report, 2023*. Tables and maps should be provided showing	a. The term remediation goal (RG) will be used going forward. b. The following footnote was added to Section 3.2.2: “RBCs that are the basis for the RGs were developed prior to EPA’s most recent updates to evaluation of lead risk for human health (based on acceptable blood lead concentrations in children). The RD will demonstrate that the remedial action will adequately address lead to meet EPA protective levels.” c. In Table 2, the chromium RBC for plants and invertebrates was revised to 39 mg/kg. d. The data screening tables and summary figures from the RDI report have been reproduced in a new Appendix A. New residual screening tables (including both hazard quotient and hazard index) and figures have been added to the report.

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Specific 11 (Continued)			comparison of each COC to the PRG and associated hazard quotients and hazard indices (cumulative risk) for each decision unit and depth interval under baseline and residual risk conditions. Baseline screening provided in Appendix G of the 2023 report should be re-presented here. Please include tables and figures of exceedances of PRGs, some of which has already been provided following submittal of the draft BODR, including: i. Comparison of each COC concentration to each receptor specific PRG. Present exceedances for each COC for plants, invertebrates, birds and mammals. ii. Cumulative risk for multiple chemicals (hazard index) should be presented for each receptor group separately, including plants, invertebrates, birds and mammals.	
Specific 12	Hot Spots	Section 3.2.3	Excess cumulative risk should also be assessed using a hazard index approach and defined as locations where the hazard index is >10. Present HIs for each receptor of concern (birds, mammals, invertebrates, plants).	See response to Specific Comment 16 regarding addressing "higher" ecological risk based on consideration of the hazard index.
Specific 13	Site Clearing	Section 3.3.1	a. DEQ is highly supportive of tree preservation where it makes sense; however, it is not acceptable to perform a cleanup that leaves contamination exposed around/below trees that pose a current or future risk to humans and environment. DEQ has expressed concerns that limiting soil excavation around/below trees during the 2015-2016 removal action potentially contributed to contamination being left behind and may explain observations of higher concentrations of contamination detected in previous tree preservation DUs that were also subject to the previous removal action. Future fallen trees (or pulled stumps) that have matured in contaminated soil also contain the potential to expose underlying contamination in subsoil. b. Tree preservation is proposed in decision units where planned excavation depths are 1 foot or less and the basis for this proposal needs further explanation as unacceptable risk would remain. Tree preservation should not be considered where hot spots for any receptor are present, or the hazard index is greater or equal to 10 in a depth interval. Of the ten decision units proposed for only 0 to 1 foot removal, only one appears to meet these criteria (DU-42) and under the concrete in DU-16. c. Clarify the meaning of the statement "Tree preservation will be limited to maintain human health risks at acceptable levels". Any tree preservation considered should be designed to maintain ecological risk at acceptable levels, not limited to human health. d. In terms of vegetation disposal and reuse onsite more detailed protocol should be provided than discretion of the contractor and how it would be determined cleared vegetation does not contain contaminated soil.	a. Acknowledged. b. To clarify, the BODR does not propose any tree preservation. Rather, it outlines the criteria that will be used in remedial design to decide if any tree preservation will be included. However, based on DEQ's recommendation of limiting evaluation of tree preservation to DUs with hazard index of less than 10, the reference to 1 foot was deleted. c. The statement was intended to refer to residual risk prior to capping. However, based on DEQ's recommendation of limiting evaluation of tree preservation to DUs with hazard index of less than 10, the reference to human health risk was deleted. d. Detailed protocols for determining reuse/disposal of vegetation will be presented in the remedial design.
Specific 14	Human Health and Ecological Hot Spot Excavation	Section 3.3.2.1	a. There are several DUs where no removal is proposed (nor partial removal) where hot spots or hazard indices >10 are present. The approach is generally acceptable at these DUs as risk would be addressed with a 3-foot cap. However, there are a couple exceptions where a 2.5-foot cap is proposed including DU-20 and DU-25, which DEQ recommends a 3-foot cap based on expectations provided in this comment letter. b. The practicability assessment provided is confusing. The balancing factors cited in footnote 10 (effectiveness, reliability, implementability, short-term impacts, and cost) are intended for remedy selection and misapplied here (to validate the tradeoff between the impacts of doing unnecessary excavation versus the impacts of conducting additional rounds of verification sampling and potentially additional excavation).	a. Acknowledged. The approach to cap design was updated based on DEQ comments such that the minimum cap thickness in these instances is 3 feet. See response to General Comment 4. b. As discussed in the response 14c below, this section was updated based on DEQ comments to clarify the approach which will be used for designing/verifying excavation depths. c. Note that both statements can be true. For example, if the upper 6 inches of soil in a 1-foot layer has a mercury concentration of 0.5 mg/kg and the lower 6 inches is non-detect for mercury, the ISM sample will have a concentration of 0.25 mg/kg and it will be a hot spot. Although the ISM sample is representative of the entire increment, the

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Specific 14 (Continued)			Remedial design must adhere to the selected remedy documented in the ROD. The PDI has documented that soil contamination is present site-wide posing unacceptable risk to depths of 3 feet and it is acknowledged that it is not practicable to excavate all soil contamination or additional soil excavation at depth that does not result in reasonable risk reduction. In general DEQ is not advocating for excavations greater than 3 feet based on the RDI results but there may be special cases/focused areas based on post-removal confirmation sampling in DUs excavated to 3 feet (e.g., where there is no RDI data below 3 feet). DEQ will continue to work with the Port and Metro what is appropriate and practical in terms of excavation depths. c. In terms of proposed partial layer excavations, as previously expressed by DEQ, an ISM sample result is representative of the whole DU. The following statements are not defensible and should be removed: *"For practical reasons, the RDI data were collected over depth intervals of 1 foot, but there is no expectation that the vertical extent of contamination conforms to those depth intervals" and "the extent that the soil data suggests that contamination may extend only partially through a layer".* DEQ recommends making decisions on the high quality data already documented by DU layer and accordingly full removal of DU layers with hot spots. d. Regarding buried hot spots, concentrations detected in DU-2 include 558 ppb total PCBs in the 1-2 feet interval (with 118 ppb at 0-1 foot). This is connected to the adjacent hot spot in DU-1 in the same depth layer and should be delineated. i. DU-6 detections of mercury are generally at hot spot concentrations down to 3 feet, with hazard indices equal or greater than 10. ii. DU-30 contains hot spot concentrations for mercury and HI>10. This DU is adjacent to the berm decision unit DU-41 along the northern side and a large unsampled berm within the eastern side which was not independently characterized. Both berms and DU-30 should be removed and confirmation samples taken. Note that the east side berm extends to DU-33. iii. As noted above, the berm characterized as DU-41 should be removed down to baseline elevation and confirmation samples taken as compared to only the proposed 1 foot removal in the berm area adjacent to DU-29 and DU-30.	selected increment of 1 foot has no relation to the actual contaminant distribution in the upper 6 inches. So, even though the ISM result says the entire increment is a hot spot, in this example, removal of only the upper 6 inches removes the entire hot spot. For this reason, the 30% design will use interpolation to identify candidate DUs for partial excavation. However, in accordance with the DEQ's recommendation, DUs that are candidate for partial excavation will be further sampled prior to construction to confirm those DUs where partial excavation is appropriate. Section 3.3.2.1 was updated to explain this approach. d. As previously recommended by DEQ, the full lateral extent within a DU will be excavated for each layer targeted for excavation. i. Layers that exceed metals hot spot levels will be removed. ii. The layer in DU-30 that exceeds the mercury hot spot level will be removed. As discussed in response to Specific Comment 8, the soil piles will be removed prior to DU excavation. iii. Note that following berm removal, DU-41 will generally be excavated to the depth of adjacent DUs, followed by verification sampling.
Specific 15	Additional Excavation to Address Excess Human Health Risk	Section 3.3.2.2	a. For Step 3, if this process is followed, soil targeted for removal should be based on risk, not concentration, although that will result in the same response if the unacceptable risk is from only one chemical. b. Step 4 can be adjusted to include focusing the risk evaluation on localized areas of active park use. If future plans are not known, the risk evaluation could be completed at the scale of a decision unit.	a. As stated in Step 3, additional excavation will be defined based on risk. The bullets have been revised to clarify that the updated exposure point concentration will be used to assess risk. b. Step 4 in Section 3.3.2.2 was revised to indicate that residual COC concentrations in individual DUs will be screened against human health RGs. Where point concentrations or RGs are exceeded, multiple lines of evidence (to include at a minimum the relative exceedances, locations of exceedances compared to proposed future park uses, and cap thicknesses needed to address ecological residual risk) will be evaluated to identify if further excavation is warranted.
Specific 16	Additional Excavation to Address Higher Relative Ecological Risk	Section 3.3.2.3	Previous discussions did not include using rank-order curves to determine extent of soil excavation. The knee of the curve does not correlate with residual risk by decision until and should not be used to determine what risk is acceptable to be left behind. DEQ did request that cumulative risk be assessed to prioritize potential DUs intervals that should be considered for additional soil excavation, in addition to individual contaminants. Hazard quotients and	As stated in the draft BODR, this evaluation is responding to the ROD requirement that soil with "higher" risk levels for plants and animals be excavated. No quantitative criteria are provided in the ROD. In this context then, "higher" risk would be a relative evaluation – that is, after accounting for hot spots and excess human health risk, are there any DUs/layers where ecological risk stands out relative to other areas? The rank

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Specific 17	Residual Risk Screening	Section 3.3.2.5	Residual ecological risk text and Figures 8-11 should describe cumulative hazard index residual risk for plants, invertebrates, birds, and mammals in addition to individual hazard quotients. It should be clear in the title of Figures 8 through 11 that these are the maximum individual COC residual hazard quotients. The figures should be expanded to include the cumulative hazard indices. Include tables with both hazard quotients and indices for baseline and residual risk for each decision unit and sample depth.	Multiple tables and figures were added to show residual ecological risk in terms of both HQs and HIs for each ecological receptor.
Specific 18	Capping	Section 3.3.3, Figure 12	a. DEQ has the following expectations related to capping: i. Capping scenarios need to account for elevated HQs and HIs. ii. 3-foot cap with demarcation for HQ >5 iii. 3-foot cap for HI >10 iv. 1 foot top soil with no demarcation layer would be acceptable in areas with HQ < 5 and HI <10. v. Demarcation will be necessary in all areas containing ecological risk with HQ>5 and any human health residual risk, if any remain. The necessity for demarcation is reinforced by data uncertainty and future uses that may need to consider smaller exposure areas. b. It is improbable that mixing by natural process would occur in a homogenous or thorough manner, or within a suitable timeframe. The mixing model to address excess ecological risk is not supported by science or engineering and therefore not an acceptable approach. c. Table B-3: If a cap is needed to protect against unacceptable exposure, the presence of trees should not dictate the cap thickness or the use of topsoil versus the use of general fill. It is possible that trees will need to be removed to achieve appropriate capping depth. d. Capping scenarios do not consider human health risk because it is assumed all human risk will be addressed through excavation which was reasonable given the information previously provided by Metro. As noted above, future more active uses may need to consider exposure scenarios representative of that respective use and refined area of exposure, including additional institutional or engineering controls that may be necessary if not already capped with 3 feet of clean soil (or hardscape). e. Present of hazard indices by receptor group from the residual risk screening to support capping scenarios.	a. Acknowledged. See response to General Comment 4. b. Note that it was not expected that mixing would occur. The mixing model was used to assess a likely worst-case (full mixing). Any situation with less than full mixing would be more protective because the upper portion of the cap would serve as a protective barrier. Regardless, as stated in response to comment 18a, the DEQ criteria presented in the comment will be used to design the caps. c. Acknowledged. d. See response to Specific Comment 4. e. Multiple tables and figures were added to show residual ecological risk in terms of both HQs and HIs for each ecological receptor.
Specific 19	Imported Soil and Onsite Burrow	Section 3.3.4	a. The use of the term of clean fill should be consistent throughout the document and the report may benefit by describing what is appropriate reuse/import fill earlier in the document. Any onsite soil that is intended to be used onsite must meet the protectiveness requirements outlined in the ROD. For instance, onsite soil that is reused and placed within the top 3 feet must achieve RAOs (i.e., below human and ecological health acceptable risk levels identified in the ROD). Imported clean fill must meet the DEQ's Solid Waste Program definition and guidance on "clean fill" (and future updates anticipated to rectify out-of-date risk-based values). Verify in the BODR that any imported or reuse of onsite soil as part of the upper 3 feet of the site will be below cleanup levels, and protective against other contaminants not previously identified as COCs.	a. Terms used in discussing material to be used as fill were revised as needed to be consistent. To be acceptable for use as site fill, analytical results for site COCs must be less than RGs and any other results must be less than DEQ clean fill levels. Section 2.3.3 has been revised to clarify terms and clean soil criteria. b. Section 3.3.4 has been revised to indicate that gravel sources will be analyzed for the total metals on the site COC list.

Comment Response Matrix
Draft Basis of Design Report
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Comments from the DEQ – 2/18/2025				
Comment No.	Topic	Section/ Table/ Figure No.	DEQ Comment	Port Response/Action
Specific 19 (Continued)			b. Also note gravel from virgin sources intended to be used onsite typically requires a minimum initial screening for metals.	
Specific 20	Site Restoration	Section 3.3.6	Note that the upland cleanup levels are not designed to be protective of some of the listed site uses such as shallow water and off-channel habitats. This would require additional risk evaluation of residual concentrations.	Acknowledged. Metro's goals encompass the entire Metro-owned property that includes areas below the top of bank. Section 3.3.6 was expanded to clarify that there will be no shallow water or off-channel habitat in the upland area that is the subject of this remedial design.
Specific 21	Institutional and Engineering Controls	Section 3.4	Please clarify the following two sentences which as written appear contradictory: "*Metro will agree to place restrictions on property deeds that limit site uses to passive recreation activities. Park uses will be unrestricted.*" As noted above, clarity is also needed on what is considered passive versus active reactional activities.	These sentences were intended to clarify that the entire property will be available for all the proposed park uses (e.g., there will not be areas where access within the park would be restricted by a fence for purposes of meeting acceptable risks). The second sentence was deleted to remove the apparent contradiction. The specific uses that have been planned from the start (see response to Specific Comment 4) were listed in Section 3.4.
Specific 22	Ecological Hazard Indices	Figure 5	Expand and provide additional figures showing ecological hazard indices for each decision unit and depth interval.	Figures showing ecological receptor HQs and HIs for each depth interval were added to new Appendix B. Summary figures of HIs were added to the main report.
Specific 23	Plant, Invertebrate, Bird, and Mammalian Hazard Quotients	Figures 8-11	Present the residual hazard index (sum of COC hazard quotients) on maps by depth interval to illustrate the distribution of cumulative ecological risk. Note that several DUs have hot spots remaining for birds (DU-6 and DU-30) that should be considered for removal. As noted above DEQ does not support partial excavation of DUs.	See response to Specific Comment 22.
Specific 24	Values	Figures A-2 and A-3	The figures should clarify that the values shown are calculated excess cancer risk, not hazard quotients.	The legends for the appendix figures were revised.
Specific 25	Preliminary Evaluation of Cap Requirements for Ecological Risk	Appendix B	Present the equation used to estimate residual hazard indices.	Information for cap design was moved to a table in the main text. The procedure was revised per DEQ General Comment 4 and the method of cap thickness calculation is shown on the table.

Comment Response Matrix
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Willamette Cove Uplands

Comments from the Five Tribes – 11/13/2024				
Comment No.	Topic	Section/ Table/ Figure No.	Five Tribes Comment	Port Response/Action
Specific 1	Clarity of Residual Risk	Section 3.3.2.5, Appendix A	In Section 3.3.2.5 and Appendix A, we find the discussions of residual risk difficult to follow. In Figures 8 through 11, rather than describing the blank color code as "No Data," we recommend describing it as "Excavation to 3 feet" or similar since that is in fact what distinguishes those particular decision units (DUs). We recommend a similar coding for Figures A-1 through A-3. This would also address a discrepancy between Figures 8 through 11 and Figures A-1 through A-3. The first set of figures shows the fully excavated DUs as "No Data," while the second set characterizes those DUs based on the concentrations in Layer 3 even though Layer 3 will be removed and there are no data below Layer 3. Finally, we recommend the text and figures clarify that the residual risk is what would remain before placement of clean fill, and the risk will generally be much lower following the placement of clean fill and topsoil.	Text and figures were updated to more clearly indicate that residual risks shown are after excavation and prior to capping, and blank areas on figures are defined as "Excavation to 3 Feet (No Residual Data)".
Specific 2	Cap/No Cap Area	Section 3.3.3	In Section 3.3.3, under Step 1, we recommend clarifying that the anticipated area with no cap consists entirely of the areas now covered by concrete slab.	Section 3.3.3 was revised to discuss locations of caps.
Specific 3	Character of Demarcation Layer	Section 3.3.3	In Section 3.3.3, under Step 2, we recommend that the report indicate the anticipated character of the proposed demarcation layer.	Section 3.3.3 was revised to indicate that the demarcation layer will likely consist of highly visible geogrid plastic product.
Specific 4	PFAS Contamination in Imported and Borrowed Soil	Section 3.3.4	Section 3.3.4 indicates that imported soil and on-site borrow material will be evaluated to confirm that concentrations of dioxins/furans, metals, polychlorinated biphenyls (PCBs), and polycyclic aromatic hydrocarbons (PAHs) are below cleanup levels. We recommend that consideration be given to testing for per- and polyfluoroalkyl substances (PFAS) on a selective basis. A recent press report provides context on the potential for PFAS contamination: https://www.nytimes.com/2024/08/31/climate/pfas-fertilizer-sludge-farm.html.	Depending on the source of imported borrow, consideration will be given to analyzing for PFAS. For example, imported topsoil developed from recycled sources would be analyzed for PFAS.
Editorial 1	Figure Formatting	Figure 5	For Figure 5, due to the formatting of this figure, the green line representing "Preliminary Hot Spot Excavation Depth" seems to show that a very small depth of excavation, something less than 1 foot but greater than zero, would be removed from select DUs (e.g., DU-2, DU-3); however, our understanding is the depth of excavation for these DUs would be zero. We recommend that a clearer depiction of zero-depth excavation be used.	Figure 5 has been deleted.
Editorial 2	Figure Placement	Figures 8-11, A-1 to A-3	Figures 8 through 11 provide a very accessible and informative summary of residual ecological risk. We recommend that Figures A-1 to A-3 be moved to the main text of the report to provide similar information on residual human health risk.	Report figures have been expanded to include the information that was previously in Appendix A.