Lower Duwamish Waterway Group

Port of Seattle / City of Seattle / King County / The Boeing Company

Appendix G
Remaining Subsurface Sediment Contamination for the LDW Remedial Alternatives

Final Feasibility Study

Lower Duwamish Waterway
Seattle, Washington

FOR SUBMITTAL TO:

The U.S. Environmental Protection Agency
Region 10
Seattle, WA

The Washington State Department of Ecology
Northwest Regional Office
Bellevue, WA

October 31, 2012

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G.1 Introduction

This appendix presents a series of figures depicting Lower Duwamish Waterway (LDW) surface and subsurface sediment exceedances of the sediment quality standards (SQS) or the cleanup screening levels (CSL) of the Washington State Sediment Management Standards (SMS) or the remedial action levels (RALs) developed for the remedial alternatives, selected physical conditions, and the remedial alternative technology assignments. The figures in this appendix provide a reference for each remedial alternative, illustrating the remedial technology selection, dredge depths, and the locations of subsurface contamination left-in-place after construction.

This appendix presents three types of figures for each remedial alternative. The first figure type a plan-view map for each alternative that shows the technology assignments, recovery categories, surface sediment point exceedances above the RALs specific to that remedial alternative, and sediment core locations, and the SMS exceedance status.[1] The core is designated as exceeding the SQS or CSL if any contaminant at any depth exceeds the SMS or CSL. The plan-view maps are described in more detail in Section G.2 and provide the same information shown on the remedial alternative maps presented in Section 8 and add information that can be used for reference.

The second figure type is a 3-panel map showing the subsurface contamination remaining in the upper 4 feet (ft) of sediment at each core location for each remedial alternative. These maps are described in more detail in Section G.3. The panels provide technology assignments, scour areas, recovery categories, and the predicted SMS exceedance status in the 0- to 2-ft and 2- to 4-ft intervals following remediation.

The third figure type is a diagram showing all the sediment cores outside of the early action areas (EAAs) in the LDW, the SMS exceedance status for each sample interval, the technology assignment for the area where that core is located for each remedial alternative, and the anticipated dredge depths. These vertical diagrams are similar to those presented in Section 2 and are described in more detail in Section G.4. Tables G-1 through G-3 (on the attached CD), accompany these core diagrams and provide the contaminant concentrations for the SMS exceedances shown in the diagrams.

The figure types are grouped by alternative, such that figure type one, two, and three are presented in order for each alternative. The following sections describe the development of each figure type. The information presented here provides adequate detail and precision for a feasibility study (FS). During remedial design, the current

[1] SMS exceedance status is the maximum sediment concentration relative to the SQS and CSL for any detected SMS contaminants. The SMS contaminants include two of the four human health risk drivers, total polychlorinated biphenyls (PCBs) and arsenic; however, the other two human health risk drivers, carcinogenic polycyclic aromatic hydrocarbons (cPAHs) and dioxins/furans are not SMS contaminants. Therefore the exceedances shown on the figures for Appendix G, do not reflect cPAHs or dioxins/furans.

understanding of the chemical and physical conditions of the LDW and technologies employed for the selected remedial alternative will be refined.

G.2 Development of Remedial Alternative Maps

The remedial alternative maps developed in Section 8 are shown in this appendix with additional information, including surface and subsurface sediment sample locations and the relationship of FS baseline surface sediment risk-driver concentrations to the RALs. These maps also display the recovery categories (developed in Section 6). In this appendix, the surface sediment concentrations are color-coded to alternative-specific RALs, as developed in Sections 6 and 8. Subsurface sediment concentrations are color-coded according to whether the maximum concentrations of any detected SMS contaminant at any sample interval (i.e., any depth below mudline) are above the CSL, between the CSL and the SQS, or below the SQS, as also shown in Section 2. Section 6 describes the development of the recovery categories, and Section 8 shows how the technology assignments were used to develop the remedial alternatives.

G.3 Maps Showing Potential for Exposure of Subsurface Contamination

The second set of figures are 3-panel maps showing the remedial alternatives developed in Section 8, the scour areas delineated in Section 2, and the recovery categories developed in Section 6. As discussed in Section 5, the potential maximum depths of scour in the LDW are 22 centimeters (cm; approx. 9 inches) from high-flow events and 36 cm (approx. 14 inches, upper bound) from propeller wash from vessels operating in the LDW. The extent of potential for exposure of subsurface contamination is therefore 36 cm, but has been conservatively set to include the upper 2- to 4-ft of the sediment bed depending on location. This extent covers the maximum modeled scour depths and provides a buffer to accommodate anchoring and other physical activities that also may expose subsurface contamination.

The subsurface contamination symbols are developed in this appendix according to the following criteria and simplifying assumptions. Each core is represented by stacked triangles, which reflect the expected subsurface sediment contamination following remediation within the upper 4 feet. In contrast, the first set of remedial alternative maps shows the maximum exceedance status at any depth below mudline, as discussed in Section G.2, above). The inner triangle provides the maximum SQS exceedance status (for any detected SMS contaminant) in the 0- to 2-ft core interval. The outer triangle provides the same information, but for the 2- to 4-ft core interval. When available, estimated *in situ* depths are used to place core data in these depth intervals. If a core sample overlaps both the 0- to 2-ft and the 2- to 4-ft core intervals (e.g., a 0- to 4-ft composite sample), then the sample interval is considered to represent both intervals.

The core symbols have been adjusted to represent subsurface conditions following remediation.[2] For cores where no contamination remains following dredging, a green dot is substituted for the triangles. For capping, the new top interval is assumed to be composed of cap material and is coded as below the SQS. The former 0- to 2-ft interval is now below the cap and its SQS exceedance status is used to color the outer triangle (2- to 4-ft interval). For partial dredging and capping, the 0- to 2-ft interval is assumed to be removed and then backfilled, therefore the interval is shown as below the SQS. The original SQS exceedance status for the 2- to 4-ft interval remains as-is. For enhanced natural recovery (ENR)/*in situ*, the core symbols are assumed to be unchanged, although the application of a thin layer of sand would probably reduce concentrations in the 0- to 2- ft interval. The core symbols provide a useful picture of subsurface contamination remaining in the near surface. To produce these figures, several simplifications have been made. First, the assumed cap thickness in the FS is 3 ft. However, the data are displayed assuming the sand cap extends 2 ft below surface sediment. This is a simplifying step to better match the majority of data in the FS dataset. Second, partial dredging depths may be more or less than 3 ft to account for location-specific clearance requirements (e.g., maintenance dredging depths in the navigation channel) or overdredging. For these figures, a 2-ft partial dredging depth has been assumed in all locations. Finally, as noted above, the thin layer of ENR sand is not accounted for in these core symbols, although approximately 6 inches of clean sand would be present in the 0- to 2-ft interval in ENR locations. While these figures provide a useful picture of subsurface sediment remaining in the nearsurface, the core diagrams (discussed in Section G.4) provide a more detailed and accurate view of all subsurface sediment remaining, particularly in capping and partial dredging/capping locations.

G.4 Development of Core Diagrams

The core diagrams provide a snap-shot of locations where subsurface sediment contamination will be removed and locations where subsurface contamination will remain in place for each remedial alternative. These are generated based on the core diagrams in Section 2, with some modifications and additions.

The cores have been expanded to represent the *in situ* contamination depth as opposed to the recovered contamination depth. For those cores with adequate recovery information, the *in situ* contamination depth is determined by dividing the recovered depth of each unit by the percent recovery (as a fraction) for the core. Therefore, the cores are expanded uniformly; all units within a given core are assumed to have undergone the same degree of compaction during sampling. If the percent recovery is

[2] Except for Alternative 1, in which the core symbols represent baseline conditions in the subsurface prior to remediation.

not available, the *in situ* sample intervals are assumed to be identical to the recovered sample intervals.

The core diagrams present all subsurface sediment data in the FS baseline dataset for cores located outside of EAAs. In some cases, the cores were collected in areas proposed for navigation dredging to assess the suitability of the sediment for open water disposal following dredging. In many of those cases, the area being evaluated was subsequently dredged. Nevertheless, those cores are still included in the core diagrams even though the sediment represented by those samples has been removed from the LDW. All cores in areas subsequently dredged are footnoted as such on the diagrams. The exact depths to which dredging extended are not always known, so it was not possible to categorically delete these cores from the diagrams. Caution is advised, therefore, in interpreting such cores as being indicative of conditions left behind after any given remedial action.

The core diagrams show the remedial technology assigned at the location of each core. The dredge depths shown on the cores represent dredging to the maximum depth of contamination, based on the isopach layer (i.e., the "neat-line volume" dredge depth of detected SQS exceedances) developed in Appendix E. The dredge depths do not include the additional factors used in estimating dredge volumes (a 50% constructability factor is assumed for Alternatives 2 through 6 and a 34% additional dredge depth is assumed to achieve the Alternative 6 RALs below the SQS; see Appendix E).

In partial dredge and cap locations, the dredge depth is 3 ft in habitat areas. In the navigation channel and berthing areas, the dredge depths for partial dredge and cap were calculated based on the capping clearance requirements developed in Section 8, and location-specific maintenance dredge and bathymetric elevations. In the navigation channel, the dredge depth is the depth from the authorized channel depth) to a depth of 6 ft below the authorized channel depth. This allows for placement of an assumed 3-ft cap while still leaving a 3-ft clearance below the authorized channel depth. As noted in Section 8.1.2.3, because this is less than the 4-ft clearance requested in the U.S. Army Corps of Engineers (USACE, 2010) letter, final clearances in the navigation channel (as well as for berthing areas) will be determined in consultation with the U.S. Environmental Protection Agency (EPA) and other relevant parties during remedial design. In berthing areas, the dredge depth is the depth from the existing bed elevation (regardless of whether it is currently above or below the permitted berthing depth) to a depth of 5 ft below the permitted berthing depth. This allows for placement of an assumed 3-ft cap while still leaving a 2-ft clearance below the permitted berthing depth requested by the USACE. These depths provide room for capping, maintenance dredging, and a safety factor.

The extent of subsurface contamination and technology assignments will be refined during remedial design.

If a surface grab sample is located within 10 ft of a core, the location name and exceedance status is included directly above the core. If the sample was analyzed for toxicity, then the exceedance status is shown based on toxicity results as opposed to sediment chemistry, as noted on the figures.

Tables G-1 through G-6 (on the attached CD) accompany these core diagrams to provide the contaminant concentrations for the SMS exceedances shown in the diagram. The tables include contaminant concentrations for all detected SMS contaminants that exceed the SQS in the subsurface sediment dataset (excluding cores in EAAs). The tables also provide the recovery category for the sediment around the core and the remedial alternative under which the location is first dredged or partially dredged/capped.[3] For any sample interval with detected concentrations exceeding the SQS, data are provided for the detected SMS contaminant exceeding the SQS.

G.5 **Summary**

The figures and tables presented in this appendix provide a reference for analyzing the remedial technology assignments, the extent of subsurface contamination removed, the SMS contaminants responsible for subsurface sediment contamination (detected SMS contaminants exceeding the SQS), and the locations of subsurface contamination remaining following active remediation. This valuable information can be used to evaluate the remedial alternatives, review the dredging volume estimates, and plan location-specific remedial design investigations to refine the extent of subsurface contamination and the technology assignments during remedial design.

[3] Note that the corresponding removal-emphasis and the combined-technology remedial alternatives (e.g., Alternatives 3R and 3C) share the same active remedial footprint. Therefore, if a core is dredged for a removal-emphasis alternative, then it is actively remediated (i.e., dredged, partially dredged and capped, capped, or ENR/*in situ*) for the corresponding combined-technology alternative.

Table G-1 Detected SMS Contaminants Exceeding the SQS in Cores — River Miles 0 to 1.9

Core Information											Sample Information						Detected SMS Contaminants Exceeding the SQS									
Task	Core Location Name	X[a]	Y[a]	River Mile	FS Removal-Emphasis Alternative when Area is First Dredged[b]	FS Combined-Technologies Alternative when Area is First Dredged[c]	Recovery Category	Collected for Dredge Material Characterization?[d]	Historically Dredged?[d]	Dredge Year[d]	Sample Name	Upper Sample Depth (ft recovered)	Lower Sample Depth (ft recovered)	SMS Assignment for Sample (maximum exceedance status in sample)[e]	TOC[f]	AET Substitution?[f]	SMS Contaminant	Concen-tration	Qualifier	Unit	Detected	OC-Normalized Concentration (mg/kg oc), if applicable	Exceeds CSL/2LAET?	Exceeds SQS/LAET?	Exceedance Factor CSL	Exceedance Factor SQS
LDW Subsurface Sediment 2006	LDW-SC1	1266315	211282	0.0	3	not dredged	3	No	No	-	LDW-SC1-0-0.5	0	0.5	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC1	1266315	211282	0.0	3	not dredged	3	No	No	-	LDW-SC1-0-2	0	2	>CSL	2.1	No	Mercury	0.61		mg/kg dw	Yes		Yes	Yes	1	1.5
LDW Subsurface Sediment 2006	LDW-SC1	1266315	211282	0.0	3	not dredged	3	No	No	-	LDW-SC1-0-2	0	2	>CSL	2.1	No	Total PCBs	3400		µg/kg dw	Yes	160	Yes	Yes	2.5	13
LDW Subsurface Sediment 2006	LDW-SC1	1266315	211282	0.0	3	not dredged	3	No	No	-	LDW-SC1-0-2	0	2	>CSL	2.1	No	BEHP	1800		µg/kg dw	Yes	86	Yes	Yes	1.1	1.8
LDW Subsurface Sediment 2006	LDW-SC1	1266315	211282	0.0	3	not dredged	3	No	No	-	LDW-SC1-0.5-1	0.5	1	>SQS, ≤CSL	1.97	No	Total PCBs	350		µg/kg dw	Yes	18	No	Yes	0.28	1.5
LDW Subsurface Sediment 2006	LDW-SC1	1266315	211282	0.0	3	not dredged	3	No	No	-	LDW-SC1-1-1.5	1	1.5	>CSL	1.95	No	Mercury	1.27		mg/kg dw	Yes		Yes	Yes	2.2	3.1
LDW Subsurface Sediment 2006	LDW-SC1	1266315	211282	0.0	3	not dredged	3	No	No	-	LDW-SC1-1-1.5	1	1.5	>CSL	1.95	No	1,2,4-Trichlorobenzene	20		µg/kg dw	Yes	1	No	Yes	0.56	1.2
LDW Subsurface Sediment 2006	LDW-SC1	1266315	211282	0.0	3	not dredged	3	No	No	-	LDW-SC1-1-1.5	1	1.5	>CSL	1.95	No	Total PCBs	6700		µg/kg dw	Yes	340	Yes	Yes	5.2	28
LDW Subsurface Sediment 2006	LDW-SC1	1266315	211282	0.0	3	not dredged	3	No	No	-	LDW-SC1-1-1.5	1	1.5	>CSL	1.95	No	BEHP	2400		µg/kg dw	Yes	120	Yes	Yes	1.5	2.6
LDW Subsurface Sediment 2006	LDW-SC1	1266315	211282	0.0	3	not dredged	3	No	No	-	LDW-SC1-1-1.5	1	1.5	>CSL	1.95	No	Butyl benzyl phthalate	98	J	µg/kg dw	Yes	5	No	Yes	0.078	1
LDW Subsurface Sediment 2006	LDW-SC1	1266315	211282	0.0	3	not dredged	3	No	No	-	LDW-SC1-1.5-2	1.5	2	>CSL	2.36	No	Mercury	1.22		mg/kg dw	Yes		Yes	Yes	2.1	3
LDW Subsurface Sediment 2006	LDW-SC1	1266315	211282	0.0	3	not dredged	3	No	No	-	LDW-SC1-1.5-2	1.5	2	>CSL	2.36	No	Total PCBs	4300		µg/kg dw	Yes	180	Yes	Yes	2.8	15
LDW Subsurface Sediment 2006	LDW-SC1	1266315	211282	0.0	3	not dredged	3	No	No	-	LDW-SC1-2-4	2	4	>SQS, ≤CSL	1.6	No	Total PCBs	440		µg/kg dw	Yes	28	No	Yes	0.43	2.3
LDW Subsurface Sediment 2006	LDW-SC1	1266315	211282	0.0	3	not dredged	3	No	No	-	LDW-SC1-4-6	4	6	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC2	1267032	211196	0.1	3	not dredged	2	No	No	-	LDW-SC2-0-2	0	2	>CSL	0.897	No	Arsenic	190		mg/kg dw	Yes		Yes	Yes	2	3.3
LDW Subsurface Sediment 2006	LDW-SC2	1267032	211196	0.1	3	not dredged	2	No	No	-	LDW-SC2-0-2	0	2	>CSL	0.897	No	Lead	569		mg/kg dw	Yes		Yes	Yes	1.1	1.3
LDW Subsurface Sediment 2006	LDW-SC2	1267032	211196	0.1	3	not dredged	2	No	No	-	LDW-SC2-0-2	0	2	>CSL	0.897	No	Zinc	748		mg/kg dw	Yes		No	Yes	0.78	1.8
LDW Subsurface Sediment 2006	LDW-SC2	1267032	211196	0.1	3	not dredged	2	No	No	-	LDW-SC2-0-2	0	2	>CSL	0.897	No	Total PCBs	1380		µg/kg dw	Yes	150	Yes	Yes	2.3	13
LDW Subsurface Sediment 2006	LDW-SC2	1267032	211196	0.1	3	not dredged	2	No	No	-	LDW-SC2-0-2	0	2	>CSL	0.897	No	BEHP	900		µg/kg dw	Yes	100	Yes	Yes	1.3	2.1
LDW Subsurface Sediment 2006	LDW-SC2	1267032	211196	0.1	3	not dredged	2	No	No	-	LDW-SC2-2-4	2	4	>CSL	6.29	No	Arsenic	210		mg/kg dw	Yes		Yes	Yes	2.3	3.7
LDW Subsurface Sediment 2006	LDW-SC2	1267032	211196	0.1	3	not dredged	2	No	No	-	LDW-SC2-2-4	2	4	>CSL	6.29	No	Lead	1050		mg/kg dw	Yes		Yes	Yes	2	2.3
LDW Subsurface Sediment 2006	LDW-SC2	1267032	211196	0.1	3	not dredged	2	No	No	-	LDW-SC2-2-4	2	4	>CSL	6.29	No	Zinc	604		mg/kg dw	Yes		No	Yes	0.63	1.5
LDW Subsurface Sediment 2006	LDW-SC2	1267032	211196	0.1	3	not dredged	2	No	No	-	LDW-SC2-2-4	2	4	>CSL	6.29	Yes	Total PCBs	2900		µg/kg dw	Yes		Yes	Yes	2.9	22
LDW Subsurface Sediment 2006	LDW-SC2	1267032	211196	0.1	3	not dredged	2	No	No	-	LDW-SC2-2-4	2	4	>CSL	6.29	Yes	BEHP	1800		µg/kg dw	Yes		No	Yes	0.95	1.4
LDW Subsurface Sediment 2006	LDW-SC2	1267032	211196	0.1	3	not dredged	2	No	No	-	LDW-SC2-4-6	4	6	>CSL	0.31	No	Arsenic	270		mg/kg dw	Yes		Yes	Yes	2.9	4.7
LDW Subsurface Sediment 2006	LDW-SC2	1267032	211196	0.1	3	not dredged	2	No	No	-	LDW-SC2-4-6	4	6	>CSL	0.31	No	Lead	1210		mg/kg dw	Yes		Yes	Yes	2.3	2.7
LDW Subsurface Sediment 2006	LDW-SC2	1267032	211196	0.1	3	not dredged	2	No	No	-	LDW-SC2-4-6	4	6	>CSL	0.31	No	Zinc	1430		mg/kg dw	Yes		Yes	Yes	1.5	3.5
LDW Subsurface Sediment 2006	LDW-SC2	1267032	211196	0.1	3	not dredged	2	No	No	-	LDW-SC2-4-6	4	6	>CSL	0.31	Yes	Total PCBs	209		µg/kg dw	Yes		No	Yes	0.21	1.6
LDW Subsurface Sediment 2006	LDW-SC2	1267032	211196	0.1	3	not dredged	2	No	No	-	LDW-SC2-8-10	8	10	>CSL	0.45	No	Arsenic	380	J	mg/kg dw	Yes		Yes	Yes	4.1	6.7
LDW Subsurface Sediment 2006	LDW-SC2	1267032	211196	0.1	3	not dredged	2	No	No	-	LDW-SC2-8-10	8	10	>CSL	0.45	No	Lead	1400	J	mg/kg dw	Yes		Yes	Yes	2.6	3.1
LDW Subsurface Sediment 2006	LDW-SC2	1267032	211196	0.1	3	not dredged	2	No	No	-	LDW-SC2-8-10	8	10	>CSL	0.45	No	Zinc	2380	J	mg/kg dw	Yes		Yes	Yes	2.5	5.8
LDW Subsurface Sediment 2006	LDW-SC2	1267032	211196	0.1	3	not dredged	2	No	No	-	LDW-SC2-8-10	8	10	>CSL	0.45	Yes	Total PCBs	237	J	µg/kg dw	Yes		No	Yes	0.24	1.8
LDW Subsurface Sediment 2006	LDW-SC2	1267032	211196	0.1	3	not dredged	2	No	No	-	LDW-SC2-10.7-12	10.7	12	>SQS, ≤CSL, ND												
LDW Subsurface Sediment 2006	LDW-SC3	1266432	210649	0.2	outside of AOPCs	outside of AOPCs	3	No	No	-	LDW-SC3-0-2	0	2	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC3	1266432	210649	0.2	outside of AOPCs	outside of AOPCs	3	No	No	-	LDW-SC3-2-4	2	4	>SQS, ≤CSL, ND												
LDW Subsurface Sediment 2006	LDW-SC4	1266932	210598	0.2	4	not dredged	1	No	No	-	LDW-SC4-0-1	0	1	>SQS, ≤CSL	1.54	No	Mercury	0.53	J	mg/kg dw	Yes		No	Yes	0.9	1.3
LDW Subsurface Sediment 2006	LDW-SC4	1266932	210598	0.2	4	not dredged	1	No	No	-	LDW-SC4-1-2	1	2	>SQS, ≤CSL	1.97	No	Arsenic	63		mg/kg dw	Yes		No	Yes	0.68	1.1
LDW Subsurface Sediment 2006	LDW-SC4	1266932	210598	0.2	4	not dredged	1	No	No	-	LDW-SC4-1-2	1	2	>SQS, ≤CSL	1.97	No	Mercury	0.43	J	mg/kg dw	Yes		No	Yes	0.73	1
LDW Subsurface Sediment 2006	LDW-SC4	1266932	210598	0.2	4	not dredged	1	No	No	-	LDW-SC4-1-2	1	2	>SQS, ≤CSL	1.97	No	Total PCBs	490		µg/kg dw	Yes	25	No	Yes	0.38	2.1
LDW Subsurface Sediment 2006	LDW-SC4	1266932	210598	0.2	4	not dredged	1	No	No	-	LDW-SC4-2-4	2	4	>CSL	1.73	No	2,4-Dimethylphenol	46		µg/kg dw	Yes		Yes	Yes	1.6	1.6
LDW Subsurface Sediment 2006	LDW-SC4	1266932	210598	0.2	4	not dredged	1	No	No	-	LDW-SC4-2-4	2	4	>CSL	1.73	No	Total PCBs	600		µg/kg dw	Yes	35	No	Yes	0.54	2.9
LDW Subsurface Sediment 2006	LDW-SC4	1266932	210598	0.2	4	not dredged	1	No	No	-	LDW-SC4-4-6	4	6	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC5	1266048	210543	0.2	4	not dredged	2	No	No	-	LDW-SC5-0-1	0	1	>SQS, ≤CSL	1.68	No	Total PCBs	510		µg/kg dw	Yes	30	No	Yes	0.46	2.5
LDW Subsurface Sediment 2006	LDW-SC5	1266048	210543	0.2	4	not dredged	2	No	No	-	LDW-SC5-1-2.2	1	2.2	>SQS, ≤CSL	3.93	No	Mercury	0.51		mg/kg dw	Yes		No	Yes	0.86	1.2
LDW Subsurface Sediment 2006	LDW-SC5	1266048	210543	0.2	4	not dredged	2	No	No	-	LDW-SC5-2.2-4	2.2	4	>SQS, ≤CSL, ND												

Table G-1 Detected SMS Contaminants Exceeding the SQS in Cores — River Miles 0 to 1.9

Core Information												Sample Information						Detected SMS Contaminants Exceeding the SQS									
Task	Core Location Name	X[a]	Y[a]	River Mile	FS Removal-Emphasis Alternative when Area is First Dredged[b]	FS Combined-Technologies Alternative when Area is First Dredged[c]	Recovery Category	Collected for Dredge Material Characterization?[d]	Historically Dredged?[d]	Dredge Year[d]	Sample Name	Upper Sample Depth (ft recovered)	Lower Sample Depth (ft recovered)	SMS Assignment for Sample (maximum exceedance status in sample)[e]	TOC[f]	AET Substitution?[f]	SMS Contaminant	Concen-tration	Qualifier	Unit	Detected	OC-Normalized Concentration (mg/kg oc), if applicable	Exceeds CSL/2LAET?	Exceeds SQS/LAET?	Exceedance Factor CSL	Exceedance Factor SQS
EPA SI	DR068	1266404	209574	0.3	2	3	1	No	No	-	SD-DR068-0000A	0	2	>CSL	1.67	No	Total PCBs	2600		µg/kg dw	Yes	160	Yes	Yes	2.5	13
LDW Subsurface Sediment 2006	LDW-SC6	1266285	209838	0.3	4	4	1	No	No	-	LDW-SC6-0-0.5	0	0.5	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC6	1266285	209838	0.3	4	4	1	No	No	-	LDW-SC6-0.5-1	0.5	1	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC6	1266285	209838	0.3	4	4	1	No	No	-	LDW-SC6-1-1.5	1	1.5	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC6	1266285	209838	0.3	4	4	1	No	No	-	LDW-SC6-1.5-2	1.5	2	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC6	1266285	209838	0.3	4	4	1	No	No	-	LDW-SC6-2-2.5	2	2.5	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC6	1266285	209838	0.3	4	4	1	No	No	-	LDW-SC6-2-4.5	2	4.5	>CSL	1.65	No	Mercury	0.44		mg/kg dw	Yes		No	Yes	0.75	1.1
LDW Subsurface Sediment 2006	LDW-SC6	1266285	209838	0.3	4	4	1	No	No	-	LDW-SC6-2-4.5	2	4.5	>CSL	1.65	No	Total PCBs	1640		µg/kg dw	Yes	99	Yes	Yes	1.5	8.3
LDW Subsurface Sediment 2006	LDW-SC6	1266285	209838	0.3	4	4	1	No	No	-	LDW-SC6-2-4.5	2	4.5	>CSL	1.65	No	BEHP	1100		µg/kg dw	Yes	67	No	Yes	0.86	1.4
LDW Subsurface Sediment 2006	LDW-SC6	1266285	209838	0.3	4	4	1	No	No	-	LDW-SC6-2.5-3	2.5	3	>SQS, ≤CSL	1.37	No	Total PCBs	350		µg/kg dw	Yes	26	No	Yes	0.4	2.2
LDW Subsurface Sediment 2006	LDW-SC6	1266285	209838	0.3	4	4	1	No	No	-	LDW-SC6-3-3.5	3	3.5	>SQS, ≤CSL	1.58	No	Total PCBs	490		µg/kg dw	Yes	31	No	Yes	0.48	2.6
LDW Subsurface Sediment 2006	LDW-SC6	1266285	209838	0.3	4	4	1	No	No	-	LDW-SC6-3.5-4	3.5	4	>CSL	0.814	No	Total PCBs	1590		µg/kg dw	Yes	200	Yes	Yes	3.1	17
LDW Subsurface Sediment 2006	LDW-SC6	1266285	209838	0.3	4	4	1	No	No	-	LDW-SC6-4-4.5	4	4.5	>CSL	2.23	No	Total PCBs	2600		µg/kg dw	Yes	120	Yes	Yes	1.8	10
LDW Subsurface Sediment 2006	LDW-SC6	1266285	209838	0.3	4	4	1	No	No	-	LDW-SC6-6-8	6	8	>SQS, ≤CSL, ND												
Duw/Diag-2	DUD250	1266871	209564	0.4	5	not dredged	3	No	No	-	L8542-12	0	3	>CSL	0.74	No	Total PCBs	500	J	µg/kg dw	Yes	68	Yes	Yes	1	5.7
Duw/Diag-2	DUD250	1266871	209564	0.4	5	not dredged	3	No	No	-	L8542-12	0	3	>CSL	0.74	No	BEHP	780		µg/kg dw	Yes	110	Yes	Yes	1.4	2.3
Duw/Diag-2	DUD250	1266871	209564	0.4	5	not dredged	3	No	No	-	L8542-12	0	3	>CSL	0.74	No	Butyl benzyl phthalate	68		µg/kg dw	Yes	9.2	No	Yes	0.14	1.9
LDW Subsurface Sediment 2006	LDW-SC7	1266850	209606	0.4	5	not dredged	3	No	No	-	LDW-SC7-0-1	0	1	>SQS, ≤CSL	2.04	No	Mercury	0.47		mg/kg dw	Yes		No	Yes	0.8	1.1
LDW Subsurface Sediment 2006	LDW-SC7	1266850	209606	0.4	5	not dredged	3	No	No	-	LDW-SC7-0-1	0	1	>SQS, ≤CSL	2.04	No	Total PCBs	1300		µg/kg dw	Yes	64	No	Yes	0.98	5.3
LDW Subsurface Sediment 2006	LDW-SC7	1266850	209606	0.4	5	not dredged	3	No	No	-	LDW-SC7-0-1	0	1	>SQS, ≤CSL	2.04	No	BEHP	1200		µg/kg dw	Yes	59	No	Yes	0.76	1.3
LDW Subsurface Sediment 2006	LDW-SC7	1266850	209606	0.4	5	not dredged	3	No	No	-	LDW-SC7-1-1.7	1	1.7	>CSL	0.835	No	Total PCBs	1270	J	µg/kg dw	Yes	150	Yes	Yes	2.3	13
LDW Subsurface Sediment 2006	LDW-SC7	1266850	209606	0.4	5	not dredged	3	No	No	-	LDW-SC7-1.7-4	1.7	4	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC8	1266614	209589	0.4	5	not dredged	3	No	No	-	LDW-SC8-0-1	0	1	>SQS, ≤CSL	1.99	No	Total PCBs	290		µg/kg dw	Yes	15	No	Yes	0.23	1.3
LDW Subsurface Sediment 2006	LDW-SC8	1266614	209589	0.4	5	not dredged	3	No	No	-	LDW-SC8-1-2	1	2	>CSL	1.15	No	Mercury	0.48		mg/kg dw	Yes		No	Yes	0.81	1.2
LDW Subsurface Sediment 2006	LDW-SC8	1266614	209589	0.4	5	not dredged	3	No	No	-	LDW-SC8-1-2	1	2	>CSL	1.15	No	Total PCBs	1030		µg/kg dw	Yes	90	Yes	Yes	1.4	7.5
LDW Subsurface Sediment 2006	LDW-SC8	1266614	209589	0.4	5	not dredged	3	No	No	-	LDW-SC8-2-4	2	4	>CSL	1.41	No	Mercury	0.45		mg/kg dw	Yes		No	Yes	0.76	1.1
LDW Subsurface Sediment 2006	LDW-SC8	1266614	209589	0.4	5	not dredged	3	No	No	-	LDW-SC8-2-4	2	4	>CSL	1.41	No	Total PCBs	2900		µg/kg dw	Yes	210	Yes	Yes	3.2	18
LDW Subsurface Sediment 2006	LDW-SC8	1266614	209589	0.4	5	not dredged	3	No	No	-	LDW-SC8-2-4	2	4	>CSL	1.41	No	BEHP	1600		µg/kg dw	Yes	110	Yes	Yes	1.4	2.3
LDW Subsurface Sediment 2006	LDW-SC8	1266614	209589	0.4	5	not dredged	3	No	No	-	LDW-SC8-4-6	4	6	>CSL	1.55	No	Arsenic	62		mg/kg dw	Yes		No	Yes	0.67	1.1
LDW Subsurface Sediment 2006	LDW-SC8	1266614	209589	0.4	5	not dredged	3	No	No	-	LDW-SC8-4-6	4	6	>CSL	1.55	No	Mercury	0.77		mg/kg dw	Yes		Yes	Yes	1.3	1.9
LDW Subsurface Sediment 2006	LDW-SC8	1266614	209589	0.4	5	not dredged	3	No	No	-	LDW-SC8-4-6	4	6	>CSL	1.55	No	Zinc	527		mg/kg dw	Yes		No	Yes	0.55	1.3
LDW Subsurface Sediment 2006	LDW-SC8	1266614	209589	0.4	5	not dredged	3	No	No	-	LDW-SC8-4-6	4	6	>CSL	1.55	No	Total PCBs	5500		µg/kg dw	Yes	350	Yes	Yes	5.4	29
LDW Subsurface Sediment 2006	LDW-SC8	1266614	209589	0.4	5	not dredged	3	No	No	-	LDW-SC8-4-6	4	6	>CSL	1.55	No	BEHP	2200		µg/kg dw	Yes	140	Yes	Yes	1.8	3
LDW Subsurface Sediment 2006	LDW-SC8	1266614	209589	0.4	5	not dredged	3	No	No	-	LDW-SC8-6-8	6	8	>CSL	1.97	No	Total PCBs	3800		µg/kg dw	Yes	190	Yes	Yes	2.9	16
LDW Subsurface Sediment 2006	LDW-SC8	1266614	209589	0.4	5	not dredged	3	No	No	-	LDW-SC8-6-8	6	8	>CSL	1.97	No	BEHP	1400		µg/kg dw	Yes	71	No	Yes	0.91	1.5
LDW Subsurface Sediment 2006	LDW-SC8	1266614	209589	0.4	5	not dredged	3	No	No	-	LDW-SC8-8-10	8	10	>CSL	1.9	No	Mercury	0.89		mg/kg dw	Yes		Yes	Yes	1.5	2.2
LDW Subsurface Sediment 2006	LDW-SC8	1266614	209589	0.4	5	not dredged	3	No	No	-	LDW-SC8-8-10	8	10	>CSL	1.9	No	Total PCBs	540		µg/kg dw	Yes	28	No	Yes	0.43	2.3
Duw/Diag-2	DUD258	1267170	208772	0.5	3	not dredged	3	No	No	-	L8542-27	0	3	>CSL	3.5	No	Mercury	0.46		mg/kg dw	Yes		No	Yes	0.78	1.1
Duw/Diag-2	DUD258	1267170	208772	0.5	3	not dredged	3	No	No	-	L8542-27	0	3	>CSL	3.5	No	Total PCBs	690	J	µg/kg dw	Yes	20	No	Yes	0.31	1.7
Duw/Diag-2	DUD258	1267170	208772	0.5	3	not dredged	3	No	No	-	L8542-27	0	3	>CSL	3.5	No	BEHP	5100		µg/kg dw	Yes	150	Yes	Yes	1.9	3.2
Duw/Diag-2	DUD258	1267170	208772	0.5	3	not dredged	3	No	No	-	L8542-27	0	3	>CSL	3.5	No	Butyl benzyl phthalate	310		µg/kg dw	Yes	8.9	No	Yes	0.14	1.8
Duw/Diag-2	DUD258	1267170	208772	0.5	3	not dredged	3	No	No	-	L10112-8	3	6	>CSL	0.71	No	Total PCBs	580	J	µg/kg dw	Yes	82	Yes	Yes	1.3	6.8
Duw/Diag-2	DUD258	1267170	208772	0.5	3	not dredged	3	No	No	-	L10112-9	6	9	≤SQS												

Table G-1 Detected SMS Contaminants Exceeding the SQS in Cores — River Miles 0 to 1.9

Core Information											Sample Information						Detected SMS Contaminants Exceeding the SQS									
Task	Core Location Name	X[a]	Y[a]	River Mile	FS Removal-Emphasis Alternative when Area is First Dredged[b]	FS Combined-Technologies Alternative when Area is First Dredged[c]	Recovery Category	Collected for Dredge Material Characterization?[d]	Historically Dredged?[d]	Dredge Year[d]	Sample Name	Upper Sample Depth (ft recovered)	Lower Sample Depth (ft recovered)	SMS Assignment for Sample (maximum exceedance status in sample)[e]	TOC[f]	AET Substitution?[f]	SMS Contaminant	Concen-tration	Qualifier	Unit	Detected	OC-Normalized Concentration (mg/kg oc), if applicable	Exceeds CSL/2LAET?	Exceeds SQS/LAET?	Exceedance Factor CSL	Exceedance Factor SQS
LDW Subsurface Sediment 2006	LDW-SC10	1267168	208777	0.5	3	not dredged	3	No	No	-	LDW-SC10-0-1	0	1	>SQS, ≤CSL	1.86	No	Total PCBs	260	J	µg/kg dw	Yes	14	No	Yes	0.22	1.2
LDW Subsurface Sediment 2006	LDW-SC10	1267168	208777	0.5	3	not dredged	3	No	No	-	LDW-SC10-0-1	0	1	>SQS, ≤CSL	1.86	No	BEHP	1200		µg/kg dw	Yes	65	No	Yes	0.83	1.4
LDW Subsurface Sediment 2006	LDW-SC10	1267168	208777	0.5	3	not dredged	3	No	No	-	LDW-SC10-1-2	1	2	>CSL	2.23	No	Total PCBs	290		µg/kg dw	Yes	13	No	Yes	0.2	1.1
LDW Subsurface Sediment 2006	LDW-SC10	1267168	208777	0.5	3	not dredged	3	No	No	-	LDW-SC10-1-2	1	2	>CSL	2.23	No	BEHP	2800		µg/kg dw	Yes	130	Yes	Yes	1.7	2.8
LDW Subsurface Sediment 2006	LDW-SC10	1267168	208777	0.5	3	not dredged	3	No	No	-	LDW-SC10-1-2	1	2	>CSL	2.23	No	Butyl benzyl phthalate	160		µg/kg dw	Yes	7.2	No	Yes	0.11	1.5
LDW Subsurface Sediment 2006	LDW-SC10	1267168	208777	0.5	3	not dredged	3	No	No	-	LDW-SC10-2-4	2	4	>CSL	2.95	No	Mercury	0.74		mg/kg dw	Yes		Yes	Yes	1.3	1.8
LDW Subsurface Sediment 2006	LDW-SC10	1267168	208777	0.5	3	not dredged	3	No	No	-	LDW-SC10-2-4	2	4	>CSL	2.95	No	Total PCBs	1120		µg/kg dw	Yes	38	No	Yes	0.58	3.2
LDW Subsurface Sediment 2006	LDW-SC10	1267168	208777	0.5	3	not dredged	3	No	No	-	LDW-SC10-2-4	2	4	>CSL	2.95	No	BEHP	3900		µg/kg dw	Yes	130	Yes	Yes	1.7	2.8
LDW Subsurface Sediment 2006	LDW-SC10	1267168	208777	0.5	3	not dredged	3	No	No	-	LDW-SC10-2-4	2	4	>CSL	2.95	No	Butyl benzyl phthalate	180		µg/kg dw	Yes	6.1	No	Yes	0.095	1.2
LDW Subsurface Sediment 2006	LDW-SC10	1267168	208777	0.5	3	not dredged	3	No	No	-	LDW-SC10-4-5	4	5	>SQS, ≤CSL	1.04	No	Total PCBs	410		µg/kg dw	Yes	39	No	Yes	0.6	3.3
LDW Subsurface Sediment 2006	LDW-SC10	1267168	208777	0.5	3	not dredged	3	No	No	-	LDW-SC10-6-8	6	8	>SQS, ≤CSL	0.989	No	Total PCBs	350		µg/kg dw	Yes	35	No	Yes	0.54	2.9
LDW Subsurface Sediment 2006	LDW-SC11	1265909	208291	0.5	2	3	1	No	No	-	LDW-SC11-0-0.8	0	0.8	>CSL	4.23	No	Lead	639		mg/kg dw	Yes		Yes	Yes	1.2	1.4
LDW Subsurface Sediment 2006	LDW-SC11	1265909	208291	0.5	2	3	1	No	No	-	LDW-SC11-0-0.8	0	0.8	>CSL	4.23	No	Mercury	0.64		mg/kg dw	Yes		Yes	Yes	1.1	1.6
LDW Subsurface Sediment 2006	LDW-SC11	1265909	208291	0.5	2	3	1	No	No	-	LDW-SC11-0-0.8	0	0.8	>CSL	4.23	No	Zinc	482		mg/kg dw	Yes		No	Yes	0.5	1.2
LDW Subsurface Sediment 2006	LDW-SC11	1265909	208291	0.5	2	3	1	No	No	-	LDW-SC11-0-0.8	0	0.8	>CSL	4.23	Yes	Benzo(a)anthracene	3600		µg/kg dw	Yes		Yes	Yes	2.3	2.8
LDW Subsurface Sediment 2006	LDW-SC11	1265909	208291	0.5	2	3	1	No	No	-	LDW-SC11-0-0.8	0	0.8	>CSL	4.23	Yes	Benzo(a)pyrene	3100		µg/kg dw	Yes		Yes	Yes	1	1.9
LDW Subsurface Sediment 2006	LDW-SC11	1265909	208291	0.5	2	3	1	No	No	-	LDW-SC11-0-0.8	0	0.8	>CSL	4.23	Yes	Chrysene	4300		µg/kg dw	Yes		Yes	Yes	1.5	3.1
LDW Subsurface Sediment 2006	LDW-SC11	1265909	208291	0.5	2	3	1	No	No	-	LDW-SC11-0-0.8	0	0.8	>CSL	4.23	Yes	Fluoranthene	8100		µg/kg dw	Yes		Yes	Yes	3.2	4.8
LDW Subsurface Sediment 2006	LDW-SC11	1265909	208291	0.5	2	3	1	No	No	-	LDW-SC11-0-0.8	0	0.8	>CSL	4.23	Yes	Indeno(1,2,3-cd)pyrene	670		µg/kg dw	Yes		No	Yes	0.97	1.1
LDW Subsurface Sediment 2006	LDW-SC11	1265909	208291	0.5	2	3	1	No	No	-	LDW-SC11-0-0.8	0	0.8	>CSL	4.23	Yes	Pyrene	6700		µg/kg dw	Yes		Yes	Yes	2	2.6
LDW Subsurface Sediment 2006	LDW-SC11	1265909	208291	0.5	2	3	1	No	No	-	LDW-SC11-0-0.8	0	0.8	>CSL	4.23	Yes	Total benzofluoranthenes	7600		µg/kg dw	Yes		Yes	Yes	2.1	2.4
LDW Subsurface Sediment 2006	LDW-SC11	1265909	208291	0.5	2	3	1	No	No	-	LDW-SC11-0-0.8	0	0.8	>CSL	4.23	Yes	Total HPAHs	34700		µg/kg dw	Yes		Yes	Yes	2	2.9
LDW Subsurface Sediment 2006	LDW-SC11	1265909	208291	0.5	2	3	1	No	No	-	LDW-SC11-0-0.8	0	0.8	>CSL	4.23	Yes	Total PCBs	3000		µg/kg dw	Yes		Yes	Yes	3	23
LDW Subsurface Sediment 2006	LDW-SC11	1265909	208291	0.5	2	3	1	No	No	-	LDW-SC11-0.8-2	0.8	2	>SQS, ≤CSL, ND												
LDW Subsurface Sediment 2006	LDW-SC11	1265909	208291	0.5	2	3	1	No	No	-	LDW-SC11-2-3.4	2	3.4	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC11	1265909	208291	0.5	2	3	1	No	No	-	LDW-SC11-3.4-4.1	3.4	4.1	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC9	1266865	208920	0.5	5	5	3	No	No	-	LDW-SC9-0-1	0	1	>CSL	1.63	No	Mercury	0.42		mg/kg dw	Yes		No	Yes	0.71	1
LDW Subsurface Sediment 2006	LDW-SC9	1266865	208920	0.5	5	5	3	No	No	-	LDW-SC9-0-1	0	1	>CSL	1.63	No	1,2,4-Trichlorobenzene	18	J	µg/kg dw	Yes	1.1	No	Yes	0.61	1.4
LDW Subsurface Sediment 2006	LDW-SC9	1266865	208920	0.5	5	5	3	No	No	-	LDW-SC9-0-1	0	1	>CSL	1.63	No	Benzyl alcohol	140	J	µg/kg dw	Yes		Yes	Yes	1.9	2.5
LDW Subsurface Sediment 2006	LDW-SC9	1266865	208920	0.5	5	5	3	No	No	-	LDW-SC9-0-1	0	1	>CSL	1.63	No	Total PCBs	3600		µg/kg dw	Yes	220	Yes	Yes	3.4	18
LDW Subsurface Sediment 2006	LDW-SC9	1266865	208920	0.5	5	5	3	No	No	-	LDW-SC9-0-1	0	1	>CSL	1.63	No	BEHP	1700		µg/kg dw	Yes	100	Yes	Yes	1.3	2.1
LDW Subsurface Sediment 2006	LDW-SC9	1266865	208920	0.5	5	5	3	No	No	-	LDW-SC9-1-2.6	1	2.6	>CSL	2.47	No	Cadmium	5.9		mg/kg dw	Yes		No	Yes	0.88	1.2
LDW Subsurface Sediment 2006	LDW-SC9	1266865	208920	0.5	5	5	3	No	No	-	LDW-SC9-1-2.6	1	2.6	>CSL	2.47	No	Mercury	1.28		mg/kg dw	Yes		Yes	Yes	2.2	3.1
LDW Subsurface Sediment 2006	LDW-SC9	1266865	208920	0.5	5	5	3	No	No	-	LDW-SC9-1-2.6	1	2.6	>CSL	2.47	No	Silver	7.5		mg/kg dw	Yes		Yes	Yes	1.2	1.2
LDW Subsurface Sediment 2006	LDW-SC9	1266865	208920	0.5	5	5	3	No	No	-	LDW-SC9-1-2.6	1	2.6	>CSL	2.47	No	1,2,4-Trichlorobenzene	22	J	µg/kg dw	Yes	0.89	No	Yes	0.49	1.1
LDW Subsurface Sediment 2006	LDW-SC9	1266865	208920	0.5	5	5	3	No	No	-	LDW-SC9-1-2.6	1	2.6	>CSL	2.47	No	Total PCBs	2700		µg/kg dw	Yes	110	Yes	Yes	1.7	9.2
LDW Subsurface Sediment 2006	LDW-SC9	1266865	208920	0.5	5	5	3	No	No	-	LDW-SC9-1-2.6	1	2.6	>CSL	2.47	No	BEHP	1200	J	µg/kg dw	Yes	49	No	Yes	0.63	1
LDW Subsurface Sediment 2006	LDW-SC9	1266865	208920	0.5	5	5	3	No	No	-	LDW-SC9-2.6-4	2.6	4	>SQS, ≤CSL, ND												
EPA SI	DR044	1266577	208216	0.6	4	5	2	No	No	-	SD-DR044-0000A	0	2	>SQS, ≤CSL, ND												
EPA SI	DR044	1266577	208216	0.6	4	5	2	No	No	-	SD-DR044-0020	2	4	>CSL	2.22	No	Mercury	0.5		mg/kg dw	Yes		No	Yes	0.85	1.2
EPA SI	DR044	1266577	208216	0.6	4	5	2	No	No	-	SD-DR044-0020	2	4	>CSL	2.22	No	Total PCBs	1900		µg/kg dw	Yes	86	Yes	Yes	1.3	7.2
Duw/Diag-2	DUD206	1267277	208630	0.6	outside of AOPCs	outside of AOPCs	3	No	No	-	L8542-28	0	3	>CSL, ND												
Duw/Diag-2	DUD260	1267150	208575	0.6	3	not dredged	0	No	No	-	L8542-29	0	3	>CSL	1.9	No	Total PCBs	1340	J	µg/kg dw	Yes	71	Yes	Yes	1.1	5.9
Duw/Diag-2	DUD260	1267150	208575	0.6	6	not dredged	0	No	No	-	L8542-29	0	3	>CSL	1.9	No	BEHP	1600		µg/kg dw	Yes	84	Yes	Yes	1.1	1.8
Duw/Diag-2	DUD260	1267150	208575	0.6	6	not dredged	0	No	No	-	L8542-29	0	3	>CSL	1.9	No	Butyl benzyl phthalate	120		µg/kg dw	Yes	6.3	No	Yes	0.098	1.3
Duw/Diag-2	DUD260	1267150	208575	0.6	6	not dredged	0	No	No	-	L8542-30	3	6	>CSL, ND												

Table G-1 Detected SMS Contaminants Exceeding the SQS in Cores — River Miles 0 to 1.9

Core Information											Sample Information						Detected SMS Contaminants Exceeding the SQS									
Task	Core Location Name	X[a]	Y[a]	River Mile	FS Removal-Emphasis Alternative when Area is First Dredged[b]	FS Combined-Technologies Alternative when Area is First Dredged[c]	Recovery Category	Collected for Dredge Material Characterization?[d]	Historically Dredged?[d]	Dredge Year[d]	Sample Name	Upper Sample Depth (ft recovered)	Lower Sample Depth (ft recovered)	SMS Assignment for Sample (maximum exceedance status in sample)[e]	TOC[f]	AET Substitution?[f]	SMS Contaminant	Concen-tration	Qualifier	Unit	Detected	OC-Normalized Concentration (mg/kg oc), if applicable	Exceeds CSL/2LAET?	Exceeds SQS/LAET?	Exceedance Factor CSL	Exceedance Factor SQS
LDW Subsurface Sediment 2006	LDW-SC12	1266578	208218	0.6	4	5	2	No	No	-	LDW-SC12-0-0.5	0	0.5	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC12	1266578	208218	0.6	4	5	2	No	No	-	LDW-SC12-0-2	0	2	>SQS, ≤CSL	1.92	No	Total PCBs	350		µg/kg dw	Yes	18	No	Yes	0.28	1.5
LDW Subsurface Sediment 2006	LDW-SC12	1266578	208218	0.6	4	5	2	No	No	-	LDW-SC12-0.5-1	0.5	1	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC12	1266578	208218	0.6	4	5	2	No	No	-	LDW-SC12-1-1.5	1	1.5	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC12	1266578	208218	0.6	4	5	2	No	No	-	LDW-SC12-1.5-2	1.5	2	>SQS, ≤CSL	1.98	No	Total PCBs	320		µg/kg dw	Yes	16	No	Yes	0.25	1.3
LDW Subsurface Sediment 2006	LDW-SC12	1266578	208218	0.6	4	5	2	No	No	-	LDW-SC12-2-2.5	2	2.5	>CSL	2.24	No	Total PCBs	2000	J	µg/kg dw	Yes	89	Yes	Yes	1.4	7.4
LDW Subsurface Sediment 2006	LDW-SC12	1266578	208218	0.6	4	5	2	No	No	-	LDW-SC12-2-4	2	4	>CSL	1.58	No	Mercury	0.45		mg/kg dw	Yes		No	Yes	0.76	1.1
LDW Subsurface Sediment 2006	LDW-SC12	1266578	208218	0.6	4	5	2	No	No	-	LDW-SC12-2-4	2	4	>CSL	1.58	No	Total PCBs	2500		µg/kg dw	Yes	160	Yes	Yes	2.5	13
LDW Subsurface Sediment 2006	LDW-SC12	1266578	208218	0.6	4	5	2	No	No	-	LDW-SC12-2.5-3	2.5	3	>SQS, ≤CSL	1.67	No	Total PCBs	630		µg/kg dw	Yes	38	No	Yes	0.58	3.2
LDW Subsurface Sediment 2006	LDW-SC12	1266578	208218	0.6	4	5	2	No	No	-	LDW-SC12-3-3.5	3	3.5	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC12	1266578	208218	0.6	4	5	2	No	No	-	LDW-SC12-3.5-4	3.5	4	>SQS, ≤CSL	1.61	No	Total PCBs	790		µg/kg dw	Yes	49	No	Yes	0.75	4.1
LDW Subsurface Sediment 2006	LDW-SC12	1266578	208218	0.6	4	5	2	No	No	-	LDW-SC12-4-6.7	4	6.6	>CSL	1.92	No	Mercury	0.74		mg/kg dw	Yes		Yes	Yes	1.3	1.8
LDW Subsurface Sediment 2006	LDW-SC12	1266578	208218	0.6	4	5	2	No	No	-	LDW-SC12-4-6.7	4	6.6	>CSL	1.92	No	Total PCBs	420		µg/kg dw	Yes	22	No	Yes	0.34	1.8
LDW Subsurface Sediment 2006	LDW-SC12	1266578	208218	0.6	4	5	2	No	No	-	LDW-SC12-6.7-8.7	6.6	8.7	≤SQS												
EPA SI	DR021	1267822	206718	0.9	2	not dredged	1	No	No	-	SD-DR021-0000A	0	2	>SQS, ≤CSL	2.55	No	Total PCBs	520		µg/kg dw	Yes	20	No	Yes	0.31	1.7
EPA SI	DR021	1267822	206718	0.9	2	not dredged	1	No	No	-	SD-DR021-0020	2	4	>CSL	2.45	No	Mercury	0.64		mg/kg dw	Yes		Yes	Yes	1.1	1.6
EPA SI	DR021	1267822	206718	0.9	2	not dredged	1	No	No	-	SD-DR021-0020	2	4	>CSL	2.45	No	Zinc	630		mg/kg dw	Yes		No	Yes	0.66	1.5
EPA SI	DR021	1267822	206718	0.9	2	not dredged	1	No	No	-	SD-DR021-0020	2	4	>CSL	2.45	No	Total PCBs	4000		µg/kg dw	Yes	160	Yes	Yes	2.5	13
EPA SI	DR021	1267822	206718	0.9	2	not dredged	1	No	No	-	SD-DR021-0020	2	4	>CSL	2.45	No	BEHP	2000		µg/kg dw	Yes	82	Yes	Yes	1.1	1.7
LDW Subsurface Sediment 2006	LDW-SC13	1267585	207097	0.9	5	not dredged	3	No	No	-	LDW-SC13-0-0.5	0	0.5	>SQS, ≤CSL	1.51	No	Total PCBs	460		µg/kg dw	Yes	30	No	Yes	0.46	2.5
LDW Subsurface Sediment 2006	LDW-SC13	1267585	207097	0.9	5	not dredged	3	No	No	-	LDW-SC13-0-2	0	2	>SQS, ≤CSL	3.46	No	Total PCBs	480		µg/kg dw	Yes	14	No	Yes	0.22	1.2
LDW Subsurface Sediment 2006	LDW-SC13	1267585	207097	0.9	5	not dredged	3	No	No	-	LDW-SC13-0.5-1	0.5	1	>SQS, ≤CSL	3.28	No	Total PCBs	470		µg/kg dw	Yes	14	No	Yes	0.22	1.2
LDW Subsurface Sediment 2006	LDW-SC13	1267585	207097	0.9	5	not dredged	3	No	No	-	LDW-SC13-1-1.5	1	1.5	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC13	1267585	207097	0.9	5	not dredged	3	No	No	-	LDW-SC13-1.5-2	1.5	2	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC13	1267585	207097	0.9	5	not dredged	3	No	No	-	LDW-SC13-2-4	2	4	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC14	1267399	207054	0.9	3	5	2	No	No	-	LDW-SC14-0-1.4	0	1.4	>CSL	1.72	No	Mercury	0.71		mg/kg dw	Yes		Yes	Yes	1.2	1.7
LDW Subsurface Sediment 2006	LDW-SC14	1267399	207054	0.9	3	5	2	No	No	-	LDW-SC14-0-1.4	0	1.4	>CSL	1.72	No	Total PCBs	4500		µg/kg dw	Yes	260	Yes	Yes	4	22
LDW Subsurface Sediment 2006	LDW-SC14	1267399	207054	0.9	3	5	2	No	No	-	LDW-SC14-0-1.4	0	1.4	>CSL	1.72	No	BEHP	1200		µg/kg dw	Yes	70	No	Yes	0.9	1.5
LDW Subsurface Sediment 2006	LDW-SC14	1267399	207054	0.9	3	5	2	No	No	-	LDW-SC14-0-1.4	0	1.4	>CSL	1.72	No	Butyl benzyl phthalate	100		µg/kg dw	Yes	5.8	No	Yes	0.091	1.2
LDW Subsurface Sediment 2006	LDW-SC14	1267399	207054	0.9	3	5	2	No	No	-	LDW-SC14-1.4-2	1.4	2	>CSL	1.63	No	Mercury	0.51		mg/kg dw	Yes		No	Yes	0.86	1.2
LDW Subsurface Sediment 2006	LDW-SC14	1267399	207054	0.9	3	5	2	No	No	-	LDW-SC14-1.4-2	1.4	2	>CSL	1.63	No	Total PCBs	2060		µg/kg dw	Yes	130	Yes	Yes	2	11
LDW Subsurface Sediment 2006	LDW-SC14	1267399	207054	0.9	3	5	2	No	No	-	LDW-SC14-2-4.1	2	4.1	>CSL	1.72	No	Mercury	0.7		mg/kg dw	Yes		Yes	Yes	1.2	1.7
LDW Subsurface Sediment 2006	LDW-SC14	1267399	207054	0.9	3	5	2	No	No	-	LDW-SC14-2-4.1	2	4.1	>CSL	1.72	No	Total PCBs	1550		µg/kg dw	Yes	90	Yes	Yes	1.4	7.5
LDW Subsurface Sediment 2006	LDW-SC14	1267399	207054	0.9	3	5	2	No	No	-	LDW-SC14-2-4.1	2	4.1	>CSL	1.72	No	Butyl benzyl phthalate	110		µg/kg dw	Yes	6.4	No	Yes	0.1	1.3
LDW Subsurface Sediment 2006	LDW-SC14	1267399	207054	0.9	3	5	2	No	No	-	LDW-SC14-4.1-6	4.1	6	>CSL	1.82	No	Mercury	0.68		mg/kg dw	Yes		Yes	Yes	1.2	1.7
LDW Subsurface Sediment 2006	LDW-SC14	1267399	207054	0.9	3	5	2	No	No	-	LDW-SC14-4.1-6	4.1	6	>CSL	1.82	No	Total PCBs	420		µg/kg dw	Yes	23	No	Yes	0.35	1.9
LDW Subsurface Sediment 2006	LDW-SC14	1267399	207054	0.9	3	5	2	No	No	-	LDW-SC14-6-8.7	6	8.6	>SQS, ≤CSL	1.55	No	Mercury	0.42		mg/kg dw	Yes		No	Yes	0.71	1
LDW Subsurface Sediment 2006	LDW-SC14	1267399	207054	0.9	3	5	2	No	No	-	LDW-SC14-10-11	10	11	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC15	1267822	206822	0.9	3	6	2	No	No	-	LDW-SC15-0-1	0	1	>SQS, ≤CSL	2.37	No	Total PCBs	360		µg/kg dw	Yes	15	No	Yes	0.23	1.3
LDW Subsurface Sediment 2006	LDW-SC15	1267822	206822	0.9	3	6	2	No	No	-	LDW-SC15-1-2	1	2	>SQS, ≤CSL	1.96	No	Total PCBs	340	J	µg/kg dw	Yes	17	No	Yes	0.26	1.4
LDW Subsurface Sediment 2006	LDW-SC15	1267822	206822	0.9	3	6	2	No	No	-	LDW-SC15-2-4	2	4	>SQS, ≤CSL	1.62	No	Total PCBs	510		µg/kg dw	Yes	31	No	Yes	0.48	2.6
LDW Subsurface Sediment 2006	LDW-SC15	1267822	206822	0.9	3	6	2	No	No	-	LDW-SC15-4-6	4	6	>CSL	2.19	No	Total PCBs	1950		µg/kg dw	Yes	89	Yes	Yes	1.4	7.4
LDW Subsurface Sediment 2006	LDW-SC15	1267822	206822	0.9	3	6	2	No	No	-	LDW-SC15-8-10	8	10	≤SQS												
Lehigh NW	C2 (Lehigh NW)	1267920	206336	1.0	2	3	1	Yes	Yes	2004	C-2	0	4	>SQS, ≤CSL		Yes	Total PCBs	159		µg/kg dw	Yes		No	Yes	0.16	1.2
Lehigh NW	C3 (Lehigh NW)	1267936	206274	1.0	2	3	1	Yes	Yes	2004	C-3S	3.8	5	>SQS, ≤CSL, ND												

Table G-1 Detected SMS Contaminants Exceeding the SQS in Cores — River Miles 0 to 1.9

Core Information											Sample Information						Detected SMS Contaminants Exceeding the SQS									
Task	Core Location Name	X[a]	Y[a]	River Mile	FS Removal-Emphasis Alternative when Area is First Dredged[b]	FS Combined-Technologies Alternative when Area is First Dredged[c]	Recovery Category	Collected for Dredge Material Characterization?[d]	Historically Dredged?[d]	Dredge Year[d]	Sample Name	Upper Sample Depth (ft recovered)	Lower Sample Depth (ft recovered)	SMS Assignment for Sample (maximum exceedance status in sample)[e]	TOC[f]	AET Substitution?[f]	SMS Contaminant	Concen-tration	Qualifier	Unit	Detected	OC-Normalized Concentration (mg/kg oc), if applicable	Exceeds CSL/2LAET?	Exceeds SQS/LAET?	Exceedance Factor CSL	Exceedance Factor SQS
LDW Subsurface Sediment 2006	LDW-SC16	1267960	206670	1.0	4	4	1	No	No	-	LDW-SC16-0-2	0	2	>SQS, ≤CSL	2.02	No	Fluoranthene	4700		µg/kg dw	Yes	230	No	Yes	0.19	1.4
LDW Subsurface Sediment 2006	LDW-SC16	1267960	206670	1.0	4	4	1	No	No	-	LDW-SC16-0-2	0	2	>SQS, ≤CSL	2.02	No	Total PCBs	330	J	µg/kg dw	Yes	16	No	Yes	0.25	1.3
LDW Subsurface Sediment 2006	LDW-SC16	1267960	206670	1.0	4	4	1	No	No	-	LDW-SC16-2-4	2	4	>CSL	2.96	No	Mercury	0.85		mg/kg dw	Yes		Yes	Yes	1.4	2.1
LDW Subsurface Sediment 2006	LDW-SC16	1267960	206670	1.0	4	4	1	No	No	-	LDW-SC16-2-4	2	4	>CSL	2.96	No	Zinc	428		mg/kg dw	Yes		No	Yes	0.45	1
LDW Subsurface Sediment 2006	LDW-SC16	1267960	206670	1.0	4	4	1	No	No	-	LDW-SC16-2-4	2	4	>CSL	2.96	No	Total PCBs	5400		µg/kg dw	Yes	180	Yes	Yes	2.8	15
LDW Subsurface Sediment 2006	LDW-SC16	1267960	206670	1.0	4	4	1	No	No	-	LDW-SC16-2-4	2	4	>CSL	2.96	No	BEHP	3100		µg/kg dw	Yes	100	Yes	Yes	1.3	2.1
LDW Subsurface Sediment 2006	LDW-SC16	1267960	206670	1.0	4	4	1	No	No	-	LDW-SC16-4-6	4	6	>CSL	2.24	No	Mercury	0.98		mg/kg dw	Yes		Yes	Yes	1.7	2.4
LDW Subsurface Sediment 2006	LDW-SC16	1267960	206670	1.0	4	4	1	No	No	-	LDW-SC16-4-6	4	6	>CSL	2.24	No	Fluoranthene	4900		µg/kg dw	Yes	220	No	Yes	0.18	1.4
LDW Subsurface Sediment 2006	LDW-SC16	1267960	206670	1.0	4	4	1	No	No	-	LDW-SC16-4-6	4	6	>CSL	2.24	No	Total HPAHs	22000		µg/kg dw	Yes	980	No	Yes	0.18	1
LDW Subsurface Sediment 2006	LDW-SC16	1267960	206670	1.0	4	4	1	No	No	-	LDW-SC16-4-6	4	6	>CSL	2.24	No	Total PCBs	3400		µg/kg dw	Yes	150	Yes	Yes	2.3	13
LDW Subsurface Sediment 2006	LDW-SC16	1267960	206670	1.0	4	4	1	No	No	-	LDW-SC16-4-6	4	6	>CSL	2.24	No	BEHP	1600		µg/kg dw	Yes	71	No	Yes	0.91	1.5
LDW Subsurface Sediment 2006	LDW-SC16	1267960	206670	1.0	4	4	1	No	No	-	LDW-SC16-8-10	8	10	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC17	1268446	206551	1.0	2	3	2	No	No	-	LDW-SC17-0-1	0	1	>CSL	3.06	No	Arsenic	110		mg/kg dw	Yes		Yes	Yes	1.2	1.9
LDW Subsurface Sediment 2006	LDW-SC17	1268446	206551	1.0	2	3	2	No	No	-	LDW-SC17-0-1	0	1	>CSL	3.06	No	Mercury	0.5		mg/kg dw	Yes		No	Yes	0.85	1.2
LDW Subsurface Sediment 2006	LDW-SC17	1268446	206551	1.0	2	3	2	No	No	-	LDW-SC17-0-1	0	1	>CSL	3.06	No	Zinc	1260		mg/kg dw	Yes		Yes	Yes	1.3	3.1
LDW Subsurface Sediment 2006	LDW-SC17	1268446	206551	1.0	2	3	2	No	No	-	LDW-SC17-0-1	0	1	>CSL	3.06	No	Benzyl alcohol	140		µg/kg dw	Yes		Yes	Yes	1.9	2.5
LDW Subsurface Sediment 2006	LDW-SC17	1268446	206551	1.0	2	3	2	No	No	-	LDW-SC17-0-1	0	1	>CSL	3.06	No	Total PCBs	1220		µg/kg dw	Yes	40	No	Yes	0.62	3.3
LDW Subsurface Sediment 2006	LDW-SC17	1268446	206551	1.0	2	3	2	No	No	-	LDW-SC17-1-2	1	2	>CSL	3.25	No	Arsenic	170		mg/kg dw	Yes		Yes	Yes	1.8	3
LDW Subsurface Sediment 2006	LDW-SC17	1268446	206551	1.0	2	3	2	No	No	-	LDW-SC17-1-2	1	2	>CSL	3.25	No	Cadmium	7.6		mg/kg dw	Yes		Yes	Yes	1.1	1.5
LDW Subsurface Sediment 2006	LDW-SC17	1268446	206551	1.0	2	3	2	No	No	-	LDW-SC17-1-2	1	2	>CSL	3.25	No	Mercury	0.6		mg/kg dw	Yes		Yes	Yes	1	1.5
LDW Subsurface Sediment 2006	LDW-SC17	1268446	206551	1.0	2	3	2	No	No	-	LDW-SC17-1-2	1	2	>CSL	3.25	No	Zinc	2050		mg/kg dw	Yes		Yes	Yes	2.1	5
LDW Subsurface Sediment 2006	LDW-SC17	1268446	206551	1.0	2	3	2	No	No	-	LDW-SC17-1-2	1	2	>CSL	3.25	No	Fluoranthene	5600		µg/kg dw	Yes	170	No	Yes	0.14	1.1
LDW Subsurface Sediment 2006	LDW-SC17	1268446	206551	1.0	2	3	2	No	No	-	LDW-SC17-1-2	1	2	>CSL	3.25	No	Total PCBs	1040		µg/kg dw	Yes	32	No	Yes	0.49	2.7
LDW Subsurface Sediment 2006	LDW-SC17	1268446	206551	1.0	2	3	2	No	No	-	LDW-SC17-2-4	2	4	>CSL	6.35	No	Arsenic	60		mg/kg dw	Yes		No	Yes	0.65	1.1
LDW Subsurface Sediment 2006	LDW-SC17	1268446	206551	1.0	2	3	2	No	No	-	LDW-SC17-2-4	2	4	>CSL	6.35	No	Cadmium	15		mg/kg dw	Yes		Yes	Yes	2.2	2.9
LDW Subsurface Sediment 2006	LDW-SC17	1268446	206551	1.0	2	3	2	No	No	-	LDW-SC17-2-4	2	4	>CSL	6.35	No	Chromium	386		mg/kg dw	Yes		Yes	Yes	1.4	1.5
LDW Subsurface Sediment 2006	LDW-SC17	1268446	206551	1.0	2	3	2	No	No	-	LDW-SC17-2-4	2	4	>CSL	6.35	No	Lead	1740		mg/kg dw	Yes		Yes	Yes	3.3	3.9
LDW Subsurface Sediment 2006	LDW-SC17	1268446	206551	1.0	2	3	2	No	No	-	LDW-SC17-2-4	2	4	>CSL	6.35	No	Mercury	1.29		mg/kg dw	Yes		Yes	Yes	2.2	3.1
LDW Subsurface Sediment 2006	LDW-SC17	1268446	206551	1.0	2	3	2	No	No	-	LDW-SC17-2-4	2	4	>CSL	6.35	No	Zinc	3840		mg/kg dw	Yes		Yes	Yes	4	9.4
LDW Subsurface Sediment 2006	LDW-SC17	1268446	206551	1.0	2	3	2	No	No	-	LDW-SC17-2-4	2	4	>CSL	6.35	Yes	1,2,4-Trichlorobenzene	110	J	µg/kg dw	Yes		Yes	Yes	2.2	3.5
LDW Subsurface Sediment 2006	LDW-SC17	1268446	206551	1.0	2	3	2	No	No	-	LDW-SC17-2-4	2	4	>CSL	6.35	No	Benzoic acid	3000	J	µg/kg dw	Yes		Yes	Yes	4.6	4.6
LDW Subsurface Sediment 2006	LDW-SC17	1268446	206551	1.0	2	3	2	No	No	-	LDW-SC17-2-4	2	4	>CSL	6.35	Yes	2-Methylnaphthalene	4500		µg/kg dw	Yes		Yes	Yes	3.2	6.7
LDW Subsurface Sediment 2006	LDW-SC17	1268446	206551	1.0	2	3	2	No	No	-	LDW-SC17-2-4	2	4	>CSL	6.35	Yes	Acenaphthene	4600		µg/kg dw	Yes		Yes	Yes	6.3	9.2
LDW Subsurface Sediment 2006	LDW-SC17	1268446	206551	1.0	2	3	2	No	No	-	LDW-SC17-2-4	2	4	>CSL	6.35	Yes	Anthracene	1900		µg/kg dw	Yes		No	Yes	0.43	2
LDW Subsurface Sediment 2006	LDW-SC17	1268446	206551	1.0	2	3	2	No	No	-	LDW-SC17-2-4	2	4	>CSL	6.35	Yes	Benzo(a)anthracene	1500		µg/kg dw	Yes		No	Yes	0.94	1.2
LDW Subsurface Sediment 2006	LDW-SC17	1268446	206551	1.0	2	3	2	No	No	-	LDW-SC17-2-4	2	4	>CSL	6.35	Yes	Chrysene	1800		µg/kg dw	Yes		No	Yes	0.64	1.3
LDW Subsurface Sediment 2006	LDW-SC17	1268446	206551	1.0	2	3	2	No	No	-	LDW-SC17-2-4	2	4	>CSL	6.35	Yes	Dibenzofuran	1700		µg/kg dw	Yes		Yes	Yes	2.4	3.1
LDW Subsurface Sediment 2006	LDW-SC17	1268446	206551	1.0	2	3	2	No	No	-	LDW-SC17-2-4	2	4	>CSL	6.35	Yes	Fluoranthene	7400		µg/kg dw	Yes		Yes	Yes	3	4.4
LDW Subsurface Sediment 2006	LDW-SC17	1268446	206551	1.0	2	3	2	No	No	-	LDW-SC17-2-4	2	4	>CSL	6.35	Yes	Fluorene	4300		µg/kg dw	Yes		Yes	Yes	4.3	8
LDW Subsurface Sediment 2006	LDW-SC17	1268446	206551	1.0	2	3	2	No	No	-	LDW-SC17-2-4	2	4	>CSL	6.35	Yes	Naphthalene	3400		µg/kg dw	Yes		Yes	Yes	1.4	1.6
LDW Subsurface Sediment 2006	LDW-SC17	1268446	206551	1.0	2	3	2	No	No	-	LDW-SC17-2-4	2	4	>CSL	6.35	Yes	Phenanthrene	13000		µg/kg dw	Yes		Yes	Yes	2.4	8.7
LDW Subsurface Sediment 2006	LDW-SC17	1268446	206551	1.0	2	3	2	No	No	-	LDW-SC17-2-4	2	4	>CSL	6.35	Yes	Pyrene	5700		µg/kg dw	Yes		Yes	Yes	1.7	2.2
LDW Subsurface Sediment 2006	LDW-SC17	1268446	206551	1.0	2	3	2	No	No	-	LDW-SC17-2-4	2	4	>CSL	6.35	Yes	Total HPAHs	20400	J	µg/kg dw	Yes		Yes	Yes	1.2	1.7
LDW Subsurface Sediment 2006	LDW-SC17	1268446	206551	1.0	2	3	2	No	No	-	LDW-SC17-2-4	2	4	>CSL	6.35	Yes	Total LPAHs	27000	J	µg/kg dw	Yes		Yes	Yes	2.1	5.2
LDW Subsurface Sediment 2006	LDW-SC17	1268446	206551	1.0	2	3	2	No	No	-	LDW-SC17-2-4	2	4	>CSL	6.35	Yes	Total PCBs	9800		µg/kg dw	Yes		Yes	Yes	9.8	75
LDW Subsurface Sediment 2006	LDW-SC17	1268446	206551	1.0	2	3	2	No	No	-	LDW-SC17-2-4	2	4	>CSL	6.35	Yes	BEHP	2300		µg/kg dw	Yes		Yes	Yes	1.2	1.8
LDW Subsurface Sediment 2006	LDW-SC17	1268446	206551	1.0	2	3	2	No	No	-	LDW-SC17-6-8.2	6	8.6	>CSL	3.24	No	Arsenic	76		mg/kg dw	Yes		No	Yes	0.82	1.3

Table G-1 Detected SMS Contaminants Exceeding the SQS in Cores — River Miles 0 to 1.9

Core Information											Sample Information						Detected SMS Contaminants Exceeding the SQS									
Task	Core Location Name	X[a]	Y[a]	River Mile	FS Removal-Emphasis Alternative when Area is First Dredged[b]	FS Combined-Technologies Alternative when Area is First Dredged[c]	Recovery Category	Collected for Dredge Material Characterization?[d]	Historically Dredged?[d]	Dredge Year[d]	Sample Name	Upper Sample Depth (ft recovered)	Lower Sample Depth (ft recovered)	SMS Assignment for Sample (maximum exceedance status in sample)[e]	TOC[f]	AET Substitution?[f]	SMS Contaminant	Concen-tration	Qualifier	Unit	Detected	OC-Normalized Concentration (mg/kg oc), if applicable	Exceeds CSL/2LAET?	Exceeds SQS/LAET?	Exceedance Factor CSL	Exceedance Factor SQS
LDW Subsurface Sediment 2006	LDW-SC17	1268446	206551	1.0	2	3	2	No	No	-	LDW-SC17-6-8.2	6	8.6	>CSL	3.24	No	Cadmium	20.4		mg/kg dw	Yes		Yes	Yes	3	4
LDW Subsurface Sediment 2006	LDW-SC17	1268446	206551	1.0	2	3	2	No	No	-	LDW-SC17-6-8.2	6	8.6	>CSL	3.24	No	Lead	470		mg/kg dw	Yes		No	Yes	0.89	1
LDW Subsurface Sediment 2006	LDW-SC17	1268446	206551	1.0	2	3	2	No	No	-	LDW-SC17-6-8.2	6	8.6	>CSL	3.24	No	Mercury	0.75		mg/kg dw	Yes		Yes	Yes	1.3	1.8
LDW Subsurface Sediment 2006	LDW-SC17	1268446	206551	1.0	2	3	2	No	No	-	LDW-SC17-6-8.2	6	8.6	>CSL	3.24	No	Zinc	4550		mg/kg dw	Yes		Yes	Yes	4.7	11
LDW Subsurface Sediment 2006	LDW-SC17	1268446	206551	1.0	2	3	2	No	No	-	LDW-SC17-6-8.2	6	8.6	>CSL	3.24	No	Acenaphthene	1200		µg/kg dw	Yes	37	No	Yes	0.65	2.3
LDW Subsurface Sediment 2006	LDW-SC17	1268446	206551	1.0	2	3	2	No	No	-	LDW-SC17-6-8.2	6	8.6	>CSL	3.24	No	Dibenzofuran	710		µg/kg dw	Yes	22	No	Yes	0.38	1.5
LDW Subsurface Sediment 2006	LDW-SC17	1268446	206551	1.0	2	3	2	No	No	-	LDW-SC17-6-8.2	6	8.6	>CSL	3.24	No	Fluoranthene	7100		µg/kg dw	Yes	220	No	Yes	0.18	1.4
LDW Subsurface Sediment 2006	LDW-SC17	1268446	206551	1.0	2	3	2	No	No	-	LDW-SC17-6-8.2	6	8.6	>CSL	3.24	No	Fluorene	1400		µg/kg dw	Yes	43	No	Yes	0.54	1.9
LDW Subsurface Sediment 2006	LDW-SC17	1268446	206551	1.0	2	3	2	No	No	-	LDW-SC17-6-8.2	6	8.6	>CSL	3.24	No	Phenanthrene	4200		µg/kg dw	Yes	130	No	Yes	0.27	1.3
LDW Subsurface Sediment 2006	LDW-SC17	1268446	206551	1.0	2	3	2	No	No	-	LDW-SC17-6-8.2	6	8.6	>CSL	3.24	No	Total PCBs	1900		µg/kg dw	Yes	59	No	Yes	0.91	4.9
LDW Subsurface Sediment 2006	LDW-SC18	1267927	206334	1.0	2	3	1	No	No	-	LDW-SC18-0-1	0	1	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC18	1267927	206334	1.0	2	3	1	No	No	-	LDW-SC18-1-2	1	2	>SQS, ≤CSL, ND												
LDW Subsurface Sediment 2006	LDW-SC18	1267927	206334	1.0	2	3	1	No	No	-	LDW-SC18-2-4	2	4	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC19	1266968	206222	1.0	5	6	2	No	No	-	LDW-SC19-0-1	0	1	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC19	1266968	206222	1.0	5	6	2	No	No	-	LDW-SC19-1-2	1	2	>SQS, ≤CSL	1.7	No	Total PCBs	233		µg/kg dw	Yes	14	No	Yes	0.22	1.2
LDW Subsurface Sediment 2006	LDW-SC19	1266968	206222	1.0	5	6	2	No	No	-	LDW-SC19-2-4	2	4	>SQS, ≤CSL	1.56	No	Total PCBs	250		µg/kg dw	Yes	16	No	Yes	0.25	1.3
LDW Subsurface Sediment 2006	LDW-SC19	1266968	206222	1.0	5	6	2	No	No	-	LDW-SC19-4-6	4	6	>SQS, ≤CSL	1.26	No	Total PCBs	440		µg/kg dw	Yes	35	No	Yes	0.54	2.9
LDW Subsurface Sediment 2006	LDW-SC19	1266968	206222	1.0	5	6	2	No	No	-	LDW-SC19-6-7	6	7	>CSL	1.54	No	Total PCBs	2400		µg/kg dw	Yes	160	Yes	Yes	2.5	13
LDW Subsurface Sediment 2006	LDW-SC19	1266968	206222	1.0	5	6	2	No	No	-	LDW-SC19-9-11.9	9	11.9	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC20	1267735	206178	1.0	2	3	2	No	No	-	LDW-SC20-0-2	0	2	>CSL	1.49	No	Mercury	0.65		mg/kg dw	Yes		Yes	Yes	1.1	1.6
LDW Subsurface Sediment 2006	LDW-SC20	1267735	206178	1.0	2	3	2	No	No	-	LDW-SC20-0-2	0	2	>CSL	1.49	No	Total PCBs	3200		µg/kg dw	Yes	210	Yes	Yes	3.2	18
LDW Subsurface Sediment 2006	LDW-SC20	1267735	206178	1.0	2	3	2	No	No	-	LDW-SC20-2-4	2	4	>SQS, ≤CSL	1.5	No	Total PCBs	600		µg/kg dw	Yes	40	No	Yes	0.62	3.3
LDW Subsurface Sediment 2006	LDW-SC20	1267735	206178	1.0	2	3	2	No	No	-	LDW-SC20-4-6	4	6	>SQS, ≤CSL	2.22	No	Total PCBs	400		µg/kg dw	Yes	18	No	Yes	0.28	1.5
LDW Subsurface Sediment 2006	LDW-SC20	1267735	206178	1.0	2	3	2	No	No	-	LDW-SC20-8-10	8	10	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC21	1267488	206168	1.0	2	3	1	No	No	-	LDW-SC21-0-1	0	1	>SQS, ≤CSL	1.98	No	Total PCBs	250		µg/kg dw	Yes	13	No	Yes	0.2	1.1
LDW Subsurface Sediment 2006	LDW-SC21	1267488	206168	1.0	2	3	1	No	No	-	LDW-SC21-1-2	1	2	>SQS, ≤CSL, ND												
LDW Subsurface Sediment 2006	LDW-SC21	1267488	206168	1.0	2	3	1	No	No	-	LDW-SC21-2-4	2	4	>SQS, ≤CSL	1.64	No	Total PCBs	380	J	µg/kg dw	Yes	23	No	Yes	0.35	1.9
LDW Subsurface Sediment 2006	LDW-SC21	1267488	206168	1.0	2	3	1	No	No	-	LDW-SC21-4-6.2	4	6.2	>CSL	1.94	No	Total PCBs	1680		µg/kg dw	Yes	87	Yes	Yes	1.3	7.3
LDW Subsurface Sediment 2006	LDW-SC21	1267488	206168	1.0	2	3	1	No	No	-	LDW-SC21-6.2-8	6.2	8	<SQS												
LDW Subsurface Sediment 2006	LDW-SC21	1267488	206168	1.0	2	3	1	No	No	-	LDW-SC21-10-11.3	10	11.3	≤SQS												
Lehigh NW	A1	1268045	206036	1.1	6	6	1	Yes	Yes	2004	C-1	0	4.4	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC22	1268174	205908	1.1	3	not dredged	3	No	No	-	LDW-SC22-0-1.1	0	1.1	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC22	1268174	205908	1.1	3	not dredged	3	No	No	-	LDW-SC22-1.1-2	1.1	2	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC22	1268174	205908	1.1	3	not dredged	3	No	No	-	LDW-SC22-2-4	2	4	>SQS, ≤CSL, ND												
EPA SI	DR025	1268230	205416	1.2	6	6	2	No	No	-	SD-DR025-0000A	0	2	>SQS, ≤CSL, ND												
EPA SI	DR025	1268230	205416	1.2	6	6	2	No	No	-	SD-DR025-0020	2	4	>CSL	2.54	No	Mercury	0.75		mg/kg dw	Yes		Yes	Yes	1.3	1.8
EPA SI	DR025	1268230	205416	1.2	6	6	2	No	No	-	SD-DR025-0020	2	4	>CSL	2.54	No	Total PCBs	1150		µg/kg dw	Yes	45	No	Yes	0.69	3.8
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	No	-	LDW-SC23-0-0.5	0	0.5	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	No	-	LDW-SC23-0.5-1	0.5	1	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	No	-	LDW-SC23-1-1.5	1	1.5	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	No	-	LDW-SC23-1.5-2	1.5	2	>SQS, ≤CSL, ND												
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	No	-	LDW-SC23-2-2.5	2	2.5	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	No	-	LDW-SC23-2-4	2	4	>SQS, ≤CSL	2.14	No	Benzo(a)anthracene	3200		µg/kg dw	Yes	150	No	Yes	0.56	1.4
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	No	-	LDW-SC23-2-4	2	4	>SQS, ≤CSL	2.14	No	Benzo(a)pyrene	2500		µg/kg dw	Yes	120	No	Yes	0.57	1.2
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	No	-	LDW-SC23-2-4	2	4	>SQS, ≤CSL	2.14	No	Chrysene	7200		µg/kg dw	Yes	340	No	Yes	0.74	3.1
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	No	-	LDW-SC23-2-4	2	4	>SQS, ≤CSL	2.14	No	Fluoranthene	7400	J	µg/kg dw	Yes	350	No	Yes	0.29	2.2
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	No	-	LDW-SC23-2-4	2	4	>SQS, ≤CSL	2.14	No	Total benzofluoranthenes	6000		µg/kg dw	Yes	280	No	Yes	0.62	1.2
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	No	-	LDW-SC23-2-4	2	4	>SQS, ≤CSL	2.14	No	Total HPAHs	31500	J	µg/kg dw	Yes	1500	No	Yes	0.28	1.6
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	No	-	LDW-SC23-2-4	2	4	>SQS, ≤CSL	2.14	No	BEHP	1600		µg/kg dw	Yes	75	No	Yes	0.96	1.6

Table G-1 Detected SMS Contaminants Exceeding the SQS in Cores — River Miles 0 to 1.9

Core Information											Sample Information						Detected SMS Contaminants Exceeding the SQS									
Task	Core Location Name	X[a]	Y[a]	River Mile	FS Removal-Emphasis Alternative when Area is First Dredged[b]	FS Combined-Technologies Alternative when Area is First Dredged[c]	Recovery Category	Collected for Dredge Material Characterization?[d]	Historically Dredged?[d]	Dredge Year[d]	Sample Name	Upper Sample Depth (ft recovered)	Lower Sample Depth (ft recovered)	SMS Assignment for Sample (maximum exceedance status in sample)[e]	TOC[f]	AET Substitution?[f]	SMS Contaminant	Concen-tration	Qualifier	Unit	Detected	OC-Normalized Concentration (mg/kg oc), if applicable	Exceeds CSL/2LAET?	Exceeds SQS/LAET?	Exceedance Factor CSL	Exceedance Factor SQS
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	No	-	LDW-SC23-2.5-3	2.5	3	>SQS, ≤CSL	1.39	No	Acenaphthene	570		µg/kg dw	Yes	41	No	Yes	0.72	2.6
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	No	-	LDW-SC23-3-3.5	3	3.5	>CSL	1.3	No	Acenaphthene	2100		µg/kg dw	Yes	160	Yes	Yes	2.8	10
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	No	-	LDW-SC23-3-3.5	3	3.5	>CSL	1.3	No	Anthracene	8800		µg/kg dw	Yes	680	No	Yes	0.57	3.1
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	No	-	LDW-SC23-3-3.5	3	3.5	>CSL	1.3	No	Benzo(a)anthracene	7100		µg/kg dw	Yes	550	Yes	Yes	2	5
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	No	-	LDW-SC23-3-3.5	3	3.5	>CSL	1.3	No	Benzo(a)pyrene	3000		µg/kg dw	Yes	230	Yes	Yes	1.1	2.3
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	No	-	LDW-SC23-3-3.5	3	3.5	>CSL	1.3	No	Benzo(g,h,i)perylene	730		µg/kg dw	Yes	56	No	Yes	0.72	1.8
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	No	-	LDW-SC23-3-3.5	3	3.5	>CSL	1.3	No	Chrysene	7800		µg/kg dw	Yes	600	Yes	Yes	1.3	5.5
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	No	-	LDW-SC23-3-3.5	3	3.5	>CSL	1.3	No	Dibenzo(a,h)anthracene	180		µg/kg dw	Yes	14	No	Yes	0.42	1.2
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	No	-	LDW-SC23-3-3.5	3	3.5	>CSL	1.3	No	Dibenzofuran	650		µg/kg dw	Yes	50	No	Yes	0.86	3.3
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	No	-	LDW-SC23-3-3.5	3	3.5	>CSL	1.3	No	Fluoranthene	24000		µg/kg dw	Yes	1800	Yes	Yes	1.5	11
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	No	-	LDW-SC23-3-3.5	3	3.5	>CSL	1.3	No	Fluorene	1800		µg/kg dw	Yes	140	Yes	Yes	1.8	6.1
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	No	-	LDW-SC23-3-3.5	3	3.5	>CSL	1.3	No	Indeno(1,2,3-cd)pyrene	930		µg/kg dw	Yes	72	No	Yes	0.82	2.1
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	No	-	LDW-SC23-3-3.5	3	3.5	>CSL	1.3	No	Phenanthrene	12000		µg/kg dw	Yes	920	Yes	Yes	1.9	9.2
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	No	-	LDW-SC23-3-3.5	3	3.5	>CSL	1.3	No	Pyrene	14000		µg/kg dw	Yes	1100	No	Yes	0.79	1.1
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	No	-	LDW-SC23-3-3.5	3	3.5	>CSL	1.3	No	Total benzofluoranthenes	6400		µg/kg dw	Yes	490	Yes	Yes	1.1	2.1
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	No	-	LDW-SC23-3-3.5	3	3.5	>CSL	1.3	No	Total HPAHs	64000		µg/kg dw	Yes	4900	No	Yes	0.92	5.1
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	No	-	LDW-SC23-3-3.5	3	3.5	>CSL	1.3	No	Total LPAHs	25000		µg/kg dw	Yes	1900	Yes	Yes	2.4	5.1
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	No	-	LDW-SC23-3-3.5	3	3.5	>CSL	1.3	No	BEHP	780		µg/kg dw	Yes	60	No	Yes	0.77	1.3
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	No	-	LDW-SC23-3.5-4	3.5	4	>CSL	2.29	No	Acenaphthene	1500		µg/kg dw	Yes	66	Yes	Yes	1.2	4.1
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	No	-	LDW-SC23-3.5-4	3.5	4	>CSL	2.29	No	Benzo(a)anthracene	2700		µg/kg dw	Yes	120	No	Yes	0.44	1.1
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	No	-	LDW-SC23-3.5-4	3.5	4	>CSL	2.29	No	Chrysene	3100		µg/kg dw	Yes	140	No	Yes	0.3	1.3
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	No	-	LDW-SC23-3.5-4	3.5	4	>CSL	2.29	No	Fluoranthene	10000		µg/kg dw	Yes	440	No	Yes	0.37	2.8
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	No	-	LDW-SC23-3.5-4	3.5	4	>CSL	2.29	No	Total HPAHs	25000		µg/kg dw	Yes	1100	No	Yes	0.21	1.1
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	No	-	LDW-SC23-4-6	4	6	>SQS, ≤CSL	1.46	No	Total PCBs	880		µg/kg dw	Yes	60	No	Yes	0.92	5
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	No	-	LDW-SC23-6-8	6	8	>SQS, ≤CSL	2.25	No	Total PCBs	400		µg/kg dw	Yes	18	No	Yes	0.28	1.5
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	No	-	LDW-SC23-8-10.2	8	10.2	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC24	1267861	205130	1.2	4	4	1	No	No	-	LDW-SC24-0-1	0	1	>SQS, ≤CSL	1.99	No	Total PCBs	280		µg/kg dw	Yes	14	No	Yes	0.22	1.2
LDW Subsurface Sediment 2006	LDW-SC24	1267861	205130	1.2	4	4	1	No	No	-	LDW-SC24-1-2	1	2	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC24	1267861	205130	1.2	4	4	1	No	No	-	LDW-SC24-2-4	2	4	≤SQS												
EPA SI	DR054	1268074	204727	1.3	2	3	1	No	No	-	SD-DR054-0000A	0	2	>CSL	1.99	No	Arsenic	280		mg/kg dw	Yes		Yes	Yes	3	4.9
EPA SI	DR054	1268074	204727	1.3	2	3	1	No	No	-	SD-DR054-0000A	0	2	>CSL	1.99	No	Copper	800		mg/kg dw	Yes		Yes	Yes	2.1	2.1
EPA SI	DR054	1268074	204727	1.3	2	3	1	No	No	-	SD-DR054-0000A	0	2	>CSL	1.99	No	Zinc	1600		mg/kg dw	Yes		Yes	Yes	1.7	3.9
EPA SI	DR054	1268074	204727	1.3	2	3	1	No	No	-	SD-DR054-0000A	0	2	>CSL	1.99	No	Total PCBs	250		µg/kg dw	Yes	13	No	Yes	0.2	1.1
EPA SI	DR054	1268074	204727	1.3	2	3	1	No	No	-	SD-DR054-0000A	0	2	>CSL	1.99	No	BEHP	1200		µg/kg dw	Yes	60	No	Yes	0.77	1.3
EPA SI	DR054	1268074	204727	1.3	2	3	1	No	No	-	SD-DR054-0020	2	4	>CSL	1.46	No	Arsenic	620		mg/kg dw	Yes		Yes	Yes	6.7	11
EPA SI	DR054	1268074	204727	1.3	2	3	1	No	No	-	SD-DR054-0020	2	4	>CSL	1.46	No	Copper	720		mg/kg dw	Yes		Yes	Yes	1.8	1.8
EPA SI	DR054	1268074	204727	1.3	2	3	1	No	No	-	SD-DR054-0020	2	4	>CSL	1.46	No	Lead	630		mg/kg dw	Yes		Yes	Yes	1.2	1.4
EPA SI	DR054	1268074	204727	1.3	2	3	1	No	No	-	SD-DR054-0020	2	4	>CSL	1.46	No	Mercury	1.4		mg/kg dw	Yes		Yes	Yes	2.4	3.4
EPA SI	DR054	1268074	204727	1.3	2	3	1	No	No	-	SD-DR054-0020	2	4	>CSL	1.46	No	Zinc	1400		mg/kg dw	Yes		Yes	Yes	1.5	3.4
EPA SI	DR054	1268074	204727	1.3	2	3	1	No	No	-	SD-DR054-0020	2	4	>CSL	1.46	No	Benzo(g,h,i)perylene	720		µg/kg dw	Yes	49	No	Yes	0.63	1.6
EPA SI	DR054	1268074	204727	1.3	2	3	1	No	No	-	SD-DR054-0020	2	4	>CSL	1.46	No	Chrysene	1700		µg/kg dw	Yes	120	No	Yes	0.26	1.1
EPA SI	DR054	1268074	204727	1.3	2	3	1	No	No	-	SD-DR054-0020	2	4	>CSL	1.46	No	Dibenzo(a,h)anthracene	220		µg/kg dw	Yes	15	No	Yes	0.45	1.3
EPA SI	DR054	1268074	204727	1.3	2	3	1	No	No	-	SD-DR054-0020	2	4	>CSL	1.46	No	Fluoranthene	3400		µg/kg dw	Yes	230	No	Yes	0.19	1.4
EPA SI	DR054	1268074	204727	1.3	2	3	1	No	No	-	SD-DR054-0020	2	4	>CSL	1.46	No	Indeno(1,2,3-cd)pyrene	850		µg/kg dw	Yes	58	No	Yes	0.66	1.7
EPA SI	DR054	1268074	204727	1.3	2	3	1	No	No	-	SD-DR054-0020	2	4	>CSL	1.46	No	Total HPAHs	15100		µg/kg dw	Yes	1000	No	Yes	0.19	1
EPA SI	DR054	1268074	204727	1.3	2	3	1	No	No	-	SD-DR054-0020	2	4	>CSL	1.46	No	Total PCBs	750		µg/kg dw	Yes	51	No	Yes	0.78	4.3
EPA SI	DR054	1268074	204727	1.3	2	3	1	No	No	-	SD-DR054-0020	2	4	>CSL	1.46	No	BEHP	710		µg/kg dw	Yes	49	No	Yes	0.63	1
LDW Subsurface Sediment 2006	LDW-SC25	1267979	204751	1.3	2	3	1	No	No	-	LDW-SC25-0-1	0	1	>SQS, ≤CSL	1.94	No	Total PCBs	310		µg/kg dw	Yes	16	No	Yes	0.25	1.3
LDW Subsurface Sediment 2006	LDW-SC25	1267979	204751	1.3	2	3	1	No	No	-	LDW-SC25-1-2	1	2	>SQS, ≤CSL	1.47	No	Arsenic	91		mg/kg dw	Yes		No	Yes	0.98	1.6
LDW Subsurface Sediment 2006	LDW-SC25	1267979	204751	1.3	2	3	1	No	No	-	LDW-SC25-1-2	1	2	>SQS, ≤CSL	1.47	No	Zinc	503		mg/kg dw	Yes		No	Yes	0.52	1.2
LDW Subsurface Sediment 2006	LDW-SC25	1267979	204751	1.3	2	3	1	No	No	-	LDW-SC25-1-2	1	2	>SQS, ≤CSL	1.47	No	Total PCBs	360		µg/kg dw	Yes	24	No	Yes	0.37	2
LDW Subsurface Sediment 2006	LDW-SC25	1267979	204751	1.3	2	3	1	No	No	-	LDW-SC25-2-4	2	4	>CSL	1.69	No	Arsenic	170		mg/kg dw	Yes		Yes	Yes	1.8	3
LDW Subsurface Sediment 2006	LDW-SC25	1267979	204751	1.3	2	3	1	No	No	-	LDW-SC25-2-4	2	4	>CSL	1.69	No	Copper	541		mg/kg dw	Yes		Yes	Yes	1.4	1.4
LDW Subsurface Sediment 2006	LDW-SC25	1267979	204751	1.3	2	3	1	No	No	-	LDW-SC25-2-4	2	4	>CSL	1.69	No	Zinc	750		mg/kg dw	Yes		No	Yes	0.78	1.8
LDW Subsurface Sediment 2006	LDW-SC25	1267979	204751	1.3	2	3	1	No	No	-	LDW-SC25-2-4	2	4	>CSL	1.69	No	Total PCBs	430		µg/kg dw	Yes	25	No	Yes	0.38	2.1
LDW Subsurface Sediment 2006	LDW-SC25	1267979	204751	1.3	2	3	1	No	No	-	LDW-SC25-4-6	4	6	>CSL	1.63	No	Arsenic	250		mg/kg dw	Yes		Yes	Yes	2.7	4.4

Table G-1 Detected SMS Contaminants Exceeding the SQS in Cores — River Miles 0 to 1.9

Core Information											Sample Information						Detected SMS Contaminants Exceeding the SQS									
Task	Core Location Name	X[a]	Y[a]	River Mile	FS Removal-Emphasis Alternative when Area is First Dredged[b]	FS Combined-Technologies Alternative when Area is First Dredged[c]	Recovery Category	Collected for Dredge Material Characterization?[d]	Historically Dredged?[d]	Dredge Year[d]	Sample Name	Upper Sample Depth (ft recovered)	Lower Sample Depth (ft recovered)	SMS Assignment for Sample (maximum exceedance status in sample)[e]	TOC[f]	AET Substitution?[f]	SMS Contaminant	Concen-tration	Qualifier	Unit	Detected	OC-Normalized Concentration (mg/kg oc), if applicable	Exceeds CSL/2LAET?	Exceeds SQS/LAET?	Exceedance Factor CSL	Exceedance Factor SQS
LDW Subsurface Sediment 2006	LDW-SC25	1267979	204751	1.3	2	3	1	No	No	-	LDW-SC25-4-6	4	6	>CSL	1.63	No	Copper	663		mg/kg dw	Yes		Yes	Yes	1.7	1.7
LDW Subsurface Sediment 2006	LDW-SC25	1267979	204751	1.3	2	3	1	No	No	-	LDW-SC25-4-6	4	6	>CSL	1.63	No	Zinc	1420		mg/kg dw	Yes		Yes	Yes	1.5	3.5
LDW Subsurface Sediment 2006	LDW-SC25	1267979	204751	1.3	2	3	1	No	No	-	LDW-SC25-4-6	4	6	>CSL	1.63	No	Total PCBs	800	J	µg/kg dw	Yes	49	No	Yes	0.75	4.1
LDW Subsurface Sediment 2006	LDW-SC25	1267979	204751	1.3	2	3	1	No	No	-	LDW-SC25-8-9.1	8	9.1	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC26	1268157	204480	1.4	2	3	1	No	No	-	LDW-SC26-0-1	0	1	>SQS, ≤CSL	1.4	No	Total PCBs	280		µg/kg dw	Yes	20	No	Yes	0.31	1.7
LDW Subsurface Sediment 2006	LDW-SC26	1268157	204480	1.4	2	3	1	No	No	-	LDW-SC26-1-2	1	2	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC26	1268157	204480	1.4	2	3	1	No	No	-	LDW-SC26-2-4	2	4	>CSL	2.08	No	Arsenic	67		mg/kg dw	Yes		No	Yes	0.72	1.2
LDW Subsurface Sediment 2006	LDW-SC26	1268157	204480	1.4	2	3	1	No	No	-	LDW-SC26-2-4	2	4	>CSL	2.08	No	Copper	544		mg/kg dw	Yes		Yes	Yes	1.4	1.4
LDW Subsurface Sediment 2006	LDW-SC26	1268157	204480	1.4	2	3	1	No	No	-	LDW-SC26-2-4	2	4	>CSL	2.08	No	Mercury	0.69	J	mg/kg dw	Yes		Yes	Yes	1.2	1.7
LDW Subsurface Sediment 2006	LDW-SC26	1268157	204480	1.4	2	3	1	No	No	-	LDW-SC26-2-4	2	4	>CSL	2.08	No	Total PCBs	310		µg/kg dw	Yes	15	No	Yes	0.23	1.3
LDW Subsurface Sediment 2006	LDW-SC26	1268157	204480	1.4	2	3	1	No	No	-	LDW-SC26-6-8	6	8	>CSL	1.88	No	Arsenic	1890		mg/kg dw	Yes		Yes	Yes	20	33
LDW Subsurface Sediment 2006	LDW-SC26	1268157	204480	1.4	2	3	1	No	No	-	LDW-SC26-6-8	6	8	>CSL	1.88	No	Copper	1950		mg/kg dw	Yes		Yes	Yes	5	5
LDW Subsurface Sediment 2006	LDW-SC26	1268157	204480	1.4	2	3	1	No	No	-	LDW-SC26-6-8	6	8	>CSL	1.88	No	Lead	1350		mg/kg dw	Yes		Yes	Yes	2.5	3
LDW Subsurface Sediment 2006	LDW-SC26	1268157	204480	1.4	2	3	1	No	No	-	LDW-SC26-6-8	6	8	>CSL	1.88	No	Mercury	4.34		mg/kg dw	Yes		Yes	Yes	7.4	11
LDW Subsurface Sediment 2006	LDW-SC26	1268157	204480	1.4	2	3	1	No	No	-	LDW-SC26-6-8	6	8	>CSL	1.88	No	Zinc	3700		mg/kg dw	Yes		Yes	Yes	3.9	9
LDW Subsurface Sediment 2006	LDW-SC26	1268157	204480	1.4	2	3	1	No	No	-	LDW-SC26-6-8	6	8	>CSL	1.88	No	1,2-Dichlorobenzene	73		µg/kg dw	Yes	3.9	Yes	Yes	1.7	1.7
LDW Subsurface Sediment 2006	LDW-SC26	1268157	204480	1.4	2	3	1	No	No	-	LDW-SC26-6-8	6	8	>CSL	1.88	No	Pentachlorophenol	800		µg/kg dw	Yes		Yes	Yes	1.2	2.2
LDW Subsurface Sediment 2006	LDW-SC26	1268157	204480	1.4	2	3	1	No	No	-	LDW-SC26-6-8	6	8	>CSL	1.88	No	Acenaphthene	900		µg/kg dw	Yes	48	No	Yes	0.84	3
LDW Subsurface Sediment 2006	LDW-SC26	1268157	204480	1.4	2	3	1	No	No	-	LDW-SC26-6-8	6	8	>CSL	1.88	No	Benzo(a)anthracene	3700		µg/kg dw	Yes	200	No	Yes	0.74	1.8
LDW Subsurface Sediment 2006	LDW-SC26	1268157	204480	1.4	2	3	1	No	No	-	LDW-SC26-6-8	6	8	>CSL	1.88	No	Benzo(a)pyrene	2800		µg/kg dw	Yes	150	No	Yes	0.71	1.5
LDW Subsurface Sediment 2006	LDW-SC26	1268157	204480	1.4	2	3	1	No	No	-	LDW-SC26-6-8	6	8	>CSL	1.88	No	Benzo(g,h,i)perylene	1000		µg/kg dw	Yes	53	No	Yes	0.68	1.7
LDW Subsurface Sediment 2006	LDW-SC26	1268157	204480	1.4	2	3	1	No	No	-	LDW-SC26-6-8	6	8	>CSL	1.88	No	Chrysene	3900		µg/kg dw	Yes	210	No	Yes	0.46	1.9
LDW Subsurface Sediment 2006	LDW-SC26	1268157	204480	1.4	2	3	1	No	No	-	LDW-SC26-6-8	6	8	>CSL	1.88	No	Dibenzo(a,h)anthracene	400	J	µg/kg dw	Yes	21	No	Yes	0.64	1.8
LDW Subsurface Sediment 2006	LDW-SC26	1268157	204480	1.4	2	3	1	No	No	-	LDW-SC26-6-8	6	8	>CSL	1.88	No	Dibenzofuran	360		µg/kg dw	Yes	19	No	Yes	0.33	1.3
LDW Subsurface Sediment 2006	LDW-SC26	1268157	204480	1.4	2	3	1	No	No	-	LDW-SC26-6-8	6	8	>CSL	1.88	No	Fluoranthene	10000		µg/kg dw	Yes	530	No	Yes	0.44	3.3
LDW Subsurface Sediment 2006	LDW-SC26	1268157	204480	1.4	2	3	1	No	No	-	LDW-SC26-6-8	6	8	>CSL	1.88	No	Indeno(1,2,3-cd)pyrene	1000		µg/kg dw	Yes	53	No	Yes	0.6	1.6
LDW Subsurface Sediment 2006	LDW-SC26	1268157	204480	1.4	2	3	1	No	No	-	LDW-SC26-6-8	6	8	>CSL	1.88	No	Phenanthrene	5600		µg/kg dw	Yes	300	No	Yes	0.63	3
LDW Subsurface Sediment 2006	LDW-SC26	1268157	204480	1.4	2	3	1	No	No	-	LDW-SC26-6-8	6	8	>CSL	1.88	No	Total benzofluoranthenes	5200		µg/kg dw	Yes	280	No	Yes	0.62	1.2
LDW Subsurface Sediment 2006	LDW-SC26	1268157	204480	1.4	2	3	1	No	No	-	LDW-SC26-6-8	6	8	>CSL	1.88	No	Total HPAHs	38000	J	µg/kg dw	Yes	2000	No	Yes	0.38	2.1
LDW Subsurface Sediment 2006	LDW-SC26	1268157	204480	1.4	2	3	1	No	No	-	LDW-SC26-6-8	6	8	>CSL	1.88	No	Total LPAHs	8500	J	µg/kg dw	Yes	450	No	Yes	0.58	1.2
LDW Subsurface Sediment 2006	LDW-SC26	1268157	204480	1.4	2	3	1	No	No	-	LDW-SC26-6-8	6	8	>CSL	1.88	No	Total PCBs	2300		µg/kg dw	Yes	120	Yes	Yes	1.8	10
LDW Subsurface Sediment 2006	LDW-SC26	1268157	204480	1.4	2	3	1	No	No	-	LDW-SC26-6-8	6	8	>CSL	1.88	No	BEHP	3800		µg/kg dw	Yes	200	Yes	Yes	2.6	4.3
LDW Subsurface Sediment 2006	LDW-SC26	1268157	204480	1.4	2	3	1	No	No	-	LDW-SC26-11.1-12.1	11.1	12.1	>SQS, ≤CSL	0.912	No	Total PCBs	140		µg/kg dw	Yes	15	No	Yes	0.23	1.3
LDW Subsurface Sediment 2006	LDW-SC27	1268519	204443	1.4	3	6	3	No	No	-	LDW-SC27-0-0.5	0	0.5	>SQS, ≤CSL	1.54	No	Total PCBs	250		µg/kg dw	Yes	16	No	Yes	0.25	1.3
LDW Subsurface Sediment 2006	LDW-SC27	1268519	204443	1.4	3	6	3	No	No	-	LDW-SC27-0-2	0	2	>CSL	2.24	No	Mercury	0.52		mg/kg dw	Yes		No	Yes	0.88	1.3
LDW Subsurface Sediment 2006	LDW-SC27	1268519	204443	1.4	3	6	3	No	No	-	LDW-SC27-0-2	0	2	>CSL	2.24	No	Total PCBs	3300		µg/kg dw	Yes	150	Yes	Yes	2.3	13
LDW Subsurface Sediment 2006	LDW-SC27	1268519	204443	1.4	3	6	3	No	No	-	LDW-SC27-0.5-1	0.5	1	>CSL	1.8	No	Total PCBs	2000		µg/kg dw	Yes	110	Yes	Yes	1.7	9.2
LDW Subsurface Sediment 2006	LDW-SC27	1268519	204443	1.4	3	6	3	No	No	-	LDW-SC27-1-1.5	1	1.5	>CSL	1.22	No	Total PCBs	3200		µg/kg dw	Yes	260	Yes	Yes	4	22
LDW Subsurface Sediment 2006	LDW-SC27	1268519	204443	1.4	3	6	3	No	No	-	LDW-SC27-1.5-2	1.5	2	>CSL	1.82	No	Total PCBs	1510		µg/kg dw	Yes	83	Yes	Yes	1.3	6.9
LDW Subsurface Sediment 2006	LDW-SC27	1268519	204443	1.4	3	6	3	No	No	-	LDW-SC27-2-2.5	2	2.5	>SQS, ≤CSL	2.14	No	Total PCBs	840		µg/kg dw	Yes	39	No	Yes	0.6	3.3
LDW Subsurface Sediment 2006	LDW-SC27	1268519	204443	1.4	3	6	3	No	No	-	LDW-SC27-2.5-3	2.5	3	>SQS, ≤CSL	2.27	No	Total PCBs	290		µg/kg dw	Yes	13	No	Yes	0.2	1.1
LDW Subsurface Sediment 2006	LDW-SC27	1268519	204443	1.4	3	6	3	No	No	-	LDW-SC27-3-3.5	3	3.5	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC27	1268519	204443	1.4	3	6	3	No	No	-	LDW-SC27-3.5-4	3.5	4	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC27	1268519	204443	1.4	3	6	3	No	No	-	LDW-SC27-4-4.5	4	4.5	≤SQS												

Table G-1 Detected SMS Contaminants Exceeding the SQS in Cores — River Miles 0 to 1.9

Core Information											Sample Information						Detected SMS Contaminants Exceeding the SQS									
Task	Core Location Name	X[a]	Y[a]	River Mile	FS Removal-Emphasis Alternative when Area is First Dredged[b]	FS Combined-Technologies Alternative when Area is First Dredged[c]	Recovery Category	Collected for Dredge Material Characterization?[d]	Historically Dredged?[d]	Dredge Year[d]	Sample Name	Upper Sample Depth (ft recovered)	Lower Sample Depth (ft recovered)	SMS Assignment for Sample (maximum exceedance status in sample)[e]	TOC[f]	AET Substitution?[f]	SMS Contaminant	Concen-tration	Qualifier	Unit	Detected	OC-Normalized Concentration (mg/kg oc), if applicable	Exceeds CSL/2LAET?	Exceeds SQS/LAET?	Exceedance Factor CSL	Exceedance Factor SQS
LDW Subsurface Sediment 2006	LDW-SC28	1268253	204225	1.4	2	3	1	No	No	-	LDW-SC28-0-1	0	1	>CSL	2.59	No	Arsenic	114		mg/kg dw	Yes		Yes	Yes	1.2	2
LDW Subsurface Sediment 2006	LDW-SC28	1268253	204225	1.4	2	3	1	No	No	-	LDW-SC28-0-1	0	1	>CSL	2.59	No	Benzyl alcohol	110		µg/kg dw	Yes		Yes	Yes	1.5	1.9
LDW Subsurface Sediment 2006	LDW-SC28	1268253	204225	1.4	2	3	1	No	No	-	LDW-SC28-0-1	0	1	>CSL	2.59	No	Total PCBs	440		µg/kg dw	Yes	17	No	Yes	0.26	1.4
LDW Subsurface Sediment 2006	LDW-SC28	1268253	204225	1.4	2	3	1	No	No	-	LDW-SC28-1-2	1	2	>SQS, ≤CSL	2.07	No	Total PCBs	360	J	µg/kg dw	Yes	17	No	Yes	0.26	1.4
LDW Subsurface Sediment 2006	LDW-SC28	1268253	204225	1.4	2	3	1	No	No	-	LDW-SC28-2-4	2	4	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC28	1268253	204225	1.4	2	3	1	No	No	-	LDW-SC28-5.5-7.5	5.5	7.5	>CSL	1.61	No	Arsenic	760		mg/kg dw	Yes		Yes	Yes	8.2	13
LDW Subsurface Sediment 2006	LDW-SC28	1268253	204225	1.4	2	3	1	No	No	-	LDW-SC28-5.5-7.5	5.5	7.5	>CSL	1.61	No	Copper	1480		mg/kg dw	Yes		Yes	Yes	3.8	3.8
LDW Subsurface Sediment 2006	LDW-SC28	1268253	204225	1.4	2	3	1	No	No	-	LDW-SC28-5.5-7.5	5.5	7.5	>CSL	1.61	No	Lead	583		mg/kg dw	Yes		Yes	Yes	1.1	1.3
LDW Subsurface Sediment 2006	LDW-SC28	1268253	204225	1.4	2	3	1	No	No	-	LDW-SC28-5.5-7.5	5.5	7.5	>CSL	1.61	No	Mercury	0.72		mg/kg dw	Yes		Yes	Yes	1.2	1.8
LDW Subsurface Sediment 2006	LDW-SC28	1268253	204225	1.4	2	3	1	No	No	-	LDW-SC28-5.5-7.5	5.5	7.5	>CSL	1.61	No	Zinc	1880		mg/kg dw	Yes		Yes	Yes	2	4.6
LDW Subsurface Sediment 2006	LDW-SC28	1268253	204225	1.4	2	3	1	No	No	-	LDW-SC28-5.5-7.5	5.5	7.5	>CSL	1.61	No	1,2-Dichlorobenzene	160		µg/kg dw	Yes	9.9	Yes	Yes	4.3	4.3
LDW Subsurface Sediment 2006	LDW-SC28	1268253	204225	1.4	2	3	1	No	No	-	LDW-SC28-5.5-7.5	5.5	7.5	>CSL	1.61	No	Pentachlorophenol	410		µg/kg dw	Yes		No	Yes	0.59	1.1
LDW Subsurface Sediment 2006	LDW-SC28	1268253	204225	1.4	2	3	1	No	No	-	LDW-SC28-5.5-7.5	5.5	7.5	>CSL	1.61	No	Fluoranthene	4100		µg/kg dw	Yes	250	No	Yes	0.21	1.6
LDW Subsurface Sediment 2006	LDW-SC28	1268253	204225	1.4	2	3	1	No	No	-	LDW-SC28-5.5-7.5	5.5	7.5	>CSL	1.61	No	Phenanthrene	1700		µg/kg dw	Yes	110	No	Yes	0.23	1.1
LDW Subsurface Sediment 2006	LDW-SC28	1268253	204225	1.4	2	3	1	No	No	-	LDW-SC28-5.5-7.5	5.5	7.5	>CSL	1.61	No	Total PCBs	3200		µg/kg dw	Yes	200	Yes	Yes	3.1	17
LDW Subsurface Sediment 2006	LDW-SC28	1268253	204225	1.4	2	3	1	No	No	-	LDW-SC28-5.5-7.5	5.5	7.5	>CSL	1.61	No	BEHP	1000		µg/kg dw	Yes	62	No	Yes	0.79	1.3
LDW Subsurface Sediment 2006	LDW-SC28	1268253	204225	1.4	2	3	1	No	No	-	LDW-SC28-12-12.6	12	12.6	>SQS, ≤CSL	1.31	No	Total PCBs	540		µg/kg dw	Yes	41	No	Yes	0.63	3.4
LDW Subsurface Sediment 2006	LDW-SC29	1268061	204054	1.4	2	3	3	No	No	-	LDW-SC29-0-1	0	1	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC29	1268061	204054	1.4	2	3	3	No	No	-	LDW-SC29-1-2	1	2	>SQS, ≤CSL, ND												
LDW Subsurface Sediment 2006	LDW-SC29	1268061	204054	1.4	2	3	3	No	No	-	LDW-SC29-2-3.6	2	3.6	≤SQS												
Glacier NW	SCDMMU3	1268206	204169	1.4	2	3	1	Yes	Yes	2005	SCDMMU3	0	5.6	>CSL	2.27	No	Arsenic	181		mg/kg dw	Yes		Yes	Yes	1.9	3.2
Glacier NW	SCDMMU3	1268206	204169	1.4	2	3	1	Yes	Yes	2005	SCDMMU3	0	5.6	>CSL	2.27	No	Zinc	765		mg/kg dw	Yes		No	Yes	0.8	1.9
Glacier NW	SCDMMU3	1268206	204169	1.4	2	3	1	Yes	Yes	2005	SCDMMU3	0	5.6	>CSL	2.27	No	Total PCBs	630		µg/kg dw	Yes	28	No	Yes	0.43	2.3
Lone Star 92	C-1	1268275	203789	1.5	3	3	1	Yes	Yes	1992	C-1	0	4	>SQS, ≤CSL	2	No	Arsenic	87		mg/kg dw	Yes		No	Yes	0.94	1.5
Lone Star 92	C-1	1268275	203789	1.5	3	3	1	Yes	Yes	1992	C-1	0	4	>SQS, ≤CSL	2	No	Total PCBs	300		µg/kg dw	Yes	15	No	Yes	0.23	1.3
Glacier NW	SCDMMU1	1268338	203745	1.5	3	3	2	Yes	Yes	2005	SCDMMU1	0	2.7	>CSL, ND												
Glacier NW	SCDMMU2	1268280	203995	1.5	2	3	1	Yes	Yes	2005	SCDMMU2	0	2.2	>CSL, ND												
Glacier NW	SCDMMU2R	1268280	203995	1.5	2	3	1	Yes	Yes	2005	SCDMMU2R-Z	3	4	>CSL	2.38	No	Arsenic	63.3		mg/kg dw	Yes		No	Yes	0.68	1.1
Glacier NW	SCDMMU2R	1268280	203995	1.5	2	3	1	Yes	Yes	2005	SCDMMU2R-Z	3	4	>CSL	2.38	No	Mercury	0.6		mg/kg dw	Yes		Yes	Yes	1	1.5
Hardie Gypsum-1	1	1268851	203302	1.6	6	not dredged	1	Yes	Yes	1999	1	0	4	>SQS, ≤CSL, ND												
Hardie Gypsum-1	2	1268883	203173	1.6	4	4	1	Yes	Yes	1999	2	0	4	>SQS, ≤CSL	2.3	No	Total PCBs	290		µg/kg dw	Yes	13	No	Yes	0.2	1.1
Hardie Gypsum-2	2b	1268892	203155	1.6	4	4	1	Yes	Yes	1999	2b	0	3	>SQS, ≤CSL, ND												
Hardie Gypsum-2	A	1268872	203206	1.6	4	4	1	Yes	Yes	1999	A	0	3	≤SQS												
Hardie Gypsum-2	B	1268916	203178	1.6	4	4	1	Yes	Yes	1999	B	0	3	>SQS, ≤CSL, ND												
Lone Star-Hardie Gypsum	c-3	1268925	203167	1.6	4	4	1	Yes	Yes	1995	c-3	0	4.6	>SQS, ≤CSL, ND												
Lone Star-Hardie Gypsum	c-4	1268760	203523	1.6	4	6	3	Yes	Yes	1995	c-4	0	4	>SQS, ≤CSL, ND												
Lone Star-Hardie Gypsum	c-4	1268760	203523	1.6	4	6	3	Yes	Yes	1995	c-5	4	12	>SQS, ≤CSL, ND												
LDW Subsurface Sediment 2006	LDW-SC30	1268784	203576	1.6	4	6	3	No	No	-	LDW-SC30-0-2.5	0	2.5	>SQS, ≤CSL, ND												
LDW Subsurface Sediment 2006	LDW-SC30	1268784	203576	1.6	4	6	3	No	No	-	LDW-SC30-2.5-4	2.5	4	≤SQS												
Hardie Gypsum-1	3 (HG-1)	1268962	202989	1.7	4	4	1	Yes	Yes	1999	4	0	4	>SQS, ≤CSL, ND												
Hardie Gypsum-2	3 (HG-2)	1268958	202981	1.7	4	4	1	Yes	Yes	1999	4	0	3	>SQS, ≤CSL, ND												
Hardie Gypsum-1	4 (HG-1)	1268987	202873	1.7	4	not dredged	1	Yes	Yes	1999	4	0	4	>SQS, ≤CSL	2	No	Hexachlorobenzene	13		µg/kg dw	Yes	0.65	No	Yes	0.28	1.7
Hardie Gypsum-1	4 (HG-1)	1268987	202873	1.7	4	not dredged	1	Yes	Yes	1999	4	0	4	>SQS, ≤CSL	2	No	Total PCBs	300		µg/kg dw	Yes	15	No	Yes	0.23	1.3
Hardie Gypsum-2	4 (HG-2)	1268974	202866	1.7	4	not dredged	1	Yes	Yes	1999	4	0	3	>SQS, ≤CSL, ND												
Hardie Gypsum-1	5 (HG-1)	1268997	202773	1.7	4	not dredged	1	Yes	Yes	1999	5	0	4	>SQS, ≤CSL, ND												
Hardie Gypsum-2	5.2 (HG-2)	1269023	202728	1.7	4	not dredged	1	Yes	Yes	1999	5	0	3	≤SQS												
Hardie Gypsum-2	C	1268981	203013	1.7	4	4	1	Yes	Yes	1999	C	0	3	>SQS, ≤CSL	1.9	No	Phenanthrene	2200		µg/kg dw	Yes	120	No	Yes	0.25	1.2
Lone Star-Hardie Gypsum	c-1	1269036	202783	1.7	4	not dredged	1	Yes	Yes	1995	c-1	0	4	>SQS, ≤CSL, ND												
Lone Star-Hardie Gypsum	c-2	1268972	202971	1.7	4	4	1	Yes	Yes	1995	c-2	0	5	>SQS, ≤CSL, ND												
Hardie Gypsum-2	D	1269020	202886	1.7	4	not dredged	1	Yes	Yes	1999	D	0	3	>SQS, ≤CSL	1.8	No	Mercury	0.43		mg/kg dw	Yes		No	Yes	0.73	1
Hardie Gypsum-2	D	1269020	202886	1.7	4	not dredged	1	Yes	Yes	1999	D	0	3	>SQS, ≤CSL	1.8	No	Total PCBs	1010		µg/kg dw	Yes	56	No	Yes	0.86	4.7
EPA SI	DR101	1269108	202682	1.7	6	6	1	No	No	-	SD-DR101-0000A	0	2	>SQS, ≤CSL, ND												
EPA SI	DR101	1269108	202682	1.7	6	6	1	No	No	-	SD-DR101-0020	2	4	>SQS, ≤CSL	2.34	No	BEHP	1400		µg/kg dw	Yes	60	No	Yes	0.77	1.3
Hardie Gypsum-2	E	1269034	202730	1.7	4	not dredged	1	Yes	Yes	1999	E	0	3	>SQS, ≤CSL	1.5	No	Total PCBs	590		µg/kg dw	Yes	39	No	Yes	0.6	3.3
LDW Subsurface Sediment 2006	LDW-SC31	1268935	203092	1.7	4	4	1	No	No	-	LDW-SC31-0-1	0	1	>SQS, ≤CSL	2.52	No	Total PCBs	370		µg/kg dw	Yes	15	No	Yes	0.23	1.3
LDW Subsurface Sediment 2006	LDW-SC31	1268935	203092	1.7	4	4	1	No	No	-	LDW-SC31-1-2.8	1	2.8	>SQS, ≤CSL	2.18	No	Total PCBs	330		µg/kg dw	Yes	15	No	Yes	0.23	1.3
LDW Subsurface Sediment 2006	LDW-SC31	1268935	203092	1.7	4	4	1	No	No	-	LDW-SC31-2.8-4	2.8	4	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC32	1269345	202959	1.7	5	not dredged	3	No	No	-	LDW-SC32-0-1	0	1	>SQS, ≤CSL	1.81	No	Total PCBs	1010		µg/kg dw	Yes	56	No	Yes	0.86	4.7
LDW Subsurface Sediment 2006	LDW-SC32	1269345	202959	1.7	5	not dredged	3	No	No	-	LDW-SC32-1-2	1	2	>CSL	1.16	No	Acenaphthene	1400		µg/kg dw	Yes	120	Yes	Yes	2.1	7.5
LDW Subsurface Sediment 2006	LDW-SC32	1269345	202959	1.7	5	not dredged	3	No	No	-	LDW-SC32-1-2	1	2	>CSL	1.16	No	Dibenzofuran	1200		µg/kg dw	Yes	100	Yes	Yes	1.7	6.7

Table G-1 Detected SMS Contaminants Exceeding the SQS in Cores — River Miles 0 to 1.9

Core Information											Sample Information						Detected SMS Contaminants Exceeding the SQS									
Task	Core Location Name	X[a]	Y[a]	River Mile	FS Removal-Emphasis Alternative when Area is First Dredged[b]	FS Combined-Technologies Alternative when Area is First Dredged[c]	Recovery Category	Collected for Dredge Material Characterization?[d]	Historically Dredged?[d]	Dredge Year[d]	Sample Name	Upper Sample Depth (ft recovered)	Lower Sample Depth (ft recovered)	SMS Assignment for Sample (maximum exceedance status in sample)[e]	TOC[f]	AET Substitution?[f]	SMS Contaminant	Concen-tration	Qualifier	Unit	Detected	OC-Normalized Concentration (mg/kg oc), if applicable	Exceeds CSL/2LAET?	Exceeds SQS/LAET?	Exceedance Factor CSL	Exceedance Factor SQS
LDW Subsurface Sediment 2006	LDW-SC32	1269345	202959	1.7	5	not dredged	3	No	No	-	LDW-SC32-1-2	1	2	>CSL	1.16	No	Fluoranthene	2500		µg/kg dw	Yes	220	No	Yes	0.18	1.4
LDW Subsurface Sediment 2006	LDW-SC32	1269345	202959	1.7	5	not dredged	3	No	No	-	LDW-SC32-1-2	1	2	>CSL	1.16	No	Fluorene	1900		µg/kg dw	Yes	160	Yes	Yes	2	7
LDW Subsurface Sediment 2006	LDW-SC32	1269345	202959	1.7	5	not dredged	3	No	No	-	LDW-SC32-1-2	1	2	>CSL	1.16	No	Phenanthrene	3700		µg/kg dw	Yes	320	No	Yes	0.67	3.2
LDW Subsurface Sediment 2006	LDW-SC32	1269345	202959	1.7	5	not dredged	3	No	No	-	LDW-SC32-1-2	1	2	>CSL	1.16	No	Total LPAHs	7500		µg/kg dw	Yes	650	No	Yes	0.83	1.8
LDW Subsurface Sediment 2006	LDW-SC32	1269345	202959	1.7	5	not dredged	3	No	No	-	LDW-SC32-1-2	1	2	>CSL	1.16	No	Total PCBs	1720		µg/kg dw	Yes	150	Yes	Yes	2.3	13
LDW Subsurface Sediment 2006	LDW-SC32	1269345	202959	1.7	5	not dredged	3	No	No	-	LDW-SC32-1-2	1	2	>CSL	1.16	No	BEHP	650		µg/kg dw	Yes	56	No	Yes	0.72	1.2
LDW Subsurface Sediment 2006	LDW-SC32	1269345	202959	1.7	5	not dredged	3	No	No	-	LDW-SC32-2-4	2	4	>CSL	1.47	No	Acenaphthene	300		µg/kg dw	Yes	20	No	Yes	0.35	1.3
LDW Subsurface Sediment 2006	LDW-SC32	1269345	202959	1.7	5	not dredged	3	No	No	-	LDW-SC32-2-4	2	4	>CSL	1.47	No	Total PCBs	2450		µg/kg dw	Yes	170	Yes	Yes	2.6	14
LDW Subsurface Sediment 2006	LDW-SC32	1269345	202959	1.7	5	not dredged	3	No	No	-	LDW-SC32-5.2-8	5.2	8	>SQS, ≤CSL, ND												
PSDDA99	S1	1268863	202577	1.8	6	6	3	Yes	No	-	S1	0	4	>SQS, ≤CSL, ND												
T115	S1-01	1268671	202394	1.8	5	not dredged	3	Yes	Yes	2009	T115-S1-CS-0803	0	3	>CSL	2.59	No	Benzo(a)anthracene	6800		µg/kg dw	Yes	260	No	Yes	0.96	2.4
T115	S1-01	1268671	202394	1.8	5	not dredged	3	Yes	Yes	2009	T115-S1-CS-0803	0	3	>CSL	2.59	No	Benzo(a)pyrene	3400		µg/kg dw	Yes	130	No	Yes	0.62	1.3
T115	S1-01	1268671	202394	1.8	5	not dredged	3	Yes	Yes	2009	T115-S1-CS-0803	0	3	>CSL	2.59	No	Chrysene	16000		µg/kg dw	Yes	620	Yes	Yes	1.3	5.6
T115	S1-01	1268671	202394	1.8	5	not dredged	3	Yes	Yes	2009	T115-S1-CS-0803	0	3	>CSL	2.59	No	Fluoranthene	47000		µg/kg dw	Yes	1800	Yes	Yes	1.5	11
T115	S1-01	1268671	202394	1.8	5	not dredged	3	Yes	Yes	2009	T115-S1-CS-0803	0	3	>CSL	2.59	No	Pyrene	34000		µg/kg dw	Yes	1300	No	Yes	0.93	1.3
T115	S1-01	1268671	202394	1.8	5	not dredged	3	Yes	Yes	2009	T115-S1-CS-0803	0	3	>CSL	2.59	No	Total benzofluoranthenes	14200		µg/kg dw	Yes	548	Yes	Yes	1.2	2.4
T115	S1-01	1268671	202394	1.8	5	not dredged	3	Yes	Yes	2009	T115-S1-CS-0803	0	3	>CSL	2.59	No	Total HPAHs	123000		µg/kg dw	Yes	4750	No	Yes	0.9	4.9
T115	S1-01	1268671	202394	1.8	5	not dredged	3	Yes	Yes	2009	T115-S1-ZA-0803	3	4	>SQS, ≤CSL, ND												
T115	S1-02	1268725	202252	1.8	2	3	1	Yes	Yes	2009	T115-S1-02-ZA-0803	3	4	>SQS, ≤CSL	1.98	No	Chrysene	2600	J	µg/kg dw	Yes	130	No	Yes	0.28	1.2
T115	S1-02	1268725	202252	1.8	2	3	1	Yes	Yes	2009	T115-S1-02-ZA-0803	3	4	>SQS, ≤CSL	1.98	No	Fluoranthene	7400	J	µg/kg dw	Yes	370	No	Yes	0.31	2.3
T115	S1-02	1268725	202252	1.8	2	3	1	Yes	Yes	2009	T115-S1-02-ZA-0803	3	4	>SQS, ≤CSL	1.98	No	Total HPAHs	19500	J	µg/kg dw	Yes	985	No	Yes	0.19	1
T115	S1-02	1268725	202252	1.8	2	3	1	Yes	Yes	2009	T115-S1-02-ZB-0803	4	4.7	>SQS, ≤CSL, ND												
PSDDA99	S2	1268952	202446	1.8	6	6	3	Yes	No	-	S2	0	4	>SQS, ≤CSL, ND												
T115	S2-01	1268765	202119	1.8	2	3	1	Yes	Yes	2009	T115-S2-CS-0803	0	3	>CSL	1.84	No	BEHP	6700	J	µg/kg dw	Yes	360	Yes	Yes	4.6	7.7
T115	S2-01	1268765	202119	1.8	2	3	1	Yes	Yes	2009	T115-S2-01-ZA-0803	3	4	>SQS, ≤CSL	2.23	No	Total PCBs	300		µg/kg dw	Yes	13	No	Yes	0.2	1.1
T115	S2-01	1268765	202119	1.8	2	3	1	Yes	Yes	2009	T115-S2-01-ZB-0803	4	5	>SQS, ≤CSL	1.89	No	Total PCBs	260		µg/kg dw	Yes	14	No	Yes	0.22	1.2
T115	S2-01	1268765	202119	1.8	2	3	1	Yes	Yes	2009	T115-S2-01-ZC-0803	5	6	>SQS, ≤CSL	5.25	Yes	Total PCBs	180		µg/kg dw	Yes		No	Yes	0.18	1.4
T115	S2-02	1268791	202044	1.8	2	3	1	Yes	Yes	2009	T115-S2-02-ZA-0803	3	4	>SQS, ≤CSL	1.6	No	BEHP	1000	J	µg/kg dw	Yes	63	No	Yes	0.81	1.3
T115	S2-02	1268791	202044	1.8	2	3	1	Yes	Yes	2009	T115-S2-02-ZB-0803	4	5	>CSL	5.02	Yes	Chrysene	1500		µg/kg dw	Yes		No	Yes	0.54	1.1
T115	S2-02	1268791	202044	1.8	2	3	1	Yes	Yes	2009	T115-S2-02-ZB-0803	4	5	>CSL	5.02	Yes	Pyrene	4600		µg/kg dw	Yes		Yes	Yes	1.4	1.8
T115	S2-02	1268791	202044	1.8	2	3	1	Yes	Yes	2009	T115-S2-02-ZB-0803	4	5	>CSL	5.02	Yes	Total PCBs	320	J	µg/kg dw	Yes		No	Yes	0.32	2.5
T115	S2-02	1268791	202044	1.8	2	3	1	Yes	Yes	2009	T115-S2-02-ZC-0803	5	6	>SQS, ≤CSL, ND												
PSDDA99	S3	1268980	202348	1.8	6	6	3	Yes	No	-	S3	0	4	>SQS, ≤CSL, ND												
PSDDA99	S4	1269020	202252	1.8	6	6	3	Yes	No	-	S4	0	4	>SQS, ≤CSL, ND												
PSDDA99	S5	1269042	202166	1.8	6	6	3	Yes	No	-	S5	0	4	>SQS, ≤CSL, ND												
PSDDA99	B1	1269154	202036	1.9	6	6	3	Yes	No	-	B1	4	8	>SQS, ≤CSL	1.5	No	Total PCBs	220		µg/kg dw	Yes	15	No	Yes	0.23	1.3
LDW Subsurface Sediment 2006	LDW-SC201	1269268	202052	1.9	3	not dredged	3	No	No	-	LDW-SC201-0-1.5	0	1.5	>CSL	1.88	No	Lead	772		mg/kg dw	Yes		Yes	Yes	1.5	1.7
LDW Subsurface Sediment 2006	LDW-SC201	1269268	202052	1.9	3	not dredged	3	No	No	-	LDW-SC201-0-1.5	0	1.5	>CSL	1.88	No	Total PCBs	1450		µg/kg dw	Yes	77	Yes	Yes	1.2	6.4
LDW Subsurface Sediment 2006	LDW-SC201	1269268	202052	1.9	3	not dredged	3	No	No	-	LDW-SC201-1.5-4	1.5	4	>SQS, ≤CSL	1.33	No	Total PCBs	530	J	µg/kg dw	Yes	40	No	Yes	0.62	3.3
LDW Subsurface Sediment 2006	LDW-SC201	1269268	202052	1.9	3	not dredged	3	No	No	-	LDW-SC201-4-6	4	6	>SQS, ≤CSL	2.13	No	Acenaphthene	710		µg/kg dw	Yes	33	No	Yes	0.58	2.1
LDW Subsurface Sediment 2006	LDW-SC201	1269268	202052	1.9	3	not dredged	3	No	No	-	LDW-SC201-4-6	4	6	>SQS, ≤CSL	2.13	No	Fluoranthene	5000		µg/kg dw	Yes	230	No	Yes	0.19	1.4
LDW Subsurface Sediment 2006	LDW-SC201	1269268	202052	1.9	3	not dredged	3	No	No	-	LDW-SC201-4-6	4	6	>SQS, ≤CSL	2.13	No	Fluorene	510		µg/kg dw	Yes	24	No	Yes	0.3	1
LDW Subsurface Sediment 2006	LDW-SC201	1269268	202052	1.9	3	not dredged	3	No	No	-	LDW-SC201-4-6	4	6	>SQS, ≤CSL	2.13	No	Total PCBs	340		µg/kg dw	Yes	16	No	Yes	0.25	1.3
LDW Subsurface Sediment 2006	LDW-SC201	1269268	202052	1.9	3	not dredged	3	No	No	-	LDW-SC201-8-10	8	10	>SQS, ≤CSL, ND												
LDW Subsurface Sediment 2006	LDW-SC203	1268832	202013	1.9	2	3	1	No	No	-	LDW-SC203-0-1	0	1	>SQS, ≤CSL	3.27	No	Benzyl alcohol	66		µg/kg dw	Yes		No	Yes	0.9	1.2
LDW Subsurface Sediment 2006	LDW-SC203	1268832	202013	1.9	2	3	1	No	No	-	LDW-SC203-0-1	0	1	>SQS, ≤CSL	3.27	No	BEHP	1800		µg/kg dw	Yes	55	No	Yes	0.71	1.2
LDW Subsurface Sediment 2006	LDW-SC203	1268832	202013	1.9	2	3	1	No	No	-	LDW-SC203-0-1	0	1	>SQS, ≤CSL	3.27	No	Butyl benzyl phthalate	380		µg/kg dw	Yes	12	No	Yes	0.19	2.4
LDW Subsurface Sediment 2006	LDW-SC203	1268832	202013	1.9	2	3	1	No	No	-	LDW-SC203-1-2	1	2	>CSL	2.91	No	BEHP	2600		µg/kg dw	Yes	89	Yes	Yes	1.1	1.9
LDW Subsurface Sediment 2006	LDW-SC203	1268832	202013	1.9	2	3	1	No	No	-	LDW-SC203-1-2	1	2	>CSL	2.91	No	Butyl benzyl phthalate	400		µg/kg dw	Yes	14	No	Yes	0.22	2.9
LDW Subsurface Sediment 2006	LDW-SC203	1268832	202013	1.9	2	3	1	No	No	-	LDW-SC203-2-4	2	4	>CSL	2.59	No	Butyl benzyl phthalate	140		µg/kg dw	Yes	5.4	No	Yes	0.084	1.1
LDW Subsurface Sediment 2006	LDW-SC203	1268832	202013	1.9	2	3	1	No	No	-	LDW-SC203-2-4	2	4	>CSL	2.59	No	Dimethyl phthalate	8800		µg/kg dw	Yes	340	Yes	Yes	6.4	6.4
LDW Subsurface Sediment 2006	LDW-SC203	1268832	202013	1.9	2	3	1	No	No	-	LDW-SC203-4-6	4	6	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC33	1269267	202053	1.9	3	not dredged	3	No	No	-	LDW-SC33-0-0.5	0	0.5	>SQS, ≤CSL	1.76	No	Total PCBs	490		µg/kg dw	Yes	28	No	Yes	0.43	2.3
LDW Subsurface Sediment 2006	LDW-SC33	1269267	202053	1.9	3	not dredged	3	No	No	-	LDW-SC33-0-2	0	2	>CSL	3.34	No	Pentachlorophenol	730		µg/kg dw	Yes		Yes	Yes	1.1	2
LDW Subsurface Sediment 2006	LDW-SC33	1269267	202053	1.9	3	not dredged	3	No	No	-	LDW-SC33-0-2	0	2	>CSL	3.34	No	Total PCBs	3100		µg/kg dw	Yes	93	Yes	Yes	1.4	7.8
LDW Subsurface Sediment 2006	LDW-SC33	1269267	202053	1.9	3	not dredged	3	No	No	-	LDW-SC33-0.5-1	0.5	1	>SQS, ≤CSL	2.14	No	Total PCBs	790		µg/kg dw	Yes	37	No	Yes	0.57	3.1
LDW Subsurface Sediment 2006	LDW-SC33	1269267	202053	1.9	3	not dredged	3	No	No	-	LDW-SC33-1-1.5	1	1.5	>CSL	2.53	No	Total PCBs	4700		µg/kg dw	Yes	190	Yes	Yes	2.9	16
LDW Subsurface Sediment 2006	LDW-SC33	1269267	202053	1.9	3	not dredged	3	No	No	-	LDW-SC33-1.5-2	1.5	2	>CSL	2.42	No	Total PCBs	2500	J	µg/kg dw	Yes	100	Yes	Yes	1.5	8.3
LDW Subsurface Sediment 2006	LDW-SC33	1269267	202053	1.9	3	not dredged	3	No	No	-	LDW-SC33-2-2.5	2	2.5	>SQS, ≤CSL	1.35	No	Total PCBs	210		µg/kg dw	Yes	16	No	Yes	0.25	1.3
LDW Subsurface Sediment 2006	LDW-SC33	1269267	202053	1.9	3	not dredged	3	No	No	-	LDW-SC33-2-4	2	4	>SQS, ≤CSL	1.62	No	Total PCBs	420		µg/kg dw	Yes	26	No	Yes	0.4	2.2

Table G-1 Detected SMS Contaminants Exceeding the SQS in Cores — River Miles 0 to 1.9

Core Information											Sample Information						Detected SMS Contaminants Exceeding the SQS									
Task	Core Location Name	X[a]	Y[a]	River Mile	FS Removal-Emphasis Alternative when Area is First Dredged[b]	FS Combined-Technologies Alternative when Area is First Dredged[c]	Recovery Category	Collected for Dredge Material Characterization?[d]	Historically Dredged?[d]	Dredge Year[d]	Sample Name	Upper Sample Depth (ft recovered)	Lower Sample Depth (ft recovered)	SMS Assignment for Sample (maximum exceedance status in sample)[e]	TOC[f]	AET Substitution?[f]	SMS Contaminant	Concen-tration	Qualifier	Unit	Detected	OC-Normalized Concentration (mg/kg oc), if applicable	Exceeds CSL/2LAET?	Exceeds SQS/LAET?	Exceedance Factor CSL	Exceedance Factor SQS
LDW Subsurface Sediment 2006	LDW-SC33	1269267	202053	1.9	3	not dredged	3	No	No	-	LDW-SC33-2.5-3	2.5	3	>SQS, ≤CSL	1.98	No	Total PCBs	940		µg/kg dw	Yes	47	No	Yes	0.72	3.9
LDW Subsurface Sediment 2006	LDW-SC33	1269267	202053	1.9	3	not dredged	3	No	No	-	LDW-SC33-4-6	4	6	>SQS, ≤CSL	2.1	No	Acenaphthene	1000		µg/kg dw	Yes	48	No	Yes	0.84	3
LDW Subsurface Sediment 2006	LDW-SC33	1269267	202053	1.9	3	not dredged	3	No	No	-	LDW-SC33-4-6	4	6	>SQS, ≤CSL	2.1	No	Dibenzofuran	380		µg/kg dw	Yes	18	No	Yes	0.31	1.2
LDW Subsurface Sediment 2006	LDW-SC33	1269267	202053	1.9	3	not dredged	3	No	No	-	LDW-SC33-4-6	4	6	>SQS, ≤CSL	2.1	No	Fluorene	630		µg/kg dw	Yes	30	No	Yes	0.38	1.3
LDW Subsurface Sediment 2006	LDW-SC33	1269267	202053	1.9	3	not dredged	3	No	No	-	LDW-SC33-4-6	4	6	>SQS, ≤CSL	2.1	No	Total PCBs	280		µg/kg dw	Yes	13	No	Yes	0.2	1.1
LDW Subsurface Sediment 2006	LDW-SC33	1269267	202053	1.9	3	not dredged	3	No	No	-	LDW-SC33-8-10	8	10	>SQS, ≤CSL, ND											
LDW Subsurface Sediment 2006	LDW-SC34	1268831	202016	1.9	2	3	1	No	No	-	LDW-SC34-0-1	0	1	>SQS, ≤CSL	2.9	No	Butyl benzyl phthalate	440		µg/kg dw	Yes	15	No	Yes	0.23	3.1
LDW Subsurface Sediment 2006	LDW-SC34	1268831	202016	1.9	2	3	1	No	No	-	LDW-SC34-1-2	1	2	>CSL	3.02	No	Benzyl alcohol	210		µg/kg dw	Yes		Yes	Yes	2.9	3.7
LDW Subsurface Sediment 2006	LDW-SC34	1268831	202016	1.9	2	3	1	No	No	-	LDW-SC34-1-2	1	2	>CSL	3.02	No	BEHP	3900		µg/kg dw	Yes	130	Yes	Yes	1.7	2.8
LDW Subsurface Sediment 2006	LDW-SC34	1268831	202016	1.9	2	3	1	No	No	-	LDW-SC34-1-2	1	2	>CSL	3.02	No	Butyl benzyl phthalate	400		µg/kg dw	Yes	13	No	Yes	0.2	2.7
LDW Subsurface Sediment 2006	LDW-SC34	1268831	202016	1.9	2	3	1	No	No	-	LDW-SC34-2-4	2	4	≤SQS											
LDW Subsurface Sediment 2006	LDW-SC35	1269260	201604	1.9	3	4	3	No	No	-	LDW-SC35-0-2	0	2	>SQS, ≤CSL	1.86	No	Total PCBs	370	J	µg/kg dw	Yes	20	No	Yes	0.31	1.7
LDW Subsurface Sediment 2006	LDW-SC35	1269260	201604	1.9	3	4	3	No	No	-	LDW-SC35-2-4	2	4	≤SQS											
PSDDA99	S10	1269353	201769	1.9	6	6	3	Yes	No	-	S10	0	4	>SQS, ≤CSL, ND											
PSDDA99	S6	1269111	202083	1.9	6	6	3	Yes	No	-	S6	0	4	>SQS, ≤CSL, ND											
PSDDA99	S7	1269130	201979	1.9	outside of AOPCs	outside of AOPCs	3	Yes	No	-	S7	0	4	>SQS, ≤CSL, ND											
PSDDA99	S8	1269220	201915	1.9	6	6	3	Yes	No	-	S8	0	4	>SQS, ≤CSL, ND											
PSDDA99	S9	1269264	201827	1.9	6	6	3	Yes	No	-	S9	0	4	>SQS, ≤CSL, ND											

Notes

a. Datum: NAD 1983 Washington State Plane North (feet).

b. Indicates lowest-numbered remedial alternative when the core is subject to dredging or to partial dredging/ capping for Alternatives 2R/2R-CAD, 3R, 4R, 5R/5R-T, and 6R.

c. Indicates lowest-numbered remedial alternative when the core is subject to dredging or to partial dredging/ capping for Alternatives 3C, 4C, 5C, and 6C.
Note that if a removal alternative is dredged, but the corresponding combined alternative is not dredged, then the combined alternative is actively remediated with capping or ENR.

d. The column titled "Collected for Dredge Material Characterization" identifies whether cores were collected to support a proposed dredging project. The "yes" entries in this column match the dredging footnotes in the stick diagrams. Much of the information about dredging comes from open water disposal suitability determinations written prior to dredging, not from reports confirming the dredging itself. In those instances where there is no confirmation that the dredging occurred, the "historically dredge" column is populated with "no," and the dredge year is blank. This matches the entries in the FS database.

e. Maximum SMS exceedance status for sample. Delineation matches color coding in stick diagrams.

f. Cells are populated only if sample has detected exceedances of the SQS. Then the TOC and AET substitution describe whether non-polar organic compounds are compared to the SQS/CSL (organic carbon normalized concentration) or the LAET/2LAET (dry weight concentration).

AET = apparent effects threshold; AOPC = area of potential concern; BEHP = bis(2-ethylhexyl)phthalate; CSL = cleanup screening level; LAET = lowest apparent effects threshold (2LAET = 2nd lowest); ND = not detected; oc = organic carbon; PAHs = polycyclic aromatic hydrocarbons;
PCB = polychlorinated biphenyl; SMS = Sediment Management Standards; SQS = sediment quality standard; SVOCs = semivolatile organic compounds; TOC = total organic carbon.

Table G-2 Detected SMS Contaminants Exceeding the SQS in Cores – River Miles 2.0 to 4.0

Core Information											Sample Information						Detected SMS Contaminants Exceeding the SQS									
Task	Core Location Name	X[a]	Y[a]	River Mile	FS Removal-Emphasis Alternative when Area is First Dredged[b]	FS Combined-Technologies Alternative when Area is First Dredged[c]	Recovery Category	Collected for Dredge Material Characterization?[d]	Historically Dredged?[d]	Dredge Year[d]	Sample Name	Upper Sample Depth (ft recovered)	Lower Sample Depth (ft recovered)	SMS Assignment for Sample (maximum exceedance status in sample)[e]	TOC[f]	AET Substitution?[f]	SMS Contaminant	Concen-tration	Qualifier	Unit	Detected	OC-Normalized Concentration (mg/kg oc), if applicable	Exceeds CSL/2LAET?	Exceeds SQS/LAET?	Exceedance Factor CSL	Exceedance Factor SQS
PSDDA99	S11	1269400	201666	2.0	4	4	3	Yes	No	-	S11	0	4	>SQS, ≤CSL	2	No	Total PCBs	720		µg/kg dw	Yes	36	No	Yes	0.55	3
PSDDA99	S12	1269510	201597	2.0	4	4	3	Yes	No	-	S12	0	4	>SQS, ≤CSL	2.4	No	Total PCBs	680		µg/kg dw	Yes	28	No	Yes	0.43	2.3
PSDDA99	B2	1269979	201124	2.1	5	not dredged	3	Yes	No	-	B2	4	8	>SQS, ≤CSL	2.1	No	Total PCBs	380		µg/kg dw	Yes	18	No	Yes	0.28	1.5
EPA SI	DR106	1270217	201545	2.1	6	not dredged	3	No	No	-	SD-DR106-0000A	0	2	>SQS, ≤CSL, ND												
EPA SI	DR106	1270217	201545	2.1	6	not dredged	3	No	No	-	SD-DR106-0020	2	4	>SQS, ≤CSL, ND												
EPA SI	DR112	1270202	201166	2.1	4	4	2	No	No	-	SD-DR112-0000A	0	2	>SQS, ≤CSL, ND												
EPA SI	DR112	1270202	201166	2.1	4	4	2	No	No	-	SD-DR112-0020	2	4	>SQS, ≤CSL, ND												
LDW Subsurface Sediment 2006	LDW-SC202	1269986	201491	2.1	6	not dredged	3	No	No	-	LDW-SC202-0-1	0	1	>SQS, ≤CSL, ND												
LDW Subsurface Sediment 2006	LDW-SC202	1269986	201491	2.1	6	not dredged	3	No	No	-	LDW-SC202-1-2	1	2	>SQS, ≤CSL, ND												
LDW Subsurface Sediment 2006	LDW-SC202	1269986	201491	2.1	6	not dredged	3	No	No	-	LDW-SC202-2-4	2	4	>SQS, ≤CSL, ND												
LDW Subsurface Sediment 2006	LDW-SC36	1269990	201489	2.1	6	not dredged	3	No	No	-	LDW-SC36-0-1	0	1	>SQS, ≤CSL, ND												
LDW Subsurface Sediment 2006	LDW-SC36	1269990	201489	2.1	6	not dredged	3	No	No	-	LDW-SC36-1-2	1	2	>SQS, ≤CSL, ND												
LDW Subsurface Sediment 2006	LDW-SC36	1269990	201489	2.1	6	not dredged	3	No	No	-	LDW-SC36-2-4	2	4	>SQS, ≤CSL, ND												
LDW Subsurface Sediment 2006	LDW-SC37	1270691	201436	2.1	3	3	2	No	No	-	LDW-SC37-0-1	0	1	>CSL	2.25	No	Arsenic	150		mg/kg dw	Yes		Yes	Yes	1.6	2.6
LDW Subsurface Sediment 2006	LDW-SC37	1270691	201436	2.1	3	3	2	No	No	-	LDW-SC37-0-1	0	1	>CSL	2.25	No	Total PCBs	450		µg/kg dw	Yes	20	No	Yes	0.31	1.7
LDW Subsurface Sediment 2006	LDW-SC37	1270691	201436	2.1	3	3	2	No	No	-	LDW-SC37-1-2	1	2	>CSL	2.67	No	Arsenic	121		mg/kg dw	Yes		Yes	Yes	1.3	2.1
LDW Subsurface Sediment 2006	LDW-SC37	1270691	201436	2.1	3	3	2	No	No	-	LDW-SC37-1-2	1	2	>CSL	2.67	No	Mercury	0.45	J	mg/kg dw	Yes		No	Yes	0.76	1.1
LDW Subsurface Sediment 2006	LDW-SC37	1270691	201436	2.1	3	3	2	No	No	-	LDW-SC37-1-2	1	2	>CSL	2.67	No	Zinc	490		mg/kg dw	Yes		No	Yes	0.51	1.2
LDW Subsurface Sediment 2006	LDW-SC37	1270691	201436	2.1	3	3	2	No	No	-	LDW-SC37-1-2	1	2	>CSL	2.67	No	Benzo(a) anthracene	3100		µg/kg dw	Yes	120	No	Yes	0.44	1.1
LDW Subsurface Sediment 2006	LDW-SC37	1270691	201436	2.1	3	3	2	No	No	-	LDW-SC37-1-2	1	2	>CSL	2.67	No	Benzo(a)pyrene	5300		µg/kg dw	Yes	200	No	Yes	0.95	2
LDW Subsurface Sediment 2006	LDW-SC37	1270691	201436	2.1	3	3	2	No	No	-	LDW-SC37-1-2	1	2	>CSL	2.67	No	Benzo(g,h,i) perylene	1000		µg/kg dw	Yes	37	No	Yes	0.47	1.2
LDW Subsurface Sediment 2006	LDW-SC37	1270691	201436	2.1	3	3	2	No	No	-	LDW-SC37-1-2	1	2	>CSL	2.67	No	Chrysene	4800		µg/kg dw	Yes	180	No	Yes	0.39	1.6
LDW Subsurface Sediment 2006	LDW-SC37	1270691	201436	2.1	3	3	2	No	No	-	LDW-SC37-1-2	1	2	>CSL	2.67	No	Dibenzo(a,h) anthracene	360		µg/kg dw	Yes	13	No	Yes	0.39	1.1
LDW Subsurface Sediment 2006	LDW-SC37	1270691	201436	2.1	3	3	2	No	No	-	LDW-SC37-1-2	1	2	>CSL	2.67	No	Fluoranthene	4500		µg/kg dw	Yes	170	No	Yes	0.14	1.1
LDW Subsurface Sediment 2006	LDW-SC37	1270691	201436	2.1	3	3	2	No	No	-	LDW-SC37-1-2	1	2	>CSL	2.67	No	Indeno(1,2,3-cd)pyrene	1500		µg/kg dw	Yes	56	No	Yes	0.64	1.6
LDW Subsurface Sediment 2006	LDW-SC37	1270691	201436	2.1	3	3	2	No	No	-	LDW-SC37-1-2	1	2	>CSL	2.67	No	Total benzofluoranthenes	10200		µg/kg dw	Yes	380	No	Yes	0.84	1.7
LDW Subsurface Sediment 2006	LDW-SC37	1270691	201436	2.1	3	3	2	No	No	-	LDW-SC37-1-2	1	2	>CSL	2.67	No	Total HPAHs	40000		µg/kg dw	Yes	1500	No	Yes	0.28	1.6
LDW Subsurface Sediment 2006	LDW-SC37	1270691	201436	2.1	3	3	2	No	No	-	LDW-SC37-1-2	1	2	>CSL	2.67	No	Total PCBs	950	J	µg/kg dw	Yes	36	No	Yes	0.55	3
LDW Subsurface Sediment 2006	LDW-SC37	1270691	201436	2.1	3	3	2	No	No	-	LDW-SC37-2-4	2	4	>CSL	2.24	No	Arsenic	2000		mg/kg dw	Yes		Yes	Yes	22	35
LDW Subsurface Sediment 2006	LDW-SC37	1270691	201436	2.1	3	3	2	No	No	-	LDW-SC37-2-4	2	4	>CSL	2.24	No	Copper	2940		mg/kg dw	Yes		Yes	Yes	7.5	7.5
LDW Subsurface Sediment 2006	LDW-SC37	1270691	201436	2.1	3	3	2	No	No	-	LDW-SC37-2-4	2	4	>CSL	2.24	No	Lead	3520	J	mg/kg dw	Yes		Yes	Yes	6.6	7.8
LDW Subsurface Sediment 2006	LDW-SC37	1270691	201436	2.1	3	3	2	No	No	-	LDW-SC37-2-4	2	4	>CSL	2.24	No	Zinc	4720		mg/kg dw	Yes		Yes	Yes	4.9	12
LDW Subsurface Sediment 2006	LDW-SC37	1270691	201436	2.1	3	3	2	No	No	-	LDW-SC37-2-4	2	4	>CSL	2.24	No	1,2,4-Trichlorobenzene	46		µg/kg dw	Yes	2.1	Yes	Yes	1.2	2.6
LDW Subsurface Sediment 2006	LDW-SC37	1270691	201436	2.1	3	3	2	No	No	-	LDW-SC37-2-4	2	4	>CSL	2.24	No	1,2-Dichlorobenzene	150		µg/kg dw	Yes	6.7	Yes	Yes	2.9	2.9
LDW Subsurface Sediment 2006	LDW-SC37	1270691	201436	2.1	3	3	2	No	No	-	LDW-SC37-2-4	2	4	>CSL	2.24	No	Acenaphthene	620		µg/kg dw	Yes	28	No	Yes	0.49	1.8
LDW Subsurface Sediment 2006	LDW-SC37	1270691	201436	2.1	3	3	2	No	No	-	LDW-SC37-2-4	2	4	>CSL	2.24	No	Benzo(a) anthracene	4500		µg/kg dw	Yes	200	No	Yes	0.74	1.8
LDW Subsurface Sediment 2006	LDW-SC37	1270691	201436	2.1	3	3	2	No	No	-	LDW-SC37-2-4	2	4	>CSL	2.24	No	Benzo(a)pyrene	4000		µg/kg dw	Yes	180	No	Yes	0.86	1.8
LDW Subsurface Sediment 2006	LDW-SC37	1270691	201436	2.1	3	3	2	No	No	-	LDW-SC37-2-4	2	4	>CSL	2.24	No	Benzo(g,h,i) perylene	830		µg/kg dw	Yes	37	No	Yes	0.47	1.2
LDW Subsurface Sediment 2006	LDW-SC37	1270691	201436	2.1	3	3	2	No	No	-	LDW-SC37-2-4	2	4	>CSL	2.24	No	Chrysene	5000		µg/kg dw	Yes	220	No	Yes	0.48	2
LDW Subsurface Sediment 2006	LDW-SC37	1270691	201436	2.1	3	3	2	No	No	-	LDW-SC37-2-4	2	4	>CSL	2.24	No	Dibenzofuran	570		µg/kg dw	Yes	25	No	Yes	0.43	1.7
LDW Subsurface Sediment 2006	LDW-SC37	1270691	201436	2.1	3	3	2	No	No	-	LDW-SC37-2-4	2	4	>CSL	2.24	No	Fluoranthene	13000		µg/kg dw	Yes	580	No	Yes	0.48	3.6
LDW Subsurface Sediment 2006	LDW-SC37	1270691	201436	2.1	3	3	2	No	No	-	LDW-SC37-2-4	2	4	>CSL	2.24	No	Fluorene	750		µg/kg dw	Yes	33	No	Yes	0.42	1.4
LDW Subsurface Sediment 2006	LDW-SC37	1270691	201436	2.1	3	3	2	No	No	-	LDW-SC37-2-4	2	4	>CSL	2.24	No	Indeno(1,2,3-cd)pyrene	1200		µg/kg dw	Yes	54	No	Yes	0.61	1.6
LDW Subsurface Sediment 2006	LDW-SC37	1270691	201436	2.1	3	3	2	No	No	-	LDW-SC37-2-4	2	4	>CSL	2.24	No	Phenanthrene	7500		µg/kg dw	Yes	330	No	Yes	0.69	3.3
LDW Subsurface Sediment 2006	LDW-SC37	1270691	201436	2.1	3	3	2	No	No	-	LDW-SC37-2-4	2	4	>CSL	2.24	No	Total benzofluoranthenes	9100		µg/kg dw	Yes	410	No	Yes	0.91	1.8
LDW Subsurface Sediment 2006	LDW-SC37	1270691	201436	2.1	3	3	2	No	No	-	LDW-SC37-2-4	2	4	>CSL	2.24	No	Total HPAHs	47000		µg/kg dw	Yes	2100	No	Yes	0.4	2.2

Table G-2 Detected SMS Contaminants Exceeding the SQS in Cores – River Miles 2.0 to 4.0

Core Information											Sample Information						Detected SMS Contaminants Exceeding the SQS									
Task	Core Location Name	X[a]	Y[a]	River Mile	FS Removal-Emphasis Alternative when Area is First Dredged[b]	FS Combined-Technologies Alternative when Area is First Dredged[c]	Recovery Category	Collected for Dredge Material Characterization?[d]	Historically Dredged?[d]	Dredge Year[d]	Sample Name	Upper Sample Depth (ft recovered)	Lower Sample Depth (ft recovered)	SMS Assignment for Sample (maximum exceedance status in sample)[e]	TOC[f]	AET Substitution?[f]	SMS Contaminant	Concen-tration	Qualifier	Unit	Detected	OC-Normalized Concentration (mg/kg oc), if applicable	Exceeds CSL/2LAET?	Exceeds SQS/LAET?	Exceedance Factor CSL	Exceedance Factor SQS
LDW Subsurface Sediment 2006	LDW-SC37	1270691	201436	2.1	3	3	2	No	No	-	LDW-SC37-2-4	2	4	>CSL	2.24	No	Total LPAHs	10500	J	µg/kg dw	Yes	470	No	Yes	0.6	1.3
LDW Subsurface Sediment 2006	LDW-SC37	1270691	201436	2.1	3	3	2	No	No	-	LDW-SC37-2-4	2	4	>CSL	2.24	No	Total PCBs	550		µg/kg dw	Yes	25	No	Yes	0.38	2.1
LDW Subsurface Sediment 2006	LDW-SC37	1270691	201436	2.1	3	3	2	No	No	-	LDW-SC37-5.3-6.9	5.3	6.9	>SQS, ≤CSL, ND												
LDW Subsurface Sediment 2006	LDW-SC38a	1269747	200937	2.1	5	6	3	No	No	-	LDW-SC38-0-1	0	1	>SQS, ≤CSL	1.95	No	Total PCBs	450		µg/kg dw	Yes	23	No	Yes	0.35	1.9
LDW Subsurface Sediment 2006	LDW-SC38a	1269747	200937	2.1	5	6	3	No	No	-	LDW-SC38-1-2	1	2	>SQS, ≤CSL	1.37	No	Total PCBs	710		µg/kg dw	Yes	52	No	Yes	0.8	4.3
LDW Subsurface Sediment 2006	LDW-SC38a	1269747	200937	2.1	5	6	3	No	No	-	LDW-SC38-2-3	2	3	>CSL	1.5	No	Mercury	0.45		mg/kg dw	Yes		No	Yes	0.76	1.1
LDW Subsurface Sediment 2006	LDW-SC38a	1269747	200937	2.1	5	6	3	No	No	-	LDW-SC38-2-3	2	3	>CSL	1.5	No	Acenaphthene	810	J	µg/kg dw	Yes	54	No	Yes	0.95	3.4
LDW Subsurface Sediment 2006	LDW-SC38a	1269747	200937	2.1	5	6	3	No	No	-	LDW-SC38-2-3	2	3	>CSL	1.5	No	Dibenzofuran	250	J	µg/kg dw	Yes	17	No	Yes	0.29	1.1
LDW Subsurface Sediment 2006	LDW-SC38a	1269747	200937	2.1	5	6	3	No	No	-	LDW-SC38-2-3	2	3	>CSL	1.5	No	Total PCBs	3400		µg/kg dw	Yes	230	Yes	Yes	3.5	19
LDW Subsurface Sediment 2006	LDW-SC38b	1269744	200959	2.1	5	6	3	No	No	-	LDW-SC38-3-3.3	3	3.3	>SQS, ≤CSL, ND												
EPA SI	DR137	1270252	200448	2.2	6	not dredged	3	No	No	-	SD-DR137-0000A-CC	0	2	>SQS, ≤CSL	2.46	No	Total PCBs	470	J	µg/kg dw	Yes	19	No	Yes	0.29	1.6
EPA SI	DR137	1270252	200448	2.2	6	not dredged	3	No	No	-	SD-DR137-0020-CC	2	4	>SQS, ≤CSL	2.62	No	Total PCBs	730	J	µg/kg dw	Yes	28	No	Yes	0.43	2.3
LDW Subsurface Sediment 2006	LDW-SC39	1270056	200657	2.2	4	6	3	No	No	-	LDW-SC39-0-1	0	1	>SQS, ≤CSL	1.02	No	Total PCBs	208		µg/kg dw	Yes	20	No	Yes	0.31	1.7
LDW Subsurface Sediment 2006	LDW-SC39	1270056	200657	2.2	4	6	3	No	No	-	LDW-SC39-1-2	1	2	>CSL	0.633	No	Total PCBs	440		µg/kg dw	Yes	70	Yes	Yes	1.1	5.8
LDW Subsurface Sediment 2006	LDW-SC39	1270056	200657	2.2	4	6	3	No	No	-	LDW-SC39-2-4	2	4	>SQS, ≤CSL	1.56	No	Total PCBs	220		µg/kg dw	Yes	14	No	Yes	0.22	1.2
LDW Subsurface Sediment 2006	LDW-SC39	1270056	200657	2.2	4	6	3	No	No	-	LDW-SC39-4-6	4	6	≤SQS												
PSDDA99	S13	1270426	200645	2.2	outside of AOPCs	outside of AOPCs	3	Yes	No	-	S13	0	4	>SQS, ≤CSL, ND												
LDW Subsurface Sediment 2006	LDW-SC40	1270303	200332	2.3	2	3	2	No	No	-	LDW-SC40-0-1.3	0	1.3	>SQS, ≤CSL	0.747	No	Total PCBs	160	J	µg/kg dw	Yes	21	No	Yes	0.32	1.8
LDW Subsurface Sediment 2006	LDW-SC40	1270303	200332	2.3	2	3	2	No	No	-	LDW-SC40-1.3-2	1.3	2	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC40	1270303	200332	2.3	2	3	2	No	No	-	LDW-SC40-2-4	2	4	≤SQS												
Hurlen-Boyer	C5 (Hurlen-Boyer)	1270986	199683	2.4	4	4	1	Yes	No	-	C5	0	3.3	>SQS, ≤CSL, ND												
LDW Subsurface Sediment 2006	LDW-SC41	1271171	200294	2.4	4	4	1	No	No	-	LDW-SC41-0-1	0	1	>SQS, ≤CSL	2.39	No	Total PCBs	370	J	µg/kg dw	Yes	15	No	Yes	0.23	1.3
LDW Subsurface Sediment 2006	LDW-SC41	1271171	200294	2.4	4	4	1	No	No	-	LDW-SC41-1-2	1	2	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC41	1271171	200294	2.4	4	4	1	No	No	-	LDW-SC41-2-4	2	4	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC41	1271171	200294	2.4	4	4	1	No	No	-	LDW-SC41-4-6	4	6	>SQS, ≤CSL	1.89	No	Total PCBs	510		µg/kg dw	Yes	27	No	Yes	0.42	2.3
LDW Subsurface Sediment 2006	LDW-SC41	1271171	200294	2.4	4	4	1	No	No	-	LDW-SC41-6-7.9	6	7.9	>SQS, ≤CSL	1.38	No	Total PCBs	190		µg/kg dw	Yes	14	No	Yes	0.22	1.2
PSDDA99	S14	1270894	200131	2.4	6	6	3	Yes	No	-	S14	0	4	>SQS, ≤CSL, ND												
Hurlen-Boyer	C6 (Hurlen-Boyer)	1271160	199554	2.5	4	4	2	Yes	No	-	C6	0	3.8	>SQS, ≤CSL	1.52	No	Total PCBs	238		µg/kg dw	Yes	16	No	Yes	0.25	1.3
EPA SI	DR171	1271310	199597	2.5	6	6	3	No	No	-	SD-DR171-0000A	0	2	>SQS, ≤CSL, ND												
EPA SI	DR171	1271310	199597	2.5	6	6	3	No	No	-	SD-DR171-0020	2	4	>SQS, ≤CSL, ND												
LDW Subsurface Sediment 2006	LDW-SC42	1271361	199898	2.5	6	not dredged	1	No	No	-	LDW-SC42-0-1	0	1	>SQS, ≤CSL, ND												
LDW Subsurface Sediment 2006	LDW-SC42	1271361	199898	2.5	6	not dredged	1	No	No	-	LDW-SC42-1-2	1	2	>SQS, ≤CSL, ND												
LDW Subsurface Sediment 2006	LDW-SC42	1271361	199898	2.5	6	not dredged	1	No	No	-	LDW-SC42-2-4	2	4	>SQS, ≤CSL, ND												
PSDDA99	S15	1271295	199702	2.5	4	4	3	Yes	No	-	S15	0	4	>SQS, ≤CSL	1.9	No	Total PCBs	240		µg/kg dw	Yes	13	No	Yes	0.2	1.1
BoyerTowing	WRC-SS-B1	1271107	199533	2.5	4	not dredged	3	No	No	-	WRC-SS-B1A-B 1-2'	1	2	≤SQS												
BoyerTowing	WRC-SS-B2	1271101	199571	2.5	4	not dredged	3	No	No	-	WRC-SS-B2A-B 1-2'	1	2	≤SQS												
BoyerTowing	WRC-SS-B3	1271056	199592	2.5	4	not dredged	3	No	No	-	WRC-SS-B3A-B 1-2'	1	2	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC43	1271846	199289	2.6	2	3	3	No	No	-	LDW-SC43-0-2	0	2	>SQS, ≤CSL, ND												
LDW Subsurface Sediment 2006	LDW-SC43	1271846	199289	2.6	2	3	3	No	No	-	LDW-SC43-2-4	2	4	≤SQS												
PSDDA99	S16	1271930	199035	2.6	6	6	3	Yes	No	-	S16	0	4	>SQS, ≤CSL, ND												
Hurlen-Boyer	C1 (Hurlen-Boyer)	1271875	198851	2.7	4	4	2	Yes	No	-	C1	0	3.7	>SQS, ≤CSL, ND												
Hurlen-Boyer	C2	1271991	198746	2.7	4	4	1	Yes	No	-	C2	0	4.2	>SQS, ≤CSL	2.28	No	Fluoranthene	5200		µg/kg dw	Yes	230	No	Yes	0.19	1.4
Hurlen-Boyer	C2	1271991	198746	2.7	4	4	1	Yes	No	-	C2	0	4.2	>SQS, ≤CSL	2.28	No	Total HPAHs	22700		µg/kg dw	Yes	1000	No	Yes	0.19	1
Hurlen-Boyer	C3	1272106	198645	2.7	2	3	1	Yes	No	-	C3	0	3.3	>CSL	2.47	No	Acenaphthene	2300		µg/kg dw	Yes	93	Yes	Yes	1.6	5.8
Hurlen-Boyer	C3	1272106	198645	2.7	2	3	1	Yes	No	-	C3	0	3.3	>CSL	2.47	No	Benzo(a) anthracene	3800		µg/kg dw	Yes	150	No	Yes	0.56	1.4
Hurlen-Boyer	C3	1272106	198645	2.7	2	3	1	Yes	No	-	C3	0	3.3	>CSL	2.47	No	Chrysene	3200		µg/kg dw	Yes	130	No	Yes	0.28	1.2
Hurlen-Boyer	C3	1272106	198645	2.7	2	3	1	Yes	No	-	C3	0	3.3	>CSL	2.47	No	Dibenzofuran	710		µg/kg dw	Yes	29	No	Yes	0.5	1.9
Hurlen-Boyer	C3	1272106	198645	2.7	2	3	1	Yes	No	-	C3	0	3.3	>CSL	2.47	No	Fluoranthene	15000		µg/kg dw	Yes	610	No	Yes	0.51	3.8
Hurlen-Boyer	C3	1272106	198645	2.7	2	3	1	Yes	No	-	C3	0	3.3	>CSL	2.47	No	Fluorene	1100		µg/kg dw	Yes	45	No	Yes	0.57	2
Hurlen-Boyer	C3	1272106	198645	2.7	2	3	1	Yes	No	-	C3	0	3.3	>CSL	2.47	No	Phenanthrene	5900		µg/kg dw	Yes	240	No	Yes	0.5	2.4
Hurlen-Boyer	C3	1272106	198645	2.7	2	3	1	Yes	No	-	C3	0	3.3	>CSL	2.47	No	Total HPAHs	41000		µg/kg dw	Yes	1700	No	Yes	0.32	1.8
Hurlen-Boyer	C3	1272106	198645	2.7	2	3	1	Yes	No	-	C3	0	3.3	>CSL	2.47	No	Total LPAHs	10000		µg/kg dw	Yes	400	No	Yes	0.51	1.1

Table G-2 Detected SMS Contaminants Exceeding the SQS in Cores – River Miles 2.0 to 4.0

Core Information											Sample Information						Detected SMS Contaminants Exceeding the SQS									
Task	Core Location Name	X[a]	Y[a]	River Mile	FS Removal-Emphasis Alternative when Area is First Dredged[b]	FS Combined-Technologies Alternative when Area is First Dredged[c]	Recovery Category	Collected for Dredge Material Characterization?[d]	Historically Dredged?[d]	Dredge Year[d]	Sample Name	Upper Sample Depth (ft recovered)	Lower Sample Depth (ft recovered)	SMS Assignment for Sample (maximum exceedance status in sample)[e]	TOC[f]	AET Substitution?[f]	SMS Contaminant	Concen-tration	Qualifier	Unit	Detected	OC-Normalized Concentration (mg/kg oc), if applicable	Exceeds CSL/2LAET?	Exceeds SQS/LAET?	Exceedance Factor CSL	Exceedance Factor SQS
LDW Subsurface Sediment 2006	LDW-SC44	1272231	198926	2.7	3	3	3	No	No	-	LDW-SC44-0-0.5	0	0.5	>SQS, ≤CSL	1.68	No	Total PCBs	260		µg/kg dw	Yes	15	No	Yes	0.23	1.3
LDW Subsurface Sediment 2006	LDW-SC44	1272231	198926	2.7	3	3	3	No	No	-	LDW-SC44-0-2	0	2	>SQS, ≤CSL	1.59	No	Total PCBs	510		µg/kg dw	Yes	32	No	Yes	0.49	2.7
LDW Subsurface Sediment 2006	LDW-SC44	1272231	198926	2.7	3	3	3	No	No	-	LDW-SC44-0.5-1	0.5	1	>SQS, ≤CSL	1.68	No	Total PCBs	880	J	µg/kg dw	Yes	52	No	Yes	0.8	4.3
LDW Subsurface Sediment 2006	LDW-SC44	1272231	198926	2.7	3	3	3	No	No	-	LDW-SC44-1-1.5	1	1.5	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC44	1272231	198926	2.7	3	3	3	No	No	-	LDW-SC44-1.5-2	1.5	2	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC44	1272231	198926	2.7	3	3	3	No	No	-	LDW-SC44-2-2.5	2	2.5	>SQS, ≤CSL	1.94	No	Total PCBs	270		µg/kg dw	Yes	14	No	Yes	0.22	1.2
LDW Subsurface Sediment 2006	LDW-SC44	1272231	198926	2.7	3	3	3	No	No	-	LDW-SC44-2-3.2	2	3.2	>SQS, ≤CSL	1.9	No	Total PCBs	450		µg/kg dw	Yes	24	No	Yes	0.37	2
LDW Subsurface Sediment 2006	LDW-SC44	1272231	198926	2.7	3	3	3	No	No	-	LDW-SC44-2.5-3	2.5	3	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC44	1272231	198926	2.7	3	3	3	No	No	-	LDW-SC44-3-3.5	3	3.5	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC44	1272231	198926	2.7	3	3	3	No	No	-	LDW-SC44-3.2-4	3.2	4	>SQS, ≤CSL, ND												
LDW Subsurface Sediment 2006	LDW-SC46	1272121	198579	2.7	2	3	1	No	No	-	LDW-SC46-0-1	0	1	>SQS, ≤CSL	1.81	No	Fluoranthene	3900		µg/kg dw	Yes	220	No	Yes	0.18	1.4
LDW Subsurface Sediment 2006	LDW-SC46	1272121	198579	2.7	2	3	1	No	No	-	LDW-SC46-1-2	1	2	>SQS, ≤CSL	1.42	No	Benzyl alcohol	64	J	µg/kg dw	Yes		No	Yes	0.88	1.1
LDW Subsurface Sediment 2006	LDW-SC46	1272121	198579	2.7	2	3	1	No	No	-	LDW-SC46-1-2	1	2	>SQS, ≤CSL	1.42	No	Hexachlorobenzene	10		µg/kg dw	Yes	0.7	No	Yes	0.3	1.8
LDW Subsurface Sediment 2006	LDW-SC46	1272121	198579	2.7	2	3	1	No	No	-	LDW-SC46-1-2	1	2	>SQS, ≤CSL	1.42	No	Fluoranthene	2900		µg/kg dw	Yes	200	No	Yes	0.17	1.3
LDW Subsurface Sediment 2006	LDW-SC46	1272121	198579	2.7	2	3	1	No	No	-	LDW-SC46-1-2	1	2	>SQS, ≤CSL	1.42	No	Total PCBs	185		µg/kg dw	Yes	13	No	Yes	0.2	1.1
LDW Subsurface Sediment 2006	LDW-SC46	1272121	198579	2.7	2	3	1	No	No	-	LDW-SC46-2-4	2	4	>SQS, ≤CSL	1.94	No	Total PCBs	270		µg/kg dw	Yes	14	No	Yes	0.22	1.2
LDW Subsurface Sediment 2006	LDW-SC46	1272121	198579	2.7	2	3	1	No	No	-	LDW-SC46-4-6.8	4	6.8	≤SQS												
Hurlen-Boyer	C4	1272268	198483	2.8	2	3	1	Yes	No	-	C4	0	3.3	>SQS, ≤CSL, ND												
Slip4-Crowley	DMMU 1	1272885	198524	2.8	6	6	3	Yes	Yes	1996	CMS4-5	0	3.9	>SQS, ≤CSL	2	No	Benzo(a) anthracene	3600		µg/kg dw	Yes	180	No	Yes	0.67	1.6
Slip4-Crowley	DMMU 1	1272885	198524	2.8	6	6	3	Yes	Yes	1996	CMS4-5	0	3.9	>SQS, ≤CSL	2	No	Benzo(a)pyrene	2300		µg/kg dw	Yes	120	No	Yes	0.57	1.2
Slip4-Crowley	DMMU 1	1272885	198524	2.8	6	6	3	Yes	Yes	1996	CMS4-5	0	3.9	>SQS, ≤CSL	2	No	Benzo(g,h,i) perylene	980		µg/kg dw	Yes	49	No	Yes	0.63	1.6
Slip4-Crowley	DMMU 1	1272885	198524	2.8	6	6	3	Yes	Yes	1996	CMS4-5	0	3.9	>SQS, ≤CSL	2	No	Chrysene	4000		µg/kg dw	Yes	200	No	Yes	0.43	1.8
Slip4-Crowley	DMMU 1	1272885	198524	2.8	6	6	3	Yes	Yes	1996	CMS4-5	0	3.9	>SQS, ≤CSL	2	No	Dibenzo(a,h) anthracene	450		µg/kg dw	Yes	23	No	Yes	0.7	1.9
Slip4-Crowley	DMMU 1	1272885	198524	2.8	6	6	3	Yes	Yes	1996	CMS4-5	0	3.9	>SQS, ≤CSL	2	No	Fluoranthene	8500		µg/kg dw	Yes	430	No	Yes	0.36	2.7
Slip4-Crowley	DMMU 1	1272885	198524	2.8	6	6	3	Yes	Yes	1996	CMS4-5	0	3.9	>SQS, ≤CSL	2	No	Indeno(1,2,3-cd) pyrene	980		µg/kg dw	Yes	49	No	Yes	0.56	1.4
Slip4-Crowley	DMMU 1	1272885	198524	2.8	6	6	3	Yes	Yes	1996	CMS4-5	0	3.9	>SQS, ≤CSL	2	No	Phenanthrene	3000		µg/kg dw	Yes	150	No	Yes	0.31	1.5
Slip4-Crowley	DMMU 1	1272885	198524	2.8	6	6	3	Yes	Yes	1996	CMS4-5	0	3.9	>SQS, ≤CSL	2	No	Total HPAHs	31500		µg/kg dw	Yes	1600	No	Yes	0.3	1.7
Slip4-Crowley	DMMU 1	1272885	198524	2.8	6	6	3	Yes	Yes	1996	CMS4-5	0	3.9	>SQS, ≤CSL	2	No	Total PCBs	320		µg/kg dw	Yes	16	No	Yes	0.25	1.3
Slip4-Crowley	DMMU 2	1273000	198628	2.8	6	6	3	Yes	Yes	1996	CMS4-1	0	2.8	>SQS, ≤CSL	2.4	No	Total PCBs	860		µg/kg dw	Yes	36	No	Yes	0.55	3
Slip4-Crowley	DMMU 3	1273126	198726	2.8	6	6	3	Yes	Yes	1996	CMS4-2	0	4.3	>SQS, ≤CSL	2.7	No	Total PCBs	640		µg/kg dw	Yes	24	No	Yes	0.37	2
Slip4-Crowley	DMMU 4	1273220	198831	2.8	6	6	3	Yes	Yes	1996	CMS4-3	0	3.9	>SQS, ≤CSL	2.3	No	Total PCBs	980		µg/kg dw	Yes	43	No	Yes	0.66	3.6
LDW Subsurface Sediment 2006	LDW-SC45	1272647	198588	2.8	5	not dredged	2	No	No	-	LDW-SC45-0-1	0	1	>SQS, ≤CSL	1.48	No	Total PCBs	230	J	µg/kg dw	Yes	16	No	Yes	0.25	1.3
LDW Subsurface Sediment 2006	LDW-SC45	1272647	198588	2.8	5	not dredged	2	No	No	-	LDW-SC45-1-2	1	2	>SQS, ≤CSL	1.4	No	Total PCBs	270		µg/kg dw	Yes	19	No	Yes	0.29	1.6
LDW Subsurface Sediment 2006	LDW-SC45	1272647	198588	2.8	5	not dredged	2	No	No	-	LDW-SC45-2-4	2	4	>SQS, ≤CSL	6.88	Yes	Total PCBs	570		µg/kg dw	Yes		No	Yes	0.57	4.4
LDW Subsurface Sediment 2006	LDW-SC45	1272647	198588	2.8	5	not dredged	2	No	No	-	LDW-SC45-5-6	5	6	≤SQS												
Slip4-EarlyAction	SC06	1273260	198884	2.8	6	6	3	No	No	-	SC06A	0	2	>SQS, ≤CSL	2.39	No	Total PCBs	350	N	µg/kg dw	Yes	15	No	Yes	0.23	1.3
Slip4-EarlyAction	SC06	1273260	198884	2.8	6	6	3	No	No	-	SC06B	2	4	>SQS, ≤CSL	2.34	No	Total PCBs	990	N	µg/kg dw	Yes	42	No	Yes	0.65	3.5
Slip4-EarlyAction	SC06	1273260	198884	2.8	6	6	3	No	No	-	SC06C	4	6	>SQS, ≤CSL	1.59	No	Total PCBs	770	J	µg/kg dw	Yes	48	No	Yes	0.74	4
Slip4-EarlyAction	SC06	1273260	198884	2.8	6	6	3	No	No	-	SC06D	6	8	≤SQS												
Slip4-EarlyAction	SC06	1273260	198884	2.8	6	6	3	No	No	-	SC06E	8	10	≤SQS												
Slip4-EarlyAction	SC08	1273118	198766	2.8	6	6	3	No	No	-	SC08A	0	2	≤SQS												
Slip4-EarlyAction	SC08	1273118	198766	2.8	6	6	3	No	No	-	SC08B	2	4	≤SQS												
Slip4-EarlyAction	SC08	1273118	198766	2.8	6	6	3	No	No	-	SC08C	4	6	≤SQS												
Slip4-EarlyAction	SC08	1273118	198766	2.8	6	6	3	No	No	-	SC08D	6	8	≤SQS												
Slip4-EarlyAction	SC10	1272980	198642	2.8	6	6	3	No	No	-	SC10A	0	2	≤SQS												
Slip4-EarlyAction	SC10	1272980	198642	2.8	6	6	3	No	No	-	SC10B	2	4	≤SQS												
Slip4-EarlyAction	SC10	1272980	198642	2.8	6	6	3	No	No	-	SC10C	4	6	≤SQS												
Slip4-EarlyAction	SC10	1272980	198642	2.8	6	6	3	No	No	-	SC10D	6	8	≤SQS												
Slip4-EarlyAction	SC10	1272980	198642	2.8	6	6	3	No	No	-	SC10E	8	10	≤SQS												
USACE 1990	DU9008XX	1273003	198124	2.9	6	6	3	Yes	No	- -	DUWO&M90S008	0	7	>CSL	2.5	No	Total PCBs	3300		µg/kg dw	Yes	130	Yes	Yes	2	11
Slip4-EarlyAction	SC09	1273236	198729	2.9	6	6	3	No	No	-	SC09A	0	2	≤SQS												
Slip4-EarlyAction	SC09	1273236	198729	2.9	6	6	3	No	No	-	SC09B	2	4	≤SQS												
Slip4-EarlyAction	SC09	1273236	198729	2.9	6	6	3	No	No	-	SC09C	4	6	≤SQS												
Slip4-EarlyAction	SC09	1273236	198729	2.9	6	6	3	No	No	-	SC09D	6	8	≤SQS												
Slip4-EarlyAction	SC09	1273236	198729	2.9	6	6	3	No	No	-	SC09E	8	10	≤SQS												
Slip4-EarlyAction	SC11	1272966	198513	2.9	6	6	3	No	No	-	SC11A	0	2	≤SQS												
Slip4-EarlyAction	SC11	1272966	198513	2.9	6	6	3	No	No	-	SC11B	2	4	≤SQS												
Slip4-EarlyAction	SC11	1272966	198513	2.9	6	6	3	No	No	-	SC11C	4	6	≤SQS												
Slip4-EarlyAction	SC11	1272966	198513	2.9	6	6	3	No	No	-	SC11D	6	8	≤SQS												
Slip4-EarlyAction	SC11	1272966	198513	2.9	6	6	3	No	No	-	SC11E	8	10	≤SQS												
Slip4-EarlyAction	SC11	1272966	198513	2.9	6	6	3	No	No	-	SC11F	10	12	≤SQS												
EPA SI	DR224	1273359	197554	3.0	6	not dredged	1	No	No	-	SD-DR224-0000A	0	2	>SQS, ≤CSL, ND												
EPA SI	DR224	1273359	197554	3.0	6	not dredged	1	No	No	-	SD-DR224-0020	2	3.33	>SQS, ≤CSL, ND												

Table G-2 Detected SMS Contaminants Exceeding the SQS in Cores – River Miles 2.0 to 4.0

Core Information											Sample Information						Detected SMS Contaminants Exceeding the SQS									
Task	Core Location Name	X[a]	Y[a]	River Mile	FS Removal-Emphasis Alternative when Area is First Dredged[b]	FS Combined-Technologies Alternative when Area is First Dredged[c]	Recovery Category	Collected for Dredge Material Characterization?[d]	Historically Dredged?[d]	Dredge Year[d]	Sample Name	Upper Sample Depth (ft recovered)	Lower Sample Depth (ft recovered)	SMS Assignment for Sample (maximum exceedance status in sample)[e]	TOC[f]	AET Substitution?[f]	SMS Contaminant	Concen-tration	Qualifier	Unit	Detected	OC-Normalized Concentration (mg/kg oc), if applicable	Exceeds CSL/2LAET?	Exceeds SQS/LAET?	Exceedance Factor CSL	Exceedance Factor SQS
LDW Subsurface Sediment 2006	LDW-SC47	1273347	197447	3.0	5	not dredged	3	No	No	-	LDW-SC47-0-1	0	1	>SQS, ≤CSL, ND												
LDW Subsurface Sediment 2006	LDW-SC47	1273347	197447	3.0	5	not dredged	3	No	No	-	LDW-SC47-1-2	1	2	>CSL	1.75	No	Total PCBs	2000		µg/kg dw	Yes	110	Yes	Yes	1.7	9.2
LDW Subsurface Sediment 2006	LDW-SC47	1273347	197447	3.0	5	not dredged	3	No	No	-	LDW-SC47-2-3	2	3	>SQS, ≤CSL	1.61	No	Total PCBs	490	J	µg/kg dw	Yes	30	No	Yes	0.46	2.5
LDW Subsurface Sediment 2006	LDW-SC47	1273347	197447	3.0	5	not dredged	3	No	No	-	LDW-SC47-3-4	3	4	≤SQS												
PSDDA99	S17	1273435	197587	3.0	6	6	1	Yes	No	-	S17	0	4	>SQS, ≤CSL, ND												
USACE 1990	DU9007XX	1273696	197475	3.1	2	4	1	Yes	No	- -	DUWO&M90S007	0	5	>CSL	2.1	No	Total PCBs	2000		µg/kg dw	Yes	100	Yes	Yes	1.5	8.3
PSDDA99	S18	1274190	196895	3.2	6	6	3	Yes	No	-	S18	0	4	>SQS, ≤CSL, ND												
LDW Subsurface Sediment 2006	LDW-SC48	1274533	196659	3.3	6	6	3	No	No	-	LDW-SC48-0-1	0	1	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC48	1274533	196659	3.3	6	6	3	No	No	-	LDW-SC48-1-2	1	2	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC48	1274533	196659	3.3	6	6	3	No	No	-	LDW-SC48-2-4	2	4	≤SQS												
South Park Bridge	SB-5	1274500	196550	3.3	6	not dredged	3	No	No	-	SB5-SED-2.5	0	2.5	>SQS, ≤CSL	1.48	No	Total PCBs	712		µg/kg dw	Yes	48.1	No	Yes	0.74	4
South Park Bridge	SB-5	1274500	196550	3.3	6	not dredged	3	No	No	-	SB5-SED-5	2.5	5	>CSL	1.29	No	Total PCBs	1720		µg/kg dw	Yes	133	Yes	Yes	2	11
South Park Bridge	SB-5	1274500	196550	3.3	6	not dredged	3	No	No	-	SB5-SED-7.5	5	7.5	>SQS, ≤CSL	1.99	No	Total PCBs	830		µg/kg dw	Yes	41.7	No	Yes	0.64	3.5
South Park Bridge	SB-5	1274500	196550	3.3	6	not dredged	3	No	No	-	SB5-SED-50	47.5	50	≤SQS												
South Park Bridge	SB-5	1274500	196550	3.3	6	not dredged	3	No	No	-	SB5-SED-75	72.5	75	>SQS, ≤CSL	0.31	Yes	BEHP	1360	J	µg/kg dw	Yes		No	Yes	0.72	1
South Park Bridge	SB-5	1274500	196550	3.3	6	not dredged	3	No	No	-	SB5-SED-75	72.5	75	>SQS, ≤CSL	0.31	Yes	Butyl benzyl phthalate	365		µg/kg dw	Yes		No	Yes	0.41	5.8
SouthParkMarina	1 & 2	1274844	196140	3.4	outside of AOPCs	outside of AOPCs	3	Yes	Yes	1994	Comp 1	0	4	>CSL, ND												
SouthParkMarina	3 & 4	1274723	196251	3.4	outside of AOPCs	outside of AOPCs	3	Yes	Yes	1994	Comp 2	0	4	>CSL, ND												
USACE 1990	DU9005XX	1274822	196338	3.4	6	6	3	Yes	Yes	1990	DUWO&M90S005	0	7	>SQS, ≤CSL, ND												
USACE 1991	DU9125XX	1274809	196315	3.4	6	6	3	Yes	Yes	1992	DUWO&M91S017	0	4	>SQS, ≤CSL		Yes	Total PCBs	136		µg/kg dw	Yes		No	Yes	0.14	1
PSDDA98	1	1275291	195913	3.5	6	6	3	Yes	Yes	1999	S1	0	2	>SQS, ≤CSL, ND												
USACE 1990	DU9004XX	1275227	195934	3.5	6	6	3	Yes	Yes	1990	DUWO&M90S004	0	7	>SQS, ≤CSL, ND												
USACE 1991	DU9124XX	1275229	195938	3.5	6	6	3	Yes	Yes	1992	DUWO&M91S016	0	4	>SQS, ≤CSL		Yes	Total PCBs	198		µg/kg dw	Yes		No	Yes	0.2	1.5
LDW Subsurface Sediment 2006	LDW-SC49a	1275477	195851	3.5	4	4	1	No	No	-	LDW-SC49-0-1	0	1	>CSL	1.97	No	Benzoic acid	750	J	µg/kg dw	Yes		Yes	Yes	1.2	1.2
LDW Subsurface Sediment 2006	LDW-SC49a	1275477	195851	3.5	4	4	1	No	No	-	LDW-SC49-0-1	0	1	>CSL	1.97	No	Benzyl alcohol	200		µg/kg dw	Yes		Yes	Yes	2.7	3.5
LDW Subsurface Sediment 2006	LDW-SC49a	1275477	195851	3.5	4	4	1	No	No	-	LDW-SC49-1-2	1	2	>SQS, ≤CSL, ND												
LDW Subsurface Sediment 2006	LDW-SC49a	1275477	195851	3.5	4	4	1	No	No	-	LDW-SC49-2-4	2	4	>SQS, ≤CSL	2.05	No	Total PCBs	420		µg/kg dw	Yes	20	No	Yes	0.31	1.7
LDW Subsurface Sediment 2006	LDW-SC49a	1275477	195851	3.5	4	4	1	No	No	-	LDW-SC49-4-6	4	6	>SQS, ≤CSL	2.03	No	Total PCBs	780		µg/kg dw	Yes	38	No	Yes	0.58	3.2
LDW Subsurface Sediment 2006	LDW-SC49a	1275477	195851	3.5	4	4	1	No	No	-	LDW-SC49-6-8	6	8	>SQS, ≤CSL	2.71	No	Total PCBs	810		µg/kg dw	Yes	30	No	Yes	0.46	2.5
LDW Subsurface Sediment 2006	LDW-SC49a	1275477	195851	3.5	4	4	1	No	No	-	LDW-SC49-8-10	8	10	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC49b	1275498	195853	3.5	4	4	1	No	No	-	LDW-SC49V-0-1	0	1	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC49b	1275498	195853	3.5	4	4	1	No	No	-	LDW-SC49V-1-2	1	2	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC49b	1275498	195853	3.5	4	4	1	No	No	-	LDW-SC49V-2-3	2	3	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC49b	1275498	195853	3.5	4	4	1	No	No	-	LDW-SC49V-3-4	3	4	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC49b	1275498	195853	3.5	4	4	1	No	No	-	LDW-SC49V-4-5	4	5	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC49b	1275498	195853	3.5	4	4	1	No	No	-	LDW-SC49V-5-6	5	6	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC49b	1275498	195853	3.5	4	4	1	No	No	-	LDW-SC49V-6-7	6	7	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC49b	1275498	195853	3.5	4	4	1	No	No	-	LDW-SC49V-7-8	7	8	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC49b	1275498	195853	3.5	4	4	1	No	No	-	LDW-SC49V-8-9	8	9	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC49b	1275498	195853	3.5	4	4	1	No	No	-	LDW-SC49V-9-10	9	10	>SQS, ≤CSL		Yes	Hexachloro-butadiene	13		µg/kg dw	Yes		No	Yes	0.11	1.2
LDW Subsurface Sediment 2006	LDW-SC49b	1275498	195853	3.5	4	4	1	No	No	-	LDW-SC49V-10-11	10	11	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC49b	1275498	195853	3.5	4	4	1	No	No	-	LDW-SC49V-11-12	11	12	≤SQS												
T117BoundaryDefinition	T117-SE-91-SC	1275230	195820	3.5	6	not dredged	3	No	No	-	T117-SE91-SC-02	0	2	≤SQS												
T117BoundaryDefinition	T117-SE-93-SC	1275303	195783	3.5	6	not dredged	3	No	No	-	T117-SE93-SC-02	0	2	≤SQS												
T117BoundaryDefinition	T117-SE-94-SC	1275365	195781	3.5	6	6	3	No	No	-	T117-SE94-SC-02	0	2	≤SQS												
T117BoundaryDefinition	T117-SE-COMP1-SC	1275216	195870	3.5	6	not dredged	3	No	No	-	T117-SC-COMP1	0	4	≤SQS												
T117BoundaryDefinition	T117-SE-COMP2and3-SC	1275238	195806	3.5	6	not dredged	3	No	No	-	T117-SC-COMP3	0	2	>SQS, ≤CSL	2.34	No	Total PCBs	980		µg/kg dw	Yes	41.9	No	Yes	0.64	3.5
T117BoundaryDefinition	T117-SE-COMP2and3-SC	1275238	195806	3.5	6	not dredged	3	No	No	-	T117-SC-COMP2	2	4	>SQS, ≤CSL, ND												
T117BoundaryDefinition	T117-SE-COMP4-SC	1275267	195801	3.5	6	not dredged	3	No	No	-	T117-SC-COMP4	0	2	≤SQS												
USACE 1990	DU9002XX	1275794	195492	3.6	4	4	1	Yes	Yes	1990	DUWO&M90S002	0	7	>SQS, ≤CSL	2.7	No	Total PCBs	1100		µg/kg dw	Yes	41	No	Yes	0.63	3.4
USACE 1990	DU9003XX	1275515	195674	3.6	6	6	3	Yes	Yes	1990	DUWO&M90S003	0	7	>SQS, ≤CSL	2.8	No	Pentachlorophenol	400		µg/kg dw	Yes		No	Yes	0.58	1.1
USACE 1990	DU9003XX	1275515	195674	3.6	6	6	3	Yes	Yes	1990	DUWO&M90S003	0	7	>SQS, ≤CSL	2.8	No	Total PCBs	720		µg/kg dw	Yes	26	No	Yes	0.4	2.2
USACE 1991	DU9123XX	1275519	195678	3.6	6	6	3	Yes	Yes	1992	DUWO&M91S015	0	4	>SQS, ≤CSL		Yes	Total PCBs	260		µg/kg dw	Yes		No	Yes	0.26	2

Table G-2 Detected SMS Contaminants Exceeding the SQS in Cores – River Miles 2.0 to 4.0

Core Information											Sample Information						Detected SMS Contaminants Exceeding the SQS									
Task	Core Location Name	X[a]	Y[a]	River Mile	FS Removal-Emphasis Alternative when Area is First Dredged[b]	FS Combined-Technologies Alternative when Area is First Dredged[c]	Recovery Category	Collected for Dredge Material Characterization?[d]	Historically Dredged?[d]	Dredge Year[d]	Sample Name	Upper Sample Depth (ft recovered)	Lower Sample Depth (ft recovered)	SMS Assignment for Sample (maximum exceedance status in sample)[e]	TOC[f]	AET Substitution?[f]	SMS Contaminant	Concen-tration	Qualifier	Unit	Detected	OC-Normalized Concentration (mg/kg oc), if applicable	Exceeds CSL/2LAET?	Exceeds SQS/LAET?	Exceedance Factor CSL	Exceedance Factor SQS
T117BoundaryDefinition	T117-SE-15-SC	1275420	195740	3.6	6	6	3	No	No	-	T117-SE15-SC-01	0	1	>SQS, ≤CSL	2	No	Total PCBs	310		µg/kg dw	Yes	16	No	Yes	0.25	1.3
T117BoundaryDefinition	T117-SE-15-SC	1275420	195740	3.6	6	6	3	No	No	-	T117-SE15-SC-12	1	2	>SQS, ≤CSL	1.9	No	Total PCBs	320		µg/kg dw	Yes	17	No	Yes	0.26	1.4
T117BoundaryDefinition	T117-SE-15-SC	1275420	195740	3.6	6	6	3	No	No	-	T117-SE15-SC-24	2	4	>SQS, ≤CSL	1.5	No	Total PCBs	216		µg/kg dw	Yes	14	No	Yes	0.22	1.2
T117BoundaryDefinition	T117-SE-15-SC	1275420	195740	3.6	6	6	3	No	No	-	T117-SE15-SC-46	4	6	≤SQS												
T117BoundaryDefinition	T117-SE-15-SC	1275420	195740	3.6	6	6	3	No	No	-	T117-SE15-SC-68	6	8	≤SQS												
T117BoundaryDefinition	T117-SE-15-SC	1275420	195740	3.6	6	6	3	No	No	-	T117-SE15-SC-810	8	10	≤SQS												
T117BoundaryDefinition	T117-SE-23-SC	1275568	195604	3.6	6	6	3	No	No	-	T117-SE23-SC-01	0	1	≤SQS												
T117BoundaryDefinition	T117-SE-23-SC	1275568	195604	3.6	6	6	3	No	No	-	T117-SE23-SC-12	1	2	≤SQS												
T117BoundaryDefinition	T117-SE-23-SC	1275568	195604	3.6	6	6	3	No	No	-	T117-SE23-SC-24	2	4	≤SQS												
T117BoundaryDefinition	T117-SE-23-SC	1275568	195604	3.6	6	6	3	No	No	-	T117-SE23-SC-46	4	6	>SQS, ≤CSL	1.3	No	Total PCBs	220		µg/kg dw	Yes	17	No	Yes	0.26	1.4
T117BoundaryDefinition	T117-SE-23-SC	1275568	195604	3.6	6	6	3	No	No	-	T117-SE23-SC-68	6	8	≤SQS												
T117BoundaryDefinition	T117-SE-23-SC	1275568	195604	3.6	6	6	3	No	No	-	T117-SE23-SC-810	8	10	≤SQS												
T117BoundaryDefinition	T117-SE-35-SC	1275664	195438	3.6	6	6	1	No	No	-	T117-SE35-SC-01	0	1	≤SQS												
T117BoundaryDefinition	T117-SE-35-SC	1275664	195438	3.6	6	6	1	No	No	-	T117-SE35-SC-12	1	2	>SQS, ≤CSL	1.9	No	Total PCBs	480	J	µg/kg dw	Yes	25	No	Yes	0.38	2.1
T117BoundaryDefinition	T117-SE-35-SC	1275664	195438	3.6	6	6	1	No	No	-	T117-SE35-SC-24	2	4	>SQS, ≤CSL	2	No	Total PCBs	920		µg/kg dw	Yes	46	No	Yes	0.71	3.8
T117BoundaryDefinition	T117-SE-35-SC	1275664	195438	3.6	6	6	1	No	No	-	T117-SE35-SC-46	4	6	>SQS, ≤CSL	2.6	No	Total PCBs	480	J	µg/kg dw	Yes	18	No	Yes	0.28	1.5
T117BoundaryDefinition	T117-SE-35-SC	1275664	195438	3.6	6	6	1	No	No	-	T117-SE35-SC-68	6	8	>SQS, ≤CSL	1.5	No	Total PCBs	210		µg/kg dw	Yes	14	No	Yes	0.22	1.2
T117BoundaryDefinition	T117-SE-35-SC	1275664	195438	3.6	6	6	1	No	No	-	T117-SE35-SC-810	8	10	≤SQS												
PSDDA98	2 (98)	1275779	195125	3.7	6	6	1	Yes	Yes	1999	S2	0	2	>SQS, ≤CSL, ND												
USACE 1991	DU9121XX	1275843	194878	3.7	5	5	1	Yes	Yes	1992	DUWO&M91S013	0	4	>SQS, ≤CSL	1.7	No	Total PCBs	260		µg/kg dw	Yes	15	No	Yes	0.23	1.3
USACE 1991	DU9122XX	1275714	195358	3.7	6	6	1	Yes	Yes	1992	DUWO&M91S014	0	3	>SQS, ≤CSL, ND												
T117BoundaryDefinition	T117-SE-42-SC	1275667	195279	3.7	6	not dredged	3	No	No	-	T117-SE42-SC-01	0	1	>SQS, ≤CSL	1.3	No	Total PCBs	470		µg/kg dw	Yes	36	No	Yes	0.55	3
T117BoundaryDefinition	T117-SE-42-SC	1275667	195279	3.7	6	not dredged	3	No	No	-	T117-SE42-SC-12	1	2	≤SQS												
T117BoundaryDefinition	T117-SE-42-SC	1275667	195279	3.7	6	not dredged	3	No	No	-	T117-SE42-SC-24	2	4	≤SQS												
T117BoundaryDefinition	T117-SE-42-SC	1275667	195279	3.7	6	not dredged	3	No	No	-	T117-SE42-SC-46	4	6	≤SQS												
T117BoundaryDefinition	T117-SE-42-SC	1275667	195279	3.7	6	not dredged	3	No	No	-	T117-SE42-SC-68	6	8	≤SQS												
T117BoundaryDefinition	T117-SE-42-SC	1275667	195279	3.7	6	not dredged	3	No	No	-	T117-SE42-SC-810	8	10	>SQS, ≤CSL, ND												
EPA SI	DR220	1276032	194669	3.8	2	3	1	No	No	-	SD-DR220-0000A	0	2	>SQS, ≤CSL	2.42	No	Total PCBs	830		µg/kg dw	Yes	34	No	Yes	0.52	2.8
EPA SI	DR220	1276032	194669	3.8	2	3	1	No	No	-	SD-DR220-0020	2	4	>SQS, ≤CSL, ND												
LDW Subsurface Sediment 2006	LDW-SC50a	1276043	194865	3.8	2	3	2	No	No	-	LDW-SC50-0-1	0	1	>CSL	0.63	No	Arsenic	707		mg/kg dw	Yes		Yes	Yes	7.6	12
LDW Subsurface Sediment 2006	LDW-SC50a	1276043	194865	3.8	2	3	2	No	No	-	LDW-SC50-0-1	0	1	>CSL	0.63	No	Total PCBs	510		µg/kg dw	Yes	81	Yes	Yes	1.2	6.8
LDW Subsurface Sediment 2006	LDW-SC50a	1276043	194865	3.8	2	3	2	No	No	-	LDW-SC50-0-1	0	1	>CSL	0.63	No	BEHP	680		µg/kg dw	Yes	110	Yes	Yes	1.4	2.3
LDW Subsurface Sediment 2006	LDW-SC50a	1276043	194865	3.8	2	3	2	No	No	-	LDW-SC50-1-2	1	2	>CSL	0.816	No	Arsenic	281		mg/kg dw	Yes		Yes	Yes	3	4.9
LDW Subsurface Sediment 2006	LDW-SC50a	1276043	194865	3.8	2	3	2	No	No	-	LDW-SC50-1-2	1	2	>CSL	0.816	No	Total PCBs	780		µg/kg dw	Yes	96	Yes	Yes	1.5	8
LDW Subsurface Sediment 2006	LDW-SC50a	1276043	194865	3.8	2	3	2	No	No	-	LDW-SC50-2-2.8	2	2.8	>CSL	1.18	No	Arsenic	161		mg/kg dw	Yes		Yes	Yes	1.7	2.8
LDW Subsurface Sediment 2006	LDW-SC50a	1276043	194865	3.8	2	3	2	No	No	-	LDW-SC50-2.8-4	2.8	4	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC51	1276135	194728	3.8	2	3	2	No	No	-	LDW-SC51-0-0.5	0	0.5	>CSL	1.61	No	Benzyl alcohol	180		µg/kg dw	Yes		Yes	Yes	2.5	3.2
LDW Subsurface Sediment 2006	LDW-SC51	1276135	194728	3.8	2	3	2	No	No	-	LDW-SC51-0-0.5	0	0.5	>CSL	1.61	No	Acenaphthene	350		µg/kg dw	Yes	22	No	Yes	0.39	1.4
LDW Subsurface Sediment 2006	LDW-SC51	1276135	194728	3.8	2	3	2	No	No	-	LDW-SC51-0-0.5	0	0.5	>CSL	1.61	No	Benzo(g,h,i) perylene	590		µg/kg dw	Yes	37	No	Yes	0.47	1.2
LDW Subsurface Sediment 2006	LDW-SC51	1276135	194728	3.8	2	3	2	No	No	-	LDW-SC51-0-0.5	0	0.5	>CSL	1.61	No	Chrysene	1900		µg/kg dw	Yes	120	No	Yes	0.26	1.1
LDW Subsurface Sediment 2006	LDW-SC51	1276135	194728	3.8	2	3	2	No	No	-	LDW-SC51-0-0.5	0	0.5	>CSL	1.61	No	Fluoranthene	4000		µg/kg dw	Yes	250	No	Yes	0.21	1.6
LDW Subsurface Sediment 2006	LDW-SC51	1276135	194728	3.8	2	3	2	No	No	-	LDW-SC51-0-0.5	0	0.5	>CSL	1.61	No	Indeno(1,2,3-cd)pyrene	690		µg/kg dw	Yes	43	No	Yes	0.49	1.3
LDW Subsurface Sediment 2006	LDW-SC51	1276135	194728	3.8	2	3	2	No	No	-	LDW-SC51-0-0.5	0	0.5	>CSL	1.61	No	Phenanthrene	2300		µg/kg dw	Yes	140	No	Yes	0.29	1.4
LDW Subsurface Sediment 2006	LDW-SC51	1276135	194728	3.8	2	3	2	No	No	-	LDW-SC51-0-0.5	0	0.5	>CSL	1.61	No	Total HPAHs	16100		µg/kg dw	Yes	1000	No	Yes	0.19	1
LDW Subsurface Sediment 2006	LDW-SC51	1276135	194728	3.8	2	3	2	No	No	-	LDW-SC51-0-0.5	0	0.5	>CSL	1.61	No	BEHP	970		µg/kg dw	Yes	60	No	Yes	1.3	0.77
LDW Subsurface Sediment 2006	LDW-SC51	1276135	194728	3.8	2	3	2	No	No	-	LDW-SC51-0-2	0	2	>CSL	1.47	No	Acenaphthene	380		µg/kg dw	Yes	26	No	Yes	0.46	1.6
LDW Subsurface Sediment 2006	LDW-SC51	1276135	194728	3.8	2	3	2	No	No	-	LDW-SC51-0-2	0	2	>CSL	1.47	No	Dibenzofuran	230		µg/kg dw	Yes	16	No	Yes	0.28	1.1
LDW Subsurface Sediment 2006	LDW-SC51	1276135	194728	3.8	2	3	2	No	No	-	LDW-SC51-0-2	0	2	>CSL	1.47	No	Total PCBs	1290		µg/kg dw	Yes	88	Yes	Yes	1.4	7.3
LDW Subsurface Sediment 2006	LDW-SC51	1276135	194728	3.8	2	3	2	No	No	-	LDW-SC51-0.5-1	0.5	1	>CSL	1.64	No	BEHP	1800		µg/kg dw	Yes	110	Yes	Yes	2.3	1.4
LDW Subsurface Sediment 2006	LDW-SC51	1276135	194728	3.8	2	3	2	No	No	-	LDW-SC51-1-1.5	1	1.5	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC51	1276135	194728	3.8	2	3	2	No	No	-	LDW-SC51-1.5-2	1.5	2	>SQS, ≤CSL, ND												
LDW Subsurface Sediment 2006	LDW-SC51	1276135	194728	3.8	2	3	2	No	No	-	LDW-SC51-2-3.8	2	3.8	>SQS, ≤CSL	1.73	No	Total PCBs	700		µg/kg dw	Yes	40	No	Yes	0.62	3.3
LDW Subsurface Sediment 2006	LDW-SC51	1276135	194728	3.8	2	3	2	No	No	-	LDW-SC51-3.8-5.8	3.8	5.8	≤SQS												
PSDDA98	3	1276037	194297	3.9	outside of AOPCs	outside of AOPCs	1	Yes	Yes	1999	S3	0	2	>SQS, ≤CSL, ND												

Table G-2 Detected SMS Contaminants Exceeding the SQS in Cores – River Miles 2.0 to 4.0

Core Information											Sample Information						Detected SMS Contaminants Exceeding the SQS									
Task	Core Location Name	X[a]	Y[a]	River Mile	FS Removal-Emphasis Alternative when Area is First Dredged[b]	FS Combined-Technologies Alternative when Area is First Dredged[c]	Recovery Category	Collected for Dredge Material Characterization?[d]	Historically Dredged?[d]	Dredge Year[d]	Sample Name	Upper Sample Depth (ft recovered)	Lower Sample Depth (ft recovered)	SMS Assignment for Sample (maximum exceedance status in sample)[e]	TOC[f]	AET Substitution?[f]	SMS Contaminant	Concen-tration	Qualifier	Unit	Detected	OC-Normalized Concentration (mg/kg oc), if applicable	Exceeds CSL/2LAET?	Exceeds SQS/LAET?	Exceedance Factor CSL	Exceedance Factor SQS
8801 E Marginal (formerly KenworthPACCAR)	AN-042	1276319	193974	3.9	2	3	2	No	No	-	AN042-SC-080211-A	0	1	>CSL	1.55	No	Total PCBs	1500		µg/kg dw	Yes	97	Yes	Yes	1.5	8.1
8801 E Marginal (formerly KenworthPACCAR)	AN-042	1276319	193974	3.9	2	3	2	No	No	-	AN042-SC-080211-A	0	1	>CSL	1.55	No	Butyl benzyl phthalate	130		µg/kg dw	Yes	8.4	No	Yes	0.13	1.7
8801 E Marginal (formerly KenworthPACCAR)	AN-042	1276319	193974	3.9	2	3	2	No	No	-	AN042-SC-080211-B	1	2	>CSL	2.1	No	Total PCBs	1400		µg/kg dw	Yes	67	Yes	Yes	1	5.6
8801 E Marginal (formerly KenworthPACCAR)	AN-042	1276319	193974	3.9	2	3	2	No	No	-	AN042-SC-080211-C	2	3	≤SQS												
8801 E Marginal (formerly KenworthPACCAR)	AN-042	1276319	193974	3.9	2	3	2	No	No	-	AN042-SC-080211-D	3	4	≤SQS												
8801 E Marginal (formerly KenworthPACCAR)	AN-042	1276319	193974	3.9	2	3	2	No	No	-	AN042-SC-080211-E	4	5	≤SQS												
8801 E Marginal (formerly KenworthPACCAR)	AN-042	1276319	193974	3.9	2	3	2	No	No	-	AN042-SC-080211-F	5	5.8	≤SQS												
8801 E Marginal (formerly KenworthPACCAR)	AN-043	1276265	194232	3.9	2	3	2	No	No	-	AN043-SC-080211-A	0	1	>SQS, ≤CSL	1.06	No	Total PCBs	270		µg/kg dw	Yes	25	No	Yes	0.38	2.1
8801 E Marginal (formerly KenworthPACCAR)	AN-043	1276265	194232	3.9	2	3	2	No	No	-	AN043-SC-080211-A	0	1	>SQS, ≤CSL	1.06	No	Butyl benzyl phthalate	57		µg/kg dw	Yes	5.4	No	Yes	0.084	1.1
8801 E Marginal (formerly KenworthPACCAR)	AN-043	1276265	194232	3.9	2	3	2	No	No	-	AN043-SC-080211-B	1	2	>CSL	2.86	No	Cadmium	16.9		mg/kg dw	Yes		Yes	Yes	2.5	3.3
8801 E Marginal (formerly KenworthPACCAR)	AN-043	1276265	194232	3.9	2	3	2	No	No	-	AN043-SC-080211-B	1	2	>CSL	2.86	No	Chromium	514	J	mg/kg dw	Yes		Yes	Yes	1.9	2
8801 E Marginal (formerly KenworthPACCAR)	AN-043	1276265	194232	3.9	2	3	2	No	No	-	AN043-SC-080211-B	1	2	>CSL	2.86	No	Lead	2530	J	mg/kg dw	Yes		Yes	Yes	4.8	5.6
8801 E Marginal (formerly KenworthPACCAR)	AN-043	1276265	194232	3.9	2	3	2	No	No	-	AN043-SC-080211-B	1	2	>CSL	2.86	No	Mercury	1.51		mg/kg dw	Yes		Yes	Yes	2.6	3.7
8801 E Marginal (formerly KenworthPACCAR)	AN-043	1276265	194232	3.9	2	3	2	No	No	-	AN043-SC-080211-B	1	2	>CSL	2.86	No	Zinc	1250		mg/kg dw	Yes		Yes	Yes	1.3	3
8801 E Marginal (formerly KenworthPACCAR)	AN-043	1276265	194232	3.9	2	3	2	No	No	-	AN043-SC-080211-B	1	2	>CSL	2.86	No	2,4-Dimethyl-phenol	54	J	µg/kg dw	Yes		Yes	Yes	1.9	1.9
8801 E Marginal (formerly KenworthPACCAR)	AN-043	1276265	194232	3.9	2	3	2	No	No	-	AN043-SC-080211-B	1	2	>CSL	2.86	No	Total PCBs	1800		µg/kg dw	Yes	63	No	Yes	0.97	5.3
8801 E Marginal (formerly KenworthPACCAR)	AN-043	1276265	194232	3.9	2	3	2	No	No	-	AN043-SC-080211-C	2	3	≤SQS												
8801 E Marginal (formerly KenworthPACCAR)	AN-043	1276265	194232	3.9	2	3	2	No	No	-	AN043-SC-080211-D	3	4	≤SQS												
8801 E Marginal (formerly KenworthPACCAR)	AN-043	1276265	194232	3.9	2	3	2	No	No	-	AN043-SC-080211-E	4	5	≤SQS												
8801 E Marginal (formerly KenworthPACCAR)	AN-043	1276265	194232	3.9	2	3	2	No	No	-	AN043-SC-080211-F	5	6	≤SQS												
8801 E Marginal (formerly KenworthPACCAR)	AN-044	1276246	194250	3.9	2	3	2	No	No	-	AN044-SC-080211-A	0	1	>CSL	2.3	No	Total PCBs	3000		µg/kg dw	Yes	130	Yes	Yes	2	11
8801 E Marginal (formerly KenworthPACCAR)	AN-044	1276246	194250	3.9	2	3	2	No	No	-	AN044-SC-080211-A	0	1	>CSL	2.3	No	Butyl benzyl phthalate	240		µg/kg dw	Yes	10	No	Yes	0.16	2
8801 E Marginal (formerly KenworthPACCAR)	AN-044	1276246	194250	3.9	2	3	2	No	No	-	AN044-SC-080211-B	1	2	>SQS, ≤CSL	2.79	No	Total PCBs	470		µg/kg dw	Yes	17	No	Yes	0.26	1.4
8801 E Marginal (formerly KenworthPACCAR)	AN-044	1276246	194250	3.9	2	3	2	No	No	-	AN044-SC-080211-C	2	3.5	≤SQS												
8801 E Marginal (formerly KenworthPACCAR)	AN-044	1276246	194250	3.9	2	3	2	No	No	-	AN044-SC-080211-D	3.5	4.5	≤SQS												
8801 E Marginal (formerly KenworthPACCAR)	AN-044	1276246	194250	3.9	2	3	2	No	No	-	AN044-SC-080211-E	4.5	5.5	≤SQS												
8801 E Marginal (formerly KenworthPACCAR)	AN-044	1276246	194250	3.9	2	3	2	No	No	-	AN044-SC-080211-F	5.5	6.5	≤SQS												
USACE 1990	DU9001XX	1276182	193931	3.9	5	5	1	Yes	Yes	1990	DUWO&M90S001	0	5	>SQS, ≤CSL	2.8	No	Pentachloro-phenol	420		µg/kg dw	Yes		No	Yes	0.61	1.2
USACE 1991	DU9119XX	1276190	193943	3.9	5	5	1	Yes	Yes	1992	DUWO&M91S011	0	3	≤SQS												
USACE 1991	DU9120XX	1276091	194345	3.9	6	6	1	Yes	Yes	1992	DUWO&M91S012	0	3	>SQS, ≤CSL, ND												
LDW Subsurface Sediment 2006	LDW-SC52	1276280	194160	3.9	2	3	2	No	No	-	LDW-SC52-0-1	0	1	>CSL	2.37	No	Mercury	0.67		mg/kg dw	Yes		Yes	Yes	1.1	1.6
LDW Subsurface Sediment 2006	LDW-SC52	1276280	194160	3.9	2	3	2	No	No	-	LDW-SC52-0-1	0	1	>CSL	2.37	No	2-Methylphenol	160		µg/kg dw	Yes		Yes	Yes	2.5	2.5
LDW Subsurface Sediment 2006	LDW-SC52	1276280	194160	3.9	2	3	2	No	No	-	LDW-SC52-0-1	0	1	>CSL	2.37	No	Total PCBs	3000	J	µg/kg dw	Yes	130	Yes	Yes	2	11
LDW Subsurface Sediment 2006	LDW-SC52	1276280	194160	3.9	2	3	2	No	No	-	LDW-SC52-0-1	0	1	>CSL	2.37	No	Butyl benzyl phthalate	610		µg/kg dw	Yes	26	No	Yes	0.41	5.3
LDW Subsurface Sediment 2006	LDW-SC52	1276280	194160	3.9	2	3	2	No	No	-	LDW-SC52-1-2	1	2	>SQS, ≤CSL, ND												
LDW Subsurface Sediment 2006	LDW-SC52	1276280	194160	3.9	2	3	2	No	No	-	LDW-SC52-2-4	2	4	≤SQS												
PSDDA98	4	1276167	193767	4.0	6	6	1	Yes	Yes	1999	S4	0	2	>SQS, ≤CSL, ND												

Table G-2 Detected SMS Contaminants Exceeding the SQS in Cores – River Miles 2.0 to 4.0

Core Information											Sample Information						Detected SMS Contaminants Exceeding the SQS									
Task	Core Location Name	X[a]	Y[a]	River Mile	FS Removal-Emphasis Alternative when Area is First Dredged[b]	FS Combined-Technologies Alternative when Area is First Dredged[c]	Recovery Category	Collected for Dredge Material Characterization?[d]	Historically Dredged?[d]	Dredge Year[d]	Sample Name	Upper Sample Depth (ft recovered)	Lower Sample Depth (ft recovered)	SMS Assignment for Sample (maximum exceedance status in sample)[e]	TOC[f]	AET Substitution?[f]	SMS Contaminant	Concen-tration	Qualifier	Unit	Detected	OC-Normalized Concentration (mg/kg oc), if applicable	Exceeds CSL/2LAET?	Exceeds SQS/LAET?	Exceedance Factor CSL	Exceedance Factor SQS
8801 E Marginal (formerly KenworthPACCAR)	AN-041	1276367	193757	4.0	4	not dredged	2	No	No	-	AN041-SC-080211-A	0	1	>CSL	1.58	No	Total PCBs	1060		µg/kg dw	Yes	67.1	Yes	Yes	1	5.6
8801 E Marginal (formerly KenworthPACCAR)	AN-041	1276367	193757	4.0	4	not dredged	2	No	No	-	AN041-SC-080211-B	1	2	≤SQS												
8801 E Marginal (formerly KenworthPACCAR)	AN-041	1276367	193757	4.0	4	not dredged	2	No	No	-	AN041-SC-080211-C	2	3	≤SQS												
8801 E Marginal (formerly KenworthPACCAR)	AN-041	1276367	193757	4.0	4	not dredged	2	No	No	-	AN041-SC-080211-D	3	4	≤SQS												
8801 E Marginal (formerly KenworthPACCAR)	AN-041	1276367	193757	4.0	4	not dredged	2	No	No	-	AN041-SC-080211-E	4	5	≤SQS												
8801 E Marginal (formerly KenworthPACCAR)	AN-041	1276367	193757	4.0	4	not dredged	2	No	No	-	AN041-SC-080211-F	5	6	≤SQS												
DuwamYachtClub	C1	1276029	193283	4.0	outside of AOPCs	outside of AOPCs	3	Yes	Yes	1999	C1	0	1.7	>SQS, ≤CSL, ND												
USACE 1991	DU9118XX	1276200	193467	4.0	6	6	3	Yes	Yes	1992	DUWO&M91S010	0	3	>SQS, ≤CSL	1.2	No	Total PCBs	214		µg/kg dw	Yes	18	No	Yes	0.28	1.5
RhônePoulenc2004	SB-13	1276396	193642	4.0	4	not dredged	2	No	No	-	Lower SB-13	0.33	0.69	>SQS, ≤CSL	1.5	No	Dibenzo(a,h) anthracene	300	J	µg/kg dw	Yes	20	No	Yes	0.61	1.7
RhônePoulenc2004	SH-01	1276626	193525	4.0	3	not dredged	3	No	No	-	Lower SH-01	0.33	0.82	>CSL	0.66	No	Pentachloro-phenol	840	J	µg/kg dw	Yes		Yes	Yes	1.2	2.3
RhônePoulenc2004	SH-01	1276626	193525	4.0	3	not dredged	3	No	No	-	Lower SH-01	0.33	0.82	>CSL	0.66	No	Dibenzo(a,h) anthracene	210	J	µg/kg dw	Yes	32	No	Yes	0.97	2.7
RhônePoulenc2004	SH-01	1276626	193525	4.0	3	not dredged	3	No	No	-	Lower SH-01	0.33	0.82	>CSL	0.66	No	Total PCBs	130		µg/kg dw	Yes	20	No	Yes	0.31	1.7
RhônePoulenc2004	SH-01	1276626	193525	4.0	3	not dredged	3	No	No	-	Lower SH-01	0.33	0.82	>CSL	0.66	No	Diethyl phthalate	2700		µg/kg dw	Yes	410	Yes	Yes	3.7	6.7
RhônePoulenc2004	SH-02	1276644	193476	4.0	3	not dredged	3	No	No	-	Lower SH-02	0.33	0.82	>SQS, ≤CSL	1.45	No	Dibenzo(a,h) anthracene	380	J	µg/kg dw	Yes	26	No	Yes	0.79	2.2
RhônePoulenc2004	SH-02	1276644	193476	4.0	3	not dredged	3	No	No	-	Lower SH-02	0.33	0.82	>SQS, ≤CSL	1.45	No	Total PCBs	300		µg/kg dw	Yes	21	No	Yes	0.32	1.8
RhônePoulenc2004	SH-02	1276644	193476	4.0	3	not dredged	3	No	No	-	Lower SH-02	0.33	0.82	>SQS, ≤CSL	1.45	No	Di-n-octyl phthalate	2000		µg/kg dw	Yes	140	No	Yes	0.031	2.4

Notes

a. datum: NAD 1983 Washington State Plane North (Feet).

b. Indicates lowest-numbered remedial alternative when the core is subject to dredging or to partial dredging/ capping for Alternatives 2R/2R-CAD, 3R, 4R, 5R/5R-T, and 6R.

c. Indicates lowest-numbered remedial alternative when the core is subject to dredging or to partial dredging/ capping for Alternatives 3C, 4C, 5C, and 6C.
Note that if a removal alternative is dredged, but the corresponding combined alternative is not dredged, then the combined alternative is actively remediated with capping or ENR

d. The column titled "Collected for Dredge Material Characterization" identifies whether cores were collected to support a proposed dredging project. The "yes" entries in this column match the dredging footnotes in the stick diagrams. Much of the information about dredging comes from open water disposal suitability determinations written prior to dredgin
not from reports confirming the dredging itself. In those instances where there is no confirmation that the dredging occurred, the "historically dredge" column is populated with "no," and the dredge year is blank. This matches the entries in the FS database

e. Maximum SMS exceedance status for sample. Delineation matches color coding in stick diagrams.

f. Cells are populated only if sample has detected exceedances of the SQS. Then the TOC and AET substitution describe whether non-polar organic compounds are compared to the SQS/CSL (organic carbon normalized concentration) or the LAET/2LAET (dry weight concentration)

AET = apparent effects threshold; AOPC = area of potential concern; BEHP = bis(2-ethylhexyl)phthalate; CSL = cleanup screening level; LAET = lowest apparent effects threshold (2LAET = 2nd lowest); ND = not detected; oc = organic carbon; PAHs = polycyclic aromatic hydrocarbons;
PCB = polychlorinated biphenyl; SMS = Sediment Management Standards; SQS = sediment quality standard; SVOCs = semivolatile organic compounds; TOC = total organic carbon

Table G-3 Detected SMS Contaminants Exceeding the SQS in Cores – River Miles 4.1 to 5.0

Core Information											Sample Information						Detected SMS Contaminants Exceeding the SQS									
Study	Core Location Name	X[a]	Y[a]	River Mile	FS Removal-Emphasis Alternative when Area is First Dredged[b]	FS Combined-Technologies Alternative when Area is First Dredged[c]	Recovery Category	Collected for Dredge Material Characterization?[d]	Historically Dredged?[d]	Dredge Year[d]	Sample Name	Upper Sample Depth (ft recovered)	Lower Sample Depth (ft recovered)	SMS Assignment for Sample (maximum exceedance status in sample)[e]	TOC[f]	AET Substitution?[f]	SMS Contaminant	Concen-tration	Qualifier	Unit	Detected	OC-Normalized Concentration (mg/kg oc), if applicable	Exceeds CSL/2LAET?	Exceeds SQS/LAET?	Exceedance Factor CSL	Exceedance Factor SQS
PSDDA98	5	1276295	193292	4.1	outside of AOPCs	outside of AOPCs	3	Yes	Yes	1999	S5	0	2	>SQS, ≤CSL, ND												
DuwamYachtClub	C2	1276060	193153	4.1	outside of AOPCs	outside of AOPCs	3	Yes	Yes	1999	C2	0	1.8	>SQS, ≤CSL, ND												
DuwamYachtClub	C3	1276097	193033	4.1	outside of AOPCs	outside of AOPCs	3	Yes	Yes	1999	C3	0	1.7	>SQS, ≤CSL, ND												
DuwamYachtClub	C4	1276116	192985	4.1	outside of AOPCs	outside of AOPCs	3	Yes	Yes	1999	C4	0	1.8	>SQS, ≤CSL, ND												
DuwamYachtClub	C5	1276185	192853	4.1	outside of AOPCs	outside of AOPCs	3	Yes	Yes	1999	C5	0	1.7	>SQS, ≤CSL, ND												
DuwamYachtClub	C6	1276095	192761	4.1	6	not dredged	3	Yes	Yes	1999	C6	0	2.2	>SQS, ≤CSL, ND												
LDW Turning Basin 08	D08	1276400	192844	4.1	outside of AOPCs	outside of AOPCs	3	Yes	Yes	2010	DR08-B-D08-C	0	4.2	≤SQS												
LDW Turning Basin 08	D09 (08)	1276360	192966	4.1	outside of AOPCs	outside of AOPCs	3	Yes	Yes	2010	DR08-B-D09-C	0	5.2	≤SQS												
LDW Turning Basin 09	D09 (09)	1276360	192966	4.1	outside of AOPCs	outside of AOPCs	3	Yes	Yes	2010	DR09R-B-D09-C	0	4.4	≤SQS												
LDW Turning Basin 08	D10	1276350	193086	4.1	outside of AOPCs	outside of AOPCs	3	Yes	Yes	2010	DR08-B-D10-C	0	4.9	≤SQS												
LDW Turning Basin 08	D11 (08)	1276330	193196	4.1	outside of AOPCs	outside of AOPCs	3	Yes	Yes	2010	DR08-B-D11-C	0	5.1	≤SQS												
LDW Turning Basin 09	D11 (09)	1276330	193196	4.1	outside of AOPCs	outside of AOPCs	3	Yes	Yes	2010	DR09R-B-D11-C	0	4.2	≤SQS												
LDW Turning Basin 08	D12	1276281	193320	4.1	outside of AOPCs	outside of AOPCs	3	Yes	Yes	2010	DR08-B-D12-C	0	3.2	≤SQS												
LDW Turning Basin 08	D14	1276335	193122	4.1	outside of AOPCs	outside of AOPCs	3	Yes	Yes	2010	DR08-B-D14-C	5.2	6.2	≤SQS												
EPA SI	DR284	1276300	192823	4.1	outside of AOPCs	outside of AOPCs	3	No	No	-	SD-DR284-0000A	0	2	>SQS, ≤CSL, ND												
EPA SI	DR284	1276300	192823	4.1	outside of AOPCs	outside of AOPCs	3	No	No	-	SD-DR284-0020	2	4	>SQS, ≤CSL, ND												
USACE 1991	DU9115XX	1276329	192919	4.1	outside of AOPCs	outside of AOPCs	3	Yes	Yes	1992	DUWO&M91S007	0	4	>SQS, ≤CSL, ND												
USACE 1991	DU9116XX	1276287	193084	4.1	outside of AOPCs	outside of AOPCs	3	Yes	Yes	1992	DUWO&M91S008	0	4	>SQS, ≤CSL	1.9	No	Total PCBs	600		µg/kg dw	Yes	30	No	Yes	0.46	2.5
USACE 1991	DU9117XX	1276242	193271	4.1	outside of AOPCs	outside of AOPCs	3	Yes	Yes	1992	DUWO&M91S009	0	4	>SQS, ≤CSL, ND												
RhônePoulenc2004	SB-12	1276488	193172	4.1	3	not dredged	3	No	No	-	Lower SB-12	0.33	0.69	>CSL	1.79	No	Benzoic acid	1300	J	µg/kg dw	Yes		Yes	Yes	2	2
RhônePoulenc2004	SB-12	1276488	193172	4.1	3	not dredged	3	No	No	-	Lower SB-12	0.33	0.69	>CSL	1.79	No	Dibenzo(a,h)anthracene	380	J	µg/kg dw	Yes	21	No	Yes	0.64	1.8
RhônePoulenc2004	SH-03	1276647	193427	4.1	3	not dredged	3	No	No	-	Lower SH-03	0.33	0.82	>CSL, ND												
RhônePoulenc2004	SH-04	1276680	193285	4.1	3	6	3	No	No	-	Lower SH-04	0.33	0.82	>CSL	0.61	No	Pentachlorophenol	930	J	µg/kg dw	Yes		Yes	Yes	1.3	2.6
RhônePoulenc2004	SH-04	1276680	193285	4.1	3	6	3	No	No	-	Lower SH-04	0.33	0.82	>CSL	0.61	No	Dibenzo(a,h)anthracene	230	J	µg/kg dw	Yes	38	Yes	Yes	1.2	3.2
RhônePoulenc2004	SH-04	1276680	193285	4.1	3	6	3	No	No	-	Lower SH-04	0.33	0.82	>CSL	0.61	No	Total PCBs	2500		µg/kg dw	Yes	410	Yes	Yes	6.3	34
RhônePoulenc2004	SH-05	1276691	193156	4.1	3	5	3	No	No	-	Lower SH-05	0.33	0.82	≤SQS												
RhônePoulenc2004	SH-06	1276761	192921	4.1	2	3	1	No	No	-	Lower SH-06	0.33	0.82	>CSL, ND												
LDW Turning Basin 08	ST21	1276490	192863	4.1	2	3	1	Yes	Yes	2010	DR08-B-ST21-C0-2	0	2	≤SQS												
LDW Turning Basin 08	ST21	1276490	192863	4.1	2	3	1	Yes	Yes	2010	DR08-B-ST21-C2-5	2	5	≤SQS												
LDW Turning Basin 08	ST22	1276450	192975	4.1	6	6	3	Yes	Yes	2010	DR08-B-ST22-C0-2	0	2	≤SQS												
LDW Turning Basin 08	ST22	1276450	192975	4.1	6	6	3	Yes	Yes	2010	DR08-B-ST22-C2-5	2	5	>CSL	2.7	No	Mercury	1.8		mg/kg dw	Yes		Yes	Yes	3.1	4.4
LDW Turning Basin 08	ST23	1276430	193096	4.1	outside of AOPCs	outside of AOPCs	3	Yes	Yes	2010	DR08-B-ST23-C0-2	0	2	≤SQS												
LDW Turning Basin 08	ST23	1276430	193096	4.1	outside of AOPCs	outside of AOPCs	3	Yes	Yes	2010	DR08-B-ST23-C2-5	2	5	≤SQS												
LDW Turning Basin 08	ST28	1276250	193065	4.1	outside of AOPCs	outside of AOPCs	3	Yes	Yes	2010	DR08-B-ST28-C0-2	0	2	≤SQS												
LDW Turning Basin 08	ST28	1276250	193065	4.1	outside of AOPCs	outside of AOPCs	3	Yes	Yes	2010	DR08-B-ST28-C2-5	2	5	≤SQS												
PSDDA96	6 (96)	1276510	192364	4.2	outside of AOPCs	outside of AOPCs	1	Yes	Yes	1999	S3	0	4	>SQS, ≤CSL, ND												
PSDDA98	6 (98)	1276452	192612	4.2	outside of AOPCs	outside of AOPCs	3	Yes	Yes	1999	S6	0	2	>SQS, ≤CSL, ND												
PSDDA98	7 (98)	1276534	192326	4.2	outside of AOPCs	outside of AOPCs	1	Yes	Yes	1999	S7	0	3	>SQS, ≤CSL, ND												
LDW Turning Basin 08	D04 (08)	1276510	192418	4.2	outside of AOPCs	outside of AOPCs	1	Yes	Yes	2010	DR08-B-D04-C	0	4.7	≤SQS												
LDW Turning Basin 09	D04 (09)	1276510	192418	4.2	outside of AOPCs	outside of AOPCs	1	Yes	Yes	2010	DR09R-B-D04-C	0	5.5	≤SQS												
LDW Turning Basin 08	D05	1276490	192506	4.2	outside of AOPCs	outside of AOPCs	3	Yes	Yes	2010	DR08-B-D05-C	0	4.9	≤SQS												
LDW Turning Basin 08	D06 (08)	1276470	192610	4.2	outside of AOPCs	outside of AOPCs	3	Yes	Yes	2010	DR08-B-D06-C	0	4.4	≤SQS												
LDW Turning Basin 09	D06 (09)	1276470	192610	4.2	outside of AOPCs	outside of AOPCs	3	Yes	Yes	2010	DR09R-B-D06-C	0	5.3	≤SQS												
LDW Turning Basin 08	D07	1276440	192730	4.2	outside of AOPCs	outside of AOPCs	3	Yes	Yes	2010	DR08-B-D07-C	0	4.5	≤SQS												
LDW Turning Basin 08	D13	1276491	192512	4.2	outside of AOPCs	outside of AOPCs	3	Yes	Yes	2010	DR08-B-D13-C	4.9	5.9	≤SQS												
LDW Turning Basin 09	D15	1276467	192514	4.2	outside of AOPCs	outside of AOPCs	3	Yes	Yes	2010	DR09-B-D15-C0-3	0	2.5	≤SQS												
LDW Turning Basin 09	D15	1276467	192514	4.2	outside of AOPCs	outside of AOPCs	3	Yes	Yes	2010	DR09-B-D15-Z	2.5	3.5	>SQS, ≤CSL, ND												
Delta Marine	DMMU 1	1276241	192572	4.2	6	not dredged	1	Yes	Yes	2008	DMMU 1	0	7	>SQS, ≤CSL, ND												
Delta Marine	DMMU 3	1276355	192576	4.2	6	6	1	Yes	Yes	2008	DMMU 3	1	7	>SQS, ≤CSL, ND												
Delta Marine	DMMU 4	1276391	192408	4.2	6	6	1	Yes	Yes	2008	DMMU 4	1.3	7.5	>SQS, ≤CSL, ND												
EPA SI	DR246	1276783	192615	4.2	4	4	1	No	No	-	SD-DR246-0000A	0	2	>SQS, ≤CSL, ND												
EPA SI	DR246	1276783	192615	4.2	4	4	1	No	No	-	SD-DR246-0020	2	4	>SQS, ≤CSL, ND												
USACE 1991	DU9111XX	1276455	192388	4.2	6	6	3	Yes	Yes	1992	DUWO&M91S003	0	3	>SQS, ≤CSL, ND												
USACE 1991	DU9112XX	1276485	192405	4.2	outside of AOPCs	outside of AOPCs	1	Yes	Yes	1992	DUWO&M91S004	0	3	>SQS, ≤CSL	1.4	No	BEHP	1000		µg/kg dw	Yes	70	No	Yes	0.9	1.5
USACE 1991	DU9113XX	1276409	192563	4.2	6	6	3	Yes	Yes	1992	DUWO&M91S005	0	5	>SQS, ≤CSL, ND												
USACE 1991	DU9114XX	1276360	192762	4.2	outside of AOPCs	outside of AOPCs	3	Yes	Yes	1992	DUWO&M91S006	0	4	>SQS, ≤CSL, ND												
LDW Subsurface Sediment 2006	LDW-SC53	1277459	192928	4.2	2	3	1	No	No	-	LDW-SC53-0-2	0	2	>SQS, ≤CSL, ND												
LDW Subsurface Sediment 2006	LDW-SC53	1277459	192928	4.2	2	3	1	No	No	-	LDW-SC53-2-4	2	4	>SQS, ≤CSL, ND												
RhônePoulenc2004	SB-1	1277485	192933	4.2	3	3	1	No	No	-	Lower SB-01	0.33	0.69	>SQS, ≤CSL	2.5	SQS	Benzo(g,h,i)perylene	860		µg/kg dw	Yes	34	No	Yes	0.44	1.1
RhônePoulenc2004	SB-1	1277485	192933	4.2	3	3	1	No	No	-	Lower SB-01	0.33	0.69	>SQS, ≤CSL	2.5	SQS	Dibenzo(a,h)anthracene	630	J	µg/kg dw	Yes	25	No	Yes	0.76	2.1
RhônePoulenc2004	SB-1	1277485	192933	4.2	3	3	1	No	No	-	Lower SB-01	0.33	0.69	>SQS, ≤CSL	2.5	SQS	Indeno(1,2,3-cd)pyrene	970		µg/kg dw	Yes	39	No	Yes	0.44	1.1
RhônePoulenc2004	SB-1	1277485	192933	4.2	3	3	1	No	No	-	Lower SB-01	0.33	0.69	>SQS, ≤CSL	2.5	SQS	BEHP	1600		µg/kg dw	Yes	64	No	Yes	0.82	1.4
RhônePoulenc2004	SB-11	1276515	192835	4.2	2	3	1	No	No	-	Lower SB-11	0.33	0.69	>CSL	2.26	SQS	Benzoic acid	1200	J	µg/kg dw	Yes		Yes	Yes	1.8	1.8
RhônePoulenc2004	SB-11	1276515	192835	4.2	2	3	1	No	No	-	Lower SB-11	0.33	0.69	>CSL	2.26	SQS	Dibenzo(a,h)anthracene	320	J	µg/kg dw	Yes	14	No	Yes	0.42	1.2
RhônePoulenc2004	SB-17	1277440	192982	4.2	2	3	1	No	No	-	Lower SB-16	0.33	0.69	>CSL	3.71	SQS	Benzoic acid	2000	J	µg/kg dw	Yes		Yes	Yes	3.1	3.1
RhônePoulenc2004	SB-17	1277440	192982	4.2	2	3	1	No	No	-	Lower SB-17	0.33	0.69	>CSL	3.32	SQS	Benzoic acid	1800	J	µg/kg dw	Yes		Yes	Yes	2.8	2.8
RhônePoulenc2004	SB-17	1277440	192982	4.2	2	3	1	No	No	-	Lower SB-16	0.33	0.69	>CSL	3.71	SQS	Phenol	480		µg/kg dw	Yes		No	Yes	0.4	1.1
RhônePoulenc2004	SB-17	1277440	192982	4.2	2	3	1	No	No	-	Lower SB-16	0.33	0.69	>CSL	3.71	SQS	Dibenzo(a,h)anthracene	630	J	µg/kg dw	Yes	17	No	Yes	0.52	1.4
RhônePoulenc2004	SB-17	1277440	192982	4.2	2	3	1	No	No	-	Lower SB-17	0.33	0.69	>CSL	3.32	SQS	Dibenzo(a,h)anthracene	660	J	µg/kg dw	Yes	20	No	Yes	0.61	1.7
RhônePoulenc2004	SB-17	1277440	192982	4.2	2	3	1	No	No	-	Lower SB-16	0.33	0.69	>CSL	3.71	SQS	BEHP	1800		µg/kg dw	Yes	49	No	Yes	0.63	1
RhônePoulenc2004	SB-17	1277440	192982	4.2	2	3	1	No	No	-	Lower SB-17	0.33	0.69	>CSL	3.32	SQS	BEHP	1800		µg/kg dw	Yes	54	No	Yes	0.69	1.1
RhônePoulenc2004	SB-2	1277003	192646	4.2	4	4	1	No	No	-	Lower SB-02	0.33	0.69	>SQS, ≤CSL	2.32	SQS	Dibenzo(a,h)anthracene	380	J	µg/kg dw	Yes	16	No	Yes	0.48	1.3
RhônePoulenc2004	SB-2	1277003	192646	4.2	4	4	1	No	No	-	Lower SB-15	0.33	0.69	>SQS, ≤CSL	2.29	SQS	Dibenzo(a,h)anthracene	410	J	µg/kg dw	Yes	18	No	Yes	0.55	1.5
RhônePoulenc2004	SB-3	1277422	192973	4.2	2	3	2	No	No	-	Lower SB-03	0.33	0.69	>CSL	2.94	SQS	Benzoic acid	2000	J	µg/kg dw	Yes		Yes	Yes	3.1	3.1
RhônePoulenc2004	SB-3	1277422	192973	4.2	2	3	2	No	No	-	Lower SB-03	0.33	0.69	>CSL	2.94	SQS	Phenol	3100		µg/kg dw	Yes		Yes	Yes	2.6	7.4
RhônePoulenc2004	SB-3	1277422	192973	4.2	2	3	2	No	No	-	Lower SB-03	0.33	0.69	>CSL	2.94	SQS	Dibenzo(a,h)anthracene	540	J	µg/kg dw	Yes	18	No	Yes	0.55	1.5
RhônePoulenc2004	SB-3	1277422	192973	4.2	2	3	2	No	No	-	Lower SB-03	0.33	0.69	>CSL	2.94	SQS	BEHP	2100		µg/kg dw	Yes	71	No	Yes	0.91	1.5
RhônePoulenc2004	SB-4	1277315	192933	4.2	2	3	2	No	No	-	Lower SB-04	0.33	0.69	>CSL	3.44	SQS	Benzoic acid	1700	J	µg/kg dw	Yes		Yes	Yes	2.6	2.6
RhônePoulenc2004	SB-4	1277315	192933	4.2	2	3	2	No	No	-	Lower SB-04	0.33	0.69	>CSL	3.44	SQS	Dibenzo(a,h)anthracene	490	J	µg/kg dw	Yes	14	No	Yes	0.42	1.2
RhônePoulenc2004	SB-4	1277315	192933	4.2	2	3	2	No	No	-	Lower SB-04	0.33	0.69	>CSL	3.44	SQS	BEHP	1700		µg/kg dw	Yes	49	No	Yes	0.63	1
RhônePoulenc2004	SB-5	1277209	192892	4.2	2	3	2	No	No	-	Lower SB-05	0.33	0.69	>CSL	2.9	SQS	Benzoic acid	1800	J	µg/kg dw	Yes		Yes	Yes	2.8	2.8
RhônePoulenc2004	SB-5	1277209	192892	4.2	2	3	2	No	No	-	Lower SB-05	0.33	0.69	>CSL	2.9	SQS	Dibenzo(a,h)anthracene	420	J	µg/kg dw	Yes	14	No	Yes	0.42	1.2
RhônePoulenc2004	SB-5	1277209	192892	4.2	2	3	2	No	No	-	Lower SB-05	0.33	0.69	>CSL	2.9	SQS	BEHP	1600		µg/kg dw	Yes	55	No	Yes	0.71	1.2
RhônePoulenc2004	SB-6	1277116	192857	4.2	4	4	2	No	No	-	Lower SB-06	0.33	0.69	>CSL	2.98	SQS	Benzoic acid	1800	J	µg/kg dw	Yes		Yes	Yes	2.8	2.8
RhônePoulenc2004	SB-6	1277116	192857	4.2	4	4	2	No	No	-	Lower SB-06	0.33	0.69	>CSL	2.98	SQS	Dibenzo(a,h)anthracene	420	J	µg/kg dw	Yes	14	No	Yes	0.42	1.2
RhônePoulenc2004	SB-7	1276950	192774	4.2	4	4	2	No	No	-	Lower SB-07	0.33	0.69	>CSL	2.92	SQS	Benzoic acid	1700	J	µg/kg dw	Yes		Yes	Yes	2.6	2.6
RhônePoulenc2004	SB-7	1276950	192774	4.2	4	4	2	No	No	-	Lower SB-07	0.33	0.69	>CSL	2.92	SQS	Dibenzo(a,h)anthracene	410	J	µg/kg dw	Yes	14	No	Yes	0.42	1.2
RhônePoulenc2004	SB-7	1276950	192774	4.2	4	4	2	No	No	-	Lower SB-07	0.33	0.69	>CSL	2.92	SQS	BEHP	1400		µg/kg dw	Yes	48	No	Yes	0.62	1
RhônePoulenc2004	SB-8	1276869	192749	4.2	2	3	2	No	No	-	Lower SB-08	0.33	0.69	>CSL	2.48	SQS	Benzoic acid	1500	J	µg/kg dw	Yes		Yes	Yes	2.3	2.3
RhônePoulenc2004	SB-8	1276869	192749	4.2	2	3	2	No	No	-	Lower SB-08	0.33	0.69	>CSL	2.48	SQS	Dibenzo(a,h)anthracene	410	J	µg/kg dw	Yes	17	No	Yes	0.52	1.4
RhônePoulenc2004	SH-07	1276783	192891	4.2	2	3	1	No	No	-	Lower SH-07	0.33	0.82	>CSL	0.473	SQS	Benzoic acid	930	J	µg/kg dw	Yes		Yes	Yes	1.4	1.4
RhônePoulenc2004	SH-08	1276796	192834	4.2	2	3	1	No	No	-	Lower SH-08	0.33	0.82	>SQS, ≤CSL	1.1	SQS	Dibenzo(a,h)anthracene	310	J	µg/kg dw	Yes	28	No	Yes	0.85	2.3
RhônePoulenc2004	SH-09	1276766	192833	4.2	3	3	1	No	No	-	Lower SH-09	0.33	0.82	>CSL, ND												

Table G-3 Detected SMS Contaminants Exceeding the SQS in Cores – River Miles 4.1 to 5.0

Core Information											Sample Information						Detected SMS Contaminants Exceeding the SQS									
Study	Core Location Name	X[a]	Y[a]	River Mile	FS Removal-Emphasis Alternative when Area is First Dredged[b]	FS Combined-Technologies Alternative when Area is First Dredged[c]	Recovery Category	Collected for Dredge Material Characterization?[d]	Historically Dredged?[d]	Dredge Year[d]	Sample Name	Upper Sample Depth (ft recovered)	Lower Sample Depth (ft recovered)	SMS Assignment for Sample (maximum exceedance status in sample)[e]	TOC[f]	AET Substitution?[f]	SMS Contaminant	Concen-tration	Qualifier	Unit	Detected	OC-Normalized Concentration (mg/kg oc), if applicable	Exceeds CSL/2LAET?	Exceeds SQS/LAET?	Exceedance Factor CSL	Exceedance Factor SQS
LDW Turning Basin 08	ST31	1276320	192713	4.2	6	6	1	Yes	Yes	2010	DR08-B-ST31-C0-2	0	2	≤SQS												
LDW Turning Basin 08	ST31	1276320	192713	4.2	6	6	1	Yes	Yes	2010	DR08-B-ST31-C2-5	2	5	≤SQS												
PSDDA96	4 (96)	1276677	192025	4.3	outside of AOPCs	outside of AOPCs	1	Yes	Yes	1999	S1	0	4	>SQS, ≤CSL, ND												
PSDDA96	5 (96)	1276557	192210	4.3	outside of AOPCs	outside of AOPCs	1	Yes	Yes	1999	S2	0	4	>SQS, ≤CSL, ND												
LDW Turning Basin 08	D03 (08)	1276540	192295	4.3	outside of AOPCs	outside of AOPCs	1	Yes	Yes	2010	DR08-B-D03-C	0	4.3	≤SQS												
LDW Turning Basin 09	D03 (09)	1276540	192295	4.3	outside of AOPCs	outside of AOPCs	1	Yes	Yes	2010	DR09R-B-D03-C	0	3.7	≤SQS												
USACE 1991	DU9109XX	1276581	191917	4.3	outside of AOPCs	outside of AOPCs	3	Yes	Yes	1992	DUWO&M91S001	0	5	>SQS, ≤CSL, ND												
USACE 1991	DU9110XX	1276557	192034	4.3	outside of AOPCs	outside of AOPCs	1	Yes	Yes	1992	DUWO&M91S002	0	5	>CSL	0.6	No	BEHP	980		µg/kg dw	Yes	160	Yes	Yes	2.1	3.4
LDW Subsurface Sediment 2006	LDW-SC54	1276355	192181	4.3	6	6	1	No	No	-	LDW-SC54-0-2	0	2	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC54	1276355	192181	4.3	6	6	1	No	No	-	LDW-SC54-2-4	2	4	≤SQS												
PSDDA98	Average Of 8-9	1276772	191322	4.4	outside of AOPCs	outside of AOPCs	1	Yes	Yes	1999	C1	0	2	>SQS, ≤CSL, ND												
LDW Turning Basin 08	D02 (08)	1276735	191454	4.4	outside of AOPCs	outside of AOPCs	1	Yes	Yes	2010	DR08-A-D02-S	0	0.62	≤SQS												
LDW Turning Basin 09	D02 (09)	1276735	191454	4.4	outside of AOPCs	outside of AOPCs	1	Yes	Yes	2010	DR09R-A-D02-C	0	11.6	>CSL		No	Benzyl alcohol	150	J	µg/kg dw	Yes		Yes	Yes	2.1	2.6
Turning-basin	DTB-01SD	1276666	191599	4.4	outside of AOPCs	outside of AOPCs	3	Yes	Yes	2004	DTB-01SD	0	4.8	≤SQS												
Turning-basin	DTB-02SD	1276813	191026	4.5	outside of AOPCs	outside of AOPCs	3	Yes	Yes	2004	DTB-02SD	0	6.1	≤SQS												
USACE 1991	DU9105MC	1276829	190964	4.5	outside of AOPCs	outside of AOPCs	3	Yes	Yes	1992	DUWO&M91C002	0	4	>SQS, ≤CSL, ND												
PSDDA98	Average Of 10-12	1277162	190420	4.6	outside of AOPCs	outside of AOPCs	3	Yes	Yes	1999	C2	0	4	>SQS, ≤CSL	2.5	No	Phenanthrene	3400		µg/kg dw	Yes	140	No	Yes	0.29	1.4
PSDDA98	Average Of 10-12	1277162	190420	4.6	outside of AOPCs	outside of AOPCs	3	Yes	Yes	1999	C3	4	11	>SQS, ≤CSL, ND												
PSDDA96	C1 (96)	1276974	190762	4.6	outside of AOPCs	outside of AOPCs	3	Yes	Yes	1999	C1	0	4	>SQS, ≤CSL, ND												
LDW Turning Basin 08	D01 (08)	1277173	190473	4.6	outside of AOPCs	outside of AOPCs	3	Yes	Yes	2010	DR08-A-D01-S	0	0.62	≤SQS												
LDW Turning Basin 09	D01 (09)	1277173	190473	4.6	outside of AOPCs	outside of AOPCs	3	Yes	Yes	2010	DR09R-A-D01-C	0	12.9	≤SQS												
EPA SI	DR269	1276822	190328	4.6	outside of AOPCs	outside of AOPCs	3	No	No	-	SD-DR269-0000A	0	2	>SQS, ≤CSL, ND												
EPA SI	DR269	1276822	190328	4.6	outside of AOPCs	outside of AOPCs	3	No	No	-	SD-DR269-0020	2	4	>SQS, ≤CSL, ND												
Turning-basin	DTB-03SD	1276961	190722	4.6	outside of AOPCs	outside of AOPCs	3	Yes	Yes	2004	DTB-03SD	0	6.5	≤SQS												
Turning-basin	DTB-04SD	1277106	190448	4.6	outside of AOPCs	outside of AOPCs	3	Yes	Yes	2004	DTB-04SD	0	13	>SQS, ≤CSL, ND												
Turning-basin	DTB-05SD	1277259	190358	4.7	outside of AOPCs	outside of AOPCs	3	Yes	Yes	2004	DTB-05SD	0	8.8	≤SQS												
USACE 1991	DU9101MC	1277266	190358	4.7	outside of AOPCs	outside of AOPCs	3	Yes	Yes	1992	DUWO&M91C001	0	4	>SQS, ≤CSL, ND												
USACE 1991	DU9101MC	1277266	190358	4.7	outside of AOPCs	outside of AOPCs	3	Yes	Yes	1992	DUWO&M91C003	4	14	>SQS, ≤CSL, ND												
LDW Subsurface Sediment 2006	LDW-SC56	1277575	190022	4.7	3	3	1	No	No	-	LDW-SC56-0-2	0	2	>SQS, ≤CSL	1.67	No	Total PCBs	330		µg/kg dw	Yes	20	No	Yes	0.31	1.7
LDW Subsurface Sediment 2006	LDW-SC56	1277575	190022	4.7	3	3	1	No	No	-	LDW-SC56-2-4	2	4	≤SQS												
LDW Subsurface Sediment 2006	LDW-SC55	1278267	190390	4.9	2	3	0	No	No	-	LDW-SC55-0-1	0	1	>SQS, ≤CSL, ND												
LDW Subsurface Sediment 2006	LDW-SC55	1278267	190390	4.9	2	3	0	No	No	-	LDW-SC55-1-2	1	2	>SQS, ≤CSL, ND												
LDW Subsurface Sediment 2006	LDW-SC55	1278267	190390	4.9	2	3	0	No	No	-	LDW-SC55-2-3	2	3	>SQS, ≤CSL, ND												
Norfolk-cleanup2	NFK207	1278618	190161	4.9	5	6	0	No	No	-	L6725-8	0	0.98	>CSL	0.29	Yes	1,4-Dichlorobenzene	750	J	µg/kg dw	Yes		Yes	Yes	6.3	6.8
Norfolk-cleanup2	NFK207	1278618	190161	4.9	5	6	0	No	No	-	L6725-8	0	0.98	>CSL	0.29	Yes	n-Nitrosodiphenylamine	33		µg/kg dw	Yes		No	Yes	0.83	1.2
Norfolk-cleanup2	NFK207	1278618	190161	4.9	5	6	0	No	No	-	L6725-8	0	0.98	>CSL	0.29	Yes	Indeno(1,2,3-cd)pyrene	630	J	µg/kg dw	Yes		No	Yes	0.91	1.1
Norfolk-cleanup2	NFK207	1278618	190161	4.9	5	6	0	No	No	-	L6725-8	0	0.98	>CSL	0.29	Yes	BEHP	1400		µg/kg dw	Yes		No	Yes	0.74	1.1
Norfolk-cleanup2	NFK207	1278618	190161	4.9	5	6	0	No	No	-	L6725-8	0	0.98	>CSL	0.29	Yes	Butyl benzyl phthalate	130		µg/kg dw	Yes		No	Yes	0.14	2.1
Norfolk-cleanup2	NFK207	1278618	190161	4.9	5	6	0	No	No	-	L6725-9	0.98	2	>CSL, ND												
Norfolk-cleanup2	NFK207	1278618	190161	4.9	5	6	0	No	No	-	L6725-10	2	3	>CSL, ND												
Norfolk-cleanup2	NFK207	1278618	190161	4.9	5	6	0	No	No	-	L6725-11	3	3.9	>CSL, ND												

Notes

a. Datum: NAD 1983 Washington State Plane North (Feet).

b. Indicates lowest-numbered remedial alternative when the core is subject to dredging or to partial dredging/ capping for Alternatives 2R/2R-CAD, 3R, 4R, 5R/5R-T, and 6R.

c. Indicates lowest-numbered remedial alternative when the core is subject to dredging or to partial dredging/ capping for Alternatives 3C, 4C, 5C, and 6C.
Note that if a removal alternative is dredged, but the corresponding combined alternative is not dredged, then the combined alternative is actively remediated with capping or ENR.

d. The column titled "Collected for Dredge Material Characterization" identifies whether cores were collected to support a proposed dredging project. The "yes" entries in this column match the dredging footnotes in the stick diagrams. Much of the information about dredging comes from open water disposal suitability determinations written prior to dredging, not from reports confirming the dredging itself. In those instances where there is no confirmation that the dredging occurred, the "historically dredge" column is populated with "no", and the dredge year is blank. This matches the entries in the FS database.

e. Maximum SMS exceedance status for sample. Delineation matches color coding in stick diagrams.

f. Cells are populated only if sample has detected exceedances of the SQS. Then the TOC and AET substitution describe whether non-polar organic compounds are compared to the SQS/CSL (organic carbon normalized concentration) or the LAET/2LAET (dry weight concentration).

AET = apparent effects threshold; AOPC = area of potential concern; BEHP = bis(2-ethylhexyl)phthalate; CSL = cleanup screening level; LAET = lowest apparent effects threshold (2LAET = 2nd lowest); ND = not detected; oc = organic carbon; PAHs = polycyclic aromatic hydrocarbons;

PCB = polychlorinated biphenyl; SMS = Sediment Management Standards; SQS = sediment quality standard; SVOCs = semivolatile organic compounds; TOC = total organic carbon.

Table G-4 Dioxins/Furans and cPAHs in Cores – River Miles 0 to 1.9

Core Information									Sample Information			cPAHs			Dioxins/Furans		
Task	Core Location Name	X[a]	Y[a]	River Mile	Removal-Emphasis Alternative when Area is First Dredged[b]	Combined-Technologies Alternative when Area is First Dredged[c]	Recovery Category	Collected for Dredge Material Characterization?	Sample Name	Upper Sample Depth (ft recovered)	Lower Sample Depth (ft recovered)	Concentration (µg TEQ/kg dw)	Qualifier	Detected	Concentration (ng TEQ/kg dw)	Qualifier	Detected
LDW Subsurface Sediment 2006	LDW-SC1	1266315	211282	0.0	3	not dredged	3	No	LDW-SC1-0-0.5	0	0.5	620	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC1	1266315	211282	0.0	3	not dredged	3	No	LDW-SC1-0-2	0	2	500		Yes			
LDW Subsurface Sediment 2006	LDW-SC1	1266315	211282	0.0	3	not dredged	3	No	LDW-SC1-0.5-1	0.5	1	350	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC1	1266315	211282	0.0	3	not dredged	3	No	LDW-SC1-1-1.5	1	1.5	420		Yes			
LDW Subsurface Sediment 2006	LDW-SC1	1266315	211282	0.0	3	not dredged	3	No	LDW-SC1-1.5-2	1.5	2	470		Yes			
LDW Subsurface Sediment 2006	LDW-SC1	1266315	211282	0.0	3	not dredged	3	No	LDW-SC1-2-4	2	4	75	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC1	1266315	211282	0.0	3	not dredged	3	No	LDW-SC1-4-6	4	6						
LDW Subsurface Sediment 2006	LDW-SC2	1267032	211196	0.1	3	not dredged	2	No	LDW-SC2-0-2	0	2	69		Yes			
LDW Subsurface Sediment 2006	LDW-SC2	1267032	211196	0.1	3	not dredged	2	No	LDW-SC2-2-4	2	4	110	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC2	1267032	211196	0.1	3	not dredged	2	No	LDW-SC2-4-6	4	6	48	U	No			
LDW Subsurface Sediment 2006	LDW-SC2	1267032	211196	0.1	3	not dredged	2	No	LDW-SC2-8-10	8	10						
LDW Subsurface Sediment 2006	LDW-SC2	1267032	211196	0.1	3	not dredged	2	No	LDW-SC2-10.7-12	10.7	12	48	U	No			
LDW Subsurface Sediment 2006	LDW-SC3	1266432	210649	0.2	outside of AOPCs	outside of AOPCs	3	No	LDW-SC3-0-2	0	2	18	U	No			
LDW Subsurface Sediment 2006	LDW-SC3	1266432	210649	0.2	outside of AOPCs	outside of AOPCs	3	No	LDW-SC3-2-4	2	4	18	U	No			
LDW Subsurface Sediment 2006	LDW-SC4	1266932	210598	0.2	4	not dredged	1	No	LDW-SC4-0-1	0	1	300	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC4	1266932	210598	0.2	4	not dredged	1	No	LDW-SC4-1-2	1	2	360	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC4	1266932	210598	0.2	4	not dredged	1	No	LDW-SC4-2-4	2	4	70		Yes			
LDW Subsurface Sediment 2006	LDW-SC4	1266932	210598	0.2	4	not dredged	1	No	LDW-SC4-4-6	4	6						
LDW Subsurface Sediment 2006	LDW-SC5	1266048	210543	0.2	4	not dredged	2	No	LDW-SC5-0-1	0	1	880		Yes			
LDW Subsurface Sediment 2006	LDW-SC5	1266048	210543	0.2	4	not dredged	2	No	LDW-SC5-1-2.2	1	2.2	1900		Yes			
LDW Subsurface Sediment 2006	LDW-SC5	1266048	210543	0.2	4	not dredged	2	No	LDW-SC5-2.2-4	2.2	4	330		Yes			
EPA SI	DR068	1266404	209574	0.3	2	3	1	No	SD-DR068-0000A	0	2	590		Yes			
LDW Subsurface Sediment 2006	LDW-SC6	1266285	209838	0.3	4	4	1	No	LDW-SC6-0-0.5	0	0.5						
LDW Subsurface Sediment 2006	LDW-SC6	1266285	209838	0.3	4	4	1	No	LDW-SC6-0.5-1	0.5	1						
LDW Subsurface Sediment 2006	LDW-SC6	1266285	209838	0.3	4	4	1	No	LDW-SC6-1-1.5	1	1.5						
LDW Subsurface Sediment 2006	LDW-SC6	1266285	209838	0.3	4	4	1	No	LDW-SC6-1.5-2	1.5	2						
LDW Subsurface Sediment 2006	LDW-SC6	1266285	209838	0.3	4	4	1	No	LDW-SC6-2-2.5	2	2.5						
LDW Subsurface Sediment 2006	LDW-SC6	1266285	209838	0.3	4	4	1	No	LDW-SC6-2-4.5	2	4.5	490	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC6	1266285	209838	0.3	4	4	1	No	LDW-SC6-2.5-3	2.5	3						
LDW Subsurface Sediment 2006	LDW-SC6	1266285	209838	0.3	4	4	1	No	LDW-SC6-3-3.5	3	3.5						
LDW Subsurface Sediment 2006	LDW-SC6	1266285	209838	0.3	4	4	1	No	LDW-SC6-3.5-4	3.5	4						
LDW Subsurface Sediment 2006	LDW-SC6	1266285	209838	0.3	4	4	1	No	LDW-SC6-4-4.5	4	4.5						
LDW Subsurface Sediment 2006	LDW-SC6	1266285	209838	0.3	4	4	1	No	LDW-SC6-6-8	6	8	48		Yes			
Duw/Diag-2	DUD250	1266871	209564	0.4	5	not dredged	3	No	L8542-12	0	3	329	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC7	1266850	209606	0.4	5	not dredged	3	No	LDW-SC7-0-1	0	1	420	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC7	1266850	209606	0.4	5	not dredged	3	No	LDW-SC7-1-1.7	1	1.7	67	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC7	1266850	209606	0.4	5	not dredged	3	No	LDW-SC7-1.7-4	1.7	4	18	U	No			
LDW Subsurface Sediment 2006	LDW-SC8	1266614	209589	0.4	5	not dredged	3	No	LDW-SC8-0-1	0	1	540		Yes			
LDW Subsurface Sediment 2006	LDW-SC8	1266614	209589	0.4	5	not dredged	3	No	LDW-SC8-1-2	1	2	540		Yes			
LDW Subsurface Sediment 2006	LDW-SC8	1266614	209589	0.4	5	not dredged	3	No	LDW-SC8-2-4	2	4	250	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC8	1266614	209589	0.4	5	not dredged	3	No	LDW-SC8-4-6	4	6	320		Yes			
LDW Subsurface Sediment 2006	LDW-SC8	1266614	209589	0.4	5	not dredged	3	No	LDW-SC8-6-8	6	8	300		Yes			
LDW Subsurface Sediment 2006	LDW-SC8	1266614	209589	0.4	5	not dredged	3	No	LDW-SC8-8-10	8	10	290		Yes			
Duw/Diag-2	DUD258	1267170	208772	0.5	3	not dredged	3	No	L8542-27	0	3	1560	J	Yes			
Duw/Diag-2	DUD258	1267170	208772	0.5	3	not dredged	3	No	L10112-8	3	6						
Duw/Diag-2	DUD258	1267170	208772	0.5	3	not dredged	3	No	L10112-9	6	9						
LDW Subsurface Sediment 2006	LDW-SC10	1267168	208777	0.5	3	not dredged	3	No	LDW-SC10-0-1	0	1	210	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC10	1267168	208777	0.5	3	not dredged	3	No	LDW-SC10-1-2	1	2	570		Yes			
LDW Subsurface Sediment 2006	LDW-SC10	1267168	208777	0.5	3	not dredged	3	No	LDW-SC10-2-4	2	4	820	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC10	1267168	208777	0.5	3	not dredged	3	No	LDW-SC10-4-5	4	5	75	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC10	1267168	208777	0.5	3	not dredged	3	No	LDW-SC10-6-8	6	8						
LDW Subsurface Sediment 2006	LDW-SC11	1265909	208291	0.5	2	3	1	No	LDW-SC11-0-0.8	0	0.8	4400		Yes			
LDW Subsurface Sediment 2006	LDW-SC11	1265909	208291	0.5	2	3	1	No	LDW-SC11-0.8-2	0.8	2	17	U	No			
LDW Subsurface Sediment 2006	LDW-SC11	1265909	208291	0.5	2	3	1	No	LDW-SC11-2-3.4	2	3.4	18	U	No			
LDW Subsurface Sediment 2006	LDW-SC11	1265909	208291	0.5	2	3	1	No	LDW-SC11-3.4-4.1	3.4	4.1	17	U	No			
LDW Subsurface Sediment 2006	LDW-SC9	1266865	208920	0.5	5	5	3	No	LDW-SC9-0-1	0	1	190		Yes			
LDW Subsurface Sediment 2006	LDW-SC9	1266865	208920	0.5	5	5	3	No	LDW-SC9-1-2.6	1	2.6	230	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC9	1266865	208920	0.5	5	5	3	No	LDW-SC9-2.6-4	2.6	4	52	J	Yes			

Table G-4 Dioxins/Furans and cPAHs in Cores – River Miles 0 to 1.9

Core Information									Sample Information			cPAHs			Dioxins/Furans		
Task	Core Location Name	X[a]	Y[a]	River Mile	Removal-Emphasis Alternative when Area is First Dredged[b]	Combined-Technologies Alternative when Area is First Dredged[c]	Recovery Category	Collected for Dredge Material Characterization?	Sample Name	Upper Sample Depth (ft recovered)	Lower Sample Depth (ft recovered)	Concentration (µg TEQ/kg dw)	Qualifier	Detected	Concentration (ng TEQ/kg dw)	Qualifier	Detected
EPA SI	DR044	1266577	208216	0.6	4	5	2	No	SD-DR044-0000A	0	2	61		Yes			
EPA SI	DR044	1266577	208216	0.6	4	5	2	No	SD-DR044-0020	2	4	140		Yes			
Duw/Diag-2	DUD206	1267277	208630	0.6	outside of AOPCs	outside of AOPCs	3	No	L8542-28	0	3	38.2	J	Yes			
Duw/Diag-2	DUD260	1267150	208575	0.6	3	not dredged	0	No	L8542-29	0	3	454	J	Yes			
Duw/Diag-2	DUD260	1267150	208575	0.6	6	not dredged	0	No	L8542-30	3	6	38	UJ	No			
LDW Subsurface Sediment 2006	LDW-SC12	1266578	208218	0.6	4	5	2	No	LDW-SC12-0-0.5	0	0.5						
LDW Subsurface Sediment 2006	LDW-SC12	1266578	208218	0.6	4	5	2	No	LDW-SC12-0-2	0	2	290	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC12	1266578	208218	0.6	4	5	2	No	LDW-SC12-0.5-1	0.5	1						
LDW Subsurface Sediment 2006	LDW-SC12	1266578	208218	0.6	4	5	2	No	LDW-SC12-1-1.5	1	1.5						
LDW Subsurface Sediment 2006	LDW-SC12	1266578	208218	0.6	4	5	2	No	LDW-SC12-1.5-2	1.5	2						
LDW Subsurface Sediment 2006	LDW-SC12	1266578	208218	0.6	4	5	2	No	LDW-SC12-2-2.5	2	2.5						
LDW Subsurface Sediment 2006	LDW-SC12	1266578	208218	0.6	4	5	2	No	LDW-SC12-2-4	2	4	190	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC12	1266578	208218	0.6	4	5	2	No	LDW-SC12-2.5-3	2.5	3						
LDW Subsurface Sediment 2006	LDW-SC12	1266578	208218	0.6	4	5	2	No	LDW-SC12-3-3.5	3	3.5						
LDW Subsurface Sediment 2006	LDW-SC12	1266578	208218	0.6	4	5	2	No	LDW-SC12-3.5-4	3.5	4						
LDW Subsurface Sediment 2006	LDW-SC12	1266578	208218	0.6	4	5	2	No	LDW-SC12-4-6.7	4	6.6						
LDW Subsurface Sediment 2006	LDW-SC12	1266578	208218	0.6	4	5	2	No	LDW-SC12-6.7-8.7	6.6	8.7						
EPA SI	DR021	1267822	206718	0.9	2	not dredged	1	No	SD-DR021-0000A	0	2	690		Yes			
EPA SI	DR021	1267822	206718	0.9	2	not dredged	1	No	SD-DR021-0020	2	4	760		Yes			
LDW Subsurface Sediment 2006	LDW-SC13	1267585	207097	0.9	5	not dredged	3	No	LDW-SC13-0-0.5	0	0.5						
LDW Subsurface Sediment 2006	LDW-SC13	1267585	207097	0.9	5	not dredged	3	No	LDW-SC13-0-2	0	2	540	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC13	1267585	207097	0.9	5	not dredged	3	No	LDW-SC13-0.5-1	0.5	1						
LDW Subsurface Sediment 2006	LDW-SC13	1267585	207097	0.9	5	not dredged	3	No	LDW-SC13-1-1.5	1	1.5						
LDW Subsurface Sediment 2006	LDW-SC13	1267585	207097	0.9	5	not dredged	3	No	LDW-SC13-1.5-2	1.5	2						
LDW Subsurface Sediment 2006	LDW-SC13	1267585	207097	0.9	5	not dredged	3	No	LDW-SC13-2-4	2	4	1200		Yes			
LDW Subsurface Sediment 2006	LDW-SC14	1267399	207054	0.9	3	5	2	No	LDW-SC14-0-1.4	0	1.4	330	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC14	1267399	207054	0.9	3	5	2	No	LDW-SC14-1.4-2	1.4	2	110	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC14	1267399	207054	0.9	3	5	2	No	LDW-SC14-2-4.1	2	4.1	140		Yes			
LDW Subsurface Sediment 2006	LDW-SC14	1267399	207054	0.9	3	5	2	No	LDW-SC14-4.1-6	4.1	6	190	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC14	1267399	207054	0.9	3	5	2	No	LDW-SC14-6-8.7	6	8.6						
LDW Subsurface Sediment 2006	LDW-SC14	1267399	207054	0.9	3	5	2	No	LDW-SC14-10-11	10	11						
LDW Subsurface Sediment 2006	LDW-SC15	1267822	206822	0.9	3	6	2	No	LDW-SC15-0-1	0	1	510		Yes			
LDW Subsurface Sediment 2006	LDW-SC15	1267822	206822	0.9	3	6	2	No	LDW-SC15-1-2	1	2	430		Yes			
LDW Subsurface Sediment 2006	LDW-SC15	1267822	206822	0.9	3	6	2	No	LDW-SC15-2-4	2	4	550		Yes			
LDW Subsurface Sediment 2006	LDW-SC15	1267822	206822	0.9	3	6	2	No	LDW-SC15-4-6	4	6						
LDW Subsurface Sediment 2006	LDW-SC15	1267822	206822	0.9	3	6	2	No	LDW-SC15-8-10	8	10						
Lehigh NW	C2 (Lehigh NW)	1267920	206336	1.0	2	3	1	Yes	C-2	0	4	370		Yes			
Lehigh NW	C3 (Lehigh NW)	1267936	206274	1.0	2	3	1	Yes	C-3S	3.8	5	390		Yes			
LDW Subsurface Sediment 2006	LDW-SC16	1267960	206670	1.0	4	4	1	No	LDW-SC16-0-2	0	2	660		Yes			
LDW Subsurface Sediment 2006	LDW-SC16	1267960	206670	1.0	4	4	1	No	LDW-SC16-2-4	2	4	380	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC16	1267960	206670	1.0	4	4	1	No	LDW-SC16-4-6	4	6	1300		Yes			
LDW Subsurface Sediment 2006	LDW-SC16	1267960	206670	1.0	4	4	1	No	LDW-SC16-8-10	8	10	130	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC17	1268446	206551	1.0	2	3	2	No	LDW-SC17-0-1	0	1	1800		Yes			
LDW Subsurface Sediment 2006	LDW-SC17	1268446	206551	1.0	2	3	2	No	LDW-SC17-1-2	1	2	2000	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC17	1268446	206551	1.0	2	3	2	No	LDW-SC17-2-4	2	4	1400		Yes			
LDW Subsurface Sediment 2006	LDW-SC17	1268446	206551	1.0	2	3	2	No	LDW-SC17-6-8.2	6	8.6	2400		Yes			
LDW Subsurface Sediment 2006	LDW-SC18	1267927	206334	1.0	2	3	1	No	LDW-SC18-0-1	0	1	510		Yes			
LDW Subsurface Sediment 2006	LDW-SC18	1267927	206334	1.0	2	3	1	No	LDW-SC18-1-2	1	2	41	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC18	1267927	206334	1.0	2	3	1	No	LDW-SC18-2-4	2	4	18	U	No			
LDW Subsurface Sediment 2006	LDW-SC19	1266968	206222	1.0	5	6	2	No	LDW-SC19-0-1	0	1	480	J	Yes	22.8	J	Yes
LDW Subsurface Sediment 2006	LDW-SC19	1266968	206222	1.0	5	6	2	No	LDW-SC19-1-2	1	2	580	J	Yes	20.1	J	Yes
LDW Subsurface Sediment 2006	LDW-SC19	1266968	206222	1.0	5	6	2	No	LDW-SC19-2-4	2	4	310		Yes	20.5	J	Yes
LDW Subsurface Sediment 2006	LDW-SC19	1266968	206222	1.0	5	6	2	No	LDW-SC19-4-6	4	6						
LDW Subsurface Sediment 2006	LDW-SC19	1266968	206222	1.0	5	6	2	No	LDW-SC19-6-7	6	7						
LDW Subsurface Sediment 2006	LDW-SC19	1266968	206222	1.0	5	6	2	No	LDW-SC19-9-11.9	9	11.9						

Table G-4 Dioxins/Furans and cPAHs in Cores – River Miles 0 to 1.9

Core Information									Sample Information			cPAHs			Dioxins/Furans		
Task	Core Location Name	X[a]	Y[a]	River Mile	Removal-Emphasis Alternative when Area is First Dredged[b]	Combined-Technologies Alternative when Area is First Dredged[c]	Recovery Category	Collected for Dredge Material Characterization?	Sample Name	Upper Sample Depth (ft recovered)	Lower Sample Depth (ft recovered)	Concentration (µg TEQ/kg dw)	Qualifier	Detected	Concentration (ng TEQ/kg dw)	Qualifier	Detected
LDW Subsurface Sediment 2006	LDW-SC20	1267735	206178	1.0	2	3	2	No	LDW-SC20-0-2	0	2	140	J	Yes	38.7	J	Yes
LDW Subsurface Sediment 2006	LDW-SC20	1267735	206178	1.0	2	3	2	No	LDW-SC20-2-4	2	4	61	J	Yes	27.1		Yes
LDW Subsurface Sediment 2006	LDW-SC20	1267735	206178	1.0	2	3	2	No	LDW-SC20-4-6	4	6				194	J	Yes
LDW Subsurface Sediment 2006	LDW-SC20	1267735	206178	1.0	2	3	2	No	LDW-SC20-8-10	8	10				5.6	J	Yes
LDW Subsurface Sediment 2006	LDW-SC21	1267488	206168	1.0	2	3	1	No	LDW-SC21-0-1	0	1	420	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC21	1267488	206168	1.0	2	3	1	No	LDW-SC21-1-2	1	2	310		Yes			
LDW Subsurface Sediment 2006	LDW-SC21	1267488	206168	1.0	2	3	1	No	LDW-SC21-2-4	2	4	500	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC21	1267488	206168	1.0	2	3	1	No	LDW-SC21-4-6.2	4	6.2						
LDW Subsurface Sediment 2006	LDW-SC21	1267488	206168	1.0	2	3	1	No	LDW-SC21-6.2-8	6.2	8						
LDW Subsurface Sediment 2006	LDW-SC21	1267488	206168	1.0	2	3	1	No	LDW-SC21-10-11.3	10	11.3						
Lehigh NW	A1	1268045	206036	1.1	6	6	1	Yes	C-1	0	4.4	450		Yes			
LDW Subsurface Sediment 2006	LDW-SC22	1268174	205908	1.1	3	not dredged	3	No	LDW-SC22-0-1.1	0	1.1	130		Yes			
LDW Subsurface Sediment 2006	LDW-SC22	1268174	205908	1.1	3	not dredged	3	No	LDW-SC22-1.1-2	1.1	2	120		Yes			
LDW Subsurface Sediment 2006	LDW-SC22	1268174	205908	1.1	3	not dredged	3	No	LDW-SC22-2-4	2	4	18	U	No			
EPA SI	DR025	1268230	205416	1.2	6	6	2	No	SD-DR025-0000A	0	2	610		Yes			
EPA SI	DR025	1268230	205416	1.2	6	6	2	No	SD-DR025-0020	2	4	470		Yes			
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	LDW-SC23-0-0.5	0	0.5	590	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	LDW-SC23-0.5-1	0.5	1	460	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	LDW-SC23-1-1.5	1	1.5	570	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	LDW-SC23-1.5-2	1.5	2	510	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	LDW-SC23-2-2.5	2	2.5	1200		Yes			
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	LDW-SC23-2-4	2	4	3600	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	LDW-SC23-2.5-3	2.5	3	170	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	LDW-SC23-3-3.5	3	3.5	4600		Yes			
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	LDW-SC23-3.5-4	3.5	4	1900		Yes			
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	LDW-SC23-4-6	4	6	290		Yes			
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	LDW-SC23-6-8	6	8						
LDW Subsurface Sediment 2006	LDW-SC23	1268229	205418	1.2	6	6	2	No	LDW-SC23-8-10.2	8	10.2						
LDW Subsurface Sediment 2006	LDW-SC24	1267861	205130	1.2	4	4	1	No	LDW-SC24-0-1	0	1	500		Yes			
LDW Subsurface Sediment 2006	LDW-SC24	1267861	205130	1.2	4	4	1	No	LDW-SC24-1-2	1	2	83	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC24	1267861	205130	1.2	4	4	1	No	LDW-SC24-2-4	2	4	23	J	Yes			
EPA SI	DR054	1268074	204727	1.3	2	3	1	No	SD-DR054-0000A	0	2	1200		Yes			
EPA SI	DR054	1268074	204727	1.3	2	3	1	No	SD-DR054-0020	2	4	2000		Yes			
LDW Subsurface Sediment 2006	LDW-SC25	1267979	204751	1.3	2	3	1	No	LDW-SC25-0-1	0	1	720		Yes			
LDW Subsurface Sediment 2006	LDW-SC25	1267979	204751	1.3	2	3	1	No	LDW-SC25-1-2	1	2	860	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC25	1267979	204751	1.3	2	3	1	No	LDW-SC25-2-4	2	4	980	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC25	1267979	204751	1.3	2	3	1	No	LDW-SC25-4-6	4	6						
LDW Subsurface Sediment 2006	LDW-SC25	1267979	204751	1.3	2	3	1	No	LDW-SC25-8-9.1	8	9.1						
LDW Subsurface Sediment 2006	LDW-SC26	1268157	204480	1.4	2	3	1	No	LDW-SC26-0-1	0	1	490		Yes	15.9	J	Yes
LDW Subsurface Sediment 2006	LDW-SC26	1268157	204480	1.4	2	3	1	No	LDW-SC26-1-2	1	2	370		Yes	13.1	J	Yes
LDW Subsurface Sediment 2006	LDW-SC26	1268157	204480	1.4	2	3	1	No	LDW-SC26-2-4	2	4	570		Yes	22.4	J	Yes
LDW Subsurface Sediment 2006	LDW-SC26	1268157	204480	1.4	2	3	1	No	LDW-SC26-6-8	6	8	4000	J	Yes	136	J	Yes
LDW Subsurface Sediment 2006	LDW-SC26	1268157	204480	1.4	2	3	1	No	12.1	11.1	12.1						
LDW Subsurface Sediment 2006	LDW-SC27	1268519	204443	1.4	3	6	3	No	LDW-SC27-0-0.5	0	0.5						
LDW Subsurface Sediment 2006	LDW-SC27	1268519	204443	1.4	3	6	3	No	LDW-SC27-0-2	0	2	330		Yes			
LDW Subsurface Sediment 2006	LDW-SC27	1268519	204443	1.4	3	6	3	No	LDW-SC27-0.5-1	0.5	1						
LDW Subsurface Sediment 2006	LDW-SC27	1268519	204443	1.4	3	6	3	No	LDW-SC27-1-1.5	1	1.5						
LDW Subsurface Sediment 2006	LDW-SC27	1268519	204443	1.4	3	6	3	No	LDW-SC27-1.5-2	1.5	2						
LDW Subsurface Sediment 2006	LDW-SC27	1268519	204443	1.4	3	6	3	No	LDW-SC27-2-2.5	2	2.5						
LDW Subsurface Sediment 2006	LDW-SC27	1268519	204443	1.4	3	6	3	No	LDW-SC27-2.5-3	2.5	3						
LDW Subsurface Sediment 2006	LDW-SC27	1268519	204443	1.4	3	6	3	No	LDW-SC27-3-3.5	3	3.5						
LDW Subsurface Sediment 2006	LDW-SC27	1268519	204443	1.4	3	6	3	No	LDW-SC27-3.5-4	3.5	4						
LDW Subsurface Sediment 2006	LDW-SC27	1268519	204443	1.4	3	6	3	No	LDW-SC27-4-4.5	4	4.5						
LDW Subsurface Sediment 2006	LDW-SC28	1268253	204225	1.4	2	3	1	No	LDW-SC28-0-1	0	1	420	J	Yes	19.9	J	Yes
LDW Subsurface Sediment 2006	LDW-SC28	1268253	204225	1.4	2	3	1	No	LDW-SC28-1-2	1	2	230	J	Yes	14.8		Yes
LDW Subsurface Sediment 2006	LDW-SC28	1268253	204225	1.4	2	3	1	No	LDW-SC28-2-4	2	4	260	J	Yes	18.5	J	Yes
LDW Subsurface Sediment 2006	LDW-SC28	1268253	204225	1.4	2	3	1	No	LDW-SC28-5.5-7.5	5.5	7.5	1400		Yes			
LDW Subsurface Sediment 2006	LDW-SC28	1268253	204225	1.4	2	3	1	No	LDW-SC28-12-12.6	12	12.6	180		Yes			

Table G-4 Dioxins/Furans and cPAHs in Cores – River Miles 0 to 1.9

Core Information									Sample Information			cPAHs			Dioxins/Furans		
Task	Core Location Name	X[a]	Y[a]	River Mile	Removal-Emphasis Alternative when Area is First Dredged[b]	Combined-Technologies Alternative when Area is First Dredged[c]	Recovery Category	Collected for Dredge Material Characterization?	Sample Name	Upper Sample Depth (ft recovered)	Lower Sample Depth (ft recovered)	Concentration (µg TEQ/kg dw)	Qualifier	Detected	Concentration (ng TEQ/kg dw)	Qualifier	Detected
LDW Subsurface Sediment 2006	LDW-SC29	1268061	204054	1.4	2	3	3	No	LDW-SC29-0-1	0	1	60	J	Yes	54.1	J	Yes
LDW Subsurface Sediment 2006	LDW-SC29	1268061	204054	1.4	2	3	3	No	LDW-SC29-1-2	1	2	150	J	Yes	1.03	J	Yes
LDW Subsurface Sediment 2006	LDW-SC29	1268061	204054	1.4	2	3	3	No	LDW-SC29-2-3.6	2	3.6	18	U	No	0.147	J	Yes
Glacier NW	SCDMMU3	1268206	204169	1.4	2	3	1	Yes	SCDMMU3	0	5.6	620		Yes			
Lone Star 92	C-1	1268275	203789	1.5	3	3	1	Yes	C-1	0	4	590		Yes			
Glacier NW	SCDMMU1	1268338	203745	1.5	3	3	2	Yes	SCDMMU1	0	2.7	310		Yes			
Glacier NW	SCDMMU2	1268280	203995	1.5	2	3	1	Yes	SCDMMU2	0	2.2	280		Yes			
Glacier NW	SCDMMU2R	1268280	203995	1.5	2	3	1	Yes	SCDMMU2R-Z	3	4						
Hardie Gypsum-1	1	1268851	203302	1.6	6	not dredged	1	Yes	1	0	4	140		Yes			
Hardie Gypsum-1	2	1268883	203173	1.6	4	4	1	Yes	2	0	4	220		Yes			
Hardie Gypsum-2	2b	1268892	203155	1.6	4	4	1	Yes	2b	0	3	240		Yes			
Hardie Gypsum-2	A	1268872	203206	1.6	4	4	1	Yes	A	0	3	160		Yes			
Hardie Gypsum-2	B	1268916	203178	1.6	4	4	1	Yes	B	0	3	310		Yes			
Lone Star-Hardie Gypsum	c-3	1268925	203167	1.6	4	4	1	Yes	c-3	0	4.6	430		Yes			
Lone Star-Hardie Gypsum	c-4	1268760	203523	1.6	4	6	3	Yes	c-4	0	4	82		Yes			
Lone Star-Hardie Gypsum	c-4	1268760	203523	1.6	4	6	3	Yes	c-5	4	12	16	U	No			
LDW Subsurface Sediment 2006	LDW-SC30	1268784	203576	1.6	4	6	3	No	LDW-SC30-0-2.5	0	2.5	30	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC30	1268784	203576	1.6	4	6	3	No	LDW-SC30-2.5-4	2.5	4	17	U	No			
Hardie Gypsum-1	3 (HG-1)	1268962	202989	1.7	4	4	1	Yes	4	0	4						
Hardie Gypsum-2	3 (HG-2)	1268958	202981	1.7	4	4	1	Yes	4	0	3						
Hardie Gypsum-1	4 (HG-1)	1268987	202873	1.7	4	not dredged	1	Yes	4	0	4	240		Yes			
Hardie Gypsum-2	4 (HG-2)	1268974	202866	1.7	4	not dredged	1	Yes	4	0	3	230		Yes			
Hardie Gypsum-1	5	1268997	202773	1.7	4	not dredged	1	Yes	5	0	4	130		Yes			
Hardie Gypsum-2	5.2	1269023	202728	1.7	4	not dredged	1	Yes	5	0	3	240		Yes			
Hardie Gypsum-2	C	1268981	203013	1.7	4	4	1	Yes	C	0	3	700		Yes			
Lone Star-Hardie Gypsum	c-1	1269036	202783	1.7	4	not dredged	1	Yes	c-1	0	4	200		Yes			
Lone Star-Hardie Gypsum	c-2	1268972	202971	1.7	4	4	1	Yes	c-2	0	5	310		Yes			
Hardie Gypsum-2	D	1269020	202886	1.7	4	not dredged	1	Yes	D	0	3	100		Yes			
EPA SI	DR101	1269108	202682	1.7	6	6	1	No	SD-DR101-0000A	0	2	74		Yes			
EPA SI	DR101	1269108	202682	1.7	6	6	1	No	SD-DR101-0020	2	4	44		Yes			
Hardie Gypsum-2	E	1269034	202730	1.7	4	not dredged	1	Yes	E	0	3	46		Yes			
LDW Subsurface Sediment 2006	LDW-SC31	1268935	203092	1.7	4	4	1	No	LDW-SC31-0-1	0	1	330		Yes			
LDW Subsurface Sediment 2006	LDW-SC31	1268935	203092	1.7	4	4	1	No	LDW-SC31-1-2.8	1	2.8	290	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC31	1268935	203092	1.7	4	4	1	No	LDW-SC31-2.8-4	2.8	4	18	U	No			
LDW Subsurface Sediment 2006	LDW-SC32	1269345	202959	1.7	5	not dredged	3	No	LDW-SC32-0-1	0	1	230	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC32	1269345	202959	1.7	5	not dredged	3	No	LDW-SC32-1-2	1	2	660		Yes			
LDW Subsurface Sediment 2006	LDW-SC32	1269345	202959	1.7	5	not dredged	3	No	LDW-SC32-2-4	2	4	170		Yes			
LDW Subsurface Sediment 2006	LDW-SC32	1269345	202959	1.7	5	not dredged	3	No	LDW-SC32-5.2-8	5.2	8	48	U	No			
PSDDA99	S1	1268863	202577	1.8	6	6	3	Yes	S1	0	4	130		Yes			
T115	S1-01	1268671	202394	1.8	5	not dredged	3	Yes	T115-S1-CS-0803	0	3	5900		Yes	19.2	J	Yes
T115	S1-01	1268671	202394	1.8	5	not dredged	3	Yes	T115-S1-ZA-0803	3	4	72	J	Yes	12.5	J	Yes
T115	S1-02	1268725	202252	1.8	2	3	1	Yes	0803	3	4	940	J	Yes	14	J	Yes
T115	S1-02	1268725	202252	1.8	2	3	1	Yes	T115-S1-02-ZB-0803	4	4.7	360	J	Yes	38.9	J	Yes
PSDDA99	S2	1268952	202446	1.8	6	6	3	Yes	S2	0	4	170		Yes			
T115	S2-01	1268765	202119	1.8	2	3	1	Yes	T115-S2-CS-0803	0	3	1100	J	Yes	23.3	J	Yes
T115	S2-01	1268765	202119	1.8	2	3	1	Yes	0803	3	4	650		Yes	31.4	J	Yes
T115	S2-01	1268765	202119	1.8	2	3	1	Yes	T115-S2-01-ZB-0803	4	5	370		Yes	27.1	J	Yes
T115	S2-01	1268765	202119	1.8	2	3	1	Yes	T115-S2-01-ZC-0803	5	6	730		Yes	22.6	J	Yes
T115	S2-02	1268791	202044	1.8	2	3	1	Yes	0803	3	4	1200	J	Yes	23.7	J	Yes
T115	S2-02	1268791	202044	1.8	2	3	1	Yes	T115-S2-02-ZB-0803	4	5	1300		Yes	28.5	J	Yes
T115	S2-02	1268791	202044	1.8	2	3	1	Yes	T115-S2-02-ZC-0803	5	6	1400		Yes	22.3	J	Yes
PSDDA99	S3	1268980	202348	1.8	6	6	3	Yes	S3	0	4	190		Yes			
PSDDA99	S4	1269020	202252	1.8	6	6	3	Yes	S4	0	4	250		Yes			
PSDDA99	S5	1269042	202166	1.8	6	6	3	Yes	S5	0	4	190		Yes			
PSDDA99	B1	1269154	202036	1.9	6	6	3	Yes	B1	4	8	140		Yes			

Table G-4 Dioxins/Furans and cPAHs in Cores – River Miles 0 to 1.9

Core Information									Sample Information			cPAHs			Dioxins/Furans		
Task	Core Location Name	X[a]	Y[a]	River Mile	Removal-Emphasis Alternative when Area is First Dredged[b]	Combined-Technologies Alternative when Area is First Dredged[c]	Recovery Category	Collected for Dredge Material Characterization?	Sample Name	Upper Sample Depth (ft recovered)	Lower Sample Depth (ft recovered)	Concentration (µg TEQ/kg dw)	Qualifier	Detected	Concentration (ng TEQ/kg dw)	Qualifier	Detected
LDW Subsurface Sediment 2006	LDW-SC201	1269268	202052	1.9	3	not dredged	3	No	LDW-SC201-0-1.5	0	1.5	280	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC201	1269268	202052	1.9	3	not dredged	3	No	LDW-SC201-1.5-4	1.5	4	130	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC201	1269268	202052	1.9	3	not dredged	3	No	LDW-SC201-4-6	4	6	750		Yes			
LDW Subsurface Sediment 2006	LDW-SC201	1269268	202052	1.9	3	not dredged	3	No	LDW-SC201-8-10	8	10	93	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC203	1268832	202013	1.9	2	3	1	No	LDW-SC203-0-1	0	1	510	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC203	1268832	202013	1.9	2	3	1	No	LDW-SC203-1-2	1	2	660		Yes			
LDW Subsurface Sediment 2006	LDW-SC203	1268832	202013	1.9	2	3	1	No	LDW-SC203-2-4	2	4	290		Yes			
LDW Subsurface Sediment 2006	LDW-SC203	1268832	202013	1.9	2	3	1	No	LDW-SC203-4-6	4	6	280		Yes			
LDW Subsurface Sediment 2006	LDW-SC33	1269267	202053	1.9	3	not dredged	3	No	LDW-SC33-0-0.5	0	0.5						
LDW Subsurface Sediment 2006	LDW-SC33	1269267	202053	1.9	3	not dredged	3	No	LDW-SC33-0-2	0	2	350	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC33	1269267	202053	1.9	3	not dredged	3	No	LDW-SC33-0.5-1	0.5	1						
LDW Subsurface Sediment 2006	LDW-SC33	1269267	202053	1.9	3	not dredged	3	No	LDW-SC33-1-1.5	1	1.5						
LDW Subsurface Sediment 2006	LDW-SC33	1269267	202053	1.9	3	not dredged	3	No	LDW-SC33-1.5-2	1.5	2						
LDW Subsurface Sediment 2006	LDW-SC33	1269267	202053	1.9	3	not dredged	3	No	LDW-SC33-2-2.5	2	2.5						
LDW Subsurface Sediment 2006	LDW-SC33	1269267	202053	1.9	3	not dredged	3	No	LDW-SC33-2-4	2	4	120	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC33	1269267	202053	1.9	3	not dredged	3	No	LDW-SC33-2.5-3	2.5	3						
LDW Subsurface Sediment 2006	LDW-SC33	1269267	202053	1.9	3	not dredged	3	No	LDW-SC33-4-6	4	6	430		Yes			
LDW Subsurface Sediment 2006	LDW-SC33	1269267	202053	1.9	3	not dredged	3	No	LDW-SC33-8-10	8	10	120	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC34	1268831	202016	1.9	2	3	1	No	LDW-SC34-0-1	0	1	360	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC34	1268831	202016	1.9	2	3	1	No	LDW-SC34-1-2	1	2	600		Yes			
LDW Subsurface Sediment 2006	LDW-SC34	1268831	202016	1.9	2	3	1	No	LDW-SC34-2-4	2	4	230	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC35	1269260	201604	1.9	3	4	3	No	LDW-SC35-0-2	0	2	290	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC35	1269260	201604	1.9	3	4	3	No	LDW-SC35-2-4	2	4	310	J	Yes			
PSDDA99	S10	1269353	201769	1.9	6	6	3	Yes	S10	0	4	280	J	Yes			
PSDDA99	S6	1269111	202083	1.9	6	6	3	Yes	S6	0	4	270		Yes			
PSDDA99	S7	1269130	201979	1.9	outside of AOPCs	outside of AOPCs	3	Yes	S7	0	4	170		Yes			
PSDDA99	S8	1269220	201915	1.9	6	6	3	Yes	S8	0	4	160		Yes			
PSDDA99	S9	1269264	201827	1.9	6	6	3	Yes	S9	0	4	190		Yes			

Notes

a. datum: NAD 1983 Washington State Plane North (Feet).

b. Indicates lowest-numbered remedial alternative when the core is subject to dredging or to partial dredging/ capping for Alternatives 2R/2R-CAD, 3R, 4R, 5R/5R-T, and 6R.

c. Indicates lowest-numbered remedial alternative when the core is subject to dredging or to partial dredging/ capping for Alternatives 3C, 4C, 5C, and 6C.
Note that if a removal alternative is dredged, but the corresponding combined alternative is not dredged, then the combined alternative is actively remediated with capping or ENR.

AOPC = area of potential concern; cPAHs = carcinogenic polycyclic aromatic hydrocarbons

Table G-5 Dioxins/Furans and cPAHs in Cores – River Miles 2.0 to 4.0

Core Information									Sample Information			cPAHs			Dioxins/Furans		
Task	Core Location Name	X[a]	Y[a]	River Mile	FS Removal-Emphasis Alternative when Area Is First Dredged[b]	FS Combined-Technologies Alternative when Area Is First Dredged[c]	Recovery Category	Collected for Dredge Material Characterization?	Sample Name	Upper Sample Depth (ft recovered)	Lower Sample Depth (ft recovered)	Concentration (µg TEQ/kg dw)	Qualifier	Detected	Concentration (ng TEQ/kg dw)	Qualifier	Detected
PSDDA99	S11	1269400	201666	2.0	4	4	3	Yes	S11	0	4	86		Yes			
PSDDA99	S12	1269510	201597	2.0	4	4	3	Yes	S12	0	4	74		Yes			
PSDDA99	B2	1269979	201124	2.1	5	not dredged	3	Yes	B2	4	8	73		Yes			
EPA SI	DR106	1270217	201545	2.1	6	not dredged	3	No	SD-DR106-0000A	0	2	130		Yes			
EPA SI	DR106	1270217	201545	2.1	6	not dredged	3	No	SD-DR106-0020	2	4	260		Yes			
EPA SI	DR112	1270202	201166	2.1	4	4	2	No	SD-DR112-0000A	0	2	350		Yes			
EPA SI	DR112	1270202	201166	2.1	4	4	2	No	SD-DR112-0020	2	4	580		Yes			
LDW Subsurface Sediment 2006	LDW-SC202	1269986	201491	2.1	6	not dredged	3	No	LDW-SC202-0-1	0	1	89	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC202	1269986	201491	2.1	6	not dredged	3	No	LDW-SC202-1-2	1	2	38	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC202	1269986	201491	2.1	6	not dredged	3	No	LDW-SC202-2-4	2	4	35	UJ	No			
LDW Subsurface Sediment 2006	LDW-SC36	1269990	201489	2.1	6	not dredged	3	No	LDW-SC36-0-1	0	1	110	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC36	1269990	201489	2.1	6	not dredged	3	No	LDW-SC36-1-2	1	2	39	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC36	1269990	201489	2.1	6	not dredged	3	No	LDW-SC36-2-4	2	4	34	UJ	No			
LDW Subsurface Sediment 2006	LDW-SC37	1270691	201436	2.1	3	3	2	No	LDW-SC37-0-1	0	1	2800		Yes			
LDW Subsurface Sediment 2006	LDW-SC37	1270691	201436	2.1	3	3	2	No	LDW-SC37-1-2	1	2	7000		Yes			
LDW Subsurface Sediment 2006	LDW-SC37	1270691	201436	2.1	3	3	2	No	LDW-SC37-2-4	2	4	5600		Yes			
LDW Subsurface Sediment 2006	LDW-SC37	1270691	201436	2.1	3	3	2	No	LDW-SC37-5.3-6.9	5.3	6.9	53	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC38a	1269747	200937	2.1	5	6	3	No	LDW-SC38-0-1	0	1	19	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC38a	1269747	200937	2.1	5	6	3	No	LDW-SC38-1-2	1	2	19	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC38a	1269747	200937	2.1	5	6	3	No	LDW-SC38-2-3	2	3	74	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC38b	1269744	200959	2.1	5	6	3	No	LDW-SC38-3-3.3	3	3.3	19	J	Yes			
EPA SI	DR137	1270252	200448	2.2	6	not dredged	3	No	SD-DR137-0000A-CC	0	2	60		Yes			
EPA SI	DR137	1270252	200448	2.2	6	not dredged	3	No	SD-DR137-0020-CC	2	4	290	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC39	1270056	200657	2.2	4	6	3	No	LDW-SC39-0-1	0	1	260	J	Yes	7.91	J	Yes
LDW Subsurface Sediment 2006	LDW-SC39	1270056	200657	2.2	4	6	3	No	LDW-SC39-1-2	1	2	76	J	Yes	12.4	J	Yes
LDW Subsurface Sediment 2006	LDW-SC39	1270056	200657	2.2	4	6	3	No	LDW-SC39-2-4	2	4	60	J	Yes	13.1	J	Yes
LDW Subsurface Sediment 2006	LDW-SC39	1270056	200657	2.2	4	6	3	No	LDW-SC39-4-6	4	6						
PSDDA99	S13	1270426	200645	2.2	outside of AOPCs	outside of AOPCs	3	Yes	S13	0	4	140		Yes			
LDW Subsurface Sediment 2006	LDW-SC40	1270303	200332	2.3	2	3	2	No	LDW-SC40-0-1.3	0	1.3	51		Yes	6.71	J	Yes
LDW Subsurface Sediment 2006	LDW-SC40	1270303	200332	2.3	2	3	2	No	LDW-SC40-1.3-2	1.3	2	18	U	No	0.485	J	Yes
LDW Subsurface Sediment 2006	LDW-SC40	1270303	200332	2.3	2	3	2	No	LDW-SC40-2-4	2	4	18	U	No	0.355	J	Yes
Hurlen-Boyer	C5 (Hurlen-Boyer)	1270986	199683	2.4	4	4	1	Yes	C5	0	3.3	440		Yes			
LDW Subsurface Sediment 2006	LDW-SC41	1271171	200294	2.4	4	4	1	No	LDW-SC41-0-1	0	1	290	J	Yes	13.8		Yes
LDW Subsurface Sediment 2006	LDW-SC41	1271171	200294	2.4	4	4	1	No	LDW-SC41-1-2	1	2	78	J	Yes	12.5	J	Yes
LDW Subsurface Sediment 2006	LDW-SC41	1271171	200294	2.4	4	4	1	No	LDW-SC41-2-4	2	4	270	J	Yes	14	J	Yes
LDW Subsurface Sediment 2006	LDW-SC41	1271171	200294	2.4	4	4	1	No	LDW-SC41-4-6	4	6	470		Yes			
LDW Subsurface Sediment 2006	LDW-SC41	1271171	200294	2.4	4	4	1	No	LDW-SC41-6-7.9	6	7.9						
PSDDA99	S14	1270894	200131	2.4	6	6	3	Yes	S14	0	4	100	J	Yes			
Hurlen-Boyer	C6 (Hurlen-Boyer)	1271160	199554	2.5	4	4	2	Yes	C6	0	3.8	570		Yes			
EPA SI	DR171	1271310	199597	2.5	6	6	3	No	SD-DR171-0000A	0	2	290		Yes			
EPA SI	DR171	1271310	199597	2.5	6	6	3	No	SD-DR171-0020	2	4	250		Yes			
LDW Subsurface Sediment 2006	LDW-SC42	1271361	199898	2.5	6	not dredged	1	No	LDW-SC42-0-1	0	1	150		Yes			
LDW Subsurface Sediment 2006	LDW-SC42	1271361	199898	2.5	6	not dredged	1	No	LDW-SC42-1-2	1	2	550		Yes			
LDW Subsurface Sediment 2006	LDW-SC42	1271361	199898	2.5	6	not dredged	1	No	LDW-SC42-2-4	2	4	440		Yes			
PSDDA99	S15	1271295	199702	2.5	4	4	3	Yes	S15	0	4	180		Yes			
BoyerTowing	WRC-SS-B1	1271107	199533	2.5	4	not dredged	3	No	WRC-SS-B1A-B 1-2'	1	2	17.2	U	No			
BoyerTowing	WRC-SS-B2	1271101	199571	2.5	4	not dredged	3	No	WRC-SS-B2A-B 1-2'	1	2	17	U	No			
BoyerTowing	WRC-SS-B3	1271056	199592	2.5	4	not dredged	3	No	WRC-SS-B3A-B 1-2'	1	2	20	U	No			
LDW Subsurface Sediment 2006	LDW-SC43	1271846	199289	2.6	2	3	3	No	LDW-SC43-0-2	0	2	20	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC43	1271846	199289	2.6	2	3	3	No	LDW-SC43-2-4	2	4	17	U	No			
PSDDA99	S16	1271930	199035	2.6	6	6	3	Yes	S16	0	4	180		Yes			

Table G-5 Dioxins/Furans and cPAHs in Cores – River Miles 2.0 to 4.0

Core Information									Sample Information			cPAHs			Dioxins/Furans		
Task	Core Location Name	X[a]	Y[a]	River Mile	FS Removal-Emphasis Alternative when Area Is First Dredged[b]	FS Combined-Technologies Alternative when Area Is First Dredged[c]	Recovery Category	Collected for Dredge Material Characterization?	Sample Name	Upper Sample Depth (ft recovered)	Lower Sample Depth (ft recovered)	Concentration (µg TEQ/kg dw)	Qualifier	Detected	Concentration (ng TEQ/kg dw)	Qualifier	Detected
Hurlen-Boyer	C1 (Hurlen-Boyer)	1271875	198851	2.7	4	4	2	Yes	C1	0	3.7	780		Yes			
Hurlen-Boyer	C2	1271991	198746	2.7	4	4	1	Yes	C2	0	4.2	2400		Yes			
Hurlen-Boyer	C3	1272106	198645	2.7	2	3	1	Yes	C3	0	3.3	2800		Yes			
LDW Subsurface Sediment 2006	LDW-SC44	1272231	198926	2.7	3	3	3	No	LDW-SC44-0-0.5	0	0.5						
LDW Subsurface Sediment 2006	LDW-SC44	1272231	198926	2.7	3	3	3	No	LDW-SC44-0-2	0	2	100	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC44	1272231	198926	2.7	3	3	3	No	LDW-SC44-0.5-1	0.5	1						
LDW Subsurface Sediment 2006	LDW-SC44	1272231	198926	2.7	3	3	3	No	LDW-SC44-1-1.5	1	1.5						
LDW Subsurface Sediment 2006	LDW-SC44	1272231	198926	2.7	3	3	3	No	LDW-SC44-1.5-2	1.5	2						
LDW Subsurface Sediment 2006	LDW-SC44	1272231	198926	2.7	3	3	3	No	LDW-SC44-2-2.5	2	2.5						
LDW Subsurface Sediment 2006	LDW-SC44	1272231	198926	2.7	3	3	3	No	LDW-SC44-2-3.2	2	3.2	120		Yes			
LDW Subsurface Sediment 2006	LDW-SC44	1272231	198926	2.7	3	3	3	No	LDW-SC44-2.5-3	2.5	3						
LDW Subsurface Sediment 2006	LDW-SC44	1272231	198926	2.7	3	3	3	No	LDW-SC44-3-3.5	3	3.5						
LDW Subsurface Sediment 2006	LDW-SC44	1272231	198926	2.7	3	3	3	No	LDW-SC44-3.2-4	3.2	4	18	U	No			
LDW Subsurface Sediment 2006	LDW-SC46	1272121	198579	2.7	2	3	1	No	LDW-SC46-0-1	0	1	840	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC46	1272121	198579	2.7	2	3	1	No	LDW-SC46-1-2	1	2	1200		Yes			
LDW Subsurface Sediment 2006	LDW-SC46	1272121	198579	2.7	2	3	1	No	LDW-SC46-2-4	2	4	1100	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC46	1272121	198579	2.7	2	3	1	No	LDW-SC46-4-6.8	4	6.8						
Hurlen-Boyer	C4	1272268	198483	2.8	2	3	1	Yes	C4	0	3.3	340		Yes			
Slip4-Crowley	DMMU 1	1272885	198524	2.8	6	6	3	Yes	CMS4-5	0	3.9	3400		Yes			
Slip4-Crowley	DMMU 2	1273000	198628	2.8	6	6	3	Yes	CMS4-1	0	2.8	730		Yes			
Slip4-Crowley	DMMU 3	1273126	198726	2.8	6	6	3	Yes	CMS4-2	0	4.3	280		Yes			
Slip4-Crowley	DMMU 4	1273220	198831	2.8	6	6	3	Yes	CMS4-3	0	3.9	380		Yes			
LDW Subsurface Sediment 2006	LDW-SC45	1272647	198588	2.8	5	not dredged	2	No	LDW-SC45-0-1	0	1	240	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC45	1272647	198588	2.8	5	not dredged	2	No	LDW-SC45-1-2	1	2	170	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC45	1272647	198588	2.8	5	not dredged	2	No	LDW-SC45-2-4	2	4	1000	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC45	1272647	198588	2.8	5	not dredged	2	No	LDW-SC45-5-6	5	6						
Slip4-EarlyAction	SC06	1273260	198884	2.8	6	6	3	No	SC06A	0	2						
Slip4-EarlyAction	SC06	1273260	198884	2.8	6	6	3	No	SC06B	2	4						
Slip4-EarlyAction	SC06	1273260	198884	2.8	6	6	3	No	SC06C	4	6						
Slip4-EarlyAction	SC06	1273260	198884	2.8	6	6	3	No	SC06D	6	8						
Slip4-EarlyAction	SC06	1273260	198884	2.8	6	6	3	No	SC06E	8	10						
Slip4-EarlyAction	SC08	1273118	198766	2.8	6	6	3	No	SC08A	0	2						
Slip4-EarlyAction	SC08	1273118	198766	2.8	6	6	3	No	SC08B	2	4						
Slip4-EarlyAction	SC08	1273118	198766	2.8	6	6	3	No	SC08C	4	6						
Slip4-EarlyAction	SC08	1273118	198766	2.8	6	6	3	No	SC08D	6	8						
Slip4-EarlyAction	SC10	1272980	198642	2.8	6	6	3	No	SC10A	0	2						
Slip4-EarlyAction	SC10	1272980	198642	2.8	6	6	3	No	SC10B	2	4						
Slip4-EarlyAction	SC10	1272980	198642	2.8	6	6	3	No	SC10C	4	6						
Slip4-EarlyAction	SC10	1272980	198642	2.8	6	6	3	No	SC10D	6	8						
Slip4-EarlyAction	SC10	1272980	198642	2.8	6	6	3	No	SC10E	8	10						
USACE 1990	DU9008XX	1273003	198124	2.9	6	6	3	Yes	DUWO&M90S008	0	7	10	U	No			
Slip4-EarlyAction	SC09	1273236	198729	2.9	6	6	3	No	SC09A	0	2						
Slip4-EarlyAction	SC09	1273236	198729	2.9	6	6	3	No	SC09B	2	4						
Slip4-EarlyAction	SC09	1273236	198729	2.9	6	6	3	No	SC09C	4	6						
Slip4-EarlyAction	SC09	1273236	198729	2.9	6	6	3	No	SC09D	6	8						
Slip4-EarlyAction	SC09	1273236	198729	2.9	6	6	3	No	SC09E	8	10						
Slip4-EarlyAction	SC11	1272966	198513	2.9	6	6	3	No	SC11A	0	2						
Slip4-EarlyAction	SC11	1272966	198513	2.9	6	6	3	No	SC11B	2	4						
Slip4-EarlyAction	SC11	1272966	198513	2.9	6	6	3	No	SC11C	4	6						
Slip4-EarlyAction	SC11	1272966	198513	2.9	6	6	3	No	SC11D	6	8						
Slip4-EarlyAction	SC11	1272966	198513	2.9	6	6	3	No	SC11E	8	10						
Slip4-EarlyAction	SC11	1272966	198513	2.9	6	6	3	No	SC11F	10	12						

Table G-5 Dioxins/Furans and cPAHs in Cores – River Miles 2.0 to 4.0

Core Information									Sample Information			cPAHs			Dioxins/Furans		
Task	Core Location Name	X[a]	Y[a]	River Mile	FS Removal-Emphasis Alternative when Area Is First Dredged[b]	FS Combined-Technologies Alternative when Area Is First Dredged[c]	Recovery Category	Collected for Dredge Material Characterization?	Sample Name	Upper Sample Depth (ft recovered)	Lower Sample Depth (ft recovered)	Concentration (µg TEQ/kg dw)	Qualifier	Detected	Concentration (ng TEQ/kg dw)	Qualifier	Detected
EPA SI	DR224	1273359	197554	3.0	6	not dredged	1	No	SD-DR224-0000A	0	2	18	U	No			
EPA SI	DR224	1273359	197554	3.0	6	not dredged	1	No	SD-DR224-0020	2	3.33	18		Yes			
LDW Subsurface Sediment 2006	LDW-SC47	1273347	197447	3.0	5	not dredged	3	No	LDW-SC47-0-1	0	1	61	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC47	1273347	197447	3.0	5	not dredged	3	No	LDW-SC47-1-2	1	2	74	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC47	1273347	197447	3.0	5	not dredged	3	No	LDW-SC47-2-3	2	3	90	U	No			
LDW Subsurface Sediment 2006	LDW-SC47	1273347	197447	3.0	5	not dredged	3	No	LDW-SC47-3-4	3	4	18	UJ	No			
PSDDA99	S17	1273435	197587	3.0	6	6	1	Yes	S17	0	4	55		Yes			
USACE 1990	DU9007XX	1273696	197475	3.1	2	4	1	Yes	DUWO&M90S007	0	5	11		Yes			
PSDDA99	S18	1274190	196895	3.2	6	6	3	Yes	S18	0	4	54		Yes			
LDW Subsurface Sediment 2006	LDW-SC48	1274533	196659	3.3	6	6	3	No	LDW-SC48-0-1	0	1	40		Yes			
LDW Subsurface Sediment 2006	LDW-SC48	1274533	196659	3.3	6	6	3	No	LDW-SC48-1-2	1	2	18	U	No			
LDW Subsurface Sediment 2006	LDW-SC48	1274533	196659	3.3	6	6	3	No	LDW-SC48-2-4	2	4	17	U	No			
South Park Bridge	SB-5	1274500	196550	3.3	6	not dredged	3	No	SB5-SED-2.5	0	2.5	76.32		Yes			
South Park Bridge	SB-5	1274500	196550	3.3	6	not dredged	3	No	SB5-SED-5	2.5	5	156.2		Yes			
South Park Bridge	SB-5	1274500	196550	3.3	6	not dredged	3	No	SB5-SED-7.5	5	7.5	281.4	J	Yes			
South Park Bridge	SB-5	1274500	196550	3.3	6	not dredged	3	No	SB5-SED-50	47.5	50	4.07	U	No			
South Park Bridge	SB-5	1274500	196550	3.3	6	not dredged	3	No	SB5-SED-75	72.5	75	4.07	U	No			
SouthParkMarina	1 & 2	1274844	196140	3.4	outside of AOPCs	outside of AOPCs	3	Yes	Comp 1	0	4	430	U	No			
SouthParkMarina	3 & 4	1274723	196251	3.4	outside of AOPCs	outside of AOPCs	3	Yes	Comp 2	0	4	430	U	No			
USACE 1990	DU9005XX	1274822	196338	3.4	6	6	3	Yes	DUWO&M90S005	0	7	10	U	No			
USACE 1991	DU9125XX	1274809	196315	3.4	6	6	3	Yes	DUWO&M91S017	0	4						
PSDDA98	1	1275291	195913	3.5	6	6	3	Yes	S1	0	2	33		Yes			
USACE 1990	DU9004XX	1275227	195934	3.5	6	6	3	Yes	DUWO&M90S004	0	7	10	U	No			
USACE 1991	DU9124XX	1275229	195938	3.5	6	6	3	Yes	DUWO&M91S016	0	4						
LDW Subsurface Sediment 2006	LDW-SC49a	1275477	195851	3.5	4	4	1	No	LDW-SC49-0-1	0	1	170	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC49a	1275477	195851	3.5	4	4	1	No	LDW-SC49-1-2	1	2	270		Yes			
LDW Subsurface Sediment 2006	LDW-SC49a	1275477	195851	3.5	4	4	1	No	LDW-SC49-2-4	2	4	120		Yes			
LDW Subsurface Sediment 2006	LDW-SC49a	1275477	195851	3.5	4	4	1	No	LDW-SC49-4-6	4	6						
LDW Subsurface Sediment 2006	LDW-SC49a	1275477	195851	3.5	4	4	1	No	LDW-SC49-6-8	6	8						
LDW Subsurface Sediment 2006	LDW-SC49a	1275477	195851	3.5	4	4	1	No	LDW-SC49-8-10	8	10						
LDW Subsurface Sediment 2006	LDW-SC49b	1275498	195853	3.5	4	4	1	No	LDW-SC49V-0-1	0	1						
LDW Subsurface Sediment 2006	LDW-SC49b	1275498	195853	3.5	4	4	1	No	LDW-SC49V-1-2	1	2						
LDW Subsurface Sediment 2006	LDW-SC49b	1275498	195853	3.5	4	4	1	No	LDW-SC49V-2-3	2	3						
LDW Subsurface Sediment 2006	LDW-SC49b	1275498	195853	3.5	4	4	1	No	LDW-SC49V-3-4	3	4						
LDW Subsurface Sediment 2006	LDW-SC49b	1275498	195853	3.5	4	4	1	No	LDW-SC49V-4-5	4	5						
LDW Subsurface Sediment 2006	LDW-SC49b	1275498	195853	3.5	4	4	1	No	LDW-SC49V-5-6	5	6						
LDW Subsurface Sediment 2006	LDW-SC49b	1275498	195853	3.5	4	4	1	No	LDW-SC49V-6-7	6	7						
LDW Subsurface Sediment 2006	LDW-SC49b	1275498	195853	3.5	4	4	1	No	LDW-SC49V-7-8	7	8						
LDW Subsurface Sediment 2006	LDW-SC49b	1275498	195853	3.5	4	4	1	No	LDW-SC49V-8-9	8	9						
LDW Subsurface Sediment 2006	LDW-SC49b	1275498	195853	3.5	4	4	1	No	LDW-SC49V-9-10	9	10						
LDW Subsurface Sediment 2006	LDW-SC49b	1275498	195853	3.5	4	4	1	No	LDW-SC49V-10-11	10	11						
LDW Subsurface Sediment 2006	LDW-SC49b	1275498	195853	3.5	4	4	1	No	LDW-SC49V-11-12	11	12						
T117BoundaryDefinition	T117-SE-91-SC	1275230	195820	3.5	6	not dredged	3	No	T117-SE91-SC-02	0	2						
T117BoundaryDefinition	T117-SE-93-SC	1275303	195783	3.5	6	not dredged	3	No	T117-SE93-SC-02	0	2						
T117BoundaryDefinition	T117-SE-94-SC	1275365	195781	3.5	6	6	3	No	T117-SE94-SC-02	0	2						
T117BoundaryDefinition	SC	1275216	195870	3.5	6	not dredged	3	No	T117-SC-COMP1	0	4						
T117BoundaryDefinition	COMP2and3-SC	1275238	195806	3.5	6	not dredged	3	No	T117-SC-COMP3	0	2	41.6	J	Yes			
T117BoundaryDefinition	COMP2and3-SC	1275238	195806	3.5	6	not dredged	3	No	T117-SC-COMP2	2	4	128		Yes			
T117BoundaryDefinition	SC	1275267	195801	3.5	6	not dredged	3	No	T117-SC-COMP4	0	2						
USACE 1990	DU9002XX	1275794	195492	3.6	4	4	1	Yes	DUWO&M90S002	0	7	10	U	No			
USACE 1990	DU9003XX	1275515	195674	3.6	6	6	3	Yes	DUWO&M90S003	0	7	10	U	No			
USACE 1991	DU9123XX	1275519	195678	3.6	6	6	3	Yes	DUWO&M91S015	0	4						

Table G-5 Dioxins/Furans and cPAHs in Cores – River Miles 2.0 to 4.0

Core Information									Sample Information			cPAHs			Dioxins/Furans		
Task	Core Location Name	X[a]	Y[a]	River Mile	FS Removal-Emphasis Alternative when Area Is First Dredged[b]	FS Combined-Technologies Alternative when Area Is First Dredged[c]	Recovery Category	Collected for Dredge Material Characterization?	Sample Name	Upper Sample Depth (ft recovered)	Lower Sample Depth (ft recovered)	Concentration (µg TEQ/kg dw)	Qualifier	Detected	Concentration (ng TEQ/kg dw)	Qualifier	Detected
T117BoundaryDefinition	T117-SE-15-SC	1275420	195740	3.6	6	6	3	No	T117-SE15-SC-01	0	1						
T117BoundaryDefinition	T117-SE-15-SC	1275420	195740	3.6	6	6	3	No	T117-SE15-SC-12	1	2						
T117BoundaryDefinition	T117-SE-15-SC	1275420	195740	3.6	6	6	3	No	T117-SE15-SC-24	2	4						
T117BoundaryDefinition	T117-SE-15-SC	1275420	195740	3.6	6	6	3	No	T117-SE15-SC-46	4	6						
T117BoundaryDefinition	T117-SE-15-SC	1275420	195740	3.6	6	6	3	No	T117-SE15-SC-68	6	8						
T117BoundaryDefinition	T117-SE-15-SC	1275420	195740	3.6	6	6	3	No	T117-SE15-SC-810	8	10						
T117BoundaryDefinition	T117-SE-23-SC	1275568	195604	3.6	6	6	3	No	T117-SE23-SC-01	0	1						
T117BoundaryDefinition	T117-SE-23-SC	1275568	195604	3.6	6	6	3	No	T117-SE23-SC-12	1	2						
T117BoundaryDefinition	T117-SE-23-SC	1275568	195604	3.6	6	6	3	No	T117-SE23-SC-24	2	4						
T117BoundaryDefinition	T117-SE-23-SC	1275568	195604	3.6	6	6	3	No	T117-SE23-SC-46	4	6						
T117BoundaryDefinition	T117-SE-23-SC	1275568	195604	3.6	6	6	3	No	T117-SE23-SC-68	6	8						
T117BoundaryDefinition	T117-SE-23-SC	1275568	195604	3.6	6	6	3	No	T117-SE23-SC-810	8	10						
T117BoundaryDefinition	T117-SE-35-SC	1275664	195438	3.6	6	6	1	No	T117-SE35-SC-01	0	1						
T117BoundaryDefinition	T117-SE-35-SC	1275664	195438	3.6	6	6	1	No	T117-SE35-SC-12	1	2						
T117BoundaryDefinition	T117-SE-35-SC	1275664	195438	3.6	6	6	1	No	T117-SE35-SC-24	2	4						
T117BoundaryDefinition	T117-SE-35-SC	1275664	195438	3.6	6	6	1	No	T117-SE35-SC-46	4	6						
T117BoundaryDefinition	T117-SE-35-SC	1275664	195438	3.6	6	6	1	No	T117-SE35-SC-68	6	8						
T117BoundaryDefinition	T117-SE-35-SC	1275664	195438	3.6	6	6	1	No	T117-SE35-SC-810	8	10						
PSDDA98	2 (98)	1275779	195125	3.7	6	6	1	Yes	S2	0	2	150		Yes			
USACE 1991	DU9121XX	1275843	194878	3.7	5	5	1	Yes	DUWO&M91S013	0	4	90		Yes			
USACE 1991	DU9122XX	1275714	195358	3.7	6	6	1	Yes	DUWO&M91S014	0	3	89		Yes			
T117BoundaryDefinition	T117-SE-42-SC	1275667	195279	3.7	6	not dredged	3	No	T117-SE42-SC-01	0	1						
T117BoundaryDefinition	T117-SE-42-SC	1275667	195279	3.7	6	not dredged	3	No	T117-SE42-SC-12	1	2						
T117BoundaryDefinition	T117-SE-42-SC	1275667	195279	3.7	6	not dredged	3	No	T117-SE42-SC-24	2	4						
T117BoundaryDefinition	T117-SE-42-SC	1275667	195279	3.7	6	not dredged	3	No	T117-SE42-SC-46	4	6						
T117BoundaryDefinition	T117-SE-42-SC	1275667	195279	3.7	6	not dredged	3	No	T117-SE42-SC-68	6	8						
T117BoundaryDefinition	T117-SE-42-SC	1275667	195279	3.7	6	not dredged	3	No	T117-SE42-SC-810	8	10						
EPA SI	DR220	1276032	194669	3.8	2	3	1	No	SD-DR220-0000A	0	2	100		Yes			
EPA SI	DR220	1276032	194669	3.8	2	3	1	No	SD-DR220-0020	2	4	280		Yes			
LDW Subsurface Sediment 2006	LDW-SC50a	1276043	194865	3.8	2	3	2	No	LDW-SC50-0-1	0	1	360		Yes			
LDW Subsurface Sediment 2006	LDW-SC50a	1276043	194865	3.8	2	3	2	No	LDW-SC50-1-2	1	2	140	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC50a	1276043	194865	3.8	2	3	2	No	LDW-SC50-2-2.8	2	2.8	18	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC50a	1276043	194865	3.8	2	3	2	No	LDW-SC50-2.8-4	2.8	4	18	U	No			
LDW Subsurface Sediment 2006	LDW-SC51	1276135	194728	3.8	2	3	2	No	LDW-SC51-0-0.5	0	0.5	2200		Yes			
LDW Subsurface Sediment 2006	LDW-SC51	1276135	194728	3.8	2	3	2	No	LDW-SC51-0-2	0	2	690	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC51	1276135	194728	3.8	2	3	2	No	LDW-SC51-0.5-1	0.5	1	540		Yes			
LDW Subsurface Sediment 2006	LDW-SC51	1276135	194728	3.8	2	3	2	No	LDW-SC51-1-1.5	1	1.5	83	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC51	1276135	194728	3.8	2	3	2	No	LDW-SC51-1.5-2	1.5	2	65	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC51	1276135	194728	3.8	2	3	2	No	LDW-SC51-2-3.8	2	3.8	360		Yes			
LDW Subsurface Sediment 2006	LDW-SC51	1276135	194728	3.8	2	3	2	No	LDW-SC51-3.8-5.8	3.8	5.8						
PSDDA98	3	1276037	194297	3.9	outside of AOPCs	outside of AOPCs	1	Yes	S3	0	2	180		Yes			
KenworthPACCAR)	AN-042	1276319	193974	3.9	2	3	2	No	AN042-SC-080211-A	0	1	91	J	Yes			
KenworthPACCAR)	AN-042	1276319	193974	3.9	2	3	2	No	AN042-SC-080211-B	1	2	93	J	Yes			
KenworthPACCAR)	AN-042	1276319	193974	3.9	2	3	2	No	AN042-SC-080211-C	2	3	23	J	Yes			
KenworthPACCAR)	AN-042	1276319	193974	3.9	2	3	2	No	AN042-SC-080211-D	3	4	15	J	Yes			
KenworthPACCAR)	AN-042	1276319	193974	3.9	2	3	2	No	AN042-SC-080211-E	4	5	13	J	Yes			
KenworthPACCAR)	AN-042	1276319	193974	3.9	2	3	2	No	AN042-SC-080211-F	5	5.8						
KenworthPACCAR)	AN-043	1276265	194232	3.9	2	3	2	No	AN043-SC-080211-A	0	1	150	J	Yes			
KenworthPACCAR)	AN-043	1276265	194232	3.9	2	3	2	No	AN043-SC-080211-B	1	2	690	J	Yes			
KenworthPACCAR)	AN-043	1276265	194232	3.9	2	3	2	No	AN043-SC-080211-C	2	3	27	J	Yes			

Table G-5 Dioxins/Furans and cPAHs in Cores – River Miles 2.0 to 4.0

Core Information									Sample Information			cPAHs			Dioxins/Furans		
Task	Core Location Name	X[a]	Y[a]	River Mile	FS Removal-Emphasis Alternative when Area Is First Dredged[b]	FS Combined-Technologies Alternative when Area Is First Dredged[c]	Recovery Category	Collected for Dredge Material Characterization?	Sample Name	Upper Sample Depth (ft recovered)	Lower Sample Depth (ft recovered)	Concentration (µg TEQ/kg dw)	Qualifier	Detected	Concentration (ng TEQ/kg dw)	Qualifier	Detected
KenworthPACCAR)	AN-043	1276265	194232	3.9	2	3	2	No	AN043-SC-080211-D	3	4						
KenworthPACCAR)	AN-043	1276265	194232	3.9	2	3	2	No	AN043-SC-080211-E	4	5						
KenworthPACCAR)	AN-043	1276265	194232	3.9	2	3	2	No	AN043-SC-080211-F	5	6						
KenworthPACCAR)	AN-044	1276246	194250	3.9	2	3	2	No	AN044-SC-080211-A	0	1	98		Yes			
KenworthPACCAR)	AN-044	1276246	194250	3.9	2	3	2	No	AN044-SC-080211-B	1	2	29	J	Yes			
KenworthPACCAR)	AN-044	1276246	194250	3.9	2	3	2	No	AN044-SC-080211-C	2	3.5						
KenworthPACCAR)	AN-044	1276246	194250	3.9	2	3	2	No	AN044-SC-080211-D	3.5	4.5						
KenworthPACCAR)	AN-044	1276246	194250	3.9	2	3	2	No	AN044-SC-080211-E	4.5	5.5						
KenworthPACCAR)	AN-044	1276246	194250	3.9	2	3	2	No	AN044-SC-080211-F	5.5	6.5						
USACE 1990	DU9001XX	1276182	193931	3.9	5	5	1	Yes	DUWO&M90S001	0	5	36		Yes			
USACE 1991	DU9119XX	1276190	193943	3.9	5	5	1	Yes	DUWO&M91S011	0	3						
USACE 1991	DU9120XX	1276091	194345	3.9	6	6	1	Yes	DUWO&M91S012	0	3	160		Yes			
LDW Subsurface Sediment 2006	LDW-SC52	1276280	194160	3.9	2	3	2	No	LDW-SC52-0-1	0	1	160		Yes			
LDW Subsurface Sediment 2006	LDW-SC52	1276280	194160	3.9	2	3	2	No	LDW-SC52-1-2	1	2	35	U	No			
LDW Subsurface Sediment 2006	LDW-SC52	1276280	194160	3.9	2	3	2	No	LDW-SC52-2-4	2	4	18	U	No			
PSDDA98	4	1276167	193767	4.0	6	6	1	Yes	S4	0	2	100		Yes			
KenworthPACCAR)	AN-041	1276367	193757	4.0	4	not dredged	2	No	AN041-SC-080211-A	0	1	35	J	Yes			
KenworthPACCAR)	AN-041	1276367	193757	4.0	4	not dredged	2	No	AN041-SC-080211-B	1	2	1.2	J	Yes			
KenworthPACCAR)	AN-041	1276367	193757	4.0	4	not dredged	2	No	AN041-SC-080211-C	2	3	21	J	Yes			
KenworthPACCAR)	AN-041	1276367	193757	4.0	4	not dredged	2	No	AN041-SC-080211-D	3	4	18	J	Yes			
KenworthPACCAR)	AN-041	1276367	193757	4.0	4	not dredged	2	No	AN041-SC-080211-E	4	5	4.2	J	Yes			
KenworthPACCAR)	AN-041	1276367	193757	4.0	4	not dredged	2	No	AN041-SC-080211-F	5	6						
DuwamYachtClub	C1	1276029	193283	4.0	outside of AOPCs	outside of AOPCs	3	Yes	C1	0	1.7	130		Yes			
USACE 1991	DU9118XX	1276200	193467	4.0	6	6	3	Yes	DUWO&M91S010	0	3	96		Yes			
RhônePoulenc2004	SB-13	1276396	193642	4.0	4	not dredged	2	No	Lower SB-13	0.33	0.69	380	J	Yes			
RhônePoulenc2004	SH-01	1276626	193525	4.0	3	not dredged	3	No	Lower SH-01	0.33	0.82	310	J	Yes			
RhônePoulenc2004	SH-02	1276644	193476	4.0	3	not dredged	3	No	Lower SH-02	0.33	0.82	870	J	Yes			

Notes

a. datum: NAD 1983 Washington State Plane North (Feet).

b. Indicates lowest-numbered remedial alternative when the core is subject to dredging or to partial dredging/ capping for Alternatives 2R/2R-CAD, 3R, 4R, 5R/5R-T, and 6R.

c. Indicates lowest-numbered remedial alternative when the core is subject to dredging or to partial dredging/ capping for Alternatives 3C, 4C, 5C, and 6C. Note that if a removal alternative is dredged, but the corresponding combined alternative is not dredged, then the combined alternative is actively remediated with capping or ENR.

AOPC = area of potential concern; cPAHs = carcinogenic polycyclic aromatic hydrocarbons

Table G-6 Dioxins/Furans and cPAHs in Cores – River Miles 4.1 to 5.0

Core Information									Sample Information			cPAHs			Dioxins/Furans			
Task	Core Location Name	X[a]	Y[a]	River Mile	Removal-Emphasis Alternative when Area is First Dredged[b]	Combined-Technologies Alternative when Area is First Dredged[c]	Recovery Category	Collected for Dredge Material Characterization?	Sample Name	Upper Sample Depth (ft recovered)	Lower Sample Depth (ft recovered)	Concentration (µg TEQ/kg dw)	Qualifier	Detected	Concentration (ng TEQ/kg dw)	Qualifier	Detected
PSDDA98	5	1276295	193292	4.1	outside of AOPCs	outside of AOPCs	3	Yes	S5	0	2	130		Yes			
DuwamYachtClub	C2	1276060	193153	4.1	outside of AOPCs	outside of AOPCs	3	Yes	C2	0	1.8	130	J	Yes			
DuwamYachtClub	C3	1276097	193033	4.1	outside of AOPCs	outside of AOPCs	3	Yes	C3	0	1.7	160	J	Yes			
DuwamYachtClub	C4	1276116	192985	4.1	outside of AOPCs	outside of AOPCs	3	Yes	C4	0	1.8	180	J	Yes			
DuwamYachtClub	C5	1276185	192853	4.1	outside of AOPCs	outside of AOPCs	3	Yes	C5	0	1.7	170	J	Yes			
DuwamYachtClub	C6	1276095	192761	4.1	6	not dredged	3	Yes	C6	0	2.2	230		Yes			
LDW Turning Basin 08	D08	1276400	192844	4.1	outside of AOPCs	outside of AOPCs	3	Yes	DR08-B-D08-C	0	4.2	93		Yes	2.89	J	Yes
LDW Turning Basin 08	D09 (08)	1276360	192966	4.1	outside of AOPCs	outside of AOPCs	3	Yes	DR08-B-D09-C	0	5.2	88		Yes			
LDW Turning Basin 09	D09 (09)	1276360	192966	4.1	outside of AOPCs	outside of AOPCs	3	Yes	DR09R-B-D09-C	0	4.4						
LDW Turning Basin 08	D10	1276350	193086	4.1	outside of AOPCs	outside of AOPCs	3	Yes	DR08-B-D10-C	0	4.9	84		Yes	2.59	J	Yes
LDW Turning Basin 08	D11 (08)	1276330	193196	4.1	outside of AOPCs	outside of AOPCs	3	Yes	DR08-B-D11-C	0	5.1	69		Yes			
LDW Turning Basin 09	D11 (09)	1276330	193196	4.1	outside of AOPCs	outside of AOPCs	3	Yes	DR09R-B-D11-C	0	4.2						
LDW Turning Basin 08	D12	1276281	193320	4.1	outside of AOPCs	outside of AOPCs	3	Yes	DR08-B-D12-C	0	3.2	68		Yes	2.79	J	Yes
LDW Turning Basin 08	D14	1276335	193122	4.1	outside of AOPCs	outside of AOPCs	3	Yes	DR08-B-D14-C	5.2	6.2	99		Yes	4.3	J	Yes
EPA SI	DR284	1276300	192823	4.1	outside of AOPCs	outside of AOPCs	3	No	SD-DR284-0000A	0	2	220		Yes			
EPA SI	DR284	1276300	192823	4.1	outside of AOPCs	outside of AOPCs	3	No	SD-DR284-0020	2	4	190		Yes			
USACE 1991	DU9115XX	1276329	192919	4.1	outside of AOPCs	outside of AOPCs	3	Yes	DUWO&M91S007	0	4	140		Yes			
USACE 1991	DU9116XX	1276287	193084	4.1	outside of AOPCs	outside of AOPCs	3	Yes	DUWO&M91S008	0	4	94		Yes			
USACE 1991	DU9117XX	1276242	193271	4.1	outside of AOPCs	outside of AOPCs	3	Yes	DUWO&M91S009	0	4	120		Yes			
RhônePoulenc2004	SB-12	1276488	193172	4.1	3	not dredged	3	No	Lower SB-12	0.33	0.69	880	J	Yes			
RhônePoulenc2004	SH-03	1276647	193427	4.1	3	not dredged	3	No	Lower SH-03	0.33	0.82	400	U	No			
RhônePoulenc2004	SH-04	1276680	193285	4.1	3	6	3	No	Lower SH-04	0.33	0.82	340	J	Yes			
RhônePoulenc2004	SH-05	1276691	193156	4.1	3	5	3	No	Lower SH-05	0.33	0.82						
RhônePoulenc2004	SH-06	1276761	192921	4.1	2	3	1	No	Lower SH-06	0.33	0.82	370	U	No			
LDW Turning Basin 08	ST21	1276490	192863	4.1	2	3	1	Yes	DR08-B-ST21-C0-2	0	2	130		Yes	3.03	J	Yes
LDW Turning Basin 08	ST21	1276490	192863	4.1	2	3	1	Yes	DR08-B-ST21-C2-5	2	5	160		Yes	5.67	J	Yes
LDW Turning Basin 08	ST22	1276450	192975	4.1	6	6	3	Yes	DR08-B-ST22-C0-2	0	2	77		Yes	2.26	J	Yes
LDW Turning Basin 08	ST22	1276450	192975	4.1	6	6	3	Yes	DR08-B-ST22-C2-5	2	5	140		Yes	8.11	J	Yes
LDW Turning Basin 08	ST23	1276430	193096	4.1	outside of AOPCs	outside of AOPCs	3	Yes	DR08-B-ST23-C0-2	0	2	98		Yes	4.57	J	Yes
LDW Turning Basin 08	ST23	1276430	193096	4.1	outside of AOPCs	outside of AOPCs	3	Yes	DR08-B-ST23-C2-5	2	5	160		Yes	4.62	J	Yes
LDW Turning Basin 08	ST28	1276250	193065	4.1	outside of AOPCs	outside of AOPCs	3	Yes	DR08-B-ST28-C0-2	0	2	91		Yes	6.5	J	Yes
LDW Turning Basin 08	ST28	1276250	193065	4.1	outside of AOPCs	outside of AOPCs	3	Yes	DR08-B-ST28-C2-5	2	5	75		Yes	8.63	J	Yes
PSDDA96	6 (96)	1276510	192364	4.2	outside of AOPCs	outside of AOPCs	1	Yes	S3	0	4						
PSDDA98	6 (98)	1276452	192612	4.2	outside of AOPCs	outside of AOPCs	3	Yes	S6	0	2	99		Yes			
PSDDA98	7 (98)	1276534	192326	4.2	outside of AOPCs	outside of AOPCs	1	Yes	S7	0	3	120		Yes			
LDW Turning Basin 08	D04 (08)	1276510	192418	4.2	outside of AOPCs	outside of AOPCs	1	Yes	DR08-B-D04-C	0	4.7	81		Yes	4.72	J	Yes
LDW Turning Basin 09	D04 (09)	1276510	192418	4.2	outside of AOPCs	outside of AOPCs	1	Yes	DR09R-B-D04-C	0	5.5						
LDW Turning Basin 08	D05	1276490	192506	4.2	outside of AOPCs	outside of AOPCs	3	Yes	DR08-B-D05-C	0	4.9	64		Yes			
LDW Turning Basin 08	D06 (08)	1276470	192610	4.2	outside of AOPCs	outside of AOPCs	3	Yes	DR08-B-D06-C	0	4.4	66		Yes	4.43	J	Yes
LDW Turning Basin 09	D06 (09)	1276470	192610	4.2	outside of AOPCs	outside of AOPCs	3	Yes	DR09R-B-D06-C	0	5.3						
LDW Turning Basin 08	D07	1276440	192730	4.2	outside of AOPCs	outside of AOPCs	3	Yes	DR08-B-D07-C	0	4.5	64		Yes			
LDW Turning Basin 08	D13	1276491	192512	4.2	outside of AOPCs	outside of AOPCs	3	Yes	DR08-B-D13-C	4.9	5.9	62		Yes	3.46	J	Yes
LDW Turning Basin 09	D15	1276467	192514	4.2	outside of AOPCs	outside of AOPCs	3	Yes	DR09-B-D15-C0-3	0	2.5	140	JN	Yes			
LDW Turning Basin 09	D15	1276467	192514	4.2	outside of AOPCs	outside of AOPCs	3	Yes	DR09-B-D15-Z	2.5	3.5	87	JN	Yes			

Table G-6 Dioxins/Furans and cPAHs in Cores – River Miles 4.1 to 5.0

Core Information									Sample Information			cPAHs			Dioxins/Furans		
Task	Core Location Name	X[a]	Y[a]	River Mile	Removal-Emphasis Alternative when Area is First Dredged[b]	Combined-Technologies Alternative when Area is First Dredged[c]	Recovery Category	Collected for Dredge Material Characterization?	Sample Name	Upper Sample Depth (ft recovered)	Lower Sample Depth (ft recovered)	Concentration (µg TEQ/kg dw)	Qualifier	Detected	Concentration (ng TEQ/kg dw)	Qualifier	Detected
Delta Marine	DMMU 1	1276241	192572	4.2	6	not dredged	1	Yes	DMMU 1	0	7	110		Yes			
Delta Marine	DMMU 3	1276355	192576	4.2	6	6	1	Yes	DMMU 3	1	7	81		Yes	4.2	J	Yes
Delta Marine	DMMU 4	1276391	192408	4.2	6	6	1	Yes	DMMU 4	1.3	7.5	59		Yes	1.5	J	Yes
EPA SI	DR246	1276783	192615	4.2	4	4	1	No	SD-DR246-0000A	0	2	230		Yes			
EPA SI	DR246	1276783	192615	4.2	4	4	1	No	SD-DR246-0020	2	4	210		Yes			
USACE 1991	DU9111XX	1276455	192388	4.2	6	6	3	Yes	DUWO&M91S003	0	3	90		Yes			
USACE 1991	DU9112XX	1276485	192405	4.2	outside of AOPCs	outside of AOPCs	1	Yes	DUWO&M91S004	0	3	95		Yes			
USACE 1991	DU9113XX	1276409	192563	4.2	6	6	3	Yes	DUWO&M91S005	0	5	130		Yes			
USACE 1991	DU9114XX	1276360	192762	4.2	outside of AOPCs	outside of AOPCs	3	Yes	DUWO&M91S006	0	4	120		Yes			
LDW Subsurface Sediment 2006	LDW-SC53	1277459	192928	4.2	2	3	1	No	LDW-SC53-0-2	0	2	1200	J	Yes			
LDW Subsurface Sediment 2006	LDW-SC53	1277459	192928	4.2	2	3	1	No	LDW-SC53-2-4	2	4	950		Yes			
RhônePoulenc2004	SB-1	1277485	192933	4.2	3	3	1	No	Lower SB-01	0.33	0.69	2000	J	Yes			
RhônePoulenc2004	SB-11	1276515	192835	4.2	2	3	1	No	Lower SB-11	0.33	0.69	330	J	Yes			
RhônePoulenc2004	SB-17	1277440	192982	4.2	2	3	1	No	Lower SB-16	0.33	0.69	1700	J	Yes			
RhônePoulenc2004	SB-17	1277440	192982	4.2	2	3	1	No	Lower SB-17	0.33	0.69	2100	J	Yes			
RhônePoulenc2004	SB-17	1277440	192982	4.2	2	3	1	No	Lower SB-16	0.33	0.69	1700	J	Yes			
RhônePoulenc2004	SB-17	1277440	192982	4.2	2	3	1	No	Lower SB-17	0.33	0.69	2100	J	Yes			
RhônePoulenc2004	SB-17	1277440	192982	4.2	2	3	1	No	Lower SB-16	0.33	0.69	1700	J	Yes			
RhônePoulenc2004	SB-17	1277440	192982	4.2	2	3	1	No	Lower SB-17	0.33	0.69	2100	J	Yes			
RhônePoulenc2004	SB-2	1277003	192646	4.2	4	4	1	No	Lower SB-02	0.33	0.69	720	J	Yes			
RhônePoulenc2004	SB-2	1277003	192646	4.2	4	4	1	No	Lower SB-15	0.33	0.69	780	J	Yes			
RhônePoulenc2004	SB-3	1277422	192973	4.2	2	3	2	No	Lower SB-03	0.33	0.69	1500	J	Yes			
RhônePoulenc2004	SB-4	1277315	192933	4.2	2	3	2	No	Lower SB-04	0.33	0.69	1000	J	Yes			
RhônePoulenc2004	SB-5	1277209	192892	4.2	2	3	2	No	Lower SB-05	0.33	0.69	740	J	Yes			
RhônePoulenc2004	SB-6	1277116	192857	4.2	4	4	2	No	Lower SB-06	0.33	0.69	700	J	Yes			
RhônePoulenc2004	SB-7	1276950	192774	4.2	4	4	2	No	Lower SB-07	0.33	0.69	670	J	Yes			
RhônePoulenc2004	SB-8	1276869	192749	4.2	2	3	2	No	Lower SB-08	0.33	0.69	630	J	Yes			
RhônePoulenc2004	SH-07	1276783	192891	4.2	2	3	1	No	Lower SH-07	0.33	0.82	430	J	Yes			
RhônePoulenc2004	SH-08	1276796	192834	4.2	2	3	1	No	Lower SH-08	0.33	0.82	370	J	Yes			
RhônePoulenc2004	SH-09	1276766	192833	4.2	3	3	1	No	Lower SH-09	0.33	0.82	320	J	Yes			
LDW Turning Basin 08	ST31	1276320	192713	4.2	6	6	1	Yes	DR08-B-ST31-C0-2	0	2	130		Yes	1.19	J	Yes
LDW Turning Basin 08	ST31	1276320	192713	4.2	6	6	1	Yes	DR08-B-ST31-C2-5	2	5	100		Yes	9.33	J	Yes
PSDDA96	4 (96)	1276677	192025	4.3	outside of AOPCs	outside of AOPCs	1	Yes	S1	0	4						
PSDDA96	5 (96)	1276557	192210	4.3	outside of AOPCs	outside of AOPCs	1	Yes	S2	0	4						
LDW Turning Basin 08	D03 (08)	1276540	192295	4.3	outside of AOPCs	outside of AOPCs	1	Yes	DR08-B-D03-C	0	4.3	93		Yes	1.67	J	Yes
LDW Turning Basin 09	D03 (09)	1276540	192295	4.3	outside of AOPCs	outside of AOPCs	1	Yes	DR09R-B-D03-C	0	3.7						
USACE 1991	DU9109XX	1276581	191917	4.3	outside of AOPCs	outside of AOPCs	3	Yes	DUWO&M91S001	0	5	160		Yes			
USACE 1991	DU9110XX	1276557	192034	4.3	outside of AOPCs	outside of AOPCs	1	Yes	DUWO&M91S002	0	5	53		Yes			
LDW Subsurface Sediment 2006	LDW-SC54	1276355	192181	4.3	6	6	1	No	LDW-SC54-0-2	0	2	130		Yes			
LDW Subsurface Sediment 2006	LDW-SC54	1276355	192181	4.3	6	6	1	No	LDW-SC54-2-4	2	4	150		Yes			
PSDDA98	Average of 8-9	1276772	191322	4.4	outside of AOPCs	outside of AOPCs	1	Yes	C1	0	2	91		Yes			
LDW Turning Basin 08	D02 (08)	1276735	191454	4.4	outside of AOPCs	outside of AOPCs	1	Yes	DR08-A-D02-S	0	0.62	110		Yes	2.77	J	Yes
LDW Turning Basin 09	D02 (09)	1276735	191454	4.4	outside of AOPCs	outside of AOPCs	1	Yes	DR09R-A-D02-D	0	11.6	19	J	Yes			
Turning-basin	DTB-01SD	1276666	191599	4.4	outside of AOPCs	outside of AOPCs	3	Yes	DTB-01SD	0	4.8	55	J	Yes			
Turning-basin	DTB-02SD	1276813	191026	4.5	outside of AOPCs	outside of AOPCs	3	Yes	DTB-02SD	0	6.1	64	J	Yes			

Table G-6 Dioxins/Furans and cPAHs in Cores – River Miles 4.1 to 5.0

Core Information									Sample Information			cPAHs			Dioxins/Furans			
Task	Core Location Name	X[a]	Y[a]	River Mile	Removal-Emphasis Alternative when Area is First Dredged[b]	Combined-Technologies Alternative when Area is First Dredged[c]	Recovery Category	Collected for Dredge Material Characterization?	Sample Name	Upper Sample Depth (ft recovered)	Lower Sample Depth (ft recovered)	Concentration (µg TEQ/kg dw)	Qualifier	Detected	Concentration (ng TEQ/kg dw)	Qualifier	Detected
USACE 1991	DU9105MC	1276829	190964	4.5	outside of AOPCs	outside of AOPCs	3	Yes	DUWO&M91C002	0	4	82		Yes			
PSDDA98	Average of 10-12	1277162	190420	4.6	outside of AOPCs	outside of AOPCs	3	Yes	C2	0	4	1100		Yes			
PSDDA98	Average of 10-12	1277162	190420	4.6	outside of AOPCs	outside of AOPCs	3	Yes	C3	4	11	57		Yes			
PSDDA96	C1 (96)	1276974	190762	4.6	outside of AOPCs	outside of AOPCs	3	Yes	C1	0	4						
LDW Turning Basin 08	D01 (08)	1277173	190473	4.6	outside of AOPCs	outside of AOPCs	3	Yes	DR08-A-D01-S	0	0.62	41		Yes	1.99	J	Yes
LDW Turning Basin 09	D01 (09)	1277173	190473	4.6	outside of AOPCs	outside of AOPCs	3	Yes	DR09R-A-D01-C	0	12.9	6.6	J	Yes			
EPA SI	DR269	1276822	190328	4.6	outside of AOPCs	outside of AOPCs	3	No	SD-DR269-0000A	0	2	120		Yes			
EPA SI	DR269	1276822	190328	4.6	outside of AOPCs	outside of AOPCs	3	No	SD-DR269-0020	2	4	100		Yes			
Turning-basin	DTB-03SD	1276961	190722	4.6	outside of AOPCs	outside of AOPCs	3	Yes	DTB-03SD	0	6.5	47	J	Yes			
Turning-basin	DTB-04SD	1277106	190448	4.6	outside of AOPCs	outside of AOPCs	3	Yes	DTB-04SD	0	13	62	J	Yes			
Turning-basin	DTB-05SD	1277259	190358	4.7	outside of AOPCs	outside of AOPCs	3	Yes	DTB-05SD	0	8.8	29	J	Yes			
USACE 1991	DU9101MC	1277266	190358	4.7	outside of AOPCs	outside of AOPCs	3	Yes	DUWO&M91C001	0	4	13	U	No			
USACE 1991	DU9101MC	1277266	190358	4.7	outside of AOPCs	outside of AOPCs	3	Yes	DUWO&M91C003	4	14	46		Yes			
LDW Subsurface Sediment 2006	LDW-SC56	1277575	190022	4.7	3	3	1	No	LDW-SC56-0-2	0	2	190		Yes			
LDW Subsurface Sediment 2006	LDW-SC56	1277575	190022	4.7	3	3	1	No	LDW-SC56-2-4	2	4	18	U	No			
LDW Subsurface Sediment 2006	LDW-SC55	1278267	190390	4.9	2	3	0	No	LDW-SC55-0-1	0	1	18	U	No			
LDW Subsurface Sediment 2006	LDW-SC55	1278267	190390	4.9	2	3	0	No	LDW-SC55-1-2	1	2	18	U	No			
LDW Subsurface Sediment 2006	LDW-SC55	1278267	190390	4.9	2	3	0	No	LDW-SC55-2-3	2	3	18	U	No			
Norfolk-cleanup2	NFK207	1278618	190161	4.9	5	6	0	No	L6725-8	0	0.98	1460	J	Yes			
Norfolk-cleanup2	NFK207	1278618	190161	4.9	5	6	0	No	L6725-9	0.98	2	170	J	Yes			
Norfolk-cleanup2	NFK207	1278618	190161	4.9	5	6	0	No	L6725-10	2	3	36	UJ	No			
Norfolk-cleanup2	NFK207	1278618	190161	4.9	5	6	0	No	L6725-11	3	3.9	36	UJ	No			

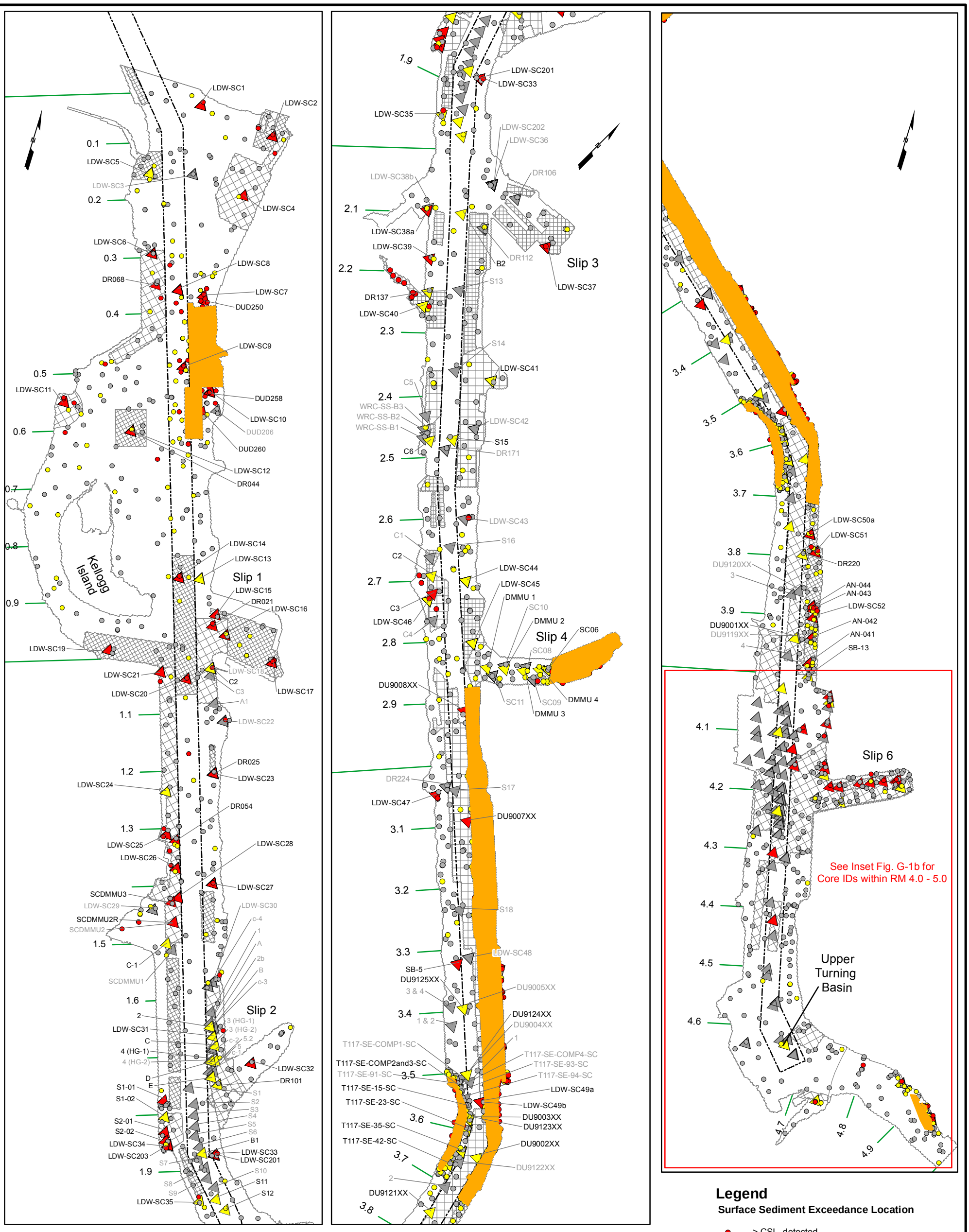
Notes

a. datum: NAD 1983 Washington State Plane North (Feet).

b. Indicates lowest-numbered remedial alternative when the core is subject to dredging or to partial dredging/ capping for Alternatives 2R/2R-CAD, 3R, 4R, 5R/5R-T, and 6R.

c. Indicates lowest-numbered remedial alternative when the core is subject to dredging or to partial dredging/ capping for Alternatives 3C, 4C, 5C, and 6C. Note that if a removal alternative is dredged, but the corresponding combined alternative is not dredged, then the combined alternative is actively remediated with capping or ENR.

AOPC = area of potential concern; cPAHs = carcinogenic polycyclic aromatic hydrocarbons



Notes:
1. FS baseline dataset used. Total Study Area: 441 acres.
2. Subsurface exceedances in cores are at any depth and represent the highest level of exceedance for any SMS contaminant.

Technology Assignment

- Dredge, Cap, or Partial Dredge and Cap (Early Action Areas: 29 acres)
- Remaining Study Area (412 acres)

Legend

Surface Sediment Exceedance Location

- > CSL, detected
- > SQS and ≤ CSL, detected
- Pass or Non-detect

Subsurface Exceedance Location and ID

- > CSL, detected
- > SQS and ≤ CSL, detected
  (Station ID Labeled in Black)
- Pass or Non-detect
  (Station ID Labeled in Grey)

Recovery Category

- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Navigation Channel
- River Mile Marker

Feet
0 200 400 800

L:\Lower Duwamish FS\FS Final GIS\Oct2012\FS GIS MXDs Oct12\Appendix G\FigureG-1aAlt1ActiveCon.mxd

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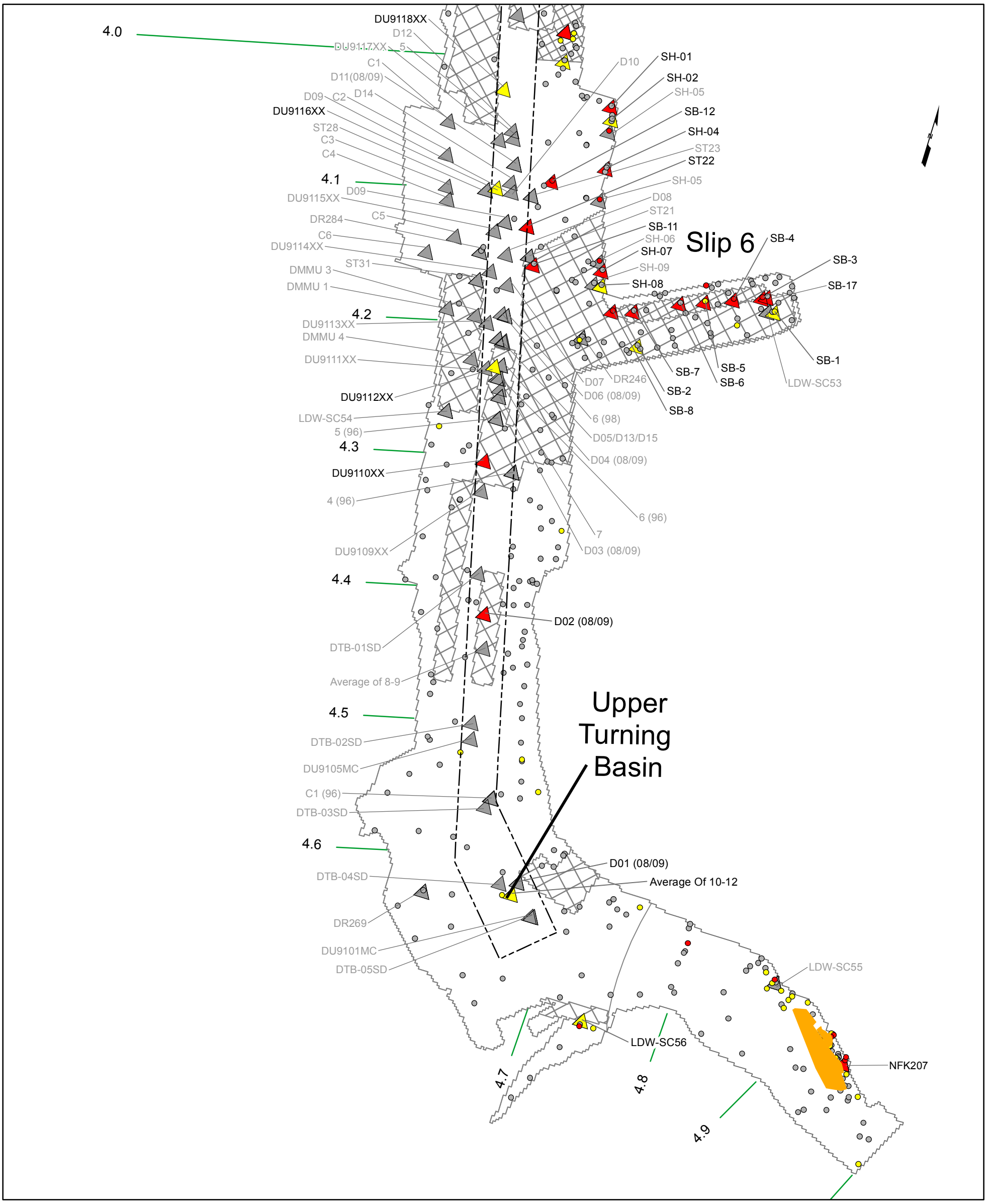
Alternative 1 Technology Assignments and Waterway Conditions

DATE: 10/31/12 | DWRN:MVI/sea | Revision: 0

FIGURE G-1a



Notes:
1. FS baseline dataset used. Total Study Area: 441 acres.
2. Subsurface exceedances in cores are at any depth and represent the highest level of exceedance for any SMS contaminant.

Technology Assignment

- Dredge, Cap, or Partial Dredge and Cap (Early Action Areas: 29 acres)
- Remaining Study Area (412 acres)

Legend

Surface Sediment Exceedance Location

- > CSL, detected
- > SQS and ≤ CSL, detected
- Pass or Non-detect

Subsurface Exceedance Location and ID

- > CSL, detected
- > SQS and ≤ CSL, detected

Station ID Labeled in Black

- Pass or Non-detect

Station ID Labeled in Grey

Recovery Category

- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Navigation Channel
- River Mile Marker

Feet
0 200 400 800

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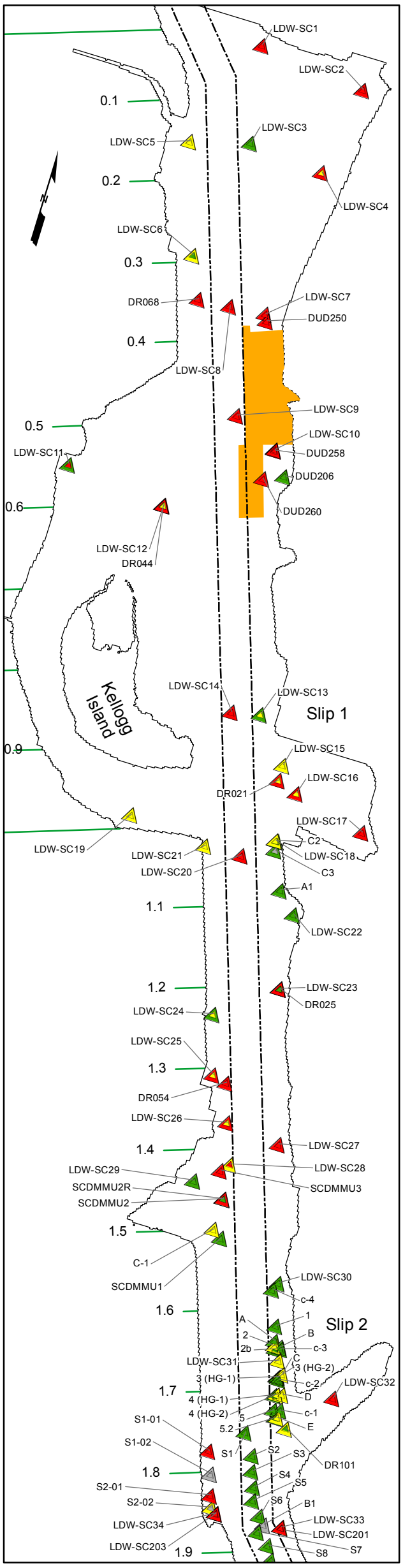
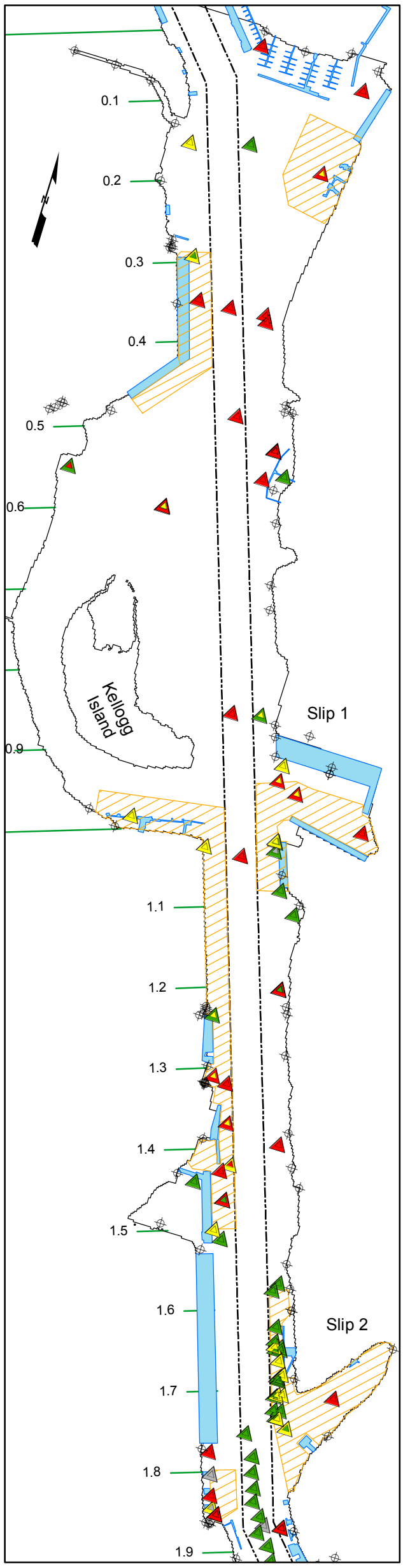
Alternative 1 Technology Assignments and Waterway Conditions (RM 4.0 to 5.0)

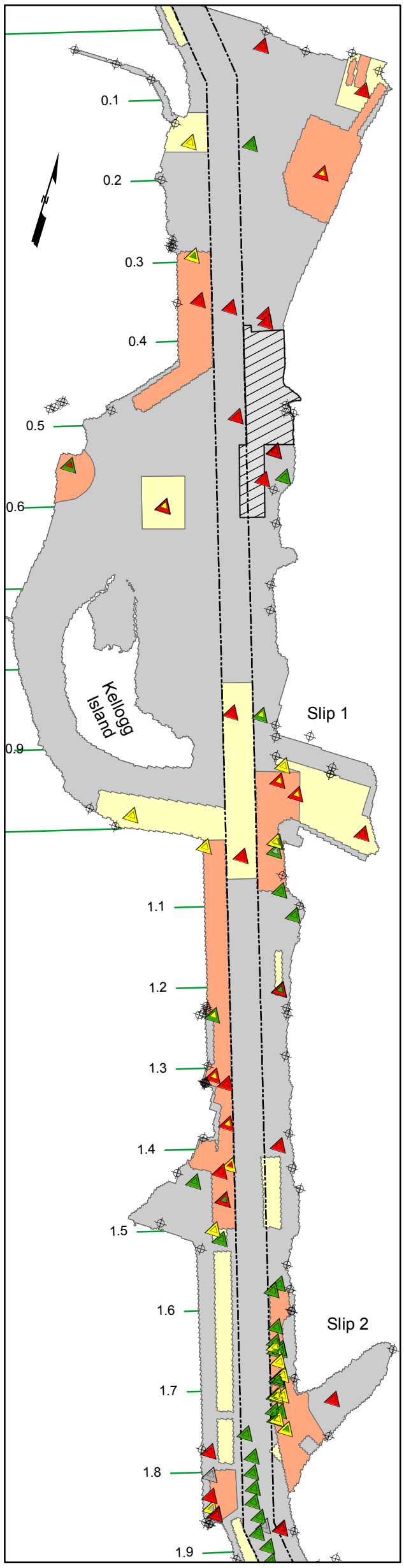
DATE: 10/31/12 | DWRN:MVI/sea | Revision: 0

FIGURE G-1b

L:\Lower Duwamish FS\FS_Final_GISOct2012\FS_GIS_MXDs_Oct12\Appendix G\FigureG-1bAlt1ActiveConB.mxd







Notes:
1. If cores overlap, the core with the highest exceedance status is shown on top.
2. Core intervals are based on *in situ* depths.
3. Any sample interval that overlaps the 0-2 or 2-4 ft interval is included. Samples that overlap both core intervals are mapped in both intervals.
4. Cores in EAAs are not shown.

Legend

Technology Assignment

- Dredge, Cap, or Partial Dredge and Cap
- Remaining Study Area (Site-wide Monitoring)

SMS Exceedance Status Following Remediation

Maximum exceedance 0-2 ft in core / Maximum exceedance 2-4 ft in core

- > CSL
- >SQS and ≤ CSL
- ≤ SQS or Non-detect
- Interval Not Analyzed

Physical Lines of Evidence Used in Assigning Recovery Categories

- STM Predicted 100-Year High-flow Scour > 10 cm
- Evidence of Propeller Wash Scour
- Overwater Structure
- Outfall Location

Recovery Category

- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Early Action Area
- Navigation Channel
- River Mile Marker

Feet
0 200 400 800

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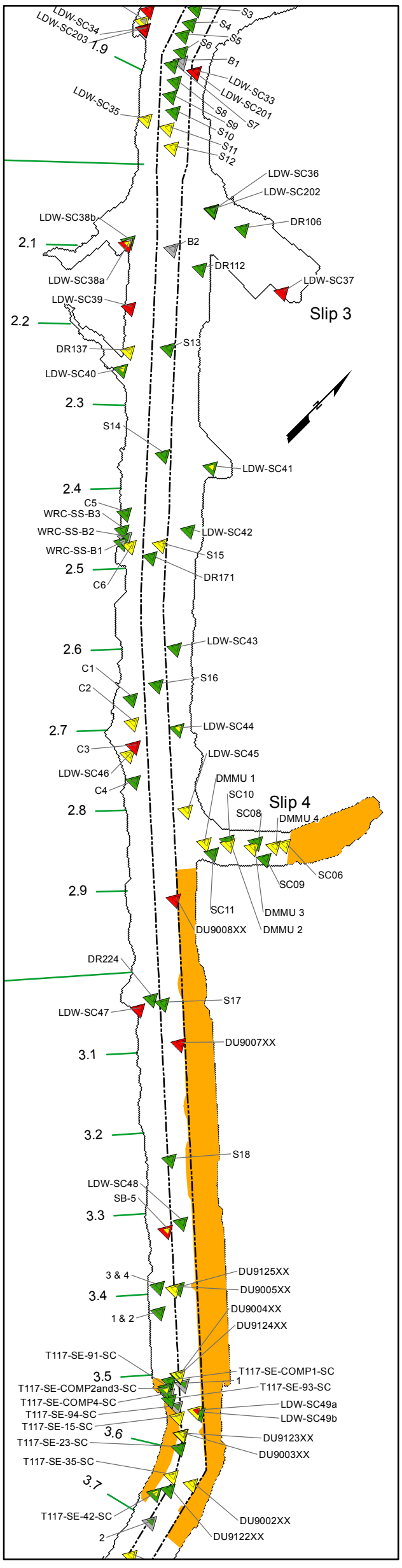
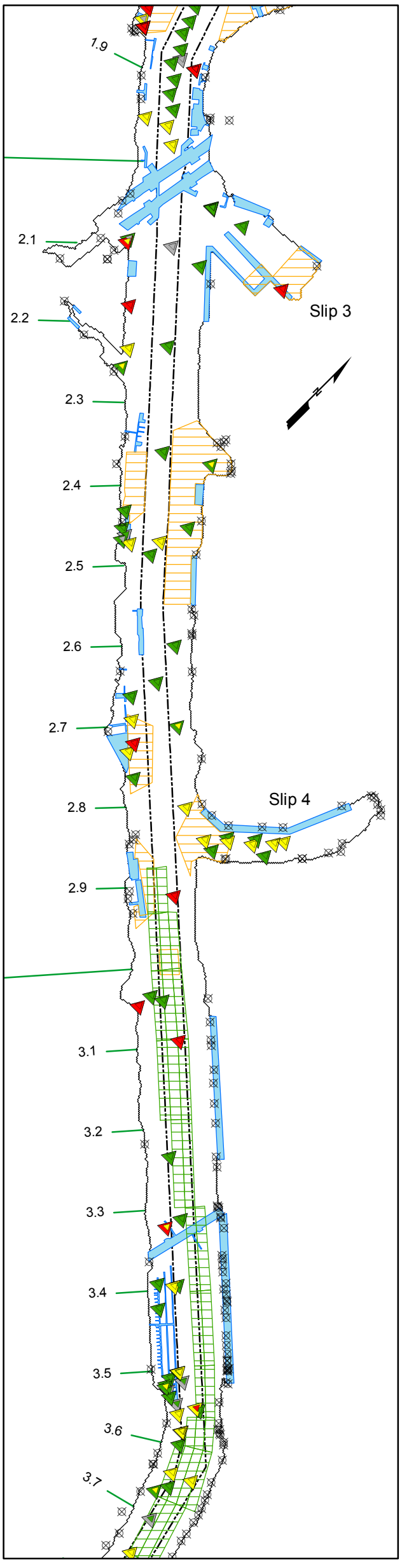
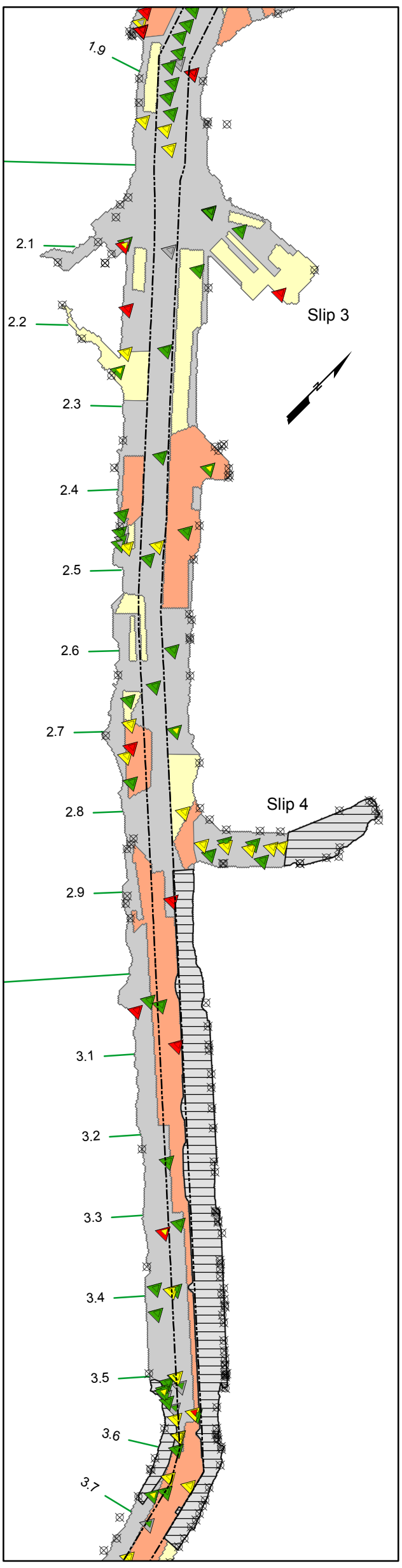
Alternative 1 Remaining Subsurface Contamination - Plan View (RM 0.0 to 1.9)

DATE: 10/31/12	DWRN:MVI/sea	Revision: 0	**FIGURE G-2a**

L:\Lower Duwamish FS\FS_Final_GISOct2012\FS_GIS_MXDs_Oct12\Appendix G\G-2aCoreRecoveryNorth1.mxd







Notes:
1. If cores overlap, the core with the highest exceedance status is shown on top.
2. Core intervals are based on *in situ* depths.
3. Any sample interval that overlaps the 0-2 or 2-4 ft interval is included. Samples that overlap both core intervals are mapped in both intervals.
4. Cores in EAAs are not shown.

Legend

Technology Assignment
- Dredge, Cap, or Partial Dredge and Cap
- Remaining Study Area (Site-wide Monitoring)

SMS Exceedance Status Following Remediation
Maximum exceedance 0-2 ft in core / Maximum exceedance 2-4 ft in core
- > CSL
- >SQS and ≤ CSL
- ≤ SQS or Non-detect
- Interval Not Analyzed

Physical Lines of Evidence Used in Assigning Recovery Categories
- STM Predicted 100-Year High-flow Scour > 10 cm
- Evidence of Propeller Wash Scour
- Overwater Structure
- Outfall Location

Recovery Category
- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Early Action Area
- Navigation Channel
- River Mile Marker

0 200 400 800 Feet

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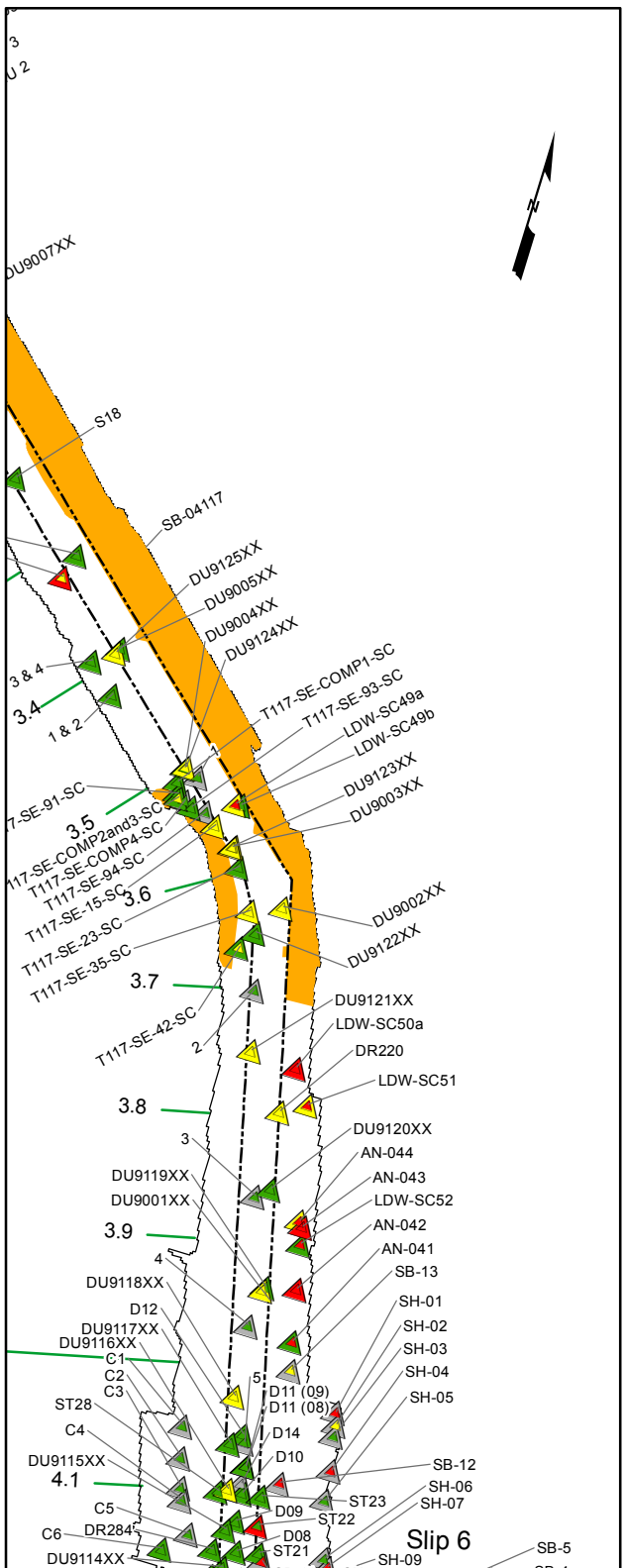
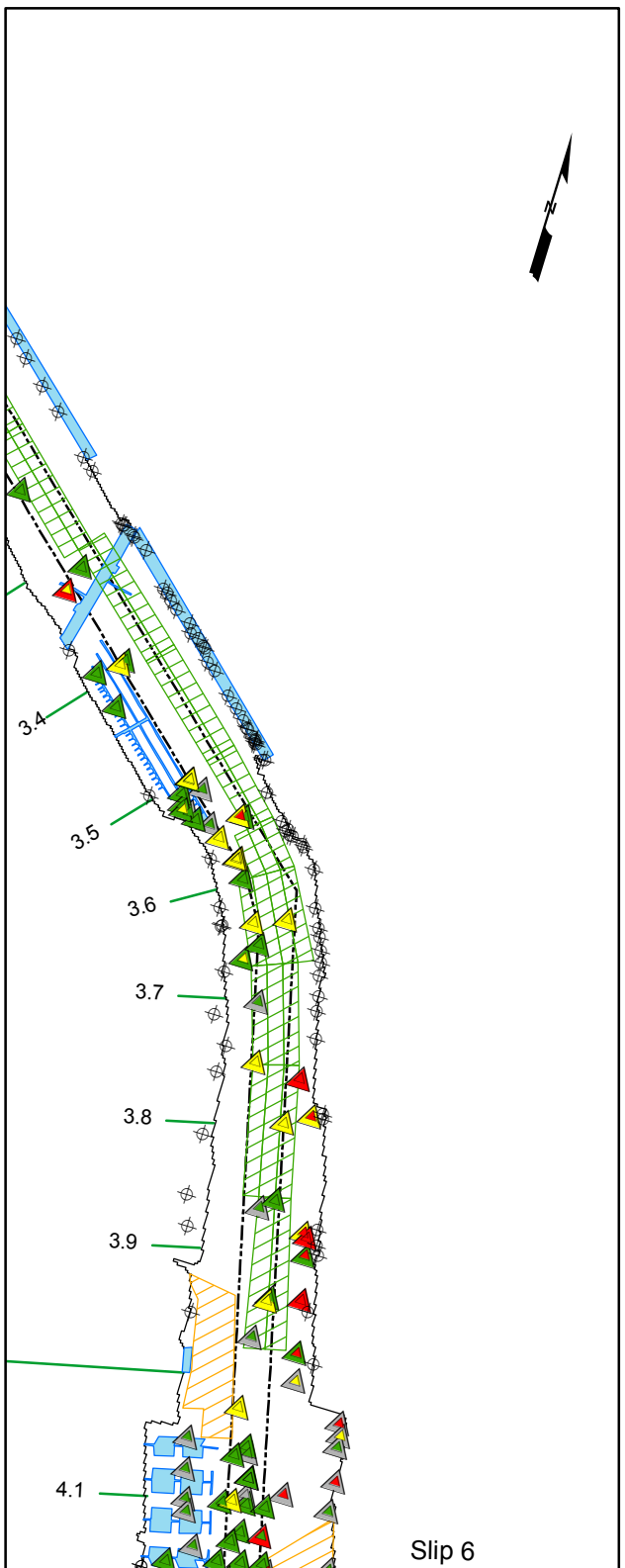
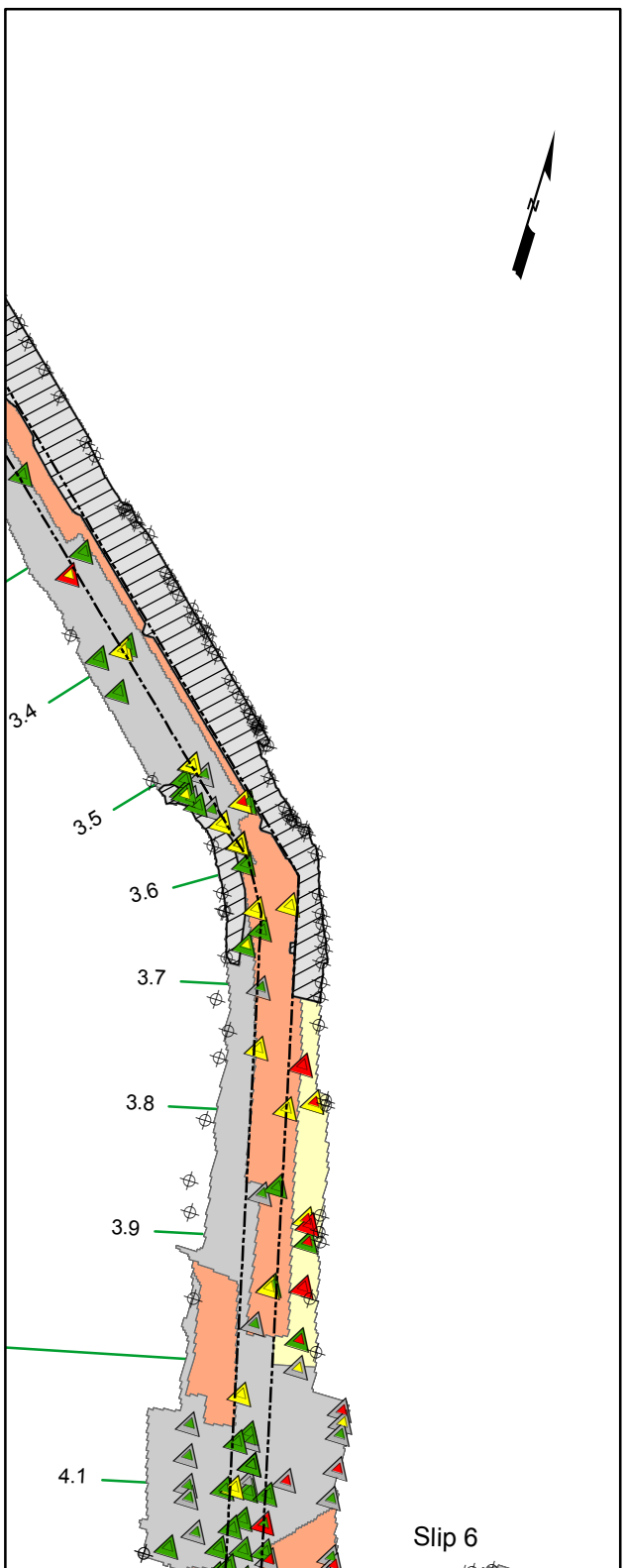
Alternative 1 Remaining Subsurface Contamination - Plan View (RM 1.9 to 3.6)

DATE: 10/31/12 | DWRN:MVI/sea | Revision: 0 | **FIGURE G-2b**

L:\Lower Duwamish FS\FS_Final_GISOct2012\FS_GIS_MXDs_Oct12\Appendix G\G-2bCoreRecoveryMid1.mxd







Notes:
1. If cores overlap, the core with the highest exceedance status is shown on top.
2. Core intervals are based on *in situ* depths.
3. Any sample interval that overlaps the 0-2 or 2-4 ft interval is included. Samples that overlap both core intervals are mapped in both intervals.
4. Cores in EAAs are not shown.

Legend

Technology Assignment
- Dredge, Cap, or Partial Dredge and Cap
- Remaining Study Area (Site-wide Monitoring)

SMS Exceedance Status Following Remediation
Maximum exceedance 0-2 ft in core / Maximum exceedance 2-4 ft in core
- > CSL
- >SQS and ≤ CSL
- ≤ SQS or Non-detect
- Interval Not Analyzed

Physical Lines of Evidence Used in Assigning Recovery Categories
- STM Predicted 100-Year High-flow Scour > 10 cm
- Evidence of Propeller Wash Scour
- Overwater Structure
- Outfall Location

Recovery Category
- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Early Action Area
- Navigation Channel
- River Mile Marker

0 200 400 800 Feet

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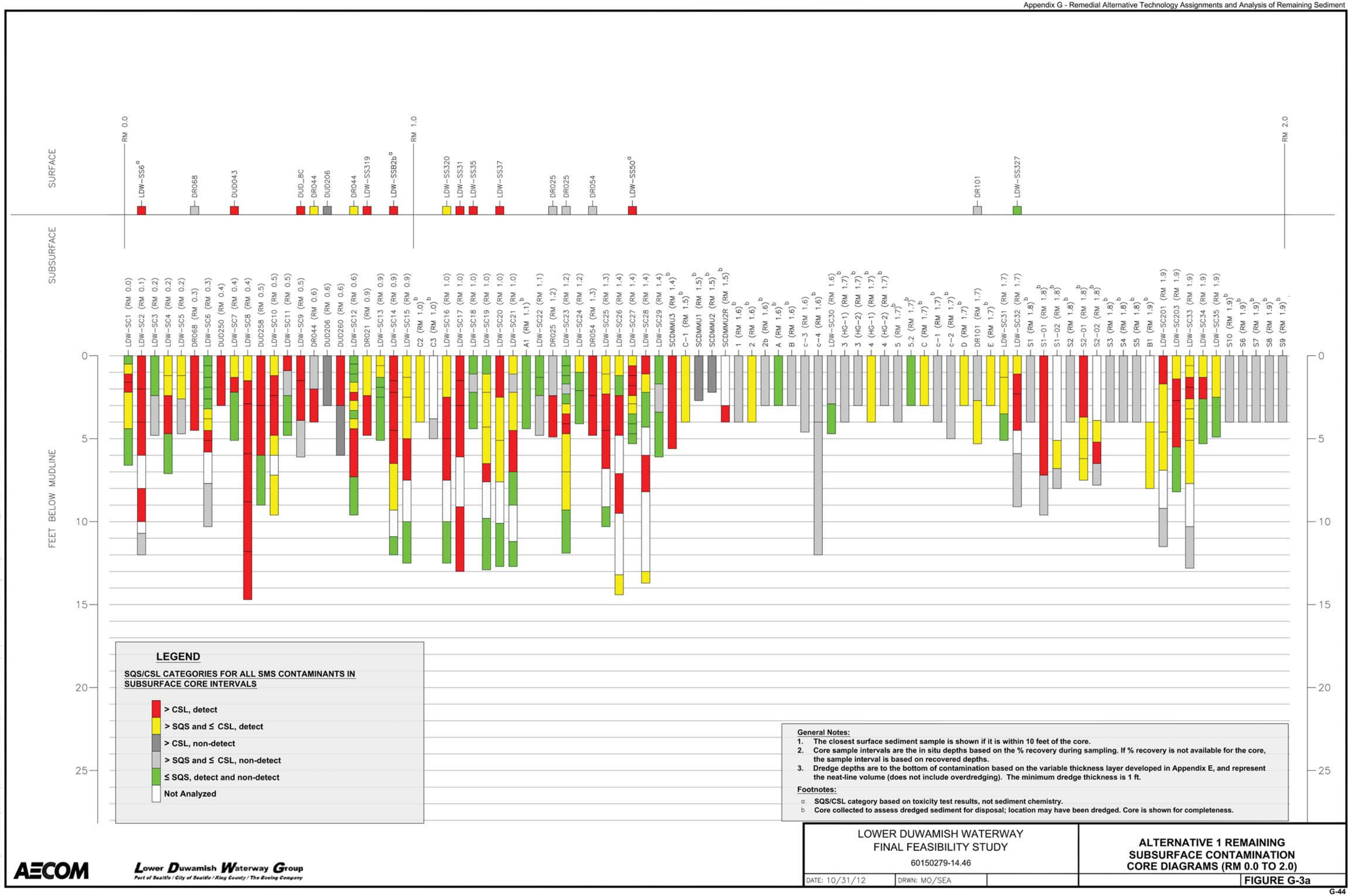
Alternative 1 Remaining Subsurface Contamination - Plan View (RM 3.6 to 5.0)

DATE: 10/31/12 | DWRN:MVI/sea | Revision: 0 | **FIGURE G-2c**

L:\Lower Duwamish FS\FS_Final_GISOct2012\FS_GIS_MXDs_Oct12\Appendix G\NewG\FigureG-2cCoreRecoverySouth1.mxd



General Notes:

1. The closest surface sediment sample is shown if it is within 10 feet of the core.
2. Core sample intervals are the in situ depths based on the % recovery during sampling. If % recovery is not available for the core, the sample interval is based on recovered depths.
3. Dredge depths are to the bottom of contamination based on the variable thickness layer developed in Appendix E, and represent the neat-line volume (does not include overdredging). The minimum dredge thickness is 1 ft.

Footnotes:

a SQS/CSL category based on toxicity test results, not sediment chemistry.
b Core collected to assess dredged sediment for disposal; location may have been dredged. Core is shown for completeness.

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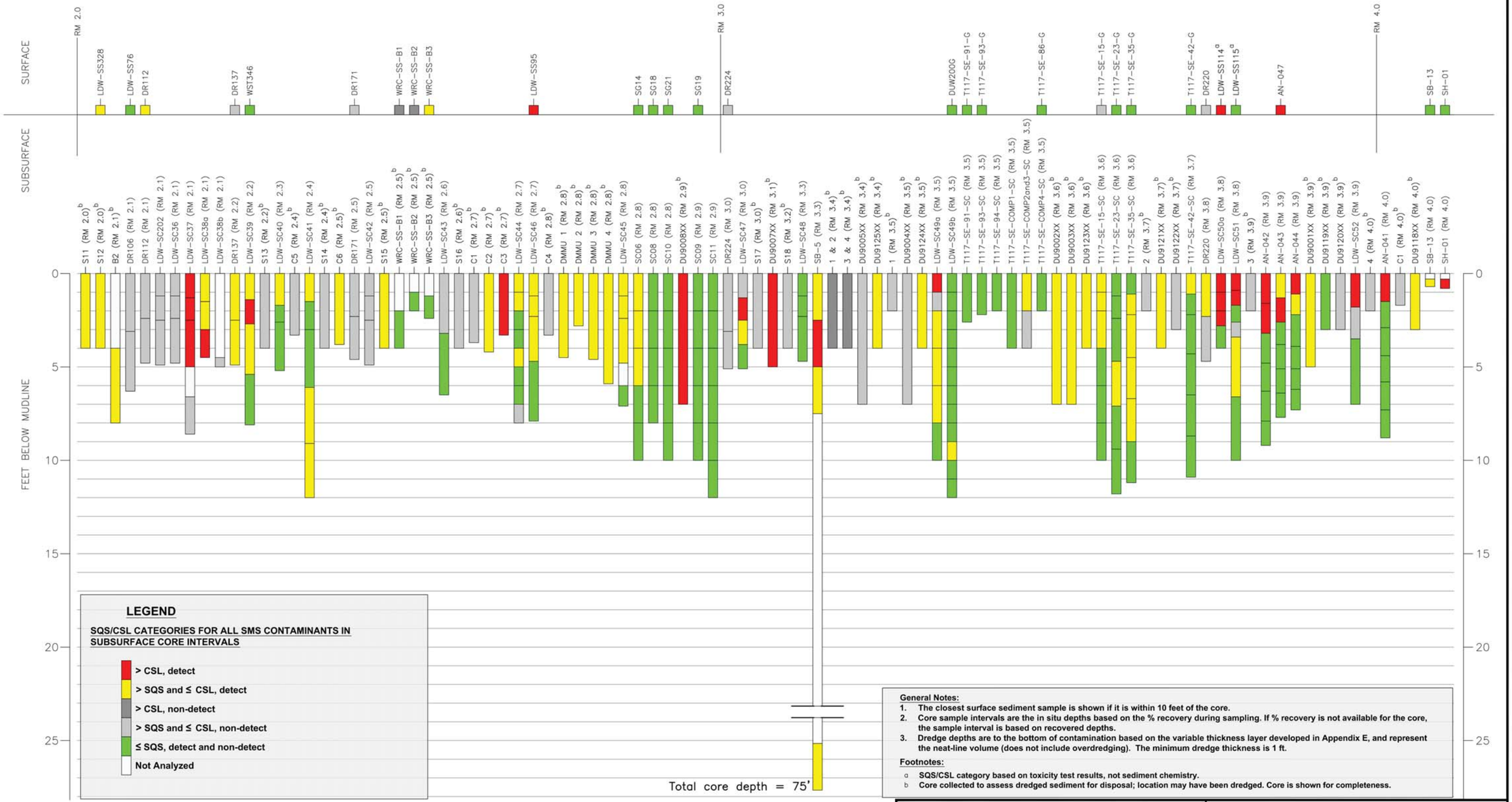
LOWER DUWAMISH WATERWAY
FINAL FEASIBILITY STUDY
60150279-14.46

DATE: 10/31/12 | DRWN: MO/SEA

ALTERNATIVE 1 REMAINING SUBSURFACE CONTAMINATION CORE DIAGRAMS (RM 0.0 TO 2.0)

FIGURE G-3a



General Notes:

1. The closest surface sediment sample is shown if it is within 10 feet of the core.
2. Core sample intervals are the in situ depths based on the % recovery during sampling. If % recovery is not available for the core, the sample interval is based on recovered depths.
3. Dredge depths are to the bottom of contamination based on the variable thickness layer developed in Appendix E, and represent the neat-line volume (does not include overdredging). The minimum dredge thickness is 1 ft.

Footnotes:

a SQS/CSL category based on toxicity test results, not sediment chemistry.
b Core collected to assess dredged sediment for disposal; location may have been dredged. Core is shown for completeness.

AECOM

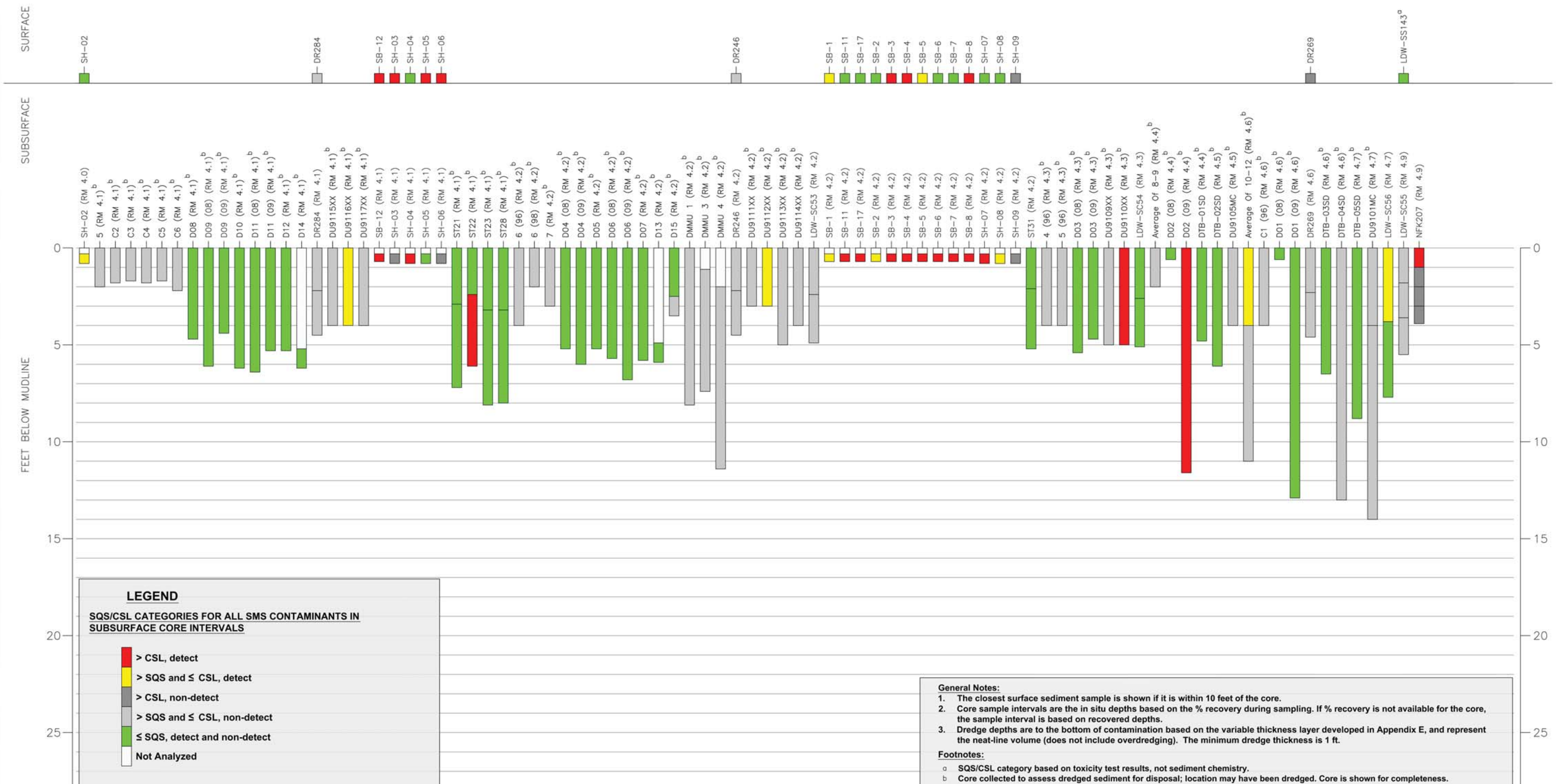
Lower Duwamish Waterway Group
Port of Seattle / City of Seattle / King County / The Boeing Company

LOWER DUWAMISH WATERWAY
FINAL FEASIBILITY STUDY
60150279-14.46

DATE: 10/31/12 | DRWN: MO/SEA

ALTERNATIVE 1 REMAINING SUBSURFACE CONTAMINATION CORE DIAGRAMS (RM 2.0 TO 4.0)

FIGURE G-3b



General Notes:

1. The closest surface sediment sample is shown if it is within 10 feet of the core.
2. Core sample intervals are the in situ depths based on the % recovery during sampling. If % recovery is not available for the core, the sample interval is based on recovered depths.
3. Dredge depths are to the bottom of contamination based on the variable thickness layer developed in Appendix E, and represent the neat-line volume (does not include overdredging). The minimum dredge thickness is 1 ft.

Footnotes:

a SQS/CSL category based on toxicity test results, not sediment chemistry.
b Core collected to assess dredged sediment for disposal; location may have been dredged. Core is shown for completeness.

AECOM

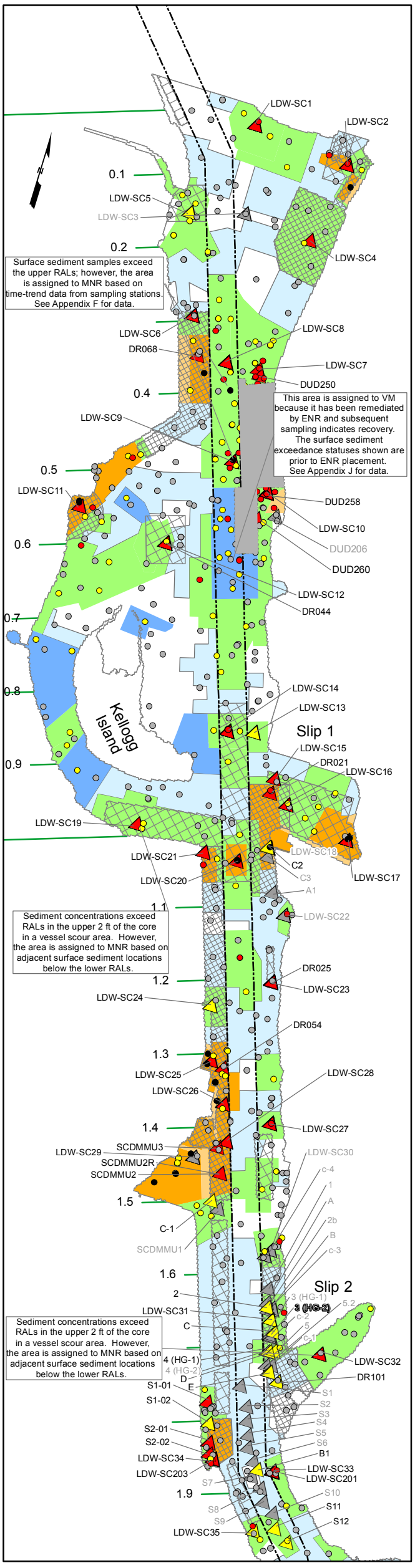
Lower Duwamish Waterway Group
Port of Seattle / City of Seattle / King County / The Boeing Company

LOWER DUWAMISH WATERWAY
FINAL FEASIBILITY STUDY
60150279-14.46

DATE: 10/31/12 | DRWN: MO/SEA

ALTERNATIVE 1 REMAINING SUBSURFACE CONTAMINATION CORE DIAGRAMS (RM 4.0 TO 5.0)

FIGURE G-3c



Notes:
1. FS baseline dataset used. Total Study Area: 441 acres.
2. Technology assignments are for the FS and may change based on additional data collected during remedial design.
3. See Section 8 for additional details on technology assignments. Exceptions to the technology assignment criteria in Section 8 are explained in text boxes.
4. See Section 6 for development of recovery categories and RALs.
5. Subsurface exceedances in cores are at any depth and represent the highest level of exceedance for any SMS contaminant.

Remedial Alternative	Remedial Action Levels (RALs)				
	Total PCBs	cPAHs	Dioxins/ Furans	Arsenic	Benthic SMS
	µg/kg dw	µg TEQ/kg dw	ng TEQ/kg dw	mg/kg dw	41 Chemicals
Alt 2 upper RALs	2,200	5,500	50	93	3xCSL
Alt 2 lower RALs	1,300[a]	5,500	50	93	CSL
Alt 5 (defines AOPC 1)	240[a]	1,000 (site-wide), 900 (intertidal)	25	57 (site-wide), 28 (intertidal)	SQS
Alt 6 (defines AOPC 1+2)	100	1,000 (site-wide), 900 (intertidal)	15	15	SQS

Note a. Total PCBs concentrations of 1,300 µg/kg dw and 240 µg/kg dw are dry weight approximations of the 65 mg/kg oc (CSL) and 12 mg/kg oc (SQS) values assuming 2% TOC.

Technology Assignment

AOPC 1
- Dredge (29 acres)
- Cap or Partial Dredge and Cap (3 acres)
- Monitored Natural Recovery (125 acres)
- ENR/*in situ* (0 acres)
- Verification Monitoring (23 acres)

AOPC 2 (122 acres)

Early Action Area (29 acres)

Remaining Study Area (Institutional Controls and Site-wide Monitoring) (110 acres)

0 200 400 800 Feet

Legend

Surface Sediment Exceedance Location
- >Alt 2 Upper RALs (Applicable Site-wide)
- >Alt 2 Lower RALs (Applicable in Categories 1 & 2)
- >Alt 5 RALs
- Pass or Non-detect

Subsurface Exceedance Location and ID
- > CSL, detected
- > SQS and ≤ CSL, detected
- Pass or Non-detect

Station ID Labeled in Black
Station ID Labeled in Grey

Recovery Category
- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Navigation Channel
- River Mile Marker

AECOM

Lower Duwamish Waterway Group
Port of Seattle / City of Seattle / King County / The Boeing Company

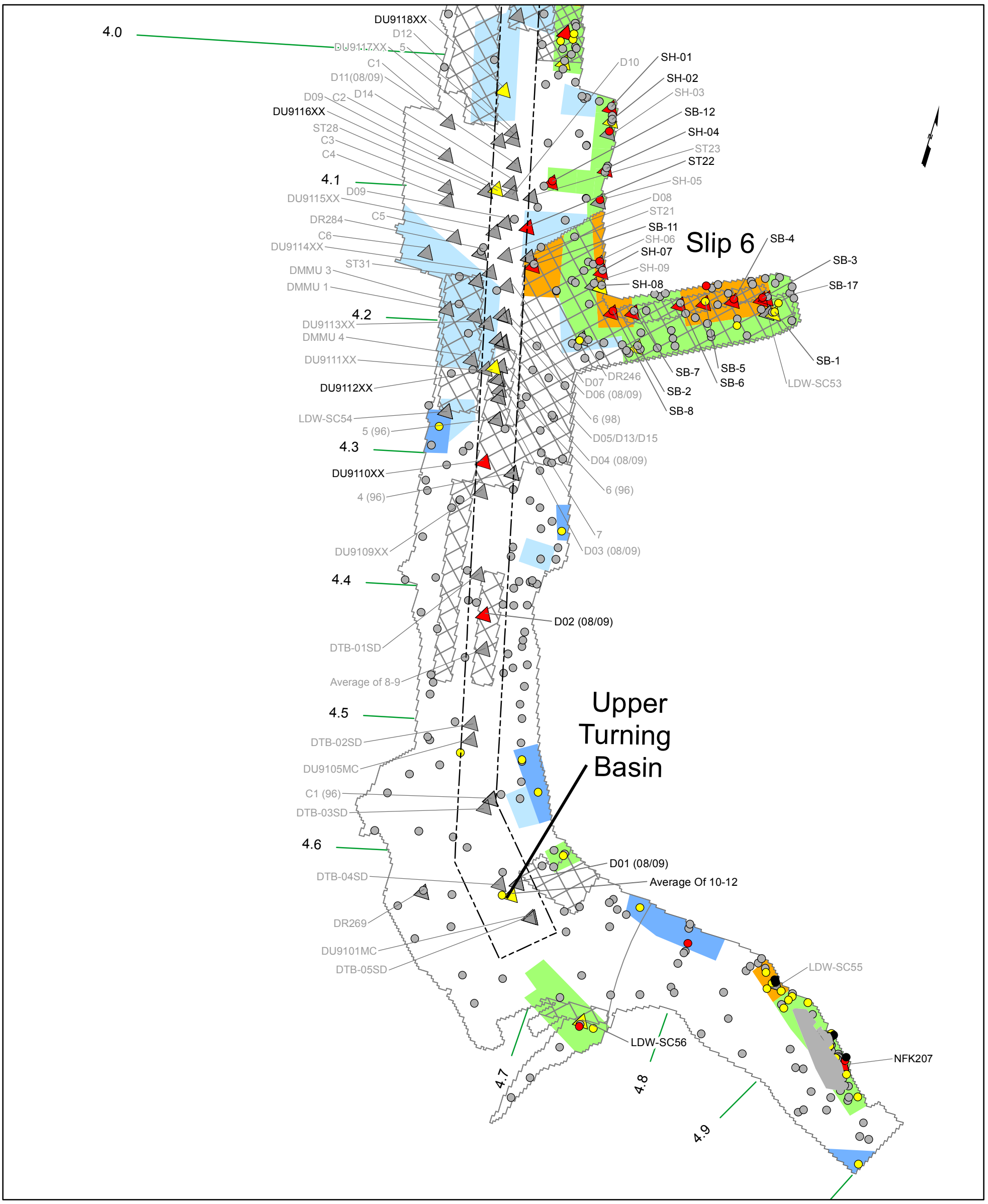
Lower Duwamish Waterway
Final Feasibility Study
60150279-14.46

Alternative 2 Removal Technology Assignments and Waterway Conditions

DATE: 10/31/12 | DWRN:MVI/sea | Revision: 0

FIGURE G-4a

L:\Lower Duwamish FS\FS_Final_GISOct2012\FS_GIS_MXDs_Oct12\Appendix G\FigureG-4aAlt2ActiveCon.mxd



Notes:
1. FS baseline dataset used. Total Study Area: 441 acres.
2. Technology assignments are for the FS and may change based on additional data collected during remedial design.
3. See Section 8 for additional details on technology assignments. Exceptions to the technology assignment criteria in Section 8 are explained in text boxes.
4. See Section 6 for development of recovery categories and RALs.
5. Subsurface exceedances in cores are at any depth and represent the highest level of exceedance for any SMS contaminant.

Remedial Alternative	Remedial Action Levels (RALs)				
	Total PCBs	cPAHs	Dioxins/ Furans	Arsenic	Benthic SMS
	µg/kg dw	µg TEQ/kg dw	ng TEQ/kg dw	mg/kg dw	41 Chemicals
Alt 2 upper RALs	2,200	5,500	50	93	3x CSL
Alt 2 lower RALs	1,300[a]	5,500	50	93	CSL
Alt 5 (defines AOPC 1)	240[a]	1,000 (site-wide), 900 (intertidal)	25	57 (site-wide), 28 (intertidal)	SQS
Alt 6 (defines AOPC 1+2)	100	1,000 (site-wide), 900 (intertidal)	15	15	SQS

Note a. Total PCBs concentrations of 1,300 µg/kg dw and 240 µg/kg dw are dry weight approximations of the 65 mg/kg oc (CSL) and 12 mg/kg oc (SQS) values assuming 2% TOC.

Technology Assignment

AOPC 1
- Dredge (29 acres)
- Cap or Partial Dredge and Cap (3 acres)
- Monitored Natural Recovery (125 acres)
- ENR/*in situ* (0 acres)
- Verification Monitoring (23 acres)

AOPC 2 (122 acres)

Early Action Area (29 acres)

Remaining Study Area (Institutional Controls and Site-wide Monitoring) (110 acres)

Feet
0 200 400 800

Legend

Surface Sediment Exceedance Location
- >Alt 2 Upper RALs (Applicable Site-wide)
- >Alt 2 Lower RALs (Applicable in Categories 1 & 2)
- >Alt 5 RALs
- Pass or Non-detect

Subsurface Exceedance Location and ID
- > CSL, detected
- > SQS and ≤ CSL, detected

Station ID Labeled in Black

Pass or Non-detect — Station ID Labeled in Grey

Recovery Category
- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Navigation Channel
- River Mile Marker

AECOM

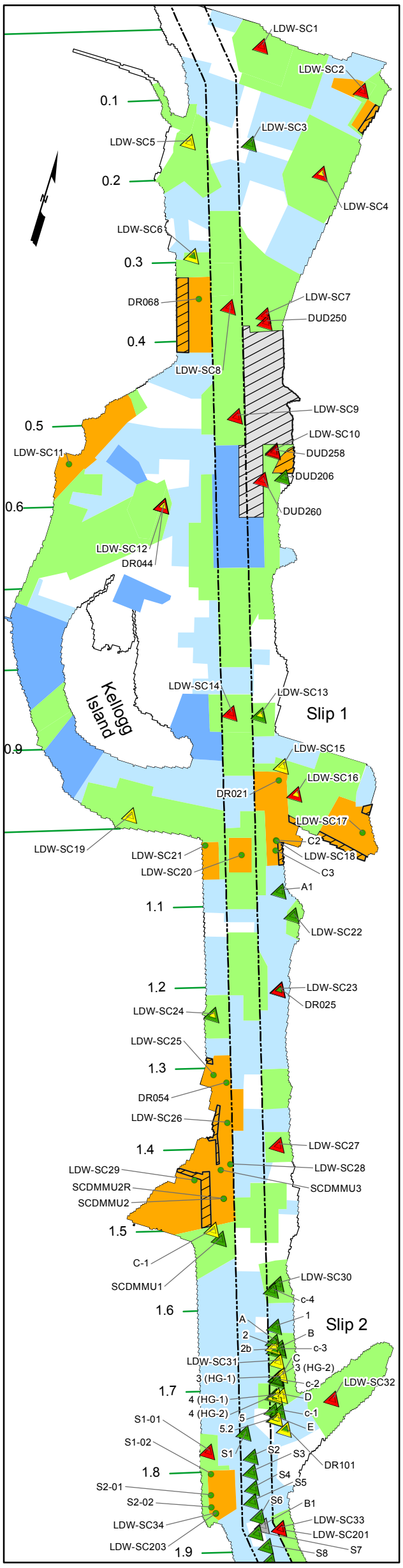
Lower Duwamish Waterway Group
Port of Seattle / City of Seattle / King County / The Boeing Company

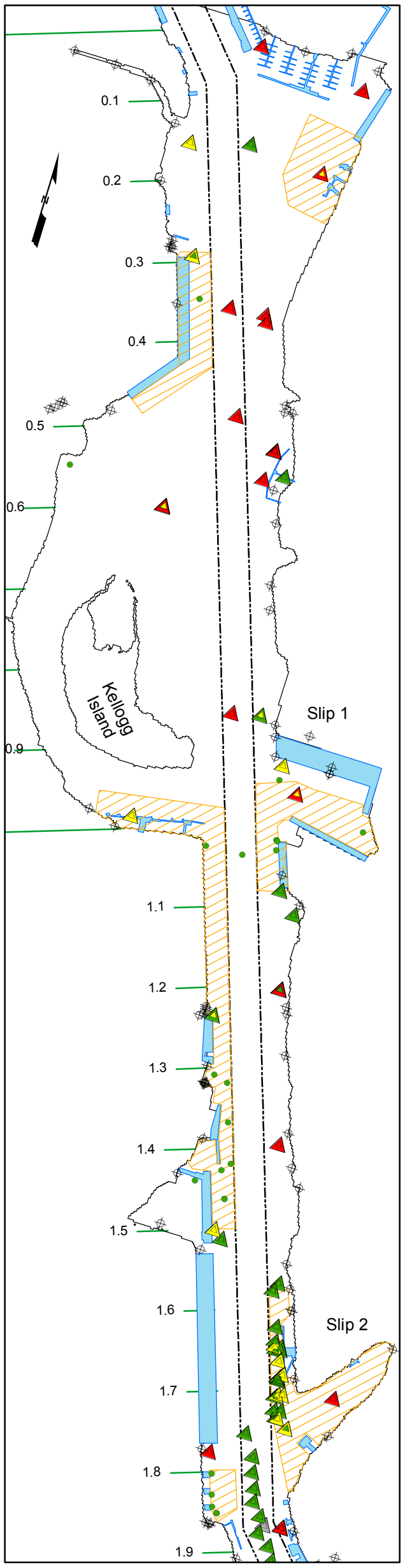
Lower Duwamish Waterway
Final Feasibility Study
60150279-14.46

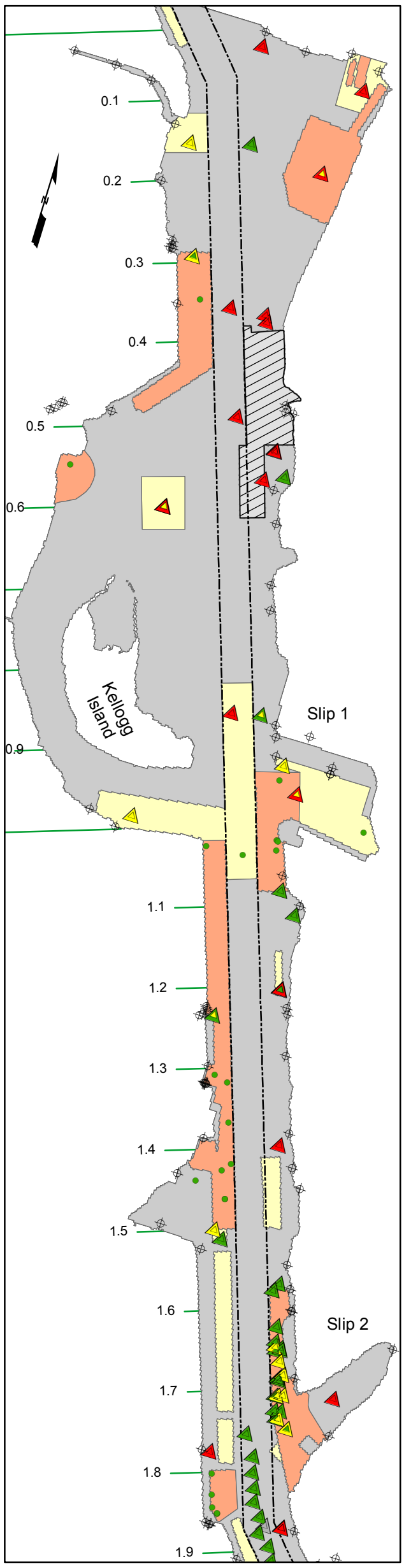
Alternative 2 Removal Technology Assignments and Waterway Conditions (RM 4.0 to 5.0)

DATE: 10/31/12 | DWRN:MVI/sea | Revision: 0 | **FIGURE G-4b**

L:\Lower Duwamish FS\FS_Final_GISOct2012\FS_GIS_MXDs_Oct12\Appendix G\FigureG-4bAlt2ActiveConCADB.mxd







Notes:
1. If cores overlap, the core with the highest exceedance status is shown on top.
2. Core intervals are based on *in situ* depths.
3. Any sample interval that overlaps the 0-2 or 2-4 ft interval is included. Samples that overlap both core intervals are mapped in both intervals.
4. For cores in capping areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval displays the 0-2 ft exceedance status.
5. For cores in partial dredge and cap areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval exceedance status is retained.
6. For cores in ENR areas, both the 0-2 ft and the 2-4 ft interval exceedance statuses are retained.
7. Cores in EAAs are not shown.

Legend

Technology Assignment
- Dredge
- Partial Dredge and Cap
- Cap
- Monitored Natural Recovery
- ENR/*in situ*
- Verification Monitoring
- AOPC 2
- Remaining Study Area (Institutional Controls and Site-wide Monitoring)

SMS Exceedance Status Following Remediation
Maximum exceedance 0-2 ft in core / Maximum exceedance 2-4 ft in core
- > CSL
- >SQS and ≤ CSL
- ≤ SQS or Non-detect
- Interval Not Analyzed
- Core Location Dredged During Remediation

Physical Lines of Evidence Used in Assigning Recovery Categories
- STM Predicted 100-Year High-flow Scour > 10 cm
- Evidence of Propeller Wash Scour
- Overwater Structure
- Outfall Location

Recovery Category
- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Early Action Area
- Navigation Channel
- River Mile Marker

0 200 400 800 Feet

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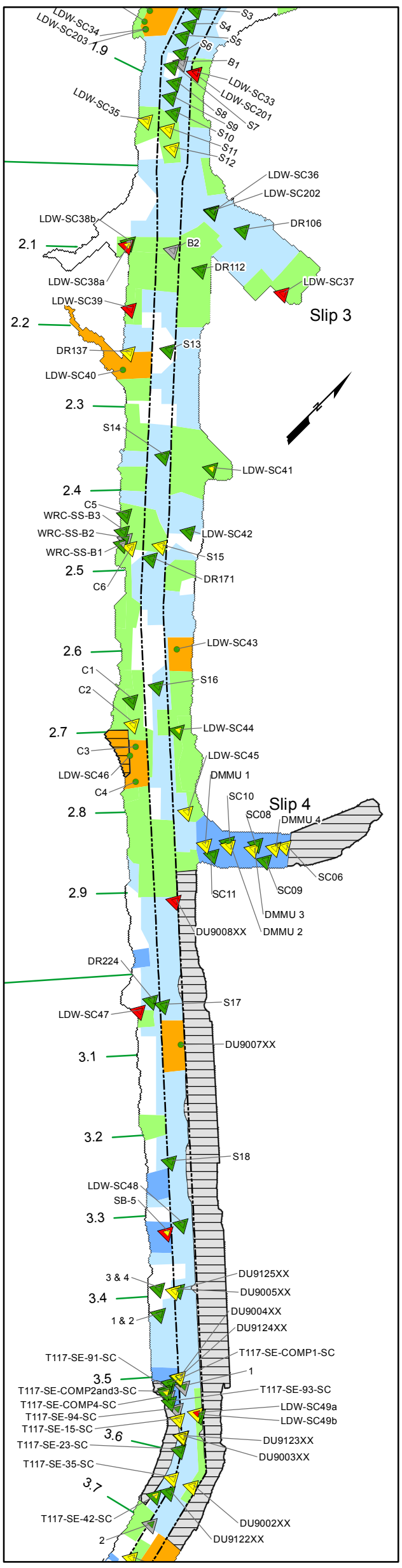
Port of Seattle / City of Seattle / King County / The Boeing Company

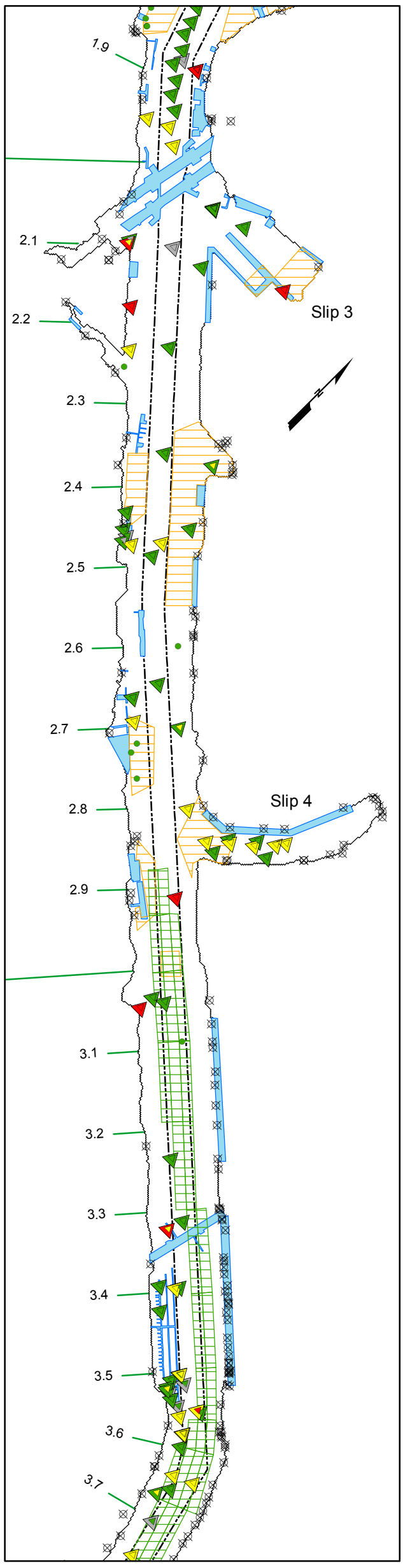
Lower Duwamish Waterway
Final Feasibility Study
60150279-14.46

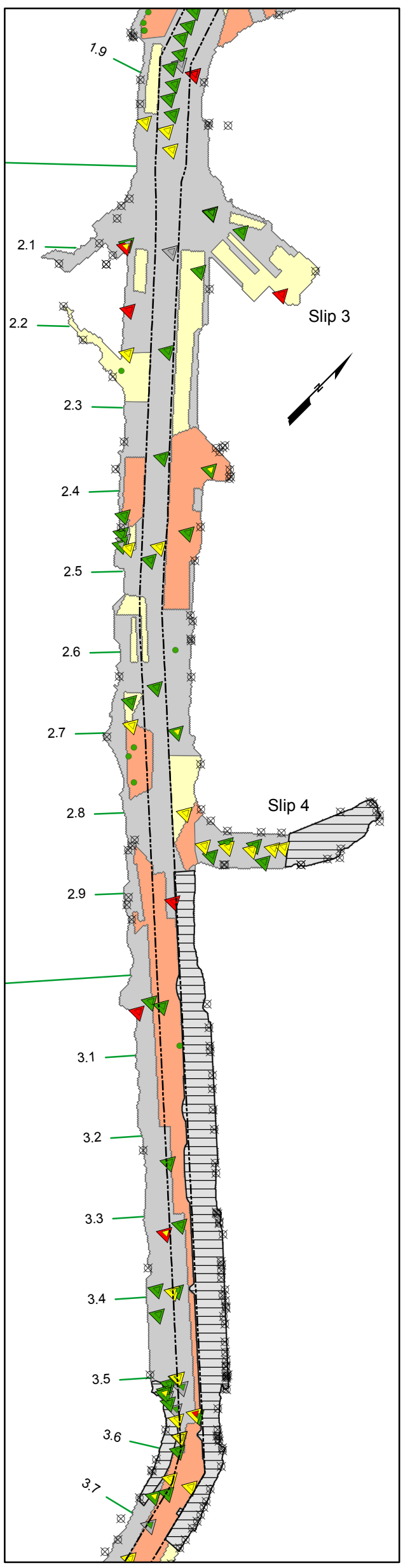
Alternative 2 Removal Remaining Subsurface Contamination - Plan View (RM 0.0 to 1.9)

DATE: 10/31/12 | DWRN:MVI/sea | Revision: 0 | **FIGURE G-5a**

L:\Lower Duwamish FS\FS_Final_GISOct2012\FS_GIS_MXDs_Oct12\Appendix G\G-5aCoreRecoveryNorth2R.mxd







Notes:
1. If cores overlap, the core with the highest exceedance status is shown on top.
2. Core intervals are based on *in situ* depths.
3. Any sample interval that overlaps the 0-2 or 2-4 ft interval is included. Samples that overlap both core intervals are mapped in both intervals.
4. For cores in capping areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval displays the 0-2 ft exceedance status.
5. For cores in partial dredge and cap areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval exceedance status is retained.
6. For cores in ENR areas, both the 0-2 ft and the 2-4 ft interval exceedance statuses are retained.
7. Cores in EAAs are not shown.

Feet
0 200 400 800

Legend

Technology Assignment
- Dredge
- Partial Dredge and Cap
- Cap
- Monitored Natural Recovery
- ENR/*in situ*
- Verification Monitoring
- AOPC 2
- Remaining Study Area (Institutional Controls and Site-wide Monitoring)

SMS Exceedance Status Following Remediation
Maximum exceedance 0-2 ft in core / Maximum exceedance 2-4 ft in core
- > CSL
- >SQS and ≤ CSL
- ≤ SQS or Non-detect
- Interval Not Analyzed
- Core Location Dredged During Remediation

Physical Lines of Evidence Used in Assigning Recovery Categories
- STM Predicted 100-Year High-flow Scour > 10 cm
- Evidence of Propeller Wash Scour
- Overwater Structure
- Outfall Location

Recovery Category
- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Early Action Area
- Navigation Channel
- River Mile Marker

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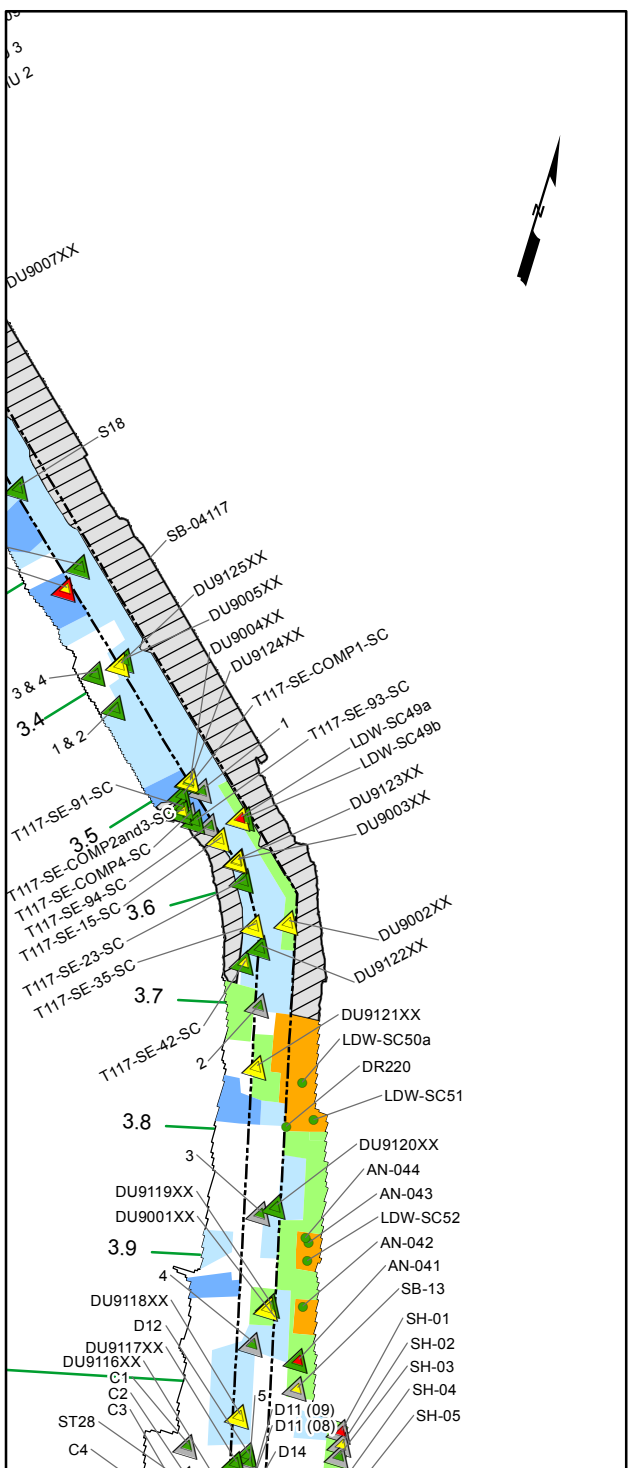
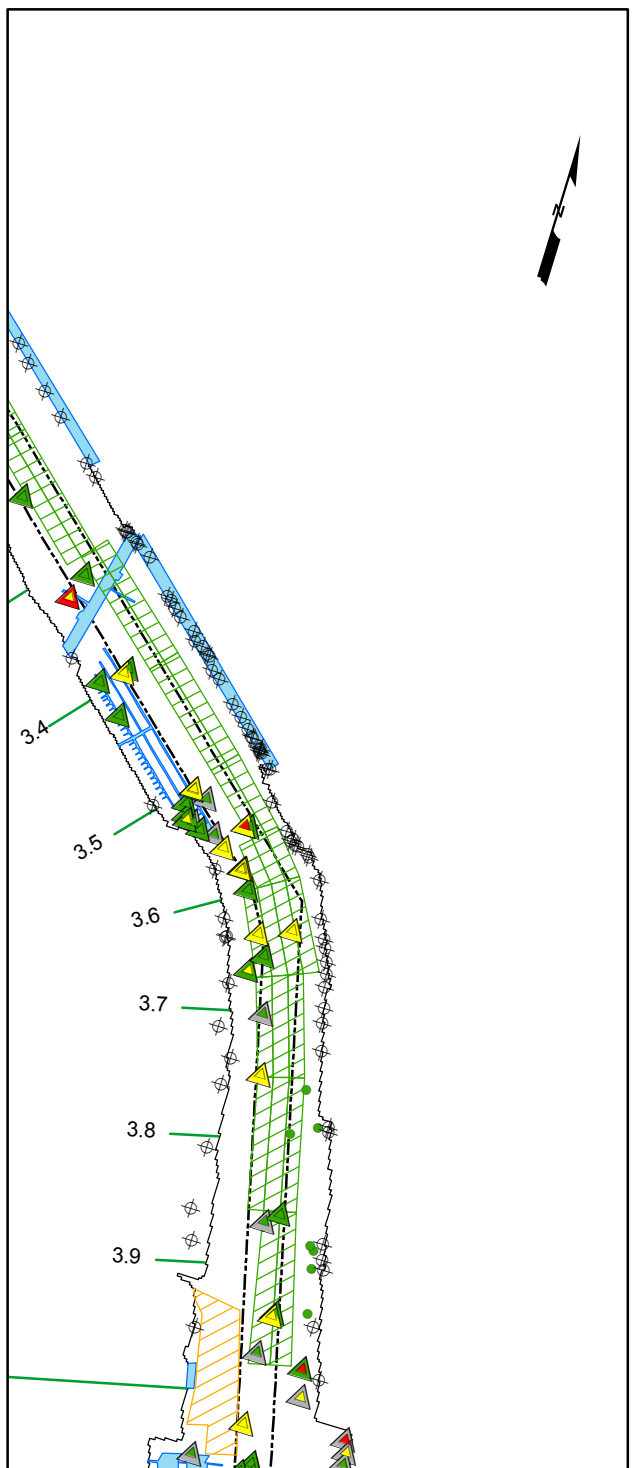
Lower Duwamish Waterway
Final Feasibility Study
60150279-14.46

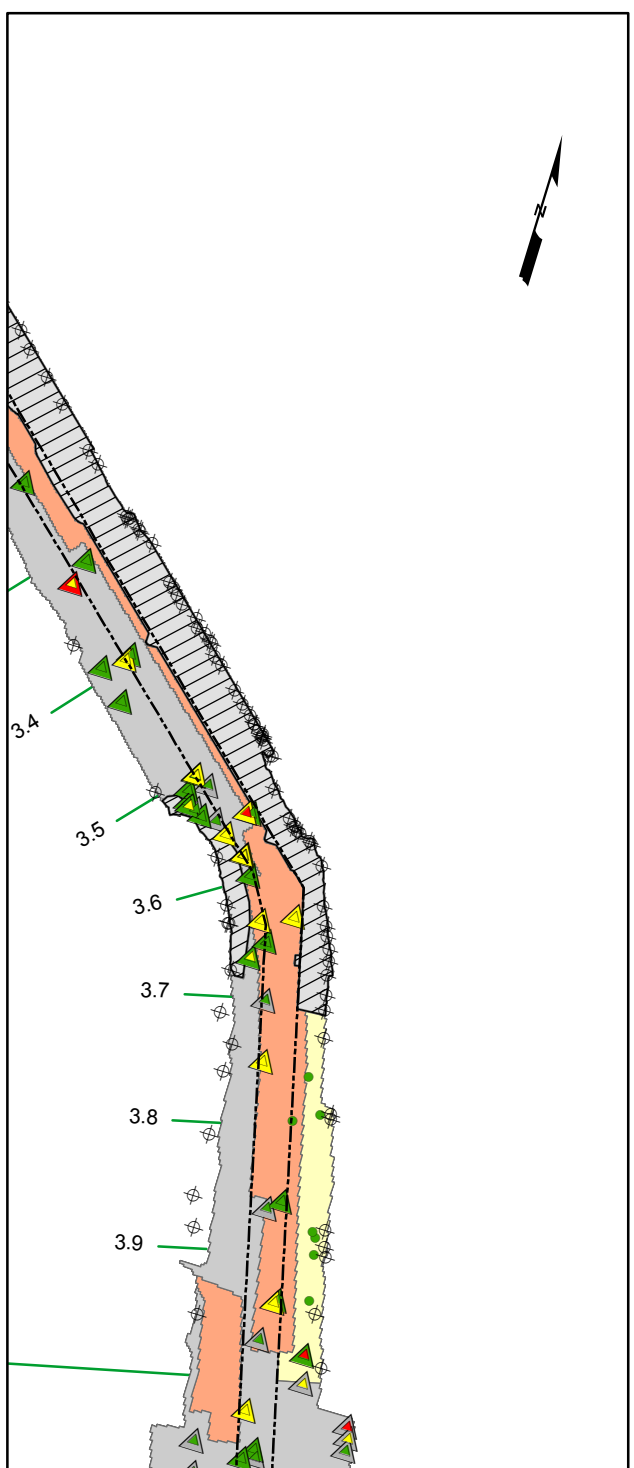
Alternative 2 Removal Remaining Subsurface Contamination - Plan View (RM 1.9 to 3.6)

DATE: 10/31/12 | DWRN:MVI/sea | Revision: 0 | **FIGURE G-5b**

L:\Lower Duwamish FS\FS_Final_GIS\Oct2012\FS_GIS_MXDs_Oct12\Appendix G\G-5bCoreRecoveryMid2R.mxd







Notes:
1. If cores overlap, the core with the highest exceedance status is shown on top.
2. Core intervals are based on *in situ* depths.
3. Any sample interval that overlaps the 0-2 or 2-4 ft interval is included. Samples that overlap both core intervals are mapped in both intervals.
4. For cores in capping areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval displays the 0-2 ft exceedance status.
5. For cores in partial dredge and cap areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval exceedance status is retained.
6. For cores in ENR areas, both the 0-2 ft and the 2-4 ft interval exceedance statuses are retained.
7. Cores in EAAs are not shown.

Legend

Technology Assignment
- Dredge
- Partial Dredge and Cap
- Cap
- Monitored Natural Recovery
- ENR/*in situ*
- Verification Monitoring
- AOPC 2
- Remaining Study Area (Institutional Controls and Site-wide Monitoring)

SMS Exceedance Status Following Remediation
Maximum exceedance 0-2 ft in core / Maximum exceedance 2-4 ft in core
- > CSL
- >SQS and ≤ CSL
- ≤ SQS or Non-detect
- Interval Not Analyzed
- Core Location Dredged During Remediation

Physical Lines of Evidence Used in Assigning Recovery Categories
- STM Predicted 100-Year High-flow Scour > 10 cm
- Evidence of Propeller Wash Scour
- Overwater Structure
- Outfall Location

Recovery Category
- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Early Action Area
- Navigation Channel
- River Mile Marker

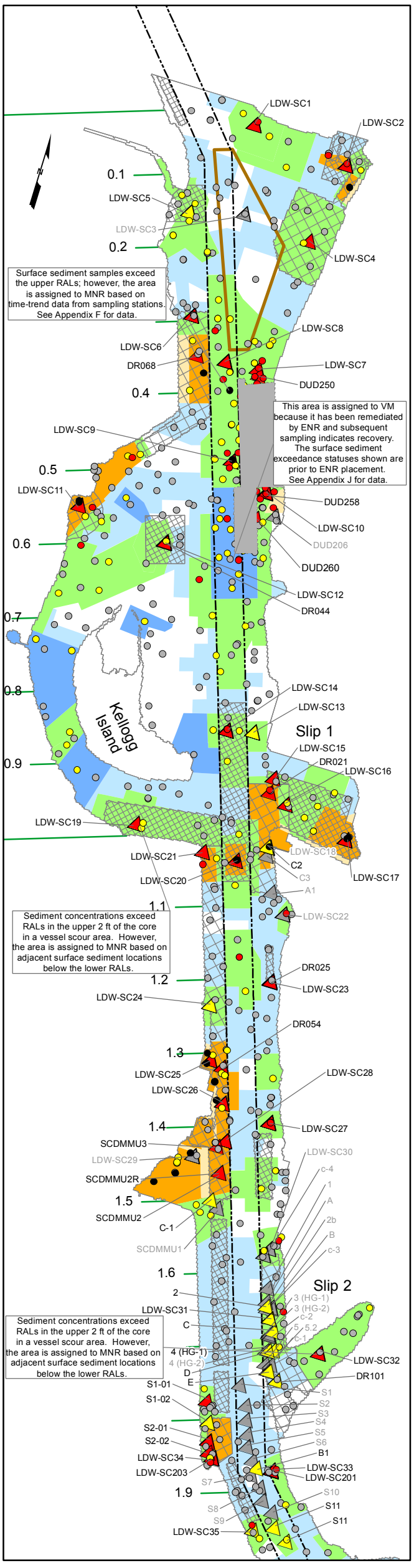
0 200 400 800 Feet

AECOM

Lower Duwamish Waterway Group
Port of Seattle / City of Seattle / King County / The Boeing Company

Lower Duwamish Waterway Final Feasibility Study 60150279-14.46			**Alternative 2 Removal Remaining Subsurface Contamination - Plan View (RM 3.6 to 5.0)**
DATE: 10/31/12	DWRN:MVI/sea	Revision: 0	**FIGURE G-5c**

L:\Lower Duwamish FS\FS_Final_GIS\Oct2012\FS_GIS_MXDs_Oct12\Appendix G\FigureG-5cCoreRecoverySouth2R.mxd



Notes:
1. FS baseline dataset used. Total Study Area: 441 acres.
2. Technology assignments are for the FS and may change based on additional data collected during remedial design.
3. See Section 8 for additional details on technology assignments. Exceptions to the technology assignment criteria in Section 8 are explained in text boxes.
4. See Section 6 for development of recovery categories and RALs.
5. Subsurface exceedances in cores are at any depth and represent the highest level of exceedance for any SMS contaminant.

Remedial Alternative	Remedial Action Levels (RALs)				
	Total PCBs	cPAHs	Dioxins/ Furans	Arsenic	Benthic SMS
	µg/kg dw	µg TEQ/kg dw	ng TEQ/kg dw	mg/kg dw	41 Chemicals
Alt 2 upper RALs	2,200	5,500	50	93	3x CSL
Alt 2 lower RALs	1,300[a]	5,500	50	93	CSL
Alt 5 (defines AOPC 1)	240[a]	1,000 (site-wide), 900 (intertidal)	25	57 (site-wide), 28 (intertidal)	SQS
Alt 6 (defines AOPC 1+2)	100	1,000 (site-wide), 900 (intertidal)	15	15	SQS

Note a. Total PCBs concentrations of 1,300 µg/kg dw and 240 µg/kg dw are dry weight approximations of the 65 mg/kg oc (CSL) and 12 mg/kg oc (SQS) values assuming 2% TOC.

Technology Assignment

AOPC 1
- Dredge (29 acres)
- Cap or Partial Dredge and Cap (3 acres)
- Monitored Natural Recovery (125 acres)
- ENR/*in situ* (0 acres)
- Verification Monitoring (23 acres)

- AOPC 2 (122 acres)
- Early Action Area (29 acres)
- Remaining Study Area (Institutional Controls and Site-wide Monitoring) (110 acres)
- Contained Aquatic Disposal Area

0 200 400 800 Feet

Legend

Surface Sediment Exceedance Location
- >Alt 2 Upper RALs (Applicable Site-wide)
- >Alt 2 Lower RALs (Applicable in Categories 1 & 2)
- >Alt 5 RALs
- Pass or Non-detect

Subsurface Exceedance Location and ID
- > CSL, detected
- > SQS and ≤ CSL, detected
- Pass or Non-detect

Station ID Labeled in Black
Station ID Labeled in Grey

Recovery Category
- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Navigation Channel
- River Mile Marker

AECOM

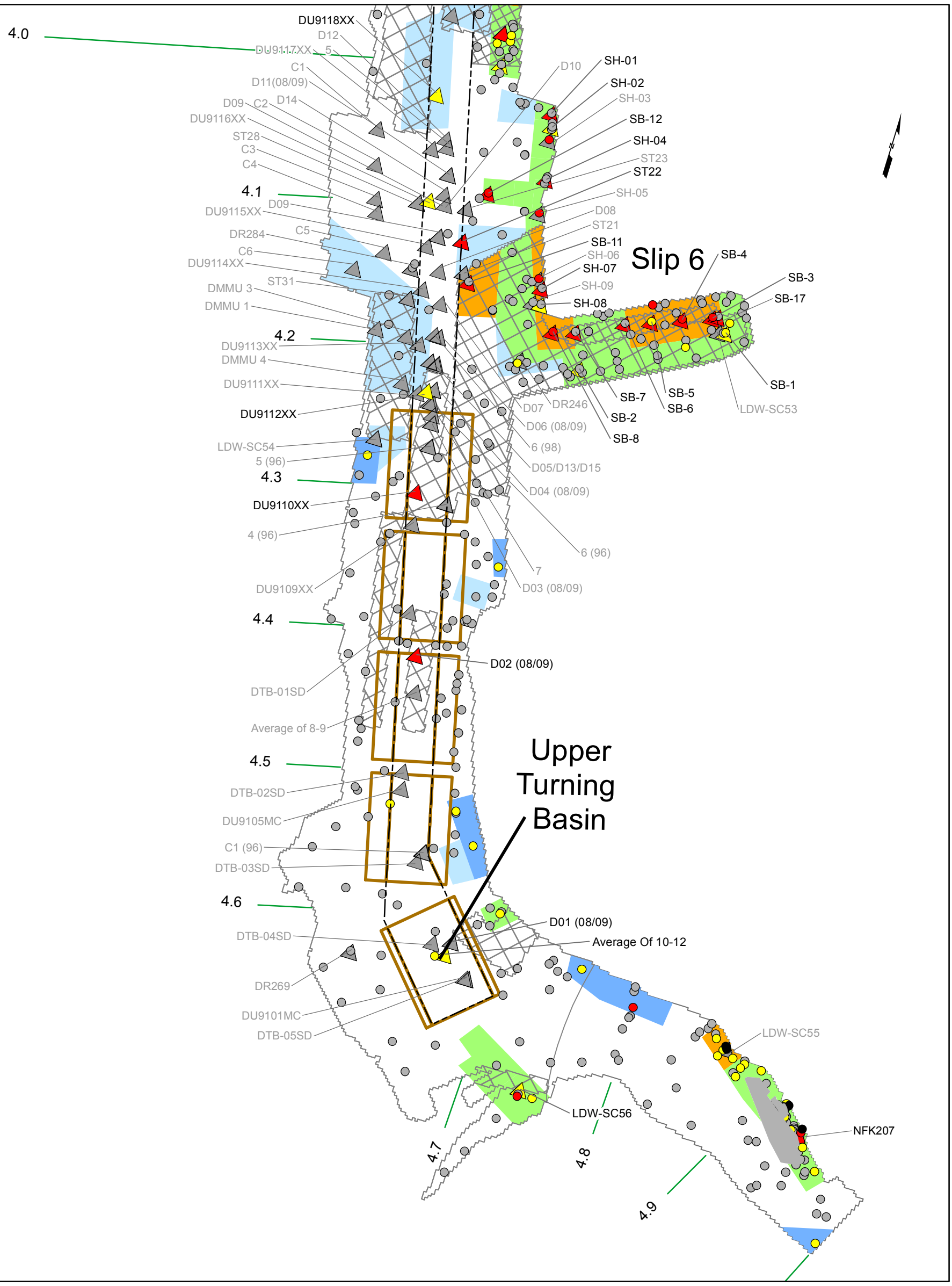
Lower Duwamish Waterway Group
Port of Seattle / City of Seattle / King County / The Boeing Company

Lower Duwamish Waterway
Final Feasibility Study
60150279-14.46

Alternative 2 Removal with CAD Technology Assignments and Waterway Conditions

DATE: 10/31/12 | DWRN:MVI/sea | Revision: 0 | **FIGURE G-6a**

L:\Lower Duwamish FS\FS_Final_GISOct2012\FS_GIS_MXDs_Oct12\Appendix G\FigureG-6aAlt2ActiveConCAD.mxd



Notes:
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3. See Section 8 for additional details on technology assignments. Exceptions to the technology assignment criteria in Section 8 are explained in text boxes.
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Alt 2 lower RALs	1,300[a]	5,500	50	93	CSL
Alt 5 (defines AOPC 1)	240[a]	1,000 (site-wide), 900 (intertidal)	25	57 (site-wide), 28 (intertidal)	SQS
Alt 6 (defines AOPC 1+2)	100	1,000 (site-wide), 900 (intertidal)	15	15	SQS

Note a. Total PCBs concentrations of 1,300 µg/kg dw and 240 µg/kg dw are dry weight approximations of the 65 mg/kg oc (CSL) and 12 mg/kg oc (SQS) values assuming 2% TOC.

Technology Assignment

AOPC 1
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- Cap or Partial Dredge and Cap (3 acres)
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- ENR/*in situ* (0 acres)
- Verification Monitoring (23 acres)

- AOPC 2 (122 acres)
- Early Action Area (29 acres)
- Remaining Study Area (Institutional Controls and Site-wide Monitoring) (110 acres)
- Contained Aquatic Disposal Area

0 200 400 800 Feet

Legend

Surface Sediment Exceedance Location
- >Alt 2 Upper RALs (Applicable Site-wide)
- >Alt 2 Lower RALs (Applicable in Categories 1 & 2)
- >Alt 5 RALs
- Pass or Non-detect

Subsurface Exceedance Location and ID
- > CSL, detected
- > SQS and ≤ CSL, detected
- Station ID Labeled in Black
- Pass or Non-detect
- Station ID Labeled in Grey

Recovery Category
- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Navigation Channel
- River Mile Marker

AECOM

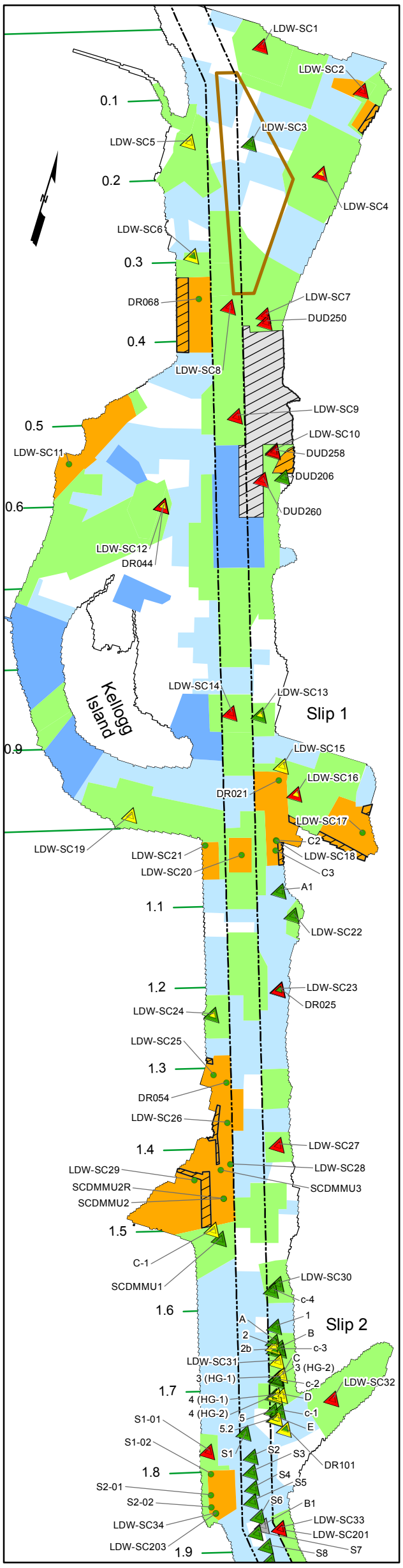
Lower Duwamish Waterway Group
Port of Seattle / City of Seattle / King County / The Boeing Company

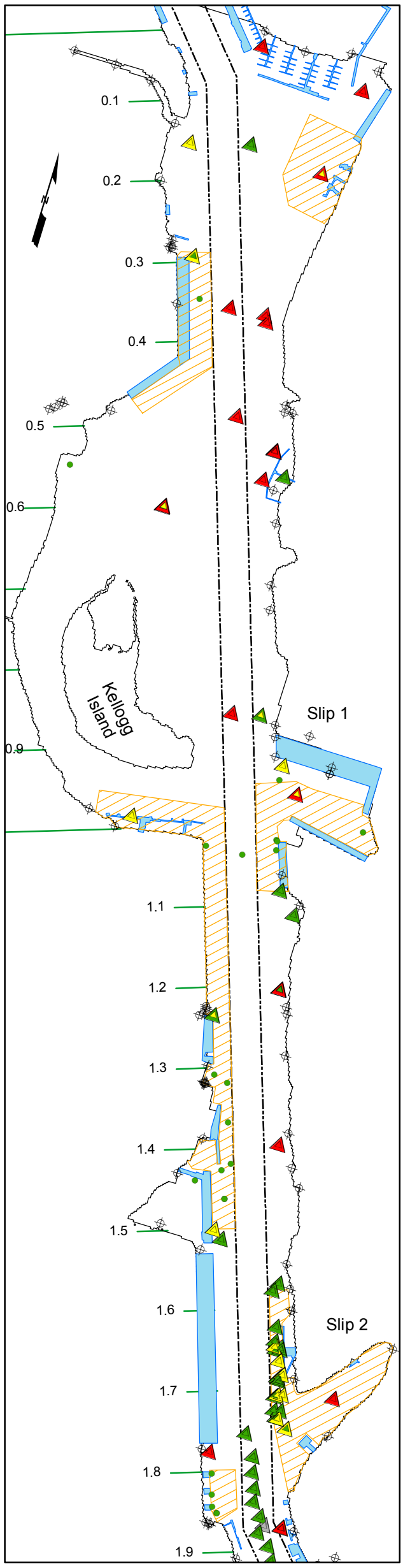
Lower Duwamish Waterway
Final Feasibility Study
60150279-14.46

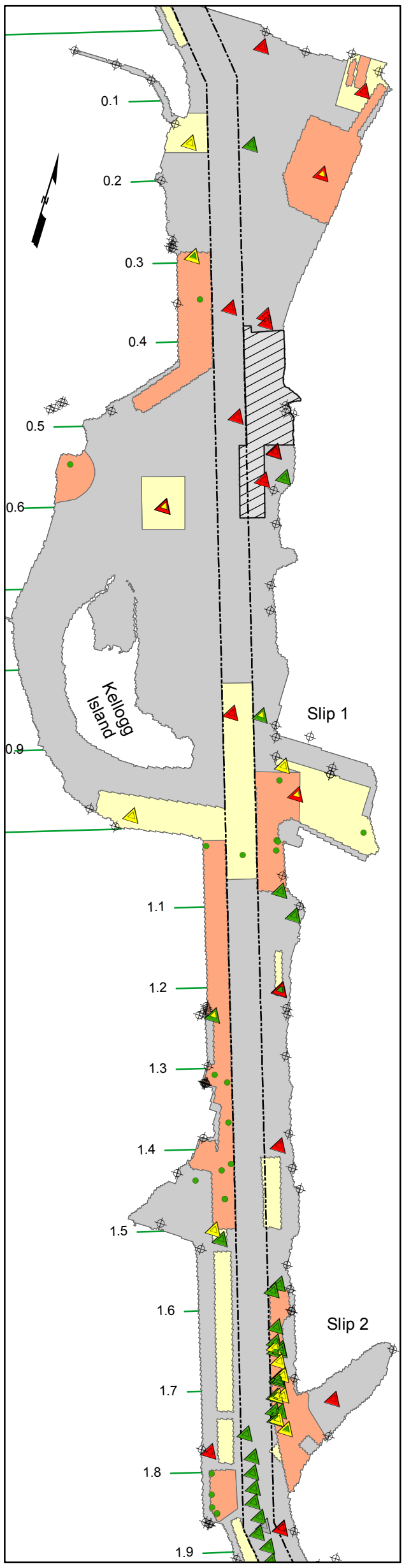
Alternative 2 Removal with CAD Technology Assignments and Waterway Conditions (RM 4.0 to 5.0)

DATE: 10/31/12 | DWRN:MVI/sea | Revision: 0 | **FIGURE G-6b**

L:\Lower Duwamish FS\FS_Final_GISOct2012\FS_GIS_MXDs_Oct12\Appendix G\FigureG-6bAlt2ActiveConCADB.mxd







Notes:
1. If cores overlap, the core with the highest exceedance status is shown on top.
2. Core intervals are based on *in situ* depths.
3. Any sample interval that overlaps the 0-2 or 2-4 ft interval is included. Samples that overlap both core intervals are mapped in both intervals.
4. For cores in capping areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval displays the 0-2 ft exceedance status.
5. For cores in partial dredge and cap areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval exceedance status is retained.
6. For cores in ENR areas, both the 0-2 ft and the 2-4 ft interval exceedance statuses are retained.
7. Cores in EAAs are not shown.

Legend

Technology Assignment

- Dredge
- Partial Dredge and Cap
- Cap
- Monitored Natural Recovery
- ENR/*in situ*
- Verification Monitoring
- AOPC 2
- Remaining Study Area (Institutional Controls and Site-wide Monitoring)

SMS Exceedance Status Following Remediation

Maximum exceedance 0-2 ft in core / Maximum exceedance 2-4 ft in core

- > CSL
- >SQS and ≤ CSL
- ≤ SQS or Non-detect
- Interval Not Analyzed
- Core Location Dredged During Remediation

Physical Lines of Evidence Used in Assigning Recovery Categories

- STM Predicted 100-Year High-flow Scour > 10 cm
- Evidence of Propeller Wash Scour
- Overwater Structure
- Contained Aquatic Disposal Area
- Outfall Location

Recovery Category

- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Early Action Area
- Navigation Channel
- River Mile Marker

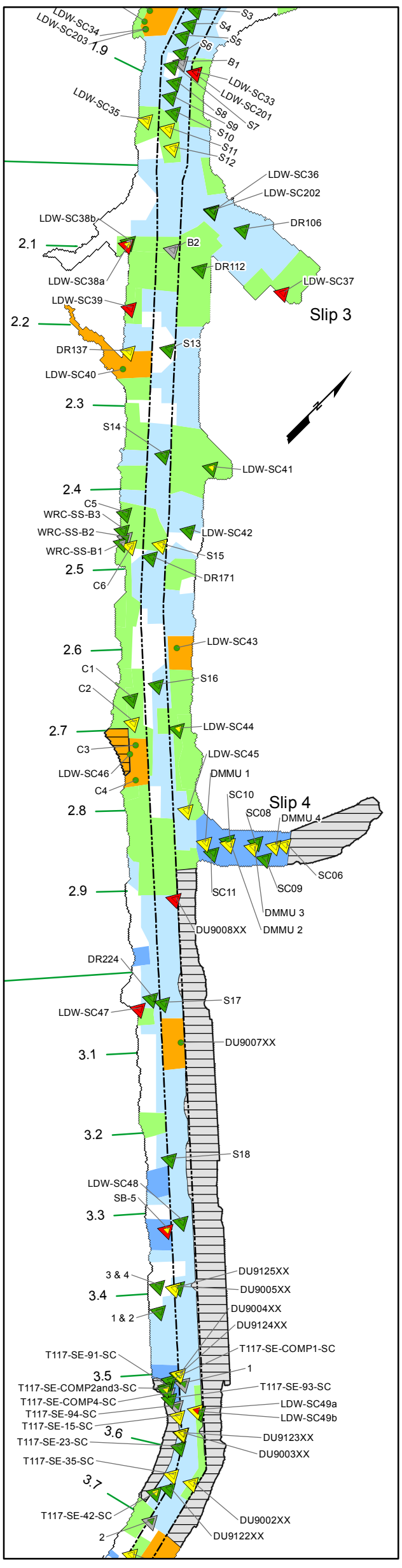
Feet
0 200 400 800

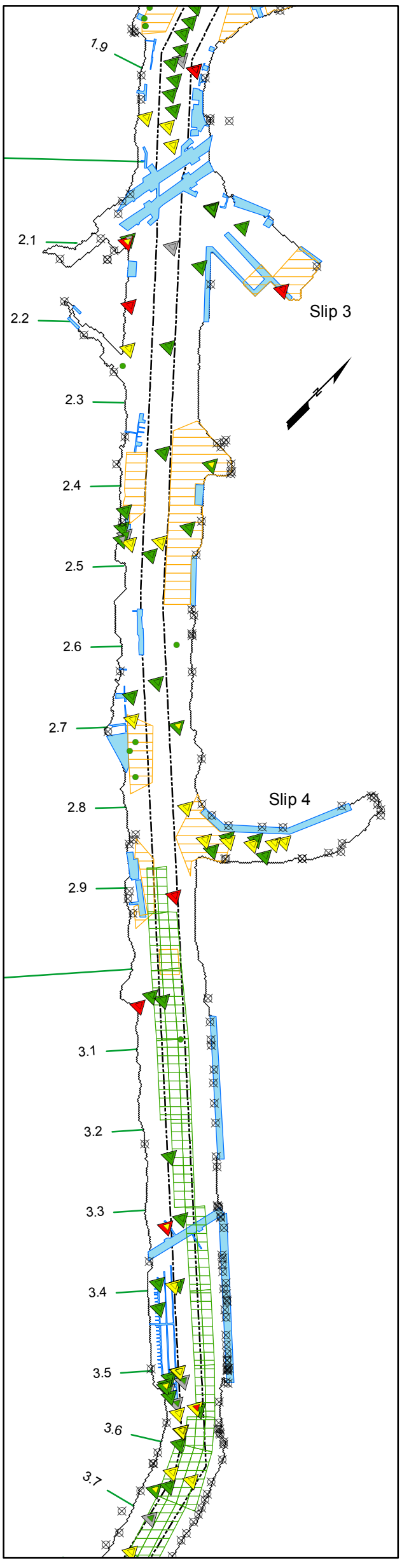
AECOM

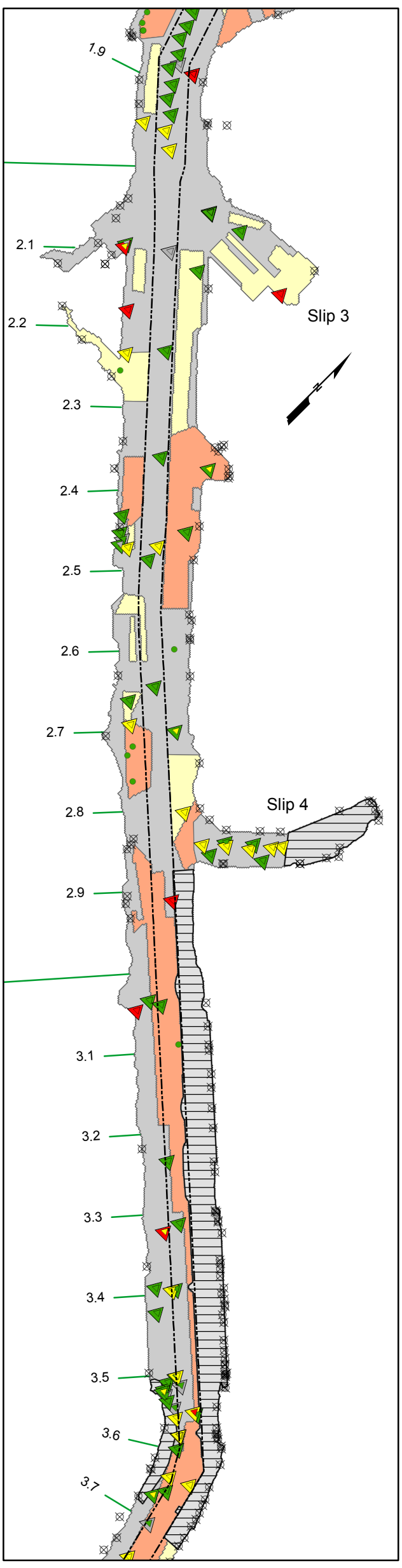
Lower Duwamish Waterway Group
Port of Seattle / City of Seattle / King County / The Boeing Company

Lower Duwamish Waterway Final Feasibility Study 60150279-14.46			**Alternative 2 Removal with CAD Remaining Subsurface Contamination - Plan View (RM 0.0 to 1.9)**
DATE: 10/31/12	DWRN:MVI/sea	Revision: 0	**FIGURE G-7a**

L:\Lower Duwamish FS\FS_Final_GISOct2012\FS_GIS_MXDs_Oct12\Appendix G\G-7aCoreRecoveryNorth2R.mxd







Notes:
1. If cores overlap, the core with the highest exceedance status is shown on top.
2. Core intervals are based on *in situ* depths.
3. Any sample interval that overlaps the 0-2 or 2-4 ft interval is included. Samples that overlap both core intervals are mapped in both intervals.
4. For cores in capping areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval displays the 0-2 ft exceedance status.
5. For cores in partial dredge and cap areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval exceedance status is retained.
6. For cores in ENR areas, both the 0-2 ft and the 2-4 ft interval exceedance statuses are retained.
7. Cores in EAAs are not shown.

Feet
0 200 400 800

Legend

Technology Assignment
- Dredge
- Partial Dredge and Cap
- Cap
- Monitored Natural Recovery
- ENR/*in situ*
- Verification Monitoring
- AOPC 2
- Remaining Study Area (Institutional Controls and Site-wide Monitoring)

SMS Exceedance Status Following Remediation
Maximum exceedance 0-2 ft in core — Maximum exceedance 2-4 ft in core
- > CSL
- >SQS and ≤ CSL
- ≤ SQS or Non-detect
- Interval Not Analyzed
- Core Location Dredged During Remediation

Physical Lines of Evidence Used in Assigning Recovery Categories
- STM Predicted 100-Year High-flow Scour > 10 cm
- Evidence of Propeller Wash Scour
- Overwater Structure
- Contained Aquatic Disposal Area
- Outfall Location

Recovery Category
- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Early Action Area
- Navigation Channel
- River Mile Marker

AECOM

Lower Duwamish Waterway Group
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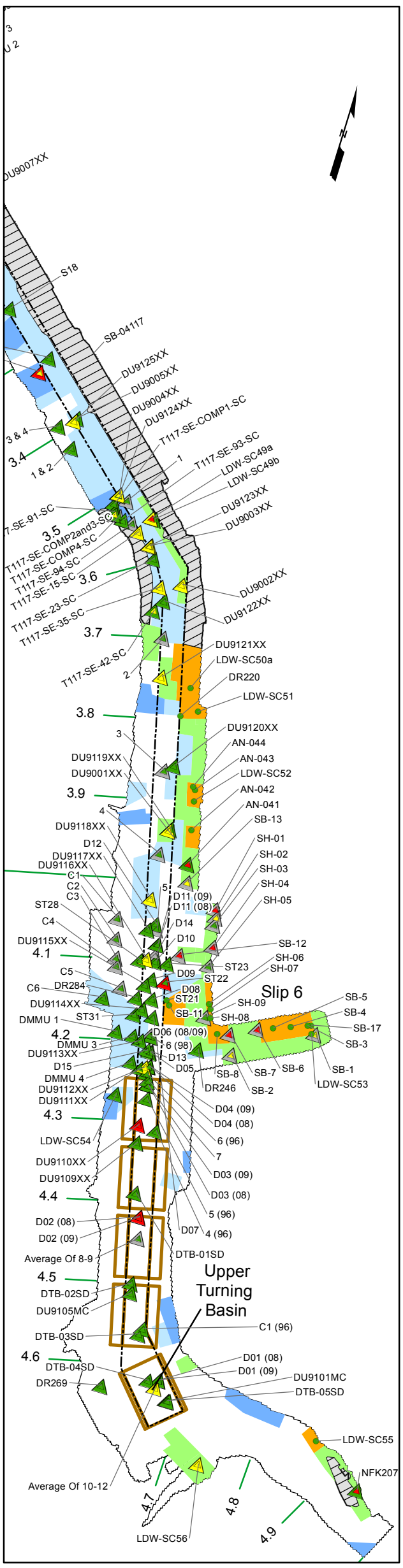
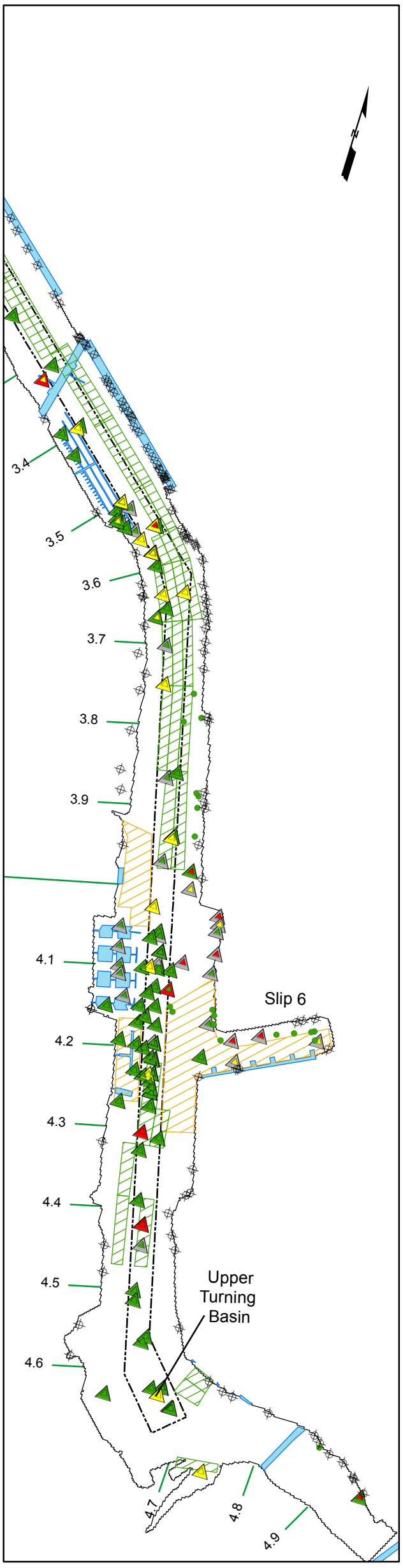
Lower Duwamish Waterway
Final Feasibility Study
60150279-14.46

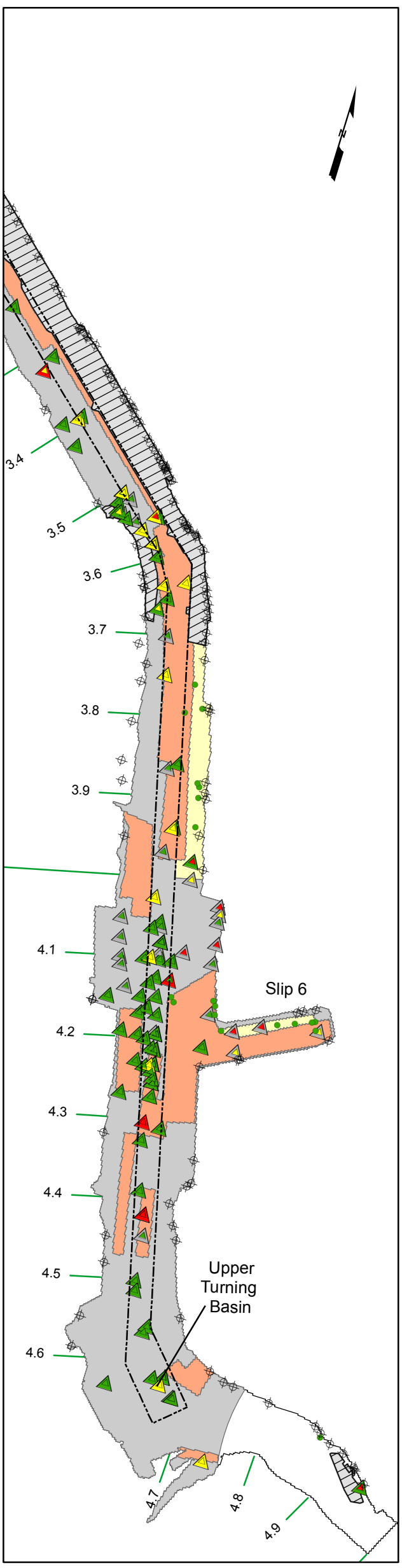
Alternative 2 Removal with CAD Remaining Subsurface Contamination - Plan View (RM 1.9 to 3.6)

DATE: 10/31/12 | DWRN:MVI/sea | Revision: 0 | **FIGURE G-7b**

L:\Lower Duwamish FS\FS_Final_GIS\Oct2012\FS_GIS_MXDs_Oct12\Appendix G\G-7bCoreRecoveryMid2R.mxd







Notes:
1. If cores overlap, the core with the highest exceedance status is shown on top.
2. Core intervals are based on *in situ* depths.
3. Any sample interval that overlaps the 0-2 or 2-4 ft interval is included. Samples that overlap both core intervals are mapped in both intervals.
4. For cores in capping areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval displays the 0-2 ft exceedance status.
5. For cores in partial dredge and cap areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval exceedance status is retained.
6. For cores in ENR areas, both the 0-2 ft and the 2-4 ft interval exceedance statuses are retained.
7. Cores in EAAs are not shown.

Legend

Technology Assignment
- Dredge
- Partial Dredge and Cap
- Cap
- Monitored Natural Recovery
- ENR/*in situ*
- Verification Monitoring
- AOPC 2
- Remaining Study Area (Institutional Controls and Site-wide Monitoring)

SMS Exceedance Status Following Remediation
Maximum exceedance 0-2 ft in core / Maximum exceedance 2-4 ft in core
- > CSL
- >SQS and ≤ CSL
- ≤ SQS or Non-detect
- Interval Not Analyzed
- Core Location Dredged During Remediation

Physical Lines of Evidence Used in Assigning Recovery Categories
- STM Predicted 100-Year High-flow Scour > 10 cm
- Evidence of Propeller Wash Scour
- Overwater Structure
- Contained Aquatic Disposal Area
- Outfall Location

Recovery Category
- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Early Action Area
- Navigation Channel
- River Mile Marker

0 200 400 800 Feet

AECOM

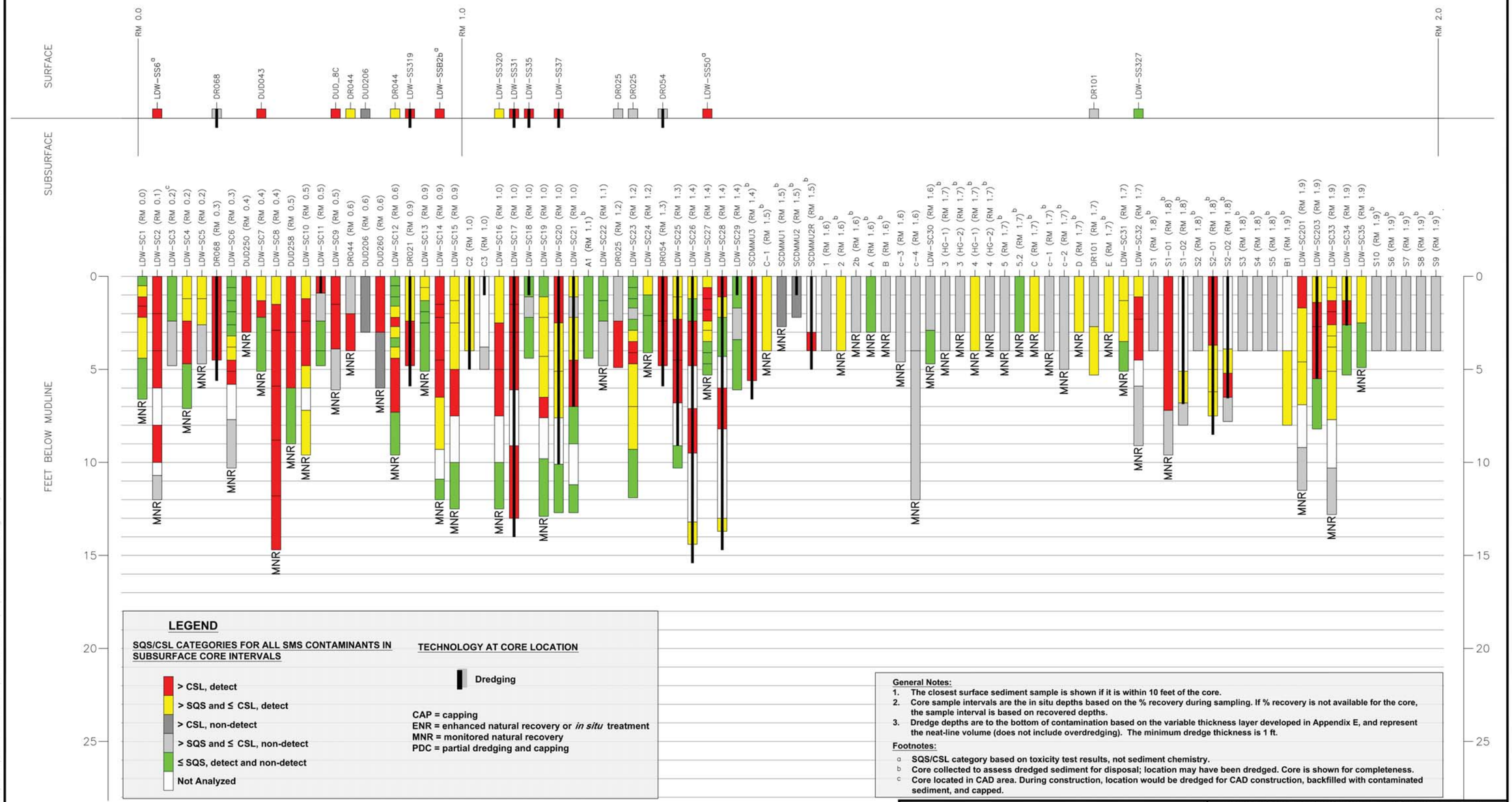
Lower Duwamish Waterway Group
Port of Seattle / City of Seattle / King County / The Boeing Company

Lower Duwamish Waterway
Final Feasibility Study
60150279-14.46

Alternative 2 Removal with CAD Remaining Subsurface Contamination - Plan View (RM 3.6 to 5.0)

DATE: 10/31/12 | DWRN:MVI/sea | Revision: 0 | **FIGURE G-7c**

L:\Lower Duwamish FS\FS_Final_GISOct2012\FS_GIS_MXDs_Oct12\Appendix G\FigureG-7cCoreRecoverySouth2RCAD.mxd



LEGEND

SQS/CSL CATEGORIES FOR ALL SMS CONTAMINANTS IN SUBSURFACE CORE INTERVALS

- > CSL, detect
- > SQS and ≤ CSL, detect
- > CSL, non-detect
- > SQS and ≤ CSL, non-detect
- ≤ SQS, detect and non-detect
- Not Analyzed

TECHNOLOGY AT CORE LOCATION

- Dredging

CAP = capping
ENR = enhanced natural recovery or *in situ* treatment
MNR = monitored natural recovery
PDC = partial dredging and capping

General Notes:

1. The closest surface sediment sample is shown if it is within 10 feet of the core.
2. Core sample intervals are the in situ depths based on the % recovery during sampling. If % recovery is not available for the core, the sample interval is based on recovered depths.
3. Dredge depths are to the bottom of contamination based on the variable thickness layer developed in Appendix E, and represent the neat-line volume (does not include overdredging). The minimum dredge thickness is 1 ft.

Footnotes:

a SQS/CSL category based on toxicity test results, not sediment chemistry.
b Core collected to assess dredged sediment for disposal; location may have been dredged. Core is shown for completeness.
c Core located in CAD area. During construction, location would be dredged for CAD construction, backfilled with contaminated sediment, and capped.

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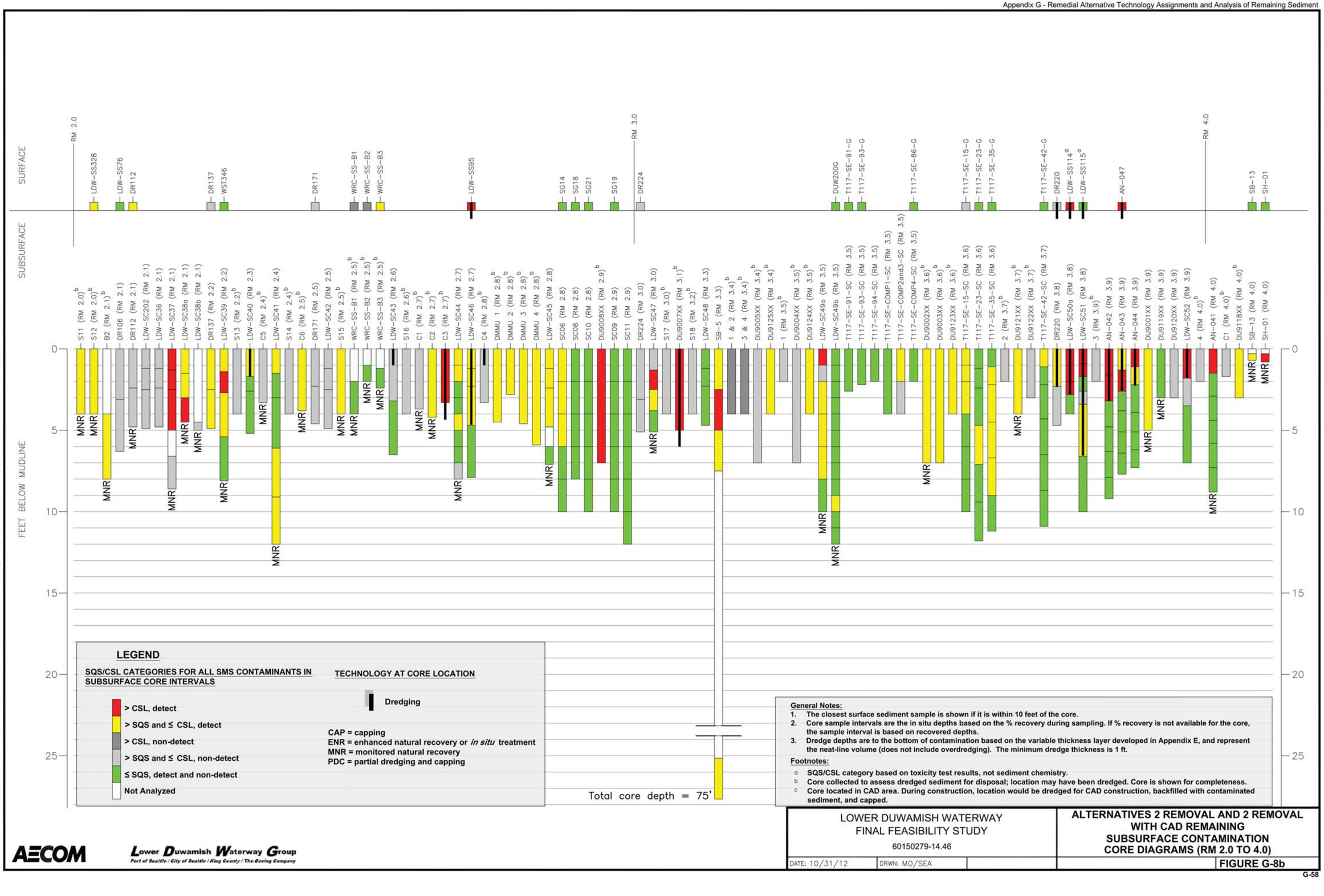
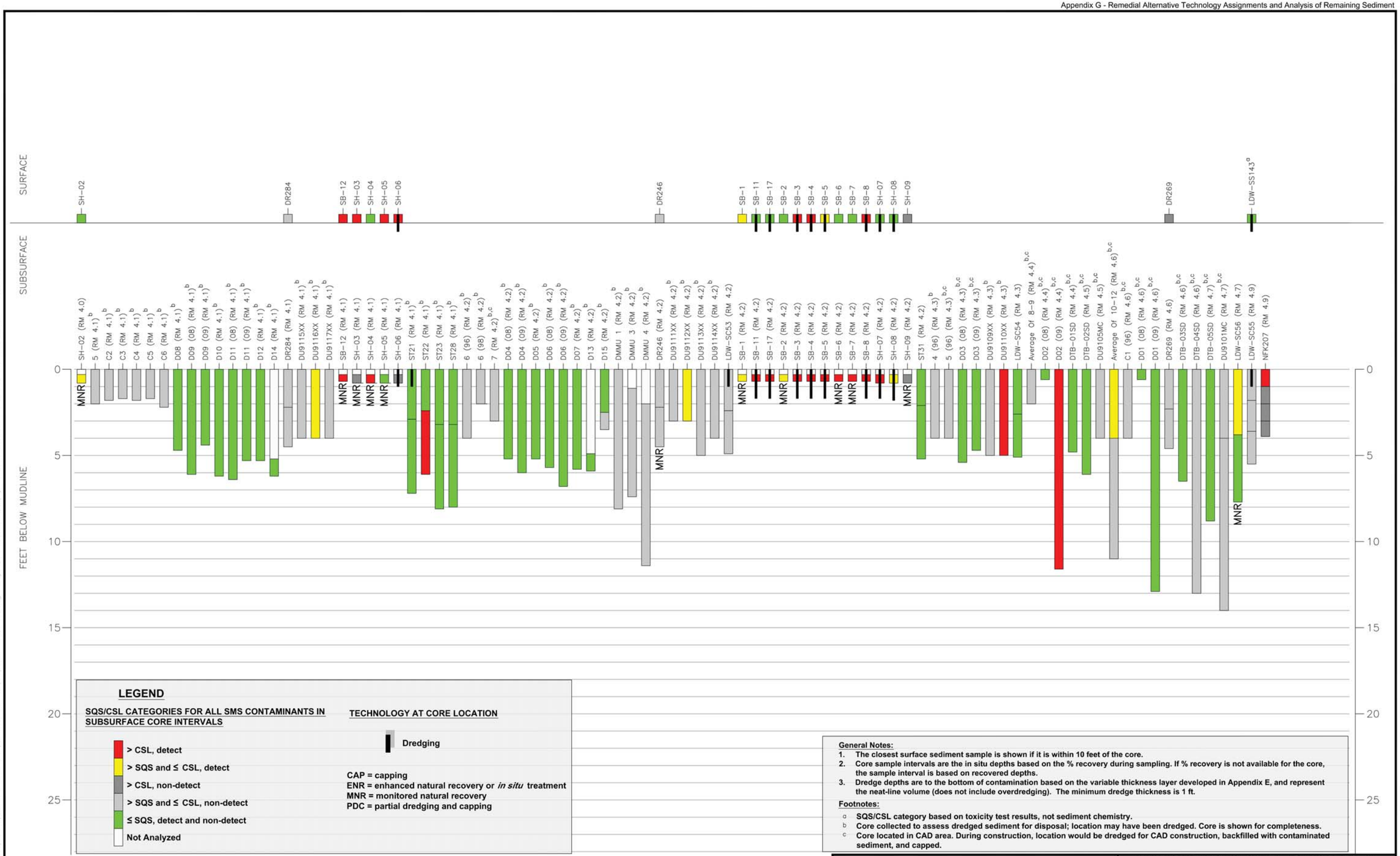
LOWER DUWAMISH WATERWAY
FINAL FEASIBILITY STUDY
60150279-14.46

DATE: 10/31/12 | DRWN: MO/SEA

ALTERNATIVES 2 REMOVAL AND 2 REMOVAL WITH CAD REMAINING SUBSURFACE CONTAMINATION CORE DIAGRAMS (RM 0.0 TO 2.0)

FIGURE G-8a





LEGEND

SQS/CSL CATEGORIES FOR ALL SMS CONTAMINANTS IN SUBSURFACE CORE INTERVALS

- > CSL, detect
- > SQS and ≤ CSL, detect
- > CSL, non-detect
- > SQS and ≤ CSL, non-detect
- ≤ SQS, detect and non-detect
- Not Analyzed

TECHNOLOGY AT CORE LOCATION

- Dredging

CAP = capping
ENR = enhanced natural recovery or *in situ* treatment
MNR = monitored natural recovery
PDC = partial dredging and capping

General Notes:

1. The closest surface sediment sample is shown if it is within 10 feet of the core.
2. Core sample intervals are the in situ depths based on the % recovery during sampling. If % recovery is not available for the core, the sample interval is based on recovered depths.
3. Dredge depths are to the bottom of contamination based on the variable thickness layer developed in Appendix E, and represent the neat-line volume (does not include overdredging). The minimum dredge thickness is 1 ft.

Footnotes:

a SQS/CSL category based on toxicity test results, not sediment chemistry.
b Core collected to assess dredged sediment for disposal; location may have been dredged. Core is shown for completeness.
c Core located in CAD area. During construction, location would be dredged for CAD construction, backfilled with contaminated sediment, and capped.

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Lower Duwamish Waterway Group
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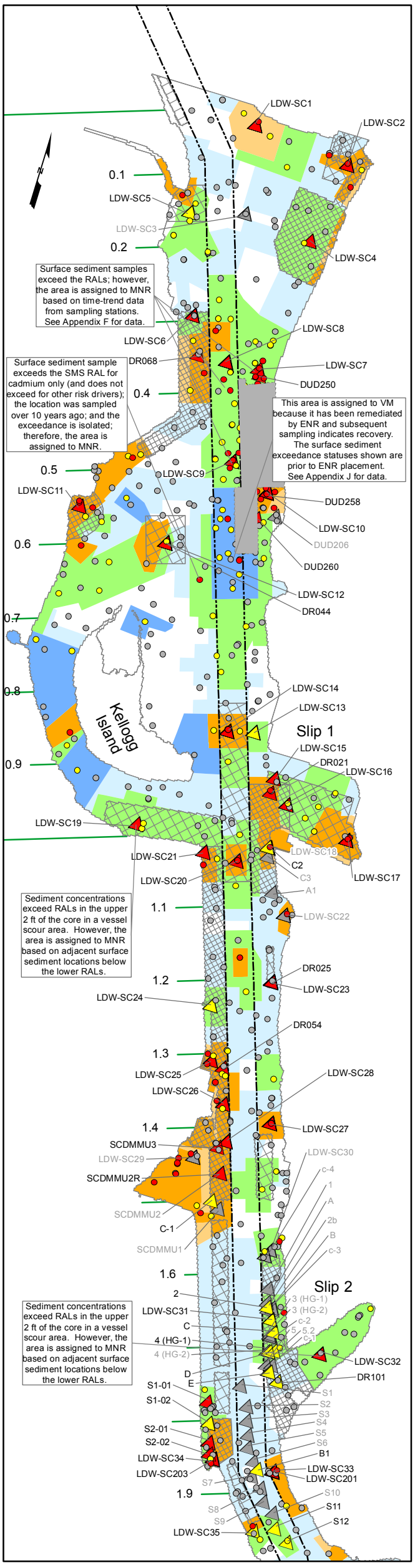
LOWER DUWAMISH WATERWAY
FINAL FEASIBILITY STUDY
60150279-14.46

DATE: 10/31/12 | DRWN: MO/SEA

ALTERNATIVES 2 REMOVAL AND 2 REMOVAL WITH CAD REMAINING SUBSURFACE CONTAMINATION CORE DIAGRAMS (RM 4.0 TO 5.0)

FIGURE G-8c



Legend

Surface Sediment Exceedance Location

- >Alt 3 RALs
- >Alt 5 RALs
- Pass or Non-detect

Subsurface Exceedance Location and ID

- > CSL, detected
- > SQS and ≤ CSL, detected
- Pass or Non-detect

Station ID Labeled in Black

Station ID Labeled in Grey

Recovery Category

- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Navigation Channel
- River Mile Marker

Technology Assignment

AOPC 1

- Dredge (50 acres)
- Cap or Partial Dredge and Cap (8 acres)
- Monitored Natural Recovery (99 acres)
- ENR/*in situ* (0 acres)
- Verification Monitoring (23 acres)

- AOPC 2 (122 acres)
- Early Action Area (29 acres)
- Remaining Study Area (Institutional Controls and Site-wide Monitoring) (110 acres)

0 200 400 800 Feet

Notes:
1. FS baseline dataset used. Total Study Area: 441 acres.
2. Technology assignments are for the FS and may change based on additional data collected during remedial design.
3. See Section 8 for additional details on technology assignments. Exceptions to the technology assignment criteria in Section 8 are explained in text boxes.
4. See Section 6 for development of recovery categories and RALs.
5. Subsurface exceedances in cores are at any depth and represent the highest level of exceedance for any SMS contaminant.

Remedial Alternative	Remedial Action Levels (RALs)				
	Total PCBs	cPAHs	Dioxins/ Furans	Arsenic	Benthic SMS
	µg/kg dw	µg TEQ/kg dw	ng TEQ/kg dw	mg/kg dw	41 Chemicals
Alt 3	1,300[a]	3,800 (site-wide), 900 (intertidal)	35 (site-wide), 28 (intertidal)	93 (site-wide), 28 (intertidal)	CSL
Alt 5 (defines AOPC 1)	240[a]	1,000 (site-wide), 900 (intertidal)	25	57 (site-wide), 28 (intertidal)	SQS
Alt 6 (defines AOPC 1+2)	100	1,000 (site-wide), 900 (intertidal)	15	15	SQS

Note a. Total PCBs concentrations of 1,300 µg/kg dw and 240 µg/kg dw are dry weight approximations of the 65 mg/kg oc (CSL) and 12 mg/kg oc (SQS) values assuming 2% TOC.

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Lower Duwamish Waterway
Final Feasibility Study
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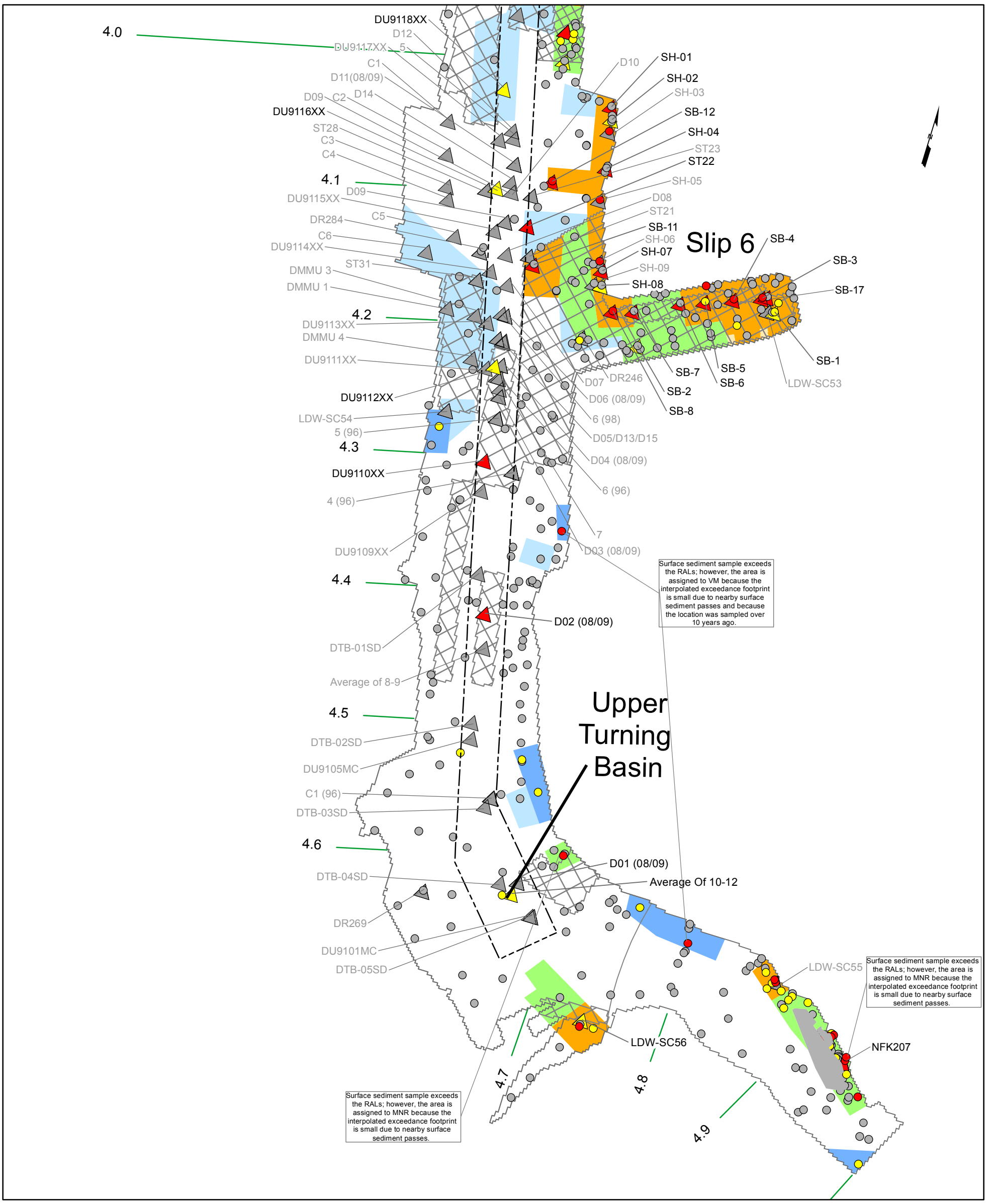
Alternative 3 Removal Technology Assignments and Waterway Conditions

DATE: 10/31/12 | DWRN:MVI/sea | Revision: 0

FIGURE G-9a

L:\Lower Duwamish FS\FS_Final_GIS\Oct2012\FS_GIS_MXDs_Oct12\Appendix G\FigureG-9aAlt3ActiveCon.mxd



Notes:
1. FS baseline dataset used. Total Study Area: 441 acres.
2. Technology assignments are for the FS and may change based on additional data collected during remedial design.
3. See Section 8 for additional details on technology assignments. Exceptions to the technology assignment criteria in Section 8 are explained in text boxes.
4. See Section 6 for development of recovery categories and RALs.
5. Subsurface exceedances in cores are at any depth and represent the highest level of exceedance for any SMS contaminant.

Remedial Alternative	Remedial Action Levels (RALs)				
	Total PCBs	cPAHs	Dioxins/ Furans	Arsenic	Benthic SMS
	µg/kg dw	µg TEQ/kg dw	ng TEQ/kg dw	mg/kg dw	41 Chemicals
Alt 3	1,300[a]	3,800 (site-wide), 900 (intertidal)	35 (site-wide), 28 (intertidal)	93 (site-wide), 28 (intertidal)	CSL
Alt 5 (defines AOPC 1)	240[a]	1,000 (site-wide), 900 (intertidal)	25	57 (site-wide), 28 (intertidal)	SQS
Alt 6 (defines AOPC 1+2)	100	1,000 (site-wide), 900 (intertidal)	15	15	SQS

Note a. Total PCBs concentrations of 1,300 µg/kg dw and 240 µg/kg dw are dry weight approximations of the 65 mg/kg oc (CSL) and 12 mg/kg oc (SQS) values assuming 2% TOC.

Technology Assignment

AOPC 1
- Dredge (50 acres)
- Cap or Partial Dredge and Cap (8 acres)
- Monitored Natural Recovery (99 acres)
- ENR/*in situ* (0 acres)
- Verification Monitoring (23 acres)

AOPC 2 (122 acres)

Early Action Area (29 acres)

Remaining Study Area (Institutional Controls and Site-wide Monitoring) (110 acres)

Feet
0 200 400 800

Legend

Surface Sediment Exceedance Location
- >Alt 3 RALs
- >Alt 5 RALs
- Pass or Non-detect

Subsurface Exceedance Location and ID
- > CSL, detected
- > SQS and ≤ CSL, detected
- Pass or Non-detect

Station ID Labeled in Black
Station ID Labeled in Grey

Recovery Category
- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Navigation Channel
- River Mile Marker

AECOM

Lower Duwamish Waterway Group
Port of Seattle / City of Seattle / King County / The Boeing Company

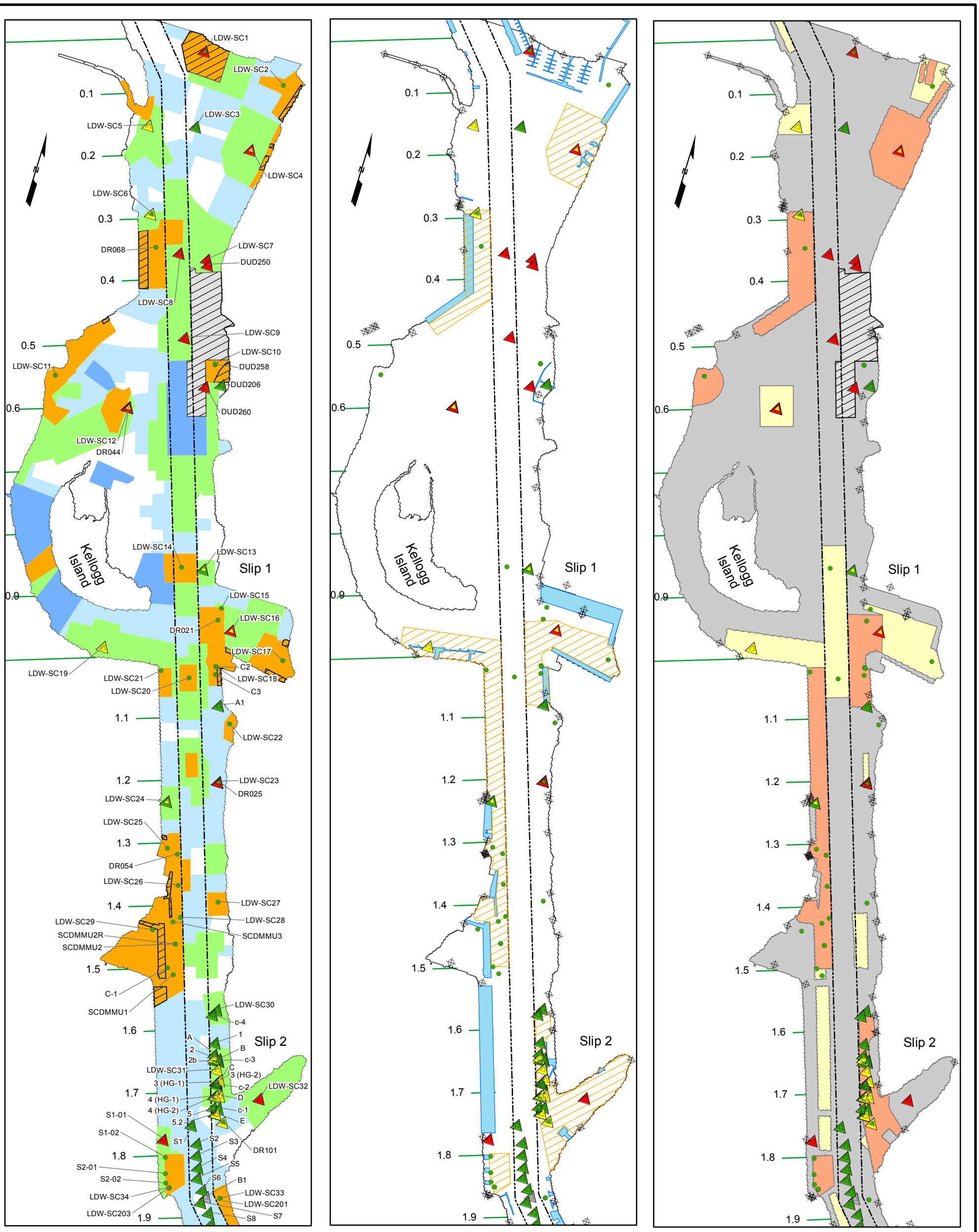
Lower Duwamish Waterway
Final Feasibility Study
60150279-14.46

Alternative 3 Removal Technology Assignments and Waterway Conditions (RM 4.0 to 5.0)

DATE: 10/31/12 | DWRN:MVI/sea | Revision: 0

FIGURE G-9b

L:\Lower Duwamish FS\FS_Final_GIS\Oct2012\FS_GIS_MXDs_Oct12\Appendix G\FigureG-9bAlt3ActiveConB.mxd



Notes:
1. If cores overlap, the core with the highest exceedance status is shown on top.
2. Core intervals are based on *in situ* depths.
3. Any sample interval that overlaps the 0-2 or 2-4 ft interval is included. Samples that overlap both core intervals are mapped in both intervals.
4. For cores in capping areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval displays the 0-2 ft exceedance status.
5. For cores in partial dredge and cap areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval exceedance status is retained.
6. For cores in ENR areas, both the 0-2 ft and the 2-4 ft interval exceedance statuses are retained.
7. Cores in EAAs are not shown.

Legend

Technology Assignment

- Dredge
- Partial Dredge and Cap
- Cap
- Monitored Natural Recovery
- ENR/*in situ*
- Verification Monitoring
- AOPC 2
- Remaining Study Area (Institutional Controls and Site-wide Monitoring)

SMS Exceedance Status Following Remediation

Maximum exceedance 0-2 ft in core / Maximum exceedance 2-4 ft in core

- > CSL
- >SQS and ≤ CSL
- ≤ SQS or Non-detect
- Interval Not Analyzed
- Core Location Dredged During Remediation

Physical Lines of Evidence Used in Assigning Recovery Categories

- STM Predicted 100-Year High-flow Scour > 10 cm
- Evidence of Propeller Wash Scour
- Overwater Structure
- Outfall Location

Recovery Category

- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Early Action Area
- Navigation Channel
- River Mile Marker

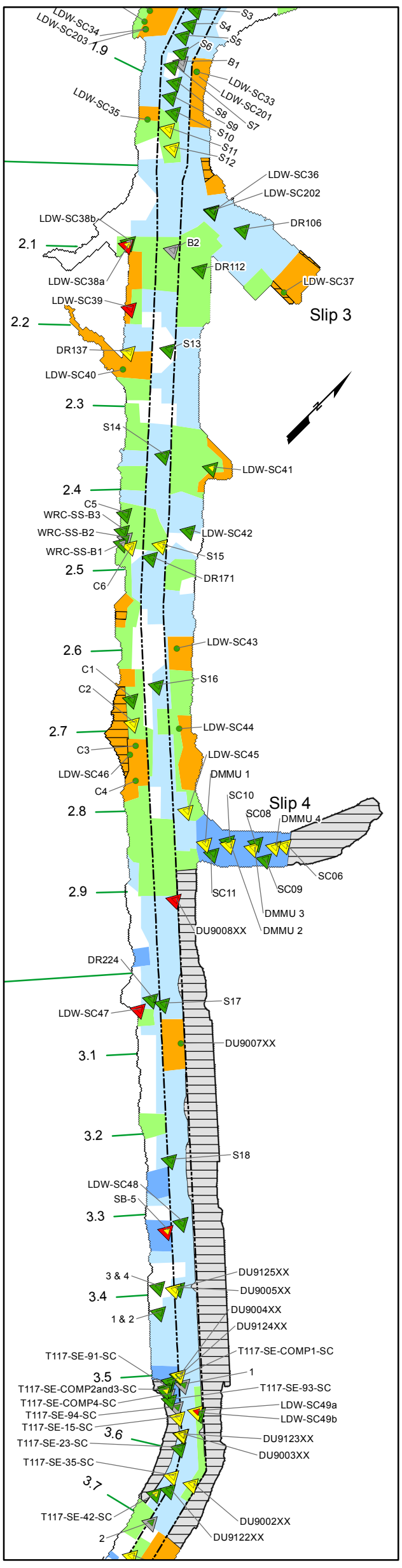
Feet
0 200 400 800

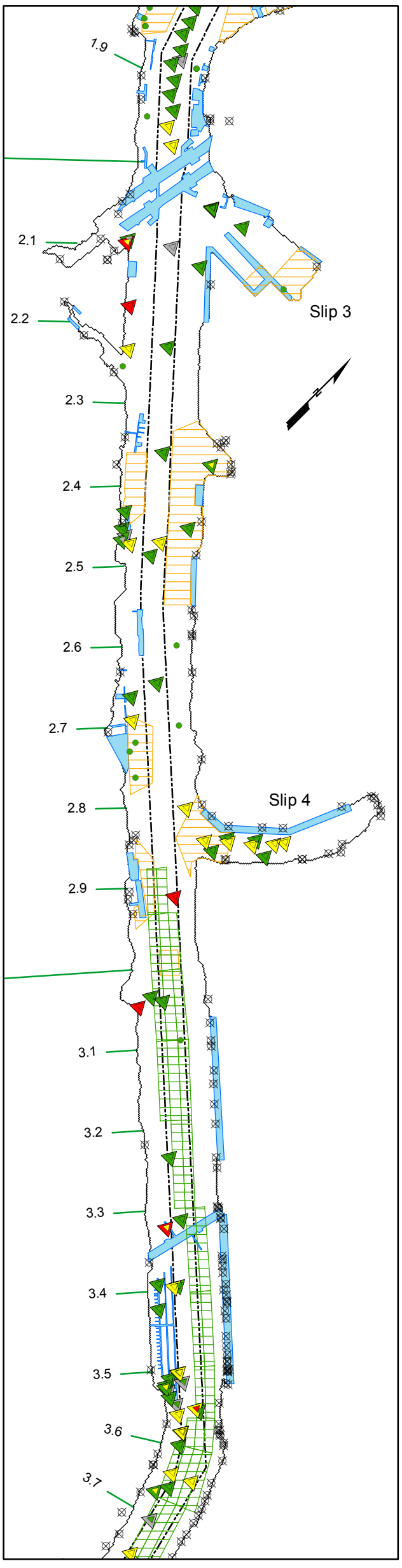
AECOM

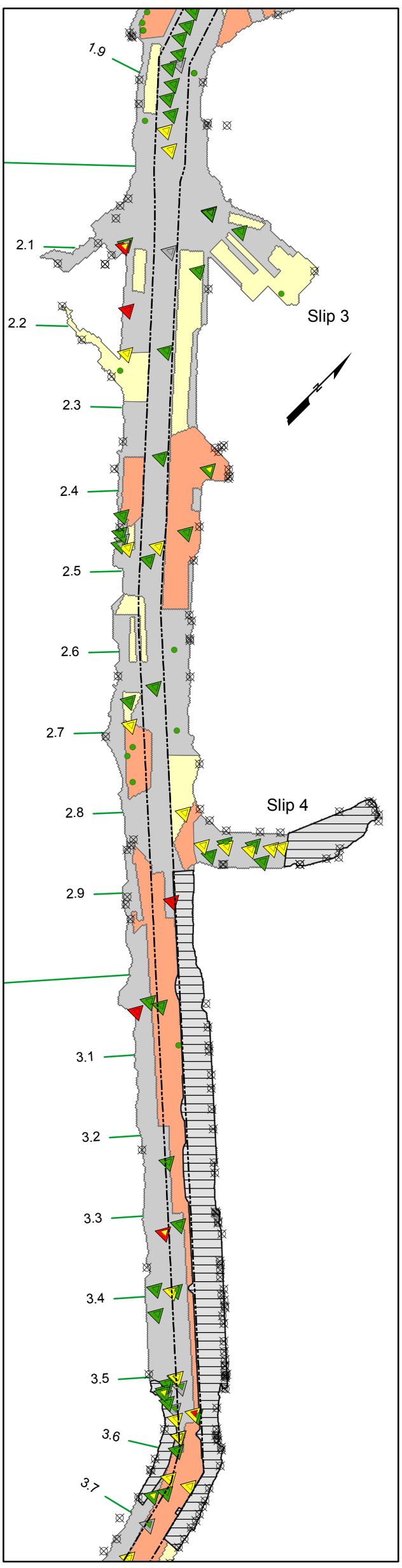
Lower Duwamish Waterway Group
Port of Seattle / City of Seattle / King County / The Boeing Company

Lower Duwamish Waterway Final Feasibility Study 60150279-14.46			**Alternative 3 Removal Remaining Subsurface Contamination - Plan View (RM 0.0 to 1.9)**
DATE: 10/31/12	DWRN:MVI/sea	Revision: 0	**FIGURE G-10a**

L:\Lower Duwamish FS\FS_Final_GIS\Oct2012\FS_GIS_MXDs_Oct12\Appendix G\G-10aCoreRecoveryNorth3R.mxd







Notes:
1. If cores overlap, the core with the highest exceedance status is shown on top.
2. Core intervals are based on *in situ* depths.
3. Any sample interval that overlaps the 0-2 or 2-4 ft interval is included. Samples that overlap both core intervals are mapped in both intervals.
4. For cores in capping areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval displays the 0-2 ft exceedance status.
5. For cores in partial dredge and cap areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval exceedance status is retained.
6. For cores in ENR areas, both the 0-2 ft and the 2-4 ft interval exceedance statuses are retained.
7. Cores in EAAs are not shown.

Feet
0 200 400 800

Legend

Technology Assignment
- Dredge
- Partial Dredge and Cap
- Cap
- Monitored Natural Recovery
- ENR/*in situ*
- Verification Monitoring
- AOPC 2
- Remaining Study Area (Institutional Controls and Site-wide Monitoring)

SMS Exceedance Status Following Remediation
Maximum exceedance 0-2 ft in core / Maximum exceedance 2-4 ft in core
- > CSL
- >SQS and ≤ CSL
- ≤ SQS or Non-detect
- Interval Not Analyzed
- Core Location Dredged During Remediation

Physical Lines of Evidence Used in Assigning Recovery Categories
- STM Predicted 100-Year High-flow Scour > 10 cm
- Evidence of Propeller Wash Scour
- Overwater Structure
- Outfall Location

Recovery Category
- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Early Action Area
- Navigation Channel
- River Mile Marker

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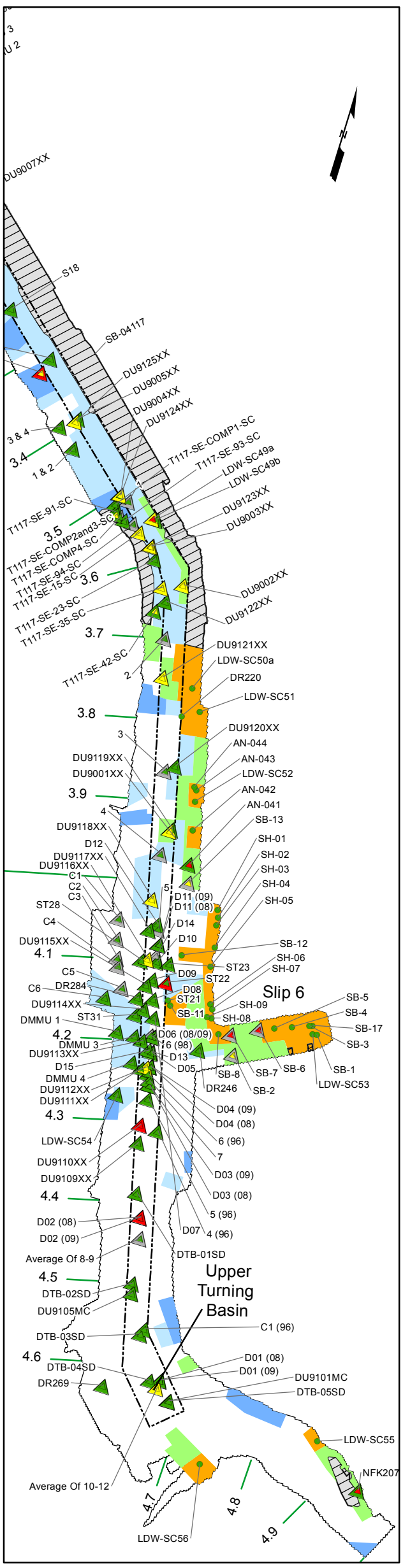
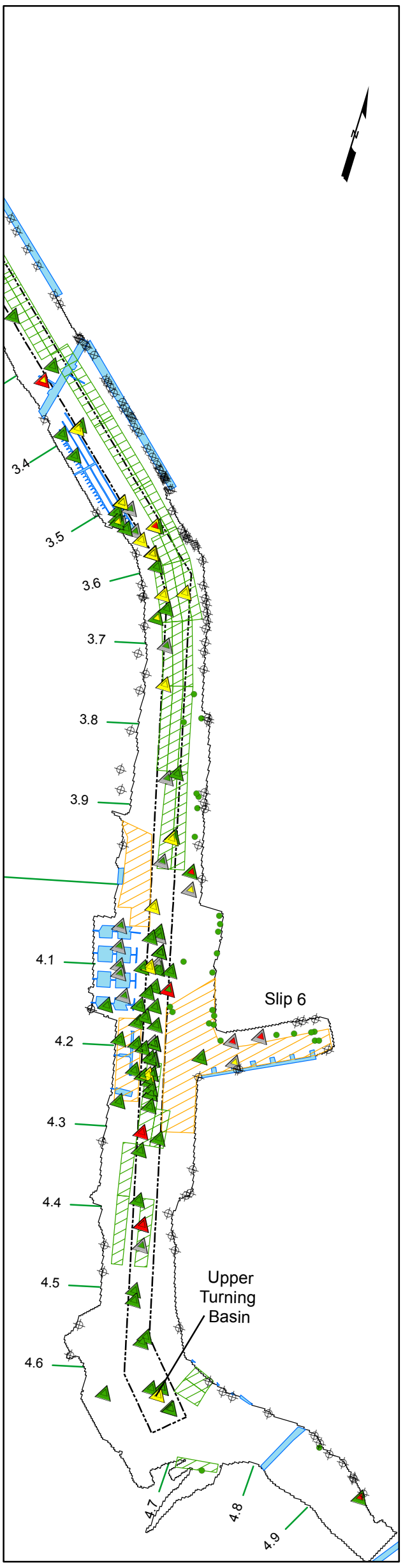
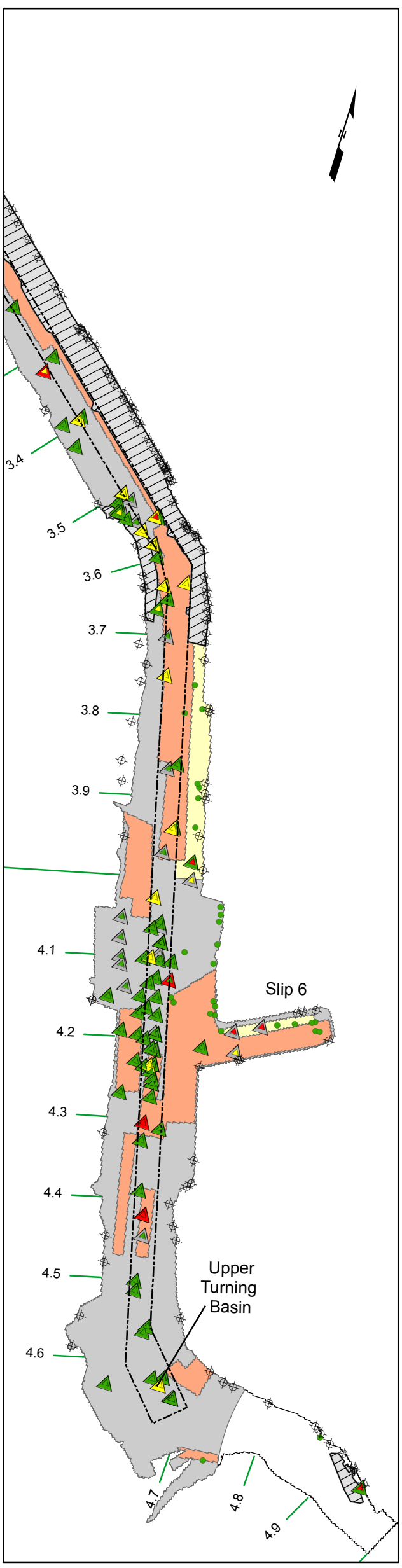
Lower Duwamish Waterway Group
Port of Seattle / City of Seattle / King County / The Boeing Company

Lower Duwamish Waterway Final Feasibility Study 60150279-14.46			**Alternative 3 Removal Remaining Subsurface Contamination - Plan View (RM 1.9 to 3.6)**
DATE: 10/31/12	DWRN:MVI/sea	Revision: 0	**FIGURE G-10b**

L:\Lower Duwamish FS\FS_Final_GIS\Oct2012\FS_GIS_MXDs_Oct12\Appendix G\G-10bCoreRecoveryMid3R.mxd







Notes:
1. If cores overlap, the core with the highest exceedance status is shown on top.
2. Core intervals are based on *in situ* depths.
3. Any sample interval that overlaps the 0-2 or 2-4 ft interval is included. Samples that overlap both core intervals are mapped in both intervals.
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5. For cores in partial dredge and cap areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval exceedance status is retained.
6. For cores in ENR areas, both the 0-2 ft and the 2-4 ft interval exceedance statuses are retained.
7. Cores in EAAs are not shown.

0 200 400 800 Feet

Legend

Technology Assignment
- Dredge
- Partial Dredge and Cap
- Cap
- Monitored Natural Recovery
- ENR/*in situ*
- Verification Monitoring
- AOPC 2
- Remaining Study Area (Institutional Controls and Site-wide Monitoring)

SMS Exceedance Status Following Remediation
Maximum exceedance 0-2 ft in core / Maximum exceedance 2-4 ft in core
- > CSL
- >SQS and ≤ CSL
- ≤ SQS or Non-detect
- Interval Not Analyzed
- Core Location Dredged During Remediation

Physical Lines of Evidence Used in Assigning Recovery Categories
- STM Predicted 100-Year High-flow Scour > 10 cm
- Evidence of Propeller Wash Scour
- Overwater Structure
- Outfall Location

Recovery Category
- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Early Action Area
- Navigation Channel
- River Mile Marker

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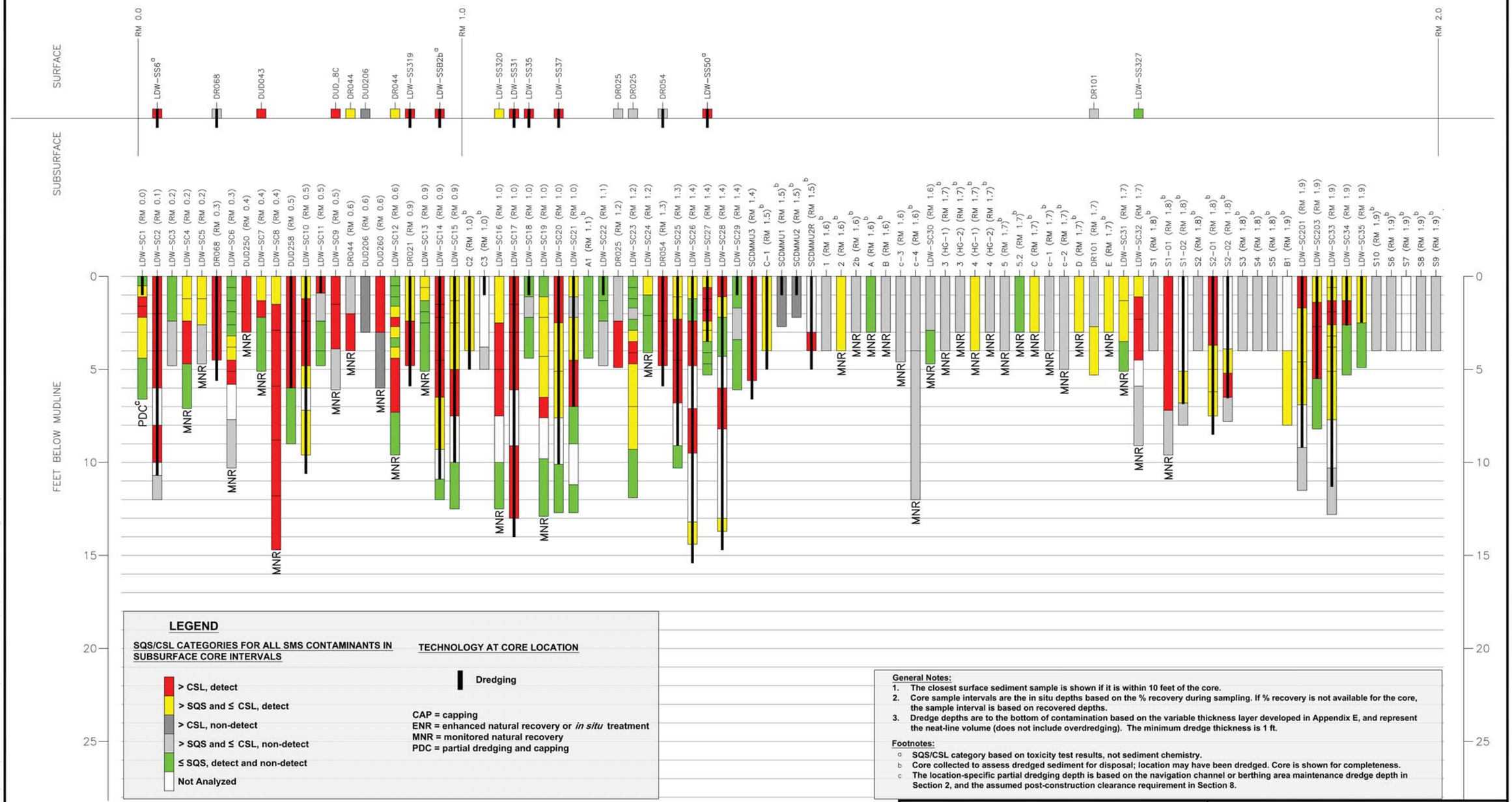
Lower Duwamish Waterway
Final Feasibility Study
60150279-14.46

Alternative 3 Removal Remaining Subsurface Contamination - Plan View (RM 3.6 to 5.0)

DATE: 10/31/12 | DWRN:MVI/sea | Revision: 0 | **FIGURE G-10c**

L:\Lower Duwamish FS\FS_Final_GIS\Oct2012\FS_GIS_MXDs_Oct12\Appendix G\FigureG-10cCoreRecoverySouth3R.mxd



LEGEND

SQS/CSL CATEGORIES FOR ALL SMS CONTAMINANTS IN SUBSURFACE CORE INTERVALS

- > CSL, detect
- > SQS and ≤ CSL, detect
- > CSL, non-detect
- > SQS and ≤ CSL, non-detect
- ≤ SQS, detect and non-detect
- Not Analyzed

TECHNOLOGY AT CORE LOCATION

- Dredging

CAP = capping
ENR = enhanced natural recovery or *in situ* treatment
MNR = monitored natural recovery
PDC = partial dredging and capping

General Notes:

1. The closest surface sediment sample is shown if it is within 10 feet of the core.
2. Core sample intervals are the in situ depths based on the % recovery during sampling. If % recovery is not available for the core, the sample interval is based on recovered depths.
3. Dredge depths are to the bottom of contamination based on the variable thickness layer developed in Appendix E, and represent the neat-line volume (does not include overdredging). The minimum dredge thickness is 1 ft.

Footnotes:

a SQS/CSL category based on toxicity test results, not sediment chemistry.
b Core collected to assess dredged sediment for disposal; location may have been dredged. Core is shown for completeness.
c The location-specific partial dredging depth is based on the navigation channel or berthing area maintenance dredge depth in Section 2, and the assumed post-construction clearance requirement in Section 8.

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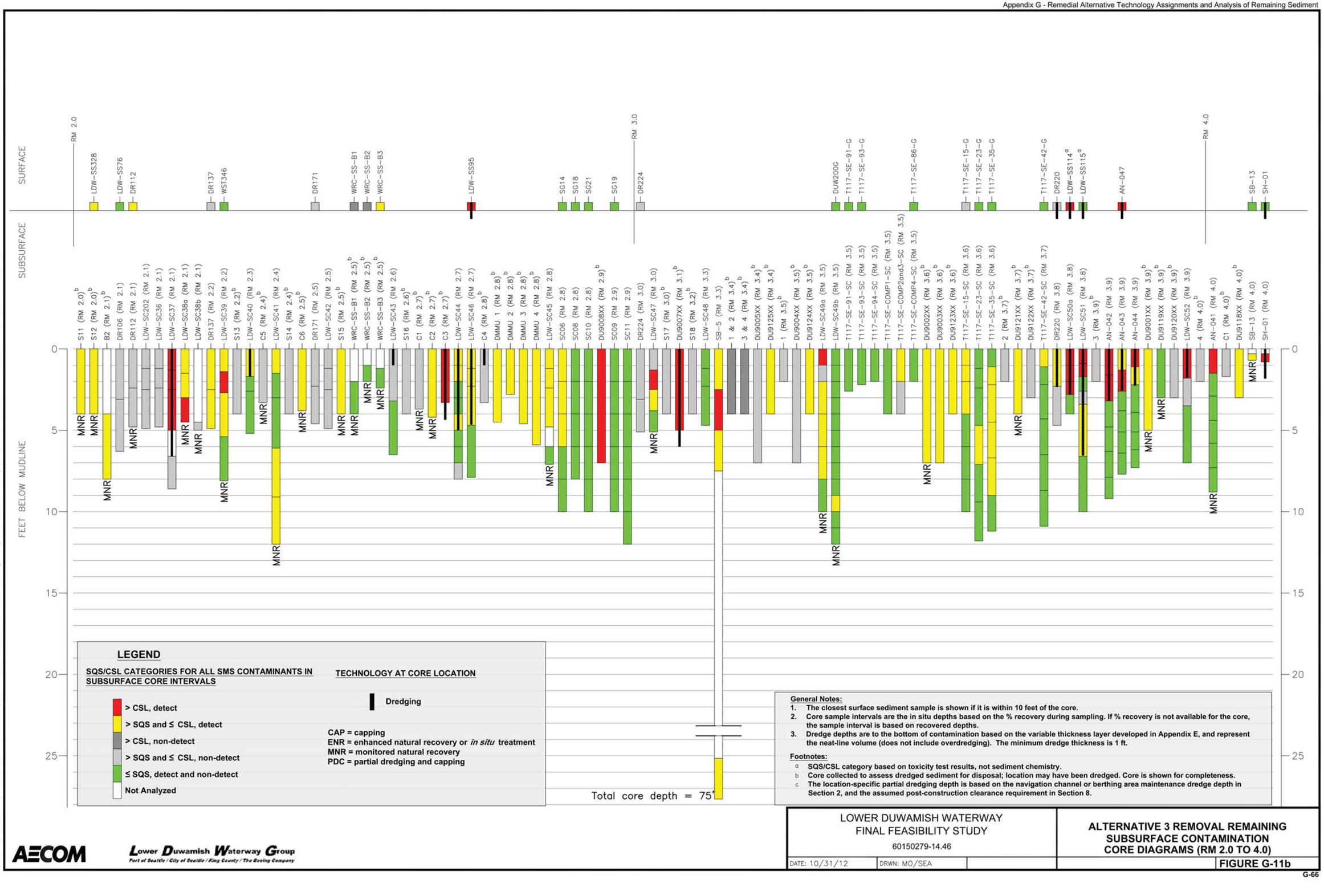
ALTERNATIVE 3 REMOVAL REMAINING SUBSURFACE CONTAMINATION CORE DIAGRAMS (RM 0.0 TO 2.0)

DATE: 10/31/12 | DRWN: MO/SEA | **FIGURE G-11a**



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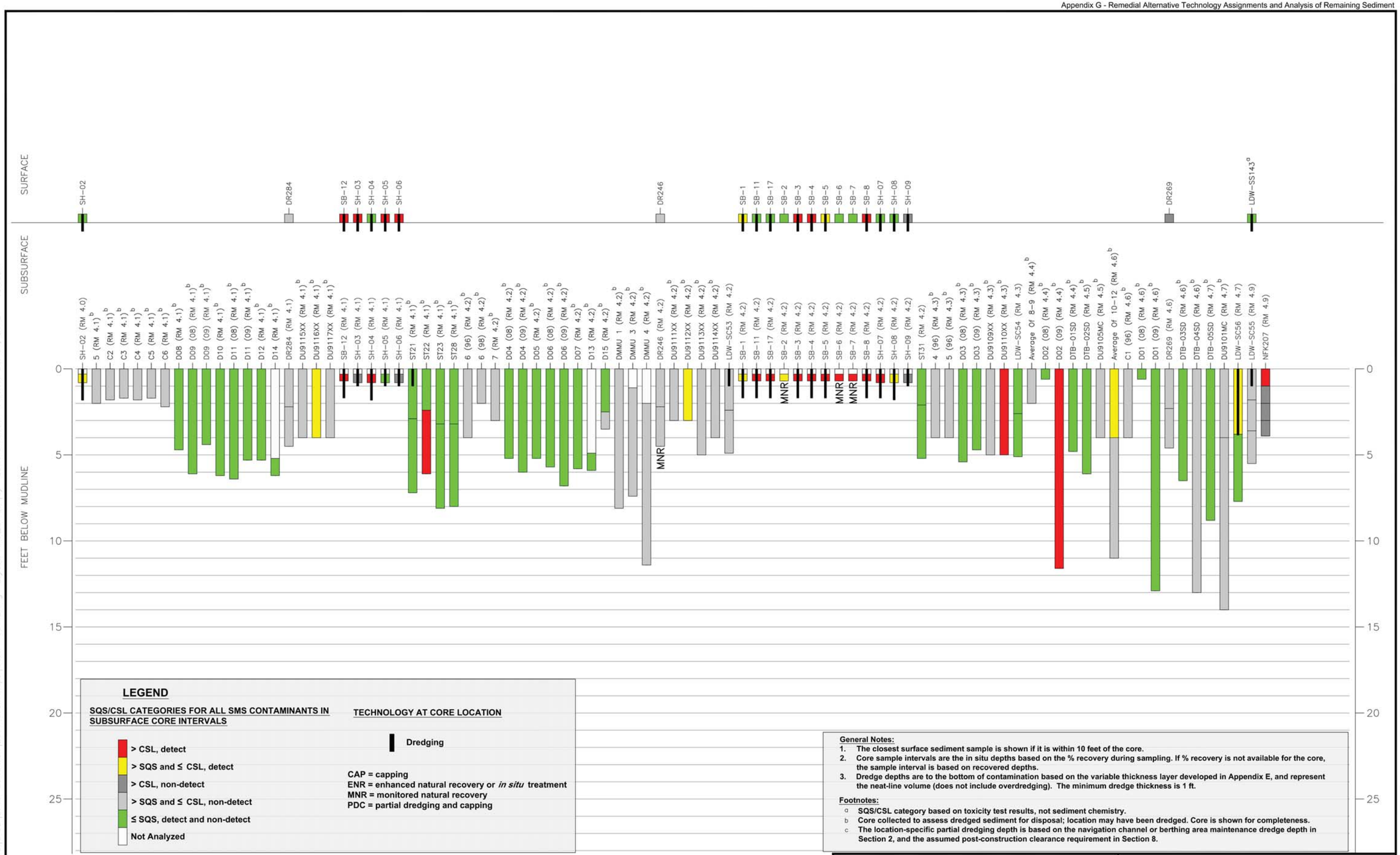
60150279-14.46

DATE: 10/31/12 | DRWN: MO/SEA

ALTERNATIVE 3 REMOVAL REMAINING SUBSURFACE CONTAMINATION CORE DIAGRAMS (RM 2.0 TO 4.0)

FIGURE G-11b



General Notes:

1. The closest surface sediment sample is shown if it is within 10 feet of the core.
2. Core sample intervals are the in situ depths based on the % recovery during sampling. If % recovery is not available for the core, the sample interval is based on recovered depths.
3. Dredge depths are to the bottom of contamination based on the variable thickness layer developed in Appendix E, and represent the neat-line volume (does not include overdredging). The minimum dredge thickness is 1 ft.

Footnotes:

- a SQS/CSL category based on toxicity test results, not sediment chemistry.
- b Core collected to assess dredged sediment for disposal; location may have been dredged. Core is shown for completeness.
- c The location-specific partial dredging depth is based on the navigation channel or berthing area maintenance dredge depth in Section 2, and the assumed post-construction clearance requirement in Section 8.

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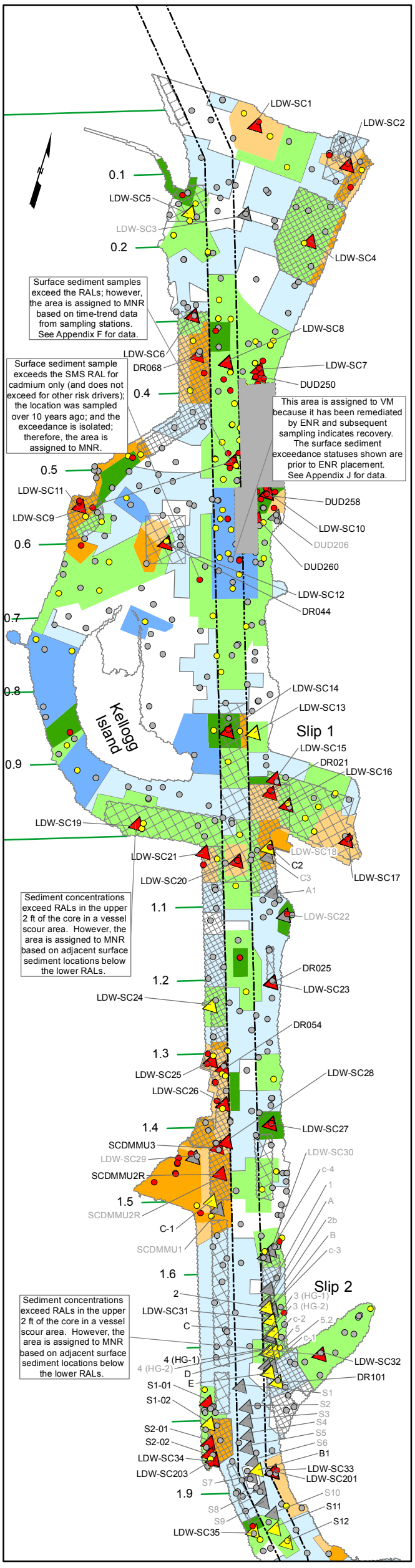
DATE: 10/31/12 | DRWN: MO/SEA

ALTERNATIVE 3 REMOVAL REMAINING SUBSURFACE CONTAMINATION CORE DIAGRAMS (RM 4.0 TO 5.0)

FIGURE G-11c



Notes:
1. FS baseline dataset used. Total Study Area: 441 acres.
2. Technology assignments are for the FS and may change based on additional data collected during remedial design.
3. See Section 8 for additional details on technology assignments. Exceptions to the technology assignment criteria in Section 8 are explained in text boxes.
4. See Section 6 for development of recovery categories and RALs.
5. Subsurface exceedances in cores are at any depth and represent the highest level of exceedance for any SMS contaminant.

Remedial Alternative	Remedial Action Levels (RALs)				
	Total PCBs	cPAHs	Dioxins/ Furans	Arsenic	Benthic SMS
	µg/kg dw	µg TEQ/kg dw	ng TEQ/kg dw	mg/kg dw	41 Chemicals
Alt 3	1,300[a]	3,800 (site-wide), 900 (intertidal)	35 (site-wide), 28 (intertidal)	93 (site-wide), 28 (intertidal)	CSL
Alt 5 (defines AOPC 1)	240[a]	1,000 (site-wide), 900 (intertidal)	25	57 (site-wide), 28 (intertidal)	SQS
Alt 6 (defines AOPC 1+2)	100	1,000 (site-wide), 900 (intertidal)	15	15	SQS

Note a. Total PCBs concentrations of 1,300 µg/kg dw and 240 µg/kg dw are dry weight approximations of the 65 mg/kg oc (CSL) and 12 mg/kg oc (SQS) values assuming 2% TOC.

Technology Assignment

AOPC 1
- Dredge (29 acres)
- Cap or Partial Dredge and Cap (19 acres)
- Monitored Natural Recovery (99 acres)
- ENR/*in situ* (10 acres)
- Verification Monitoring (23 acres)

AOPC 2 (122 acres)

Early Action Area (29 acres)

Remaining Study Area (Institutional Controls and Site-wide Monitoring) (110 acres)

0 200 400 800 Feet

Legend

Surface Sediment Exceedance Location
- >Alt 3 RALs
- >Alt 5 RALs
- Pass or Non-detect

Subsurface Exceedance Location and ID
- > CSL, detected
- > SQS and ≤ CSL, detected
- Pass or Non-detect

Station ID Labeled in Black

Station ID Labeled in Grey

Recovery Category
- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Navigation Channel
- River Mile Marker

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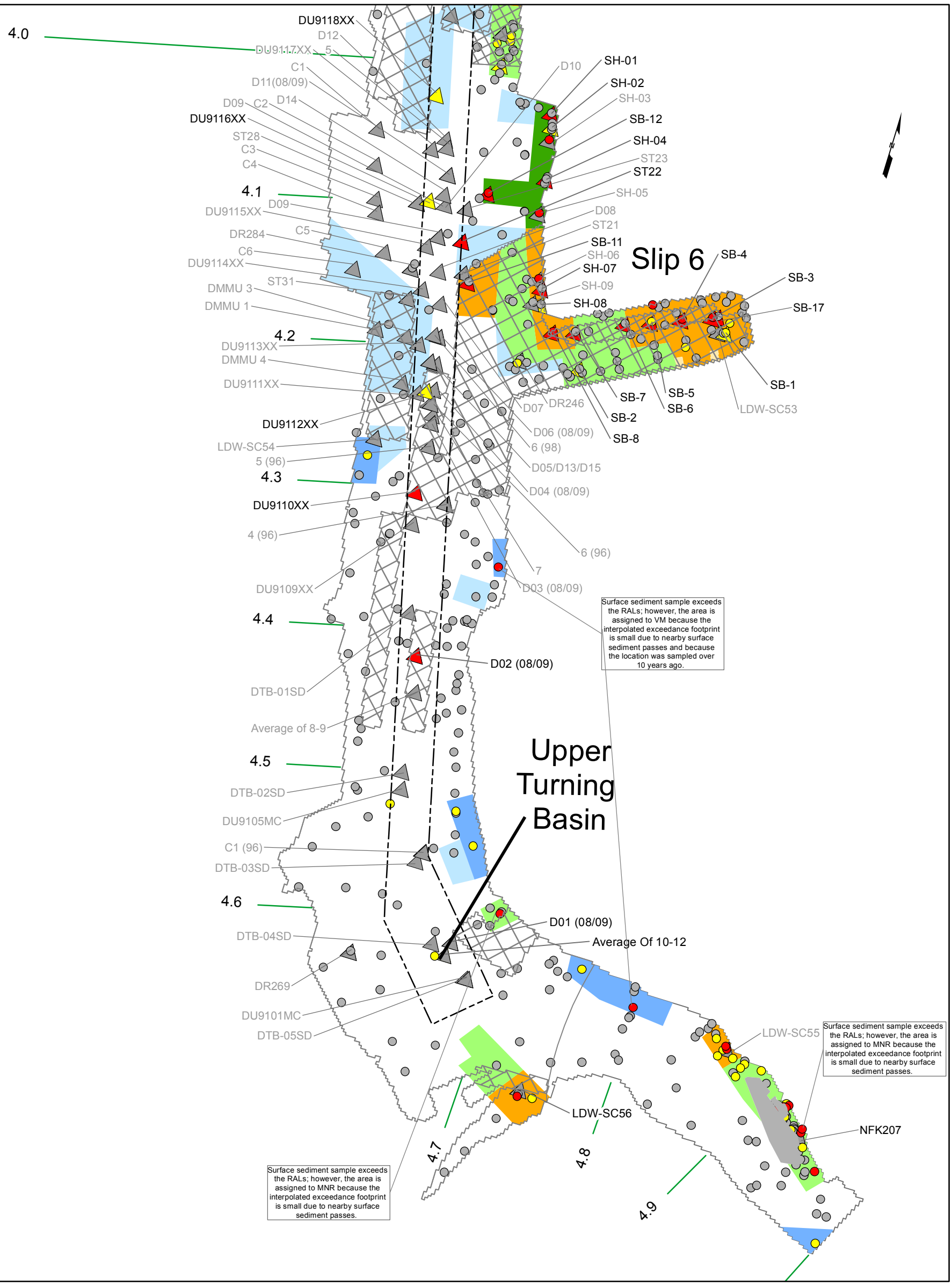
60150279-14.46

Alternative 3 Combined Technology Assignments and Waterway Conditions

DATE: 10/31/12 | DWRN:MVI/sea | Revision: 0

FIGURE G-12a

L:\Lower Duwamish FS\FS_Final_GIS\Oct2012\FS_GIS_MXDs_Oct12\Appendix G\FigureG-12aAlt3ActiveCon.mxd



Notes:
1. FS baseline dataset used. Total Study Area: 441 acres.
2. Technology assignments are for the FS and may change based on additional data collected during remedial design.
3. See Section 8 for additional details on technology assignments. Exceptions to the technology assignment criteria in Section 8 are explained in text boxes.
4. See Section 6 for development of recovery categories and RALs.
5. Subsurface exceedances in cores are at any depth and represent the highest level of exceedance for any SMS contaminant.

Remedial Alternative	Remedial Action Levels (RALs)				
	Total PCBs	cPAHs	Dioxins/ Furans	Arsenic	Benthic SMS
	µg/kg dw	µg TEQ/kg dw	ng TEQ/kg dw	mg/kg dw	41 Chemicals
Alt 3	1,300[a]	3,800 (site-wide), 900 (intertidal)	35 (site-wide), 28 (intertidal)	93 (site-wide), 28 (intertidal)	CSL
Alt 5 (defines AOPC 1)	240[a]	1,000 (site-wide), 900 (intertidal)	25	57 (site-wide), 28 (intertidal)	SQS
Alt 6 (defines AOPC 1+2)	100	1,000 (site-wide), 900 (intertidal)	15	15	SQS

Note a. Total PCBs concentrations of 1,300 µg/kg dw and 240 µg/kg dw are dry weight approximations of the 65 mg/kg oc (CSL) and 12 mg/kg oc (SQS) values assuming 2% TOC.

Technology Assignment

AOPC 1
- Dredge (29 acres)
- Cap or Partial Dredge and Cap (19 acres)
- Monitored Natural Recovery (99 acres)
- ENR/*in situ* (10 acres)
- Verification Monitoring (23 acres)

AOPC 2 (122 acres)

Early Action Area (29 acres)

Remaining Study Area (Institutional Controls and Site-wide Monitoring) (110 acres)

Feet
0 200 400 800

Legend

Surface Sediment Exceedance Location
- >Alt 3 RALs
- >Alt 5 RALs
- Pass or Non-detect

Subsurface Exceedance Location and ID
- > CSL, detected
- > SQS and ≤ CSL, detected
- Pass or Non-detect

Station ID Labeled in Black
Station ID Labeled in Grey

Recovery Category
- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Navigation Channel
- River Mile Marker

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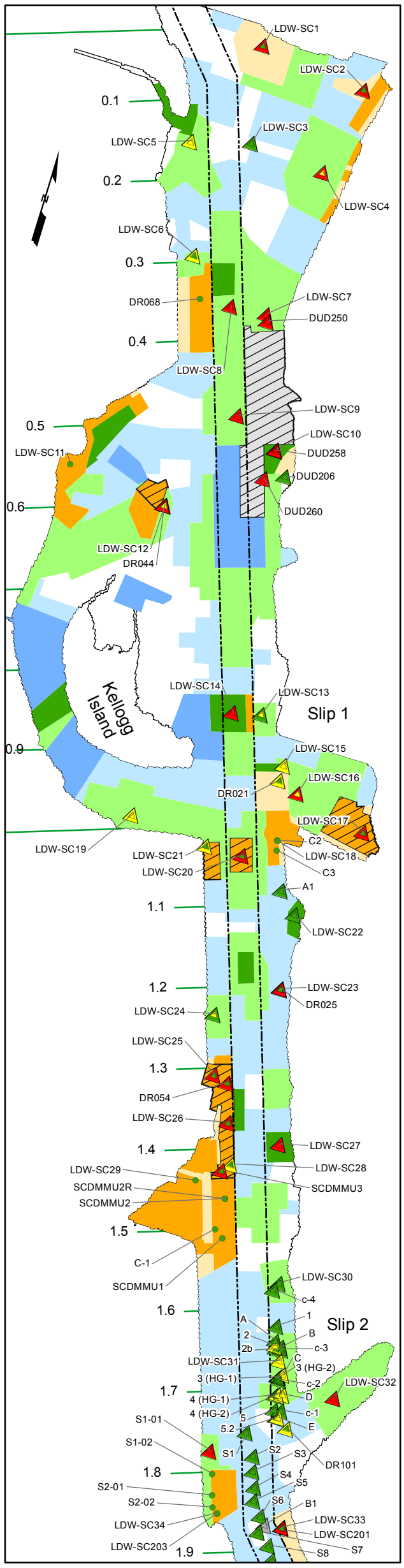
Alternative 3 Combined Technology Assignments and Waterway Conditions (RM 4.0 to 5.0)

DATE: 10/31/12 | DWRN:MVI/sea | Revision: 0

FIGURE G-12b

L:\Lower Duwamish FS\FS_Final_GIS\Oct2012\FS_GIS_MXDs_Oct12\Appendix G\FigureG-12bAlt3CombinedConB.mxd



Notes:
1. If cores overlap, the core with the highest exceedance status is shown on top.
2. Core intervals are based on *in situ* depths.
3. Any sample interval that overlaps the 0-2 or 2-4 ft interval is included. Samples that overlap both core intervals are mapped in both intervals.
4. For cores in capping areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval displays the 0-2 ft exceedance status.
5. For cores in partial dredge and cap areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval exceedance status is retained.
6. For cores in ENR areas, both the 0-2 ft and the 2-4 ft interval exceedance statuses are retained.
7. Cores in EAAs are not shown.

Legend

Technology Assignment

- Dredge
- Partial Dredge and Cap
- Cap
- Monitored Natural Recovery
- ENR/*in situ*
- Verification Monitoring
- AOPC 2
- Remaining Study Area (Institutional Controls and Site-wide Monitoring)

SMS Exceedance Status Following Remediation

Maximum exceedance 0-2 ft in core / Maximum exceedance 2-4 ft in core

- > CSL
- >SQS and ≤ CSL
- ≤ SQS or Non-detect
- Interval Not Analyzed
- Core Location Dredged During Remediation

Physical Lines of Evidence Used in Assigning Recovery Categories

- STM Predicted 100-Year High-flow Scour > 10 cm
- Evidence of Propeller Wash Scour
- Overwater Structure
- Outfall Location

Recovery Category

- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Early Action Area
- Navigation Channel
- River Mile Marker

0 200 400 800 Feet

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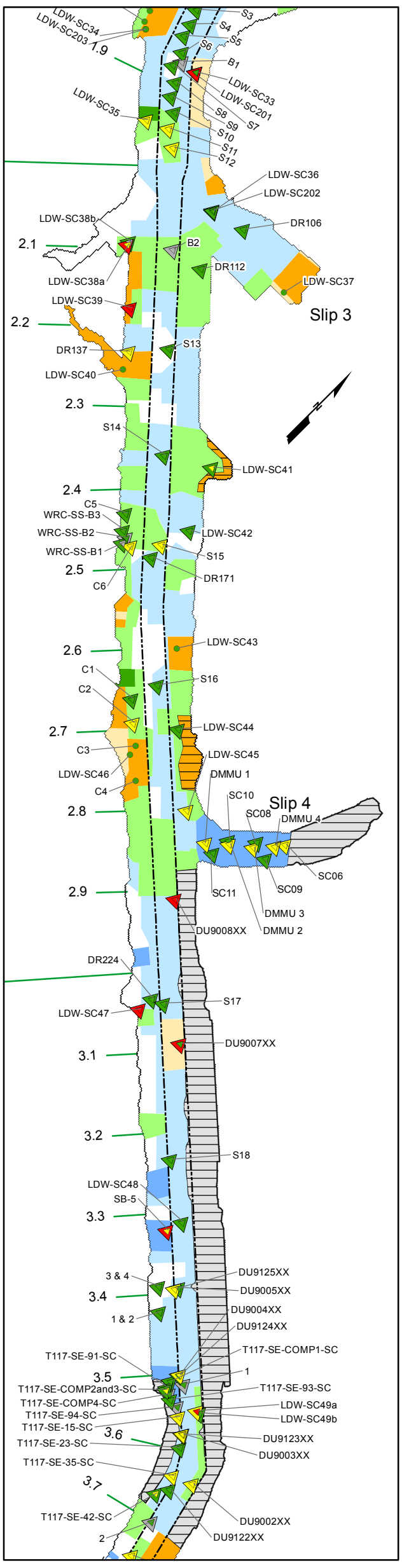
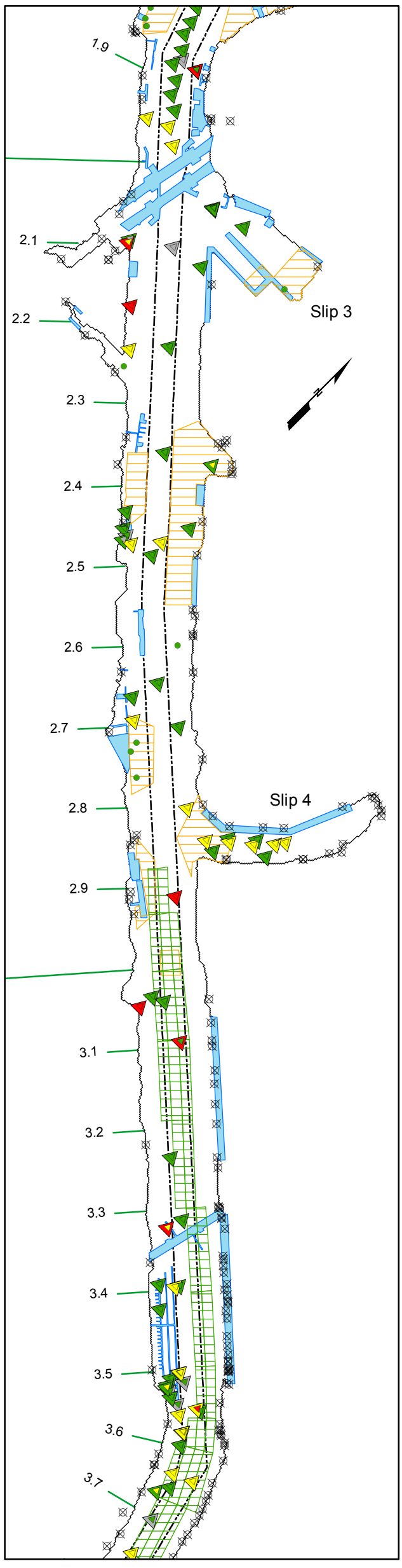
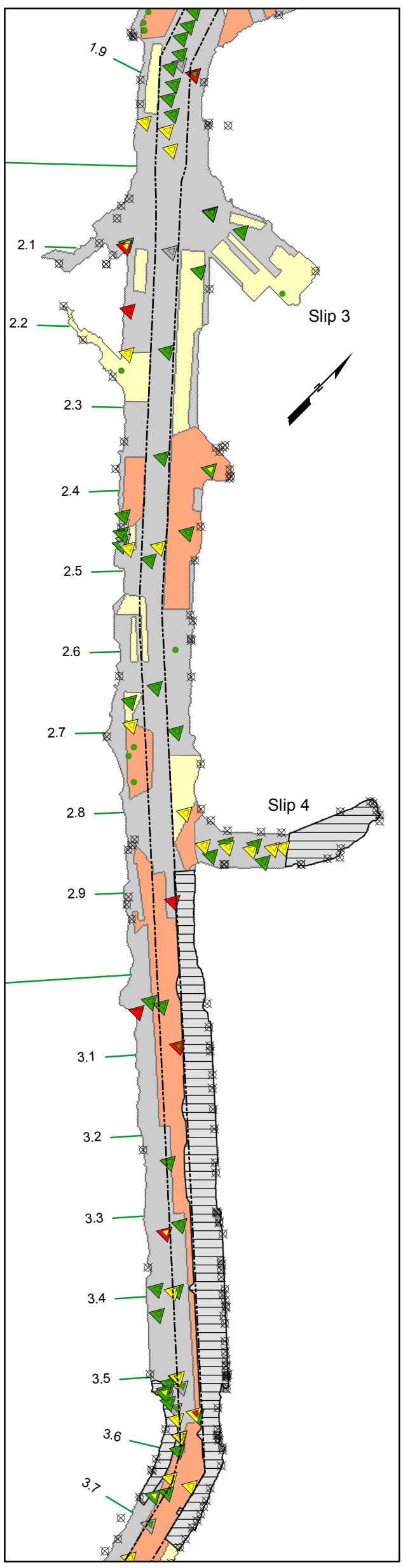
Lower Duwamish Waterway Final Feasibility Study 60150279-14.46			**Alternative 3 Combined Remaining Subsurface Contamination - Plan View (RM 0.0 to 1.9)**
DATE: 10/31/12	DWRN:MVI/sea	Revision: 0	**FIGURE G-13a**

L:\Lower Duwamish FS\FS_Final_GISOct2012\FS_GIS_MXDs_Oct12\Appendix G\G-13aCoreRecoveryNorth3C.mxd







Notes:
1. If cores overlap, the core with the highest exceedance status is shown on top.
2. Core intervals are based on *in situ* depths.
3. Any sample interval that overlaps the 0-2 or 2-4 ft interval is included. Samples that overlap both core intervals are mapped in both intervals.
4. For cores in capping areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval displays the 0-2 ft exceedance status.
5. For cores in partial dredge and cap areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval exceedance status is retained.
6. For cores in ENR areas, both the 0-2 ft and the 2-4 ft interval exceedance statuses are retained.
7. Cores in EAAs are not shown.

Feet
0 200 400 800

Legend

Technology Assignment
- Dredge
- Partial Dredge and Cap
- Cap
- Monitored Natural Recovery
- ENR/*in situ*
- Verification Monitoring
- AOPC 2
- Remaining Study Area (Institutional Controls and Site-wide Monitoring)

SMS Exceedance Status Following Remediation
Maximum exceedance 0-2 ft in core / Maximum exceedance 2-4 ft in core
- > CSL
- >SQS and ≤ CSL
- ≤ SQS or Non-detect
- Interval Not Analyzed
- Core Location Dredged During Remediation

Physical Lines of Evidence Used in Assigning Recovery Categories
- STM Predicted 100-Year High-flow Scour > 10 cm
- Evidence of Propeller Wash Scour
- Overwater Structure
- Outfall Location

Recovery Category
- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Early Action Area
- Navigation Channel
- River Mile Marker

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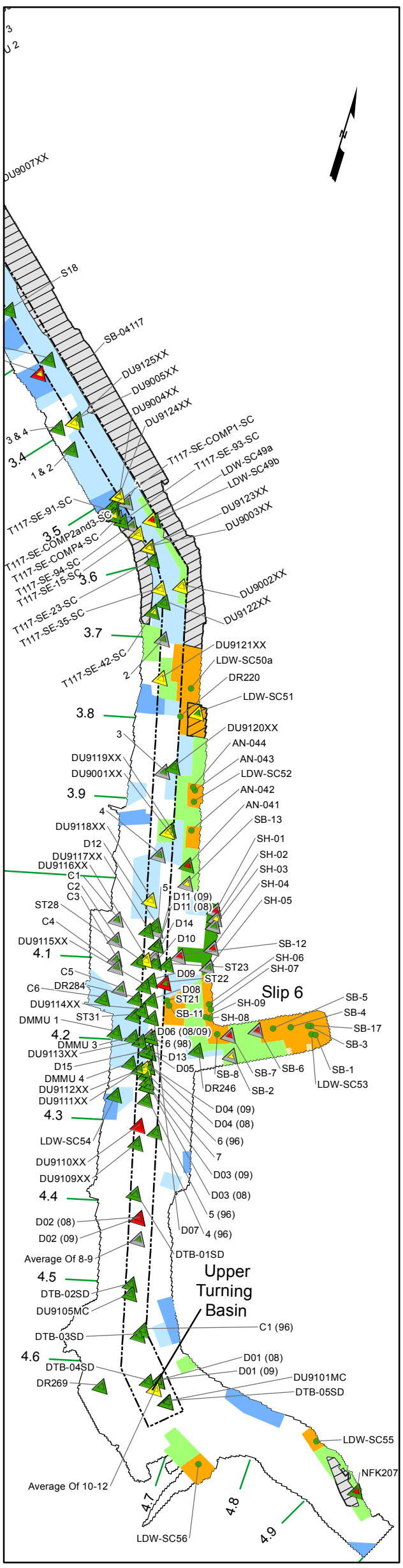
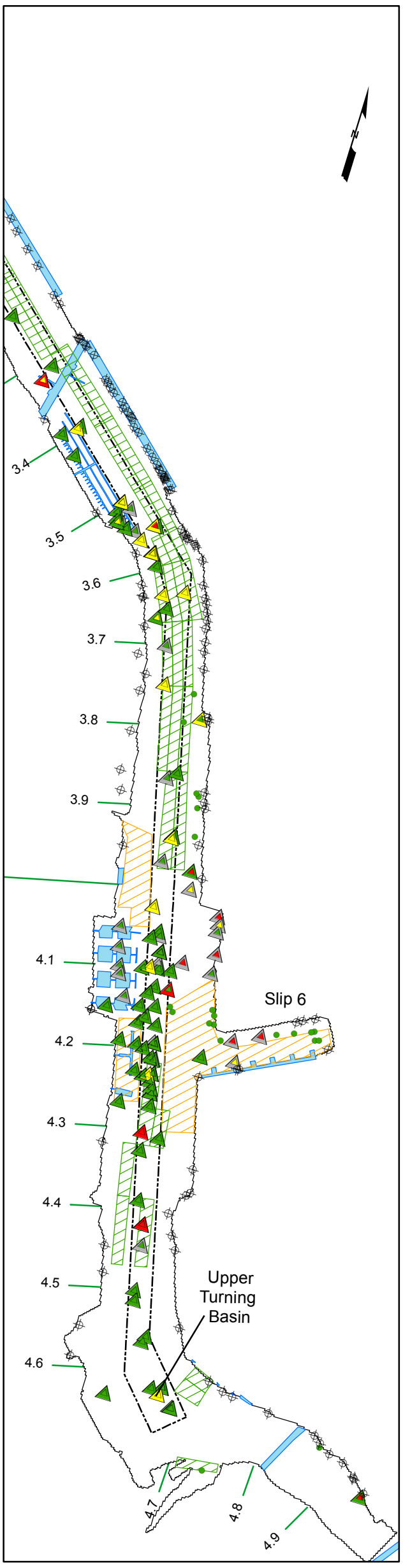
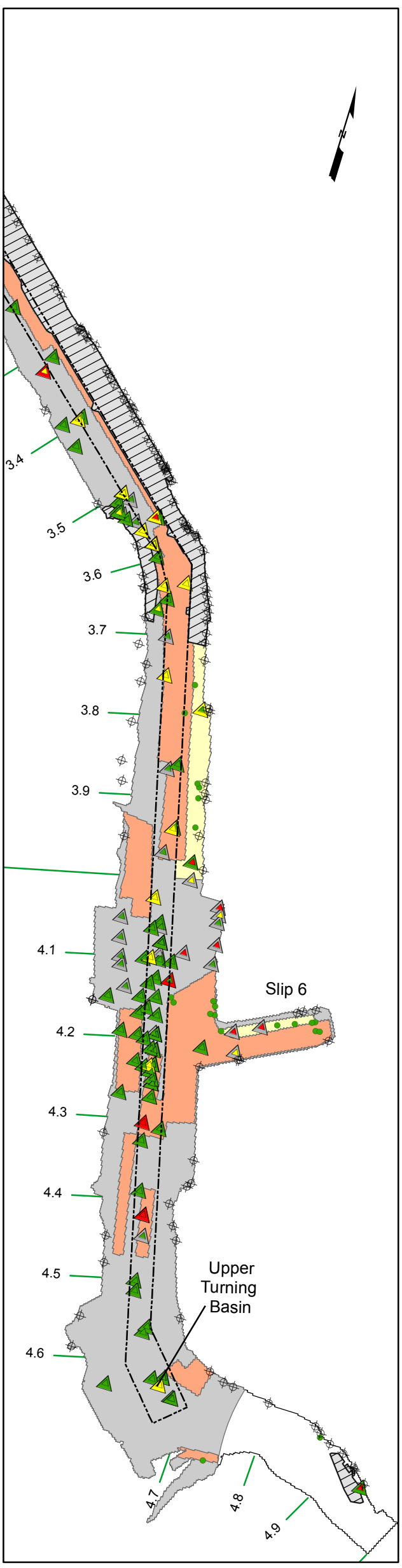
Alternative 3 Combined Remaining Subsurface Contamination - Plan View (RM 1.9 to 3.6)

DATE: 10/31/12 | DWRN:MVI/sea | Revision: 0 | **FIGURE G-13b**

L:\Lower Duwamish FS\FS_Final_GIS\Oct2012\FS_GIS_MXDs_Oct12\Appendix G\G-13bCoreRecoveryMid3C.mxd







Notes:
1. If cores overlap, the core with the highest exceedance status is shown on top.
2. Core intervals are based on *in situ* depths.
3. Any sample interval that overlaps the 0-2 or 2-4 ft interval is included. Samples that overlap both core intervals are mapped in both intervals.
4. For cores in capping areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval displays the 0-2 ft exceedance status.
5. For cores in partial dredge and cap areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval exceedance status is retained.
6. For cores in ENR areas, both the 0-2 ft and the 2-4 ft interval exceedance statuses are retained.
7. Cores in EAAs are not shown.

0 200 400 800 Feet

Legend

Technology Assignment
- Dredge
- Partial Dredge and Cap
- Cap
- Monitored Natural Recovery
- ENR/*in situ*
- Verification Monitoring
- AOPC 2
- Remaining Study Area (Institutional Controls and Site-wide Monitoring)

SMS Exceedance Status Following Remediation
Maximum exceedance 0-2 ft in core / Maximum exceedance 2-4 ft in core
- > CSL
- >SQS and ≤ CSL
- ≤ SQS or Non-detect
- Interval Not Analyzed
- Core Location Dredged During Remediation

Physical Lines of Evidence Used in Assigning Recovery Categories
- STM Predicted 100-Year High-flow Scour > 10 cm
- Evidence of Propeller Wash Scour
- Overwater Structure
- Outfall Location

Recovery Category
- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Early Action Area
- Navigation Channel
- River Mile Marker

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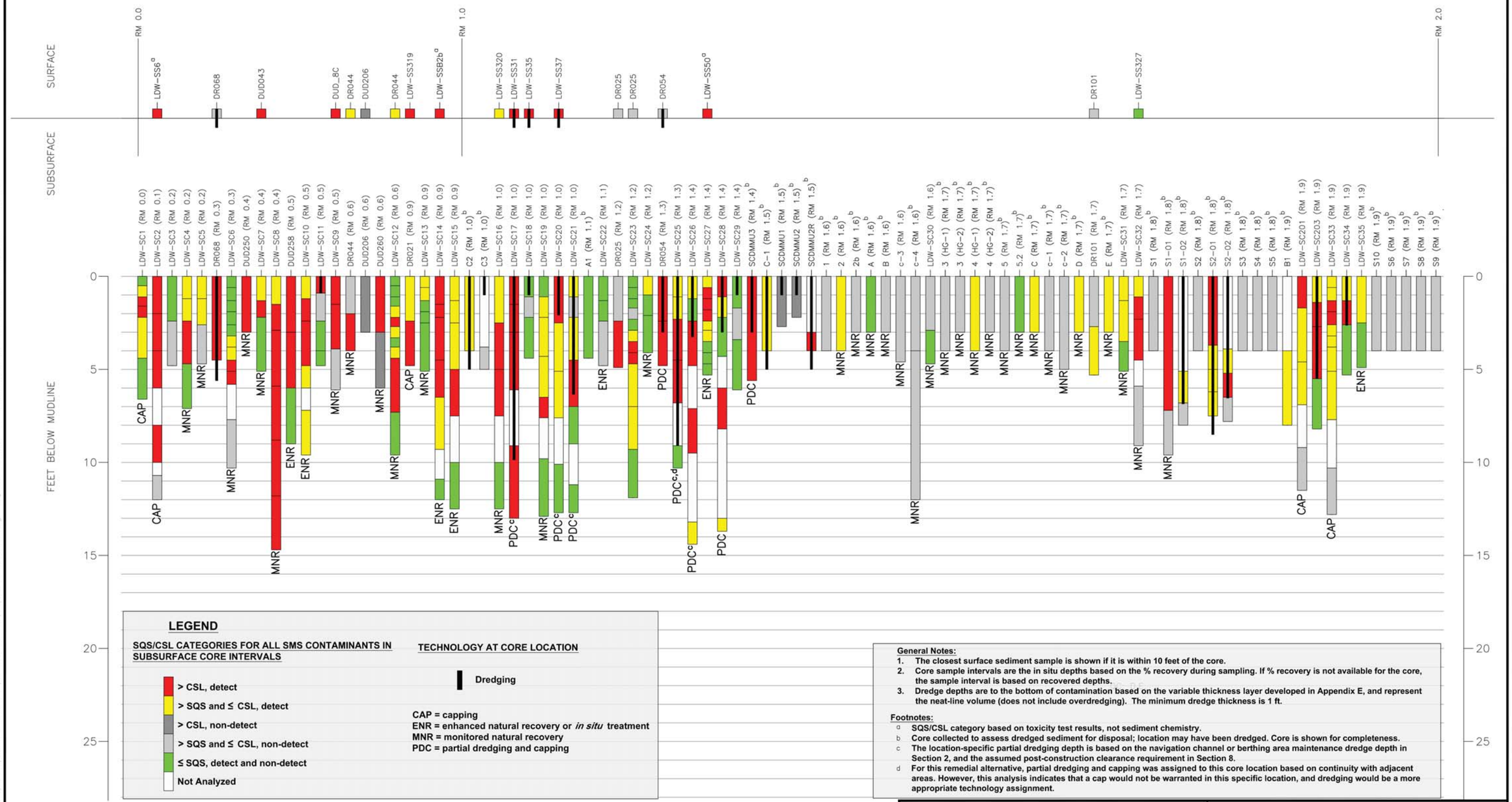
Alternative 3 Combined Remaining Subsurface Contamination - Plan View (RM 3.6 to 5.0)

DATE: 10/31/12 | DWRN:MVI/sea | Revision: 0

FIGURE G-13c

L:\Lower Duwamish FS\FS_Final_GIS\Oct2012\FS_GIS_MXDs_Oct12\Appendix G\FigureG-13cCoreRecoverySouth3C.mxd



LEGEND

SQS/CSL CATEGORIES FOR ALL SMS CONTAMINANTS IN SUBSURFACE CORE INTERVALS

- > CSL, detect
- > SQS and ≤ CSL, detect
- > CSL, non-detect
- > SQS and ≤ CSL, non-detect
- ≤ SQS, detect and non-detect
- Not Analyzed

TECHNOLOGY AT CORE LOCATION

- Dredging

CAP = capping
ENR = enhanced natural recovery or *in situ* treatment
MNR = monitored natural recovery
PDC = partial dredging and capping

General Notes:

1. The closest surface sediment sample is shown if it is within 10 feet of the core.
2. Core sample intervals are the in situ depths based on the % recovery during sampling. If % recovery is not available for the core, the sample interval is based on recovered depths.
3. Dredge depths are to the bottom of contamination based on the variable thickness layer developed in Appendix E, and represent the neat-line volume (does not include overdredging). The minimum dredge thickness is 1 ft.

Footnotes:

a SQS/CSL category based on toxicity test results, not sediment chemistry.
b Core collected to assess dredged sediment for disposal; location may have been dredged. Core is shown for completeness.
c The location-specific partial dredging depth is based on the navigation channel or berthing area maintenance dredge depth in Section 2, and the assumed post-construction clearance requirement in Section 8.
d For this remedial alternative, partial dredging and capping was assigned to this core location based on continuity with adjacent areas. However, this analysis indicates that a cap would not be warranted in this specific location, and dredging would be a more appropriate technology assignment.

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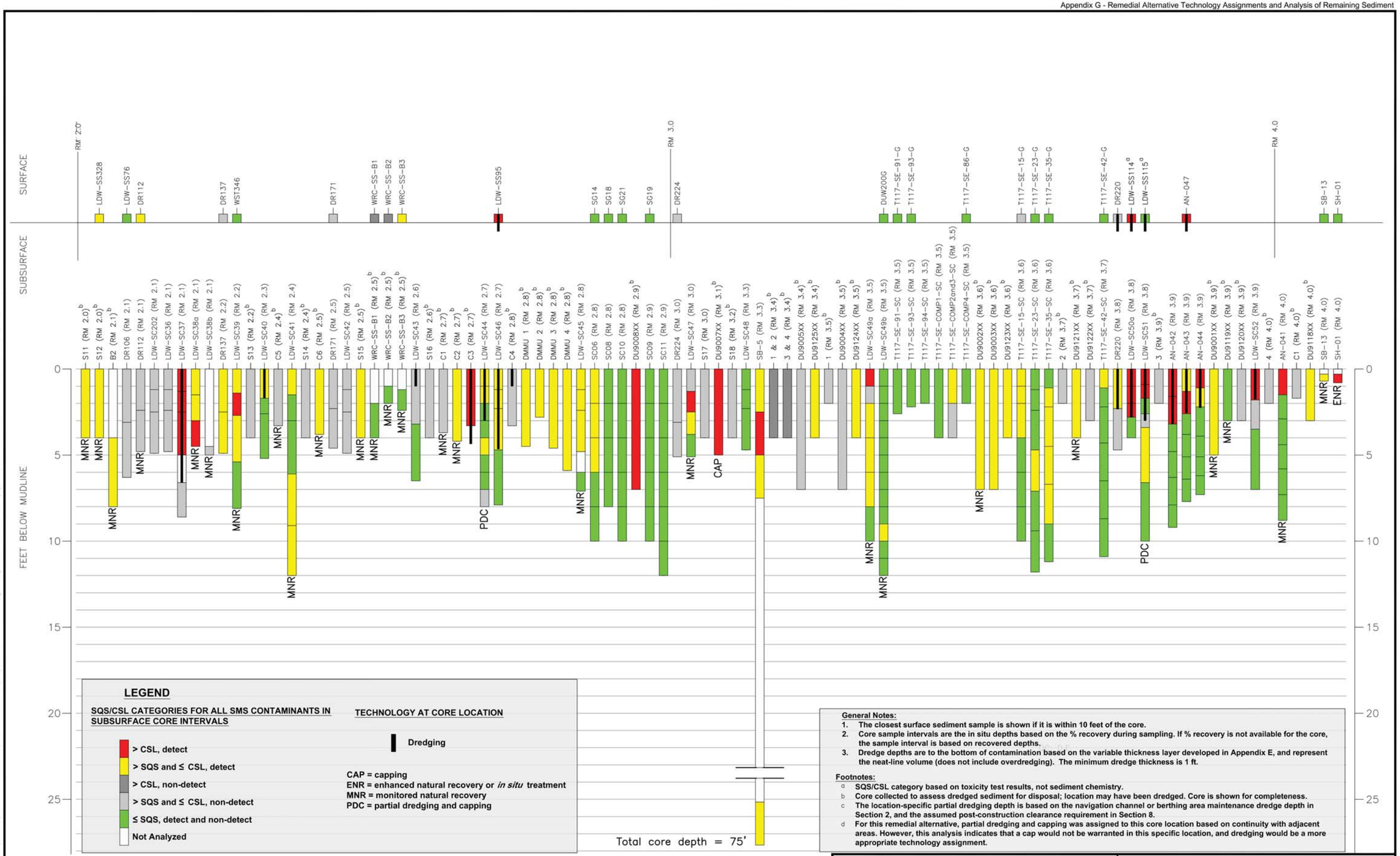
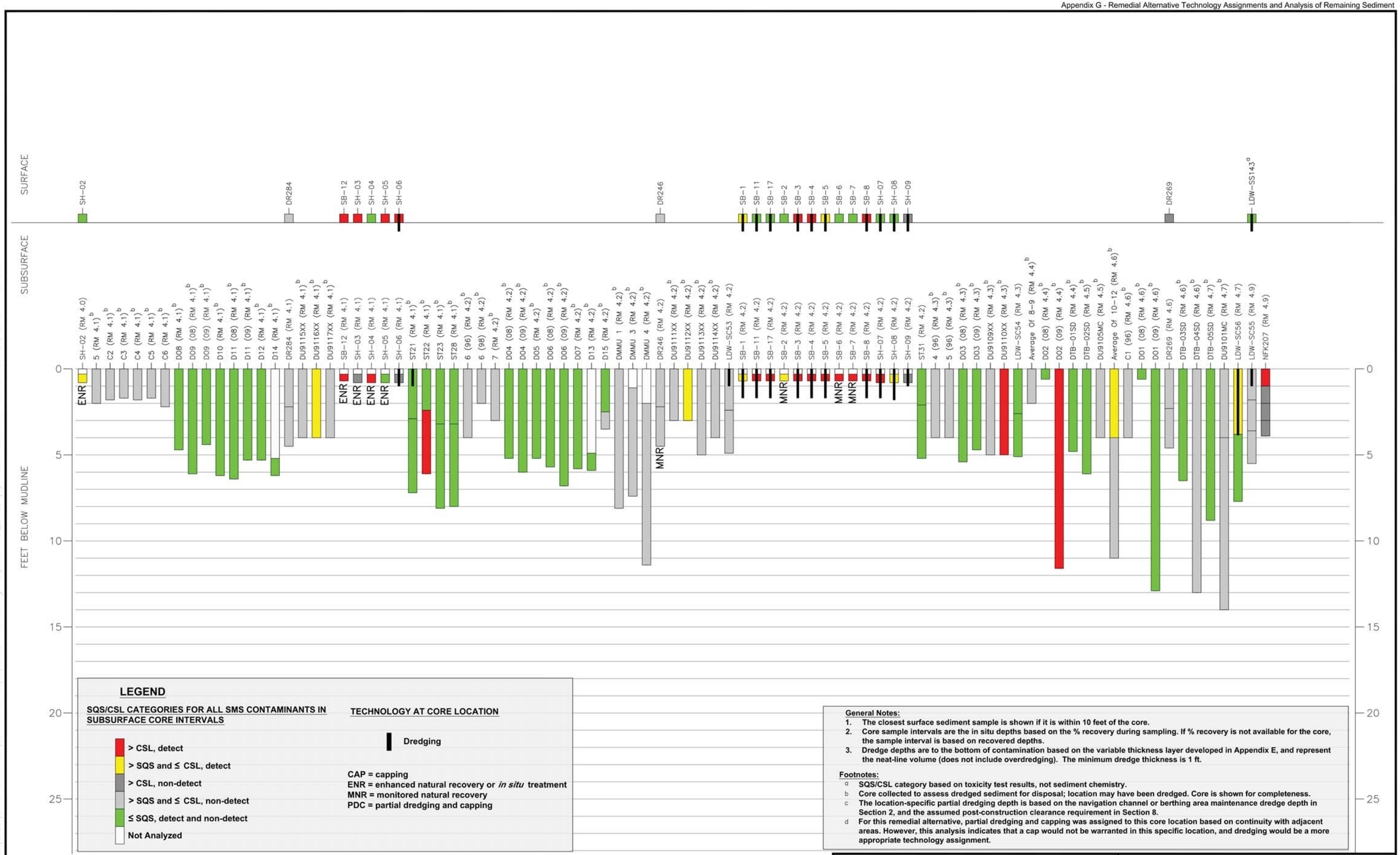
DATE: 10/31/12 | DRWN: MO/SEA

ALTERNATIVE 3 COMBINED REMAINING SUBSURFACE CONTAMINATION CORE DIAGRAMS (RM 0.0 TO 2.0)

FIGURE G-14a





LEGEND

SQS/CSL CATEGORIES FOR ALL SMS CONTAMINANTS IN SUBSURFACE CORE INTERVALS

- > CSL, detect
- > SQS and ≤ CSL, detect
- > CSL, non-detect
- > SQS and ≤ CSL, non-detect
- ≤ SQS, detect and non-detect
- Not Analyzed

TECHNOLOGY AT CORE LOCATION

- Dredging

CAP = capping
ENR = enhanced natural recovery or *in situ* treatment
MNR = monitored natural recovery
PDC = partial dredging and capping

General Notes:

1. The closest surface sediment sample is shown if it is within 10 feet of the core.
2. Core sample intervals are the in situ depths based on the % recovery during sampling. If % recovery is not available for the core, the sample interval is based on recovered depths.
3. Dredge depths are to the bottom of contamination based on the variable thickness layer developed in Appendix E, and represent the neat-line volume (does not include overdredging). The minimum dredge thickness is 1 ft.

Footnotes:

a SQS/CSL category based on toxicity test results, not sediment chemistry.
b Core collected to assess dredged sediment for disposal; location may have been dredged. Core is shown for completeness.
c The location-specific partial dredging depth is based on the navigation channel or berthing area maintenance dredge depth in Section 2, and the assumed post-construction clearance requirement in Section 8.
d For this remedial alternative, partial dredging and capping was assigned to this core location based on continuity with adjacent areas. However, this analysis indicates that a cap would not be warranted in this specific location, and dredging would be a more appropriate technology assignment.

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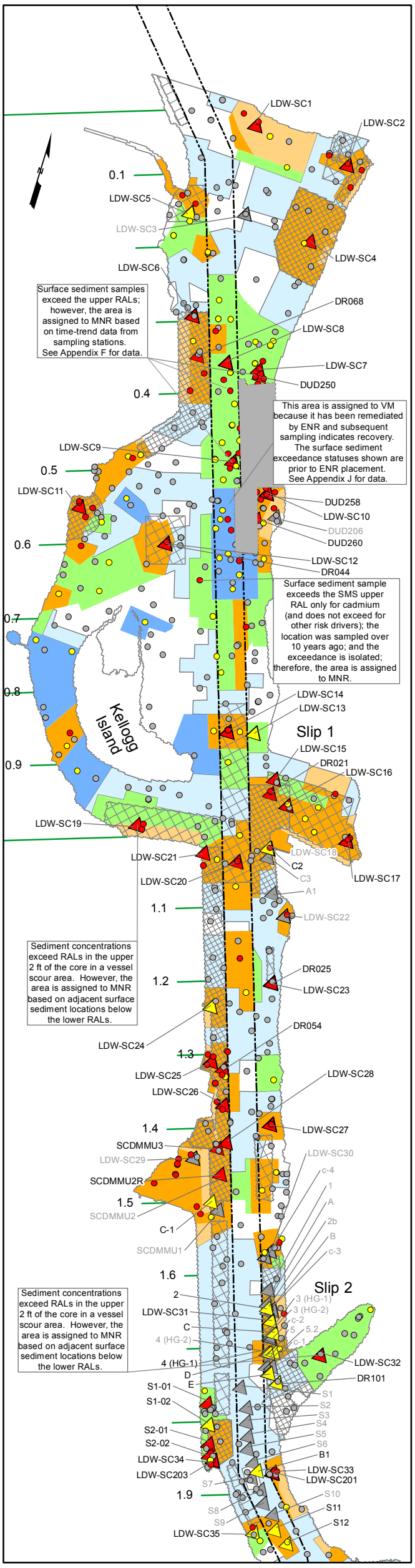
6015027-14.46

DATE: 10/31/12 | DRWN: MO/SEA

ALTERNATIVE 3 COMBINED REMAINING SUBSURFACE CONTAMINATION CORE DIAGRAMS (RM 4.0 TO 5.0)

FIGURE G-14c



Notes:
1. FS baseline dataset used. Total Study Area: 441 acres.
2. Technology assignments are for the FS and may change based on additional data collected during remedial design.
3. See Section 8 for additional details on technology assignments. Exceptions to the technology assignment criteria in Section 8 are explained in text boxes.
4. See Section 6 for development of recovery categories and RALs.
5. Subsurface exceedances in cores are at any depth and represent the highest level of exceedance for any SMS contaminant.

Remedial Alternative	Remedial Action Levels (RALs)				
	Total PCBs	cPAHs	Dioxins/ Furans	Arsenic	Benthic SMS
	µg/kg dw	µg TEQ/kg dw	ng TEQ/kg dw	mg/kg dw	41 Chemicals
Alt 4 upper RALs	700	1,000 (site-wide), 900 (intertidal)	25	57 (site-wide), 28 (intertidal)	CSL
Alt 4 lower RALs	240[a]	1,000 (site-wide), 900 (intertidal)	25	57 (site-wide), 28 (intertidal)	SQS
Alt 5 (defines AOPC 1)	240[a]	1,000 (site-wide), 900 (intertidal)	25	57 (site-wide), 28 (intertidal)	SQS
Alt 6 (defines AOPC 1+2)	100	1,000 (site-wide), 900 (intertidal)	15	15	SQS

Note a. Total PCBs concentration of 240 µg/kg dw as a dry weight approximation of the 12 mg/kg oc (SQS) value assuming 2% TOC.

Technology Assignment

AOPC 1
- Dredge (93 acres)
- Cap or Partial Dredge and Cap (14 acres)
- Monitored Natural Recovery (50 acres)
- ENR/*in situ* (0 acres)
- Verification Monitoring (23 acres)

AOPC 2 (122 acres)

Early Action Area (29 acres)

Remaining Study Area (Institutional Controls and Site-wide Monitoring) (110 acres)

0 200 400 800 Feet

Legend

Surface Sediment Exceedance Location
- >Alt 4 Upper RALs (Applicable Site-wide)
- >Alt 4 Lower RALs (Applicable in Categories 1 & 2)
- Pass or Non-detect

Subsurface Exceedance Location and ID
- > CSL, detected
- > SQS and ≤ CSL, detected
- Station ID Labeled in Black
- Pass or Non-detect
- Station ID Labeled in Grey

Recovery Category
- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Navigation Channel
- River Mile Marker

AECOM

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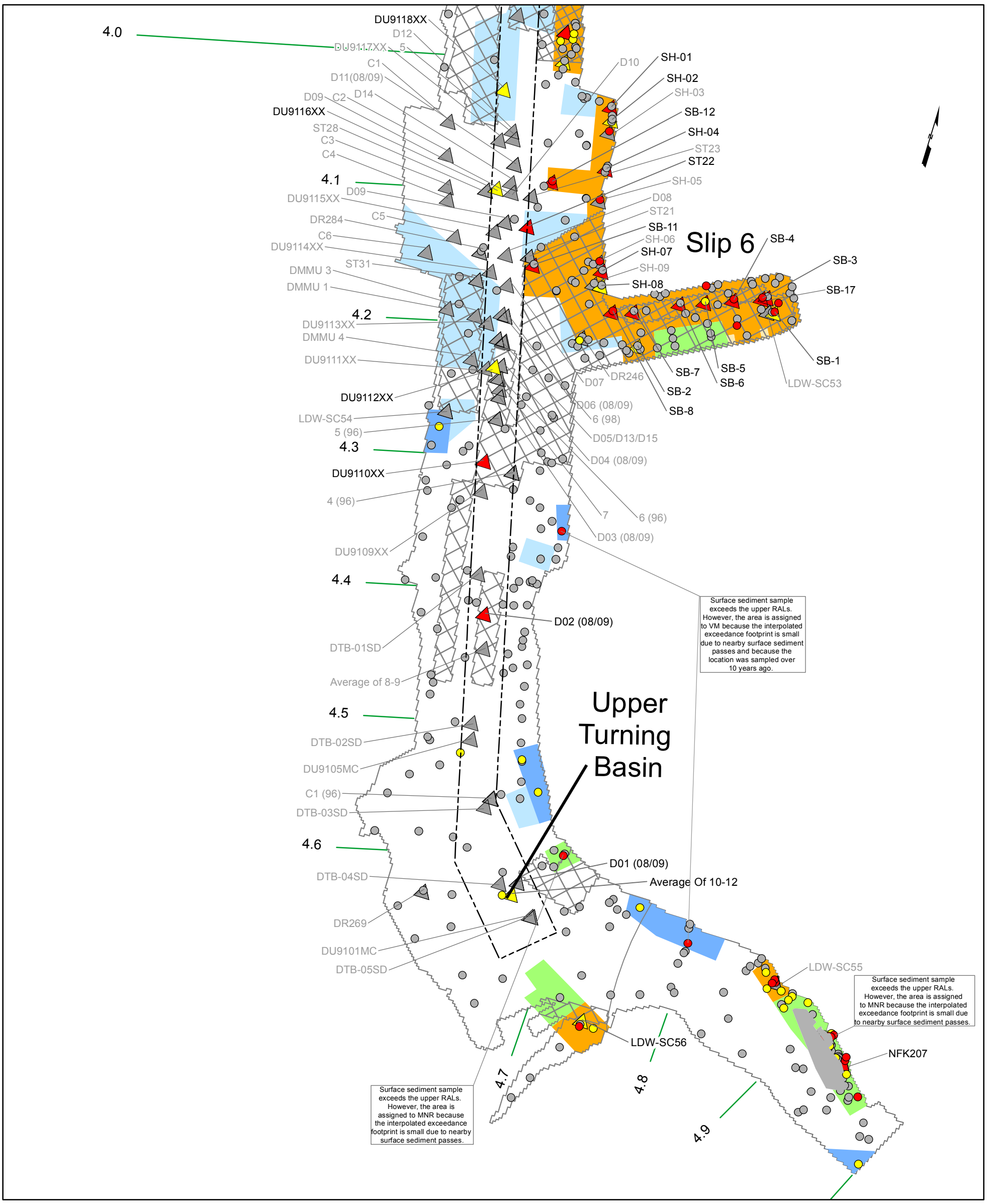
Lower Duwamish Waterway
Final Feasibility Study
60150279-14.12

Alternative 4 Removal Technology Assignments and Waterway Conditions

DATE: 10/31/12 | DWRN:MVI/sea | Revision: 0 | **FIGURE G-15a**

L:\Lower Duwamish FS\FS Final GIS\Oct2012\FS GIS MXDs Oct12\Appendix G\FigureG-15aAlt4ActiveCon.mxd



Notes:
1. FS baseline dataset used. Total Study Area: 441 acres.
2. Technology assignments are for the FS and may change based on additional data collected during remedial design.
3. See Section 8 for additional details on technology assignments. Exceptions to the technology assignment criteria in Section 8 are explained in text boxes.
4. See Section 6 for development of recovery categories and RALs.
5. Subsurface exceedances in cores are at any depth and represent the highest level of exceedance for any SMS contaminant.

Remedial Alternative	Remedial Action Levels (RALs)				
	Total PCBs	cPAHs	Dioxins/ Furans	Arsenic	Benthic SMS
	µg/kg dw	µg TEQ/kg dw	ng TEQ/kg dw	mg/kg dw	41 Chemicals
Alt 4 upper RALs	700	1,000 (site-wide), 900 (intertidal)	25	57 (site-wide), 28 (intertidal)	CSL
Alt 4 lower RALs	240[a]	1,000 (site-wide), 900 (intertidal)	25	57 (site-wide), 28 (intertidal)	SQS
Alt 5 (defines AOPC 1)	240[a]	1,000 (site-wide), 900 (intertidal)	25	57 (site-wide), 28 (intertidal)	SQS
Alt 6 (defines AOPC 1+2)	100	1,000 (site-wide), 900 (intertidal)	15	15	SQS

Note a. Total PCBs concentration of 240 µg/kg dw as a dry weight approximation of the 12 mg/kg oc (SQS) value assuming 2% TOC.

Technology Assignment

AOPC 1
- Dredge (93 acres)
- Cap or Partial Dredge and Cap (14 acres)
- Monitored Natural Recovery (50 acres)
- ENR/*in situ* (0 acres)
- Verification Monitoring (23 acres)

AOPC 2 (122 acres)

Early Action Area (29 acres)

Remaining Study Area (Institutional Controls and Site-wide Monitoring) (110 acres)

Feet
0 200 400 800

Legend

Surface Sediment Exceedance Location
- >Alt 4 Upper RALs (Applicable Site-wide)
- >Alt 4 Lower RALs (Applicable in Categories 1 & 2)
- Pass or Non-detect

Subsurface Exceedance Location and ID
- > CSL, detected
- > SQS and ≤ CSL, detected

(Station ID Labeled in Black)
- Pass or Non-detect (Station ID Labeled in Grey)

Recovery Category
- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Navigation Channel
- River Mile Marker

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Lower Duwamish Waterway
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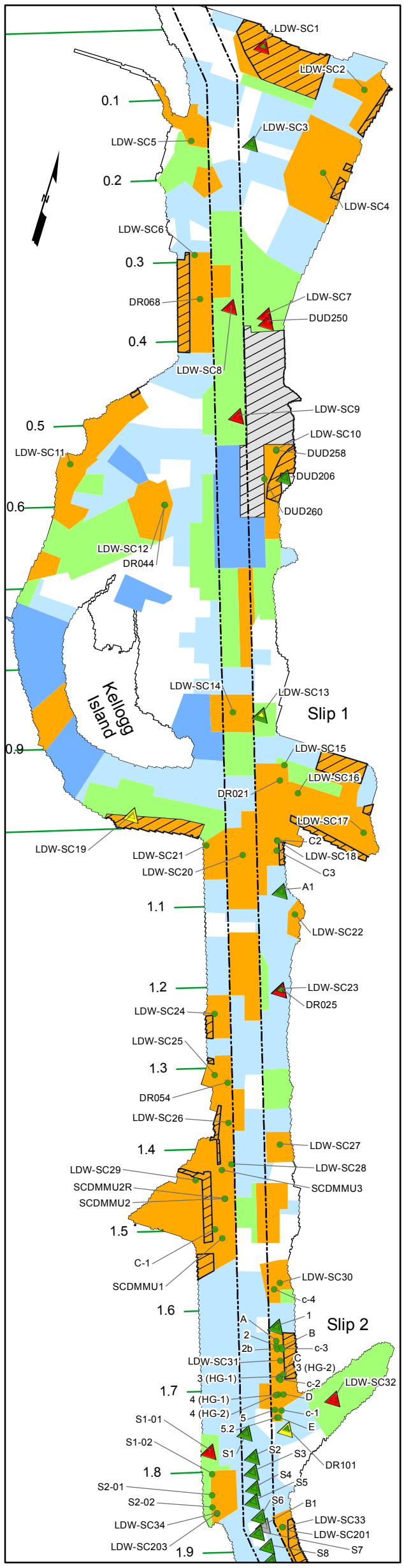
60150279-14.46

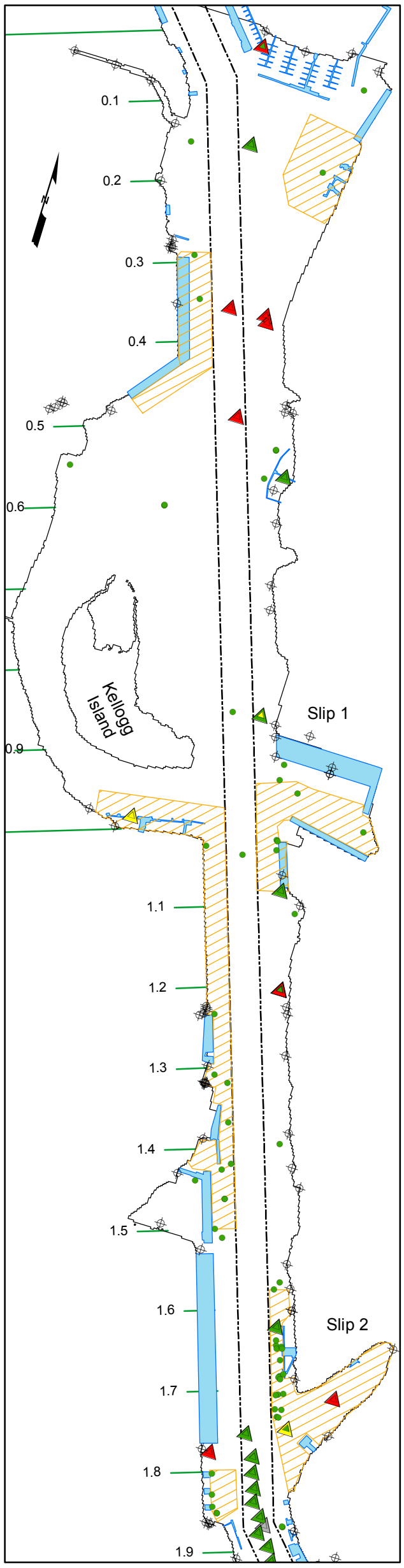
Alternative 4 Removal Technology Assignments and Waterway Conditions (RM 4.0 to 5.0)

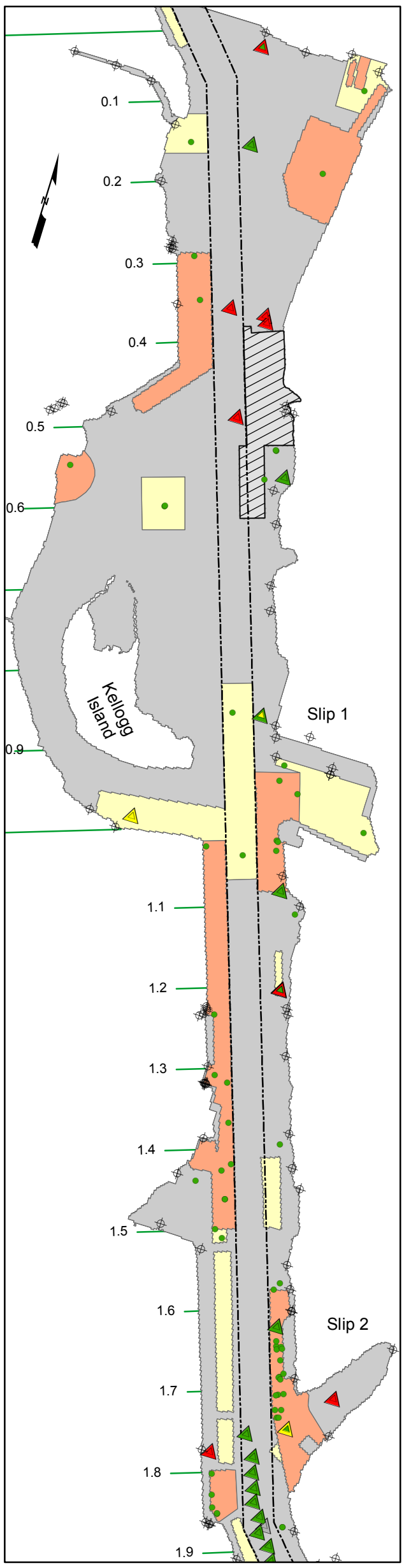
DATE: 10/31/12 | DWRN:MVI/sea | Revision: 0

FIGURE G-15b

L:\Lower Duwamish FS\FS_Final_GISOct2012\FS_GIS_MXDs_Oct12\Appendix G\FigureG-15bAlt4ActiveConB.mxd







Notes:
1. If cores overlap, the core with the highest exceedance status is shown on top.
2. Core intervals are based on *in situ* depths.
3. Any sample interval that overlaps the 0-2 or 2-4 ft interval is included. Samples that overlap both core intervals are mapped in both intervals.
4. For cores in capping areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval displays the 0-2 ft exceedance status.
5. For cores in partial dredge and cap areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval exceedance status is retained.
6. For cores in ENR areas, both the 0-2 ft and the 2-4 ft interval exceedance statuses are retained.
7. Cores in EAAs are not shown.

Feet
0 200 400 800

Legend

Technology Assignment
- Dredge
- Partial Dredge and Cap
- Cap
- Monitored Natural Recovery
- ENR/*in situ*
- Verification Monitoring
- AOPC 2
- Remaining Study Area (Institutional Controls and Site-wide Monitoring)

SMS Exceedance Status Following Remediation
Maximum exceedance 0-2 ft in core / Maximum exceedance 2-4 ft in core
- > CSL
- >SQS and ≤ CSL
- ≤ SQS or Non-detect
- Interval Not Analyzed
- Core Location Dredged During Remediation

Physical Lines of Evidence Used in Assigning Recovery Categories
- STM Predicted 100-Year High-flow Scour > 10 cm
- Evidence of Propeller Wash Scour
- Overwater Structure
- Outfall Location

Recovery Category
- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Early Action Area
- Navigation Channel
- River Mile Marker

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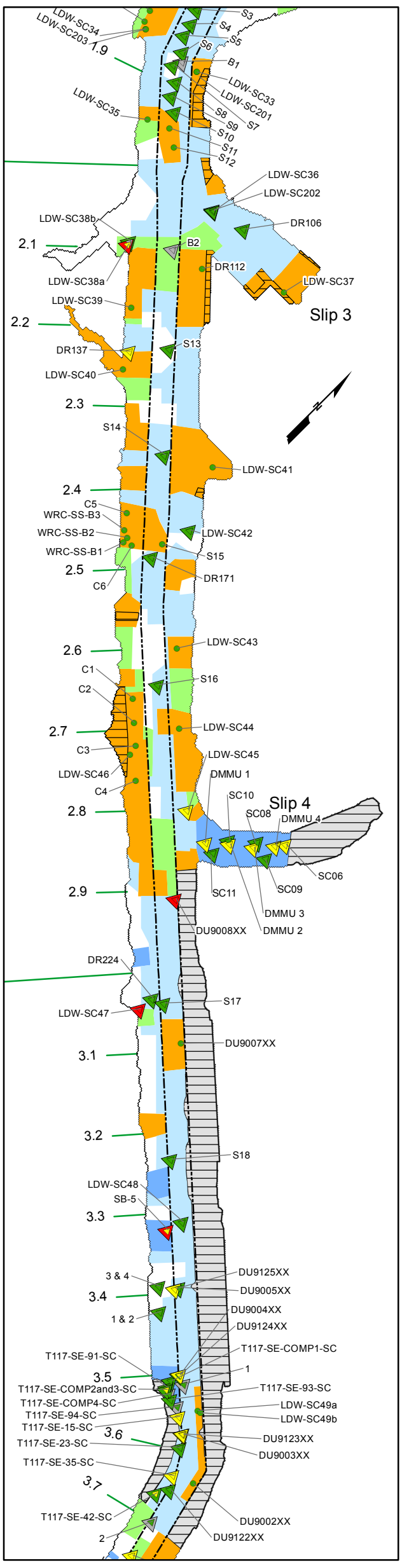
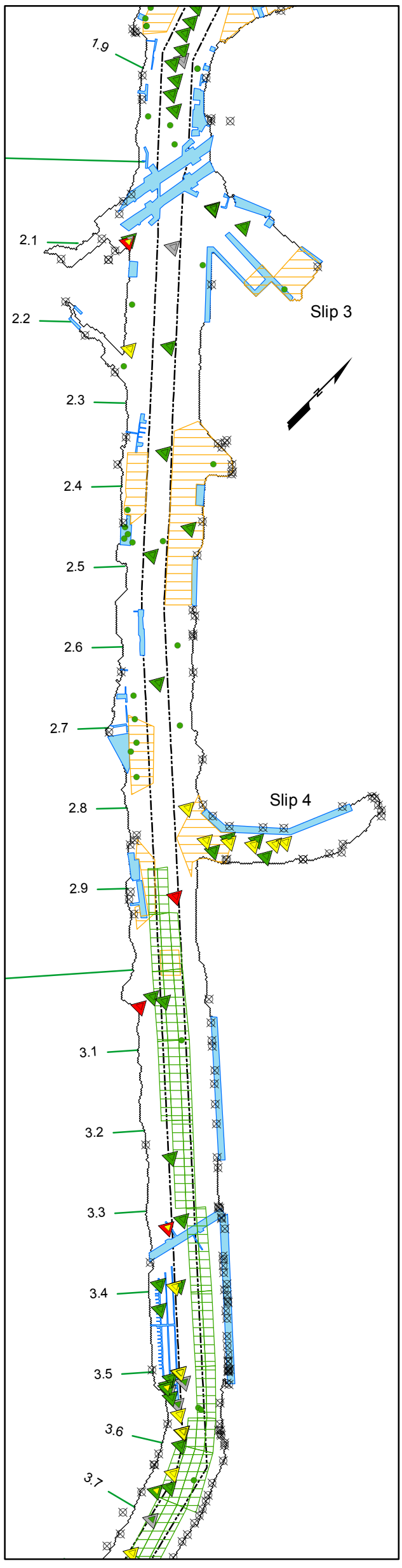
Alternative 4 Removal Remaining Subsurface Contamination - Plan View (RM 0.0 to 1.9)

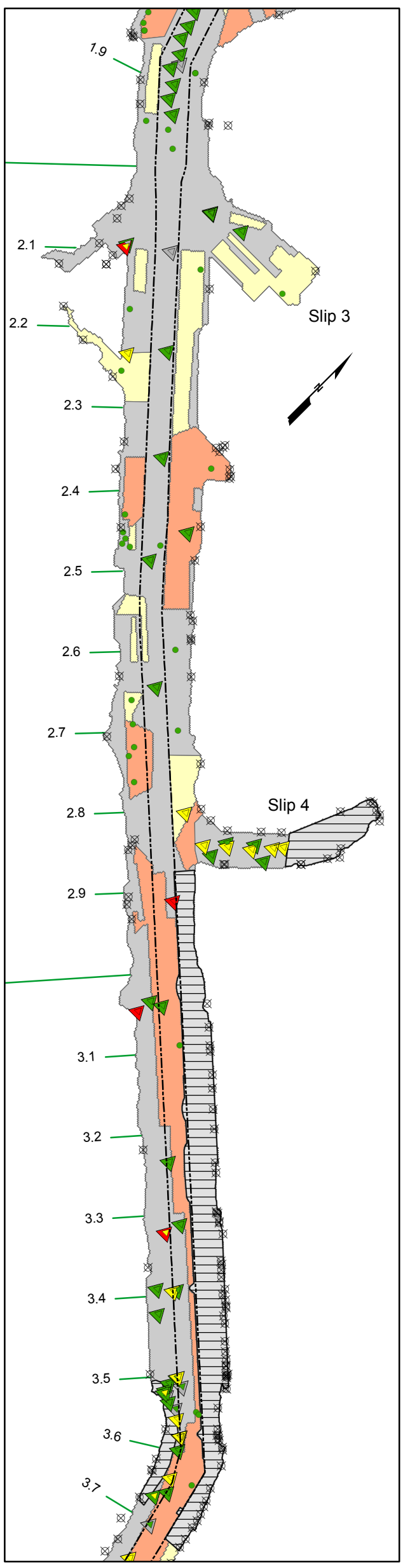
DATE: 10/31/12 | DWRN:MVI/sea | Revision: 0

FIGURE G-16a

L:\Lower Duwamish FS\FS_Final_GIS\Oct2012\FS_GIS_MXDs_Oct12\Appendix G\G-16aCoreRecoveryNorth4R.mxd







Notes:
1. If cores overlap, the core with the highest exceedance status is shown on top.
2. Core intervals are based on *in situ* depths.
3. Any sample interval that overlaps the 0-2 or 2-4 ft interval is included. Samples that overlap both core intervals are mapped in both intervals.
4. For cores in capping areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval displays the 0-2 ft exceedance status.
5. For cores in partial dredge and cap areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval exceedance status is retained.
6. For cores in ENR areas, both the 0-2 ft and the 2-4 ft interval exceedance statuses are retained.
7. Cores in EAAs are not shown.

Feet
0 200 400 800

Legend

Technology Assignment
- Dredge
- Partial Dredge and Cap
- Cap
- Monitored Natural Recovery
- ENR/*in situ*
- Verification Monitoring
- AOPC 2
- Remaining Study Area (Institutional Controls and Site-wide Monitoring)

SMS Exceedance Status Following Remediation
Maximum exceedance 0-2 ft in core — Maximum exceedance 2-4 ft in core
- > CSL
- >SQS and ≤ CSL
- ≤ SQS or Non-detect
- Interval Not Analyzed
- Core Location Dredged During Remediation

Physical Lines of Evidence Used in Assigning Recovery Categories
- STM Predicted 100-Year High-flow Scour > 10 cm
- Evidence of Propeller Wash Scour
- Overwater Structure
- Outfall Location

Recovery Category
- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Early Action Area
- Navigation Channel
- River Mile Marker

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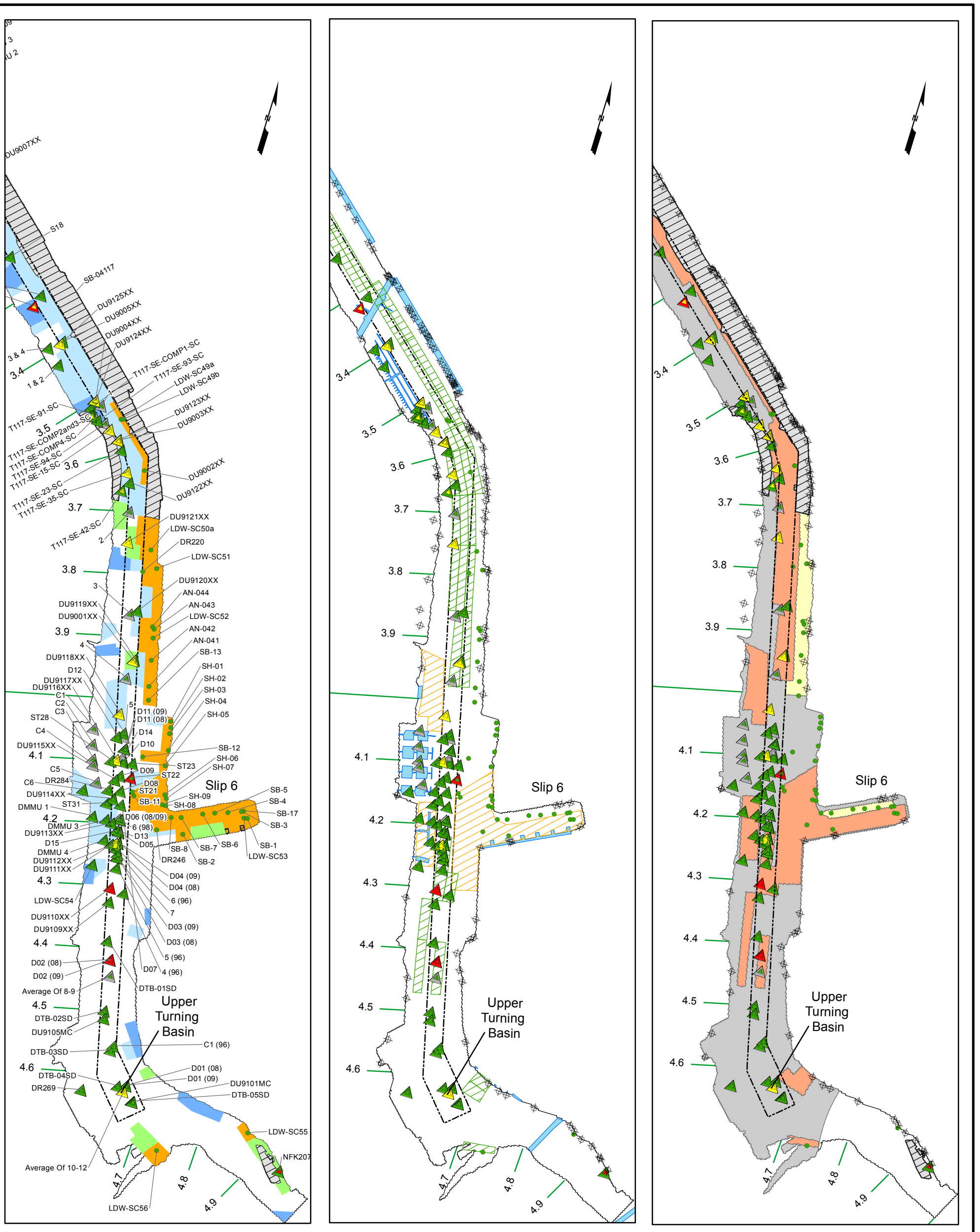
Alternative 4 Removal Remaining Subsurface Contamination - Plan View (RM 1.9 to 3.6)

DATE: 10/31/12 | DWRN:MVI/sea | Revision: 0 | **FIGURE G-16b**

L:\Lower Duwamish FS\FS_Final_GIS\Oct2012\FS_GIS_MXDs_Oct12\Appendix G\G-16bCoreRecoveryMid4R.mxd



Notes:
1. If cores overlap, the core with the highest exceedance status is shown on top.
2. Core intervals are based on *in situ* depths.
3. Any sample interval that overlaps the 0-2 or 2-4 ft interval is included. Samples that overlap both core intervals are mapped in both intervals.
4. For cores in capping areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval displays the 0-2 ft exceedance status.
5. For cores in partial dredge and cap areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval exceedance status is retained.
6. For cores in ENR areas, both the 0-2 ft and the 2-4 ft interval exceedance statuses are retained.
7. Cores in EAAs are not shown.

Feet
0 200 400 800

Legend

Technology Assignment
- Dredge
- Partial Dredge and Cap
- Cap
- Monitored Natural Recovery
- ENR/*in situ*
- Verification Monitoring
- AOPC 2
- Remaining Study Area (Institutional Controls and Site-wide Monitoring)

SMS Exceedance Status Following Remediation
Maximum exceedance 0-2 ft in core / Maximum exceedance 2-4 ft in core
- > CSL
- >SQS and ≤ CSL
- ≤ SQS or Non-detect
- Interval Not Analyzed
- Core Location Dredged During Remediation

Physical Lines of Evidence Used in Assigning Recovery Categories
- STM Predicted 100-Year High-flow Scour > 10 cm
- Evidence of Propeller Wash Scour
- Overwater Structure
- Outfall Location

Recovery Category
- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Early Action Area
- Navigation Channel
- River Mile Marker

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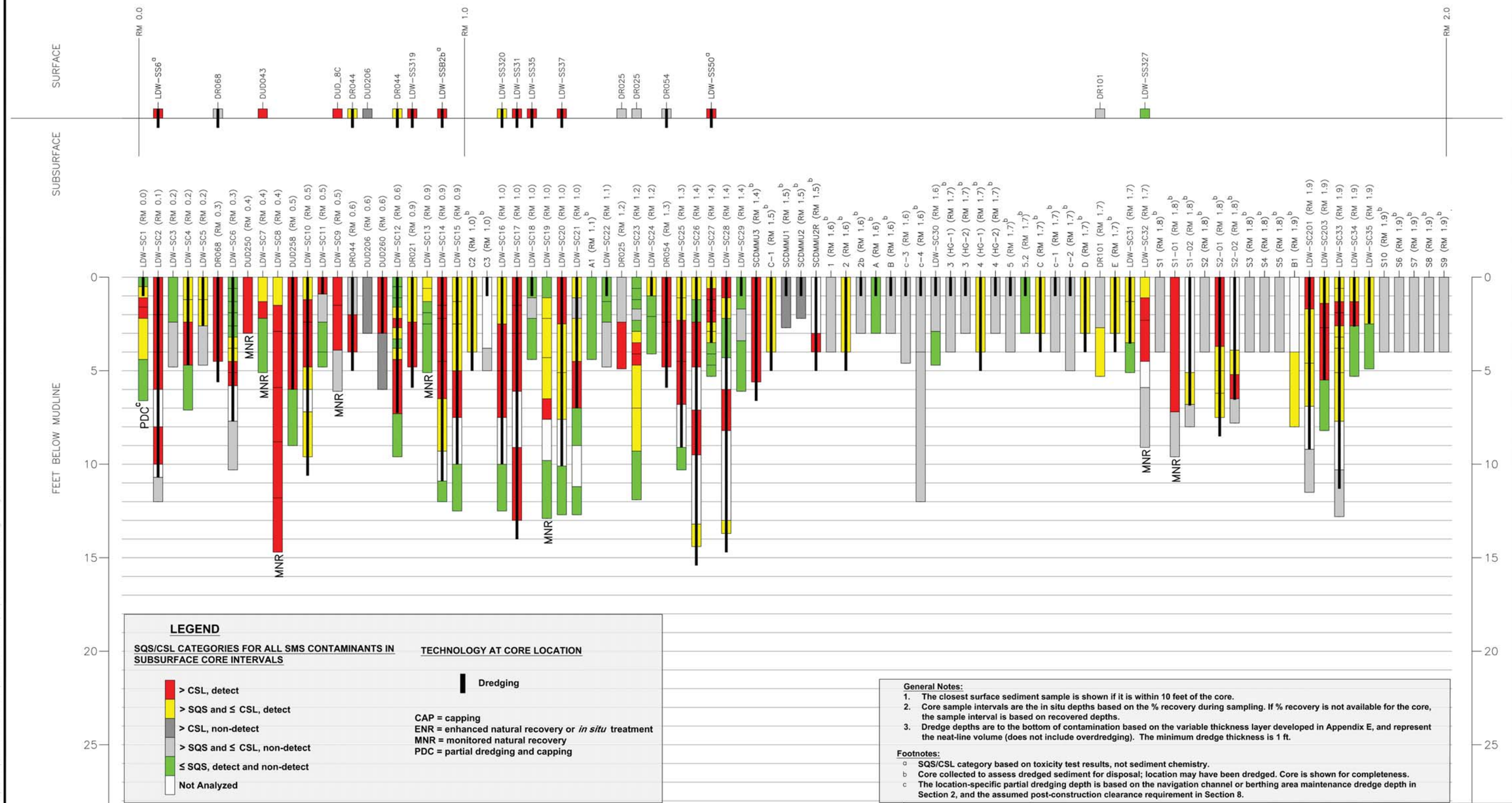
Lower Duwamish Waterway Final Feasibility Study 60150279-14.46			**Alternative 4 Removal Remaining Subsurface Contamination - Plan View (RM 3.6 to 5.0)**
DATE: 10/31/12	DWRN:MVI/sea	Revision: 0	**FIGURE G-16c**

L:\Lower Duwamish FS\FS_Final_GIS\Oct2012\FS_GIS_MXDs_Oct12\Appendix G\FigureG-16cCoreRecoverySouth4R.mxd



LEGEND

SQS/CSL CATEGORIES FOR ALL SMS CONTAMINANTS IN SUBSURFACE CORE INTERVALS

- > CSL, detect
- > SQS and ≤ CSL, detect
- > CSL, non-detect
- > SQS and ≤ CSL, non-detect
- ≤ SQS, detect and non-detect
- Not Analyzed

TECHNOLOGY AT CORE LOCATION

- Dredging

CAP = capping
ENR = enhanced natural recovery or *in situ* treatment
MNR = monitored natural recovery
PDC = partial dredging and capping

General Notes:

1. The closest surface sediment sample is shown if it is within 10 feet of the core.
2. Core sample intervals are the in situ depths based on the % recovery during sampling. If % recovery is not available for the core, the sample interval is based on recovered depths.
3. Dredge depths are to the bottom of contamination based on the variable thickness layer developed in Appendix E, and represent the neat-line volume (does not include overdredging). The minimum dredge thickness is 1 ft.

Footnotes:

a SQS/CSL category based on toxicity test results, not sediment chemistry.
b Core collected to assess dredged sediment for disposal; location may have been dredged. Core is shown for completeness.
c The location-specific partial dredging depth is based on the navigation channel or berthing area maintenance dredge depth in Section 2, and the assumed post-construction clearance requirement in Section 8.

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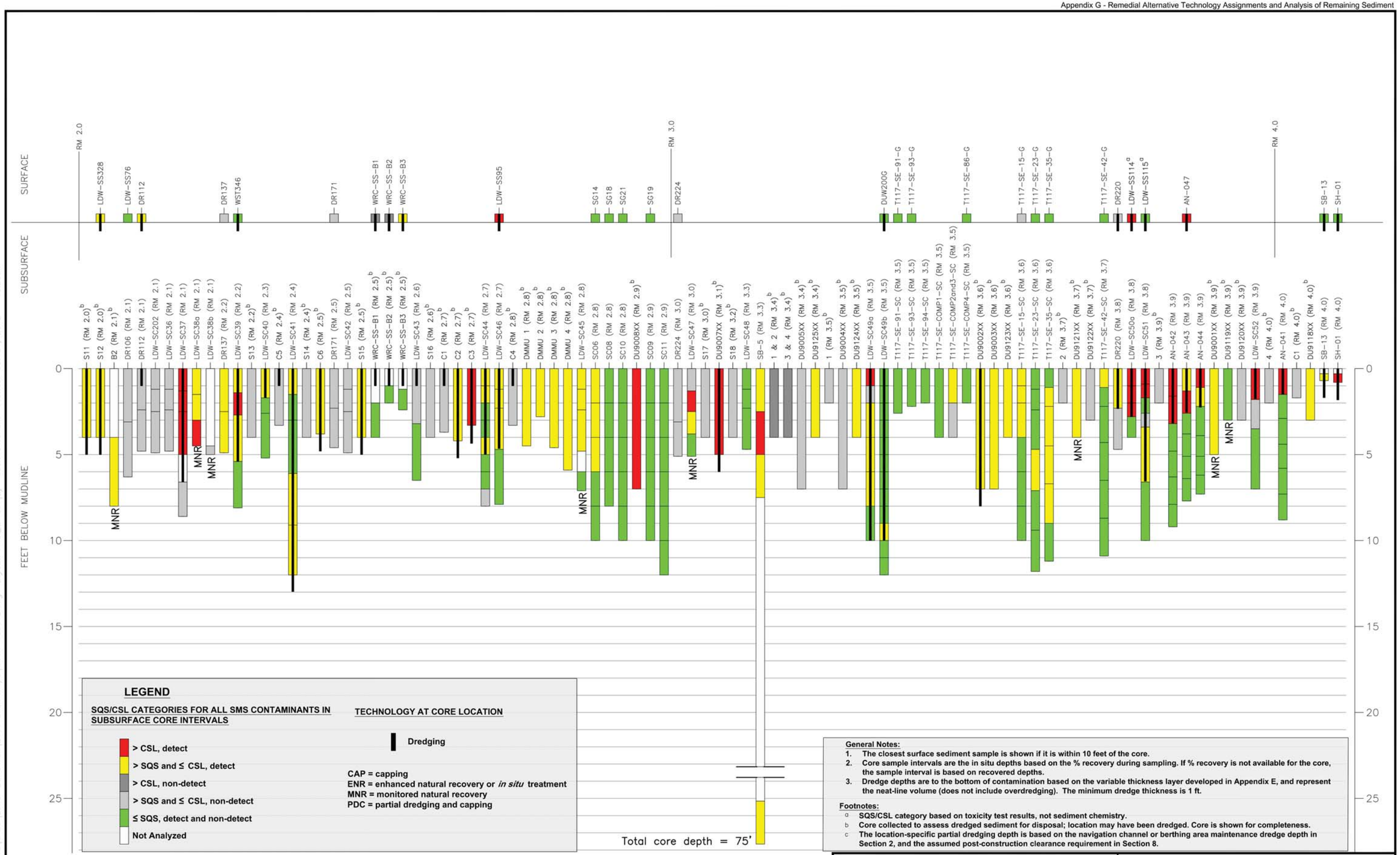
LOWER DUWAMISH WATERWAY
FINAL FEASIBILITY STUDY
60150279-14.46

DATE: 10/31/12 | DRWN: MO/SEA

ALTERNATIVE 4 REMOVAL REMAINING SUBSURFACE CONTAMINATION CORE DIAGRAMS (RM 0.0 TO 2.0)

FIGURE G-17a



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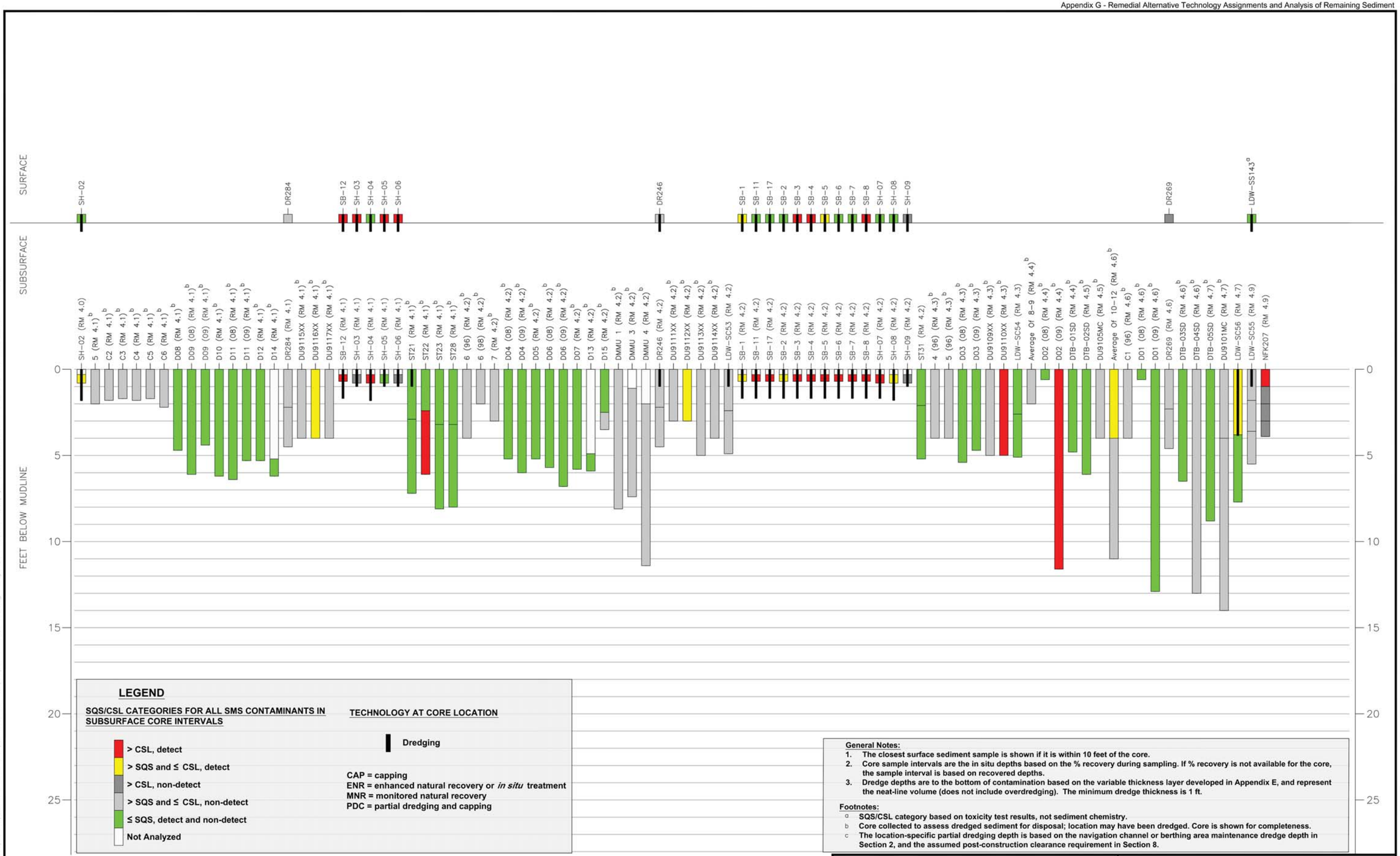
LOWER DUWAMISH WATERWAY
FINAL FEASIBILITY STUDY
60150279-14.46

DATE: 10/31/12 | DRWN: MO/SEA

ALTERNATIVE 4 REMOVAL REMAINING SUBSURFACE CONTAMINATION CORE DIAGRAMS (RM 2.0 TO 4.0)

FIGURE G-17b



LEGEND

SQS/CSL CATEGORIES FOR ALL SMS CONTAMINANTS IN SUBSURFACE CORE INTERVALS

- > CSL, detect
- > SQS and ≤ CSL, detect
- > CSL, non-detect
- > SQS and ≤ CSL, non-detect
- ≤ SQS, detect and non-detect
- Not Analyzed

TECHNOLOGY AT CORE LOCATION

- Dredging

CAP = capping
ENR = enhanced natural recovery or *in situ* treatment
MNR = monitored natural recovery
PDC = partial dredging and capping

General Notes:

1. The closest surface sediment sample is shown if it is within 10 feet of the core.
2. Core sample intervals are the in situ depths based on the % recovery during sampling. If % recovery is not available for the core, the sample interval is based on recovered depths.
3. Dredge depths are to the bottom of contamination based on the variable thickness layer developed in Appendix E, and represent the neat-line volume (does not include overdredging). The minimum dredge thickness is 1 ft.

Footnotes:

a SQS/CSL category based on toxicity test results, not sediment chemistry.
b Core collected to assess dredged sediment for disposal; location may have been dredged. Core is shown for completeness.
c The location-specific partial dredging depth is based on the navigation channel or berthing area maintenance dredge depth in Section 2, and the assumed post-construction clearance requirement in Section 8.

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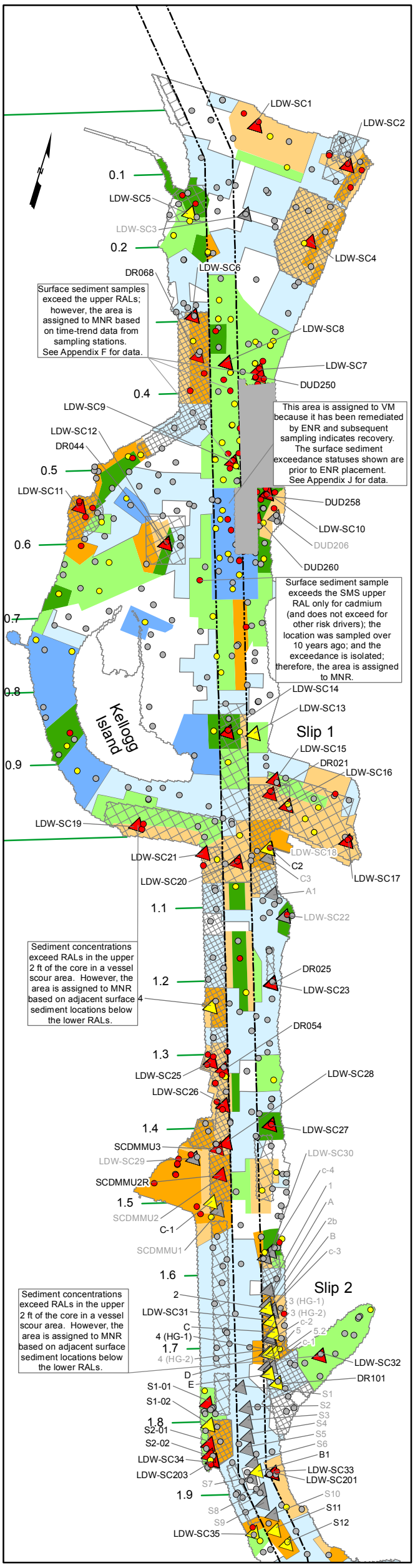
LOWER DUWAMISH WATERWAY
FINAL FEASIBILITY STUDY
60150279-14.46

DATE: 10/31/12 | DRWN: MO/SEA

ALTERNATIVE 4 REMOVAL REMAINING SUBSURFACE CONTAMINATION CORE DIAGRAMS (RM 4.0 TO 5.0)

FIGURE G-17c



Notes:
1. FS baseline dataset used. Total Study Area: 441 acres.
2. Technology assignments are for the FS and may change based on additional data collected during remedial design.
3. See Section 8 for additional details on technology assignments. Exceptions to the technology assignment criteria in Section 8 are explained in text boxes.
4. See Section 6 for development of recovery categories and RALs.
5. Subsurface exceedances in cores are at any depth and represent the highest level of exceedance for any SMS contaminant.

Remedial Alternative	Remedial Action Levels (RALs)				
	Total PCBs	cPAHs	Dioxins/ Furans	Arsenic	Benthic SMS
	µg/kg dw	µg TEQ/kg dw	ng TEQ/kg dw	mg/kg dw	41 Chemicals
Alt 4 upper RALs	700	1,000 (site-wide), 900 (intertidal)	25	57 (site-wide), 28 (intertidal)	CSL
Alt 4 lower RALs	240[a]	1,000 (site-wide), 900 (intertidal)	25	57 (site-wide), 28 (intertidal)	SQS
Alt 5 (defines AOPC 1)	240[a]	1,000 (site-wide), 900 (intertidal)	25	57 (site-wide), 28 (intertidal)	SQS
Alt 6 (defines AOPC 1+2)	100	1,000 (site-wide), 900 (intertidal)	15	15	SQS

Note a. Total PCBs concentration of 240 µg/kg dw as a dry weight approximation of the 12 mg/kg oc (SQS) value assuming 2% TOC.

Technology Assignment

AOPC 1
- Dredge (52 acres)
- Cap or Partial Dredge and Cap (43 acres)
- Monitored Natural Recovery (45 acres)
- ENR/*in situ* (21 acres)
- Verification Monitoring (19 acres)

AOPC 2 (122 acres)

Early Action Area (29 acres)

Remaining Study Area (Institutional Controls and Site-wide Monitoring) (232 acres)

0 200 400 800 Feet

Legend

Surface Sediment Exceedance Location
- >Alt 4 Upper RALs (Applicable Site-wide)
- >Alt 4 Lower RALs (Applicable in Categories 1&2)
- Pass or Non-detect

Subsurface Exceedance Location and ID
- > CSL, detected
- > SQS and ≤ CSL, detected

Station ID Labeled in Black

- Pass or Non-detect

Station ID Labeled in Grey

Recovery Category
- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Navigation Channel
- River Mile Marker

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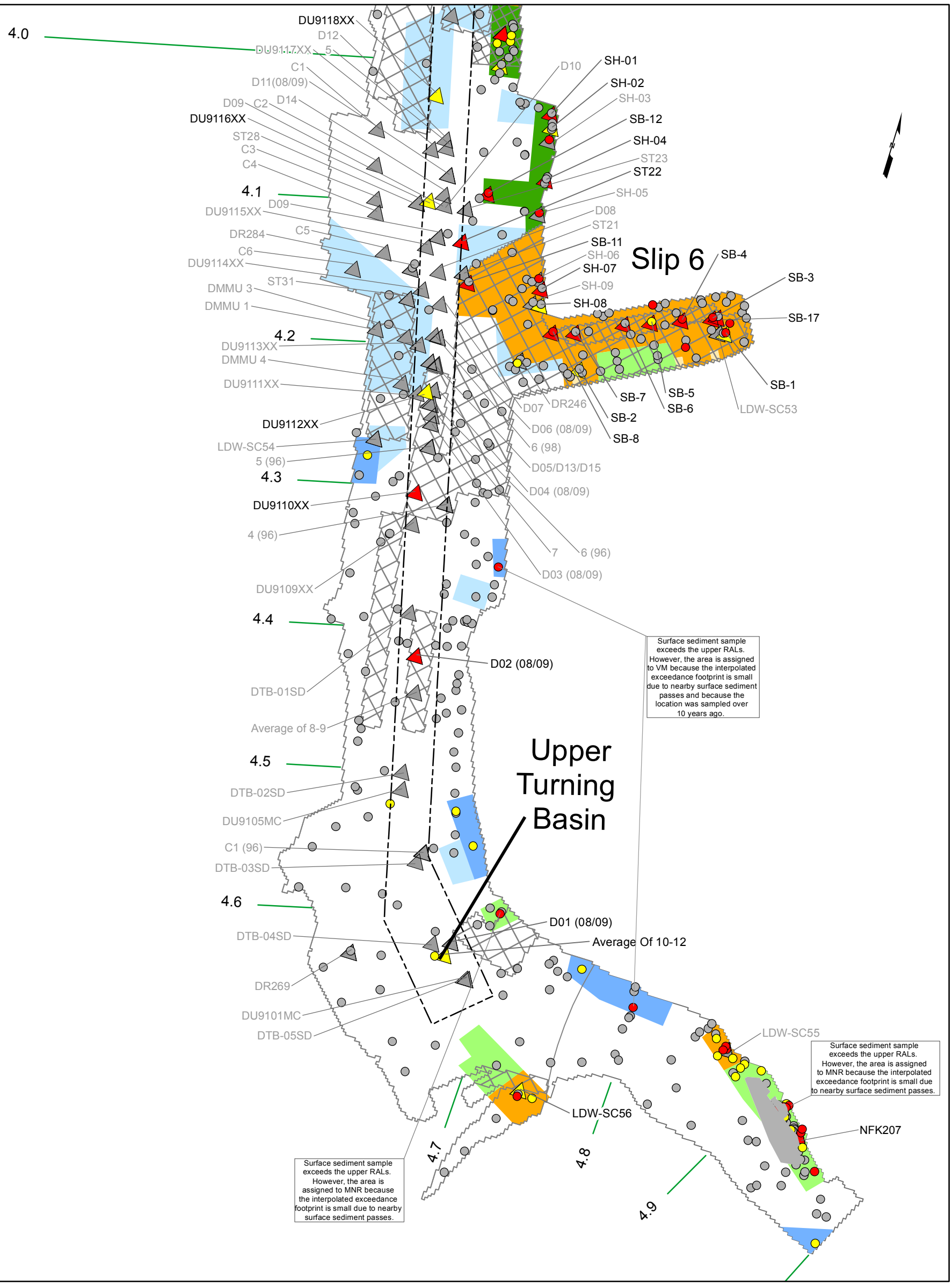
Lower Duwamish Waterway
Final Feasibility Study
60150279-14.46

Alternative 4 Combined Technology Assignments and Waterway Conditions

DATE: 10/31/12 | DWRN:MVI/sea | Revision: 0

FIGURE G-18a

L:\Lower Duwamish FS\FS Final GIS\Oct2012\FS GIS MXDs Oct12\Appendix G\FigureG-18aAlt4CombinedCon.mxd



Notes:
1. FS baseline dataset used. Total Study Area: 441 acres.
2. Technology assignments are for the FS and may change based on additional data collected during remedial design.
3. See Section 8 for additional details on technology assignments. Exceptions to the technology assignment criteria in Section 8 are explained in text boxes.
4. See Section 6 for development of recovery categories and RALs.
5. Subsurface exceedances in cores are at any depth and represent the highest level of exceedance for any SMS contaminant.

Remedial Alternative	Remedial Action Levels (RALs)				
	Total PCBs	cPAHs	Dioxins/ Furans	Arsenic	Benthic SMS
	µg/kg dw	µg TEQ/kg dw	ng TEQ/kg dw	mg/kg dw	41 Chemicals
Alt 4 upper RALs	700	1,000 (site-wide), 900 (intertidal)	25	57 (site-wide), 28 (intertidal)	CSL
Alt 4 lower RALs	240[a]	1,000 (site-wide), 900 (intertidal)	25	57 (site-wide), 28 (intertidal)	SQS
Alt 5 (defines AOPC 1)	240[a]	1,000 (site-wide), 900 (intertidal)	25	57 (site-wide), 28 (intertidal)	SQS
Alt 6 (defines AOPC 1+2)	100	1,000 (site-wide), 900 (intertidal)	15	15	SQS

Note a. Total PCBs concentration of 240 µg/kg dw as a dry weight approximation of the 12 mg/kg oc (SQS) value assuming 2% TOC.

Technology Assignment

AOPC 1
- Dredge (50 acres)
- Cap or Partial Dredge and Cap (41 acres)
- Monitored Natural Recovery (50 acres)
- ENR/*in situ* (16 acres)
- Verification Monitoring (23 acres)

AOPC 2 (122 acres)

Early Action Area (29 acres)

Remaining Study Area (Institutional Controls and Site-wide Monitoring) (110 acres)

0 200 400 800 Feet

Legend

Surface Sediment Exceedance Location
- >Alt 4 Upper RALs (Applicable Site-wide)
- >Alt 4 Lower RALs (Applicable in Categories 1&2)
- Pass or Non-detect

Subsurface Exceedance Location and ID
- > CSL, detected
- > SQS and ≤ CSL, detected

(Station ID Labeled in Black)
- Pass or Non-detect (Station ID Labeled in Grey)

Recovery Category
- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Navigation Channel
- River Mile Marker

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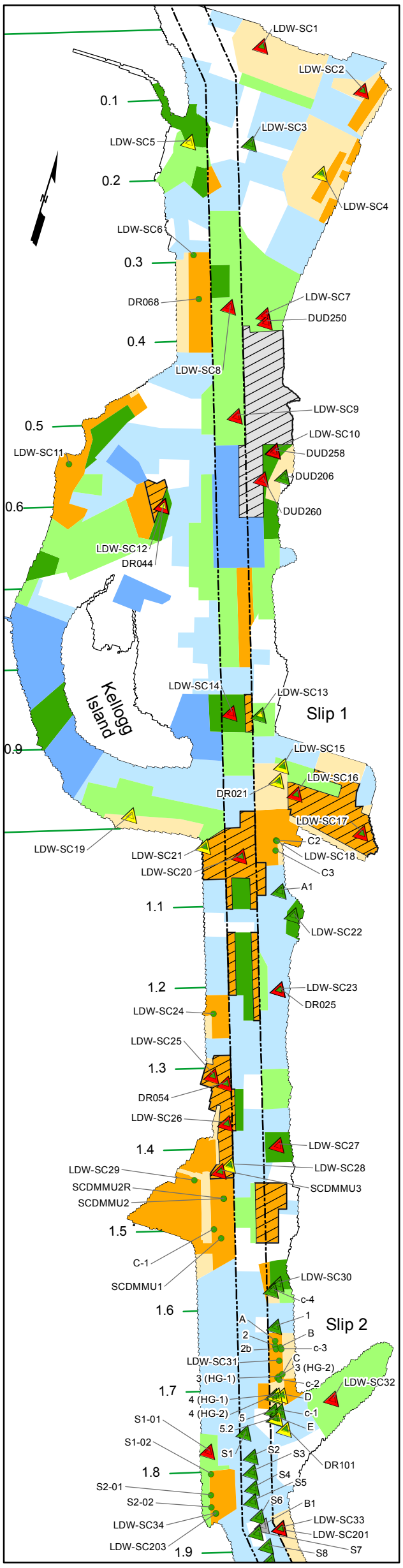
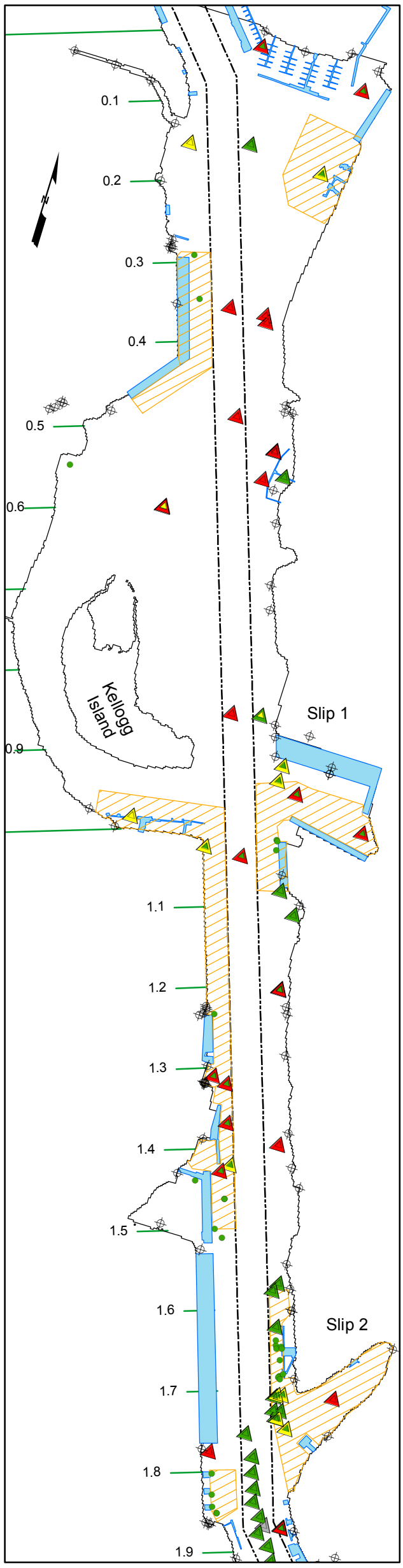
Alternative 4 Combined Technology Assignments and Waterway Conditions (RM 4.0 to 5.0)

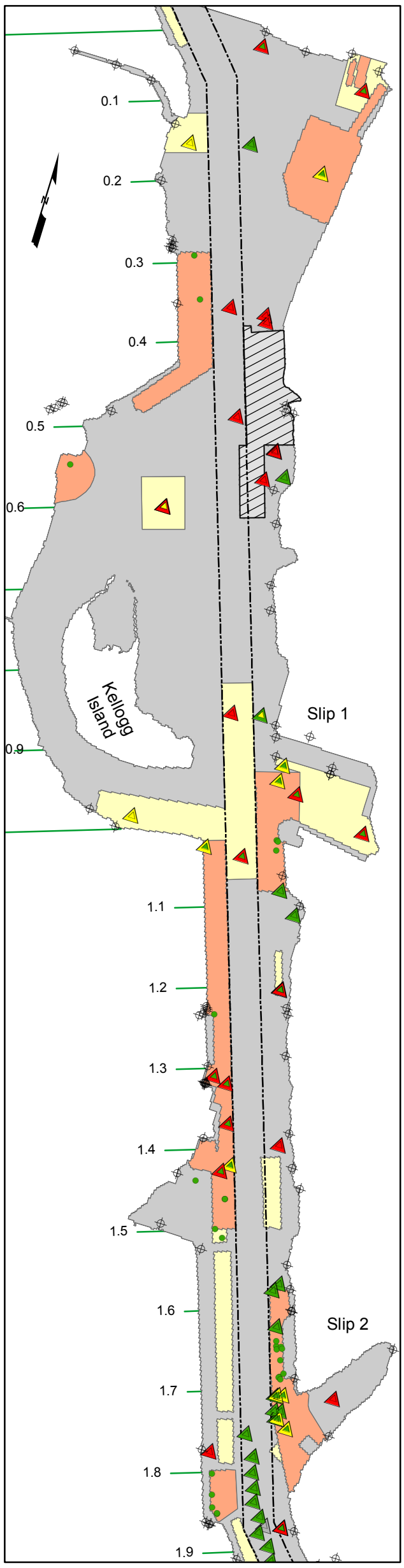
DATE: 10/31/12 | DWRN:MVI/sea | Revision: 0

FIGURE G-18b

L:\Lower Duwamish FS\FS Final GIS\Oct2012\FS GIS MXDs Oct12\Appendix G\FigureG-18bAlt4CombinedConB.mxd







Notes:
1. If cores overlap, the core with the highest exceedance status is shown on top.
2. Core intervals are based on *in situ* depths.
3. Any sample interval that overlaps the 0-2 or 2-4 ft interval is included. Samples that overlap both core intervals are mapped in both intervals.
4. For cores in capping areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval displays the 0-2 ft exceedance status.
5. For cores in partial dredge and cap areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval exceedance status is retained.
6. For cores in ENR areas, both the 0-2 ft and the 2-4 ft interval exceedance statuses are retained.
7. Cores in EAAs are not shown.

Legend

Technology Assignment

- Dredge
- Partial Dredge and Cap
- Cap
- Monitored Natural Recovery
- ENR/*in situ*
- Verification Monitoring
- AOPC 2
- Remaining Study Area (Institutional Controls and Site-wide Monitoring)

SMS Exceedance Status Following Remediation

Maximum exceedance 0-2 ft in core / Maximum exceedance 2-4 ft in core

- > CSL
- >SQS and ≤ CSL
- ≤ SQS or Non-detect
- Interval Not Analyzed
- Core Location Dredged During Remediation

Physical Lines of Evidence Used in Assigning Recovery Categories

- STM Predicted 100-Year High-flow Scour > 10 cm
- Evidence of Propeller Wash Scour
- Overwater Structure
- Outfall Location

Recovery Category

- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Early Action Area
- Navigation Channel
- River Mile Marker

0 200 400 800 Feet

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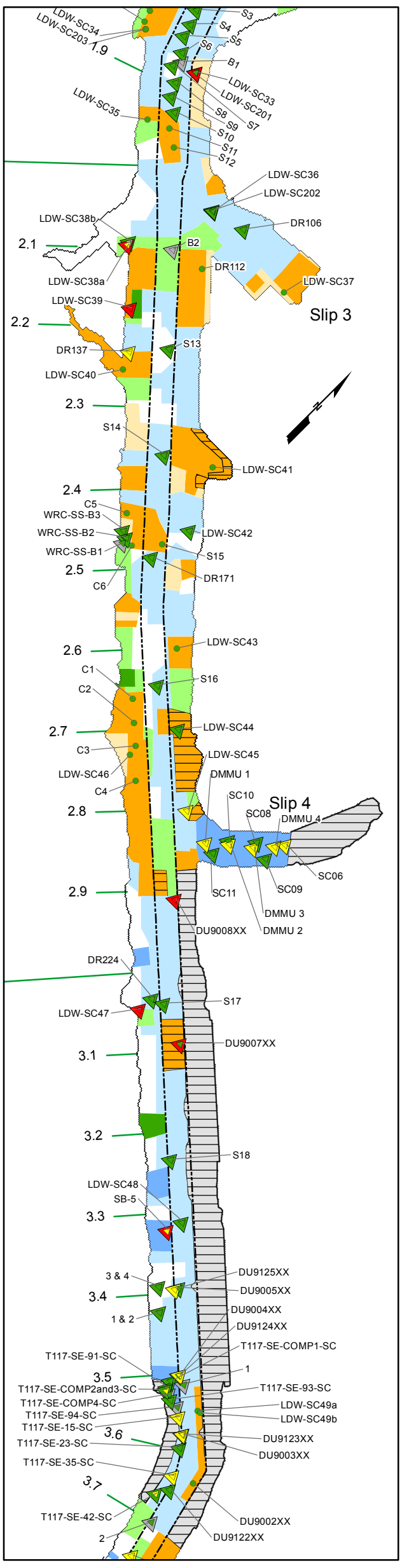
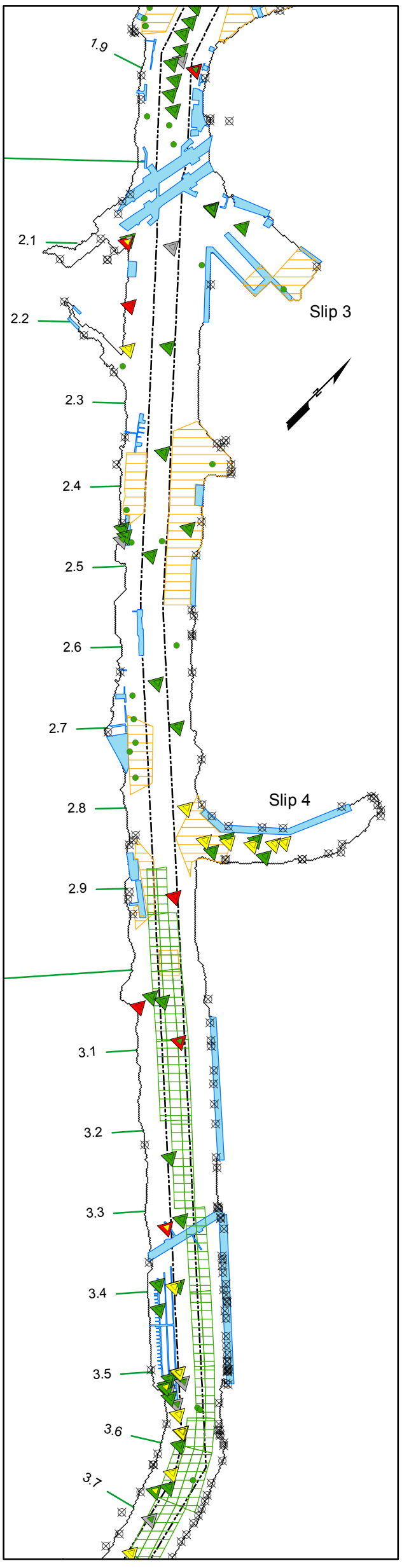
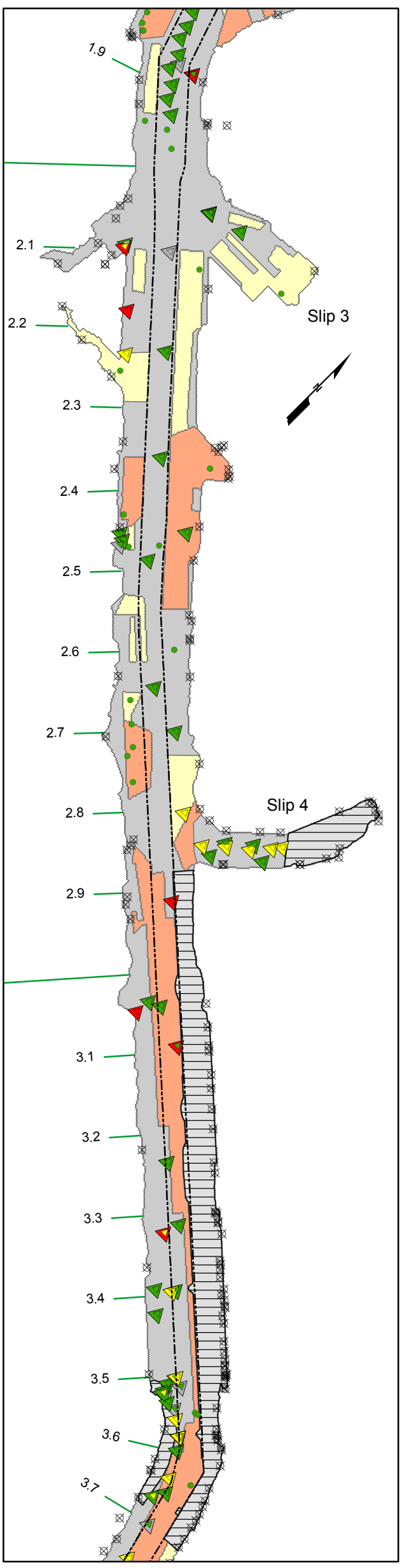
Alternative 4 Combined Remaining Subsurface Contamination - Plan View (RM 0.0 to 1.9)

DATE: 10/31/12 | DWRN:MVI/sea | Revision: 0 | **FIGURE G-19a**

L:\Lower Duwamish FS\FS_Final_GIS\Oct2012\FS_GIS_MXDs_Oct12\Appendix G\G-19aCoreRecoveryNorth4C.mxd







Notes:
1. If cores overlap, the core with the highest exceedance status is shown on top.
2. Core intervals are based on *in situ* depths.
3. Any sample interval that overlaps the 0-2 or 2-4 ft interval is included. Samples that overlap both core intervals are mapped in both intervals.
4. For cores in capping areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval displays the 0-2 ft exceedance status.
5. For cores in partial dredge and cap areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval exceedance status is retained.
6. For cores in ENR areas, both the 0-2 ft and the 2-4 ft interval exceedance statuses are retained.
7. Cores in EAAs are not shown.

Feet
0 200 400 800

Legend

Technology Assignment
- Dredge
- Partial Dredge and Cap
- Cap
- Monitored Natural Recovery
- ENR/*in situ*
- Verification Monitoring
- AOPC 2
- Remaining Study Area (Institutional Controls and Site-wide Monitoring)

SMS Exceedance Status Following Remediation
Maximum exceedance 0-2 ft in core / Maximum exceedance 2-4 ft in core
- > CSL
- >SQS and ≤ CSL
- ≤ SQS or Non-detect
- Interval Not Analyzed
- Core Location Dredged During Remediation

Physical Lines of Evidence Used in Assigning Recovery Categories
- STM Predicted 100-Year High-flow Scour > 10 cm
- Evidence of Propeller Wash Scour
- Overwater Structure
- Outfall Location

Recovery Category
- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Early Action Area
- Navigation Channel
- River Mile Marker

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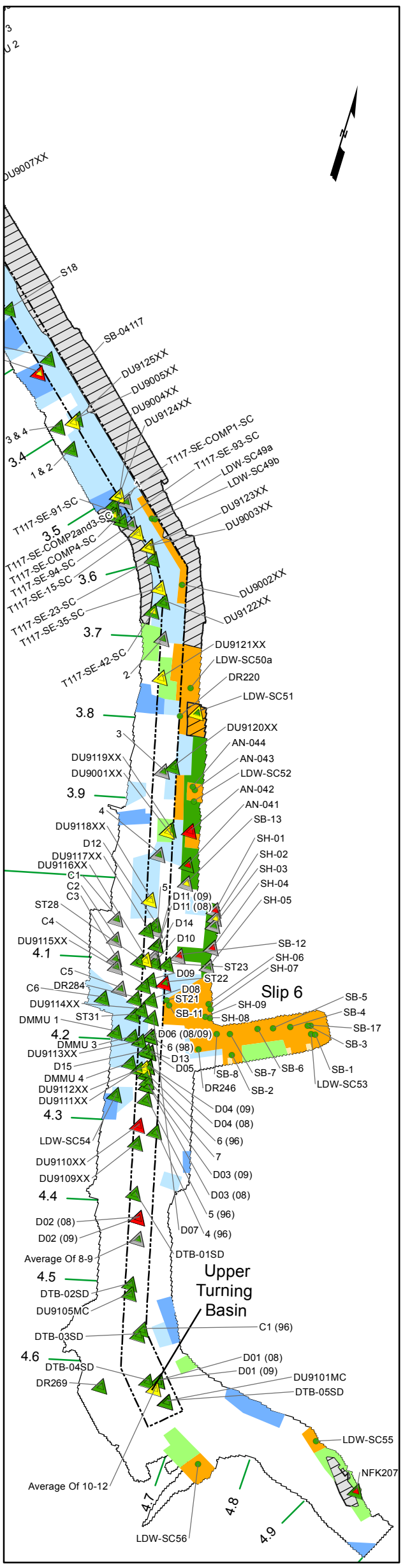
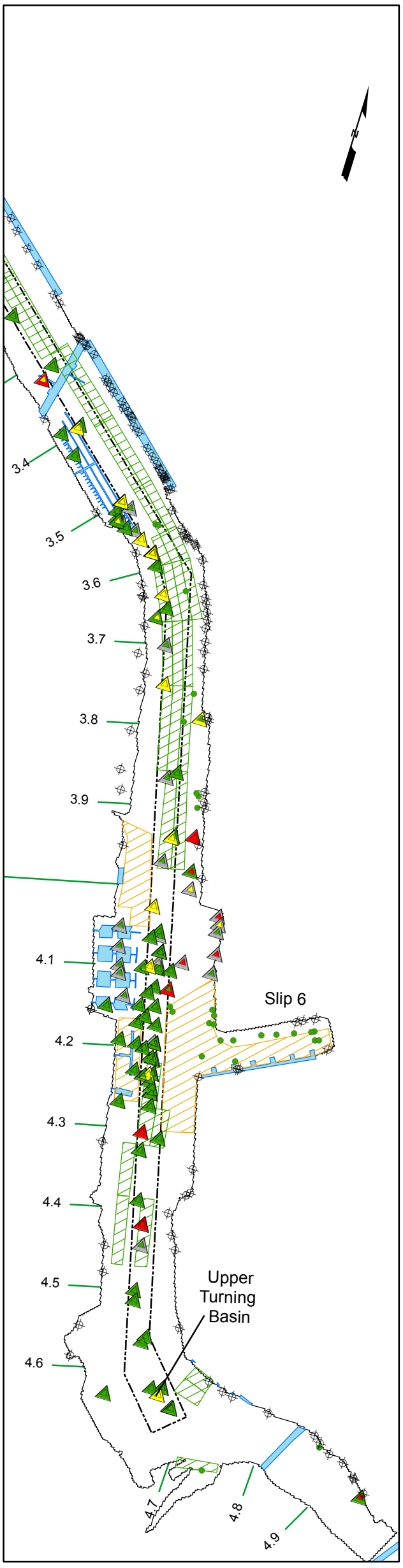
60150279-14.46

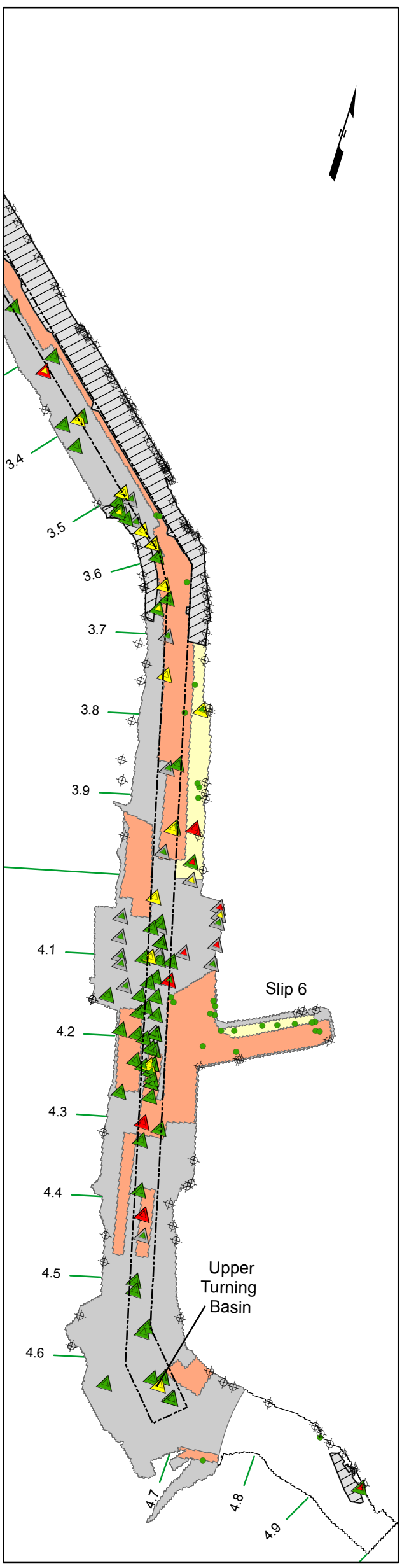
Alternative 4 Combined Remaining Subsurface Contamination - Plan View (RM 1.9 to 3.6)

DATE: 10/31/12 | DWRN:MVI/sea | Revision: 0 | **FIGURE G-19b**

L:\Lower Duwamish FS\FS_Final_GIS\Oct2012\FS_GIS_MXDs_Oct12\Appendix G\G-19bCoreRecoveryMid4C.mxd







Notes:
1. If cores overlap, the core with the highest exceedance status is shown on top.
2. Core intervals are based on *in situ* depths.
3. Any sample interval that overlaps the 0-2 or 2-4 ft interval is included. Samples that overlap both core intervals are mapped in both intervals.
4. For cores in capping areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval displays the 0-2 ft exceedance status.
5. For cores in partial dredge and cap areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval exceedance status is retained.
6. For cores in ENR areas, both the 0-2 ft and the 2-4 ft interval exceedance statuses are retained.
7. Cores in EAAs are not shown.

Feet
0 200 400 800

Legend

Technology Assignment
- Dredge
- Partial Dredge and Cap
- Cap
- Monitored Natural Recovery
- ENR/*in situ*
- Verification Monitoring
- AOPC 2
- Remaining Study Area (Institutional Controls and Site-wide Monitoring)

SMS Exceedance Status Following Remediation
Maximum exceedance 0-2 ft in core / Maximum exceedance 2-4 ft in core
- > CSL
- >SQS and ≤ CSL
- ≤ SQS or Non-detect
- Interval Not Analyzed
- Core Location Dredged During Remediation

Physical Lines of Evidence Used in Assigning Recovery Categories
- STM Predicted 100-Year High-flow Scour > 10 cm
- Evidence of Propeller Wash Scour
- Overwater Structure
- Outfall Location

Recovery Category
- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Early Action Area
- Navigation Channel
- River Mile Marker

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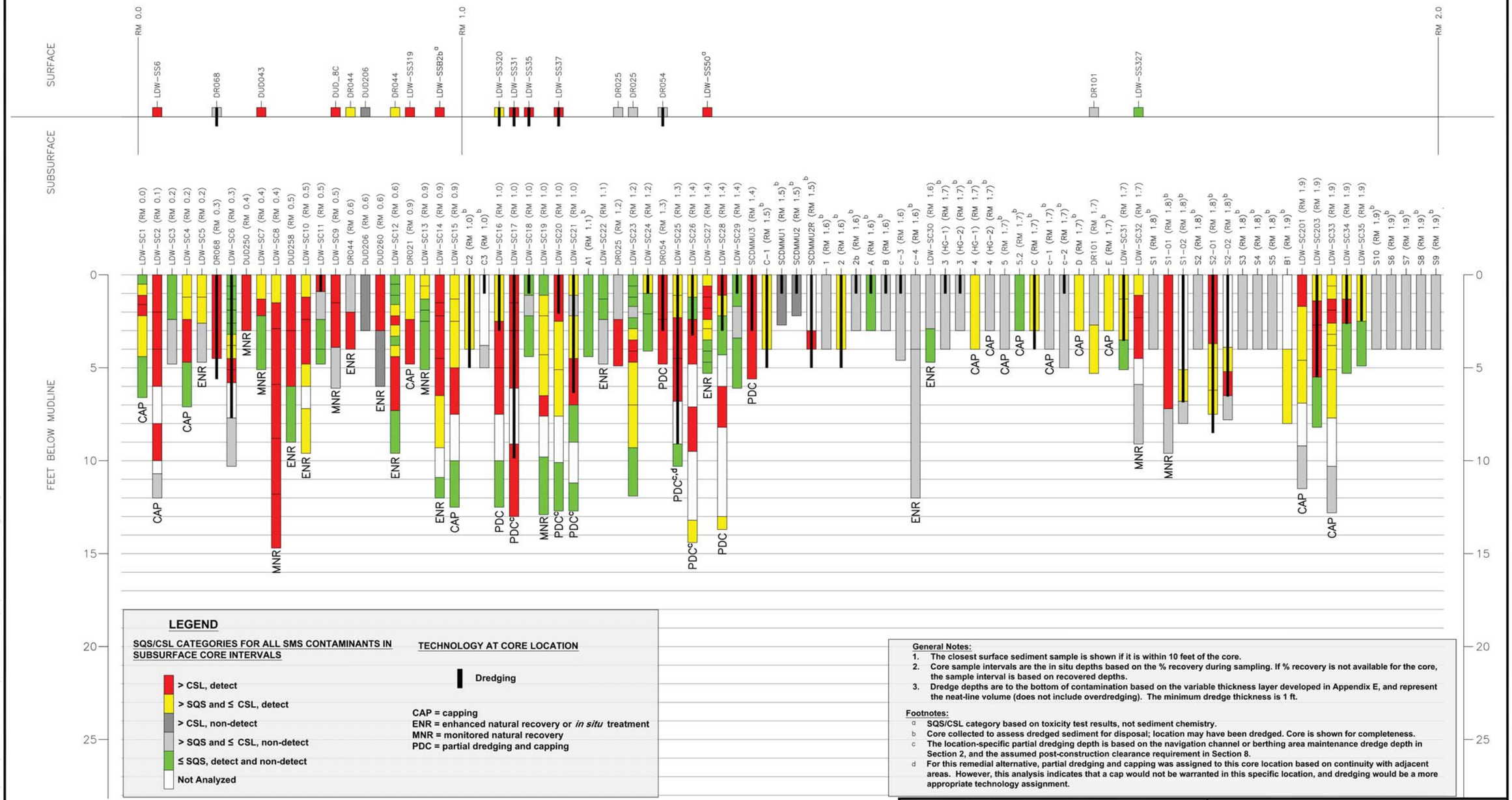
Alternative 4 Combined Remaining Subsurface Contamination - Plan View (RM 3.6 to 5.0)

DATE: 10/31/12 | DWRN:MVI/sea | Revision: 0

FIGURE G-19c

L:\Lower Duwamish FS\FS_Final_GIS\Oct2012\FS_GIS_MXDs_Oct12\Appendix G\FigureG-19cCoreRecoverySouth4C.mxd



LEGEND

SQS/CSL CATEGORIES FOR ALL SMS CONTAMINANTS IN SUBSURFACE CORE INTERVALS

- > CSL, detect
- > SQS and ≤ CSL, detect
- > CSL, non-detect
- > SQS and ≤ CSL, non-detect
- ≤ SQS, detect and non-detect
- Not Analyzed

TECHNOLOGY AT CORE LOCATION

- Dredging

CAP = capping
ENR = enhanced natural recovery or *in situ* treatment
MNR = monitored natural recovery
PDC = partial dredging and capping

General Notes:

1. The closest surface sediment sample is shown if it is within 10 feet of the core.
2. Core sample intervals are the in situ depths based on the % recovery during sampling. If % recovery is not available for the core, the sample interval is based on recovered depths.
3. Dredge depths are to the bottom of contamination based on the variable thickness layer developed in Appendix E, and represent the neat-line volume (does not include overdredging). The minimum dredge thickness is 1 ft.

Footnotes:

a SQS/CSL category based on toxicity test results, not sediment chemistry.
b Core collected to assess dredged sediment for disposal; location may have been dredged. Core is shown for completeness.
c The location-specific partial dredging depth is based on the navigation channel or berthing area maintenance dredge depth in Section 2, and the assumed post-construction clearance requirement in Section 8.
d For this remedial alternative, partial dredging and capping was assigned to this core location based on continuity with adjacent areas. However, this analysis indicates that a cap would not be warranted in this specific location, and dredging would be a more appropriate technology assignment.

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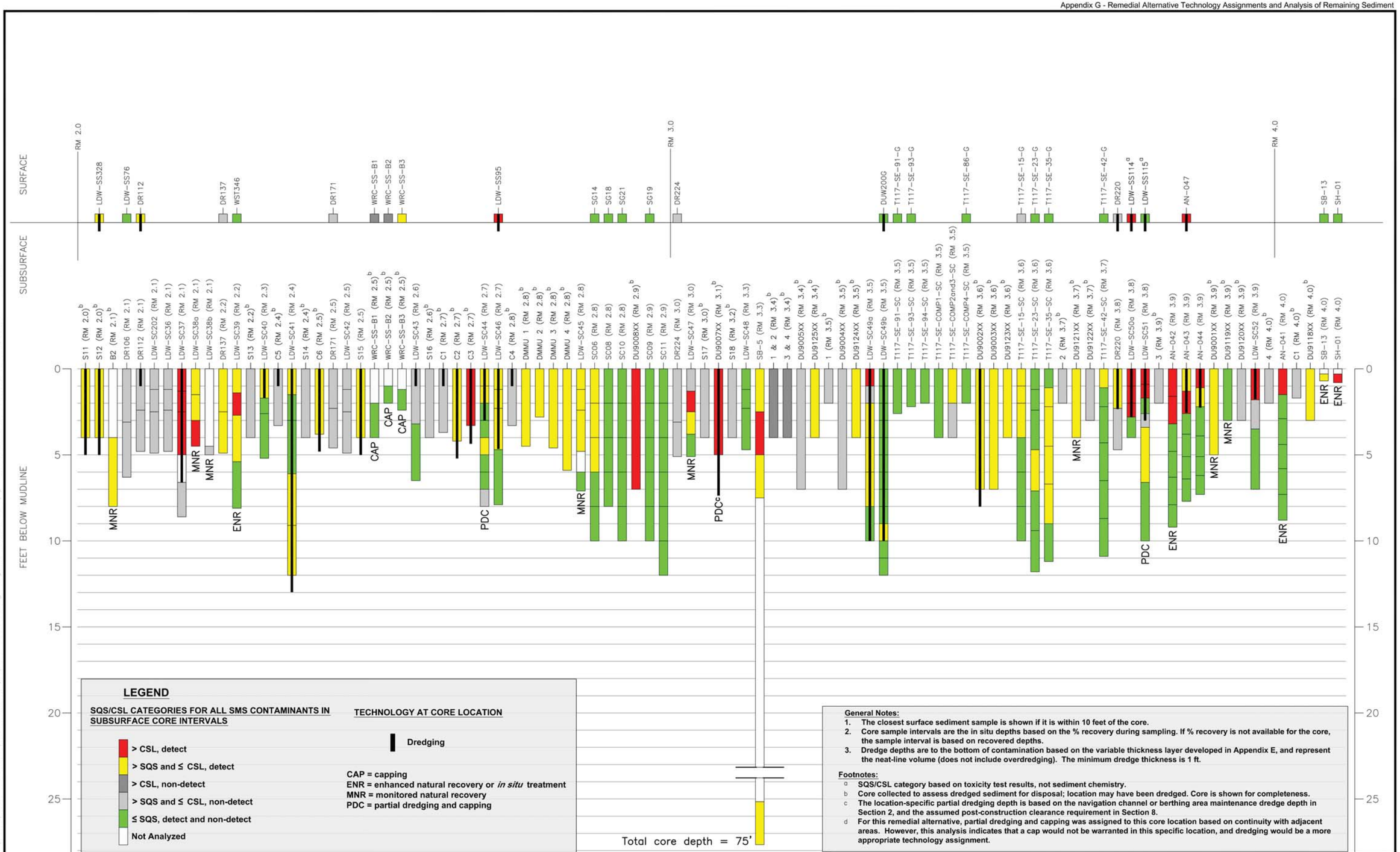
ALTERNATIVE 4 COMBINED REMAINING SUBSURFACE CONTAMINATION CORE DIAGRAMS (RM 0.0 TO 2.0)

DATE: 10/31/12 | DRWN: MO/SEA | **FIGURE G-20a**



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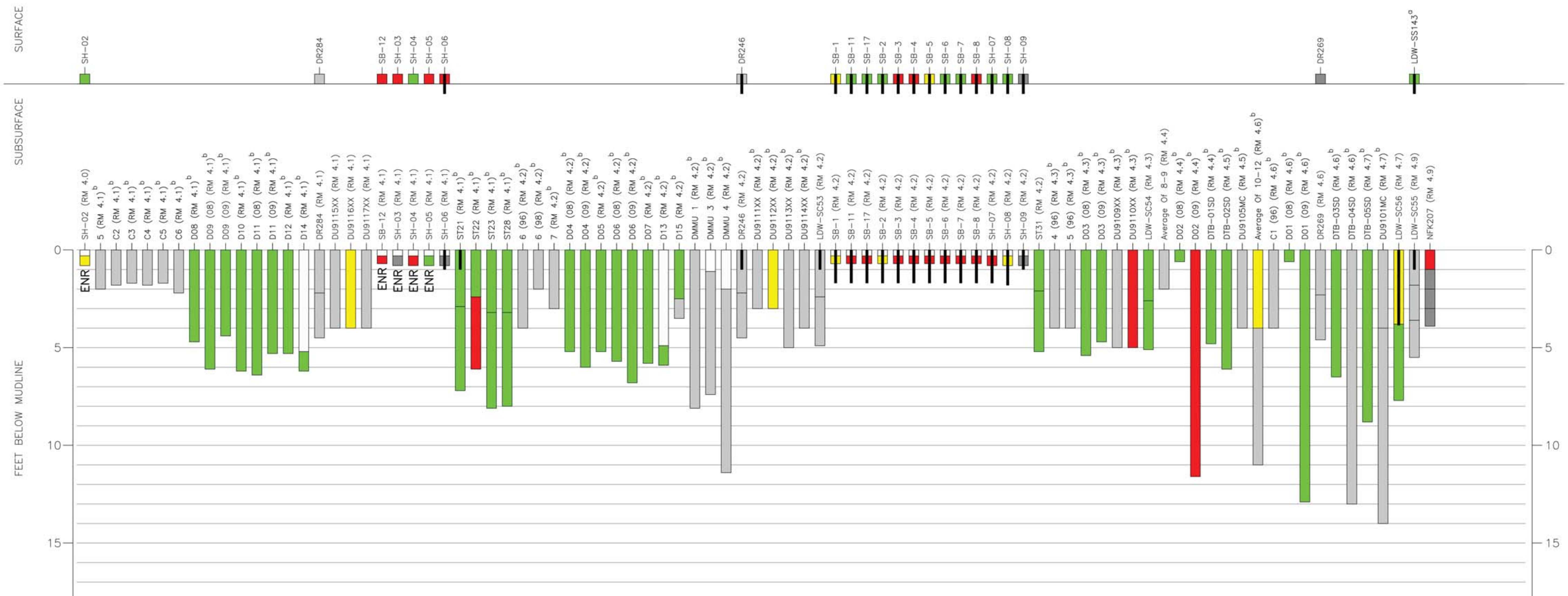
LOWER DUWAMISH WATERWAY
FINAL FEASIBILITY STUDY
60150279-14.46

DATE: 10/31/12 | DRWN: MO/SEA

ALTERNATIVE 4 COMBINED REMAINING SUBSURFACE CONTAMINATION CORE DIAGRAMS (RM 2.0 TO 4.0)

FIGURE G-20b



LEGEND

SQS/CSL CATEGORIES FOR ALL SMS CONTAMINANTS IN SUBSURFACE CORE INTERVALS

- > CSL, detect
- > SQS and ≤ CSL, detect
- > CSL, non-detect
- > SQS and ≤ CSL, non-detect
- ≤ SQS, detect and non-detect
- Not Analyzed

TECHNOLOGY AT CORE LOCATION

- Dredging

CAP = capping
ENR = enhanced natural recovery or *in situ* treatment
MNR = monitored natural recovery
PDC = partial dredging and capping

General Notes:

1. The closest surface sediment sample is shown if it is within 10 feet of the core.
2. Core sample intervals are the in situ depths based on the % recovery during sampling. If % recovery is not available for the core, the sample interval is based on recovered depths.
3. Dredge depths are to the bottom of contamination based on the variable thickness layer developed in Appendix E, and represent the neat-line volume (does not include overdredging). The minimum dredge thickness is 1 ft.

Footnotes:

a SQS/CSL category based on toxicity test results, not sediment chemistry.
b Core collected to assess dredged sediment for disposal; location may have been dredged. Core is shown for completeness.
c The location-specific partial dredging depth is based on the navigation channel or berthing area maintenance dredge depth in Section 2, and the assumed post-construction clearance requirement in Section 8.
d For this remedial alternative, partial dredging and capping was assigned to this core location based on continuity with adjacent areas. However, this analysis indicates that a cap would not be warranted in this specific location, and dredging would be a more appropriate technology assignment.

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FINAL FEASIBILITY STUDY
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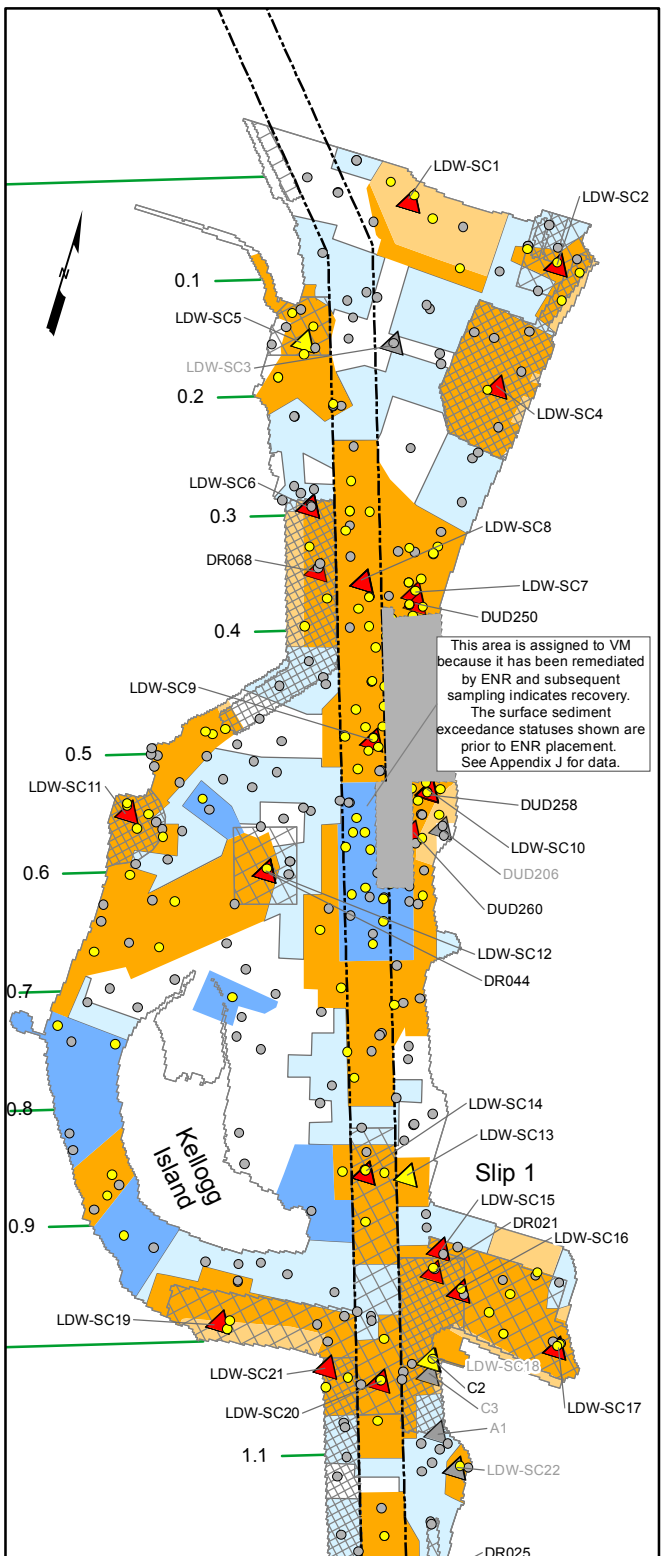
DATE: 10/31/12 | DRWN: MO/SEA

ALTERNATIVE 4 COMBINED REMAINING SUBSURFACE CONTAMINATION CORE DIAGRAMS (RM 4.0 TO 5.0)

FIGURE G-20c



Notes:
1. FS baseline dataset used. Total Study Area: 441 acres.
2. Technology assignments are for the FS and may change based on additional data collected during remedial design.
3. See Section 8 for additional details on technology assignments. Exceptions to the technology assignment criteria in Section 8 are explained in text boxes.
4. See Section 6 for development of recovery categories and RALs.
5. Subsurface exceedances in cores are at any depth and represent the highest level of exceedance for any SMS contaminant.

Remedial Alternative	Remedial Action Levels (RALs)				
	Total PCBs	cPAHs	Dioxins/ Furans	Arsenic	Benthic SMS
	µg/kg dw	µg TEQ/kg dw	ng TEQ/kg dw	mg/kg dw	41 Chemicals
Alt 5	240[a]	1,000 (site-wide), 900 (intertidal)	25	57 (site-wide), 28 (intertidal)	SQS
Alt 6 (defines AOPC 1+2)	100	1,000 (site-wide), 900 (intertidal)	15	15	SQS

Note a. Total PCBs concentration of 240 µg/kg dw as a dry weight approximation of the 12 mg/kg oc (SQS) value assuming 2% TOC.

Technology Assignment

AOPC 1
- Dredge (143 acres)
- Cap or Partial Dredge and Cap (14 acres)
- Monitored Natural Recovery (0 acres)
- ENR/*in situ* (0 acres)
- Verification Monitoring (23 acres)

AOPC 2 (122 acres)

Early Action Area (29 acres)

Remaining Study Area (Institutional Controls and Site-wide Monitoring) (110 acres)

0 200 400 800 Feet

Legend

Surface Sediment Exceedance Location
- >Alt 5 RALs
- Pass or Non-detect

Subsurface Exceedance Location and ID
- > CSL, detected
- > SQS and ≤ CSL, detected
- Pass or Non-detect

Station ID Labeled in Black

Station ID Labeled in Grey

Recovery Category
- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Navigation Channel
- River Mile Marker

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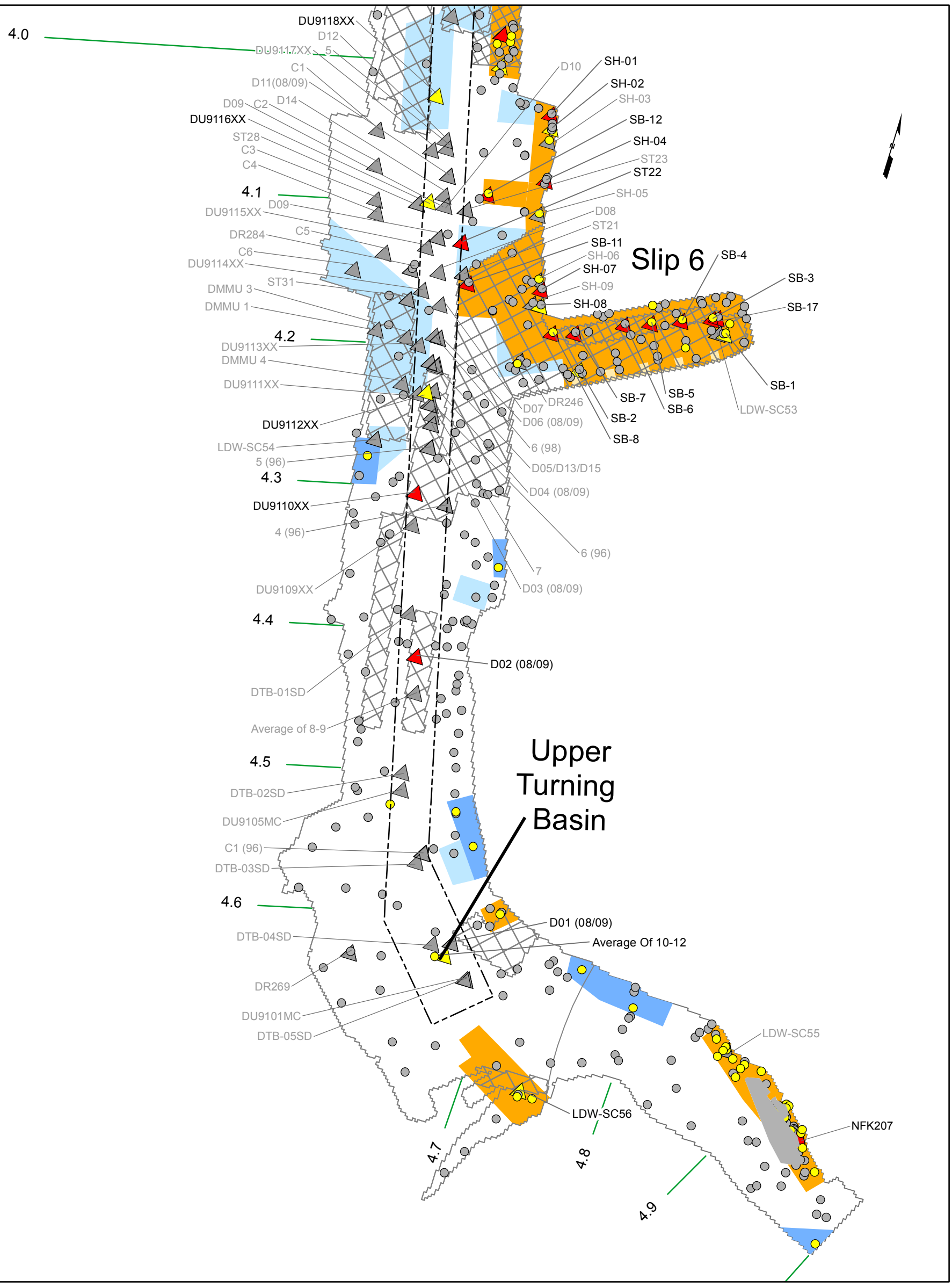
Alternative 5 Removal and Alternative 5 Removal with Treatment Technology Assignments and Waterway Conditions

DATE: 10/31/12 | DWRN:MVI/sea | Revision: 0 | **FIGURE G-21a**

L:\Lower Duwamish FS\FS Final GIS\Oct2012\FS GIS MXDs Oct12\Appendix G\FigureG-21aAlt5ActiveCon.mxd



Notes:
1. FS baseline dataset used. Total Study Area: 441 acres.
2. Technology assignments are for the FS and may change based on additional data collected during remedial design.
3. See Section 8 for additional details on technology assignments. Exceptions to the technology assignment criteria in Section 8 are explained in text boxes.
4. See Section 6 for development of recovery categories and RALs.
5. Subsurface exceedances in cores are at any depth and represent the highest level of exceedance for any SMS contaminant.

Remedial Alternative	Remedial Action Levels (RALs)				
	Total PCBs	cPAHs	Dioxins/ Furans	Arsenic	Benthic SMS
	µg/kg dw	µg TEQ/kg dw	ng TEQ/kg dw	mg/kg dw	41 Chemicals
Alt 5	240[a]	1,000 (site-wide), 900 (intertidal)	25	57 (site-wide), 28 (intertidal)	SQS
Alt 6 (defines AOPC 1+2)	100	1,000 (site-wide), 900 (intertidal)	15	15	SQS

Note a. Total PCBs concentration of 240 µg/kg dw as a dry weight approximation of the 12 mg/kg oc (SQS) value assuming 2% TOC.

Technology Assignment

AOPC 1
- Dredge (143 acres)
- Cap or Partial Dredge and Cap (14 acres)
- Monitored Natural Recovery (0 acres)
- ENR/*in situ* (0 acres)
- Verification Monitoring (23 acres)

AOPC 2 (122 acres)

Early Action Area (29 acres)

Remaining Study Area (Institutional Controls and Site-wide Monitoring) (110 acres)

Feet
0 200 400 800

Legend

Surface Sediment Exceedance Location
- >Alt 5 RALs
- Pass or Non-detect

Subsurface Exceedance Location and ID
- > CSL, detected
- > SQS and ≤ CSL, detected

Station ID Labeled in Black

- Pass or Non-detect

Station ID Labeled in Grey

Recovery Category
- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Navigation Channel
- River Mile Marker

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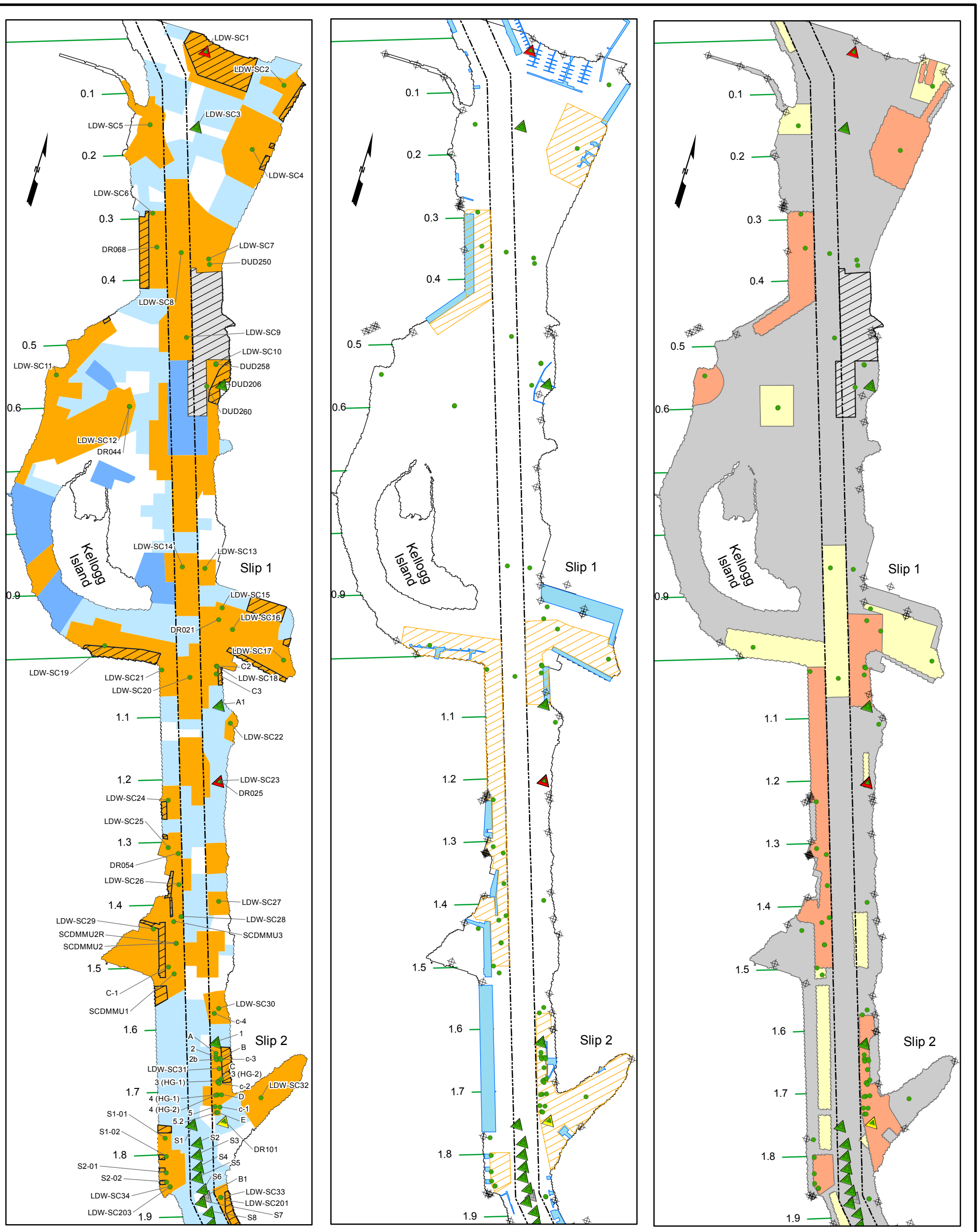
Alternative 5 Removal and Alternative 5 Removal with Treatment Technology Assignments and Waterway Conditions (RM 4.0 to 5.0)

DATE: 10/31/12 | DWRN:MVI/sea | Revision: 0

FIGURE G-21b

L:\Lower Duwamish FS\FS_Final_GIS\Oct2012\FS_GIS_MXDs_Oct12\Appendix G\FigureG-21bAlt5ActiveConB.mxd



Notes:
1. If cores overlap, the core with the highest exceedance status is shown on top.
2. Core intervals are based on *in situ* depths.
3. Any sample interval that overlaps the 0-2 or 2-4 ft interval is included. Samples that overlap both core intervals are mapped in both intervals.
4. For cores in capping areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval displays the 0-2 ft exceedance status.
5. For cores in partial dredge and cap areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval exceedance status is retained.
6. For cores in ENR areas, both the 0-2 ft and the 2-4 ft interval exceedance statuses are retained.
7. Cores in EAAs are not shown.

Legend

Technology Assignment

- Dredge
- Partial Dredge and Cap
- Cap
- Monitored Natural Recovery
- ENR/*in situ*
- Verification Monitoring
- AOPC 2
- Remaining Study Area (Institutional Controls and Site-wide Monitoring)

SMS Exceedance Status Following Remediation

Maximum exceedance 0-2 ft in core / Maximum exceedance 2-4 ft in core

- > CSL
- >SQS and ≤ CSL
- ≤ SQS or Non-detect
- Interval Not Analyzed
- Core Location Dredged During Remediation

Physical Lines of Evidence Used in Assigning Recovery Categories

- STM Predicted 100-Year High-flow Scour > 10 cm
- Evidence of Propeller Wash Scour
- Overwater Structure
- Outfall Location

Recovery Category

- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Early Action Area
- Navigation Channel
- River Mile Marker

0 200 400 800 Feet

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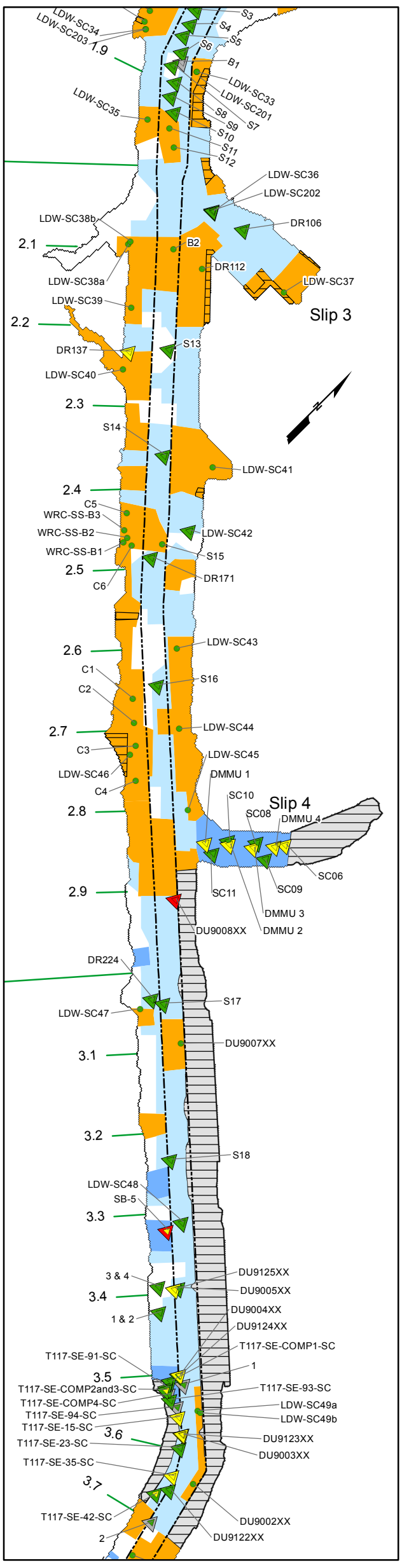
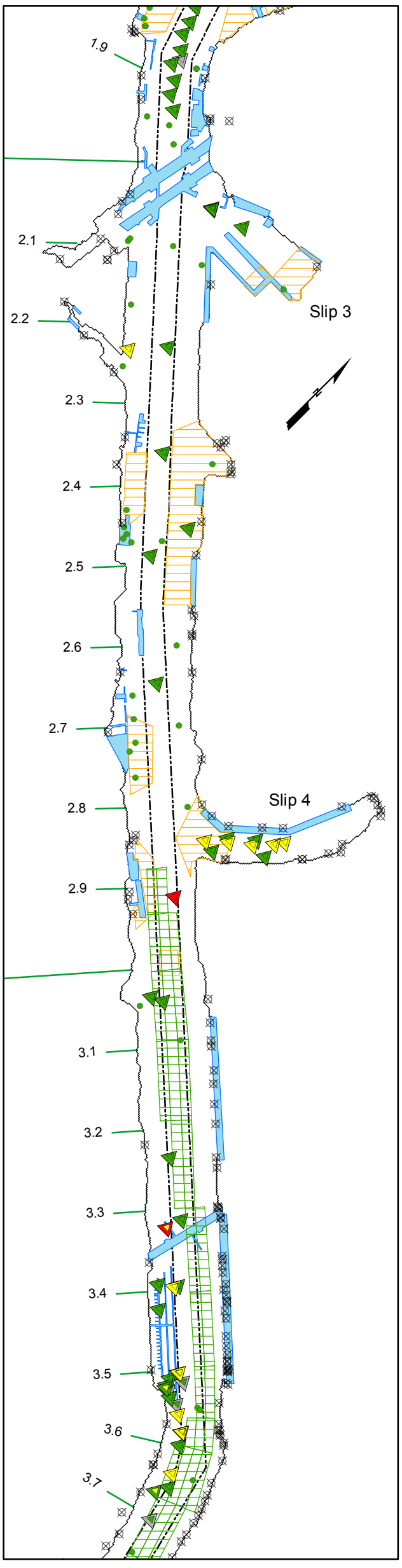
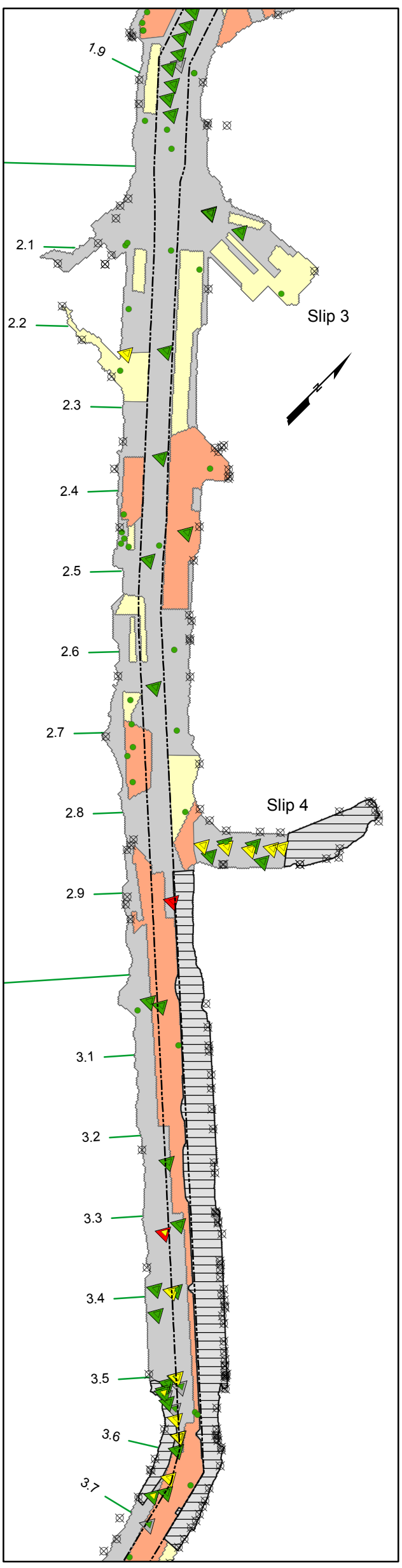
Lower Duwamish Waterway Final Feasibility Study 60150279-14.46			**Alternative 5 Removal and Alternative 5 Removal with Treatment Remaining Subsurface Contamination - Plan View (RM 0.0 to 1.9)**
DATE: 10/31/12	DWRN:MVI/sea	Revision: 0	**FIGURE G-22a**

L:\Lower Duwamish FS\FS_Final_GIS\Oct2012\FS_GIS_MXDs_Oct12\Appendix G\G-22aCoreRecoveryNorth5R.mxd







Notes:
1. If cores overlap, the core with the highest exceedance status is shown on top.
2. Core intervals are based on *in situ* depths.
3. Any sample interval that overlaps the 0-2 or 2-4 ft interval is included. Samples that overlap both core intervals are mapped in both intervals.
4. For cores in capping areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval displays the 0-2 ft exceedance status.
5. For cores in partial dredge and cap areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval exceedance status is retained.
6. For cores in ENR areas, both the 0-2 ft and the 2-4 ft interval exceedance statuses are retained.
7. Cores in EAAs are not shown.

Feet
0 200 400 800

Legend

Technology Assignment
- Dredge
- Partial Dredge and Cap
- Cap
- Monitored Natural Recovery
- ENR/*in situ*
- Verification Monitoring
- AOPC 2
- Remaining Study Area (Institutional Controls and Site-wide Monitoring)

SMS Exceedance Status Following Remediation
Maximum exceedance 0-2 ft in core / Maximum exceedance 2-4 ft in core
- > CSL
- >SQS and ≤ CSL
- ≤ SQS or Non-detect
- Interval Not Analyzed
- Core Location Dredged During Remediation

Physical Lines of Evidence Used in Assigning Recovery Categories
- STM Predicted 100-Year High-flow Scour > 10 cm
- Evidence of Propeller Wash Scour
- Overwater Structure
- Outfall Location

Recovery Category
- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Early Action Area
- Navigation Channel
- River Mile Marker

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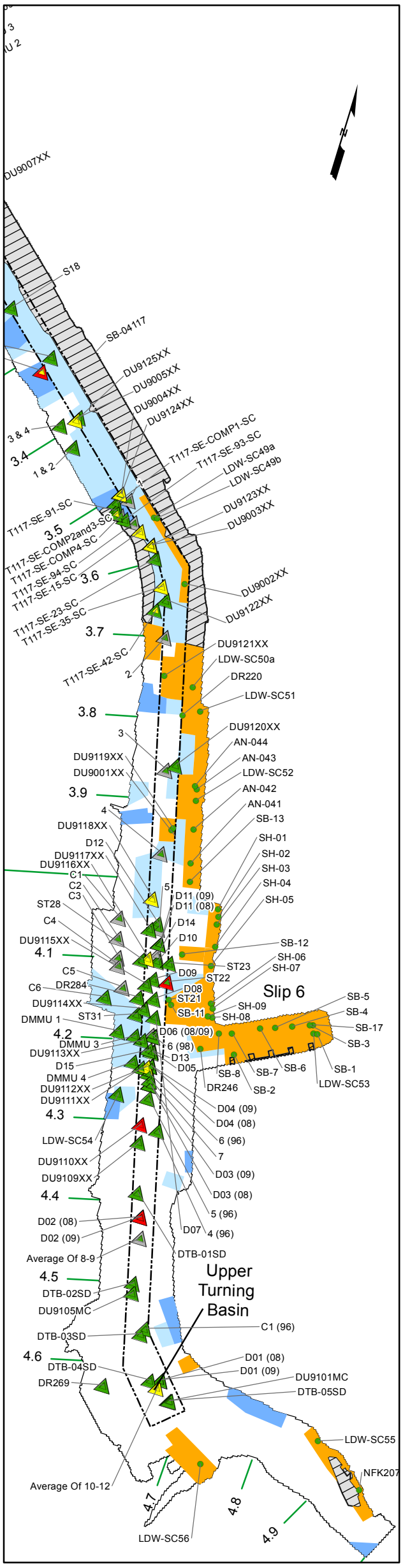
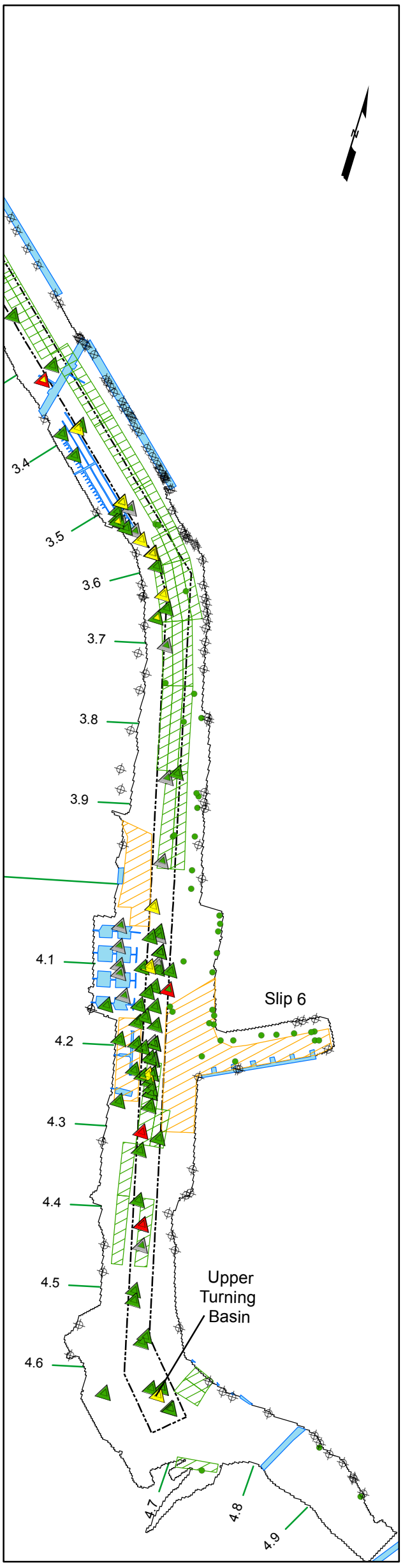
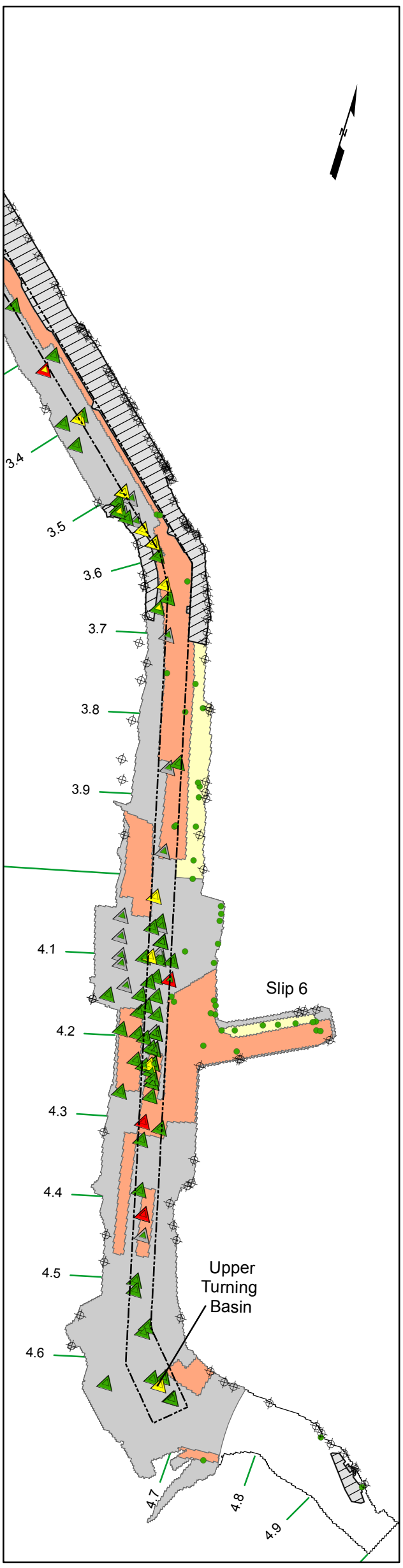
Lower Duwamish Waterway Final Feasibility Study 60150279-14.46			**Alternative 5 Removal and Alternative 5 Removal with Treatment Remaining Subsurface Contamination - Plan View (RM 1.9 to 3.6)**
DATE: 10/31/12	DWRN:MVI/sea	Revision: 0	**FIGURE G-22b**

L:\Lower Duwamish FS\FS_Final_GIS\Oct2012\FS_GIS_MXDs_Oct12\Appendix G\G-22bCoreRecoveryMid5R.mxd







Notes:
1. If cores overlap, the core with the highest exceedance status is shown on top.
2. Core intervals are based on *in situ* depths.
3. Any sample interval that overlaps the 0-2 or 2-4 ft interval is included. Samples that overlap both core intervals are mapped in both intervals.
4. For cores in capping areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval displays the 0-2 ft exceedance status.
5. For cores in partial dredge and cap areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval exceedance status is retained.
6. For cores in ENR areas, both the 0-2 ft and the 2-4 ft interval exceedance statuses are retained.
7. Cores in EAAs are not shown.

Feet
0 200 400 800

Legend

Technology Assignment
- Dredge
- Partial Dredge and Cap
- Cap
- Monitored Natural Recovery
- ENR/*in situ*
- Verification Monitoring
- AOPC 2
- Remaining Study Area (Institutional Controls and Site-wide Monitoring)

SMS Exceedance Status Following Remediation
Maximum exceedance 0-2 ft in core / Maximum exceedance 2-4 ft in core
- > CSL
- >SQS and ≤ CSL
- ≤ SQS or Non-detect
- Interval Not Analyzed
- Core Location Dredged During Remediation

Physical Lines of Evidence Used in Assigning Recovery Categories
- STM Predicted 100-Year High-flow Scour > 10 cm
- Evidence of Propeller Wash Scour
- Overwater Structure
- Outfall Location

Recovery Category
- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Early Action Area
- Navigation Channel
- River Mile Marker

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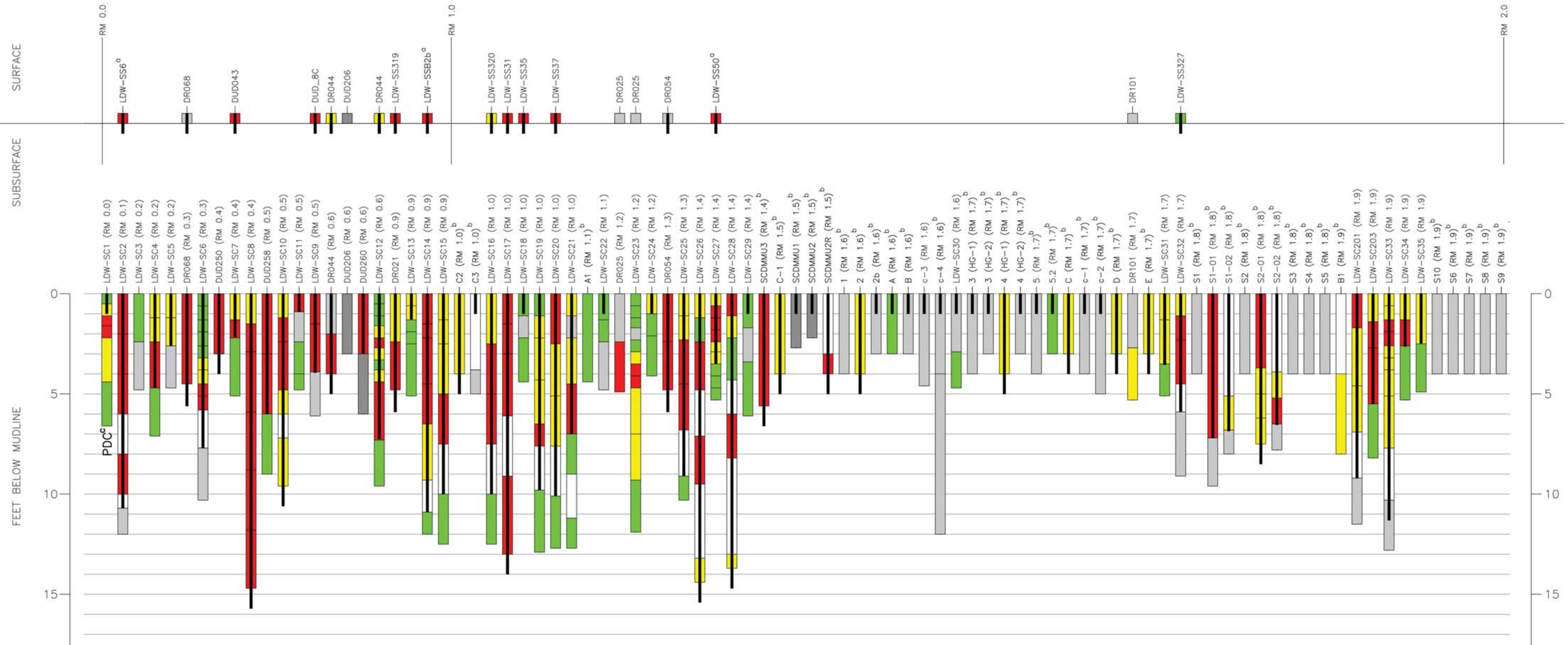
Alternative 5 Removal and Alternative 5 Removal with Treatment Remaining Subsurface Contamination - Plan View (RM 3.6 to 5.0)

DATE: 10/31/12	DWRN:MVI/sea	Revision: 0	**FIGURE G-22c**

L:\Lower Duwamish FS\FS_Final_GIS\Oct2012\FS_GIS_MXDs_Oct12\Appendix G\FigureG-22cCoreRecoverySouth5R.mxd



LEGEND

SQS/CSL CATEGORIES FOR ALL SMS CONTAMINANTS IN SUBSURFACE CORE INTERVALS

- > CSL, detect
- > SQS and ≤ CSL, detect
- > CSL, non-detect
- > SQS and ≤ CSL, non-detect
- ≤ SQS, detect and non-detect
- Not Analyzed

TECHNOLOGY AT CORE LOCATION

Dredging

CAP = capping
ENR = enhanced natural recovery or *in situ* treatment
PDC = partial dredging and capping

General Notes:

1. The closest surface sediment sample is shown if it is within 10 feet of the core.
2. Core sample intervals are the in situ depths based on the % recovery during sampling. If % recovery is not available for the core, the sample interval is based on recovered depths.
3. Dredge depths are to the bottom of contamination based on the variable thickness layer developed in Appendix E, and represent the neat-line volume (does not include overdredging). The minimum dredge thickness is 1 ft.

Footnotes:

a SQS/CSL category based on toxicity test results, not sediment chemistry.
b Core collected to assess dredged sediment for disposal; location may have been dredged. Core is shown for completeness.
c The location-specific partial dredging depth is based on the navigation channel or berthing area maintenance dredge depth in Section 2, and the assumed post-construction clearance requirement in Section 8.

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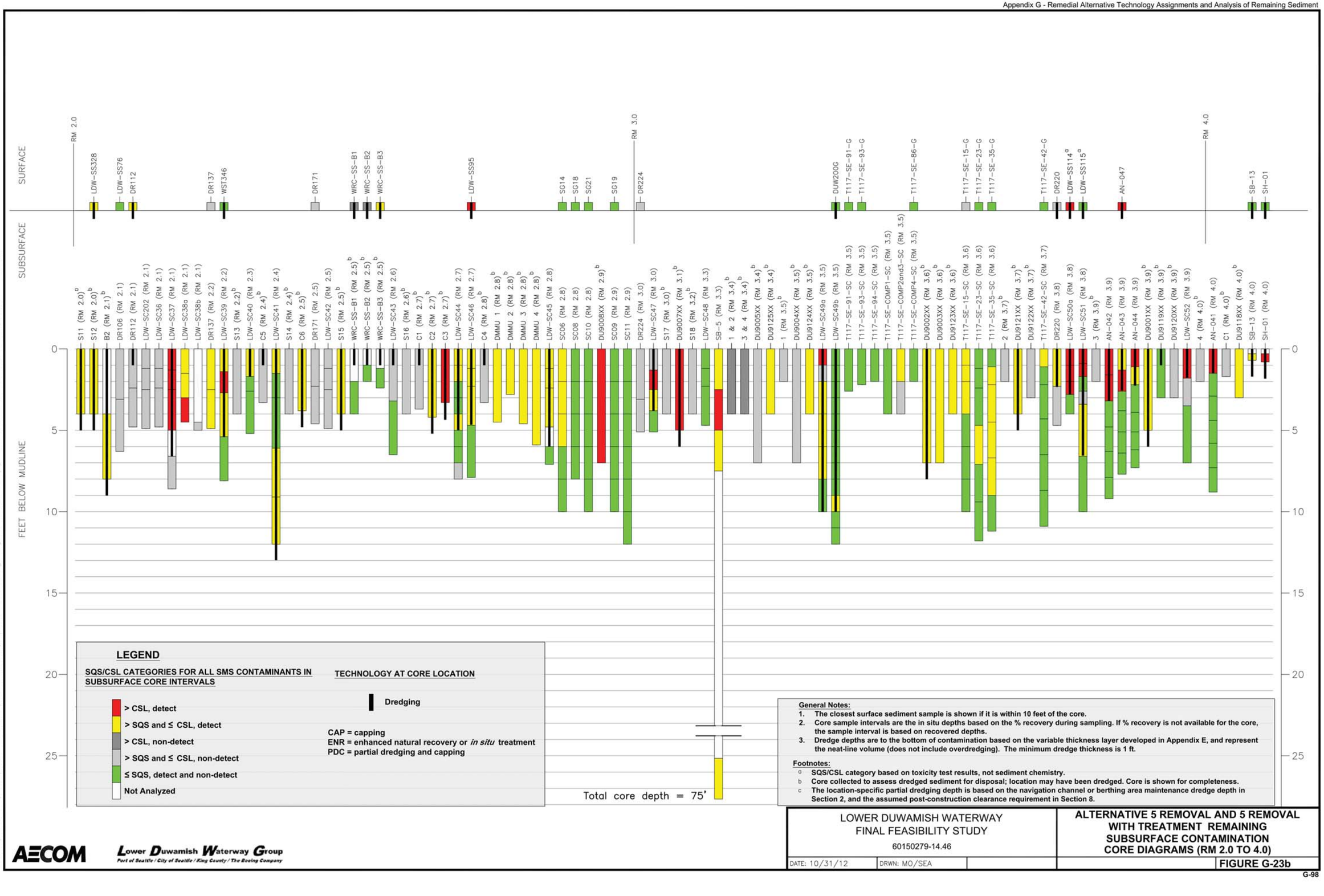
ALTERNATIVE 5 REMOVAL AND 5 REMOVAL WITH TREATMENT REMAINING SUBSURFACE CONTAMINATION CORE DIAGRAMS (RM 0.0 TO 2.0)

FIGURE G-23a



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FINAL FEASIBILITY STUDY
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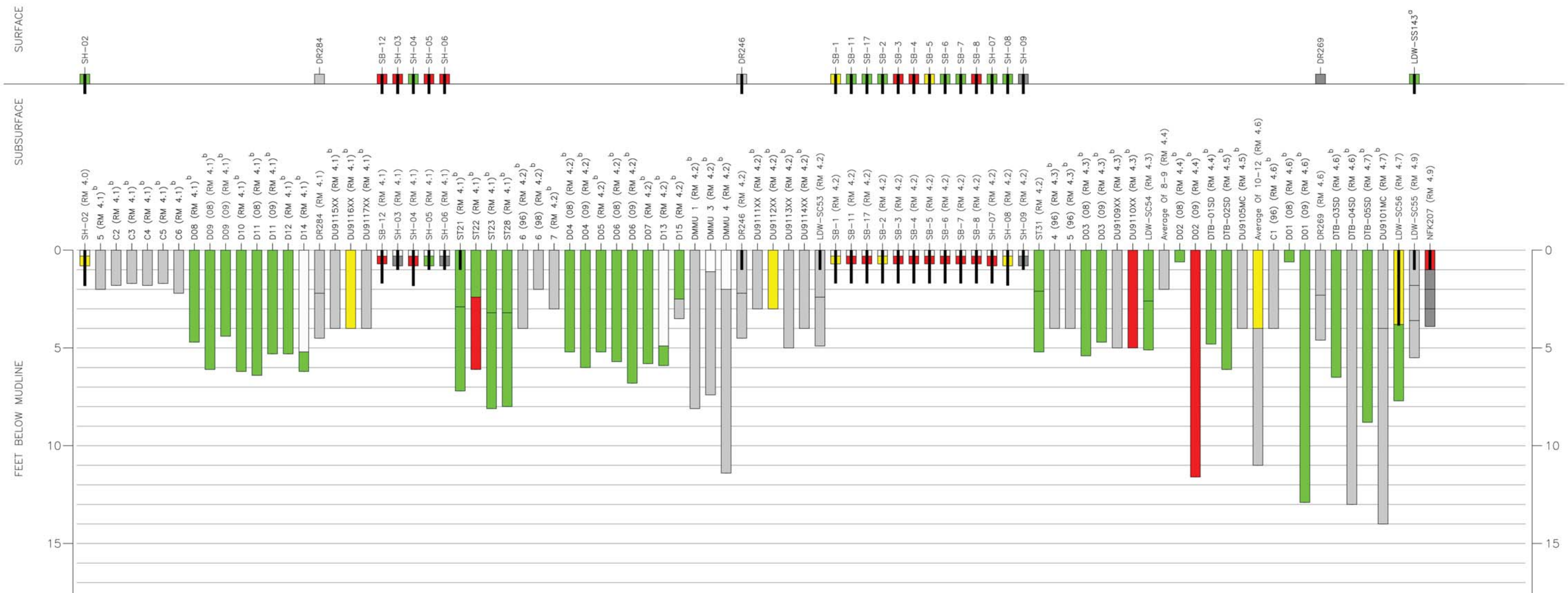
DATE: 10/31/12 | DRWN: MO/SEA

ALTERNATIVE 5 REMOVAL AND 5 REMOVAL WITH TREATMENT REMAINING SUBSURFACE CONTAMINATION CORE DIAGRAMS (RM 2.0 TO 4.0)

FIGURE G-23b



LEGEND

SQS/CSL CATEGORIES FOR ALL SMS CONTAMINANTS IN SUBSURFACE CORE INTERVALS

- > CSL, detect
- > SQS and ≤ CSL, detect
- > CSL, non-detect
- > SQS and ≤ CSL, non-detect
- ≤ SQS, detect and non-detect
- Not Analyzed

TECHNOLOGY AT CORE LOCATION

- Dredging

CAP = capping
ENR = enhanced natural recovery or *in situ* treatment
PDC = partial dredging and capping

General Notes:

1. The closest surface sediment sample is shown if it is within 10 feet of the core.
2. Core sample intervals are the in situ depths based on the % recovery during sampling. If % recovery is not available for the core, the sample interval is based on recovered depths.
3. Dredge depths are to the bottom of contamination based on the variable thickness layer developed in Appendix E, and represent the neat-line volume (does not include overdredging). The minimum dredge thickness is 1 ft.

Footnotes:

a SQS/CSL category based on toxicity test results, not sediment chemistry.
b Core collected to assess dredged sediment for disposal; location may have been dredged. Core is shown for completeness.
c The location-specific partial dredging depth is based on the navigation channel or berthing area maintenance dredge depth in Section 2, and the assumed post-construction clearance requirement in Section 8.

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LOWER DUWAMISH WATERWAY
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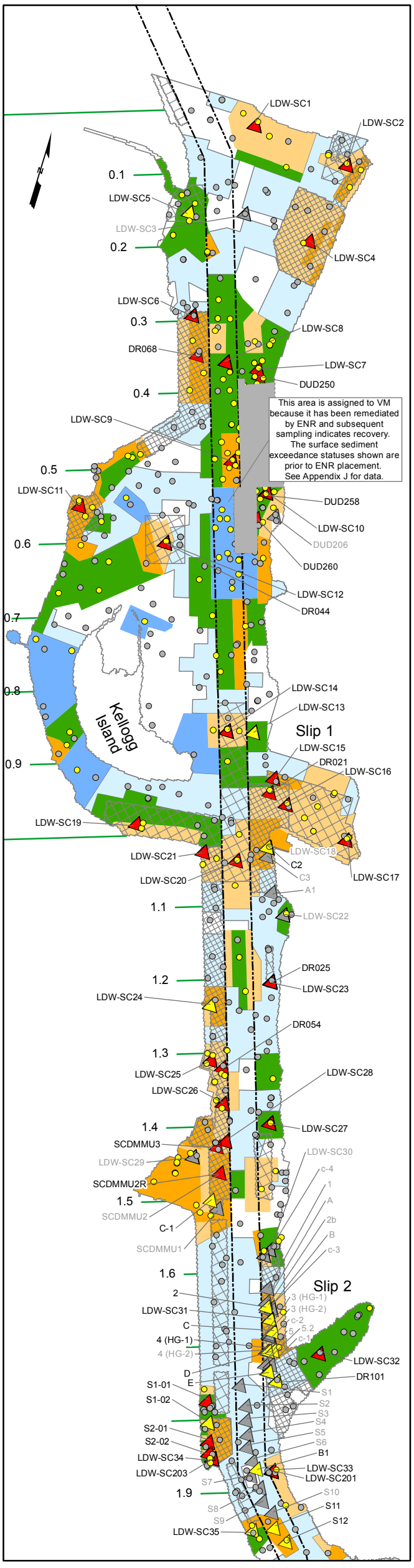
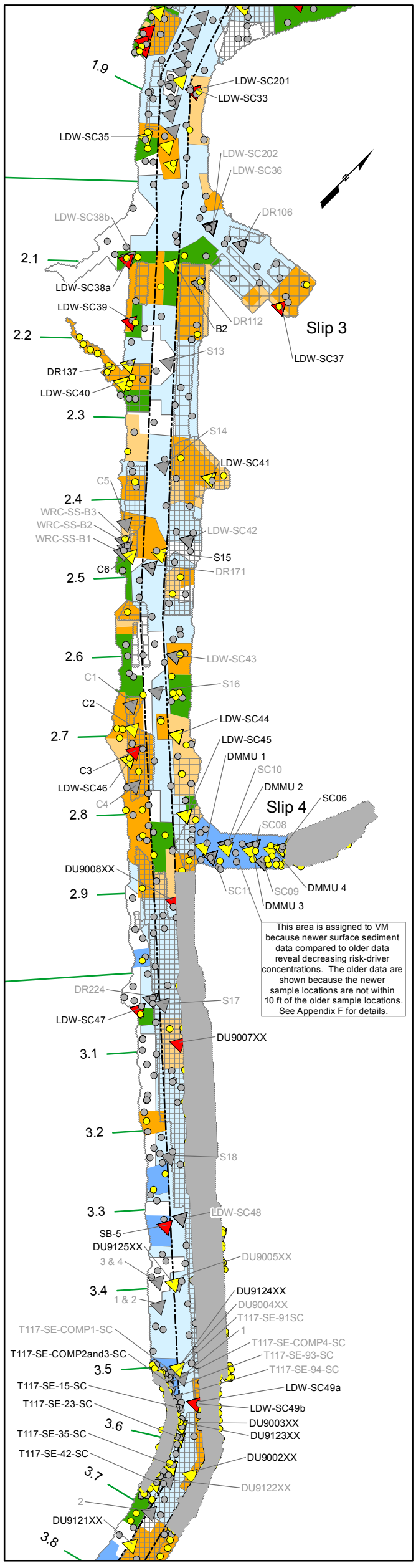
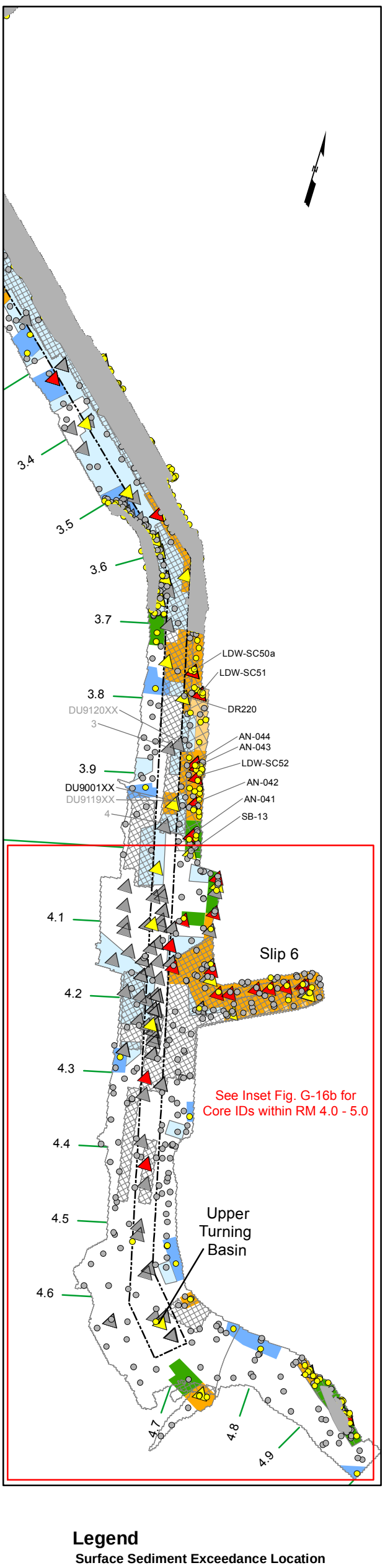
DATE: 10/31/12 DRWN: MO/SEA

ALTERNATIVE 5 REMOVAL AND 5 REMOVAL WITH TREATMENT REMAINING SUBSURFACE CONTAMINATION CORE DIAGRAMS (RM 4.0 TO 5.0)

FIGURE G-23c







Notes:
1. FS baseline dataset used. Total Study Area: 441 acres.
2. Technology assignments are for the FS and may change based on additional data collected during remedial design.
3. See Section 8 for additional details on technology assignments. Exceptions to the technology assignment criteria in Section 8 are explained in text boxes.
4. See Section 6 for development of recovery categories and RALs.
5. Subsurface exceedances in cores are at any depth and represent the highest level of exceedance for any SMS contaminant.

Remedial Alternative	Remedial Action Levels (RALs)				
	Total PCBs	cPAHs	Dioxins/ Furans	Arsenic	Benthic SMS
	µg/kg dw	µg TEQ/kg dw	ng TEQ/kg dw	mg/kg dw	41 Chemicals
Alt 5	240[a]	1,000 (site-wide), 900 (intertidal)	25	57 (site-wide), 28 (intertidal)	SQS
Alt 6 (defines AOPC 1+2)	100	1,000 (site-wide), 900 (intertidal)	15	15	SQS

TOC.

Technology Assignment

AOPC 1
- Dredge (57 acres)
- Cap or Partial Dredge and Cap (47 acres)
- Monitored Natural Recovery (0 acres)
- ENR/*in situ* (53 acres)
- Verification Monitoring (23 acres)

AOCP 2 (122 acres)

Early Action Area (29 acres)

Remaining Study Area (Institutional Controls and Site-wide Monitoring) (110 acres)

0 200 400 800 Feet

Legend

Surface Sediment Exceedance Location
- >Alt 5 RALs
- Pass or Non-detect

Subsurface Exceedance Location and ID
- > CSL, detected
- > SQS and ≤ CSL, detected
- Pass or Non-detect

Station ID Labeled in Black

Station ID Labeled in Grey

Recovery Category
- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Navigation Channel
- River Mile Marker

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Lower Duwamish Waterway
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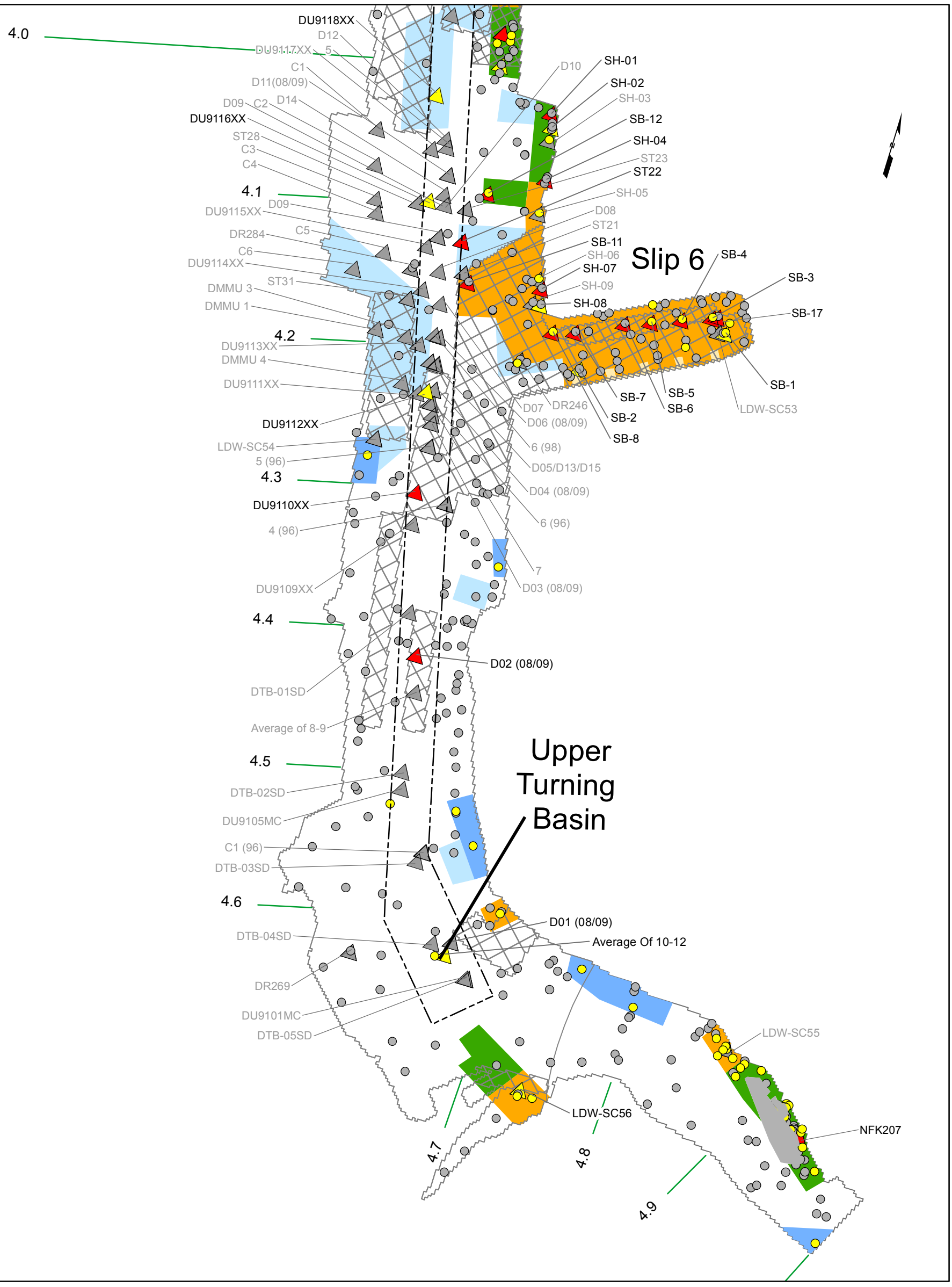
Alternative 5 Combined Technology Assignments and Waterway Conditions

DATE: 10/31/12 | DWRN:MVI/sea | Revision: 0

FIGURE G-24a

L:\Lower Duwamish FS\FS Final GIS\Oct2012\FS GIS MXDs Oct12\Appendix G\FigureG-24aAlt5CombinedCon.mxd



Notes:
1. FS baseline dataset used. Total Study Area: 441 acres.
2. Technology assignments are for the FS and may change based on additional data collected during remedial design.
3. See Section 8 for additional details on technology assignments. Exceptions to the technology assignment criteria in Section 8 are explained in text boxes.
4. See Section 6 for development of recovery categories and RALs.
5. Subsurface exceedances in cores are at any depth and represent the highest level of exceedance for any SMS contaminant.

Remedial Alternative	Remedial Action Levels (RALs)				
	Total PCBs	cPAHs	Dioxins/ Furans	Arsenic	Benthic SMS
	µg/kg dw	µg TEQ/kg dw	ng TEQ/kg dw	mg/kg dw	41 Chemicals
Alt 5	240[a]	1,000 (site-wide), 900 (intertidal)	25	57 (site-wide), 28 (intertidal)	SQS
Alt 6 (defines AOPC 1+2)	100	1,000 (site-wide), 900 (intertidal)	15	15	SQS

Note a. Total PCBs concentration of 240 µg/kg dw as a dry weight approximation of the 12 mg/kg oc (SQS) value assuming 2% TOC.

Technology Assignment

AOPC 1
- Dredge (57 acres)
- Cap or Partial Dredge and Cap (47 acres)
- Monitored Natural Recovery (0 acres)
- ENR/*in situ* (53 acres)
- Verification Monitoring (23 acres)

AOPC 2 (122 acres)

Early Action Area (29 acres)

Remaining Study Area (Institutional Controls and Site-wide Monitoring) (110 acres)

Feet
0 200 400 800

Legend

Surface Sediment Exceedance Location
- >Alt 5 RALs
- Pass or Non-detect

Subsurface Exceedance Location and ID
- > CSL, detected
- > SQS and ≤ CSL, detected
- Pass or Non-detect

Station ID Labeled in Black
Station ID Labeled in Grey

Recovery Category
- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Navigation Channel
- River Mile Marker

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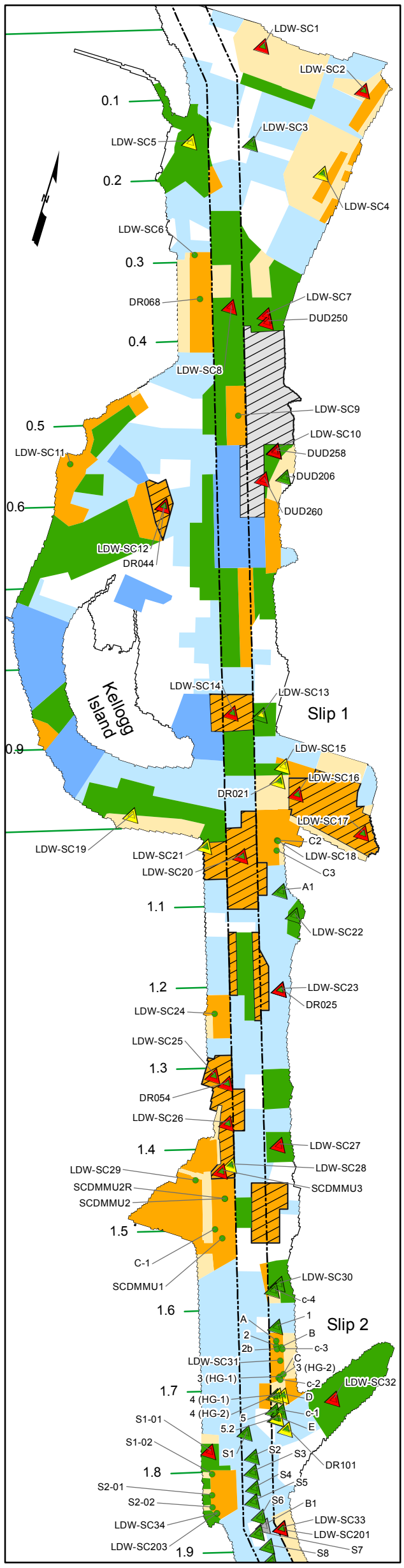
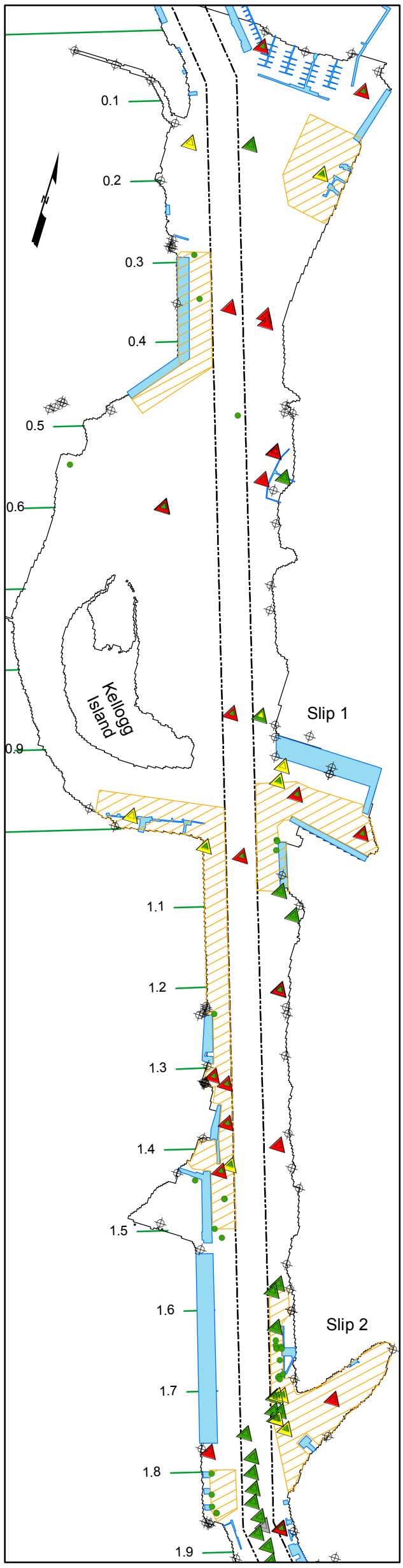
Alternative 5 Combined Technology Assignments and Waterway Conditions (RM 4.0 to 5.0)

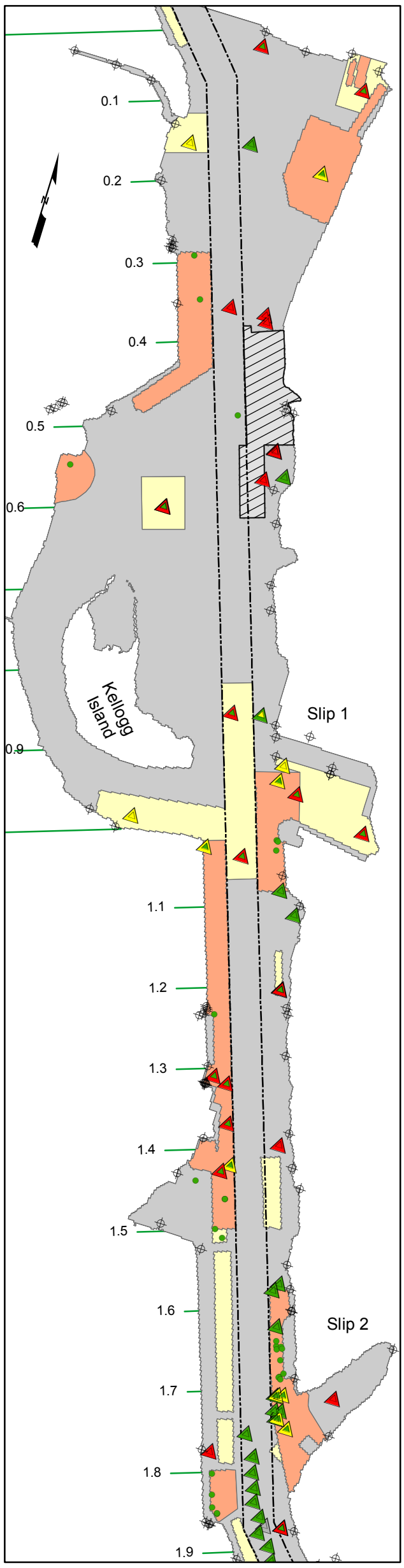
DATE: 10/31/12 | DWRN:MVI/sea | Revision: 0

FIGURE G-24b

L:\Lower Duwamish FS\FS Final GIS\Oct2012\FS GIS MXDs Oct12\Appendix G\FigureG-24bAlt4CombinedConB.mxd







Notes:
1. If cores overlap, the core with the highest exceedance status is shown on top.
2. Core intervals are based on *in situ* depths.
3. Any sample interval that overlaps the 0-2 or 2-4 ft interval is included. Samples that overlap both core intervals are mapped in both intervals.
4. For cores in capping areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval displays the 0-2 ft exceedance status.
5. For cores in partial dredge and cap areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval exceedance status is retained.
6. For cores in ENR areas, both the 0-2 ft and the 2-4 ft interval exceedance statuses are retained.
7. Cores in EAAs are not shown.

Legend

Technology Assignment

- Dredge
- Partial Dredge and Cap
- Cap
- Monitored Natural Recovery
- ENR/*in situ*
- Verification Monitoring
- AOPC 2
- Remaining Study Area (Institutional Controls and Site-wide Monitoring)

SMS Exceedance Status Following Remediation

Maximum exceedance 0-2 ft in core / Maximum exceedance 2-4 ft in core

- > CSL
- >SQS and ≤ CSL
- ≤ SQS or Non-detect
- Interval Not Analyzed
- Core Location Dredged During Remediation

Physical Lines of Evidence Used in Assigning Recovery Categories

- STM Predicted 100-Year High-flow Scour > 10 cm
- Evidence of Propeller Wash Scour
- Overwater Structure
- Outfall Location

Recovery Category

- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Early Action Area
- Navigation Channel
- River Mile Marker

0 200 400 800 Feet

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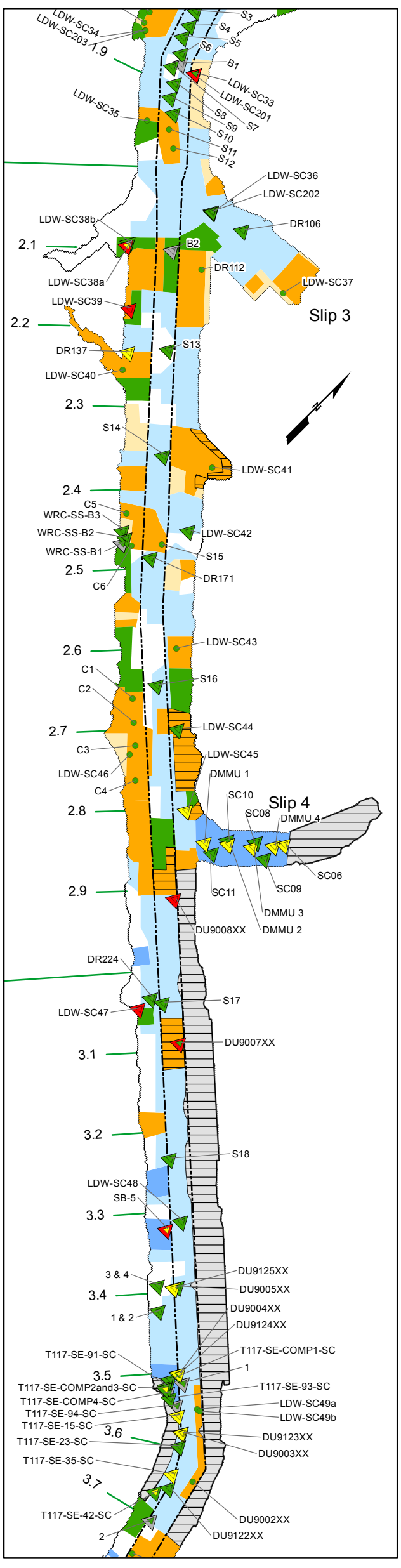
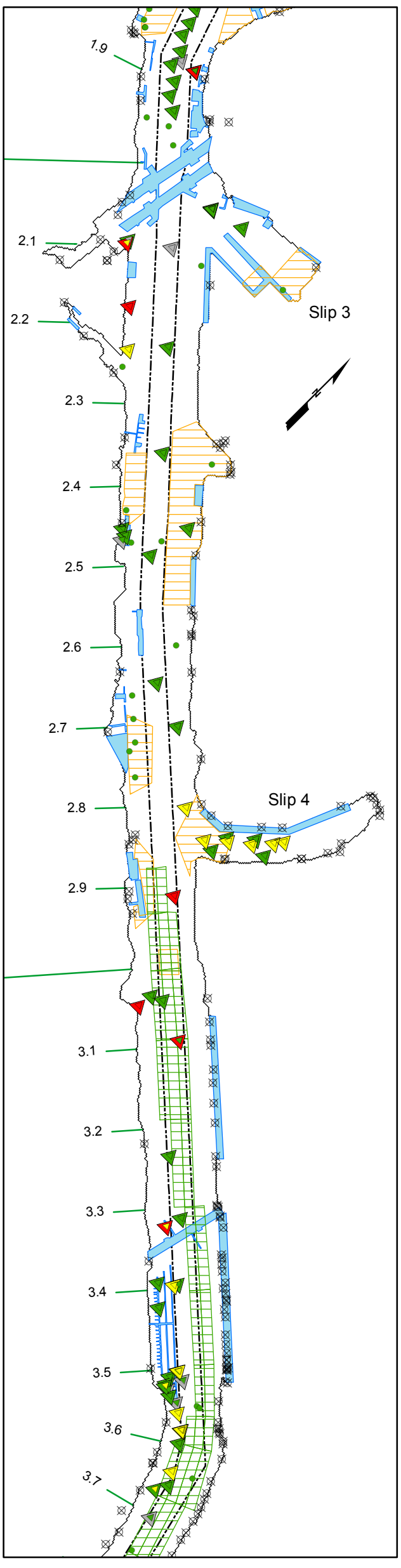
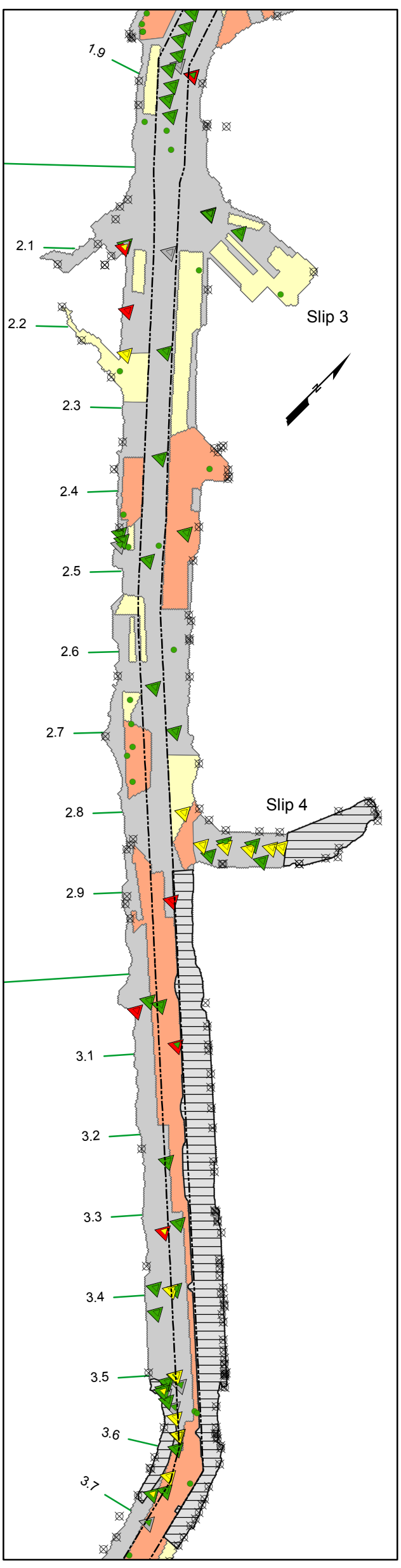
Alternative 5 Combined Remaining Subsurface Contamination - Plan View (RM 0.0 to 1.9)

DATE: 10/31/12 | DWRN:MVI/sea | Revision: 0 | **FIGURE G-25a**

L:\Lower Duwamish FS\FS_Final_GIS\Oct2012\FS_GIS_MXDs_Oct12\Appendix G\G-25aCoreRecoveryNorth5C.mxd







Notes:
1. If cores overlap, the core with the highest exceedance status is shown on top.
2. Core intervals are based on *in situ* depths.
3. Any sample interval that overlaps the 0-2 or 2-4 ft interval is included. Samples that overlap both core intervals are mapped in both intervals.
4. For cores in capping areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval displays the 0-2 ft exceedance status.
5. For cores in partial dredge and cap areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval exceedance status is retained.
6. For cores in ENR areas, both the 0-2 ft and the 2-4 ft interval exceedance statuses are retained.
7. Cores in EAAs are not shown.

Feet
0 200 400 800

Legend

Technology Assignment
- Dredge
- Partial Dredge and Cap
- Cap
- Monitored Natural Recovery
- ENR/*in situ*
- Verification Monitoring
- AOPC 2
- Remaining Study Area (Institutional Controls and Site-wide Monitoring)

SMS Exceedance Status Following Remediation
Maximum exceedance 0-2 ft in core / Maximum exceedance 2-4 ft in core
- > CSL
- >SQS and ≤ CSL
- ≤ SQS or Non-detect
- Interval Not Analyzed
- Core Location Dredged During Remediation

Physical Lines of Evidence Used in Assigning Recovery Categories
- STM Predicted 100-Year High-flow Scour > 10 cm
- Evidence of Propeller Wash Scour
- Overwater Structure
- Outfall Location

Recovery Category
- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Early Action Area
- Navigation Channel
- River Mile Marker

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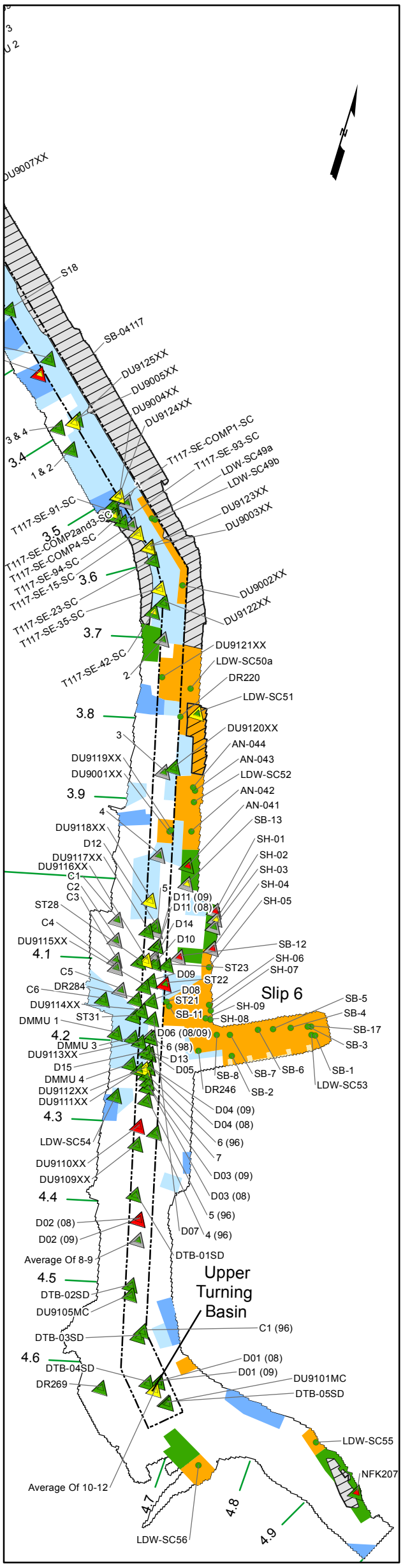
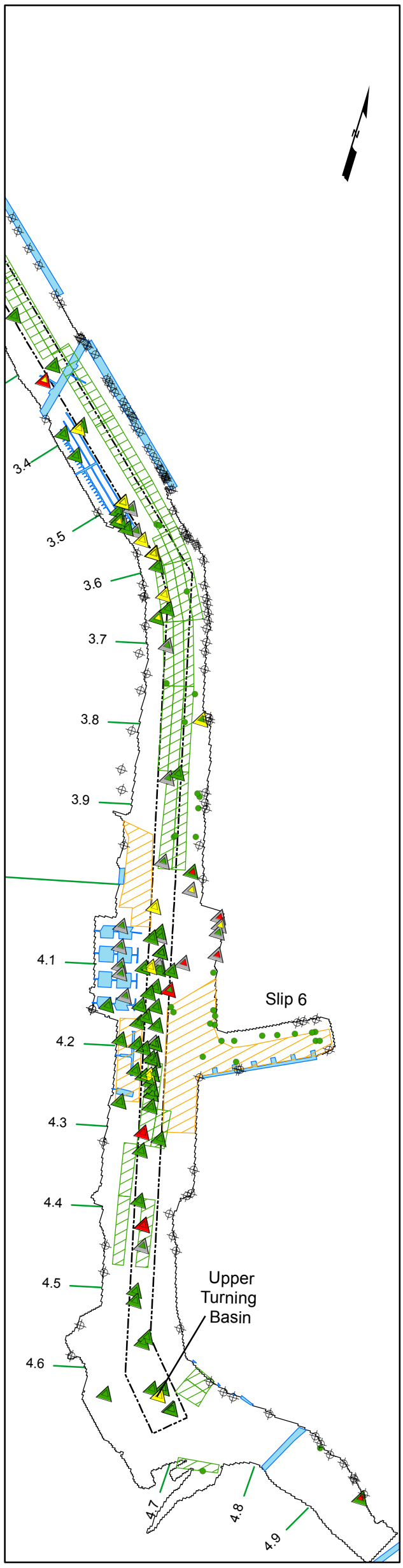
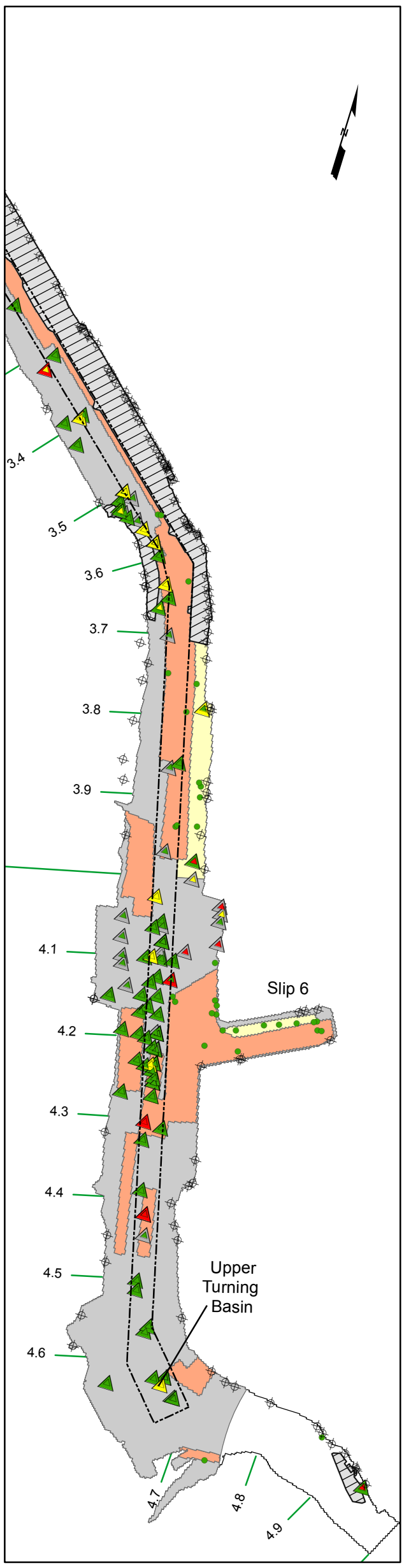
Lower Duwamish Waterway Final Feasibility Study 60150279-14.46			**Alternative 5 Combined Remaining Subsurface Contamination - Plan View (RM 1.9 to 3.6)**
DATE: 10/31/12	DWRN:MVI/sea	Revision: 0	**FIGURE G-25b**

L:\Lower Duwamish FS\FS_Final_GIS\Oct2012\FS_GIS_MXDs_Oct12\Appendix G\G-25bCoreRecoveryMid5C.mxd







Notes:
1. If cores overlap, the core with the highest exceedance status is shown on top.
2. Core intervals are based on *in situ* depths.
3. Any sample interval that overlaps the 0-2 or 2-4 ft interval is included. Samples that overlap both core intervals are mapped in both intervals.
4. For cores in capping areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval displays the 0-2 ft exceedance status.
5. For cores in partial dredge and cap areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval exceedance status is retained.
6. For cores in ENR areas, both the 0-2 ft and the 2-4 ft interval exceedance statuses are retained.
7. Cores in EAAs are not shown.

Legend

Technology Assignment
- Dredge
- Partial Dredge and Cap
- Cap
- Monitored Natural Recovery
- ENR/*in situ*
- Verification Monitoring
- AOPC 2
- Remaining Study Area (Institutional Controls and Site-wide Monitoring)

SMS Exceedance Status Following Remediation
Maximum exceedance 0-2 ft in core / Maximum exceedance 2-4 ft in core
- > CSL
- >SQS and ≤ CSL
- ≤ SQS or Non-detect
- Interval Not Analyzed
- Core Location Dredged During Remediation

Physical Lines of Evidence Used in Assigning Recovery Categories
- STM Predicted 100-Year High-flow Scour > 10 cm
- Evidence of Propeller Wash Scour
- Overwater Structure
- Outfall Location

Recovery Category
- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Early Action Area
- Navigation Channel
- River Mile Marker

0 200 400 800 Feet

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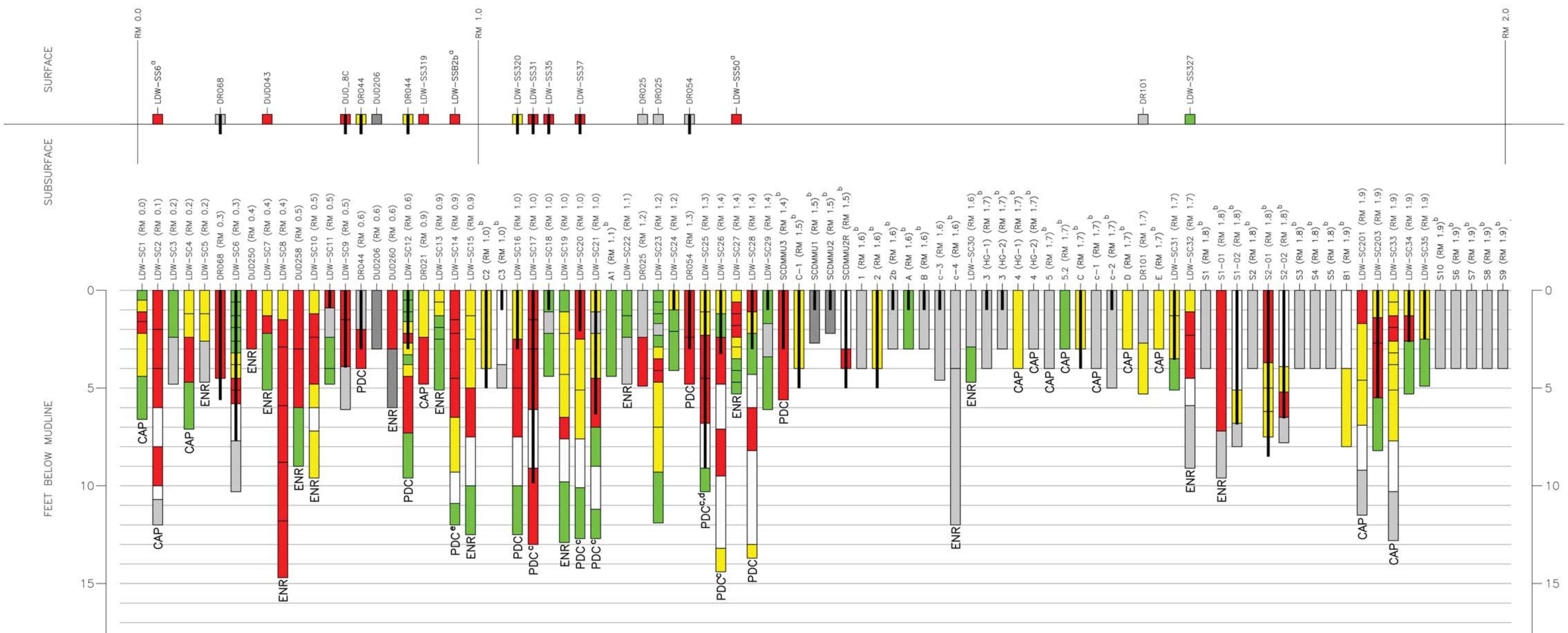
Alternative 5 Combined Remaining Subsurface Contamination - Plan View (RM 3.6 to 5.0)

DATE: 10/31/12 | DWRN:MVI/sea | Revision: 0 | **FIGURE G-25c**

L:\Lower Duwamish FS\FS_Final_GIS\Oct2012\FS_GIS_MXDs_Oct12\Appendix G\FigureG-25cCoreRecoverySouth5C.mxd



LEGEND

SQS/CSL CATEGORIES FOR ALL SMS CONTAMINANTS IN SUBSURFACE CORE INTERVALS

- > CSL, detect
- > SQS and ≤ CSL, detect
- > CSL, non-detect
- > SQS and ≤ CSL, non-detect
- ≤ SQS, detect and non-detect
- Not Analyzed

TECHNOLOGY AT CORE LOCATION

Dredging

CAP = capping
ENR = enhanced natural recovery or *in situ* treatment
PDC = partial dredging and capping

General Notes:

1. The closest surface sediment sample is shown if it is within 10 feet of the core.
2. Core sample intervals are the in situ depths based on the % recovery during sampling. If % recovery is not available for the core, the sample interval is based on recovered depths.
3. Dredge depths are to the bottom of contamination based on the variable thickness layer developed in Appendix E, and represent the neat-line volume (does not include overdredging). The minimum dredge thickness is 1 ft.

Footnotes:

a SQS/CSL category based on toxicity test results, not sediment chemistry.
b Core collected to assess dredged sediment for disposal; location may have been dredged. Core is shown for completeness.
c The location-specific partial dredging depth is based on the navigation channel or berthing area maintenance dredge depth in Section 2, and the assumed post-construction clearance requirement in Section 8.
d For this remedial alternative, partial dredging and capping was assigned to this core location based on continuity with adjacent areas. However, this analysis indicates that a cap would not be warranted in this specific location, and dredging would be a more appropriate technology assignment.
e For this remedial alternative, partial dredging and capping was assigned to this location based on continuity with adjacent areas. However, this analysis indicates that dredging would not be warranted in this specific location, and cap would be a more appropriate technology assignment.

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LOWER DUWAMISH WATERWAY
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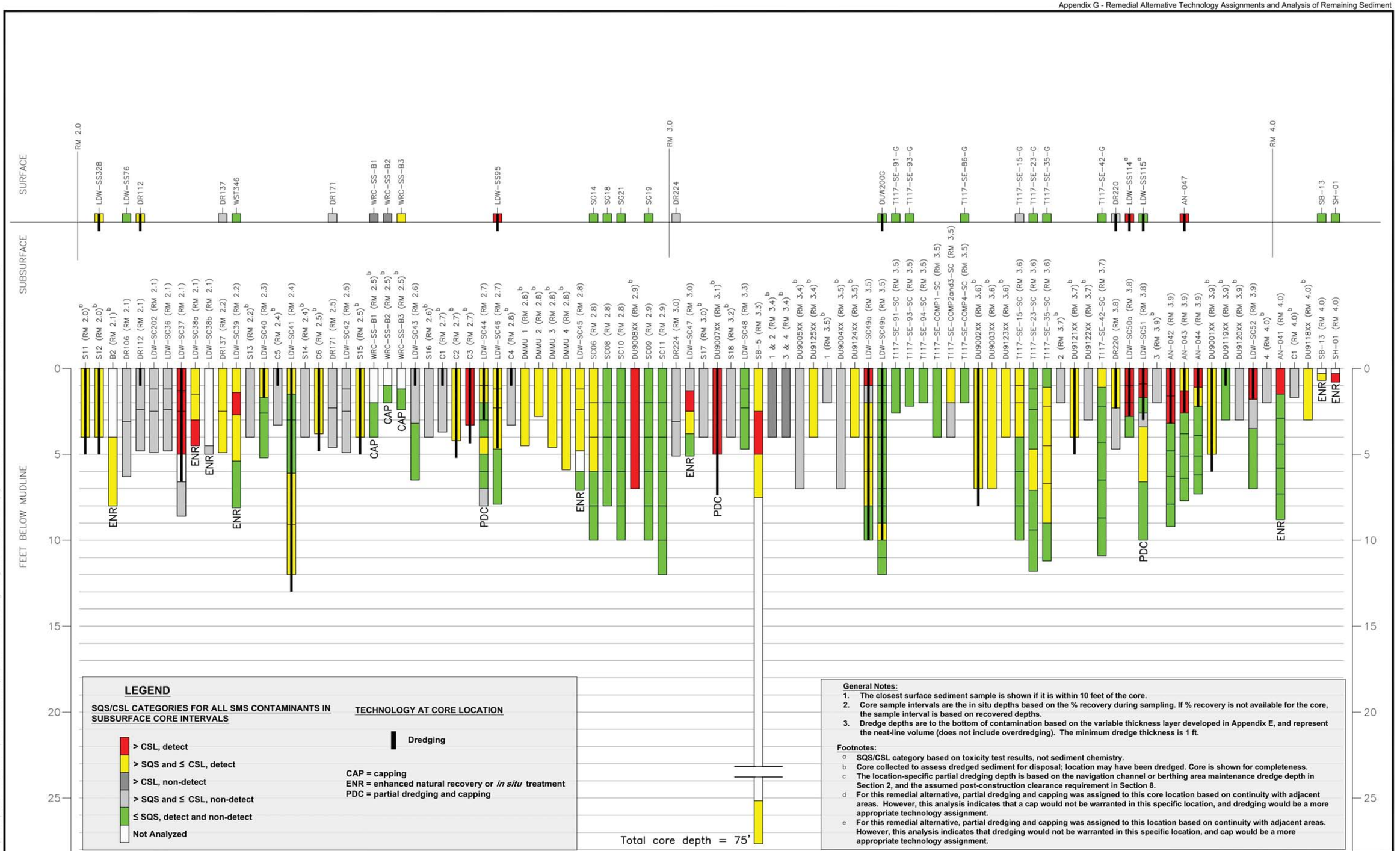
DATE: 10/31/12 DRWN: MO/SEA

ALTERNATIVE 5 COMBINED REMAINING SUBSURFACE CONTAMINATION CORE DIAGRAMS (RM 0.0 TO 2.0)

FIGURE G-26a



LEGEND

SQS/CSL CATEGORIES FOR ALL SMS CONTAMINANTS IN SUBSURFACE CORE INTERVALS

- > CSL, detect
- > SQS and ≤ CSL, detect
- > CSL, non-detect
- > SQS and ≤ CSL, non-detect
- ≤ SQS, detect and non-detect
- Not Analyzed

TECHNOLOGY AT CORE LOCATION

- Dredging

CAP = capping
ENR = enhanced natural recovery or *in situ* treatment
PDC = partial dredging and capping

General Notes:

1. The closest surface sediment sample is shown if it is within 10 feet of the core.
2. Core sample intervals are the in situ depths based on the % recovery during sampling. If % recovery is not available for the core, the sample interval is based on recovered depths.
3. Dredge depths are to the bottom of contamination based on the variable thickness layer developed in Appendix E, and represent the neat-line volume (does not include overdredging). The minimum dredge thickness is 1 ft.

Footnotes:

- a SQS/CSL category based on toxicity test results, not sediment chemistry.
- b Core collected to assess dredged sediment for disposal; location may have been dredged. Core is shown for completeness.
- c The location-specific partial dredging depth is based on the navigation channel or berthing area maintenance dredge depth in Section 2, and the assumed post-construction clearance requirement in Section 8.
- d For this remedial alternative, partial dredging and capping was assigned to this core location based on continuity with adjacent areas. However, this analysis indicates that a cap would not be warranted in this specific location, and dredging would be a more appropriate technology assignment.
- e For this remedial alternative, partial dredging and capping was assigned to this location based on continuity with adjacent areas. However, this analysis indicates that dredging would not be warranted in this specific location, and cap would be a more appropriate technology assignment.

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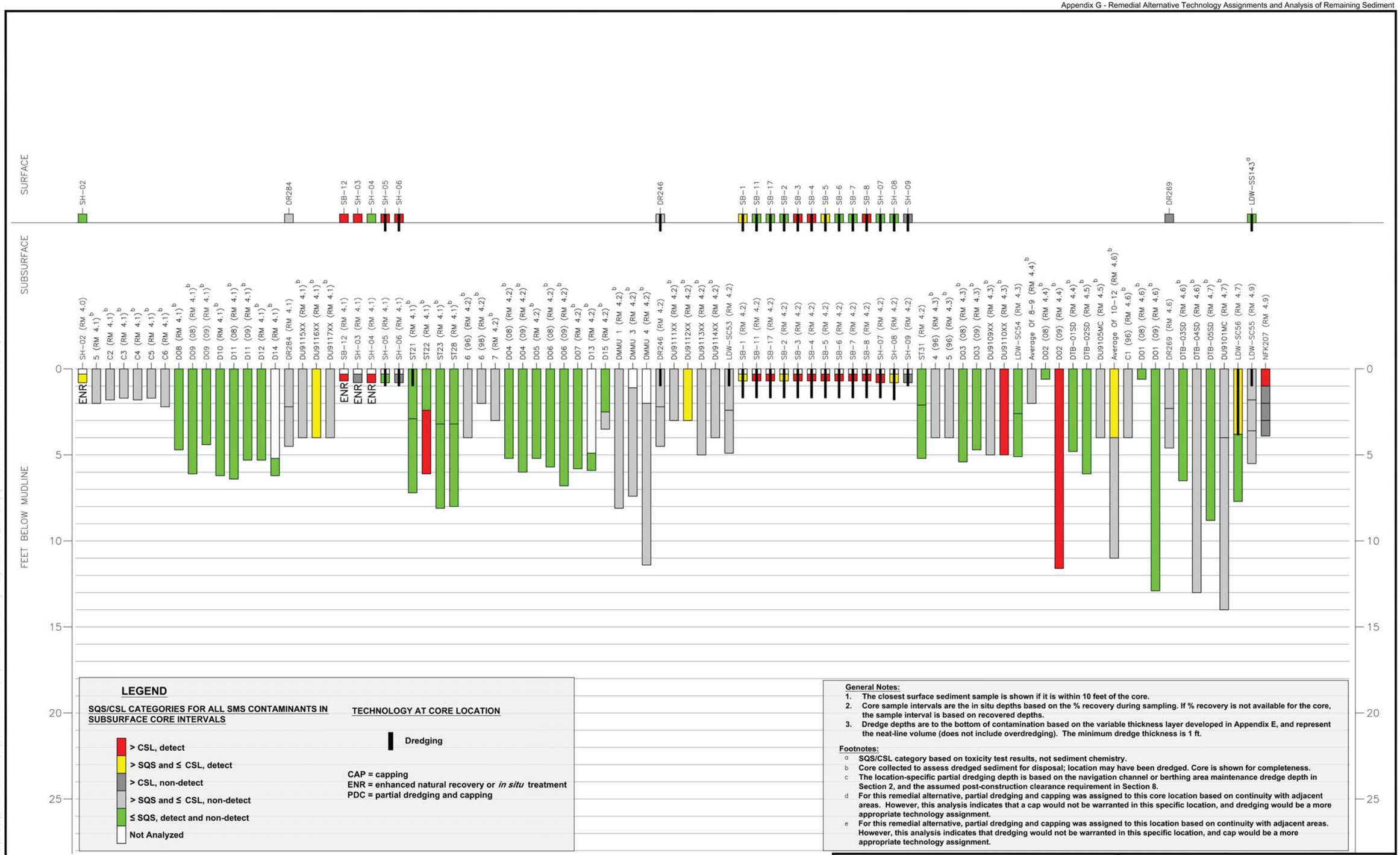
LOWER DUWAMISH WATERWAY
FINAL FEASIBILITY STUDY
60150279-14.46

DATE: 10/31/12 | DRWN: MO/SEA

ALTERNATIVE 5 COMBINED REMAINING SUBSURFACE CONTAMINATION CORE DIAGRAMS (RM 2.0 TO 4.0)

FIGURE G-26b



LEGEND

SQS/CSL CATEGORIES FOR ALL SMS CONTAMINANTS IN SUBSURFACE CORE INTERVALS

- > CSL, detect
- > SQS and ≤ CSL, detect
- > CSL, non-detect
- > SQS and ≤ CSL, non-detect
- ≤ SQS, detect and non-detect
- Not Analyzed

TECHNOLOGY AT CORE LOCATION

- Dredging

CAP = capping
ENR = enhanced natural recovery or *in situ* treatment
PDC = partial dredging and capping

General Notes:

1. The closest surface sediment sample is shown if it is within 10 feet of the core.
2. Core sample intervals are the in situ depths based on the % recovery during sampling. If % recovery is not available for the core, the sample interval is based on recovered depths.
3. Dredge depths are to the bottom of contamination based on the variable thickness layer developed in Appendix E, and represent the neat-line volume (does not include overdredging). The minimum dredge thickness is 1 ft.

Footnotes:

a SQS/CSL category based on toxicity test results, not sediment chemistry.
b Core collected to assess dredged sediment for disposal; location may have been dredged. Core is shown for completeness.
c The location-specific partial dredging depth is based on the navigation channel or berthing area maintenance dredge depth in Section 2, and the assumed post-construction clearance requirement in Section 8.
d For this remedial alternative, partial dredging and capping was assigned to this core location based on continuity with adjacent areas. However, this analysis indicates that a cap would not be warranted in this specific location, and dredging would be a more appropriate technology assignment.
e For this remedial alternative, partial dredging and capping was assigned to this location based on continuity with adjacent areas. However, this analysis indicates that dredging would not be warranted in this specific location, and cap would be a more appropriate technology assignment.

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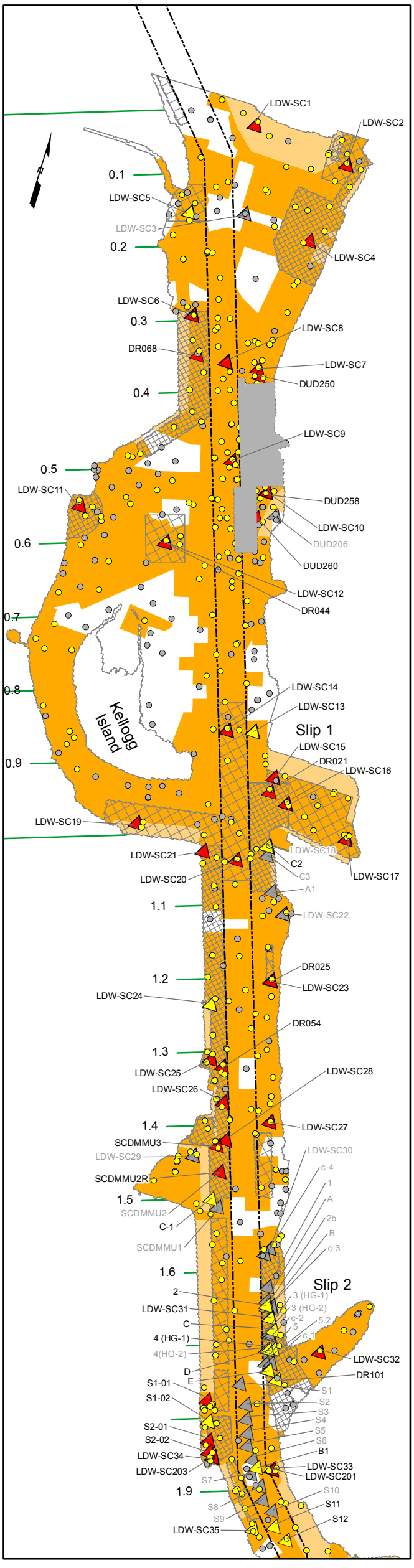
FINAL FEASIBILITY STUDY
60150279-14.46

DATE: 10/31/12 | DRWN: MO/SEA

ALTERNATIVE 5 COMBINED REMAINING SUBSURFACE CONTAMINATION CORE DIAGRAMS (RM 4.0 TO 5.0)

FIGURE G-26c



Notes:
1. FS baseline dataset used. Total Study Area: 441 acres.
2. Technology assignments are for the FS and may change based on additional data collected during remedial design.
3. See Section 8 for additional details on technology assignments. Exceptions to the technology assignment criteria in Section 8 are explained in text boxes.
4. See Section 6 for development of recovery categories and RALs.
5. Subsurface exceedances in cores are at any depth and represent the highest level of exceedance for any SMS contaminant.

Remedial Alternative	Remedial Action Levels (RALs)				
	Total PCBs	cPAHs	Dioxins/ Furans	Arsenic	Benthic SMS
	µg/kg dw	µg TEQ/kg dw	ng TEQ/kg dw	mg/kg dw	41 Chemicals
Alt 6	100	1,000 (site-wide), 900 (intertidal)	15	15	SQS

Technology Assignment

AOPC 1+2
- Dredge (274 acres)
- Cap or Partial Dredge and Cap (28 acres)
- Monitored Natural Recovery (0 acres)
- ENR/*in situ* (0 acres)
- Verification Monitoring (0 acres)

Early Action Area (29 acres)

Remaining Study Area (Institutional Controls and Site-wide Monitoring) (110 acres)

Feet
0 200 400 800

Legend

Surface Sediment Exceedance Location
- >Alt 6 RALs
- Pass or Non-detect

Subsurface Exceedance Location and ID
- > CSL, detected
- > SQS and ≤ CSL, detected
- Pass or Non-detect

Station ID Labeled in Black
Station ID Labeled in Grey

Recovery Category
- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Navigation Channel
- River Mile Marker

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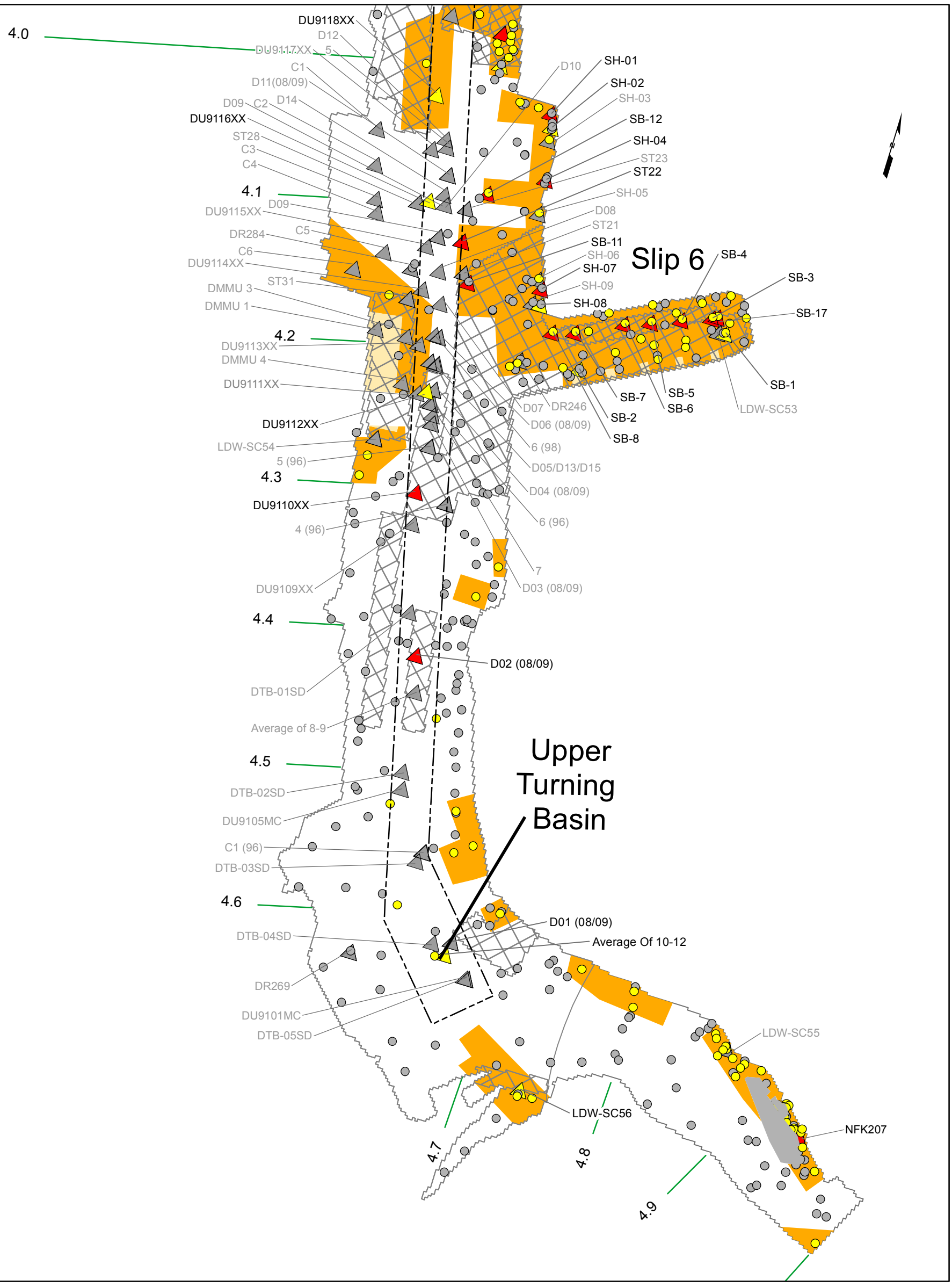
Final Feasibility Study
60150279-14.46

Alternative 6 Removal Technology Assignments and Waterway Conditions

DATE: 10/31/12 | DWRN:MVI/sea | Revision: 0

FIGURE G-27a

L:\Lower Duwamish FS\FS_Final_GIS\Oct2012\FS_GIS_MXDs_Oct12\Appendix G\FigureG-27aAlt6ActiveCon.mxd



Notes:
1. FS baseline dataset used. Total Study Area: 441 acres.
2. Technology assignments are for the FS and may change based on additional data collected during remedial design.
3. See Section 8 for additional details on technology assignments. Exceptions to the technology assignment criteria in Section 8 are explained in text boxes.
4. See Section 6 for development of recovery categories and RALs.
5. Subsurface exceedances in cores are at any depth and represent the highest level of exceedance for any SMS contaminant.

Remedial Alternative	Remedial Action Levels (RALs)				
	Total PCBs	cPAHs	Dioxins/ Furans	Arsenic	Benthic SMS
	µg/kg dw	µg TEQ/kg dw	ng TEQ/kg dw	mg/kg dw	41 Chemicals
Alt 6	100	1,000 (site-wide), 900 (intertidal)	15	15	SQS

Technology Assignment

AOPC 1+2
- Dredge (274 acres)
- Cap or Partial Dredge and Cap (28 acres)
- Monitored Natural Recovery (0 acres)
- ENR/*in situ* (0 acres)
- Verification Monitoring (0 acres)

- Early Action Area (29 acres)
- Remaining Study Area (Institutional Controls and Site-wide Monitoring) (110 acres)

Legend

Surface Sediment Exceedance Location
- >Alt 6 RALs
- Pass or Non-detect

Subsurface Exceedance Location and ID
- > CSL, detected
- > SQS and ≤ CSL, detected
- Pass or Non-detect

Station ID Labeled in Black
Station ID Labeled in Grey

Recovery Category
- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Navigation Channel
- River Mile Marker

0 200 400 800 Feet

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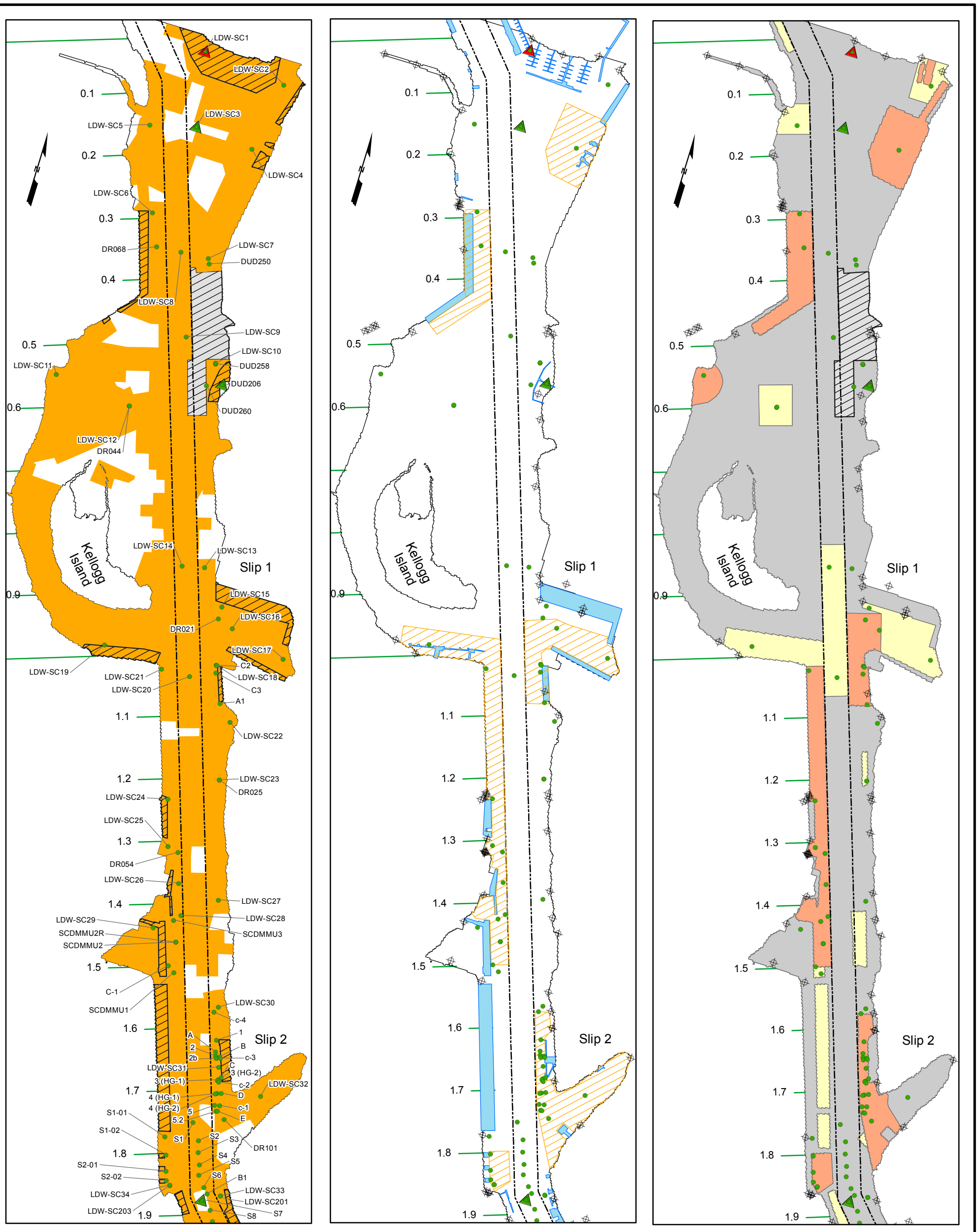
60150279-14.46

Alternative 6 Removal Technology Assignments and Waterway Conditions (RM 4.0 to 5.0)

DATE: 10/31/12 | DWRN:MVI/sea | Revision: 0

FIGURE G-27b

L:\Lower Duwamish FS\FS_Final_GISOct2012\FS_GIS_MXDs_Oct12\Appendix G\FigureG-27bAlt6ActiveConB.mxd



Notes:
1. If cores overlap, the core with the highest exceedance status is shown on top.
2. Core intervals are based on *in situ* depths.
3. Any sample interval that overlaps the 0-2 or 2-4 ft interval is included. Samples that overlap both core intervals are mapped in both intervals.
4. For cores in capping areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval displays the 0-2 ft exceedance status.
5. For cores in partial dredge and cap areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval exceedance status is retained.
6. For cores in ENR areas, both the 0-2 ft and the 2-4 ft interval exceedance statuses are retained.
7. Cores in EAAs are not shown.

Legend

Technology Assignment
- Dredge
- Partial Dredge and Cap
- Cap
- Monitored Natural Recovery
- ENR/*in situ*
- Verification Monitoring
- Remaining Study Area (Institutional Controls and Site-wide Monitoring)

SMS Exceedance Status Following Remediation
Maximum exceedance 0-2 ft in core / Maximum exceedance 2-4 ft in core
- > CSL
- >SQS and ≤ CSL
- ≤ SQS or Non-detect
- Interval Not Analyzed
- Core Location Dredged During Remediation

Physical Lines of Evidence Used in Assigning Recovery Categories
- STM Predicted 100-Year High-flow Scour > 10 cm
- Evidence of Propeller Wash Scour
- Overwater Structure
- Outfall Location

Recovery Category
- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Early Action Area
- Navigation Channel
- River Mile Marker

Feet
0 200 400 800

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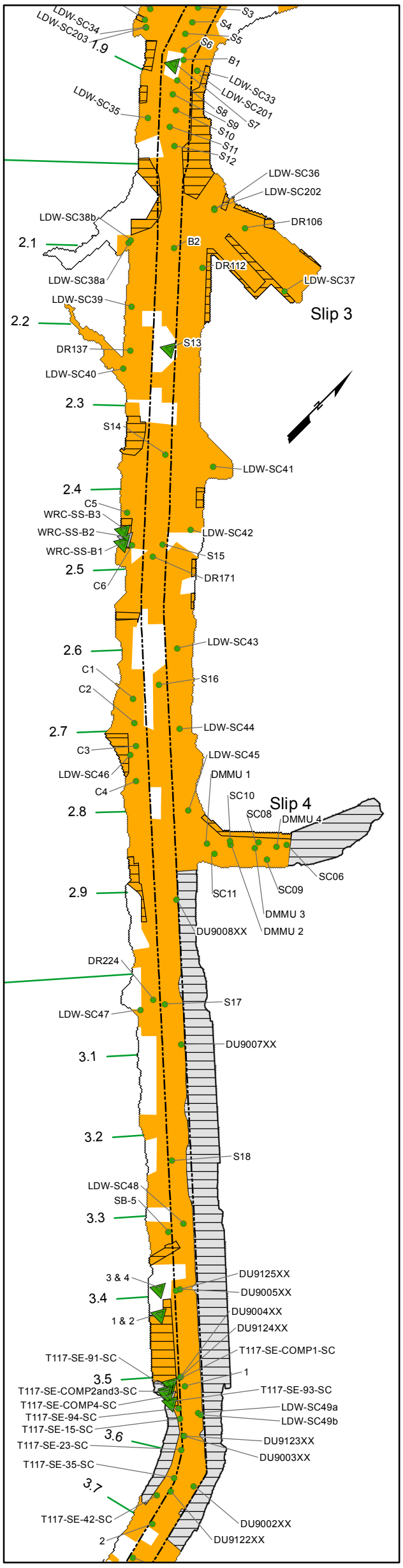
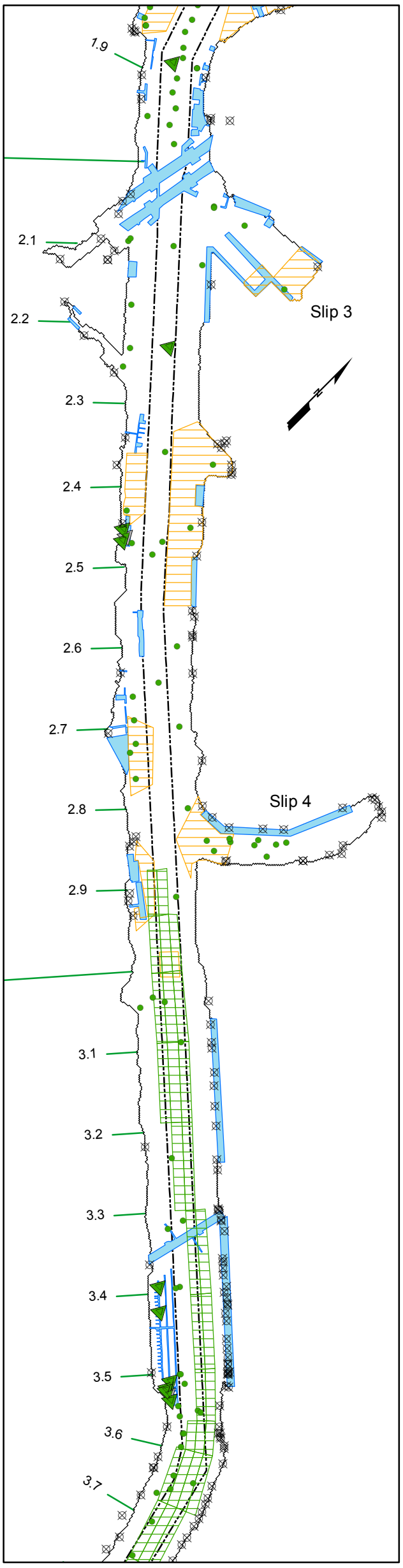
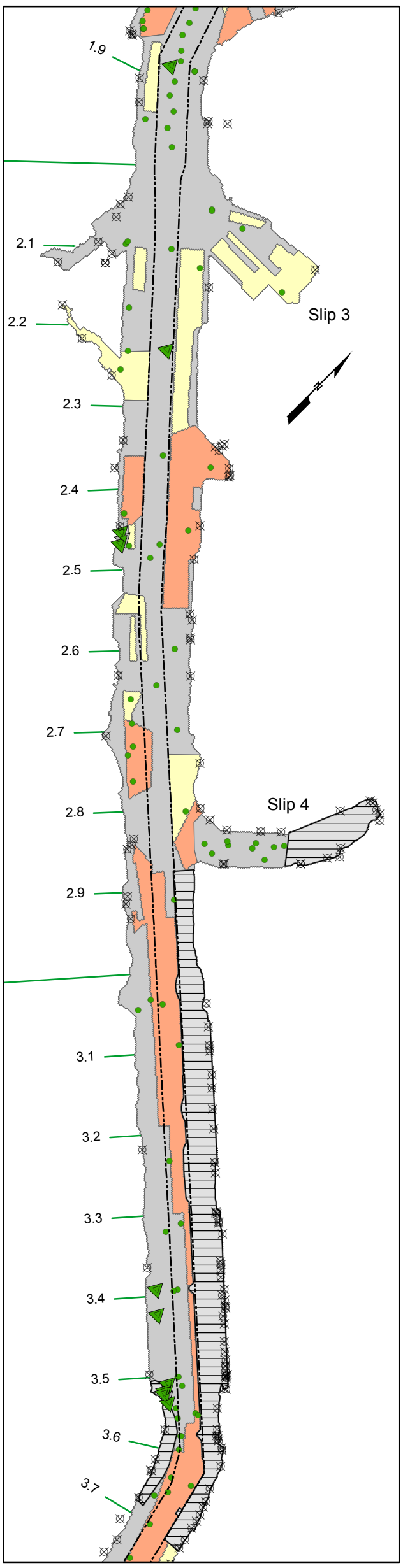
Alternative 6 Removal Remaining Subsurface Contamination - Plan View (RM 0.0 to 1.9)

DATE: 10/31/12 | DWRN:MVI/sea | Revision: 0 | **FIGURE G-28a**

L:\Lower Duwamish FS\FS_Final_GIS\Oct2012\FS_GIS_MXDs_Oct12\Appendix G\G-28aCoreRecoveryNorth6R.mxd







Notes:
1. If cores overlap, the core with the highest exceedance status is shown on top.
2. Core intervals are based on *in situ* depths.
3. Any sample interval that overlaps the 0-2 or 2-4 ft interval is included. Samples that overlap both core intervals are mapped in both intervals.
4. For cores in capping areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval displays the 0-2 ft exceedance status.
5. For cores in partial dredge and cap areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval exceedance status is retained.
6. For cores in ENR areas, both the 0-2 ft and the 2-4 ft interval exceedance statuses are retained.
7. Cores in EAAs are not shown.

Legend

Technology Assignment

- Dredge
- Partial Dredge and Cap
- Cap
- Monitored Natural Recovery
- ENR/*in situ*
- Verification Monitoring
- Remaining Study Area (Institutional Controls and Site-wide Monitoring)

SMS Exceedance Status Following Remediation

Maximum exceedance 0-2 ft in core / Maximum exceedance 2-4 ft in core

- > CSL
- >SQS and ≤ CSL
- ≤ SQS or Non-detect
- Interval Not Analyzed
- Core Location Dredged During Remediation

Physical Lines of Evidence Used in Assigning Recovery Categories

- STM Predicted 100-Year High-flow Scour > 10 cm
- Evidence of Propeller Wash Scour
- Overwater Structure
- Outfall Location

Recovery Category

- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Early Action Area
- Navigation Channel
- River Mile Marker

0 200 400 800 Feet

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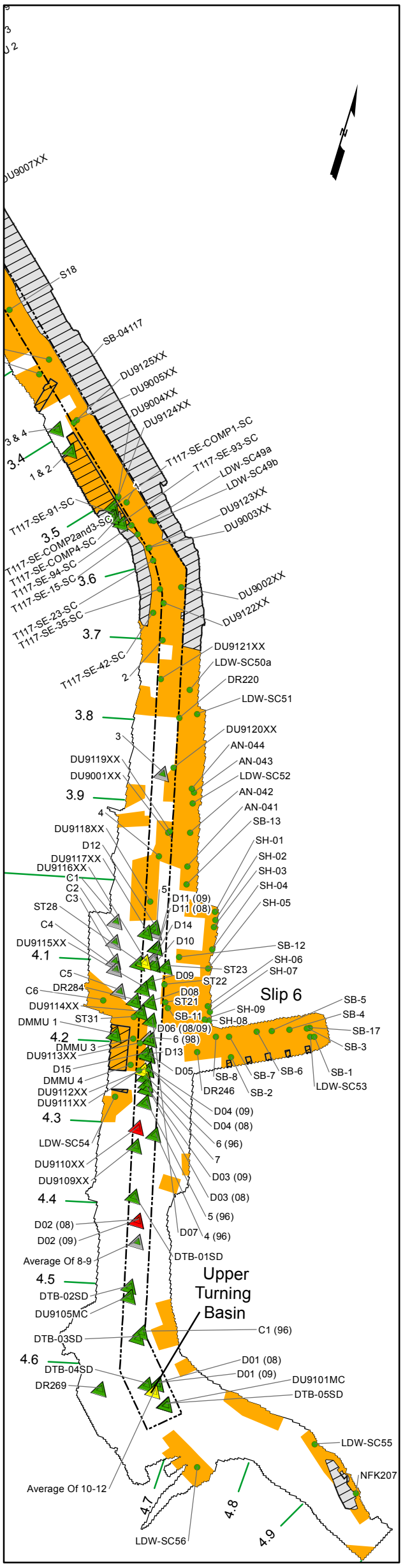
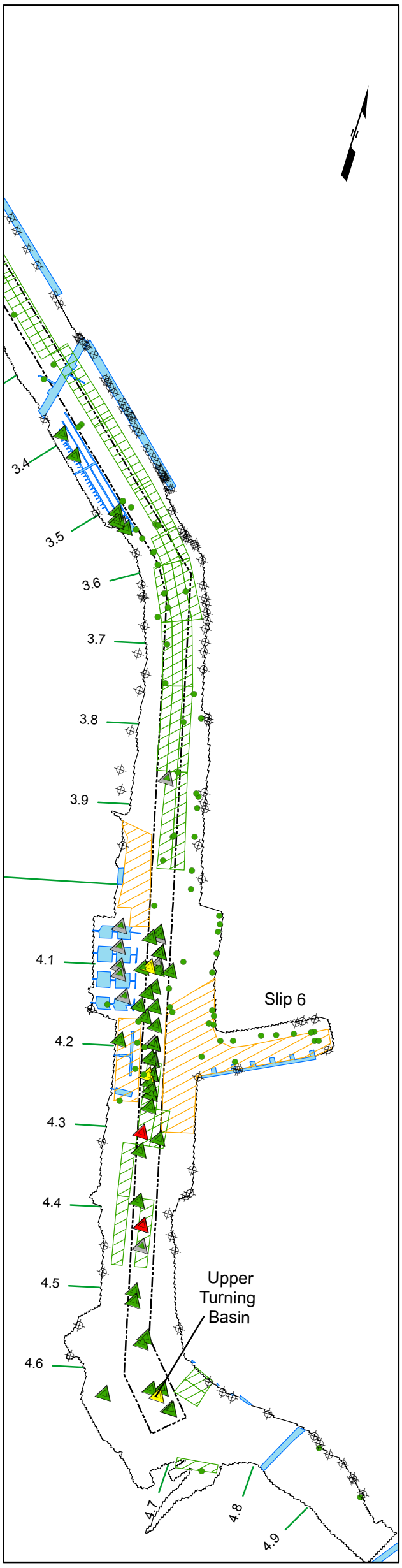
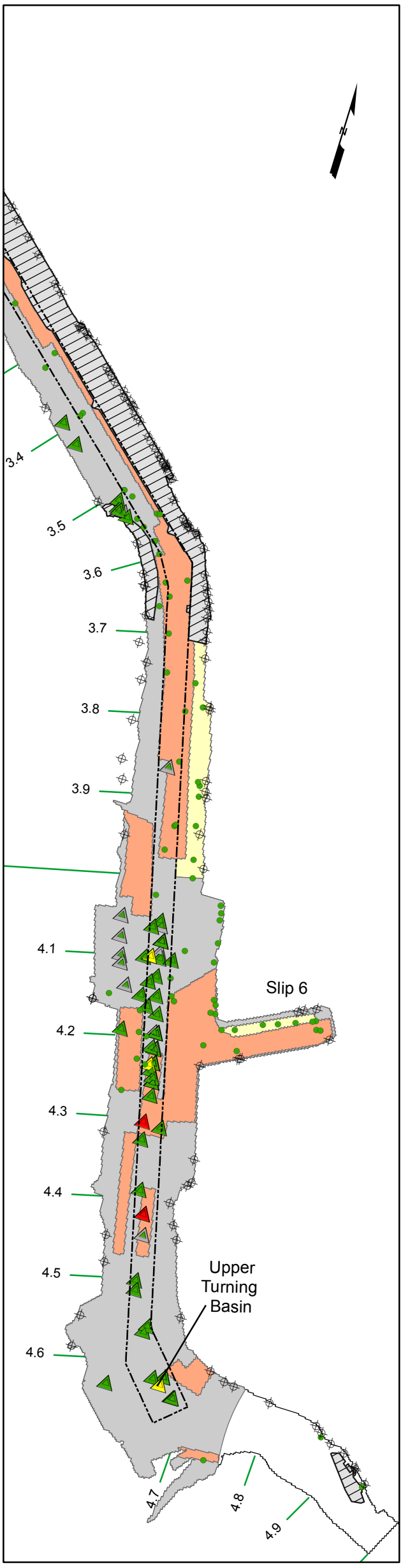
Alternative 6 Removal Remaining Subsurface Contamination - Plan View (RM 1.9 to 3.6)

DATE: 10/31/12 | DWRN:MVI/sea | Revision: 0 | **FIGURE G-28b**

L:\Lower Duwamish FS\FS_Final_GIS\Oct2012\FS_GIS_MXDs_Oct12\Appendix G\G-28bCoreRecoveryMid6R.mxd







Notes:
1. If cores overlap, the core with the highest exceedance status is shown on top.
2. Core intervals are based on *in situ* depths.
3. Any sample interval that overlaps the 0-2 or 2-4 ft interval is included. Samples that overlap both core intervals are mapped in both intervals.
4. For cores in capping areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval displays the 0-2 ft exceedance status.
5. For cores in partial dredge and cap areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval exceedance status is retained.
6. For cores in ENR areas, both the 0-2 ft and the 2-4 ft interval exceedance statuses are retained.
7. Cores in EAAs are not shown.

Legend

Technology Assignment

- Dredge
- Partial Dredge and Cap
- Cap
- Monitored Natural Recovery
- ENR/*in situ*
- Verification Monitoring
- Remaining Study Area (Institutional Controls and Site-wide Monitoring)

SMS Exceedance Status Following Remediation

Maximum exceedance 0-2 ft in core / Maximum exceedance 2-4 ft in core

- > CSL
- >SQS and ≤ CSL
- ≤ SQS or Non-detect
- Interval Not Analyzed
- Core Location Dredged During Remediation

Physical Lines of Evidence Used in Assigning Recovery Categories

- STM Predicted 100-Year High-flow Scour > 10 cm
- Evidence of Propeller Wash Scour
- Overwater Structure
- Outfall Location

Recovery Category

- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Early Action Area
- Navigation Channel
- River Mile Marker

0 200 400 800 Feet

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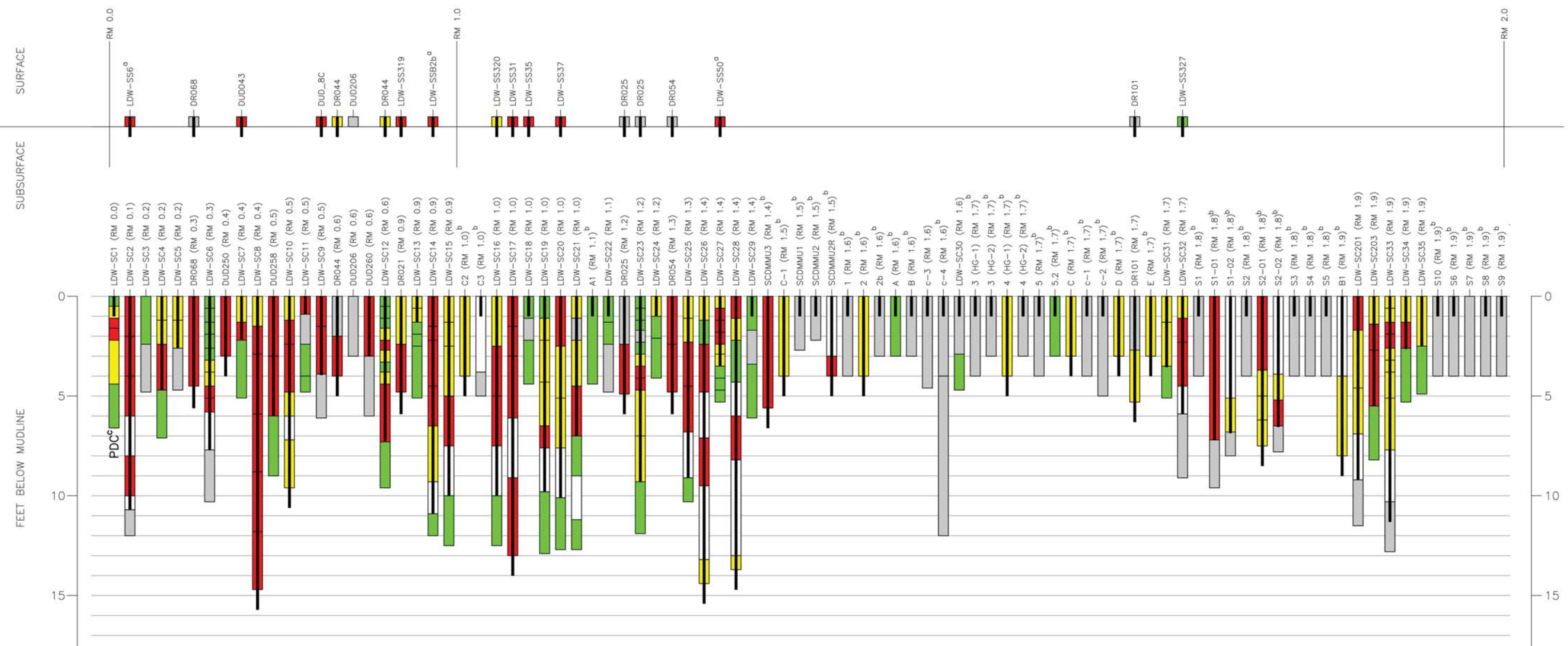
60150279-14.46

Alternative 6 Removal Remaining Subsurface Contamination - Plan View (RM 3.6 to 5.0)

DATE: 10/31/12 | DWRN:MVI/sea | Revision: 0

FIGURE G-28c

L:\Lower Duwamish FS\FS_Final_GIS\Oct2012\FS_GIS_MXDs_Oct12\Appendix G\FigureG-28cCoreRecoverySouth6R.mxd



LEGEND

SQS/CSL CATEGORIES FOR ALL SMS CONTAMINANTS IN SUBSURFACE CORE INTERVALS

- > CSL, detect
- > SQS and ≤ CSL, detect
- > CSL, non-detect
- > SQS and ≤ CSL, non-detect
- ≤ SQS, detect and non-detect
- Not Analyzed

TECHNOLOGY AT CORE LOCATION

- Dredging

CAP = capping
ENR = enhanced natural recovery or *in situ* treatment
PDC = partial dredging and capping

General Notes:

1. The closest surface sediment sample is shown if it is within 10 feet of the core.
2. Core sample intervals are the in situ depths based on the % recovery during sampling. If % recovery is not available for the core, the sample interval is based on recovered depths.
3. Dredge depths are to the bottom of contamination based on the variable thickness layer developed in Appendix E, and represent the neat-line volume (does not include overdredging). The minimum dredge thickness is 1 ft.

Footnotes:

a SQS/CSL category based on toxicity test results, not sediment chemistry.
b Core collected to assess dredged sediment for disposal; location may have been dredged. Core is shown for completeness.
c The location-specific partial dredging depth is based on the navigation channel or berthing area maintenance dredge depth in Section 2, and the assumed post-construction clearance requirement in Section 8.

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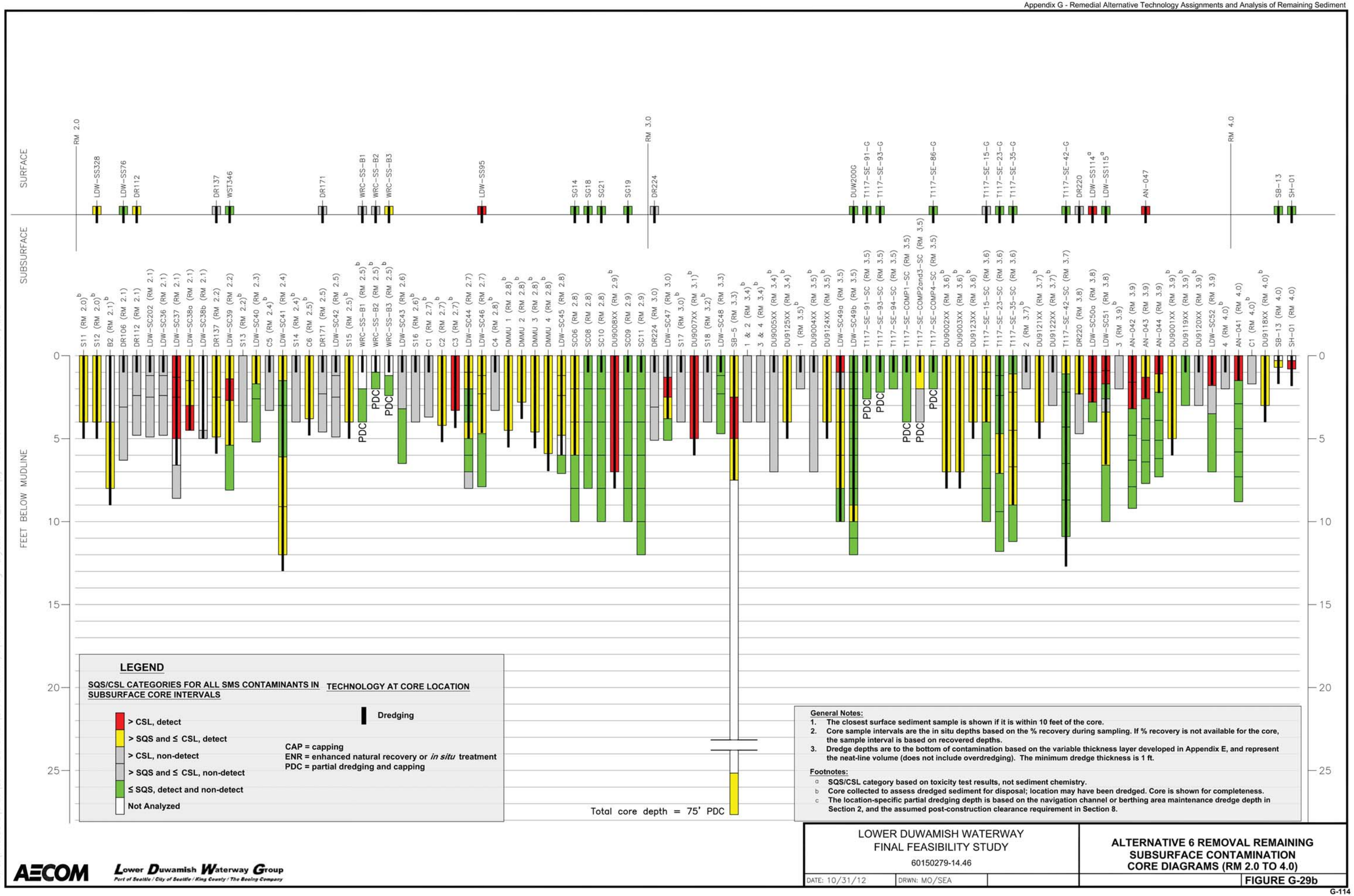
LOWER DUWAMISH WATERWAY
FINAL FEASIBILITY STUDY
60150279-14.46

DATE: 10/31/12 | DRWN: MO/SEA

ALTERNATIVE 6 REMOVAL REMAINING SUBSURFACE CONTAMINATION CORE DIAGRAMS (RM 0.0 TO 2.0)

FIGURE G-29a



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Lower Duwamish Waterway Group
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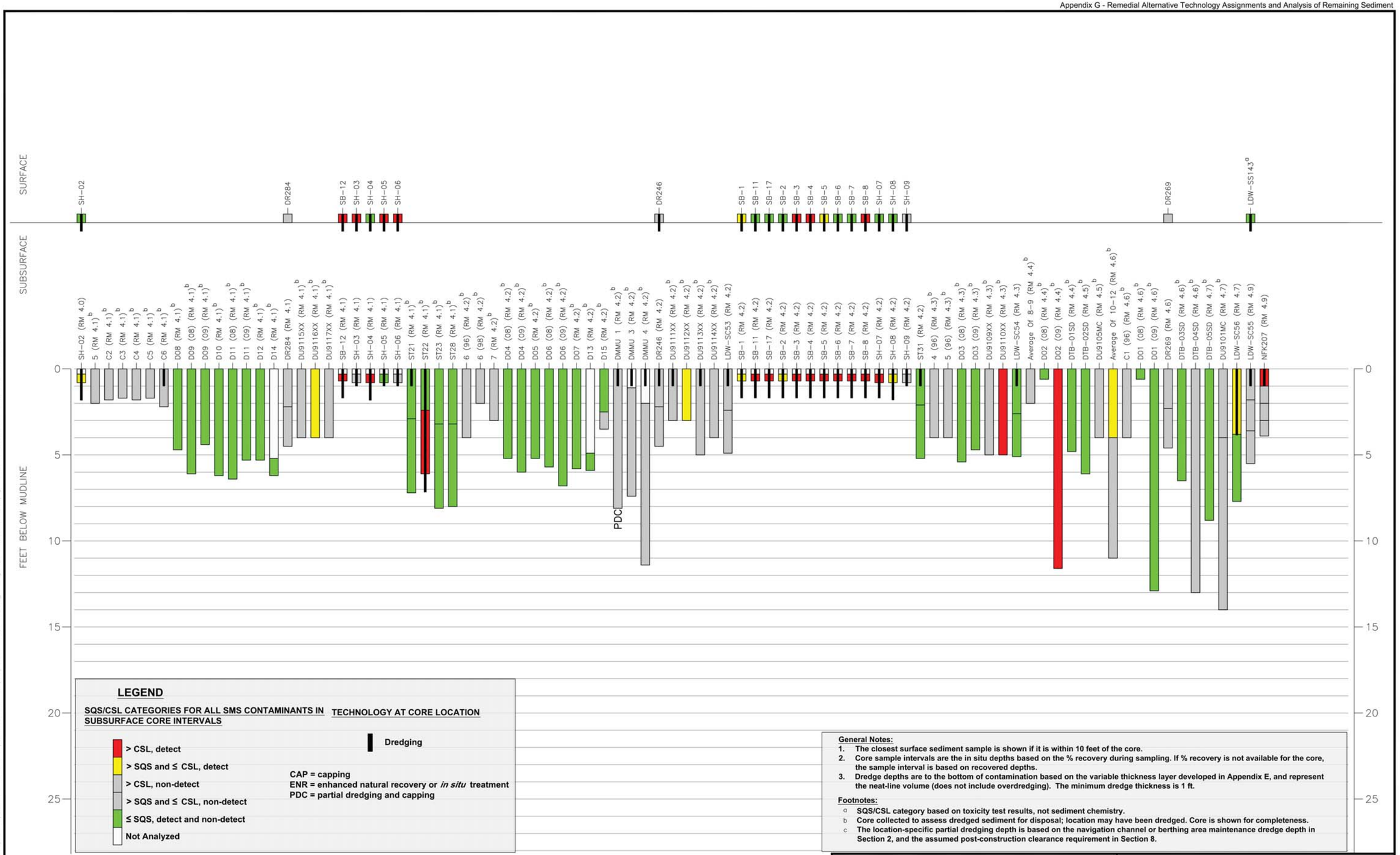
LOWER DUWAMISH WATERWAY
FINAL FEASIBILITY STUDY
60150279-14.46

DATE: 10/31/12 | DRWN: MO/SEA

ALTERNATIVE 6 REMOVAL REMAINING SUBSURFACE CONTAMINATION CORE DIAGRAMS (RM 2.0 TO 4.0)

FIGURE G-29b



LEGEND

SQS/CSL CATEGORIES FOR ALL SMS CONTAMINANTS IN SUBSURFACE CORE INTERVALS

- > CSL, detect
- > SQS and ≤ CSL, detect
- > CSL, non-detect
- > SQS and ≤ CSL, non-detect
- ≤ SQS, detect and non-detect
- Not Analyzed

TECHNOLOGY AT CORE LOCATION

- Dredging

CAP = capping
ENR = enhanced natural recovery or *in situ* treatment
PDC = partial dredging and capping

General Notes:

1. The closest surface sediment sample is shown if it is within 10 feet of the core.
2. Core sample intervals are the in situ depths based on the % recovery during sampling. If % recovery is not available for the core, the sample interval is based on recovered depths.
3. Dredge depths are to the bottom of contamination based on the variable thickness layer developed in Appendix E, and represent the neat-line volume (does not include overdredging). The minimum dredge thickness is 1 ft.

Footnotes:

a SQS/CSL category based on toxicity test results, not sediment chemistry.
b Core collected to assess dredged sediment for disposal; location may have been dredged. Core is shown for completeness.
c The location-specific partial dredging depth is based on the navigation channel or berthing area maintenance dredge depth in Section 2, and the assumed post-construction clearance requirement in Section 8.

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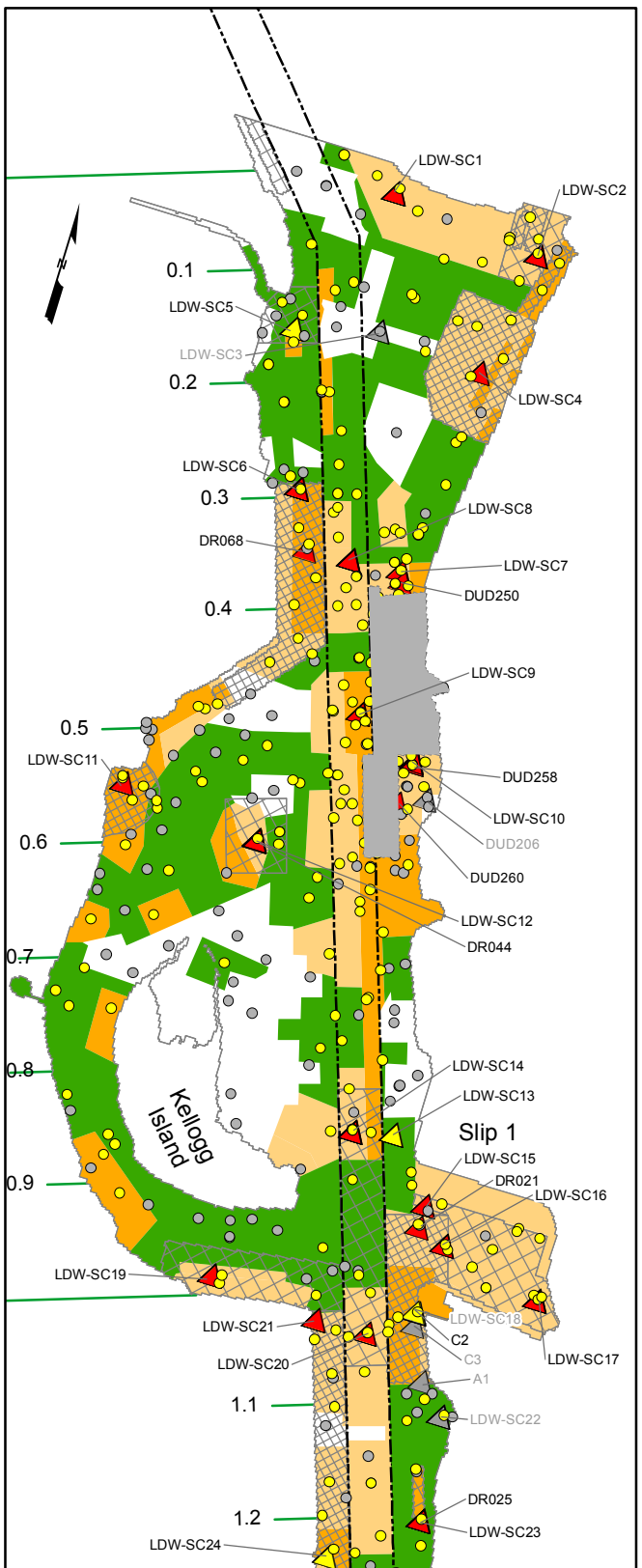
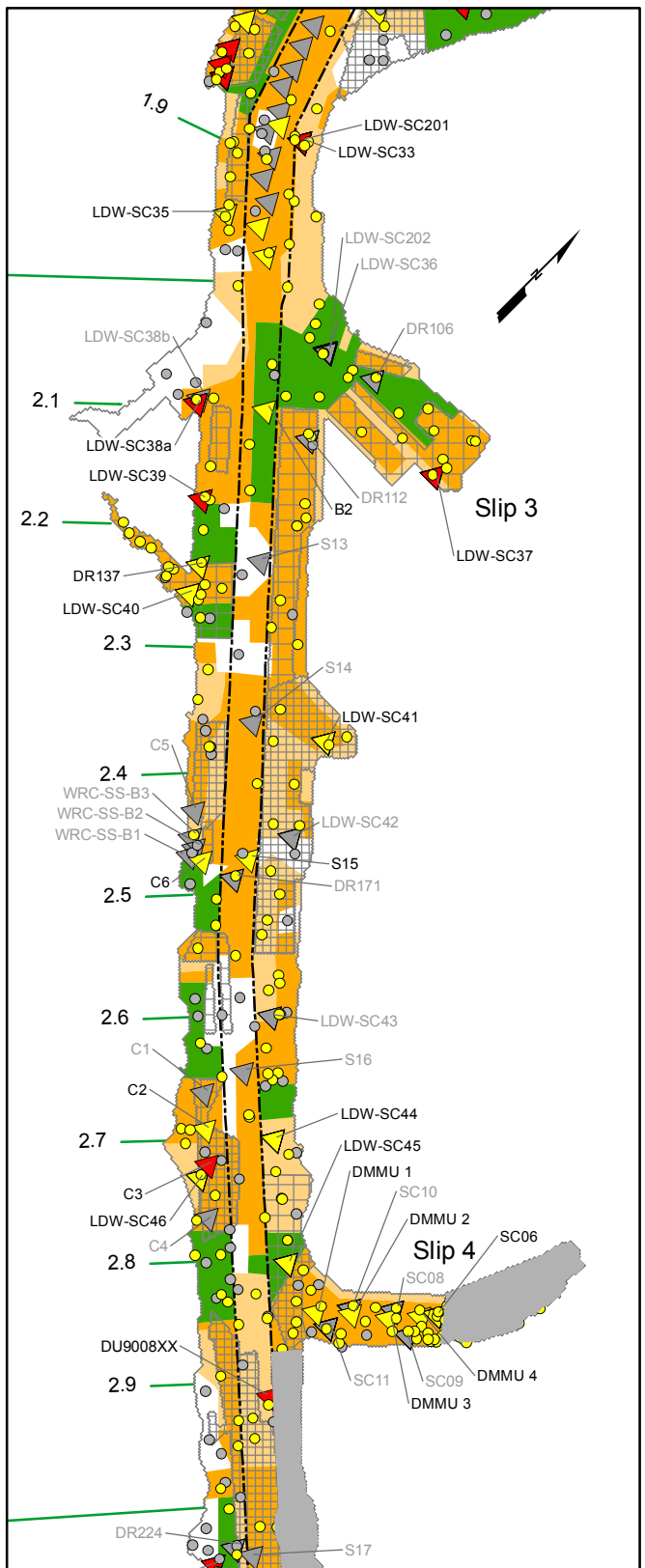
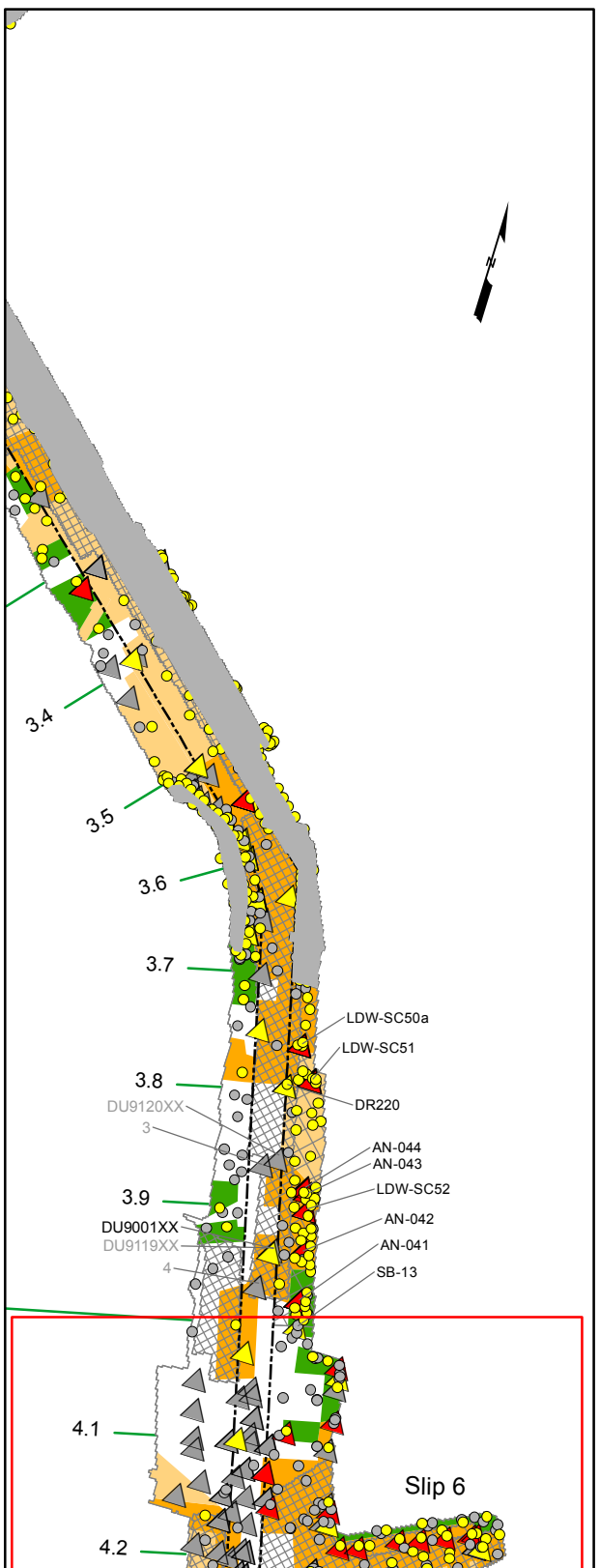
DATE: 10/31/12 | DRWN: MO/SEA

ALTERNATIVE 6 REMOVAL REMAINING SUBSURFACE CONTAMINATION CORE DIAGRAMS (RM 4.0 TO 5.0)

FIGURE G-29c







Notes:
1. FS baseline dataset used. Total Study Area: 441 acres.
2. Technology assignments are for the FS and may change based on additional data collected during remedial design.
3. See Section 8 for additional details on technology assignments. Exceptions to the technology assignment criteria in Section 8 are explained in text boxes.
4. See Section 6 for development of recovery categories and RALs.
5. Subsurface exceedances in cores are at any depth and represent the highest level of exceedance for any SMS contaminant.

Remedial Alternative	Remedial Action Levels (RALs)				
	Total PCBs	cPAHs	Dioxins/ Furans	Arsenic	Benthic SMS
	µg/kg dw	µg TEQ/kg dw	ng TEQ/kg dw	mg/kg dw	41 Chemicals
Alt 6	100	1,000 (site-wide), 900 (intertidal)	15	15	SQS

Technology Assignment

AOPC 1+2
- Dredge (108 acres)
- Cap or Partial Dredge and Cap (93 acres)
- Monitored Natural Recovery (0 acres)
- ENR/*in situ* (101 acres)
- Verification Monitoring (0 acres)

- Early Action Area (29 acres)
- Remaining Study Area (Institutional Controls and Site-wide Monitoring) (110 acres)

Feet
0 200 400 800

Legend

Surface Sediment Exceedance Location
- >Alt 6 RALs
- Pass or Non-detect

Subsurface Exceedance Location and ID
- > CSL, detected
- > SQS and ≤ CSL, detected
- Pass or Non-detect

System ID Labeled in Black
System ID Labeled in Grey

Recovery Category
- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Navigation Channel
- River Mile Marker

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Port of Seattle / City of Seattle / King County / The Boeing Company

Lower Duwamish Waterway
Final Feasibility Study
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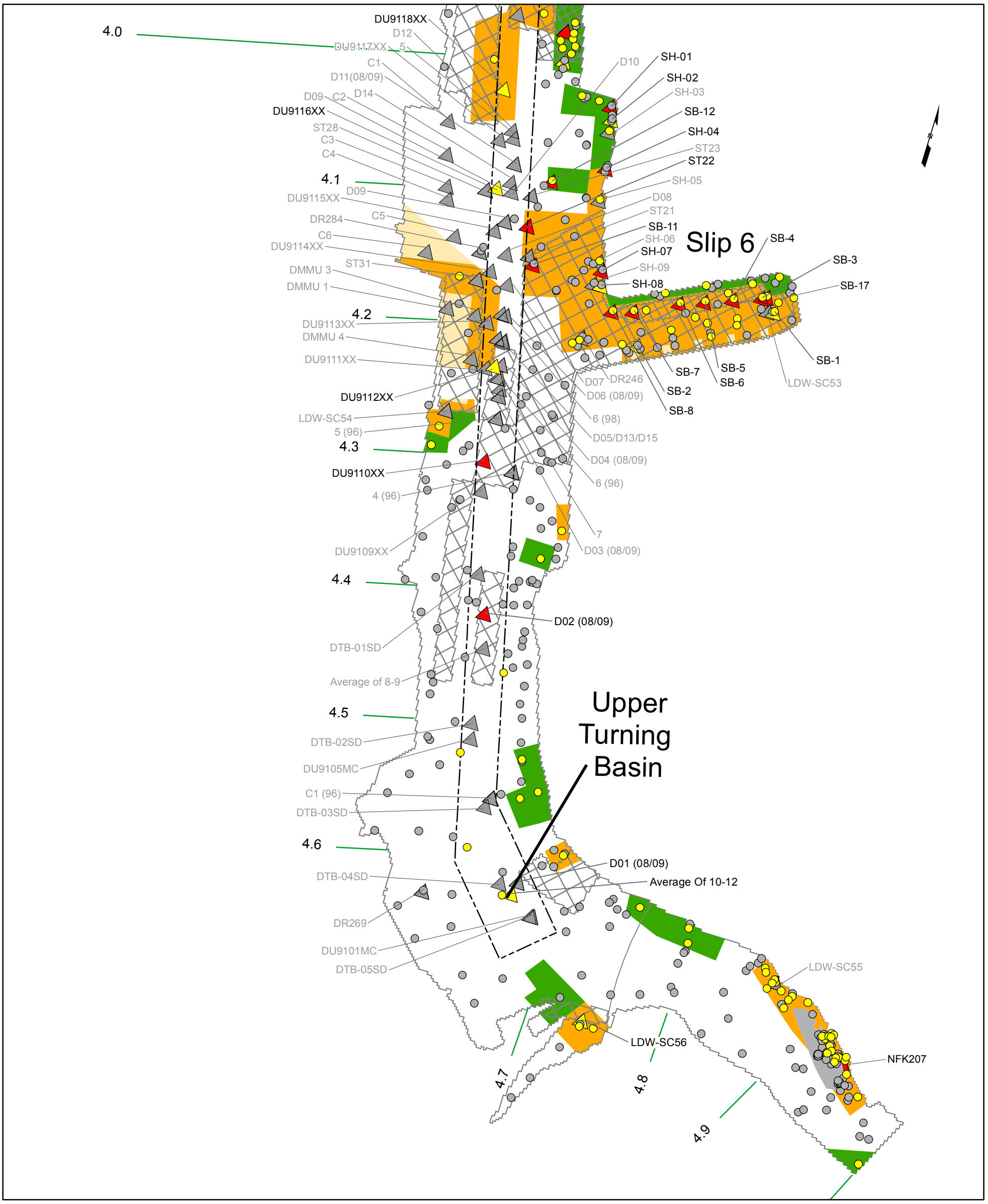
Alternative 6 Combined Technology Assignments and Waterway Conditions

DATE: 10/31/12 | DWRN:MVI/sea | Revision: 0 | **FIGURE G-30a**

L:\Lower Duwamish FS\FS_Final_GIS\Oct2012\FS_GIS_MXDs_Oct12\Appendix G\FigureG-30aAlt6CombinedCon.mxd



Notes:
1. FS baseline dataset used. Total Study Area: 441 acres.
2. Technology assignments are for the FS and may change based on additional data collected during remedial design.
3. See Section 8 for additional details on technology assignments. Exceptions to the technology assignment criteria in Section 8 are explained in text boxes.
4. See Section 6 for development of recovery categories and RALs.
5. Subsurface exceedances in cores are at any depth and represent the highest level of exceedance for any SMS contaminant.

Remedial Alternative	Remedial Action Levels (RALs)				
	Total PCBs	cPAHs	Dioxins/ Furans	Arsenic	Benthic SMS
	µg/kg dw	µg TEQ/kg dw	ng TEQ/kg dw	mg/kg dw	41 Chemicals
Alt 6	100	1,000 (site-wide), 900 (intertidal)	15	15	SQS

Technology Assignment

AOPC 1+2
- Dredge (108 acres)
- Cap or Partial Dredge and Cap (93 acres)
- Monitored Natural Recovery (0 acres)
- ENR/*in situ* (101 acres)
- Verification Monitoring (0 acres)
- Early Action Area (29 acres)
- Remaining Study Area (Institutional Controls and Site-wide Monitoring) (110 acres)

Legend

Surface Sediment Exceedance Location
- >Alt 6 RALs
- Pass or Non-detect

Subsurface Exceedance Location and ID
- > CSL, detected
- > SQS and ≤ CSL, detected
- Pass or Non-detect

Station ID Labeled in Black

Station ID Labeled in Grey

Recovery Category
- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Navigation Channel
- River Mile Marker

0 200 400 800 Feet

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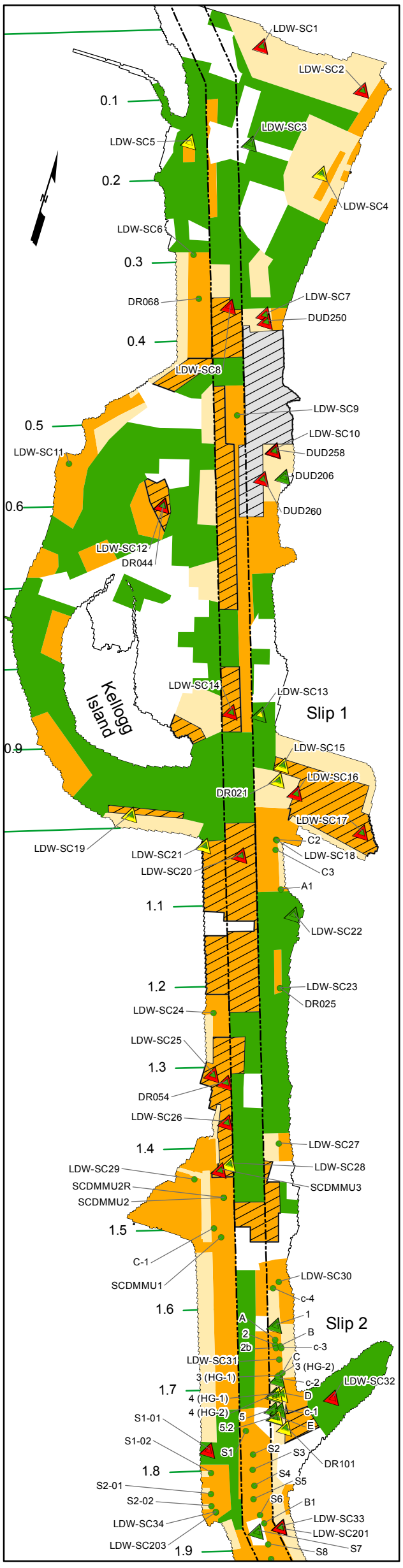
Lower Duwamish Waterway
Final Feasibility Study
60150279-14.46

Alternative 6 Combined Technology Assignments and Waterway Conditions (RM 4.0 to 5.0)

DATE: 10/31/12 | DWRN:MVI/sea | Revision: 0

FIGURE G-30b

L:\Lower Duwamish FS\FS_Final_GIS\Oct2012\FS_GIS_MXDs_Oct12\Appendix G\FigureG-30bAlt6CombinedConB.mxd



Notes:
1. If cores overlap, the core with the highest exceedance status is shown on top.
2. Core intervals are based on *in situ* depths.
3. Any sample interval that overlaps the 0-2 or 2-4 ft interval is included. Samples that overlap both core intervals are mapped in both intervals.
4. For cores in capping areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval displays the 0-2 ft exceedance status.
5. For cores in partial dredge and cap areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval exceedance status is retained.
6. For cores in ENR areas, both the 0-2 ft and the 2-4 ft interval exceedance statuses are retained.
7. Cores in EAAs are not shown.

Legend

Technology Assignment

- Dredge
- Partial Dredge and Cap
- Cap
- Monitored Natural Recovery
- ENR/*in situ*
- Verification Monitoring
- Remaining Study Area (Institutional Controls and Site-wide Monitoring)

SMS Exceedance Status Following Remediation

Maximum exceedance 0-2 ft in core / Maximum exceedance 2-4 ft in core

- > CSL
- >SQS and ≤ CSL
- ≤ SQS or Non-detect
- Interval Not Analyzed
- Core Location Dredged During Remediation

Physical Lines of Evidence Used in Assigning Recovery Categories

- STM Predicted 100-Year High-flow Scour > 10 cm
- Evidence of Propeller Wash Scour
- Overwater Structure
- Outfall Location

Recovery Category

- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Early Action Area
- Navigation Channel
- River Mile Marker

Feet
0 200 400 800

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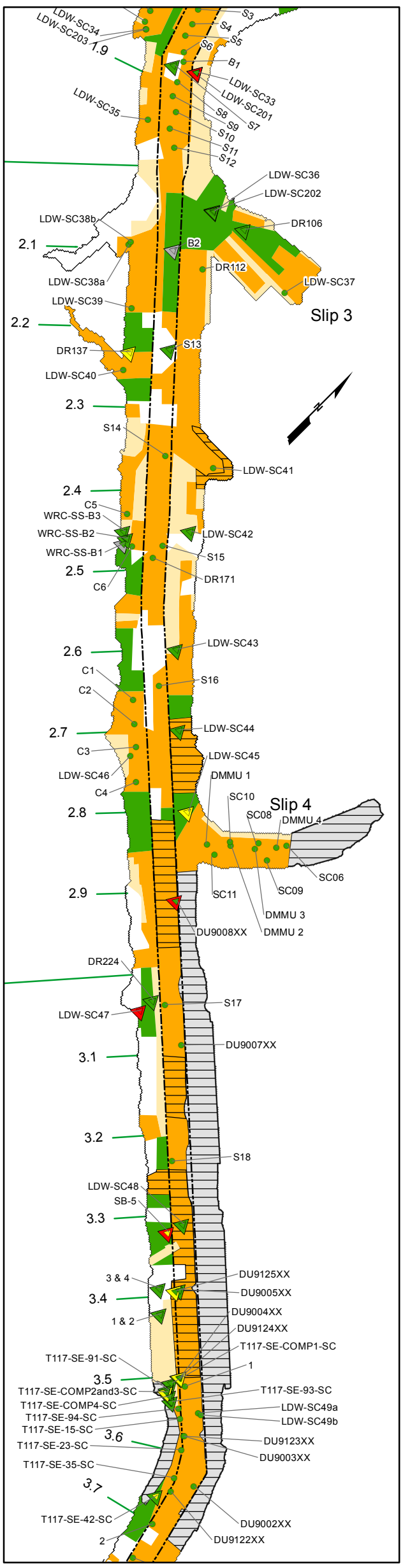
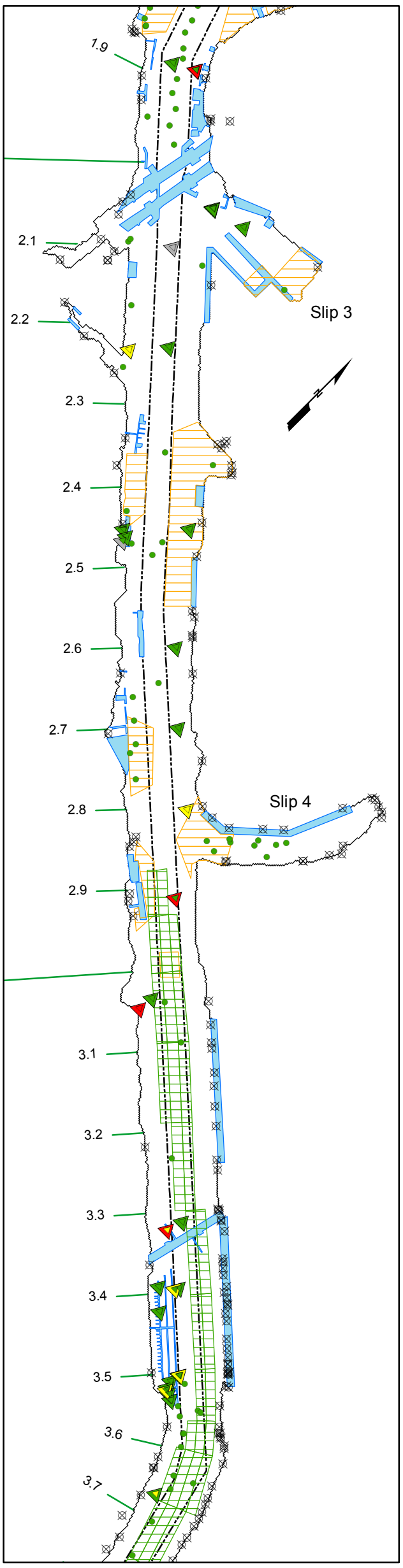
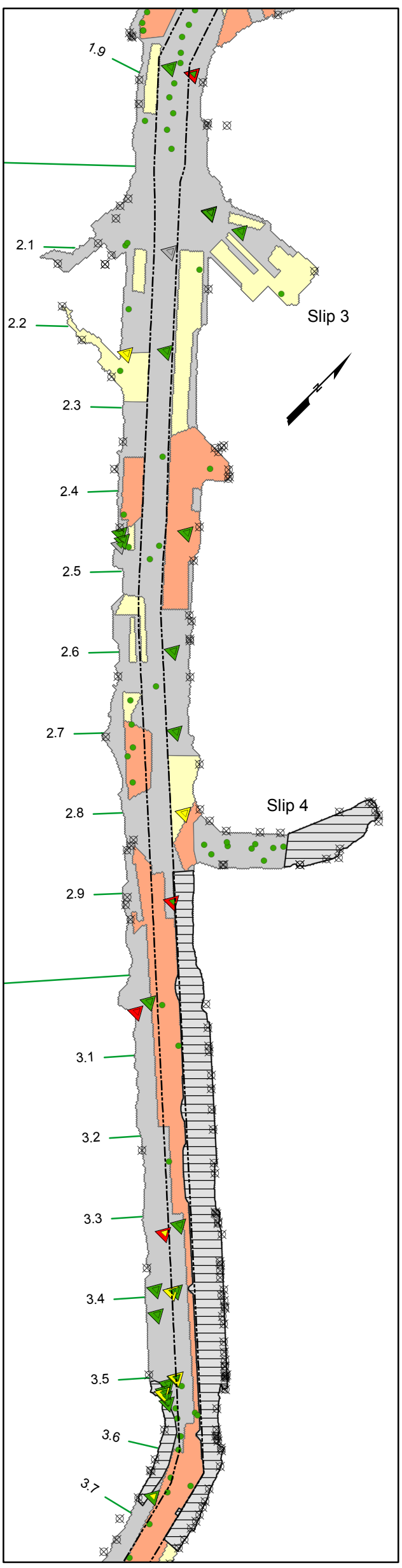
Alternative 6 Combined Remaining Subsurface Contamination - Plan View (RM 0.0 to 1.9)

DATE: 10/31/12	DWRN:MVI/sea	Revision: 0	FIGURE G-31a

L:\Lower Duwamish FS\FS_Final_GIS\Oct2012\FS_GIS_MXDs_Oct12\Appendix G\G-31aCoreRecoveryNorth6C.mxd







Notes:
1. If cores overlap, the core with the highest exceedance status is shown on top.
2. Core intervals are based on *in situ* depths.
3. Any sample interval that overlaps the 0-2 or 2-4 ft interval is included. Samples that overlap both core intervals are mapped in both intervals.
4. For cores in capping areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval displays the 0-2 ft exceedance status.
5. For cores in partial dredge and cap areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval exceedance status is retained.
6. For cores in ENR areas, both the 0-2 ft and the 2-4 ft interval exceedance statuses are retained.
7. Cores in EAAs are not shown.

Legend

Technology Assignment

- Dredge
- Partial Dredge and Cap
- Cap
- Monitored Natural Recovery
- ENR/*in situ*
- Verification Monitoring
- Remaining Study Area (Institutional Controls and Site-wide Monitoring)

SMS Exceedance Status Following Remediation

Maximum exceedance 0-2 ft in core / Maximum exceedance 2-4 ft in core

- > CSL
- >SQS and ≤ CSL
- ≤ SQS or Non-detect
- Interval Not Analyzed
- Core Location Dredged During Remediation

Physical Lines of Evidence Used in Assigning Recovery Categories

- STM Predicted 100-Year High-flow Scour > 10 cm
- Evidence of Propeller Wash Scour
- Overwater Structure
- Outfall Location

Recovery Category

- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Early Action Area
- Navigation Channel
- River Mile Marker

0 200 400 800 Feet

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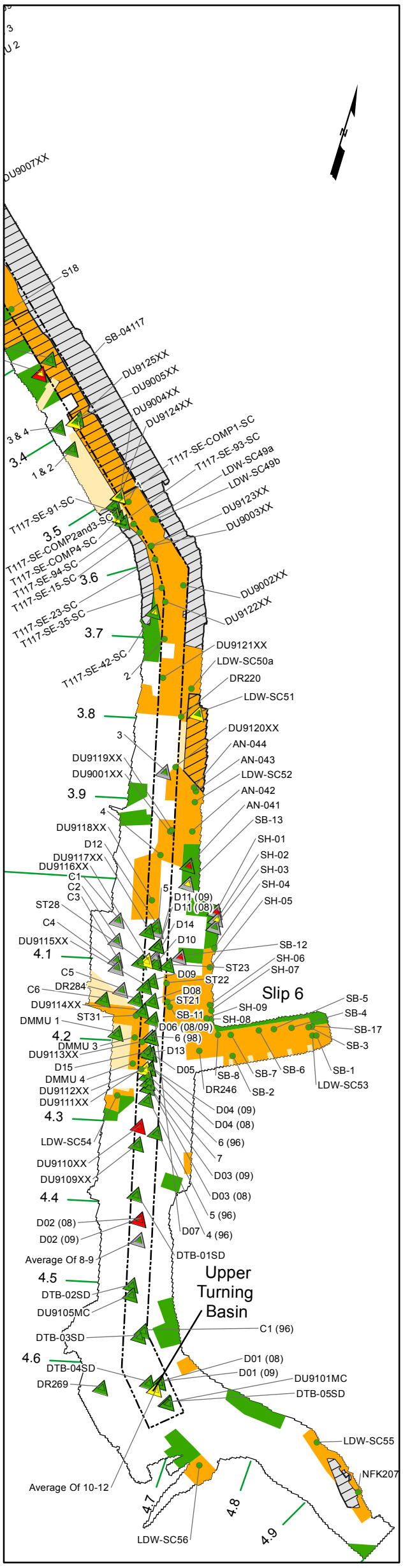
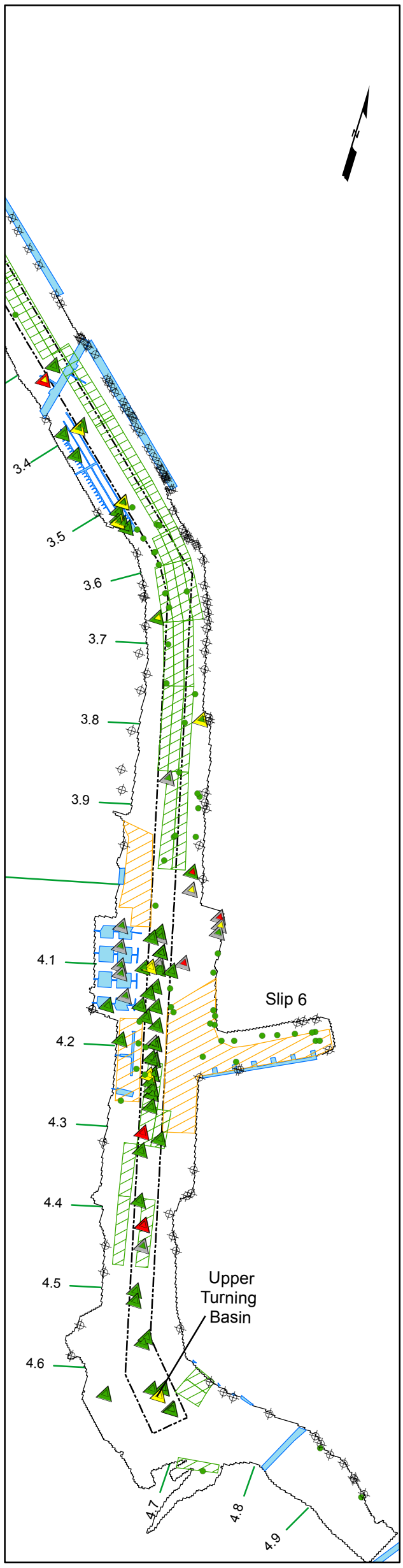
Alternative 6 Combined Remaining Subsurface Contamination - Plan View (RM 1.9 to 3.6)

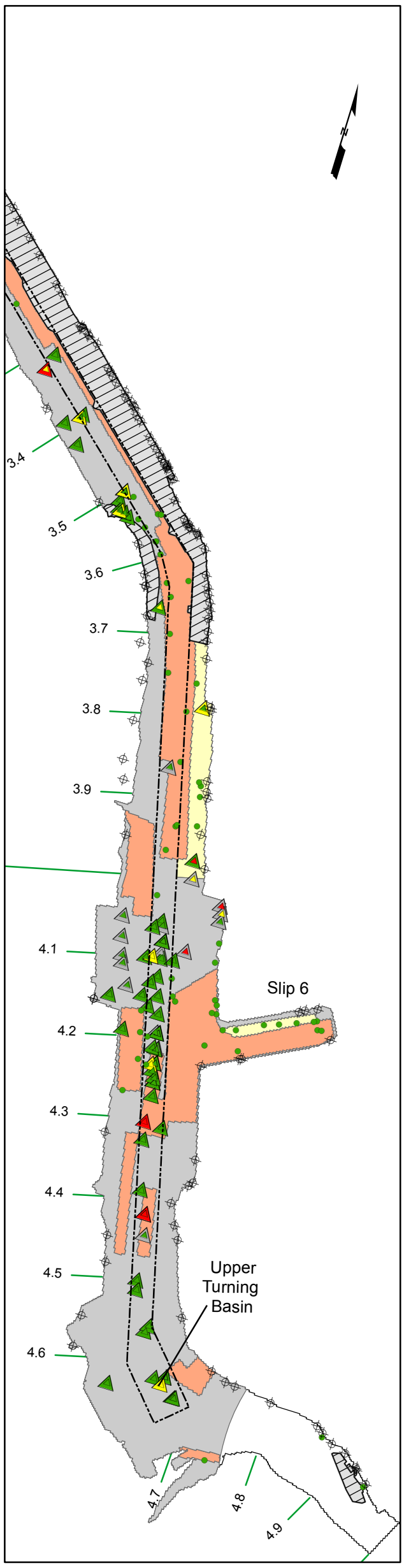
DATE: 10/31/12 | DWRN:MVI/sea | Revision: 0

FIGURE G-31b

L:\Lower Duwamish FS\FS_Final_GIS\Oct2012\FS_GIS_MXDs_Oct12\Appendix G\G-31bCoreRecoveryMid6C.mxd







Notes:
1. If cores overlap, the core with the highest exceedance status is shown on top.
2. Core intervals are based on *in situ* depths.
3. Any sample interval that overlaps the 0-2 or 2-4 ft interval is included. Samples that overlap both core intervals are mapped in both intervals.
4. For cores in capping areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval displays the 0-2 ft exceedance status.
5. For cores in partial dredge and cap areas, the 0-2 ft interval is set to <SQS. The 2-4 ft interval exceedance status is retained.
6. For cores in ENR areas, both the 0-2 ft and the 2-4 ft interval exceedance statuses are retained.
7. Cores in EAAs are not shown.

Legend

Technology Assignment

- Dredge
- Partial Dredge and Cap
- Cap
- Monitored Natural Recovery
- ENR/*in situ*
- Verification Monitoring
- Remaining Study Area (Institutional Controls and Site-wide Monitoring)

SMS Exceedance Status Following Remediation

Maximum exceedance 0-2 ft in core / Maximum exceedance 2-4 ft in core

- > CSL
- >SQS and ≤ CSL
- ≤ SQS or Non-detect
- Interval Not Analyzed
- Core Location Dredged During Remediation

Physical Lines of Evidence Used in Assigning Recovery Categories

- STM Predicted 100-Year High-flow Scour > 10 cm
- Evidence of Propeller Wash Scour
- Overwater Structure
- Outfall Location

Recovery Category

- Category 1: Recovery Presumed to be Limited
- Category 2: Recovery Less Certain
- Category 3: Predicted to Recover
- Early Action Area
- Navigation Channel
- River Mile Marker

0 200 400 800 Feet

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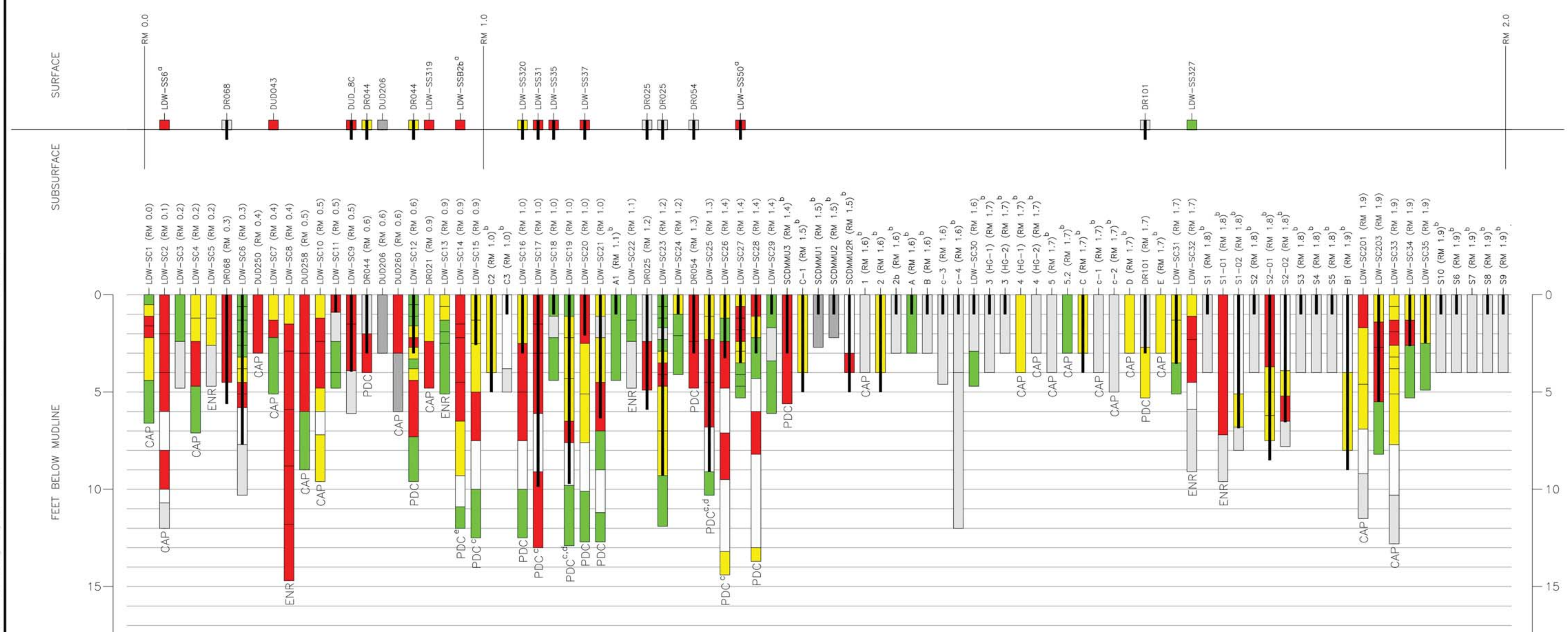
Alternative 6 Combined Remaining Subsurface Contamination - Plan View (RM 3.6 to 5.0)

DATE: 10/31/12 | DWRN:MVI/sea | Revision: 0 | **FIGURE G-31c**

L:\Lower Duwamish FS\FS_Final_GIS\Oct2012\FS_GIS_MXDs_Oct12\Appendix G\FigureG-31cCoreRecoverySouth6C.mxd



LEGEND

SQS/CSL CATEGORIES FOR ALL SMS CONTAMINANTS IN SUBSURFACE CORE INTERVALS

- > CSL, detect
- > SQS and ≤ CSL, detect
- > CSL, non-detect
- > SQS and ≤ CSL, non-detect
- ≤ SQS, detect and non-detect
- Not Analyzed

TECHNOLOGY AT CORE LOCATION

- Dredging

CAP = capping
ENR = enhanced natural recovery or *in situ* treatment
PDC = partial dredging and capping

General Notes:

1. The closest surface sediment sample is shown if it is within 10 feet of the core.
2. Core sample intervals are the in situ depths based on the % recovery during sampling. If % recovery is not available for the core, the sample interval is based on recovered depths.
3. Dredge depths are to the bottom of contamination based on the variable thickness layer developed in Appendix E, and represent the neat-line volume (does not include overdredging). The minimum dredge thickness is 1 ft.

Footnotes:

a SQS/CSL category based on toxicity test results, not sediment chemistry.
b Core collected to assess dredged sediment for disposal; location may have been dredged. Core is shown for completeness.
c The location-specific partial dredging depth is based on the navigation channel or berthing area maintenance dredge depth in Section 2, and the assumed post-construction clearance requirement in Section 8.
d For this remedial alternative, partial dredging and capping was assigned to this core location based on continuity with adjacent areas. However, this analysis indicates that a cap would not be warranted in this specific location, and dredging would be a more appropriate technology assignment.
e For this remedial alternative, partial dredging and capping was assigned to this location based on continuity with adjacent areas. However, this analysis indicates that dredging would not be warranted in this specific location, and cap would be a more appropriate technology assignment.

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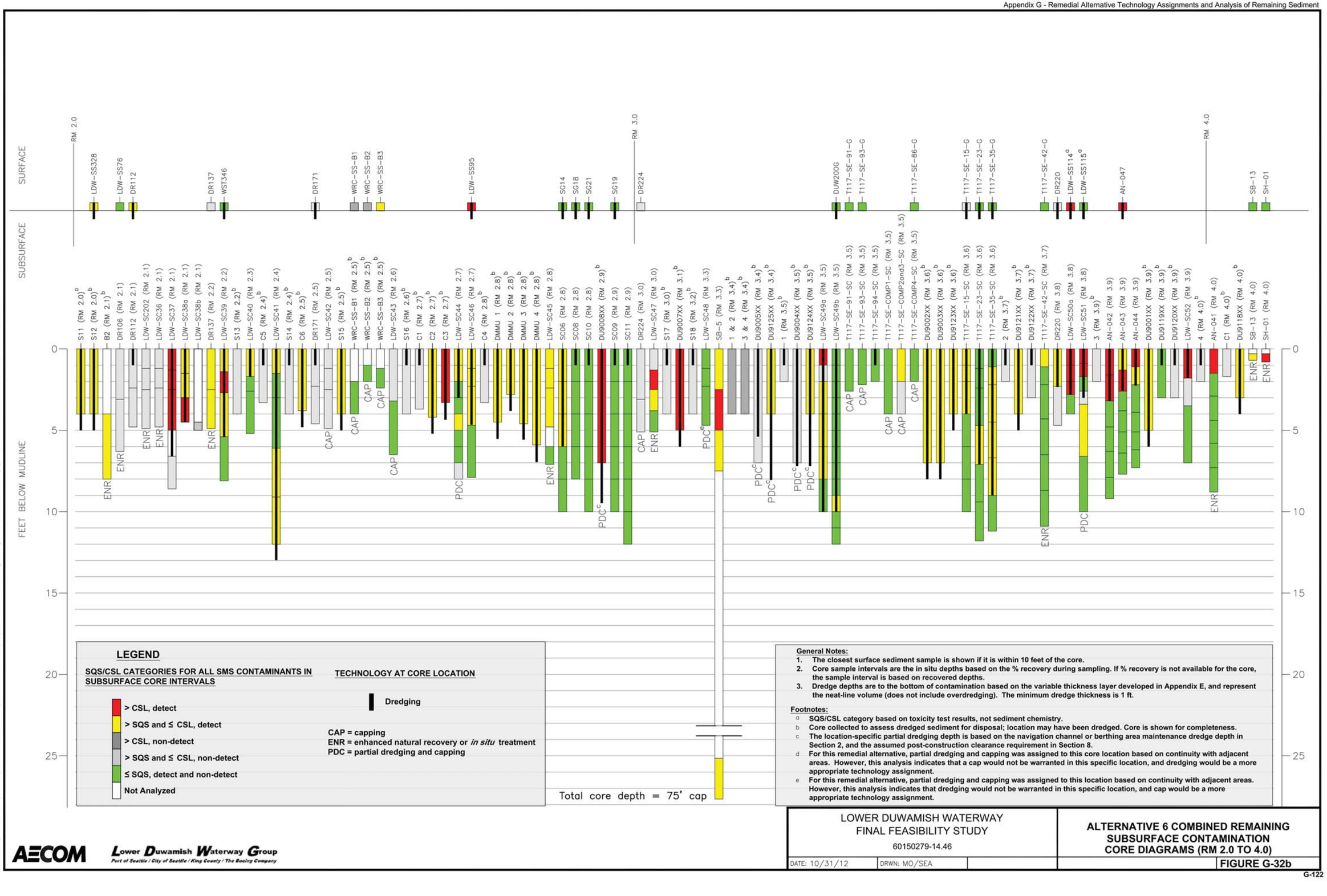
DATE: 10/31/12 | DRWN: MO/SEA

ALTERNATIVE 6 COMBINED REMAINING SUBSURFACE CONTAMINATION CORE DIAGRAMS (RM 0.0 TO 2.0)

FIGURE G-32a



LEGEND

SQS/CSL CATEGORIES FOR ALL SMS CONTAMINANTS IN SUBSURFACE CORE INTERVALS

- > CSL, detect
- > SQS and ≤ CSL, detect
- > CSL, non-detect
- > SQS and ≤ CSL, non-detect
- ≤ SQS, detect and non-detect
- Not Analyzed

TECHNOLOGY AT CORE LOCATION

- Dredging

CAP = capping
ENR = enhanced natural recovery or *in situ* treatment
PDC = partial dredging and capping

General Notes:

1. The closest surface sediment sample is shown if it is within 10 feet of the core.
2. Core sample intervals are the in situ depths based on the % recovery during sampling. If % recovery is not available for the core, the sample interval is based on recovered depths.
3. Dredge depths are to the bottom of contamination based on the variable thickness layer developed in Appendix E, and represent the neat-line volume (does not include overdredging). The minimum dredge thickness is 1 ft.

Footnotes:

a SQS/CSL category based on toxicity test results, not sediment chemistry.
b Core collected to assess dredged sediment for disposal; location may have been dredged. Core is shown for completeness.
c The location-specific partial dredging depth is based on the navigation channel or berthing area maintenance dredge depth in Section 2, and the assumed post-construction clearance requirement in Section 8.
d For this remedial alternative, partial dredging and capping was assigned to this core location based on continuity with adjacent areas. However, this analysis indicates that a cap would not be warranted in this specific location, and dredging would be a more appropriate technology assignment.
e For this remedial alternative, partial dredging and capping was assigned to this location based on continuity with adjacent areas. However, this analysis indicates that dredging would not be warranted in this specific location, and cap would be a more appropriate technology assignment.

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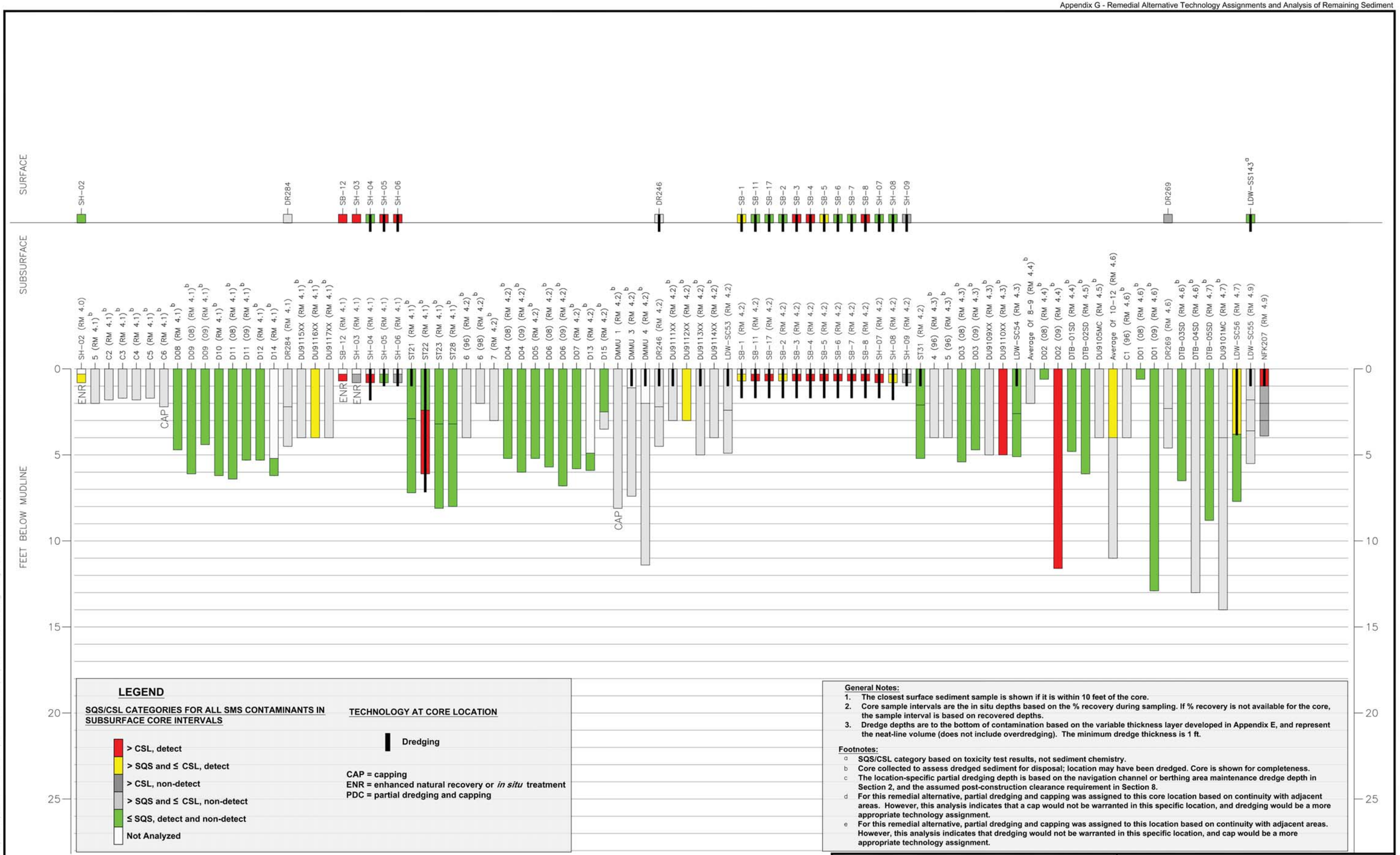
DATE: 10/31/12 | DRWN: MO/SEA

ALTERNATIVE 6 COMBINED REMAINING SUBSURFACE CONTAMINATION CORE DIAGRAMS (RM 2.0 TO 4.0)

FIGURE G-32b



LEGEND

SQS/CSL CATEGORIES FOR ALL SMS CONTAMINANTS IN SUBSURFACE CORE INTERVALS

- > CSL, detect
- > SQS and ≤ CSL, detect
- > CSL, non-detect
- > SQS and ≤ CSL, non-detect
- ≤ SQS, detect and non-detect
- Not Analyzed

TECHNOLOGY AT CORE LOCATION

- Dredging

CAP = capping
ENR = enhanced natural recovery or *in situ* treatment
PDC = partial dredging and capping

General Notes:

1. The closest surface sediment sample is shown if it is within 10 feet of the core.
2. Core sample intervals are the in situ depths based on the % recovery during sampling. If % recovery is not available for the core, the sample interval is based on recovered depths.
3. Dredge depths are to the bottom of contamination based on the variable thickness layer developed in Appendix E, and represent the neat-line volume (does not include overdredging). The minimum dredge thickness is 1 ft.

Footnotes:

a SQS/CSL category based on toxicity test results, not sediment chemistry.
b Core collected to assess dredged sediment for disposal; location may have been dredged. Core is shown for completeness.
c The location-specific partial dredging depth is based on the navigation channel or berthing area maintenance dredge depth in Section 2, and the assumed post-construction clearance requirement in Section 8.
d For this remedial alternative, partial dredging and capping was assigned to this core location based on continuity with adjacent areas. However, this analysis indicates that a cap would not be warranted in this specific location, and dredging would be a more appropriate technology assignment.
e For this remedial alternative, partial dredging and capping was assigned to this location based on continuity with adjacent areas. However, this analysis indicates that dredging would not be warranted in this specific location, and cap would be a more appropriate technology assignment.

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DATE: 10/31/12 | DRWN: MO/SEA

ALTERNATIVE 6 COMBINED REMAINING SUBSURFACE CONTAMINATION CORE DIAGRAMS (RM 4.0 TO 5.0)

FIGURE G-32c