EXHIBIT K-7
EVALUATION REPORT
FLOODPLAINS
(REVISED)

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This evaluation report summarizes floodplain effects for the Proposed and Least Cost Disposal Plans. The Evaluation Report for Consistency with Local Critical Areas Ordinances (CAO) addresses in further detail floodplain effects for Washington locations. This Floodplain Evaluation Report contains all figures depicting floodplain locations for both Washington and Oregon disposal, mitigation and ecosystem restoration sites (Figures 1-17).

Proposed Plan

Nineteen of thirty-four disposal sites for the Proposed plan (Table 1, (Figures 1-17)) lie within FEMA Floodplain Designation A, e.g. within the 100-year floodplain but without a baseflood elevation determination. One of these 19 sites, Port Westward lays only partially within the FEMA "A" zone. Eight disposal locations lie within a FEMA "AE" zone where a baseflood elevation has been determined (Table 1). One of these eight sites (James River) lies partially within an AE zone and partially outside the floodplain. Nine sites lie fully (7) or partially (2) outside the 100-year floodplain (Table 1). The presence of flood control dikes accounts for 6 disposal locations that lie fully (5) or partially outside the 100-yr floodplain. The site elevation at 29 disposal sites has already been historically altered (Table 1) by dredged material placement and 11 of these locations have containment dikes already in place. Four of these 29 previously used disposal sites lie fully outside the floodplain; two previously used disposal sites lie partially outside the floodplain. Another three of the 29 are shoreline disposal sites (Miller Sands, Skamokawa and Sand Island) currently or previously used for 40' channel maintenance where disposal will not alter the topography beyond existing elevations and thus these locations will remain within the floodplain. The FEMA maps likely do not reflect the site elevation alteration that has occurred at the 25 historic disposal locations within the floodplain. The elevation alteration and/or construction of containment dikes are considered of sufficient magnitude to remove 22 (all except shoreline) of these sites from the 100-year floodplain. Letters of Map Revision (LOMR) will be provided to FEMA as detailed site-specific topographic information is obtained for those 22 disposal sites.

Five disposal sites out of the total of 34 have not historically received dredged material. Three sites (Lonestar Gravel Pit, Mt. Solo, and Puget Island) lie outside the FEMA floodplain. Fill at Gateway 3 (W-101.0) will raise the surface elevation in excess of the 100-year flood elevation and will require a LOMR to be prepared in the future. Placement of fill material at the Martin Island embayment location for wildlife mitigation purposes will not elevate the site out of the floodplain.

Wildlife Mitigation Sites

Three wildlife mitigation sites have been identified for habitat development to offset project-related impacts from implementation of either the Proposed or Least Cost Plan.

The Martin Island, Washington mitigation location lays within the FEMA "A" zone (Figure 6). The 16-acres Martin Island embayment fill, for development of tidal marsh habitat, will not raise the surface elevation above ordinary high water. No surface alteration to the remainder of Martin Island will occur that would raise the existing surface topography. Some minor excavation will occur to develop wetland and riparian forest habitat.

The Woodland Bottoms, Washington mitigation location is situated behind a flood control levee within the Cowlitz County Consolidated Diking Improvement District No. 2 and is thus not subject to flooding from the Columbia River. Minimal flooding from internal drainage may occur. The proposed wildlife mitigation features will alter flooding on a portion of the wildlife mitigation site. Levees that currently contain Burris Creek and direct it to the pumping station will be removed either partially or in full and the borrow material used to form setback levees on the perimeter of the 97 acre wetland management unit. These setback levees will afford the same level of flood protection as the levees currently controlling Burris Creek. These setback levees will allow Burris Creek to flood over the wetland management unit during freshets into an area of approximately 97 acres, resulting in a more natural hydrologic regime and effectively increasing available floodplain area. Other than the borrow of material from the levees along Burris Creek and construction of the setback levee, the topography of the Woodland Bottoms wildlife mitigation site will not be altered from the existing condition. No alteration to the FEMA floodplain designation will occur due to implementation of wildlife mitigation features at Woodland Bottoms.

The Webb, Oregon wildlife mitigation site lies within the Webb District Improvement Company near Westport, Oregon and thus behind a flood control dike. However, the FEMA Floodplain Designation for the site is AE (within the 100-year floodplain; Figure 12). A low crest elevation internal levee will be constructed at this site to aid water level management in the 74-acre wetland habitat unit that will be constructed for mitigation purposes. Borrow material for the internal levee will be obtained from within the 74-acre wetland mitigation site. Borrow sites will provide for a varied substrate topography and thus a diverse wetland plant community. No alteration to the main flood control dike or the FEMA Floodplain Designation will result from development of this wildlife mitigation feature.

Ecosystem Restoration Features

The Lois Island and Miller-Pillar ecosystem restoration features will alter the bottom topography of the Columbia River. Dredged material will be placed at these locations to an elevation appropriate for the establishment of tidal marsh habitat. Neither site will increase in elevation sufficient enough to alter their FEMA Floodplain Designation of AE –100-year floodplain (baseflood elevations determined).

The Purple Loosestrife Control Program represents an integrated pest management approach to control this exotic plant in tidal marsh habitat between CRM 18-52. No

alteration to topography or the FEMA Floodplain Designation will result from implementation of this feature.

The Tenasillahe Island ecosystem restoration feature consists of three subcomponents. The Interim feature (Figure 13) entails tidegate improvements and construction of inlet channels and control structures to improve flow, circulation and juvenile salmonid access/egress to the interior channels of Tenasillahe Island. The interim feature will not change flooding proneness of Tenasillahe Island or the FEMA Floodplain Designation of AE at this location. The main flood control dike surrounding the island will remain intact and operational. The second component of this feature consists of reintroducing Columbian white-tailed deer to Cottonwood-Howard Island. There will be no topography alteration associated with this action and thus no change to the FEMA Floodplain Designation for the islands. The long-term ecosystem restoration feature at Tenasillahe Island calls for the breaching of the flood control dikes protecting the island and thus restoring the island (approximately 1,778 acres) to the river's influence and effectively increasing available floodplain area. The long-term feature will change flooding proneness of Tenasillahe Island but does not affect the FEMA Floodplain Designation of AE at this location.

The ecosystem restoration feature entitled Tidegate Retrofits is proposed for Burris Creek, Washington (Figure 6), a number of locations along Deep River, Washington (Figure 17), and for the Grizzly Slough (Figure 14), Hall Creek (Figure 14), and Tide Creek (Figure 6) locations in Oregon. Alteration of tidegates will be not result in topography alteration and thus no change to the FEMA Floodplain Designation for these locations is forecast.

The Walker-Lord and Hump-Fisher ecosystem restoration feature to improve embayment circulation (Figure 10) would result in construction of minor channels to connect the embayments to the mainstem Columbia River. The channel excavation at Hump-Fisher would take a portion of the island (approximately 2 acres) currently outside of the 100-year floodplain and return it to the floodplain thus increasing available floodplain area. The Walker-Lord component is already in the 100-year floodplain and the proposed action would not alter that FEMA designation.

The Bachelor Slough ecosystem restoration feature (Figure 4) would entail excavation of approximately 132,000 cy of material from Bachelor Slough and associated deposition of material on adjacent Bachelor Island lands plus excavation of approximately one foot of soil and overburden from 6 acres of Bachelor Slough shoreline. The disposal actions on these adjacent lands would not raise site elevation above the 100-year floodplain elevation.

The Shillapoo Lake ecosystem restoration feature (Figure 2) would entail construction of internal levees for water control purposes in the wetland management units. These internal levees would not exceed the 100-year floodplain elevation or alter the the FEMA Floodplain Designation of A – 100 year floodplain (no baseflood elevation determined).

Least Cost Plan

Nineteen of thirty-three disposal sites for the least cost disposal plan (Table 2) lie within FEMA Floodplain Designation A, e.g. within the 100-year floodplain but without a baseflood elevation determination. One of these 19 sites, Port Westward lays only partially within the FEMA "A" zone. Seven disposal locations lie within a FEMA "AE" zone where a baseflood elevation has been determined (Table 2). One of these seven sites (James River) lies partially within an AE zone and partially outside the floodplain. Nine sites lie fully (7) or partially (2) outside the 100-year floodplain (Table 2). The presence of flood control dikes accounts for 6 disposal locations that lie fully (5) or partially outside the 100-yr floodplain. The site elevation at 28 disposal sites has already been historically altered (Table 2) by dredged material placement and 11 of these locations have containment dikes already in place. Four of these 28 previously used disposal sites lie outside the floodplain; two previously used disposal sites lie partially outside the floodplain. Another two of the 28 are shoreline disposal sites (Miller Sands and Sand Island) currently or previously used for 40' channel maintenance where disposal will not alter the topography beyond existing elevations and thus these locations will remain within the floodplain.

The FEMA maps likely do not reflect the site elevation alteration that has occurred at the 22 historic disposal locations fully or partially within the floodplain. The elevation alteration and/or construction of containment dikes at these locations are considered of sufficient magnitude to remove these sites from the 100-year floodplain. Letters of Map Revision will be provided to FEMA as detailed site-specific topographic information is obtained for those 22 disposal sites. For the remaining 11 disposal sites out of the total of 33, seven sites (Scappoose Dairy, Rainier Beach, IP Rehandle, Reynolds Aluminum, Hump Island, Mt. Solo, and Puget Island) lie outside the FEMA floodplain. Two of the eleven are shoreline disposal sites (Sand Island and Miller Sands) used for 40' channel maintenance where disposal will not alter the topography beyond existing elevations and thus these locations will remain within the floodplain. The Martin Island embayment fill, for development of tidal marsh habitat, will not raise the surface elevation above ordinary high water. Fill at W-95.7 will raise the surface elevation in excess of the 100-year flood elevation and will require a LOMR to be prepared in the future.

Impacts of the wildlife mitigation sites and the ecosystem restoration sites on floodplains are the same as described above in the proposed plan.

Summary: There are three proposed disposal sites in each plan (proposed and least cost) that occur within the floodplain of the Columbia River and that are not historical disposal sites. The Martin Island embayment fill for wildlife (wetland) mitigation purposes would raise the embayments' elevation to the level of intertidal marsh habitat and would not have a significant impact on the floodplain. The proposed plan would impact 48 acres of floodplain habitat (Gateway – 40 acres; Adjacent Fazio – approximately 8 acres of 17 acre site). For the least cost plan, 33 acres of floodplain habitat (W-95.7 – 25 acres;

Adjacent Fazio – approximately 8 acres of 17 acre site) would be impacted. Use of these sites in either plan will not impact the floodplain in any substantial manner. Gateway, Adjacent Fazio and W-95.7 all occur in the Vancouver Lowlands behind flood control dikes that preclude most flood events, but not events comparable to the February 1996 flood events. Practicable alternatives for these disposal sites are not available. Diking districts, State wildlife management areas and a National Wildlife Refuge also occur in this reach of the river. To move dredged material to another upland location outside the floodplain would be impracticable due to distance, logistics, physical (geography) and economical constraints.

The proposed ecosystem restoration features and wildlife mitigation actions, including wetland mitigation, will not have a substantial impact on the floodplain either. An exception would be the Tenasillahe Island long-term (Phase 3) restoration feature, which would restore 1,778 acres of floodplain habitat to the Columbia River when implemented. This would result in a substantial gain of floodplain habitat in the lower Columbia River.

Table 1. Floodplain designation for Proposed Disposal Plan Alternative

				FEMA Floodplain Designation				
Disposal Site *	**Disposal History****	**Site Name**	**Site Acres**	**A**	**AE**	**Outside**	**Flood Control Dike Protects**	**Notes**
O-105.0	DMMS	West Hayden Island	102	X				Site elevation historically raised by dredged material deposition.
W-101.0	New	Gateway 3	40	X			X	No previous disposal.
W-97.1	DMMS	Fazio Sand & Gravel	27	X				Disposal site already has containment dike constructed around portion of perimeter. Site elevation historically raised by dredged material deposition. Resale location (active).
W-96.9	New	Adjacent Fazio	17	X				Site elevation historically raised by dredged material deposition (1/2 site nearest river).
O-91.5	New	Lonestar Gravel Pit	45			X	X	Active Gravel Pit.
O-87.8	Used	RR Corridor	12	X				Site elevation historically raised by dredged material deposition.
W-86.5	Used	Austin Point	26	X				Disposal site already has containment dike constructed around portion of perimeter. Site elevation historically raised by dredged material deposition.
O-86.2	Used	Sand Island (shoreline disposal)	28	X				Beach nourishment site for recreational use. Site elevation historically raised by dredged material deposition but remains w/in floodplain.
O-82.6	Used	Reichold	49	X				Site elevation historically raised by dredged material deposition.
W-82.0	Used	Martin Bar	32	X				Site elevation historically raised by dredged material deposition.
W-80.0	New	Martin Island Embayment	32	X				Mitigation site - emergent marsh development. Site remains subject to tidal inundation.
O-77.0	Used	Lower Deer Island	29	X				Site elevation historically raised by dredged material deposition.
O-75.8	DMMS	Sandy Island	30	X				Disposal site already has containment dike constructed around perimeter. Site elevation historically raised by dredged material deposition.
W-71.9	Used	Northport	27	X				Disposal site already has containment dike constructed around perimeter. Site elevation historically raised by dredged material deposition. Resale location (active).

Disposal Site *	Disposal History**		Site Acres	A	AE	Outside	Flood Control Dike Protects	Notes
W-70.1	Used	Cottonwood Island	62	X				Site elevation historically raised by dredged material deposition.
W-68.7	DMMS	Howard Island	200	X				Site elevation historically raised by dredged material deposition.
W-67.5	Used	IP Rehandle	29			X	X	Disposal site already has containment dike constructed around perimeter. Site elevation historically raised by dredged material deposition.
O-67.0	Used	Rainier Beach	52			X		Site elevation historically raised by dredged material deposition.
O64.8	Used	Rainier Indus.	53	X				Site elevation historically raised by dredged material deposition.
O-63.5	DMMS	Lord Island Upstrm.	25	X				Disposal site already has containment dike constructed around perimeter. Site elevation historically raised by dredged material deposition.
W-63.5	Used	Reynolds Aluminum	13			X		Disposal site already has containment dike constructed around perimeter. Site elevation historically raised by dredged material deposition.
W-62.0	New	Mt. Solo	47			X	X	New. No previous disposal.
W-59.7	DMMS	Hump Island	69			X		Site elevation historically raised by dredged material deposition.
O-57.0	DMMS	Crims Island	40	X				Disposal site already has containment dike constructed around perimeter. Site elevation historically raised by dredged material deposition.
O-54.0	Used	Port Westward	50	X (d/s tip)		X	X (upstream 2/3)	Site elevation, other than downstream tip historically raised by dredged material deposition.
W-46.0/ 46.3	DMMS	Brown Island	72		X			Disposal site already has containment dike constructed around perimeter. Site elevation historically raised by dredged material deposition.
W-44.0	New	Puget Island	100			X	X	New. No previous disposal.
O-42.9	DMMS	James River	53		X (southern 1/2)	X (northern 1/2)		Disposal site already has containment dike constructed around perimeter. Site elevation historically raised by dredged material deposition.
O-38.3	DMMS	Tenasillahe Island	42		X			Site elevation historically raised by dredged material deposition.
O-34.0	DMMS	Welch Island	42		X			Site elevation historically raised by dredged material deposition.
W-33.4	Used	Skamokawa	11		X			Shoreline disposal site and resale site. Site elevation historically raised by dredged material deposition.

Disposal Site *	Disposal History**		Site Acres	A	AE	Outside	Flood Control Dike Protects	Notes
O-27.2	DMMS	Pillar Rock Island	56		X			Site elevation historically raised by dredged material deposition.
O-23.5	DMMS	Miller Sands	151		X			Shoreline disposal site; erosive. Site elevation historically raised by dredged material deposition.
W-21.0	DMMS	Rice Island	228		X			Disposal site already has containment dike constructed around portion of perimeter. Site elevation historically raised by dredged material deposition.
* "W" and "O" refer to the Washington or Oregon shoreline, respectively. The number								
refers to the approximate river mile on the navigation channel.								
** DMMS = site is in the no action alternative (existing 40-foot channel maintenance)								
New = site is new for this study								
Used = site previously used by Corps for disposal								

Table 2. Floodplain designation for Least Cost Disposal Plan Alternative								
				FEMA Floodplain Designation				
Disposal Site *	**Disposal History****	**Site Name**	**Site Acres**	**A**	**AE**	**Outside**	**Flood Control Dike Protects**	**Notes**
O-105.0	DMMS	West Hayden Island	102	X				Site elevation historically raised by dredged material deposition.
W-97.1	DMMS	Fazio Sand & Gravel	27	X				Disposal site already has containment dike constructed around portion of perimeter. Site elevation historically raised by dredged material deposition. Resale location (active).
W-96.9	New	Adjacent Fazio	17	X				Site elevation historically raised by dredged material deposition (1/2 site nearest river).
W-95.7	New		25	X			X	New. No previous disposal at this location.
O-90.6	New	Scappoose Dairy	107			X	X	New. No previous disposal at this location.
O-87.8	Used	RR Corridor	12	X				Site elevation historically raised by dredged material deposition.
W-86.5	Used	Austin Point	26	X				Disposal site already has containment dike constructed around portion of perimeter. Site elevation historically raised by dredged material deposition.
O-86.2	Used	Sand Island (shoreline disposal)	28	X				Beach nourishment site for recreational use. Site elevation historically raised by dredged material deposition but remains w/in floodplain.
O-82.6	Used	Reichold	49	X				Site elevation historically raised by dredged material deposition.
W-82.0	Used	Martin Bar	32	X				Site elevation historically raised by dredged material deposition.
W-80.0	New	Martin Island Embayment	32	X				Mitigation site - emergent marsh development. Site remains subject to tidal inundation.
O-77.0	Used	Lower Deer Island	29	X				Site elevation historically raised by dredged material deposition.
O-75.8	DMMS	Sandy Island	30	X				Disposal site already has containment dike constructed around perimeter. Site elevation historically raised by dredged material deposition.
W-71.9	Used	Northport	27	X				Disposal site already has containment dike constructed around perimeter. Site elevation historically raised by dredged material deposition. Resale location (active).

Disposal Site *	Disposal History**		Site Acres	A	AE	Outside	Flood Control Dike Protects	Notes
W-70.1	Used	Cottonwood Island	62	X				Site elevation historically raised by dredged material deposition.
W-68.7	DMMS	Howard Island	200	X				Site elevation historically raised by dredged material deposition.
O-67.0	Used	Rainier Beach	52			X		Site elevation historically raised by dredged material deposition.
W-67.5	Used	IP Rehandle	29			X	X	Disposal site already has containment dike constructed around perimeter. Site elevation historically raised by dredged material deposition.
O64.8	Used	Rainier Indus.	53	X				Site elevation historically raised by dredged material deposition.
O-63.5	DMMS	Lord Island Upstrm.	25	X				Disposal site already has containment dike constructed around perimeter. Site elevation historically raised by dredged material deposition.
W-63.5	Used	Reynolds Aluminum	13			X		Disposal site already has containment dike constructed around perimeter. Site elevation historically raised by dredged material deposition.
W-62.0	New	Mt. Solo	47			X	X	New. No previous disposal.
W-59.7	DMMS	Hump Island	69			X		Site elevation historically raised by dredged material deposition.
O-57.0	DMMS	Crims Island	40	X				Disposal site already has containment dike constructed around perimeter. Site elevation historically raised by dredged material deposition.
O-54.0	Used	Port Westward	50	X (d/s tip)		X	X (upstream 2/3)	Site elevation, other than downstream tip historically raised by dredged material deposition.
W-46.0/ 46.3	DMMS	Brown Island	72		X			Disposal site already has containment dike constructed around perimeter. Site elevation historically raised by dredged material deposition.
W-44.0	New	Puget Island	100			X	X	New. No previous disposal.
O-42.9	DMMS	James River	53		X (S. 1/2)	X (N. 1/2)		Disposal site already has containment dike constructed around perimeter. Site elevation historically raised by dredged material deposition.
O-38.3	DMMS	Tenasillahe Island	42		X			Site elevation historically raised by dredged material deposition.
O-34.0	DMMS	Welch Island	42		X			Site elevation historically raised by dredged material deposition.

								Site elevation historically raised by dredged material deposition.
Disposal Site *	**Disposal History****		**Site Acres**	**A**	**AE**	**Outside**	**Flood Control Dike Protects**	**Notes**
O-27.2	DMMS	Pillar Rock Island	56		X			Site elevation historically raised by dredged material deposition.
O-23.5	DMMS	Miller Sands	151		X			Site elevation historically raised by dredged material deposition.
W-21.0	DMMS	Rice Island	228		X			Disposal site already has containment dike constructed around portion of perimeter. Site elevation historically raised by dredged material deposition.
* "W" and "O" refer to the Washington or Oregon shoreline, respectively. The number								
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