

MEMORANDUM FOR RECORD

8 April 1994

SUBJECT: DETERMINATION ON THE SUITABILITY OF DREDGED MATERIAL AND EXCAVATED MATERIAL TESTED FOR THE MIDDLE WATERWAY RESTORATION PROJECT (93-2-01466) FOR HABITAT PLACEMENT/RESTORATION AT THE MIDDLE WATERWAY RESTORATION SITE, TACOMA, WASHINGTON.

1. The following summary reflects the consensus determination of the PSDDA Agencies' (U.S. Army Corps of Engineers, Department of Ecology, Department of Natural Resources, and the Environmental Protection Agency) with jurisdiction on dredging and disposal on the suitability of the estimated 500 cubic yards of dredged material and 7900 cy of excavated material proposed for dredging and excavation from the Middle Waterway Restoration Site, Port of Tacoma, Washington for placement and habitat restoration in Middle Waterway.
2. Background. Under the St. Paul Waterway Natural Resource Damage (NRD) settlement agreement, Simpson Tacoma Kraft Company (Simpson) and Champion International Corporation (Champion) have agreed to fund the completion of an additional restoration project to provide habitat value in Commencement Bay. The Middle Waterway Shore Restoration Project will be located on property owned by Simpson along the southeastern shore of Middle Waterway in Commencement Bay. The project is in close proximity, and functionally related to, the new intertidal habitat constructed by Simpson and Champion at the north end of the Tacoma Kraft mill as part of the St. Paul Waterway Area Remedial Action and Habitat Restoration Project, as well as other intertidal areas near the Puyallup River delta (Parametrix 1993a).
3. The objective of the restoration at this site is to enhance and support the continued existence of the remnant tide flats at the head of Middle Waterway. The project has been designed for the specific and single purpose of enhancing and expanding the estuarine habitat, and to maximize benefits and minimize any harm to the aquatic ecosystem. The project will be constructed entirely on disturbed lands (filled tideflat) except for the narrow interface with the tideflats.
4. The restoration effort proposes to dredge approximately 500 cubic yards of subsurface saturated fill material under the project site and surface sediments from the head of Middle Waterway near the eastern shore. This effort would regrade the elevation of the project area to a level of +10 feet MLLW. The resulting dredged material would be used as fill material in the landscaping of other areas of the project. Figures 1, 2, and 3 illustrate the proposed landscape before and after project completion. Approximately 7900 cy of upland material would be excavated to +8 to +9 feet MLLW to form tidal channels and wetlands similar to those existing in a natural estuary. The excavated material would be graded to contour the uplands to restore a natural shoreline. The dredged fill material would be placed on the existing mudflat to construct an approximately 0.23 acre vegetative bench similar to those

commonly occurring in the marsh areas of Puget Sound estuaries. Metal debris located in the foundry area would be either removed or contained, and graded and leveled on nearby Simpson property. The proposed work in the foundry area is not associated with any development project.

5. Concerns about the sediment quality surfaced among the agencies with jurisdiction and authority for dredging and disposal during project review before completing the project description for the Corps Public Notice. The agency consensus decision was that the material proposed for dredging and excavation to restore habitat, would require sampling and testing to assess the suitability of the material for project construction under the Clean Water Act Section 404/401 guidelines. Because the material will not be placed at a PSDDA disposal site, the appropriate guidelines for assessing the suitability of the material are those described in WAC 173-204 of the state sediment management program and not the PSDDA disposal guidelines.

6. A sampling and analysis plan was prepared and approved by the agencies with jurisdiction on dredging and disposal of dredged and excavated material in Dredged Material Management Office (DMMO) letter dated February 9, 1994. The sampling and analyses conducted generally complied with the SAP and quality assurance guidelines specified by the PSDDA program, and are considered acceptable for decisionmaking.

7. Sampling and analysis conducted for management units (MU) assessed the saturated fill material (MU-A: comprised of samples 5, 6, 7, 8), upland soils representing the new surface layer to be exposed following construction (MU-C: comprised of samples 1, 2, 3, 4), and saturated material representing the new surface layer underlying the saturated fill material (MU-D) to be exposed after construction (figures 2, 3, 4). Samples (e.g., 9, 10, 11) were also collected and analyzed from the metal debris brass foundry area represented by MU-B (see figures 2 and 3). Subsurface samples represented by MU-E represent the surface of the newly graded post construction at the head of Middle Waterway.

8. Conventional and chemical analysis results are depicted in Table 1. This table summarizes the results relative to PSDDA chemical criteria and Sediment Management Standards chemical criteria. Only chemicals detected or whose detection limits exceeded either PSDDA or SMS criteria are depicted. Those exceeding PSDDA chemical guidelines are presented for comparative purposes only and are not discussed, as SMS criteria are the only relevant criteria for evaluating the suitability of the proposed dredged/excavated material for habitat restoration.

9. The chemical analysis results representing the saturated fill material (MU-A) were all detected below sediment quality standards (SQS) except hexachlorobenzene, which was undetected slightly above the SQS at 0.43 mg/kg (table 1). The results for MU-C indicated that all chemical parameters tested were below SQS except hexachlorobenzene, which was also undetected slightly above the SQS. MU-C represents the upland soils post construction surface layer. Analysis results for MU-B, from the metals foundry area, showed all chemicals

except mercury were below SQS. Mercury was quantitated above the MCUL at 0.65 mg/kg. The project proponents have indicated that during regrading, the sediments represented by MU-B will be removed from the aquatic environment and placed at a suitable upland disposal location on Simpson-Tacoma Kraft property. Chemical analysis results for MU-E representing the new surface layer at the head of the Middle Waterway, were all quantitated below SQS.

10. The results for the saturated material represented by MU-D underlying MU-A showed all chemicals below SQS except copper, which was quantitated above the SQS/MCUL (390 mg/kg) at 430 mg/kg. This sample (MU-D) represents the new sediment surface layer to be exposed after habitat construction. In general, chemicals of concern were quantitated at lower levels in MU-D than in overlying MU-A except for copper. The source of the elevated copper is not known. The agencies concluded that the sediment quality represented by the elevated copper content in the MU-D composite sample may cause adverse biological effects. The following alternative was agreed to in a conference call with the project proponent (Dave McEntee, Simpson Tacoma-Kraft), NRDA representative (Dr. Bob Clarke), and the agencies on April 15, 1994, and will be applied to mitigate the potential bio-effects.

a. Remove and replace alternative: This alternative would involve overdredging the area represented by MU-D by a minimum of one foot, with appropriate disposal of the unsuitable material on the upland portion of the site. The material represented by this 1 foot of overdredging is estimated to be approximately 160 cubic yards. The area could then be backfilled with characterized material to obtain a baseline (clean) condition. This approach would rely on post-construction monitoring to provide recontamination information.

11. The Agencies concluded in this suitability determination based on the above discussion and summary of sediment chemical testing results for the Middle Waterway Restoration Project, Tacoma, Washington, that all the proposed dredged material/excavated material tested (representing approximately 8400 cubic yards of proposed excavated/dredged material), is suitable for dredging/excavation and placement at the Middle Waterway restoration site. An estimated 160 cubic yards of material representing the top 1 foot of newly exposed surface material underlying saturated fill material represented by analysis MU-A (represented by MU-D composited samples) is not suitable for a restored habitat surface restoration, and will be removed (overdredged) and replaced during project construction. The approximately 1 foot of material removed at MU-D will be placed on the uplands at an Ecology approved location. Approximately 160 cubic yards of suitable material will be placed at this location to replace the unsuitable material discussed above.

12. This memorandum documents the suitability of proposed dredged and excavated sediments for placement in Middle Waterway at the proposed habitat restoration site. It does not constitute final agency approval of the project. A public notice will be issued for this project. During the public comment period, which follows a public notice, the resource agencies will provide input on the overall project. A final decision will be made after full consideration of agency input, and after an alternatives analysis is done under Section 404 (b)(1) of the Clean Water Act.

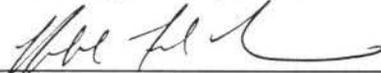
Table 1. Comparative Summary of Sediment Conventional Parameters and Chemicals of Concern exceeding PSDDA chemical guidelines and State Sediment Quality Standards. Only MCUL exceedances are shaded.

Sediment Parameters	PSDDA Criteria		SMS Criteria		A (S1) C1-1	B (S2) C2	C (S3) C3	D (S4) C4	E (S5) C5	A-Dup (S6) C6-3
	SL	ML	SQS	MCUL						
Coventional Parameters:										
Grain Size: Fines (%)					17.8	73.2	27.8	33.8	98.6	23.7
Total Solids (%)					69.9	46.1	79.4	73.5	71.3	69.8
Total Volatile Solids (%)					4.47	15.2	2.26	4.2	1.46	3.37
Total Organic Carbon (%)					3.5	5.7	0.24	4.2	5.9	3.3
Bulk Ammonia (mg/Kg)					8.2	9.3	8.9	9.7	6.6	8.0
Total Sulfides (mg/Kg)					700	190	5.9	1,500	420	120
Chemical Parameters:										
Metals: (mg/kg dry wgt)										
Mercury	0.21	2.1	0.41	0.59	0.393	0.65				
Copper	81	810	390	390				430		
Cadmium	0.96	9.6	5.1	6.7		1.2			1.5	0.98
Zinc	160	1600	410	960	330	260	320	190	380	320
Organics: µg/kg-dry wgt (mg/kg-carbon norm)										
Acenaphthylene	64	640	(66)	(66)	120 (3)	64 (1)		350 (8)	290 (5)	100 (3)
Acenaphthene	63	630	(16)	(57)	90 (3)	68 (1)		120 (3)	70 (1)	96 (3)
Anthracene	130	1300	(220)	(1200)	190 (4)			740 (18)	570 (10)	190 (6)
Fluorene	64	640	(23)	(79)	140 (4)	82 (1)		240 (6)	180 (3)	130 (4)
Naphthalene	210	2100	(99)	(170)	270 (8)	180 (3)		240 (6)	210 (4)	330 (10)
Phenanthrene	320	3200	(100)	(480)	820 (23)	570 (10)		850 (20)	720 (12)	670 (20)

Sediment Parameters (continued)	PSDDA Criteria		SMS Criteria		A (S1)	B (S2)	C (S3)	D (S4)	E (S5)	A-Dup (S6)
	SL	ML	SQS	MCUL						
2-Methylnaphthalene	67	670	(38)	(64)	98 (3)	70 (1)		82 (2)	78 (1)	120 (4)
Total LPAH's	610	6100	(370)	(780)	1728 (49)	1154 (20)		2622 (62)	2118 (36)	1636 (50)
Benzo(a)anthracene	450	4500	(110)	(270)	920 (26)	540 (9)		2500 (60)	2100 (36)	650 (20)
Benzo(a)pyrene	680	6800	(99)	(210)	1200 (34)	830 (15)		3200 (76)	2900 (49)	
Benzo(bk)fluoranthenes	800	8000	(230)	(450)	2000 (57)	1650 (29)		3900 (93)	3840 (65)	1660 (50)
Benzo(ghi)perylene	540	5400	(31)	(78)	780 (22)			990 (24)		
Chrysene	670	6700	(110)	(460)	900 (26)	700 (12)		2200 (52)	990 (17)	770 (23)
Dibenzo(ah)anthracene	120	5400	(12)	(33)	170 (5)			320 (8)	260 (4)	
Fluoranthene	630	6300	(160)	(1200)	910 (26)	780 (14)		1100 (26)	2000 (34)	710 (22)
Indeno(123cd)pyrene	69	5200	(34)	(88)	810 (23)	460 (8)		1100 (26)	1100 (19)	480 (15)
Pyrene	430	7300	(100)0	(1400)	1200 (34)	1200 (21)		2800 (67)	2600 (44)	1600 (48)
Total HPAH's	1800	51000	(960)	(5300)	8890 (311)	6672 (146)		18110 (524)	16720 (348)	7108 (275)
Dibenzofuran	54	540	(15)	(58)	65 (1.86)			85 (2.02)	60 (1.02)	74 (2.24)
Hexachlorobenzene	23	230	(0.38)	(2.3)	15u (0.43u)		1u (0.41u)			14u (0.42u)
Total DDT	6.9	69	--	--		8.5u (0.15u)		9.3u (0.22u)	10u (0.17u)	
Total PCB's	130	2500	(12)	(65)	138 (3.94)	479 (8.4)				

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Concur:

<u>21 April 1994</u> Date	<u></u> David R. Kendall, Ph.D Seattle District Corps of Engineers
<u>21 April 94</u> Date	<u></u> John Malek Environmental Protection Agency, Region X
<u>21 April 1994</u> Date	<u></u> Pat Trerice Washington Department of Ecology
<u>April 21, 1994</u> Date	<u></u> Rachel Friedman-Thomas Washington Department of Ecology
<u>April 22, 1994</u> Date	<u></u> Celia Barton Washington Department of Natural Resources

Enclosures:

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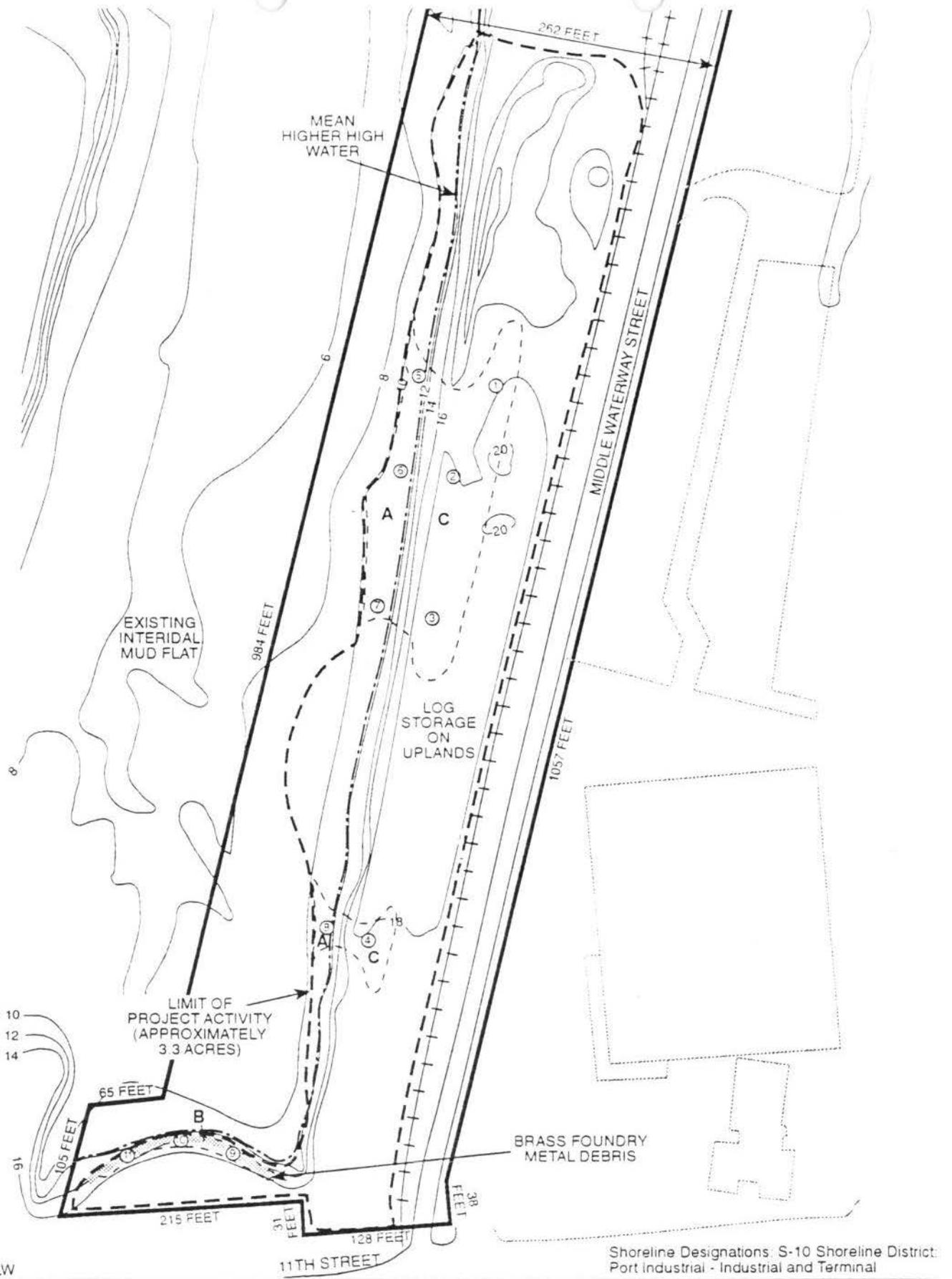
Rachel Friedman-Thomas, Ecology

Phil Hertzog, DNR

David McEntee, Simpson Tacoma Kraft Mill

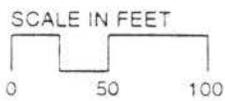
Konrad Liegel, Preston Thorgrimson Shidler Gates & Ellis

DMMO File



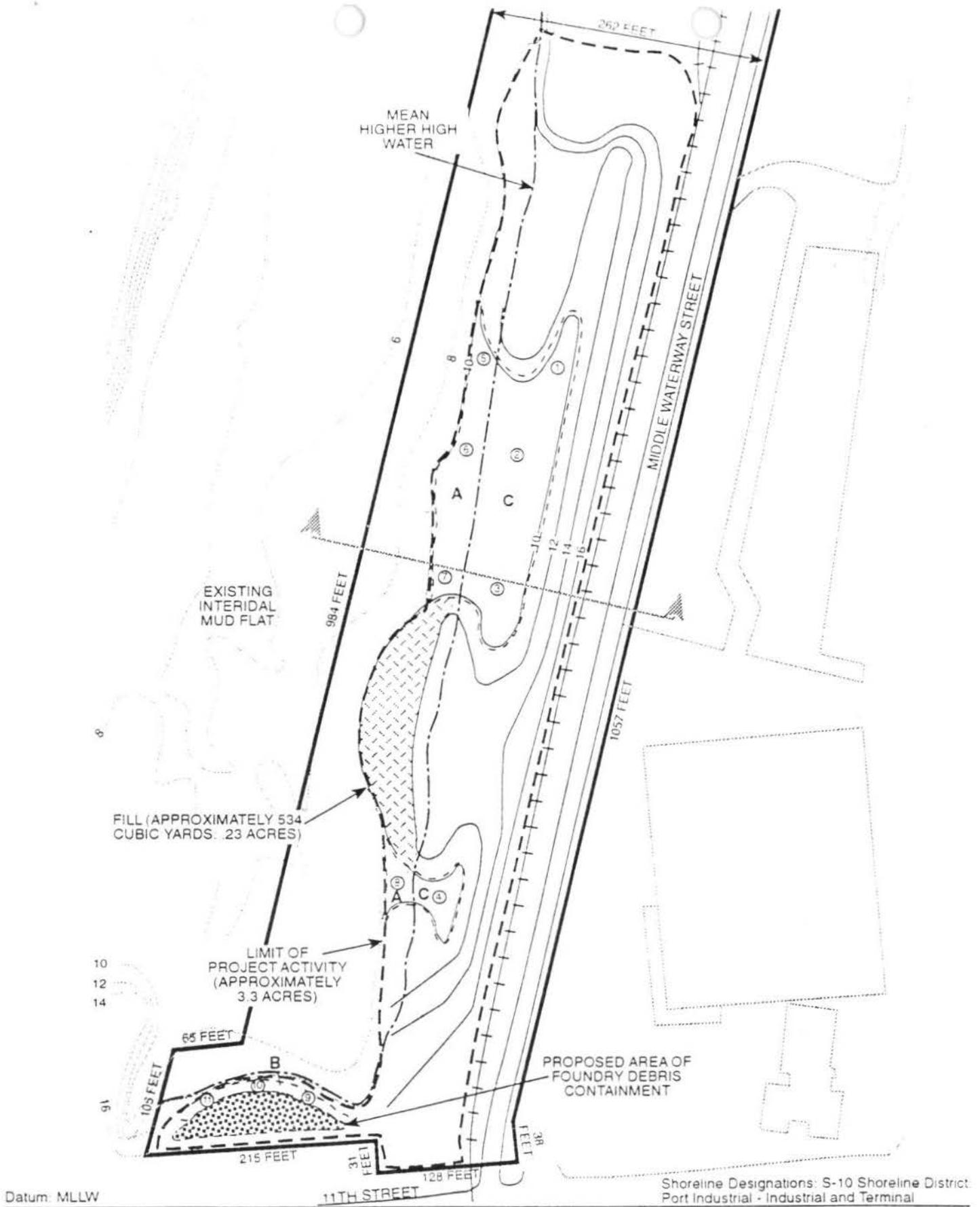
Datum MLLW

Shoreline Designations: S-10 Shoreline District: Port Industrial - Industrial and Terminal



- Proposed Contours
- ⋯ Existing Contours
- Property Lines
- - - Dredge Unit Boundary
- - - Project Boundary
- ▨ Brass Foundry Metal Debris Disposal
- A Dredge Unit Designation

Figure 2.
Plan View (Pre-Project)
Middle Waterway Shore
Restoration Project



Datum: MLLW

Shoreline Designations: S-10 Shoreline District, Port Industrial - Industrial and Terminal

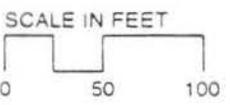
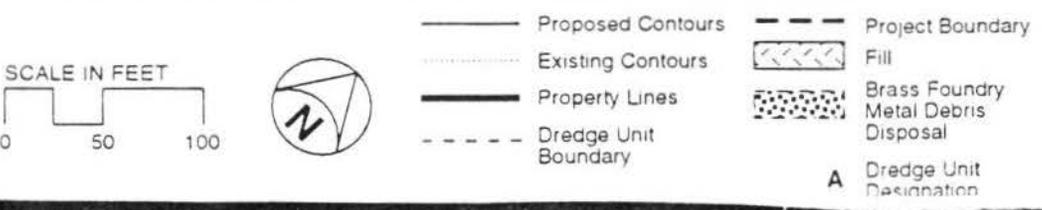
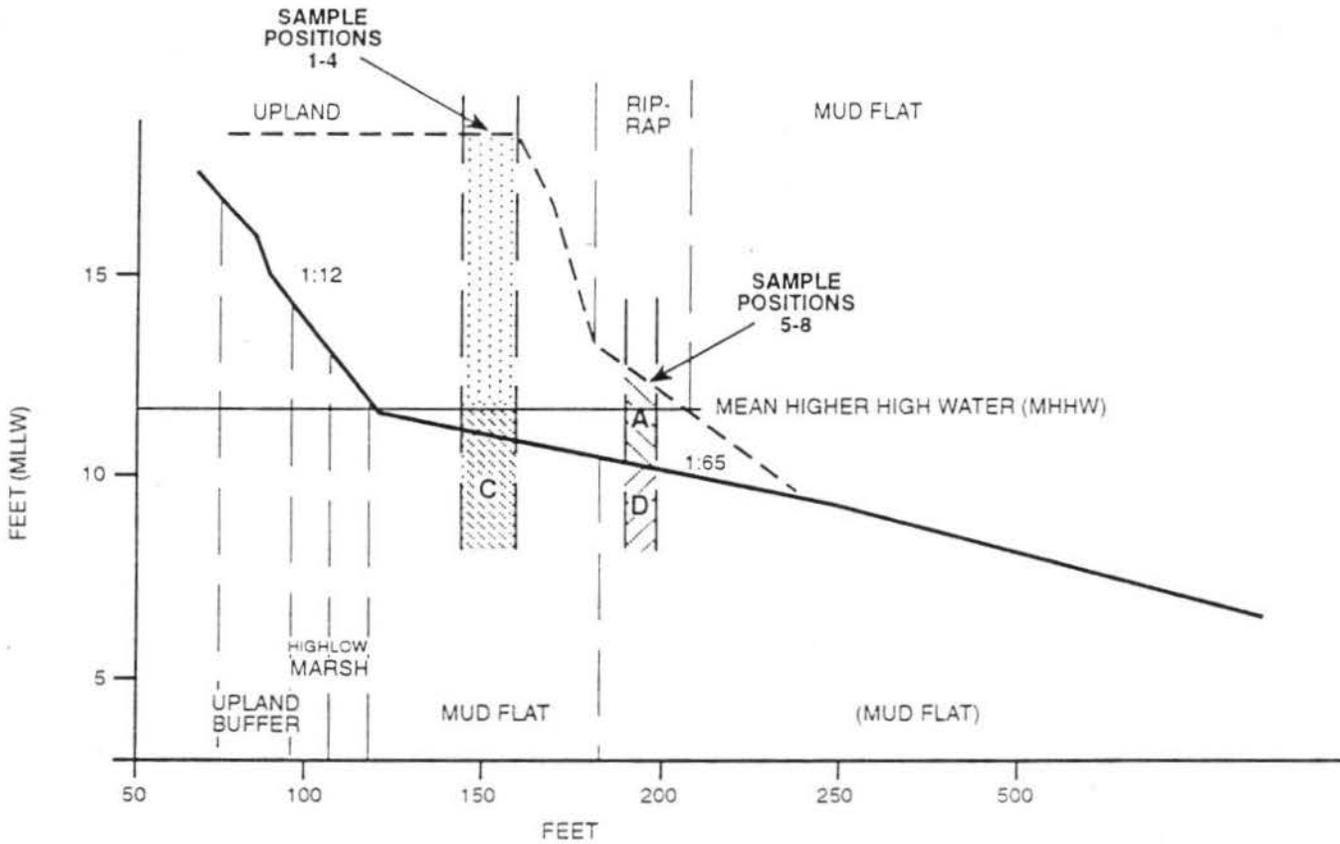


Figure 3.
Plan View
Proposed Final Grade
for the Middle Waterway
Restoration Project

CROSS SECTION DREDGE UNITS A, D, AND C



A Dredge Unit Designation

 Soil to be Removed with Backhoe

 Existing Surface

 Proposed Surface

VERTICAL:HORIZONTAL
1:10

Figure 4.
Cross Sections of Proposed
Habitat Restoration

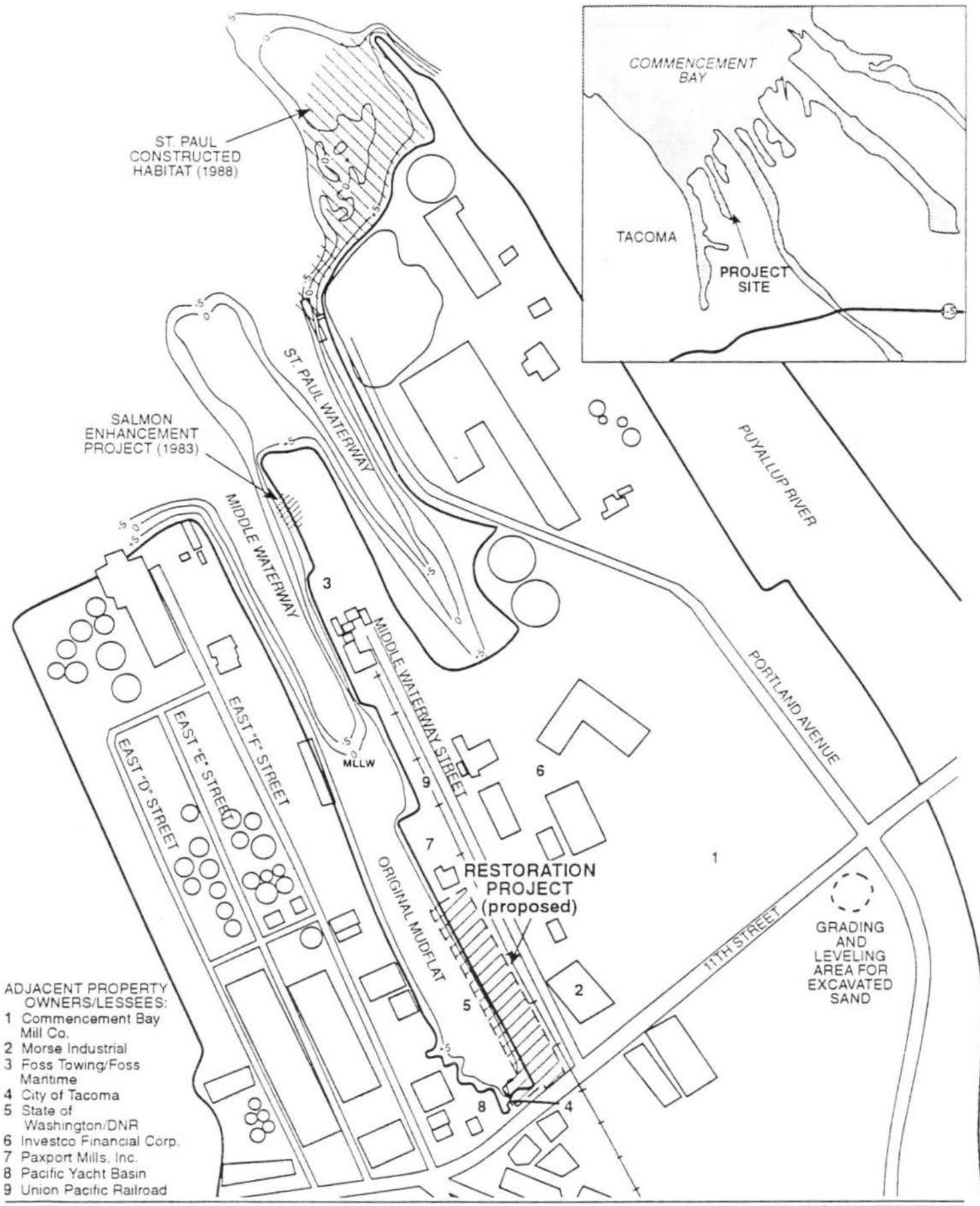


Figure 1.
Vicinity Map,
Middle Waterway Shore Restoration,
Commencement Bay