CENPS-OP-TS **3 April 1997**
Dredged Material Management Office

MEMORANDUM FOR RECORD

SUBJECT: DETERMINATION OF THE SUITABILITY OF DREDGED MATERIAL TESTED UNDER PSDDA EVALUATION PROCEDURES FOR THE PORT OF TACOMA BLAIR TURNING BASIN (96-2-02267) FOR DISPOSAL AT A PSDDA OPEN WATER DISPOSAL SITE.

1. The Port of Tacoma proposes to dredge approximately 755,000 cubic yards from the turning basin in the Blair Waterway. The following summary reflects the PSDDA agencies (Corps of Engineers, Department of Ecology, Department of Natural Resources and the Environmental Protection Agency) consensus decision on the acceptability of the sampling plan and all relevant test data to make a determination of suitability for the disposal of the material at a PSDDA open-water disposal site.

2. This initial project ranking was "moderate" based on guidance provided in the Management Plan Report, Phase 11, Page A-10. The project area was down-ranked to "low" based on previous testing data, lack of upland or in-water sources for contamination, and the probability that most of the material is native sediment.

3. A sampling and analysis plan was completed for this project and approved by the PSDDA agencies on 19 November 1996. Sampling for this project was performed on 21 November 1996.

SAP Approval Date	19 November 1996
Sampling dates	21 November 1996
Data Report submittal date	14 March 1997
Recency determination dates	21 November 2001- 21 November 2003

4. Sampling and testing were completed on the non-native material to be dredged, estimated to be the upper 12 feet of material. Three DMMU were characterized, one surface and two subsurface. Eight sample locations were composited for each DMMU. Composite C-1 represented the surface material (0-4 feet), and C-2 (4-8 feet) and C-3 (8-12 feet) represented the subsurface material.

5. There were no exceedances of Dredging Year 1997 PSDDA screening levels for composites C-1 and C-2. Composite C-2 had an initial low level exceedance of the DDT screening level. The reported level, 7.2 μg/kg was well below the 1988 AET value of 34.0 μg/kg. The analysis

data was qualified by the lab due to matrix interference. The analysis was rerun on archived sediment, and the reported value for DDT was below the screening level. Composite C-3 had PSDDA screening level exceedances for indeno(1,2,3-cd)pyrene, pyrene, Total HPAHs, pesticides and PCBs. There was also matrix interference with the DDT analysis for C-3, but since other screening levels were exceeded, this sample was not rerun. There were no detection limits above screening level. No bioaccumulation triggers or maximum levels were exceeded. Screening level exceedances are listed in Table 1.

6. Due to the screening level exceedances for C-3, bioassays were required. The amphipod 10-day acute toxicity test, the echinoderm sediment larval combined mortality and abnormality (effective mortality) test, and the *Neanthes* 20-day growth test were conducted. Tests were conducted according to PSEP (1995), as modified by the PSDDA program.

7. Reference sediment for use in the bioassays was collected from Carr Inlet. Control sediment was collected from West Beach. The amphipod species used was *Rhepoxynius abronius*, collected from West Beach. The echinoderm species used was *Srongylocentrotus purpuratus*, acquired from Marinus, Inc. of Long Beach, CA.

8. Bioassay results are listed in Table 2. No hits were observed in any of the bioassays, and all bioassays met performance guidelines.

9. In summary, the PSDDA-approved sampling and analysis plan was followed, and quality assurance, quality control guidelines specified by PSDDA were followed. The data gathered were deemed sufficient and acceptable for regulatory decision-making under the PSDDA program. Based on the results of the chemical testing, the consensus determination of the PSDDA agencies is that all 755,000 cubic yards of sediment proposed to be dredged from the Blair Turning Basin is suitable for disposal at a PSDDA open-water disposal site.

10. The chemical analytical data were also compared to the State Sediment Management Standards, including the analysis of chromium. All detection limits met SMS standards. There were no exceedances of Sediment Quality Standards for composites C-1 and C-2. Composite C-3 exceeded the criteria for PCBs. Bioassays were run on this sample, and met state criteria for no adverse biological effects Based on this information, the PSDDA agencies determined that the sediments from Blair Turning Basin are chemically suitable for use in beneficial uses projects. Sediment conventional data is included in Table 3.

11. This memorandum documents the suitability of proposed dredged sediments for disposal at a PSDDA open water disposal site, and the chemical suitability of the material for potential beneficial re-use. It does not constitute final agency approval of the 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.

Port of Tacoma, Blair Turning Basin
96-2-02267

Concur:

4/7/97
Date

Stephanie Stirling
Seattle District Corps of Engineers

4/7/97
Date

Justine Barton
Environmental Protection Agency, Region 10

Date

Maria Peeler
Washington Department of Ecology

07 APRIL '97
Date

Ted Benson
WA Department of Natural Resources

Copies Furnished:
EPA/Justine Barton
DOE/Maria Peeler
DNR/Ted Benson
Dick Gilmur/Port of Tacoma
Sally Fisher/GeoEngineers
Jim Green/CENPS-OP-RG
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Port of Tacoma, Blair Turning Basin
96-2-02267

Post-It® Fax Note 7671	Date	# of pages ▸ 2
To Steph Stirling	From Maria	
Co./Dept.	Co.	
Phone #	Phone #	
Fax #	Fax #	

Concur:

Date

Stephanie Stirling
Seattle District Corps of Engineers

Date

Justine Barton
Environmental Protection Agency, Region 10

4/4/97
Date

Maria Peeler
Washington Department of Ecology

Date

Ted Benson
WA Department of Natural Resources

Copies Furnished:
EPA/Justine Barton
DOE/Maria Peeler
DNR/Ted Benson
Dick Gilmur/Port of Tacoma
Sally Fisher/GeoEngineers
Jim Green/CENPS-OP-RG
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Table 1. Screening Level Exceedances, Composite C-3

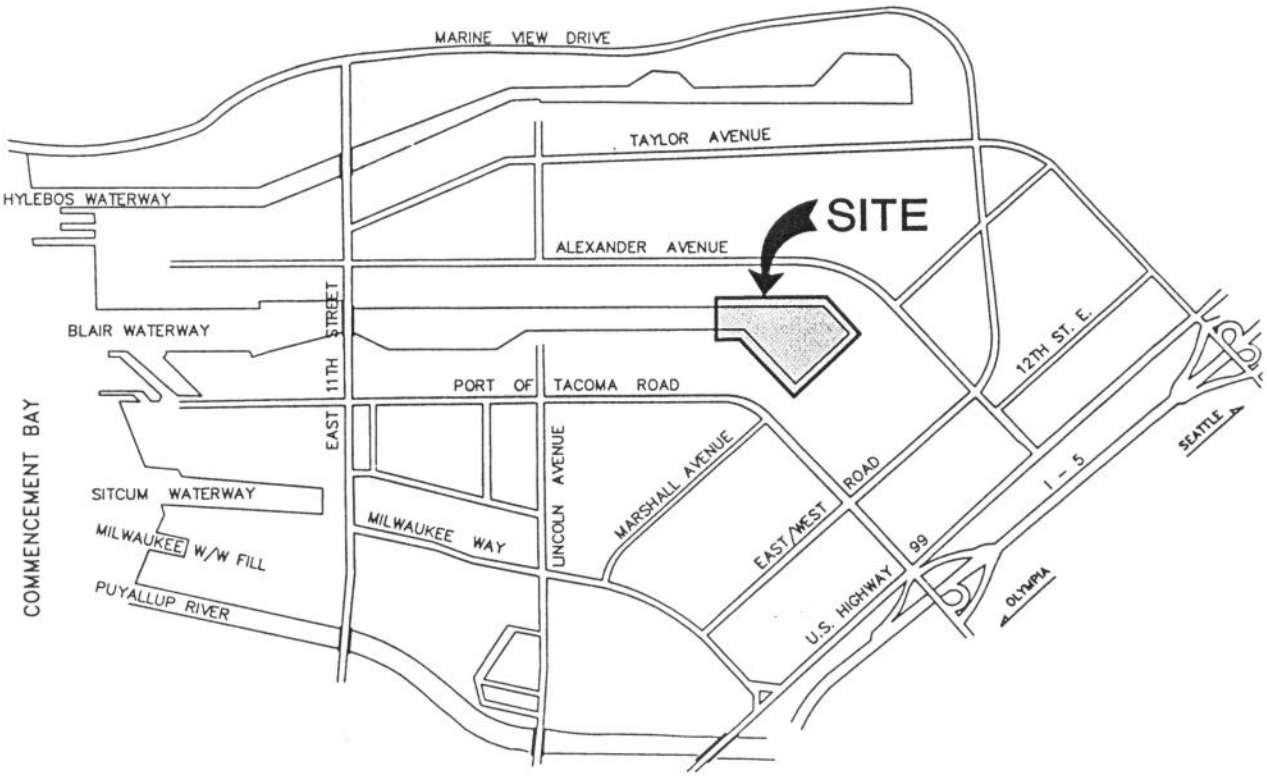
Analyte	C-3	SL	ML
Indeno (1,2,3-cd)pyrene	110	69	5200
Pyrene	500	430	7300
Total HPAHs	2390	1800	51000
Total DDT	37.7	6.9	69
Total PCBs	130	130	2500

Table 2. Bioassay Results

DMMU	Amphipod (R. abronius) Mortality (%)	Sediment Larval Test *(Srongylocentrotus purpuratus)* (Effective Mortality %)	20 Day Neanthes Mean Growth Rate	Suitability for Non-Dispersive Disposal
Control	5	0	1.21	NA
Carr 45	10	11	0.85	NA
C-3	9	15	0.83	Pass
Positive Control(EC50 /LC50)	Cd Cl (ppm) 0.4	CDCl (ppm) 3.2	CdCl (ppm) 10.9	
DAIS mean	(0.79 ± 0.48)	10.1 ± 6.5 mg/L Cd (*for Dendraster*)	12.5 ± 5.4 mg/L Cd	

Table 3. Sediment Conventional Parameters

	C-1	C-2	C-3
Total Solids (%)	86.2	82.6	74.6
Total Organic Carbon (%)	0.14	0.3	0.77
Bulk Ammonia (mg/kg)	2.2	7.6	24
Total Sulfides (mg/kg)	<10	<10	<10
Grain Size (%)			
Gravel	16.6	1.5	1.2
Sand	69.7	72.7	54.8
Silt	9.3	22.5	34.7
Clay	3.8	3.2	9.2



PORT OF TACOMA

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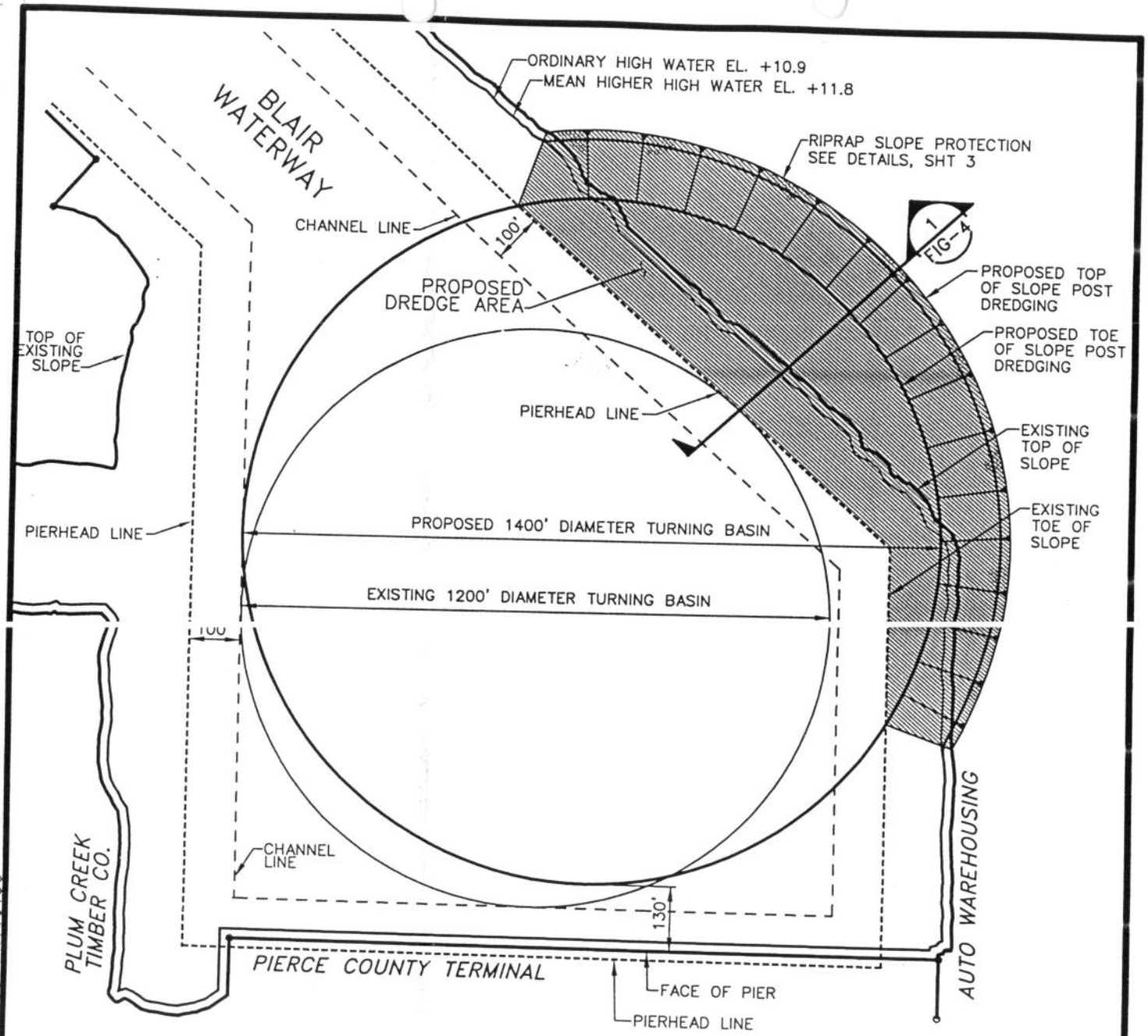
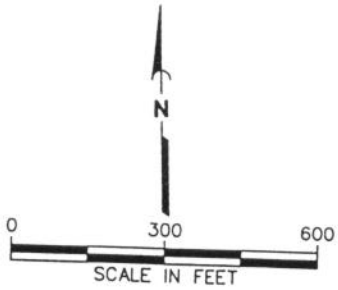
VICINITY MAP

FIGURE 1





EXPLANTION:

PROPOSED DREDGING. AREA BETWEEN EXISTING AND PROPOSED TOE OF SLOPE TO BE DREDGED TO APPROXIMATELY −45 MLLW

NOTE:

1. VERTICAL DATUM: PORT OF TACOMA/CORPS OF ENGINEERS MEAN LOWER LOW WATER = 0.0 FEET

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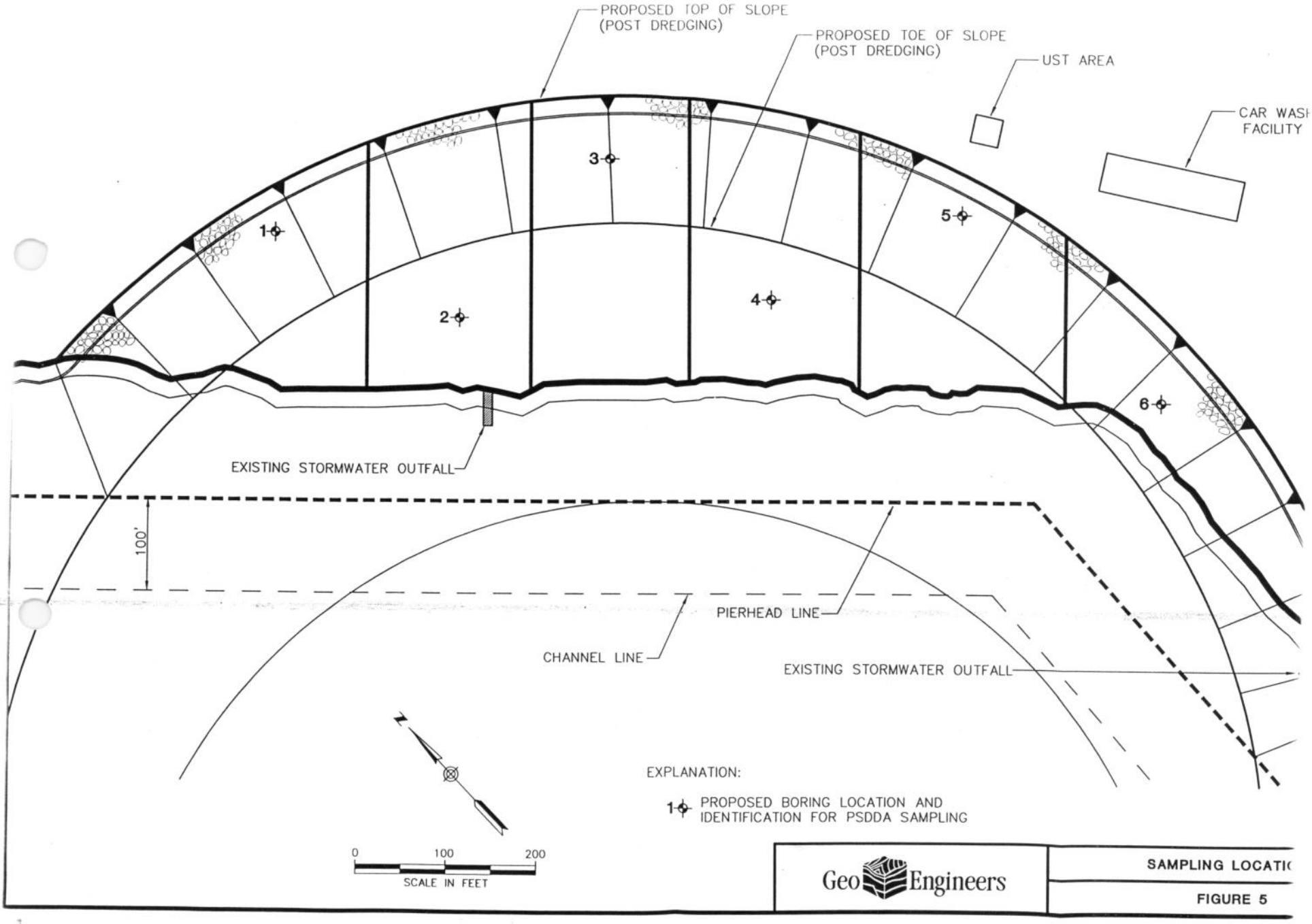
PROPOSED DREDGING

FIGURE 2



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SAMPLING LOCATI

FIGURE 5