CENPS-OP-DMMO

MEMORANDUM FOR RECORD February 12, 1992

SUBJECT: DECISION ON THE SUITABILITY OF PROPOSED DREDGED MATERIAL TESTED UNDER PSDDA EVALUATION PROCEDURES FOR THE LOTT OLYMPIA WASTEWATER TREATMENT PLANT OUTFALL (OYB-2-013568) TO BE DISPOSED OF AT THE ANDERSON/KETRON ISLAND NONDISPERSIVE OPEN-WATER SITE.

1. 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 all relevant test data to make a determination of suitability for the 7,975 cubic yards of material proposed for dredging from the LOTT Olympia Wastewater Treatment Plant Outfall project. Disposal is proposed at the PSDDA Anderson/Ketron Island nondispersive open-water site.

2. The PSDDA Management Plan-Phase II (page A-10) ranked the project area in Lower Budd Inlet as "high". Two dredged material managment units (DMMU) were required for this project. Two rounds of testing were required to fully characterize these two DMMU.

3. Round 1 Testing.

a. The first round of testing was conducted as part of the original environmental assessment of the project. Data from Round 1 were included in the December 1989 "LOTT Urban Area Wastewater Management Plan Nitrogen Removal and Outfall Alternatives Draft Supplemental Environmental Impact Statement". Data relevant to the present project were distilled from this report and presented to the PSDDA agencies in the 19 March 1991 Parametrix report entitled, "LOTT Outfall Dredge Sediment Characterization".

b. The sampling plan for Round 1 was not coordinated with the PSDDA agencies. However, the PSDDA agencies reviewed the data from Round 1 to determine its acceptability for regulatory decision-making. Sediment was collected from two sampling locations along the proposed outfall alignment (stations 10 and 11). Surface cores (0-4 feet) were taken at both locations, and a subsurface core (4-12 feet) was taken at station 10. These three core sections were analyzed separately, without compositing.

c. The chemistry data indicated that one exceedance of the Dredging Year 1992 PSDDA screening levels (SL) occurred for the test sample from station 11. The concentration of cadmium at this station was 1.2 mg/kg (SL = 0.96 mg/kg). There were no exceedances of bioaccumulation triggers (BT) or maximum levels (ML). No SL exceedances occurred for the two samples from station 10.

d. There were some quality control problems associated with the metals analysis. Precision exceeded the control limits of ± 20 percent RPD (relative percent difference) for three of the five GFAA (Graphite Furnace Atomic Absorption) metals (arsenic, lead and silver). Matrix spike recovery exceeded control limits of 75-125 percent for two GFAA metals (cadmium and silver) and the spike was not large enough to evaluate recovery for lead, another GFAA metal. Analysis of the certified reference material, NBS 2704, resulted in arsenic and cadmium recoveries outside the 95% confidence interval.

e. The SL exceedance for cadmium at station 11 would normally trigger the requirement to do the full suite of PSDDA bioassays. In this case, biological testing was not coordinated with the PSDDA agencies, and only the amphipod 10-day mortality bioassay was conducted. There were no hits for any of the samples from stations 10 or 11. However, because the full suite of bioassays had not been conducted, the PSDDA agencies requested that additional testing be undertaken.

f. Subsequent to the review of Round 1 data, the PSDDA agencies provided guidance to the permit applicant for additional sampling and testing. This guidance is documented in a letter from the Dredged Material Management Office to Parametrix, dated 16 April 1991. The PSDDA agencies used best professional judgement in accepting the data from station 10 as acceptable for regulatory decision-making. The agencies agreed that the metals concentrations at station 10 were low enough (well below SLs) not to be a cause of concern or trigger the need for a retest. Because there were no SL exceedances for any chemical of concern at station 10, sediments represented by this sample passed PSDDA testing. For station 11, due to the cadmium SL exceedance and the QA/QC problems discussed previously, the PSDDA agencies gave the applicant the option of running the full suite of bioassays on sediment from the vicinity of station 11, or retesting this sediment for metals.

4. Round 2 Testing.

a. The applicant chose to conduct tiered testing for sediments from station 11 during a second round of testing. Chemical testing for this round consisted of metals only. Resampling of station 11 sediments was necessary because the holding time for metals analysis had elapsed for sediments collected during Round 1.

b. For Round 2, surface samples (0-4 feet) were collected from two stations near the existing diffuser, in the direction of discharge. One station was located at the same position as the original station 11, approximately 50 feet from the diffuser. The other station was located approximately 25 feet from the diffuser. Sediment samples from these two stations were composited for analysis.

c. The metals analysis resulted in a single SL exceedance. As in Round 1, cadmium exceeded SL, being quantitated at 1.3 mg/kg. There were no exceedances of bioaccumulation triggers (BT) or maximum levels (ML). In this round of testing, QA/QC was excellent.

d. The SL exceedance for cadmium triggered the requirement for biological testing under the tiered testing approach. The amphipod 10-day acute toxicity test, echinoderm sediment larval combined mortality and abnormality (effective mortality) test, the Neanthes 10-day acute toxicity test, and the Microtox bacterial luminescence test were conducted. PSDDA interpretation guidelines specified in the Phase II Management Plan Report (Sept 1989), modified by changes made at the second annual review meeting, were used to evaluate the bioassay data. The control sediment for the amphipod and Neanthes bioassays was collected at West Beach, while the seawater control for the sediment larval test came from the Duwamish Head. The reference sediment (all bioassays) came from Carr Inlet. One reference sediment, Parametrix Carr 4, was used.

e. There were no hits for the amphipod, Neanthes or Microtox bioassays. No QA/QC problems occurred.

f. In the sediment larval test, the seawater control and reference sediment met their respective performance standards. The test sediment exhibited a combined mortality and abnormality (effective mortality) of 38.8%, which was greater than 20% over the seawater control and statistically different from the reference sediment (12.9% effective mortality). The effective mortality was less than 30% over reference. There was, therefore, a hit under the two-hit rule. There were no corroborating hits on any other bioassays. Therefore, the Round 2 test sediment passed biological testing.

5. In summary, the Round 1 and Round 2 data, when taken in conjunction, were deemed sufficient and acceptable for regulatory decision-making under the PSDDA program. Based on the results of the chemical and biological testing from these two rounds, the following consensus decision was made by the PSDDA agencies:

All 7,975 cubic yards proposed for dredging from the LOTT Olympia Wastewater Treatment Plant Outfall are suitable for disposal at the PSDDA Anderson/Ketron Island open-water nondispersive site.

Concur:

2/24/92
Date

David Kendall, Ph.D
Seattle District Corps of Engineers

2/18/92
Date

David Fox, P.E.
Seattle District Corps of Engineers

18 Feb 92
Date

for Justine Smith
Environmental Protection Agency, Region X

2/18/92
Date

Rick Vining
Washington Department of Ecology

2/18/92
Date

Gene Revelas
Washington Department of Natural Resources

fox101:\mfr\lott92.mfr
Copies Furnished:

Frank Urabeck/CENPS-EN-PL-PF
Pat Cagney/Linda Cox/CENPS-EN-PL-ER
Tom Mueller/CENPS-OP-RG
Dick Berg/CENPS-OP-RG

EPA/Justine Smith
DOE/Rick Vining
DNR/Gene Revelas
DMMO file

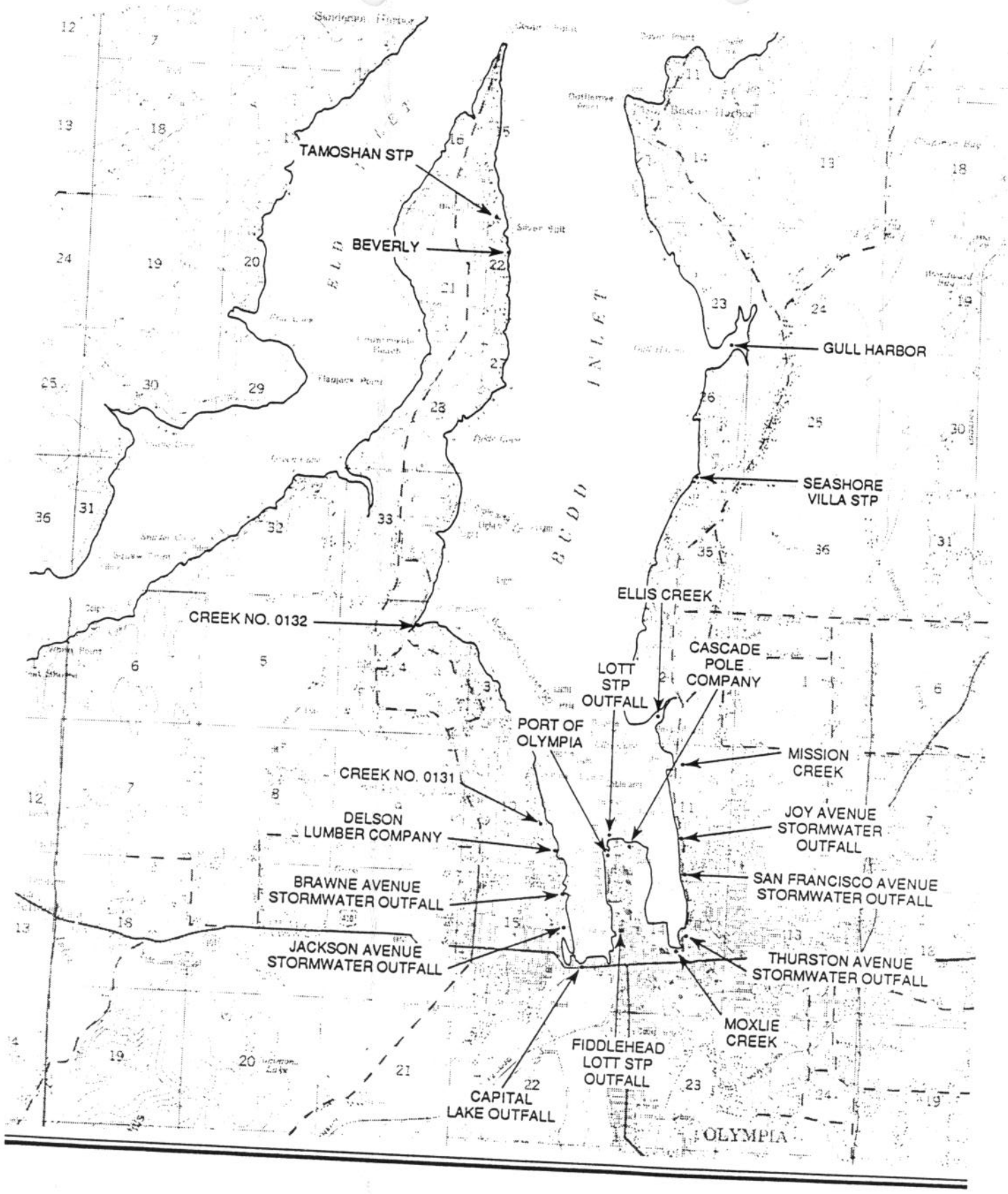
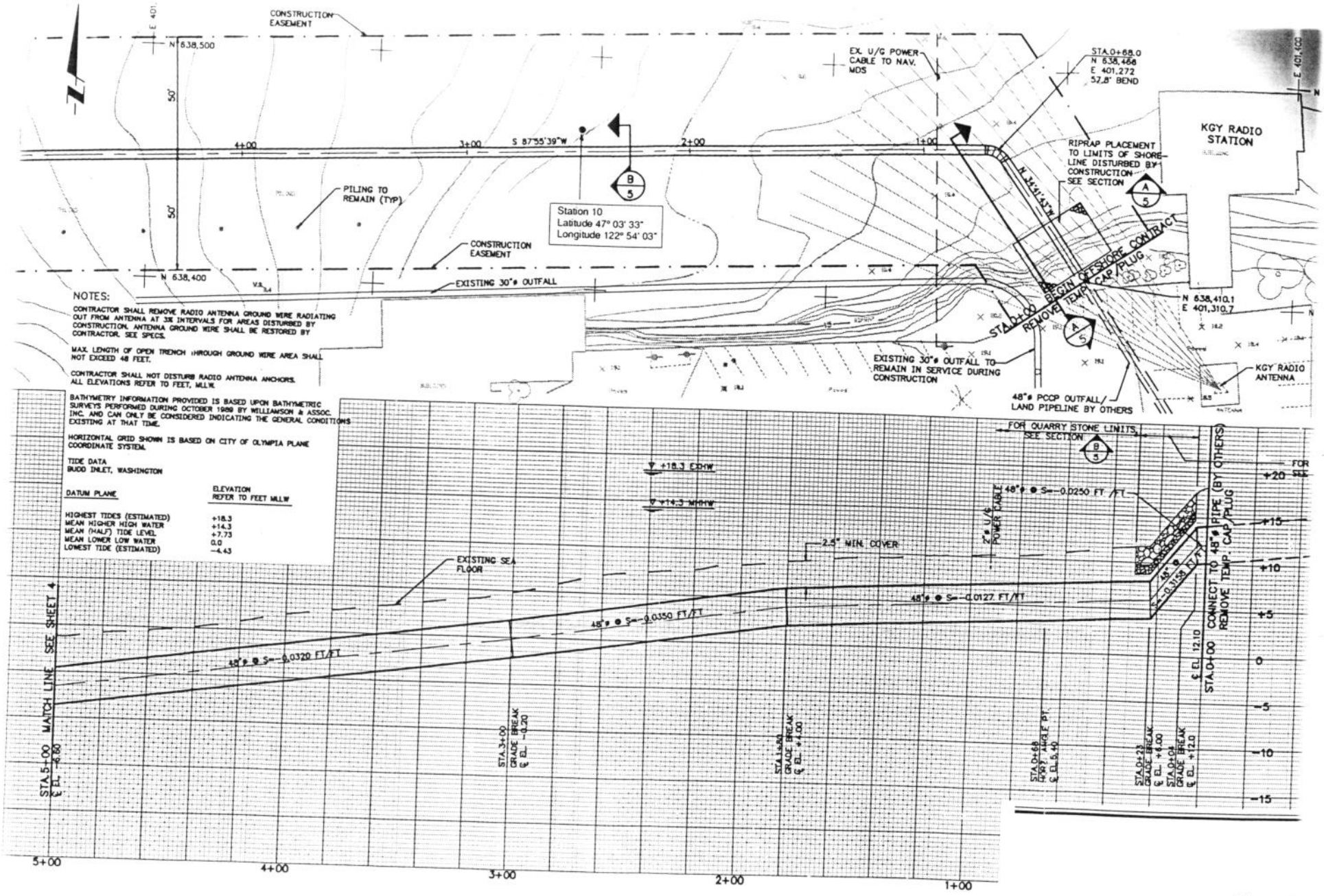
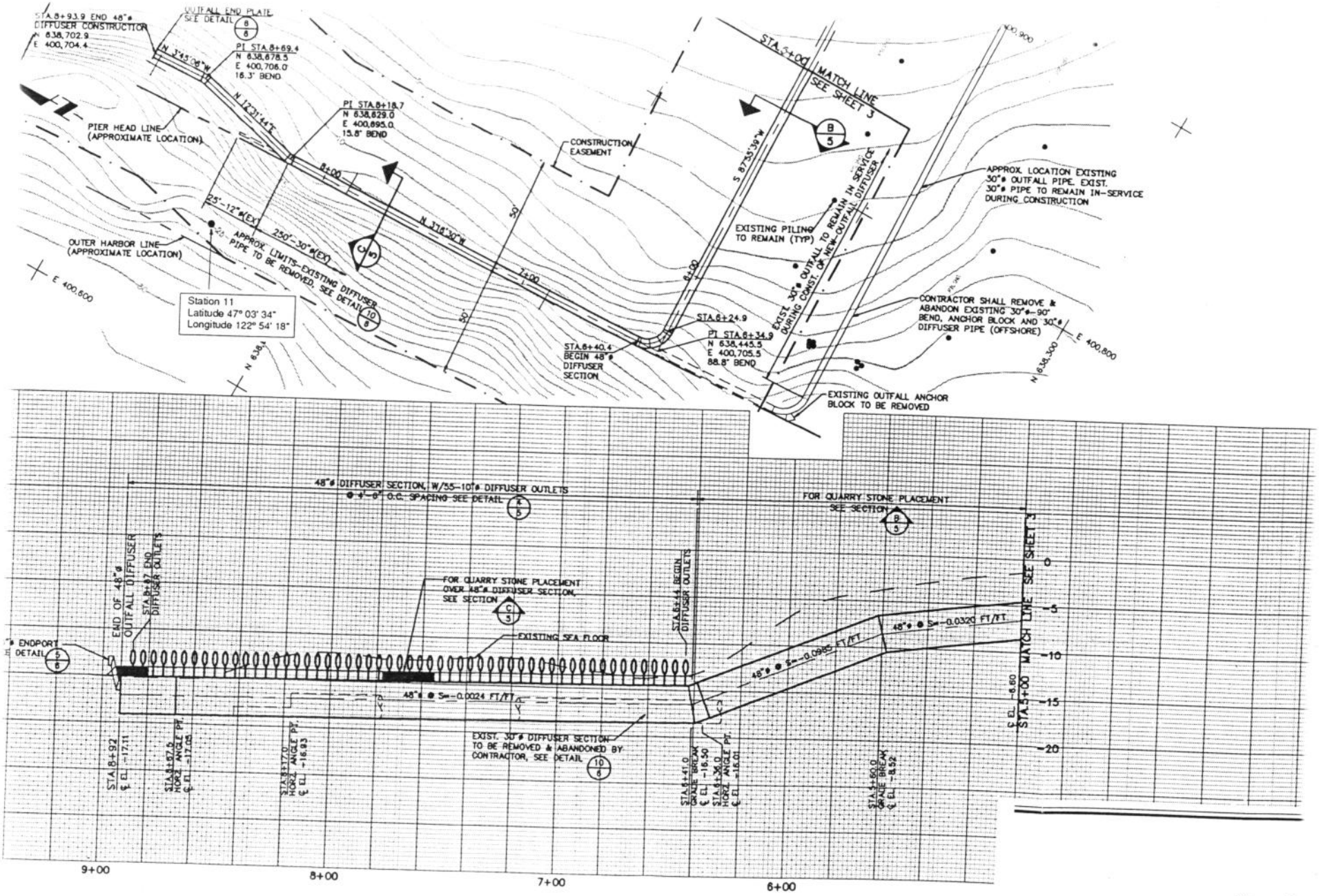


Figure 1.
Sources of Pollutants into Budd Inlet



SCALE IN FEET
HORIZONTAL: 1 INCH = 40 FEET
VERTICAL: 1 INCH = 10 FEET

Figure 2
Plan and
Station (



SCALE IN FEET
HORIZONTAL: 1 INCH = 40 FEET
VERTICAL: 1 INCH = 10 FEET

Figure 3. Plan and Station 5