DEPOE BAY

Local Sponsor: City of Depoe Bay

Project Description

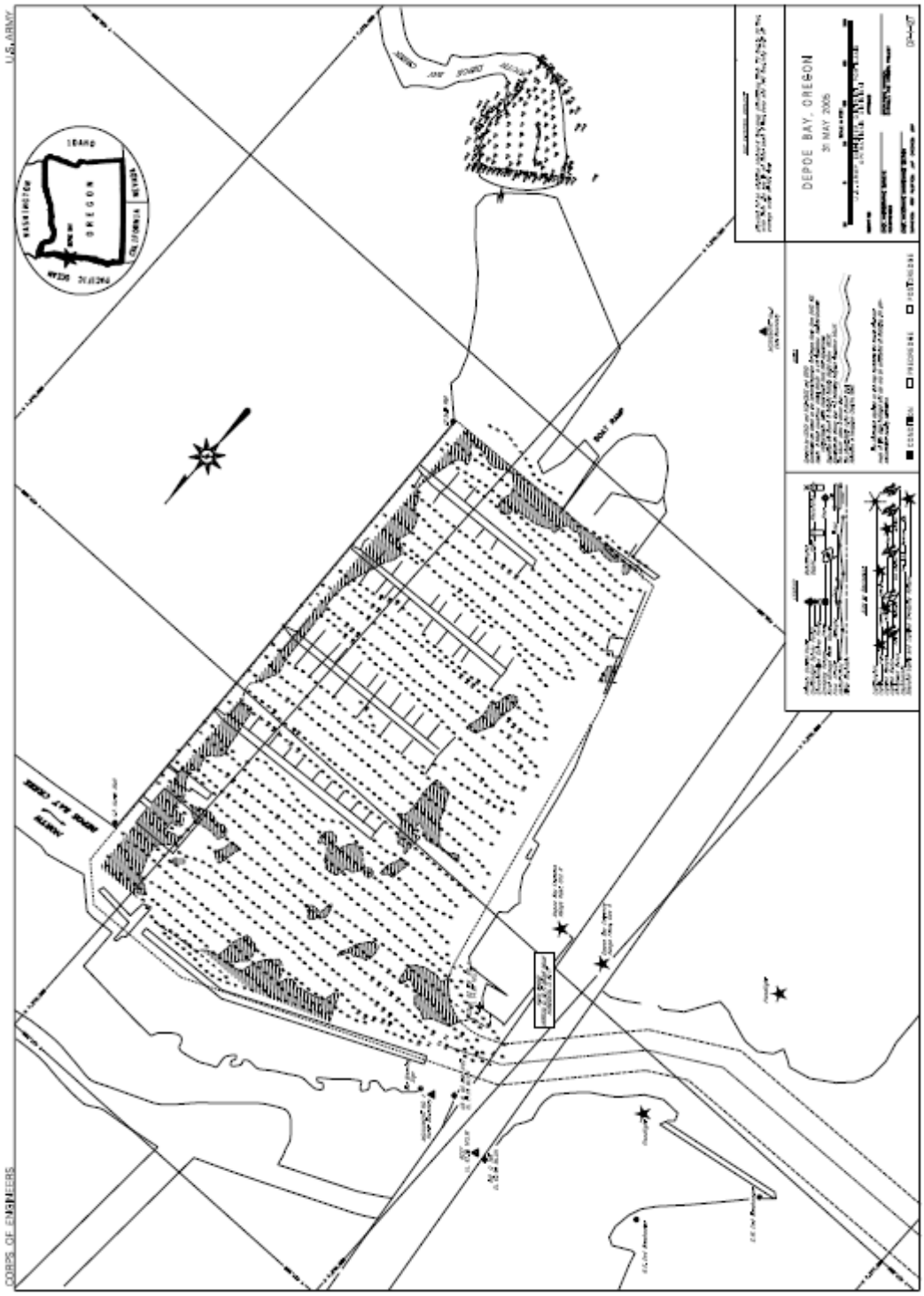
The authorized project includes two breakwaters north of the entrance to Depoe Bay and an entrance channel 8 feet deep and 50 feet wide. The channel widens at its seaward end. The inner basin is 8 feet deep and 750 feet long; it averages 390 feet wide. A concrete retaining wall is built along the east side of the basin. A small catch dam and basin on South Depoe Bay Creek help to intercept sediments before they reach the bay.

Maintenance

Damming off the entrance from ocean waters made possible a dry excavation of the boat basin in 1952. Boulders periodically removed from the entrance channel are placed either at the mouth of North Depoe Bay Creek or on the rock groin at the south end of the bay. A check dam at the south end of the basin retards sediment flowing into the project from South Depoe Bay Creek.

Depoe Bay requires dredging every three to five years. Work is done between June and September 15. A pipeline dredge is usually used. Periodically, a clamshell dredge or a backhoe removes logs and other debris that accumulate in the basin.

The Corps manages sediment accumulations above the catch basin through dredging and up-land disposal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Sediment Evaluation

1980 December, water and sediment samples were collected for elutriate, bulk chemical, and physical analyses. Three sediment samples were collected from the project area, one halfway from the South Depoe Creek check dam to the boat basin, and one immediately upstream of the dam. Receiving water was obtained from the south side of the entrance channel. Sediment from the South Depoe Creek check dam contained a higher percentage of the parameters measured. The sediments generally improved in quality the closer they were to the harbor's entrance channel.

1989 January, the project sediment was sampled. Analysis, including physical and chemical, for gain size, volatile solids, heavy metals, pesticides and PCBs, and PAHs were conducted. Pesticide and PCB concentrations were below or near detection limits, and therefore well below levels of concern. Metal concentrations are similar to clean estuarine sediments found in other areas of the state. Slight elevations of PAHs were found, but at low enough levels that the sediment is still suited for unconfined in-water disposal.

1994 February, eight sediment samples were collected from the project area including above the South Depoe Creek check dam. No pesticides or PCBs were detected. Metals and TBT were below established levels of concern except for cadmium and zinc. Fifteen of seventeen PAHs were detected, 4 of the higher molecular weight exceeded established levels of concern. Further evaluation using mixing zone calculations showed a 50 foot by 180 foot by 20 foot mixing zone would be required for zinc. This is the maximum mixing zone that would be required for any of the constituents which exceeded an established concern level. It was concluded that no unacceptable adverse impacts to the aquatic environment would result from the dredging and disposal activities.

1998 August, Nine sediment stations were sampled at Depoe Bay on August 18, 1998. A total of 6 samples (includes 1 QC sample & 2 composites) were sent to Sound Analytical Services, Inc. laboratory of Tacoma, WA, for physical and chemical analyses, to include: metals, total organic carbon (TOC), pesticides/polychlorinated biphenyls (PCBs), phenols, phthalates, miscellaneous extractables, and polynuclear aromatic hydrocarbons (PAHs). Tributyltin was run on the 2 composite samples. All samples were dark gray/black silty sand. Core length varied from 24 inches to 12 inches. The median grain size for all sediment collected was 0.14mm, with 25.8% fines. The analyses for this material show only low level contamination, water quality standards will not be exceeded during dredging and disposal. This material is suitable for, both upland and open in-water, disposal with no adverse unacceptable ecological consequences expected.

2005 February, A total of ten (10) samples were submitted for physical analyses including total volatile solids and were, also, analyzed for metals (9 inorganic), total organic carbon, pesticides and polychlorinated biphenyls, phenols, phthalates, miscellaneous extractables, polynuclear aromatic hydrocarbon, with three (3) samples selected for both total sediment (bulk) and pore-water organotin. Several samples submitted to the lab for analyses represented composite samples.

The physical analyses resulted in mean values of 2.6% gravel (shell hash - 0.0%-17.3%range), 62.8% sand (21.7%-97.1% range), and 34.9% silt/clay (2.8%-78.3% range), with 9.83% volatile solids (2.1%-16.3% range). Mean grain-size for all the samples is 0.150mm (0.044mm-0.422mm range). This material is classified as: sandy silt in the center of the boat basin, poorly graded sand near the basin entrance, with the north and south areas being primarily silty sand. The material behind the dam is poorly graded sand with silt. Several surface grabs were attempted within the Coast Guard Boathouse, but only 2"-minus angular gravel was collected; it was not submitted for analyses.

The chemical analyses indicated only low levels of contamination in any of the samples, with all levels below their respective DMEF screening levels (SLs). No pesticides, PCBs, or tributyltin were detected in any of the samples. Several PAHs and phthalates were detected, but at low levels. Detection levels were sufficiently low enough to evaluate material proposed for dredging. The analytical results of this characterization are consistent with historical data.

Sediments represented by all samples in this sampling event are determined to be suitable for unconfined, in-water or upland placement without further characterization.