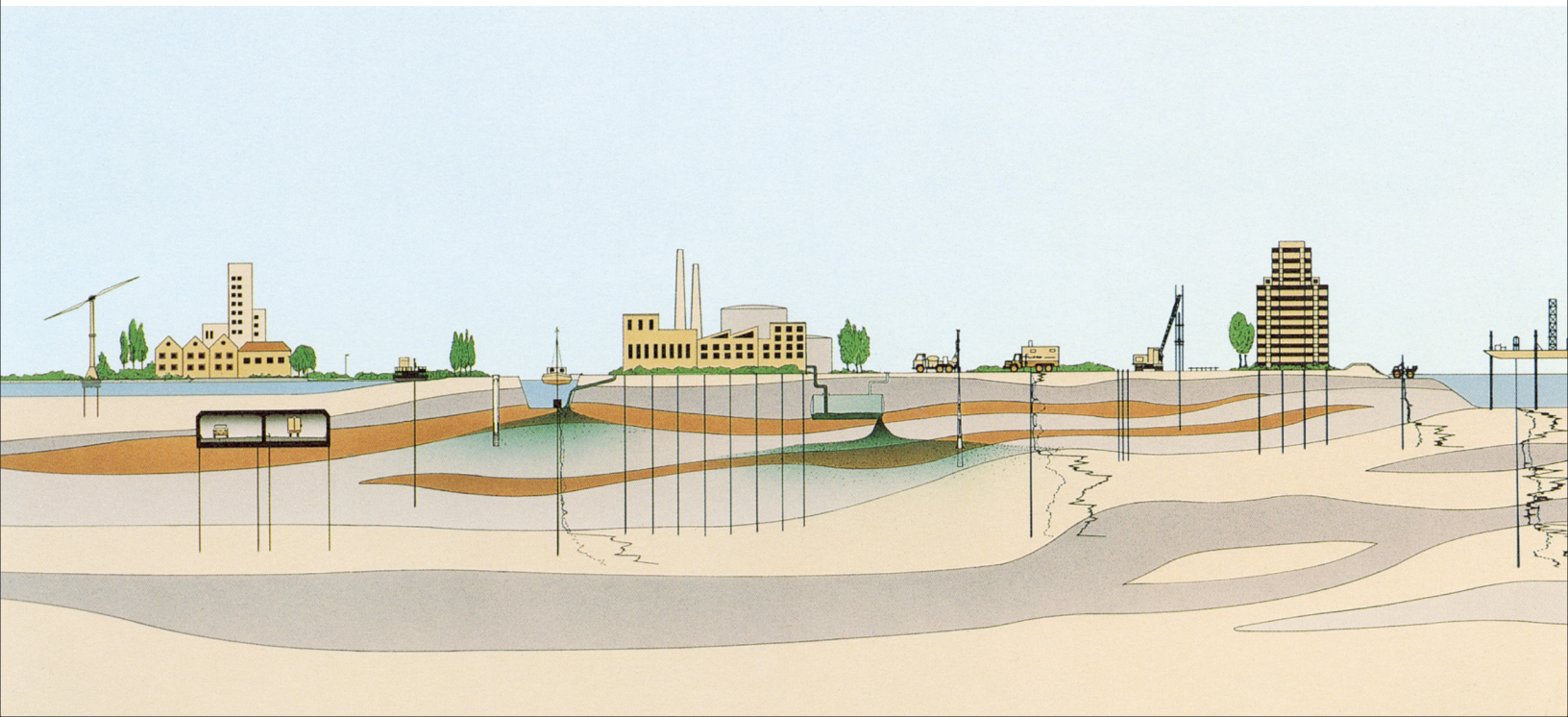
FUGRO WEST, INC.

GEOTECHNICAL EVALUATION
MAIN CHANNEL DEEPENING PROGRAM
PORT OF LOS ANGELES

VOLUME 2
APPENDICES A THROUGH D

Prepared for:
CITY OF LOS ANGELES HARBOR DEPARTMENT

August 1997



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August 31, 1997
Project No. 96-42-1215

City of Los Angeles Harbor Department
Harbor Department Administration Building
425 South Palos Verdes Street
San Pedro, California 90731

Attention: Mr. Richard Wittkop

Geotechnical Evaluation Report
Channel Deepening Program
Port of Los Angeles

This geotechnical evaluation report presents, discusses, and summarizes Fugro's characterization of stratigraphic conditions that underlie the various waterways of the Inner Harbor. The stratigraphic characterization and information contained within this report have been generated to support the Port of Los Angeles' proposed Channel Deepening Program and were authorized by Task IV of LAHD Agreement No. 1948.

The associated field exploration programs and preparation of this report were performed by Fugro West, Inc., in association with Kinnetic Laboratories, Inc. Fugro has provided general project management and has evaluated the geological and geotechnical aspects of the project, while Kinnetic Laboratories has evaluated environmental considerations of the Channel Deepening Program. The environmental considerations are presented in separate reports that have been prepared by Kinnetic Laboratories and ToxScan, Inc.

On behalf of the project team, we appreciate this opportunity to provide our services on this unique and interesting project, and look forward to our continued association with the Port of Los Angeles. Please contact us if you have questions or comments regarding this report and/or the Channel Deepening Program.

Sincerely,

FUGRO WEST, INC.

Gregory S. Resnick, P.E.
Project Engineer

Thomas W. McNeilan, P.E., G.E.
Vice President

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1 Repro Ready

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APPENDIX A
CONE PENETRATION TESTING

APPENDIX A
CONE PENETRATION TESTING

Introduction

Cone penetration tests (CPTs) were performed throughout the Inner Harbor during both the Phase 1 and Phase 2 exploration programs for the Channel Deepening Program. Fugro's tethered Seascout CPT system was used for all testing.

During Phase 1, a total of 52 tethered CPTs were performed on August 5 through 8, 1996. As indicated on Map 5, 14 CPTs (CA-1 through CA-14) were located in preliminary dredge unit CG-1 as part of the Phase 1A investigation, and 38 CPTs (CB-15 through CB-52) were located throughout the remainder of the Inner Harbor as part of the Phase 1B investigation.

During Phase 2, a total of 91 tethered CPTs were performed on April 21 through 26, 1997. As indicated on Map 5, 41 CPTs (CPT-1 through CPT-38, and CPT-90 through CPT-92) were located in the middle sections of the various waterways in the northern two-thirds of the Inner Harbor. The remaining 50 CPTs were performed within about 20 to 40 feet of existing pierhead alignments along four specific berthlines. Those four berthlines include the following:

- Berths 122 - 127 ..... CPT-39 through CPT-49
- Berths 136 - 139 ..... CPT-50 through CPT-57
- Berths 212 - 221 ..... CPT-58 through CPT-74 (CPT-73 was not performed)
- Berths 226 - 232 ..... CPT-75 through CPT-89

Details of the CPT system and field operations are provided below.

Vessel and Navigation

The CPT soundings were conducted from the *M/V Ranger*, a 40-foot work boat owned and operated by J.H. Marine Services. The Seascout was deployed from an A-frame off the stern of the vessel.

A Differential Global Positioning System (DGPS) and integrated navigation software, owned and operated by Fugro, were used to position the vessel over CPT locations and to determine final X-Y coordinates for each CPT performed. Coordinates calculated from the DGPS system are considered accurate to within about 3 to 5 feet and are reported herein relative to the California State Plane (Lambert Conformal Projection, Zone 7) Coordinate system.

Water Depth Measurement

Water depths at CPT locations were measured with the vessel winch cable and a sounding tape. These two methods enabled us to check for the potential penetration of the Seascout unit into the harbor bottom sediments. The measured water depths were corrected to MLLW tidal datum using predicted tide tables reported to the nearest quarter-hour for the POLA Inner Harbor. Relative to the harbor bottom elevations, we have assumed an error bar of ±1 to 1.5 feet.

Seascout CPT

Fugro's Seascout is a lightweight seafloor CPT system designed for tethered deployment from a modest-sized vessel. The Seascout CPT includes: a) an approximately 8-foot-high, triangular reaction frame with a 6.5-foot base dimension; b) a patented hydraulic thrust mechanism; c) a coiled CPT rod with spooling/straightening device; d) a miniature piezocone; and e) associated data storage/processing computer. The weight of the Seascout frame is about 3,000 pounds.

As deployed in the Inner Harbor, the Seascout has an 18-foot penetration capability. Use of the coiled CPT tube provides for a continuous penetration push, as opposed to a stroke-based penetration when using the more common land-based, 3.3-foot-long (1-meter) CPT rod segments.

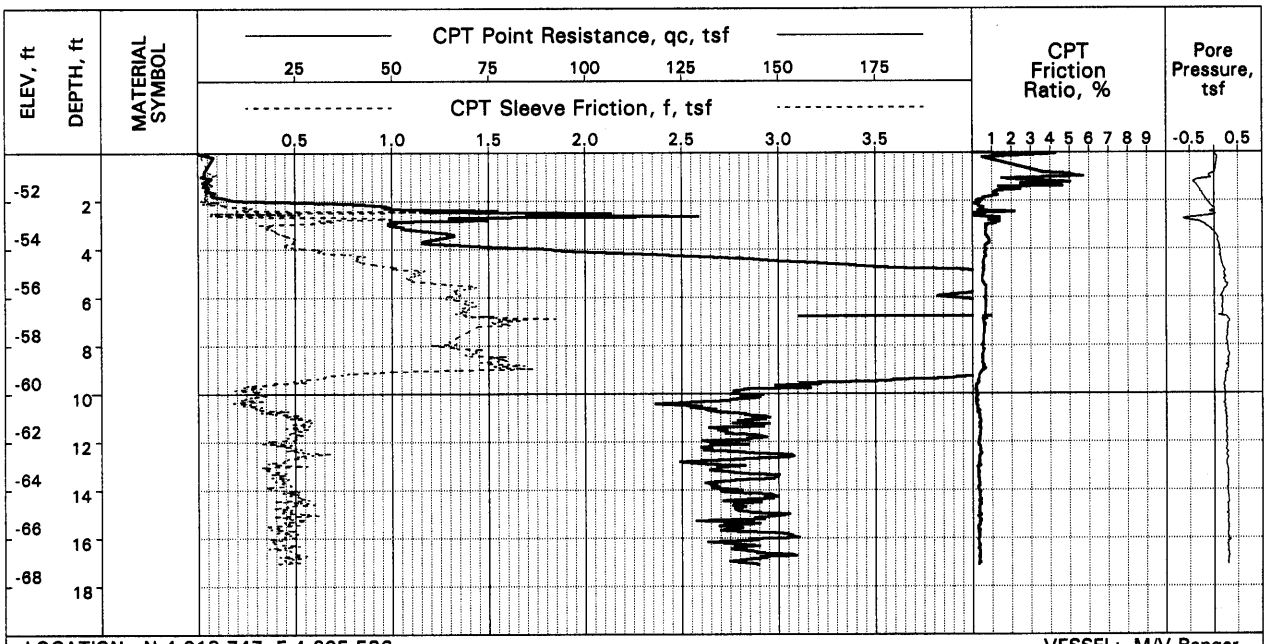
The test procedure at each location included the following steps:

1. Positioning of vessel at a specific test location
2. Lowering of Seascout frame to the harbor bottom
3. Advancement of the cone into the harbor bottom to maximum penetration or refusal
4. Retraction of the cone coil and penetrometer
5. Retrieval of the frame to the aft deck of the vessel

The Seascout miniature cone penetrometer has a 100-square-millimeter cross sectional area, a proportional 1,500-square-millimeter friction sleeve, a pore pressure element immediately above the cone (i.e., base filter), and an inclinometer to measure verticality of the cone push. All data are acquired digitally for subsequent computer-based processing and presentation.

Data Processing and Presentation of Results

The raw CPT sounding data were processed using Fugro's processing algorithms (UNIPLOT) developed for offshore CPT data processing. Logs of the Phase 1 investigation CPT soundings are presented on Plates A-1 through A-26, and the Phase 2 CPT plots are presented on Plates A-27 through A-72. For each CPT sounding, we present plots of measured cone tip resistance (q_c) and sleeve friction (f_s), together with the computed friction ratio (f_s / q_c).

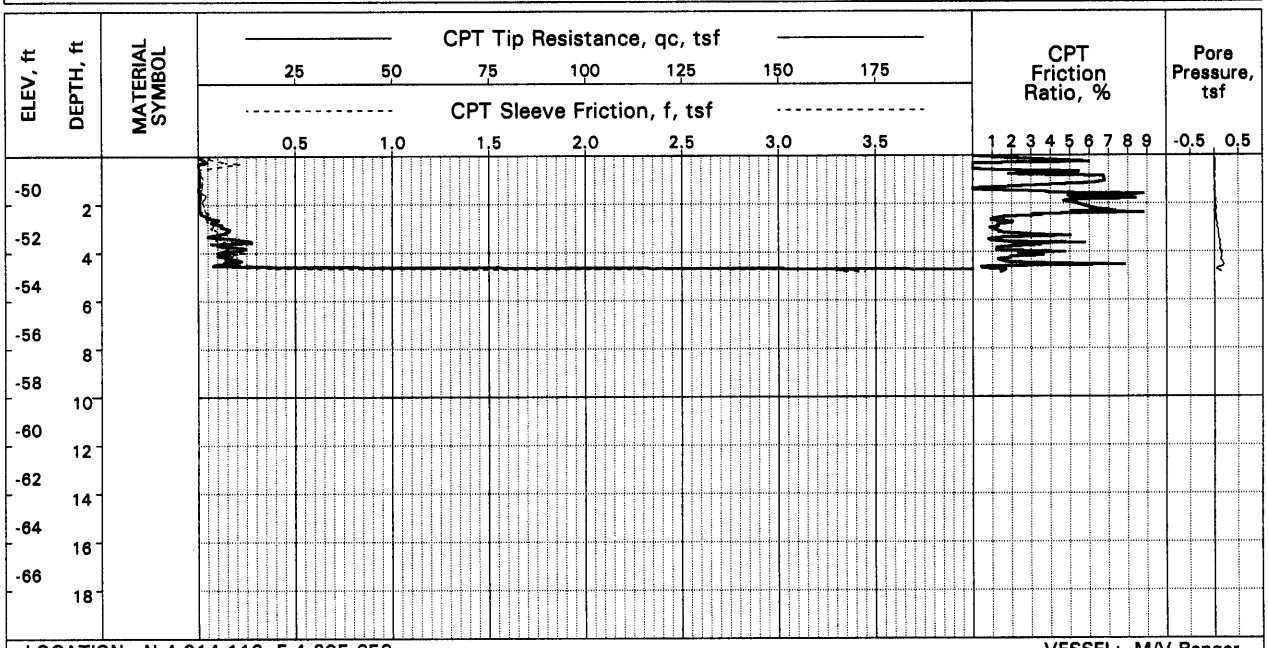


LOCATION: N 4,013,747 E 4,205,586
ELEVATION: -50.2 ft (re: MLLW; based on water depth of 52 ft and tide of 1.8 ft)
COMPLETION DEPTH: 17.4 ft
DATE OF EXPLORATION: August 5, 1996

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick/TWMcNeilan

LOG OF CPT NO. CA-1

UGIS ID: FB96CA01



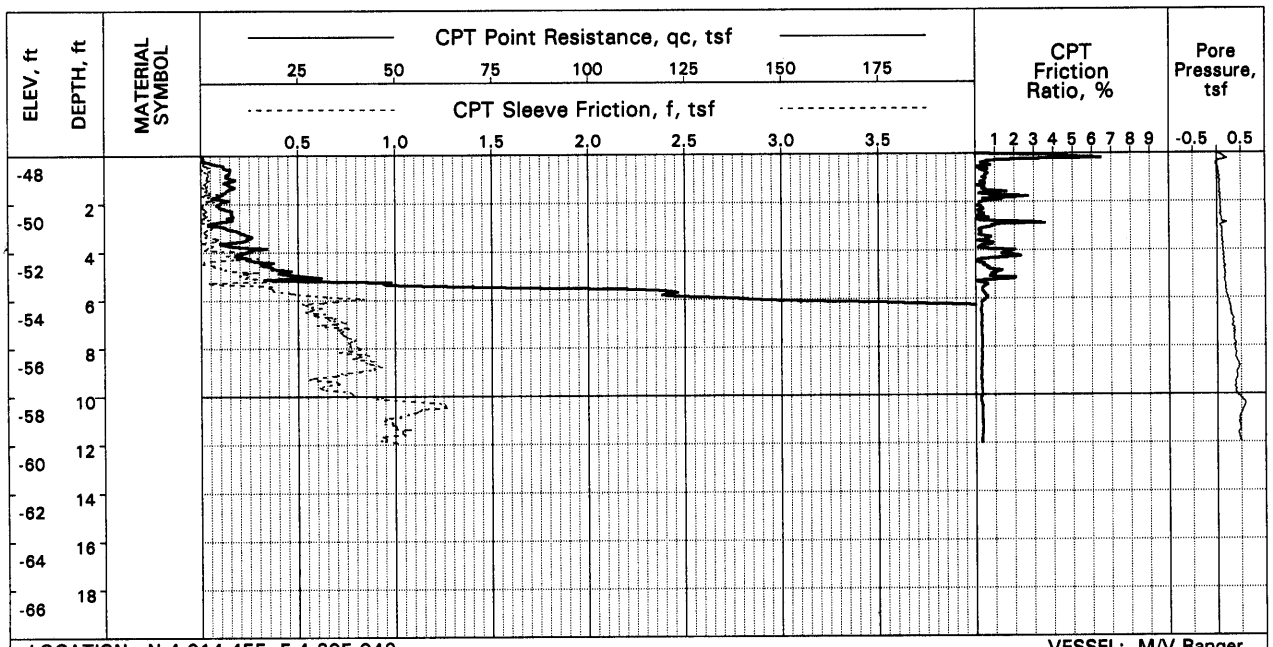
LOCATION: N 4,014,110 E 4,205,659
ELEVATION: -48.4 ft (re: MLLW; based on water depth of 50 ft and tide of 1.6 ft)
COMPLETION DEPTH: 18.0 ft
DATE OF EXPLORATION: August 5, 1996

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick/TWMcNeilan

LOG OF CPT NO. CA-2

UGIS ID: FB96CA02

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles

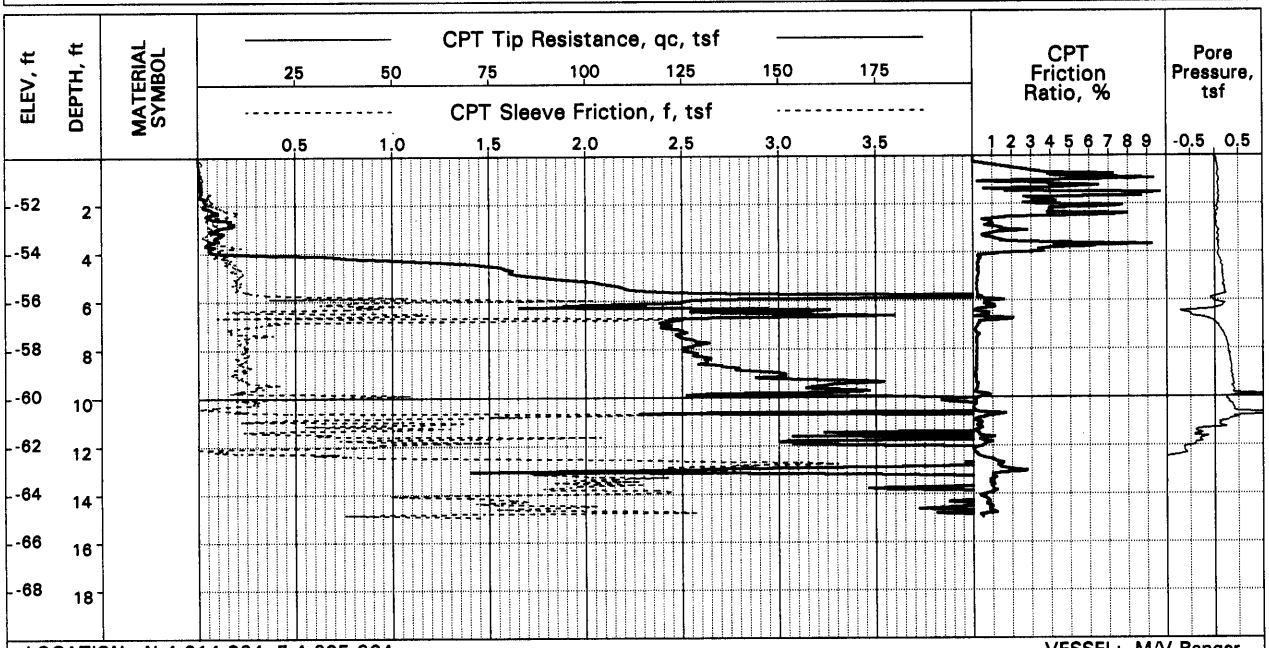


LOCATION: N 4,014,455 E 4,205,042
ELEVATION: -47.0 ft (re: MLLW; based on water depth of 49 ft and tide of 2.0 ft)
COMPLETION DEPTH: 12.1 ft
DATE OF EXPLORATION: August 5, 1996

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick/TWMcNeilan

LOG OF CPT NO. CA-3

UGIS ID: FB96CA03



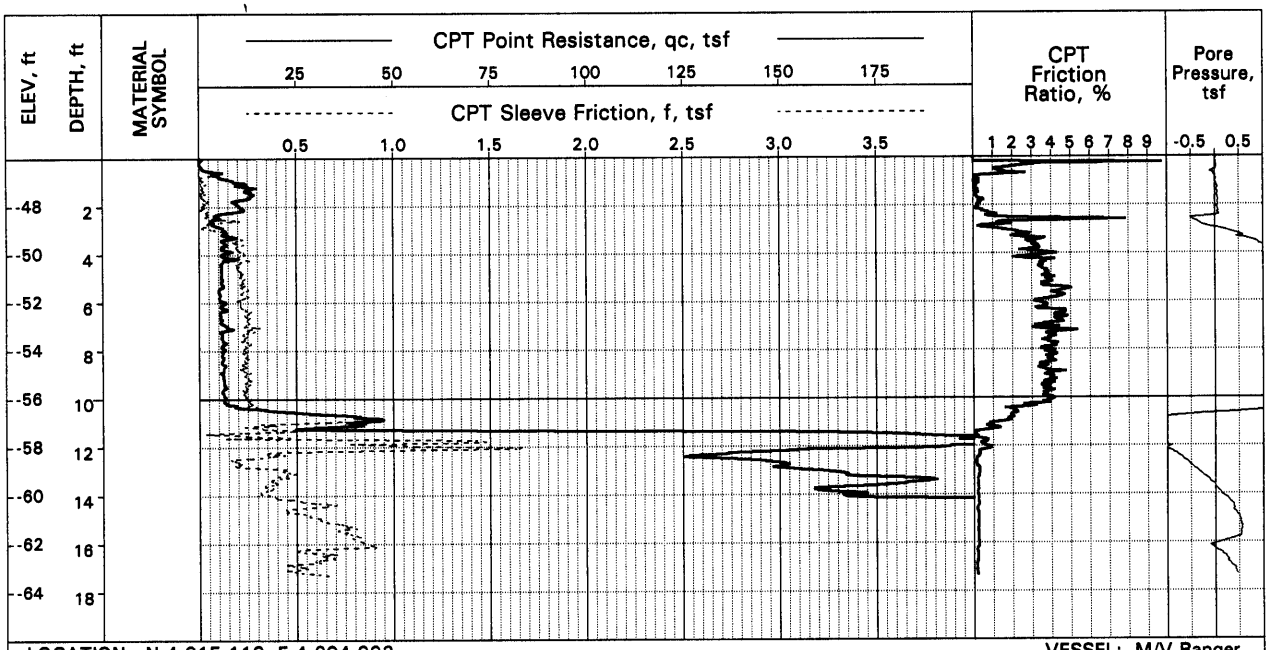
LOCATION: N 4,014,824 E 4,205,264
ELEVATION: -49.9 ft (re: MLLW; based on water depth of 52 ft and tide of 2.1 ft)
COMPLETION DEPTH: 15.1 ft
DATE OF EXPLORATION: August 5, 1996

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick/TWMcNeilan

LOG OF CPT NO. CA-4

UGIS ID: FB96CA04

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles

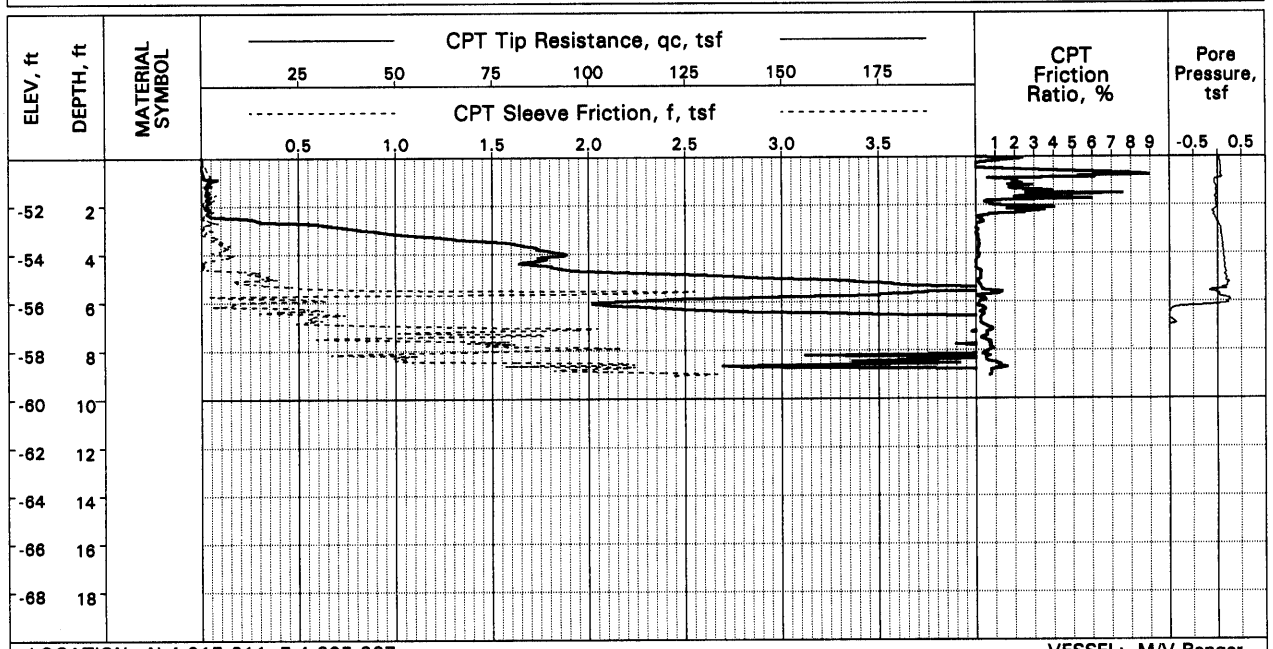


LOCATION: N 4,015,119 E 4,204,992
ELEVATION: -45.8 ft (re: MLLW; based on water depth of 48 ft and tide of 2.2 ft)
COMPLETION DEPTH: 17.4 ft
DATE OF EXPLORATION: August 5, 1996

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick/TWMcNeilan

LOG OF CPT NO. CA-5

UGIS ID: FB96CA05



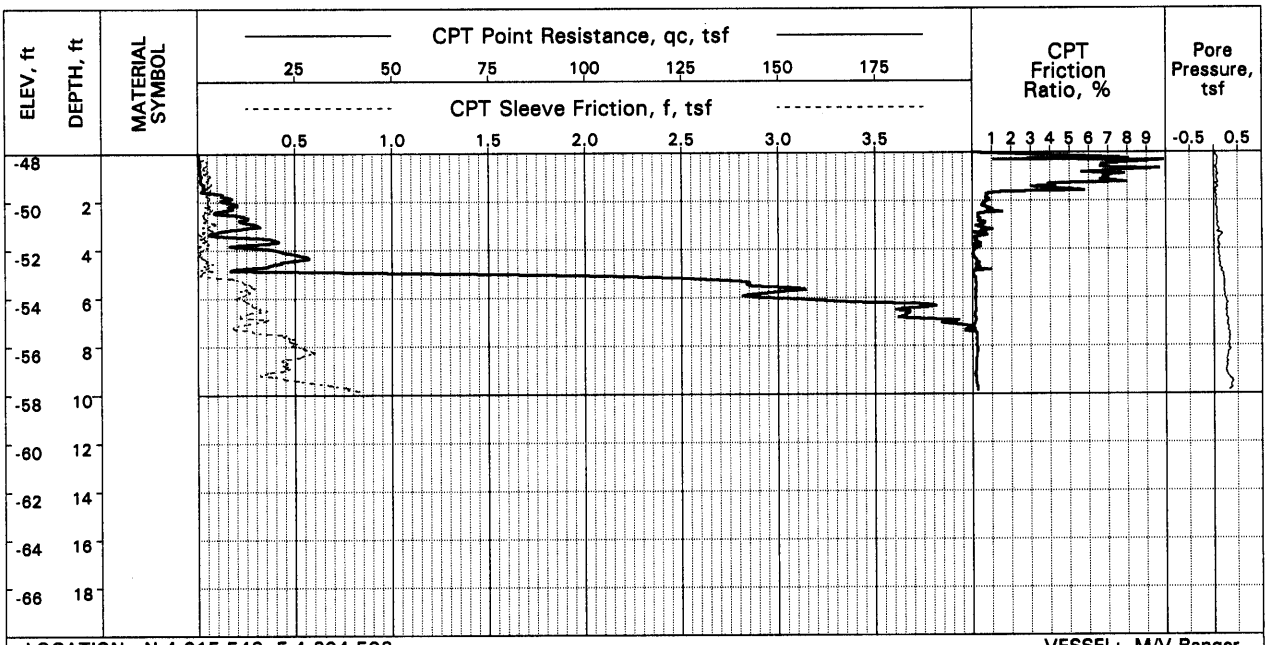
LOCATION: N 4,015,211 E 4,205,227
ELEVATION: -49.6 ft (re: MLLW; based on water depth of 52 ft and tide of 2.4 ft)
COMPLETION DEPTH: 9.2 ft
DATE OF EXPLORATION: August 5, 1996

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick/TWMcNeilan

LOG OF CPT NO. CA-6

UGIS ID: FB96CA06

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles

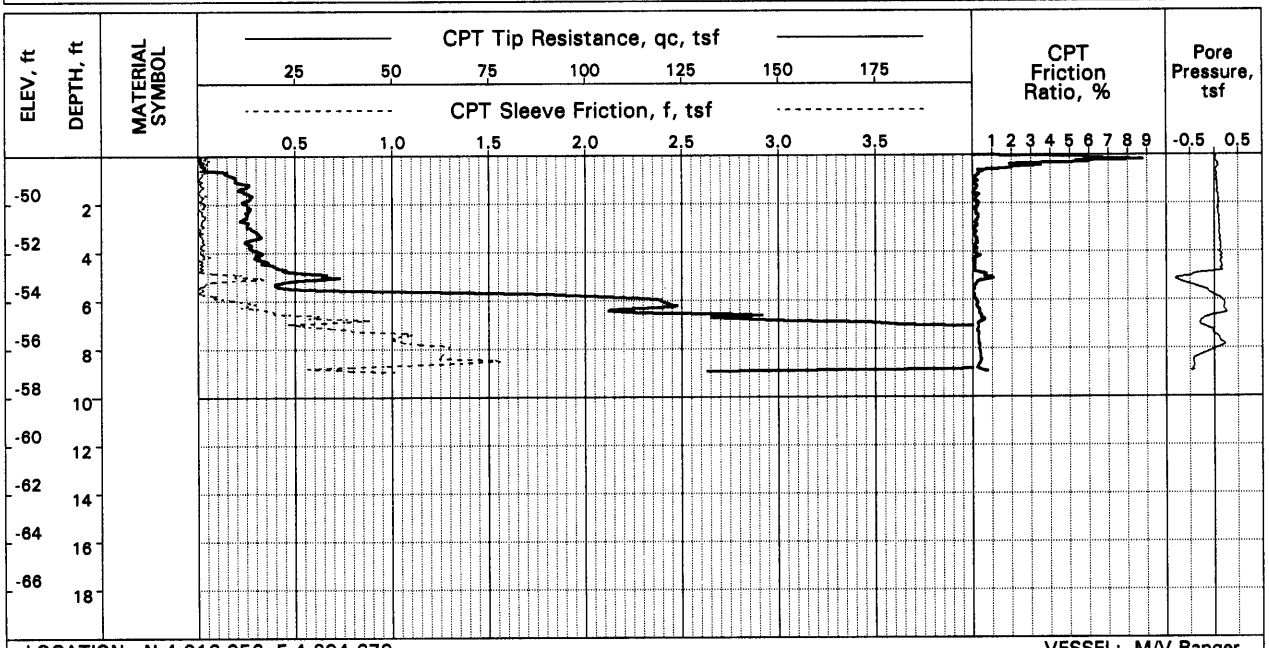


LOCATION: N 4,015,549 E 4,204,502
ELEVATION: -47.4 ft (re: MLLW; based on water depth of 50 ft and tide of 2.6 ft)
COMPLETION DEPTH: 9.8 ft
DATE OF EXPLORATION: August 5, 1996

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick/TWMcNeilan

LOG OF CPT NO. CA-7

UGIS ID: FB96CA07



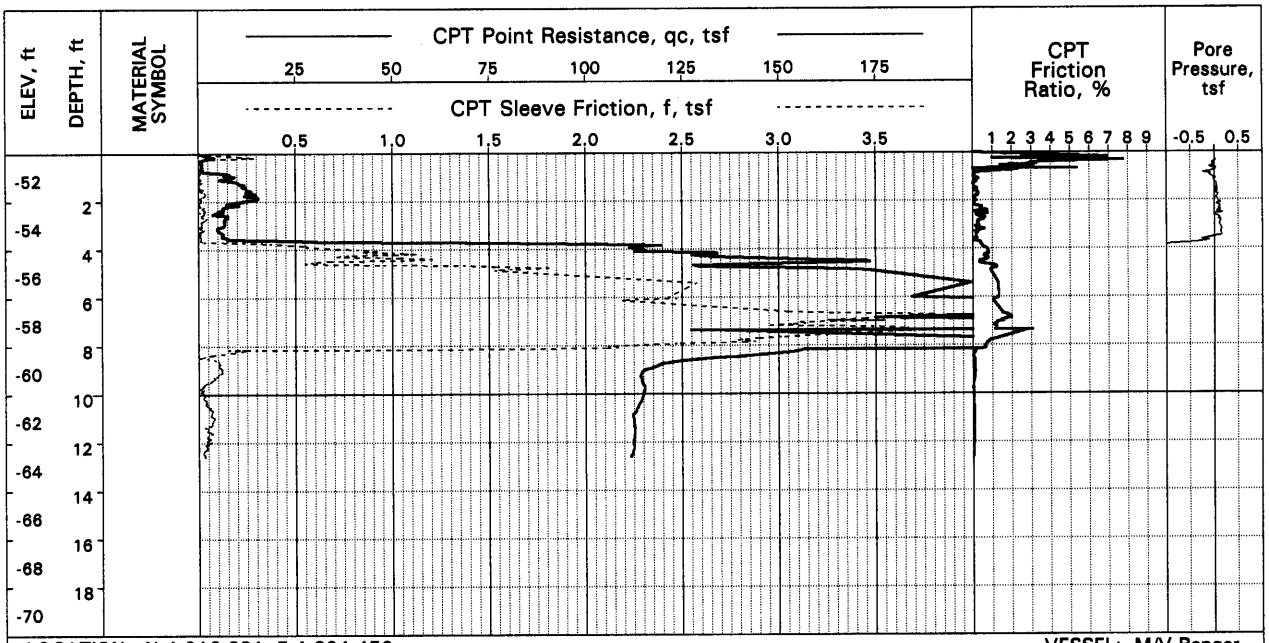
LOCATION: N 4,016,056 E 4,204,679
ELEVATION: -48.2 ft (re: MLLW; based on water depth of 51 ft and tide of 2.8 ft)
COMPLETION DEPTH: 8.9 ft
DATE OF EXPLORATION: August 5, 1996

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick/TWMcNeilan

LOG OF CPT NO. CA-8

UGIS ID: FB96CA08

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles

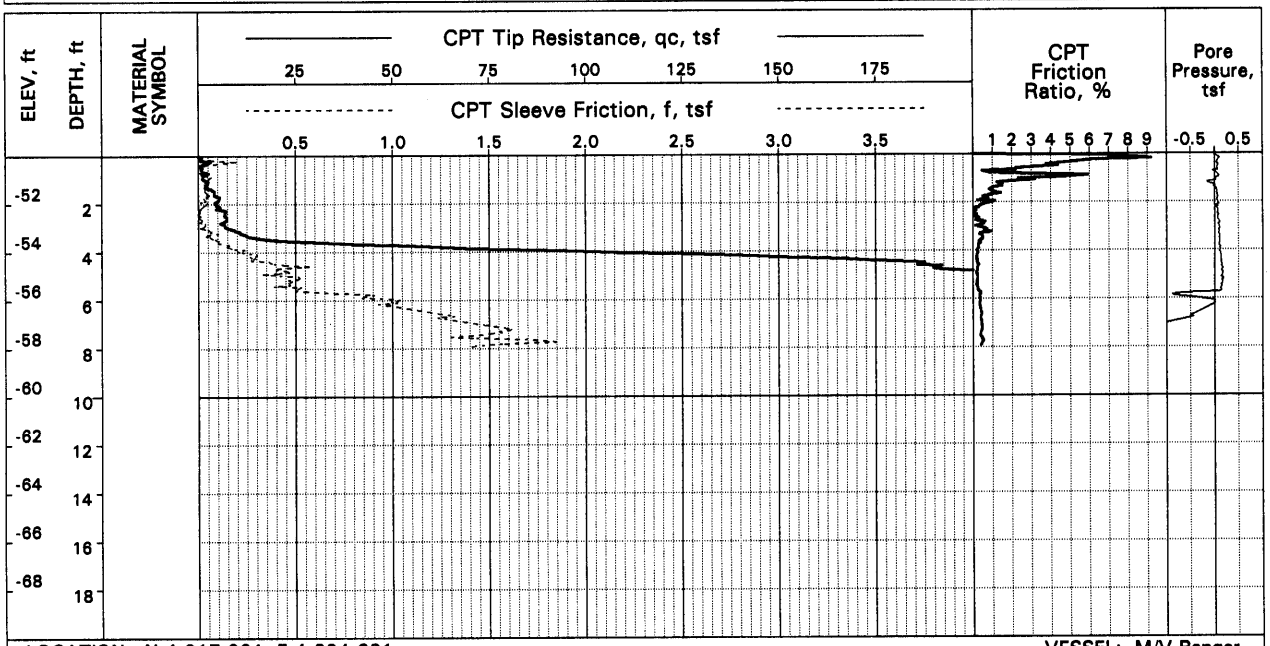


LOCATION: N 4,016,281 E 4,204,450
ELEVATION: -50.6 ft (re: MLLW; based on water depth of 54 ft and tide of 3.4 ft)
COMPLETION DEPTH: 12.5 ft
DATE OF EXPLORATION: August 5, 1996

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick/TWMcNeilan

LOG OF CPT NO. CA-9

UGIS ID: FB96CA09



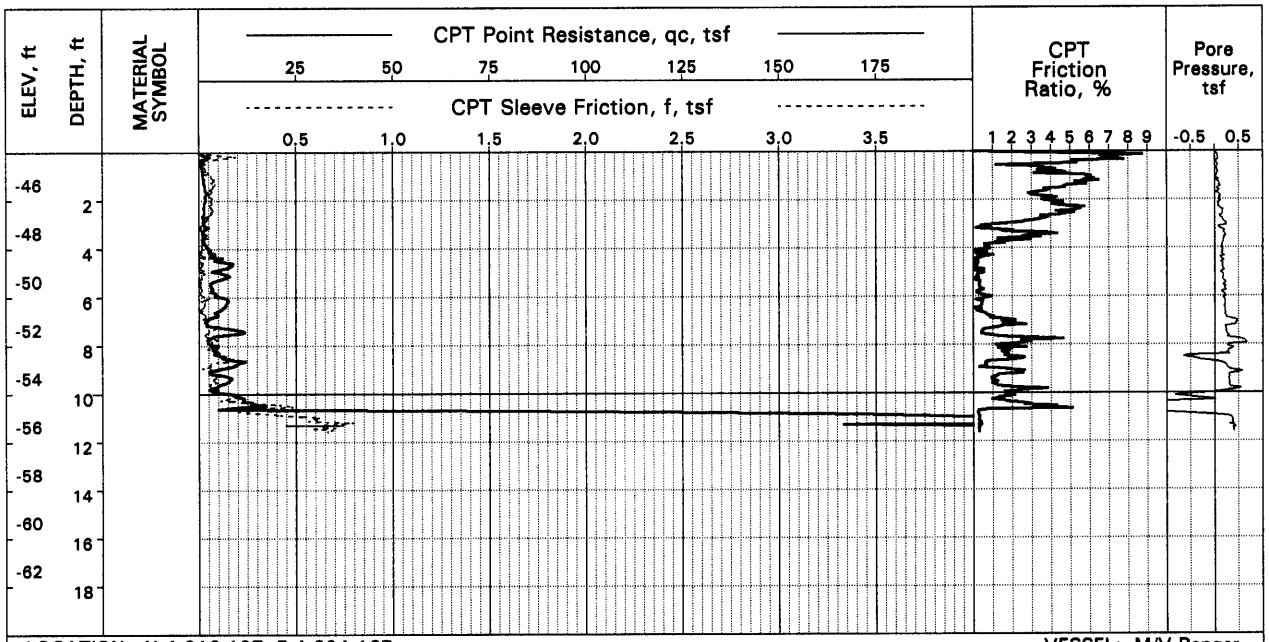
LOCATION: N 4,017,001 E 4,204,621
ELEVATION: -50.2 ft (re: MLLW; based on water depth of 54 ft and tide of 3.8 ft)
COMPLETION DEPTH: 7.9 ft
DATE OF EXPLORATION: August 5, 1996

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick/TWMcNeilan

LOG OF CPT NO. CA-10

UGIS ID: FB96CA10

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles

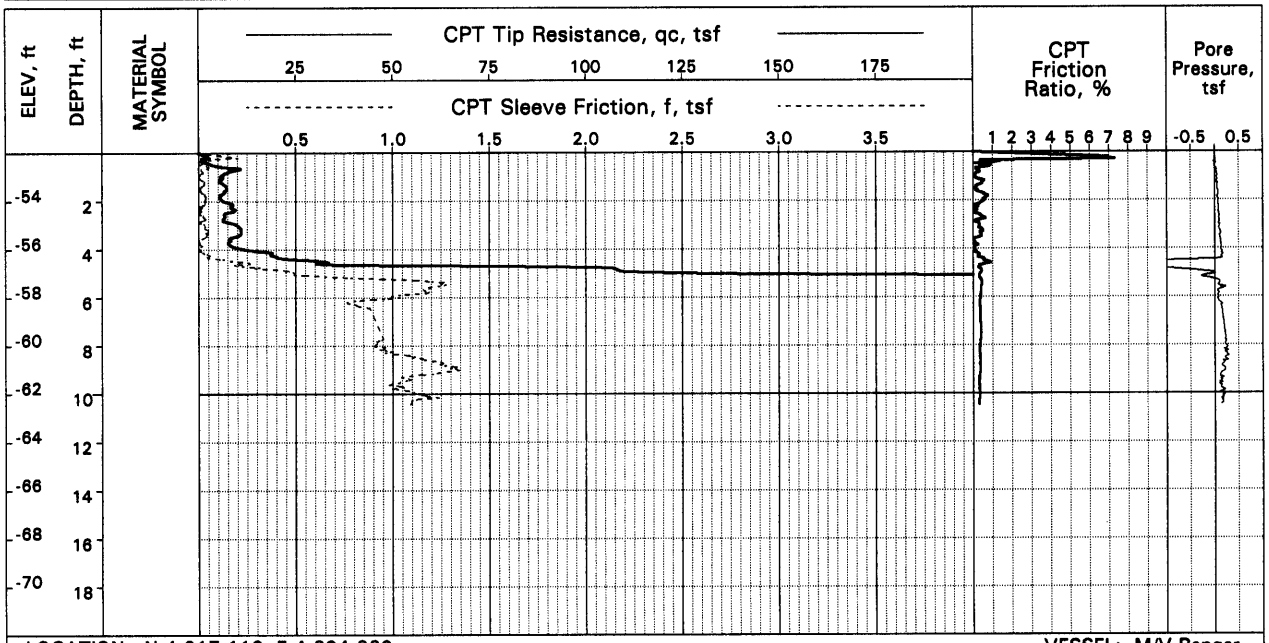


LOCATION: N 4,016,107 E 4,204,167
ELEVATION: -44.4 ft (re: MLLW; based on water depth of 48 ft and tide of 3.6 ft)
COMPLETION DEPTH: 11.5 ft
DATE OF EXPLORATION: August 5, 1996

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick/TWMcNeilan

LOG OF CPT NO. CA-11

UGIS ID: FB96CA11



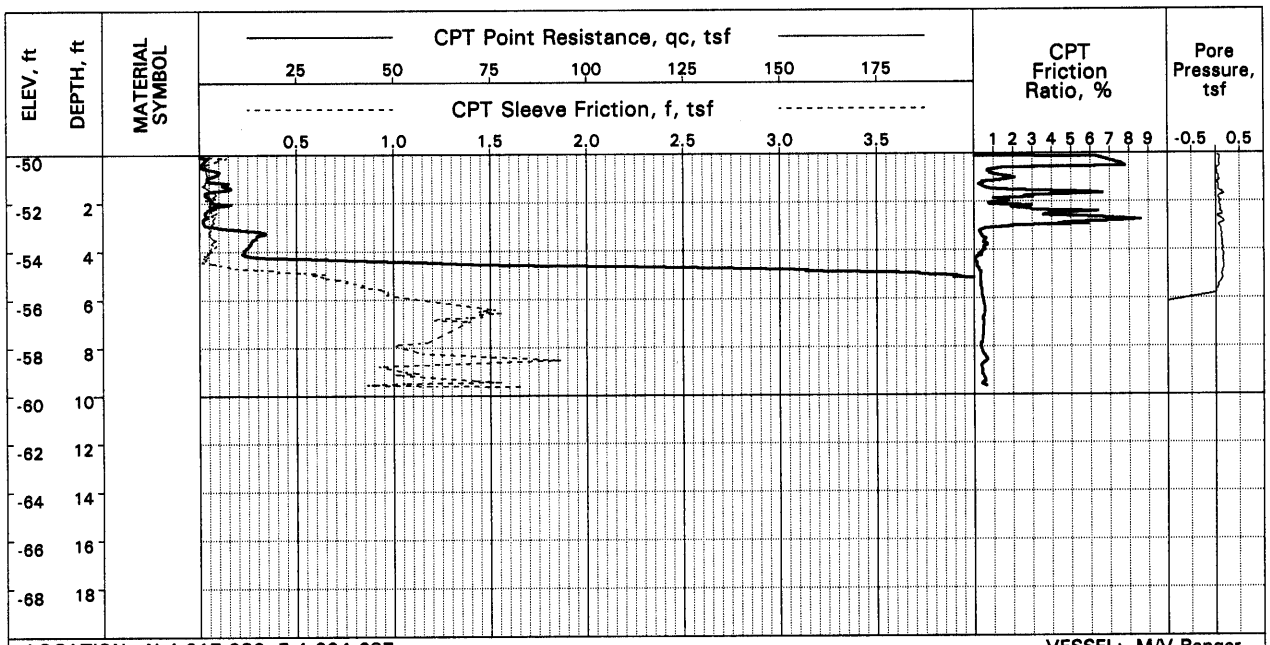
LOCATION: N 4,017,110 E 4,204,220
ELEVATION: -52.0 ft (re: MLLW; based on water depth of 56 ft and tide of 4.0 ft)
COMPLETION DEPTH: 10.5 ft
DATE OF EXPLORATION: August 5, 1996

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick/TWMcNeilan

LOG OF CPT NO. CA-12

UGIS ID: FB96CA12

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles

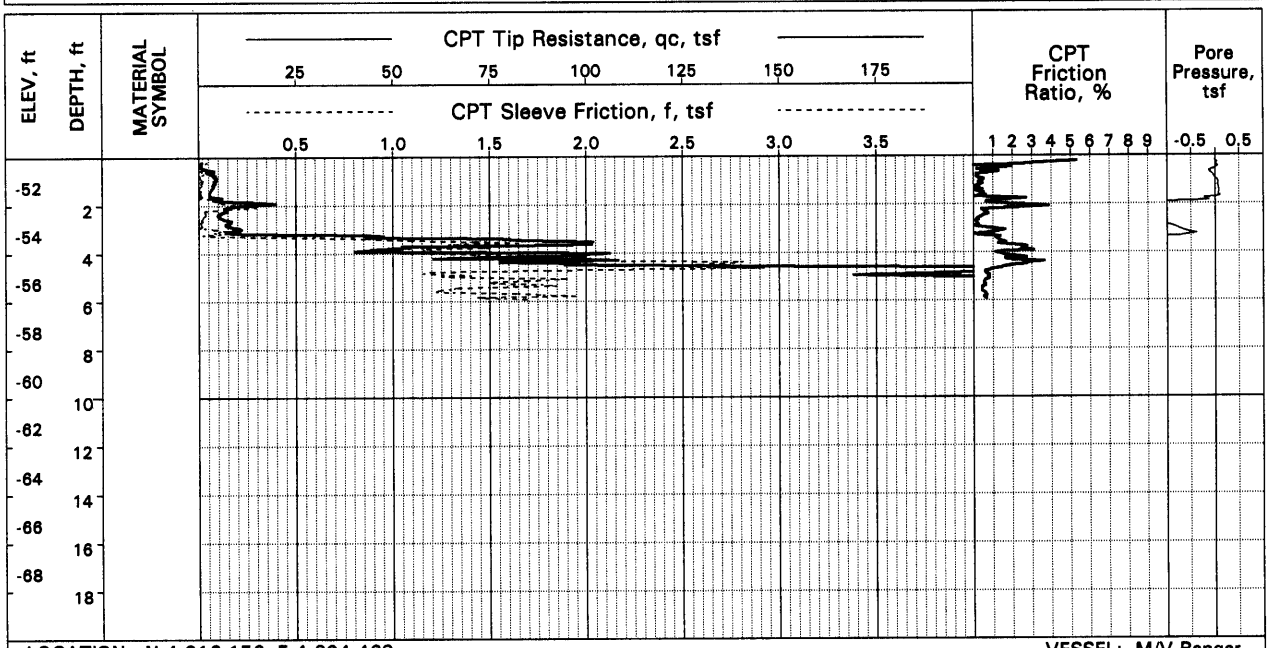


LOCATION: N 4,017,030 E 4,204,637
ELEVATION: -49.4 ft (re: MLLW; based on water depth of 52 ft and tide of 2.6 ft)
COMPLETION DEPTH: 9.8 ft
DATE OF EXPLORATION: August 8, 1996

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick/TWMcNeilan

LOG OF CPT NO. CA-13

UGIS ID: FB96CA13



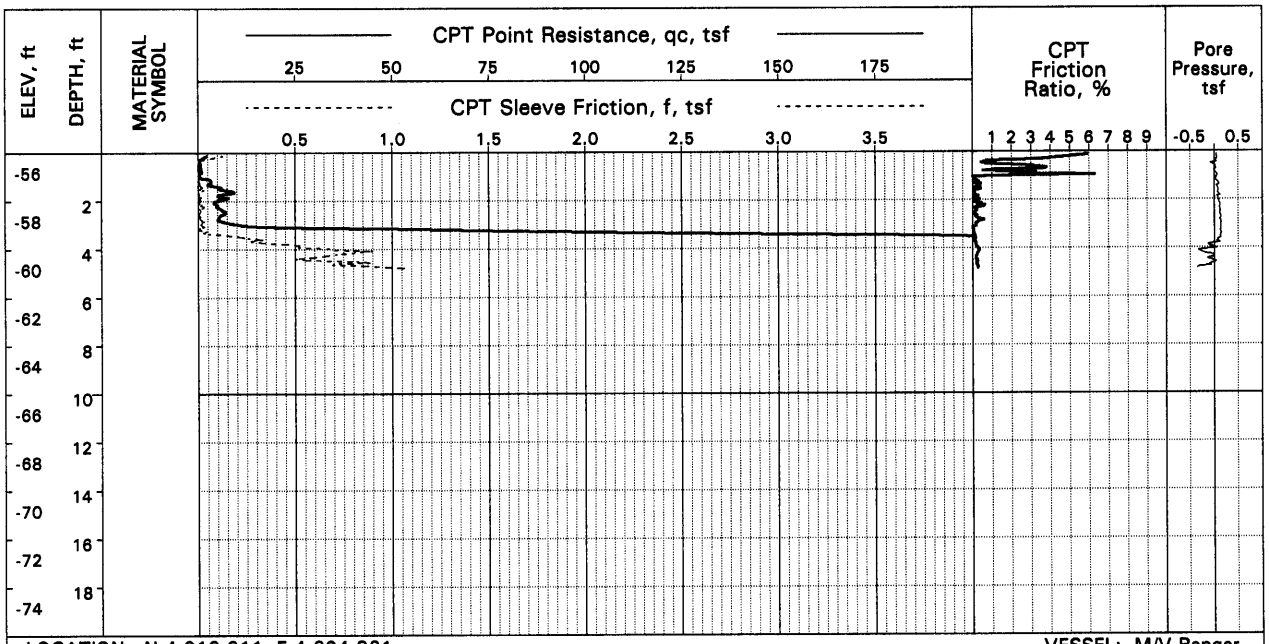
LOCATION: N 4,016,156 E 4,204,463
ELEVATION: -50.5 ft (re: MLLW; based on water depth of 53 ft and tide of 2.5 ft)
COMPLETION DEPTH: 8.5 ft
DATE OF EXPLORATION: August 8, 1996

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick/TWMcNeilan

LOG OF CPT NO. CA-14

UGIS ID: FB96CA14

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



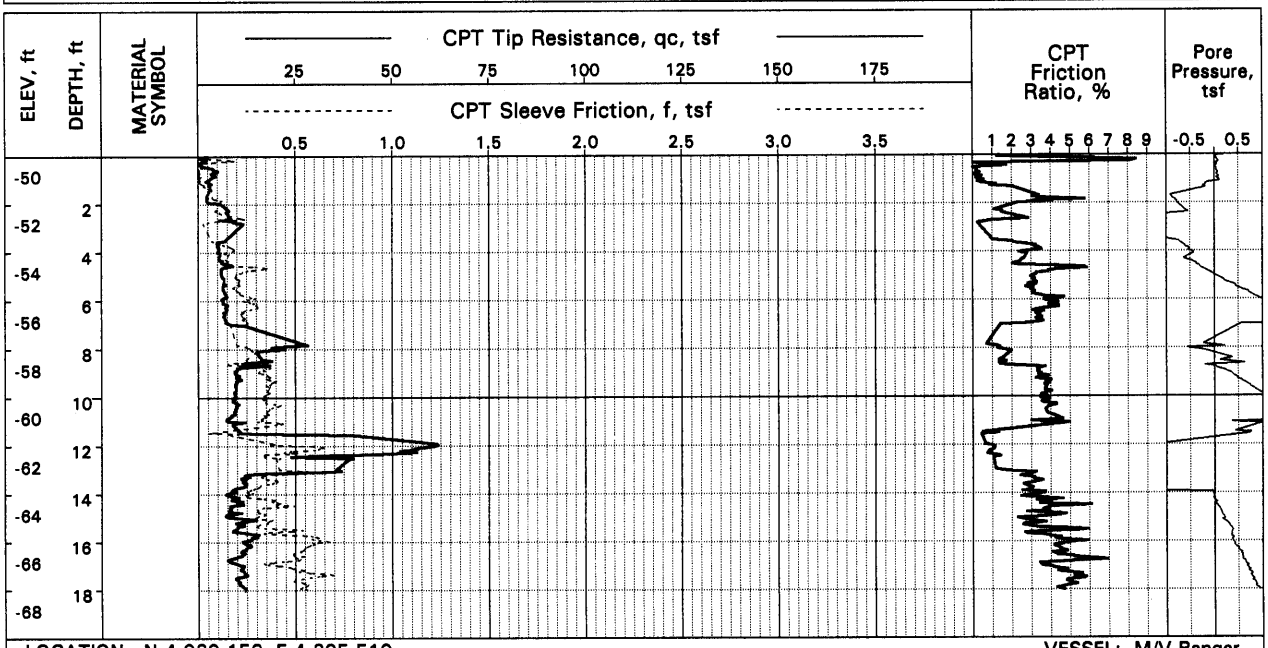
LOCATION: N 4,019,911 E 4,204,821
ELEVATION: -54.9 ft (re: MLLW; based on water depth of 60 ft and tide of 5.1 ft)

COMPLETION DEPTH: 11.5 ft
DATE OF EXPLORATION: August 5, 1996

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CB-15

UGIS ID: FB96CB15



LOCATION: N 4,020,159 E 4,205,510
ELEVATION: -48.9 ft (re: MLLW; based on water depth of 54 ft and tide of 5.1 ft)

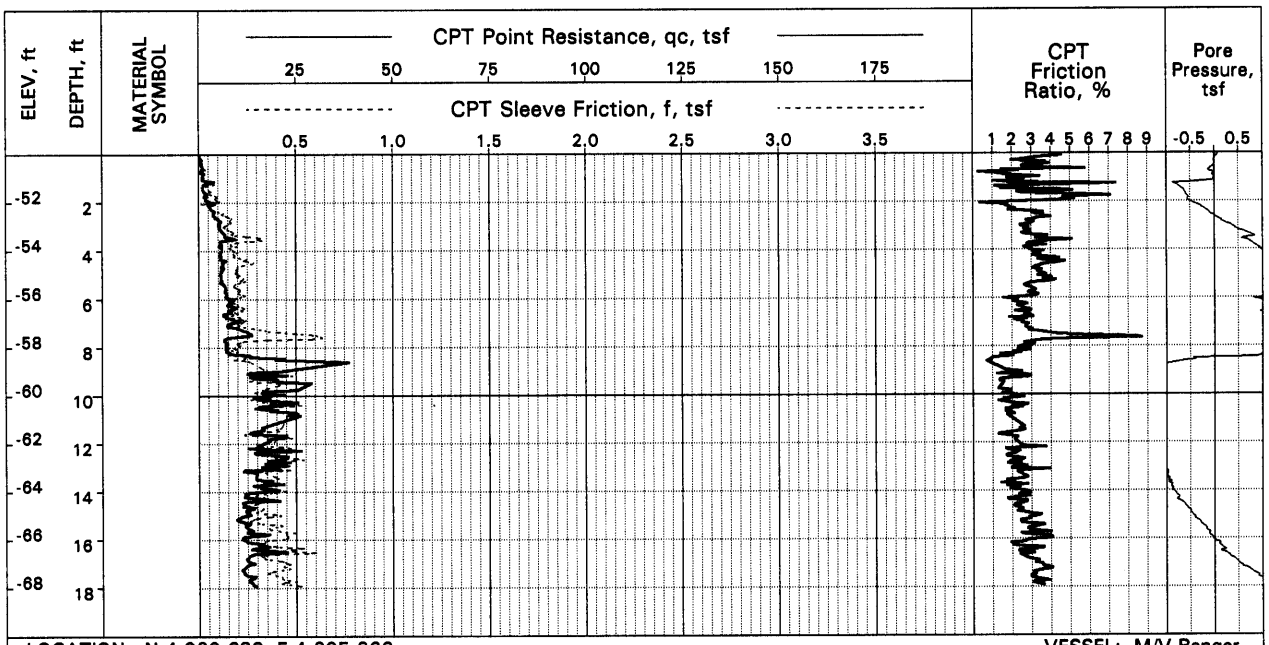
COMPLETION DEPTH: 18.0 ft
DATE OF EXPLORATION: August 5, 1996

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CB-16

UGIS ID: FB96CB16

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



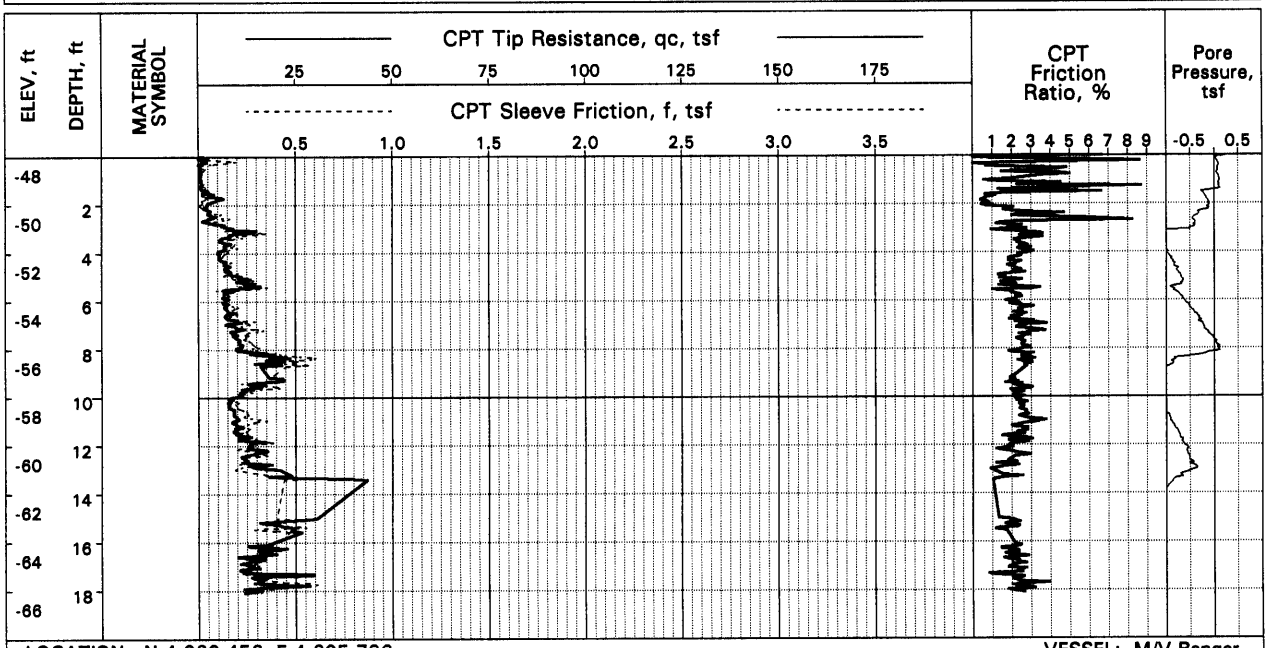
LOCATION: N 4,020,639 E 4,205,266
ELEVATION: -50.0 ft (re: MLLW; based on water depth of 55 ft and tide of 5.0 ft)

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 18.0 ft
DATE OF EXPLORATION: August 5, 1996

LOG OF CPT NO. CB-17

UGIS ID: FB96CB17



LOCATION: N 4,020,452 E 4,205,796
ELEVATION: -47.0 ft (re: MLLW; based on water depth of 52 ft and tide of 5.0 ft)

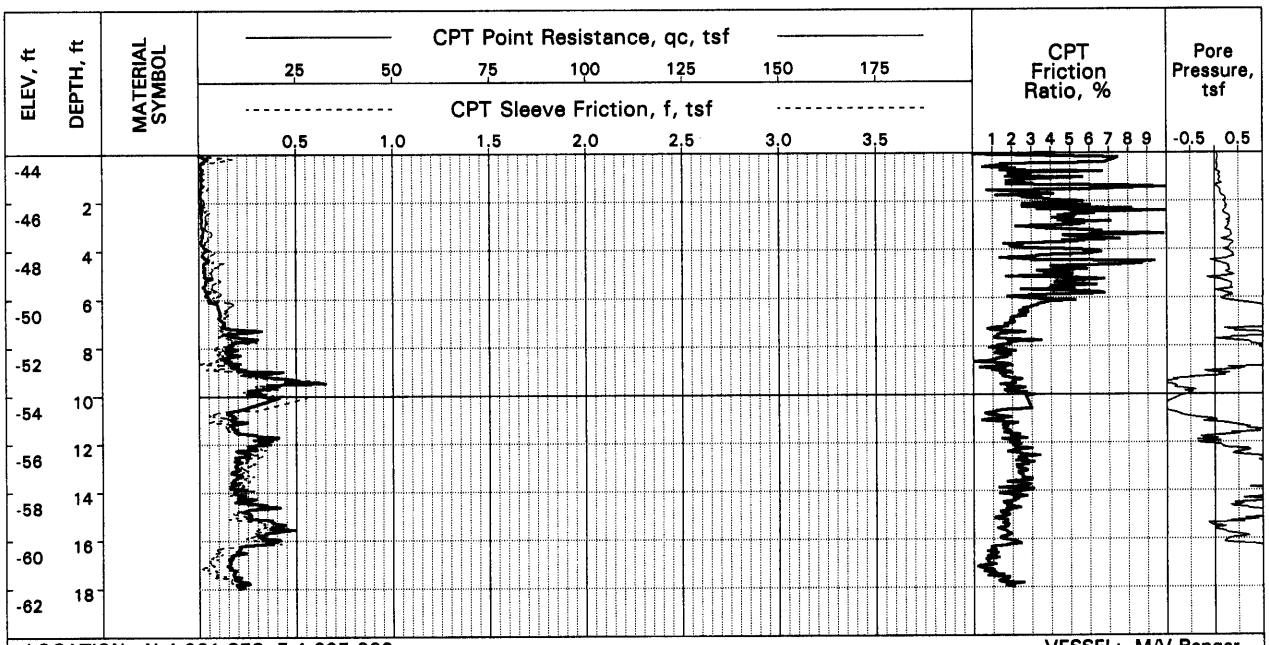
VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 18.0 ft
DATE OF EXPLORATION: August 5, 1996

LOG OF CPT NO. CB-18

UGIS ID: FB96CB18

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



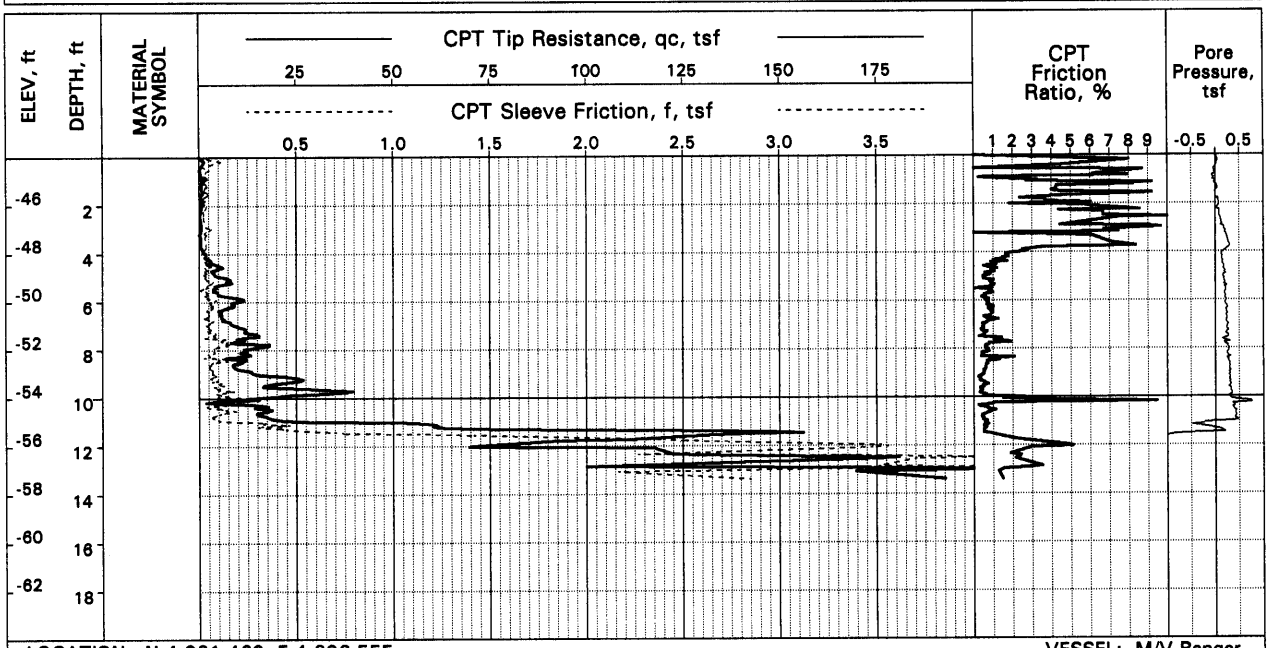
LOCATION: N 4,021,358 E 4,205,229
ELEVATION: -43.1 ft (re: MLLW; based on water depth of 46 ft and tide of 2.9 ft)

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 18.0 ft
DATE OF EXPLORATION: August 8, 1996

LOG OF CPT NO. CB-19

UGIS ID: FB96CB19



LOCATION: N 4,021,460 E 4,206,555
ELEVATION: -44.1 ft (re: MLLW; based on water depth of 49 ft and tide of 4.9 ft)

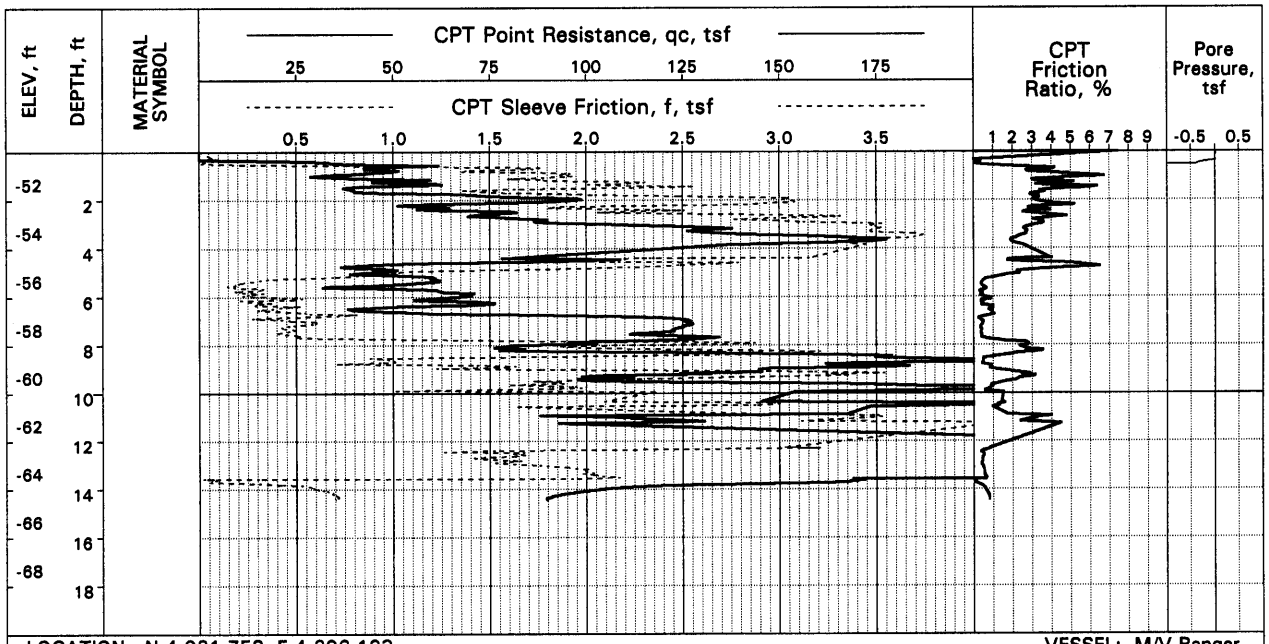
VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 13.8 ft
DATE OF EXPLORATION: August 5, 1996

LOG OF CPT NO. CB-20

UGIS ID: FB96CB20

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



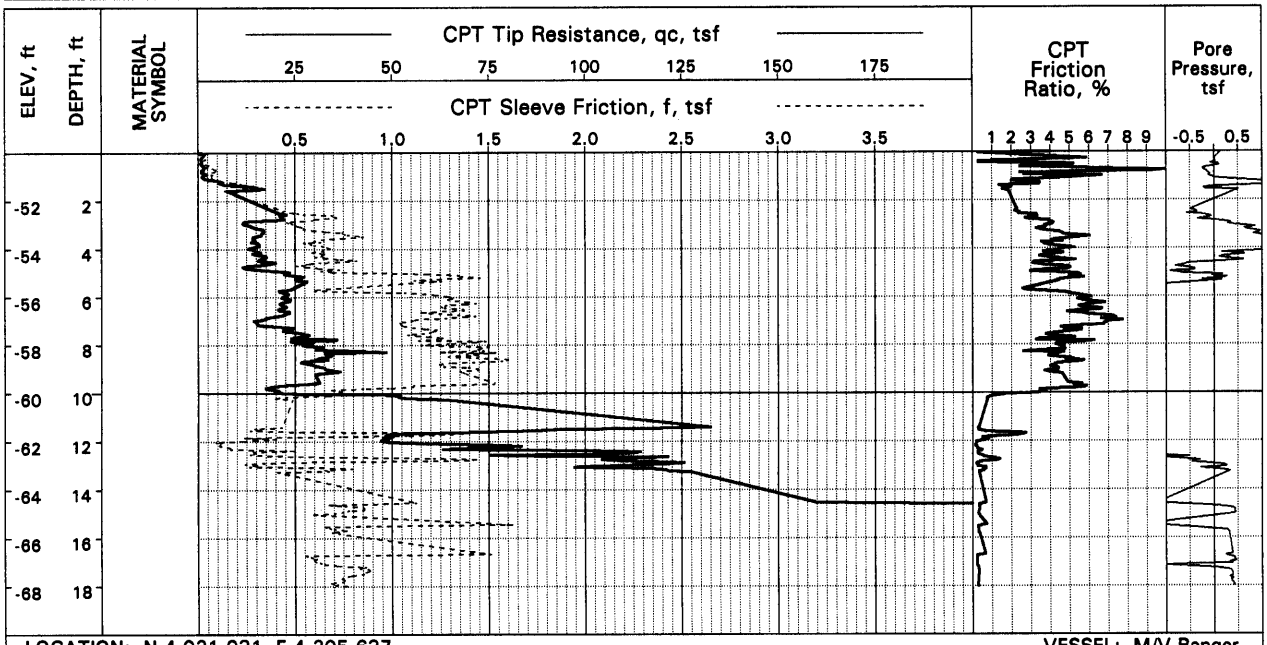
LOCATION: N 4,021,758 E 4,206,193
ELEVATION: -50.4 ft (re: MLLW; based on water depth of 55 ft and tide of 4.6 ft)

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 14.4 ft
DATE OF EXPLORATION: August 5, 1996

LOG OF CPT NO. CB-21

UGIS ID: FB96CB21



LOCATION: N 4,021,931 E 4,205,637
ELEVATION: -49.5 ft (re: MLLW; based on water depth of 54 ft and tide of 4.5 ft)

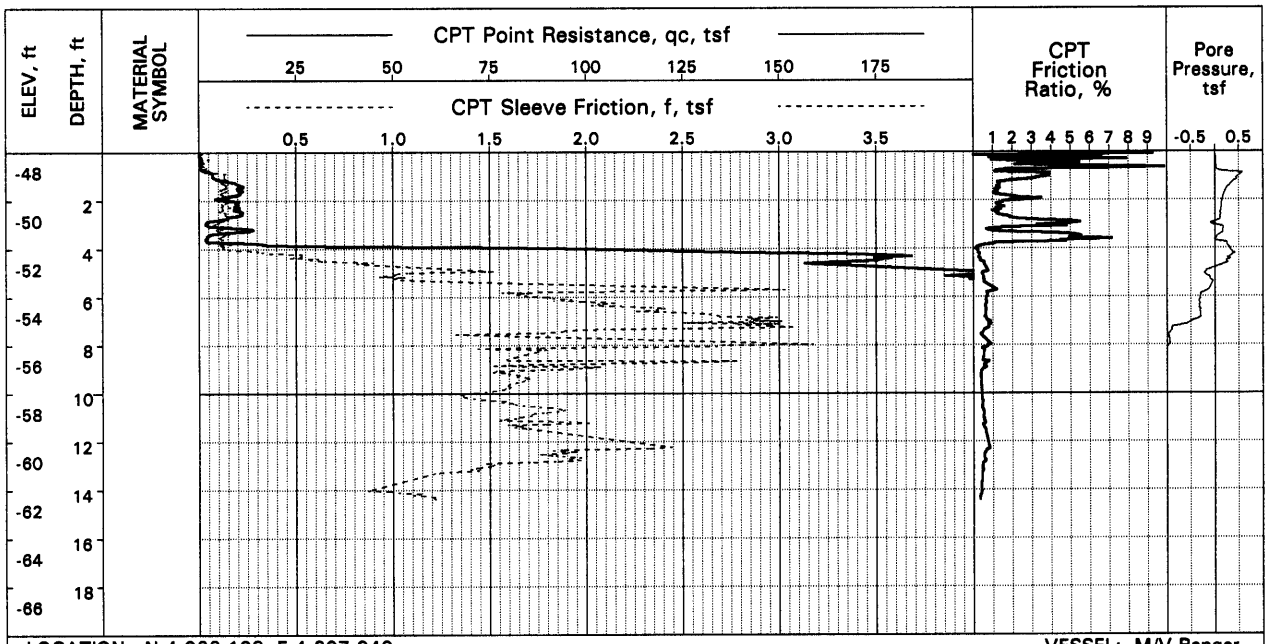
VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 18.0 ft
DATE OF EXPLORATION: August 5, 1996

LOG OF CPT NO. CB-22

UGIS ID: FB96CB22

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



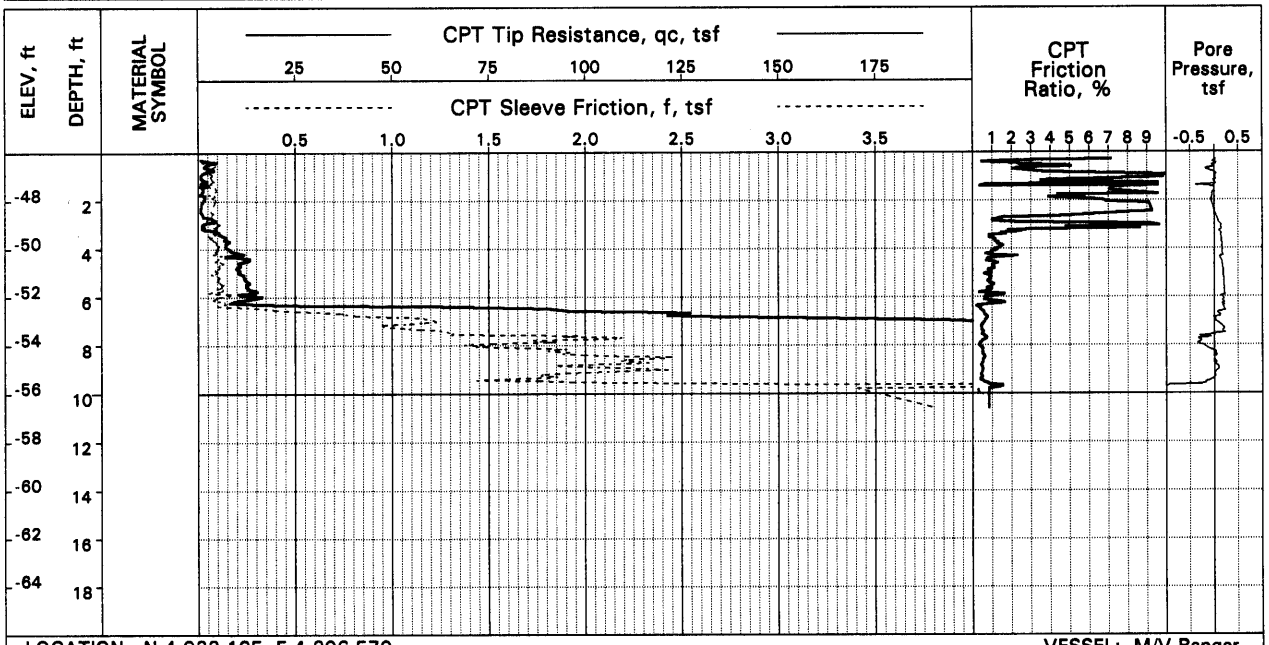
LOCATION: N 4,022,103 E 4,207,040
ELEVATION: -46.9 ft (re: MLLW; based on water depth of 52 ft and tide of 5.1 ft)

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 14.4 ft
DATE OF EXPLORATION: August 6, 1996

LOG OF CPT NO. CB-23

UGIS ID: FB96CB23



LOCATION: N 4,022,195 E 4,206,570
ELEVATION: -46.0 ft (re: MLLW; based on water depth of 51 ft and tide of 5.0 ft)

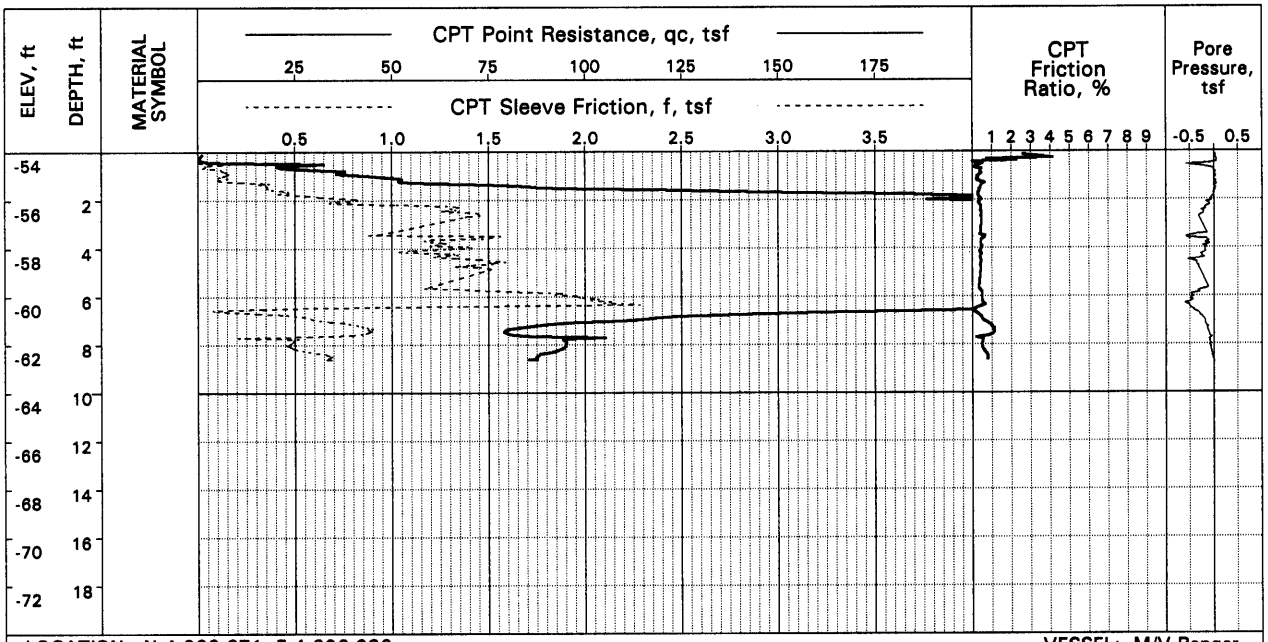
VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 10.5 ft
DATE OF EXPLORATION: August 6, 1996

LOG OF CPT NO. CB-24

UGIS ID: FB96CB24

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



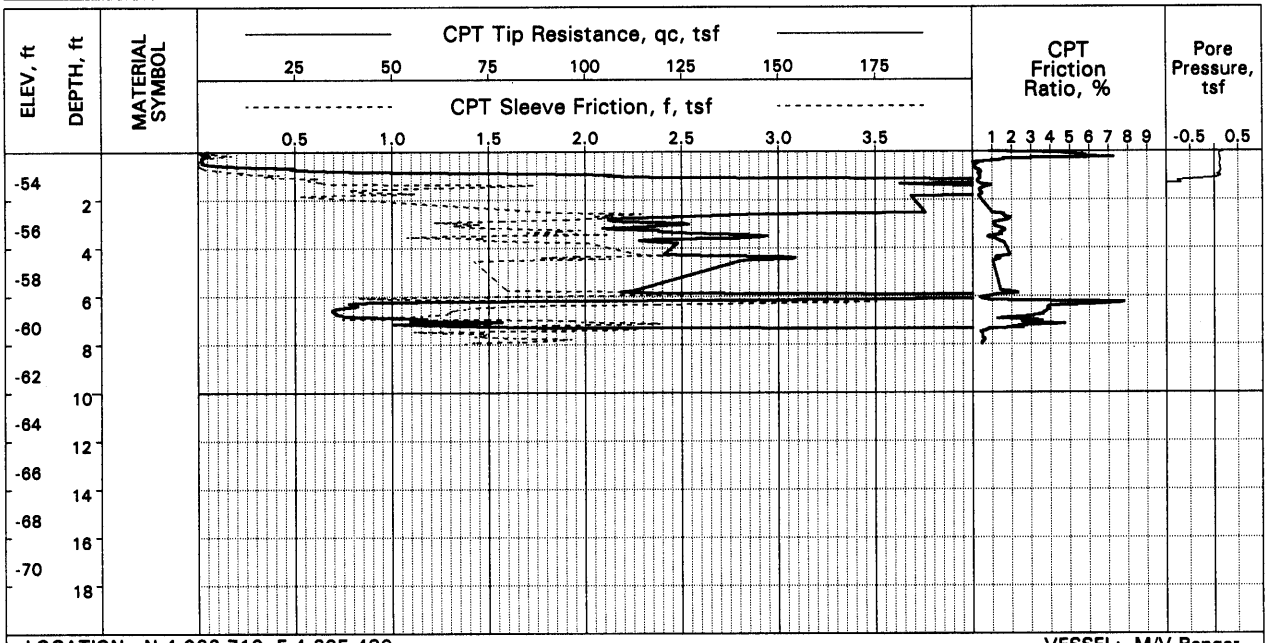
LOCATION: N 4,022,271 E 4,206,082
ELEVATION: -53.2 ft (re: MLLW; based on water depth of 58 ft and tide of 4.8 ft)

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 8.5 ft
DATE OF EXPLORATION: August 6, 1996

LOG OF CPT NO. CB-25

UGIS ID: FB96CB25



LOCATION: N 4,022,710 E 4,205,430
ELEVATION: -52.5 ft (re: MLLW; based on water depth of 55 ft and tide of 2.5 ft)

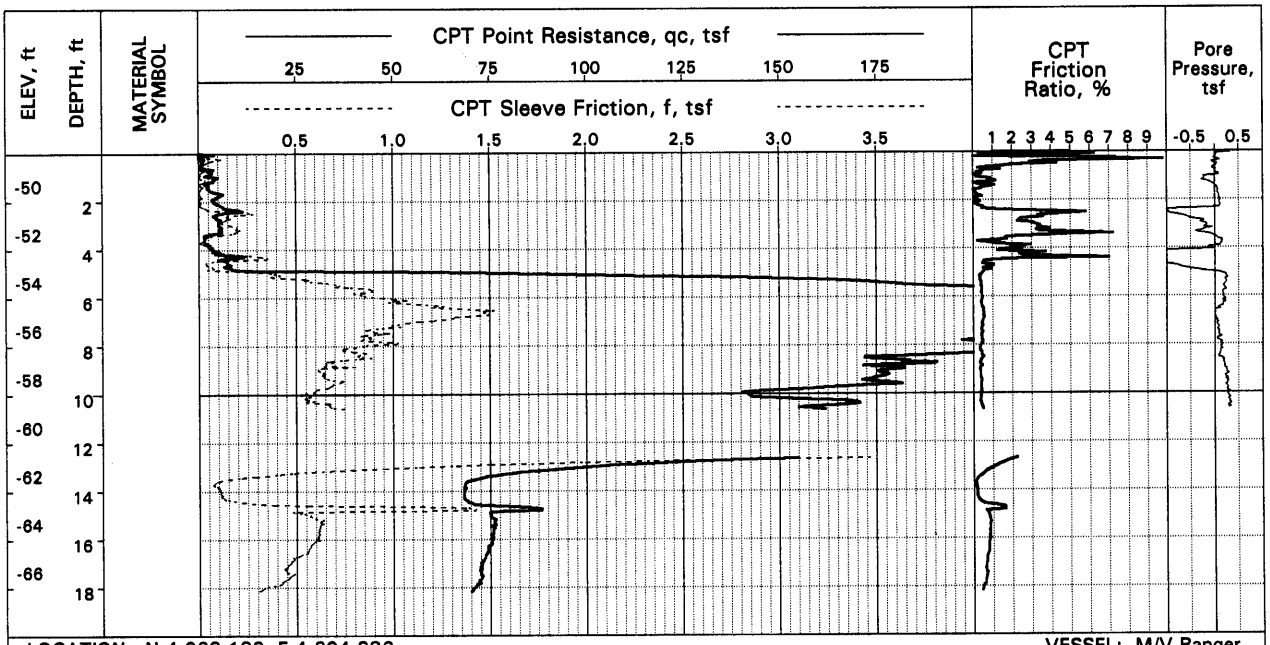
VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 7.9 ft
DATE OF EXPLORATION: August 6, 1996

LOG OF CPT NO. CB-26

UGIS ID: FB96CB26

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



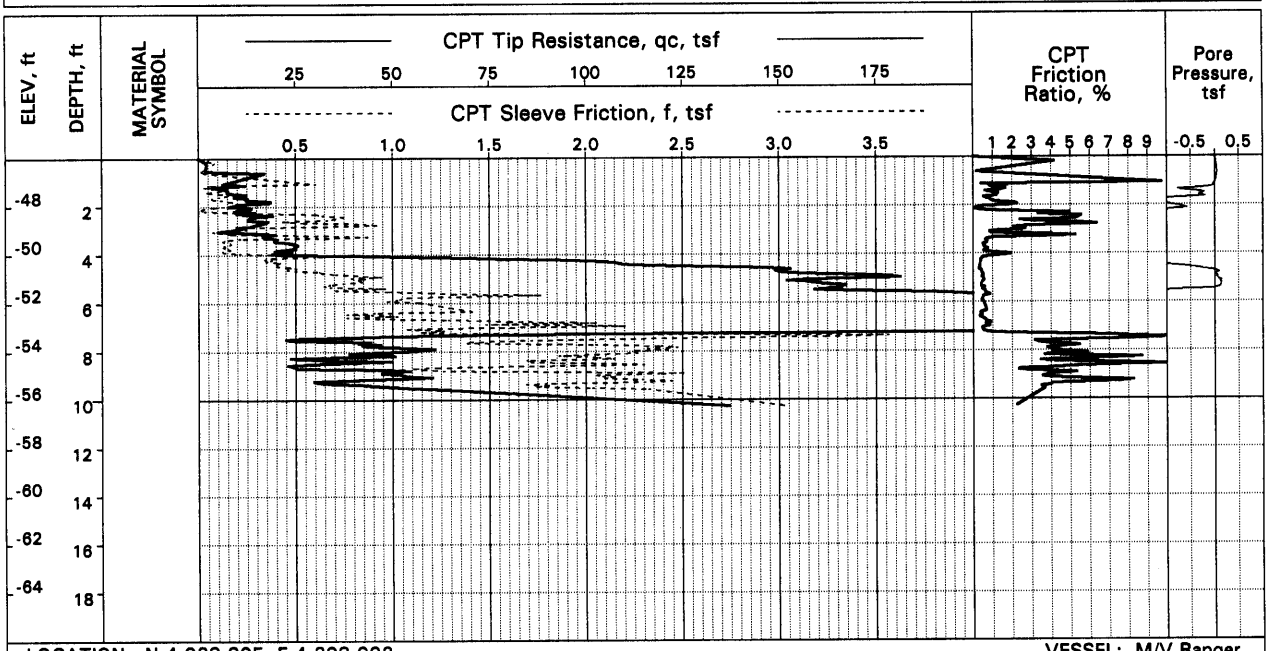
LOCATION: N 4,023,139 E 4,204,836
ELEVATION: -48.4 ft (re: MLLW; based on water depth of 51 ft and tide of 2.6 ft)

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 18.0 ft
DATE OF EXPLORATION: August 6, 1996

LOG OF CPT NO. CB-27

UGIS ID: FB96CB27



LOCATION: N 4,023,805 E 4,203,992
ELEVATION: -46.1 ft (re: MLLW; based on water depth of 49 ft and tide of 2.9 ft)

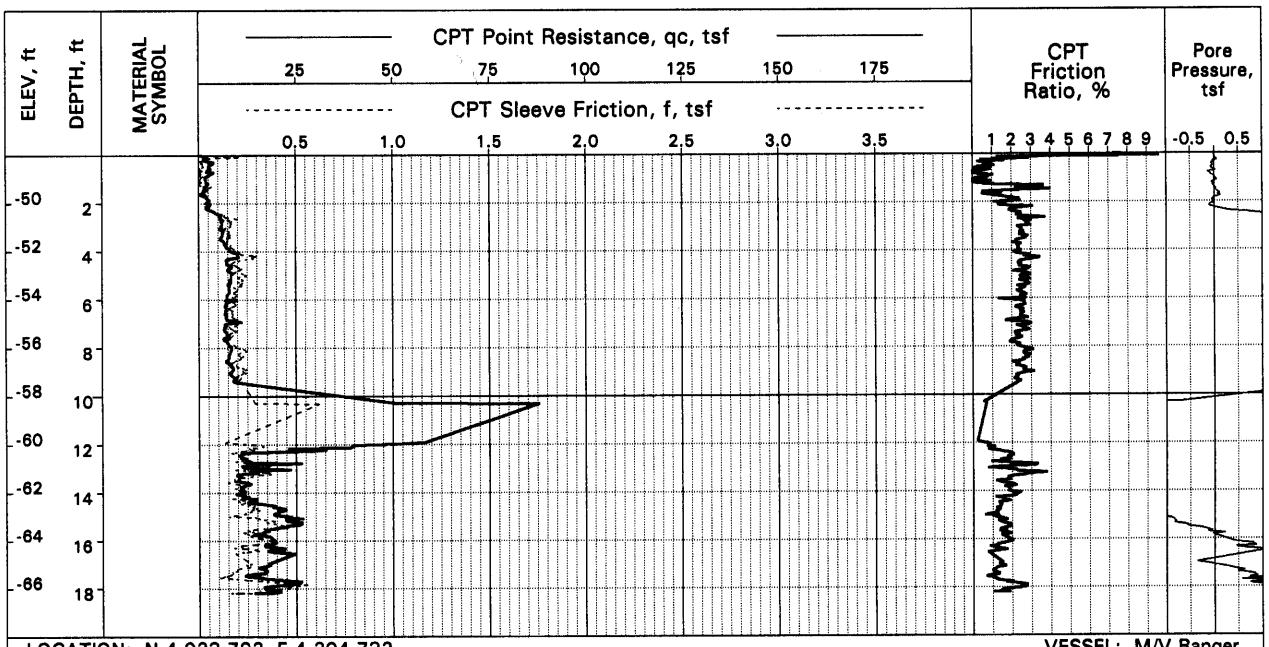
VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 10.2 ft
DATE OF EXPLORATION: August 6, 1996

LOG OF CPT NO. CB-28

UGIS ID: FB96CB28

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



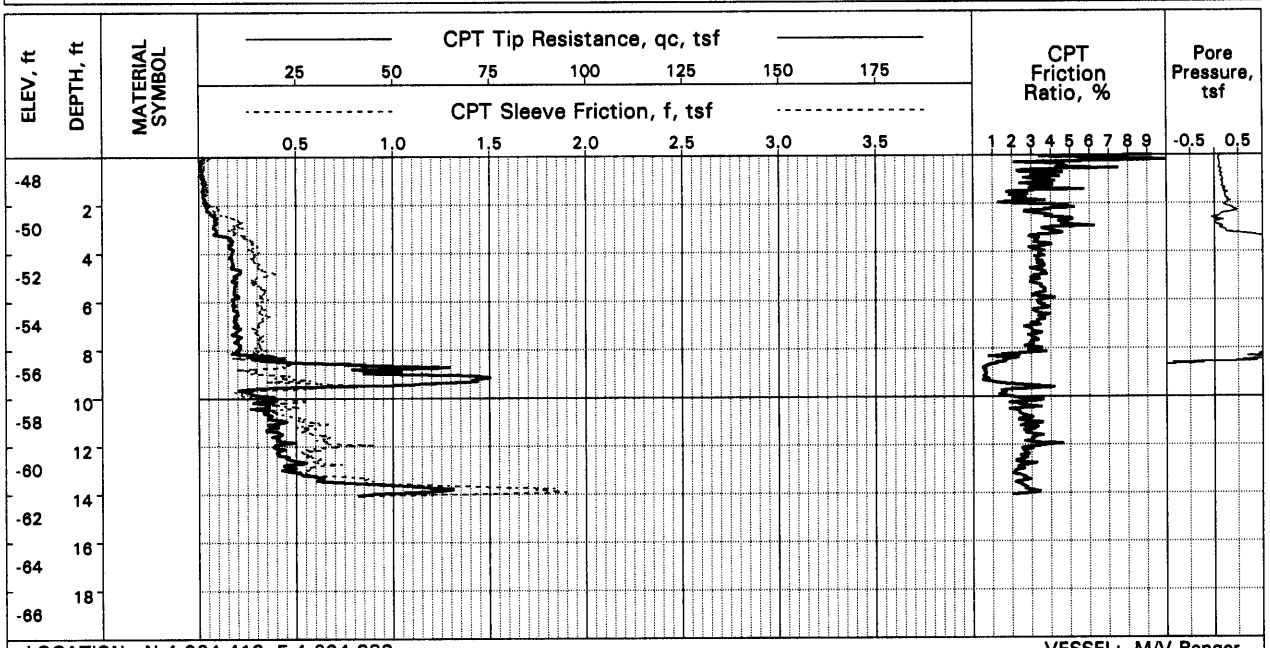
LOCATION: N 4,023,792 E 4,204,732
ELEVATION: -48.0 ft (re: MLLW; based on water depth of 51 ft and tide of 3.0 ft)

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 18.0 ft
DATE OF EXPLORATION: August 6, 1996

LOG OF CPT NO. CB-29

UGIS ID: FB96CB29



LOCATION: N 4,024,418 E 4,204,838
ELEVATION: -46.8 ft (re: MLLW; based on water depth of 50 ft and tide of 3.2 ft)

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

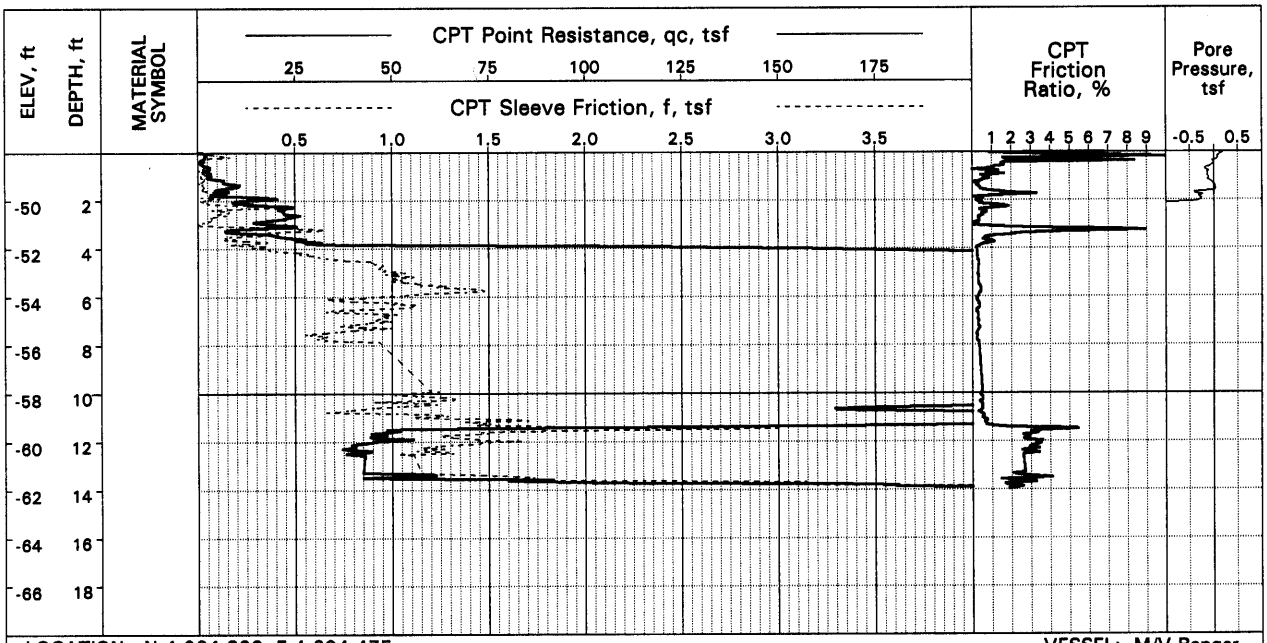
COMPLETION DEPTH: 14.1 ft
DATE OF EXPLORATION: August 6, 1996

LOG OF CPT NO. CB-30

UGIS ID: FB96CB30

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles

September 1996
Project No. 96-42-1213



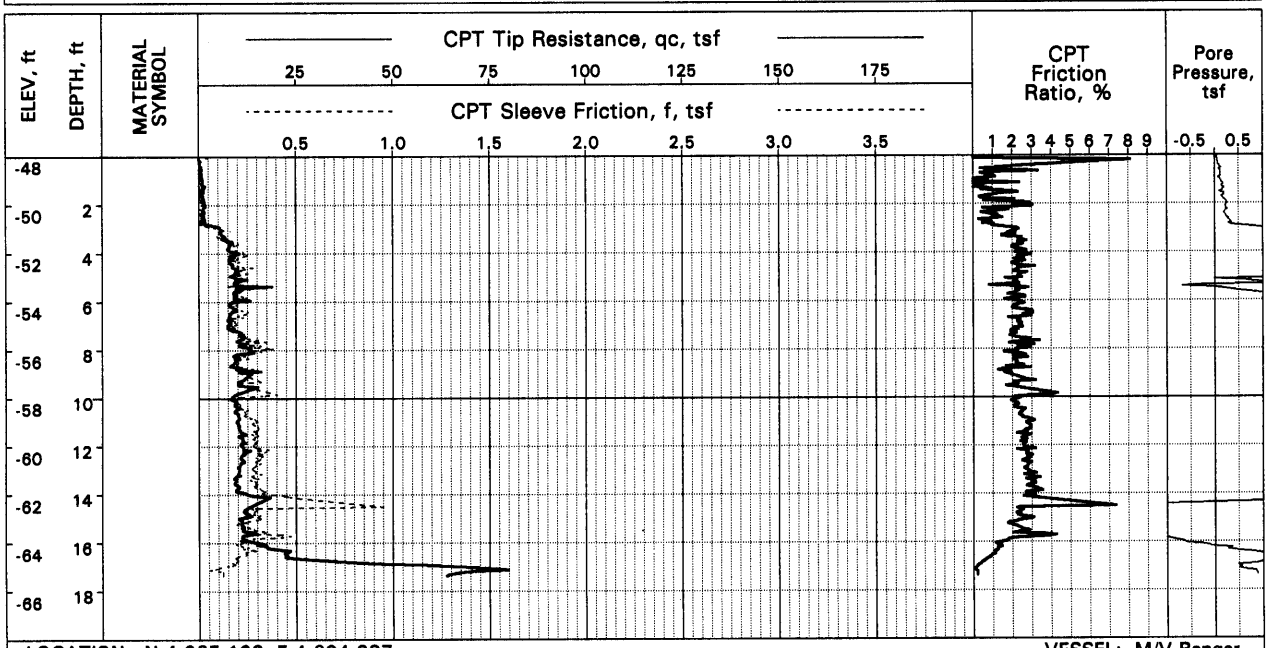
LOCATION: N 4,024,899 E 4,204,475
ELEVATION: -47.5 ft (re: MLLW; based on water depth of 51 ft and tide of 3.5 ft)

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 14.1 ft
DATE OF EXPLORATION: August 6, 1996

LOG OF CPT NO. CB-31

UGIS ID: FB96CB31



LOCATION: N 4,025,108 E 4,204,987
ELEVATION: -47.3 ft (re: MLLW; based on water depth of 51 ft and tide of 3.7 ft)

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 17.4 ft
DATE OF EXPLORATION: August 6, 1996

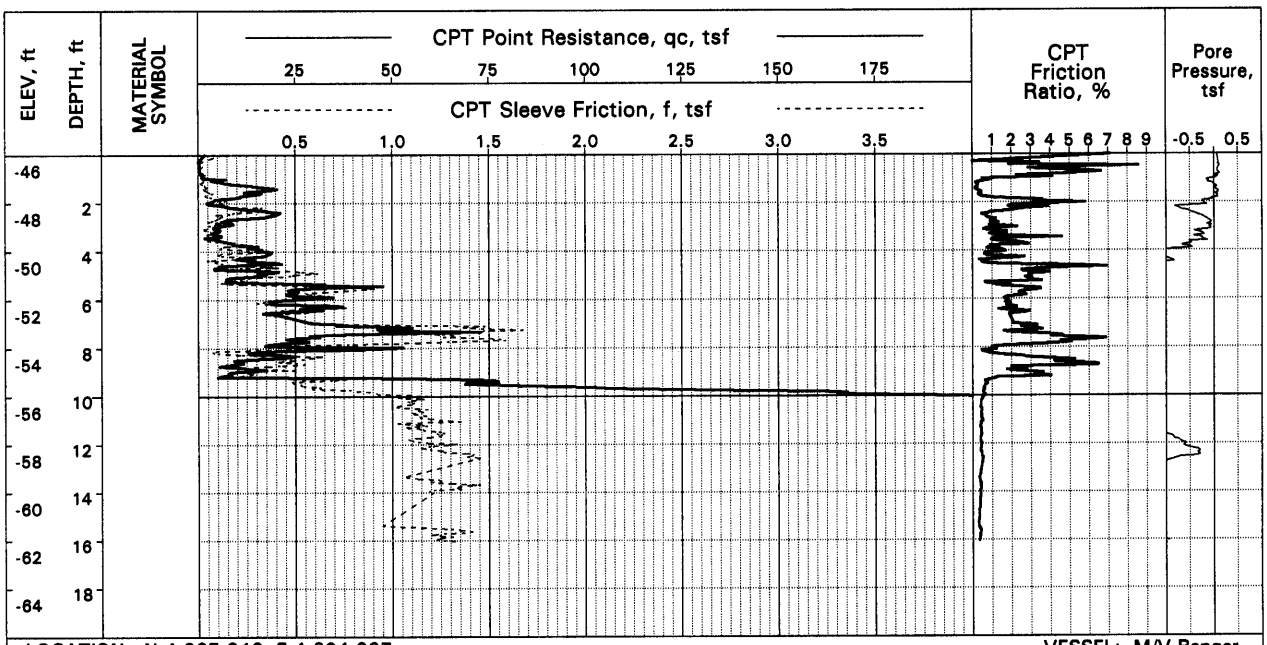
LOG OF CPT NO. CB-32

UGIS ID: FB96CB32

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles

PLATE A-16

61213CPT(61212\\05/31/01\\04:14PM)



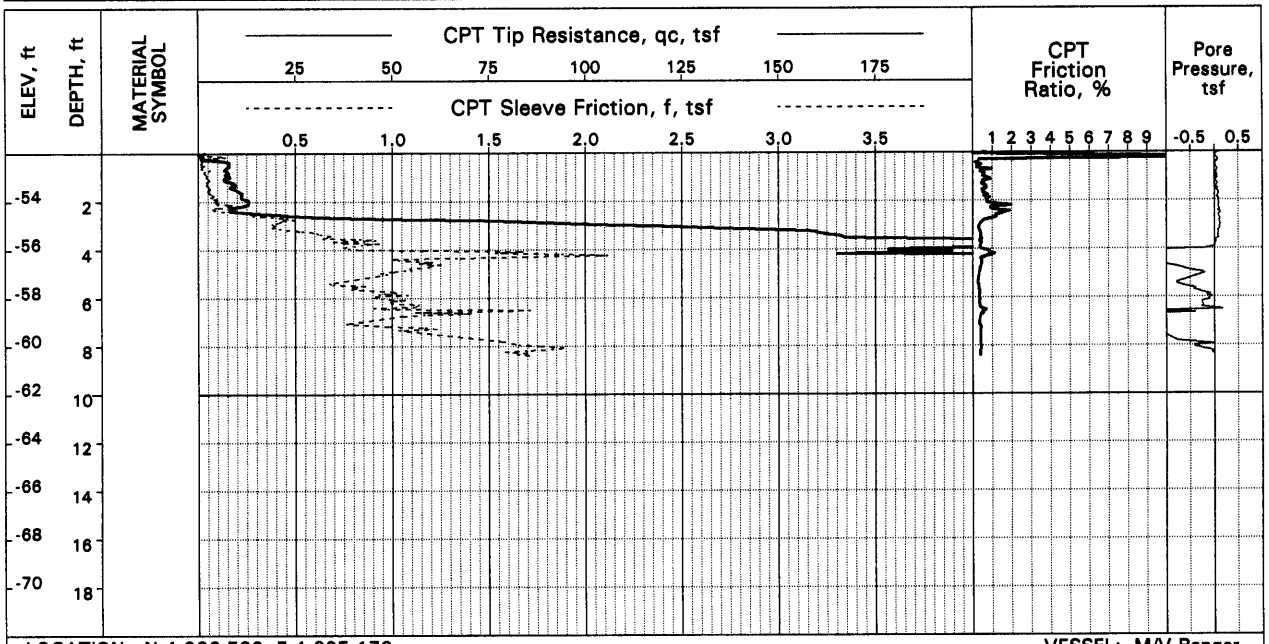
LOCATION: N 4,025,942 E 4,204,997
ELEVATION: -45.1 ft (re: MLLW; based on water depth of 49 ft and tide of 3.9 ft)

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 16.1 ft
DATE OF EXPLORATION: August 6, 1996

LOG OF CPT NO. CB-33

UGIS ID: FB96CB33



LOCATION: N 4,026,590 E 4,205,170
ELEVATION: -52.0 ft (re: MLLW; based on water depth of 56 ft and tide of 4.0 ft)

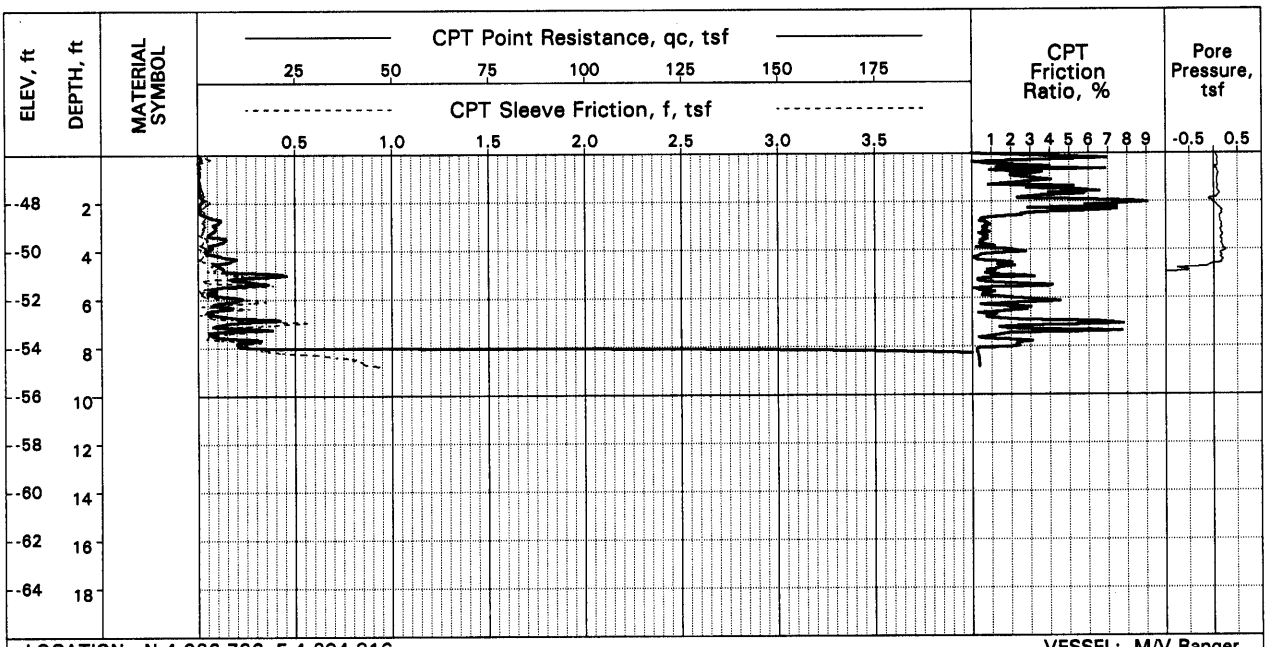
VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 8.5 ft
DATE OF EXPLORATION: August 6, 1996

LOG OF CPT NO. CB-34

UGIS ID: FB96CB34

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



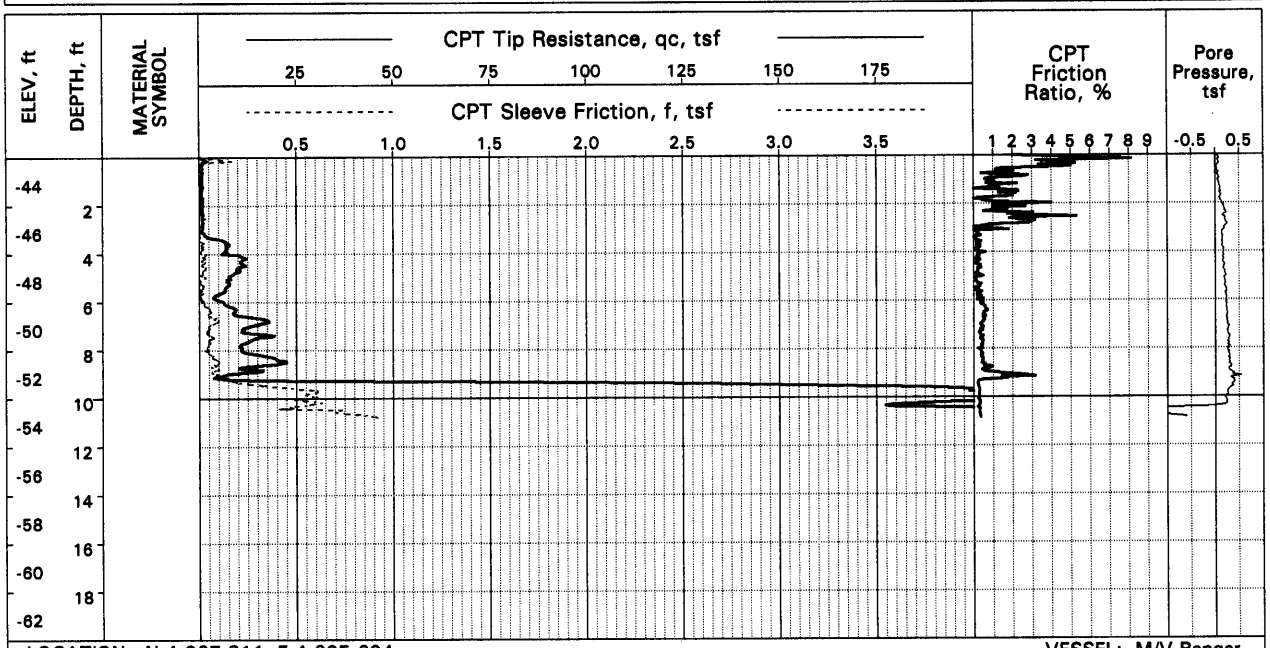
LOCATION: N 4,026,796 E 4,204,316
ELEVATION: -45.8 ft (re: MLLW; based on water depth of 50 ft and tide of 4.2 ft)

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 8.5 ft
DATE OF EXPLORATION: August 6, 1996

LOG OF CPT NO. CB-35

UGIS ID: FB96CB35



LOCATION: N 4,027,311 E 4,205,604
ELEVATION: -42.6 ft (re: MLLW; based on water depth of 47 ft and tide of 4.4 ft)

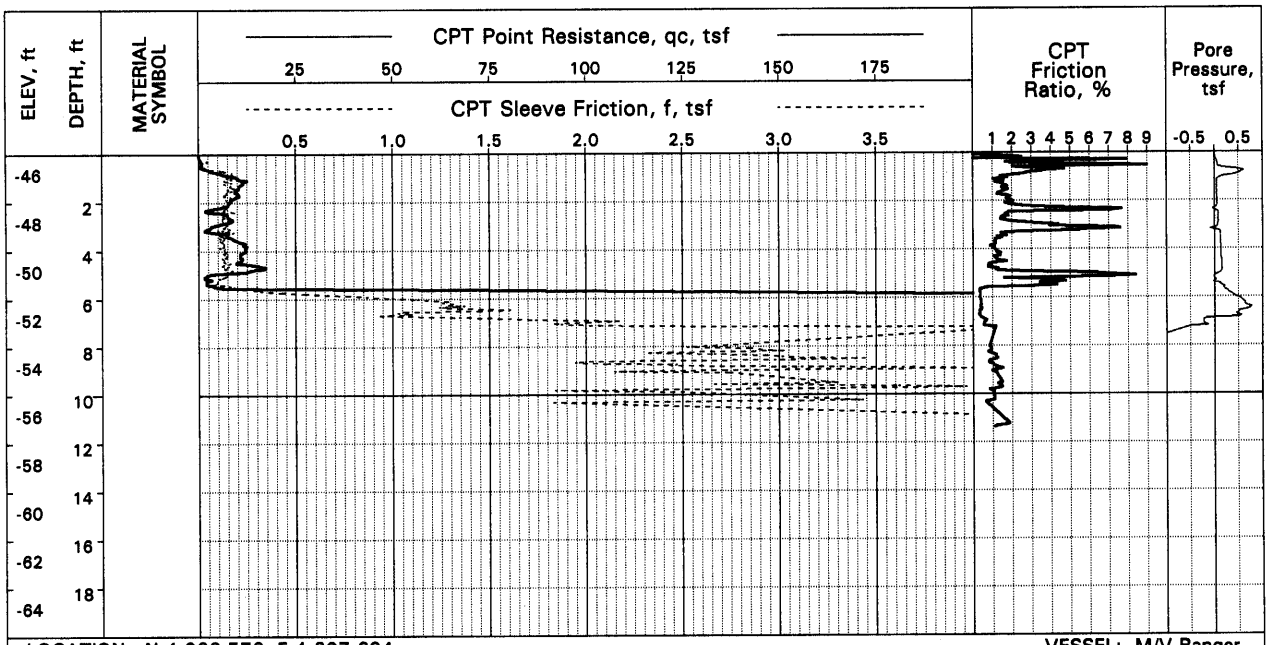
VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 11.2 ft
DATE OF EXPLORATION: August 6, 1996

LOG OF CPT NO. CB-36

UGIS ID: FB96CB36

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



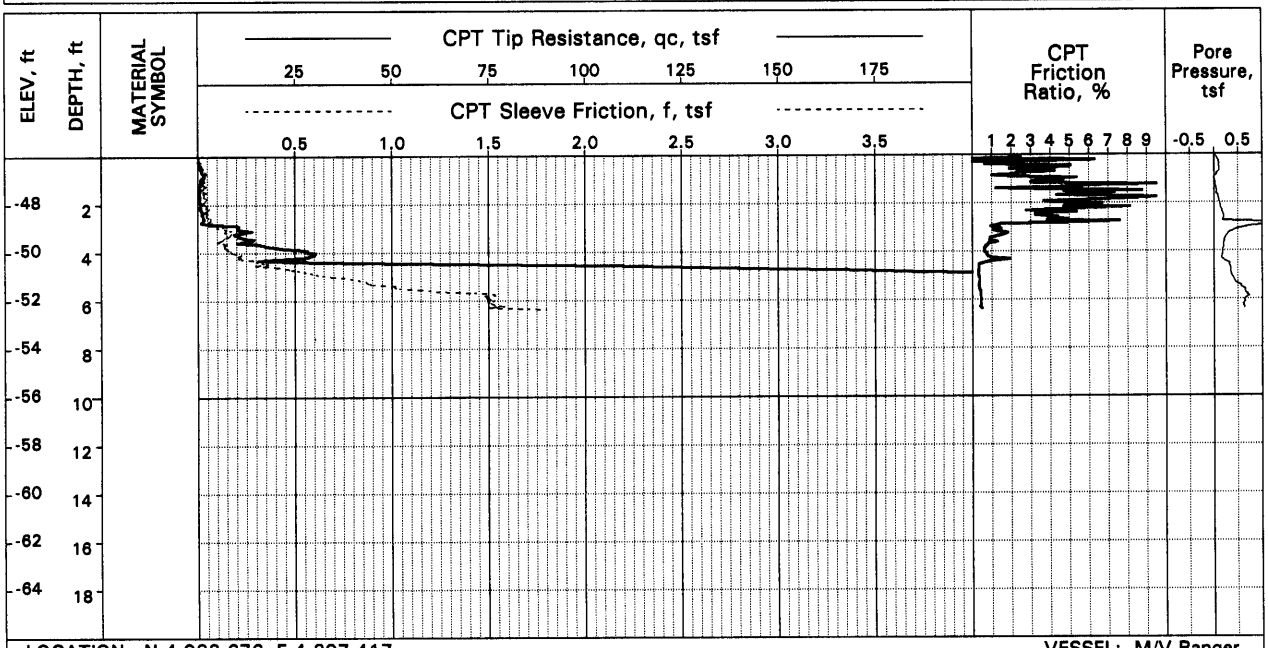
LOCATION: N 4,022,572 E 4,207,694
ELEVATION: -44.9 ft (re: MLLW; based on water depth of 50 ft and tide of 5.1 ft)

COMPLETION DEPTH: 11.5 ft
DATE OF EXPLORATION: August 6, 1996

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CB-37

UGIS ID: FB96CB37



LOCATION: N 4,022,676 E 4,207,417
ELEVATION: -45.9 ft (re: MLLW; based on water depth of 51 ft and tide of 5.1 ft)

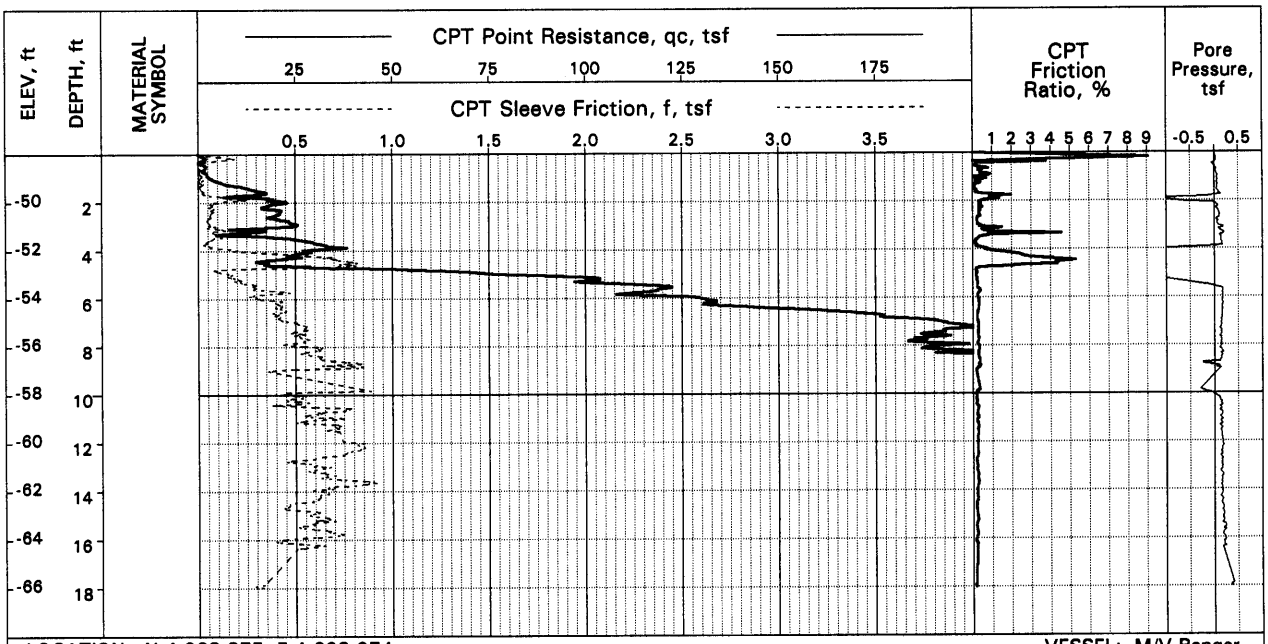
COMPLETION DEPTH: 6.6 ft
DATE OF EXPLORATION: August 6, 1996

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CB-38

UGIS ID: FB96CB38

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



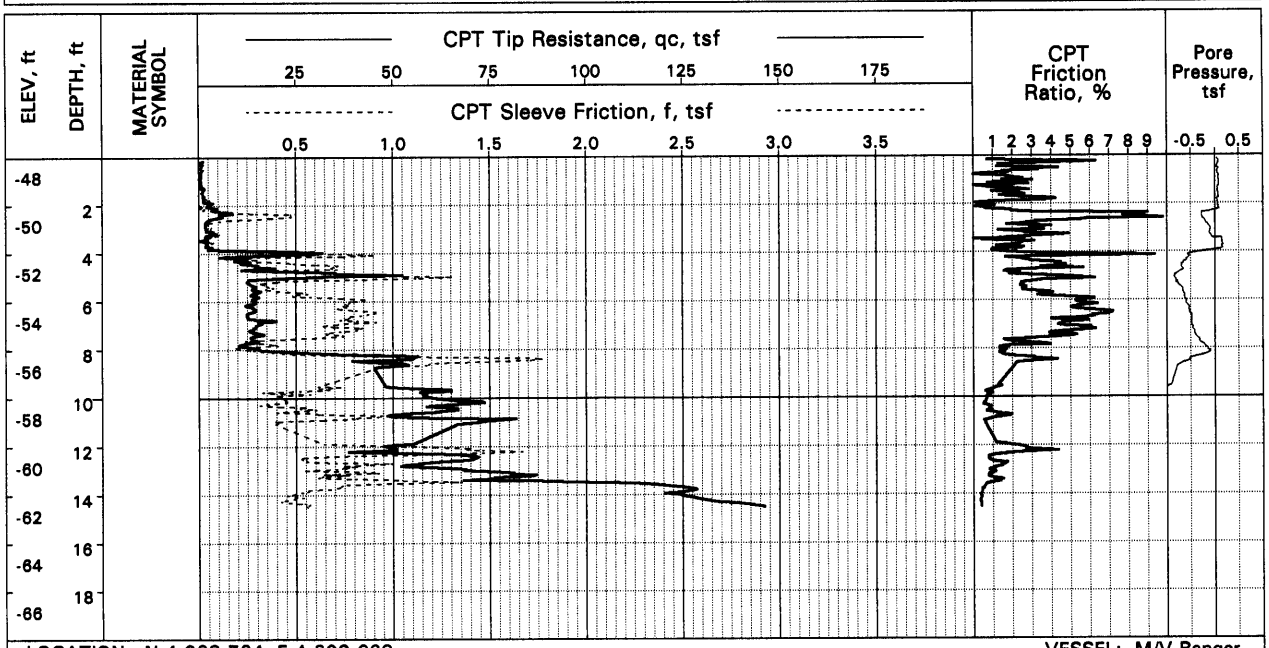
LOCATION: N 4,023,375 E 4,208,074
ELEVATION: -47.9 ft (re: MLLW; based on water depth of 53 ft and tide of 5.1 ft)

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 18.0 ft
DATE OF EXPLORATION: August 6, 1996

LOG OF CPT NO. CB-39

UGIS ID: FB96CB39



LOCATION: N 4,023,724 E 4,208,623
ELEVATION: -46.9 ft (re: MLLW; based on water depth of 52 ft and tide of 5.1 ft)

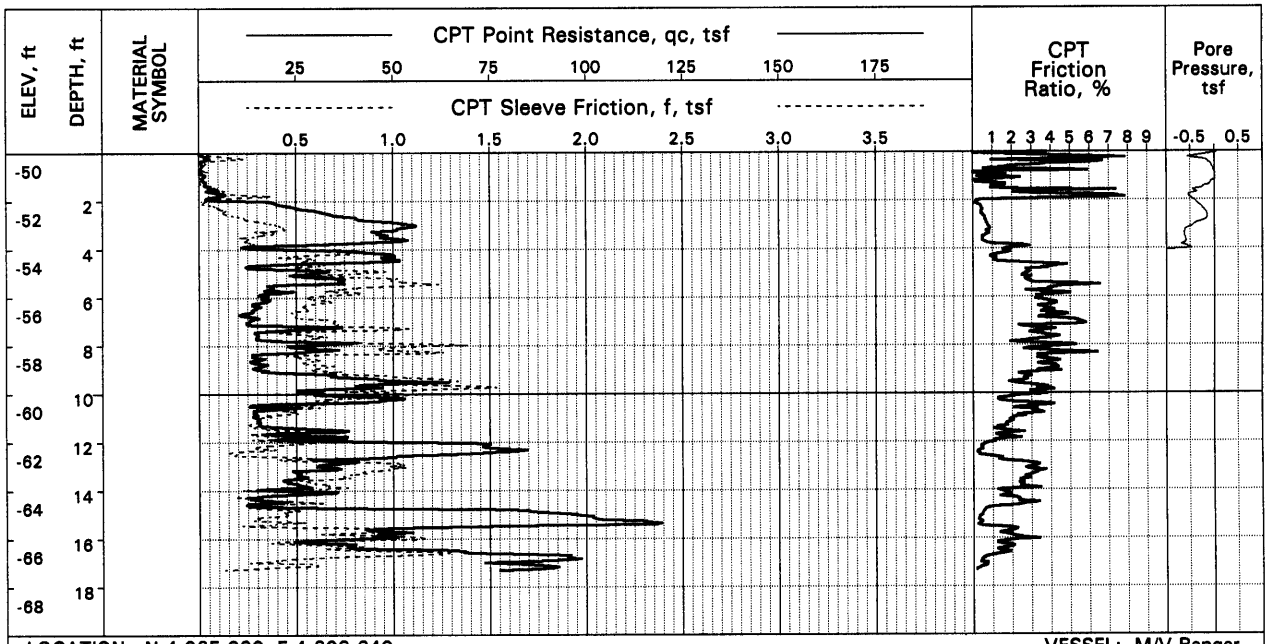
VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 14.4 ft
DATE OF EXPLORATION: August 6, 1996

LOG OF CPT NO. CB-40

UGIS ID: FB96CB40

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



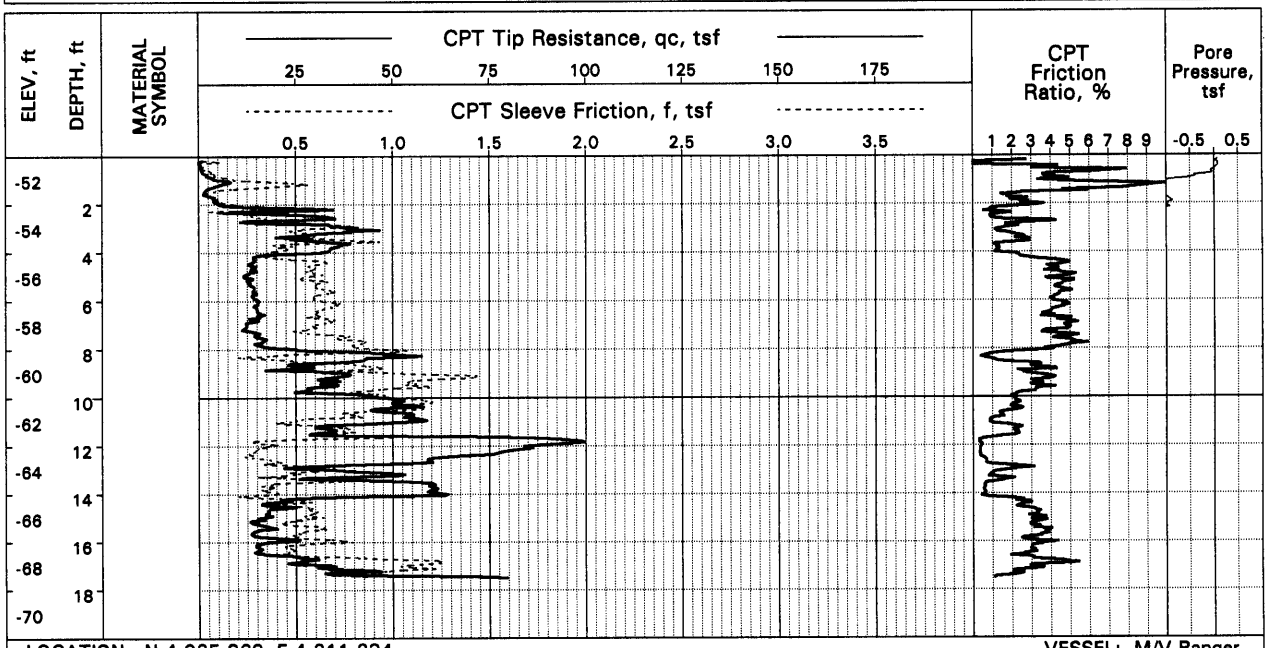
LOCATION: N 4,025,090 E 4,209,640
ELEVATION: -49.0 ft (re: MLLW; based on water depth of 54 ft and tide of 5.0 ft)

COMPLETION DEPTH: 17.4 ft
DATE OF EXPLORATION: August 6, 1996

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CB-41

UGIS ID: FB96CB41



LOCATION: N 4,025,869 E 4,211,234
ELEVATION: -50.7 ft (re: MLLW; based on water depth of 54 ft and tide of 3.3 ft)

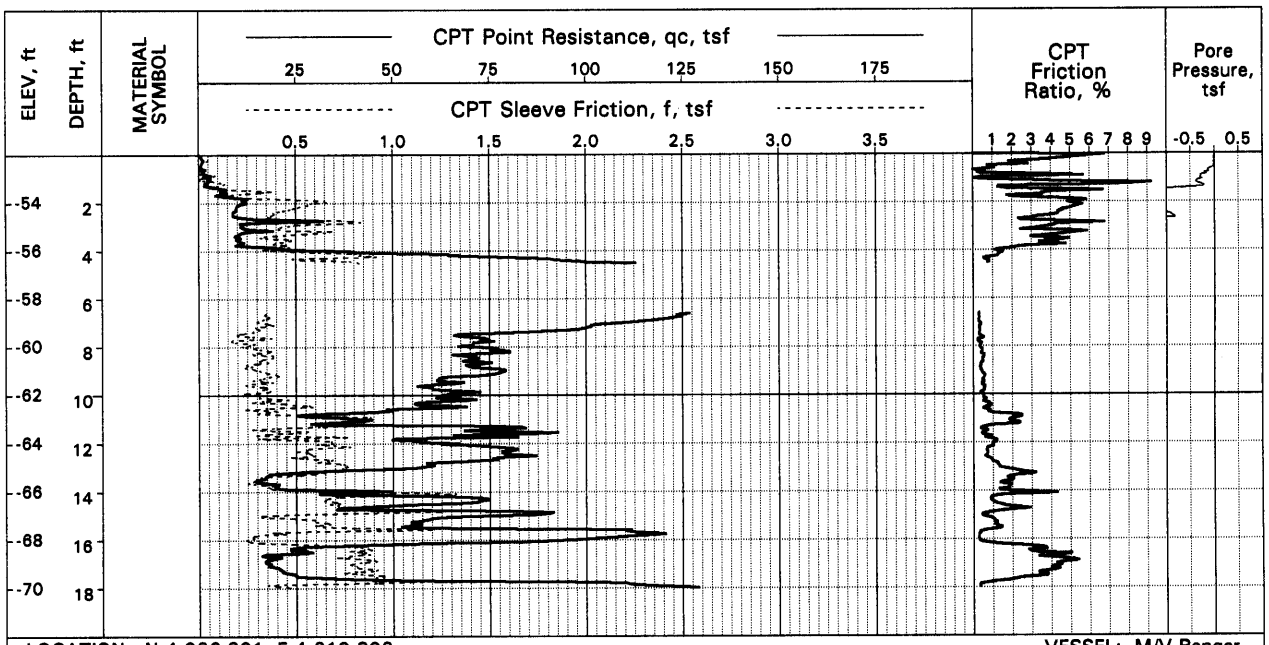
COMPLETION DEPTH: 17.4 ft
DATE OF EXPLORATION: August 8, 1996

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CB-42

UGIS ID: FB96CB42

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



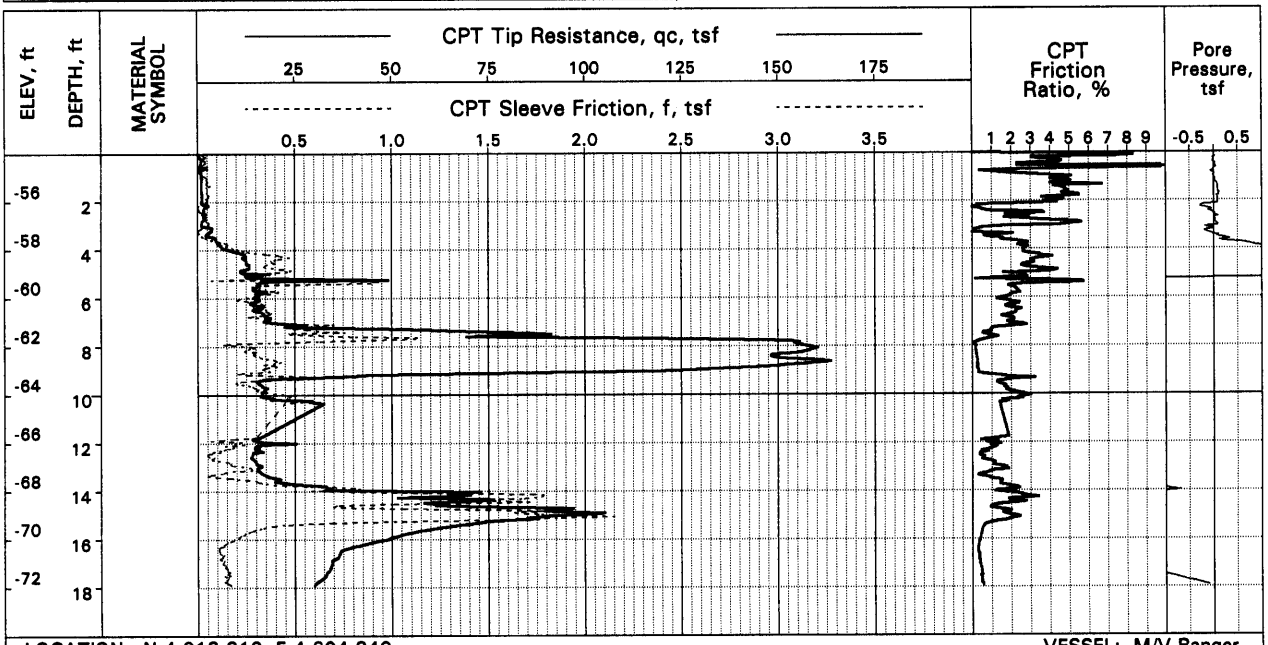
LOCATION: N 4,026,301 E 4,210,802
ELEVATION: -51.8 ft (re: MLLW; based on water depth of 55 ft and tide of 3.2 ft)

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 18.0 ft
DATE OF EXPLORATION: August 8, 1996

LOG OF CPT NO. CB-43

UGIS ID: FB96CB43



LOCATION: N 4,018,810 E 4,204,840
ELEVATION: -54.2 ft (re: MLLW; based on water depth of 59 ft and tide of 4.8 ft)

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

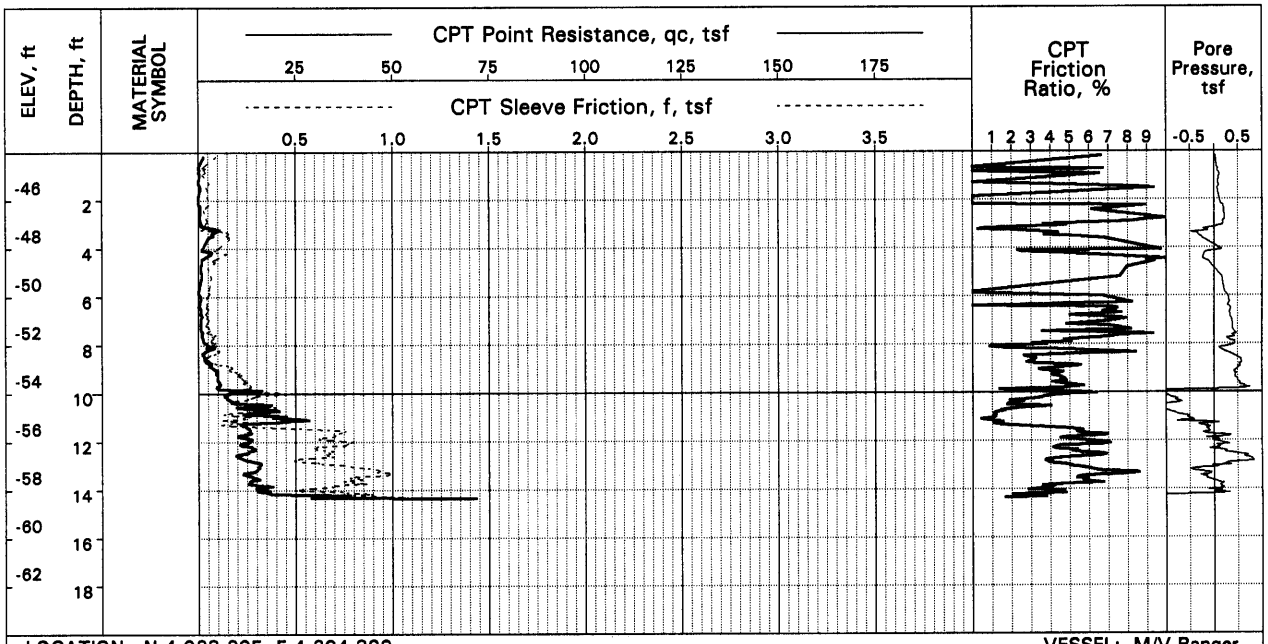
COMPLETION DEPTH: 17.7 ft
DATE OF EXPLORATION: August 5, 1996

LOG OF CPT NO. CB-44

UGIS ID: FB96CB44

LOGS OF CPTs

Channel Deepening Program
Port of Los Angeles



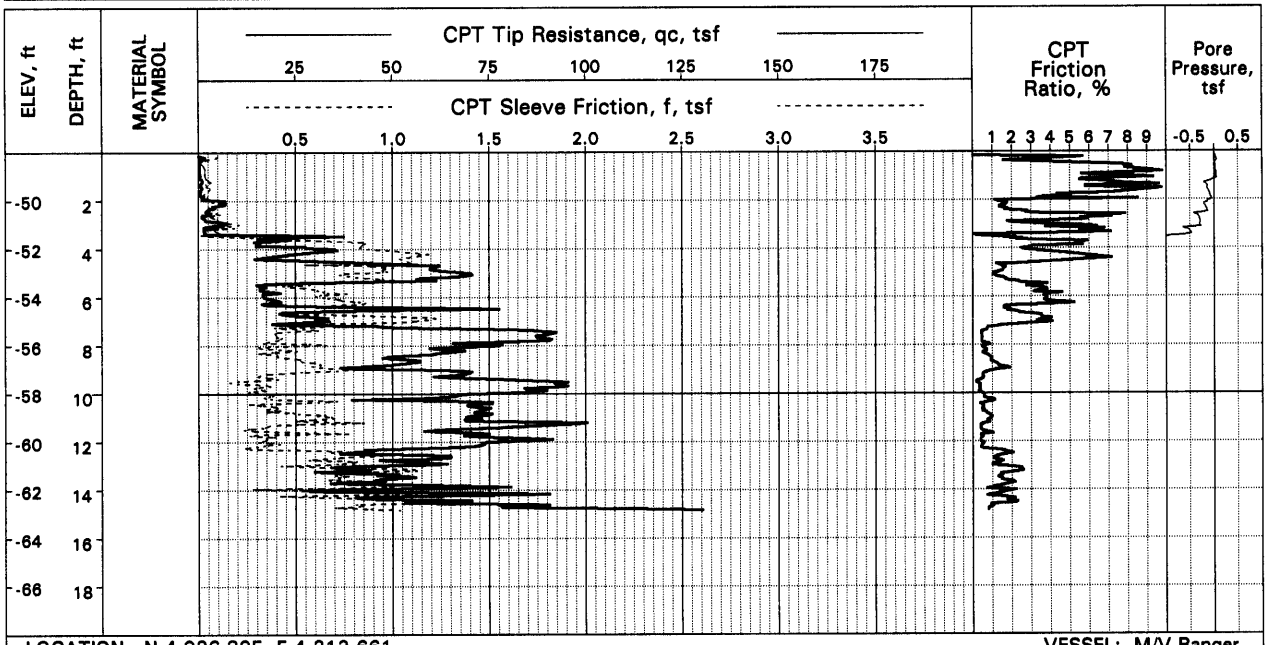
LOCATION: N 4,023,205 E 4,204,389
ELEVATION: -44.3 ft (re: MLLW; based on water depth of 47 ft and tide of 2.7 ft)

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 14.4 ft
DATE OF EXPLORATION: August 6, 1996

LOG OF CPT NO. CB-45

UGIS ID: FB96CB45



LOCATION: N 4,026,395 E 4,212,661
ELEVATION: -47.7 ft (re: MLLW; based on water depth of 51 ft and tide of 3.3 ft)

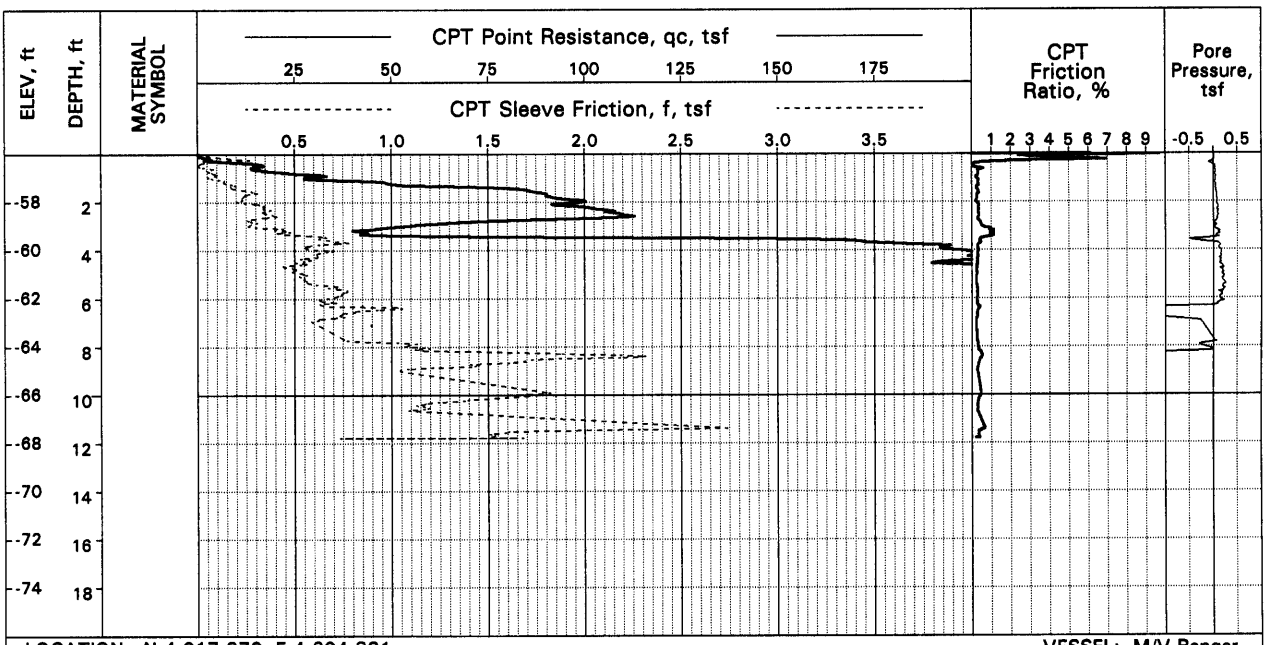
VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 14.8 ft
DATE OF EXPLORATION: August 8, 1996

LOG OF CPT NO. CB-46

UGIS ID: FB96CB46

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



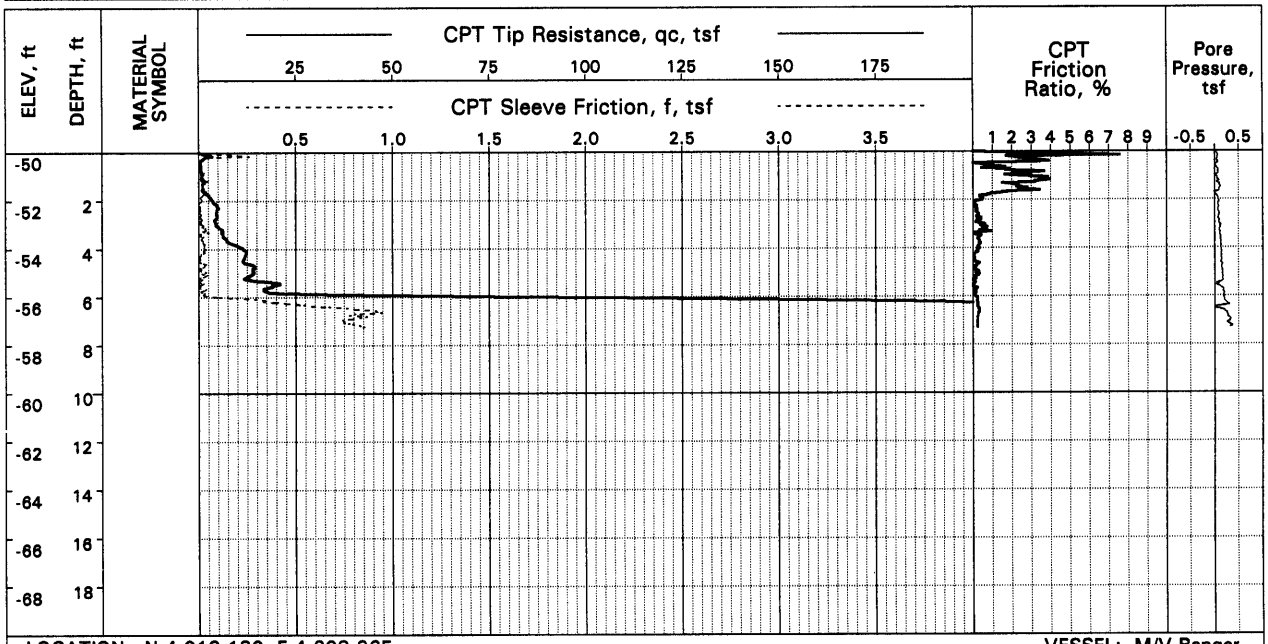
LOCATION: N 4,017,970 E 4,204,381
ELEVATION: -55.8 ft (re: MLLW; based on water depth of 60 ft and tide of 4.2 ft)

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 11.8 ft
DATE OF EXPLORATION: August 5, 1996

LOG OF CPT NO. CB-47

UGIS ID: FB96CB47



LOCATION: N 4,018,180 E 4,203,965
ELEVATION: -49.3 ft (re: MLLW; based on water depth of 54 ft and tide of 4.7 ft)

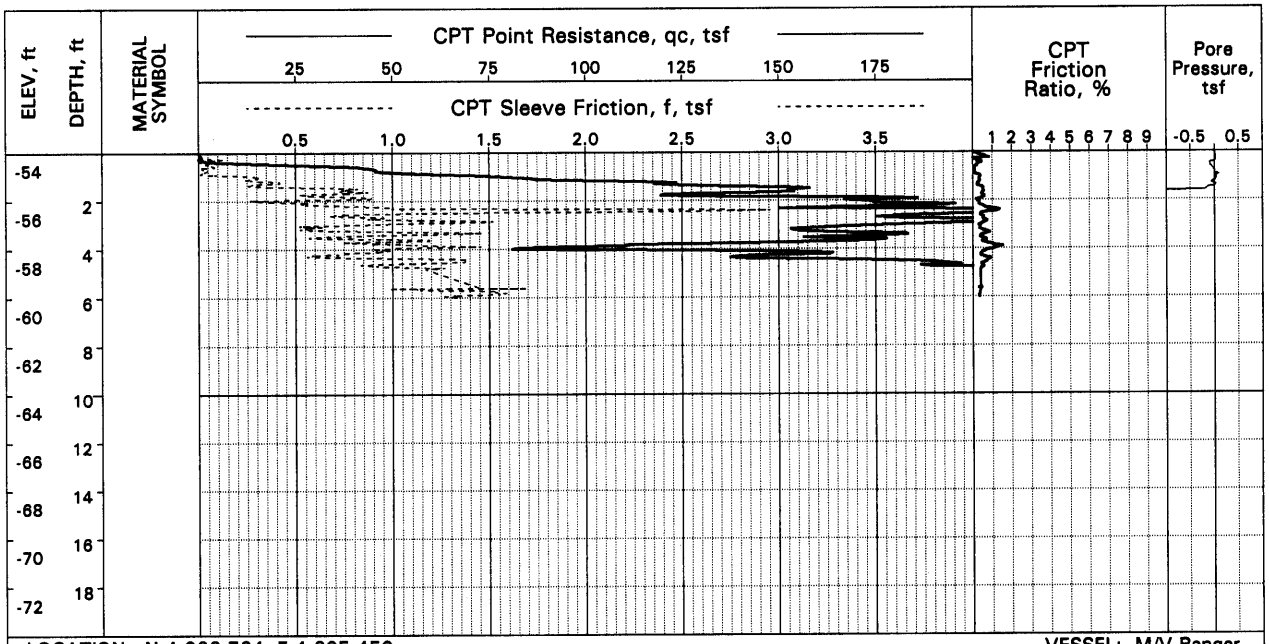
VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 7.2 ft
DATE OF EXPLORATION: August 5, 1996

LOG OF CPT NO. CB-48

UGIS ID: FB96CB48

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



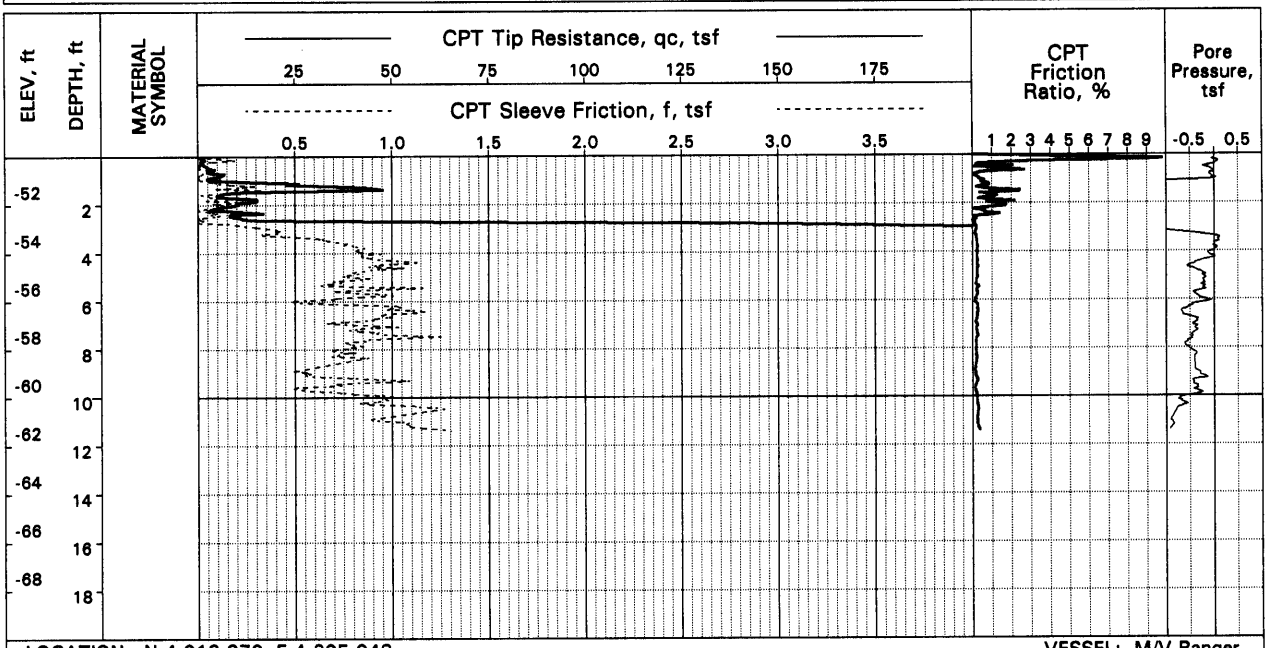
LOCATION: N 4,022,724 E 4,205,450
ELEVATION: -53.0 ft (re: MLLW; based on water depth of 56 ft and tide of 3.0 ft)

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 5.9 ft
DATE OF EXPLORATION: August 8, 1996

LOG OF CPT NO. CB-49

UGIS ID: FB96CB49



LOCATION: N 4,019,870 E 4,205,043
ELEVATION: -50.3 ft (re: MLLW; based on water depth of 53 ft and tide of 2.7 ft)

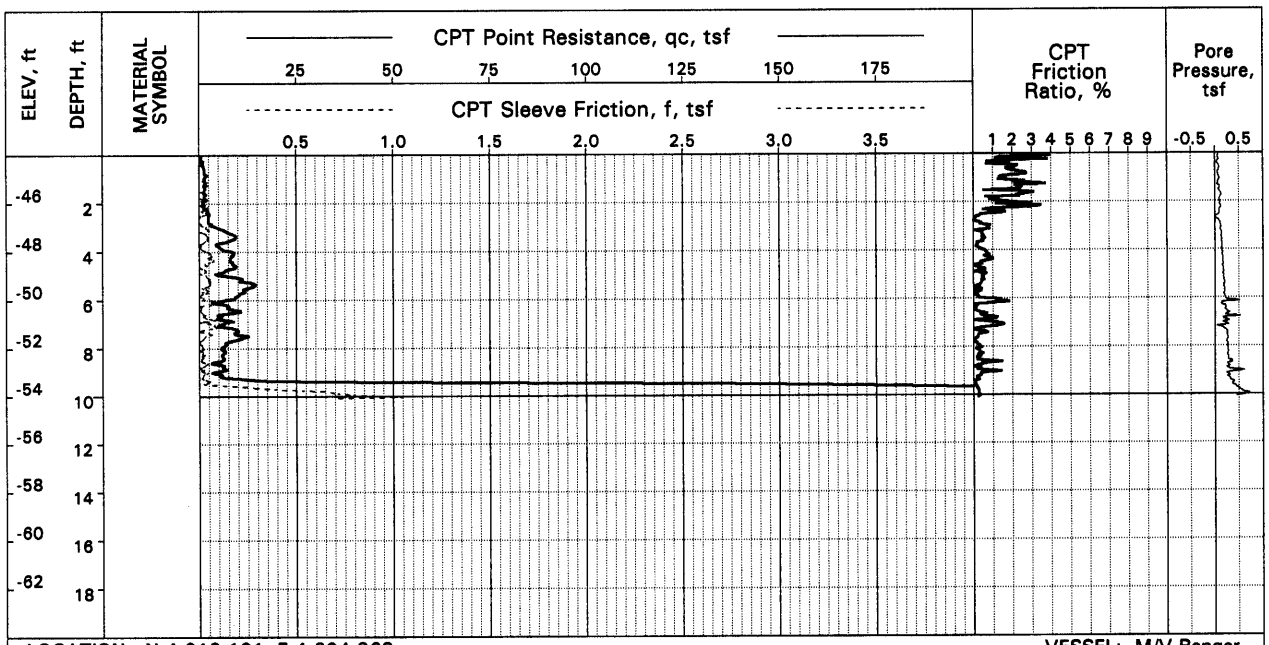
VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 11.2 ft
DATE OF EXPLORATION: August 8, 1996

LOG OF CPT NO. CB-50

UGIS ID: FB96CB50

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



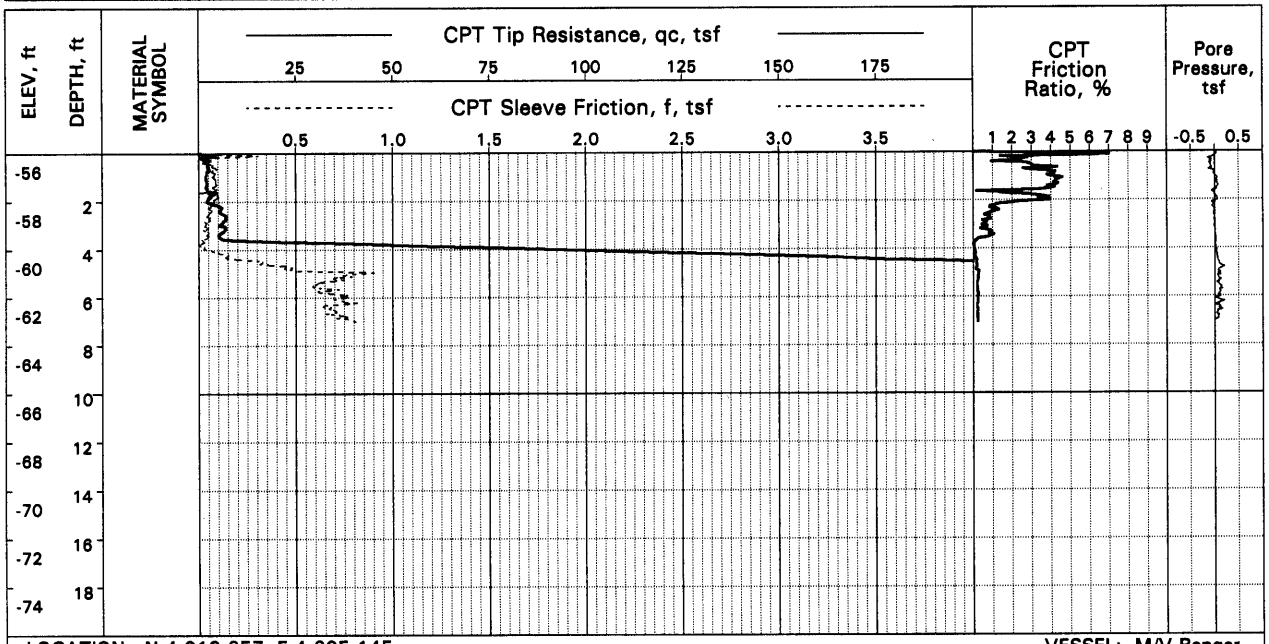
LOCATION: N 4,019,101 E 4,204,363
ELEVATION: -44.1 ft (re: MLLW; based on water depth of 49 ft and tide of 4.9 ft)

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 10.2 ft
DATE OF EXPLORATION: August 5, 1996

LOG OF CPT NO. CB-51

UGIS ID: FB96CB51



LOCATION: N 4,019,257 E 4,205,145
ELEVATION: -55.0 ft (re: MLLW; based on water depth of 60 ft and tide of 5.0 ft)

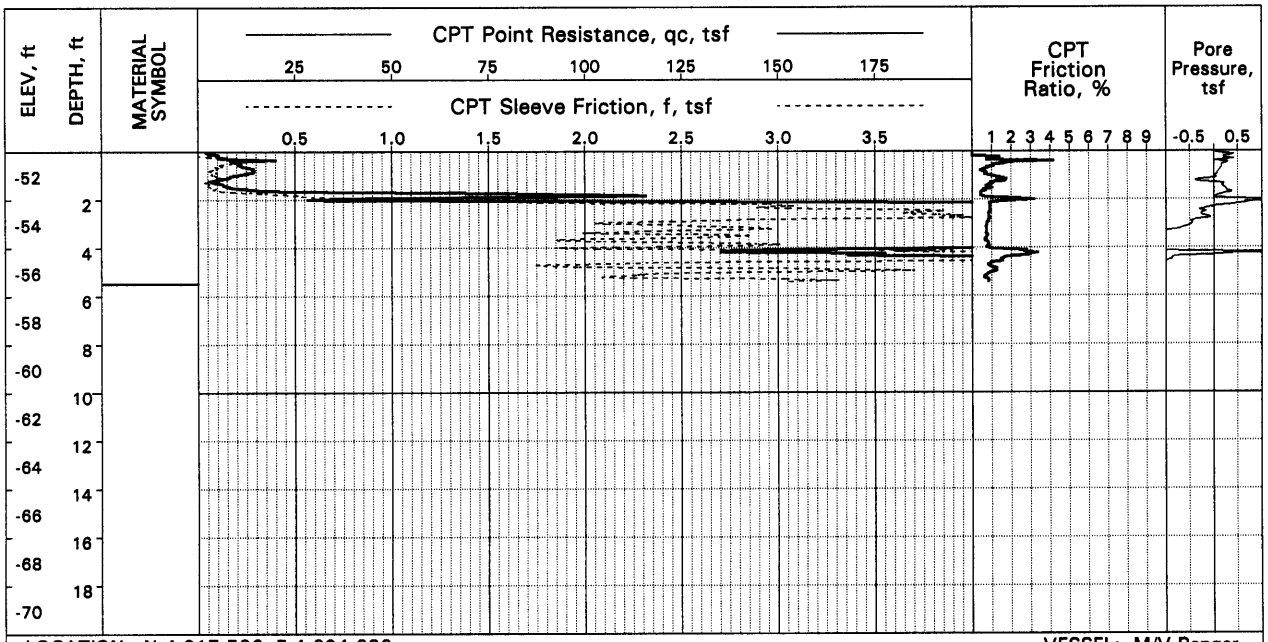
VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 7.2 ft
DATE OF EXPLORATION: August 5, 1996

LOG OF CPT NO. CB-52

UGIS ID: FB96CB52

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



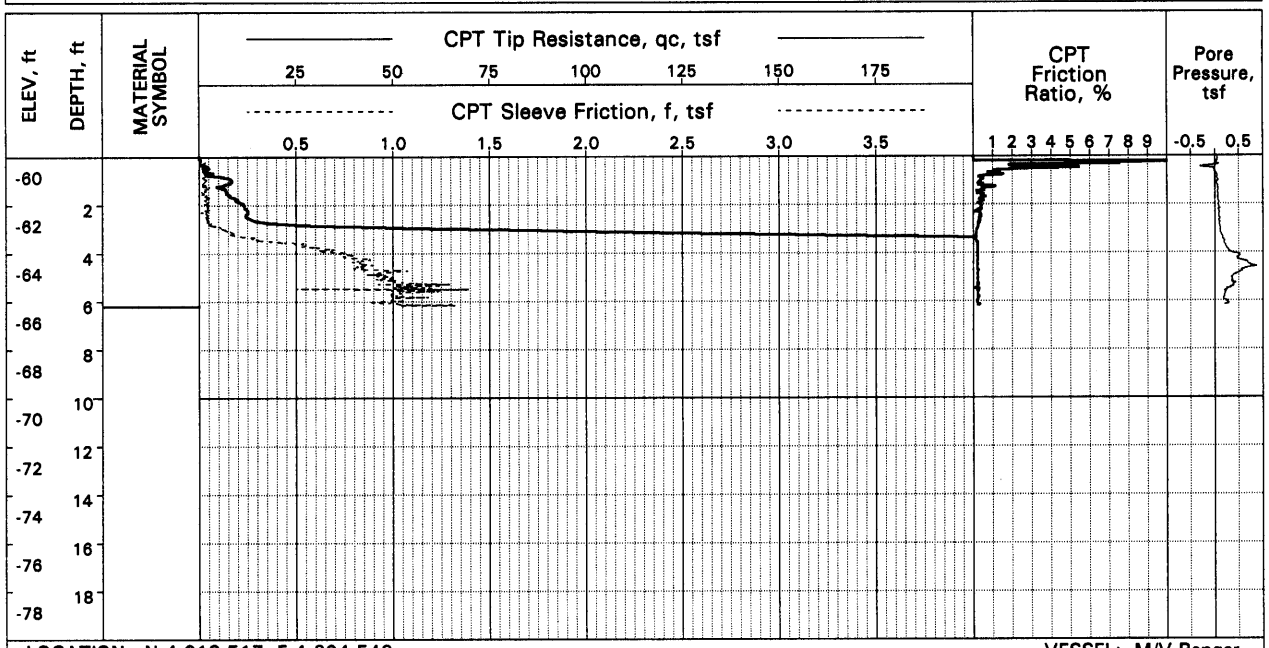
LOCATION: N 4,017,526 E 4,204,282
ELEVATION: -50.7 ft (re: MLLW; based on water depth of 53.0 ft and tide of 2.3 ft)

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 5.5 ft
DATE OF EXPLORATION: April 25, 1997

LOG OF CPT NO. CPT-01

UGIS ID: FD97C001



LOCATION: N 4,018,517 E 4,204,549
ELEVATION: -58.9 ft (re: MLLW; based on water depth of 60.0 ft and tide of 1.1 ft)

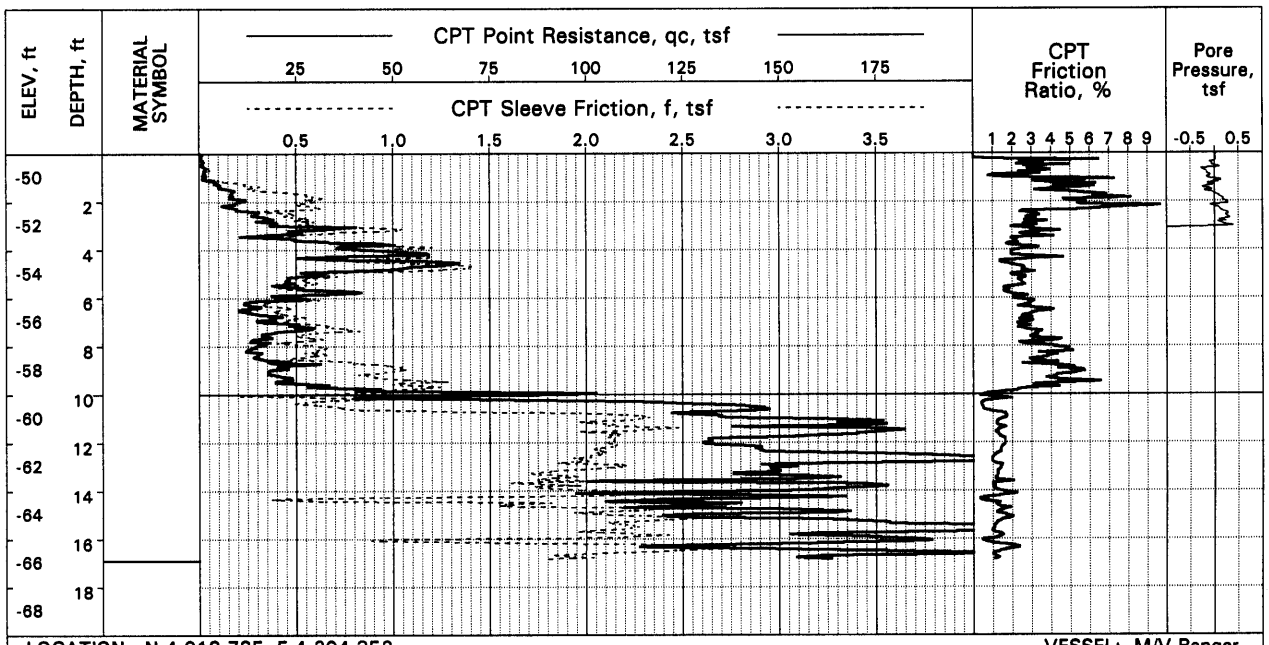
VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 6.2 ft
DATE OF EXPLORATION: April 22, 1997

LOG OF CPT NO. CPT-02

UGIS ID: FD97C002

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



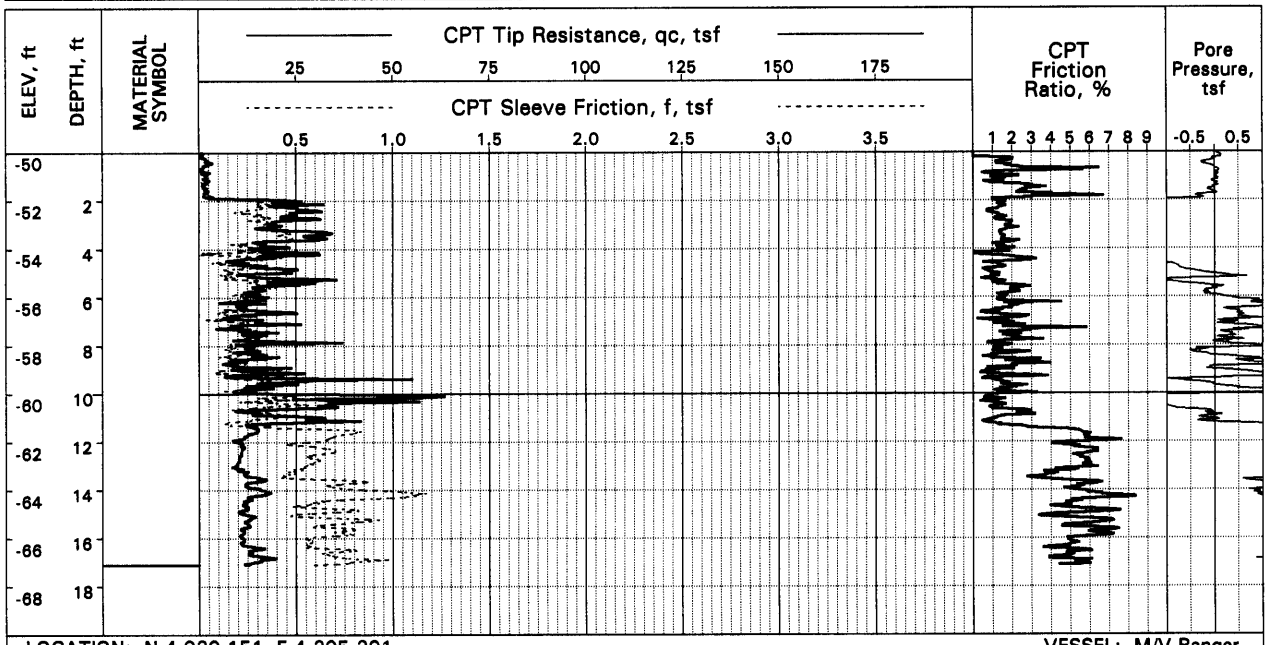
LOCATION: N 4,018,785 E 4,204,352
ELEVATION: -48.8 ft (re: MLLW; based on water depth of 50.0 ft and tide of 1.2 ft)

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 16.9 ft
DATE OF EXPLORATION: April 22, 1997

LOG OF CPT NO. CPT-03

UGIS ID: FD97C003



LOCATION: N 4,020,151 E 4,205,291
ELEVATION: -49.3 ft (re: MLLW; based on water depth of 50.6 ft and tide of 1.3 ft)

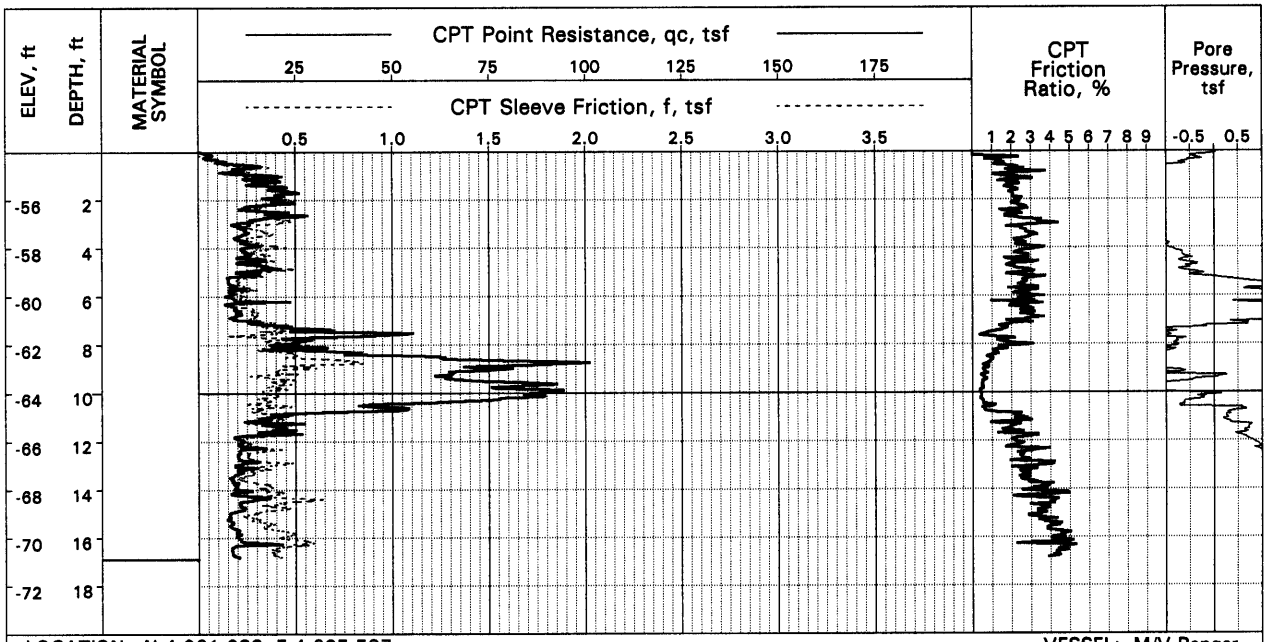
VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 17.1 ft
DATE OF EXPLORATION: April 22, 1997

LOG OF CPT NO. CPT-04

UGIS ID: FD97C004

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



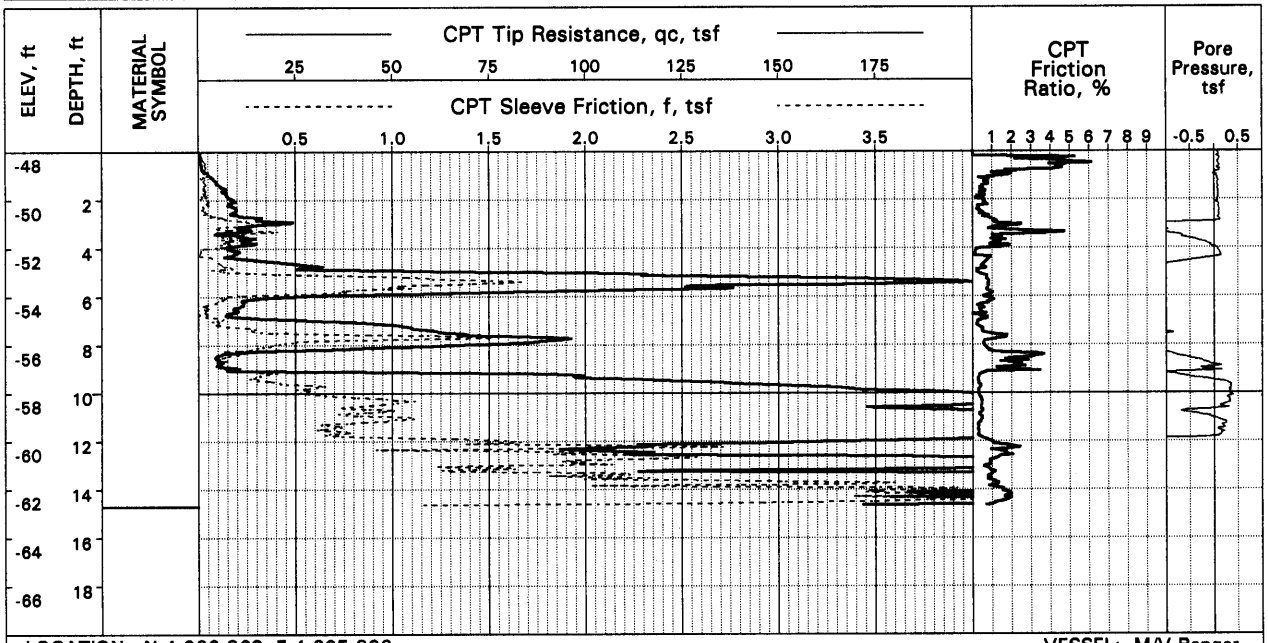
LOCATION: N 4,021,088 E 4,205,537
ELEVATION: -53.5 ft (re: MLLW; based on water depth of 55.0 ft and tide of 1.5 ft)

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 16.9 ft
DATE OF EXPLORATION: April 22, 1997

LOG OF CPT NO. CPT-05

UGIS ID: FD97C005



LOCATION: N 4,022,368 E 4,205,392
ELEVATION: -47.2 ft (re: MLLW; based on water depth of 48.0 ft and tide of 0.8 ft)

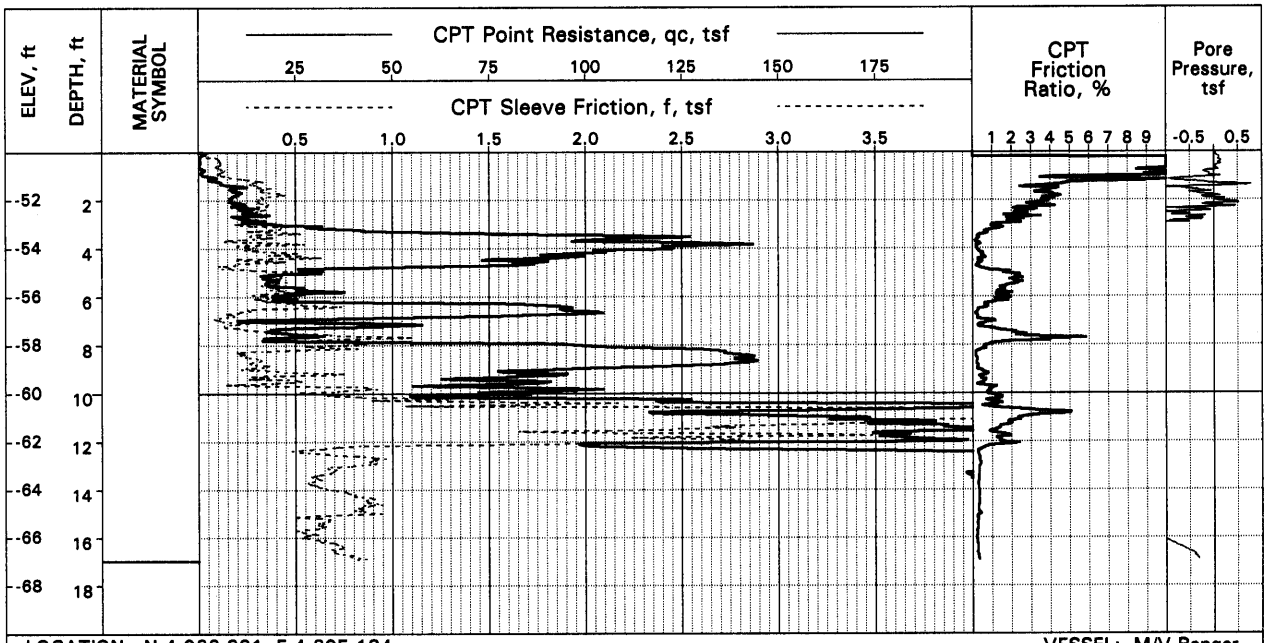
VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 14.7 ft
DATE OF EXPLORATION: April 21, 1997

LOG OF CPT NO. CPT-06

UGIS ID: FD97C006

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



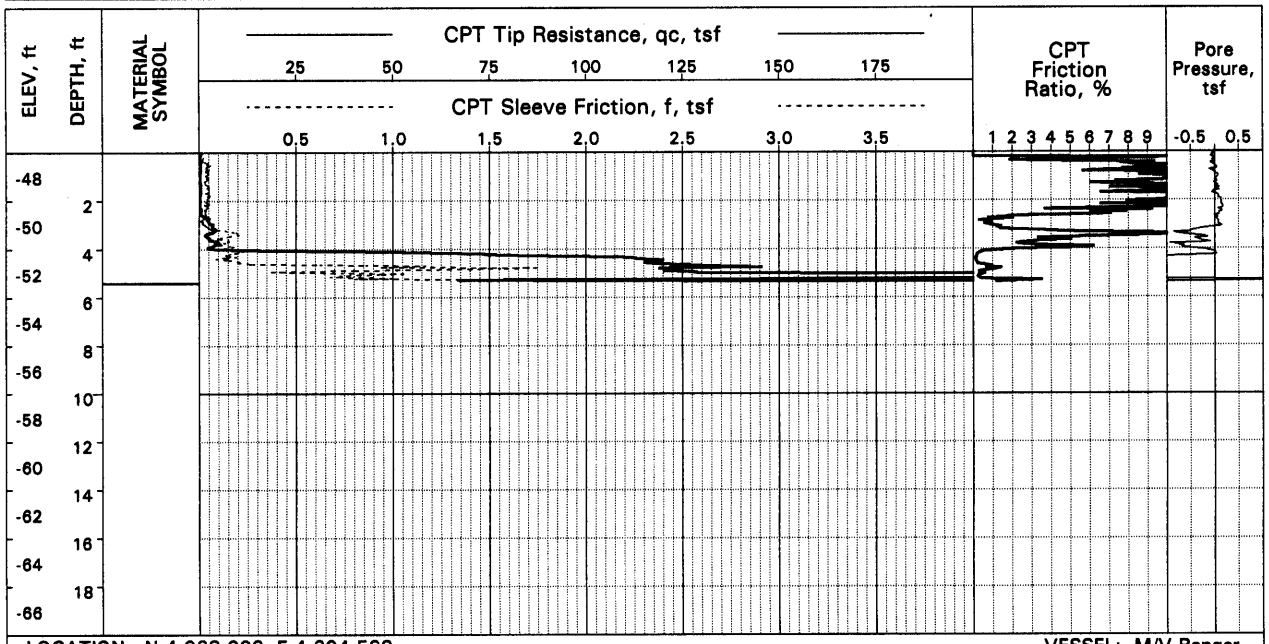
LOCATION: N 4,022,991 E 4,205,184
ELEVATION: -49.8 ft (re: MLLW; based on water depth of 52.0 ft and tide of 2.2 ft)

COMPLETION DEPTH: 17.0 ft
DATE OF EXPLORATION: April 24, 1997

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CPT-07

UGIS ID: FD97C007



LOCATION: N 4,023,009 E 4,204,598
ELEVATION: -46.7 ft (re: MLLW; based on water depth of 49.0 ft and tide of 2.3 ft)

COMPLETION DEPTH: 5.4 ft
DATE OF EXPLORATION: April 24, 1997

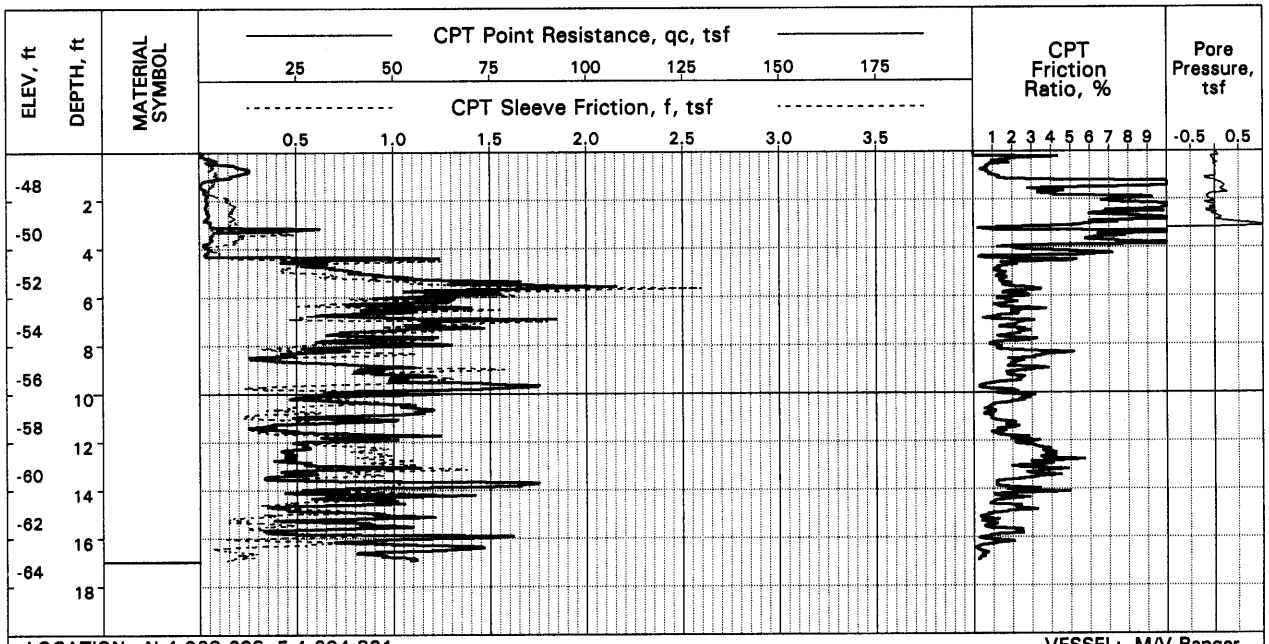
VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CPT-08

UGIS ID: FD97C008

LOGS OF CPTs

Channel Deepening Program
Port of Los Angeles



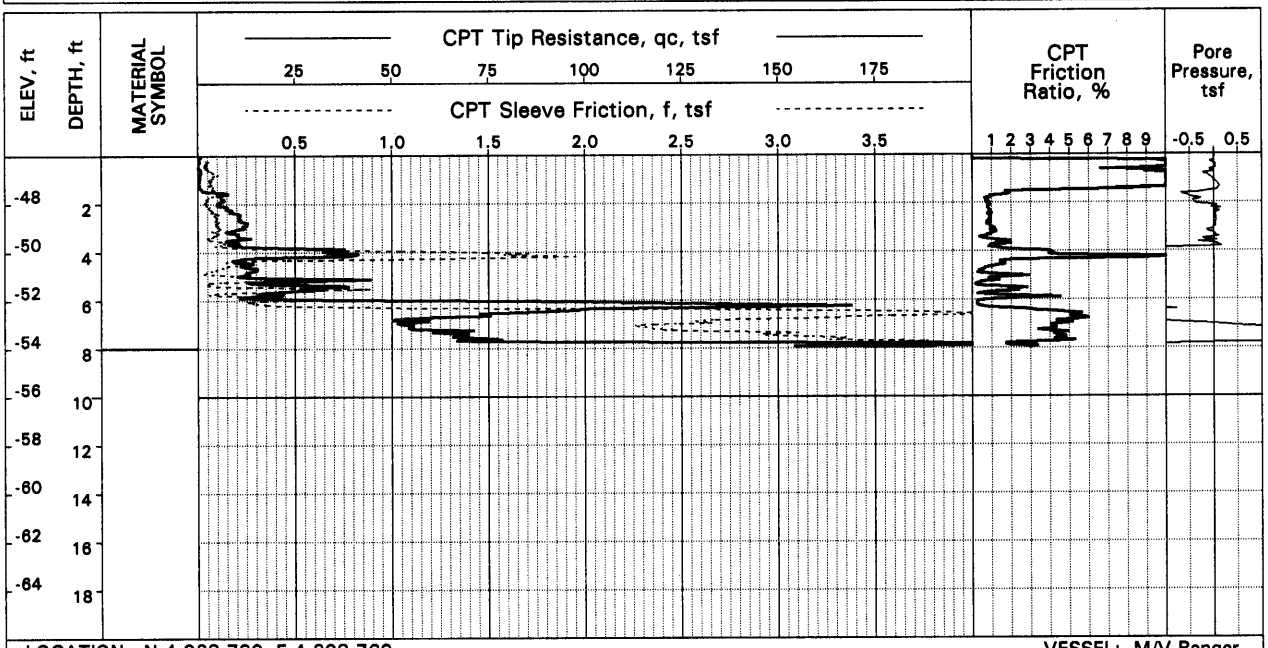
LOCATION: N 4,023,693 E 4,204,391
ELEVATION: -46.4 ft (re: MLLW; based on water depth of 49.0 ft and tide of 2.6 ft)

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 17.0 ft
DATE OF EXPLORATION: April 24, 1997

LOG OF CPT NO. CPT-09

UGIS ID: FD97C009



LOCATION: N 4,023,790 E 4,203,769
ELEVATION: -46.1 ft (re: MLLW; based on water depth of 48.5 ft and tide of 2.4 ft)

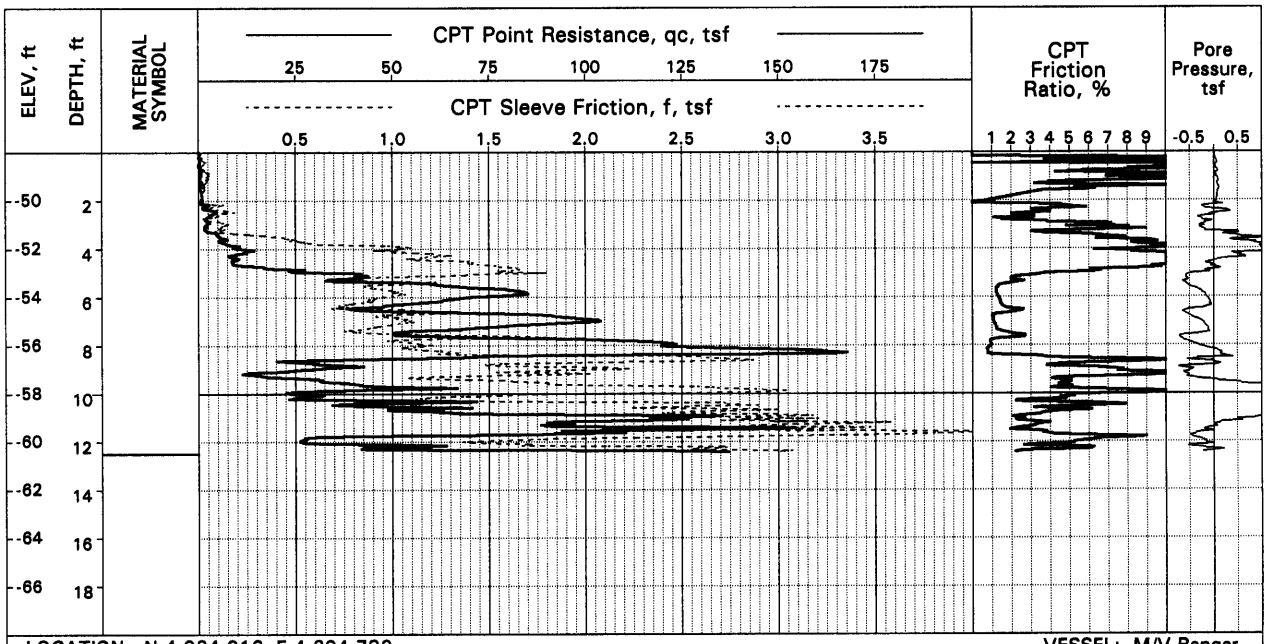
VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 8.0 ft
DATE OF EXPLORATION: April 24, 1997

LOG OF CPT NO. CPT-10

UGIS ID: FD97C010

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



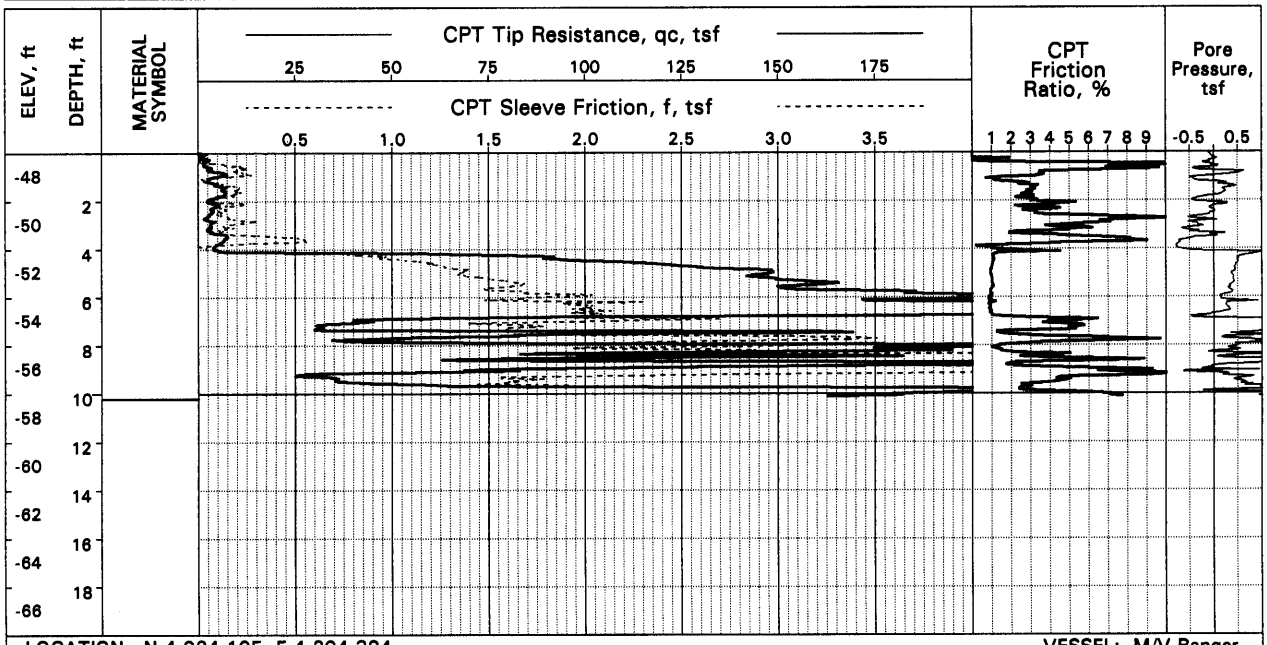
LOCATION: N 4,024,016 E 4,204,732
ELEVATION: -47.8 ft (re: MLLW; based on water depth of 50.0 ft and tide of 2.2 ft)

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 12.5 ft
DATE OF EXPLORATION: April 25, 1997

LOG OF CPT NO. CPT-11

UGIS ID: FD97C011



LOCATION: N 4,024,105 E 4,204,384
ELEVATION: -46.8 ft (re: MLLW; based on water depth of 49.2 ft and tide of 2.4 ft)

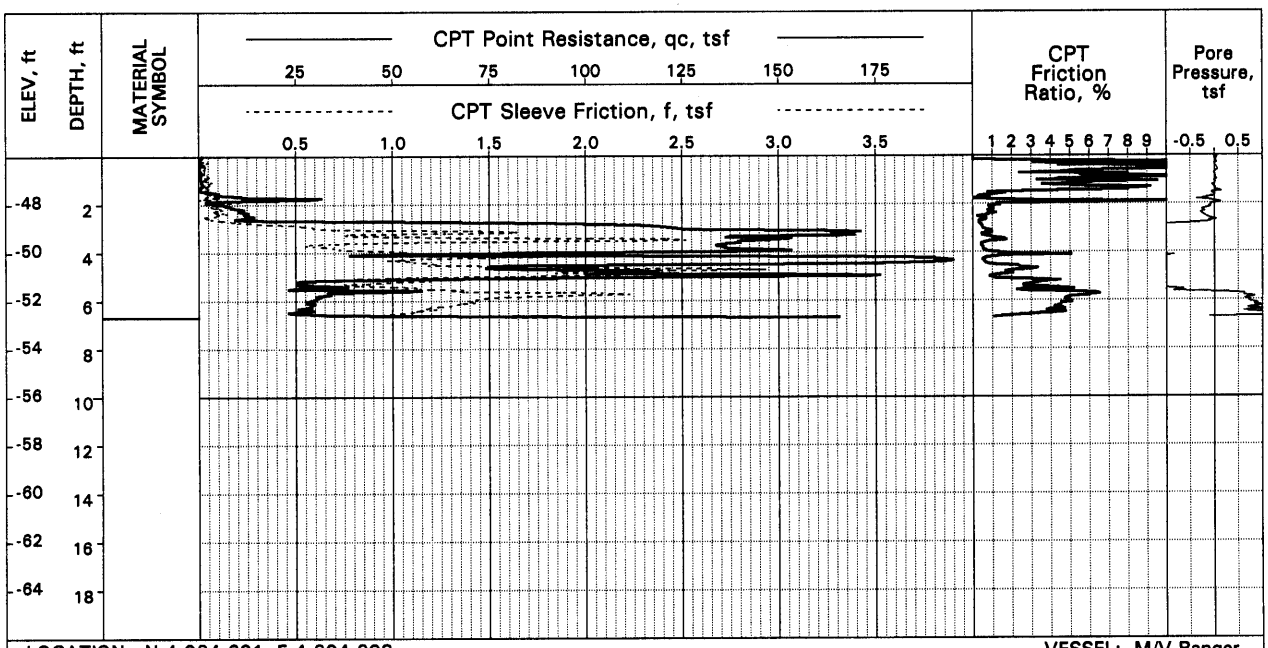
VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 10.2 ft
DATE OF EXPLORATION: April 25, 1997

LOG OF CPT NO. CPT-12

UGIS ID: FD97C012

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



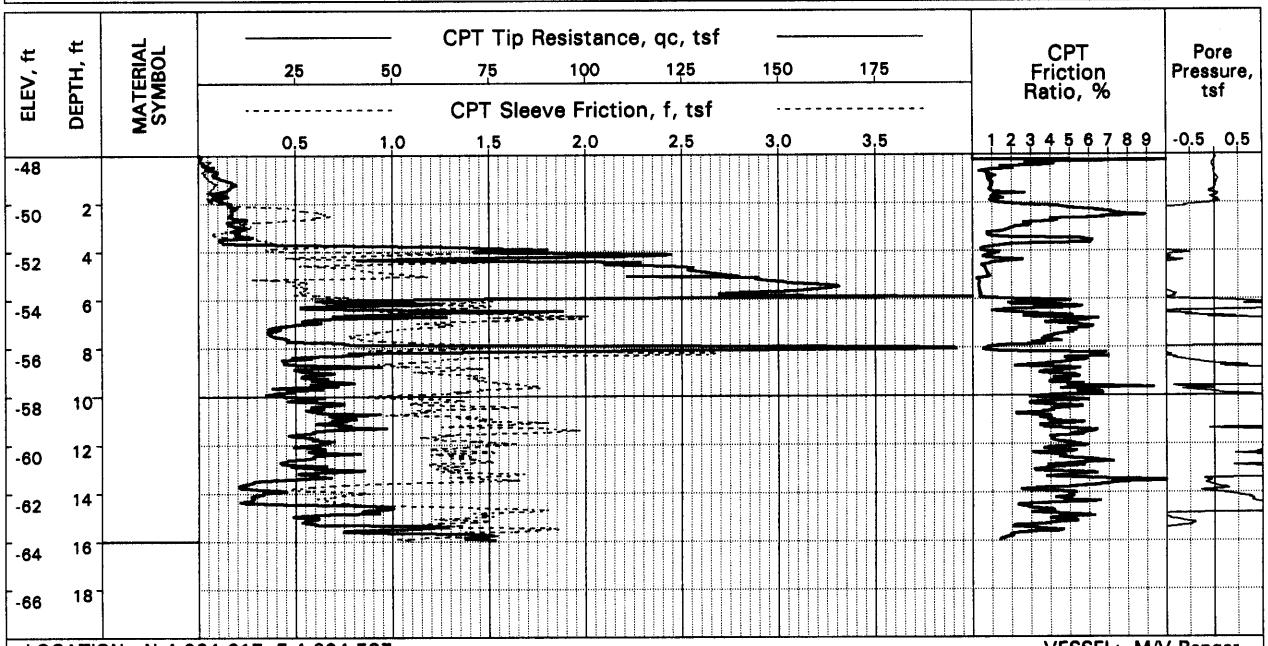
LOCATION: N 4,024,601 E 4,204,208
ELEVATION: -45.9 ft (re: MLLW; based on water depth of 49.6 ft and tide of 3.7 ft)

COMPLETION DEPTH: 6.7 ft
DATE OF EXPLORATION: April 24, 1997

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CPT-13

UGIS ID: FD97C013



LOCATION: N 4,024,617 E 4,204,587
ELEVATION: -47.3 ft (re: MLLW; based on water depth of 50.0 ft and tide of 2.7 ft)

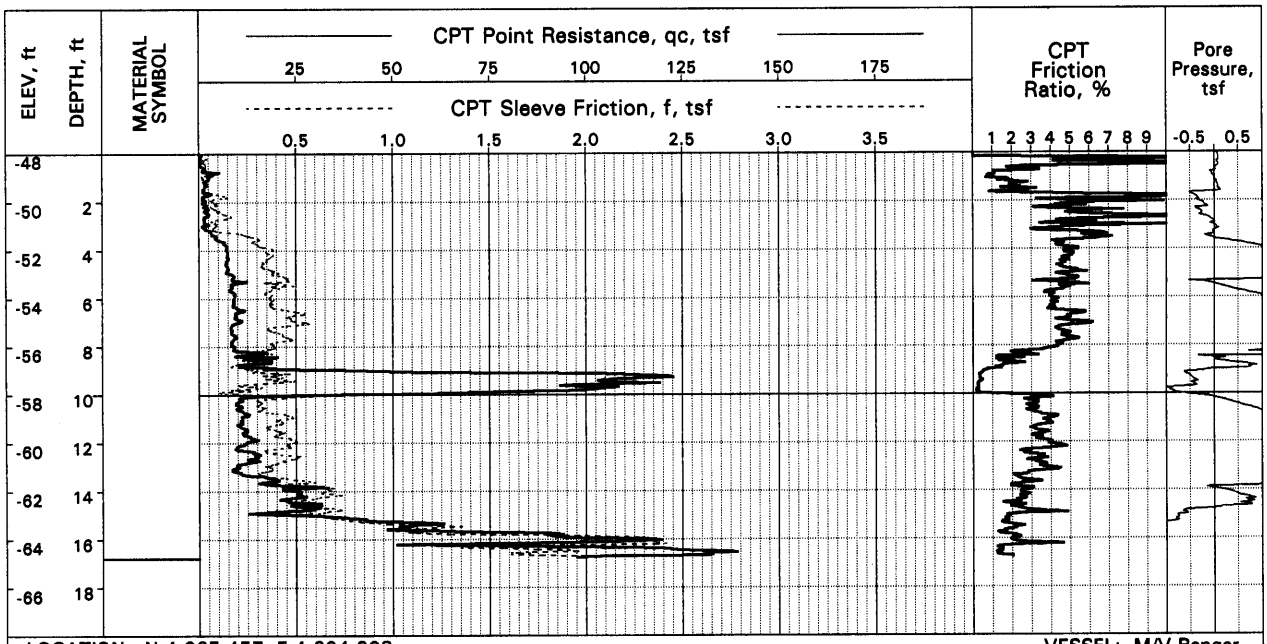
COMPLETION DEPTH: 16.0 ft
DATE OF EXPLORATION: April 24, 1997

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CPT-14

UGIS ID: FD97C014

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



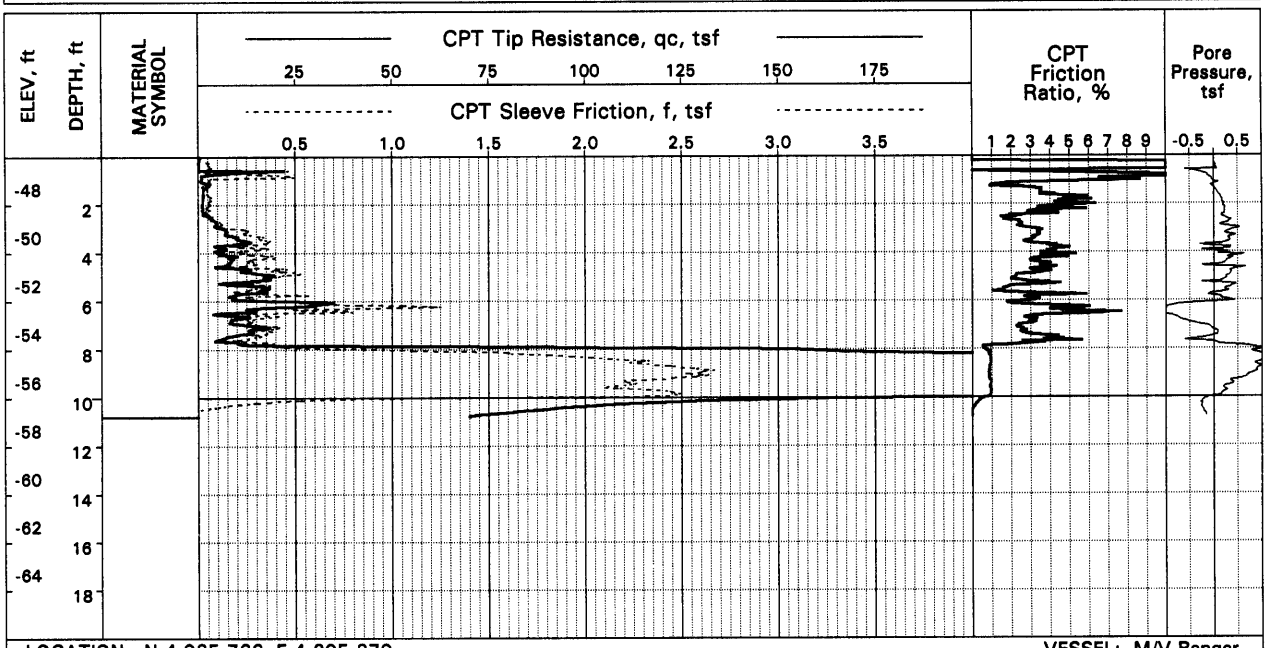
LOCATION: N 4,025,457 E 4,204,903
ELEVATION: -47.4 ft (re: MLLW; based on water depth of 50.4 ft and tide of 3.0 ft)

COMPLETION DEPTH: 16.8 ft
DATE OF EXPLORATION: April 24, 1997

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CPT-15

UGIS ID: FD97C015



LOCATION: N 4,025,766 E 4,205,270
ELEVATION: -46.4 ft (re: MLLW; based on water depth of 49.0 ft and tide of 2.6 ft)

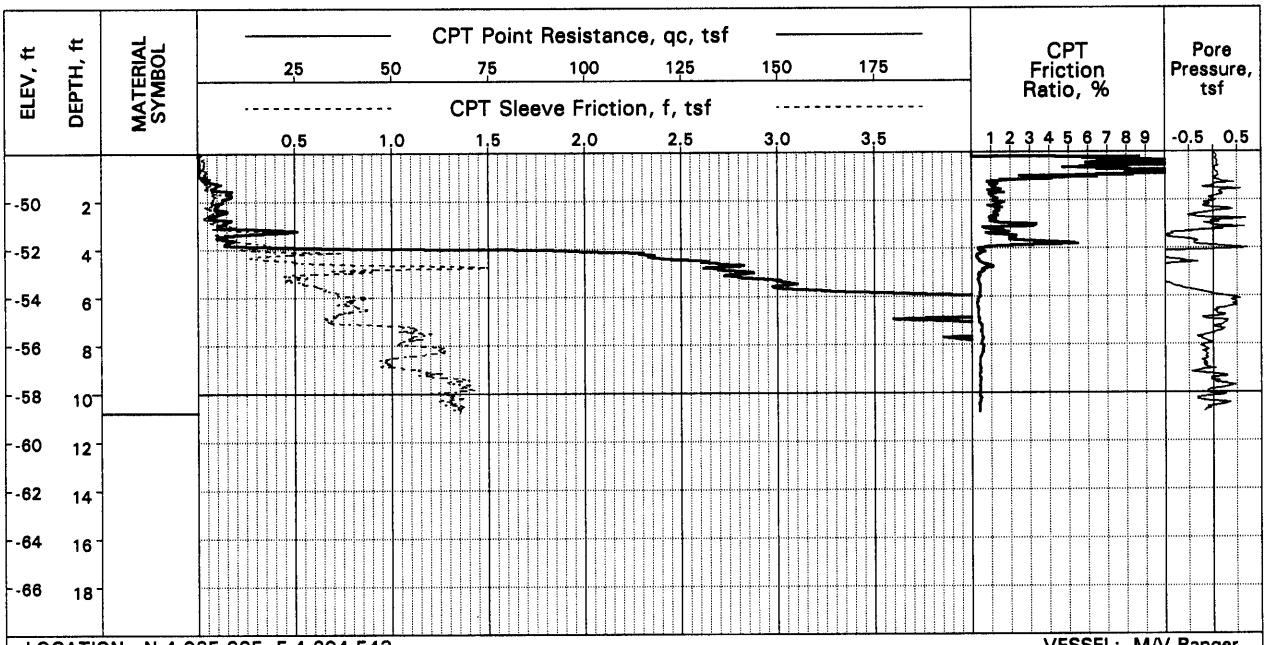
COMPLETION DEPTH: 10.8 ft
DATE OF EXPLORATION: April 25, 1997

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CPT-16

UGIS ID: FD97C016

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



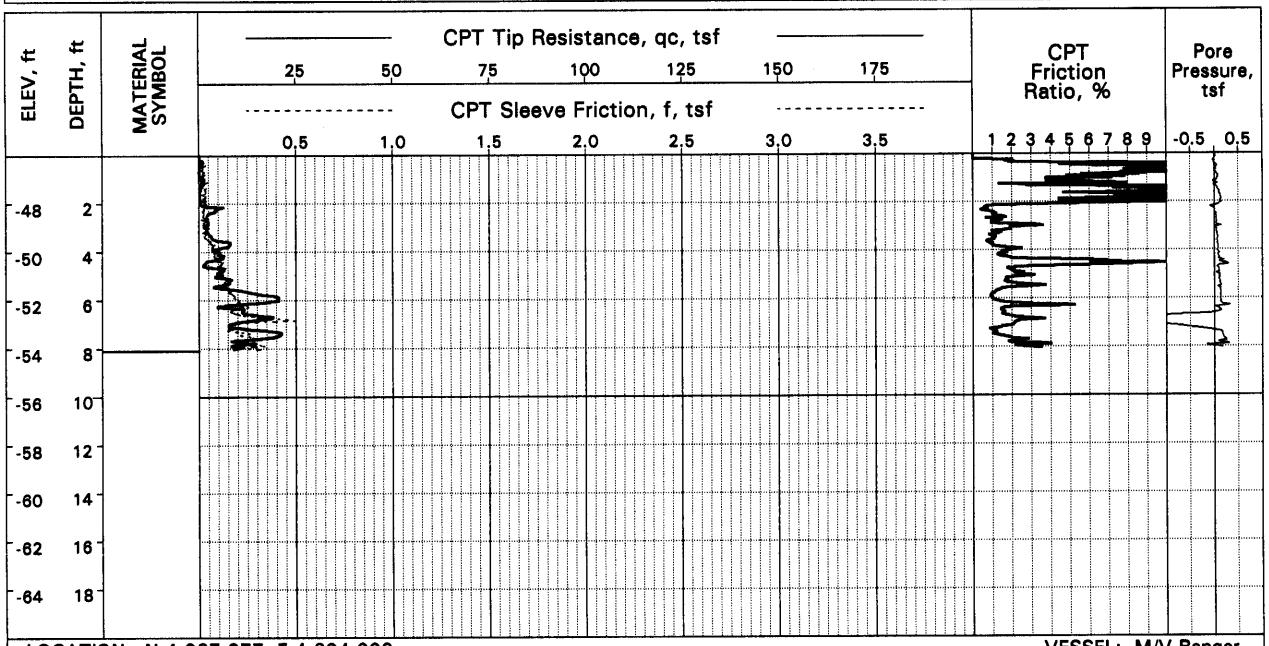
LOCATION: N 4,025,995 E 4,204,543
ELEVATION: -47.7 ft (re: MLLW; based on water depth of 51.1 ft and tide of 3.4 ft)

COMPLETION DEPTH: 10.8 ft
DATE OF EXPLORATION: April 23, 1997

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CPT-17

UGIS ID: FD97C017



LOCATION: N 4,027,077 E 4,204,009
ELEVATION: -45.5 ft (re: MLLW; based on water depth of 49.1 ft and tide of 3.6 ft)

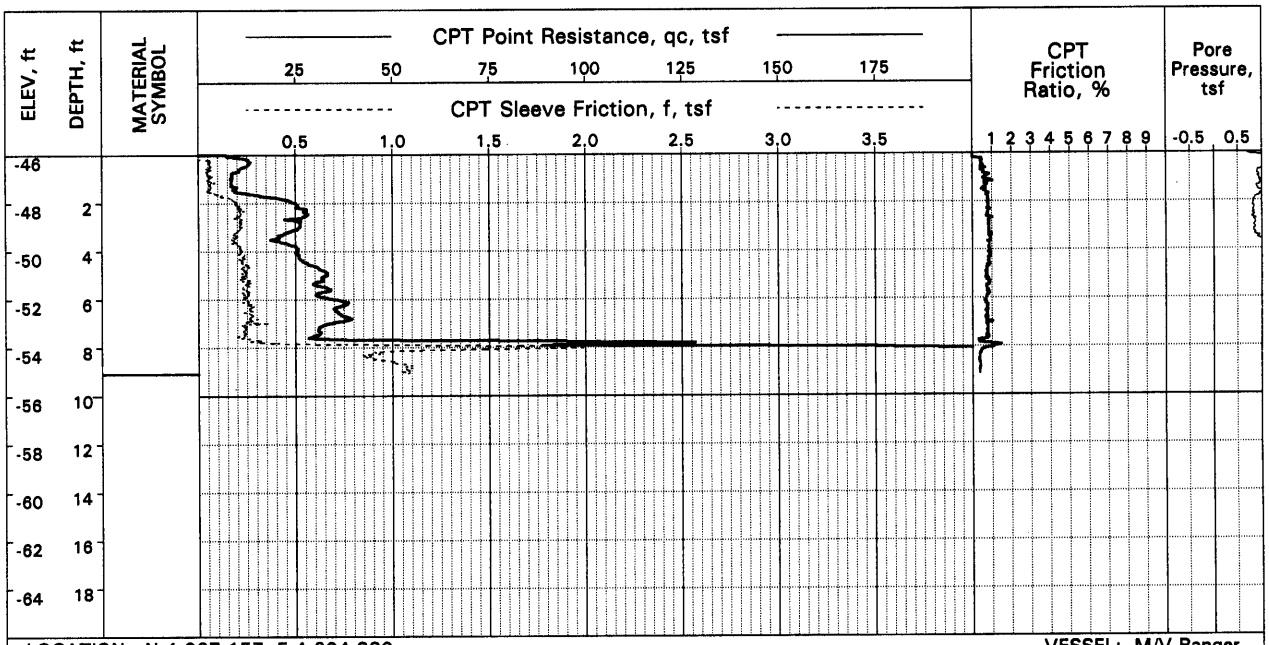
COMPLETION DEPTH: 8.1 ft
DATE OF EXPLORATION: April 24, 1997

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CPT-18

UGIS ID: FD97C018

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



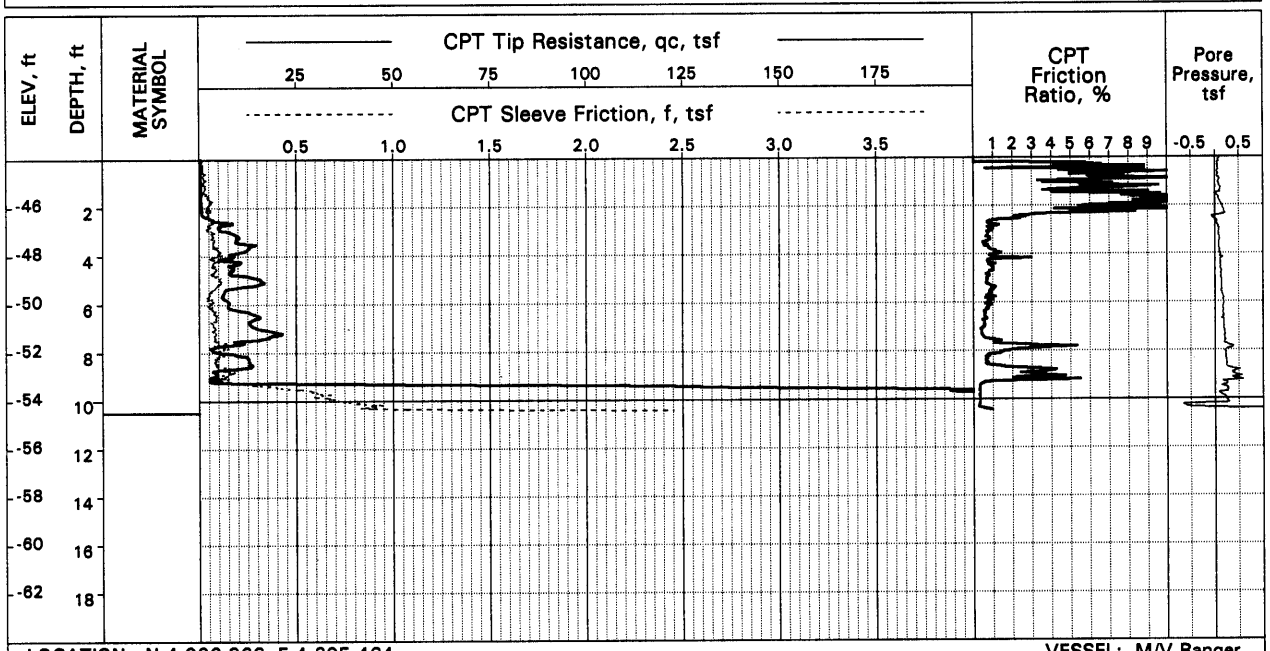
LOCATION: N 4,027,157 E 4,204,880
ELEVATION: -45.4 ft (re: MLLW; based on water depth of 48.4 ft and tide of 3.0 ft)

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 9.1 ft
DATE OF EXPLORATION: April 23, 1997

LOG OF CPT NO. CPT-19

UGIS ID: FD97C019



LOCATION: N 4,026,966 E 4,205,464
ELEVATION: -43.9 ft (re: MLLW; based on water depth of 47.0 ft and tide of 3.1 ft)

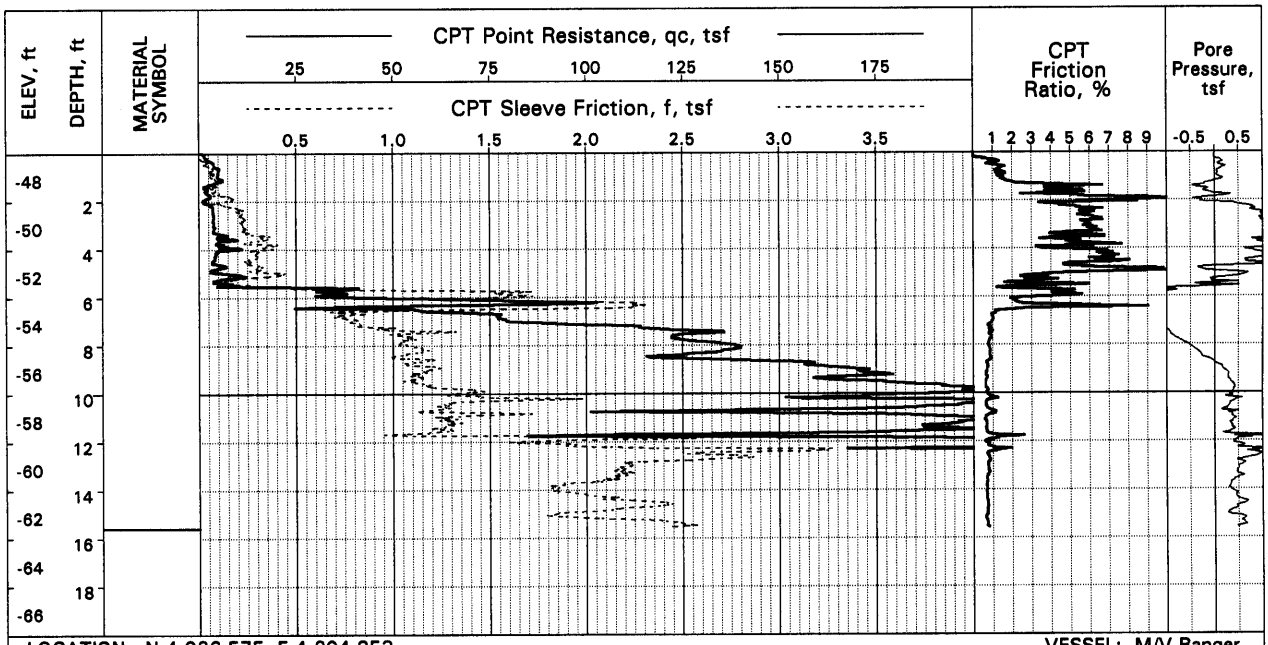
VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 10.5 ft
DATE OF EXPLORATION: April 24, 1997

LOG OF CPT NO. CPT-20

UGIS ID: FD97C020

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



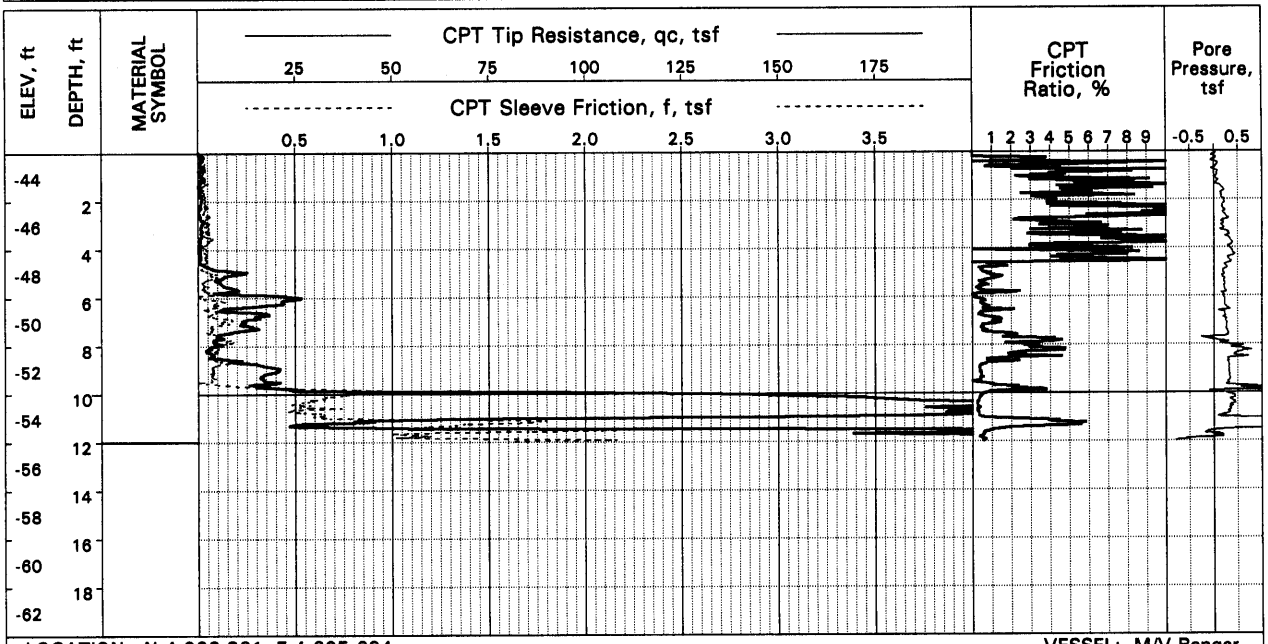
LOCATION: N 4,026,575 E 4,204,853
ELEVATION: -46.6 ft (re: MLLW; based on water depth of 49.4 ft and tide of 2.8 ft)

COMPLETION DEPTH: 15.6 ft
DATE OF EXPLORATION: April 25, 1997

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CPT-21

UGIS ID: FD97C021



LOCATION: N 4,022,821 E 4,205,694
ELEVATION: -42.7 ft (re: MLLW; based on water depth of 43.5 ft and tide of 0.8 ft)

COMPLETION DEPTH: 12.0 ft
DATE OF EXPLORATION: April 21, 1997

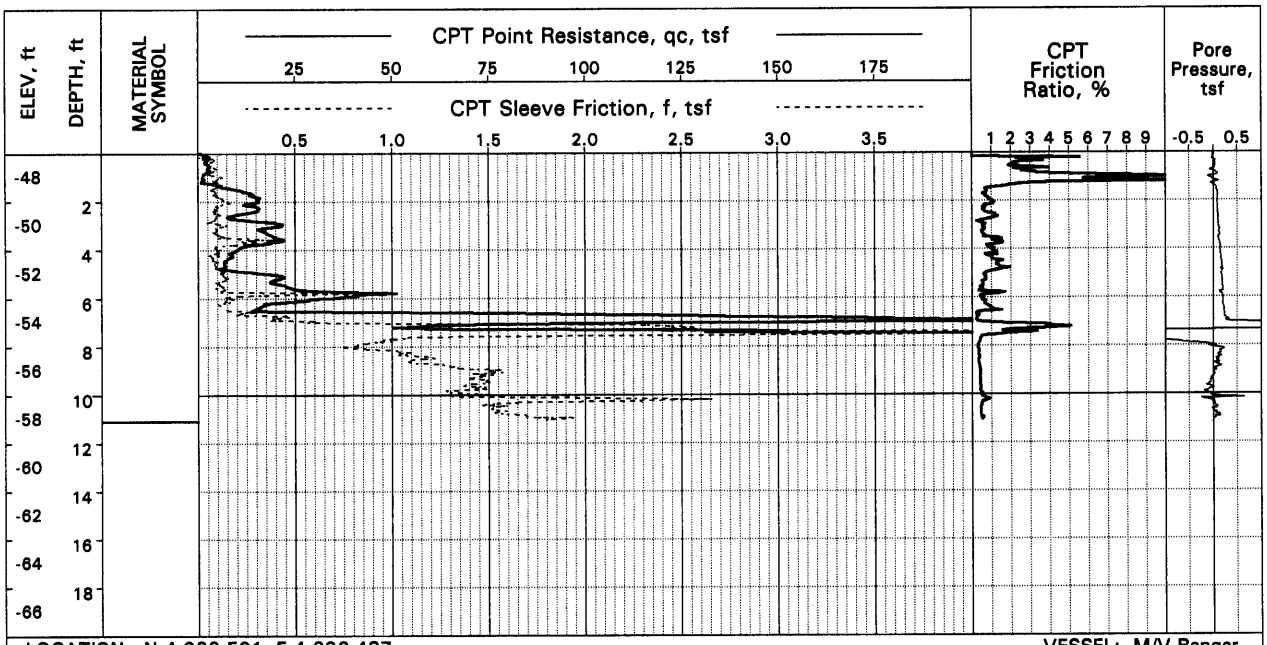
VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CPT-22

UGIS ID: FD97C022

LOGS OF CPTs

Channel Deepening Program
Port of Los Angeles



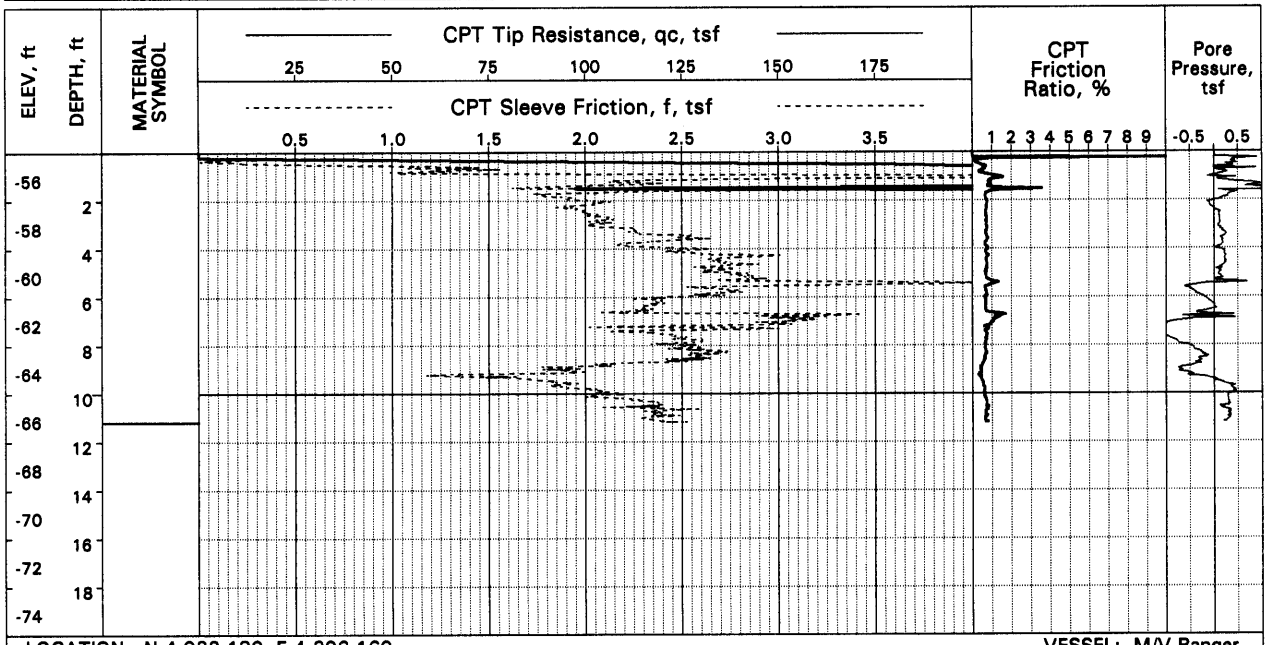
LOCATION: N 4,022,501 E 4,206,487
ELEVATION: -46.8 ft (re: MLLW; based on water depth of 47.6 ft and tide of 0.8 ft)

COMPLETION DEPTH: 11.1 ft
DATE OF EXPLORATION: April 21, 1997

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CPT-23

UGIS ID: FD97C023



LOCATION: N 4,022,130 E 4,206,160
ELEVATION: -54.6 ft (re: MLLW; based on water depth of 56.0 ft and tide of 1.4 ft)

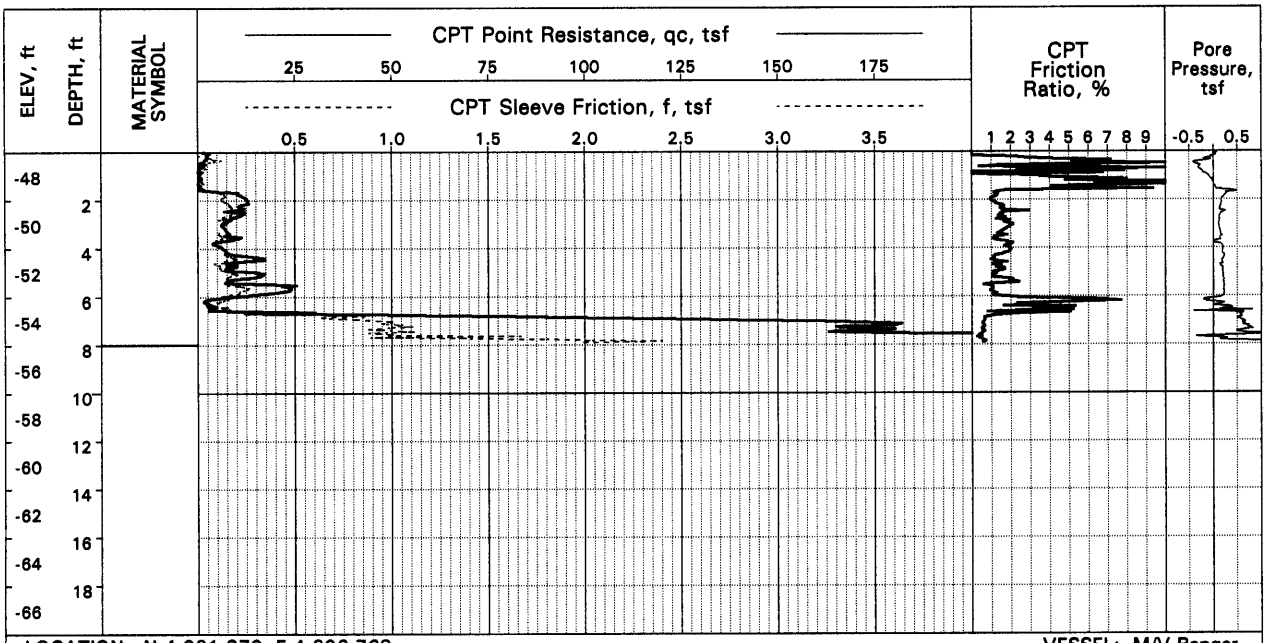
COMPLETION DEPTH: 11.2 ft
DATE OF EXPLORATION: April 25, 1997

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CPT-24

UGIS ID: FD97C024

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



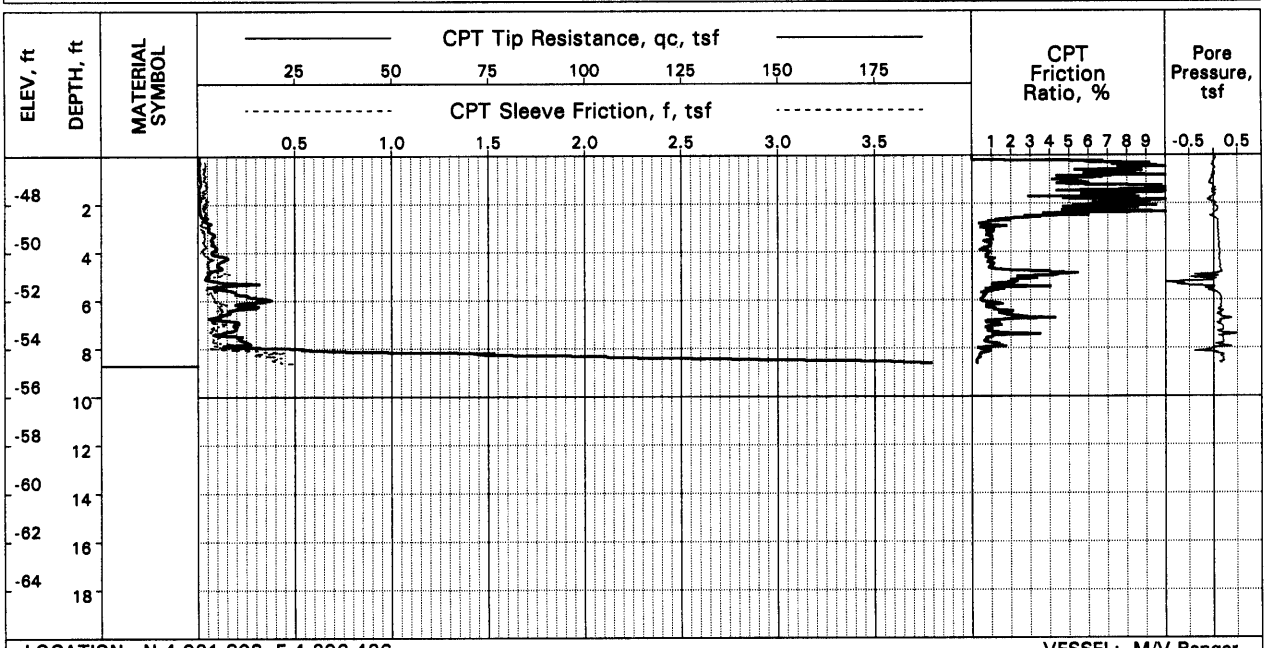
LOCATION: N 4,021,870 E 4,206,763
ELEVATION: -46.7 ft (re: MLLW; based on water depth of 47.8 ft and tide of 1.1 ft)

COMPLETION DEPTH: 8.0 ft
DATE OF EXPLORATION: April 25, 1997

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CPT-25

UGIS ID: FD97C025



LOCATION: N 4,021,308 E 4,206,426
ELEVATION: -46.2 ft (re: MLLW; based on water depth of 48.0 ft and tide of 1.8 ft)

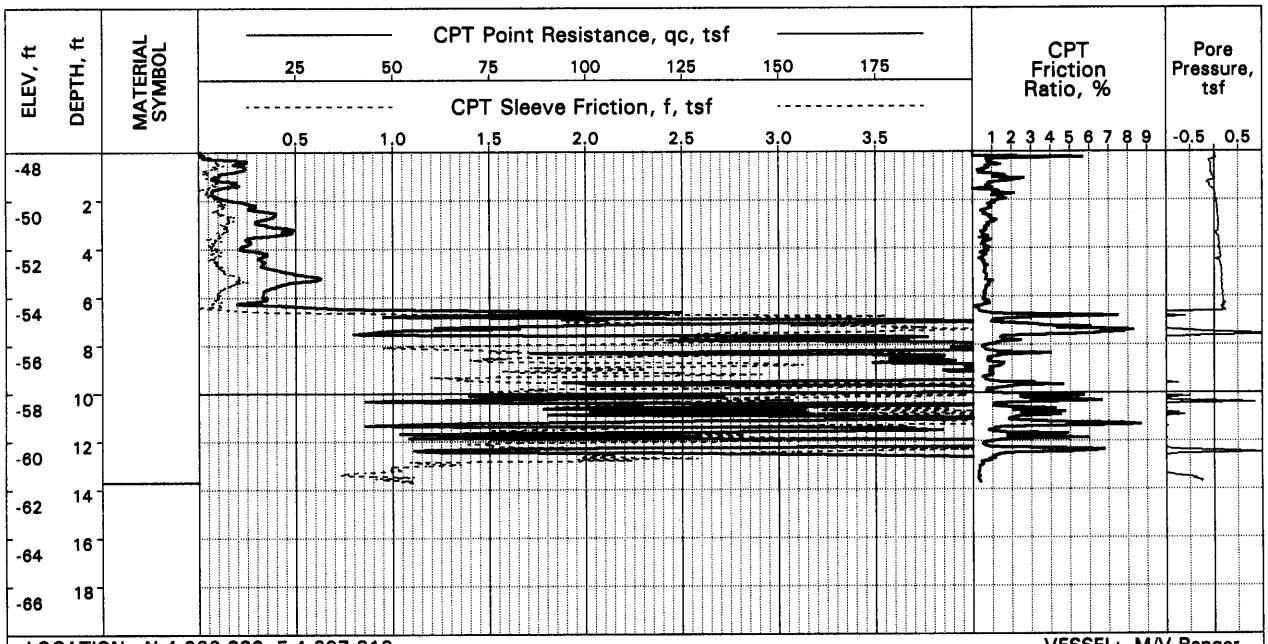
COMPLETION DEPTH: 8.7 ft
DATE OF EXPLORATION: April 24, 1997

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CPT-26

UGIS ID: FD97C026

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



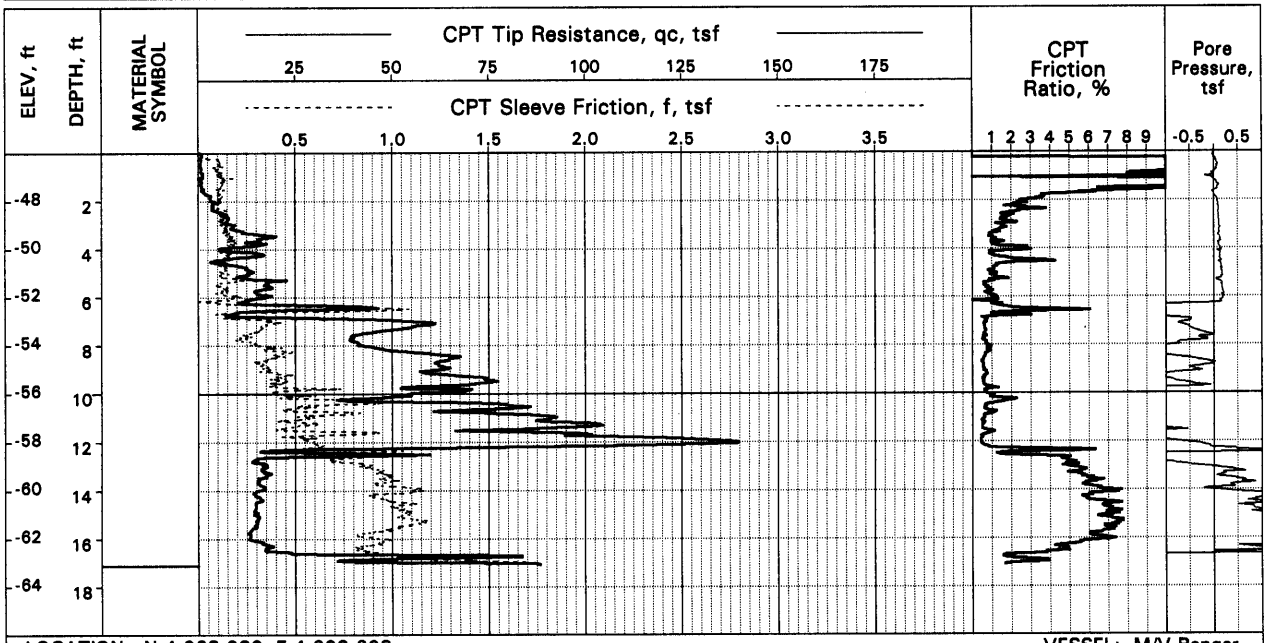
LOCATION: N 4,022,889 E 4,207,819
ELEVATION: -47.1 ft (re: MLLW; based on water depth of 51.3 ft and tide of 4.2 ft)

COMPLETION DEPTH: 13.7 ft
DATE OF EXPLORATION: April 21, 1997

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CPT-27

UGIS ID: FD97C027



LOCATION: N 4,023,080 E 4,208,208
ELEVATION: -45.9 ft (re: MLLW; based on water depth of 50.0 ft and tide of 4.1 ft)

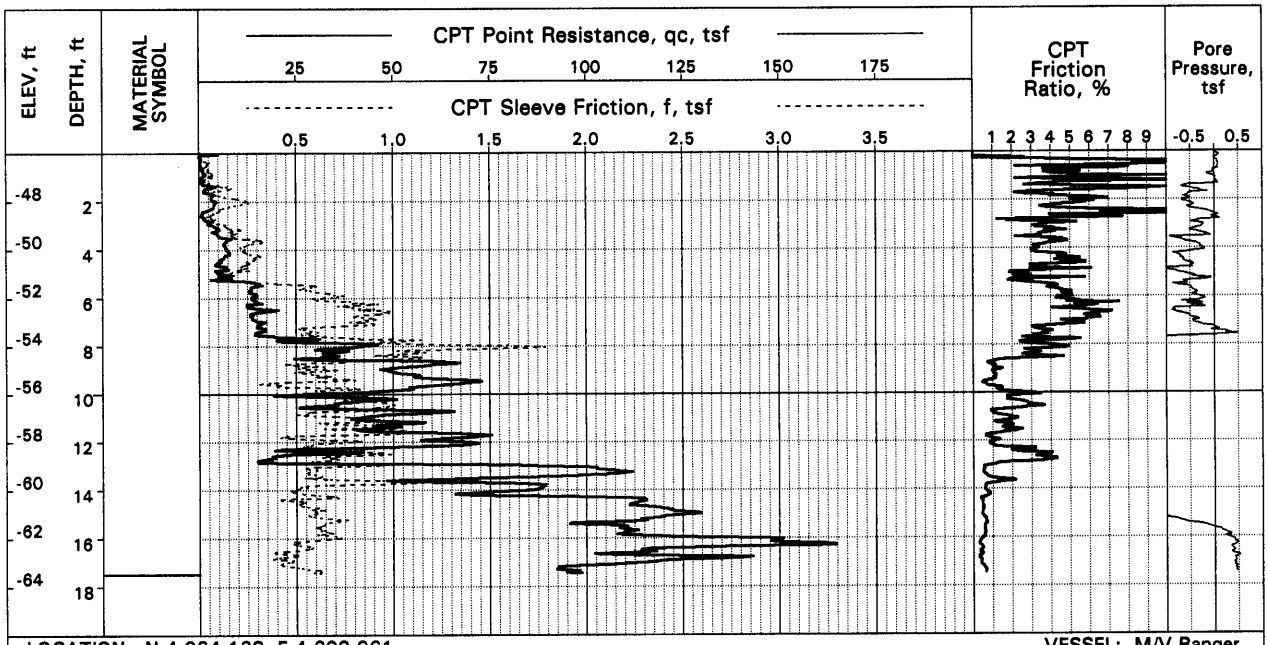
COMPLETION DEPTH: 17.1 ft
DATE OF EXPLORATION: April 21, 1997

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CPT-28

UGIS ID: FD97C028

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



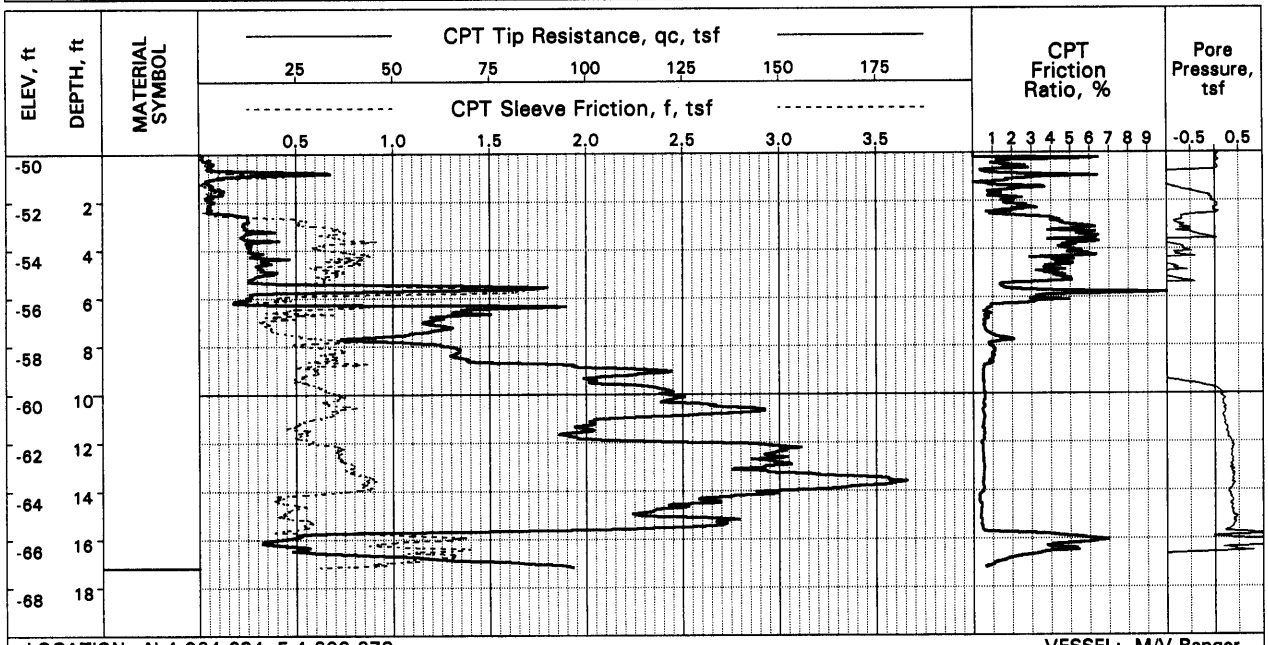
LOCATION: N 4,024,128 E 4,208,961
ELEVATION: -46.1 ft (re: MLLW; based on water depth of 50.0 ft and tide of 3.9 ft)

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 17.5 ft
DATE OF EXPLORATION: April 21, 1997

LOG OF CPT NO. CPT-29

UGIS ID: FD97C029



LOCATION: N 4,024,684 E 4,209,278
ELEVATION: -49.3 ft (re: MLLW; based on water depth of 53.0 ft and tide of 3.7 ft)

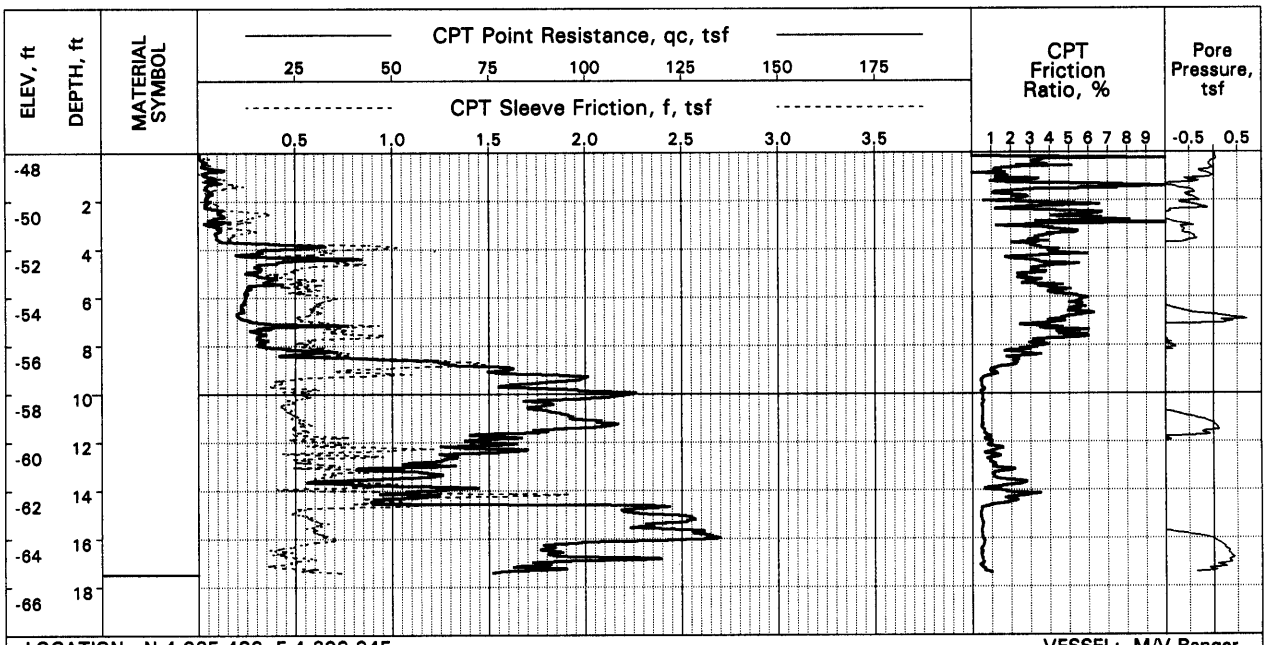
VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 17.2 ft
DATE OF EXPLORATION: April 21, 1997

LOG OF CPT NO. CPT-30

UGIS ID: FD97C030

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



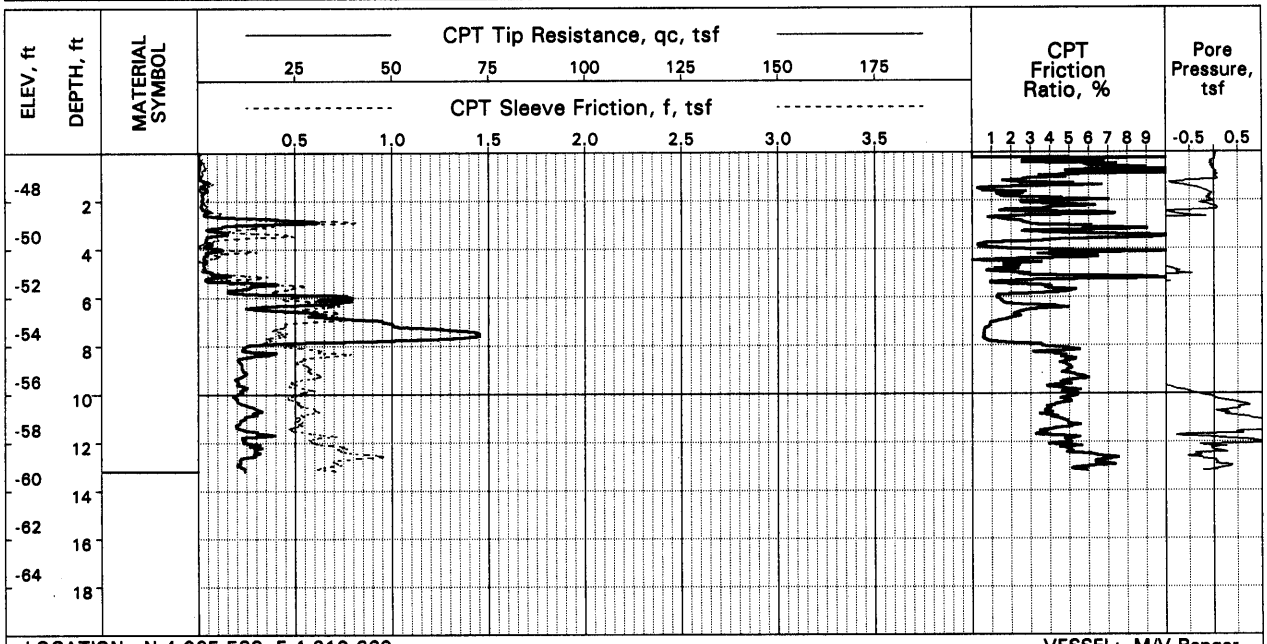
LOCATION: N 4,025,489 E 4,209,945
ELEVATION: -47.1 ft (re: MLLW; based on water depth of 50.6 ft and tide of 3.5 ft)

COMPLETION DEPTH: 17.5 ft
DATE OF EXPLORATION: April 21, 1997

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CPT-31

UGIS ID: FD97C031



LOCATION: N 4,025,538 E 4,210,660
ELEVATION: -46.3 ft (re: MLLW; based on water depth of 47.8 ft and tide of 1.5 ft)

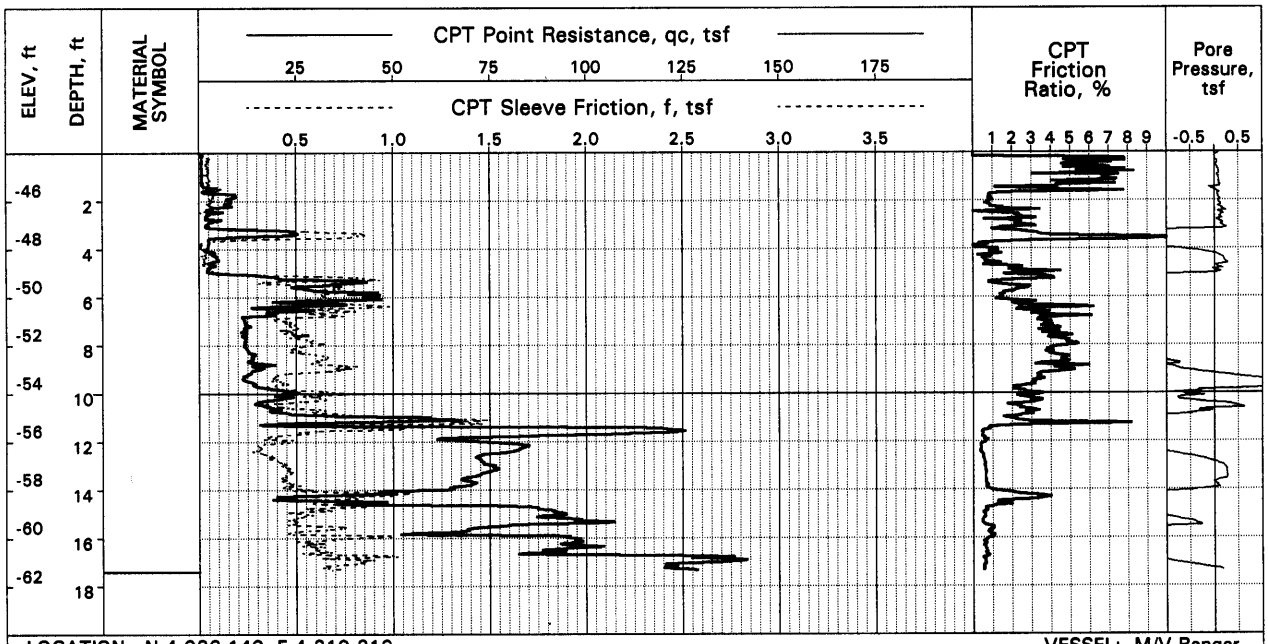
COMPLETION DEPTH: 13.2 ft
DATE OF EXPLORATION: April 24, 1997

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CPT-32

UGIS ID: FD97C032

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



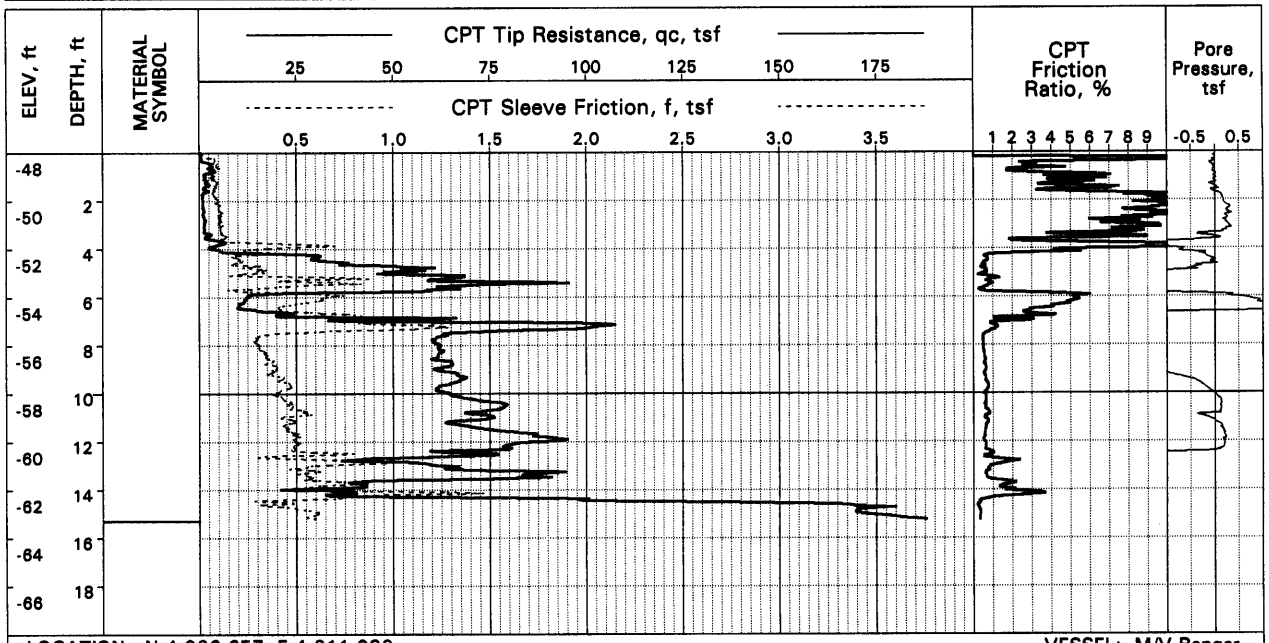
LOCATION: N 4,026,140 E 4,210,219
ELEVATION: -44.2 ft (re: MLLW; based on water depth of 47.5 ft and tide of 3.3 ft)

COMPLETION DEPTH: 17.4 ft
DATE OF EXPLORATION: April 21, 1997

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CPT-33

UGIS ID: FD97C033



LOCATION: N 4,026,657 E 4,211,082
ELEVATION: -47.1 ft (re: MLLW; based on water depth of 48.7 ft and tide of 1.6 ft)

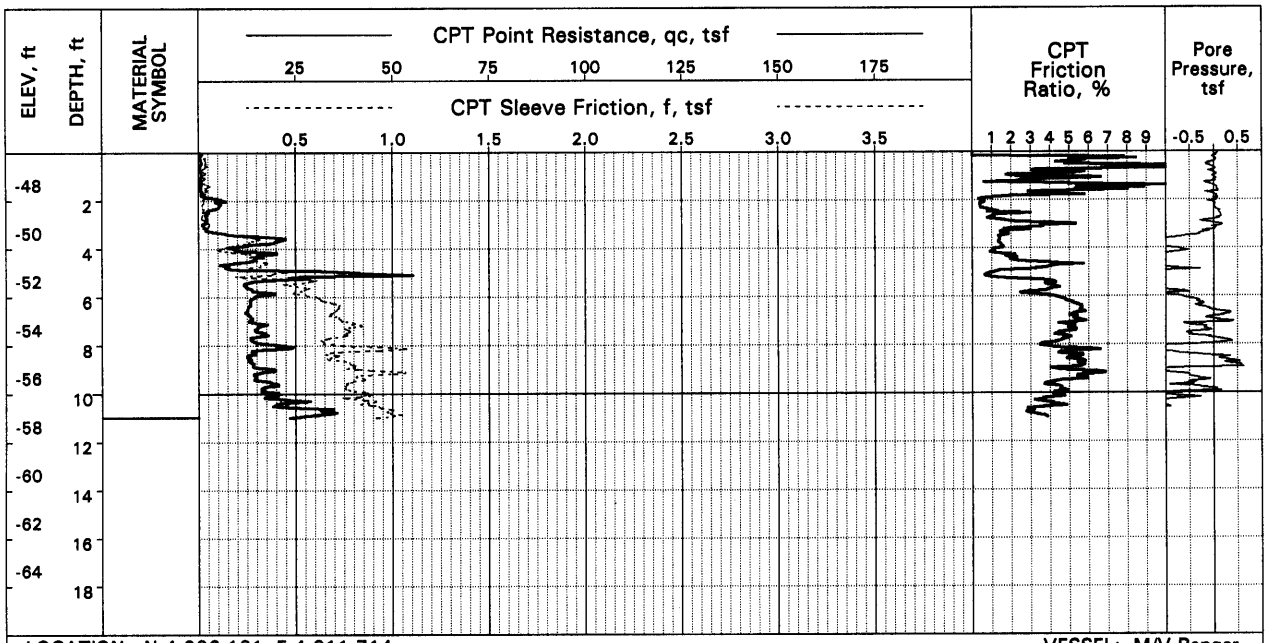
COMPLETION DEPTH: 15.3 ft
DATE OF EXPLORATION: April 24, 1997

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CPT-34

UGIS ID: FD97C034

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



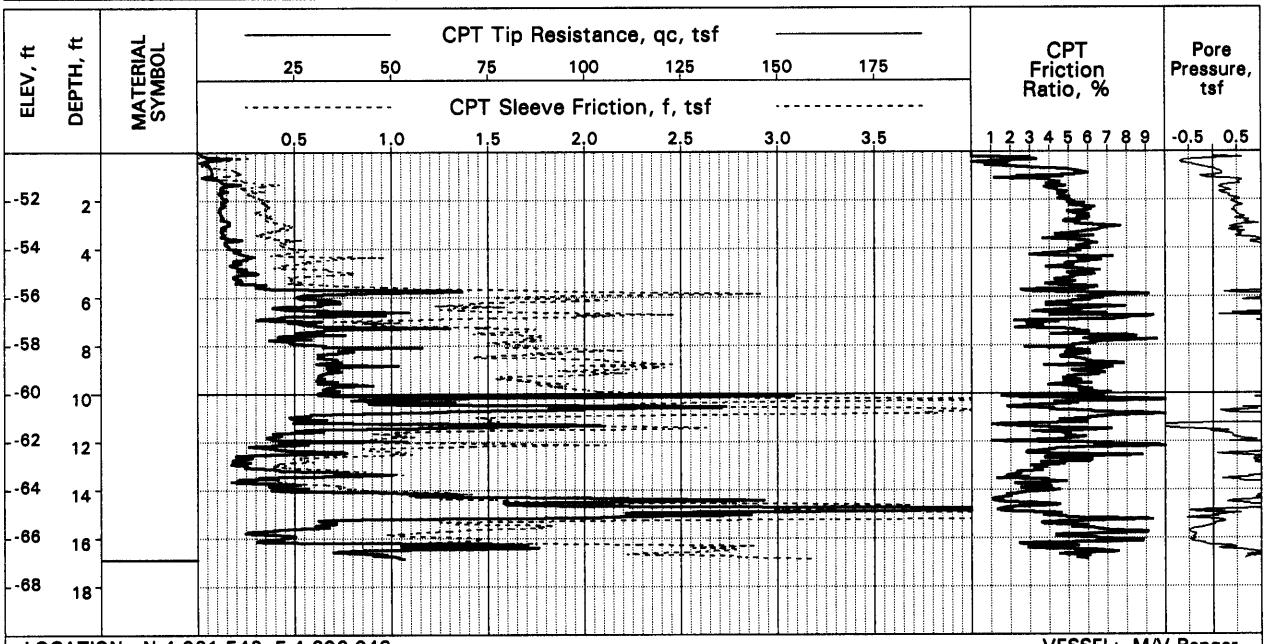
LOCATION: N 4,026,121 E 4,211,714
ELEVATION: -46.4 ft (re: MLLW; based on water depth of 48.0 ft and tide of 1.6 ft)

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 11.0 ft
DATE OF EXPLORATION: April 24, 1997

LOG OF CPT NO. CPT-35

UGIS ID: FD97C035



LOCATION: N 4,021,542 E 4,206,049
ELEVATION: -49.9 ft (re: MLLW; based on water depth of 51.8 ft and tide of 1.9 ft)

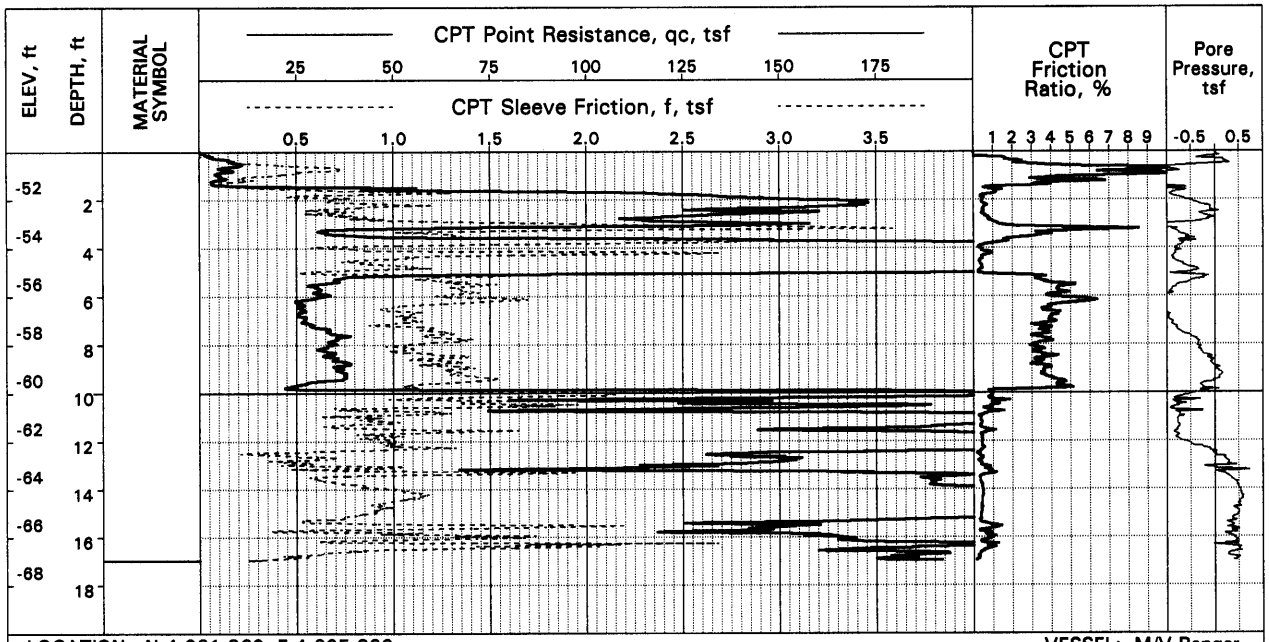
VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 16.9 ft
DATE OF EXPLORATION: April 25, 1997

LOG OF CPT NO. CPT-36

UGIS ID: FD97C036

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



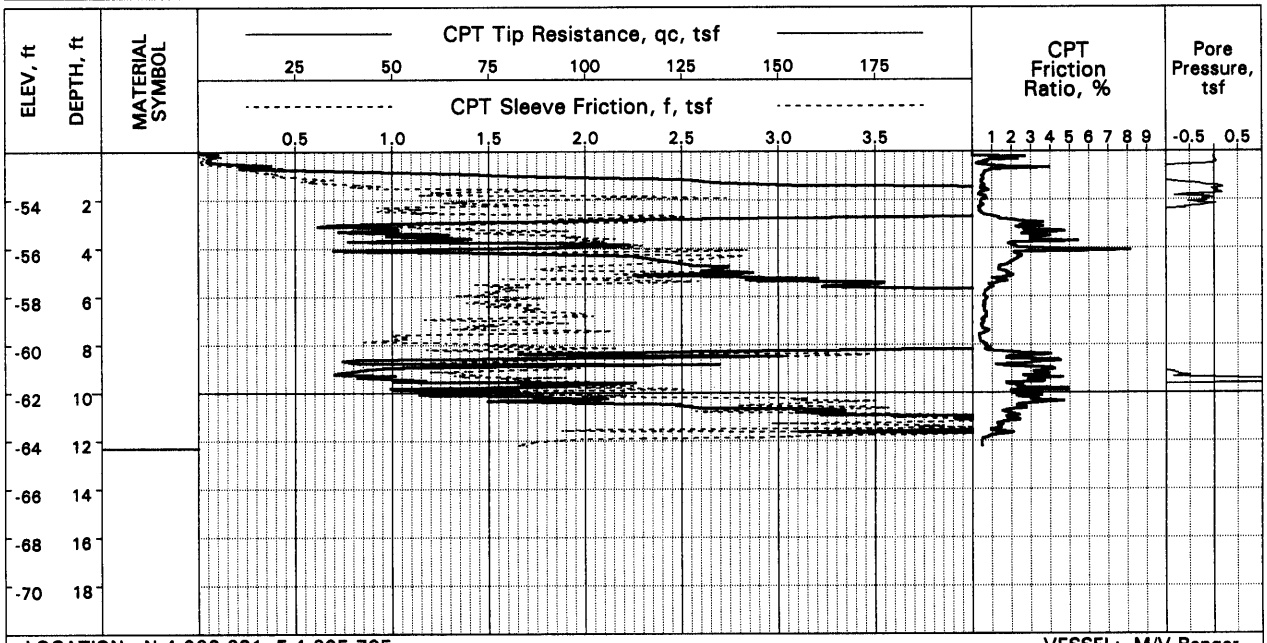
LOCATION: N 4,021,860 E 4,205,899
ELEVATION: -50.3 ft (re: MLLW; based on water depth of 52.0 ft and tide of 1.7 ft)

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 17.0 ft
DATE OF EXPLORATION: April 25, 1997

LOG OF CPT NO. CPT-37

UGIS ID: FD97C037



LOCATION: N 4,022,281 E 4,205,705
ELEVATION: -51.5 ft (re: MLLW; based on water depth of 52.4 ft and tide of 0.9 ft)

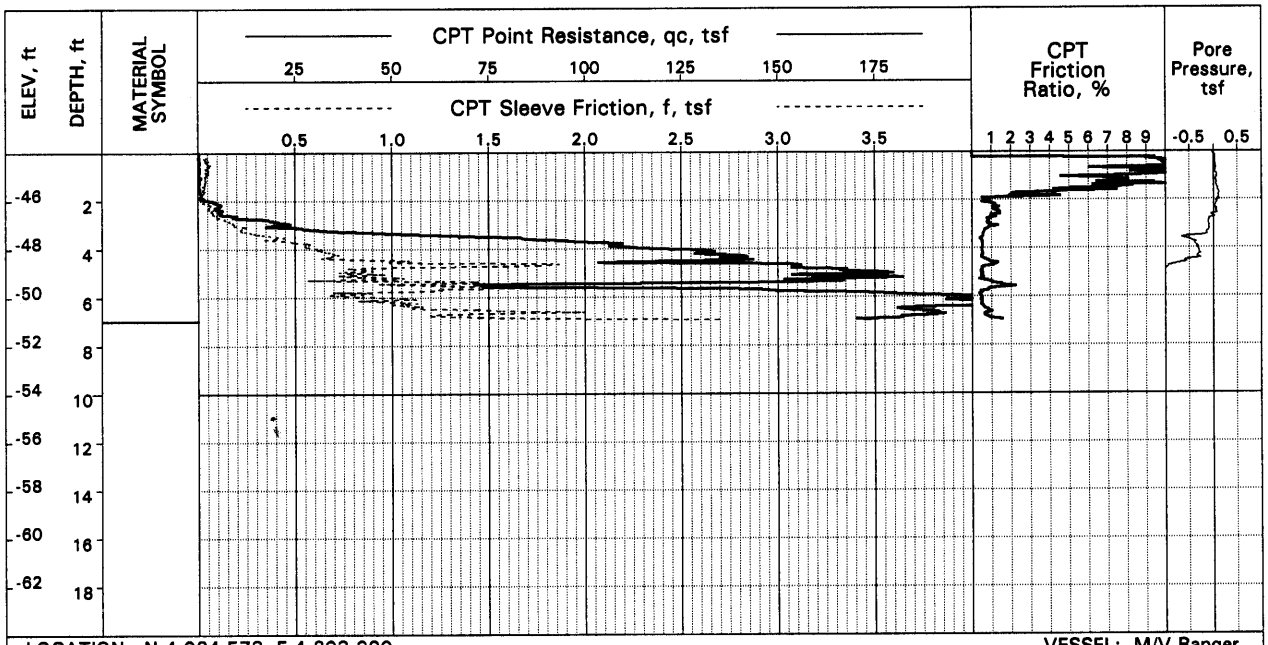
VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 12.3 ft
DATE OF EXPLORATION: April 21, 1997

LOG OF CPT NO. CPT-38

UGIS ID: FD97C038

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



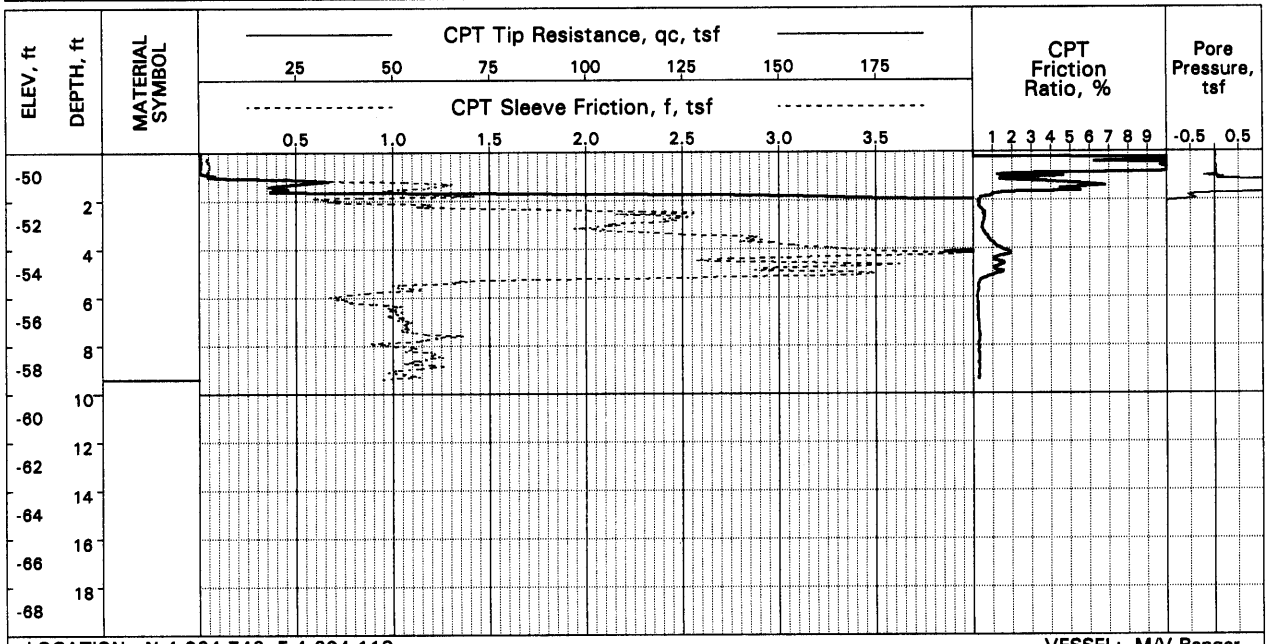
LOCATION: N 4,024,573 E 4,203,990
ELEVATION: -44.0 ft (re: MLLW; based on water depth of 45.5 ft and tide of 1.5 ft)

COMPLETION DEPTH: 7.0 ft
DATE OF EXPLORATION: April 24, 1997

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CPT-39

UGIS ID: FD97C039



LOCATION: N 4,024,742 E 4,204,113
ELEVATION: -48.8 ft (re: MLLW; based on water depth of 50.5 ft and tide of 1.7 ft)

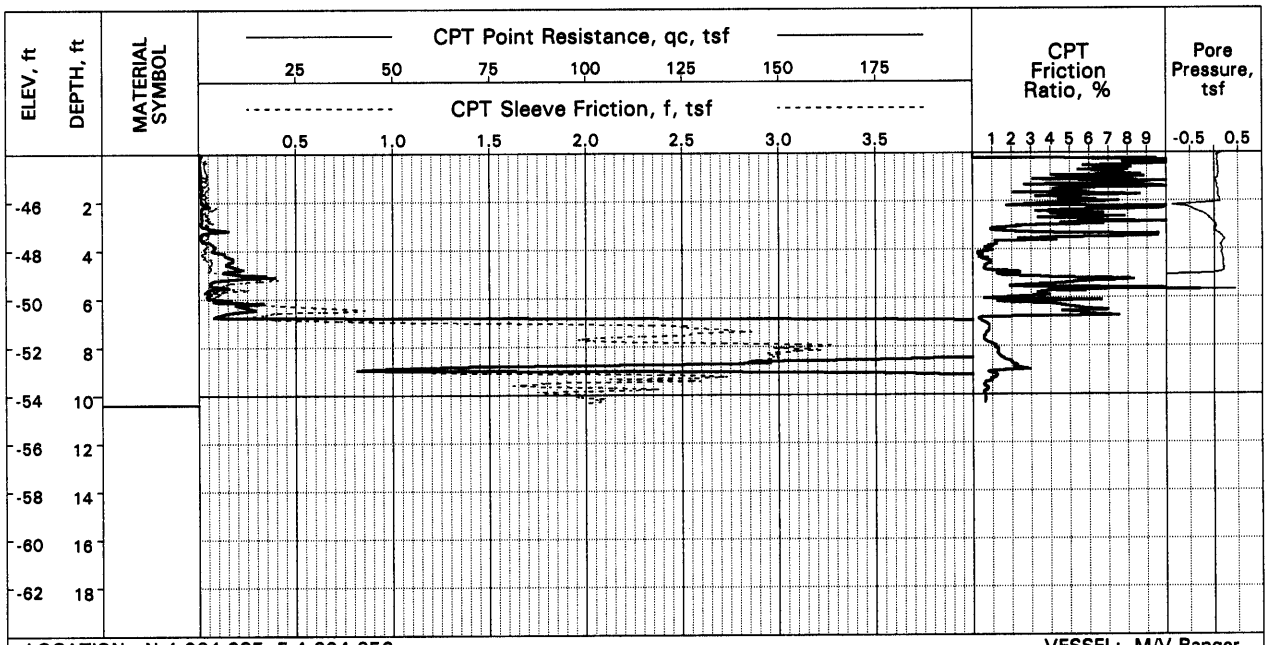
COMPLETION DEPTH: 9.4 ft
DATE OF EXPLORATION: April 24, 1997

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CPT-40

UGIS ID: FD97C040

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



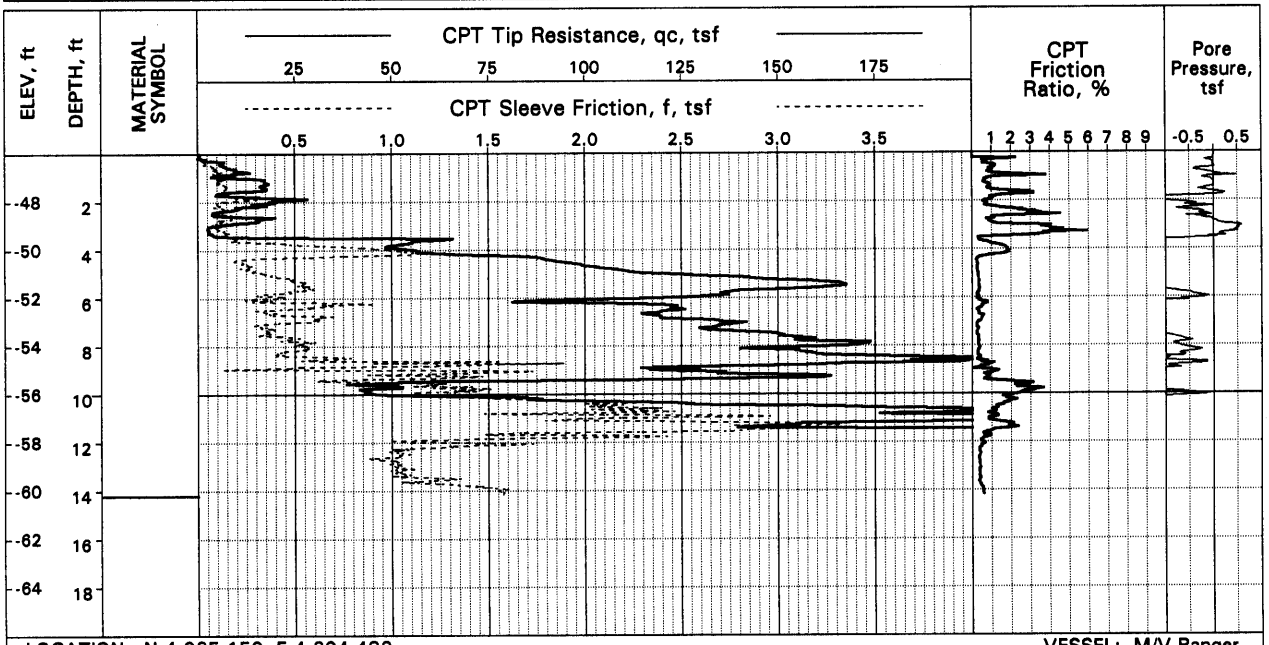
LOCATION: N 4,024,935 E 4,204,256
ELEVATION: -43.6 ft (re: MLLW; based on water depth of 46.6 ft and tide of 3.0 ft)

COMPLETION DEPTH: 10.4 ft
DATE OF EXPLORATION: April 24, 1997

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CPT-41

UGIS ID: FD97C041



LOCATION: N 4,025,150 E 4,204,432
ELEVATION: -45.8 ft (re: MLLW; based on water depth of 49.1 ft and tide of 3.3 ft)

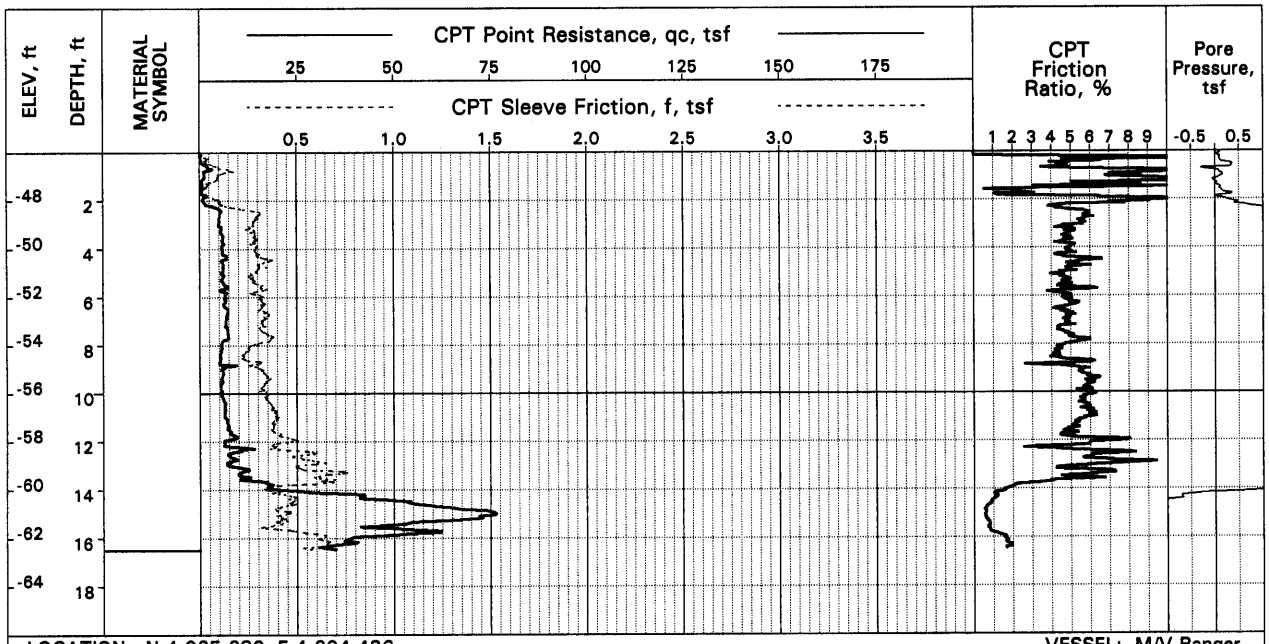
COMPLETION DEPTH: 14.2 ft
DATE OF EXPLORATION: April 24, 1997

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CPT-42

UGIS ID: FD97C042

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



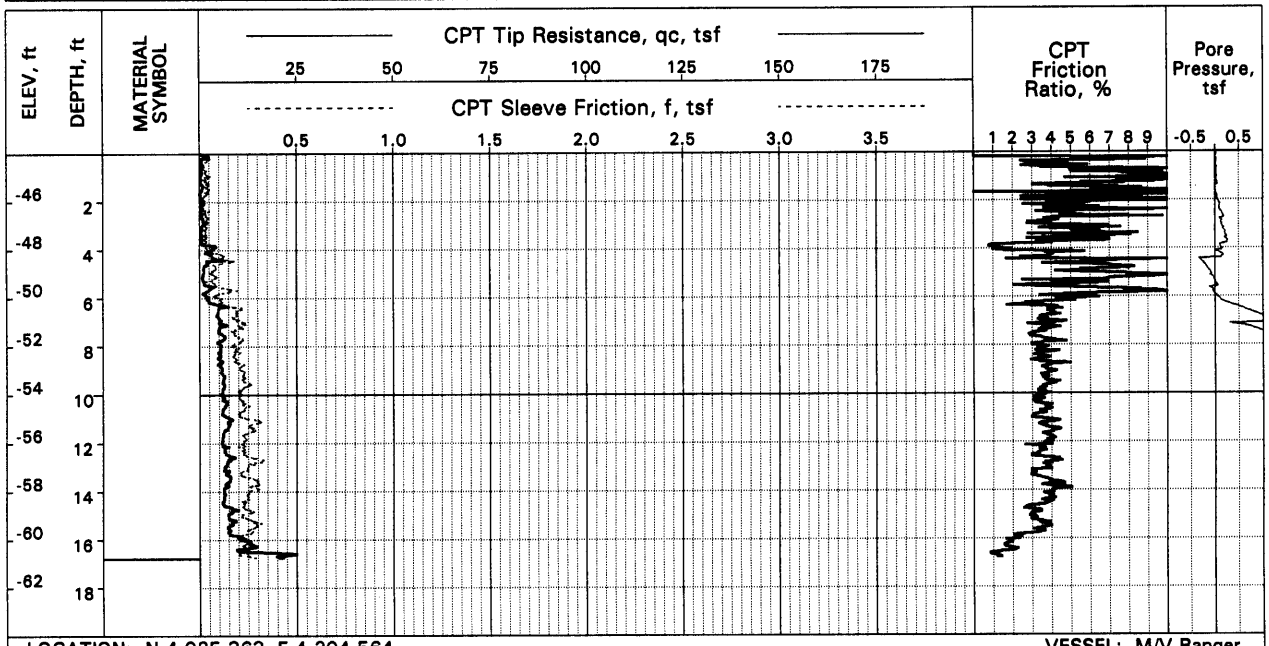
LOCATION: N 4,025,230 E 4,204,486
ELEVATION: -46.0 ft (re: MLLW; based on water depth of 49.7 ft and tide of 3.7 ft)

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 16.5 ft
DATE OF EXPLORATION: April 24, 1997

LOG OF CPT NO. CPT-43

UGIS ID: FD97C043



LOCATION: N 4,025,363 E 4,204,564
ELEVATION: -44.1 ft (re: MLLW; based on water depth of 46.4 ft and tide of 2.3 ft)

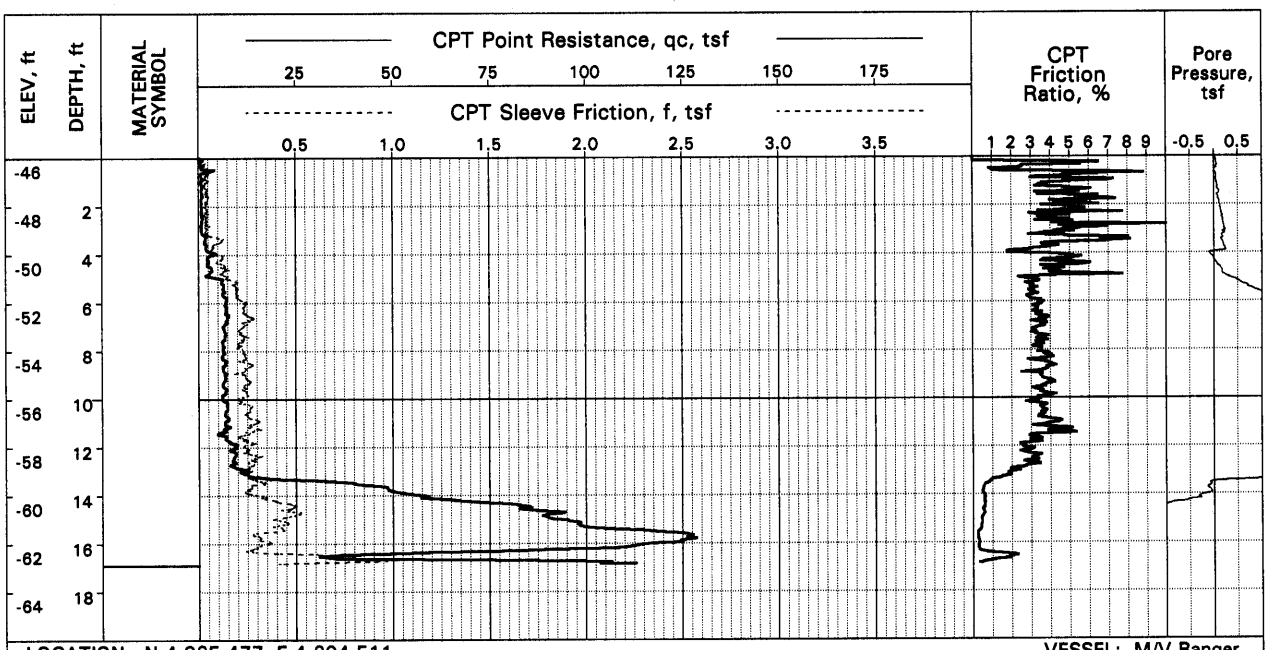
VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 16.8 ft
DATE OF EXPLORATION: April 23, 1997

LOG OF CPT NO. CPT-44

UGIS ID: FD97C044

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



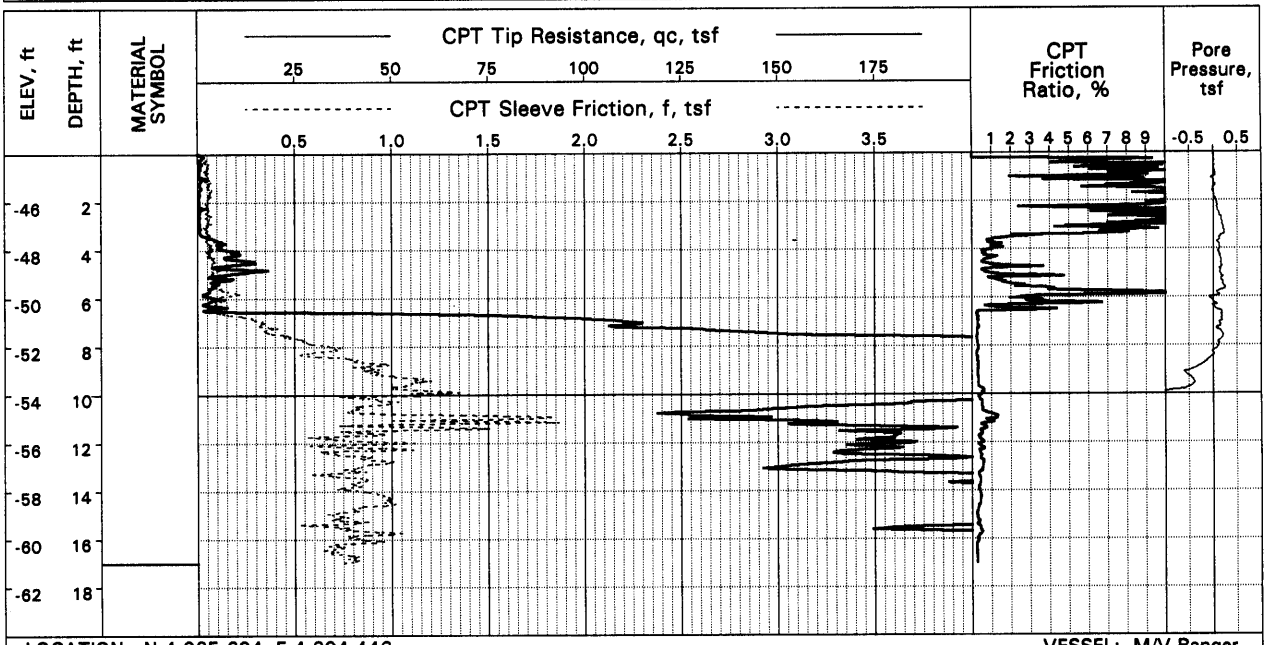
LOCATION: N 4,025,477 E 4,204,511
ELEVATION: -45.2 ft (re: MLLW; based on water depth of 47.6 ft and tide of 2.4 ft)

COMPLETION DEPTH: 16.9 ft
DATE OF EXPLORATION: April 23, 1997

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CPT-45

UGIS ID: FD97C045



LOCATION: N 4,025,604 E 4,204,446
ELEVATION: -43.5 ft (re: MLLW; based on water depth of 46.1 ft and tide of 2.6 ft)

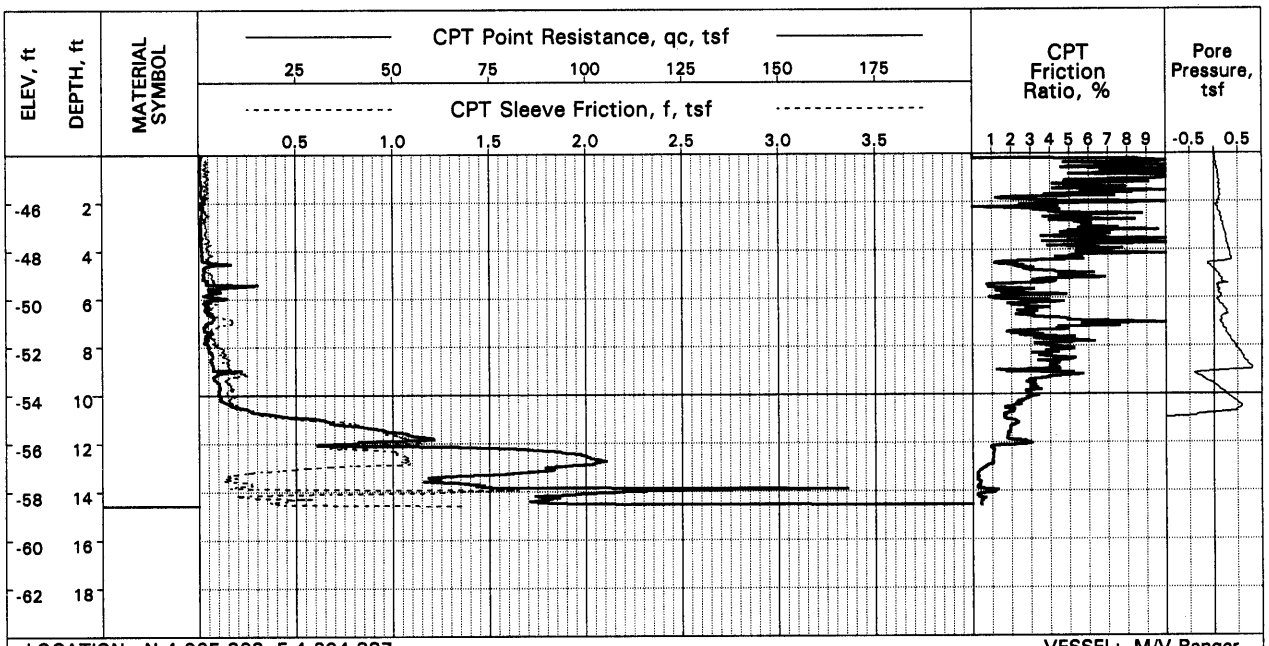
COMPLETION DEPTH: 17.0 ft
DATE OF EXPLORATION: April 23, 1997

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CPT-46

UGIS ID: FD97C046

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



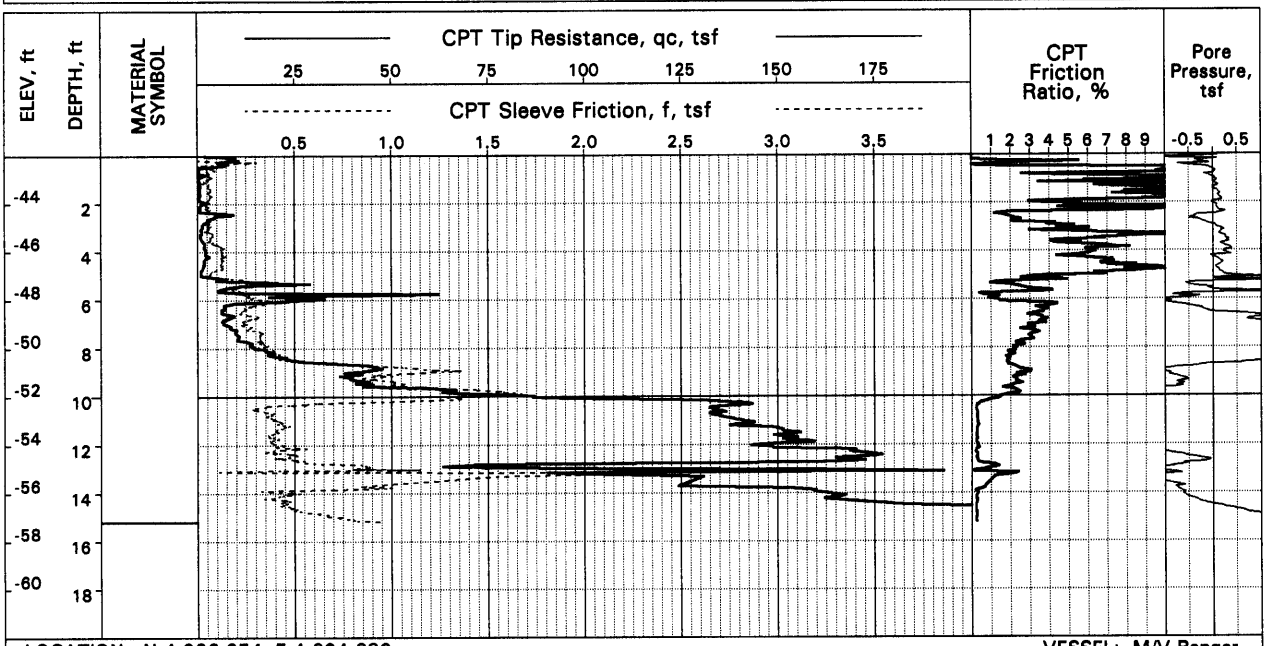
LOCATION: N 4,025,828 E 4,204,337
ELEVATION: -43.5 ft (re: MLLW; based on water depth of 46.3 ft and tide of 2.8 ft)

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 14.6 ft
DATE OF EXPLORATION: April 23, 1997

LOG OF CPT NO. CPT-47

UGIS ID: FD97C047



LOCATION: N 4,026,054 E 4,204,230
ELEVATION: -42.1 ft (re: MLLW; based on water depth of 45.1 ft and tide of 3.0 ft)

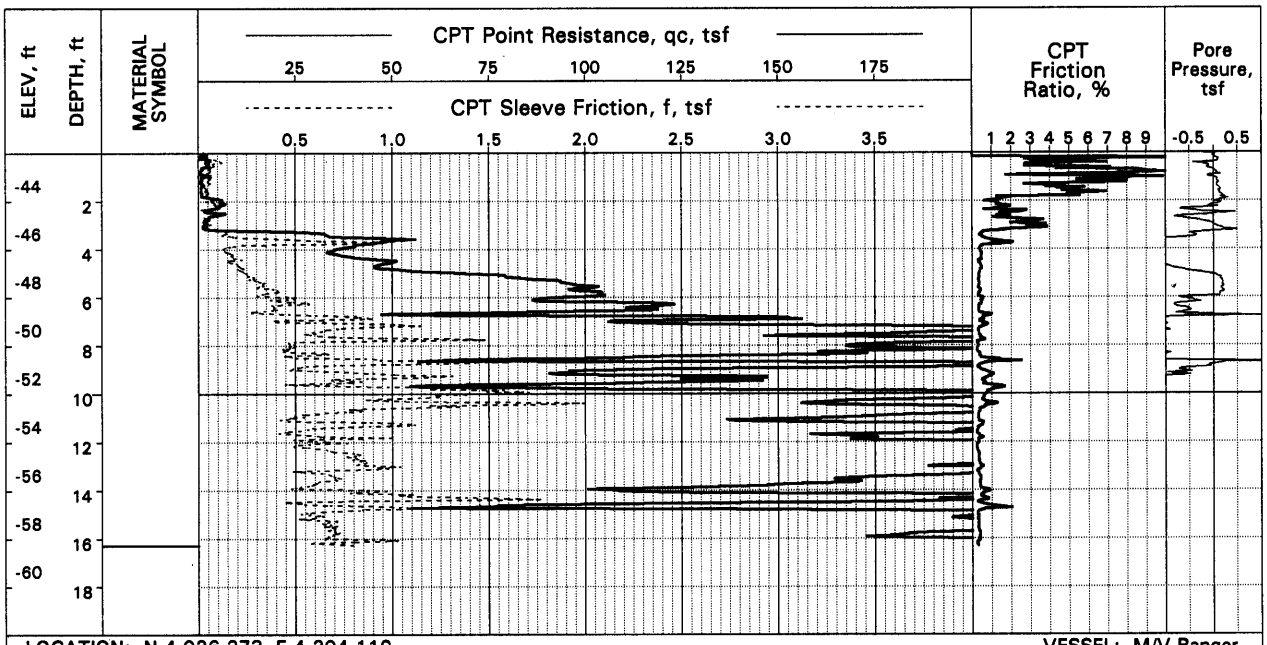
VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 15.2 ft
DATE OF EXPLORATION: April 23, 1997

LOG OF CPT NO. CPT-48

UGIS ID: FD97C048

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



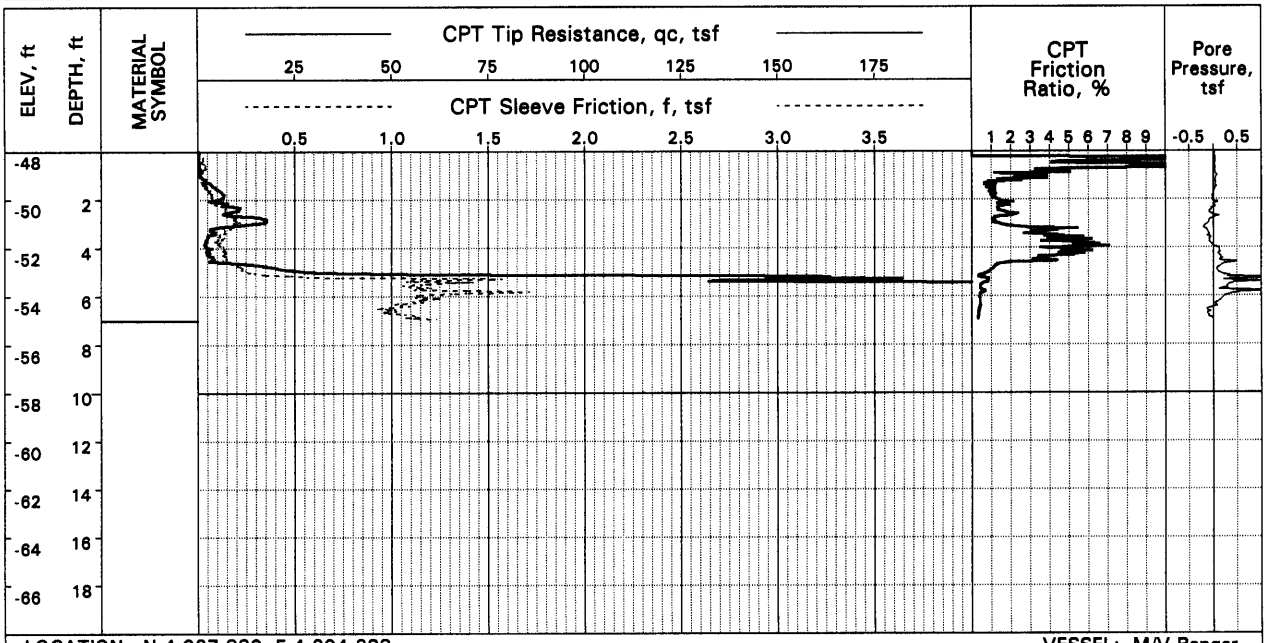
LOCATION: N 4,026,273 E 4,204,119
ELEVATION: -42.4 ft (re: MLLW; based on water depth of 45.6 ft and tide of 3.2 ft)

COMPLETION DEPTH: 16.3 ft
DATE OF EXPLORATION: April 23, 1997

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CPT-49

UGIS ID: FD97C049



LOCATION: N 4,027,330 E 4,204,283
ELEVATION: -47.3 ft (re: MLLW; based on water depth of 50.1 ft and tide of 2.8 ft)

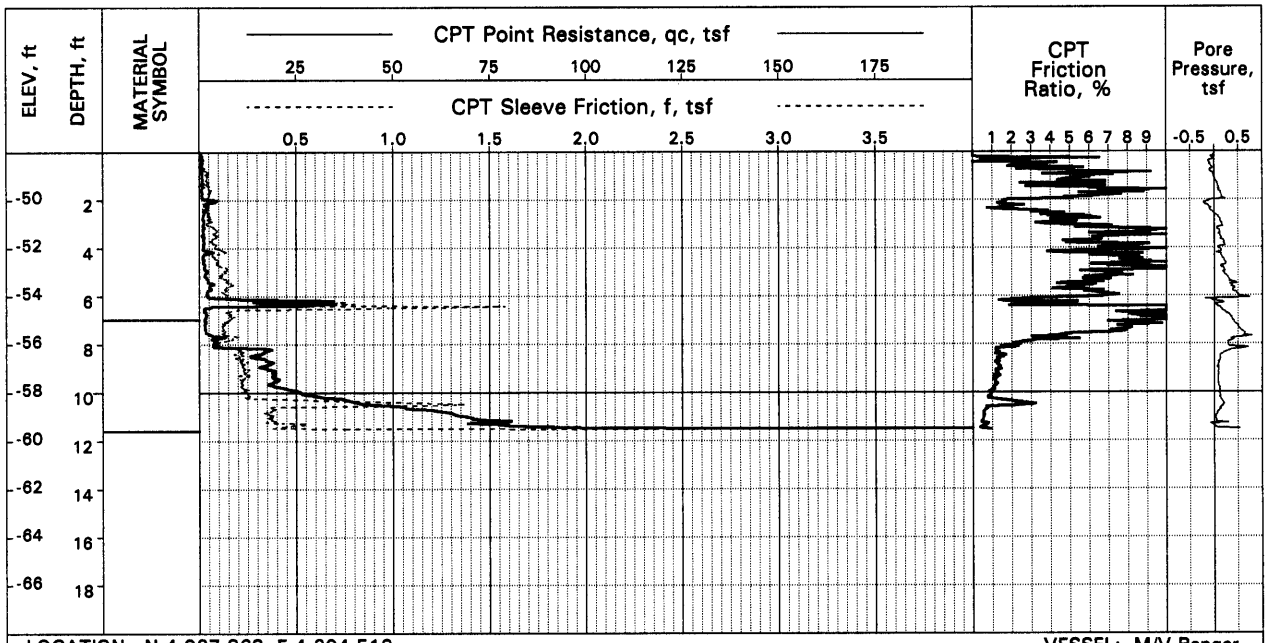
COMPLETION DEPTH: 7.0 ft
DATE OF EXPLORATION: April 23, 1997

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CPT-50

UGIS ID: FD97C050

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



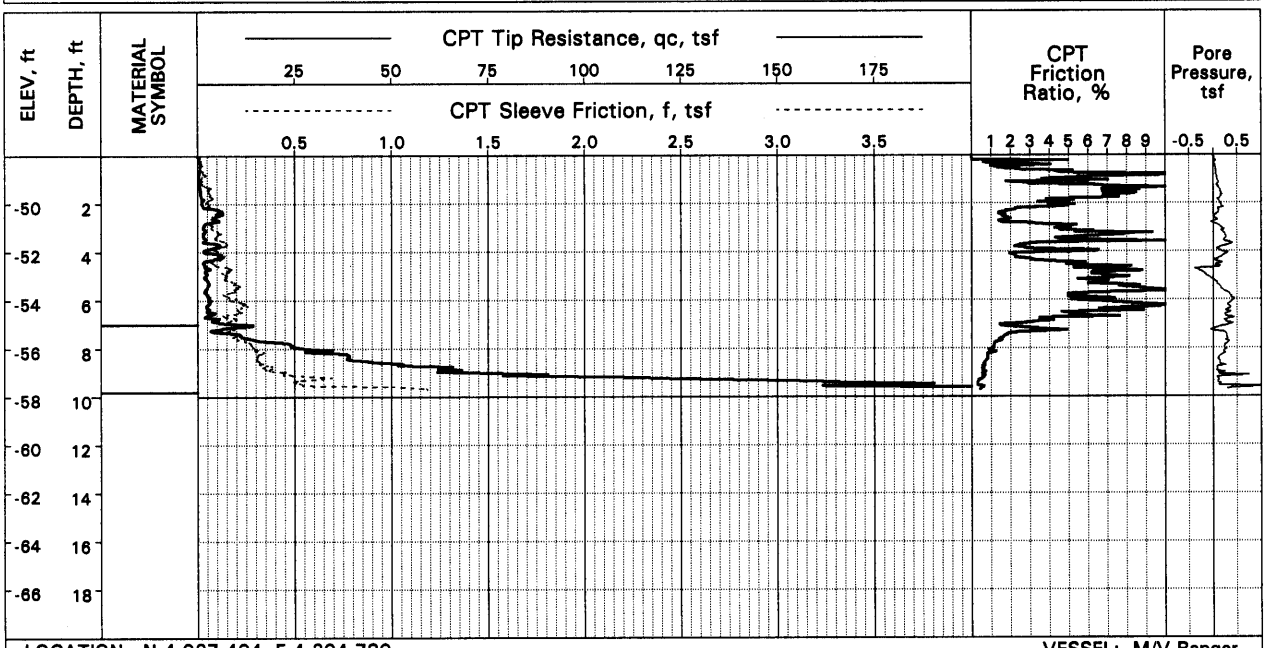
LOCATION: N 4,027,368 E 4,204,519
ELEVATION: -47.9 ft (re: MLLW; based on water depth of 50.6 ft and tide of 2.7 ft)

COMPLETION DEPTH: 11.6 ft
DATE OF EXPLORATION: April 23, 1997

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CPT-51

UGIS ID: FD97C051



LOCATION: N 4,027,404 E 4,204,780
ELEVATION: -47.6 ft (re: MLLW; based on water depth of 50.1 ft and tide of 2.5 ft)

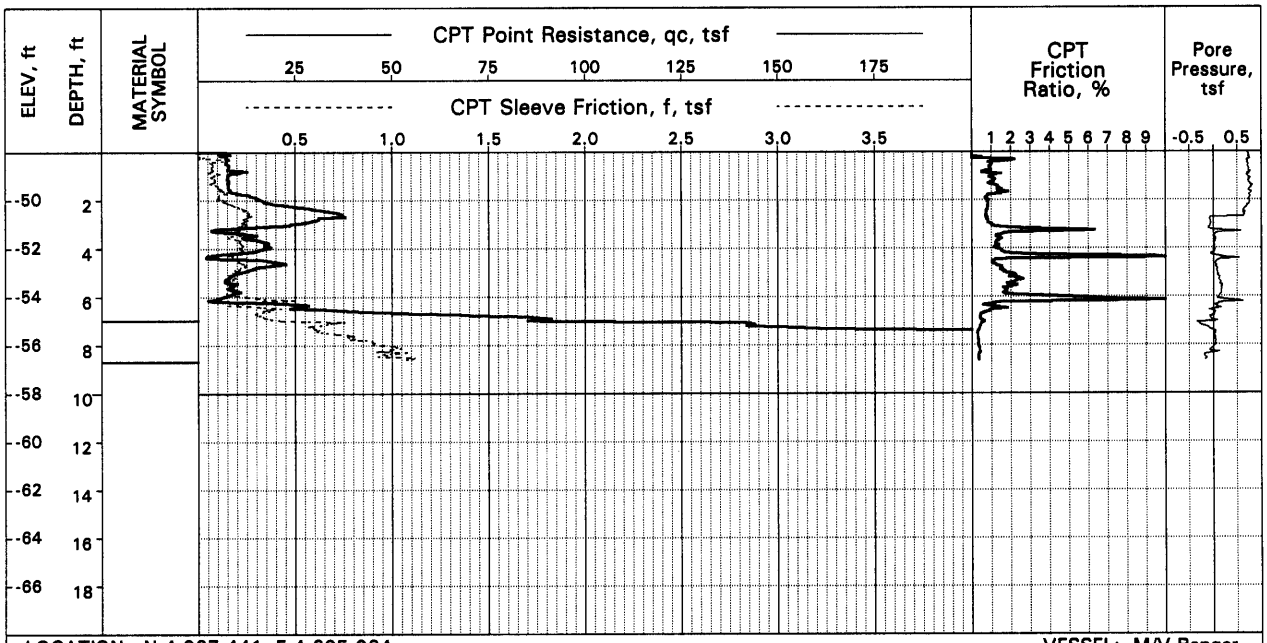
COMPLETION DEPTH: 9.8 ft
DATE OF EXPLORATION: April 23, 1997

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CPT-52

UGIS ID: FD97C052

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



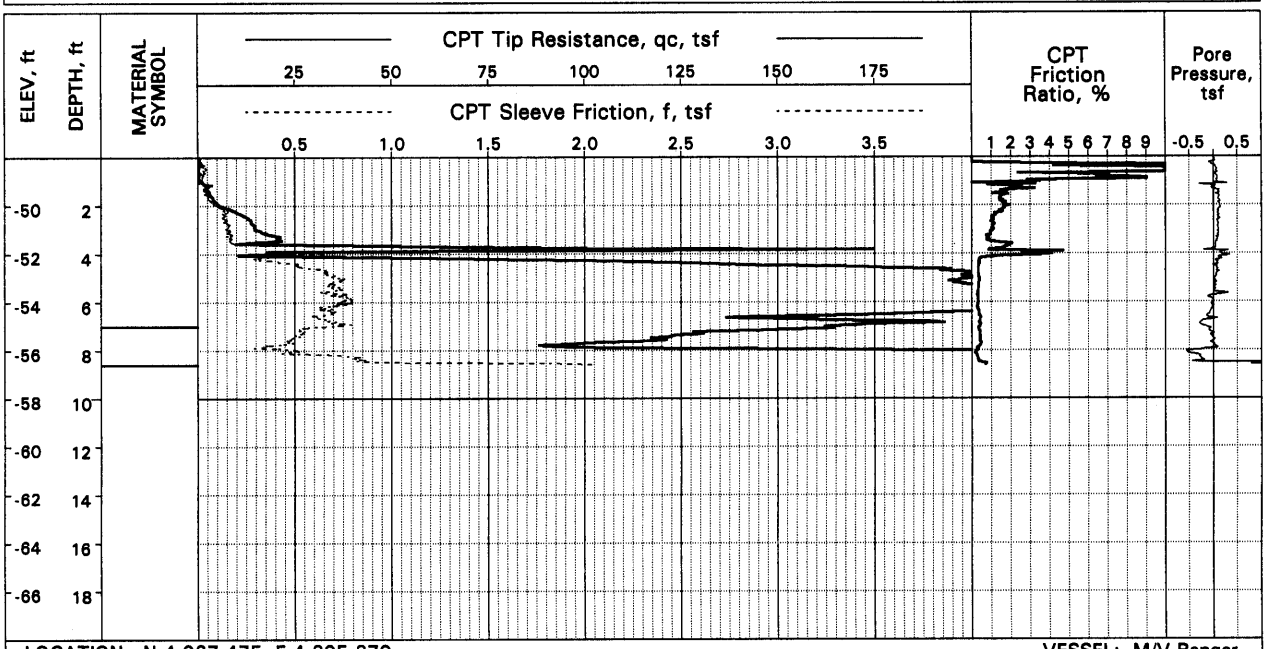
LOCATION: N 4,027,441 E 4,205,024
ELEVATION: -47.8 ft (re: MLLW; based on water depth of 50.1 ft and tide of 2.3 ft)

COMPLETION DEPTH: 8.7 ft
DATE OF EXPLORATION: April 23, 1997

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CPT-53

UGIS ID: FD97C053



LOCATION: N 4,027,475 E 4,205,270
ELEVATION: -47.6 ft (re: MLLW; based on water depth of 51.2 ft and tide of 3.6 ft)

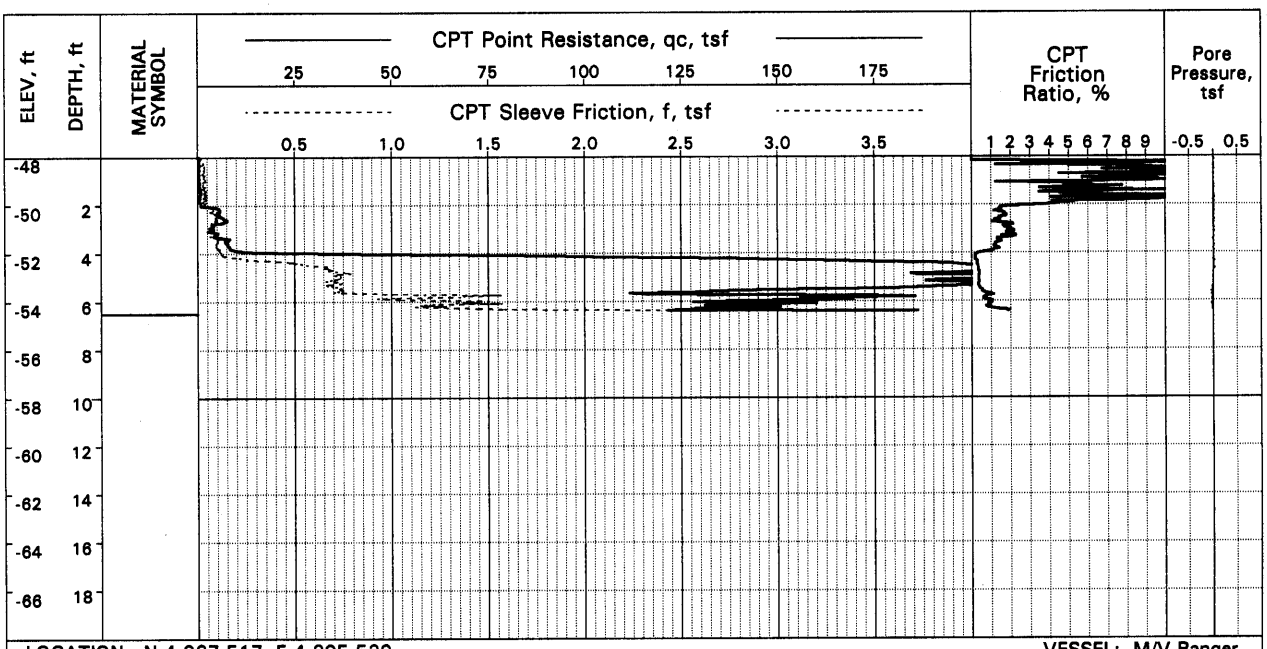
COMPLETION DEPTH: 8.6 ft
DATE OF EXPLORATION: April 23, 1997

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CPT-54

UGIS ID: FD97C054

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



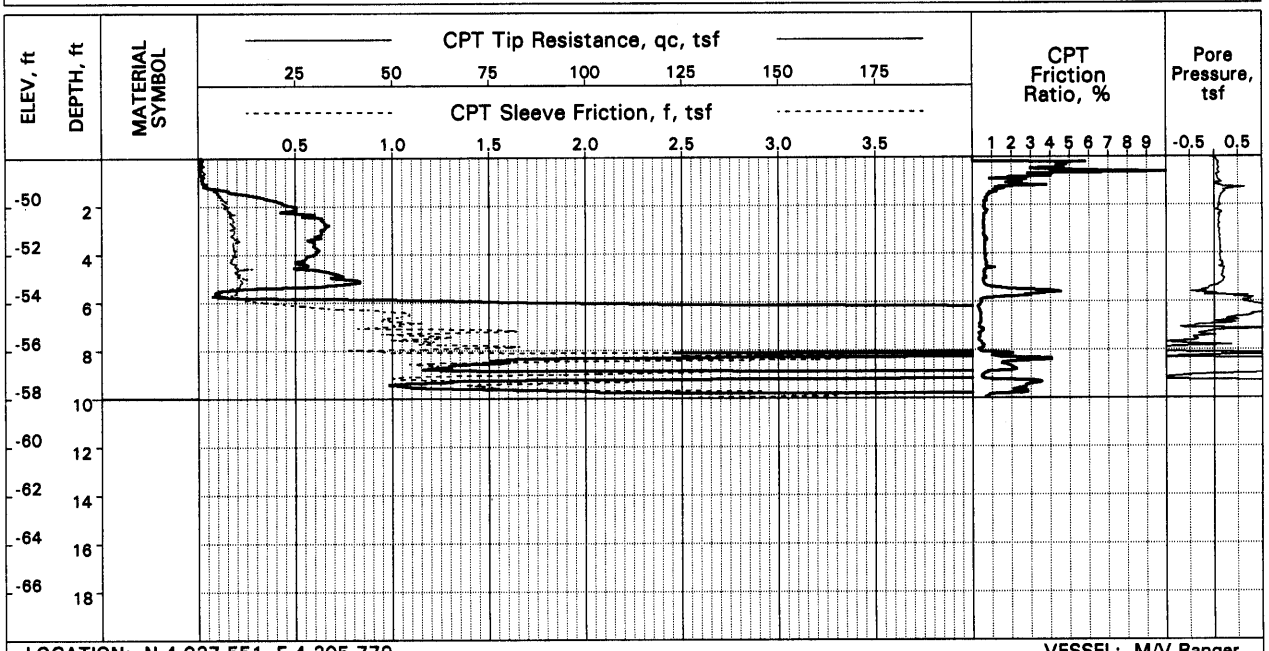
LOCATION: N 4,027,517 E 4,205,529
ELEVATION: -47.4 ft (re: MLLW; based on water depth of 51.4 ft and tide of 4.0 ft)

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 6.5 ft
DATE OF EXPLORATION: April 23, 1997

LOG OF CPT NO. CPT-55

UGIS ID: FD97C055



LOCATION: N 4,027,551 E 4,205,779
ELEVATION: -48.1 ft (re: MLLW; based on water depth of 52.0 ft and tide of 3.9 ft)

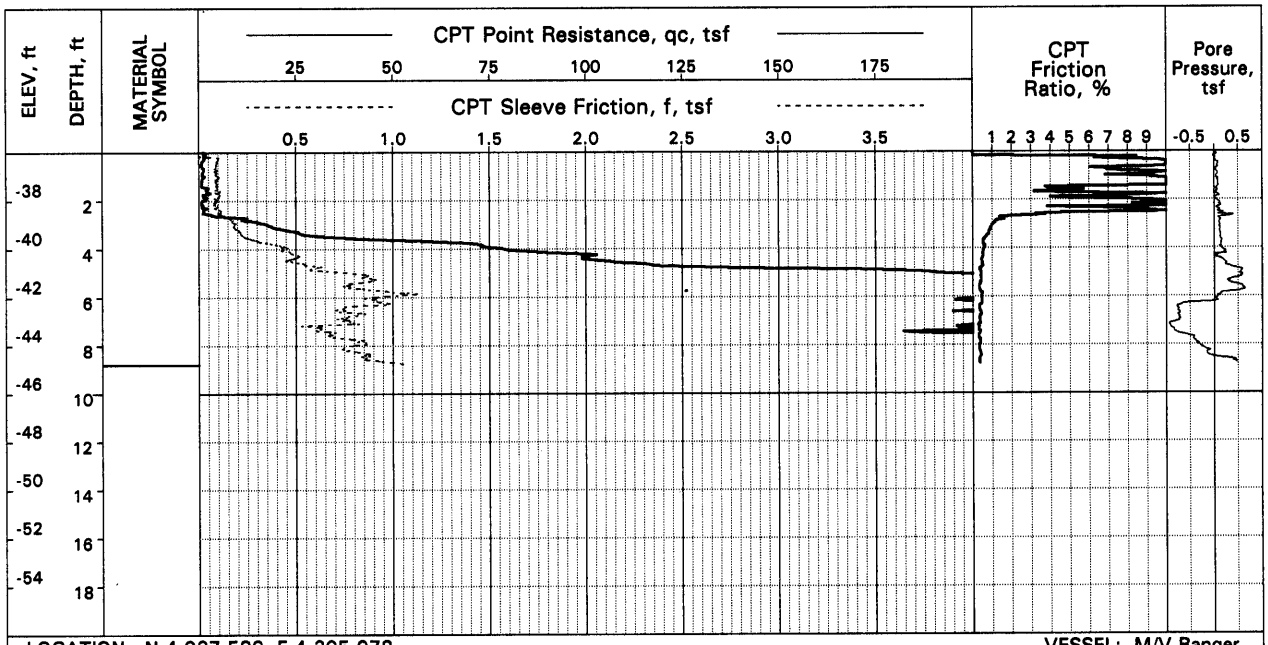
VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 10.0 ft
DATE OF EXPLORATION: April 23, 1997

LOG OF CPT NO. CPT-56

UGIS ID: FD97C056

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



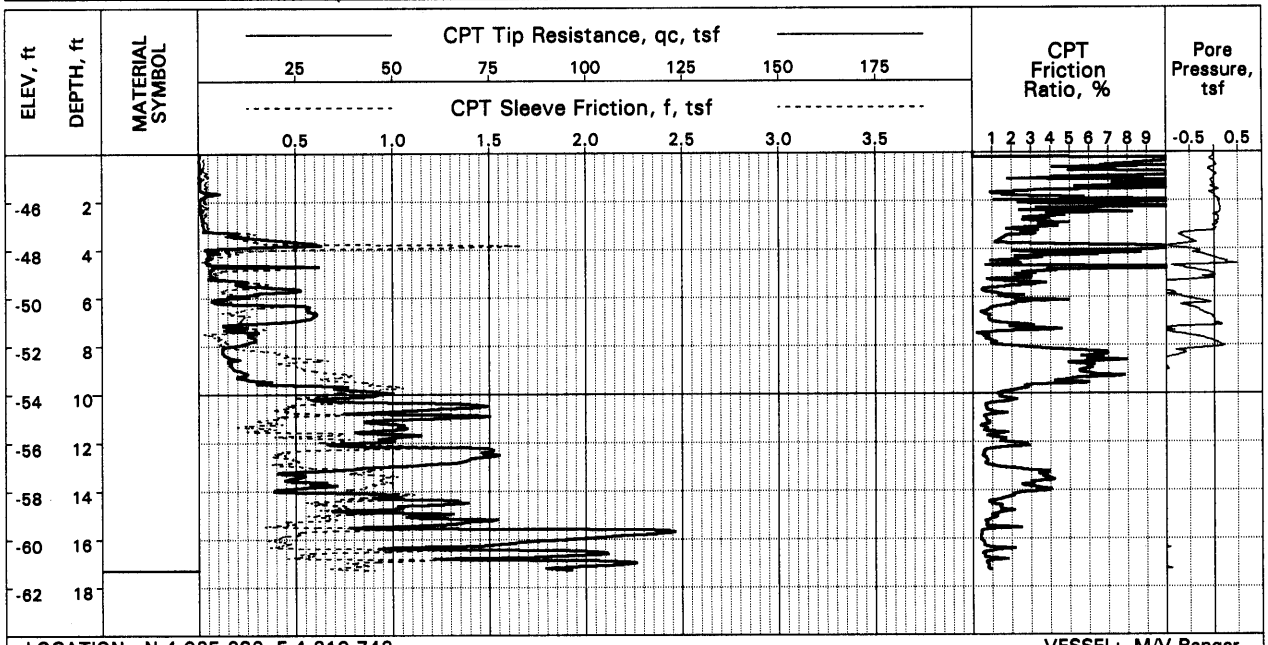
LOCATION: N 4,027,589 E 4,205,978
ELEVATION: -36.2 ft (re: MLLW; based on water depth of 40.0 ft and tide of 3.8 ft)

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 8.8 ft
DATE OF EXPLORATION: April 23, 1997

LOG OF CPT NO. CPT-57

UGIS ID: FD97C057



LOCATION: N 4,025,282 E 4,210,742
ELEVATION: -43.5 ft (re: MLLW; based on water depth of 46.4 ft and tide of 2.9 ft)

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

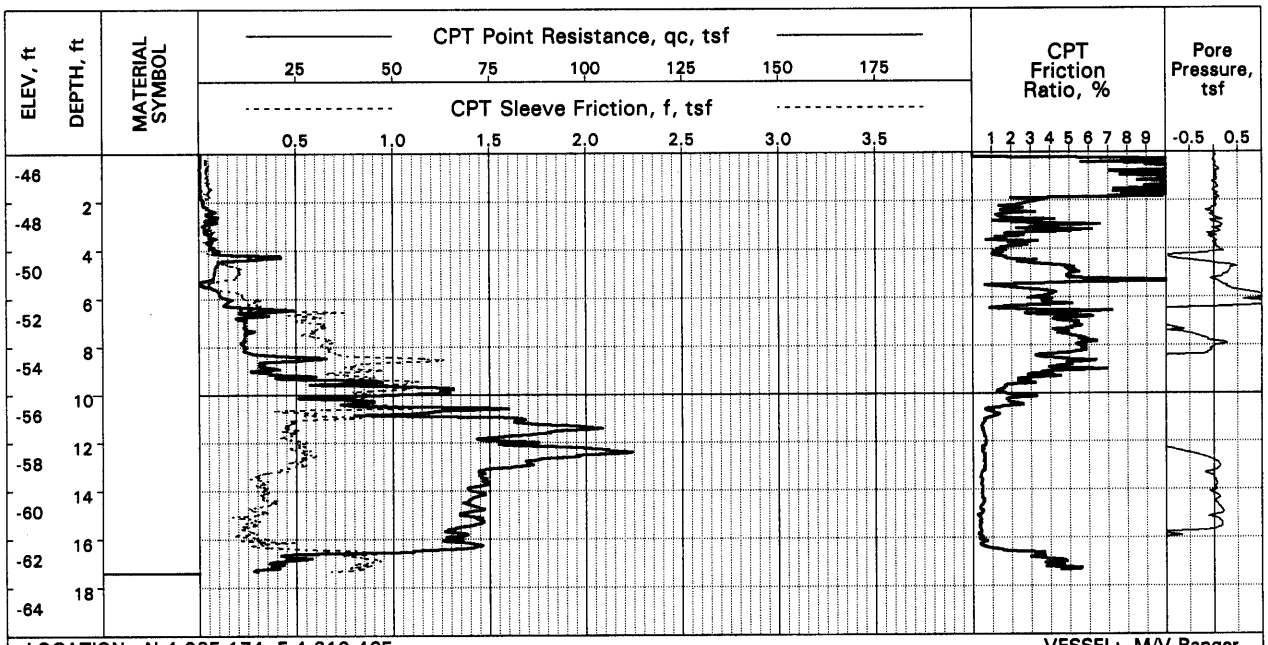
COMPLETION DEPTH: 17.3 ft
DATE OF EXPLORATION: April 21, 1997

LOG OF CPT NO. CPT-58

UGIS ID: FD97C058

LOGS OF CPTs

Channel Deepening Program
Port of Los Angeles



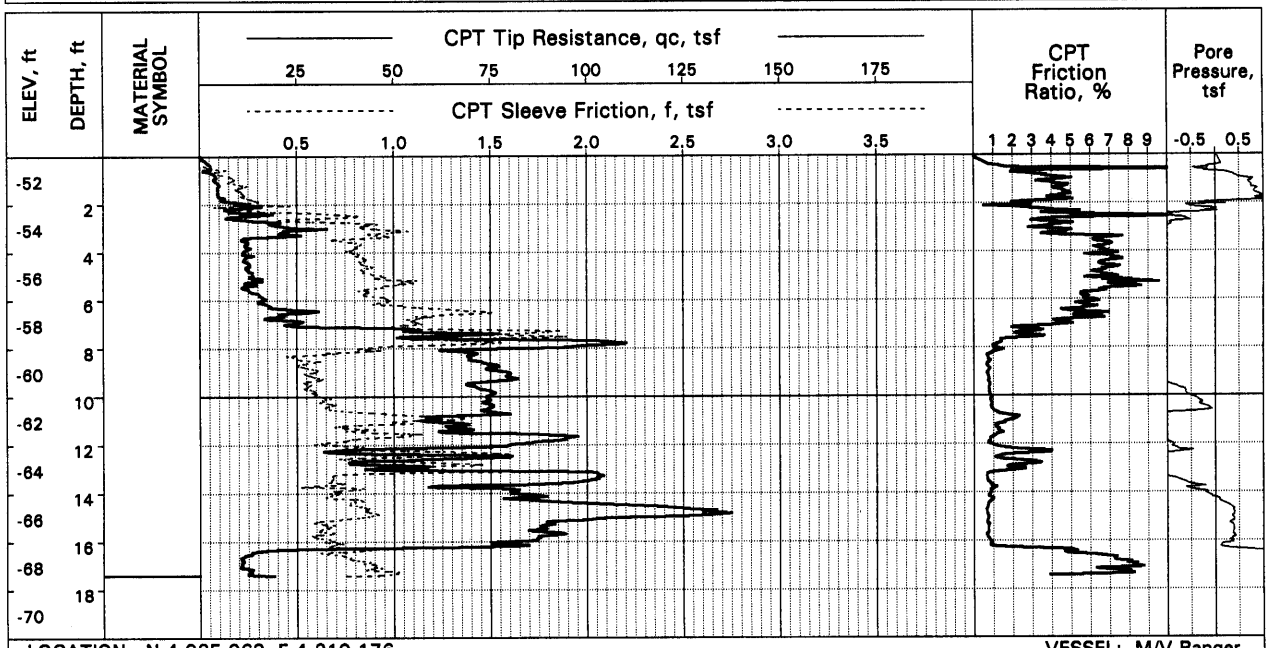
LOCATION: N 4,025,174 E 4,210,465
ELEVATION: -44.9 ft (re: MLLW; based on water depth of 48.0 ft and tide of 3.1 ft)

COMPLETION DEPTH: 17.4 ft
DATE OF EXPLORATION: April 21, 1997

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CPT-59

UGIS ID: FD97C059



LOCATION: N 4,025,068 E 4,210,176
ELEVATION: -50.7 ft (re: MLLW; based on water depth of 51.5 ft and tide of 0.8 ft)

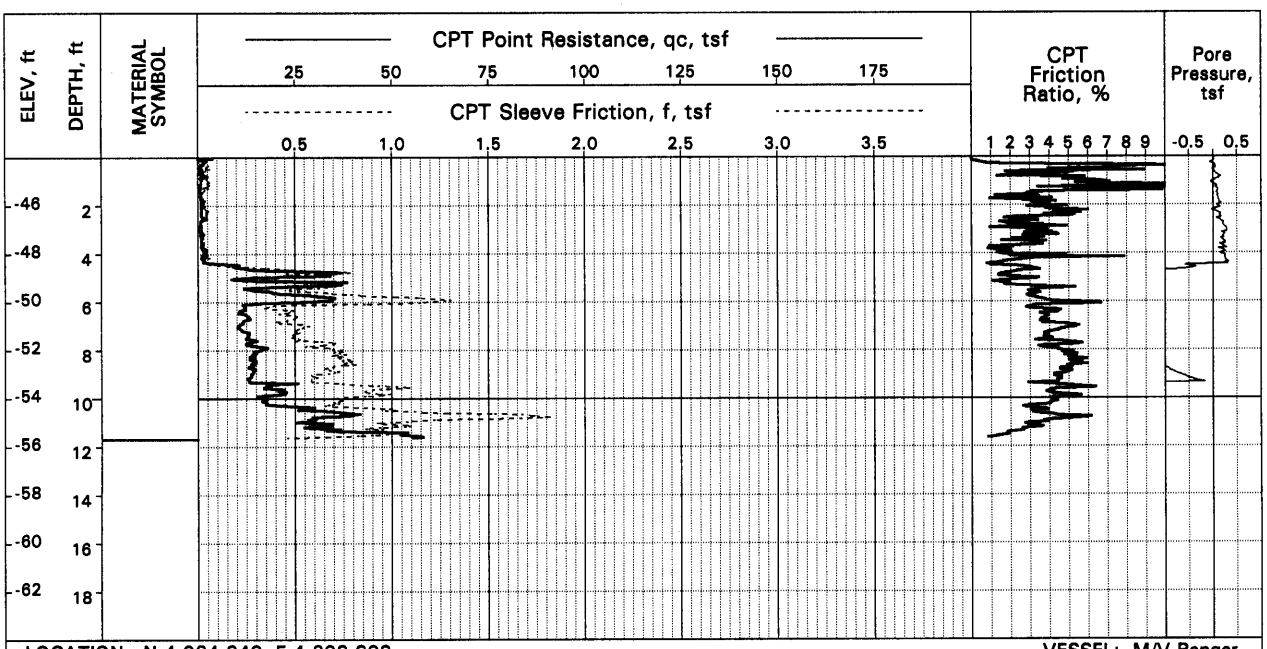
COMPLETION DEPTH: 17.4 ft
DATE OF EXPLORATION: April 25, 1997

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CPT-60

UGIS ID: FD97C060

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



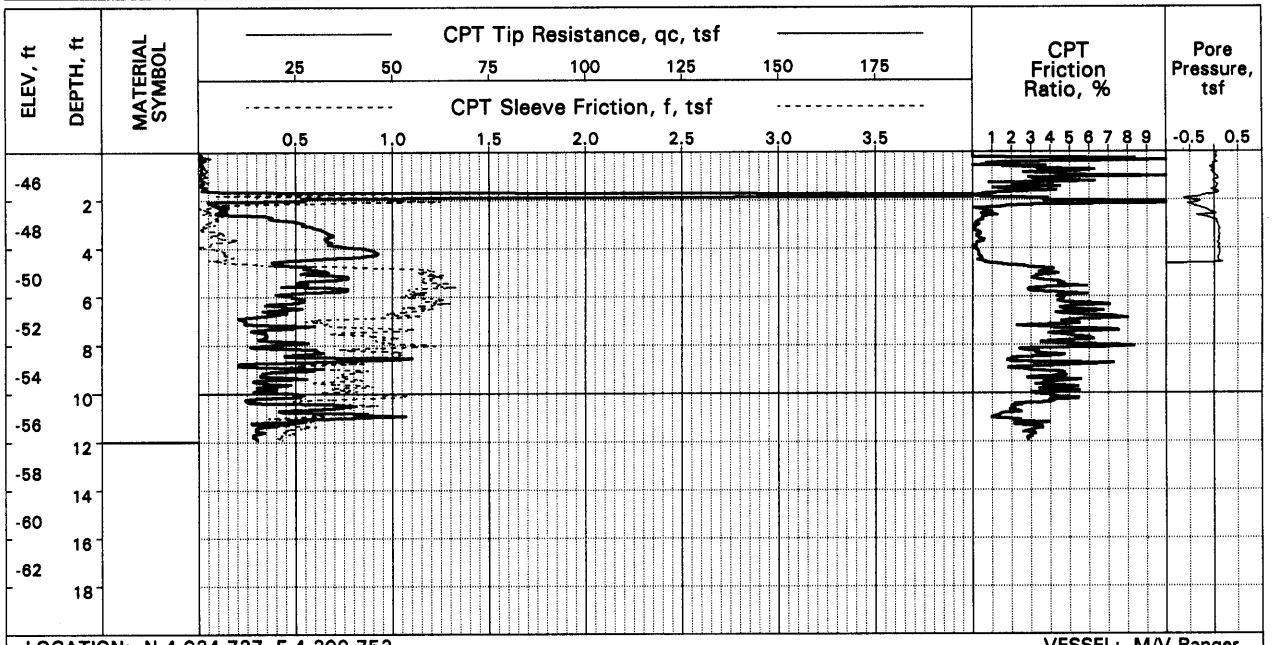
LOCATION: N 4,024,940 E 4,209,909
ELEVATION: -43.9 ft (re: MLLW; based on water depth of 45.6 ft and tide of 1.7 ft)

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 11.7 ft
DATE OF EXPLORATION: April 21, 1997

LOG OF CPT NO. CPT-61

UGIS ID: FD97C061



LOCATION: N 4,024,727 E 4,209,752
ELEVATION: -44.5 ft (re: MLLW; based on water depth of 46.0 ft and tide of 1.5 ft)

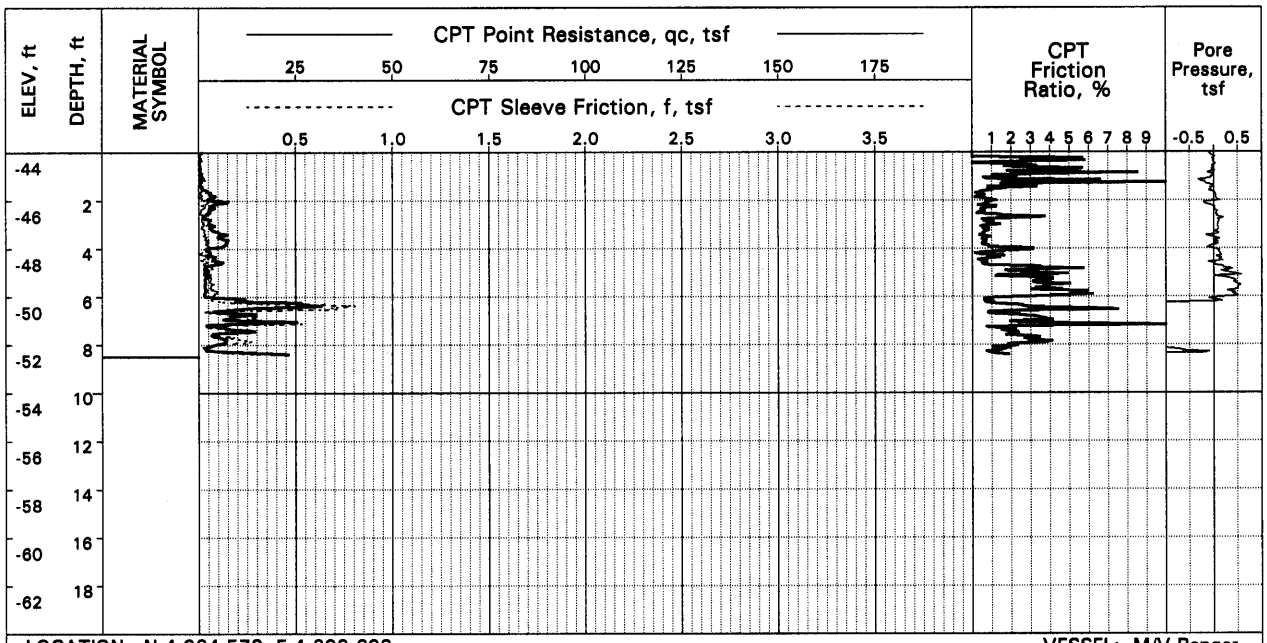
VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 12.0 ft
DATE OF EXPLORATION: April 21, 1997

LOG OF CPT NO. CPT-62

UGIS ID: FD97C062

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



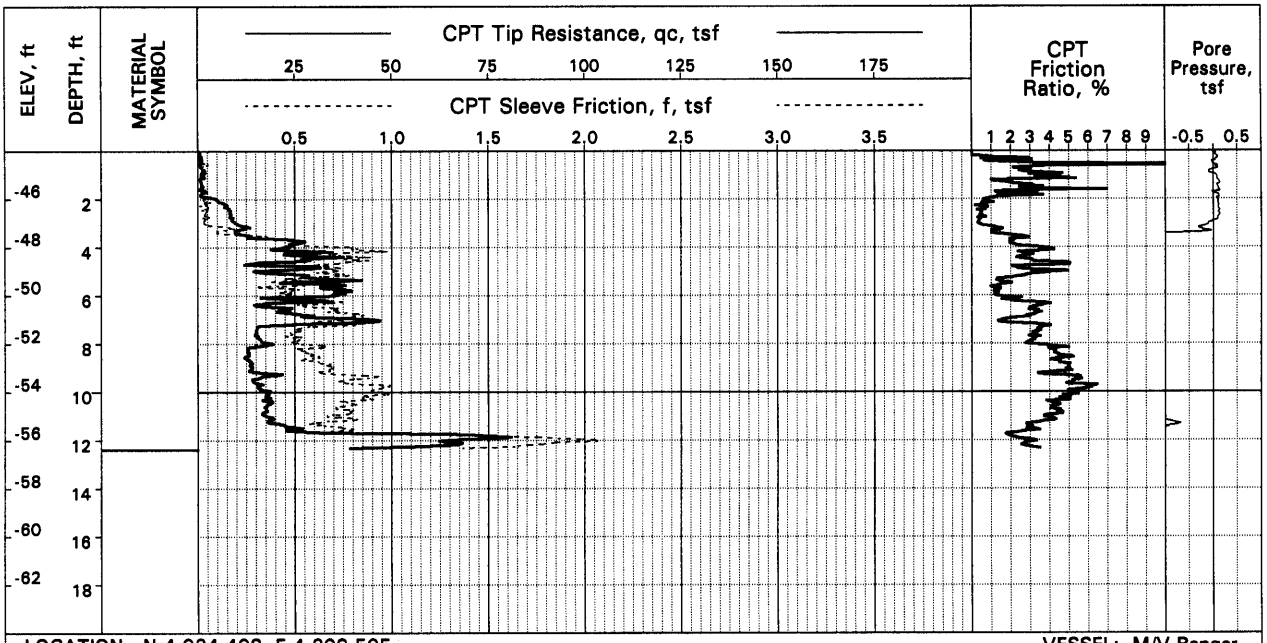
LOCATION: N 4,024,578 E 4,209,609
ELEVATION: -43.1 ft (re: MLLW; based on water depth of 44.6 ft and tide of 1.5 ft)

COMPLETION DEPTH: 8.5 ft
DATE OF EXPLORATION: April 24, 1997

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CPT-63

UGIS ID: FD97C063



LOCATION: N 4,024,408 E 4,209,505
ELEVATION: -44.1 ft (re: MLLW; based on water depth of 45.4 ft and tide of 1.3 ft)

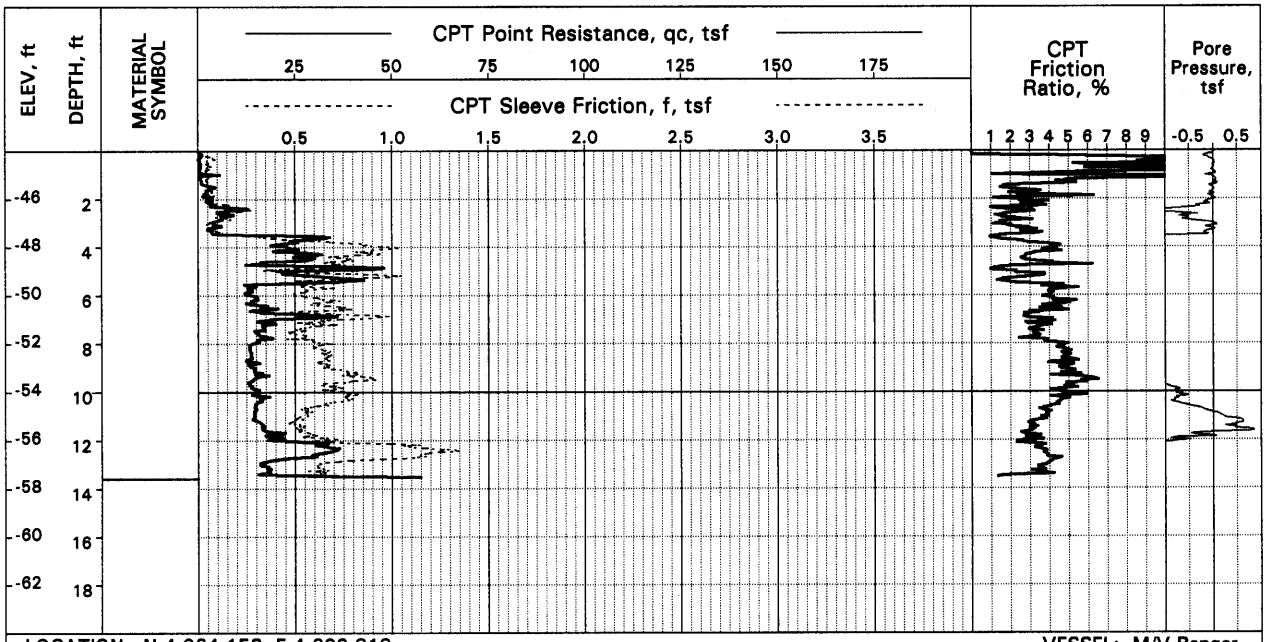
COMPLETION DEPTH: 12.4 ft
DATE OF EXPLORATION: April 21, 1997

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CPT-64

UGIS ID: FD97C064

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



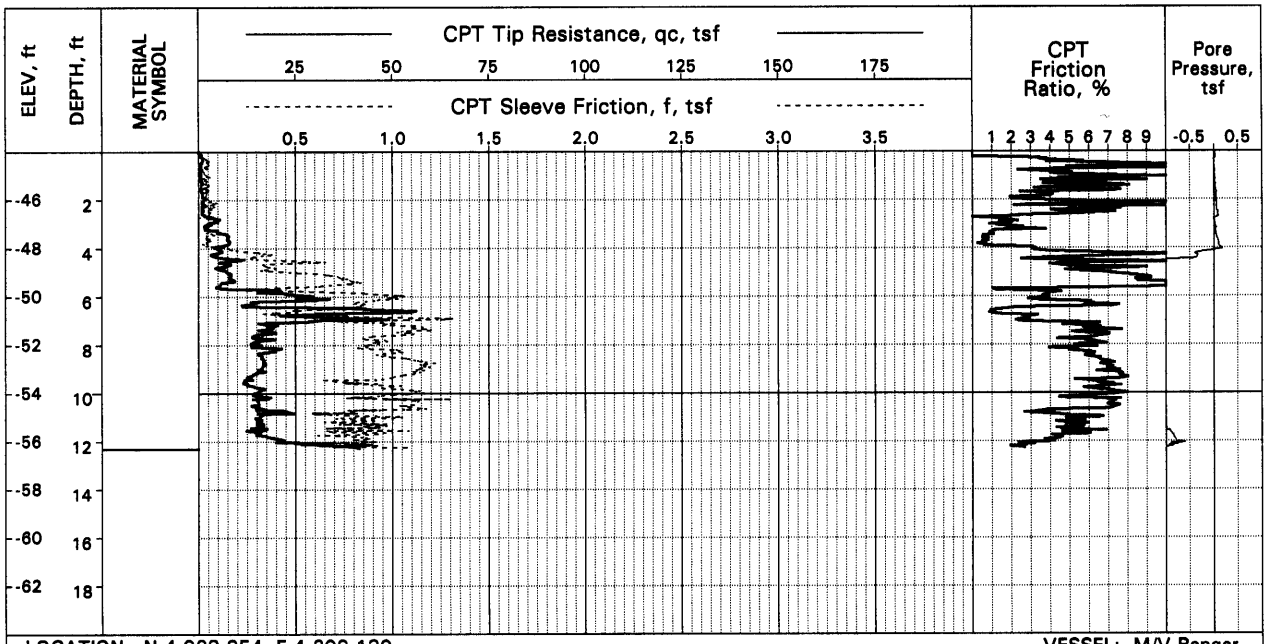
LOCATION: N 4,024,158 E 4,209,313
ELEVATION: -43.9 ft (re: MLLW; based on water depth of 45.0 ft and tide of 1.1 ft)

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 13.6 ft
DATE OF EXPLORATION: April 21, 1997

LOG OF CPT NO. CPT-65

UGIS ID: FD97C065



LOCATION: N 4,023,954 E 4,209,130
ELEVATION: -43.8 ft (re: MLLW; based on water depth of 47.5 ft and tide of 3.7 ft)

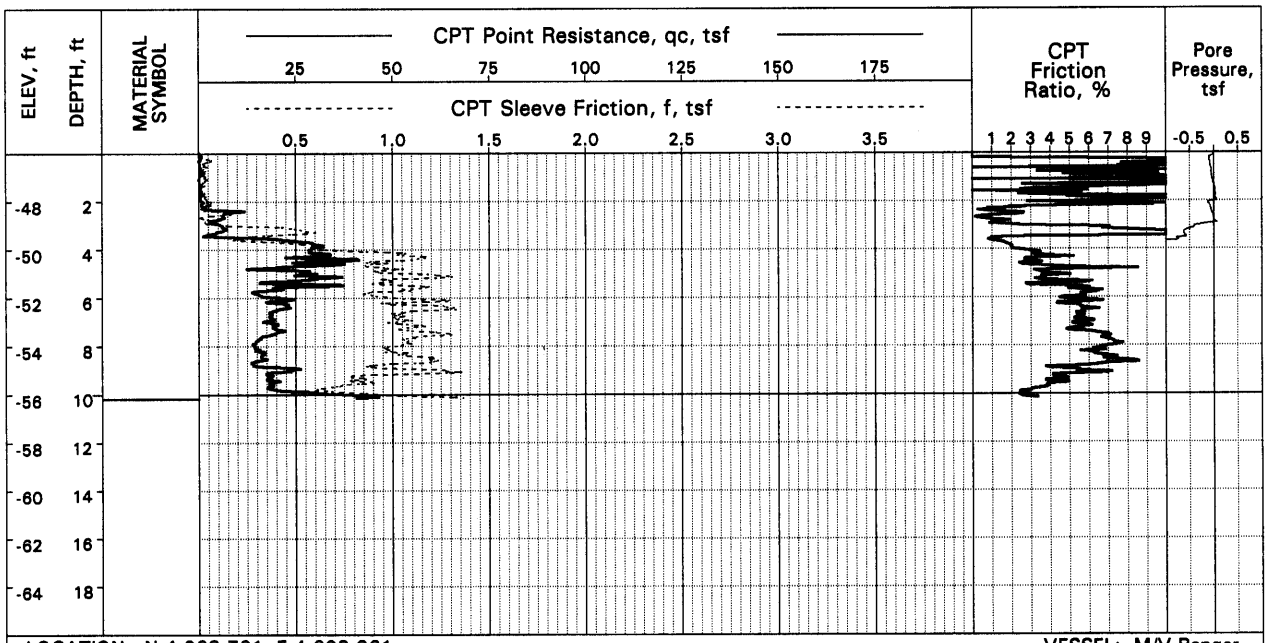
VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 12.3 ft
DATE OF EXPLORATION: April 21, 1997

LOG OF CPT NO. CPT-66

UGIS ID: FD97C066

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



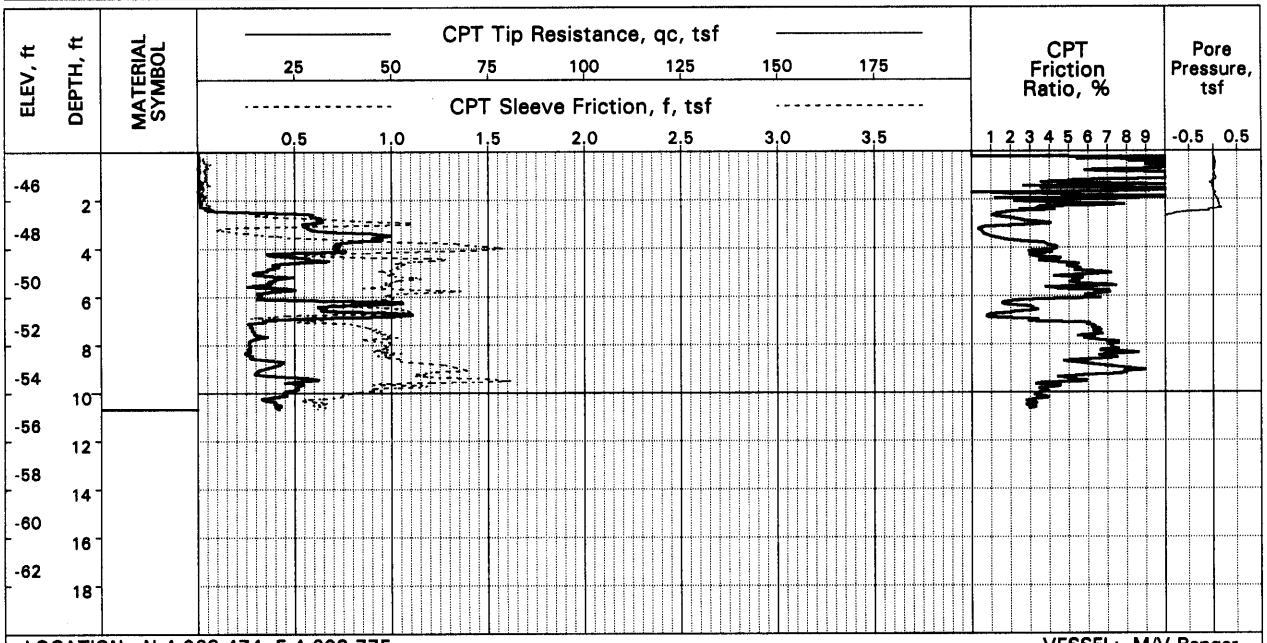
LOCATION: N 4,023,721 E 4,208,961
ELEVATION: -45.5 ft (re: MLLW; based on water depth of 49.5 ft and tide of 4.0 ft)

COMPLETION DEPTH: 10.2 ft
DATE OF EXPLORATION: April 21, 1997

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CPT-67

UGIS ID: FD97C067



LOCATION: N 4,023,474 E 4,208,775
ELEVATION: -44.4 ft (re: MLLW; based on water depth of 48.5 ft and tide of 4.1 ft)

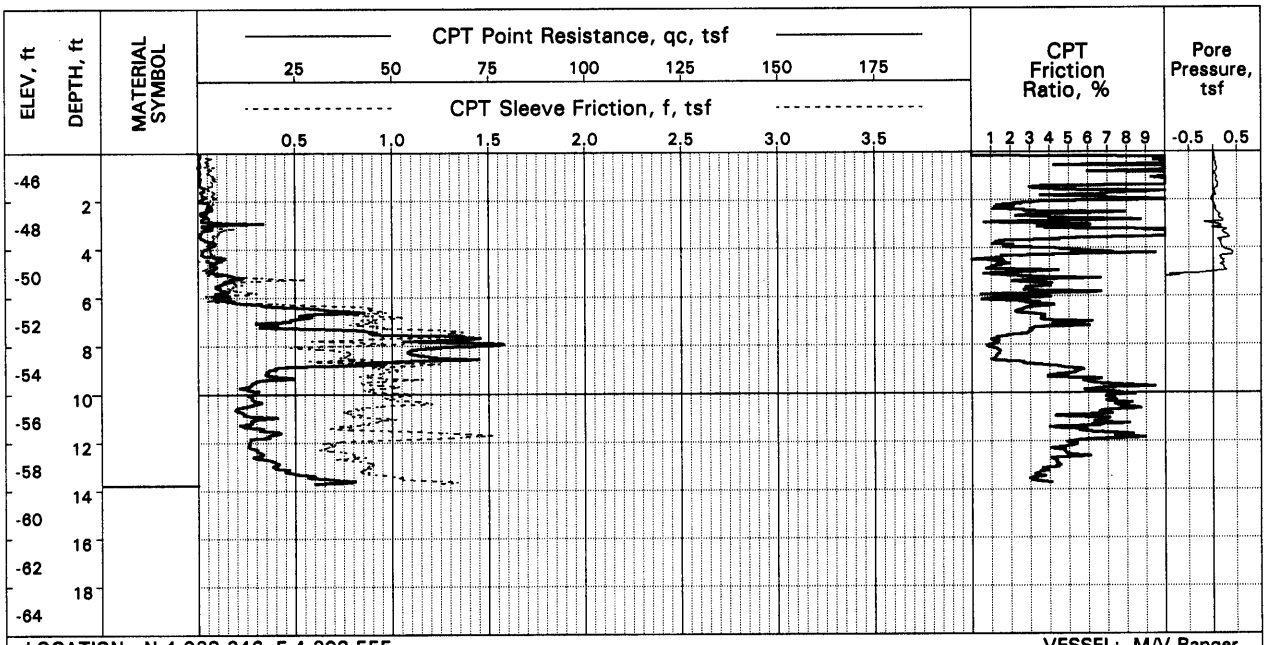
COMPLETION DEPTH: 10.7 ft
DATE OF EXPLORATION: April 21, 1997

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CPT-68

UGIS ID: FD97C068

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



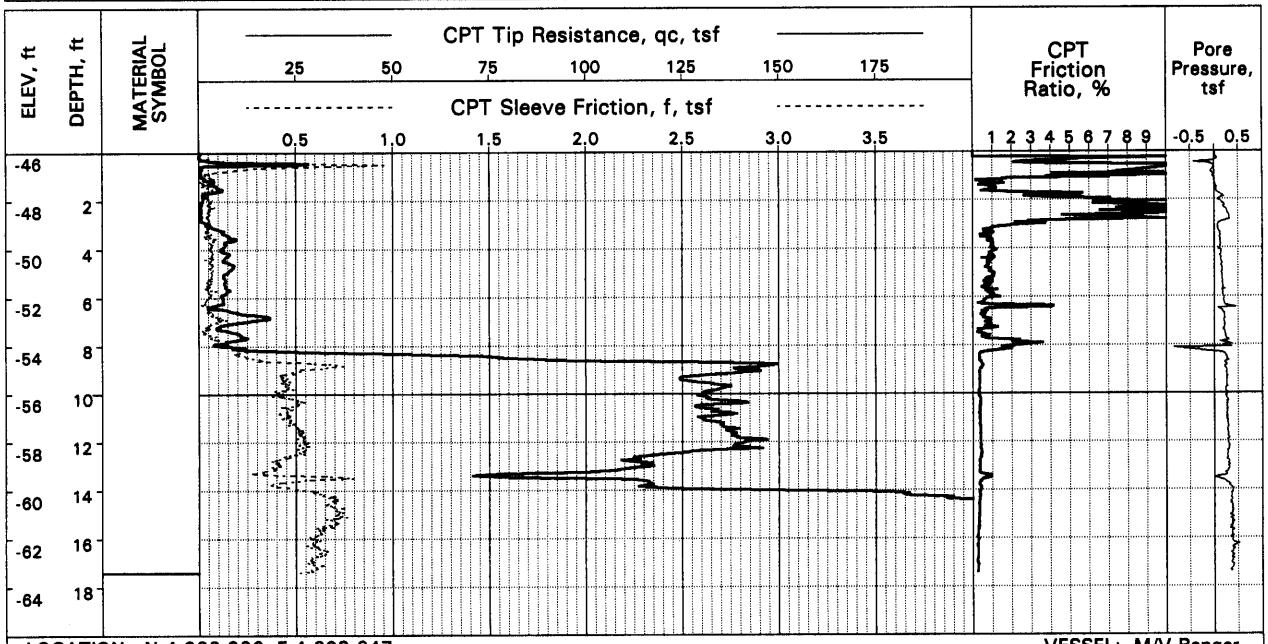
LOCATION: N 4,023,246 E 4,208,555
ELEVATION: -44.6 ft (re: MLLW; based on water depth of 48.8 ft and tide of 4.2 ft)

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 13.8 ft
DATE OF EXPLORATION: April 21, 1997

LOG OF CPT NO. CPT-69

UGIS ID: FD97C069



LOCATION: N 4,022,926 E 4,208,247
ELEVATION: -45.3 ft (re: MLLW; based on water depth of 49.5 ft and tide of 4.2 ft)

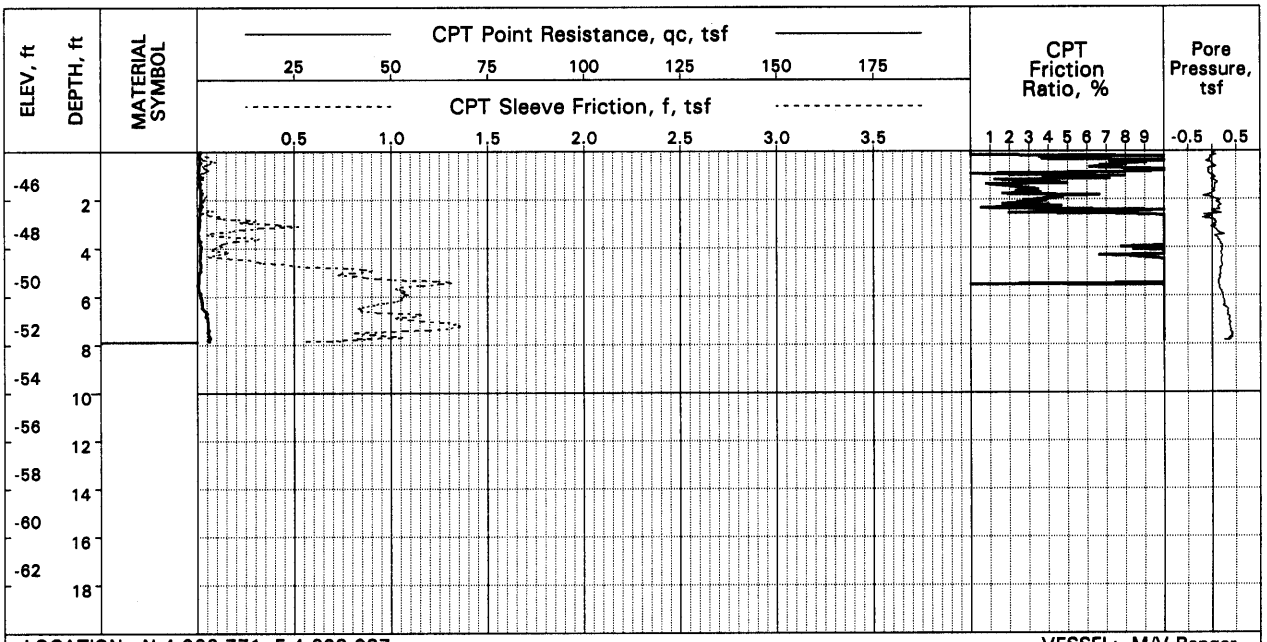
VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 17.4 ft
DATE OF EXPLORATION: April 21, 1997

LOG OF CPT NO. CPT-70

UGIS ID: FD97C070

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



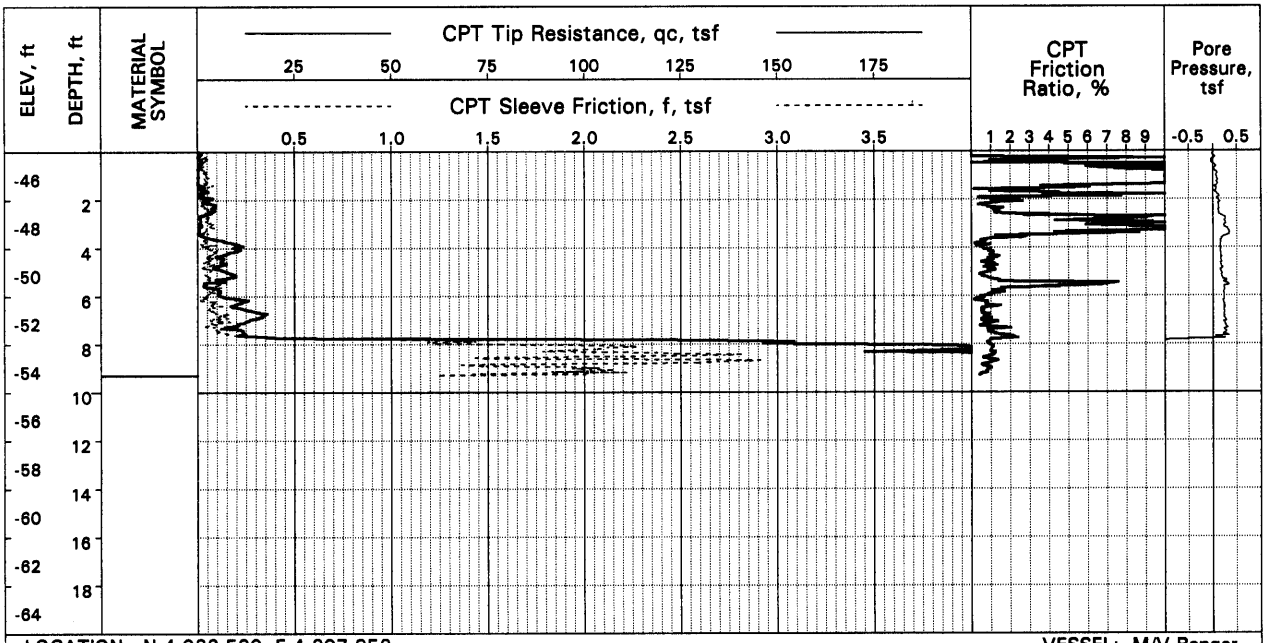
LOCATION: N 4,022,771 E 4,208,087
ELEVATION: -44.4 ft (re: MLLW; based on water depth of 46.0 ft and tide of 1.6 ft)

COMPLETION DEPTH: 7.9 ft
DATE OF EXPLORATION: April 24, 1997

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CPT-71

UGIS ID: FD97C071



LOCATION: N 4,022,590 E 4,207,952
ELEVATION: -44.6 ft (re: MLLW; based on water depth of 48.8 ft and tide of 4.2 ft)

COMPLETION DEPTH: 9.3 ft
DATE OF EXPLORATION: April 21, 1997

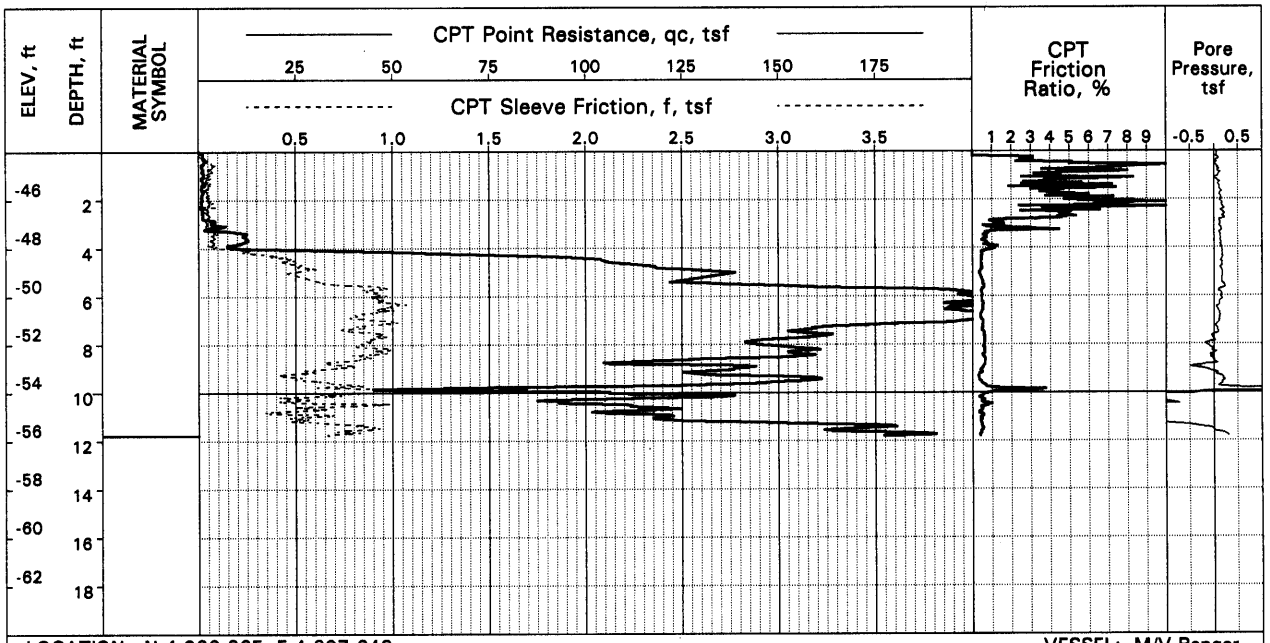
VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CPT-72

UGIS ID: FD97C072

LOGS OF CPTs

Channel Deepening Program
Port of Los Angeles



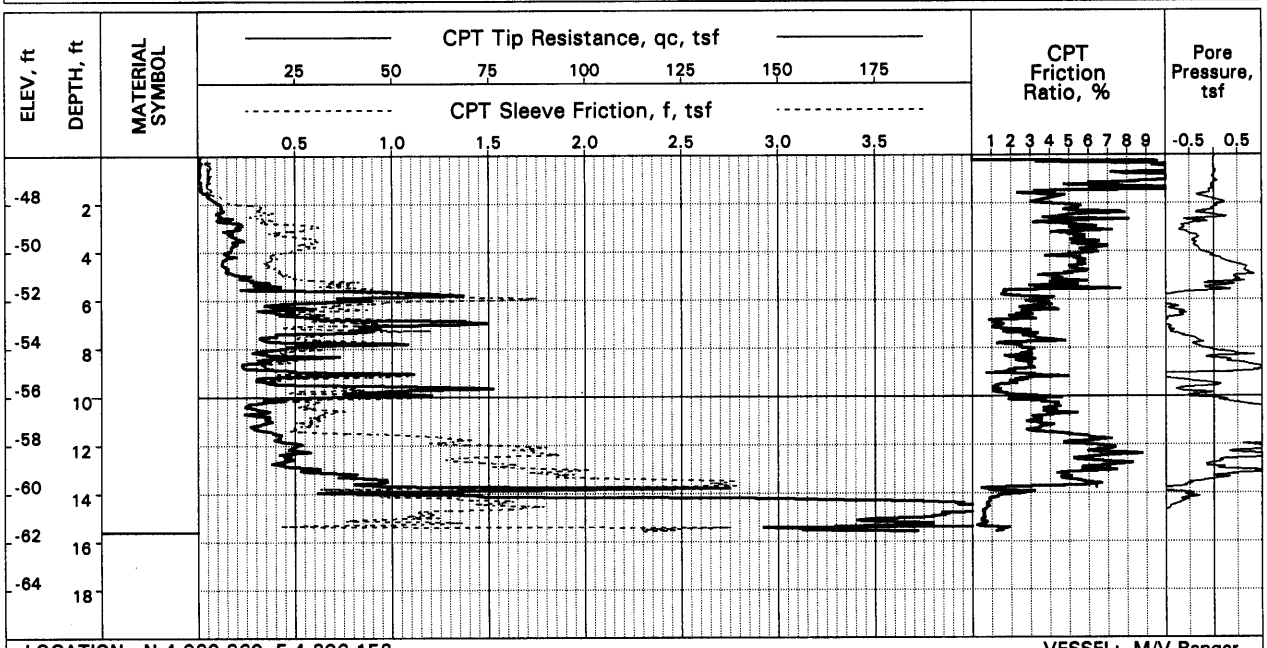
LOCATION: N 4,022,265 E 4,207,649
ELEVATION: -44.2 ft (re: MLLW; based on water depth of 48.4 ft and tide of 4.2 ft)

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 11.8 ft
DATE OF EXPLORATION: April 21, 1997

LOG OF CPT NO. CPT-74

UGIS ID: FD97C074



LOCATION: N 4,020,960 E 4,206,152
ELEVATION: -46.1 ft (re: MLLW; based on water depth of 48.1 ft and tide of 2.0 ft)

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

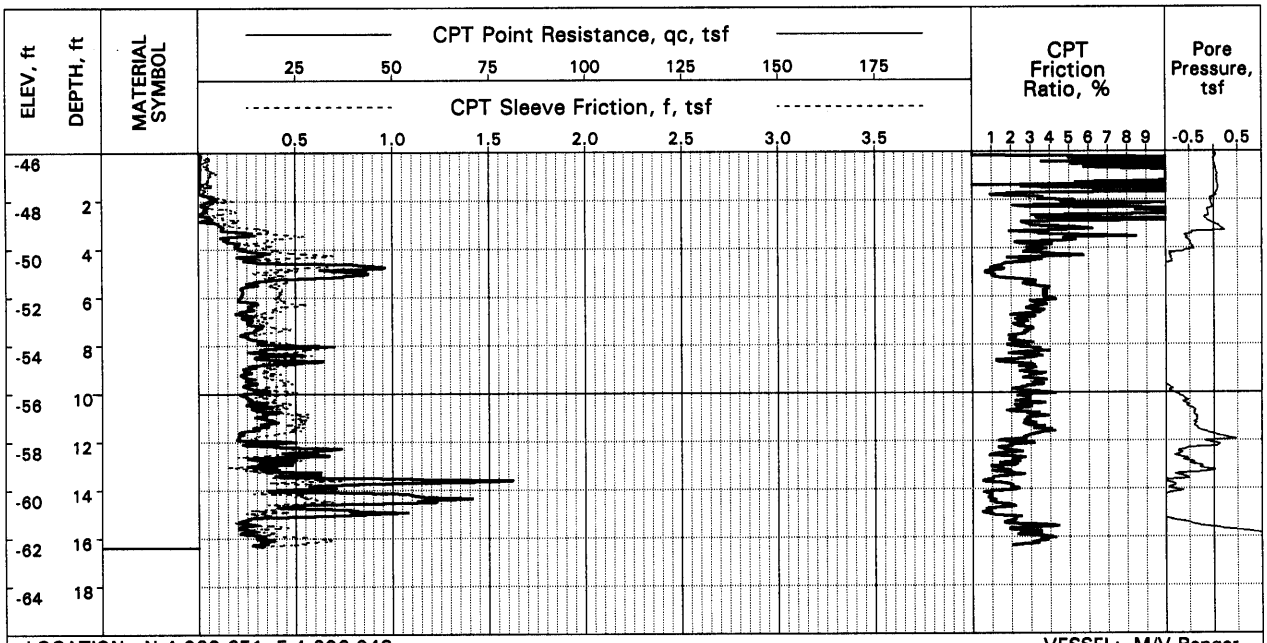
COMPLETION DEPTH: 15.6 ft
DATE OF EXPLORATION: April 25, 1997

LOG OF CPT NO. CPT-75

UGIS ID: FD97C075

LOGS OF CPTs

Channel Deepening Program
Port of Los Angeles



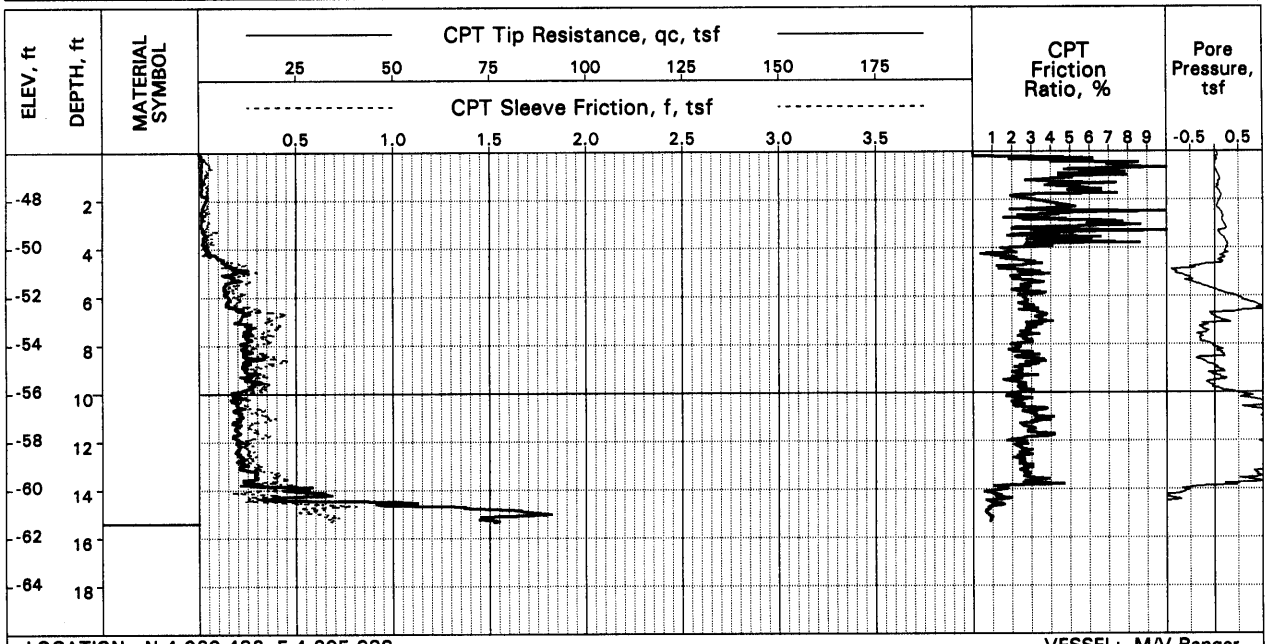
LOCATION: N 4,020,651 E 4,206,048
ELEVATION: -45.3 ft (re: MLLW; based on water depth of 48.2 ft and tide of 2.9 ft)

COMPLETION DEPTH: 16.4 ft
DATE OF EXPLORATION: April 22, 1997

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CPT-76

UGIS ID: FD97C076



LOCATION: N 4,020,432 E 4,205,938
ELEVATION: -45.9 ft (re: MLLW; based on water depth of 49.0 ft and tide of 3.1 ft)

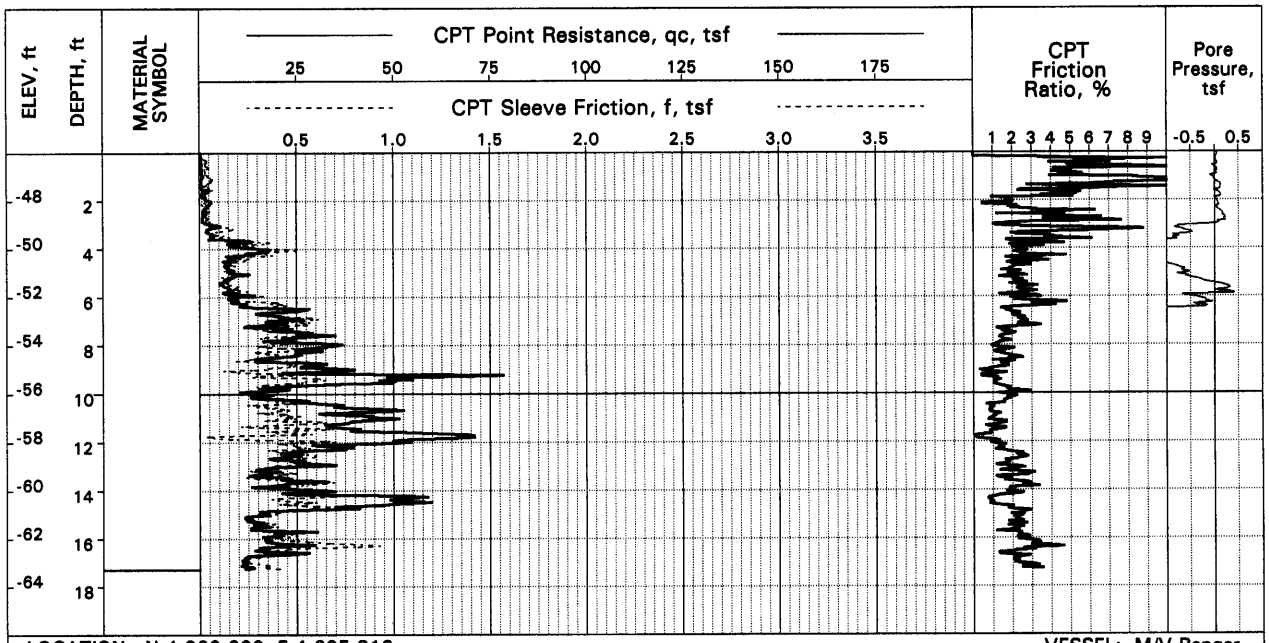
COMPLETION DEPTH: 15.4 ft
DATE OF EXPLORATION: April 22, 1997

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CPT-77

UGIS ID: FD97C077

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



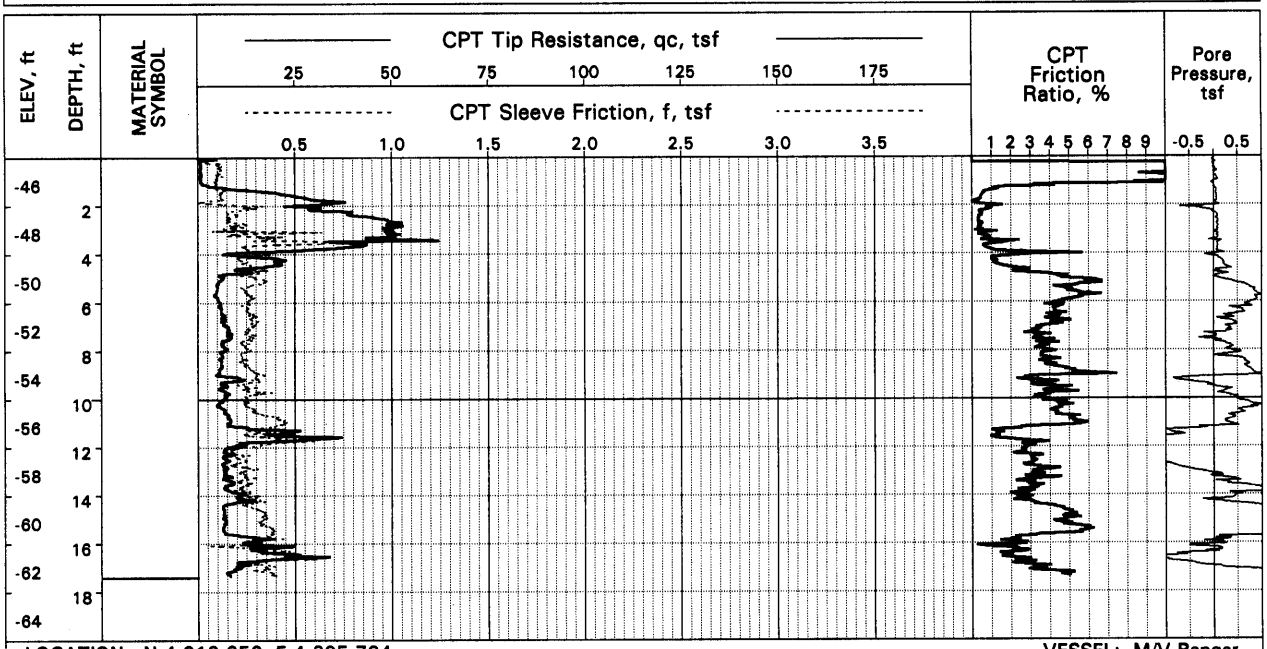
LOCATION: N 4,020,200 E 4,205,819
ELEVATION: -46.0 ft (re: MLLW; based on water depth of 49.3 ft and tide of 3.3 ft)

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 17.3 ft
DATE OF EXPLORATION: April 22, 1997

LOG OF CPT NO. CPT-78

UGIS ID: FD97C078



LOCATION: N 4,019,959 E 4,205,704
ELEVATION: -44.6 ft (re: MLLW; based on water depth of 48.1 ft and tide of 3.5 ft)

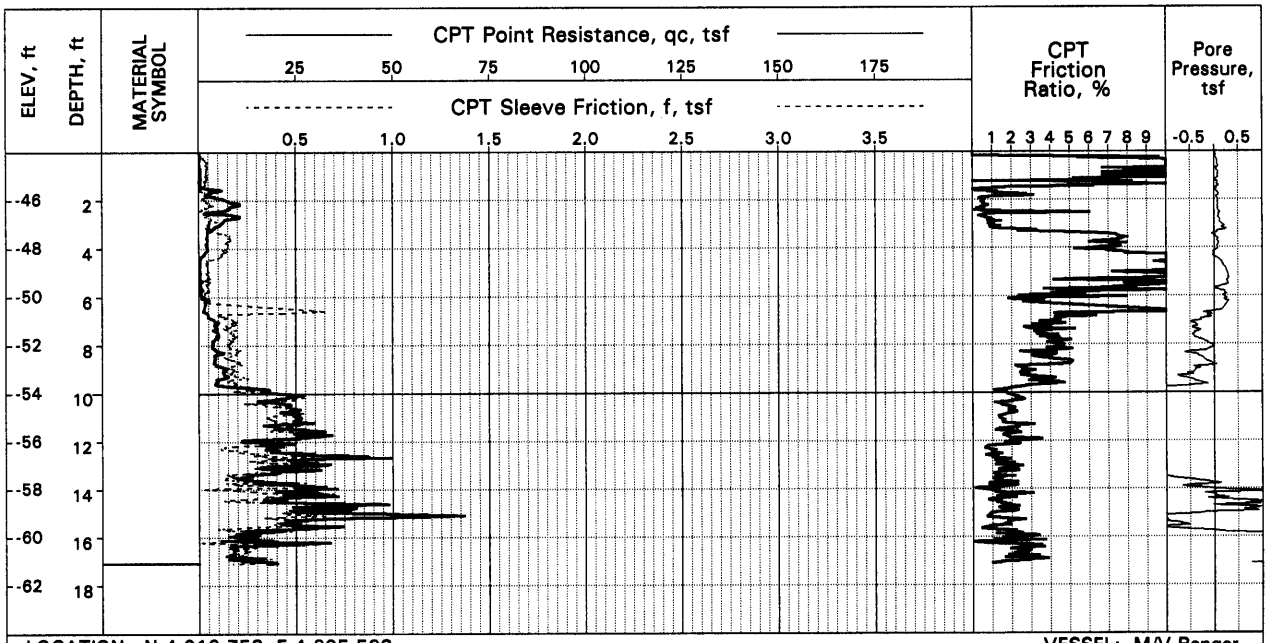
VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 17.4 ft
DATE OF EXPLORATION: April 22, 1997

LOG OF CPT NO. CPT-79

UGIS ID: FD97C079

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



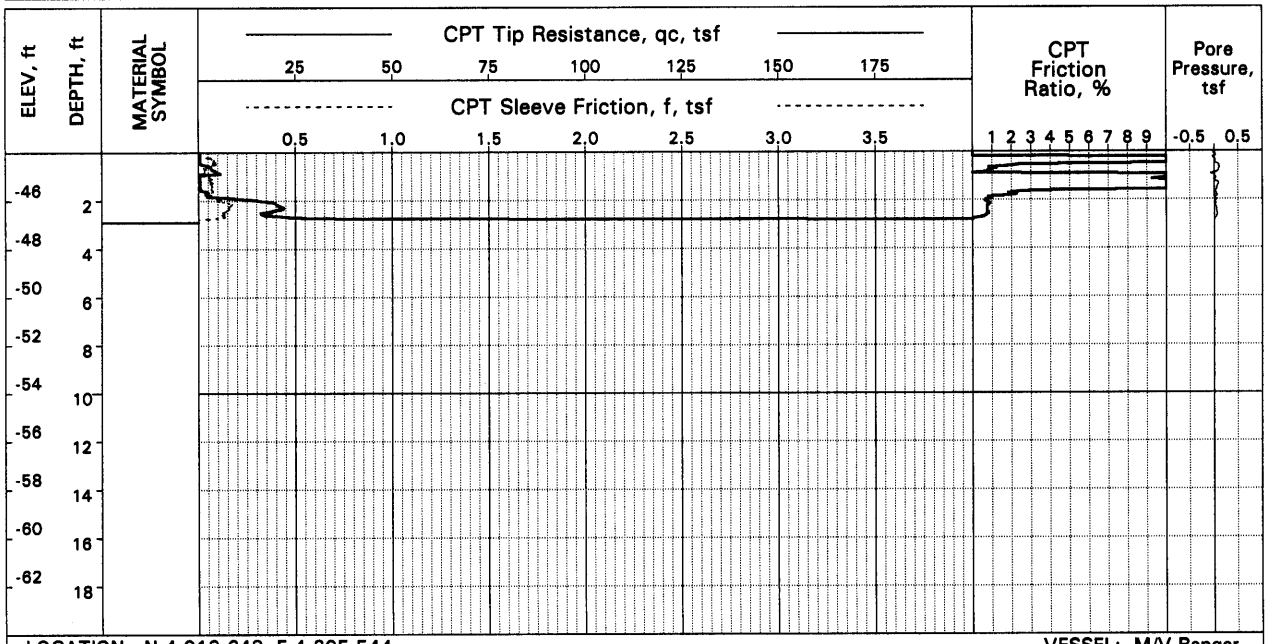
LOCATION: N 4,019,758 E 4,205,598
ELEVATION: -43.8 ft (re: MLLW; based on water depth of 47.5 ft and tide of 3.7 ft)

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 17.1 ft
DATE OF EXPLORATION: April 22, 1997

LOG OF CPT NO. CPT-80

UGIS ID: FD97C080



LOCATION: N 4,019,643 E 4,205,544
ELEVATION: -44.2 ft (re: MLLW; based on water depth of 48.0 ft and tide of 3.8 ft)

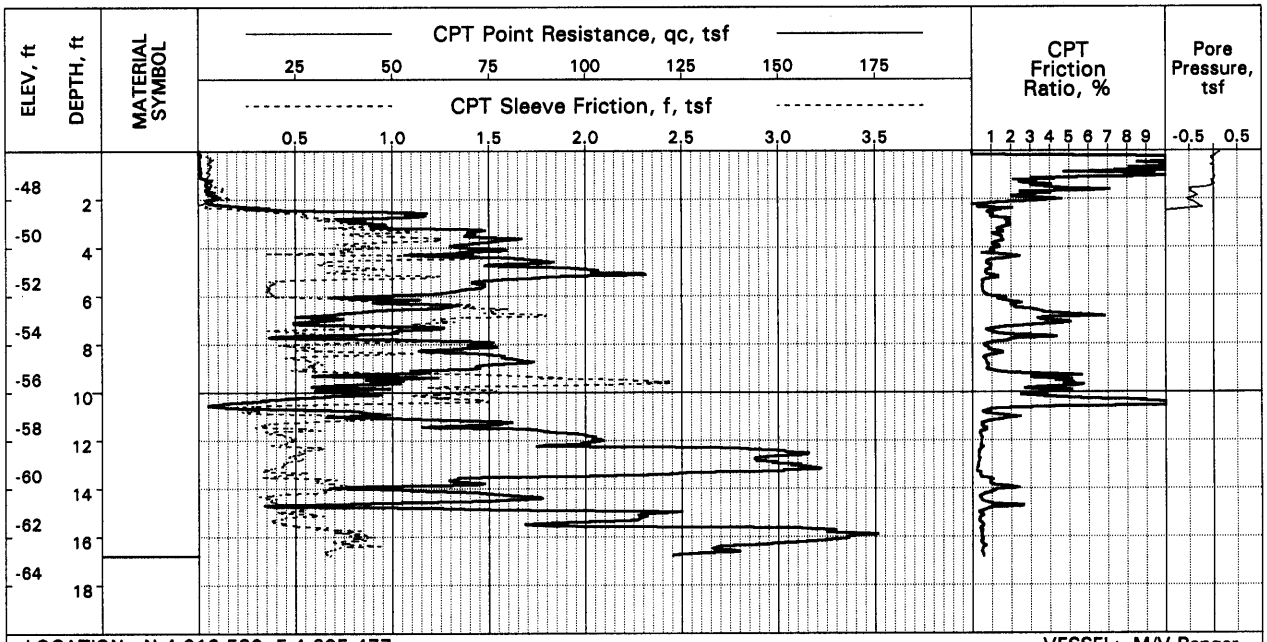
VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 2.9 ft
DATE OF EXPLORATION: April 22, 1997

LOG OF CPT NO. CPT-81

UGIS ID: FD97C081

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



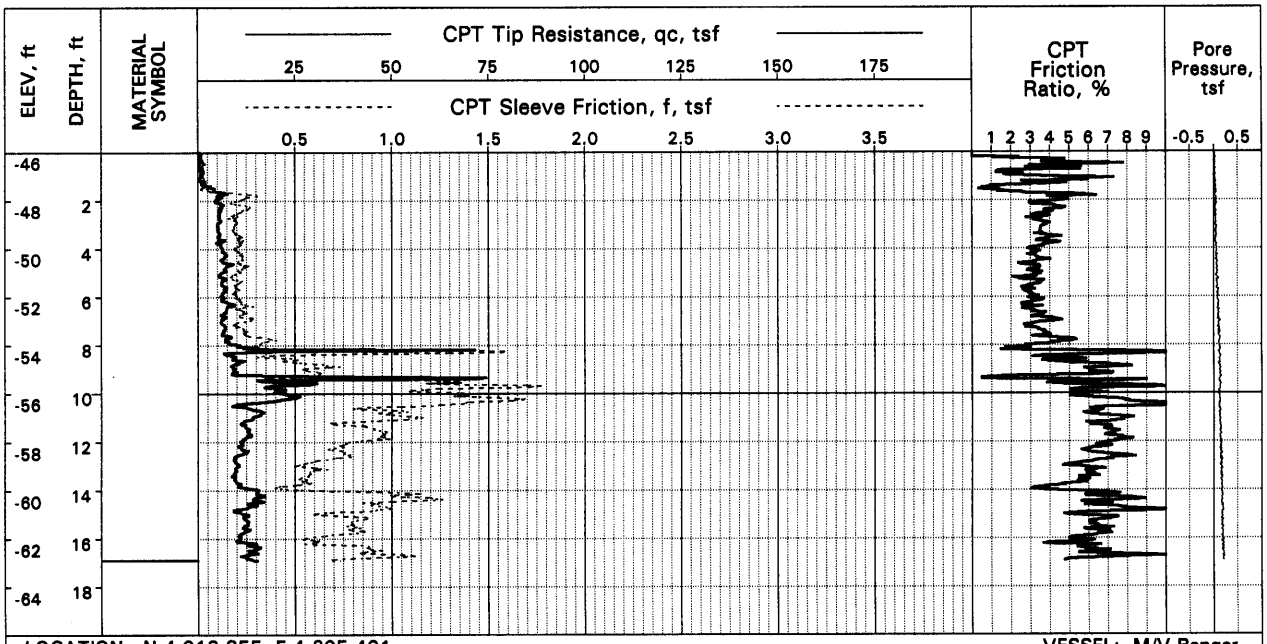
LOCATION: N 4,019,530 E 4,205,477
ELEVATION: -46.3 ft (re: MLLW; based on water depth of 50.0 ft and tide of 3.7 ft)

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 16.8 ft
DATE OF EXPLORATION: April 22, 1997

LOG OF CPT NO. CPT-82

UGIS ID: FD97C082



LOCATION: N 4,019,355 E 4,205,401
ELEVATION: -45.3 ft (re: MLLW; based on water depth of 48.8 ft and tide of 3.5 ft)

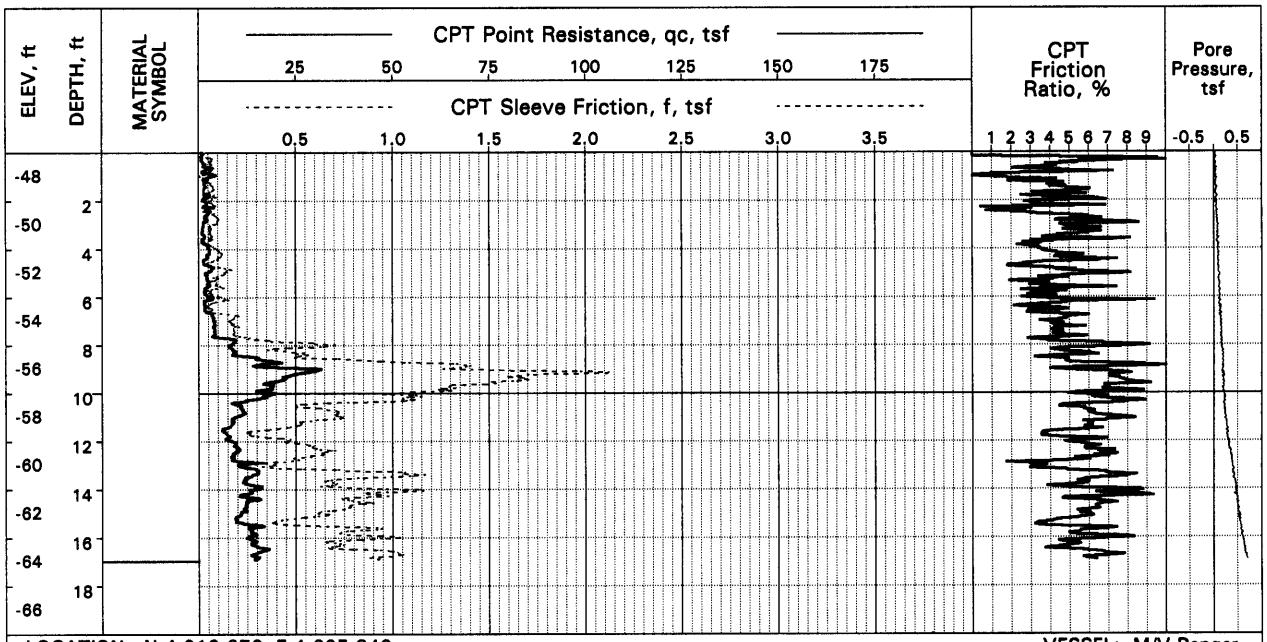
VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 16.9 ft
DATE OF EXPLORATION: April 22, 1997

LOG OF CPT NO. CPT-83

UGIS ID: FD97C083

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



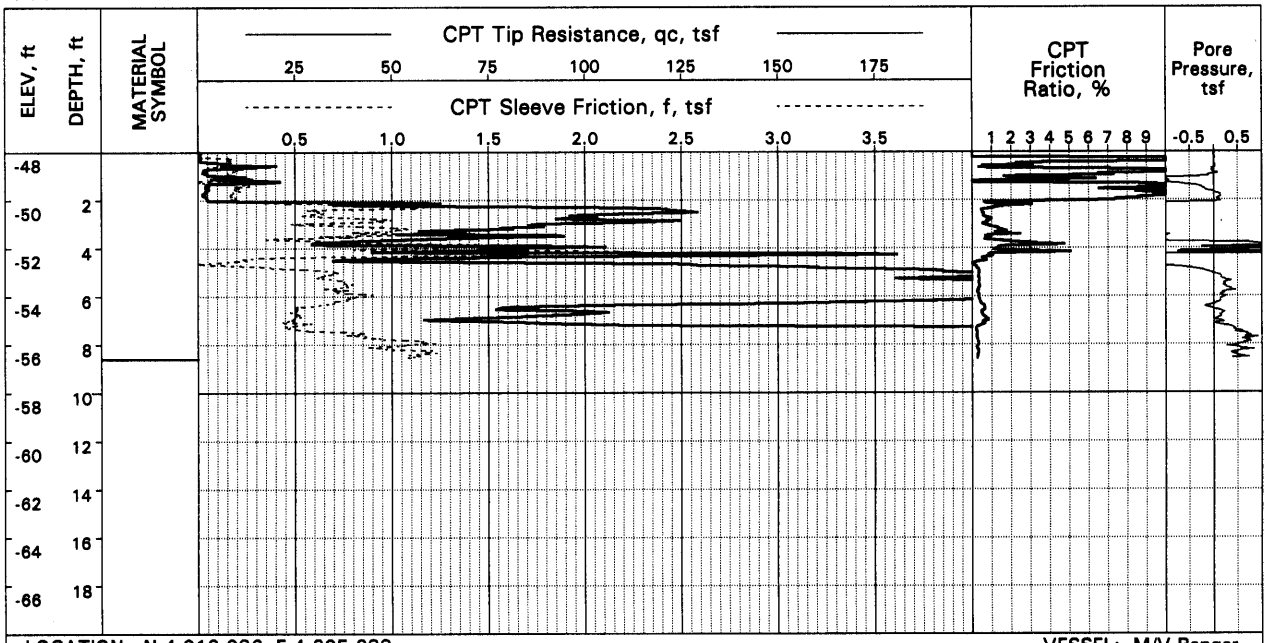
LOCATION: N 4,019,272 E 4,205,349
ELEVATION: -46.8 ft (re: MLLW; based on water depth of 50.2 ft and tide of 3.4 ft)

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 17.0 ft
DATE OF EXPLORATION: April 22, 1997

LOG OF CPT NO. CPT-84

UGIS ID: FD97C084



LOCATION: N 4,019,036 E 4,205,233
ELEVATION: -47.2 ft (re: MLLW; based on water depth of 50.4 ft and tide of 3.2 ft)

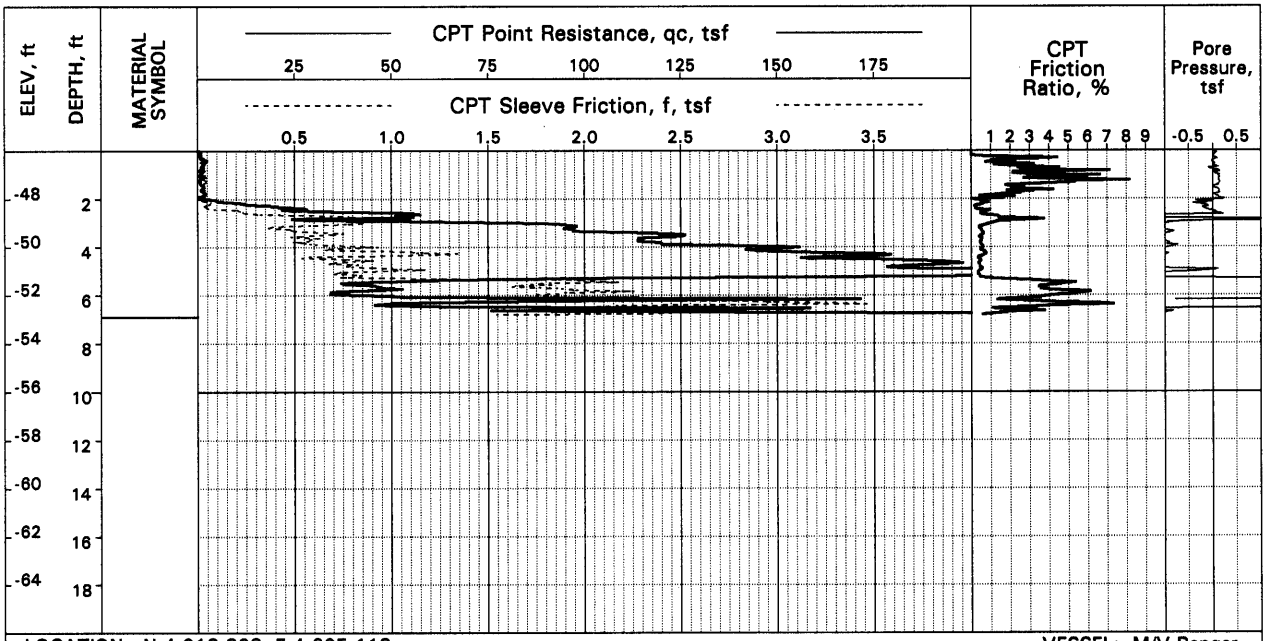
VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

COMPLETION DEPTH: 8.6 ft
DATE OF EXPLORATION: April 22, 1997

LOG OF CPT NO. CPT-85

UGIS ID: FD97C085

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



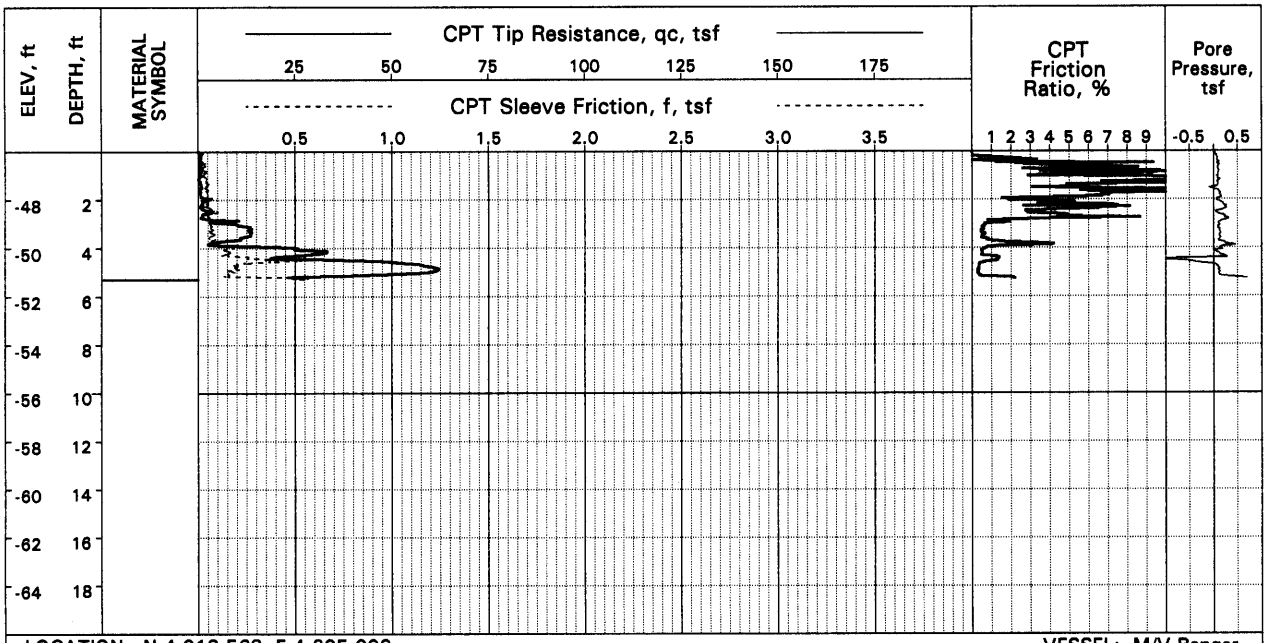
LOCATION: N 4,018,803 E 4,205,118
ELEVATION: -46.0 ft (re: MLLW; based on water depth of 49.0 ft and tide of 3.0 ft)

COMPLETION DEPTH: 6.9 ft
DATE OF EXPLORATION: April 22, 1997

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CPT-86

UGIS ID: FD97C086



LOCATION: N 4,018,563 E 4,205,009
ELEVATION: -45.5 ft (re: MLLW; based on water depth of 48.0 ft and tide of 2.5 ft)

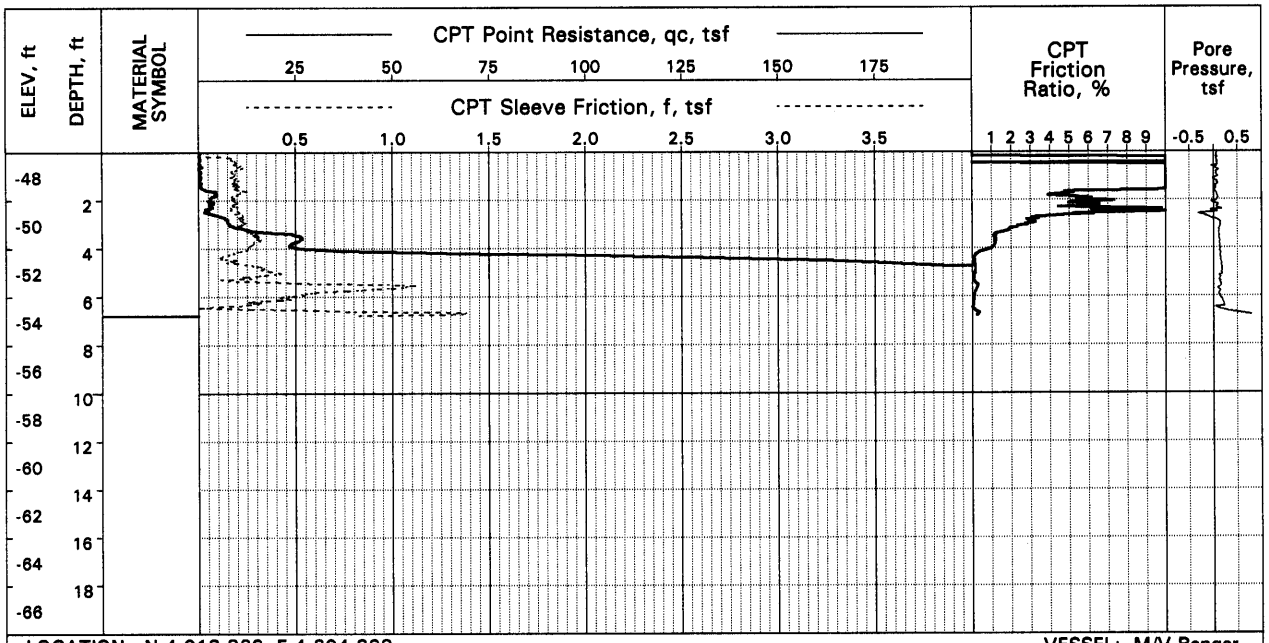
COMPLETION DEPTH: 5.3 ft
DATE OF EXPLORATION: April 22, 1997

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CPT-87

UGIS ID: FD97C087

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



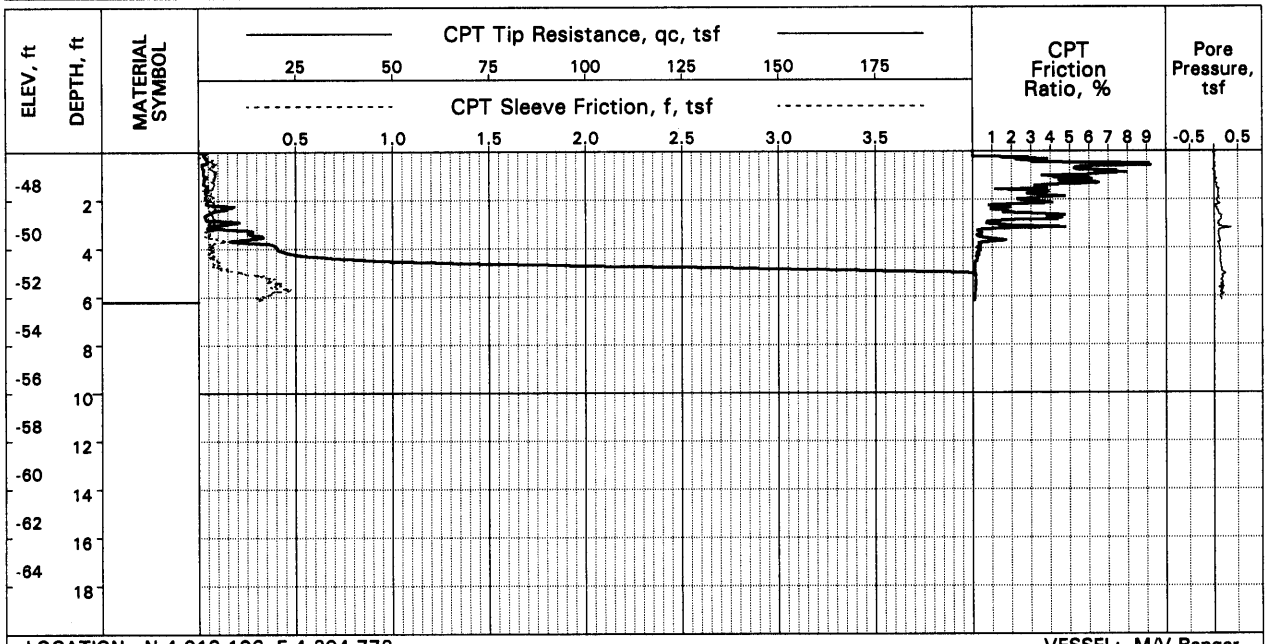
LOCATION: N 4,018,329 E 4,204,893
ELEVATION: -46.7 ft (re: MLLW; based on water depth of 48.4 ft and tide of 1.7 ft)

COMPLETION DEPTH: 6.8 ft
DATE OF EXPLORATION: April 22, 1997

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CPT-88

UGIS ID: FD97C088



LOCATION: N 4,018,106 E 4,204,772
ELEVATION: -46.4 ft (re: MLLW; based on water depth of 48.0 ft and tide of 1.6 ft)

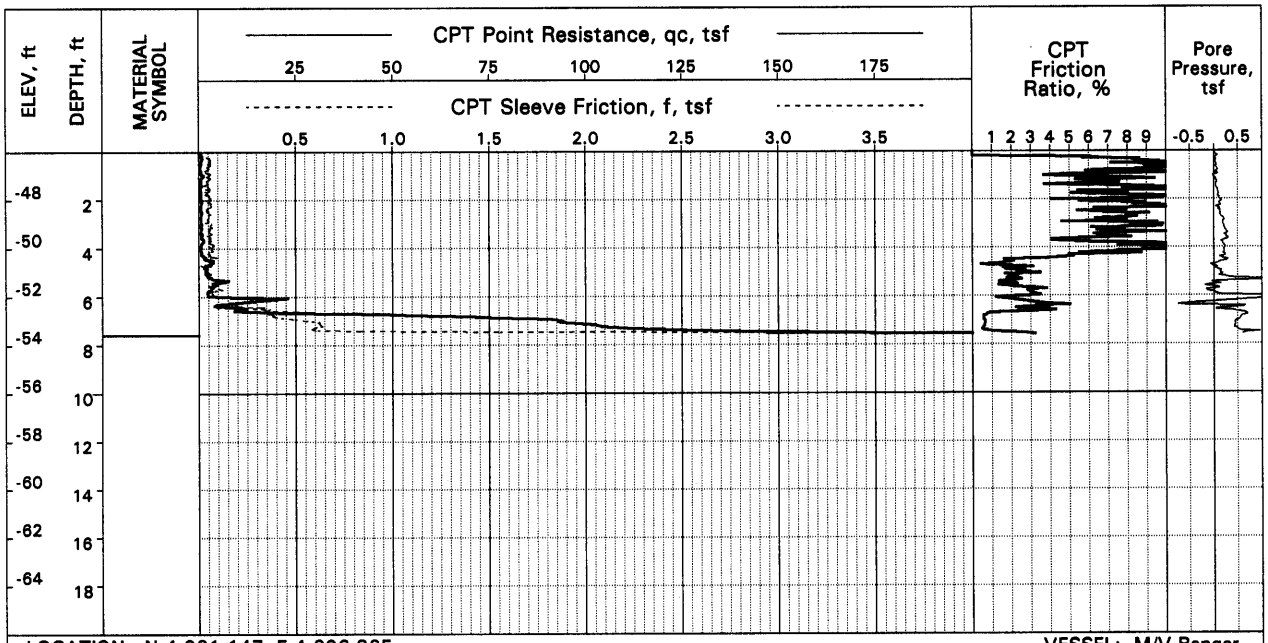
COMPLETION DEPTH: 6.2 ft
DATE OF EXPLORATION: April 22, 1997

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CPT-89

UGIS ID: FD97C089

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



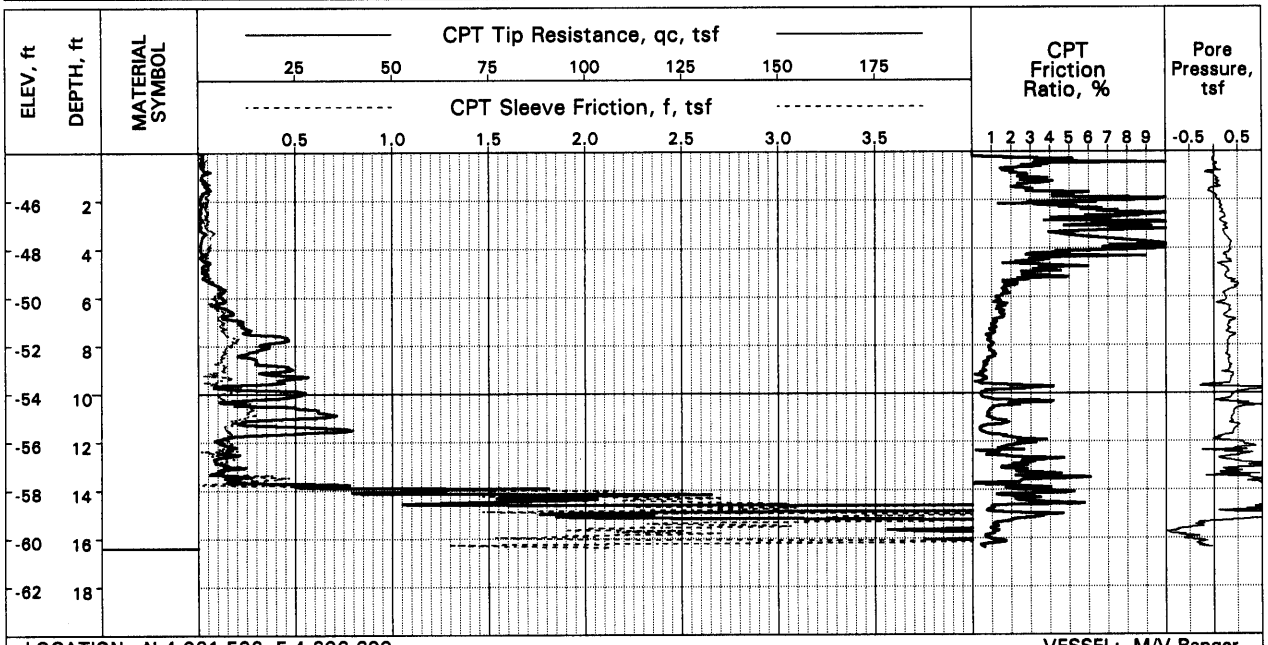
LOCATION: N 4,021,147 E 4,206,325
ELEVATION: -46.1 ft (re: MLLW; based on water depth of 48.0 ft and tide of 1.9 ft)

COMPLETION DEPTH: 7.6 ft
DATE OF EXPLORATION: April 25, 1997

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CPT-90

UGIS ID: FD97C090



LOCATION: N 4,021,592 E 4,206,600
ELEVATION: -43.6 ft (re: MLLW; based on water depth of 45.5 ft and tide of 1.9 ft)

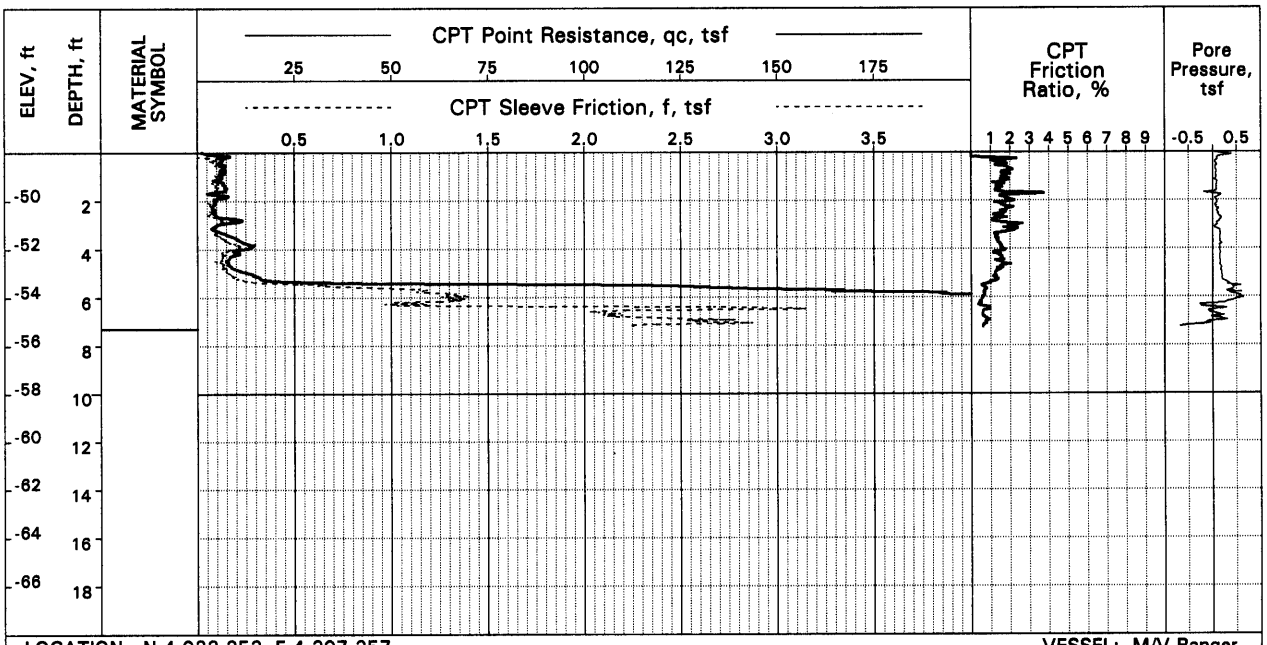
COMPLETION DEPTH: 16.4 ft
DATE OF EXPLORATION: April 25, 1997

VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CPT-91

UGIS ID: FD97C091

LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



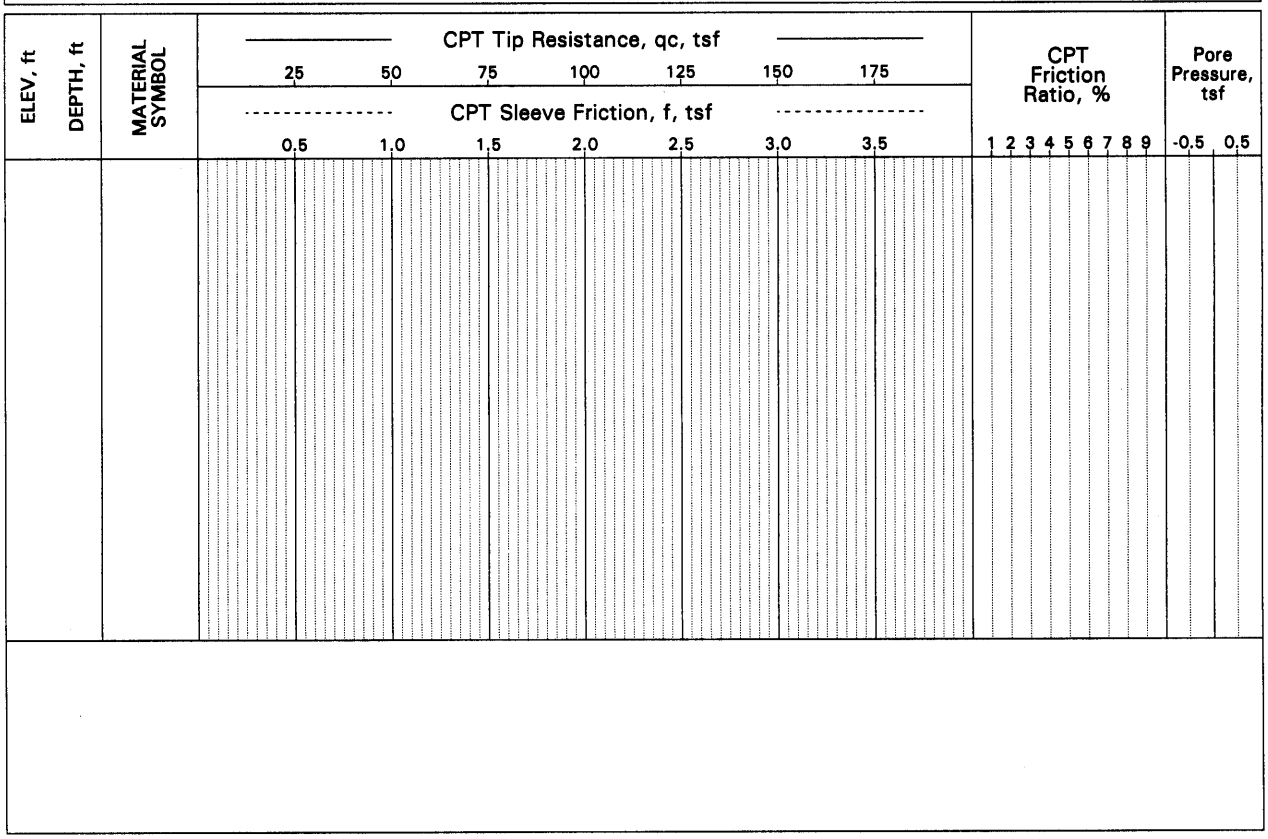
LOCATION: N 4,022,252 E 4,207,257
ELEVATION: -48.0 ft (re: MLLW; based on water depth of 49.2 ft and tide of 1.2 ft)

COMPLETION DEPTH: 7.3 ft
DATE OF EXPLORATION: April 26, 1997

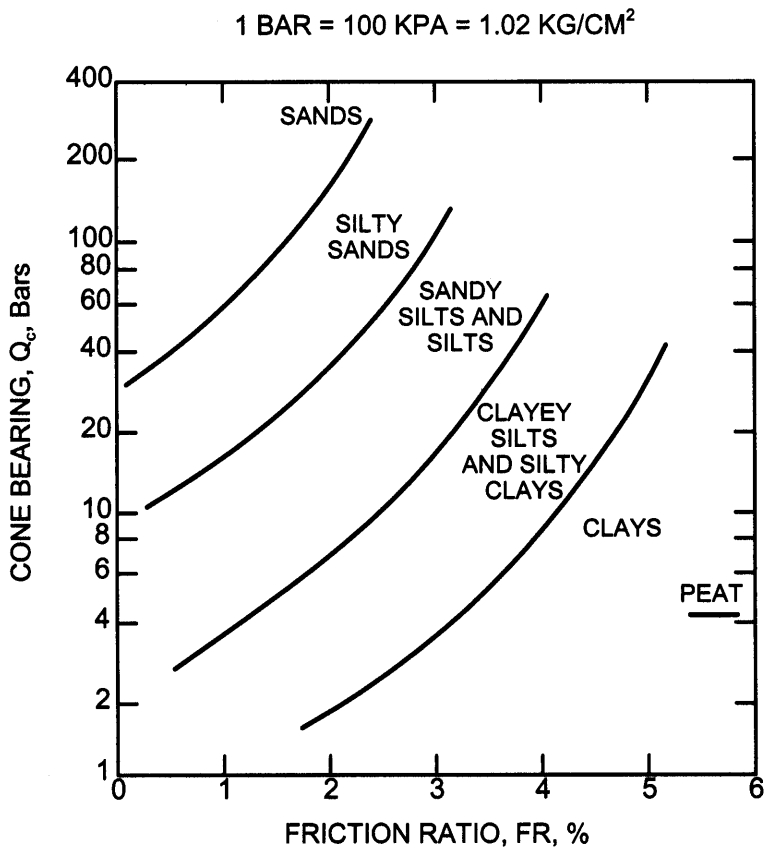
VESSEL: M/V Ranger
TESTING METHOD: Seascout CPT
REVIEWED BY: GSResnick

LOG OF CPT NO. CPT-92

UGIS ID: FD97C092



LOGS OF CPTs
Channel Deepening Program
Port of Los Angeles



CAMPANELLA AND ROBERTSON CLASSIFICATION CHART

SOIL CLASSIFICATION CHART

APPENDIX B
VIBROCORE EXPLORATIONS

LOCATION: N 4,013,824 E 4,205,572

ELEVATION: -46.9 ft (re: MLLW; based on water depth of 51 ft and tide of 4.1 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-48		1	SILT with sand (ML) to Sandy SILT (ML): very soft to soft, black	68	64		
-50	2	2	Black SILT (ML) interlayered with tan brown, Silty fine to medium SAND (SM)		51		
-52	4	3	Sandy SILT (ML) to Silty fine SAND (SM): tan brown to reddish brown, possible oxidized zones, mottled		59		
-54	6	4	Silty, fine to medium SAND (SM): tan to light brown, with shell fragments		13		
		5	- chunks of apparent formation material (?) below 7'		27		
-56	8		- formation material (?) in tip of core				
-58	10						
-60	12						
-62	14						
-64	16						
-66	18						
	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 8.0 ft
RECOVERY LENGTH: 8.0 ft
DATE OF EXPLORATION: September 17, 1996

VESSEL: D/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: GSResnick

LOG OF VIBROCORE NO. VA-1

UGIS ID: FB96VA01

LOCATION: N 4,013,915 E 4,205,371

ELEVATION: -47.6 ft (re: MLLW; based on water depth of 52 ft and tide of 4.4 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
		1	Fine to medium SAND (SP) to SAND with silt (SP-SM): gray, with mica and shell fragments		3		
-50	2						
			- dark olive gray, silt with sand (ML), 3.25' to 3.45'				
-52	4	2			3		
-54	6		- shell hash layer, 5.5' to 6'				
		3	Fine SAND (SP) to SAND with silt (SP-SM): light gray to light tan, with mica and few shell fragments		3		
-56	8						
-58	10						
-60	12	4			3		
-62	14						
-64	16	5					
-66	18						
-68	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 18.0 ft
RECOVERY LENGTH: 17.5 ft
DATE OF EXPLORATION: September 17, 1996

VESSEL: D/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: GSResnick

LOG OF VIBROCORE NO. VA-2

UGIS ID: FB96VA02

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61212)
05/31/01 05:09PM

LOCATION: N 4,014,413 E 4,205,109

ELEVATION: -48.0 ft (re: MLLW; based on water depth of 51 ft and tide of 3.0 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	CORE RATE, ft/min (5 10 15 20)	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
		1	Fine to medium SAND (SP) to SAND with silt (SP-SM): gray, with mica and shell fragments			3		
-50	2		- dark olive gray, silt with sand (ML), 1.8' to 2.2'					
-52	4	2	- increased shells and shell fragments, 2.2' to 5'			4		
-54	6	3	- shell hash layer, 4.5' to 5'			2		
			Fine to medium SAND (SP) to SAND with silt (SP-SM): light gray to light tan, with mica and few shell fragments					
-56	8	4				2		
-58	10							
-60	12	5				3		
-62	14							
-64	16							
-66	18							
-68	20							

PENETRATION DEPTH: 14.0 ft
RECOVERY LENGTH: 12.0 ft
DATE OF EXPLORATION: September 17, 1996

VESSEL: D/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: GSResnick

LOG OF VIBROCORE NO. VA-3

UGIS ID: FB96VA03

LOCATION: N 4,014,887 E 4,205,292

ELEVATION: -48.0 ft (re: MLLW; based on water depth of 49.5 ft and tide of 1.5 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	CORE RATE, ft/min (5 10 15 20)	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
		1	SILT with sand (ML) to Sandy SILT (ML): very soft to soft, dark olive gray		68	55	41	15
-50	2	2	Fine to medium SAND with silt (SP-SM): gray, with mica, shell fragments, and few fine grained inclusions and/or layers			6		
-52	4	3	- abundant shells and shell fragments below 4.5'			7		
-54	6		Fine SAND (SP) to SAND with silt (SP-SM): light gray to gray, with mica and few shell fragments					
-56	8	4	- sand with silt (SP-SM) to silty sand (SM), light brown, 5.5' to 6'			4		
-58	10	5				3		
-60	12		- fine to medium grained below 12'					
-62	14	6				2		
-64	16							
-66	18							
-68	20							

PENETRATION DEPTH: 17.0 ft
RECOVERY LENGTH: 15.5 ft
DATE OF EXPLORATION: September 17, 1996

VESSEL: D/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: GSResnick

LOG OF VIBROCORE NO. VA-4

UGIS ID: FB96VA04

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

PLATE B-2

LOCATION: N 4,014,984 E 4,204,749

ELEVATION: -45.5 ft (re: MLLW; based on water depth of 48 ft and tide of 2.5 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-48	2	1	SILT with sand (ML) to Sandy SILT (ML): very soft to soft, black to dark olive gray, with organics, mica, and sandy zones	46	67	38	12
-50	4	2	Fine SAND with silt (SP-SM): gray, with mica, some shell fragments, olive gray silty sand zones, and few inclusions of light brown to reddish brown silty sand to sandy silt, mottled		12		
-52	6	3					
-54	8	4	Sandy SILT (ML) to Silty fine SAND (SM): light brown to reddish brown, with abundant mica and reddish oxidized zones, mottled		51		
-56	10	5	- increased fines content, sandy silt (ML), greenish brown, with apparent pieces of formation with oxidized zones, below 9'				
-58	12	6	Fine to medium SAND (SP) to SAND with silt (SP-SM): light gray to tan, with mica		2		
-60	14						
-62	16						
-64	18						
	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 18.0 ft
RECOVERY LENGTH: 15.0 ft
DATE OF EXPLORATION: September 18, 1996

VESSEL: D/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: GSResnick

LOG OF VIBROCORE NO. VA-5

UGIS ID: FB96VA05

LOCATION: N 4,015,607 E 4,204,874

ELEVATION: -47.0 ft (re: MLLW; based on water depth of 505 ft and tide of 3.0 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-48		1	Silty fine SAND (SM): dark gray, with mica and silt zones	36	30		
-50	2	2	Fine SAND with silt (SP-SM): gray, with mica, shells and shell fragments, dissimilar zones, and dark olive gray fine grained inclusions, mottled		6		
-52	4	3					
-54	6	4	Fine SAND (SP) to SAND with silt (SP-SM): light gray to tan, with mica		2		
-56	8						
-58	10	5			2		
-60	12						
-62	14	6					
-64	16						
-66	18						
	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 18.5 ft
RECOVERY LENGTH: 17.5 ft
DATE OF EXPLORATION: September 18, 1996

VESSEL: D/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: GSResnick

LOG OF VIBROCORE NO. VA-6

UGIS ID: FB96VA06

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61212)
05/31/01 05:09PM

LOCATION: N 4,015,743 E 4,204,457

ELEVATION: -47.4 ft (re: MLLW; based on water depth of 51 ft and tide of 3.6 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-48		1	SILT with sand (ML): very soft to soft, dark olive gray to black, with mica	77	78	47	15
-50	2		- increased sand content below 2'				
		2	Fine SAND with silt (SP-SM): gray, with mica		5		
-52	4		- fine to medium grained, brownish gray, below 4.5'				
-54	6	3					
		4	Silty fine SAND (SM): light brown to reddish brown, with mica and sandy silt (ML) layers, reddish oxidized appearance, mottled		42		
-56	8						
-58	10	5			35		
-60	12						
		6					
-62	14	7	SAND with silt (SP-SM) to Silty fine SAND (SM): grayish brown, with mica		9		
-64	16						
-66	18						
	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 19.5 ft
RECOVERY LENGTH: 19.0 ft
DATE OF EXPLORATION: September 18, 1996

VESSEL: D/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: GSResnick

LOG OF VIBROCORE NO. VA-7

UGIS ID: FB96VA07

LOCATION: N 4,016,077 E 4,204,854

ELEVATION: -46.3 ft (re: MLLW; based on water depth of 51 ft and tide of 4.7 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-48	2	1	Fine SAND with silt (SP-SM) to SAND (SP): gray, with mica and shell fragments		8		
-50	4	2			4		
-52	6	3	Fine SAND with silt (SP-SM) to Silty fine SAND (SM): light gray to brownish tan, with mica, some mottling		6		
-54	8						
-56	10	4	- increased fines content below 9'		29		
-58	12	5	Fine to medium SAND (SP): light gray to gray, with some mica		4		
-60	14	6	Silty fine SAND (SM): gray to brownish gray, with mica, and sand with silt layers		25		
-62	16	7	- increased fines content, brown to reddish brown, below 15.5'		30		
-64	18						
-66	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 18.5 ft
RECOVERY LENGTH: 18.5 ft
DATE OF EXPLORATION: September 18, 1996

VESSEL: D/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: GSResnick

LOG OF VIBROCORE NO. VA-8

UGIS ID: FB96VA08

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61212)
05/31/01 05:09PM

LOCATION: N 4,016,715 E 4,204,516

ELEVATION: -48.0 ft (re: MLLW; based on water depth of 53 ft and tide of 5.0 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-50	2	1	Fine SAND with silt (SP-SM) to Silty fine SAND (SM): gray, with mica, shell fragments, and few fine grained blackish inclusions		10		
-52	4	2					
-54	6	3	Silty fine SAND (SM): brown to brownish tan, with mica, few shell fragments, and reddish zones/streaks, mottled		18		
-56	8						
-58	10	4			35		
-60	12	5	Fine to medium SAND with silt (SP-SM): light gray to gray, with mica				
-62	14	6	Silty fine SAND (SM): gray to brownish gray, with mica, fine grained inclusions/seams, and some reddish streaks, mottled		16		
-64	16	7					
-66	18						
-68	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 18.0 ft
RECOVERY LENGTH: 18.0 ft
DATE OF EXPLORATION: September 18, 1996

VESSEL: D/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: GSResnick

LOG OF VIBROCORE NO. VA-9

UGIS ID: FB96VA09

LOCATION: N 4,017,040 E 4,204,046

ELEVATION: -46.8 ft (re: MLLW; based on water depth of 51.5 ft and tide of 4.7 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-48	2	1	Sandy SILT (ML) to Silty SAND (SM): dark olive gray, with mica and silty sand zones	33	20		
-50			- very soft to soft, black silt layer, 3' to 3.5'				
-52	4	2	Fine SAND with silt (SP-SM) to Silty fine SAND (SM): gray to brownish gray, with few black silt inclusions - sandy silt seam at 4.5' - fine to medium grained below 5.5'		11		
-54	6	3					
			- black sandy silt seam at 7.5'				
-56	8	4	Silty fine SAND (SM) interlayered with fine SAND with silt (SP-SM): brown to grayish brown, with mica, fine grained inclusions, and abundant reddish streaks/seams, mottled - large chunks of fine grained, firm to stiff material, at 10.5' to 11'		4		
-58	10	5					
		6			6		
-60	12						
-62	14	7			13		
			Fine SAND with silt (SP-SM) to Silty fine SAND (SM): gray to brownish gray, with mica				
-64	16	8					
-66	18						
	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 19.0 ft
RECOVERY LENGTH: 19.0 ft
DATE OF EXPLORATION: September 18, 1996

VESSEL: D/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: GSResnick

LOG OF VIBROCORE NO. VA-10

UGIS ID: FB96VA10

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61212)
05/31/01 05:09PM

LOCATION: N 4,016,573 E 4,204,150

ELEVATION: -48.7 ft (re: MLLW; based on water depth of 53 ft and tide of 4.3 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	CORE RATE, ft/min (5 10 15 20)	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-50		1	Sandy SILT (ML): very soft to soft, dark gray to dark olive gray, with mica and silty sand zones					
-52	2	2	Fine SAND with silt (SP-SM) to Silty fine SAND (SM): gray to olive gray, with mica and few shell fragments - silt seam at 3'			9		
-54	4	3				11		
-56	6	4	- with few yellowish red silty zones/streaks, below 5.5' - cobble at 6'					
-58	8	5	Silty fine SAND (SM) to SAND with silt (SP-SM): tan to light gray, with abundant mica, and yellowish red silty and sandy zones, mottled			13		
-60	10	6						
-62	12							
-64	14							
-66	16							
-68	18							
	20							

PENETRATION DEPTH: 13.0 ft
RECOVERY LENGTH: 10.5 ft
DATE OF EXPLORATION: September 19, 1996

VESSEL: D/W Hood
VIBROCORE TYPE: Geotechnical
REVIEWED BY: GSResnick

LOG OF VIBROCORE NO. VA-11

UGIS ID: FB96VA11

LOCATION: N 4,014,085 E 4,205,632

ELEVATION: -45.5 ft (re: MLLW; based on water depth of 49 ft and tide of 3.5 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	CORE RATE, ft/min (5 10 15 20)	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
		1	SILT with sand (ML) to Sandy SILT (ML): very soft to soft, dark olive gray to black, with mica - sandy silt below 1.5'		70	69	44	16
-48	2	2	Silty fine SAND (SM) to SAND with silt (SP-SM): dark gray, with mica, shell fragments, and few organics - medium grained, abundant shells and shell fragments, below 4'			27		
-50	4	3						
-52	6	4	Silty fine SAND (SM): light brown to brown, with mica, sandy silt zones, silt inclusions, and yellowish red streaks, mottled			33		
-54	8	5						
-56	10	6						
-58	12							
-60	14							
-62	16							
-64	18							
	20							

PENETRATION DEPTH: 10.0 ft
RECOVERY LENGTH: 10.0 ft
DATE OF EXPLORATION: September 19, 1996

VESSEL: D/W Hood
VIBROCORE TYPE: Geotechnical
REVIEWED BY: GSResnick

LOG OF VIBROCORE NO. VA-12

UGIS ID: FB96VA12

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61212)
05/31/01 05:09PM

LOCATION: N 4,013,860 E 4,205,151

ELEVATION: -43.1 ft (re: MLLW; based on water depth of 46 ft and tide of 2.9 ft)

ELEV, ft	DEPTH, ft	MATERIAL SYMBOL	SAMPLE	SAMPLE NUMBER	MATERIAL DESCRIPTION	CORE RATE, ft/min (5 10 15 20)	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-44					SILT with sand (ML): very soft to soft, dark olive gray, with mica					
-46	2			1						
-48	4			2 3	Silty, fine to medium SAND (SM): olive gray to dark olive gray, with mica and abundant shell fragments - 3" layer of gray, silt with sand (ML), with mica and small shell fragments, at base of sample					
-50	6									
-52	8									
-54	10									
-56	12									
-58	14									
-60	16									
-62	18									
	20									

PENETRATION DEPTH: 4.0 ft
RECOVERY LENGTH: 4.0 ft
DATE OF EXPLORATION: September 21, 1996

VESSEL: D/W Hood
VIBROCORE TYPE: Harbor Bottom Sed.
REVIEWED BY: GSResnick

LOG OF VIBROCORE NO. VA-13

UGIS ID: FB96VA13

LOCATION: N 4,013,909 E 4,205,181

ELEVATION: -47.6 ft (re: MLLW; based on water depth of 52 ft and tide of 4.4 ft)

ELEV, ft	DEPTH, ft	MATERIAL SYMBOL	SAMPLE	SAMPLE NUMBER	MATERIAL DESCRIPTION	CORE RATE, ft/min (5 10 15 20)	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-50	2			1	SILT with sand (ML) intermixed with gray Silty fine SAND (SM): very soft to soft, dark olive gray, with mica and shell fragments					
-52	4				Fine to medium SAND with silt (SP-SM): gray, with mica and abundant shell fragments					
-54	6			2						
-56	8				- fine sand with silt (SP-SM), less shell fragments, below about 8'					
-58	10									
-60	12									
-62	14									
-64	16									
-66	18									
-68	20									

PENETRATION DEPTH: 9.5 ft
RECOVERY LENGTH: 9.5 ft
DATE OF EXPLORATION: September 21, 1996

VESSEL: D/W Hood
VIBROCORE TYPE: Harbor Bottom Sed.
REVIEWED BY: GSResnick

LOG OF VIBROCORE NO. VA-14

UGIS ID: FB96VA14

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61212)
05/31/01 05:10PM

LOCATION: N 4,014,831 E 4,205,444

ELEVATION: -45.0 ft (re: MLLW; based on water depth of 50 ft and tide of 5.0 ft)

ELEV, ft	DEPTH, ft	MATERIAL SYMBOL	SAMPLE	SAMPLE NUMBER	MATERIAL DESCRIPTION	CORE RATE, ft/min (5 10 15 20)	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-46				1	SILT with sand (ML): very soft to soft, dark olive gray, with mica					
-48	2			2	Silty fine SAND (SM): gray, with mica and shell fragments					
-50	4			3	Silty fine SAND (SM) to Sandy SILT (ML): yellowish brown to light brown, with clayey inclusions and abundant mica, mottled					
-52	6									
-54	8									
-56	10									
-58	12									
-60	14									
-62	16									
-64	18									
	20									

PENETRATION DEPTH: 6.0 ft
RECOVERY LENGTH: 5.0 ft
DATE OF EXPLORATION: September 21, 1996

VESSEL: D/W Hood
VIBROCORE TYPE: Harbor Bottom Sed.
REVIEWED BY: GSResnick

LOG OF VIBROCORE NO. VA-15

UGIS ID: FB96VA15

LOCATION: N 4,014,883 E 4,205,367

ELEVATION: -46.4 ft (re: MLLW; based on water depth of 51.5 ft and tide of 5.1 ft)

ELEV, ft	DEPTH, ft	MATERIAL SYMBOL	SAMPLE	SAMPLE NUMBER	MATERIAL DESCRIPTION	CORE RATE, ft/min (5 10 15 20)	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-48				1	SILT with sand (ML): very soft to soft, dark olive gray, with mica					
-50	2			2	Silty fine SAND (SM) to SAND with silt (SP-SM): dark gray to gray, with mica and abundant shell fragments					
-52	4									
-54	6									
-56	8									
-58	10									
-60	12									
-62	14									
-64	16									
-66	18									
	20									

PENETRATION DEPTH: 5.0 ft
RECOVERY LENGTH: 3.5 ft
DATE OF EXPLORATION: September 21, 1996

VESSEL: D/W Hood
VIBROCORE TYPE: Harbor Bottom Sed.
REVIEWED BY: GSResnick

LOG OF VIBROCORE NO. VA-16

UGIS ID: FB96VA16

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

LOCATION: N 4,014,897 E 4,204,613

ELEVATION: -38.8 ft (re: MLLW; based on water depth of 43 ft and tide of 4.2 ft)

ELEV, ft	DEPTH, ft	MATERIAL SYMBOL	SAMPLE	SAMPLE NUMBER	MATERIAL DESCRIPTION	CORE RATE, ft/min (5 10 15 20)	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-40					SILT with sand (ML): very soft to soft, dark olive gray, with mica					
-42	2			1						
-44	4									
-46	6			2	- increased sand content below 5'					
-48	8				Fine to medium SAND with silt (SP-SM): dark gray to gray, with mica and shell fragments					
-50	10									
-52	12									
-54	14									
-56	16									
-58	18									
	20									

PENETRATION DEPTH: 7.5 ft
RECOVERY LENGTH: 6.5 ft
DATE OF EXPLORATION: September 22, 1996

VESSEL: D/W Hood
VIBROCORE TYPE: Harbor Bottom Sed.
REVIEWED BY: GSResnick

LOG OF VIBROCORE NO. VA-17

UGIS ID: FB96VA17

LOCATION: N 4,014,946 E 4,204,674

ELEVATION: -45.9 ft (re: MLLW; based on water depth of 50 ft and tide of 4.1 ft)

ELEV, ft	DEPTH, ft	MATERIAL SYMBOL	SAMPLE	SAMPLE NUMBER	MATERIAL DESCRIPTION	CORE RATE, ft/min (5 10 15 20)	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-48	2			1	SILT with sand (ML): very soft to soft, dark olive gray, with mica					
-50	4			2	Silty fine SAND (SM): dark gray, with mica and shell fragments					
-52	6				- silty fine sand (SM) to sand with silt (SP-SM), gray, below 5'					
-54	8									
-56	10									
-58	12									
-60	14									
-62	16									
-64	18									
-66	20									

PENETRATION DEPTH: 8.0 ft
RECOVERY LENGTH: 7.0 ft
DATE OF EXPLORATION: September 22, 1996

VESSEL: D/W Hood
VIBROCORE TYPE: Harbor Bottom Sed.
REVIEWED BY: GSResnick

LOG OF VIBROCORE NO. VA-18

UGIS ID: FB96VA18

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

LOCATION: N 4,016,159 E 4,204,785

ELEVATION: -44.2 ft (re: MLLW; based on water depth of 48 ft and tide of 3.8 ft)

ELEV, ft	DEPTH, ft	MATERIAL SYMBOL	SAMPLE	SAMPLE NUMBER	MATERIAL DESCRIPTION	CORE RATE, ft/min (5 10 15 20)	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-46	2			1	SILT with sand (ML): very soft to soft, dark olive gray, with mica					
-48	4			2	Silty fine SAND (SM): dark gray to gray, with mica and abundant shell fragments					
-50	6			3	Silty fine SAND (SM): yellowish brown to brown, with pockets of gray clayey sand					
-52	8				Fine SAND with silt (SP-SM): gray, with mica					
-54	10									
-56	12									
-58	14									
-60	16									
-62	18									
-64	20									

PENETRATION DEPTH: 7.0 ft
RECOVERY LENGTH: 6.0 ft
DATE OF EXPLORATION: September 22, 1996

VESSEL: D/W Hood
VIBROCORE TYPE: Harbor Bottom Sed.
REVIEWED BY: GSResnick

LOG OF VIBROCORE NO. VA-19

UGIS ID: FB96VA19

LOCATION: N 4,016,165 E 4,204,744

ELEVATION: -45.4 ft (re: MLLW; based on water depth of 49 ft and tide of 3.6 ft)

ELEV, ft	DEPTH, ft	MATERIAL SYMBOL	SAMPLE	SAMPLE NUMBER	MATERIAL DESCRIPTION	CORE RATE, ft/min (5 10 15 20)	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-46	2			1	Silty fine SAND (SM) to Sandy SILT (ML): dark gray, with mica and shell fragments					
-48	4			2						
-50	6			3	Fine SAND with silt (SP-SM): gray, with mica and abundant shell fragments - shell hash and 2" rock at 4.5' - silty fine sand (SM), yellowish brown to brown, with mica and shell fragments, in tip of sample					
-52	8									
-54	10									
-56	12									
-58	14									
-60	16									
-62	18									
-64	20									

PENETRATION DEPTH: 6.0 ft
RECOVERY LENGTH: 5.0 ft
DATE OF EXPLORATION: September 22, 1996

VESSEL: D/W Hood
VIBROCORE TYPE: Harbor Bottom Sed.
REVIEWED BY: GSResnick

LOG OF VIBROCORE NO. VA-20

UGIS ID: FB96VA20

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61212)
05/31/01 05:10PM

LOCATION: N 4,016,971 E 4,203,943

ELEVATION: -44.3 ft (re: MLLW; based on water depth of 47.5 ft and tide of 3.2 ft)

ELEV, ft	DEPTH, ft	MATERIAL SYMBOL	SAMPLE	SAMPLE NUMBER	MATERIAL DESCRIPTION	CORE RATE, ft/min (5 10 15 20)	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-46	2		☒	1	SILT with sand (ML): very soft to soft, dark olive gray to black, with mica					
-48	4									
-50	6		☒	2	Silty fine SAND (SM) to fine SAND with silt (SP-SM): gray to dark gray, with abundant mica					
-52	8									
-54	10									
-56	12									
-58	14									
-60	16									
-62	18									
-64	20									

PENETRATION DEPTH: 7.0 ft
RECOVERY LENGTH: 6.5 ft
DATE OF EXPLORATION: September 22, 1996

VESSEL: D/W Hood
VIBROCORE TYPE: Harbor Bottom Sed.
REVIEWED BY: GSResnick

LOG OF VIBROCORE NO. VA-21

UGIS ID: FB96VA21

LOCATION: N 4,016,971 E 4,203,969

ELEVATION: -44.1 ft (re: MLLW; based on water depth of 47 ft and tide of 2.9 ft)

ELEV, ft	DEPTH, ft	MATERIAL SYMBOL	SAMPLE	SAMPLE NUMBER	MATERIAL DESCRIPTION	CORE RATE, ft/min (5 10 15 20)	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-46	2		☒	1	SILT (ML): very soft to soft, dark olive gray to black, with mica and some sand					
-48	4		☒	2	Silty fine SAND (SM): gray, with abundant mica and few shell fragments					
-50	6				SILT (ML): dark olive gray					
-52	8				Silty fine SAND (SM): gray, with abundant mica and few shell fragments					
-54	10									
-56	12									
-58	14									
-60	16									
-62	18									
-64	20									

PENETRATION DEPTH: 9.5 ft
RECOVERY LENGTH: 9.0 ft
DATE OF EXPLORATION: September 22, 1996

VESSEL: D/W Hood
VIBROCORE TYPE: Harbor Bottom Sed.
REVIEWED BY: GSResnick

LOG OF VIBROCORE NO. VA-22

UGIS ID: FB96VA22

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61212)
05/31/01 05:10PM

LOCATION: N 4,012,946 E 4,205,462

ELEVATION: -46.3 ft (re: MLLW; based on water depth of 49 ft and tide of 2.7 ft)

ELEV, ft	DEPTH, ft	MATERIAL SYMBOL	SAMPLE	SAMPLE NUMBER	MATERIAL DESCRIPTION	CORE RATE, ft/min (5 10 15 20)	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-48	2			1	Elastic SILT (MH): very stiff to hard, dark brown to dark olive gray, with few small shells and pieces of rock (concretion), disturbed/weathered at top (decreasing with depth) (Malaga Mudstone)					
-50	4			2			62	84		
-52	6									
-54	8									
-56	10									
-58	12									
-60	14									
-62	16									
-64	18									
-66	20									

PENETRATION DEPTH: 6.0 ft
RECOVERY LENGTH: 3.5 ft
DATE OF EXPLORATION: September 19, 1996

VESSEL: D/W Hood
VIBROCORE TYPE: Sediment-Formation
REVIEWED BY: GSResnick

LOG OF VIBROCORE NO. VA-23

UGIS ID: FB96VA23

LOCATION: N 4,013,166 E 4,205,382

ELEVATION: -46.2 ft (re: MLLW; based on water depth of 49 ft and tide of 2.8 ft)

ELEV, ft	DEPTH, ft	MATERIAL SYMBOL	SAMPLE	SAMPLE NUMBER	MATERIAL DESCRIPTION	CORE RATE, ft/min (5 10 15 20)	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-48	2			1	SILT with sand (ML): very soft to soft, black to dark olive gray, with mica and few shell fragments					
-50	4			2	Fine to medium SAND (SP): gray to dark gray, with mica and abundant shell fragments - pieces of bluish gray silt below 2.75'					
-52	6			3	SILT (ML): very stiff to hard, bluish gray to olive gray, with mica and organics (Timms Point Silt)		33	97		
-54	8									
-56	10									
-58	12									
-60	14									
-62	16									
-64	18									
-66	20									

PENETRATION DEPTH: 7.0 ft
RECOVERY LENGTH: 4.0 ft
DATE OF EXPLORATION: September 19, 1996

VESSEL: D/W Hood
VIBROCORE TYPE: Sediment-Formation
REVIEWED BY: GSResnick

LOG OF VIBROCORE NO. VA-24

UGIS ID: FB96VA24

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

LOCATION: N 4,013,417 E 4,205,412

ELEVATION: -47.8 ft (re: MLLW; based on water depth of 51 ft and tide of 3.2 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
		1	Sandy SILT (ML): very soft to soft, dark brown to dark olive gray, with mica and shell fragments				
		2					
-50	2	3	Medium SAND (SP): gray to dark gray, with mica and abundant shell fragments	30	95		
-52	4	4	- with pieces of bluish gray to olive gray silt below 1.25'	30	94		
-54	6		SILT (ML) to SILT with sand (ML): very stiff to hard, bluish gray to olive gray, with mica, small shell fragments and shells, and few organics (Timms Point Silt)				
-56	8						
-58	10						
-60	12						
-62	14						
-64	16						
-66	18						
-68	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 8.0 ft
RECOVERY LENGTH: 4.0 ft
DATE OF EXPLORATION: September 19, 1996

VESSEL: D/W Hood
VIBROCORE TYPE: Sediment-Formation
REVIEWED BY: GSResnick

LOG OF VIBROCORE NO. VA-25

UGIS ID: FB96VA25

LOCATION: N 4,013,658 E 4,205,372

ELEVATION: -49.4 ft (re: MLLW; based on water depth of 53.5 ft and tide of 4.1 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-50		1	Sandy SILT (ML) to Silty fine SAND (SM): very soft to soft, dark gray to dark olive gray, with mica and shell fragments				
-52	2	2					
		3	- with chunks of yellowish red sandy silt below 1'	32	82		
-54	4		SILT with sand (ML) to Sandy SILT (ML): dark gray to olive gray, with mica, small shells and shell fragments (Timms Point Silt ?)				
-56	6						
-58	8						
-60	10						
-62	12						
-64	14						
-66	16						
-68	18						
	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 4.0 ft
RECOVERY LENGTH: 3.0 ft
DATE OF EXPLORATION: September 19, 1996

VESSEL: D/W Hood
VIBROCORE TYPE: Sediment-Formation
REVIEWED BY: GSResnick

LOG OF VIBROCORE NO. VA-26

UGIS ID: FB96VA26

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61212)
05/31/01 05:10PM

LOCATION: N 4,012,884 E 4,205,957

ELEVATION: -46.5 ft (re: MLLW; based on water depth of 51 ft and tide of 4.5 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-48	2	1	SILT (ML): very soft to soft, black to dark olive gray, with mica and few sandy zones - with chunks of olive gray to bluish gray silt below 1.5'				
-50	4	2	SILT (ML): very stiff to hard, olive gray to bluish gray, with mica and small shell fragments (Timms Point Silt)	30	95		
-52	6						
-54	8						
-56	10						
-58	12						
-60	14						
-62	16						
-64	18						
-66	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 5.5 ft
RECOVERY LENGTH: 3.5 ft
DATE OF EXPLORATION: September 19, 1996

VESSEL: D/W Hood
VIBROCORE TYPE: Sediment-Formation
REVIEWED BY: GSResnick

LOG OF VIBROCORE NO. VA-27

UGIS ID: FB96VA27

LOCATION: N 4,013,018 E 4,205,927

ELEVATION: -45.8 ft (re: MLLW; based on water depth of 50.5 ft and tide of 4.7 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-48	2	1	SILT (ML): very soft to soft, black to dark olive gray, with mica				
-50	4	2	SILT (ML) intermixed with Silty SAND (SM) and Sandy SILT (ML): olive gray, with mica and shell fragments - chunk of olive gray silt at 3.5'				
-52	6	3					
-54	8	4	Fine to medium SAND with silt (SP-SM): dark gray to gray, with mica and shell fragments				
-56	10						
-58	12						
-60	14						
-62	16						
-64	18						
-66	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 9.5 ft
RECOVERY LENGTH: 7.5 ft
DATE OF EXPLORATION: September 19, 1996

VESSEL: D/W Hood
VIBROCORE TYPE: Sediment-Formation
REVIEWED BY: GSResnick

LOG OF VIBROCORE NO. VA-28

UGIS ID: FB96VA28

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61212)
05/31/01 05:10PM

LOCATION: N 4,013,115 E 4,205,932

ELEVATION: -46.1 ft (re: MLLW; based on water depth of 51 ft and tide of 4.9 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION
-48	2	1	SILT (ML): very soft to soft, dark olive gray to black, with mica and few shell fragments
-50	4	2	Sandy SILT (ML) intermixed with Silty SAND (SM) and SILT (ML): dark olive gray, with mica and abundant shell fragments
-52	6	3	Silty, fine to medium SAND (SM): dark gray, with mica, shell fragments, and inclusions of silt
-54	8	4	Fine SAND with silt (SP-SM): gray to dark gray, with mica and shell fragments
-56	10		
-58	12		
-60	14		
-62	16		
-64	18		
-66	20		

CORE RATE, ft/min: 5 10 15 20

WATER CONTENT, % | % PASSING #200 SIEVE | LIQUID LIMIT, % | PLASTICITY INDEX, %

PENETRATION DEPTH: 9.5 ft
RECOVERY LENGTH: 8.5 ft
DATE OF EXPLORATION: September 19, 1996

VESSEL: D/W Hood
VIBROCORE TYPE: Sediment-Formation
REVIEWED BY: GSResnick

LOG OF VIBROCORE NO. VA-29

UGIS ID: FB96VA29

LOCATION: N 4,013,353 E 4,205,903

ELEVATION: -44.8 ft (re: MLLW; based on water depth of 49.5 ft and tide of 4.7 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION
-46	2	1	SILT (ML): very soft to soft, dark olive gray to black, with mica
-48	4	2	Silty fine SAND (SM): dark gray to dark olive gray, with mica, shell fragments and silt layers/seams
-50	6	3	Fine SAND with silt (SP-SM): gray to dark gray, with mica, shell fragments, and few silt inclusions
-52	8	4	- increased silt inclusions below 6.5' - piece of wood at 7'
-54	10		
-56	12		
-58	14		
-60	16		
-62	18		
-64	20		

CORE RATE, ft/min: 5 10 15 20

WATER CONTENT, % | % PASSING #200 SIEVE | LIQUID LIMIT, % | PLASTICITY INDEX, %

PENETRATION DEPTH: 9.5 ft
RECOVERY LENGTH: 8.0 ft
DATE OF EXPLORATION: September 19, 1996

VESSEL: D/W Hood
VIBROCORE TYPE: Sediment-Formation
REVIEWED BY: GSResnick

LOG OF VIBROCORE NO. VA-30

UGIS ID: FB96VA30

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61212)
05/31/01 05:10PM

LOCATION: N 4,018,706 E 4,204,167

ELEVATION: -47.9 ft (re: MLLW; based on water depth of 51 ft and tide of 3.1 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
		1	Sandy CLAY (CL) to CLAY with sand (CL): very soft to soft, dark olive gray, with mica and few shell fragments	60	58	40	17
-50	2	2			12		
-52	4	3	Silty fine SAND (SM) to SAND with silt (SP-SM)): dark olive gray, with mica, shell fragments, and organics		38		
-54	6	4	Sandy SILT (ML) interlayered with Silty SAND (SM): tan to dark brown, with mica, shell fragments, and fine grained inclusions		32		
-56	8		Silty, fine to medium SAND (SM): brown, with mica, sandy silt layers, and fine grained inclusions				
-58	10	5	Silty medium SAND (SM): light brown to brown, with mica, some coarse sand, and few gravel		24		
-60	12	6					
-62	14						
-64	16						
-66	18						
-68	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 13.0 ft
RECOVERY LENGTH: 13.0 ft
DATE OF EXPLORATION: September 20, 1996

VESSEL: D/W Hood
VIBROCORE TYPE: Geotechnical
REVIEWED BY: GSResnick

LOG OF VIBROCORE NO. VB-31

UGIS ID: FB96VB31

LOCATION: N 4,021,855 E 4,206,568

ELEVATION: -47.8 ft (re: MLLW; based on water depth of 51.5 ft and tide of 3.7 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
		1	Silty fine SAND (SM): light brown to gray, with mica and some small shell fragments		21		
-50	2	2	Fine SAND with silt (SP-SM) to Silty fine SAND (SM): gray to light olive gray, with mica, shells and shell fragments, and few gravel		6		
-52	4	3			9		
		4	- abundant large shell fragments, 2.5' to 3'		8		
-54	6	5	Silty fine SAND (SM): light gray to light brown, with mica, shell fragments, fine grained inclusions, and few gravel		26		
-56	8	6	Fine SAND with silt (SP-SM) to Silty fine SAND (SM): tan to light brown, with shell fragments, abundant mica, few yellowish red zones				
-58	10						
-60	12	7			24		
-62	14	8					
-64	16						
-66	18						
-68	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 16.0 ft
RECOVERY LENGTH: 16.0 ft
DATE OF EXPLORATION: September 20, 1996

VESSEL: D/W Hood
VIBROCORE TYPE: Geotechnical
REVIEWED BY: GSResnick

LOG OF VIBROCORE NO. VB-32

UGIS ID: FB96VB32

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61212)
05/31/01 04:44PM

LOCATION: N 4,022,319 E 4,206,556

ELEVATION: -45.6 ft (re: MLLW; based on water depth of 50 ft and tide of 4.4 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	CORE RATE, ft/min (5 10 15 20)	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
		1	Sandy SILT (ML) to Silty fine SAND (SM): very loose, dark olive gray to black, with mica, few shell fragments, and few silty sand zones			42		
-48	2							
		2	SAND with silt (SP-SM) to Silty fine SAND (SM): with mica and shell fragments			9		
-50	4							
		3				8		
-52	6							
		4	- increased shell fragments below 7'					
-54	8		Silty fine SAND (SM): light brown to light gray, with mica, abundant shell fragments, and few cobbles					
		5				22		
-56	10							
		6	Fine SAND with silt (SP-SM): tan to light brown, with few shell fragments, abundant mica, few yellowish red zones, and some silty fine sand			18		
-58	12							
-60	14	7						
-62	16							
		8						
-64	18		- abundant shell fragments below 18'					
-66	20							

PENETRATION DEPTH: 20.0 ft
RECOVERY LENGTH: 19.0 ft
DATE OF EXPLORATION: September 20, 1996

VESSEL: D/W Hood
VIBROCORE TYPE: Geotechnical
REVIEWED BY: GSResnick

LOG OF VIBROCORE NO. VB-33

UGIS ID: FB96VB33

LOCATION: N 4,022,213 E 4,205,445

ELEVATION: -45.0 ft (re: MLLW; based on water depth of 49.5 ft and tide of 4.5 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	CORE RATE, ft/min (5 10 15 20)	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-46		1	Sandy CLAY (CL) to CLAY with sand (CL): very soft to soft, dark olive gray to black, with mica and few shell fragments		42	50	32	11
	2		- sandy silt to silty sand below 2.5'					
-48								
	4	2	CLAY with sand (CL): olive gray, with mica, shell fragments, and sandy clay zones		34	75	35	16
-50		3				53		
	6							
-52		4	Silty, fine to medium SAND (SM) to Sandy SILT (ML): grayish brown, with coarse sand and few gravel			48		
-54	8							
-56	10							
-58	12							
-60	14							
-62	16							
-64	18							
	20							

PENETRATION DEPTH: 8.0 ft
RECOVERY LENGTH: 7.0 ft
DATE OF EXPLORATION: September 20, 1996

VESSEL: D/W Hood
VIBROCORE TYPE: Geotechnical
REVIEWED BY: GSResnick

LOG OF VIBROCORE NO. VB-34

UGIS ID: FB96VB34

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61212)
05/31/01 04:44PM

LOCATION: N 4,022,875 E 4,204,948

ELEVATION: -48.6 ft (re: MLLW; based on water depth of 53.5 ft and tide of 4.9 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-50		1	CLAY with sand (CL): very soft to soft, dark olive gray, with mica and shell fragments	45	82	42	18
-52	2	2	SILT/CLAY (ML/CL): firm, olive gray, with mica, shells and shell fragments - sandy silt, abundant shell fragments, 1' to 1.5'	42	91	46	19
-54	4	3		39	97	43	17
-56	6						
-58	8	4		36			
-60	10	5					
-62	12	6	Silty fine SAND (SM): olive gray, with mica and shell fragments - few silt seams 12.5' to 13.5'		26		
-64	14						
-66	16						
-68	18						
	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 18.0 ft
RECOVERY LENGTH: 15.0 ft
DATE OF EXPLORATION: September 20, 1996

VESSEL: D/W Hood
VIBROCORE TYPE: Geotechnical
REVIEWED BY: GSResnick

LOG OF VIBROCORE NO. VB-35

UGIS ID: FB96VB35

LOCATION: N 4,023,473 E 4,204,558

ELEVATION: -48.2 ft (re: MLLW; based on water depth of 53 ft and tide of 4.8 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-50	2	1	Silty SAND (SM) to Sandy SILT (ML): grayish brown, with mica, few shell fragments, and gravel sized pieces of cemented silty sand		29		
-52	4	2	Silty fine SAND (SM): light brown, with mica and pieces of very stiff to hard (desiccated?) silt/clay		18		
-54	6	3	SILT (ML/MH): very stiff to hard (desiccated?), light gray to yellowish brown, mottled				
-56	8	4	Fine SAND with silt (SP-SM): light brown to grayish brown, with mica, shell fragments, few fine grained inclusions, and sandy silt zones		4		
-58	10	5	- silt to sandy silt 10' to 11'				
-60	12	6	Fine to medium SAND (SP): light brown to yellowish brown, with abundant mica, few fine grained inclusions, and yellowish red zones, mottled		4		
-62	14						
-64	16	7					
-66	18						
-68	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 19.0 ft
RECOVERY LENGTH: 18.5 ft
DATE OF EXPLORATION: September 20, 1996

VESSEL: D/W Hood
VIBROCORE TYPE: Geotechnical
REVIEWED BY: GSResnick

LOG OF VIBROCORE NO. VB-36

UGIS ID: FB96VB36

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61212)
05/31/01 04:44PM

LOCATION: N 4,024,380 E 4,204,227

ELEVATION: -45.6 ft (re: MLLW; based on water depth of 49 ft and tide of 3.4 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
		1	Sandy CLAY (CL) to CLAY with sand (CL): very soft to soft, black to dark olive gray, with mica, organics, and inclusions of reddish brown to olive brown sandy silt to silty sand (slight petroleum odor)	41	53	37	16
-48	2						
-50	4	2	Sandy SILT (ML) interlayered with Silty fine SAND (SM): reddish brown to olive brown, with abundant mica, few fine grained inclusions, and few gravel, mottled		74		
-52	6	3	Silty fine SAND (SM): light brown to brown, with abundant mica and few fine grained inclusions		16		
-54	8	4			17		
-56	10	5	Sandy SILT (ML) interlayered with Silty fine SAND (SM): brown to olive brown, with abundant mica, few fine grained inclusions, and reddish brown zones - very stiff silt 11' to 11.5'				
-58	12	6					
-60	14						
-62	16						
-64	18						
-66	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 13.0 ft
RECOVERY LENGTH: 13.0 ft
DATE OF EXPLORATION: September 20, 1996

VESSEL: D/W Hood
VIBROCORE TYPE: Geotechnical
REVIEWED BY: GSResnick

LOG OF VIBROCORE NO. VB-37

UGIS ID: FB96VB37

LOCATION: N 4,024,470 E 4,204,782

ELEVATION: -48.0 ft (re: MLLW; based on water depth of 51 ft and tide of 3.0 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
		1	Sandy CLAY (CL) to CLAY with sand (CL): very soft to soft, black to dark olive gray, with mica, few shell fragments, and organics	51	68	38	15
-50	2	2		40			
-52	4	3	SILT (ML): firm to stiff, reddish brown to olive brown, with mica		98		
-54	6	4	Sandy SILT (ML): olive gray, with mica, few fine grained inclusions, and yellowish red streaks		84		
-56	8		Silty fine SAND (SM) to SAND with silt (SP-SM): gray to olive gray, with abundant mica				
-58	10	5			12		
-60	12	6					
-62	14	7					
-64	16		Fine to medium SAND (SP): light gray to gray, with mica and few small shell fragments				
-66	18	8					
-68	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 19.0 ft
RECOVERY LENGTH: 18.5 ft
DATE OF EXPLORATION: September 20, 1996

VESSEL: D/W Hood
VIBROCORE TYPE: Geotechnical
REVIEWED BY: GSResnick

LOG OF VIBROCORE NO. VB-38

UGIS ID: FB96VB38

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61212)
05/31/01 04:44PM

LOCATION: N 4,025,921 E 4,204,946

ELEVATION: -47.1 ft (re: MLLW; based on water depth of 50 ft and tide of 2.9 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	CORE RATE, ft/min (5 10 15 20)	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-48		1	Silty fine SAND (SM): dark olive gray, with mica, shell fragments, few organic pockets, and greenish gray sandy silt inclusions			36		
-50	2							
-52	4	2	Silty fine SAND (SM): olive gray, with mica			27		
-54	6		Fine SAND with silt (SP-SM) to Fine SAND (SP): gray, with abundant mica					
-56	8	3				5		
-58	10							
-60	12	4				4		
-62	14	5						
-64	16							
-66	18	6						
	20							

PENETRATION DEPTH: 20.0 ft
RECOVERY LENGTH: 19.5 ft
DATE OF EXPLORATION: September 20, 1996

VESSEL: D/W Hood
VIBROCORE TYPE: Geotechnical
REVIEWED BY: GSResnick

LOG OF VIBROCORE NO. VB-39

UGIS ID: FB96VB39

LOCATION: N 4,022,975 E 4,207,979

ELEVATION: -46.5 ft (re: MLLW; based on water depth of 49.5 ft and tide of 3.0 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	CORE RATE, ft/min (5 10 15 20)	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
		1	Silty fine SAND (SM) to Sandy SILT (ML): with mica			27		
-48	2	2	Silty fine SAND (SM) to SAND with silt (SP-SM): olive gray, with mica, abundant shell fragments, and inclusions of tan sand and black organic clay			9		
-50	4							
-52		3	SILT (ML) interlayered with Sandy SILT (ML): very stiff, tan, with mica		31	97	39	13
-54	6	4	Silty fine SAND (SM): olive gray, with very stiff silt seams			42		
-56	8							
-58	10	5	- interlayered with brown silt below 10'					
-60	12		Fine SAND (SP) to fine SAND with silt (SP-SM): tan to gray, with mica - abundant shell fragments 12' to 15' - shell hash layer, 14' to 14.5'					
-62	14	6				2		
-64	16	7						
-66	18							
	20							

PENETRATION DEPTH: 18.0 ft
RECOVERY LENGTH: 18.0 ft
DATE OF EXPLORATION: September 20, 1996

VESSEL: D/W Hood
VIBROCORE TYPE: Geotechnical
REVIEWED BY: GSResnick

LOG OF VIBROCORE NO. VB-40

UGIS ID: FB96VB40

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61212)
05/31/01 04:44PM

LOCATION: N 4,025,649 E 4,210,278

ELEVATION: -46.5 ft (re: MLLW; based on water depth of 48.5 ft and tide of 2.0 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-48	2	1	Sandy SILT (ML) to Silty SAND (SM): dark olive gray, with mica and shell fragments		83		
-50	4	2	SILT/CLAY (ML/CL): stiff, dark olive gray, with few mica	32	96	49	21
-52	6	3		33	90		
-54	8		- sandy 7.5' to 8'				
-56	10	4	Silty fine SAND (SM) to fine SAND with silt (SP-SM): olive gray, with mica		26		
-58	12	5	Sandy SILT (ML) to Silty fine SAND (SM): olive gray, with mica		52		
-60	14	6	Silty fine SAND (SM): olive gray, with mica				
-62	16	7	SILT (ML): very stiff, olive gray, with mica and light gray nodules				
-64	18						
-66	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 18.0 ft
RECOVERY LENGTH: 17.0 ft
DATE OF EXPLORATION: September 18, 1996

VESSEL: D/W Hood
VIBROCORE TYPE: Geotechnical
REVIEWED BY: GSResnick

LOG OF VIBROCORE NO. VB-41

UGIS ID: FB96VB41

LOCATION: N 4,026,043 E 4,211,989

ELEVATION: -47.0 ft (re: MLLW; based on water depth of 49.5 ft and tide of 2.5 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-48	2	1	Silty SAND (SM) to Sandy SILT (ML): dark olive gray, with mica and few shell fragments		32		
-50	4	2	Sandy SILT (ML) to SILT (ML): dark olive gray, with mica		63		
-52	6	3	Elastic SILT (MH): stiff, olive gray	39	98	52	22
-54	8		SILT/CLAY (ML/CL): stiff, olive gray				
-56	10	4			99		
-58	12	5					
-60	14	6					
-62	16	7	Fine SAND with silt (SP-SM): olive gray, with mica				
-64	18						
-66	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 18.0 ft
RECOVERY LENGTH: 17.0 ft
DATE OF EXPLORATION: September 18, 1996

VESSEL: D/W Hood
VIBROCORE TYPE: Geotechnical
REVIEWED BY: GSResnick

LOG OF VIBROCORE NO. VB-42

UGIS ID: FB96VB42

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61212)
05/31/01 04:44PM

LOCATION: N 4,017,491 E 4,203,972

ELEVATION: -45.7 ft (re: MLLW; based on water depth of ft and tide of CG2-1 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
		1	Sandy CLAY (CL): very soft to soft, black to olive gray, some organics	41			
-48	2						
-50	4	2	Fine SAND with silt (SP-SM): yellowish red to olive gray, with mica and few shell fragments		12		
-52	6		- silt seam with shells at 5.5'				
-54	8	3	Fine SAND with silt (SP-SM): yellowish red to light gray, reddish staining, with mica				
-56	10						
-58	12	4			8		
-60	14						
-62	16	5					
-64	18						
-66	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 19.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 15, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. CG2-1

UGIS ID: FD97V001

LOCATION: N 4,017,808 E 4,204,013

ELEVATION: -46.2 ft (re: MLLW; based on water depth of ft and tide of CG2-2 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
		1	Sandy CLAY (CL): very soft to soft, black, with mica	61	59	42	17
-48	2						
-50	4	2	Fine SAND with silt (SP-SM): light gray with yellowish red, with mica and black silt pods		9		
		3					
-52	6	4	Fine SAND (SP) to SAND with silt (SP-SM): yellow, with mica and iron staining		3		
-54	8						
-56	10	5					
-58	12		- becomes silty sand below 11'				
-60	14	6	- yellowish red to brown silt partings and seams at 14' to 17'				
-62	16						
-64	18	7	- becomes gray below 17'				
-66	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 19.6 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 15, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. CG2-2

UGIS ID: FD97V002

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61215)
05/31/01 05:17PM

LOCATION: N 4,018,460 E 4,204,098

ELEVATION: -44.5 ft (re: MLLW; based on water depth of ft and tide of CG2-3 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-46	2	1	Sandy CLAY (CL): very soft to soft, black	53	61		
-48	4	2	Fine to medium SAND with silt (SP-SM): olive gray, with mica and few shell fragments				
-50	6	3	Fine to medium SAND (SP) to SAND with silt (SP-SM): yellowish red to light gray, with mica and iron staining - black silt seam with shell fragments at 4.5'				
-52	8	4			1 2		
-54	10	5	Fine SAND with silt (SP-SM) to Silty fine SAND (SM): yellowish red to light gray, with mica and iron staining				
-56	12						
-58	14	6					
-60	16						
-62	18						
-64	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 19.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 15, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. CG2-3

UGIS ID: FD97V003

LOCATION: N 4,018,986 E 4,204,237

ELEVATION: -45.2 ft (re: MLLW; based on water depth of ft and tide of CG2-4 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-46	2	1	CLAY with sand (CL) to CLAY (CL): very soft to soft, black	75	78	62	34
-48	4	2	Silty fine SAND (SM): olive gray, with mica and black silt pockets				
-50	6	3	Fine SAND (SP) to SAND with silt (SP-SM): yellowish red to light gray, with mica and iron staining		4		
-52	8						
-54	10	4	- silt seam at 9.5'				
-56	12						
-58	14						
-60	16	5			2		
-62	18						
-64	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 20.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 15, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. CG2-4

UGIS ID: FD97V004

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61215)
05/31/01 05:17PM

LOCATION: N 4,019,493 E 4,204,510

ELEVATION: -45.2 ft (re: MLLW; based on water depth of ft and tide of CG2-5 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-46		1	CLAY with sand (CL) to Sandy CLAY (CL): very soft to soft, black, with some organics	44			
-48	2	2	Fine to medium SAND with silt (SP-SM) to SAND (SP): olive gray, with mica, black silt partings, and wood fragments		4		
-50	4						
-52	6	3	Fine SAND (SP) to SAND with silt (SP-SM): yellowish red to light gray, with mica and iron staining		3		
-54	8						
-56	10	4					
-58	12		- with some silty sand below 12.5'				
-60	14	5			3		
-62	16						
-64	18						
	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 19.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 15, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. CG2-5

UGIS ID: FD97V005

LOCATION: N 4,017,599 E 4,204,605

ELEVATION: -50.4 ft (re: MLLW; based on water depth of ft and tide of CG2-6 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
			CLAY (CL): very soft to soft, black				
-52		1	Silty fine SAND (SM): black, with silt pockets, mica, and few shells, strong petroleum odor				
	2						
-54		2	Fine SAND (SP) to SAND with silt (SP-SM): olive gray, with mica and dark gray silt pockets		2		
	4						
-56			- large rock at 5.5'				
	6						
-58							
	8	3			12		
-60							
	10		Fine to medium SAND with silt (SP-SM) to Silty SAND (SM): light gray, with mica and some iron staining				
-62		4					
	12						
-64							
	14						
-66		5	- silt seam at 14.5'				
	16		- becomes silty sand below 14.5'				
-68							
	18						
-70							
	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 18.5 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 15, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. CG2-6

UGIS ID: FD97V006

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61215)
05/31/01 05:17PM

LOCATION: N 4,017,888 E 4,204,654

ELEVATION: -44.0 ft (re: MLLW; based on water depth of ft and tide of CG2-7 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	CORE RATE, ft/min (5 10 15 20)	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
		1	Fine SAND (SP) to Silty fine SAND (SM): olive gray, with mica, shells and shell fragments, and few dark gray silt pockets			4		
-46	2							
-48	4							
-50	6	2						
-52	8							
-54	10	3	- thin gravel layer at 9.25' Fine to medium SAND (SP) to SAND with silt (SP-SM): light gray to yellowish red, with mica and iron staining			1 1		
-56	12							
-58	14							
-60	16	4						
-62	18							
-64	20							

PENETRATION DEPTH: 19.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 15, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. CG2-7

UGIS ID: FD97V007

LOCATION: N 4,018,663 E 4,204,929

ELEVATION: -49.7 ft (re: MLLW; based on water depth of ft and tide of CG2-8 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	CORE RATE, ft/min (5 10 15 20)	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
		1	Fine SAND with silt (SP-SM) to Silty SAND (SM): olive gray, with mica and shell fragments - silt layer at 1.25'			8		
-52	2	2	Fine SAND (SP) to SAND with silt (SP-SM): yellowish red to light gray, iron staining, with mica					
-54	4							
-56	6	3				1 2		
-58	8							
-60	10	4						
-62	12							
-64	14		- becomes fine grained below 13'					
-66	16	5						
-68	18							
-70	20							

PENETRATION DEPTH: 19.8 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 15, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. CG2-8

UGIS ID: FD97V008

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

LOCATION: N 4,019,340 E 4,205,288

ELEVATION: -49.1 ft (re: MLLW; based on water depth of ft and tide of CG2-9 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-50		1	Sandy CLAY (CL) to Clayey fine SAND (SC): very soft, black to dark gray, with mica	45	48		
		2		44	92	50	22
-52	2		CLAY (CL/CH): firm, dark gray to dark olive gray, with mica and few shell fragments				
-54	4	3	- becomes very soft to soft at 2.5' to 3'				
			- with concretions and thin sand partings at 4.25'				
-56	6						
-58	8						
		4					
-60	10		Silty fine SAND (SM): dark gray, shell fragments, mica				
-62	12	5			22		
-64	14						
-66	16						
-68	18						
	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 16.3 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 16, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. CG2-9

UGIS ID: FD97V009

LOCATION: N 4,019,689 E 4,205,176

ELEVATION: -49.7 ft (re: MLLW; based on water depth of ft and tide of CG2-10 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
		1	Fine SAND (SP) to SAND with silt (SP-SM): light gray, with mica and few shells		3		
-52	2						
-54	4	2	- black and brown silt pockets at 3' to 4.75'				
-56	6	3	Fine to medium SAND (SP) to SAND with silt (SP-SM): yellowish red to light gray, with mica and iron staining		3		
-58	8						
-60	10	4					
-62	12						
-64	14						
-66	16						
-68	18	5					
-70	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 19.5 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 16, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. CG2-10

UGIS ID: FD97V010

LOGS OF VIBROCORES

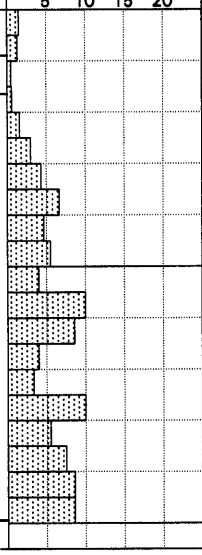
Channel Deepening Program
Port of Los Angeles

61212VIB (61215)
05/31/01 05:17PM

LOCATION: N 4,018,078 E 4,204,298

ELEVATION: -57.7 ft (re: MLLW; based on water depth of ft and tide of CG2-11 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
		1	Clayey fine SAND (SC): black, with mica and few shell fragments		18		
-60	2	2	- silt seam at 1.5'				
			Silty fine SAND (SM): olive gray to dark gray, with mica				
-62	4	3	Fine to medium SAND with silt (SP-SM) to Silty SAND (SM): yellowish red to light gray, with mica and iron staining		5		
-64	6						
-66	8						
-68	10	4					
-70	12						
-72	14						
-74	16	5					
-76	18						
-78	20						



PENETRATION DEPTH: 20.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 16, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: FJArnold

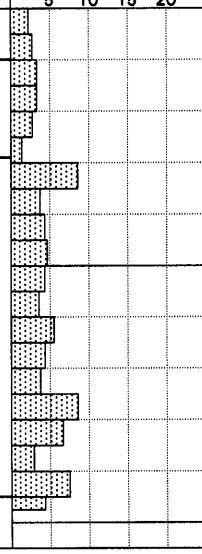
LOG OF VIBROCORE NO. CG2-11

UGIS ID: FD97V011

LOCATION: N 4,018,407 E 4,204,672

ELEVATION: -55.8 ft (re: MLLW; based on water depth of ft and tide of CG2-12 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
		1	Clayey SAND (SC) to Sandy CLAY (CL): soft, black	38	42		
-58	2	2	Fine SAND (SP) to SAND with silt (SP-SM): olive gray, with mica, few wood pieces, and black and brown silt pockets		2		
-60	4						
-62	6	3	- some iron staining at 5.75'		1		
			Fine SAND (SP) to SAND with silt (SP-SM): yellowish red to light gray, with mica and iron staining				
-64	8		- becomes light gray with less iron staining below 8'				
-66	10	4					
-68	12						
-70	14						
-72	16	5					
-74	18						
-76	20						



PENETRATION DEPTH: 19.5 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 16, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. CG2-12

UGIS ID: FD97V012

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61215)
05/31/01 05:18PM

LOCATION: N 4,019,065 E 4,204,583

ELEVATION: -56.1 ft (re: MLLW; based on water depth of ft and tide of CG2-13 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE
		1	Sandy CLAY (CL) to CLAY with sand (CL): very soft, dark olive gray to black, with mica	37	
-58	2	2	Fine SAND with silt (SP-SM): olive gray, with mica		
-60	4		Fine SAND (SP) to SAND with silt (SP-SM): yellowish red to light gray, with mica, iron staining increasing with depth		
-62	6	3			3
-64	8				
-66	10	4			
-68	12		- becomes fine to medium grained below 11'		
-70	14				
-72	16	5			
-74	18				
-76	20				

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 18.5 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 16, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. CG2-13

UGIS ID: FD97V013

LOCATION: N 4,019,237 E 4,204,956

ELEVATION: -56.1 ft (re: MLLW; based on water depth of ft and tide of CG2-14 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE
		1	Sandy CLAY (CL) to CLAY with sand (CL): very soft, black, with mica, some organics	42	
-58	2	2	Silty, fine to medium SAND (SM): dark gray, with mica and few dark gray silt pockets		22
-60	4	3	Fine SAND (SP) to SAND with silt (SP-SM): light gray, with mica and iron staining		
-62	6				
-64	8	4	- becomes yellowish red, with increased iron staining, below 6.5'		2
-66	10				
-68	12				
-70	14	5			
-72	16				
-74	18				
-76	20				

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 17.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 16, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. CG2-14

UGIS ID: FD97V014

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61215)
05/31/01 05:18PM

LOCATION: N 4,025,449 E 4,204,656

ELEVATION: -49.2 ft (re: MLLW; based on water depth of ft and tide of CG3-1 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE
-50		1	Sandy CLAY (CL) to CLAY with sand (CL): very soft to soft, black to dark olive gray, with mica and few shell fragments	40	77
-52	2	2	CLAY (CL): firm, dark olive gray, with mica and small shell pieces		37
		3			
-54	4		Silty fine SAND (SM): dark olive gray, with mica and abundant shell fragments		
-56	6		- shell hash layer at 4.5'		
			- increasing sand content below 6.5'		
-58	8	4	- fewer shells below 8'		
-60	10				
-62	12				
			- light gray to tan below 13'		
-64	14		- no shells below 14'		
		5			
-66	16				
-68	18				
	20				

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 18.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 16, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. CG3-1

UGIS ID: FD97V015

LOCATION: N 4,025,536 E 4,205,079

ELEVATION: -44.2 ft (re: MLLW; based on water depth of ft and tide of CG3-2 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE
		1	CLAY with sand (CL): very soft, dark olive to black, with mica	72	
-46	2	2	SILT (ML): firm, with mica and few shells, with pockets of very soft silt	32	
-48	4	3	Silty fine SAND (SM) to Sandy SILT (ML/MH): reddish brown, with mica		
-50	6	4	Silty fine SAND (SM): olive gray, with mica and abundant shell fragments		31
-52	8				
-54	10	5			
-56	12				
-58	14		- with concretions at 13.25'		
			- decreasing shell fragments below 14'		
-60	16	6			
-62	18		- faint iron staining below 17'		
		7			
-64	20				

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 19.8 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 16, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. CG3-2

UGIS ID: FD97V016

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61215)
05/31/01 05:19PM

LOCATION: N 4,025,908 E 4,204,850

ELEVATION: -47.9 ft (re: MLLW; based on water depth of ft and tide of CG3-3 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
		1	Silty fine SAND (SM): dark olive gray, with mica and few shell fragments - dark gray silt seam at 1.25'		16		
-50	2						
-52	4	2	Silty fine SAND (SM) to fine SAND (SP): olive gray, with mica - large rock at 2.75'		29		
-54	6						
-56	8						
-58	10	3					
-60	12		- minor iron staining below 11'				
-62	14	4			4		
-64	16						
-66	18	5	- dark gray silt seam at 17.2'				
-68	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 19.5 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 17, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. CG3-3

UGIS ID: FD97V017

LOCATION: N 4,026,241 E 4,204,389

ELEVATION: -47.2 ft (re: MLLW; based on water depth of ft and tide of CG3-4 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-48		1	Sandy CLAY (CL) to CLAY with sand (CL): very soft, dark gray, with mica and pockets of firm silt	51			
-50	2						
-52	4	2	CLAY (CL): firm, with mica, few shells, and sand partings	61			
-54	6	3	Silty fine SAND (SM): dark olive gray, with mica, shells, and some organics - brown to brownish red at 7' to 11'		37		
-56	8		- increasing silt below 9'				
-58	10	4	- limited iron staining below 10'				
-60	12						
-62	14						
-64	16						
-66	18						
	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 11.3 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 17, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. CG3-4

UGIS ID: FD97V018

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61215)
05/31/01 05:19PM

LOCATION: N 4,026,258 E 4,205,382

ELEVATION: -43.2 ft (re: MLLW; based on water depth of ft and tide of CG3-5 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-44		1	Sandy CLAY (CL): very soft, black to olive gray, with mica	57	66	42	20
-46	2	2	- rock at 2.5'		11		
-48	4		Fine SAND with silt (SP-SM) to Silty SAND (SM): olive gray, with mica and occasional dark gray soft silt pods and seams				
-50	6						
-52	8						
-54	10	3					
-56	12		Silty fine SAND (SM): light olive gray to gray, with mica and hard gray silt seams and partings				
-58	14	4		26	27		
-60	16						
-62	18						
	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 19.8 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 17, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. CG3-5

UGIS ID: FD97V019

LOCATION: N 4,026,606 E 4,204,245

ELEVATION: -47.7 ft (re: MLLW; based on water depth of ft and tide of CG3-6 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
		1	Fine SAND with silt (SP-SM) to SAND (SP): gray to light gray, with mica, strong petroleum odor, occasional shell fragments, faint iron staining	24	6		
-50	2						
-52	4						
-54	6	2	- with several dark silt seams at 5' to 6'				
-56	8						
-58	10	3			1		
-60	12						
-62	14						
-64	16	4					
-66	18						
-68	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 18.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 17, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. CG3-6

UGIS ID: FD97V020

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61215)
05/31/01 05:19PM

LOCATION: N 4,026,730 E 4,205,435

ELEVATION: -44.1 ft (re: MLLW; based on water depth of ft and tide of CG3-7 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
		1	CLAY with sand (CL) to Sandy CLAY (CL): very soft, dark olive gray, with mica	48			
-46	2						
-48	4	2	Fine SAND with silt (SP-SM) to Silty SAND (SM): olive gray, with mica and occasional small gray silt nodules		5		
-50	6						
-52	8						
-54	10	3					
-56	12						
-58	14	4			28		
-60	16						
-62	18						
-64	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 18.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 17, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. CG3-7

UGIS ID: FD97V021

LOCATION: N 4,027,122 E 4,204,243

ELEVATION: -41.4 ft (re: MLLW; based on water depth of ft and tide of CG3-8 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-42		1	Sandy CLAY (CL): very soft, black to dark olive gray, with mica	43	53	39	18
-44	2						
-46	4	2	Fine SAND with silt (SP-SM): dark gray to dark olive gray, with mica - several thin dark gray silt seams at 4' to 6'		6		
-48	6						
-50	8		- with dark gray silt nodules at 7' to 7.5'				
-52	10	3	- becomes gray to light gray, with faint iron staining, below 9'		2		
-54	12						
-56	14						
-58	16	4					
-60	18						
	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 18.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 17, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. CG3-8

UGIS ID: FD97V022

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61215)
05/31/01 05:19PM

LOCATION: N 4,027,180 E 4,204,848

ELEVATION: -44.5 ft (re: MLLW; based on water depth of ft and tide of CG3-9 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-46	2	1	CLAY with sand (CL) to Sandy CLAY (CL): very soft, dark olive gray, with mica	59			
-48	4	2	Fine SAND with silt (SP-SM): olive gray, with mica				
-50	6						
-52	8	3	- occasional light gray silt nodules below 8'		2		
-54	10						
-56	12						
-58	14	4					
-60	16						
-62	18						
-64	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 19.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 17, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. CG3-9

UGIS ID: FD97V023

LOCATION: N 4,027,117 E 4,205,530

ELEVATION: -44.3 ft (re: MLLW; based on water depth of ft and tide of CG3-10 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-46	2	1	CLAY with sand (CL): soft, dark olive gray, with mica	65	78		
-48	4	2	Silty fine SAND (SM): dark olive gray, with mica and nodules				
-50	6	3	Fat CLAY (CH): firm, dark olive gray, with occasional brown to black silt nodules	66	96	71	41
-52	8	4	Silty fine SAND (SM): olive gray, with mica				
-54	10						
-56	12	5	- less silty below 11'		30		
-58	14	6					
-60	16		- 1' dark olive gray sandy silt layer, with shells, at 15'				
-62	18	7	Fine SAND with silt (SP-SM) to Silty SAND (SM): olive gray, with mica and limited iron staining				
-64	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 20.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 18, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. CG3-10

UGIS ID: FD97V024

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61215)
05/31/01 05:19PM

LOCATION: N 4,026,472 E 4,205,197

ELEVATION: -59.0 ft (re: MLLW; based on water depth of ft and tide of CG3-11 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-60		1	Sandy CLAY (CL): very soft, dark olive gray, with mica	29			
-62	2	2	Silty fine SAND (SM): olive gray to dark olive gray, with mica				
-64	4	3	Fine SAND with silt (SP-SM): olive gray, with mica, limited iron staining - hard gray silt seam at 5.5'		6		
-66	6						
-68	8	4					
-70	10						
-72	12						
-74	14						
-76	16						
-78	18						
	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 12.3 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 18, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. CG3-11

UGIS ID: FD97V025

LOCATION: N 4,026,568 E 4,204,620

ELEVATION: -51.0 ft (re: MLLW; based on water depth of ft and tide of CG3-12 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-52		1	Fine SAND with silt (SP-SM) to Silty SAND (SM): olive gray, with mica and some shell fragments		7		
-54	2		- dark olive gray silty sand patches at 2.5' to 5'				
-56	4	2					
-58	6						
-60	8	3			3		
-62	10						
-64	12						
-66	14	4					
-68	16						
-70	18						
	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 18.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 18, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. CG3-12

UGIS ID: FD97V026

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61215)
05/31/01 05:19PM

LOCATION: N 4,026,788 E 4,204,745

ELEVATION: -50.8 ft (re: MLLW; based on water depth of ft and tide of CG3-13 ft)

ELEV, ft	DEPTH, ft	MATERIAL SYMBOL	SAMPLE	SAMPLE NUMBER	MATERIAL DESCRIPTION	CORE RATE, ft/min (5 10 15 20)	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-52				1	Fine SAND with silt (SP-SM) to Silty SAND (SM): olive gray, with mica and some shells			6		
-54	2									
-56	4				- becomes fine to medium grained at 5' to 8'					
-58	6			2				2		
-60	8				- dark gray silt partings at 8' to 11'					
-62	10			3						
-64	12									
-66	14									
-68	16			4						
-70	18									
	20									

PENETRATION DEPTH: 19.5 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 18, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. CG3-13

UGIS ID: FD97V027

ELEV, ft	DEPTH, ft	MATERIAL SYMBOL	SAMPLE	SAMPLE NUMBER	MATERIAL DESCRIPTION	CORE RATE, ft/min (5 10 15 20)	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %

LOGS OF VIBROCORES
Channel Deepening Program
Port of Los Angeles

61212VIB (61215)
05/31/01 05:20PM

LOCATION: N 4,021,608 E 4,206,360

ELEVATION: -47.2 ft (re: MLLW; based on water depth of ft and tide of CG4-1 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-48		1	CLAY with sand (CL): very soft, dark olive gray to black, with mica and few shell fragments	32			
-50	2	2	Silty fine SAND (SM) to SAND with silt (SP-SM): yellowish red, with mica - dark olive silt layer with black nodules at 2.75' to 3.25' - few silt nodules at 4.5' to 7'	20	14		
-52	4						
-54	6	3					
-56	8		Fine SAND (SP) to SAND with silt (SP-SM): light yellowish red, with mica, limited iron staining				
-58	10						
-60	12	4			2		
-62	14		Fine to medium SAND with silt (SP-SM): light gray, with mica				
-64	16	5	- abundant shell fragments at 14.75' to 16.5'				
-66	18						
	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 19.8 ft
RECOVERY LENGTH: 61217.0 ft
DATE OF EXPLORATION: April 19, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. CG4-1

UGIS ID: FD97V028

LOCATION: N 4,021,807 E 4,206,991

ELEVATION: -46.6 ft (re: MLLW; based on water depth of ft and tide of CG4-2 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-48		1	Sandy CLAY (CL) to Clayey SAND (SC): very soft, black to dark gray, with mica, limited shells and possible organic material	32			
	2						
-50		2	Fine SAND with silt (SP-SM): dark gray, with mica, some shells and pockets of black silt - abundant shells at 3.5'				
	4						
-52							
	6		- becomes medium grained, with shell fragments, black silt pockets, and strong petroleum smell, at 5.75' to 6.25'				
-54		3			6		
	8		Silty fine SAND (SM) to SAND with silt (SP-SM): yellowish red, with mica, some shells and iron staining - becomes light gray to yellowish red at 6.75' to 8.85' - brown clay concretion at 6.9' - abundant shell fragments at 9.5' to 11.25' - firm brown clay patches at 11.5' to 16.5'				
-56							
	10						
-58							
	12	4					
-60							
	14						
-62							
	16						
-64		5					
	18		- abundant shell fragments at 18' to 19.75'				
-66							
	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 18.3 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 19, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. CG4-2

UGIS ID: FD97V029

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61215)
05/31/01 05:21PM

LOCATION: N 4,022,313 E 4,206,816

ELEVATION: -44.0 ft (re: MLLW; based on water depth of ft and tide of CG4-3 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
		1	Clayey SAND (SC) to Sandy CLAY (CL): dark olive gray to black	34	42	29	15
-46	2						
-48	4	2	Silty fine SAND (SM): olive gray, with mica and shell fragments - clay seam at 5.5' - becomes light olive gray at 6' to 6.5'		21		
-50	6						
-52	8	3	Fine SAND with silt (SP-SM) to Silty fine SAND (SM): yellowish red to light gray, with limited iron staining - abundant shell fragments at 9'				
-54	10						
-56	12						
-58	14	4			8		
-60	16		- with clay seams at 15.75' to 16.25'				
-62	18	5					
-64	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 20.0 ft
RECOVERY LENGTH: 61218.0 ft
DATE OF EXPLORATION: April 19, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. CG4-3

UGIS ID: FD97V030

LOCATION: N 4,022,601 E 4,206,332

ELEVATION: -43.2 ft (re: MLLW; based on water depth of ft and tide of CG4-4 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-44			Clayey fine SAND (SC): black to dark olive gray, with mica, and some shell fragments				
-46	2	1	CLAY with sand (CL): very soft, black to dark olive gray	29			
-48	4	2	- decreasing sand content at 5'	38			
-50	6	3	Fine SAND with silt (SP-SM): olive gray, with mica and some shell fragments - abundant shell fragments at 7' to 8.75' - several clay seams below 7'				
-52	8						
-54	10	4	Fine to medium SAND with silt (SP-SM) to SAND (SP): yellowish red to light gray, with mica and shell fragments, some iron staining		4		
-56	12						
-58	14						
-60	16						
-62	18	5					
	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 20.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 19, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. CG4-4

UGIS ID: FD97V031

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61215)
05/31/01 05:22PM

LOCATION: N 4,022,660 E 4,205,811

ELEVATION: -42.5 ft (re: MLLW; based on water depth of ft and tide of CG4-5 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-44	2		Clayey fine SAND (SC) to Sandy CLAY (CL): black to olive gray, with mica				
-46	4	1		33	42	30	11
-48	6	2	Fine SAND with silt (SP-SM): olive gray, with mica and limited shell fragments		5		
-50	8		- clay seam at 8.5'				
-52	10		- abundant shells below 9.5'				
-54	12	3	Silty fine SAND (SM) to SAND with silt (SP-SM): olive gray to light gray, faint iron staining, with silt and sandy silt layers and seams		52		
-56	14	4	- stiff clay layer at 14.5' to 15'				
-58	16		- stiff clay layer at 15.75' to 16.75'				
-60	18	5					
-62	20		- with reddish brown bands below 19'				

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 20.0 ft
RECOVERY LENGTH: 61217.0 ft
DATE OF EXPLORATION: April 19, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. CG4-5

UGIS ID: FD97V032

LOCATION: N 4,022,085 E 4,207,204

ELEVATION: -45.1 ft (re: MLLW; based on water depth of ft and tide of CG4-6 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-46		1	CLAY with sand (CL): very soft, black to olive gray	53	82		
-48	2	2	Silty fine SAND (SM): dark olive gray, with mica, shells, and occasional black silt patches		20		
-50	4						
-52	6						
-54	8		- abundant shell fragments at 9.25' to 9.75'				
-56	10	3	Silty fine SAND (SM) to Sandy SILT (ML): yellowish red, with mica and some shells		52		
-58	12		- brown stiff clay seam at 9.75'				
-60	14		- abundant shells at 12.25'				
-62	16	4					
-64	18	5	- becomes medium grained, with iron staining, below 17'				
	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 19.5 ft
RECOVERY LENGTH: 61218.0 ft
DATE OF EXPLORATION: April 20, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. CG4-6

UGIS ID: FD97V033

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61215)
05/31/01 05:22PM

LOCATION: N 4,022,596 E 4,207,439

ELEVATION: -46.8 ft (re: MLLW; based on water depth of ft and tide of CG4-7 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-48	2	1	Fine SAND with silt (SP-SM): dark olive gray, with mica and some shells		7		
-50	4						
-52	6		- abundant shell fragments at 6.45'				
-54	8	2	Silty fine SAND (SM): yellowish red, with mica - abundant shells at 8' to 13'		18		
-56	10						
-58	12		- iron staining below 12'				
-60	14	3	- becomes fine to medium grained below 13.5'				
-62	16	4	- light gray, with abundant shells, below 15'				
-64	18						
-66	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 18.0 ft
RECOVERY LENGTH: 61218.0 ft
DATE OF EXPLORATION: April 20, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. CG4-7

UGIS ID: FD97V034

LOCATION: N 4,022,701 E 4,207,821

ELEVATION: -44.0 ft (re: MLLW; based on water depth of ft and tide of CG4-8 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-46	2	1	Fine SAND with silt (SP-SM): dark olive gray, with mica and shell fragments		6		
-48	4						
-50	6	2	- abundant shells at 6.5'				
-52	8		Silty fine SAND (SM): yellowish red, with mica and limited shells				
-54	10	3	- brown clay seam at 10'	30	37		
-56	12						
-58	14		- brown clay seam at 13.8'				
-60	16	4	Fine to medium SAND with silt (SP-SM): light gray, with mica and iron staining				
-62	18		- abundant shells at 17.5'				
-64	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 19.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 20, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. CG4-8

UGIS ID: FD97V035

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61215)
05/31/01 05:22PM

LOCATION: N 4,023,017 E 4,207,805

ELEVATION: -45.5 ft (re: MLLW; based on water depth of ft and tide of CG4-9 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-48	2	1	Fine SAND with silt (SP-SM): olive gray, with mica and shell fragments		5		
-50	4						
-52	6		Silty fine SAND (SM): yellowish red, with mica, some iron staining, stiff brown silt seams, and sandy silt layers - abundant shell fragments at 5.5'				
-54	8	2					
-56	10						
-58	12		- 8" stiff brown clay to sandy clay layer at 12.75'				
-60	14	3	- 8" stiff brown clay to sandy clay layer at 14.75'	28	66		
-62	16						
-64	18	4	Fine to medium SAND with silt (SP-SM): light gray, faint iron staining - brown silt seam at 18'				
	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 20.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 20, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. CG4-9

UGIS ID: FD97V036

LOCATION: N 4,023,300 E 4,208,416

ELEVATION: -45.3 ft (re: MLLW; based on water depth of ft and tide of CG4-10 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-46		1	SILT with sand (ML) to CLAY with sand (CL): very soft, dark olive gray to black, with mica	43	72		
-48	2	2	Silty fine SAND (SM): dark olive gray to black, with mica and few shells				
-50	4						
-52	6	3	SILT (ML/MH): firm to stiff, dark olive gray, with mica - dark olive gray to black fine sand with silt at 6.5' to 7.5' - with small concretions, organics, and iron staining, below 8'	49	99	55	25
-54	8						
-56	10						
-58	12						
-60	14	4					
-62	16						
-64	18						
	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 18.2 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 20, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. CG4-10

UGIS ID: FD97V037

LOGS OF VIBROCORES
Channel Deepening Program
Port of Los Angeles

61212VIB (61215)
05/31/01 05:23PM

LOCATION: N 4,019,866 E 4,205,443

ELEVATION: -47.7 ft (re: MLLW; based on water depth of ft and tide of FG1-1 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE
		1	Sandy CLAY (CL): very soft to soft, dark olive gray, with mica and a trace of petroleum odor	48	57
-50	2	2	Silty fine SAND (SM): dark gray, with mica and shell fragments	31	
-52	4	3	CLAY (CL): firm, olive gray, with mica and shell fragments		31
-54	6	4	Clayey fine SAND (SC) to Sandy CLAY (CL): dark gray, with mica		
-56	8	5	- olive gray silt seam at 5'		
-58	10	5b	- olive gray silt at 6'		
-60	12				
-62	14				
-64	16				
-66	18				
-68	20				

CORE RATE, ft/min: 5 10 15 20

LIQUID LIMIT, %

PLASTICITY INDEX, %

PENETRATION DEPTH: 6.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 6, 1997

VESSEL: R/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: SGSukiasian

LOG OF VIBROCORE NO. FG1-1

UGIS ID: FD97V038

LOCATION: N 4,020,384 E 4,204,909

ELEVATION: -49.1 ft (re: MLLW; based on water depth of ft and tide of FG1-2 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE
-50		1	Clayey, fine to medium SAND (SC) to Sandy CLAY (CL): olive gray, with mica, shell fragments, and organics	28	
-52	2	2			
-54	4	3	CLAY (CL): soft, light olive gray, with mica and iron staining	22	67
-56	6		- with some shell fragments at 1'		
-58	8		- shell hash with fine to medium sand and silt at 1.5' to 2.5'		
-60	10		Sandy CLAY (CL): stiff to very stiff, olive gray, with mica and some shell fragments		
-62	12		- with concretions, gravel to 1/4", and iron staining, at 3'		
-64	14				
-66	16				
-68	18				
	20				

CORE RATE, ft/min: 5 10 15 20

LIQUID LIMIT, %

PLASTICITY INDEX, %

PENETRATION DEPTH: 5.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 6, 1997

VESSEL: R/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: SGSukiasian

LOG OF VIBROCORE NO. FG1-2

UGIS ID: FD97V039

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61215)
05/31/01 05:23PM

LOCATION: N 4,020,459 E 4,205,398

ELEVATION: -49.4 ft (re: MLLW; based on water depth of ft and tide of FG1-3 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-50		1	CLAY with sand (CL): very soft to soft, olive gray, with mica and shell fragments	51			
		2		51	98		
-52	2		Fat CLAY (CH): firm, olive gray, with mica and few shell fragments				
		3			97	58	30
-54	4		- becomes stiff at 3.5'				
-56	6						
-58	8						
-60	10						
-62	12						
-64	14						
-66	16						
-68	18						
	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 4.7 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 6, 1997

VESSEL: R/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: SGSukiasian

LOG OF VIBROCORE NO. FG1-3

UGIS ID: FD97V040

LOCATION: N 4,020,655 E 4,205,928

ELEVATION: -46.9 ft (re: MLLW; based on water depth of ft and tide of FG1-4 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-48		1	CLAY with sand (CL): very soft to soft, dark olive gray, with mica, few shell fragments and a trace of sand	40			
		2	- soft to firm below 1.5'	49			
-50	2		Silty fine SAND (SM) to Sandy SILT (ML): dark olive gray, with mica and some shell fragments		23		
		3					
-52	4	4	- dark gray silt with sand, with organics, at 2.75' to 3.25'	28	58	27	2
-54	6		SILT (ML) to Sandy SILT (ML): firm, olive gray, with some shell fragments and a trace of fine sand				
-56	8		- slight increase in sand content at 5.5'				
			- with some organics at 6'				
-58	10						
-60	12						
-62	14						
-64	16						
-66	18						
	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 7.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 6, 1997

VESSEL: R/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: SGSukiasian

LOG OF VIBROCORE NO. FG1-4

UGIS ID: FD97V041

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61215)
05/31/01 05:23PM

LOCATION: N 4,021,183 E 4,205,253

ELEVATION: -45.1 ft (re: MLLW; based on water depth of ft and tide of FG1-5 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-46		1	Fat CLAY with sand (CH): very soft to soft, dark gray, with mica	55			
-48	2	2		64	81	50	22
-50	4	3	Silty fine SAND (SM): dark gray, with mica and some shell fragments				
-52	6	4	CLAY with sand (CL): firm to stiff, olive gray, with mica and few shell fragments - slight increase in shell fragments, with fine sand, at 6'	31	70	37	13
-54	8	5	- increasing sand content below 8.75'	25			
-56	10						
-58	12						
-60	14						
-62	16						
-64	18						
	20						

CORE RATE, ft/min (5 10 15 20)

PENETRATION DEPTH: 9.6 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 6, 1997

VESSEL: R/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: SGSukiasian

LOG OF VIBROCORE NO. FG1-5

UGIS ID: FD97V042

LOCATION: N 4,021,098 E 4,206,262

ELEVATION: -45.8 ft (re: MLLW; based on water depth of ft and tide of FG1-6 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
		1	Sandy CLAY (CL): very soft to soft, dark gray, with mica and few shell fragments	47	58		
-48	2						
-50	4	2 3	Silty fine SAND (SM): dark gray to gray, with mica and few organics - with soft silt seams at 3.75' to 4.25' - fine to medium grained, with shell fragments and some gravel, at 4' to 4.5'				
-52	6	4		27	87		
-54	8		CLAY (CL) to CLAY with sand (CL): stiff, light brown, with mica and concretions				
-56	10						
-58	12						
-60	14						
-62	16						
-64	18						
-66	20						

CORE RATE, ft/min (5 10 15 20)

PENETRATION DEPTH: 8.7 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 5, 1997

VESSEL: R/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: SGSukiasian

LOG OF VIBROCORE NO. FG1-6

UGIS ID: FD97V043

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61215)
05/31/01 05:23PM

LOCATION: N 4,021,470 E 4,206,142

ELEVATION: -48.7 ft (re: MLLW; based on water depth of ft and tide of FG1-7 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-50	2	1	CLAY with sand (CL): firm to stiff, light brown - increasing sand content at 1.5'	23			
-52	4	2	Fat CLAY (CH): very stiff to hard, light to medium brown	30	94	79	54
-54	6						
-56	8						
-58	10						
-60	12						
-62	14						
-64	16						
-66	18						
-68	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 4.5 ft
RECOVERY LENGTH: 61217.0 ft
DATE OF EXPLORATION: April 5, 1997

VESSEL: R/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: SGSukiasian

LOG OF VIBROCORE NO. FG1-7

UGIS ID: FD97V044

LOCATION: N 4,021,832 E 4,205,306

ELEVATION: -45.7 ft (re: MLLW; based on water depth of ft and tide of FG1-8 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
		1	CLAY with sand (CL): very soft to soft, dark olive gray, with mica and some shell fragments	50	73		
-48	2	2	CLAY with sand (CL): soft, olive gray, with mica and few shell fragments	54	77	47	21
-50	4						
-52	6	3	- becomes firm to stiff below 4.75'	42			
-54	8	4					
-56	10						
-58	12						
-60	14						
-62	16						
-64	18						
-66	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 10.5 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 5, 1997

VESSEL: R/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: SGSukiasian

LOG OF VIBROCORE NO. FG1-8

UGIS ID: FD97V045

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61215)
05/31/01 05:23PM

LOCATION: N 4,021,928 E 4,205,784

ELEVATION: -49.3 ft (re: MLLW; based on water depth of ft and tide of FG1-9 ft)

ELEV, ft	DEPTH, ft	MATERIAL SYMBOL	SAMPLE	SAMPLE NUMBER	MATERIAL DESCRIPTION	CORE RATE, ft/min (5 10 15 20)	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-50				1	Sandy CLAY (CL/CH): soft to firm, light brown, with mica and few shell fragments - becomes very stiff below 1.5'					
-52	2			2			19	57		
-54	4									
-56	6									
-58	8									
-60	10									
-62	12									
-64	14									
-66	16									
-68	18									
	20									

PENETRATION DEPTH: 4.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 5, 1997

VESSEL: R/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: SGSukiasian

LOG OF VIBROCORE NO. FG1-9

UGIS ID: FD97V046

LOCATION: N 4,022,616 E 4,205,445

ELEVATION: -50.2 ft (re: MLLW; based on water depth of ft and tide of FG1-10 ft)

ELEV, ft	DEPTH, ft	MATERIAL SYMBOL	SAMPLE	SAMPLE NUMBER	MATERIAL DESCRIPTION	CORE RATE, ft/min (5 10 15 20)	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
				1	Clayey fine SAND (SC) to Sandy CLAY (CL): olive gray to gray, with mica and shell fragments		22	13		
-52	2			2	Silty fine SAND (SM) to Sandy SILT (ML): light brown to yellowish brown, with gray streaks			31		
-54	4									
-56	6									
-58	8									
-60	10									
-62	12									
-64	14									
-66	16									
-68	18									
-70	20									

PENETRATION DEPTH: 3.0 ft
RECOVERY LENGTH: 61217.0 ft
DATE OF EXPLORATION: April 5, 1997

VESSEL: R/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: SGSukiasian

LOG OF VIBROCORE NO. FG1-10

UGIS ID: FD97V047

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61215)
05/31/01 05:23PM

LOCATION: N 4,022,941 E 4,204,783

ELEVATION: -47.6 ft (re: MLLW; based on water depth of ft and tide of FG2-1 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
		1	CLAY with sand (CL) to Sandy CLAY (CL): very soft to soft, dark olive gray, with mica and shell fragments	50	71	47	20
-50	2	2	CLAY (CL): soft, olive gray, with mica and few shell fragments	32	88	40	18
-52	4		- becomes firm to stiff below 2.25'				
-54	6	3	Silty, fine to medium SAND (SM) to Sandy SILT (ML): olive gray, with mica, few shell fragments and some concretions		36		
		4	- increasing sand content at 6'				
-56	8						
-58	10						
-60	12						
-62	14						
-64	16						
-66	18						
-68	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 7.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 5, 1997

VESSEL: R/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: SGSukiasian

LOG OF VIBROCORE NO. FG2-1

UGIS ID: FD97V048

LOCATION: N 4,023,412 E 4,205,010

ELEVATION: -47.3 ft (re: MLLW; based on water depth of ft and tide of FG2-2 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-48		1	Sandy CLAY (CL): very soft to soft, dark gray, with mica and shell fragments	36			
-50	2	2	CLAY (CL) to CLAY with sand (CL): soft, olive gray, with mica and shell fragments	38			
-52	4		- becomes firm to stiff, less shell fragments, at 2.5'				
-54	6	3	- with shell fragments at 5.5 ft		89		
-56	8						
-58	10						
-60	12						
-62	14						
-64	16						
-66	18						
	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 7.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 4, 1997

VESSEL: R/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: SGSukiasian

LOG OF VIBROCORE NO. FG2-2

UGIS ID: FD97V049

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61215)
05/31/01 05:23PM

LOCATION: N 4,023,364 E 4,204,702

ELEVATION: -49.5 ft (re: MLLW; based on water depth of ft and tide of FG2-3 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
		1	Clayey SAND (SC) to Sandy CLAY (CL): dark olive gray, with shell fragments		43		
-52	2	2	Sandy CLAY (CL): firm, reddish gray, with mica - increasing sand content at 1.5'				
		3		22	27		
-54	4		Silty fine SAND (SM): gray and light brown, with mica and some shell fragments - few gravels at 2.25' - increasing silt content below 3'				
-56	6						
-58	8						
-60	10						
-62	12						
-64	14						
-66	16						
-68	18						
	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 5.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 4, 1997

VESSEL: R/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: SGSukiasian

LOG OF VIBROCORE NO. FG2-3

UGIS ID: FD97V050

LOCATION: N 4,023,608 E 4,204,044

ELEVATION: -46.4 ft (re: MLLW; based on water depth of ft and tide of FG2-4 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
		1	Fine to medium SAND with silt (SP-SM): light brown to gray, with brownish red clay seams		7		
-48	2	2					
-50	4	3a					
		3b					
-52	6						
-54	8						
-56	10						
-58	12						
-60	14						
-62	16						
-64	18						
-66	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 8.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 4, 1997

VESSEL: R/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: SGSukiasian

LOG OF VIBROCORE NO. FG2-4

UGIS ID: FD97V051

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61215)
05/31/01 05:24PM

LOCATION: N 4,023,852 E 4,204,437

ELEVATION: -48.6 ft (re: MLLW; based on water depth of ft and tide of FG2-5 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-50		1	Fine to medium SAND (SP): light brown to gray, with mica and shell fragments, few organics				
-52	2	2	Silty fine SAND (SM): light brown to gray, with mica and shell fragments		31		
-54	4	3	- dark brown stains at 2' - brown and gray sandy silt seams at 3' to 3.5' - increasing silt content at 4.25'				
-56	6						
-58	8						
-60	10						
-62	12						
-64	14						
-66	16						
-68	18						
	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 6.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 4, 1997

VESSEL: R/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: SGSukiasian

LOG OF VIBROCORE NO. FG2-5

UGIS ID: FD97V052

LOCATION: N 4,024,079 E 4,203,962

ELEVATION: -44.8 ft (re: MLLW; based on water depth of ft and tide of FG2-6 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-46		1	CLAY with sand (CL): very soft to soft, dark gray, with mica	59	79	44	18
-48	2	2	Fine SAND (SP) to SAND with silt (SP-SM): olive gray to gray, with mica and few shell fragments				
-50	4	3	- silt seam at 3.5' - becomes yellowish olive gray at 3.6'		4		
-52	6	4					
-54	8	5	- silt seam at 7.9' - becomes fine to medium grained at 8'				
-56	10						
-58	12						
-60	14						
-62	16						
-64	18						
	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 8.6 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 4, 1997

VESSEL: R/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: SGSukiasian

LOG OF VIBROCORE NO. FG2-6

UGIS ID: FD97V053

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61215)
05/31/01 05:24PM

LOCATION: N 4,024,159 E 4,204,620

ELEVATION: -46.6 ft (re: MLLW; based on water depth of ft and tide of FG2-7 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-48		1	Sandy CLAY (CL): very soft to soft, dark gray, with mica and shell fragments	31			
		2	- firm, dark gray to olive gray, below 0.5'	30			
	2	3	Fine to medium SAND with silt (SP-SM) to Silty fine SAND (SM): light brown, with mica and shell fragments		13		
-50							
	4	4	- interlayered with gray silt at 3' to 4'		9		
-52		5	Silty fine SAND (SM) to SAND with silt (SP-SM): reddish brown and gray, with mica				
	6		- becomes fine to medium grained at 4.75'				
-54							
	8						
-56							
	10						
-58							
	12						
-60							
	14						
-62							
	16						
-64							
	18						
-66							
	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 6.7 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 4, 1997

VESSEL: R/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: SGSukiasian

LOG OF VIBROCORE NO. FG2-7

UGIS ID: FD97V054

LOCATION: N 4,024,612 E 4,204,347

ELEVATION: -47.2 ft (re: MLLW; based on water depth of ft and tide of FG2-8 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-48		1	CLAY with sand (CL): very soft to soft, dark gray, with mica	54			
		2	- silty fine sand seam at 0.5'	37	89		
-50	2	3	CLAY (CL): soft to firm, gray to tan, with mica and a trace of sand				
-52	4		- becomes stiff at 1.7'				
			- silty sand seam at 2'				
-54	6		- increasing sand content at 2.5'				
-56	8						
-58	10						
-60	12						
-62	14						
-64	16						
-66	18						
	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 3.5 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 4, 1997

VESSEL: R/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: SGSukiasian

LOG OF VIBROCORE NO. FG2-8

UGIS ID: FD97V055

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61215)
05/31/01 05:24PM

LOCATION: N 4,024,747 E 4,205,018

ELEVATION: -47.6 ft (re: MLLW; based on water depth of ft and tide of FG2-9 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
		1	CLAY (CL): very soft to soft, dark olive gray, with mica	49			
-50	2	2	- soft to firm, olive gray, with few shell fragments, below 0.5'	41	94	40	16
-52	4						
-54	6	3	Sandy SILT (ML) to Silty fine SAND (SM): dark gray to olive gray, with mica		68		
-56	8						
-58	10						
-60	12						
-62	14						
-64	16						
-66	18						
-68	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 7.6 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 3, 1997

VESSEL: R/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: SGSukiasian

LOG OF VIBROCORE NO. FG2-9

UGIS ID: FD97V056

LOCATION: N 4,025,271 E 4,204,744

ELEVATION: -49.7 ft (re: MLLW; based on water depth of ft and tide of FG2-10 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
		1	CLAY (CL): very soft to soft, dark gray, with mica	60			
-52	2		- soft to firm, olive gray, with few shell fragments, below 0.5'				
-54	4	2	- with few organics at 4'		99		
-56	6						
-58	8						
-60	10						
-62	12						
-64	14						
-66	16						
-68	18						
-70	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 6.1 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 3, 1997

VESSEL: R/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: SGSukiasian

LOG OF VIBROCORE NO. FG2-10

UGIS ID: FD97V057

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61215)
05/31/01 05:25PM

LOCATION: N 4,023,804 E 4,208,297

ELEVATION: -47.3 ft (re: MLLW; based on water depth of ft and tide of FG3-1 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-48		1	SILT with sand (ML): very soft to soft, dark olive gray, with mica	36			
-50	2	2	Silty fine SAND (SM): dark gray, with mica and few shell fragments				
		3	- silt layer at 1.75' to 2.25'				
-52	4		- increasing silt at 3.5'				
		4	SILT (ML): firm to stiff, olive gray, with mica, trace of sand, and silt concretions				
-54	6						
-56	8						
-58	10						
-60	12						
-62	14						
-64	16						
-66	18						
	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 7.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 3, 1997

VESSEL: R/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: SGSukiasian

LOG OF VIBROCORE NO. FG3-1

UGIS ID: FD97V058

LOCATION: N 4,023,734 E 4,208,802

ELEVATION: -46.9 ft (re: MLLW; based on water depth of ft and tide of FG3-2 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-48		1	Elastic SILT (MH): very soft to soft, dark gray, with mica and a trace of sand	61	94	52	18
-50	2	2	SILT (ML): stiff, olive gray, with mica and a trace of sand	41	99	39	8
-52	4		- silty sand seam at 3.75'				
		3	- some organics at 5'				
-54	6						
-56	8						
-58	10						
-60	12						
-62	14						
-64	16						
-66	18						
	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 7.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 3, 1997

VESSEL: R/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: SSukiasian

LOG OF VIBROCORE NO. FG3-2

UGIS ID: FD97V059

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61215)
05/31/01 05:25PM

LOCATION: N 4,024,249 E 4,208,666

ELEVATION: -47.6 ft (re: MLLW; based on water depth of ft and tide of FG3-3 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
		1	SILT with sand (ML): very soft to soft, dark olive gray, with mica	50			
-50	2	2	Silty fine SAND (SM) to Sandy SILT (ML): dark olive gray to gray, with mica - silt layer at 2.5' to 3.2'	27			
-52	4						
-54	6	3	SILT (ML): firm, olive gray, with mica and silt concretions	40			
-56	8						
-58	10						
-60	12						
-62	14						
-64	16						
-66	18						
-68	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 7.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 3, 1997

VESSEL: R/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: SSukiasian

LOG OF VIBROCORE NO. FG3-3

UGIS ID: FD97V060

LOCATION: N 4,024,629 E 4,209,465

ELEVATION: -46.9 ft (re: MLLW; based on water depth of ft and tide of FG3-4 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-48		1	SILT with sand (ML): very soft to soft, dark gray, with mica and shell fragments				
-50	2	2	Silty fine SAND (SM) to Sandy SILT (ML): dark gray, with mica - silt layer at 3.75' to 4.2'	33	38		
-52	4	3					
-54	6	4	SILT (ML) to SILT with sand (ML): firm to stiff, olive gray to dark olive gray, with mica, silt concretions, increasing sand content with depth	30			
-56	8						
-58	10						
-60	12						
-62	14						
-64	16						
-66	18						
	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 8.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 2, 1997

VESSEL: R/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: SSukiasian

LOG OF VIBROCORE NO. FG3-4

UGIS ID: FD97V061

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61215)
05/31/01 05:25PM

LOCATION: N 4,025,091 E 4,209,359

ELEVATION: -49.3 ft (re: MLLW; based on water depth of ft and tide of FG3-5 ft)

ELEV, ft	DEPTH, ft	MATERIAL SYMBOL	SAMPLE	SAMPLE NUMBER	MATERIAL DESCRIPTION	CORE RATE, ft/min (5 10 15 20)	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-50				1	SILT with sand (ML): very soft to soft, dark gray, with mica and few shell fragments		44	93		
-52	2			2	SILT (ML): firm to stiff, gray to olive gray, with mica and silt concretions			99		
-54	4									
-56	6									
-58	8									
-60	10									
-62	12									
-64	14									
-66	16									
-68	18									
	20									

PENETRATION DEPTH: 5.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 2, 1997

VESSEL: R/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: SSukiasian

LOG OF VIBROCORE NO. FG3-5

UGIS ID: FD97V062

LOCATION: N 4,025,132 E 4,209,994

ELEVATION: -47.0 ft (re: MLLW; based on water depth of ft and tide of FG3-6 ft)

ELEV, ft	DEPTH, ft	MATERIAL SYMBOL	SAMPLE	SAMPLE NUMBER	MATERIAL DESCRIPTION	CORE RATE, ft/min (5 10 15 20)	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-48				1	SILT with sand (ML): very soft to soft, dark olive gray, with mica					
-50	2			2	SILT with sand (ML): soft to firm, dark gray, with mica and shell fragments		38			
-52	4									
-54	6			3	SILT (ML) to SILT with sand (ML): firm to stiff, olive gray, with mica and silt concretions			84		
-56	8									
-58	10									
-60	12									
-62	14									
-64	16									
-66	18									
	20									

PENETRATION DEPTH: 8.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 2, 1997

VESSEL: R/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: SSukiasian

LOG OF VIBROCORE NO. FG3-6

UGIS ID: FD97V063

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

LOCATION: N 4,025,721 E 4,209,926

ELEVATION: -44.2 ft (re: MLLW; based on water depth of ft and tide of FG3-7 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
		1	SILT with sand (ML): very soft to soft, dark olive gray	44			
-46	2	2	Silty, fine to medium SAND (SM): dark gray, with mica and shell fragments - with shell hash and silt seams at 2'				
-48	4	3	Silty fine SAND (SM) to Sandy SILT (ML): soft, dark olive gray, with mica				
-50		4	SILT (ML): firm, olive gray, with mica	36			
	6	5	Sandy SILT (ML): dark olive gray to gray, with mica				
-52	8	6	SILT (ML): stiff, olive gray, with mica and silt concretions				
-54	10						
-56	12						
-58	14						
-60	16						
-62	18						
-64	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 11.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 2, 1997

VESSEL: R/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: SGSukiasian

LOG OF VIBROCORE NO. FG3-7

UGIS ID: FD97V064

LOCATION: N 4,025,769 E 4,210,399

ELEVATION: -47.5 ft (re: MLLW; based on water depth of ft and tide of FG3-8 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
		1	SILT with sand (ML): very soft to soft, olive gray, with mica and shell fragments				
-50	2	2	SILT (ML): firm to stiff, olive gray, with mica and silt concretions	32	92	44	13
-52	4	3	Sandy SILT (ML) to Silty fine SAND (SM): gray to dark gray, with mica - increasing sand content below 6'				
-54	6						
-56	8						
-58	10						
-60	12						
-62	14						
-64	16						
-66	18						
	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 7.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 2, 1997

VESSEL: R/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: SGSukiasian

LOG OF VIBROCORE NO. FG3-8

UGIS ID: FD97V065

LOGS OF VIBROCORES
Channel Deepening Program
Port of Los Angeles

61212VIB (61215)
05/31/01 05:25PM

LOCATION: N 4,025,654 E 4,211,026

ELEVATION: -47.4 ft (re: MLLW; based on water depth of ft and tide of FG3-9 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-48		1	SILT with sand (ML): very soft to soft, dark gray, with mica and shell fragments	48			
-50	2	2	Sandy SILT (ML): dark gray to dark olive gray, with mica and shell fragments		86		
-52	4		- olive gray silt at 3.75' to 4.25'				
-54	6	3	SILT (ML): stiff, olive gray, with mica, few shell fragments, some organics, silt nodules, and a trace of sand				
-56	8						
-58	10						
-60	12						
-62	14						
-64	16						
-66	18						
	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 7.5 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 2, 1997

VESSEL: R/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: SGSukiasian

LOG OF VIBROCORE NO. FG3-9

UGIS ID: FD97V066

LOCATION: N 4,026,388 E 4,210,490

ELEVATION: -47.3 ft (re: MLLW; based on water depth of ft and tide of FG3-10 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-48		1	SILT with sand (ML): very soft to soft, dark olive gray, with mica and few shell fragments	56	76	43	17
-50	2	2	Sandy SILT (ML) to Silty fine SAND (SM): dark gray, with mica and shell fragments				
-52	4	3	SILT (ML): firm to stiff, olive gray, with mica	35			
-54	6	4	Silty fine SAND (SM) to Sandy SILT (ML): dark olive gray, with mica and organics		42		
-56	8		- increasing sand content below 6.5'				
-58	10						
-60	12						
-62	14						
-64	16						
-66	18						
	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 7.5 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 2, 1997

VESSEL: R/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: SGSukiasian

LOG OF VIBROCORE NO. FG3-10

UGIS ID: FD97V067

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61215)
05/31/01 05:25PM

LOCATION: N 4,026,834 E 4,210,919

ELEVATION: -44.9 ft (re: MLLW; based on water depth of ft and tide of FG3-11 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-46		1	SILT (ML) to Sandy SILT (ML): very soft to soft, dark olive gray to black, with mica, organics, and shell fragments	44			
-48	2	2	Silty fine SAND (SM): olive gray to dark olive gray, with mica, shell fragments, and few silt seams		18		
-50	4	3	SILT (ML): firm to stiff, with mica, shell fragments, and organics	39			
-52	6	4	- becomes sandy silt at 6'				
-54	8						
-56	10						
-58	12						
-60	14						
-62	16						
-64	18						
	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 9.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 1, 1997

VESSEL: R/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: GSResnick

LOG OF VIBROCORE NO. FG3-11

UGIS ID: FD97V068

LOCATION: N 4,026,240 E 4,211,386

ELEVATION: -46.0 ft (re: MLLW; based on water depth of ft and tide of FG3-12 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
		1	Sandy SILT (ML): very soft to soft, dark olive gray, with mica and organics	58	67		
-48	2	2	Silty fine SAND (SM): olive gray to dark gray, with mica, organics, and shell fragments				
-50	4	3	Sandy SILT (ML): black, with mica, organics, shell fragments, and a strong odor	30		26	2
-52	6	4	SILT with sand (ML) to Sandy SILT (ML): stiff, olive gray, with mica, organics, and silt nodules				
-54	8						
-56	10						
-58	12						
-60	14						
-62	16						
-64	18						
-66	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 8.5 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 1, 1997

VESSEL: R/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: GSResnick

LOG OF VIBROCORE NO. FG3-12

UGIS ID: FD97V069

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61215)
05/31/01 05:25PM

LOCATION: N 4,025,925 E 4,211,571

ELEVATION: -47.3 ft (re: MLLW; based on water depth of ft and tide of FG3-13 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-48		1	Sandy SILT (ML): very soft to soft, dark olive gray, with mica, organics, shell fragments, and silty sand zones	36			
-50	2	2	SILT (ML): firm to stiff, olive gray, with mica, organics, and silt nodules - silty sand to sandy silt layer at 4' to 4.75'	34	94		
-52	4	3					
-54	6	4					
-56	8						
-58	10						
-60	12						
-62	14						
-64	16						
-66	18						
	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 8.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 1, 1997

VESSEL: R/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: GSResnick

LOG OF VIBROCORE NO. FG3-13

UGIS ID: FD97V070

LOCATION: N 4,026,235 E 4,212,306

ELEVATION: -46.6 ft (re: MLLW; based on water depth of ft and tide of FG3-14 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-48		1	Sandy SILT (ML) to Silty fine SAND (SM): dark olive gray, with mica and organics				
-50	2	2	Silty fine SAND (SM): olive gray, with mica		41		
-52	4	3	SILT (ML): firm to stiff, olive gray, with mica, organics, and silt nodules	35	97	41	12
-54	6						
-56	8						
-58	10						
-60	12						
-62	14						
-64	16						
-66	18						
	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 8.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 1, 1997

VESSEL: R/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: GSResnick

LOG OF VIBROCORE NO. FG3-14

UGIS ID: FD97V071

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61215)
05/31/01 05:26PM

LOCATION: N 4,026,542 E 4,213,102

ELEVATION: -46.6 ft (re: MLLW; based on water depth of ft and tide of FG3-15 ft)

ELEV, ft	DEPTH, ft	MATERIAL SYMBOL	SAMPLE	SAMPLE NUMBER	MATERIAL DESCRIPTION	CORE RATE, ft/min (5 10 15 20)	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-48	2			1	Sandy SILT (ML) to Silty fine SAND (SM): very soft to soft, dark olive gray to black, with mica, organics, and shell fragments		36	46	29	3
-50	4			2	SILT (ML) to SILT with sand (ML): firm to stiff, olive gray, with mica, organics, and silt nodules		32	96		
-52	6				- sandy silt to silty sand layer at 5.5' to 6.5'					
-54	8			3						
-56	10									
-58	12									
-60	14									
-62	16									
-64	18									
-66	20									

PENETRATION DEPTH: 8.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 1, 1997

VESSEL: R/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: GSResnick

LOG OF VIBROCORE NO. FG3-15

UGIS ID: FD97V072

ELEV, ft	DEPTH, ft	MATERIAL SYMBOL	SAMPLE	SAMPLE NUMBER	MATERIAL DESCRIPTION	CORE RATE, ft/min (5 10 15 20)	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61215)
05/31/01 05:26PM

LOCATION: N 4,009,433 E 4,207,655

ELEVATION: -49.2 ft (re: MLLW; based on water depth of ft and tide of FM1-1 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-50		1	SILT (ML/MH): dark olive gray, intermixed with dark brown silt (Malaga Mudstone)	79			
-52	2	2	**MALAGA MUDSTONE** Elastic SILT (MH): very stiff to hard, dark brown, with mica	61			
-54	4						
-56	6						
-58	8						
-60	10						
-62	12						
-64	14						
-66	16						
-68	18						
	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 4.1 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 7, 1997

VESSEL: R/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: SGSukiasian

LOG OF VIBROCORE NO. FM1-1

UGIS ID: FD97V073

LOCATION: N 4,009,344 E 4,206,826

ELEVATION: -45.2 ft (re: MLLW; based on water depth of ft and tide of FM1-2 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-46		1	SILT (ML/MH): very soft to soft, dark olive gray, with mica	86	95		
-48	2	2	- intermixed with chunks of dark brown silt (Malaga Mudstone) below 0.75'				
-50	4	3	**MALAGA MUDSTONE** Elastic SILT (MH): very stiff to hard, dark brown, with mica and a trace of sand - 2" rock at 4' - slight petroleum odor at 4'	58	97	78	33
-52	6						
-54	8						
-56	10						
-58	12						
-60	14						
-62	16						
-64	18						
	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 5.1 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 7, 1997

VESSEL: R/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: SGSukiasian

LOG OF VIBROCORE NO. FM1-2

UGIS ID: FD97V074

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

LOCATION: N 4,010,689 E 4,206,994

ELEVATION: -47.3 ft (re: MLLW; based on water depth of ft and tide of FM1-3 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-48		1	SILT (ML/MH): very soft to soft, dark olive gray, with mica	85			
-50	2	2	**MALAGA MUDSTONE**	79			
-52	4	3	Elastic SILT (MH): firm, brown to dark brown, moderately weathered, with mica - becomes very stiff to hard at 3'	62			
-54	6						
-56	8						
-58	10						
-60	12						
-62	14						
-64	16						
-66	18						
	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 5.5 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 7, 1997

VESSEL: R/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: SGSukiasian

LOG OF VIBROCORE NO. FM1-3

UGIS ID: FD97V075

LOCATION: N 4,010,164 E 4,206,445

ELEVATION: -44.2 ft (re: MLLW; based on water depth of ft and tide of FM1-4 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-46		1	SILT (ML/MH): very soft to soft, dark olive gray, with mica	93	94	76	40
	2						
-48	4	2	- soft, dark olive gray to dark brown, with mica, below 2.5'				
-50	6	3	- intermixed with chunks of dark brown silt (Malaga Mudstone) at 5'	62			
-52	8	4	**MALAGA MUDSTONE** Elastic SILT (MH): stiff, dark brown, with mica - intermixed with brownish yellow silt, at 6' to 7.25' - with gravel to 2" to 3", bands of light gray silty sand, at 6.75' to 7.25' - very stiff to hard at 7.25'	79			
-54	10						
-56	12						
-58	14						
-60	16						
-62	18						
-64	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 10.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 7, 1997

VESSEL: R/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: SGSukiasian

LOG OF VIBROCORE NO. FM1-4

UGIS ID: FD97V076

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61215)
06/01/01 12:06PM

LOCATION: N 4,011,190 E 4,206,649

ELEVATION: -47.8 ft (re: MLLW; based on water depth of ft and tide of FM1-5 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
		1	SILT (ML/MH): very soft to soft, dark olive gray, with mica, petroleum odor	82			
-50	2	2	- intermixed with chunks of dark brown silt (Malaga Mudstone) and rocks below 1.5'				
-52	4	3	**MALAGA MUDSTONE** Elastic SILT (MH): firm to very stiff, dark brown, moderately weathered, with mica and few rocks to 1"	57	94	83	41
-54	6		- becomes very stiff to hard below 3.75'				
-56	8						
-58	10						
-60	12						
-62	14						
-64	16						
-66	18						
-68	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 6.5 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 8, 1997

VESSEL: R/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: SGSukiasian

LOG OF VIBROCORE NO. FM1-5

UGIS ID: FD97V077

LOCATION: N 4,011,685 E 4,205,846

ELEVATION: -45.8 ft (re: MLLW; based on water depth of ft and tide of FM1-6 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
		1	SILT (ML/MH): dark olive gray, intermixed with dark brown silt (Malaga Mudstone) and rocks to 1"	115	96		
-48	2		**MALAGA MUDSTONE**				
-50	4	2	Elastic SILT (MH): stiff, dark brown, moderately weathered, with mica	76			
-52	6	3	- few rocks to 1/2" at 5'	94	99		
			- few shell fragments at 5.5'				
			- weathered zone at 6' to 7'				
-54	8						
-56	10						
-58	12						
-60	14						
-62	16						
-64	18						
-66	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 10.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 8, 1997

VESSEL: R/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: SGSukiasian

LOG OF VIBROCORE NO. FM1-6

UGIS ID: FD97V078

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

LOCATION: N 4,012,201 E 4,206,378

ELEVATION: -42.4 ft (re: MLLW; based on water depth of ft and tide of FM1-7 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-44	2	1	SILT (ML/MH): very soft to soft, dark olive gray, with mica	83	97	71	31
		2	- becomes soft at 1.5'	83			
-46	4	3	- becomes soft to firm at 3.25'	71			
		4	**MALAGA MUDSTONE** Elastic SILT (MH): firm to very stiff, dark brown, weathered, with mica and gravel to 1/2"				
-48	6						
-50	8						
-52	10						
-54	12						
-56	14						
-58	16						
-60	18						
-62	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 6.5 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 8, 1997

VESSEL: R/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: SGSukiasian

LOG OF VIBROCORE NO. FM1-7

UGIS ID: FD97V079

LOCATION: N 4,012,529 E 4,205,662

ELEVATION: -48.4 ft (re: MLLW; based on water depth of ft and tide of FM1-8 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-50	2	1	SILT (ML/MH): olive gray, intermixed with chunks of dark brown silt (Malaga Mudstone), with mica and organics	96			
		2	**MALAGA MUDSTONE** Elastic SILT (MH): stiff to very stiff, dark brown, moderately weathered, with mica	66		85	28
-52	4		- becomes hard at 1.5'				
-54	6		- H2S odor at 2' to 3'				
-56	8						
-58	10						
-60	12						
-62	14						
-64	16						
-66	18						
-68	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 5.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 8, 1997

VESSEL: R/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: SGSukiasian

LOG OF VIBROCORE NO. FM1-8

UGIS ID: FD97V080

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

LOCATION: N 4,013,053 E 4,206,078

ELEVATION: -45.0 ft (re: MLLW; based on water depth of ft and tide of FM1-9 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-46		1	SILT (ML/MH): very soft to soft, dark olive gray, with mica	105	98		
-48	2	2	- becomes soft at 2'	106			
-50	4	3	- gravel and cobbles at 4.5'				
-52	6						
-54	8						
-56	10						
-58	12						
-60	14						
-62	16						
-64	18						
	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 9.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 8, 1997

VESSEL: R/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: SGSukiasian

LOG OF VIBROCORE NO. FM1-9

UGIS ID: FD97V081

LOCATION: N 4,013,501 E 4,205,341

ELEVATION: -47.9 ft (re: MLLW; based on water depth of ft and tide of FM1-10 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
		1	SILT with sand (ML): soft, dark olive gray, with mica and few shell fragments	33			
-50	2	2	Fine to medium SAND (SP): dark olive gray, with mica, abundant shell fragments, and few chunks of dark brown silt (Malaga Mudstone)				
-52	4	3	- decreasing silt content, with few chunks of olive gray silt, at 3.5'		2		
-54	6	4	**TIMMS POINT SILT** SILT (ML): firm to stiff, olive gray to bluish gray, with mica and few shell fragments - shell hash layer at 5.25'	32	92	33	8
-56	8						
-58	10						
-60	12						
-62	14						
-64	16						
-66	18						
-68	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 6.2 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 9, 1997

VESSEL: R/W Hood
VIBROCORE TYPE: Environmental
REVIEWED BY: SGSukiasian

LOG OF VIBROCORE NO. FM1-10

UGIS ID: FD97V082

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

LOCATION: N 4,019,741 E 4,204,859

ELEVATION: -47.2 ft (re: MLLW; based on water depth of ft and tide of GT-1 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-48		1	Fine to medium SAND with silt (SP-SM) to SAND (SP): light olive gray, with mica, few shell fragments and brown and gray silt pockets		3		
-50	2	2					
-52	4	3	Fine to medium SAND (SP): light brown, with mica and some iron staining		2		
-54	6						
-56	8	4					
-58	10						
-60	12						
-62	14	5			2		
-64	16						
-66	18						
	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 19.3 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 22, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Geotechnical
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. GT-1

UGIS ID: FD97V083

LOCATION: N 4,020,094 E 4,205,226

ELEVATION: -48.4 ft (re: MLLW; based on water depth of ft and tide of GT-2 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-50		1	Silty fine SAND (SM): olive gray, with mica and few shell fragments		15		
	2	2					
-52	4	3	Silty fine SAND (SM) to Sandy SILT (ML): soft to firm, dark gray and light brown, with mica, shell fragments, few gravel to 2" and organics	28	35		
-54	6	4	- decreasing sand content at 5.7'				
-56	8	5	Sandy SILT (ML) to SILT (ML): stiff, olive gray with light brown streaks, with mica - sand seam at 7.5'	24	65		
-58	10	6	Fine to medium SAND (SP): light brown to gray, with mica and shell fragments		4		
-60	12	7	- with silt at 12' to 13'				
-62	14						
-64	16	8					
-66	18	9	- with silt at 16.7'		6		
-68	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 19.5 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 22, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Geotechnical
REVIEWED BY: SGSukiasian

LOG OF VIBROCORE NO. GT-2

UGIS ID: FD97V084

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

LOCATION: N 4,020,863 E 4,205,223

ELEVATION: -43.7 ft (re: MLLW; based on water depth of ft and tide of GT-3 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
		1	Sandy CLAY (CL): very soft to soft, black to dark gray	53	62		
-46	2	2	Silty SAND (SM): dark gray, with mica and shell fragments				
-48	4	3			33		
-50	6	4	CLAY (CL): firm, dark gray, with mica and some shell fragments				
-52	8						
-54	10	5		39			
-56	12						
-58	14	6	- becomes sandy clay (CL) to clayey fine sand (SC) at 13' to 15.25'	26	46		
-60	16	7	- no shells below 16'				
-62	18						
-64	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 19.8 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 22, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Geotechnical
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. GT-3

UGIS ID: FD97V085

LOCATION: N 4,021,553 E 4,205,820

ELEVATION: -50.5 ft (re: MLLW; based on water depth of ft and tide of GT-4 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-52		1	Sandy CLAY (CL): very soft to soft, olive gray to gray, with mica, few shell fragments, concretions, and few gravel to 1/2"	27	57	41	24
	2	2		21			
-54	4						
-56		3	Silty fine SAND (SM) to fine SAND (SP): light brown, with mica, few coarse sand particles and gravel to 1/2"		14		
	6						
-58	8	4					
-60			- increasing gravel content, gravel to 1", at 9.25' to 10.25'				
	10	5					
-62			- becomes orangish light brown at 11.5'				
	12	6			2		
-64			- slight increase in gravel content, gravel to 3/4", at 13.5'				
	14						
-66		7					
	16	8	- becomes fine to medium grained, with gravel to 1.5", at 16'				
-68							
	18						
-70							
	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 18.0 ft
RECOVERY LENGTH: 61217.0 ft
DATE OF EXPLORATION: April 22, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Geotechnical
REVIEWED BY: SGSukiasian

LOG OF VIBROCORE NO. GT-4

UGIS ID: FD97V086

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61215)
06/01/01 12:06PM

LOCATION: N 4,022,989 E 4,205,215

ELEVATION: -51.9 ft (re: MLLW; based on water depth of ft and tide of GT-5 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
		1	CLAY with sand (CL): soft, olive gray, with shells				
-54	2	2	SILT/CLAY (ML/CL): firm, olive gray, with mica and some shell fragments	37			
				38	94	42	15
-56	4		- thin shell layer at 3.75'				
-58	6	3	Sandy SILT (ML) to Silty fine SAND (SM): olive gray, with mica, shells and shell fragments				
-60	8	4			27		
-62	10						
-64	12	5	- firm to stiff, olive gray clay, at 12.25' to 12.75'				
-66	14		Silty fine SAND (SM): olive gray, with mica, shell fragments, and faint iron staining				
-68	16	6			37		
-70	18						
-72	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 19.0 ft
RECOVERY LENGTH: 61217.0 ft
DATE OF EXPLORATION: April 22, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Geotechnical
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. GT-5

UGIS ID: FD97V087

LOCATION: N 4,023,575 E 4,204,887

ELEVATION: -47.9 ft (re: MLLW; based on water depth of ft and tide of GT-6 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-50	2	1	Silty fine SAND (SM): brown, with mica, shell fragments, black silt pockets, and light brown clay chunks		27		
-52	4	2	- increasing shell fragments at 3' to 3.25'				
-54	6	3	Sandy SILT (ML) to Silty fine SAND (SM): light brown, with mica and few shell fragments		55		
-56	8	4					
		5		27	58		
-58	10	6	Fine to medium SAND with silt (SP-SM): light brown to gray, with mica and some iron staining				
-60	12	7	- olive gray to gray clay seam at 10.25'		6		
			- becomes fine grained, increasing silt content, at 12.25'				
-62	14	8	Silty fine SAND (SM): medium gray to dark gray, with mica				
-64	16						
-66	18	9	Sandy CLAY (CL): brownish gray, with mica				
		10	CLAY (CL): stiff, olive gray to brownish gray, with mica and some iron staining				
-68	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 19.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 24, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Geotechnical
REVIEWED BY: SGSukiasian

LOG OF VIBROCORE NO. GT-6

UGIS ID: FD97V088

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

LOCATION: N 4,023,845 E 4,204,269

ELEVATION: -47.7 ft (re: MLLW; based on water depth of ft and tide of GT-7 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE
		1	CLAY (CL) to CLAY with sand (CL): soft, olive gray	38	75
			Silty fine SAND (SM): olive gray, with mica		98
-50	2	2			
		3	- some shells and silt at 2.5' - brownish gray below 2.5' - firm brown clay at 4' to 4.35'		21
-52	4				
		4	Fine SAND with silt (SP-SM): brownish gray to light brown, with mica		14
-54	6		- fine sand with brownish gray silt pockets at 6.5' to 10'		
-56	8	5			
-58	10		- some iron staining below 10'		
		6			4
-60	12				
-62	14	7			
-64	16		- few gray clay pockets at 16'		
		8			6
-66	18				
-68	20				

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 20.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 23, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Geotechnical
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. GT-7

UGIS ID: FD97V089

LOCATION: N 4,023,794 E 4,203,863

ELEVATION: -46.4 ft (re: MLLW; based on water depth of ft and tide of GT-8 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE
		1	Silty fine SAND (SM): grayish brown, with mica		30
-48	2				
		2			
-50	4				
		3	- becomes medium brown, with iron staining, interlayered with olive gray to brown clay seams, at 3.6'	32	84
-52	6				
-54	8	4	- 6" clay layer at 7'		30
-56	10	5	Fine SAND with silt (SP-SM): light brown, with mica and some iron staining		
-58	12	6			9
-60	14	7	- increasing silt content at 14' - olive gray silt seam at 14.5'		
-62	16	8	Silty fine SAND (SM) to Sandy SILT (ML): brownish gray, with mica		
-64	18				
-66	20				

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 17.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 23, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Geotechnical
REVIEWED BY: SGSukiasian

LOG OF VIBROCORE NO. GT-8

UGIS ID: FD97V090

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61215)
06/01/01 12:07PM

LOCATION: N 4,024,613 E 4,204,555

ELEVATION: -46.7 ft (re: MLLW; based on water depth of ft and tide of GT-9 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-48	2	1	Silty fine SAND (SM): olive gray, with mica and some shell fragments		33		
-50	4	2	Sandy SILT (ML): soft, greenish gray, with mica and hard yellow silt seams				
-52	6	3	Fat CLAY (CH) to CLAY with sand (CH): stiff to very stiff, light gray to red brown - clayey fine sand seams at 6.7' to 7.7'	40			
-54	8						
-56	10	4		42	95	76	50
-58	12	5		35			
-60	14						
-62	16						
-64	18						
-66	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 15.2 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 23, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Geotechnical
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. GT-9

UGIS ID: FD97V091

LOCATION: N 4,025,284 E 4,205,035

ELEVATION: -46.6 ft (re: MLLW; based on water depth of ft and tide of GT-10 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-48	2	1	CLAY with sand (CL): very soft to soft, dark gray, with mica				
-50	4	2	- becomes firm, with fine sand, at 3' - with shell fragments at 3.75'	43	72	49	26
-52	6	3	Sandy CLAY (CL): firm to stiff, gray to dark gray, with mica and shell fragments				
-54	8	4	CLAY with sand (CL) to Sandy CLAY (CL): stiff, dark gray, with mica, few shell fragments, organics, and concretions	23	58	31	14
-56	10	5		20			
-58	12	6	- becomes stiff to very stiff at 12' - with iron staining at 12.5'	18			
-60	14	7 7a	- abundant concretions at 14.75'				
-62	16						
-64	18						
-66	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 17.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 23, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Geotechnical
REVIEWED BY: SGSukiasian

LOG OF VIBROCORE NO. GT-10

UGIS ID: FD97V092

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61215)
06/01/01 12:07PM

LOCATION: N 4,022,499 E 4,205,924

ELEVATION: -44.2 ft (re: MLLW; based on water depth of ft and tide of GT-11 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
		1	Fine to medium SAND with silt (SP-SM): dark olive gray, with mica, abundant shell fragments and some fine gravel				
-46	2	2	Silty fine SAND (SM): dark olive gray to black, with mica, some shell fragments, and dark gray silt pockets		34		
-48	4						
-50	6	3	Fine SAND with silt (SP-SM): dark olive gray, with mica and shell fragments - abundant shells, shell fragments, and some fine gravel, below 6'				
-52	8	4	Fine SAND with silt (SP-SM) to SAND (SP): light gray to yellowish brown, with mica and shell fragments, faint iron staining - abundant shells at 10' to 11'		5		
-54	10						
-56	12		- decreasing shells and shell fragments below 11.5'				
-58	14	5			3		
-60	16		- becomes reddish brown (extreme iron staining?) below 16'				
-62	18	6					
-64	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 19.5 ft
RECOVERY LENGTH: 61217.0 ft
DATE OF EXPLORATION: April 22, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Geotechnical
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. GT-11

UGIS ID: FD97V093

LOCATION: N 4,021,324 E 4,206,446

ELEVATION: -45.6 ft (re: MLLW; based on water depth of ft and tide of GT-12 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
		1	CLAY with sand (CL) to Sandy CLAY (CL): dark gray, with mica, some organics, and petroleum odor	38			
-48	2						
-50	4	2	Silty fine SAND (SM): gray to dark gray, with mica and few shell fragments		14		
		3					
-52	6	4	CLAY with sand (CL): dark gray to black, with mica and few shell fragments	35			
-54	8		Silty fine SAND (SM): light brown and dark gray, with mica, wood fragments, and shell fragments		31		
-56	10	5	- becomes light brown, increasing silt content and increasing shell fragments, at 10'				
-58	12	6	- with light gray clay seams at 11.5' to 12' - increasing shell fragments at 12.5' to 13'				
-60	14	7	Fine SAND (SP): light brown, with mica and shell fragments		2		
-62	16	8	- shell hash at 15.5'				
-64	18						
-66	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 19.5 ft
RECOVERY LENGTH: 61217.0 ft
DATE OF EXPLORATION: April 22, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Geotechnical
REVIEWED BY: SGSukiasian

LOG OF VIBROCORE NO. GT-12

UGIS ID: FD97V094

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

LOCATION: N 4,022,806 E 4,207,490

ELEVATION: -43.9 ft (re: MLLW; based on water depth of ft and tide of GT-13 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-46	2	1	Silty fine SAND (SM) to SAND with silt (SP-SM): yellow to olive gray, with mica and scattered pockets of dark gray silt		13		
-48	4	2					
-50	6						
-52	8	3			8		
-54	10	4	Fine SAND with silt (SP-SM): yellowish brown, with mica and few shell fragments		5		
-56	12						
-58	14	5					
-60	16	6	- iron staining at 15'		4		
-62	18	7	Silty fine SAND (SM): yellowish brown, with mica and 1" to 2" clay seams				
-64	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 20.0 ft
RECOVERY LENGTH: 61218.0 ft
DATE OF EXPLORATION: April 23, 1997

VESSEL: R/W Hood
VIBROCORE TYPE: Geotechnical
REVIEWED BY: SGSukiasian

LOG OF VIBROCORE NO. GT-13

UGIS ID: FD97V095

LOCATION: N 4,023,508 E 4,208,092

ELEVATION: -47.7 ft (re: MLLW; based on water depth of ft and tide of GT-14 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-50	2	1	Silty fine SAND (SM): dark gray, with mica, some shell fragments, and black silt pockets		13		
-52	4	2	Fine SAND (SP): light to dark gray, with mica and limited organics		4		
-54	6		- wood fragment at 6'				
-56	8	3	Fat CLAY (CH): firm to stiff, dark olive gray, with mica and some organics	43			
-58	10	4		48	100	62	33
-60	12						
-62	14	5	- becomes sandy clay (CL) at 13.5' to 15.25'	28			
-64	16						
-66	18	6	- becomes sandy clay (CL) at 16.75' to 17.25' Silty fine SAND (SM): dark olive gray, with mica				
-68	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 19.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 24, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Geotechnical
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. GT-14

UGIS ID: FD97V096

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61215)
06/01/01 12:07PM

LOCATION: N 4,023,636 E 4,208,520

ELEVATION: -46.2 ft (re: MLLW; based on water depth of ft and tide of GT-15 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
		1	Sandy SILT (ML) to SILT with sand (ML): dark gray, with mica and shell fragments	55	70		
-48	2	2	SILT (ML): firm, light brown, with mica	35			
-50	4	3	- becomes soft at 3.5' to 4'	38			
-52		4	SILT (ML): firm to stiff, brown to olive gray, with mica and some concretions - becomes stiff at 5.25' - with iron staining at 6.5' to 8'	33	97	43	14
-54	6 8	5	- becomes dark gray with fine sand at 8'	42			
-56	10	6		25			
-58	12	7	- with iron staining at 12.75'	30	94		
-60	14	8	- decreasing sand content at 14.25'	31			
-62	16	9	Silty fine SAND (SM) to Sandy SILT (ML): dark gray, with mica				
-64	18	10					
-66	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 18.5 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 24, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Geotechnical
REVIEWED BY: SGSukiasian

LOG OF VIBROCORE NO. GT-15

UGIS ID: FD97V097

LOCATION: N 4,018,353 E 4,203,926

ELEVATION: -42.4 ft (re: MLLW; based on water depth of ft and tide of GT-16 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
		1	CLAY/SILT with sand (CH/MH): very soft to soft, black to dark olive gray	89	81	62	30
-44	2	2	Silty fine SAND (SM) to SAND with silt (SP-SM): black to dark olive gray, with mica and silt seams - large rock and shells at 4' - black sandy silt seam at 4.5' to 5'		26		
-46	4						
-48	6						
-50	8						
-52	10						
-54	12						
-56	14						
-58	16						
-60	18						
-62	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 10.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 24, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Harbor Bottom Sed.
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. GT-16

UGIS ID: FD97V098

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

LOCATION: N 4,019,254 E 4,204,280

ELEVATION: -40.5 ft (re: MLLW; based on water depth of ft and tide of GT-17 ft)

ELEV, ft	DEPTH, ft	MATERIAL SYMBOL	SAMPLE	SAMPLE NUMBER	MATERIAL DESCRIPTION	CORE RATE, ft/min (5 10 15 20)	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-42	2			1	CLAY (CL): very soft to soft, dark olive gray to black, with organic materials		80			
-44	4									
-46	6			2	Fine to medium SAND with silt (SP-SM): olive gray, with mica, some soft black silt pockets, and stiff brown clay nodules			8		
-48	8									
-50	10									
-52	12									
-54	14									
-56	16									
-58	18									
-60	20									

PENETRATION DEPTH: 9.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 24, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Harbor Bottom Sed.
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. GT-17

UGIS ID: FD97V099

LOCATION: N 4,018,717 E 4,205,090

ELEVATION: -45.9 ft (re: MLLW; based on water depth of ft and tide of GT-18 ft)

ELEV, ft	DEPTH, ft	MATERIAL SYMBOL	SAMPLE	SAMPLE NUMBER	MATERIAL DESCRIPTION	CORE RATE, ft/min (5 10 15 20)	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-48	2			1	Clayey fine SAND (SC) to Sandy CLAY (CL): dark olive gray, some mica and few shells, occasional sand parting		49	48		
-50	4			2	Silty fine SAND (SM): olive gray, with mica and some shell fragments - 1.6" rock at 3' - sand becomes medium with abundant shell fragments below 5.5'			32		
-52	6									
-54	8									
-56	10									
-58	12									
-60	14									
-62	16									
-64	18									
-66	20									

PENETRATION DEPTH: 9.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 25, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Harbor Bottom Sed.
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. GT-18

UGIS ID: FD97V100

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

LOCATION: N 4,026,243 E 4,204,122

ELEVATION: -47.1 ft (re: MLLW; based on water depth of ft and tide of GT-19 ft)

ELEV, ft	DEPTH, ft	MATERIAL SYMBOL	SAMPLE	SAMPLE NUMBER	MATERIAL DESCRIPTION	CORE RATE, ft/min (5 10 15 20)	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-48				1	Silty fine SAND (SM): olive gray, with mica, some shell fragments and few organic pieces			21		
-50	2			2						
-52	4									
-54	6									
-56	8									
-58	10									
-60	12									
-62	14									
-64	16									
-66	18									
	20									

PENETRATION DEPTH: 5.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 25, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Harbor Bottom Sed.
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. GT-19

UGIS ID: FD97V101

LOCATION: N 4,026,131 E 4,205,475

ELEVATION: -43.4 ft (re: MLLW; based on water depth of ft and tide of GT-20 ft)

ELEV, ft	DEPTH, ft	MATERIAL SYMBOL	SAMPLE	SAMPLE NUMBER	MATERIAL DESCRIPTION	CORE RATE, ft/min (5 10 15 20)	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-44				1	CLAY with sand (CL): very soft to soft, black to dark olive gray, with mica		51			
-46	2									
-48	4			2	Silty fine SAND (SM): dark olive gray, with mica and some shell fragments - silt seam at 5'			13		
-50	6				- silt seam at 6.5' - shell fragments at 7'					
-52	8									
-54	10									
-56	12									
-58	14									
-60	16									
-62	18									
	20									

PENETRATION DEPTH: 9.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 25, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Harbor Bottom Sed.
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. GT-20

UGIS ID: FD97V102

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61215)
06/01/01 12:07PM

LOCATION: N 4,027,062 E 4,203,738

ELEVATION: -48.2 ft (re: MLLW; based on water depth of ft and tide of GT-21 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
		1	Sandy CLAY (CL): very soft, dark olive gray, with mica	59	50		
-50	2	2	Silty fine SAND (SM) to SAND with silt (SP-SM): bluish gray, with mica and some hard olive gray silt pieces				
-52	4						
-54	6						
-56	8						
-58	10						
-60	12						
-62	14						
-64	16						
-66	18						
-68	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 5.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 25, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Harbor Bottom Sed.
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. GT-21

UGIS ID: FD97V103

LOCATION: N 4,027,360 E 4,204,792

ELEVATION: -47.4 ft (re: MLLW; based on water depth of ft and tide of GT-22 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-48		1	Sandy CLAY (CL): very soft, black, with mica	45			
-50	2	2	CLAY with sand (CL) to Sandy CLAY (CL): soft, black, strong petroleum odor, with occasional thin sand parting and few shell fragments	40	62	48	23
-52	4						
-54	6	3		50			
-56	8						
-58	10						
-60	12						
-62	14						
-64	16						
-66	18						
	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 8.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 24, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Harbor Bottom Sed.
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. GT-22

UGIS ID: FD97V104

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61215)
06/01/01 12:07PM

LOCATION: N 4,026,854 E 4,205,662

ELEVATION: -43.7 ft (re: MLLW; based on water depth of ft and tide of GT-23 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-46	2	1	Sandy CLAY (CL) to CLAY with sand (CL): very soft, black, with mica and strong petroleum odor	66	66	45	22
-48	4	2	Fine SAND with silt (SP-SM): dark gray, with mica and strong petroleum odor		6		
-50	6						
-52	8						
-54	10						
-56	12						
-58	14						
-60	16						
-62	18						
-64	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 8.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 24, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Harbor Bottom Sed.
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. GT-23

UGIS ID: FD97V105

LOCATION: N 4,022,860 E 4,205,944

ELEVATION: -43.2 ft (re: MLLW; based on water depth of ft and tide of GT-24 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-44		1	Sandy CLAY (CL) to CLAY with sand (CL): very soft, black, with organics, some mica and petroleum odor	50	58	38	15
-46	2						
-48	4	2	Silty fine SAND (SM): black, with mica, some shell fragments, and few organic pieces - pockets of gray sand with shells below 6'		34		
-50	6						
-52	8	3	Fine SAND with silt (SP-SM): olive gray, with mica and abundant shell fragments				
-54	10						
-56	12						
-58	14						
-60	16						
-62	18						
	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 9.0 ft
RECOVERY LENGTH: 61217.0 ft
DATE OF EXPLORATION: April 25, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Harbor Bottom Sed.
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. GT-24

UGIS ID: FD97V106

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

61212VIB (61215)
06/01/01 12:08PM

LOCATION: N 4,021,603 E 4,206,902

ELEVATION: -41.0 ft (re: MLLW; based on water depth of ft and tide of GT-25 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-42		1	Sandy CLAY (CL): very soft, dark olive gray to black, with some mica and organic material	54	66	46	21
-44	2						
-46	4	2	Silty fine SAND (SM) to Sandy SILT (ML): olive gray to dark olive gray, mica and shell fragments, some dark gray silt pockets		54		
-48	6	3	- stiff dark brown silt layer at 4.25'				
-50	8		SHELL HASH (~80%) with broken shells, coarse sand and gravel				
-52	10						
-54	12						
-56	14						
-58	16						
-60	18						
	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 8.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 25, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Harbor Bottom Sed.
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. GT-25

UGIS ID: FD97V107

LOCATION: N 4,022,958 E 4,208,253

ELEVATION: -44.6 ft (re: MLLW; based on water depth of ft and tide of GT-26 ft)

ELEV, ft	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-46		1	CLAY with sand (CL): very soft, dark olive gray, with mica	50			
-48	2	2	Fine SAND with silt (SP-SM): dark olive gray, with mica, shell fragments, and few small dark gray silt pockets		11		
-50	4						
-52	6		- shell fragments at 6'				
-54	8						
-56	10						
-58	12						
-60	14						
-62	16						
-64	18						
	20						

CORE RATE, ft/min: 5 10 15 20

PENETRATION DEPTH: 8.0 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 25, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Harbor Bottom Sed.
REVIEWED BY: FJArnold

LOG OF VIBROCORE NO. GT-26

UGIS ID: FD97V108

LOGS OF VIBROCORES

Channel Deepening Program
Port of Los Angeles

LOCATION: N 4,023,595 E 4,208,060

ELEVATION: -40.2 ft (re: MLLW; based on water depth of ft and tide of GT-27 ft)

ELEV, ft	DEPTH, ft	MATERIAL SYMBOL	SAMPLE	SAMPLE NUMBER	MATERIAL DESCRIPTION	CORE RATE, ft/min (5 10 15 20)	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %
-42	2			1	Silty fine SAND (SM) to Sandy SILT (ML): black, with mica, shell fragments, some organics, and strong petroleum odor			48		
-44	4			2	- hard brown clay seam with iron staining at 2.5'					
-46	6			3	- soft black silt layer at 3' to 4'					
-48	8									
-50	10									
-52	12									
-54	14									
-56	16									
-58	18									
-60	20									

PENETRATION DEPTH: 8.5 ft
RECOVERY LENGTH: ft
DATE OF EXPLORATION: April 24, 1997

VESSEL: D/W Hood
VIBROCORE TYPE: Harbor Bottom Sed.
REVIEWED BY: FJArnold

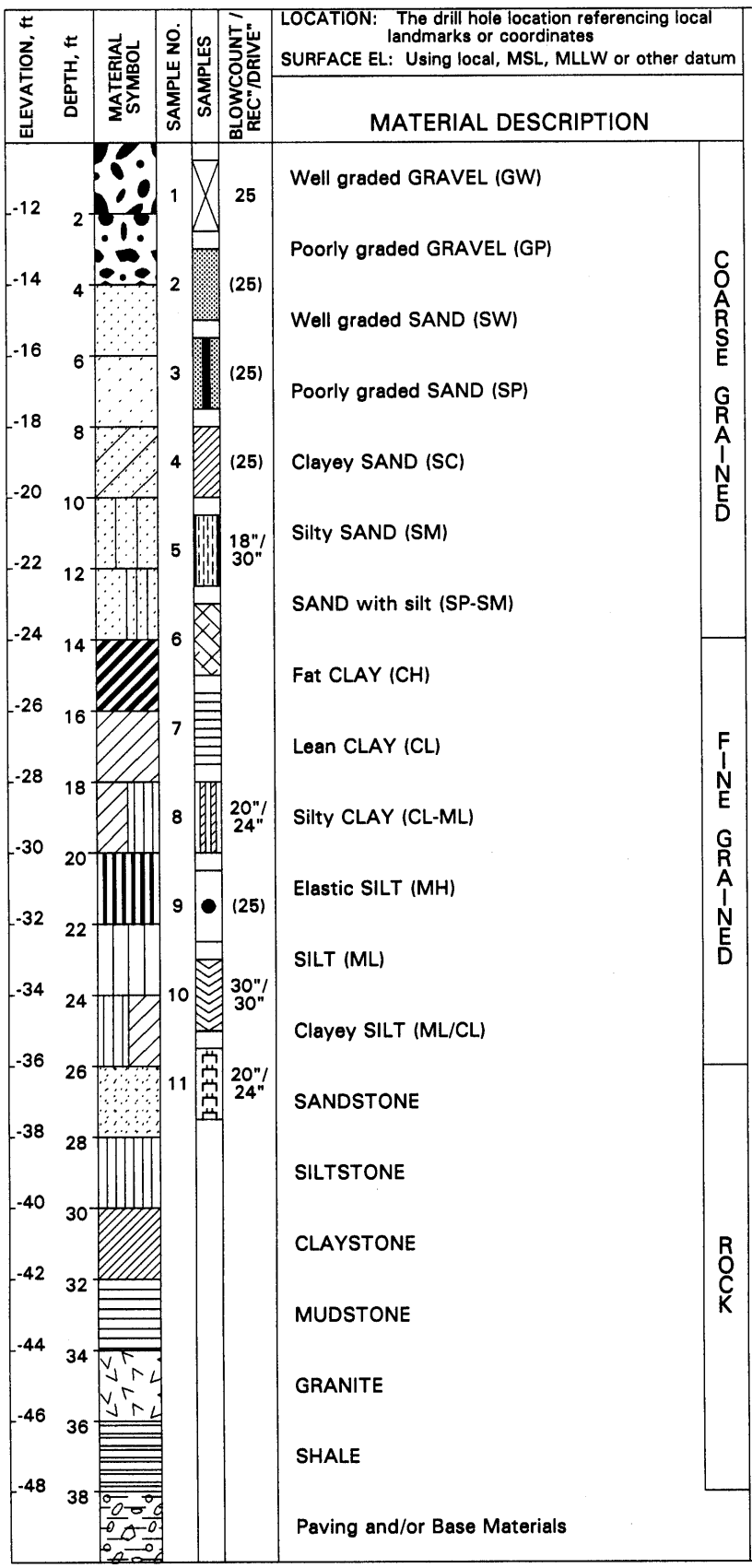
LOG OF VIBROCORE NO. GT-27

UGIS ID: FD97V109

ELEV, ft	DEPTH, ft	MATERIAL SYMBOL	SAMPLE	SAMPLE NUMBER	MATERIAL DESCRIPTION	CORE RATE, ft/min (5 10 15 20)	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %

LOGS OF VIBROCORES
Channel Deepening Program
Port of Los Angeles

61212VIB (61215)
06/01/01 12:08PM



General Notes

1 Soil Texture Symbol

2 Sloped line in symbol column indicates transitional boundary

3 Samplers and sampler dimensions (unless otherwise noted in report text) are as follows:

Symbol for:

1 SPT Sampler, driven 1 3/8" ID, 2" OD
2 CA Liner Sampler, driven 2 3/8" ID, 3" OD
3 CA Liner Sampler, disturbed 2 3/8" ID, 3" OD
4 Recovery Interval
5 Thin-walled Tube, pushed 2 7/8" ID, 3" OD
6 Bulk Bag Sample (from cuttings)
7 Hand Auger Sample
8 Rock Core Sample
9 No Sample Recovered
10 Vibracore Sample
11 Pitcher Sample

4 Sampler Driving Resistance

Number of blows with 140 lb. hammer, falling 30-in. to drive sampler 1-ft. after seating sampler 6-in.; for example,

Blows/ft	Description
25	25 blows drove sampler 12" after initial 6" of seating
86/11"	After driving sampler the initial 6" of seating, 36 blows drove sampler through the second 6" interval, and 50 blows drove the sampler 5" into the third interval
50/6"	50 blows drove sampler 6" after initial 6" of seating
Ref/3"	50 blows drove sampler 3" during initial 6" seating interval

5 Blow counts for California Liner Sampler shown in ( )

6 Length of sample symbol approximates recovery length

7 Classification of Soils per ASTM D2487 or D2488

8 Geologic Formation noted in bold font at the top of interpreted interval

9 Strength Legend

Q = Unconfined Compression
u = Unconsolidated Undrained Triaxial
t = Torvane
p = Pocket Penetrometer
m = Miniature Vane

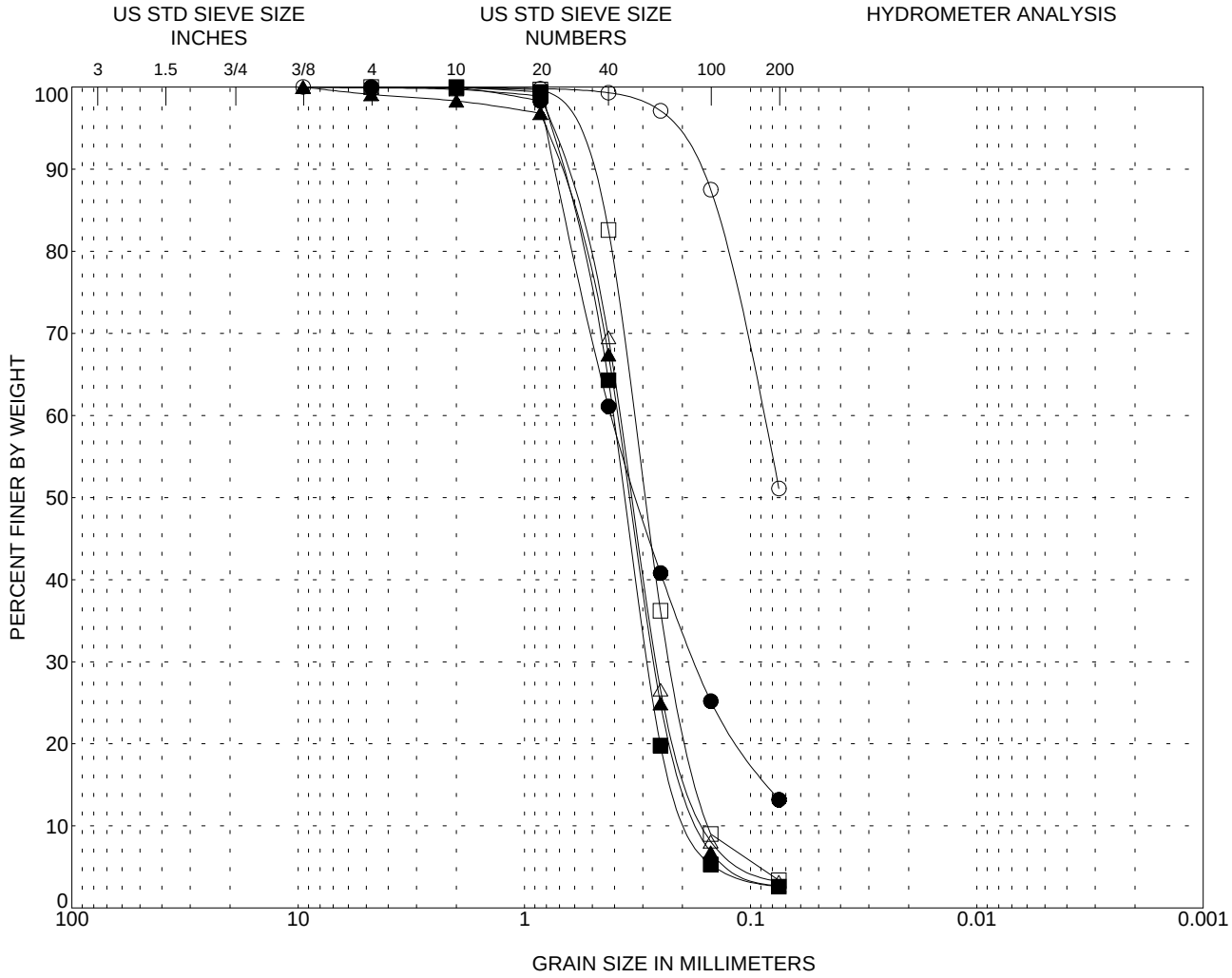
10 Water Level Symbols

Initial or perched water level
Final ground water level
Seepages encountered

11 Rock Quality Designation (RQD) is the sum of recovered core pieces greater than 4 inches divided by the length of the cored interval

KEY TO TERMS & SYMBOLS USED ON LOGS

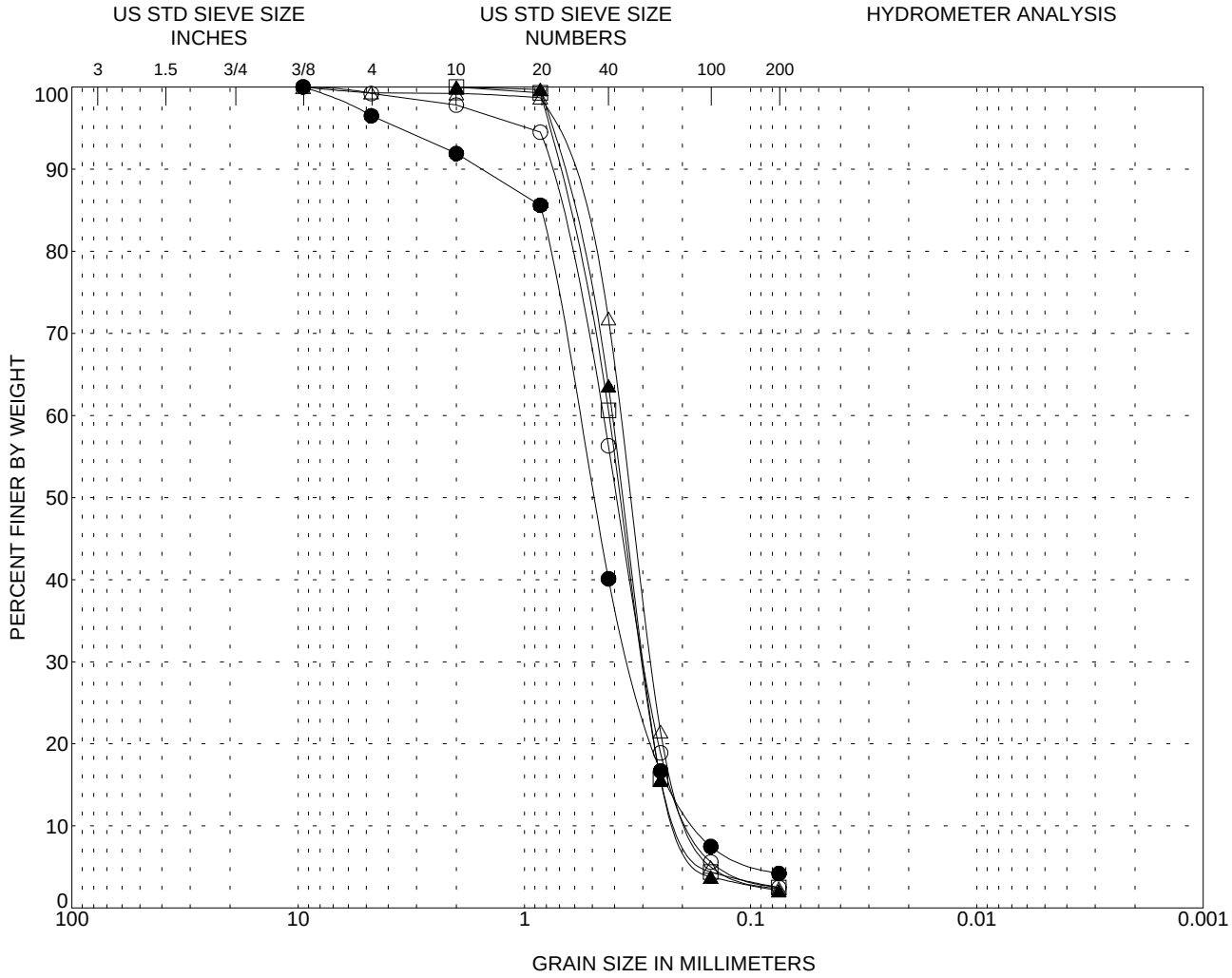
APPENDIX C
LABORATORY TESTING RESULTS



GRAVEL		SAND			SILT or CLAY
coarse	fine	coarse	medium	fine	

LEGEND (location)	(depth,ft)	CLASSIFICATION	Cc	Cu
○ VA-1	2.5	Sandy SILT (ML)		
● VA-1	5.5	Silty, fine to medium SAND (SM)		
△ VA-2	1.0	Fine to medium SAND (SP)	1.1	2.4
▲ VA-2	4.0	Fine to medium SAND (SP)	1.1	2.4
□ VA-2	6.5	Fine SAND (SP)	1.0	2.1
■ VA-2	11.0	Fine to medium SAND (SP)	1.1	2.3

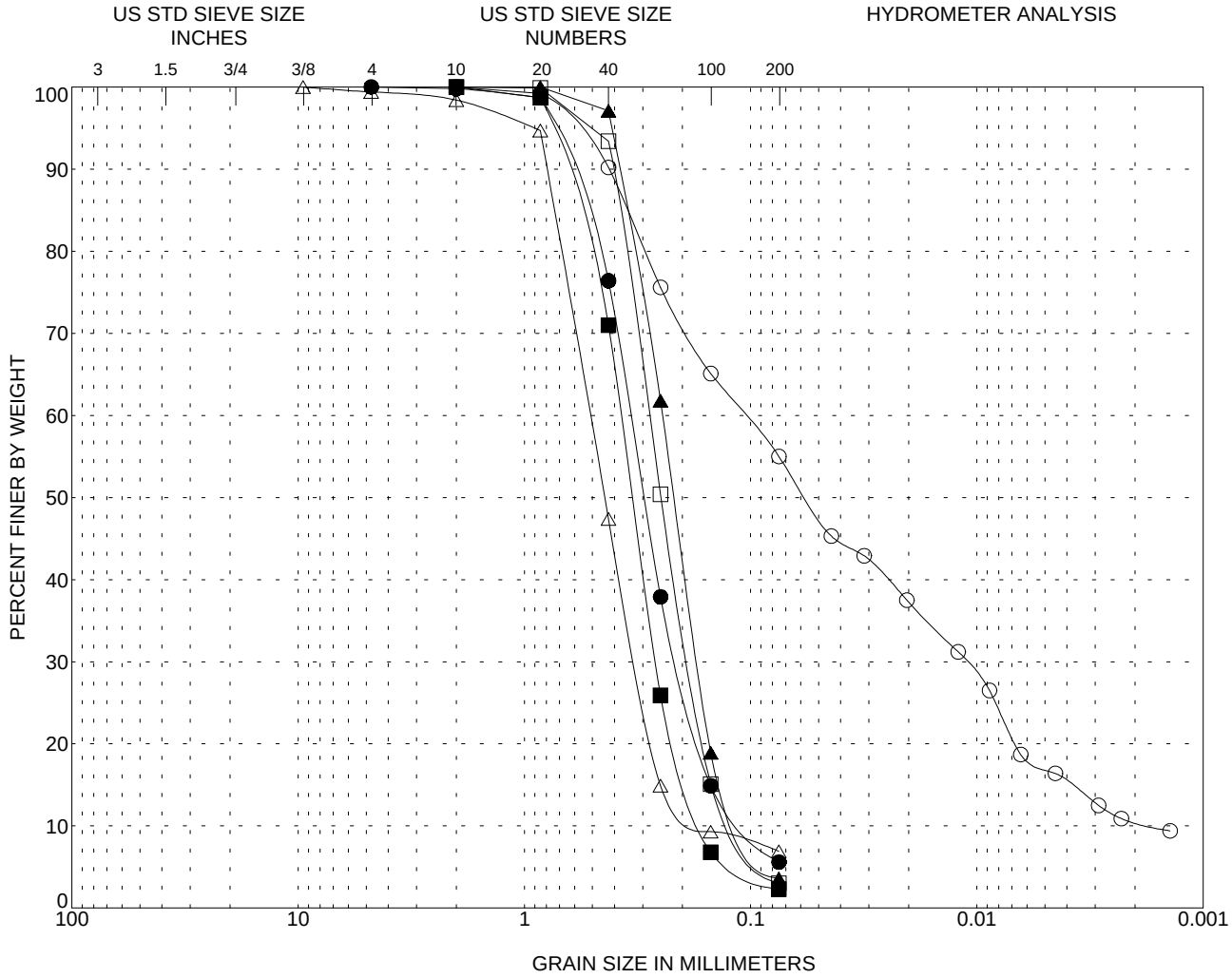
GRAIN SIZE CURVES
Channel Deepening Program
Port of Los Angeles



GRAVEL		SAND			SILT or CLAY
coarse	fine	coarse	medium	fine	

LEGEND	(location)	(depth,ft)	CLASSIFICATION	Cc	Cu
○	VA-3	1.0	Fine to medium SAND (SP)	1.1	2.6
●	VA-3	3.5	Fine to medium SAND with silt (SP-SM)	1.2	3.3
△	VA-3	5.0	Fine to medium SAND (SP)	1.1	2.1
▲	VA-3	8.0	Fine to medium SAND (SP)	1.1	2.1
□	VA-3	11.0	Fine to medium SAND (SP)	1.1	2.2

GRAIN SIZE CURVES
Channel Deepening Program
Port of Los Angeles



GRAVEL		SAND			SILT or CLAY
coarse	fine	coarse	medium	fine	

LEGEND	(location)	(depth,ft)	CLASSIFICATION	Cc	Cu
○	VA-4	0.0	Sandy SILT (ML)	0.7	61.9
●	VA-4	1.5	Fine to medium SAND with silt (SP-SM)	1.2	3.3
△	VA-4	4.0	Fine to medium SAND with silt (SP-SM)	1.3	3.2
▲	VA-4	7.0	Fine SAND (SP)	1.2	2.4
□	VA-4	10.0	Fine SAND (SP)	1.1	2.5
■	VA-4	13.0	Fine to medium SAND (SP)	1.1	2.3

GRAIN SIZE CURVES
Channel Deepening Program
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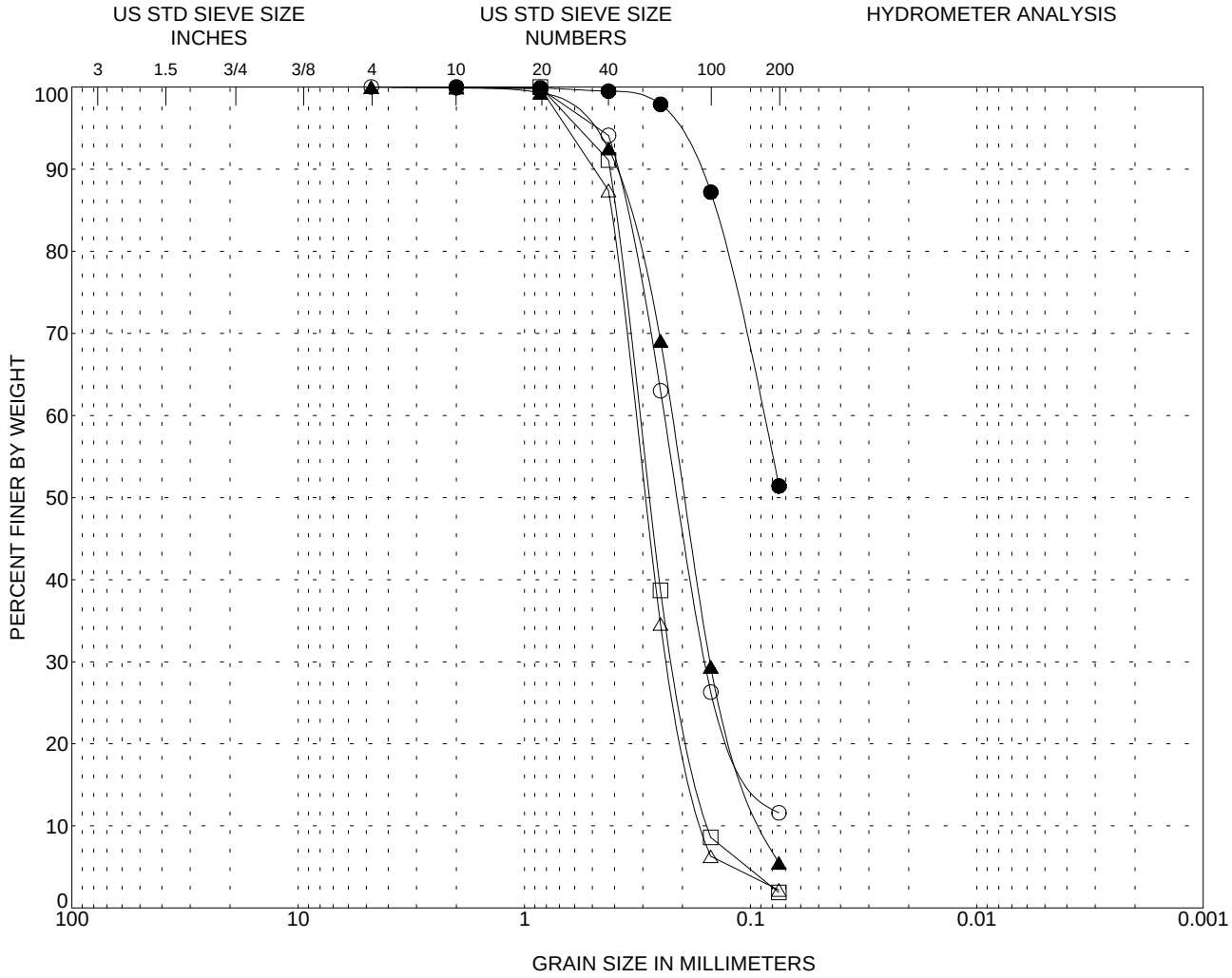
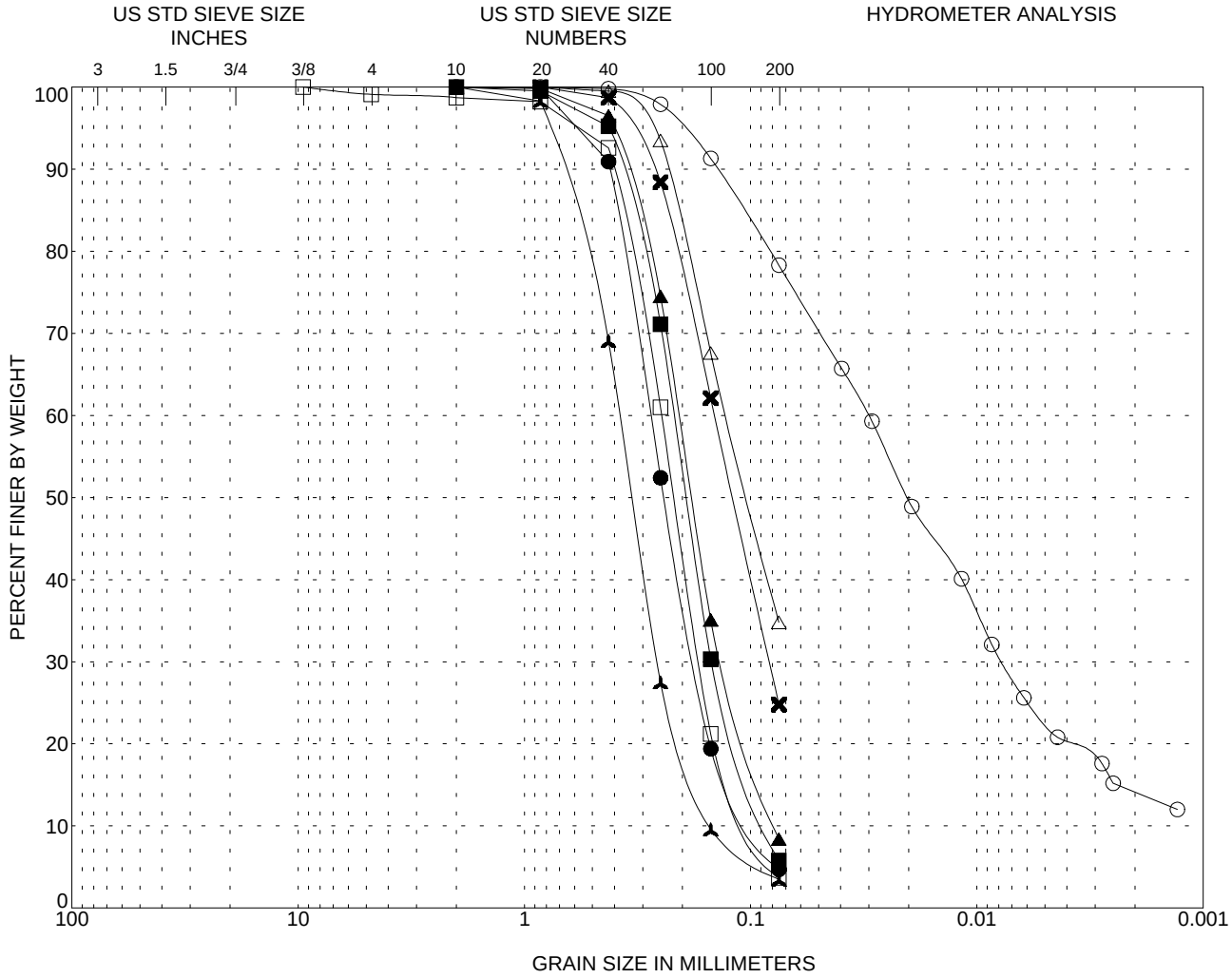


GRAVEL		SAND			SILT or CLAY
coarse	fine	coarse	medium	fine	

LEGEND	(location)	(depth,ft)	CLASSIFICATION	Cc	Cu
○	VA-5	3.5	Fine SAND with silt (SP-SM)	1.5	3.4
●	VA-5	7.0	Sandy SILT (ML)		
△	VA-5	11.0	Fine SAND (SP)	1.0	2.0
▲	VA-6	2.0	Fine SAND with silt (SP-SM)	1.2	2.6
□	VA-6	6.0	Fine SAND (SP)	1.0	2.0

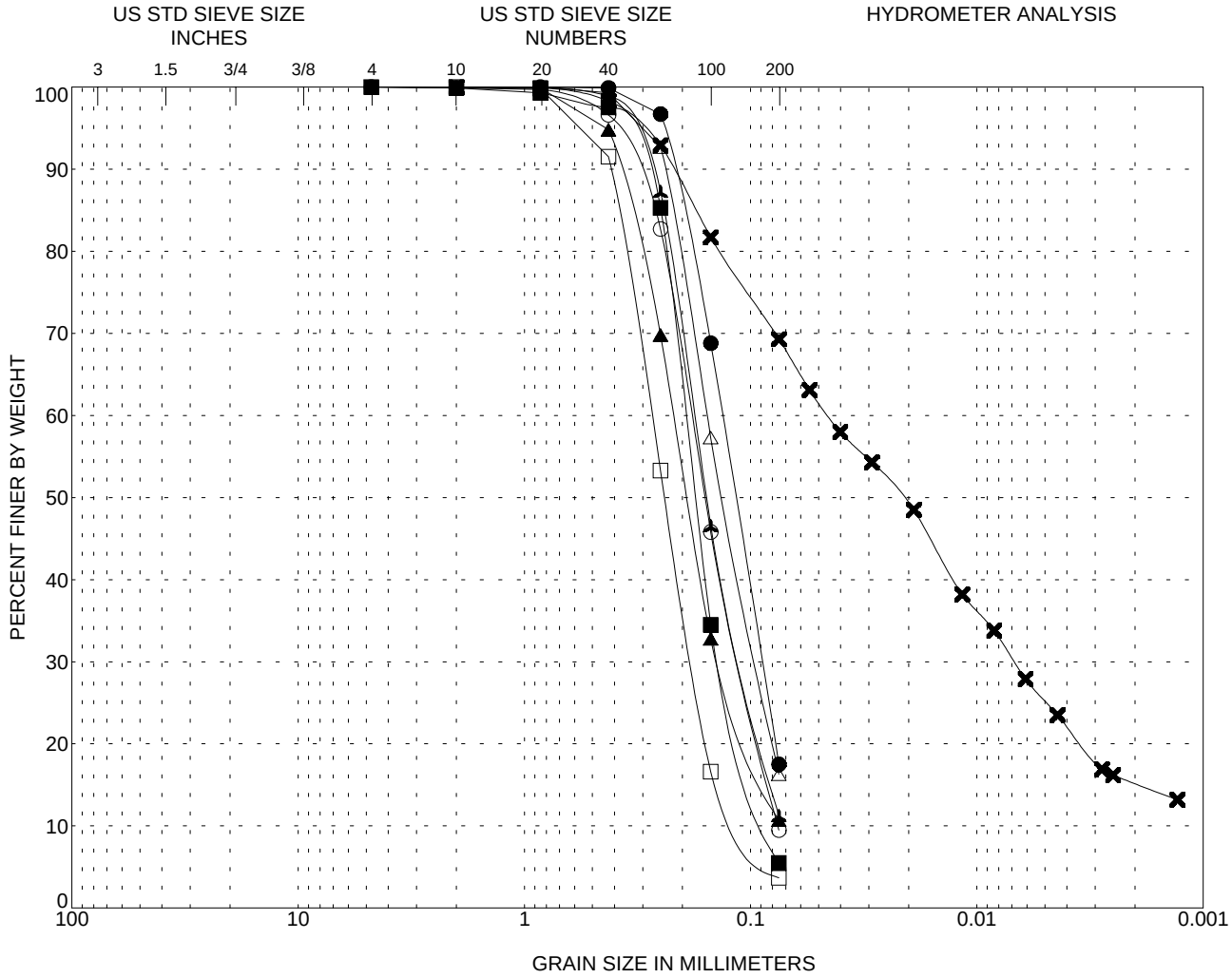
GRAIN SIZE CURVES
Channel Deepening Program
Port of Los Angeles



GRAVEL		SAND			SILT or CLAY
coarse	fine	coarse	medium	fine	

LEGEND	(location)	(depth,ft)	CLASSIFICATION	Cc	Cu
○	VA-7	0.5	SILT with sand (ML)		
●	VA-7	3.0	Fine SAND with silt (SP-SM)	1.2	2.9
△	VA-7	10.0	Silty fine SAND (SM)		
▲	VA-8	0.5	Fine SAND with silt (SP-SM)	1.1	2.6
□	VA-8	3.5	Fine SAND (SP)	1.2	2.6
■	VA-8	6.0	Fine SAND with silt (SP-SM)	1.2	2.6
⅄	VA-8	10.5	Fine to medium SAND (SP)	1.2	2.5
✖	VA-8	13.0	Silty fine SAND (SM)		

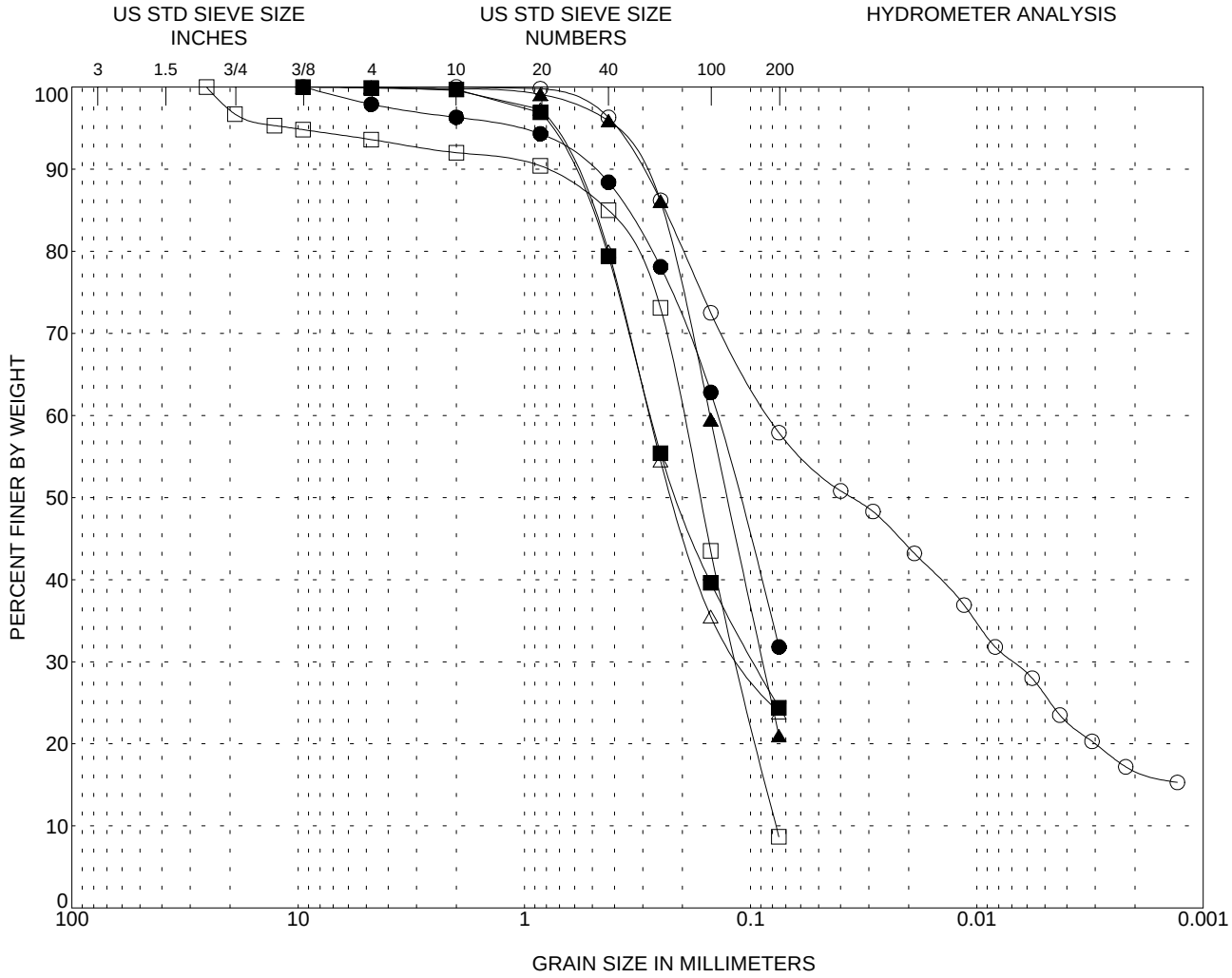
GRAIN SIZE CURVES
Channel Deepening Program
Port of Los Angeles



GRAVEL		SAND			SILT or CLAY
coarse	fine	coarse	medium	fine	

LEGEND (location)	(depth,ft)	CLASSIFICATION	Cc	Cu
○ VA-9	0.5	Fine SAND with silt (SP-SM)	0.9	2.4
● VA-9	6.0	Silty fine SAND (SM)		
△ VA-9	13.0	Silty fine SAND (SM)		
▲ VA-10	4.0	Fine SAND with silt (SP-SM)	1.2	3.0
□ VA-10	8.5	Fine SAND (SP)	1.1	2.6
■ VA-10	11.0	Fine SAND with silt (SP-SM)	1.1	2.3
⅄ VA-11	4.0	Fine SAND with silt (SP-SM)	0.9	2.4
✖ VA-12	0.5	SILT with sand (ML)		

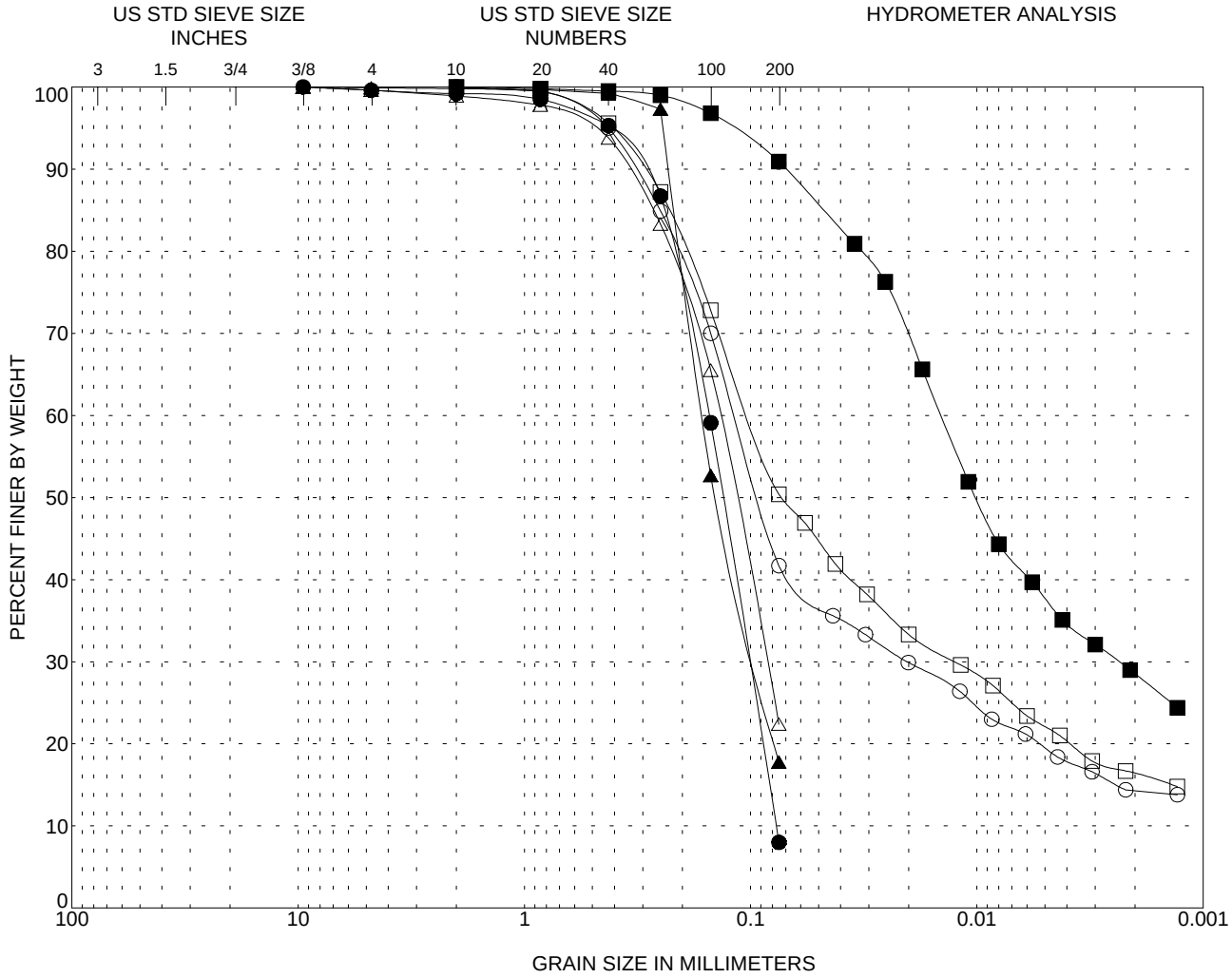
GRAIN SIZE CURVES
Channel Deepening Program
Port of Los Angeles



GRAVEL		SAND			SILT or CLAY
coarse	fine	coarse	medium	fine	

LEGEND (location)	(depth,ft)	CLASSIFICATION	Cc	Cu
○ VB-31	0.0	Sandy CLAY (CL)		
● VB-31	6.0	Silty fine SAND (SM)		
△ VB-31	9.0	Silty fine SAND (SM)		
▲ VB-32	0.5	Silty fine SAND (SM)		
□ VB-32	3.0	Fine SAND with silt (SP-SM)	0.9	2.6
■ VB-32	11.0	Silty fine SAND (SM)		

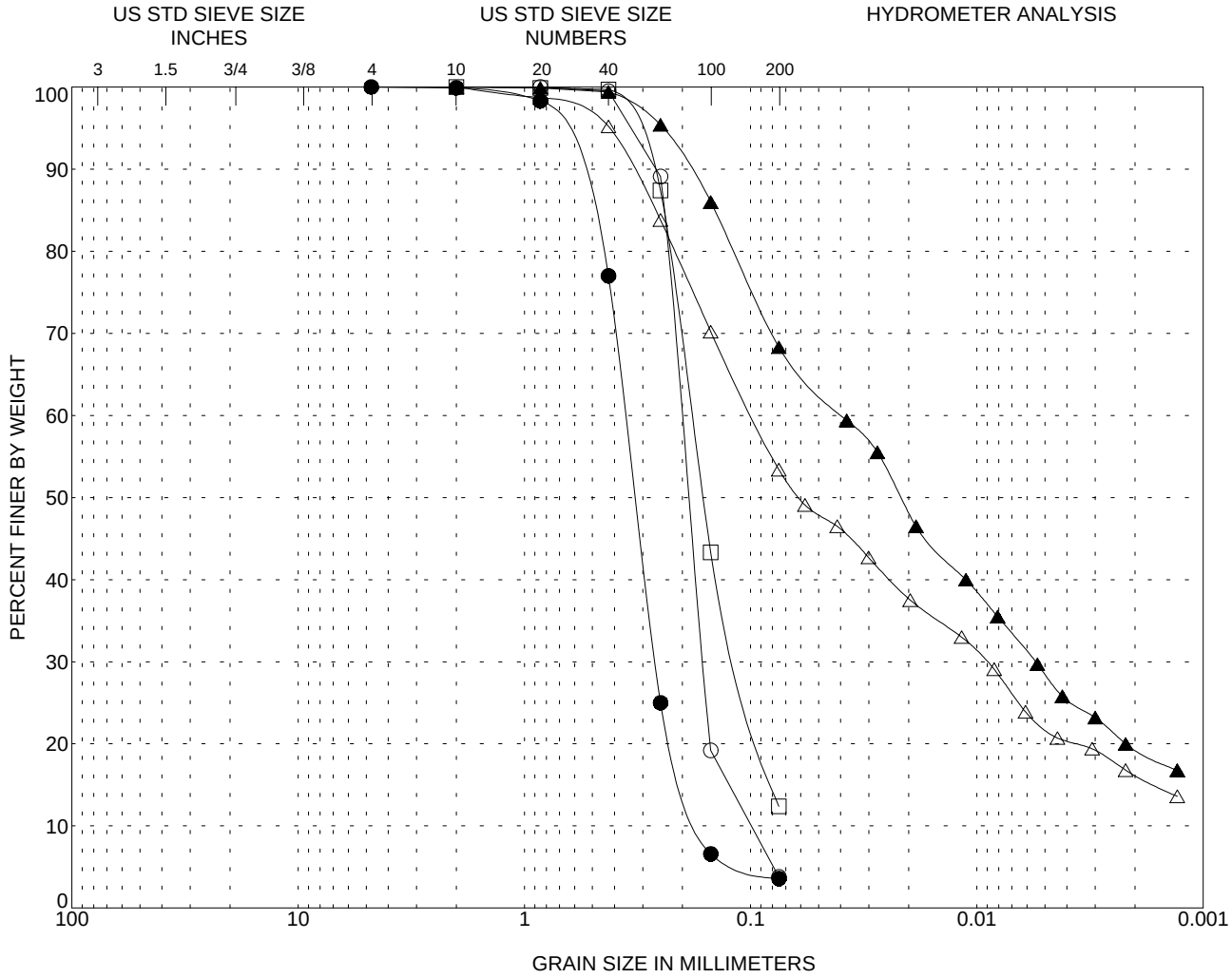
GRAIN SIZE CURVES
Channel Deepening Program
Port of Los Angeles



GRAVEL		SAND			SILT or CLAY
coarse	fine	coarse	medium	fine	

LEGEND			CLASSIFICATION	Cc	Cu
	(location)	(depth,ft)			
○	VB-33	1.0	Silty fine SAND (SM)		
●	VB-33	5.0	Fine SAND with silt (SP-SM)	0.9	2.0
△	VB-33	9.0	Silty fine SAND (SM)		
▲	VB-33	11.5	Silty fine SAND (SM)		
□	VB-34	0.5	Sandy CLAY (CL)		
■	VB-35	2.0	SILT/CLAY (ML/CL)		

GRAIN SIZE CURVES
Channel Deepening Program
Port of Los Angeles



GRAVEL		SAND			SILT or CLAY
coarse	fine	coarse	medium	fine	

LEGEND	(location)	(depth,ft)	CLASSIFICATION	Cc	Cu
○	VB-36	8.0	Fine SAND (SP)	1.3	2.0
●	VB-36	12.0	Fine to medium SAND (SP)	1.2	2.2
△	VB-37	0.5	Sandy CLAY (CL)		
▲	VB-38	0.0	Sandy CLAY (CL)		
□	VB-38	9.0	Fine SAND with silt (SP-SM)	1.0	2.6

GRAIN SIZE CURVES
Channel Deepening Program
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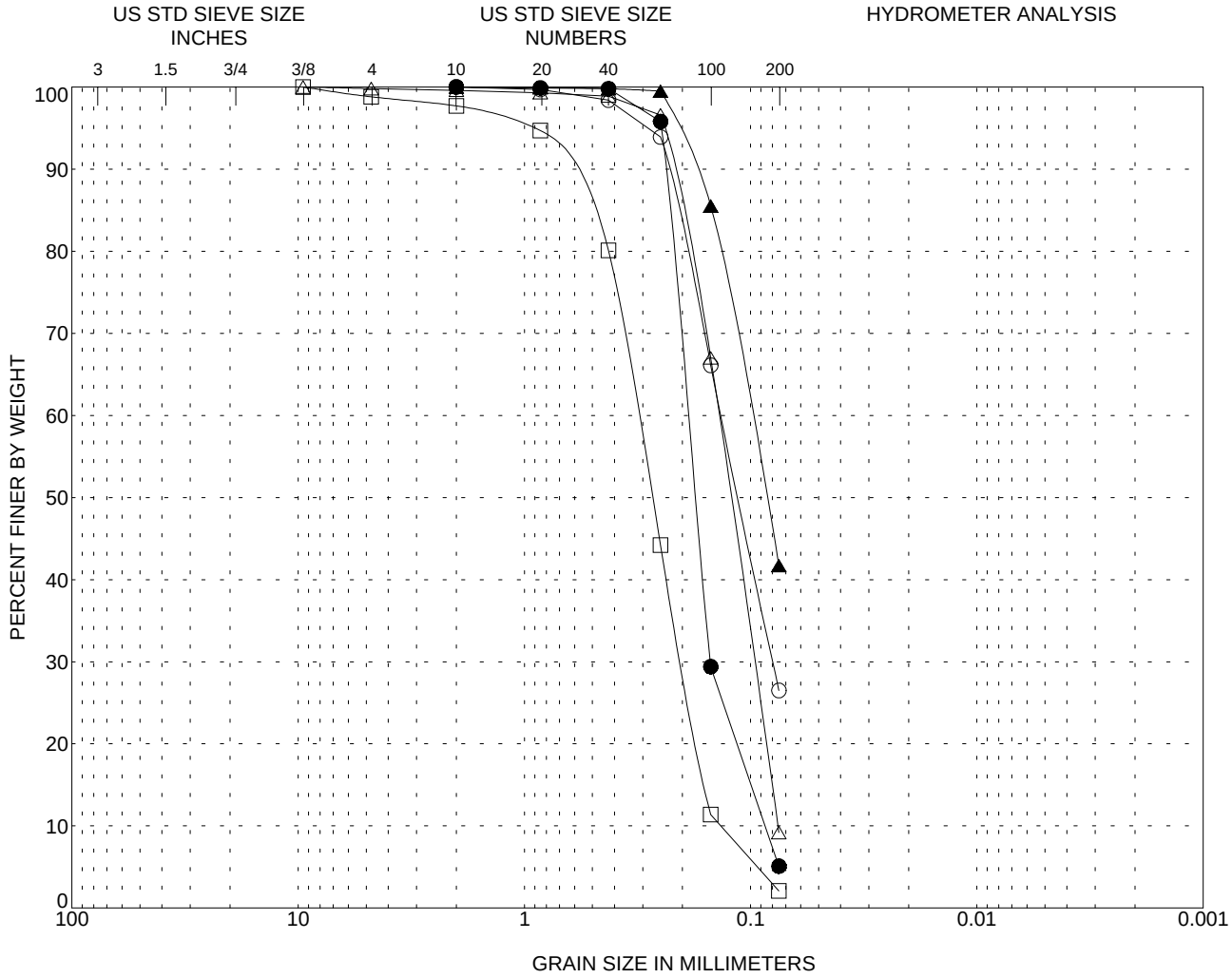
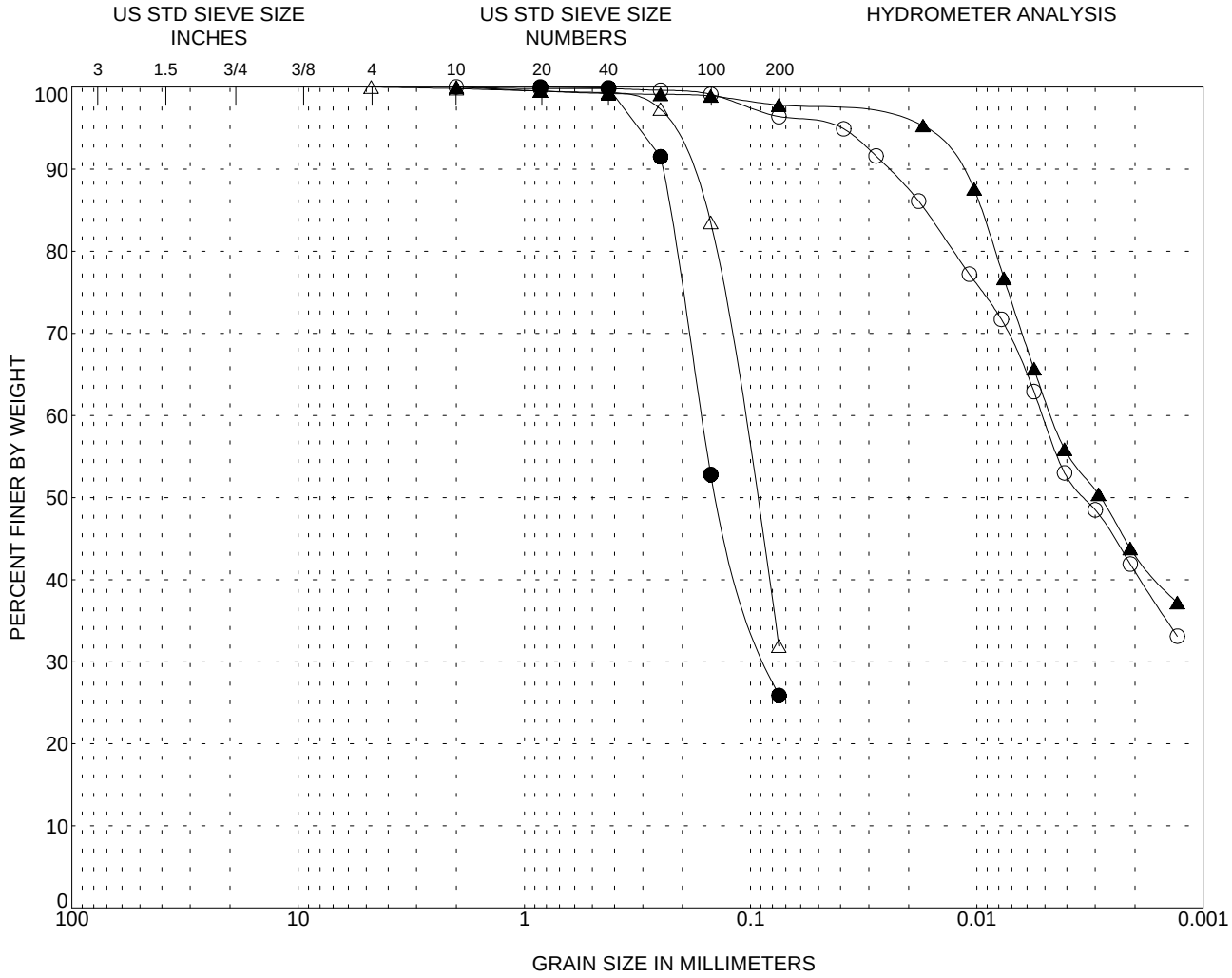


GRAVEL		SAND			SILT or CLAY
coarse	fine	coarse	medium	fine	

LEGEND (location)	(depth,ft)	CLASSIFICATION	Cc	Cu
○ VB-39	3.5	Silty fine SAND (SM)		
● VB-39	7.0	Fine SAND with silt (SP-SM)	1.4	2.2
△ VB-40	1.5	Fine SAND with silt (SP-SM)	0.9	1.8
▲ VB-40	7.0	Silty fine SAND (SM)		
□ VB-40	14.5	Fine SAND (SP)	0.9	2.3

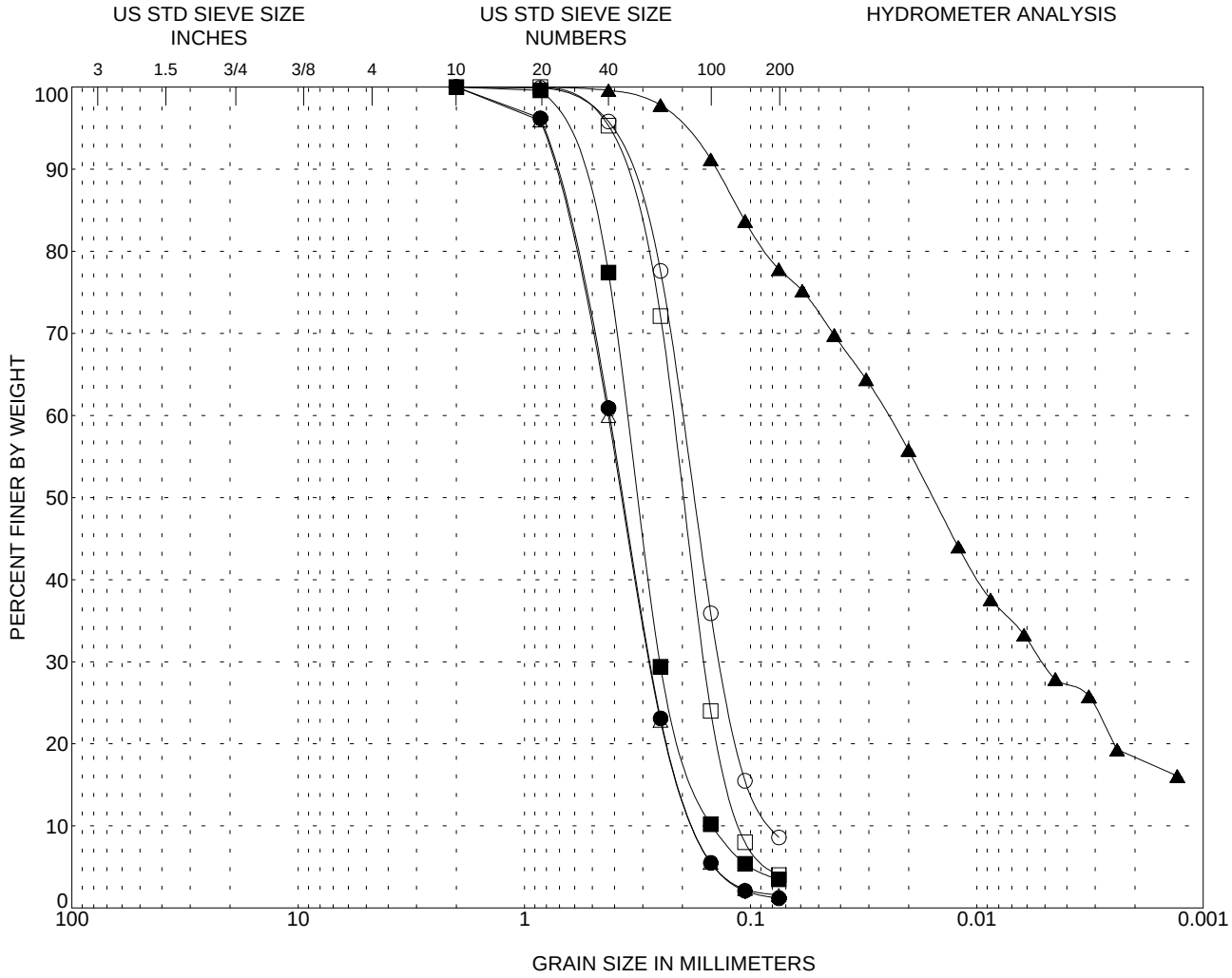
GRAIN SIZE CURVES
Channel Deepening Program
Port of Los Angeles



GRAVEL		SAND			SILT or CLAY
coarse	fine	coarse	medium	fine	

LEGEND	(location)	(depth,ft)	CLASSIFICATION	Cc	Cu
○	2.0	4.0	SILT/CLAY (ML/CL)		
●	2.0	9.0	Silty fine SAND (SM)		
△	2.5	1.0	Silty fine SAND (SM)		
▲	2.5	5.5	Elastic SILT (MH)		

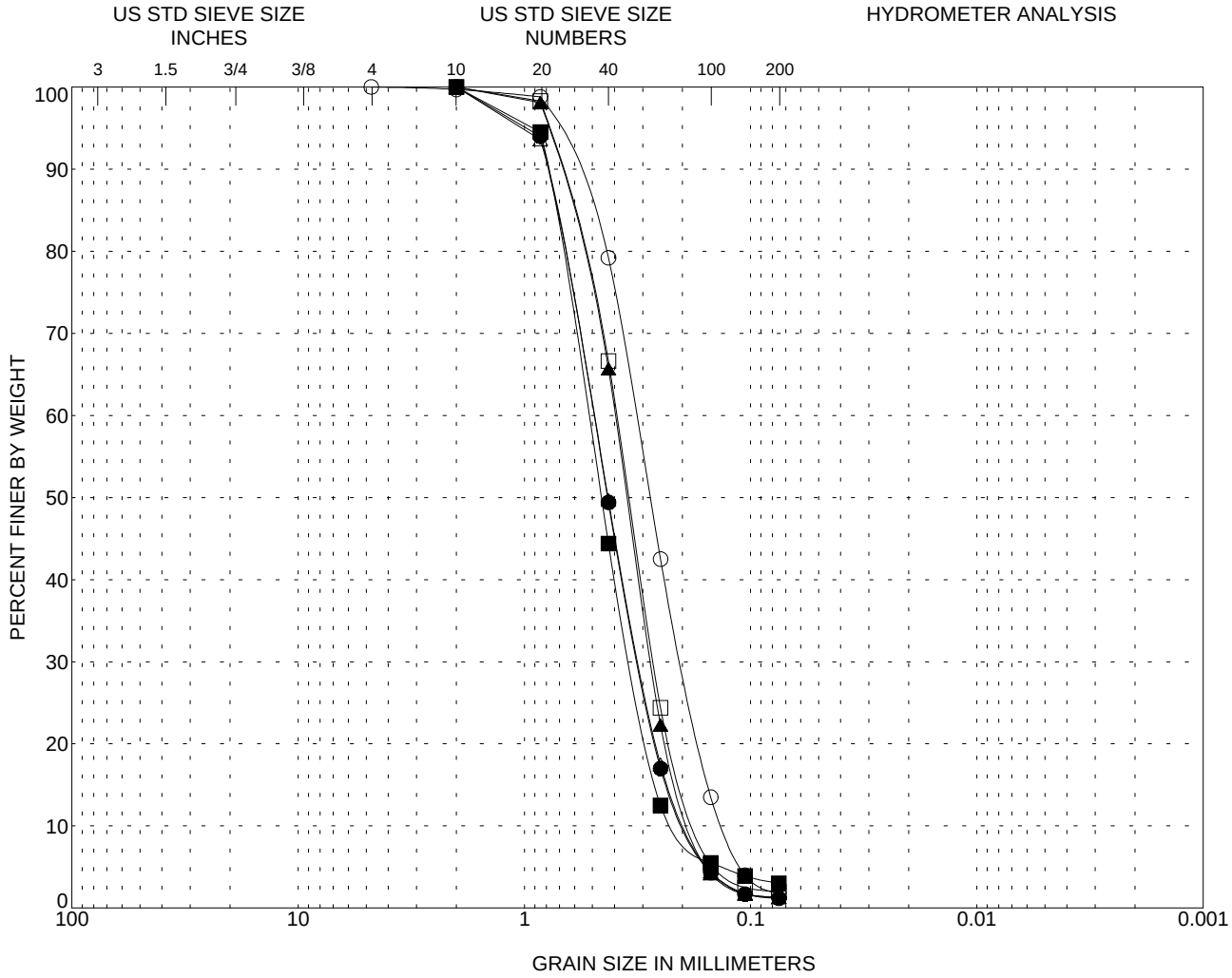
GRAIN SIZE CURVES
Channel Deepening Program
Port of Los Angeles



GRAVEL		SAND			SILT or CLAY
coarse	fine	coarse	medium	fine	

LEGEND	(location)	(depth,ft)	CLASSIFICATION	Cc	Cu
○	CG2-2	2.5	Fine SAND with silt (SP-SM)	1.1	2.5
●	CG2-3	8.0	Fine SAND (SP)	1.1	2.5
△	CG2-3	8.5	Fine SAND (SP)	1.1	2.5
▲	CG2-4	0.0	CLAY with sand (CL)		
□	CG2-4	6.0	Fine SAND (SP)	1.1	2.0
■	CG2-5	2.5	Fine SAND (SP)	1.2	2.4

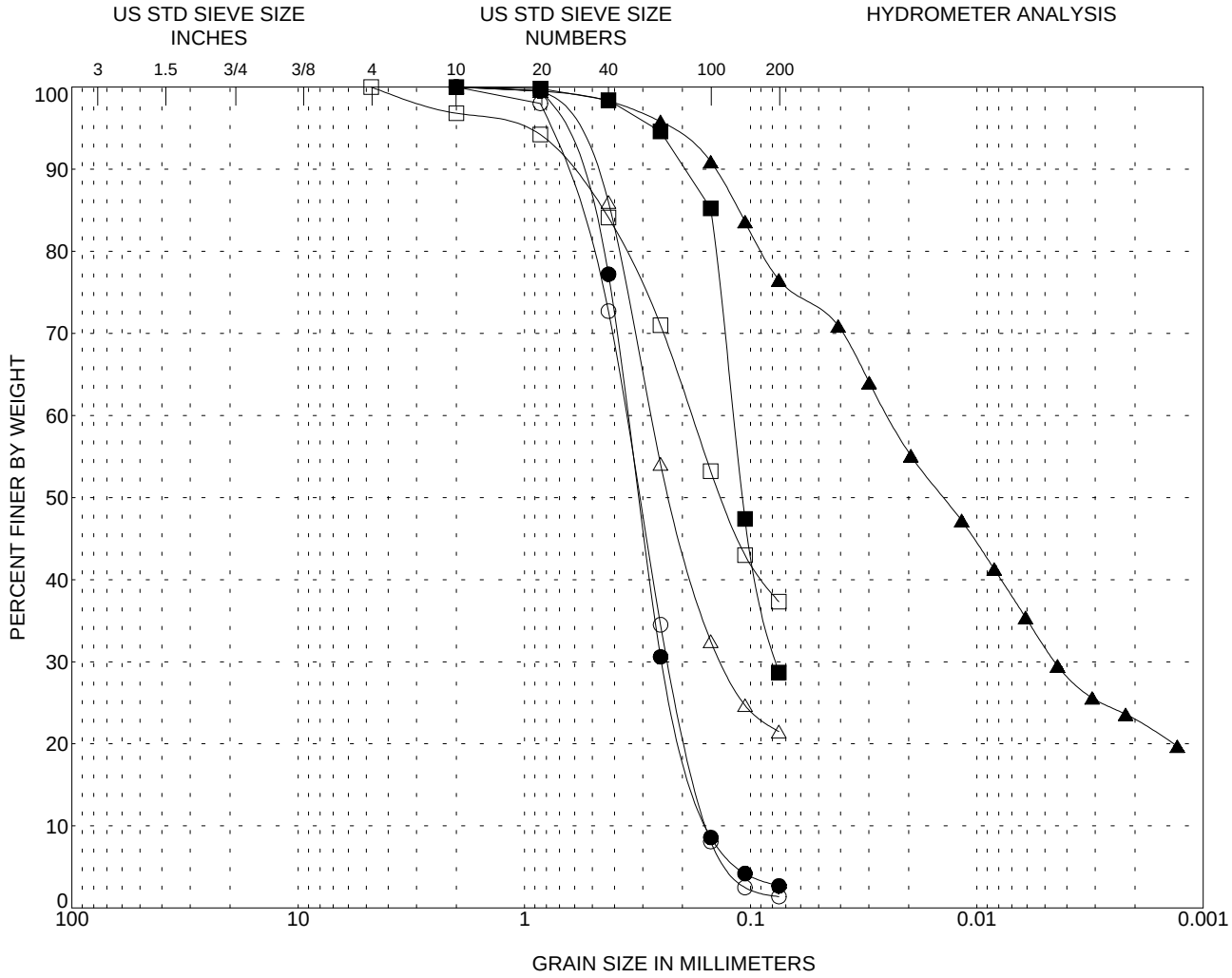
GRAIN SIZE CURVES
Channel Deepening Program
Port of Los Angeles



GRAVEL		SAND			SILT or CLAY
coarse	fine	coarse	medium	fine	

LEGEND	(location)	(depth,ft)	CLASSIFICATION	Cc	Cu
○	CG2-6	3.5	Fine SAND (SP)	0.9	2.4
●	CG2-7	10.0	Fine SAND (SP)	1.0	2.7
△	CG2-7	10.5	Fine SAND (SP)	1.0	2.7
▲	CG2-8	5.0	Fine SAND (SP)	1.1	2.2
□	CG2-8	5.5	Fine SAND (SP)	1.1	2.3
■	CG2-10	6.0	Fine SAND (SP)	1.0	2.5

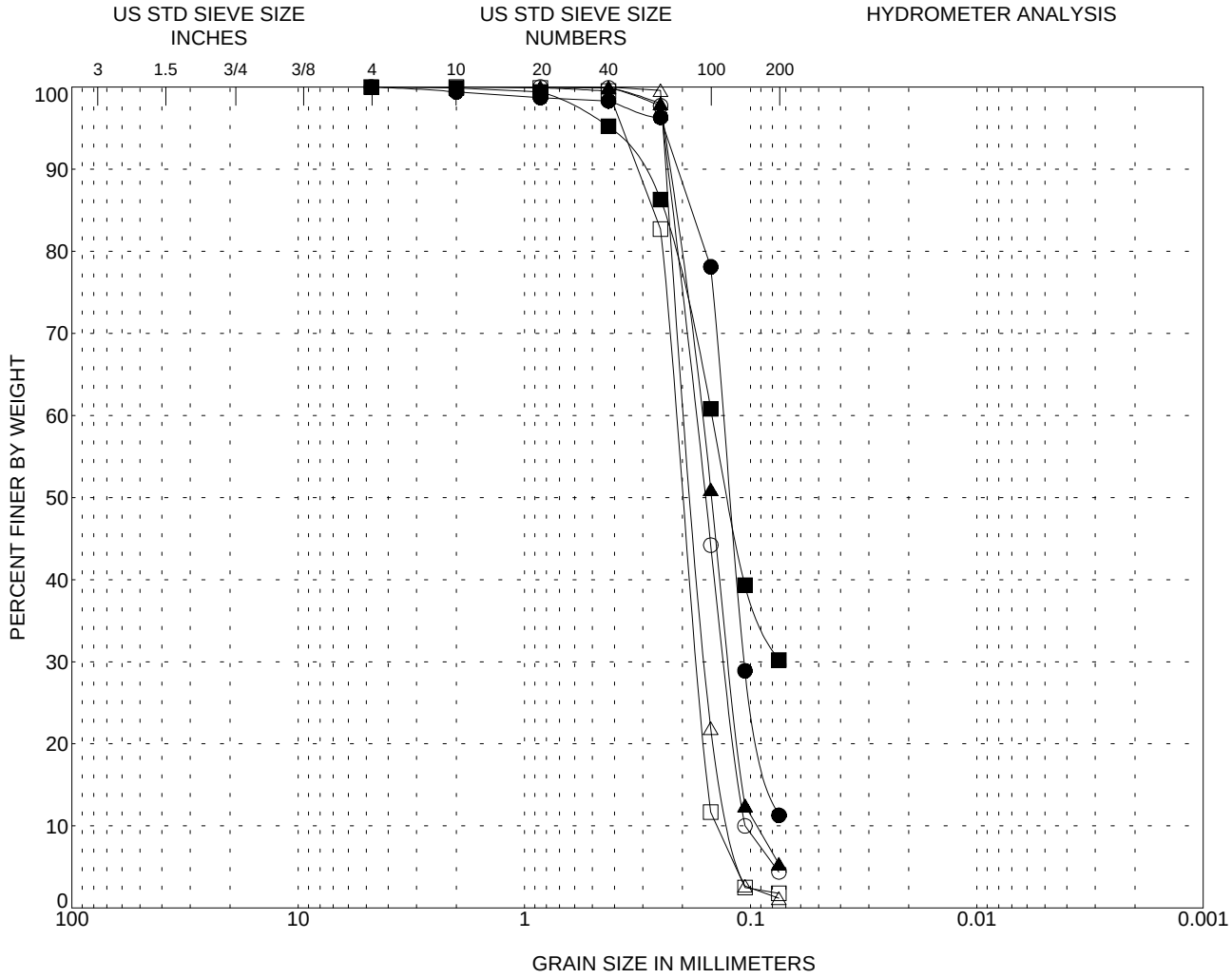
GRAIN SIZE CURVES
Channel Deepening Program
Port of Los Angeles



GRAVEL		SAND			SILT or CLAY
coarse	fine	coarse	medium	fine	

LEGEND	(location)	(depth,ft)	CLASSIFICATION	Cc	Cu
○	CG2-12	6.0	Fine SAND (SP)	0.9	2.3
●	CG2-13	5.0	Fine SAND (SP)	1.1	2.3
△	CG2-14	1.5	Silty fine SAND (SM)		
▲	CG3-1	0.0	CLAY with sand (CL)		
□	CG3-1	3.0	Silty fine SAND (SM)		
■	CG3-3	3.0	Silty fine SAND (SM)		

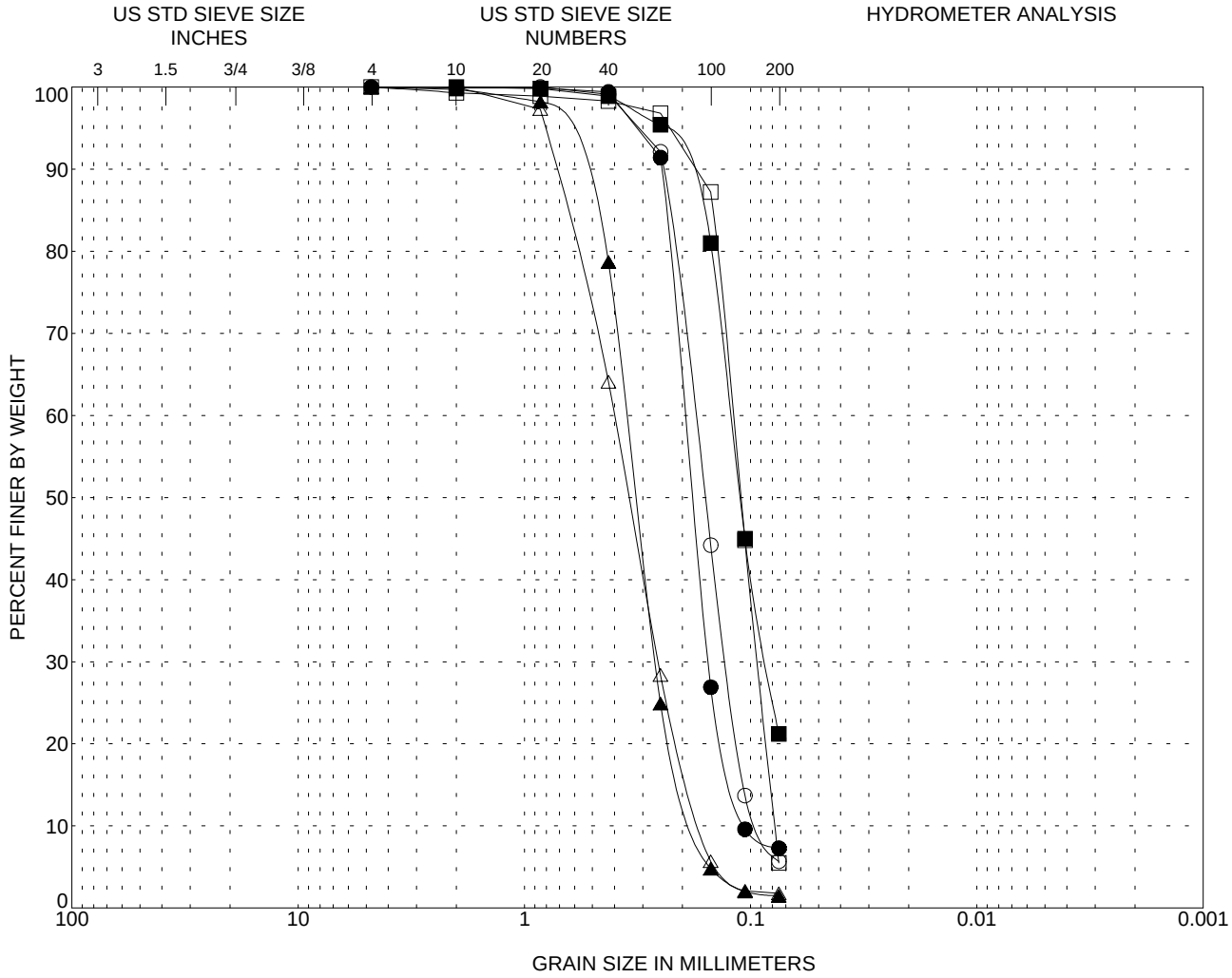
GRAIN SIZE CURVES
Channel Deepening Program
Port of Los Angeles



GRAVEL		SAND			SILT or CLAY
coarse	fine	coarse	medium	fine	

LEGEND	(location)	(depth,ft)	CLASSIFICATION	Cc	Cu
○	CG3-3	13.0	Fine SAND (SP)	0.9	1.6
●	CG3-5	2.5	Fine SAND with silt (SP-SM)	1.2	1.8
△	CG3-6	10.0	Fine SAND (SP)	1.1	1.6
▲	CG3-7	4.0	Fine SAND with silt (SP-SM)	1.0	1.8
□	CG3-8	10.0	Fine SAND (SP)	1.0	1.5
■	CG3-10	11.0	Silty fine SAND (SM)		

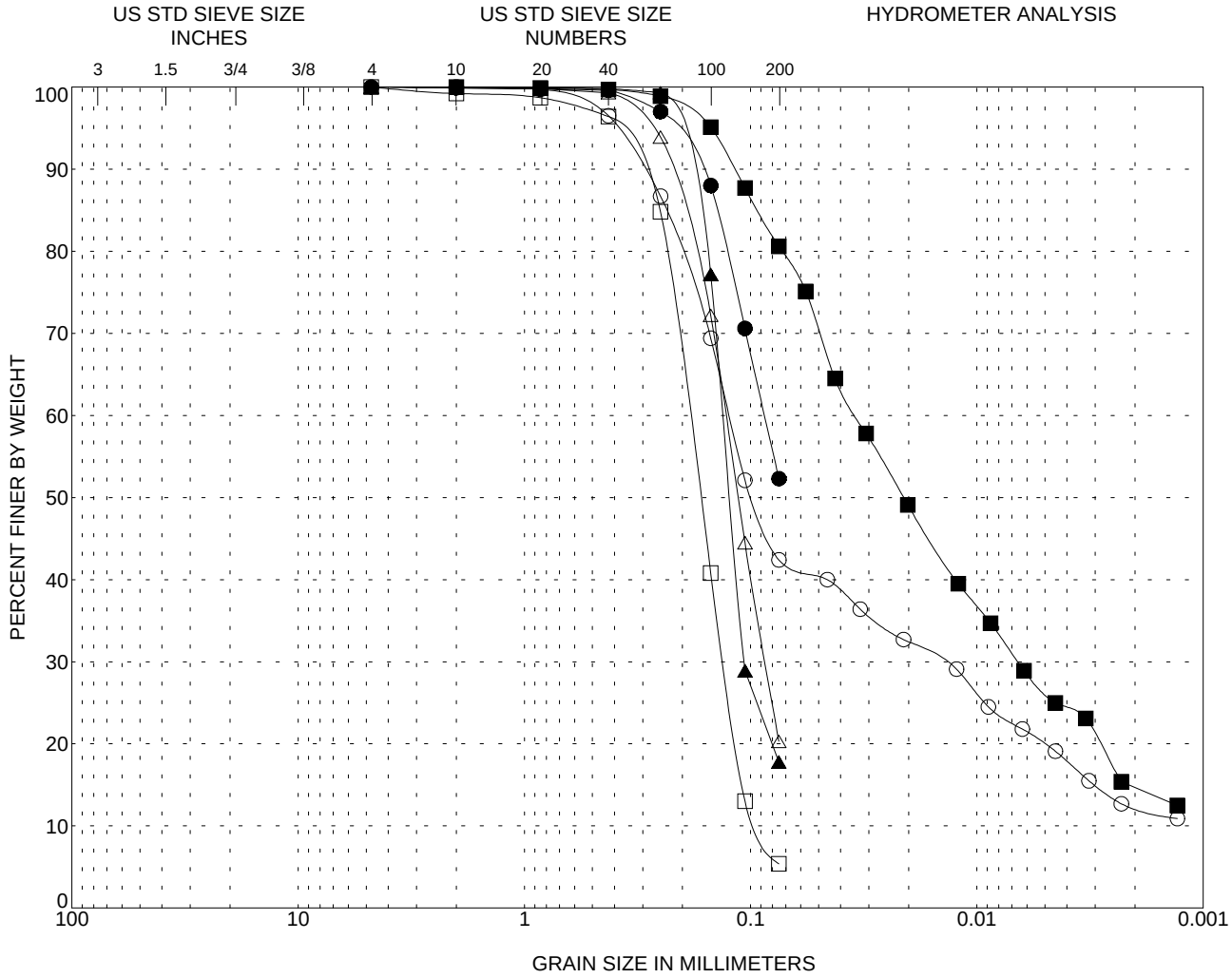
GRAIN SIZE CURVES
Channel Deepening Program
Port of Los Angeles



GRAVEL		SAND			SILT or CLAY
coarse	fine	coarse	medium	fine	

LEGEND	(location)	(depth,ft)	CLASSIFICATION	Cc	Cu
○	CG3-11	4.5	Fine SAND with silt (SP-SM)	1.0	2.0
●	CG3-12	0.0	Fine SAND with silt (SP-SM)	1.1	1.8
△	CG3-13	7.0	Fine SAND (SP)	1.0	2.4
▲	CG4-1	11.5	Fine SAND (SP)	1.1	2.1
□	CG4-2	6.8	Fine SAND with silt (SP-SM)	0.9	1.5
■	CG4-3	4.5	Silty fine SAND (SM)		

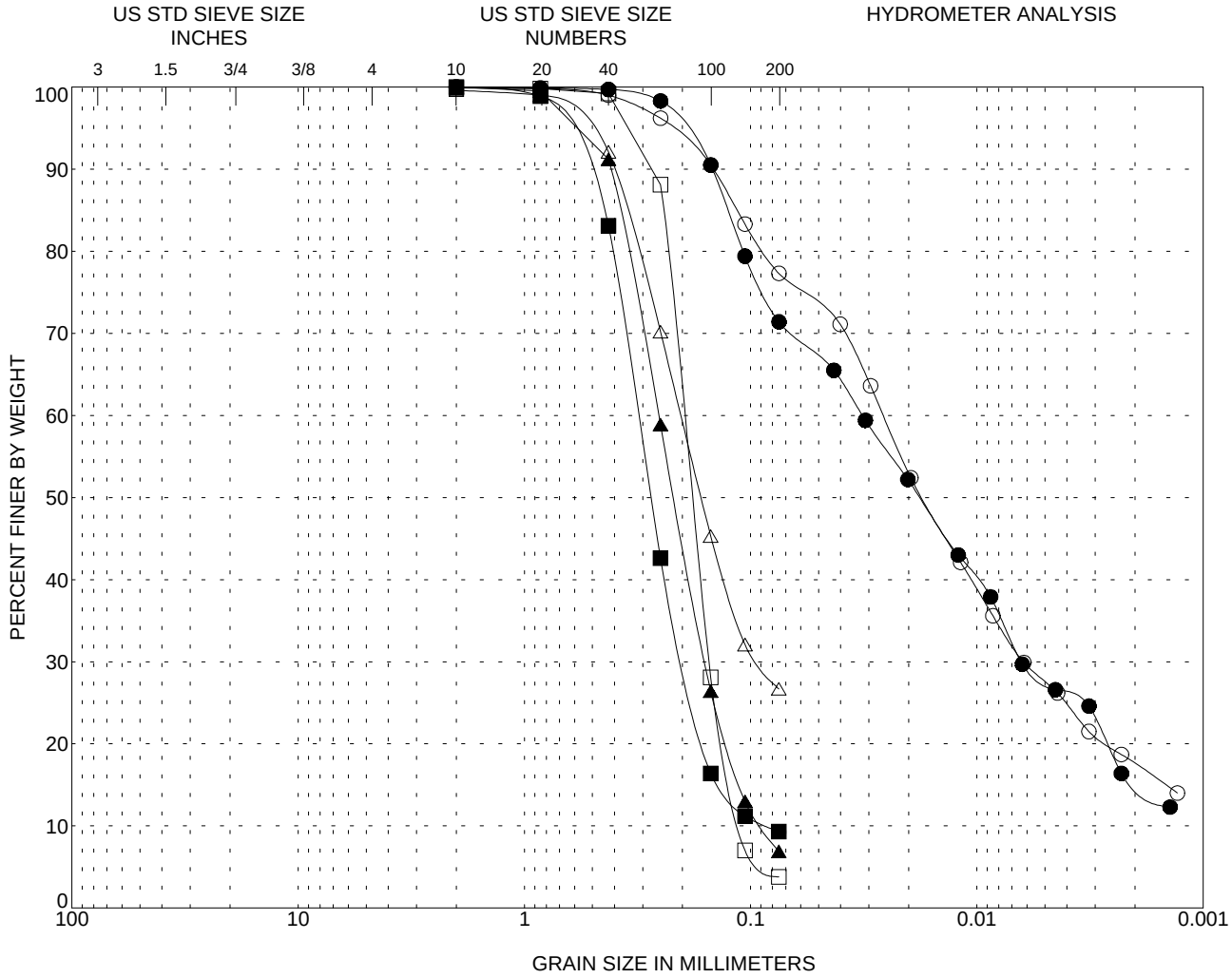
GRAIN SIZE CURVES
Channel Deepening Program
Port of Los Angeles



GRAVEL		SAND			SILT or CLAY
coarse	fine	coarse	medium	fine	

LEGEND	(location)	(depth,ft)	CLASSIFICATION	Cc	Cu
○	CG4-5	3.0	Clayey SAND (SC) to Sandy CLAY (CL)		
●	CG4-5	11.0	Sandy SILT (ML) layer		
△	CG4-6	2.5	Silty fine SAND (SM)		
▲	CG4-7	7.0	Silty fine SAND (SM)		
□	CG4-9	3.0	Fine SAND with silt (SP-SM)	1.0	2.0
■	FG1-5	2.5	Fat CLAY with sand (CH)		

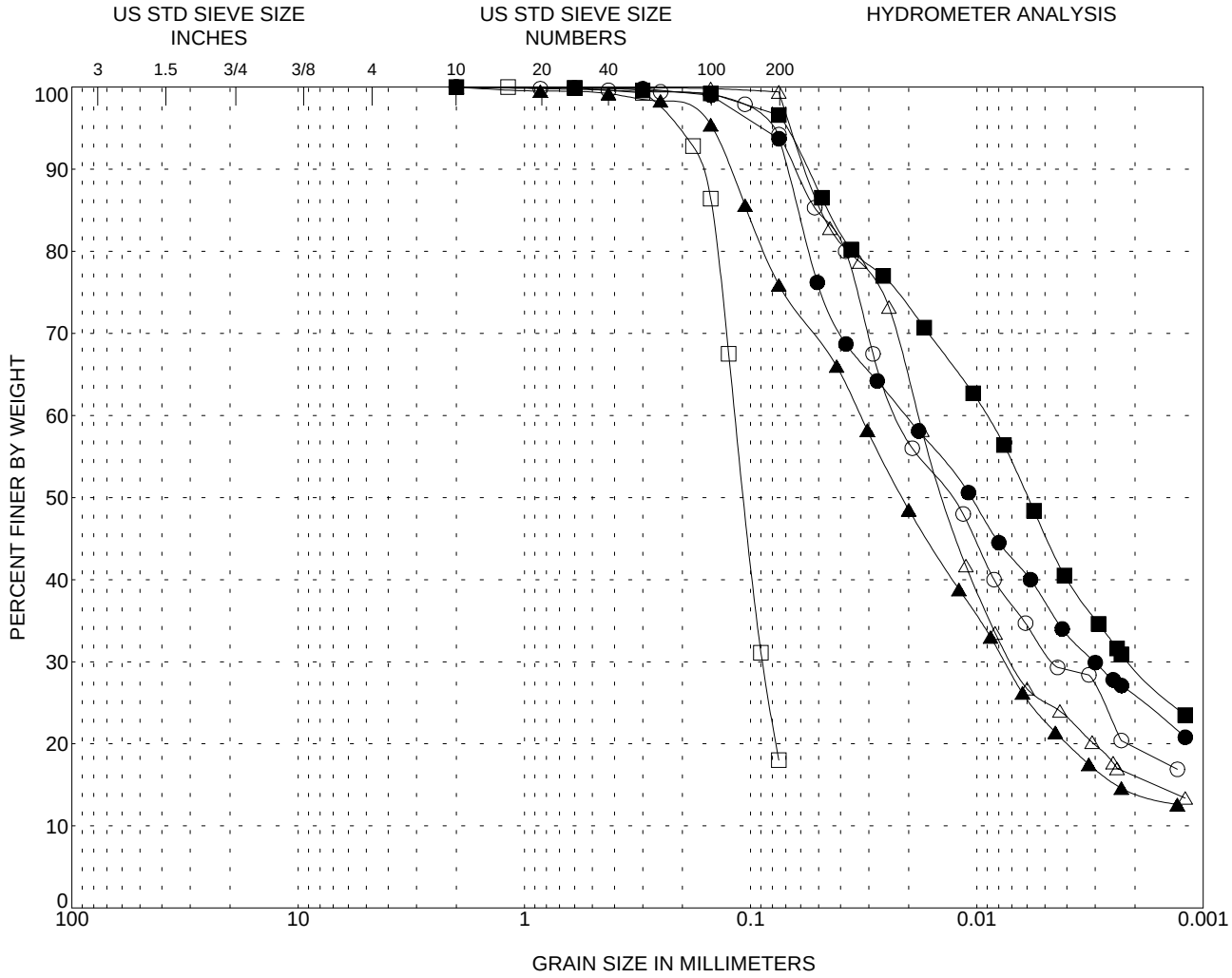
GRAIN SIZE CURVES
Channel Deepening Program
Port of Los Angeles



GRAVEL		SAND			SILT or CLAY
coarse	fine	coarse	medium	fine	

LEGEND	(location)	(depth,ft)	CLASSIFICATION	Cc	Cu
○	FG1-8	2.5	CLAY with sand (CL)		
●	FG2-1	0.5	CLAY with sand (CL)		
△	FG2-3	2.5	Silty fine SAND (SM)		
▲	FG2-4	0.0	Fine SAND with silt (SP-SM)	1.1	2.8
□	FG2-6	4.0	Fine SAND (SP)	1.1	1.8
■	FG2-7	5.0	Fine SAND with silt (SP-SM)	1.4	3.7

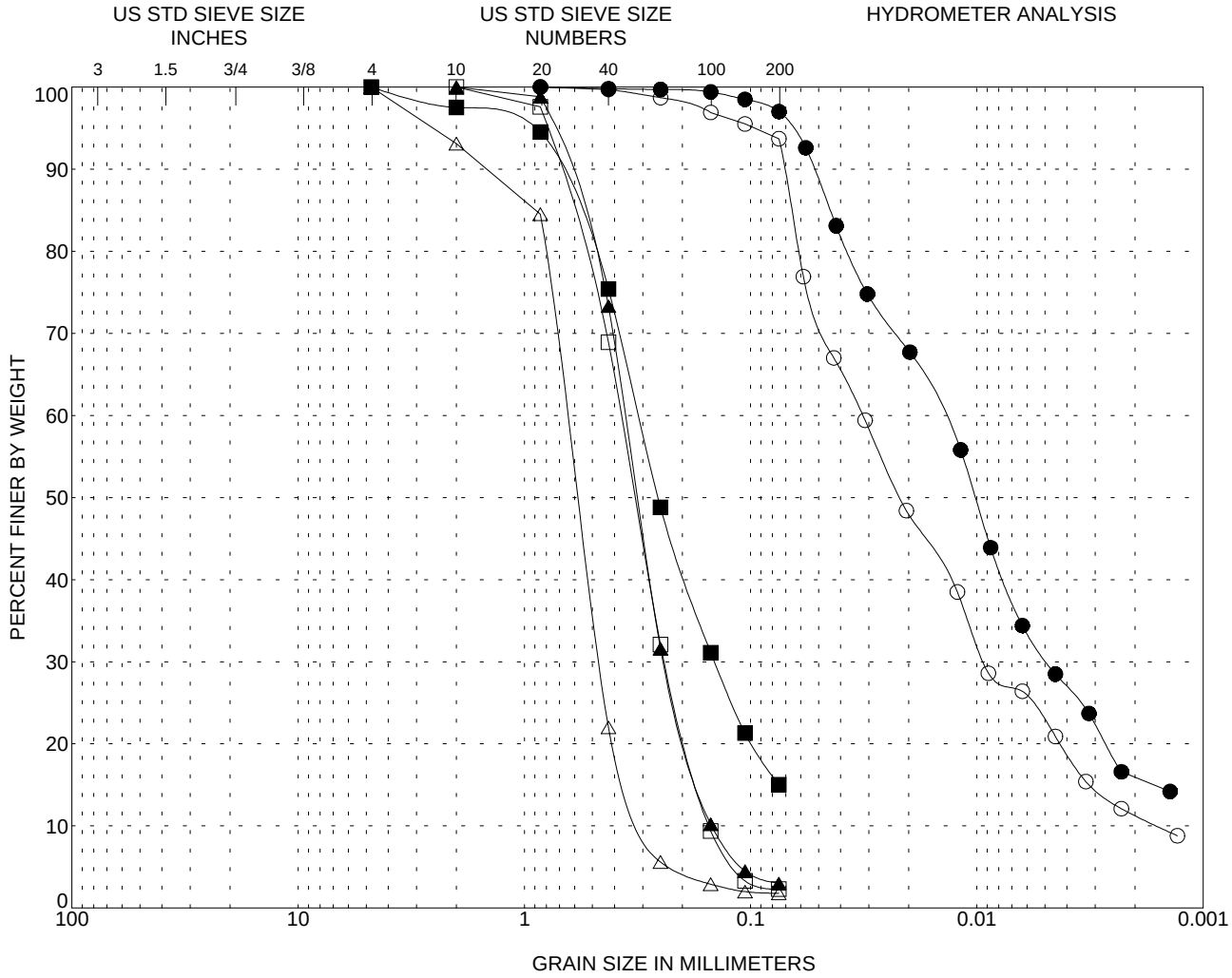
GRAIN SIZE CURVES
Channel Deepening Program
Port of Los Angeles



GRAVEL		SAND			SILT or CLAY
coarse	fine	coarse	medium	fine	

LEGEND	(location)	(depth,ft)	CLASSIFICATION	Cc	Cu
○	FG2-9	2.0	CLAY (CL)		
●	FG3-2	0.5	Elastic SILT (MH)		
△	FG3-2	2.5	SILT (ML)		
▲	FG3-10	0.5	SILT with sand (ML)		
□	FG3-11	2.5	Silty fine SAND (SM)		
■	FG3-14	4.5	SILT (ML)		

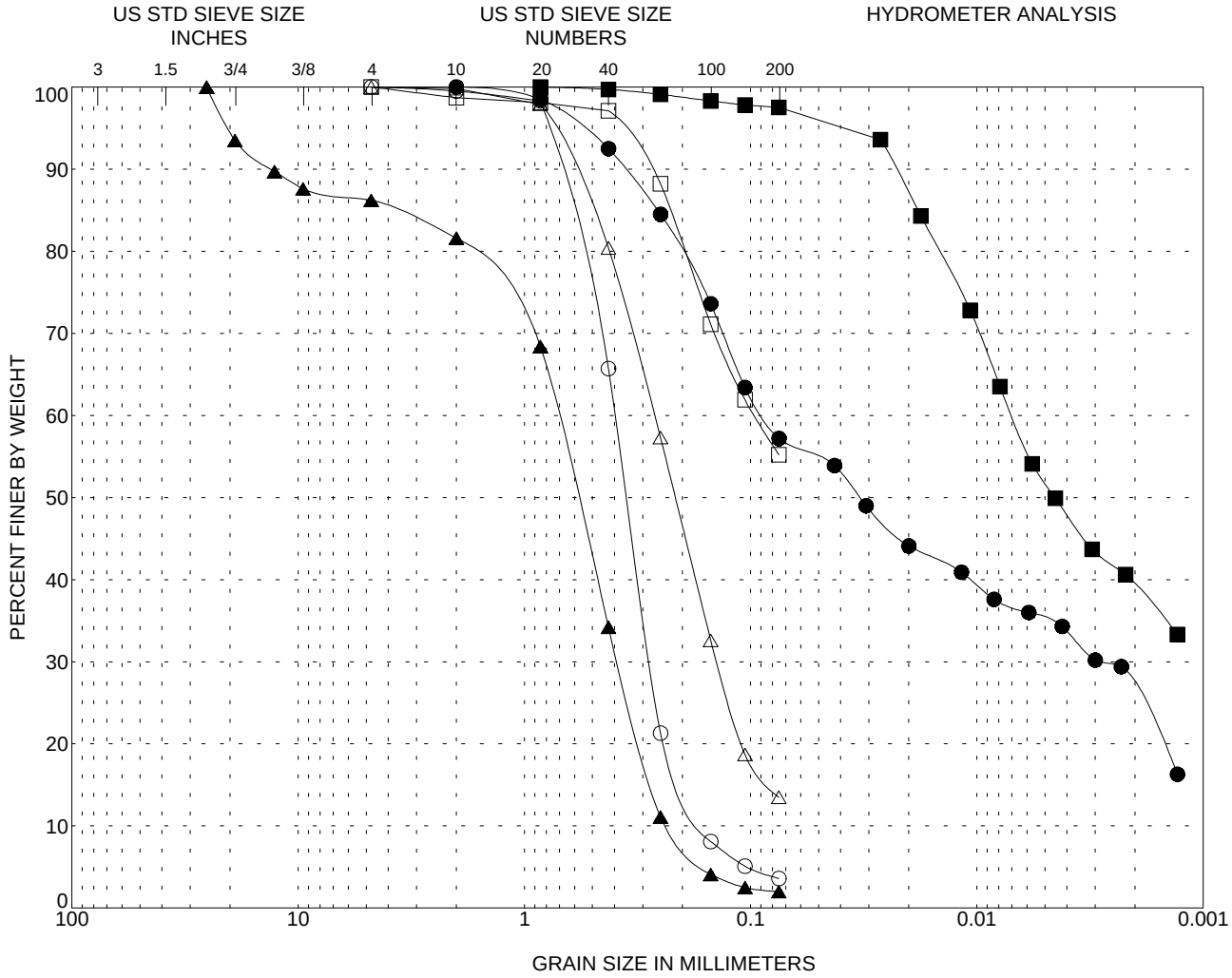
GRAIN SIZE CURVES
Channel Deepening Program
Port of Los Angeles



GRAVEL		SAND			SILT or CLAY
coarse	fine	coarse	medium	fine	

LEGEND	(location)	(depth,ft)	CLASSIFICATION	Cc	Cu
○	FM1-5	3.5	Elastic SILT (MH)	1.7	20.0
●	FM1-7	0.5	Elastic SILT (MH)		
△	FM1-10	3.5	Fine to medium SAND (SP)	1.2	2.2
▲	GT-1	0.0	Fine SAND (SP)	1.1	2.4
□	GT-1	4.0	Fine SAND (SP)	1.0	2.5
■	GT-2	0.5	Silty fine SAND (SM)		

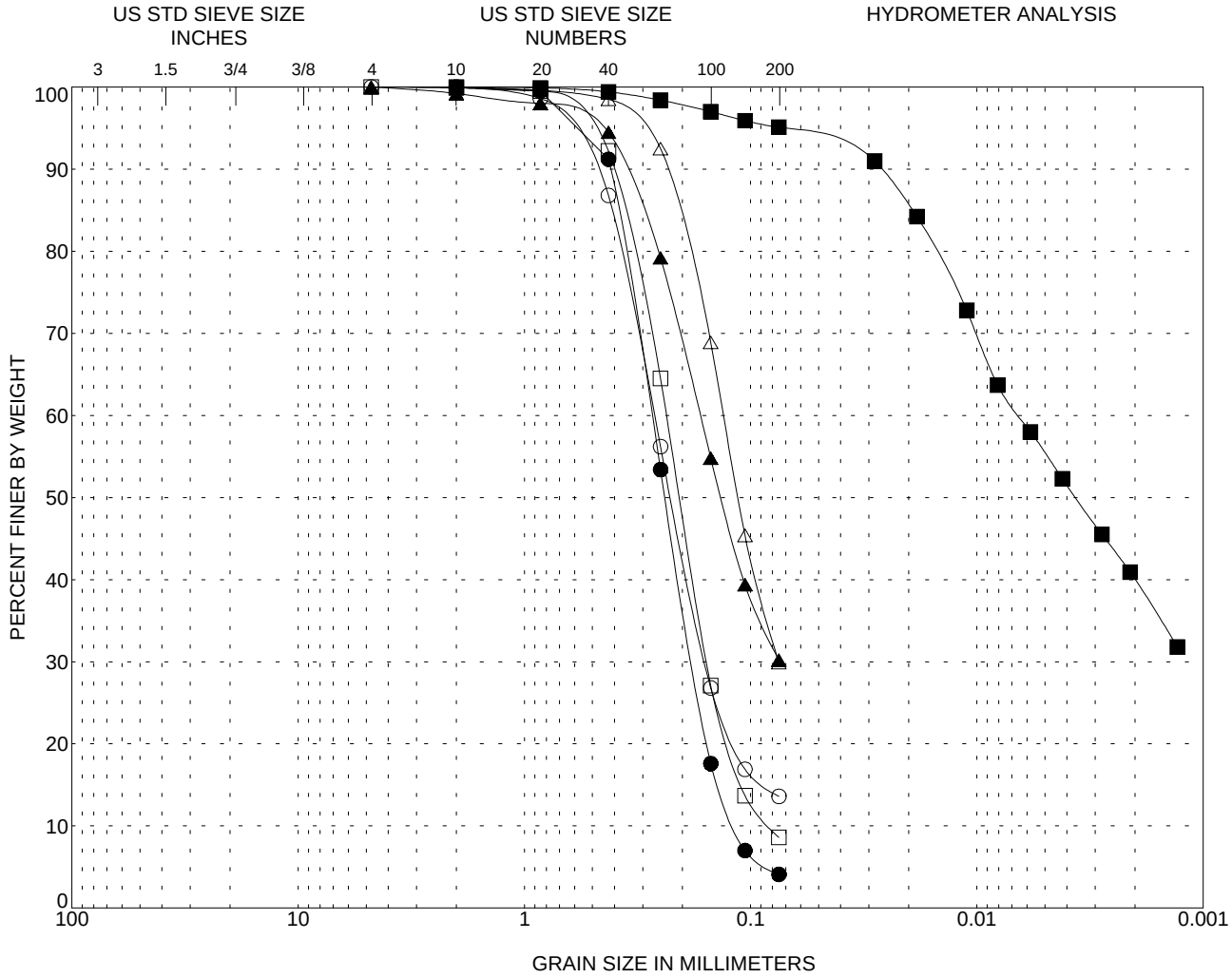
GRAIN SIZE CURVES
Channel Deepening Program
Port of Los Angeles



GRAVEL		SAND			SILT or CLAY
coarse	fine	coarse	medium	fine	

LEGEND	(location)	(depth,ft)	CLASSIFICATION	Cc	Cu
○	GT-2	10.0	Fine SAND (SP)	1.2	2.5
●	GT-4	0.5	Sandy CLAY (CL)		
△	GT-4	5.0	Silty fine SAND (SM)		
▲	GT-4	12.5	Fine to medium SAND (SP)	0.9	3.1
□	GT-6	5.0	Sandy SILT (ML)		
■	GT-7	0.5	CLAY (CL)		

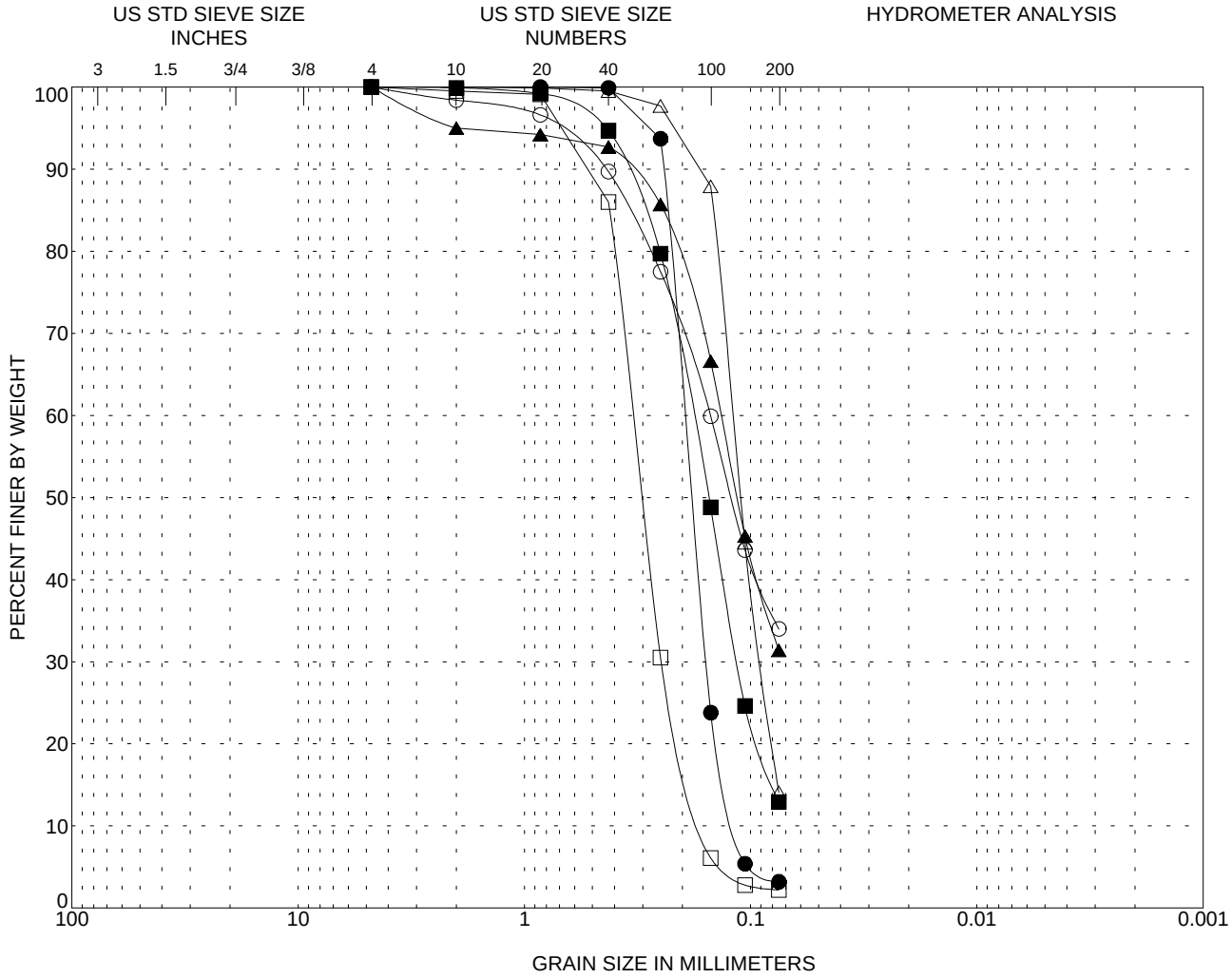
GRAIN SIZE CURVES
Channel Deepening Program
Port of Los Angeles



GRAVEL		SAND			SILT or CLAY
coarse	fine	coarse	medium	fine	

LEGEND (location)	(depth,ft)	CLASSIFICATION	Cc	Cu
○ GT-7	5.0	Silty fine SAND (SM)		
● GT-7	11.0	Fine SAND (SP)	1.0	2.3
△ GT-8	0.5	Silty fine SAND (SM)		
▲ GT-8	7.5	Silty fine SAND (SM)		
□ GT-8	12.0	Fine SAND with silt (SP-SM)	1.3	2.9
■ GT-9	9.0	Fat CLAY (CH)	0.3	8.0

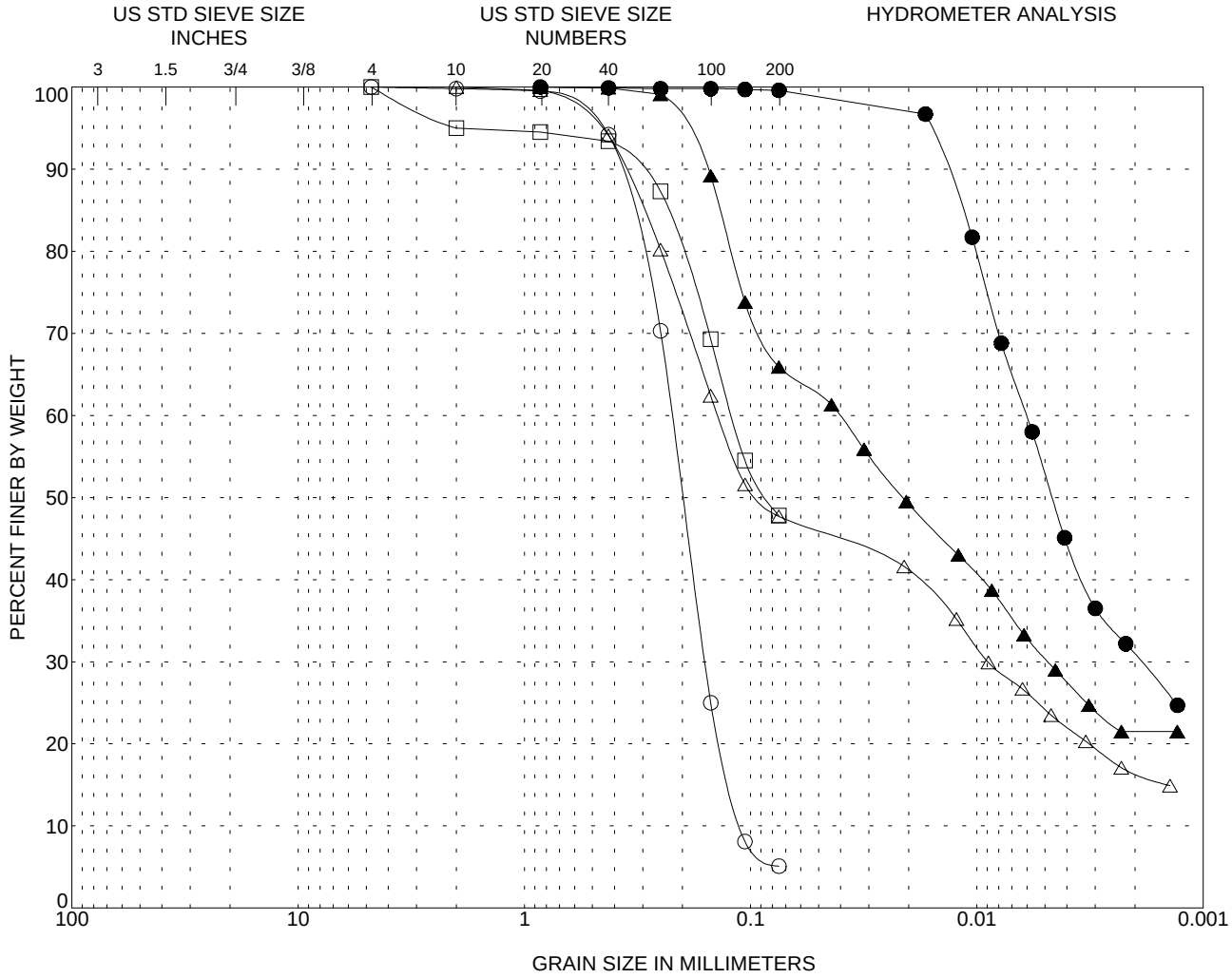
GRAIN SIZE CURVES
Channel Deepening Program
Port of Los Angeles



GRAVEL		SAND			SILT or CLAY
coarse	fine	coarse	medium	fine	

LEGEND (location)	(depth,ft)	CLASSIFICATION	Cc	Cu
○ GT-11	2.0	Silty fine SAND (SM)		
● GT-11	13.0	Fine SAND (SP)	1.1	1.7
△ GT-12	3.5	Silty fine SAND (SM)		
▲ GT-12	9.0	Silty fine SAND (SM)		
□ GT-12	13.0	Fine SAND (SP)	1.1	2.0
■ GT-13	1.0	Silty fine SAND (SM)		

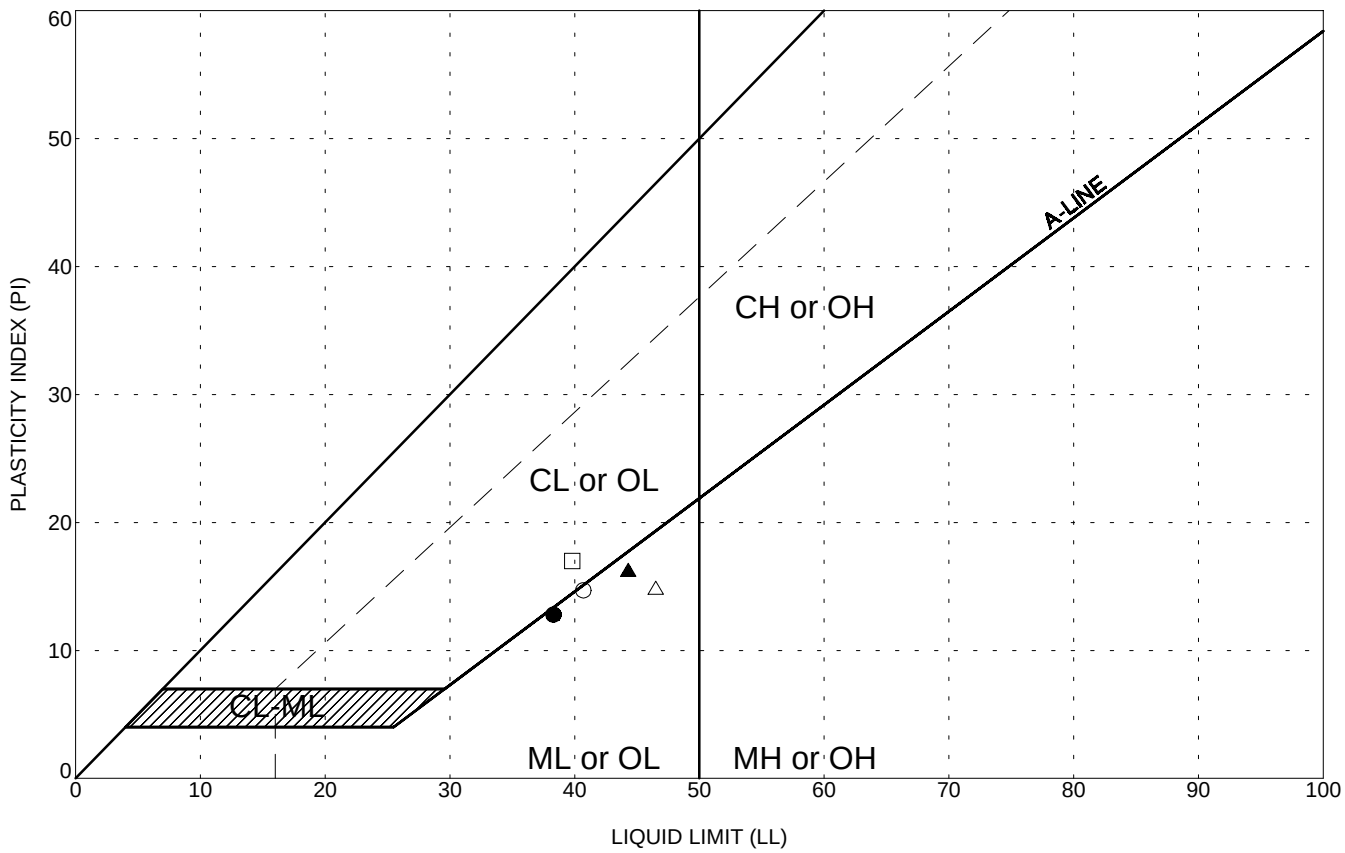
GRAIN SIZE CURVES
Channel Deepening Program
Port of Los Angeles



GRAVEL		SAND			SILT or CLAY
coarse	fine	coarse	medium	fine	

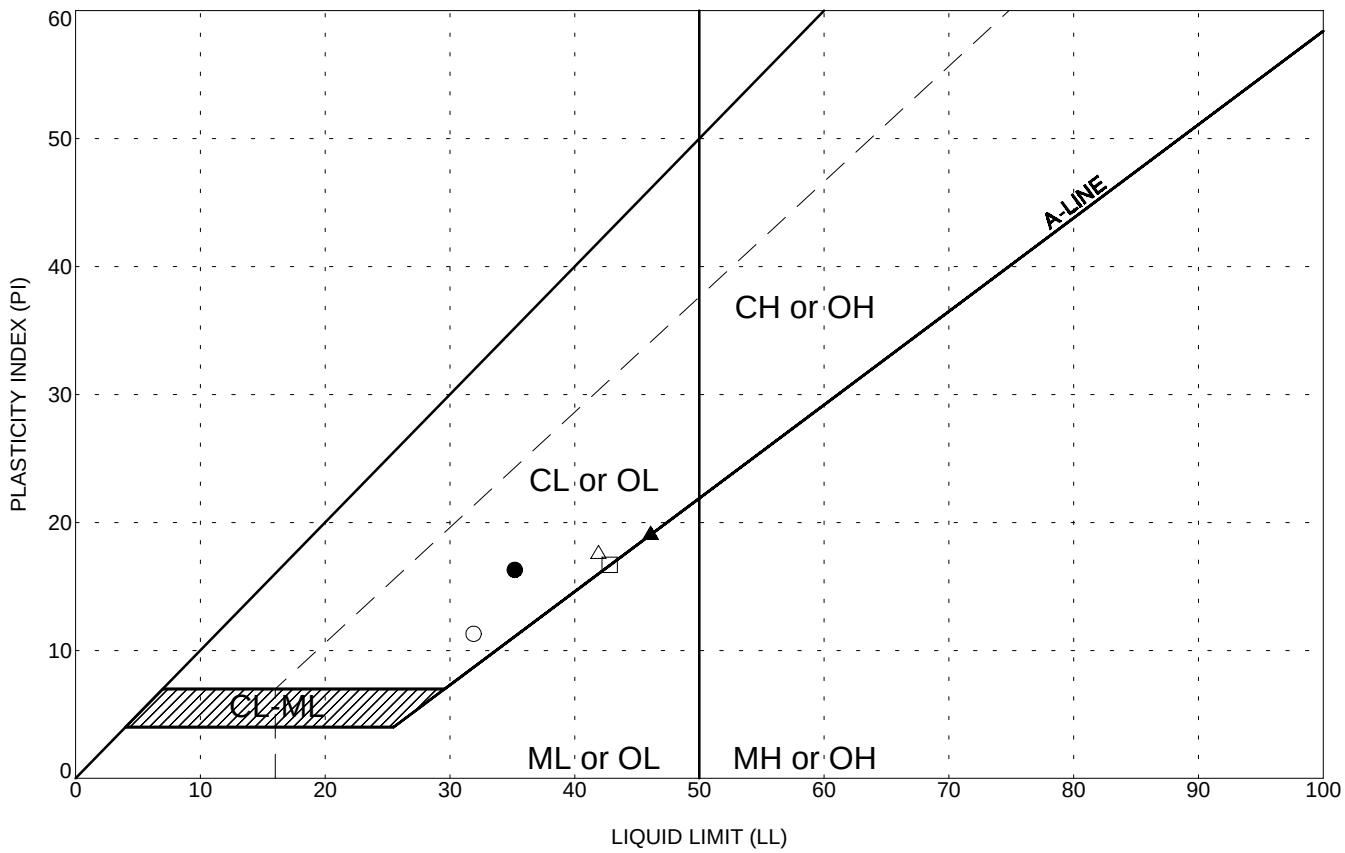
LEGEND	(location)	(depth,ft)	CLASSIFICATION	Cc	Cu
○	GT-13	10.0	Fine SAND with silt (SP-SM)	1.0	2.0
●	GT-14	10.0	Fat CLAY (CH)		
△	GT-18	0.0	Clayey fine SAND (SC)		
▲	GT-23	0.0	Sandy CLAY (CL)		
□	GT-27	0.0	Silty fine SAND (SM)		

GRAIN SIZE CURVES
Channel Deepening Program
Port of Los Angeles



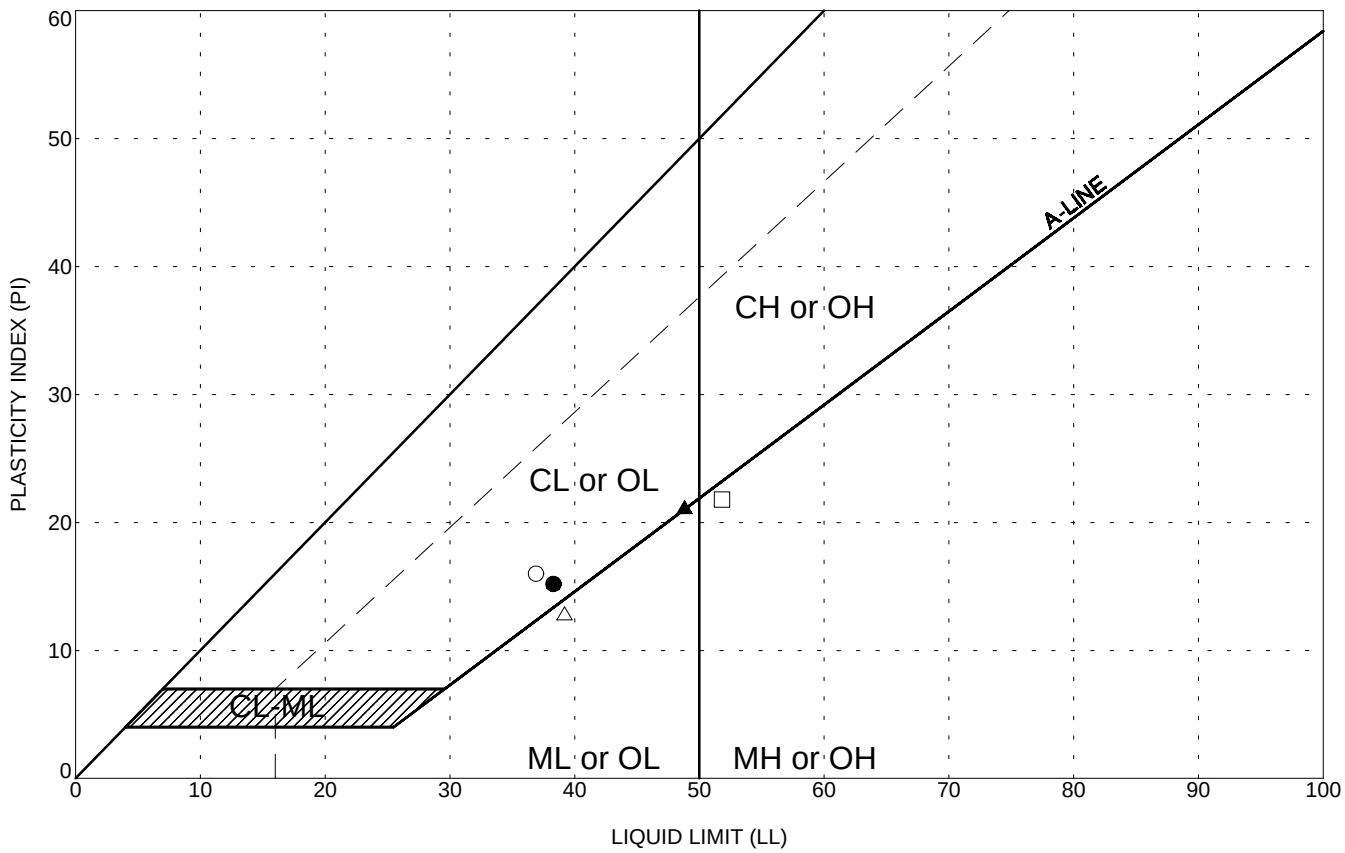
SYMBOL	LOCATION	DEPTH,ft	ATTERBERG LIMITS TEST RESULTS LIQUID LIMIT(LL)	PLASTIC LIMIT(PL)	PLASTICITY INDEX (PI)
○	VA-4	0.0	41	26	15
●	VA-5	1.5	38	26	12
△	VA-7	0.5	47	32	14
▲	VA-12	0.5	44	28	16
□	VB-31	0.0	40	23	17

PLASTICITY CHART
Channel Deepening Program
Port of Los Angeles



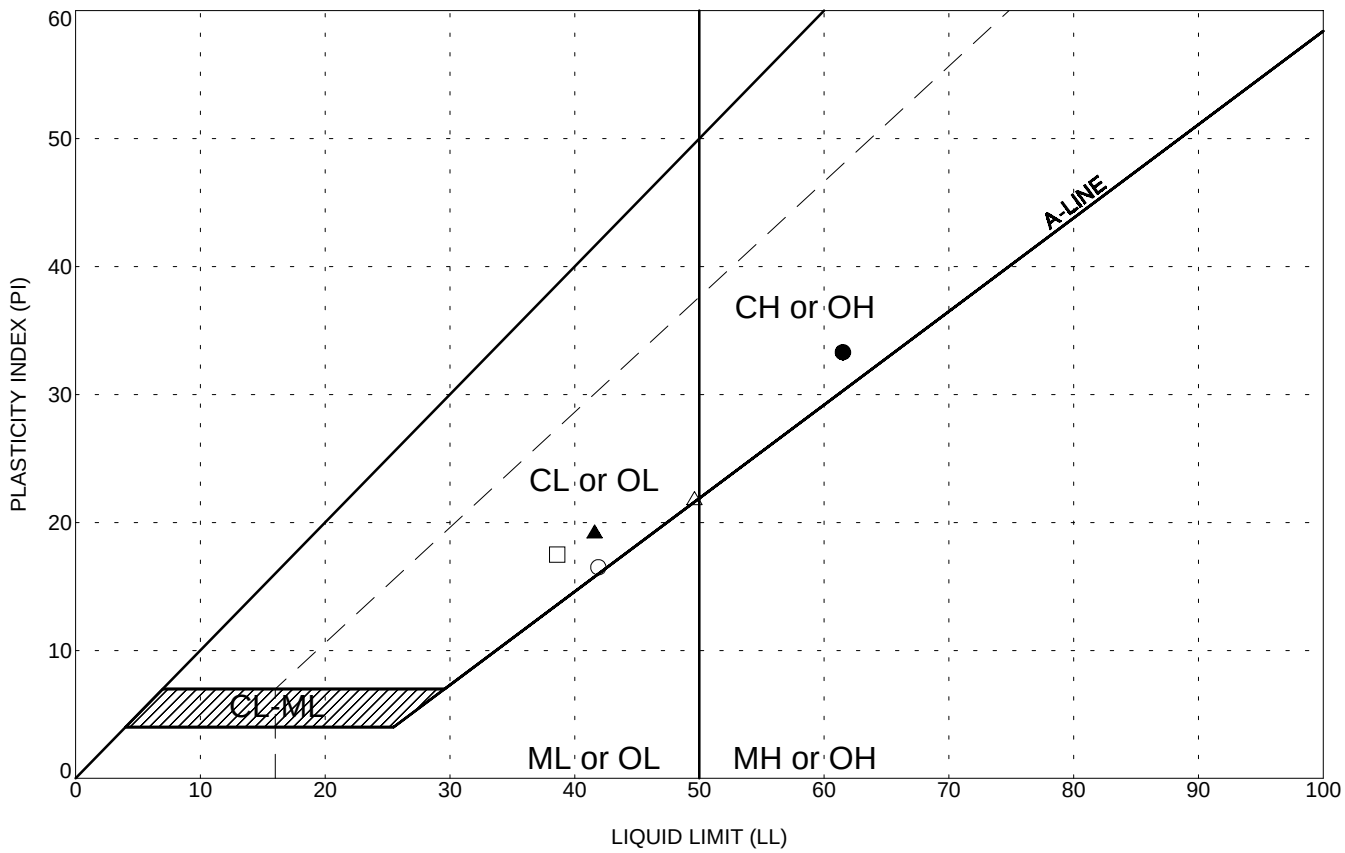
SYMBOL	LOCATION	DEPTH,ft	ATTERBERG LIMITS TEST RESULTS LIQUID LIMIT(LL)	PLASTIC LIMIT(PL)	PLASTICITY INDEX (PI)
○	VB-34	0.5	32	21	11
●	VB-34	3.5	35	19	16
△	VB-35	0.0	42	24	18
▲	VB-35	2.0	46	27	19
□	VB-35	5.0	43	26	17

PLASTICITY CHART
Channel Deepening Program
Port of Los Angeles



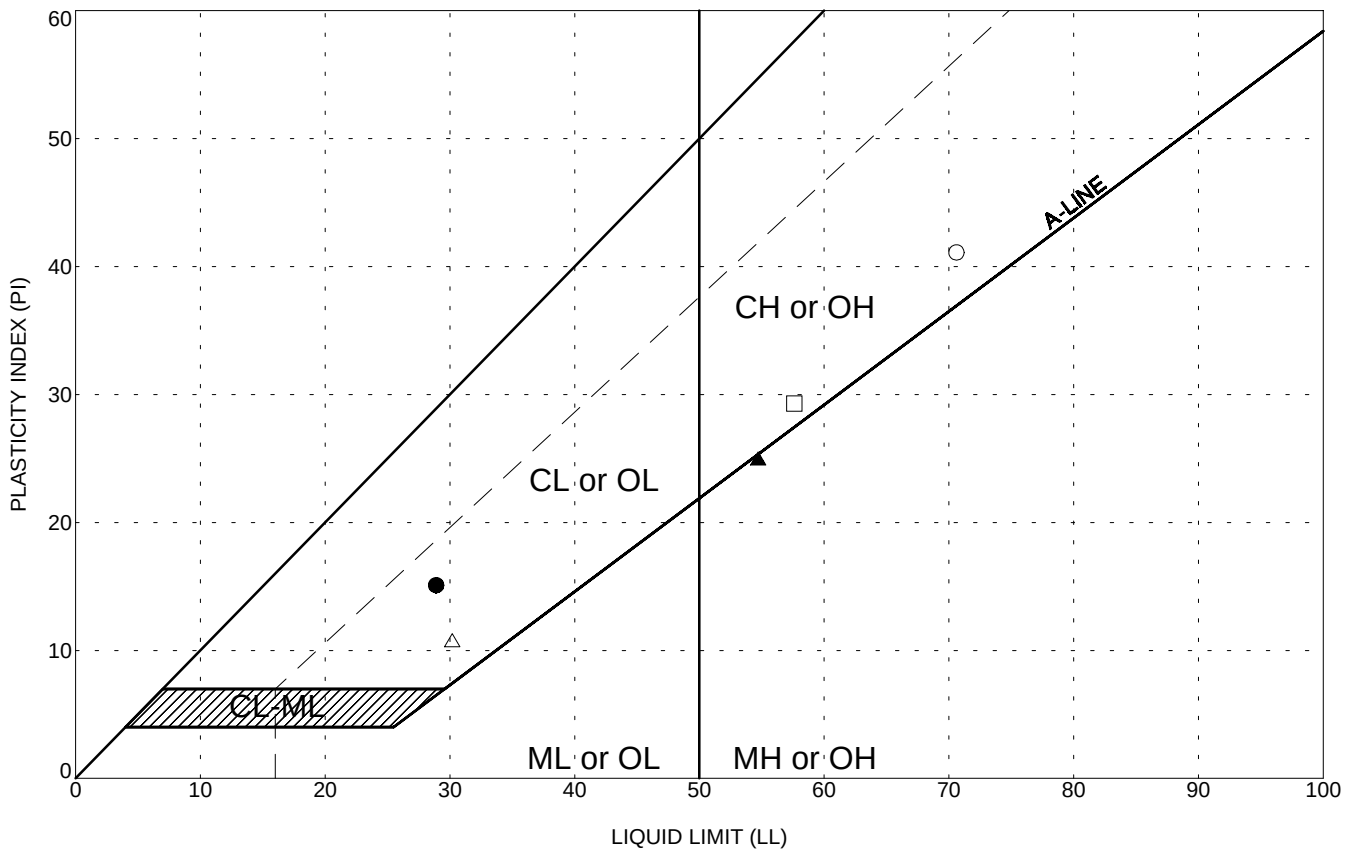
SYMBOL	LOCATION	DEPTH,ft	ATTERBERG LIMITS TEST RESULTS LIQUID LIMIT(LL)	PLASTIC LIMIT(PL)	PLASTICITY INDEX (PI)
○	VB-37	0.5	37	21	16
●	VB-38	0.0	38	23	15
△	VB-40	4.5	39	26	13
▲	VB-41	4.0	49	28	21
□	VB-42	5.5	52	30	22

PLASTICITY CHART
Channel Deepening Program
Port of Los Angeles



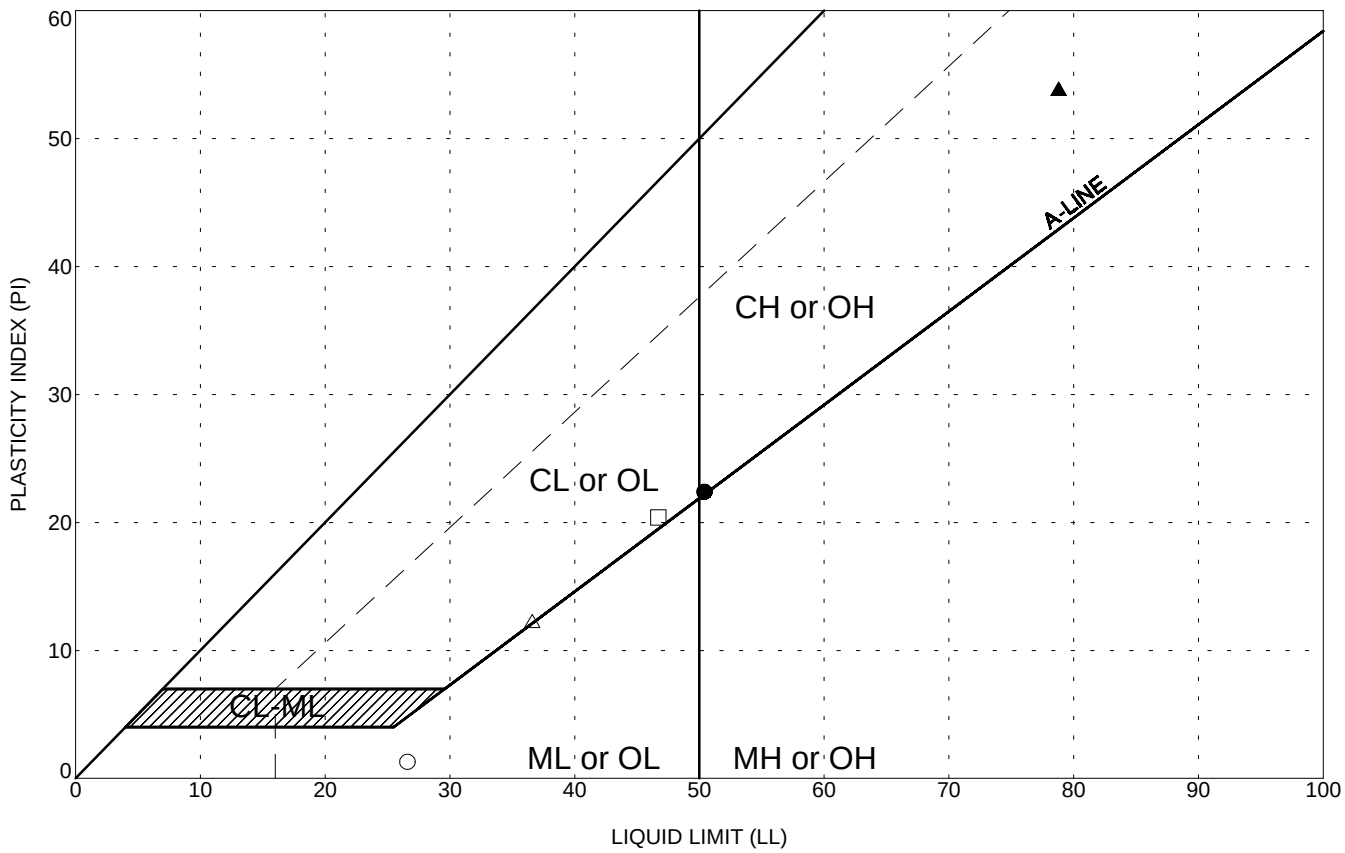
SYMBOL	LOCATION	DEPTH,ft	ATTERBERG LIMITS TEST RESULTS LIQUID LIMIT(LL)	PLASTIC LIMIT(PL)	PLASTICITY INDEX (PI)
○	CG2-2	0.5	42	25	17
●	CG2-4	0.0	62	28	34
△	CG2-9	1.0	50	28	22
▲	CG3-5	0.0	42	22	20
□	CG3-8	0.0	39	21	18

PLASTICITY CHART
Channel Deepening Program
Port of Los Angeles



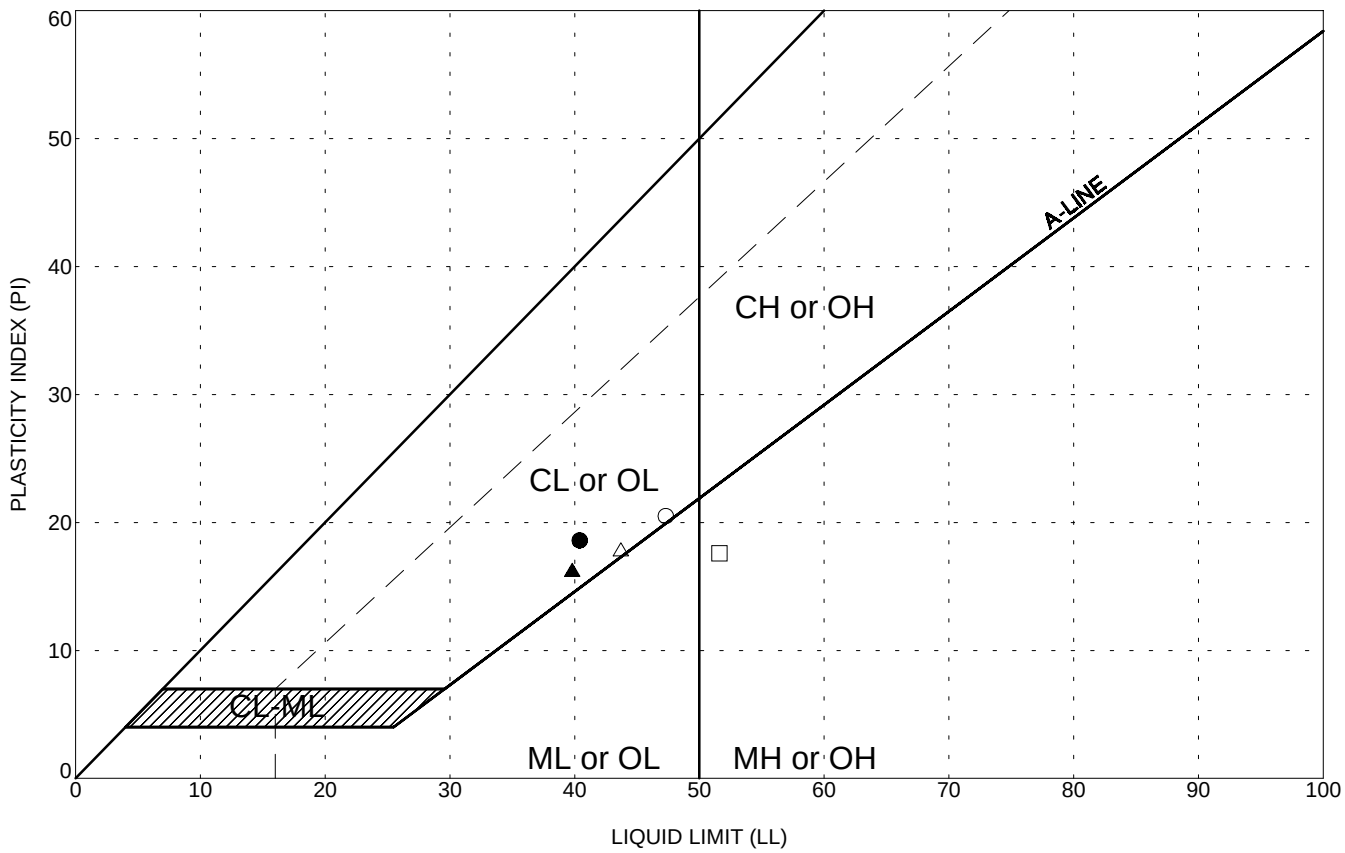
SYMBOL	LOCATION	DEPTH,ft	ATTERBERG LIMITS TEST RESULTS LIQUID LIMIT(LL)	PLASTIC LIMIT(PL)	PLASTICITY INDEX (PI)
○	CG3-10	6.0	71	30	41
●	CG4-3	0.0	29	14	15
△	CG4-5	3.0	30	19	11
▲	CG4-10	6.0	55	30	25
□	FG1-3	3.0	58	28	30

PLASTICITY CHART
Channel Deepening Program
Port of Los Angeles



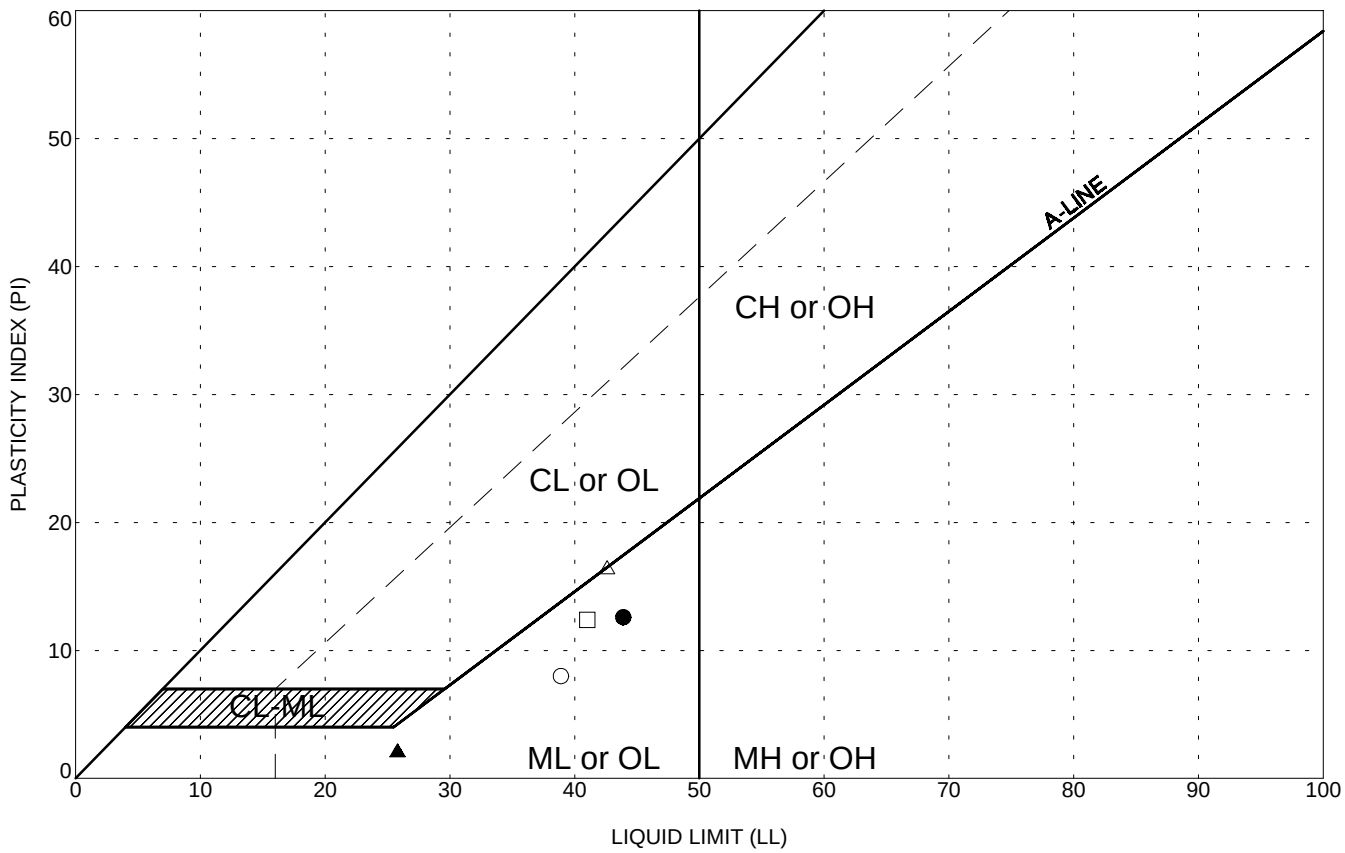
SYMBOL	LOCATION	DEPTH,ft	ATTERBERG LIMITS TEST RESULTS LIQUID LIMIT(LL)	PLASTIC LIMIT(PL)	PLASTICITY INDEX (PI)
○	FG1-4	5.0	27	25	2
●	FG1-5	2.5	50	28	22
△	FG1-5	5.5	37	24	13
▲	FG1-7	3.0	79	25	54
□	FG1-8	2.5	47	26	21

PLASTICITY CHART
Channel Deepening Program
Port of Los Angeles



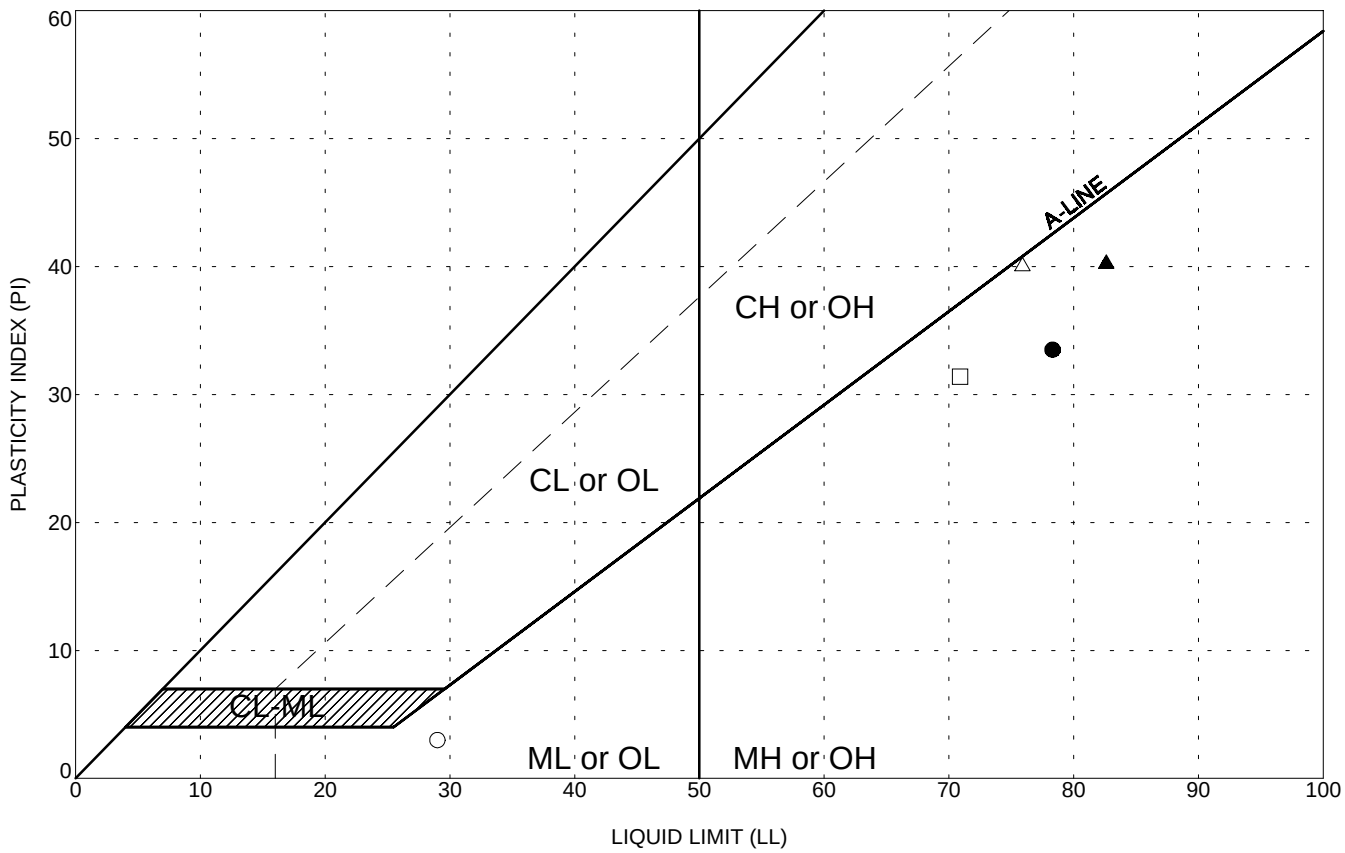
SYMBOL	LOCATION	DEPTH,ft	ATTERBERG LIMITS TEST RESULTS LIQUID LIMIT(LL)	PLASTIC LIMIT(PL)	PLASTICITY INDEX (PI)
○	FG2-1	0.5	47	27	20
●	FG2-1	2.5	40	22	18
△	FG2-6	0.5	44	26	18
▲	FG2-9	2.0	40	24	16
□	FG3-2	0.5	52	34	18

PLASTICITY CHART
Channel Deepening Program
Port of Los Angeles



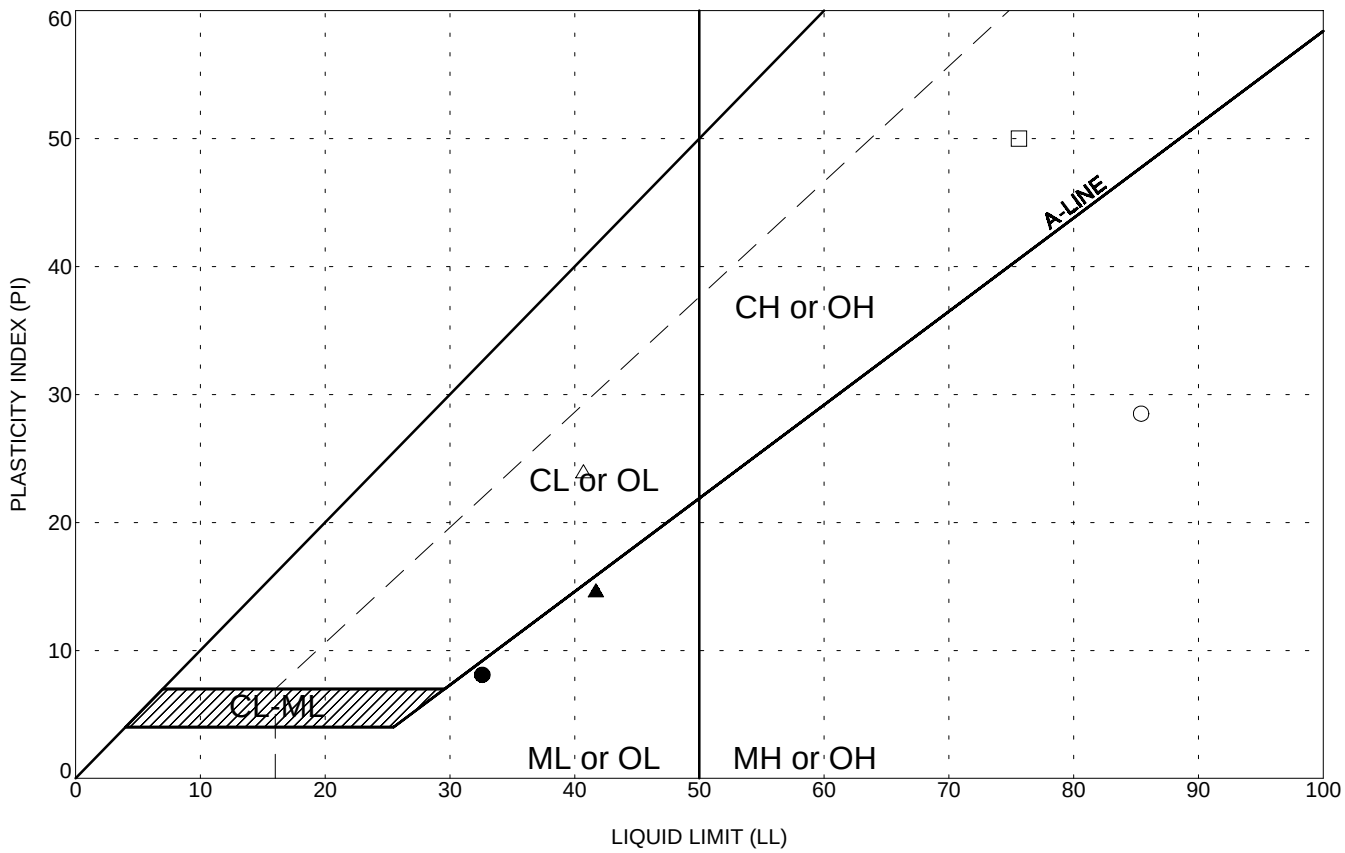
SYMBOL	LOCATION	DEPTH,ft	ATTERBERG LIMITS TEST RESULTS LIQUID LIMIT(LL)	PLASTIC LIMIT(PL)	PLASTICITY INDEX (PI)
○	FG3-2	2.5	39	31	8
●	FG3-8	2.5	44	31	13
△	FG3-10	0.5	43	26	17
▲	FG3-12	4.0	26	24	2
□	FG3-14	4.5	41	29	12

PLASTICITY CHART
Channel Deepening Program
Port of Los Angeles



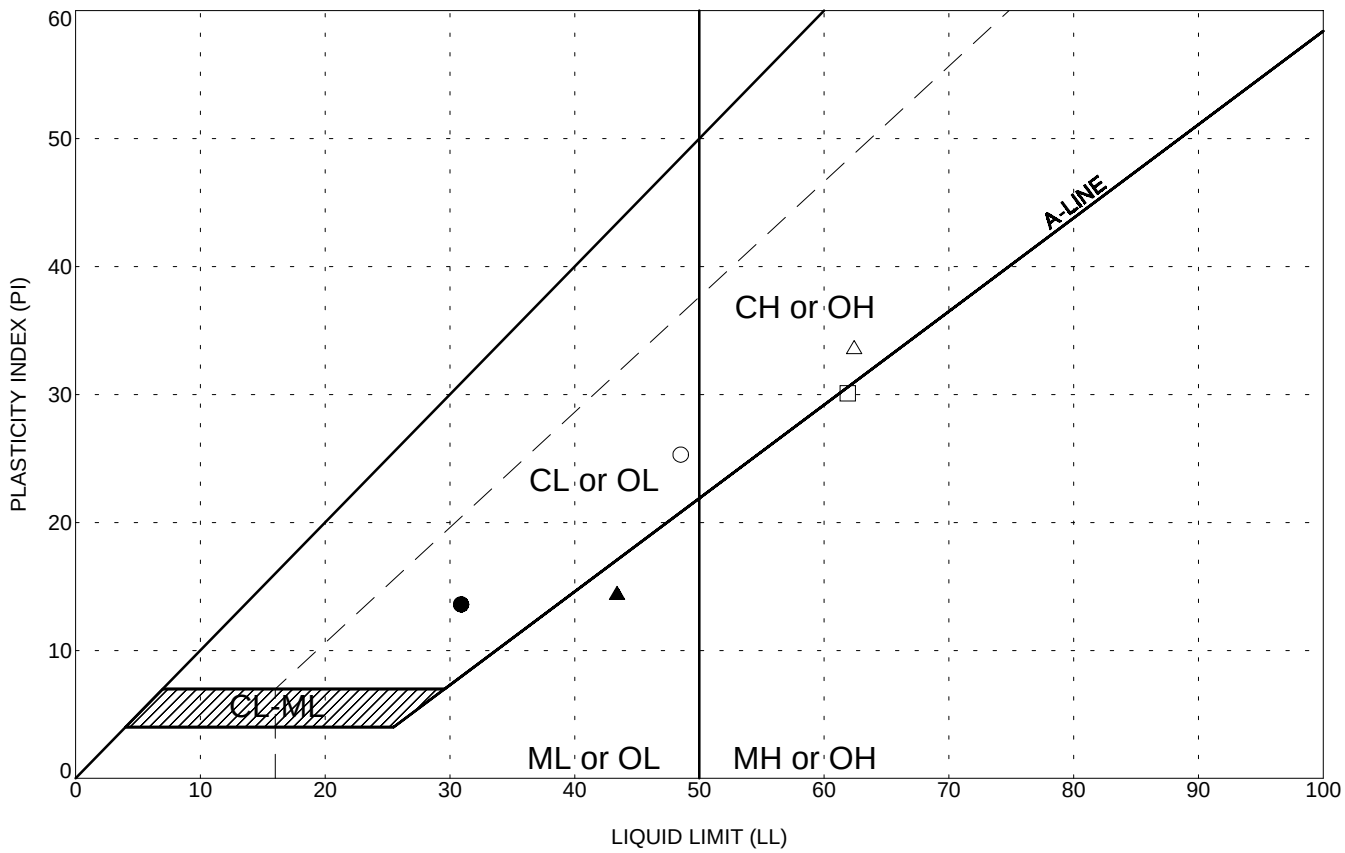
SYMBOL	LOCATION	DEPTH,ft	ATTERBERG LIMITS TEST RESULTS LIQUID LIMIT(LL)	PLASTIC LIMIT(PL)	PLASTICITY INDEX (PI)
○	FG3-15	0.5	29	26	3
●	FM1-2	4.0	78	45	33
△	FM1-4	1.0	76	36	40
▲	FM1-5	3.5	83	42	41
□	FM1-7	0.5	71	40	31

PLASTICITY CHART
Channel Deepening Program
Port of Los Angeles



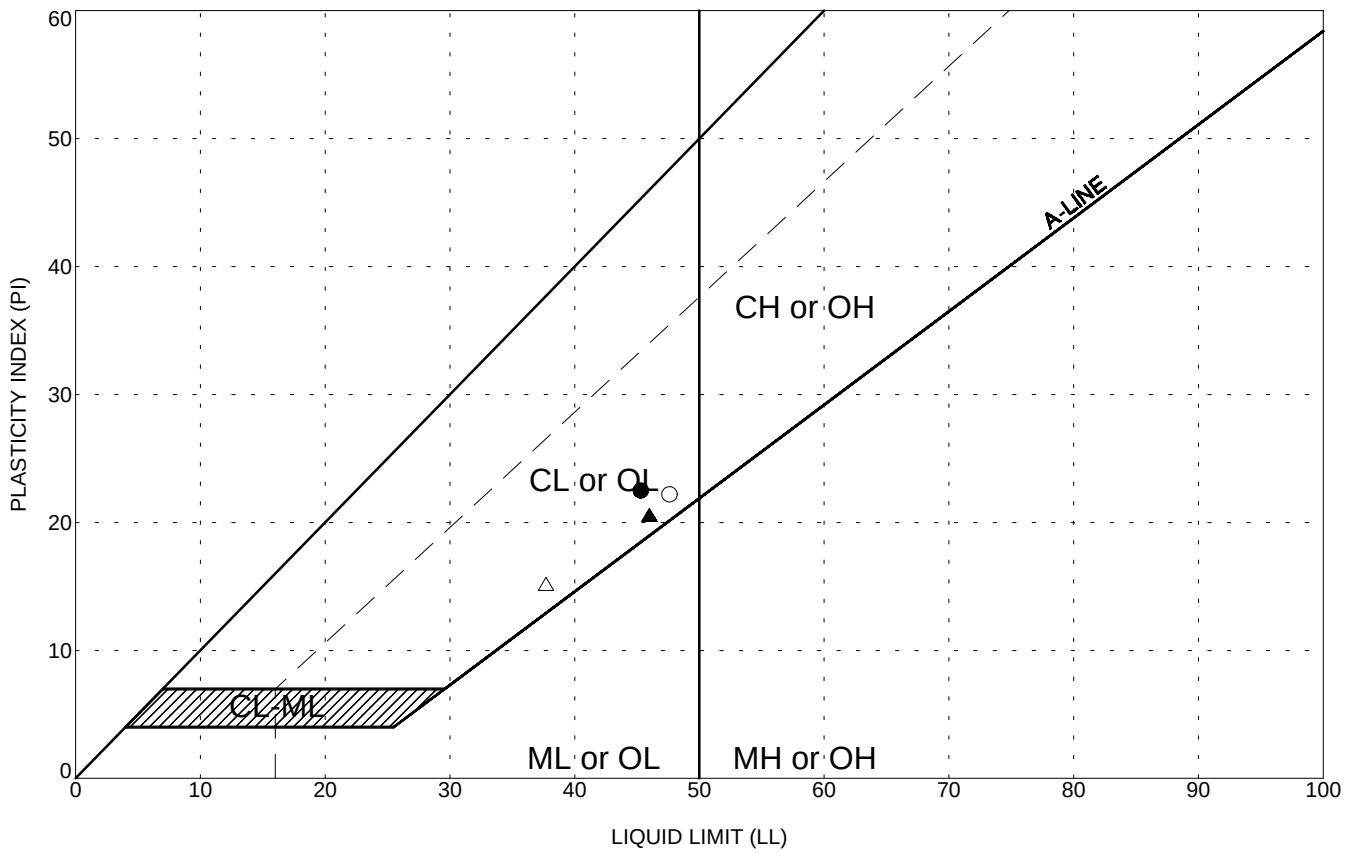
SYMBOL	LOCATION	DEPTH,ft	ATTERBERG LIMITS TEST RESULTS LIQUID LIMIT(LL)	PLASTIC LIMIT(PL)	PLASTICITY INDEX (PI)
○	FM1-8	2.0	85	57	28
●	FM1-10	5.0	33	25	9
△	GT-4	0.5	41	17	24
▲	GT-5	2.0	42	27	15
□	GT-9	9.0	76	26	50

PLASTICITY CHART
Channel Deepening Program
Port of Los Angeles



SYMBOL	LOCATION	DEPTH,ft	ATTERBERG LIMITS TEST RESULTS LIQUID LIMIT(LL)	PLASTIC LIMIT(PL)	PLASTICITY INDEX (PI)
○	GT-10	2.5	49	23	25
●	GT-10	7.5	31	17	14
△	GT-14	10.0	62	29	33
▲	GT-15	4.5	43	29	14
□	GT-16	0.0	62	32	30

PLASTICITY CHART
Channel Deepening Program
Port of Los Angeles



SYMBOL	LOCATION	DEPTH,ft	ATTERBERG LIMITS TEST RESULTS LIQUID LIMIT(LL)	PLASTIC LIMIT(PL)	PLASTICITY INDEX (PI)
○	GT-22	3.0	48	25	23
●	GT-23	0.0	45	23	22
△	GT-24	1.0	38	23	16
▲	GT-25	1.0	46	25	21

PLASTICITY CHART
Channel Deepening Program
Port of Los Angeles

APPENDIX D
ROTARY WASH BORINGS

LOCATION: N 4,022,451 E 4,207,135

SURFACE EL: -41.5 ft (rel. MLLW datum)

ELEVATION, ft	DEPTH, ft	SAMPLE NO.	SAMPLERS	SAMPLER BLOWCOUNT	MATERIAL DESCRIPTION	UNIT WET WEIGHT, pcf	UNIT DRY WEIGHT, pcf	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %	HNu, ppmv
-42		1		push	CLAY (CL) to Clayey SILT (ML): very soft, dark gray to black, with mica							
-44	2											
-46	4	2		push	Clayey fine SAND (SC) to SILT (ML): very loose, dark gray to black, with mica - tan to light brown at 6'							
-48	6											
-50	8			push								
-52	10	3		(50/4")	Silty fine SAND (SM): dense to very dense, tan, with abundant shells and mica							
-54	12											
-56	14	4		92/11"								
-58	16											
-60	18	5		(57/6")	Fine SAND with silt (SP-SM): dense to very dense, tan, with mica and shell	127	99	29				0
-62	20	6		50/6"	- with abundant shell to shell hash 21' to 25'							0
-64	22											
-66	24	7		(50/3")								0
-68	26	8		(50/3")		131	110	20	3			0
-70	28											
-72	30	9		50/4"								
-74	32											
-76	34											
-78	36											
-80	38											

COMPLETION DEPTH: 81.5 ft
WATER DEPTH: 41.5 ft inclusive of 0.1 ft tide, measured at 0910 hours
BACKFILLED WITH: Drill Hole Cuttings
DRILLING DATE: April 28, 1997

DRILLING METHOD: Wet Rotary
DRILLED BY: Pitcher Drilling
LOGGED BY: CDPrentice
CHECKED BY: TWMcNeilan

The log and data presented are a simplification of actual conditions encountered at the time of drilling at the drilled location. Subsurface conditions may differ at other locations and with the passage of time.

LOG OF DRILL HOLE NO. DPW-02

DPW - Relocated Fries Avenue Force Main

LOCATION: N 4,022,451 E 4,207,135

SURFACE EL: -41.5 ft (rel. MLLW datum)

ELEVATION, ft	DEPTH, ft	SAMPLE NO.	SAMPLERS	SAMPLER BLOWCOUNT	MATERIAL DESCRIPTION	UNIT WET WEIGHT, pcf	UNIT DRY WEIGHT, pcf	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %	HNu, ppmv
-82		10		82	Silty to Clayey fine SAND (SM-SC): dense to very dense, light brownish gray, with mica and iron stained streaks							
-84	42											
-86	44											
-88	46				- with interbedded brown sandy clay seams and layers 46' to 68'							
-90	48											
-92	50	11		(50/4")								
-94	52											
-96	54											
-98	56											
-100	58											
-102	60	12		(50/4")		123	97	28				0
-104	62											
-106	64	13		(50/4")		128	103	25				0
-108	66											
-110	68	14		(50/5")		127	100	27				0
-112	70	15		(50/3")				27	17			0
-114	72											
-116	74											
-118	76											
-120	78											

COMPLETION DEPTH: 81.5 ft
WATER DEPTH: 41.5 ft inclusive of 0.1 ft tide, measured at 0910 hours
BACKFILLED WITH: Drill Hole Cuttings
DRILLING DATE: April 28, 1997

DRILLING METHOD: Wet Rotary
DRILLED BY: Pitcher Drilling
LOGGED BY: CDPrentice
CHECKED BY: TWMcNeilan

The log and data presented are a simplification of actual conditions encountered at the time of drilling at the drilled location. Subsurface conditions may differ at other locations and with the passage of time.

LOG OF DRILL HOLE NO. DPW-02

DPW - Relocated Fries Avenue Force Main

LOCATION: N 4,022,451 E 4,207,135

SURFACE EL: -41.5 ft (rel. MLLW datum)

ELEVATION, ft	DEPTH, ft	MATERIAL SYMBOL	SAMPLE NO.	SAMPLERS	SAMPLER BLOWCOUNT	MATERIAL DESCRIPTION	UNIT WET WEIGHT, pcf	UNIT DRY WEIGHT, pcf	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %	HNu, ppmv
-122			16	☒	50/3"	Silty to Clayey fine SAND (SM-SC): dense to very dense, light brownish gray, with mica and iron stained streaks - medium gray, with shell layers, below 81'							
-124	82												
-126	84												
-128	86												
-130	88												
-132	90												
-134	92												
-136	94												
-138	96												
-140	98												
-142	100												
-144	102												
-146	104												
-148	106												
-150	108												
-152	110												
-154	112												
-156	114												
-158	116												
-160	118												

COMPLETION DEPTH: 81.5 ft
WATER DEPTH: 41.5 ft inclusive of 0.1 ft tide, measured at 0910 hours
BACKFILLED WITH: Drill Hole Cuttings
DRILLING DATE: April 28, 1997

DRILLING METHOD: Wet Rotary
DRILLED BY: Pitcher Drilling
LOGGED BY: CDPrentice
CHECKED BY: TWMcNeilan

The log and data presented are a simplification of actual conditions encountered at the time of drilling at the drilled location. Subsurface conditions may differ at other locations and with the passage of time.

LOG OF DRILL HOLE NO. DPW-02

DPW - Relocated Fries Avenue Force Main

LOCATION: N 4,022,251 E 4,207,247

SURFACE EL: -46.5 ft (rel. MLLW datum)

ELEVATION, ft	DEPTH, ft	MATERIAL SYMBOL	SAMPLE NO.	SAMPLERS	SAMPLER BLOWCOUNT	MATERIAL DESCRIPTION	UNIT WET WEIGHT, pcf	UNIT DRY WEIGHT, pcf	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %	HNu, ppmv
				●	(push)	Silty, fine to medium SAND (SM): very loose to loose, dark gray to black, with abundant silt pockets, shell fragments, and mica							
-48	2												
-50	4		2	▒	(12)		122	94	29	16			
-52													
	6					Silty fine SAND (SM): dense to very dense, tan to light brown, with abundant shell fragments and mica							
-54	8		3	☒	60				22	20			
-56													
	10												
-58													
	12		4	▒	(60/6")	Fine SAND with silt (SP-SM): dense to very dense, tan to light brown, with mica and shell fragments	128	102	26	7			0
-60	14		5	▒	(100/11")	- abundant shell to 14'	129	104	24				0
-62	16												
-64	18		6	▒	(50/6")								0
-66													
	20		7	▒	(46/6")		125	99	27				0
-68	22												
-70	24												
-72	26		8	☒	50/6"								
-74	28					Silty fine SAND (SM): dense to very dense, tan to light brown, with mica and iron stained streaks							
-76	30		9	▒	(50/5")								
-78	32					- light gray to light brown below 32'							
-80	34		10	☒	50/6"								
-82	36												
-84	38												
-86			11	▒	(50/				28	13			

COMPLETION DEPTH: 76.0 ft
WATER DEPTH: 47.0 ft inclusive of 0.4 ft tide, measured at 0645 hours
BACKFILLED WITH: Drill Hole Cuttings
DRILLING DATE: April 24, 1997

DRILLING METHOD: Wet Rotary
DRILLED BY: Pitcher Drilling
LOGGED BY: CDPrentice
CHECKED BY: TWMcNeilan

The log and data presented are a simplification of actual conditions encountered at the time of drilling at the drilled location. Subsurface conditions may differ at other locations and with the passage of time.

LOG OF DRILL HOLE NO. DPW-03

DPW - Relocated Fries Avenue Force Main

LOCATION: N 4,022,251 E 4,207,247

SURFACE EL: -46.5 ft (rel. MLLW datum)

ELEVATION, ft	DEPTH, ft	MATERIAL SYMBOL	SAMPLE NO.	SAMPLERS	SAMPLER BLOWCOUNT	MATERIAL DESCRIPTION	UNIT WET WEIGHT, pcf	UNIT DRY WEIGHT, pcf	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %	HNu, ppmv
					4")	Silty fine SAND (SM): dense to very dense, tan to light brown, with mica and iron stained streaks							
-88	42												
-90													
	44		12		42	Lean CLAY (CL): stiff to very stiff, dark gray, with shell - silt (ML), stiff, olive green, thinly bedded to laminated, to 44'							
-92	46												
-94	48												
-96			13		push								
	50												
-98	52												
-100	54												
-102			14		(25)	- with organics and fine sand partings and seams below 55'	117	88	34		44	19	0
	56												
-104	58		15		(52)								0
-106	60												
-108			16		(50/4")	Silty to Clayey SAND (SM-SC): dense to very dense, dark gray and brown, with mica	131	107	22	26	NP	NP	0
	62												
-110	64		17		(50/3")					18			0
-112	66												
-114	68												
-116			18		50/4"	Silty fine SAND (SM): dense to very dense, tan, with orange colored partings and mica							
	70												
-118	72												
-120	74												
-122			19		50/4"	- with black mica partings at about 5 degrees inclination at 75'							
	76												
-124	78												
-126													

COMPLETION DEPTH: 76.0 ft
WATER DEPTH: 47.0 ft inclusive of 0.4 ft tide, measured at 0645 hours
BACKFILLED WITH: Drill Hole Cuttings
DRILLING DATE: April 24, 1997

DRILLING METHOD: Wet Rotary
DRILLED BY: Pitcher Drilling
LOGGED BY: CDPrentice
CHECKED BY: TWMcNeilan

The log and data presented are a simplification of actual conditions encountered at the time of drilling at the drilled location. Subsurface conditions may differ at other locations and with the passage of time.

LOG OF DRILL HOLE NO. DPW-03

DPW - Relocated Fries Avenue Force Main

LOCATION: N 4,022,070 E 4,207,397

SURFACE EL: -43.0 ft (rel. MLLW datum)

ELEVATION, ft	DEPTH, ft	MATERIAL SYMBOL	SAMPLE NO.	SAMPLERS	SAMPLER BLOWCOUNT	MATERIAL DESCRIPTION	UNIT WET WEIGHT, pcf	UNIT DRY WEIGHT, pcf	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %	HNu, ppmv
-44						Silty fine SAND (SM): loose, dark gray, with mica and abundant shell fragments and silt pockets							
	2												
-46			1		push								
	4												
-48						Silty fine SAND (SM): dense, light gray and light brown, with abundant shells and mica							
	6												
-50			2		69								
	8												
-52													
	10		4		(50/								
-54			3		6")		131	105	25				
	12				(50/								
-56			5		6")								
	14				76								
-58													
	16		6		(50/								
-60					6")		127	101	26				0
	18		7		(60/								
-62					6")								0
	20		8		(57/								
-64					6")		132	107	23				0
	22		9		(50/								
-66					6")								0
	24												
-68													
	26												
-70													
	28		10		(53/	Silty to Clayey fine SAND (SM-SC): dense to very dense, light brown and light gray, with mica							
-72					6")								
	30												
-74													
	32												
-76			11		50	- fine to coarse sand with silt (SW-SM), dense, light gray, with abundant shell, silt pockets, and iron stained streaks, 33' to 34.5'							
	34												
-78													
	36												
-80													
	38		12		(55/								
-82					6")								

COMPLETION DEPTH: 79.7 ft
WATER DEPTH: 43.5 ft inclusive of 0.5 ft tide, measured at 0850 hours
BACKFILLED WITH: Drill Hole Cuttings
DRILLING DATE: April 26, 1997

DRILLING METHOD: Wet Rotary
DRILLED BY: Pitcher Drilling
LOGGED BY: CDPrentice
CHECKED BY: TWMcNeilan

The log and data presented are a simplification of actual conditions encountered at the time of drilling at the drilled location. Subsurface conditions may differ at other locations and with the passage of time.

LOG OF DRILL HOLE NO. DPW-04

DPW - Relocated Fries Avenue Force Main

LOCATION: N 4,022,070 E 4,207,397

SURFACE EL: -43.0 ft (rel. MLLW datum)

ELEVATION, ft	DEPTH, ft	MATERIAL SYMBOL	SAMPLE NO.	SAMPLERS	SAMPLER BLOWCOUNT	MATERIAL DESCRIPTION	UNIT WET WEIGHT, pcf	UNIT DRY WEIGHT, pcf	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %	HNu, ppmv
-84						Silty to Clayey fine SAND (SM-SC): dense to very dense, light brown and light gray, with mica							
	42												
-86													
	44												
-88			13		53								
	46												
-90													
	48												
-92													
	50					Lean CLAY (CL): stiff, dark gray, with scattered shells							
-94													
	52		14		(33)								
-96													
	54												
-98													
	56												
-100													
	58					Silty to Clayey SAND (SM-SC): dense to very dense, gray, with mica							
-102			15		(48/6")								0
	60						126	97	30				
-104													
	62		16		(?)								
-106							128	101	26	31			0
	64												
-108													
	66		17		(78/5")		126	99	26	33			0
-110													
	68					Silty fine SAND (SM): dense to very dense, light brownish gray, with abundant mica and iron stained streaks							
-112			18		50/5"								0
	70												
-114													
	72												
-116													
	74												
-118													
	76												
-120													
	78												
-122			19		50/6"	- with mica at 79'							

COMPLETION DEPTH: 79.7 ft
WATER DEPTH: 43.5 ft inclusive of 0.5 ft tide, measured at 0850 hours
BACKFILLED WITH: Drill Hole Cuttings
DRILLING DATE: April 26, 1997

DRILLING METHOD: Wet Rotary
DRILLED BY: Pitcher Drilling
LOGGED BY: CDPrentice
CHECKED BY: TWMcNeilan

The log and data presented are a simplification of actual conditions encountered at the time of drilling at the drilled location. Subsurface conditions may differ at other locations and with the passage of time.

LOG OF DRILL HOLE NO. DPW-04

DPW - Relocated Fries Avenue Force Main

COORDINATES: N 4,023,071 E 4,205,402

ELEVATION: -38.6 ft MLLW (Based on water depth and tide)

ELEVATION, ft	DEPTH, ft	MATERIAL SYMBOL	SAMPLE NO.	SAMPLERS	SAMPLER BLOWCOUNT	MATERIAL DESCRIPTION	UNIT WET WEIGHT, pcf	UNIT DRY WEIGHT, pcf	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %	Su, ksf
						Sandy lean CLAY (CL): very soft, dark gray, with mica							
-40			1		push		112	75	49				t0.15
							105	68	55		44	20	t0.05
	5					Silty fine SAND (SM): dense, tan, with mica							
-45			2		push	- fine sand with silt (SP-SM) to 9'	117	91	28	11			
							128	106	20				
			3		push								
	10						122	97	26	32			
-50													
			4		(47)	- with light gray lean clay layers and brown streaks below 12.5'	129	104	24				p2.5 t1.7
	15												
-55			5		(50/4")	Fine SAND with silt (SP-SM): very dense, light gray, with rusty brown streaks, abundant mica	126	98	28	7			
			6		(50/4")	- with light gray sandy lean clay (CL) pockets and yellow streaks 19' to 21'	125	99	27				
	20												
-60													
			7		81								
	25												
-65													
			8		(ref/6")		127	102	25				
	30												
-70													
			9		50/6"	- with shells at 33.5'							

COMPLETION DEPTH: 66-1/2 ft
WATER DEPTH: 38.5 ft @ 0815 (Tide 0.0 ft)
BACKFILLED WITH: N/A
DRILLING DATE: April 27, 1997

DRILLING METHOD: Wet Rotary
DRILLED BY: Pitcher Drilling
LOGGED BY: CDPrentice
CHECKED BY: TWMcNeilan

The log and data presented are a simplification of actual conditions encountered at the time of drilling at the drilled location. Subsurface conditions may differ at other locations and with the passage of time.

LOG OF BORING NO. DWP-B2

DWP - Reclaimed Water Pipeline
Port of Los Angeles

UGIS ID: FF97B002
61217OFF(61217)
06/01/01\11:42AM

COORDINATES: N 4,023,071 E 4,205,402

ELEVATION: -38.6 ft MLLW (Based on water depth and tide)

ELEVATION, ft	DEPTH, ft	MATERIAL SYMBOL	SAMPLE NO.	SAMPLERS	SAMPLER BLOWCOUNT	MATERIAL DESCRIPTION	UNIT WET WEIGHT, pcf	UNIT DRY WEIGHT, pcf	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %	Su, ksf
-75													
			10	X	43	- silty to clayey fine sand (SM-SC), light brownish gray, below 38'			30	21			
	40					Sandy lean CLAY (CL): very stiff, light grayish brown, with abundant mica, rusty streaks							
-80													
			11		(59)		123	94	31		46	19	t2
	45					Silty fine SAND (SM): dense to very dense, light gray, with mica - with sandy silt seams to 53'							
-85													
			12	X	35				30	23			
	50												
-90													
			13		(?)								
	55												
-95													
	60												
-100													
			14	X	50/6"								
	65												
-105													

COMPLETION DEPTH: 66-1/2 ft
WATER DEPTH: 38.5 ft @ 0815 (Tide 0.0 ft)
BACKFILLED WITH: N/A
DRILLING DATE: April 27, 1997

DRILLING METHOD: Wet Rotary
DRILLED BY: Pitcher Drilling
LOGGED BY: CDPrentice
CHECKED BY: TWMcNeilan

The log and data presented are a simplification of actual conditions encountered at the time of drilling at the drilled location. Subsurface conditions may differ at other locations and with the passage of time.

LOG OF BORING NO. DWP-B2

DWP - Reclaimed Water Pipeline
Port of Los Angeles

PLATE D-4b

COORDINATES: N 4,022,489 E 4,205,567

ELEVATION: -51.2 ft MLLW (Based on water depth and tide)

ELEVATION, ft	DEPTH, ft	MATERIAL SYMBOL	SAMPLE NO.	SAMPLERS	SAMPLER BLOWCOUNT	MATERIAL DESCRIPTION	UNIT WET WEIGHT, pcf	UNIT DRY WEIGHT, pcf	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %	Su, ksf
			1		(42)	Fine SAND with silt (SP-SM) to Silty fine SAND (SM): dense, light brown, with mica							
			2		push	- with shell fragments to 6'	128	101	27	13			
			3		push		129	110	17				
-55			4		push	- with silt pockets, seams, and layers (to 3" thick), red streaks and iron staining, 3' to 12'	131	102	28	11			
	5		5		push		128	99	30	63			
			6		push								
-60			7		push		136	112	22				
			8		push								
	10						133	109	22	47			
			9		push								
						- gray 12' to 33'	131	110	19	38			
-65			10		push								
									24	9			
	15		11		push								
							129	105	24				
			12		push								
-70							125	97	29				
	20												
-75													
			13		50/4"	- very dense below 24'							
	25												
-80													
			14		(50/5")	- with silt seams and layers below 29'	116	93	25				
	30												
-85													

COMPLETION DEPTH: 41 ft
WATER DEPTH: 54.5 ft @ 0745 (Tide +3.5 ft)
BACKFILLED WITH: N/A
DRILLING DATE: April 22, 1997

DRILLING METHOD: Wet Rotary
DRILLED BY: Pitcher Drilling
LOGGED BY: CDPrentice
CHECKED BY: TWMcNeilan

The log and data presented are a simplification of actual conditions encountered at the time of drilling at the drilled location. Subsurface conditions may differ at other locations and with the passage of time.

LOG OF BORING NO. DWP-B3

DWP - Reclaimed Water Pipeline
Port of Los Angeles

June 1997
Project No. 96-42-1217

COORDINATES: N 4,022,489 E 4,205,567

ELEVATION: -51.2 ft MLLW (Based on water depth and tide)

ELEVATION, ft	DEPTH, ft	MATERIAL SYMBOL	SAMPLE NO.	SAMPLERS	SAMPLER BLOWCOUNT	MATERIAL DESCRIPTION	UNIT WET WEIGHT, pcf	UNIT DRY WEIGHT, pcf	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %	Su, ksf
			15		(50/6")		127	100	27				
-90													
	40		16		78/11"	Sandy lean CLAY (CL): very stiff to hard, dark gray, with sand seams			40				
-95													
	45												
-100													
	50												
-105													
	55												
-110													
	60												
-115													
	65												
-120													

COMPLETION DEPTH: 41 ft
WATER DEPTH: 54.5 ft @ 0745 (Tide +3.5 ft)
BACKFILLED WITH: N/A
DRILLING DATE: April 22, 1997

DRILLING METHOD: Wet Rotary
DRILLED BY: Pitcher Drilling
LOGGED BY: CDPrentice
CHECKED BY: TWMcNeilan

The log and data presented are a simplification of actual conditions encountered at the time of drilling at the drilled location. Subsurface conditions may differ at other locations and with the passage of time.

LOG OF BORING NO. DWP-B3

DWP - Reclaimed Water Pipeline
Port of Los Angeles

UGIS ID: FF97B003
61217OFF(61217)
06/01/01\11:43AM

PLATE D-5b

COORDINATES: N 4,022,048 E 4,205,859

ELEVATION: -50.4 ft MLLW (Based on water depth and tide)

ELEVATION, ft	DEPTH, ft	SAMPLE NO.	SAMPLERS	SAMPLER BLOWCOUNT	MATERIAL DESCRIPTION	UNIT WET WEIGHT, pcf	UNIT DRY WEIGHT, pcf	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %	Su, ksf
		1		(18)	Silty fine SAND (SM): medium dense to dense, light gray, with silt layers and seams, and mica	123	98	25	65			
		2		push				25				
					- with coarse sand layers (2" to 4" thick) 1.5' to 5'	133	107	24	37			
-55	5	3		push				23				
					- with lean clay layers (4" to 6" thick) 5' to 6.5'			26	78	37	20	
		4		push								
						132	111	19				
		5		(80)	Silty, fine to coarse SAND (SM) to SAND with silt (SP-SM): dense to very dense, light gray, with fine gravel and coarse sand seams and layers, and mica, and shell fragments	135	116	16	13			
-60	10	6		push								
		7		push	- well graded to 15'	136	112	21				
					- with silt pockets and sandy silt layers below 11'	129	109	18	24			
		8		60	- sandy silt layers and silty clay pockets 12.5' to 13.5			25	24			
-65	15	9		push				19				
		10		(50/5")		125	106	19	5			
		11		push								
					Silty fine SAND (SM): dense to very dense, light gray, with mica and iron staining	133	113	17	14			
-70	20											
-75	25	12		77				23				
-80	30	13		(88/11")				28				
-85		14		50/6"				29				

COMPLETION DEPTH: 43-1/2 ft
WATER DEPTH: 51 ft @ 0610 (Tide 0.6 ft)
BACKFILLED WITH: N/A
DRILLING DATE: April 23, 1997

DRILLING METHOD: Wet Rotary
DRILLED BY: Pitcher Drilling
LOGGED BY: CDPrentice
CHECKED BY: TWMcNeilan

The log and data presented are a simplification of actual conditions encountered at the time of drilling at the drilled location. Subsurface conditions may differ at other locations and with the passage of time.

LOG OF BORING NO. DWP-B4

DWP - Reclaimed Water Pipeline
Port of Los Angeles

June 1997
Project No. 96-42-1217

COORDINATES: N 4,022,048 E 4,205,859

ELEVATION: -50.4 ft MLLW (Based on water depth and tide)

ELEVATION, ft	DEPTH, ft	MATERIAL SYMBOL	SAMPLE NO.	SAMPLERS	SAMPLER BLOWCOUNT	MATERIAL DESCRIPTION	UNIT WET WEIGHT, pcf	UNIT DRY WEIGHT, pcf	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %	Su, ksf
-90	40		15		(64)	Lean CLAY (CL): very stiff, dark gray, with mica			30		43	16	
-95	45												
-100	50												
-105	55												
-110	60												
-115	65												
-120													

COMPLETION DEPTH: 43-1/2 ft
WATER DEPTH: 51 ft @ 0610 (Tide 0.6 ft)
BACKFILLED WITH: N/A
DRILLING DATE: April 23, 1997

DRILLING METHOD: Wet Rotary
DRILLED BY: Pitcher Drilling
LOGGED BY: CDPrentice
CHECKED BY: TWMcNeilan

The log and data presented are a simplification of actual conditions encountered at the time of drilling at the drilled location. Subsurface conditions may differ at other locations and with the passage of time.

LOG OF BORING NO. DWP-B4

DWP - Reclaimed Water Pipeline
Port of Los Angeles

UGIS ID: FF97B004
61217OFF(61217)
06/01/01\11:43AM

PLATE D-6b

COORDINATES: N 4,021,419 E 4,206,176

ELEVATION: -47.4 ft MLLW (Based on water depth and tide)

ELEVATION, ft	DEPTH, ft	MATERIAL SYMBOL	SAMPLE NO.	SAMPLERS	SAMPLER BLOWCOUNT	MATERIAL DESCRIPTION	UNIT WET WEIGHT, pcf	UNIT DRY WEIGHT, pcf	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %	Su, ksf
			1		push	Silty fine SAND (SM) to Sandy SILT (ML): loose, light gray, with silt seams, shell fragments, and mica	133	106	25	7			
-50			2		push	- fine gravel and shells to 0.2'	137	109	26	55			
	5		3		push	Fat CLAY (CH): very stiff, brown, blocky, with silty sand pockets, organics, and rust streaks	136	116	16				
			4		(52)		127	101	26	47	69	49	u3
-55			5		push	- sandy to 7.5'	126	105	28 20				
			6		push	- fine to coarse sand with silt (SW-SM), gray, with shells and mica, 7.5' to 8.5'	132	104	20 26		58	43	u4
	10		7		(43)	Fine to coarse SAND with silt and gravel (SW-SM): dense to very dense, light gray, with silt seams and pockets, shell fragments, and mica			23	11			
-60			8		push				25	12			
			9		push				18				
	15					- interbedded with silty fine sand (SM) layers (6" to 18" thick) below 14.5'			22 20	38			
			10		push				18	5			
-65													
			11		(69)	- shell layer at 18' - abundant shells below 18'	129	106	22				
	20		12		push	- cobbles at 21'			30				
-70			13		(90/ 11")		129	108	20	5			
	25												
-75			14		67				21				
	30												
-80			15		(50/ 5")	Clayey, fine to medium SAND (SC): very dense, brownish gray, with mica and rust staining	134	112	19	25			

COMPLETION DEPTH: 54-1/2 ft
WATER DEPTH: 49.5 ft @ 0930 (Tide 2.1 ft)
BACKFILLED WITH: N/A
DRILLING DATE: April 25, 1997

DRILLING METHOD: Wet Rotary
DRILLED BY: Pitcher Drilling
LOGGED BY: CDPrentice
CHECKED BY: TWMcNeilan

The log and data presented are a simplification of actual conditions encountered at the time of drilling at the drilled location. Subsurface conditions may differ at other locations and with the passage of time.

LOG OF BORING NO. DWP-B5

DWP - Reclaimed Water Pipeline
Port of Los Angeles

June 1997
Project No. 96-42-1217

COORDINATES: N 4,021,419 E 4,206,176

ELEVATION: -47.4 ft MLLW (Based on water depth and tide)

ELEVATION, ft	DEPTH, ft	MATERIAL SYMBOL	SAMPLE NO.	SAMPLERS	SAMPLER BLOWCOUNT	MATERIAL DESCRIPTION	UNIT WET WEIGHT, pcf	UNIT DRY WEIGHT, pcf	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %	Su, ksf
-85			16		(77)		134	113	18				
	40					Clayey, fine to medium SAND (SC): very dense, brownish gray, with mica and rust staining							
-90			17		50/6"				27				
	45												
-95													
	50												
-100			18		50/6"	- with gravel at 53'			25				
	55												
-105													
	60												
-110													
	65												
-115													

COMPLETION DEPTH: 54-1/2 ft
WATER DEPTH: 49.5 ft @ 0930 (Tide 2.1 ft)
BACKFILLED WITH: N/A
DRILLING DATE: April 25, 1997

DRILLING METHOD: Wet Rotary
DRILLED BY: Pitcher Drilling
LOGGED BY: CDPrentice
CHECKED BY: TWMcNeilan

The log and data presented are a simplification of actual conditions encountered at the time of drilling at the drilled location. Subsurface conditions may differ at other locations and with the passage of time.

LOG OF BORING NO. DWP-B5

DWP - Reclaimed Water Pipeline
Port of Los Angeles

UGIS ID: FF97B005
61217OFF(61217)
06/04/01\03:43PM

PLATE D-7b

COORDINATES: N 4,021,012 E 4,206,358

ELEVATION: -17.5 ft MLLW (Based on Wharf Deck El. +15)

ELEVATION, ft	DEPTH, ft	MATERIAL SYMBOL	SAMPLE NO.	SAMPLERS	SAMPLER BLOWCOUNT	MATERIAL DESCRIPTION	UNIT WET WEIGHT, pcf	UNIT DRY WEIGHT, pcf	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %	Su, ksf
					0"/ 18"	Fine to coarse GRAVEL (GP) "quarry run" with clayey sand: black							
-20			1		(38)	Sandy lean CLAY (CL) to Clayey SAND (SC): stiff to medium dense, black			51	52			
	5					- 3" diameter rock at 4.5'							
-25						Silty fine SAND (SM): medium dense to dense, dark gray, with abundant shells and mica							
			2		(33)		125	98	28	47	NP	NP	
	10												
-30			3		(50)	- with sand with silt (SP-SM) layers at 12.5'	126	98	29				
	15		NR		(34)								
-35													
			4		(28)	Fat CLAY (CH): stiff to very stiff, brown, with shell	131	110	19		52	34	u2.7
	20												
-40			5		(45)	- stiff, light to medium gray, with coarse sand, at 22.5'	128	110	16	37			
	25					Silty fine SAND (SM): medium dense to dense, light brown mottled light gray, with mica							
-45			6		25				21	27			
	30												
-50			7		(60)	- interbedded lean clay (CL), stiff, greenish brown, 32' to 33'	119	98	23 21				

COMPLETION DEPTH: 53-1/2 ft
WATER DEPTH: 16 ft @ 0800 (Tide 3 ft)
BACKFILLED WITH: Drill Hole Cuttings
DRILLING DATE: May 2, 1997

DRILLING METHOD: Wet Rotary
DRILLED BY: Pitcher Drilling
LOGGED BY: CDPrentice
CHECKED BY: TWMcNeilan

The log and data presented are a simplification of actual conditions encountered at the time of drilling at the drilled location. Subsurface conditions may differ at other locations and with the passage of time.

LOG OF BORING NO. DWP-B6

DWP - Reclaimed Water Pipeline
Port of Los Angeles

COORDINATES: N 4,021,012 E 4,206,358

ELEVATION: -17.5 ft MLLW (Based on Wharf Deck El. +15)

ELEVATION, ft	DEPTH, ft	MATERIAL SYMBOL	SAMPLE NO.	SAMPLERS	SAMPLER BLOWCOUNT	MATERIAL DESCRIPTION	UNIT WET WEIGHT, pcf	UNIT DRY WEIGHT, pcf	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %	Su, ksf
-55			NR	●	51								
	40					Silty fine SAND (SM): medium dense to dense, light brown mottled light gray, with mica							
-60			8	☒	85	- very dense, light gray, with mica, below 42' - fine sand with silt (SP-SM) at 42.5			26	10			
	45												
-65			9	▩	(50/4")	- sandy clay (SC) at 47'	136	115	19	57			
	50												
-70			10	☒	50/6"				24	29			
	55												
-75													
	60												
-80													
	65												
-85													

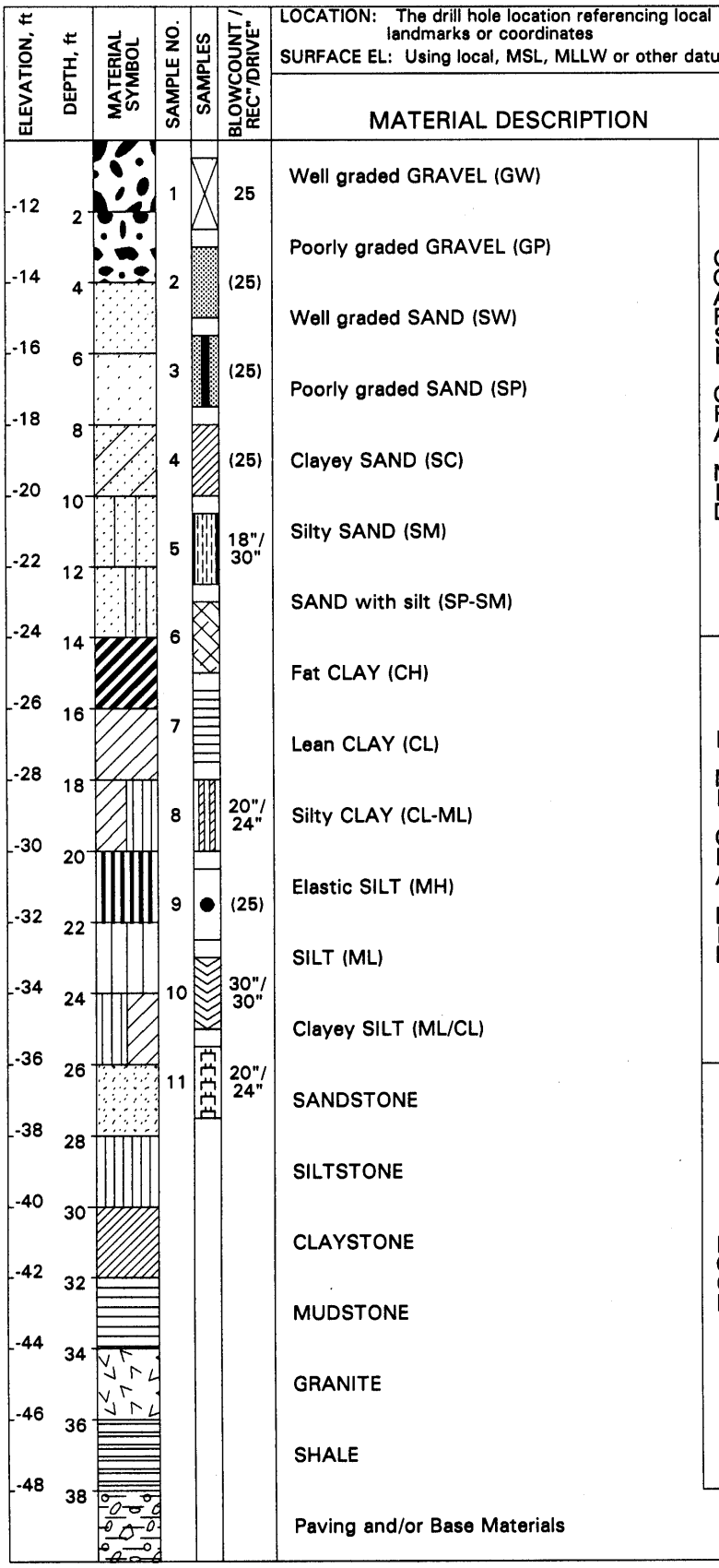
COMPLETION DEPTH: 53-1/2 ft
WATER DEPTH: 16 ft @ 0800 (Tide 3 ft)
BACKFILLED WITH: Drill Hole Cuttings
DRILLING DATE: May 2, 1997

DRILLING METHOD: Wet Rotary
DRILLED BY: Pitcher Drilling
LOGGED BY: CDPrentice
CHECKED BY: TWMcNeilan

The log and data presented are a simplification of actual conditions encountered at the time of drilling at the drilled location. Subsurface conditions may differ at other locations and with the passage of time.

LOG OF BORING NO. DWP-B6

DWP - Reclaimed Water Pipeline
Port of Los Angeles



General Notes

1 Soil Texture Symbol

2 Sloped line in symbol column indicates transitional boundary

3 Samplers and sampler dimensions (unless otherwise noted in report text) are as follows:

Symbol for:

1 SPT Sampler, driven 1 3/8" ID, 2" OD
2 CA Liner Sampler, driven 2 3/8" ID, 3" OD
3 CA Liner Sampler, disturbed 2 3/8" ID, 3" OD
4 Recovery Interval
5 Thin-walled Tube, pushed 2 7/8" ID, 3" OD
6 Bulk Bag Sample (from cuttings)
7 Hand Auger Sample
8 Rock Core Sample
9 No Sample Recovered
10 Vibracore Sample
11 Pitcher Sample

4 Sampler Driving Resistance

Number of blows with 140 lb. hammer, falling 30-in. to drive sampler 1-ft. after seating sampler 6-in.; for example,

Blows/ft	Description
25	25 blows drove sampler 12" after initial 6" of seating
86/11"	After driving sampler the initial 6" of seating, 36 blows drove sampler through the second 6" interval, and 50 blows drove the sampler 5" into the third interval
50/6"	50 blows drove sampler 6" after initial 6" of seating
Ref/3"	50 blows drove sampler 3" during initial 6" seating interval

5 Blow counts for California Liner Sampler shown in ( )

6 Length of sample symbol approximates recovery length

7 Classification of Soils per ASTM D2487 or D2488

8 Geologic Formation noted in bold font at the top of interpreted interval

9 Strength Legend

Q = Unconfined Compression
u = Unconsolidated Undrained Triaxial
t = Torvane
p = Pocket Penetrometer
m = Miniature Vane

10 Water Level Symbols

Initial or perched water level
Final ground water level
Seepages encountered

11 Rock Quality Designation (RQD) is the sum of recovered core pieces greater than 4 inches divided by the length of the cored interval

KEY TO TERMS & SYMBOLS USED ON LOGS