Earth Mechanics

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REVISED FINAL
OAKLAND SHORE APPROACH
GEOTECHNICAL SITE CHARACTERIZATION REPORT

SAN FRANCISCO-OAKLAND BAY BRIDGE
EAST SPAN SEISMIC SAFETY PROJECT

VOLUME 3 - APPENDICES
(CPT Soundings)

Prepared for

CALIFORNIA DEPARTMENT OF TRANSPORTATION

March 2001

Earth Mechanics

Fugro - Earth Mechanics
A JOINT VENTURE

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March 5, 2001
Project No. 98-42-0058/EMI Project No. 98-145

California Department of Transportation
Engineering Service Center
Office of Structural Foundations
5900 Folsom Boulevard
Sacramento, California 95819-0128

Attention: Mr. Mark Willian
Contract Manager

Final Oakland Shore Approach Geotechnical Site Characterization
SFOBB East Span Seismic Safety Project

Dear Mr. Willian:

The geologic and geotechnical studies for the San Francisco-Oakland Bay Bridge (SFOBB) East Span Seismic Safety Project are being conducted by Fugro-Earth Mechanics (a joint venture of Fugro West, Inc., and Earth Mechanics, Inc.) under California Department of Transportation (Caltrans) Contract 59A0053. The majority of the Oakland Mole exploration was conducted as part of the Phase 2, Task 5 (final site characterization phase) studies of the referenced contract, although three cone penetration test (CPT) soundings were conducted as part of the earlier Phase 1, Task 3 work scope (preliminary site characterization) of the referenced contract.

The field exploration conducted on the Oakland Mole in the Spring and Fall of 1998 as part of the referenced contract included 25 soil borings (designated in the subsurface database created for the project as 98-51 through 98-75) and 9 CPT soundings (designated as 98-16 through 98-18 and 98-101 through 98-110 [several planned locations were abandoned due to electrical interference]). A total of 53 offshore tethered Seascout CPT soundings were conducted in December 1998 during seasonal high tides on the tidal flat to the north of the Oakland Mole. Fifteen all-terrain CPT soundings were conducted on the Tidal Flat to the north of the Mole in March 1999 during low tide conditions. Two trench and two pit excavations were conducted in April 1999. In Fall 2000, 11 marine Seacalf CPT soundings were performed in the vicinity of the Oakland Shore Approach to the west and northwest of the western tip of the Mole. The Seacalf CPTs were conducted as part of the Phase 3 field investigation program.

This Oakland Shore Approach Geotechnical Site Characterization report summarizes the field exploration for the Oakland Shore Approach and describes our interpretation of the geotechnical conditions based on the information collected from the exploration. Our present interpretations are based on the field data from the borings, the results of laboratory tests completed in the onshore laboratories, and the CPT soundings.

This report is provided in four volumes. Volume 1 provides the interpretational text and illustrations. Volume 2 contains 27 appendices that provide boring logs and test data from 25 land borings on the Oakland Mole and 2 marine borings offshore from the northwest tip of the Oakland Mole. Volume 3 contains the

results of the CPT soundings conducted on land, on the northern shore of the tidal flat, and offshore to the north and west of the Oakland Mole. Volume 4 contains four documents that include a preliminary study of approach fills at the Oakland Mole, studies on lateral spreading of fills at the Oakland Mole, findings from trench and pit excavations, and the advanced geotechnical laboratory studies conducted at the University of California at Berkeley.

On behalf of the project team, we appreciate the opportunity to contribute to Caltrans' design of the new bridge to replace the existing SFOBB East Span. Please call if we can answer any questions relative to the information presented in the enclosed report.

Sincerely,

FUGRO-EARTH MECHANICS, A Joint Venture

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SAN FRANCISCO-OAKLAND BAY BRIDGE
EAST SPAN SEISMIC SAFETY PROJECT

CALTRANS CONTRACT 59A0053

REVISED FINAL
OAKLAND SHORE APPROACH
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VOLUME 3 - APPENDICES
(CPT Soundings)

MARCH 2001

Prepared For:

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VOLUME 3
CONE PENETRATION TEST DATA APPENDIX

The exploration program for the site characterization of the Oakland Shore Approach of the San Francisco-Oakland Bay Bridge (SFOBB) East Span Seismic Safety Project included 25 onshore borings (10 with in situ testing), approximately 24 land-based cone penetration test (CPT) soundings, 53 marine tethered Seascout CPT soundings, and 11 marine-based Seacalf CPT soundings in the vicinity of the Oakland Shore Approach. In addition, two marine borings that were performed in the shallow water tidal flat to the north and northwest of the Mole are relevant to the characterization of the Oakland Shore Approach of the bridge. A description of the marine exploration program is provided under separate cover in the Final Marine Geotechnical Site Characterization report[1].

GEOTECHNICAL SITE CHARACTERIZATION SYNOPSIS - VOLUME 1

A general description of the Task Order No. 5, Final Oakland Shore Approach Geotechnical Site Characterization work scope is provided in Section 1.0 of Volume 1 of this report. A description of the land exploration program (drilling and CPT testing), tethered Seascout CPT program (including equipment used and field procedures,) and the marine-based Seacalf CPT sounding is presented in Section 2.0. Section 3.0 includes a description of laboratory testing equipment and procedures. The locations of the borings and CPT soundings are provided on Plates 2.1a and 2.1b, and a summary of the details of the individual exploration locations and depths is provided in Tables 2.1 through 2.3. Plates 2.1a and 2.1b and Tables 2.2 and 2.3 are provided at the end of this text for reference.

INDIVIDUAL BORING APPENDICES SYNOPSIS - VOLUMES 2A & 2B

Individual boring appendices are provided for each of the 27 borings (25 land borings and 2 marine borings) related to the Oakland Shore Approach in Volumes 2A and 2B. Those appendices include a boring log as well as the results and summaries of various in situ testing and laboratory testing data.

CONE PENETRATION TEST SOUNDING DATA – VOLUME 3

Logs of the CPT soundings are presented in Appendices A through C of Volume 3. Appendix 3A consists of data from 24 land-based CPT soundings, Appendix 3B contains CPT logs from 53 tethered marine Seascout CPT soundings, and Appendix 3C contains CPT logs from 11 marine Seacalf soundings. Land-based CPT soundings were performed using a

[1] Fugro-Earth Mechanics (2001), *Final Marine Geotechnical Site Characterization, San Francisco-Oakland Bay Bridge East Span Seismic Safety Project, Volume 1,* FWI Job No. 98-42-0054, prepared for California Department of Transportation, March 5.

15-square-centimeter (cm^2) cone deployed from a 20-ton truck on the Mole and from a track-mounted, all-terrain vehicle (ATV) on the tidal flats to the north of the Mole. Tethered Seascout CPT soundings were performed using a 1 cm^2 miniature-cone deployed from a 15-meter workboat along the tidal flats to the north of the Mole. Marine-based Seacalf soundings were performed using a 15 cm^2 cone advanced using Fugro's 10-ton, wheel drive CPT system deployed from an approximately 33-meter barge. Details of the equipment and procedures used are summarized in Section 2.0 of Volume 1 of this report.

The individual appendix plates are numbered with the sounding number. The CPT logs provide graphical plots of the data versus depth below the ground surface (land-based CPT) or mudline (tethered Seascout CPT and Seacalf CPT). Data that are shown include: a) cone tip resistance in megapascals (MPa), b) sleeve friction in MPa, c) pore pressure in MPa, and d) friction ratio in percent. Seismic velocity measurements were made in five of the truck-mounted and two ATV-mounted CPT soundings. Logs of those seven soundings also show shear wave velocity data in meters per second (m/sec). In addition to the CPT data, correlations with undrained shear strength, preconsolidation stress and relative density are included for the truck-mounted and ATV-mounted CPT soundings. Laboratory test results have been included for two ATV-mounted CPT locations (99C-12 and 99C-14) where sampling was performed. The laboratory test results include: summary of test results, grain size curves, plasticity chart, plasticity index, and liquidity index profiles. The Seacalf CPT sounding logs include estimates of undrained shear strength interpreted from CPT tip resistance for fine-grained layers.

Tip resistance and pore pressure data for the both the Seascout and Seacalf CPT soundings are referenced to the mudline elevation at the test locations. The values shown on the log have been offset to eliminate the hydrostatic head at the mudline at the time of the test. It should be noted (as described in greater detail in Section 2.0 of Volume 1) that the miniature-cone data should generally be used as a qualitative indicator of subsurface conditions. Quantitative empirical relationships derived for regular cones should be used with caution and only by individuals experienced with the miniature cone data.

Designation	Easting	Northing	Station Along "W-Line"	Offset from "W-Line" (m)	Ground Surface Elevation (m MSL)	Depth (m)	Velocity Logging with Seismic Cone	Soil Sampling
Phase 1, Spring 1998								
98-16	1838906	648241	84+12	9RT	1.5	17.3	No	No
98-17	1839051	648271	85+59	6LT	3.5	53.1	Yes	No
98-18	1839237	648298	87+47	20LT	3.2	50.0	Yes	No
Phase 2, Fall 1998								
98-101 (CPT-1)	1839011	648267	85+19	6LT	3.1	49.8	Yes	No
98-102 (CPT-2)	1839111	648300	86+52	9RT	2.1	50.2	Yes	No
98-104 (CPT-4)	1839304	648323	88+46	1RT	3.7	21.9	No	No
98-105 (CPT-5)	1839372	648313	89+13	16RT	3.6	39.1	No	No
98-110 (CPT-10)	1839489	648287	89+96	15RT	3.1	46.8	No	No
98-109 (CPT-9)	1839339	648260	88+45	26RT	3.0	48.9	Yes	No
Phase 2, All-Terrain (Spring 1998)								
99C-1	1838969	648274	85+08	23RT	-0.2	29.3	No	No
99C-2	1839037	648290	85+77	13RT	-0.6	12.1	No	No
99C-3	1839150	648311	86+91	1RT	0.1	15.5	No	No
99C-4	1839208	648316	87+50	1RT	-0.1	15.4	No	No
99C-5	1839262	648328	88+04	7RT	-0.1	15.5	No	No
99C-6	1839329	648333	88+72	7RT	-0.4	16.6	No	No
99C-7	1839384	648343	89+27	13RT	-0.6	19.8	No	No
99C-8	1839431	648353	89+75	19RT	-0.6	15.6	No	No
99C-9	1839496	648364	90+42	23LT	-0.7	15.0	No	No
99C-10	1839558	648374	91+06	23LT	-0.6	15.4	No	No
99C-11	1839139	648320	86+81	10LT	-0.4	24.4	No	No
99C-12	1839174	648323	87+16	10LT	-0.4	29.5	No	Yes
99C-13	1839205	648325	87+47	9LT	-0.4	22.6	Yes	No
99C-14	1839250	648329	87+92	9LT	-0.3	16.6	No	Yes
99C-15	1839014	648299	85+55	2LT	-0.4	11.7	Yes	No

NOTE: Electrical interference prevented data acquisition at planned CPT locations 98C-103 (CPT-3), 98C-106 (CPT-6), 98C-107 (CPT-7), and 98C-108 (CPT-8).

ON-LAND CPT LOCATIONS AND DEPTHS
Oakland Shore Approach
SFOBB East Span Seismic Safety Project

TABLE 2.2

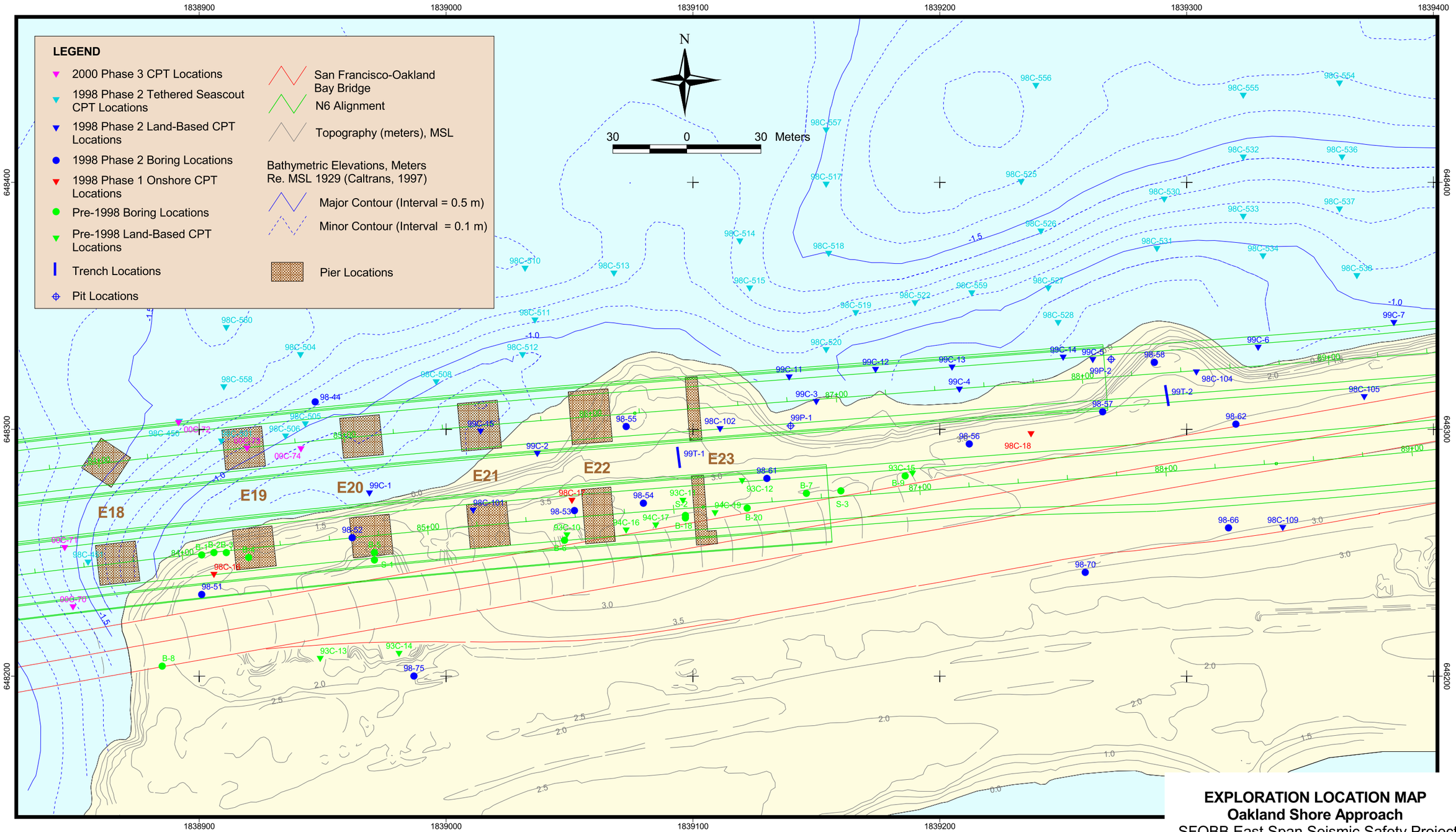
Designation	Easting	Northing	Station	Offset (m)	Ground Surface Elevation (m MSL)	Depth (m)	Velocity Logging with Seismic Cone	Soil Sampling
September - October, 2000								
00C-64	1838758	648273	"W" Sta. 83+00	1 m Left	-2.9	50.0	No	No
00C-65	1838765	648233	"E" Sta. 82+79	1 m Right	-2.9	29.7	No	No
00C-66	1838780	648262	"W" Sta. 83+20	13 m Right	-2.6	25.1	No	No
00C-67	1838786	648232	"E" Sta. 83+0	4 m Right	-2.6	39.9	No	No
00C-68	1838806	648225	"E" Sta. 83+20	14 m Right	-2.4	42.2	No	No
00C-69	1838823	648249	"E" Sta. 83+40	8 m Left	-0.9	40.0	No	No
00C-70	1838848	648227	"E" Sta. 83+59	16 m Right	-1.6	11.9	No	No
00C-71	1838845	648251	"E" Sta. 83+59	8 m Left	-1.6	11.1	No	No
00C-72	1838891	648302	"W" Sta. 84+40	14 m Left	-1.4	51.4	No	No
00C-73	1838919	648292	"W" Sta. 84+59	No offset	-1.1	17.9	No	No
00C-74	1838941	648291	"W" Sta. 85+0	2 m Right	-0.9	12.7	No	No

MARINE-BASED SEACALF CPT LOCATIONS AND DEPTHS
Oakland Shore Approach
SFOBB East Span Seismic Safety Project

TABLE 2.3

Earth Mechanics

FUGRO



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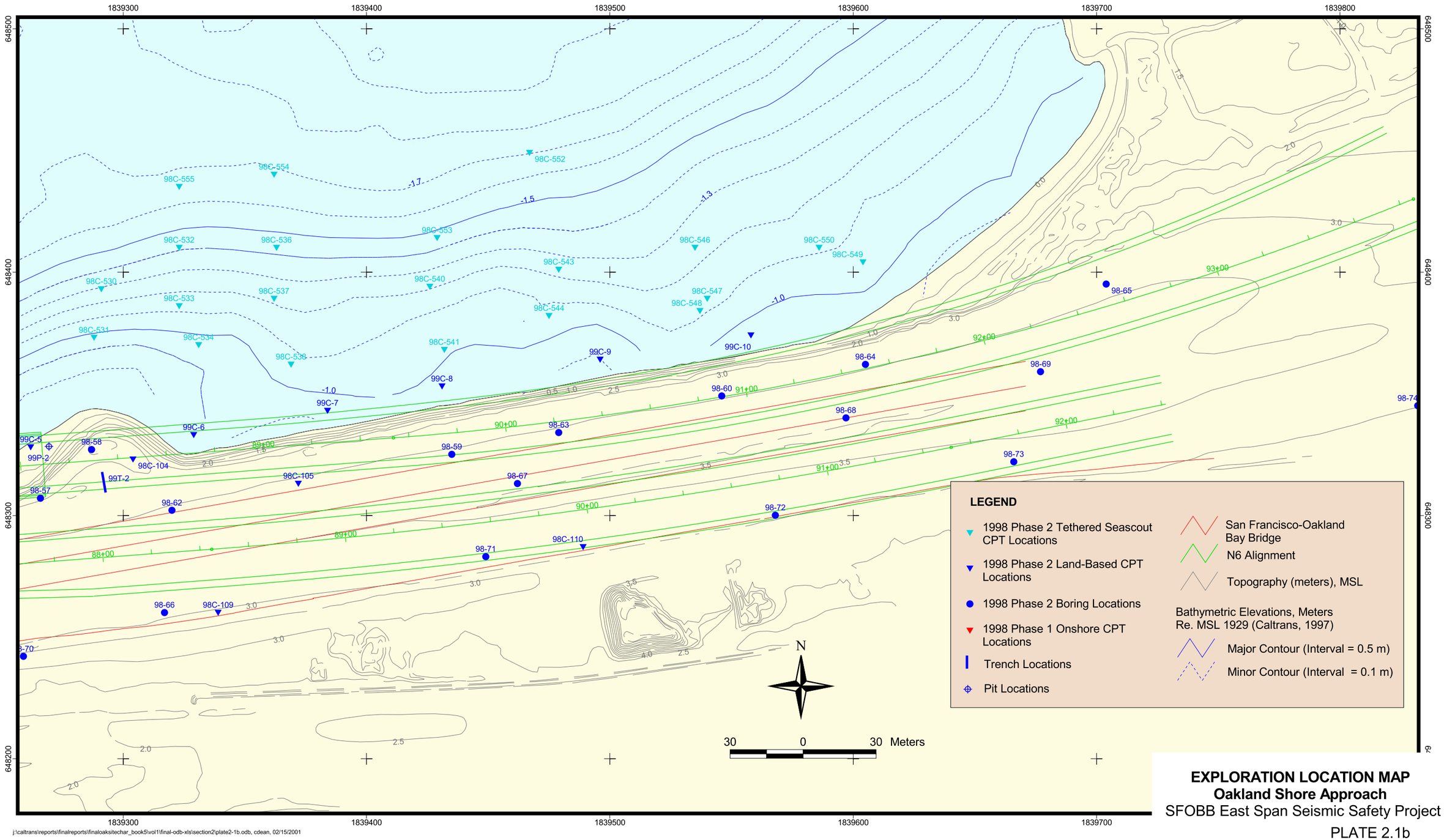
EXPLORATION LOCATION MAP
Oakland Shore Approach
SFOBB East Span Seismic Safety Project

PLATE 2.1a



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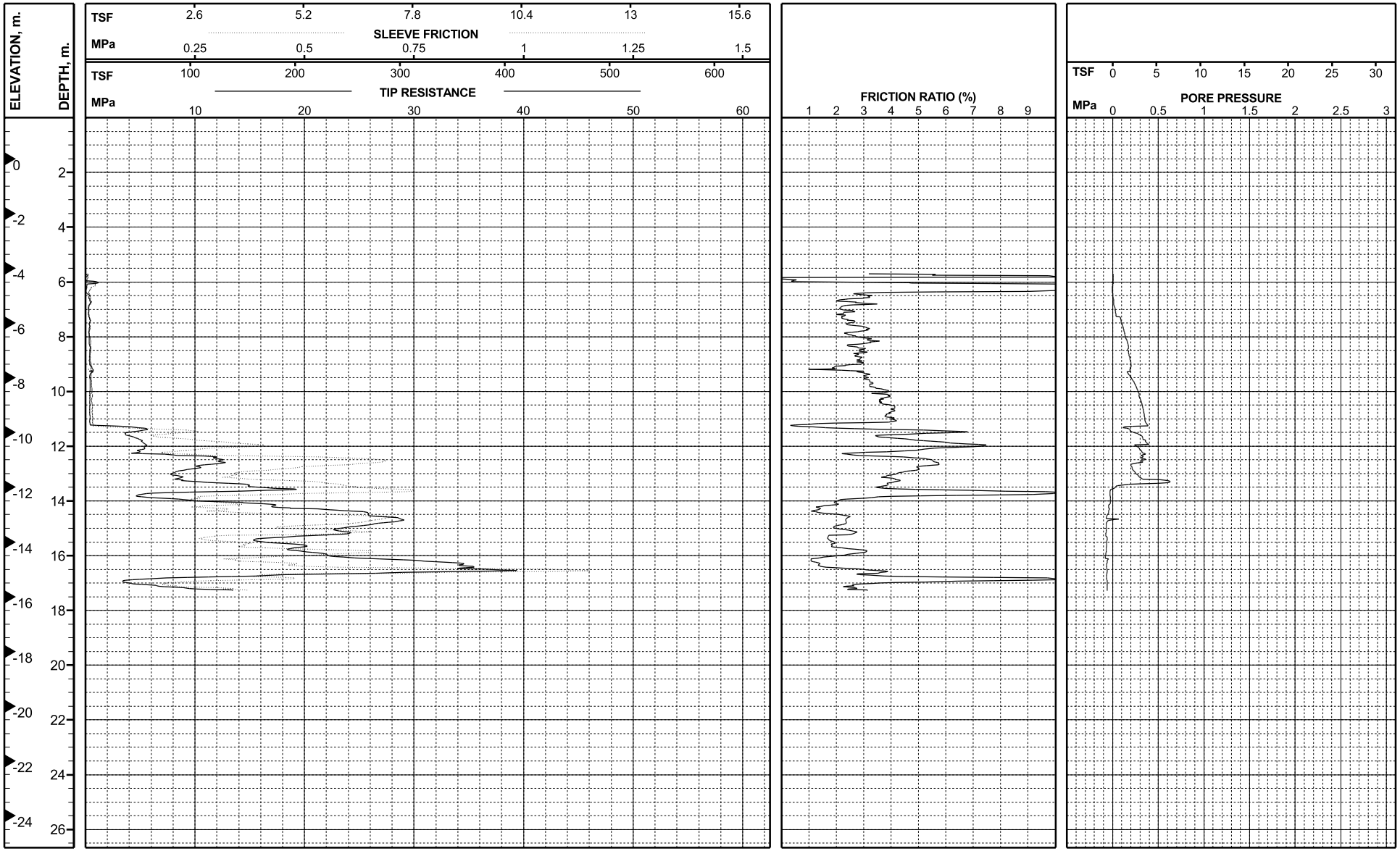
EXPLORATION LOCATION MAP
Oakland Shore Approach
SFOBB East Span Seismic Safety Project
PLATE 2.1b

APPENDIX A
LAND-BASED CPT DATA

PROJECT NO:	98-42-0058	**COORDINATES:**	E1838906 N648241 CA State Plane Zone 3, NAD83, Meters	**VEHICLE:**	Fugro Geosciences
EXPLORATION NO.:	98-16 (9m right of E. Sta 84+12)	**GROUND ELEVATION:**	1.5 m (MSL)	**TEST DATE:**	03/20/98



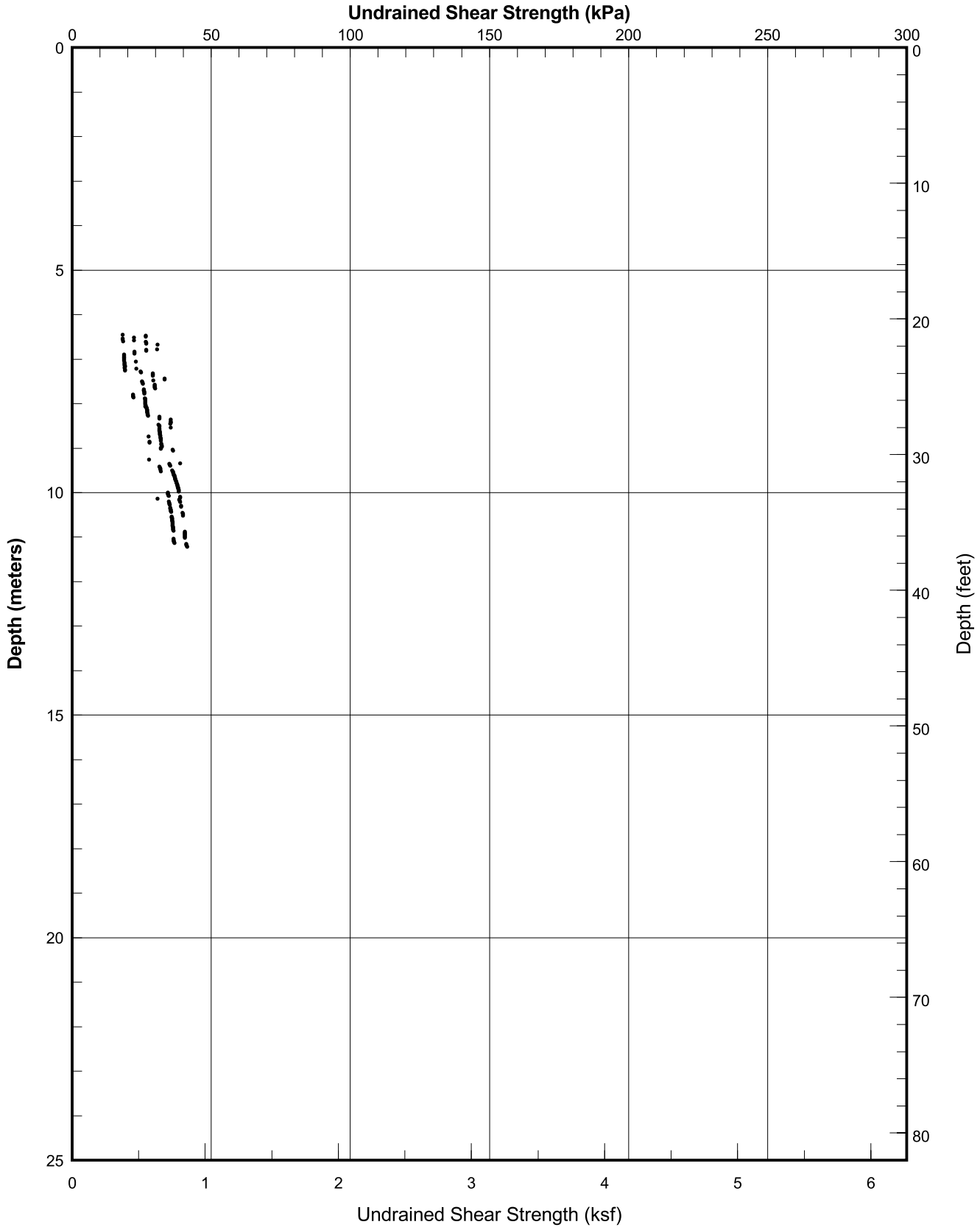
LOG OF CPT

SOUNDING 98-16

SFOBB East Span Seismic Safety Project

Report Date: 07/06/99

PLATE 98-16.1

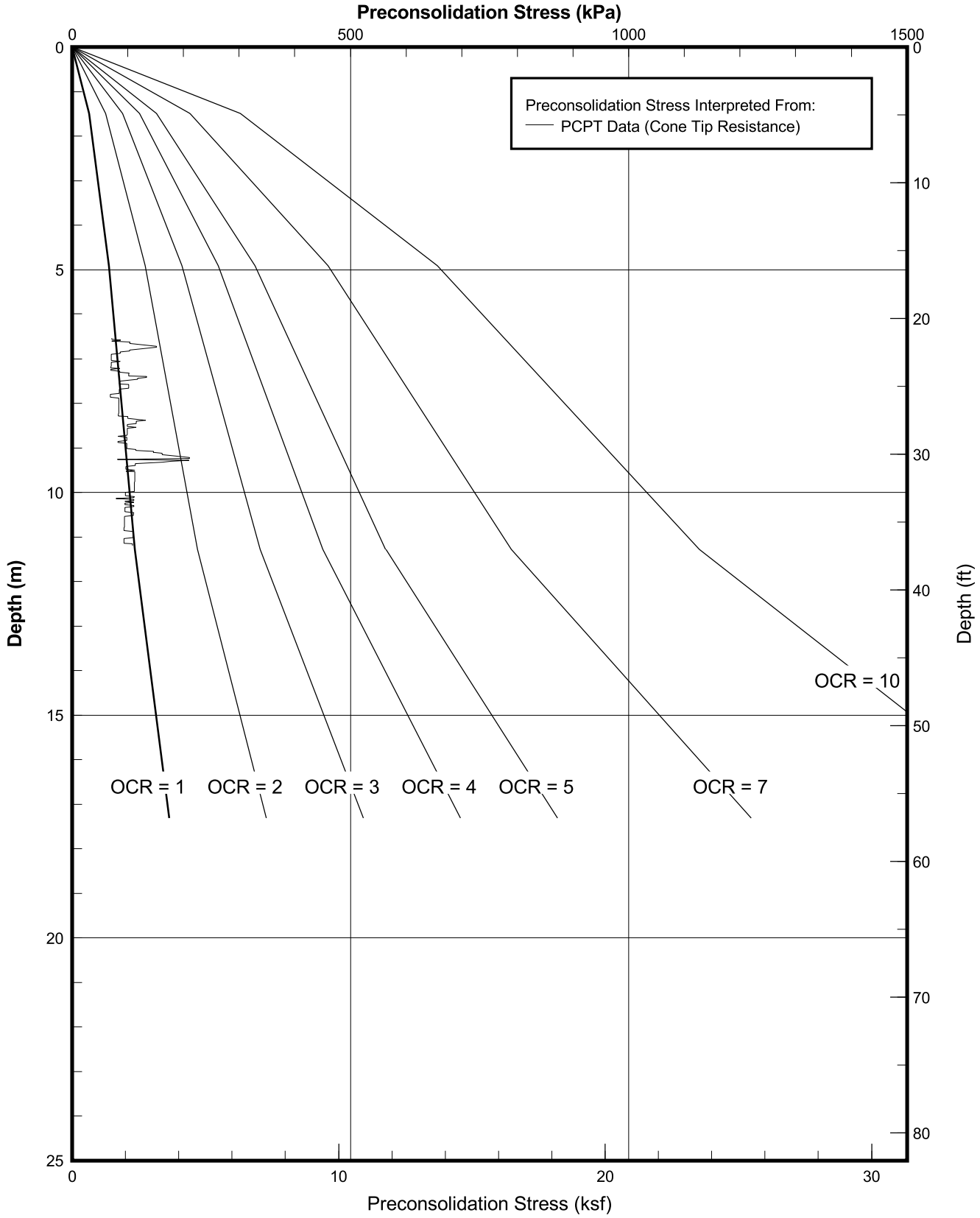


UNDRAINED SHEAR STRENGTH PROFILE INTERPRETED FROM CPT TIP RESISTANCE (Nk=12)

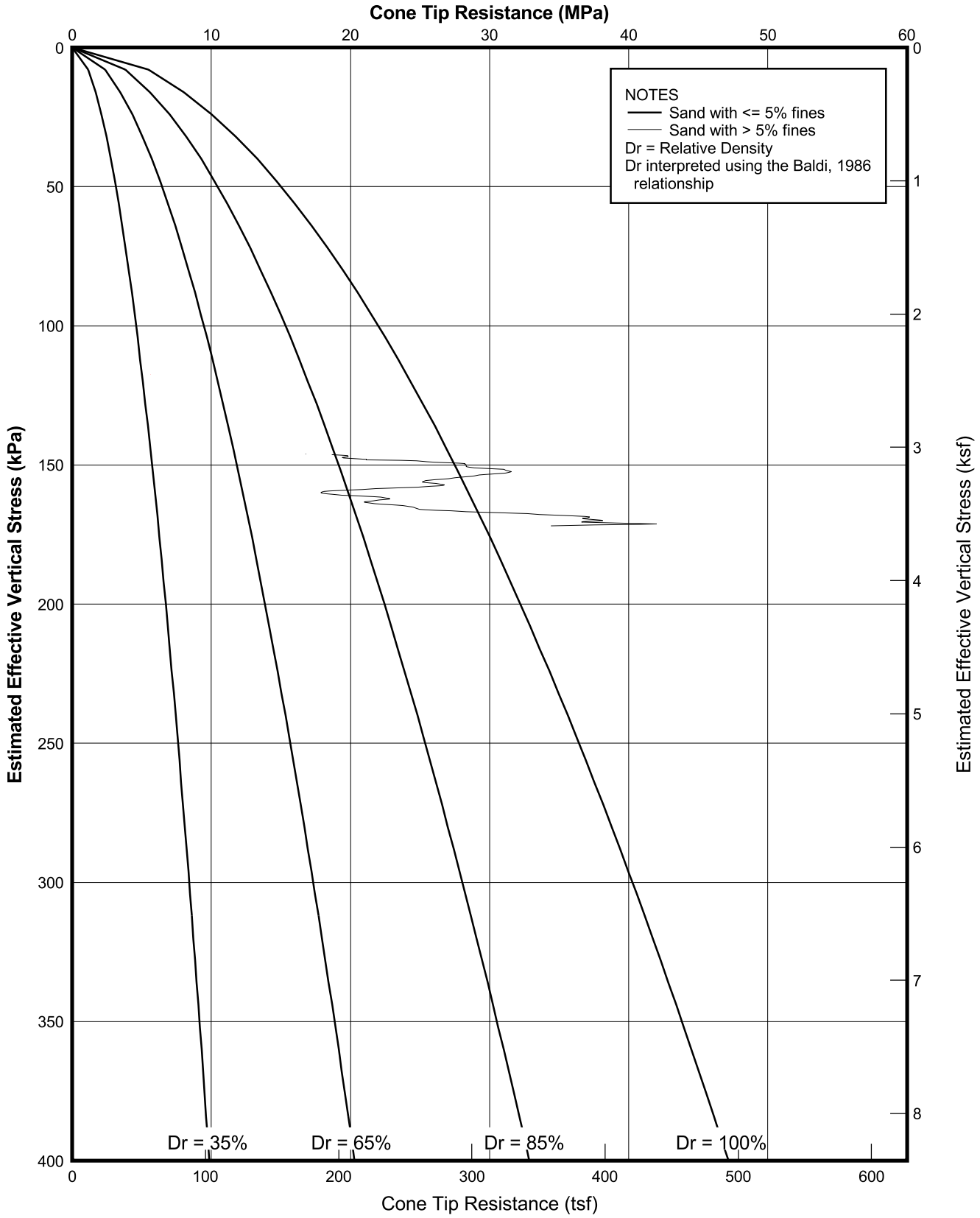
Sounding 98-16

SFOBB East Span Seismic Safety Project

PLATE 98-16.2

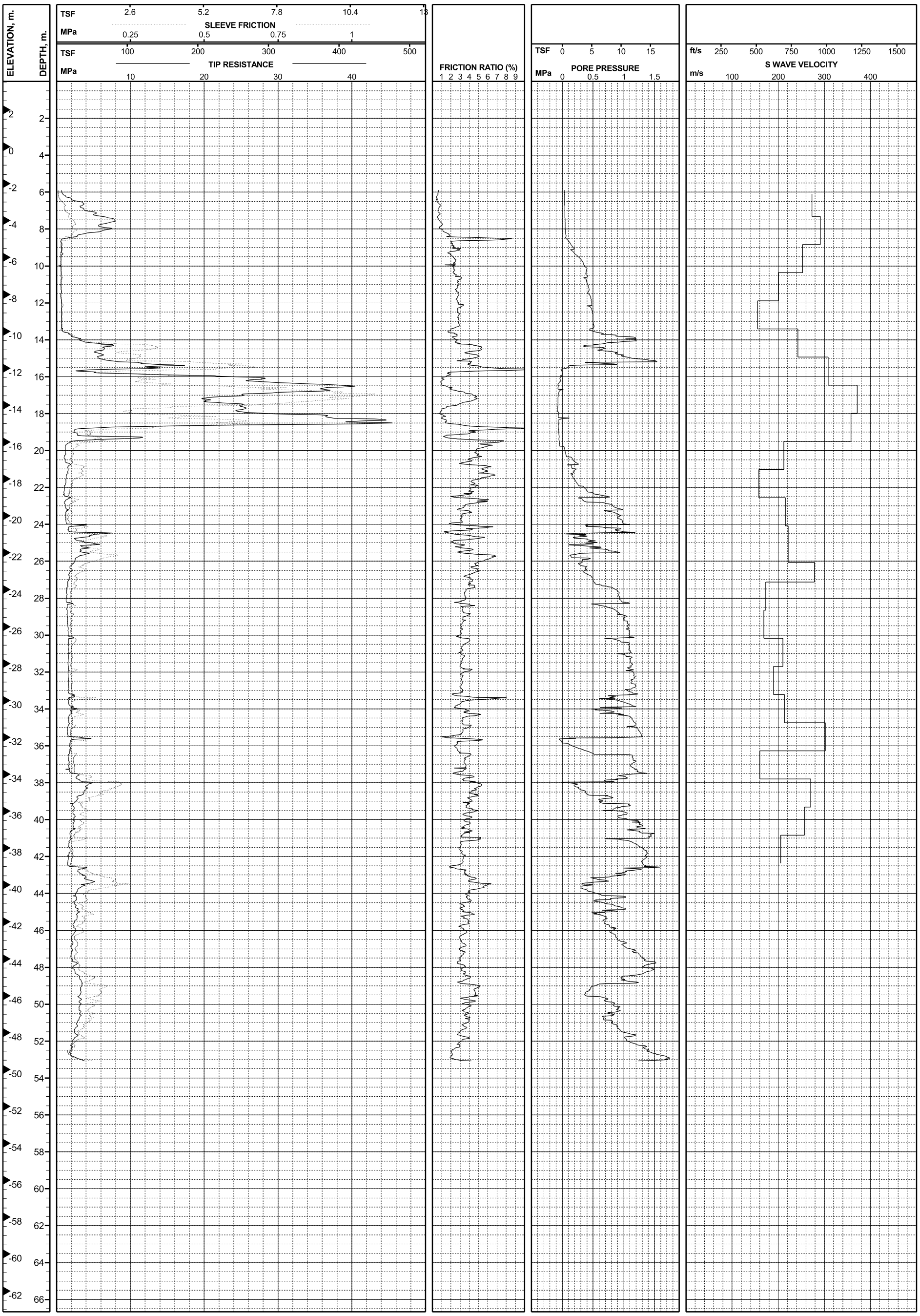


PRECONSOLIDATION STRESS INTERPRETED FROM CPT DATA
Sounding 98-16
SFOBB East Span Seismic Safety Project



RELATIVE DENSITY INTERPRETED FROM CPT DATA
Sounding 98-16
SFOBB East Span Seismic Safety Project

PROJECT NO:	98-42-0058	**COORDINATES:**	E1839051 N648271 CA State Plane Zone 3, NAD83, Meters	**VEHICLE:**	Fugro Geosciences
EXPLORATION NO.:	98-17 (6m left of E. Sta. 85+59)	**GROUND ELEVATION:**	3.5 m (MSL)	**TEST DATE:**	03/13/98



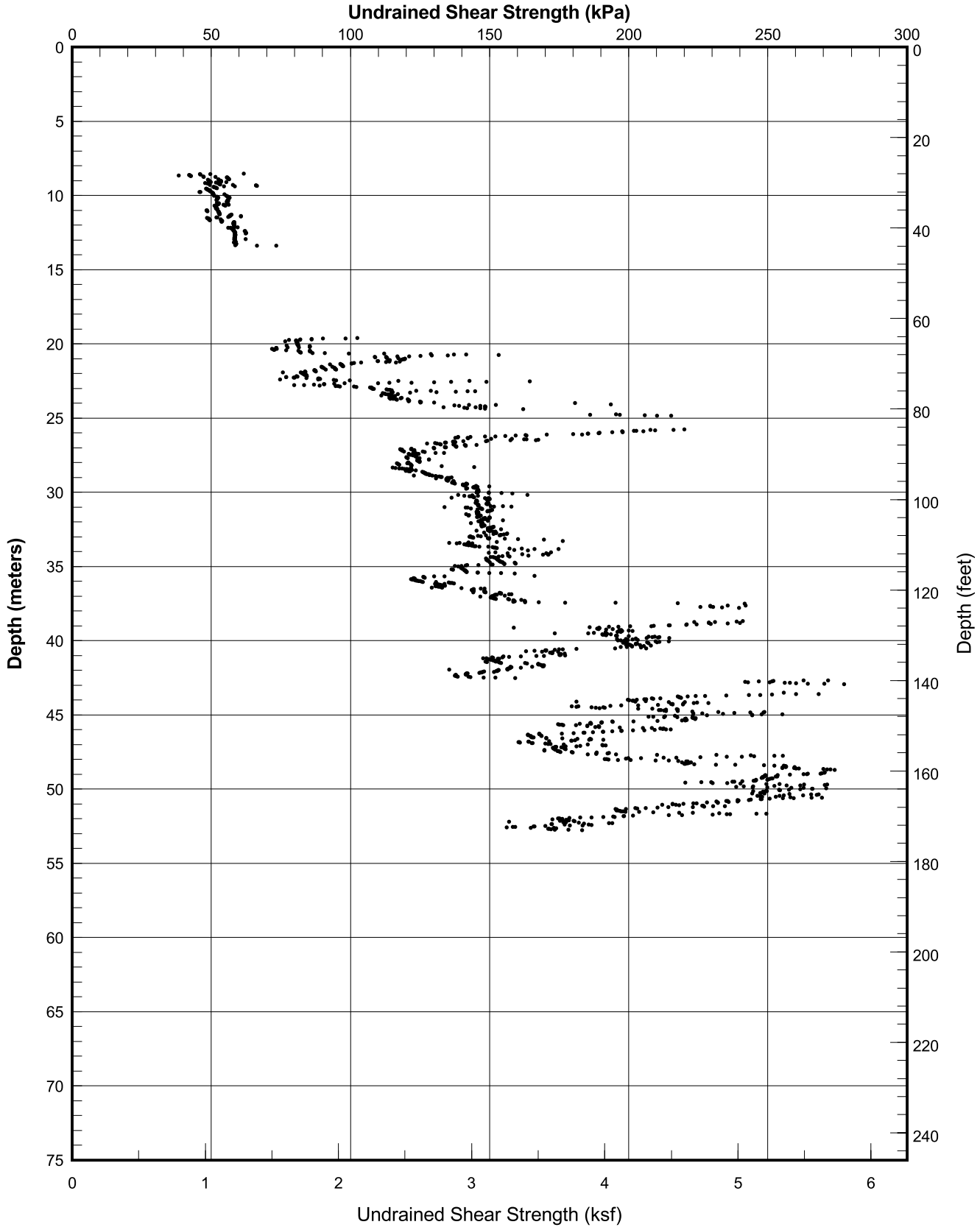
LOG OF CPT

SOUNDING 98-17

SFOBB East Span Seismic Safety Project

Report Date: 07/12/99

PLATE 98-17.1

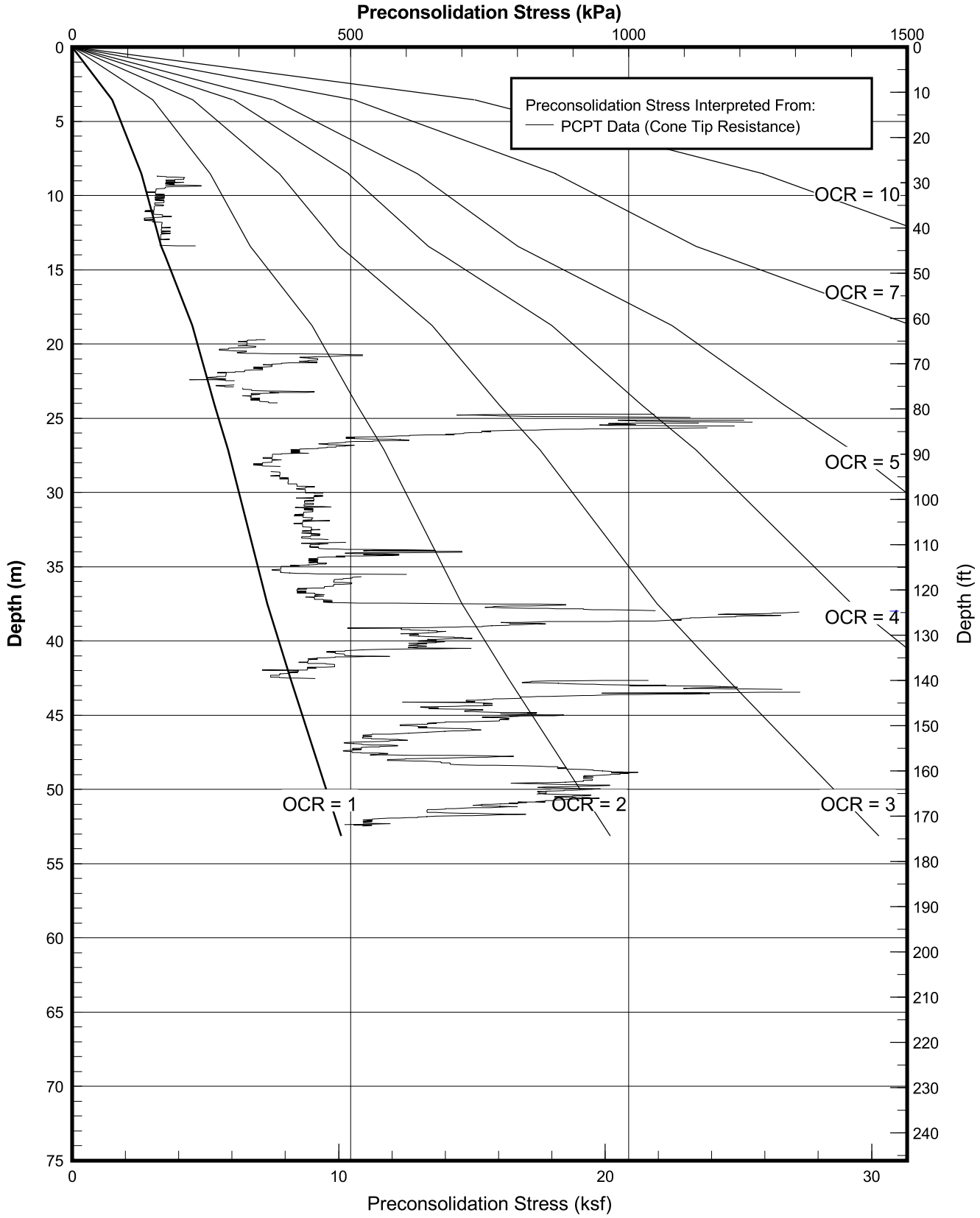


UNDRAINED SHEAR STRENGTH PROFILE INTERPRETED FROM CPT TIP RESISTANCE (Nk=12)

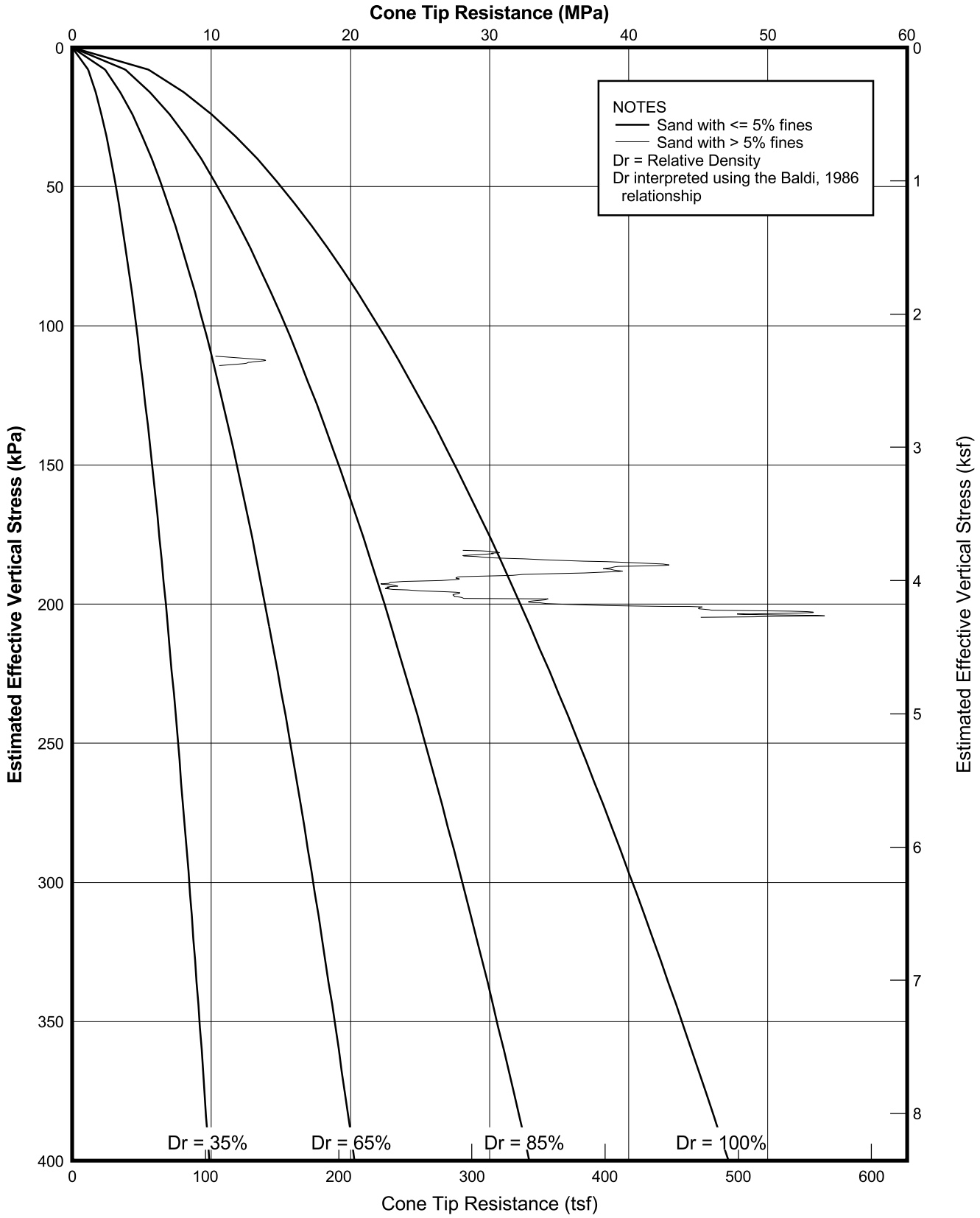
Sounding 98-17

SFOBB East Span Seismic Safety Project

PLATE 98-17.2

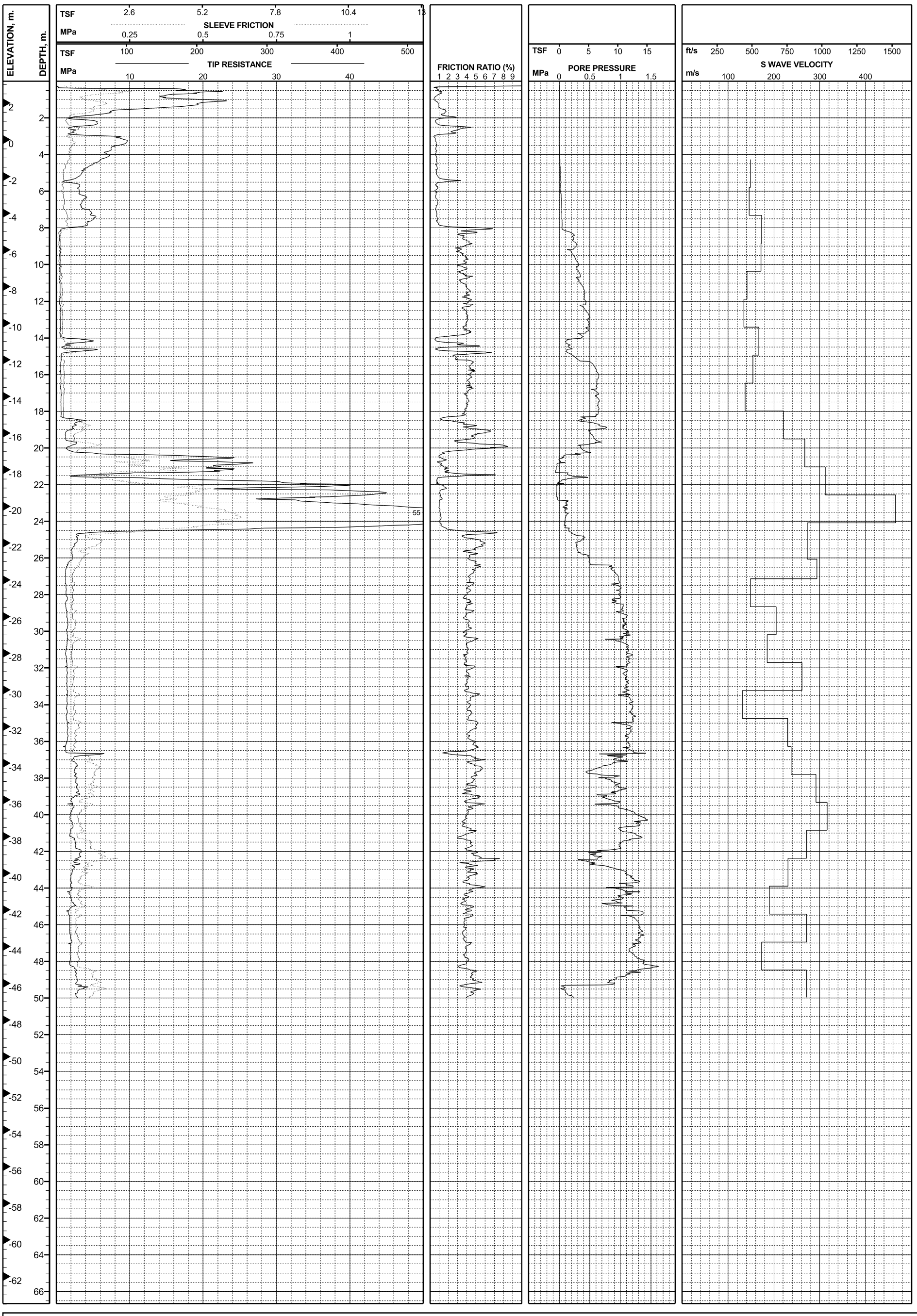


PRECONSOLIDATION STRESS INTERPRETED FROM CPT DATA
Sounding 98-17
SFOBB East Span Seismic Safety Project



RELATIVE DENSITY INTERPRETED FROM CPT DATA
Sounding 98-17
SFOBB East Span Seismic Safety Project

PROJECT NO:	98-42-0058	**COORDINATES:**	E1839237 N648298 CA State Plane Zone 3, NAD83, Meters	**VEHICLE:**	Fugro Geosciences
EXPLORATION NO.:	98-18 (20m left of E. Sta. 87+47)	**GROUND ELEVATION:**	3.2 m (MSL)	**TEST DATE:**	03/12/98



LOG OF CPT

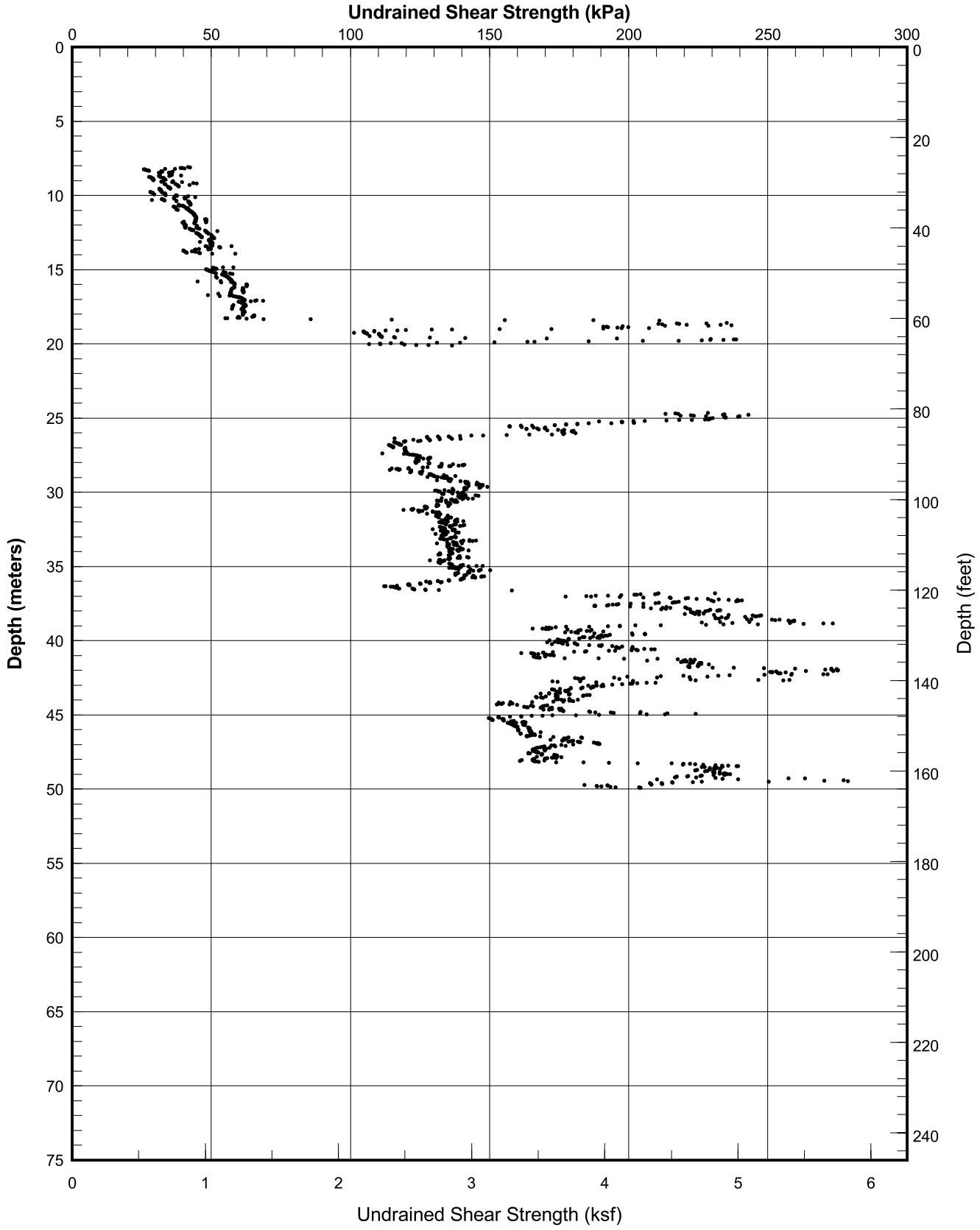
SOUNDING 98-18

SFOBB East Span Seismic Safety Project

Report Date: 07/12/99

FUGRO

PLATE 98-18.1

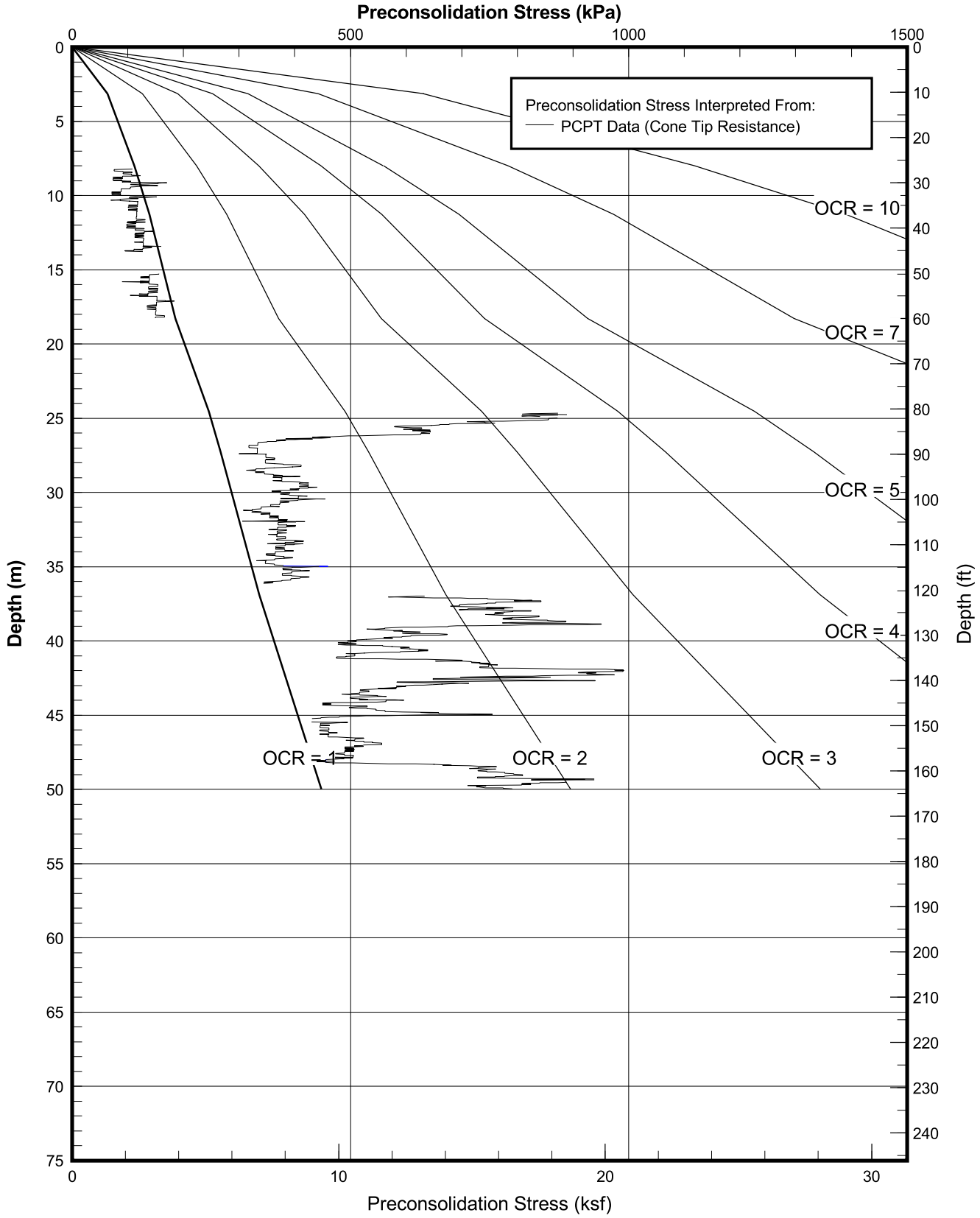


UNDRAINED SHEAR STRENGTH PROFILE INTERPRETED FROM CPT TIP RESISTANCE (Nk=12)

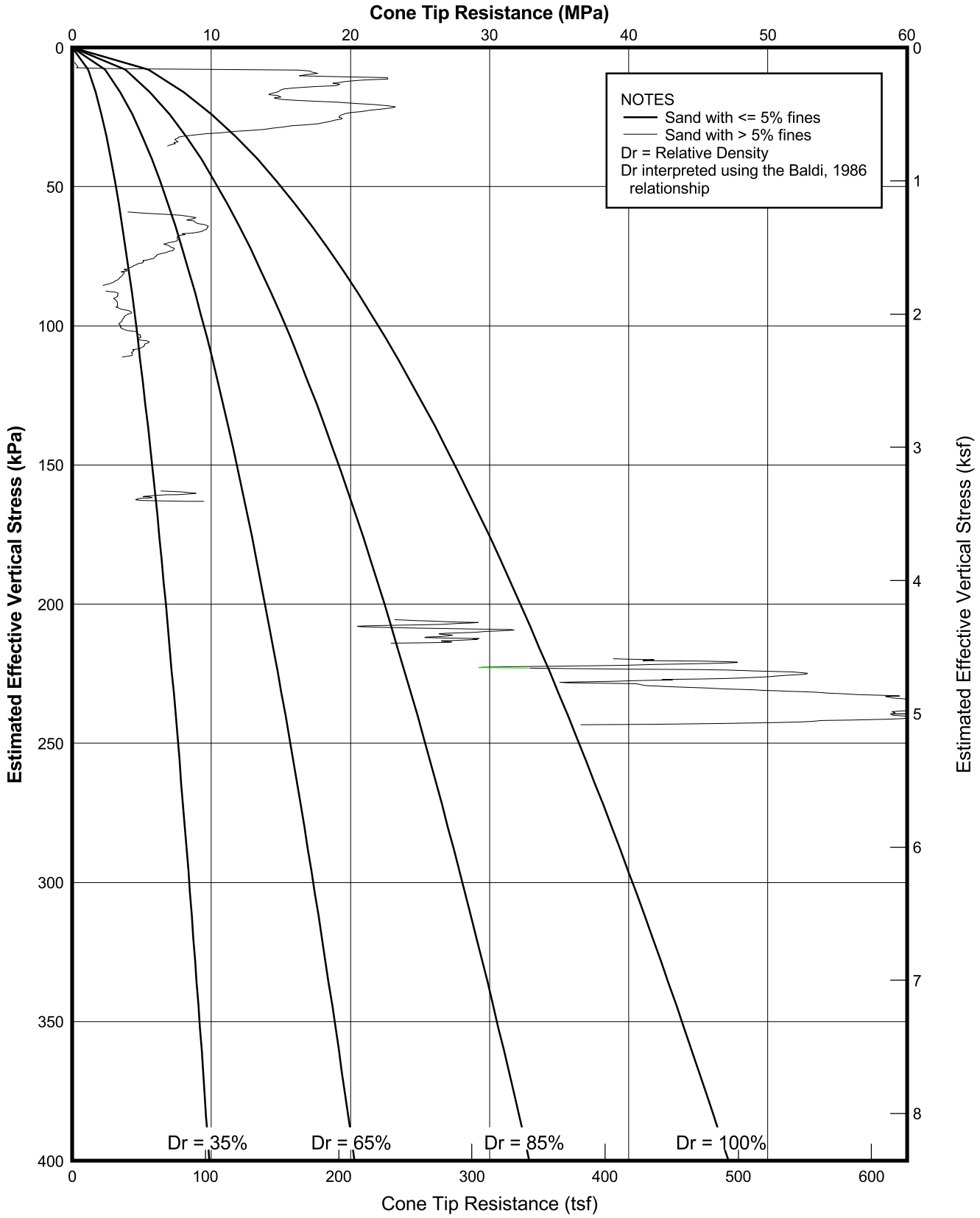
Sounding 98-18

SFOBB East Span Seismic Safety Project

PLATE 98-18.2

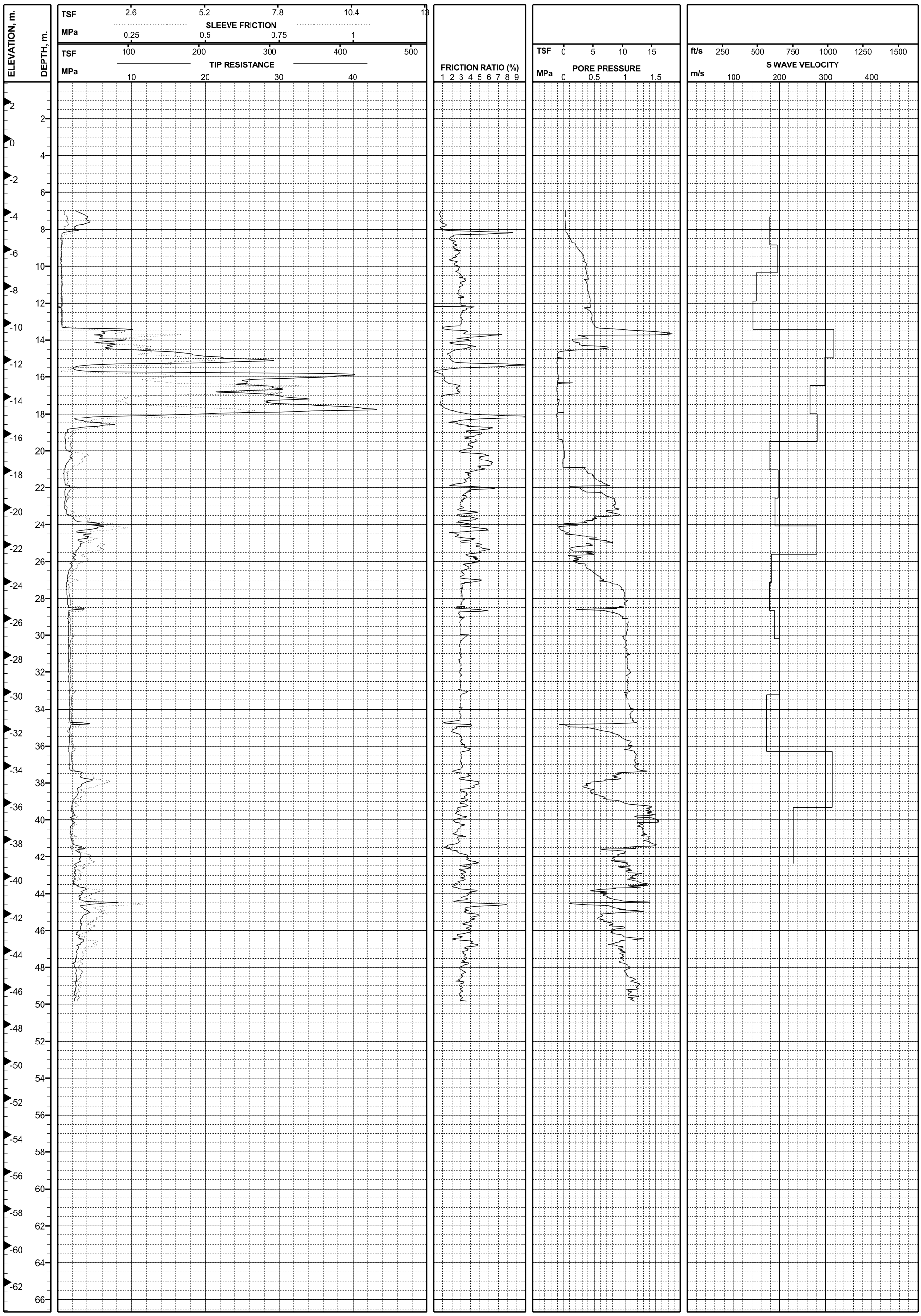


PRECONSOLIDATION STRESS INTERPRETED FROM CPT DATA
Sounding 98-18
SFOBB East Span Seismic Safety Project



RELATIVE DENSITY INTERPRETED FROM CPT DATA
Sounding 98-18
SFOBB East Span Seismic Safety Project

PROJECT NO:	98-42-0058	**COORDINATES:**	E1839011.21 N648267.35 CA State Plane Zone 3, NAD83, Meters	**VEHICLE:**	Fugro Geosciences
EXPLORATION NO.:	98C-101 (6m left of E. Sta. 85+19)	**GROUND ELEVATION:**	3.1 m (MSL)	**TEST DATE:**	10/17/98



LOG OF CPT

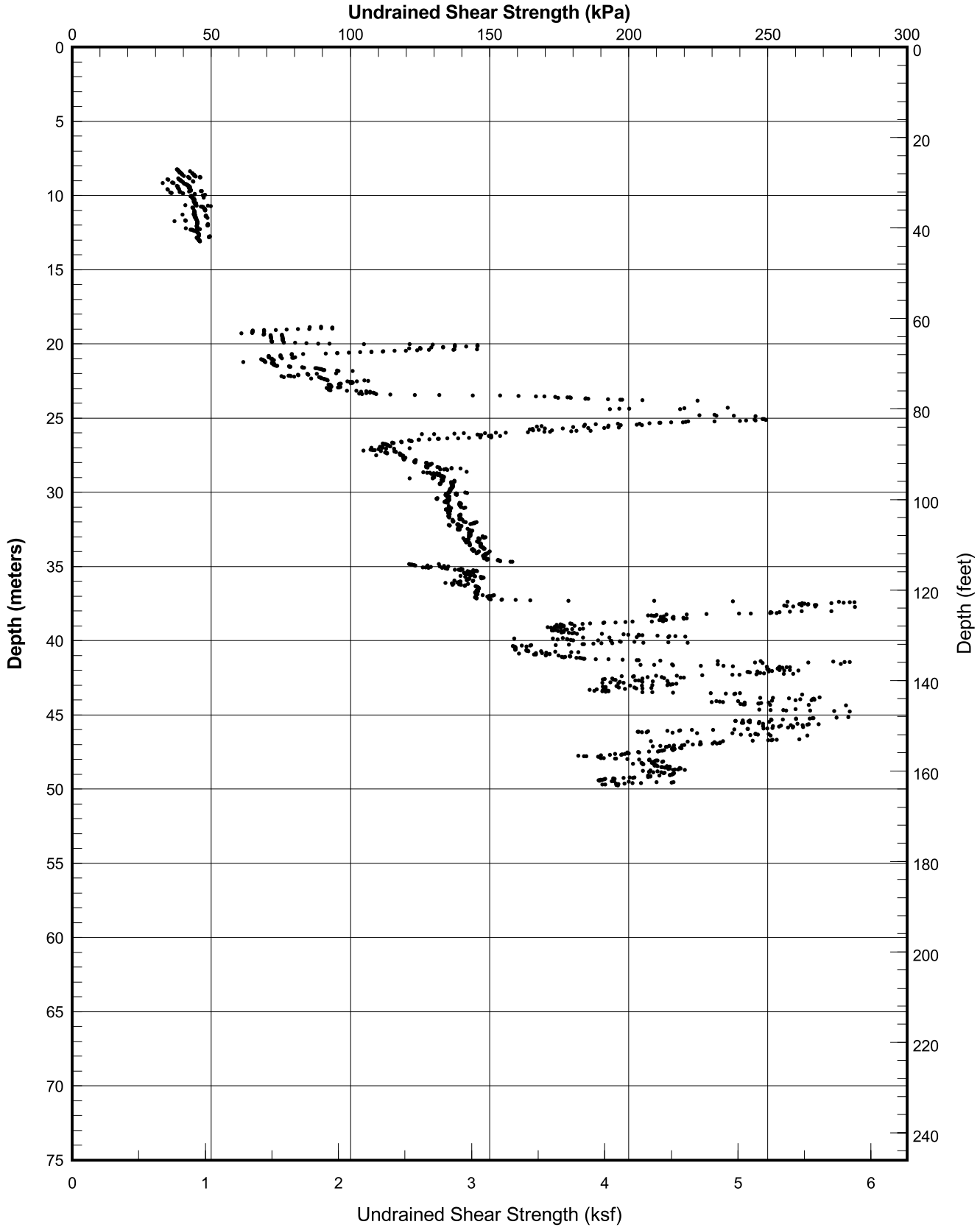
SOUNDING 98C-101

SFOBB East Span Seismic Safety Project

Report Date: 07/12/99

FUGRO

PLATE 98C-101.1

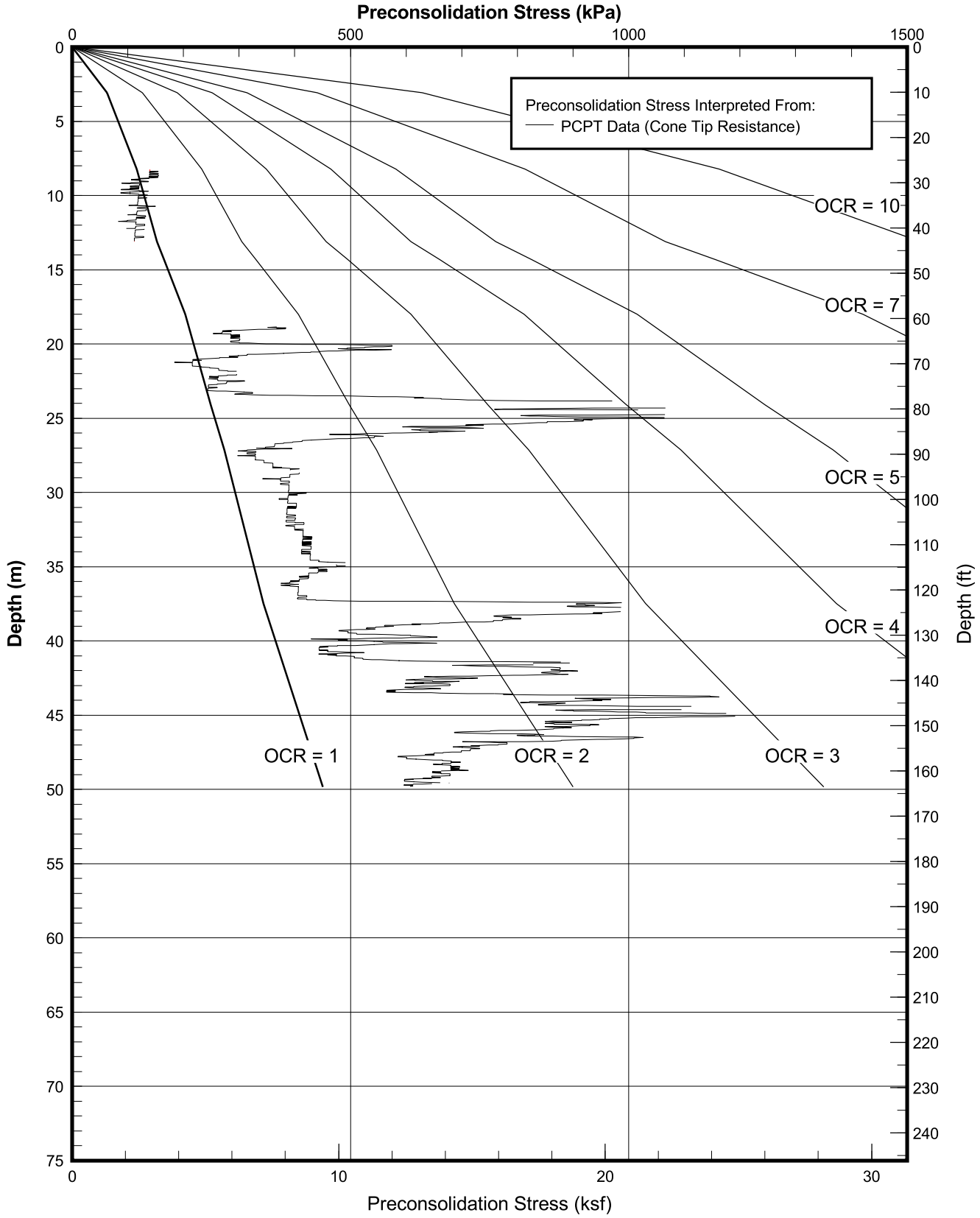


UNDRAINED SHEAR STRENGTH PROFILE INTERPRETED FROM CPT TIP RESISTANCE (Nk=12)

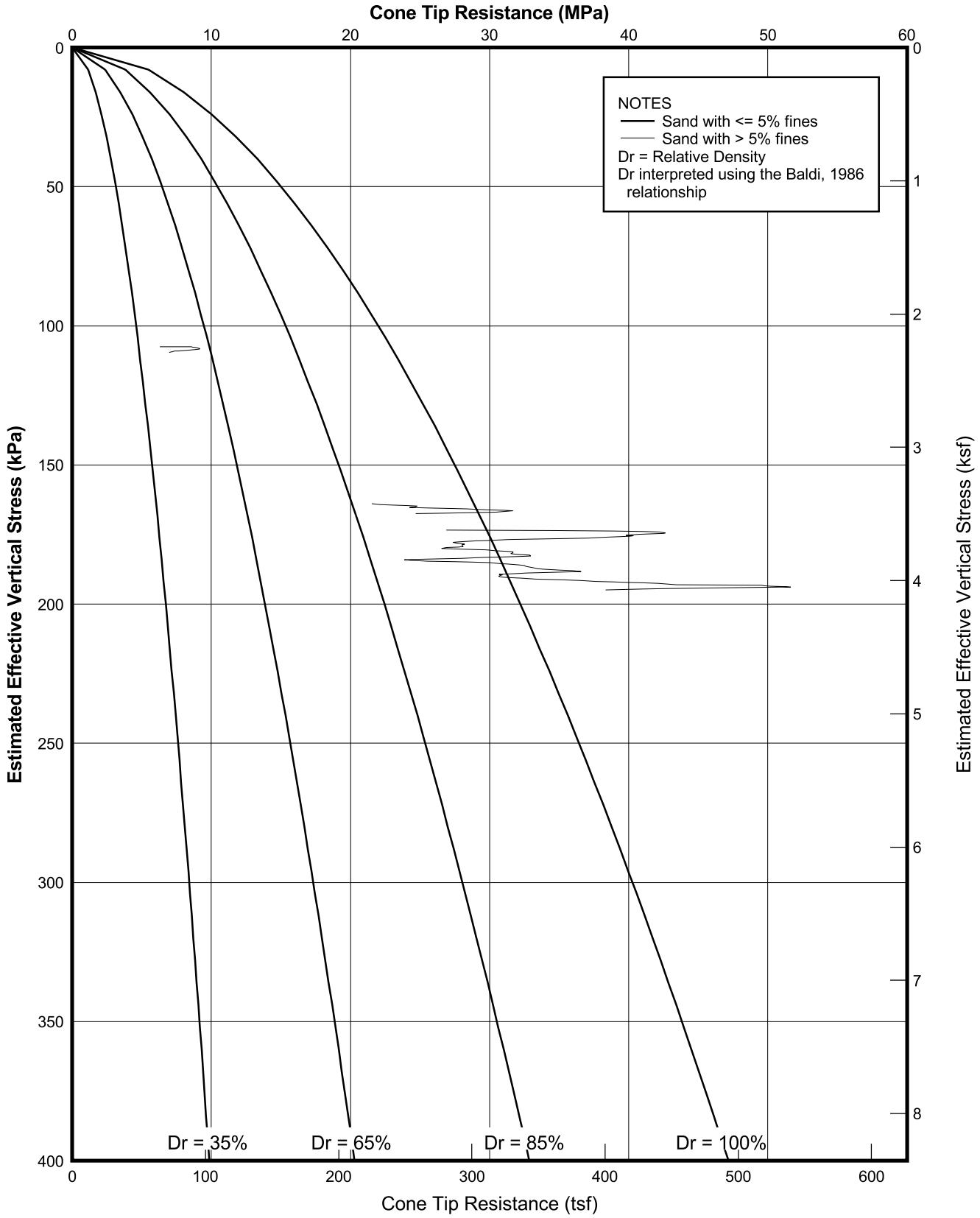
Sounding 98C-101

SFOBB East Span Seismic Safety Project

PLATE 98C-101.2

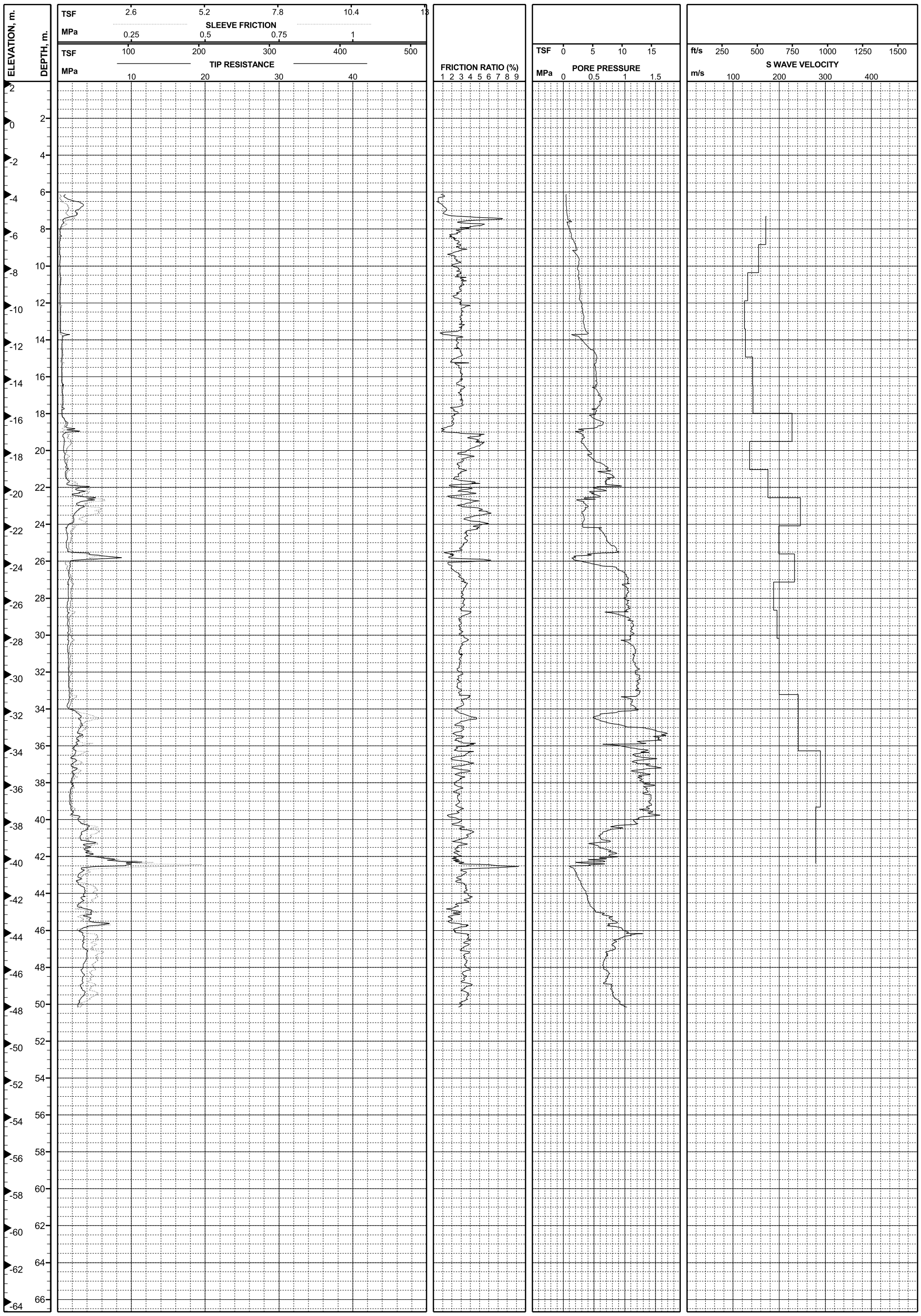


PRECONSOLIDATION STRESS INTERPRETED FROM CPT DATA
Sounding 98C-101
SFOBB East Span Seismic Safety Project



RELATIVE DENSITY INTERPRETED FROM CPT DATA
Sounding 98C-101
SFOBB East Span Seismic Safety Project

PROJECT NO:	98-42-0058	**COORDINATES:**	E1839111 N648300 CA State Plane Zone 3, NAD83, Meters	**VEHICLE:**	Fugro Geosciences
EXPLORATION NO.:	98C-102 (9m right of W. Sta 86+52)	**GROUND ELEVATION:**	2.1 m (MSL)	**TEST DATE:**	10/16/98



LOG OF CPT

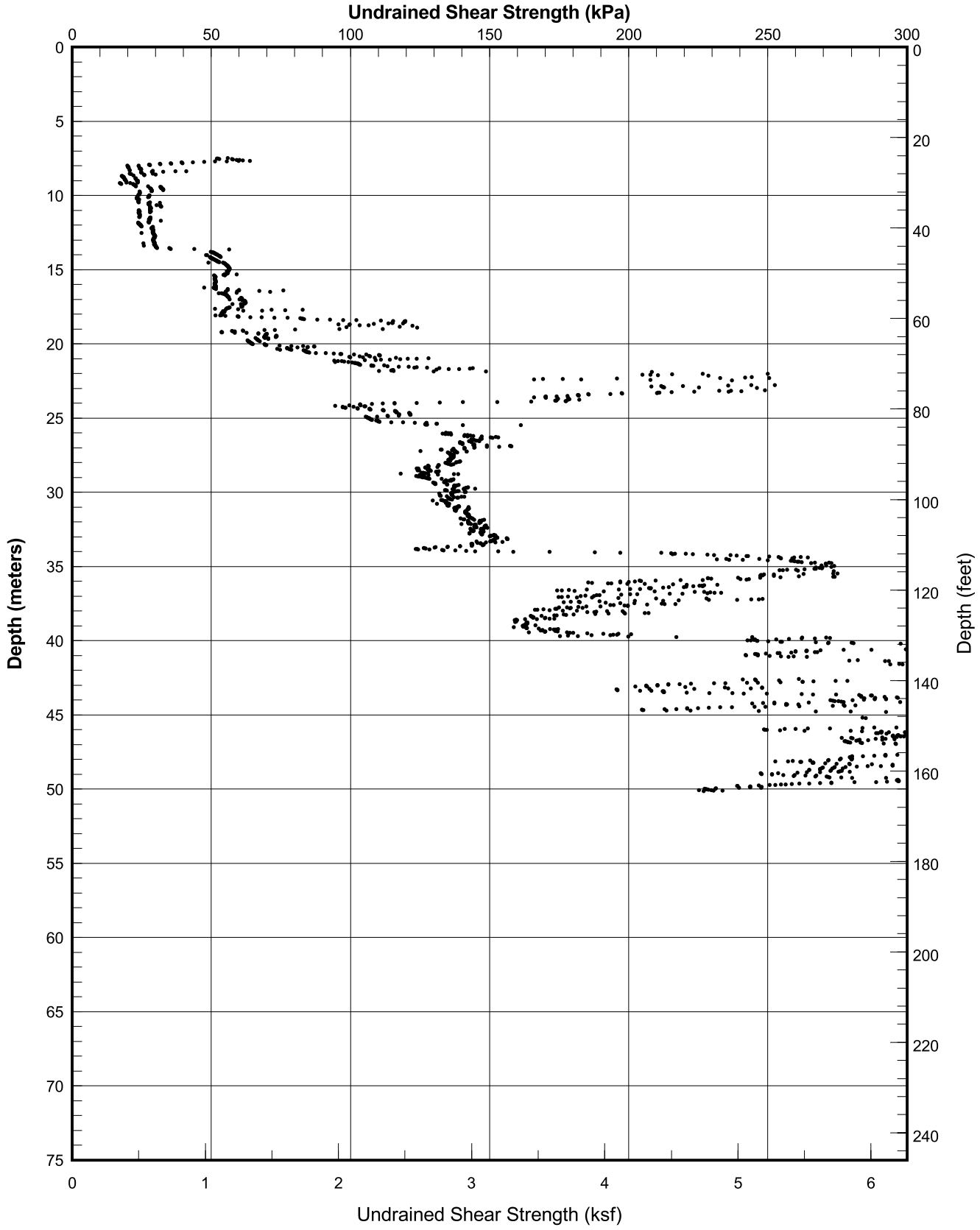
SOUNDING 98C-102

SFOBB East Span Seismic Safety Project

Report Date: 07/12/99

FUGRO

PLATE 98C-102.1

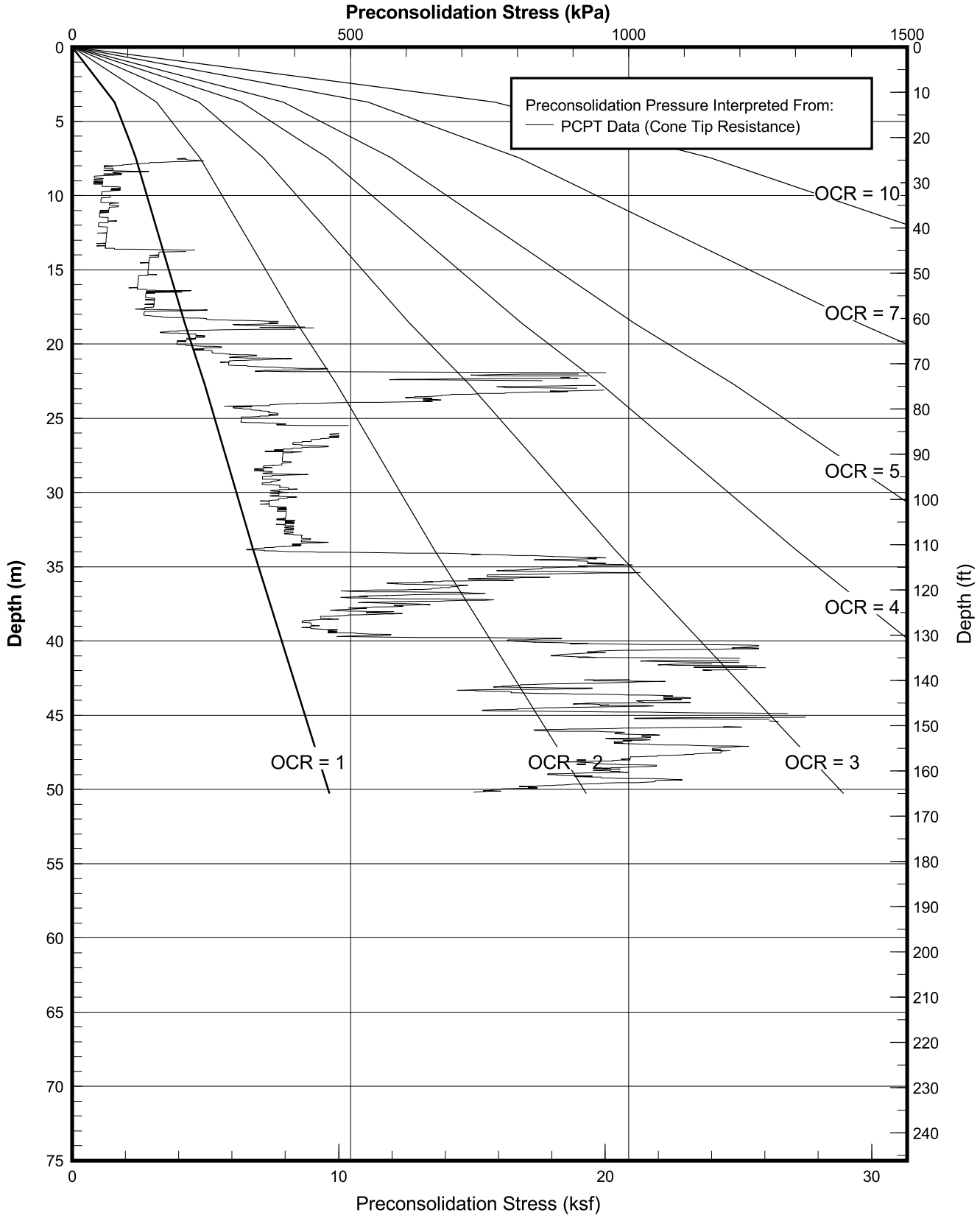


UNDRAINED SHEAR STRENGTH PROFILE INTERPRETED FROM CPT TIP RESISTANCE (Nk=12)

Sounding 98C-102

SFOBB East Span Seismic Safety Project

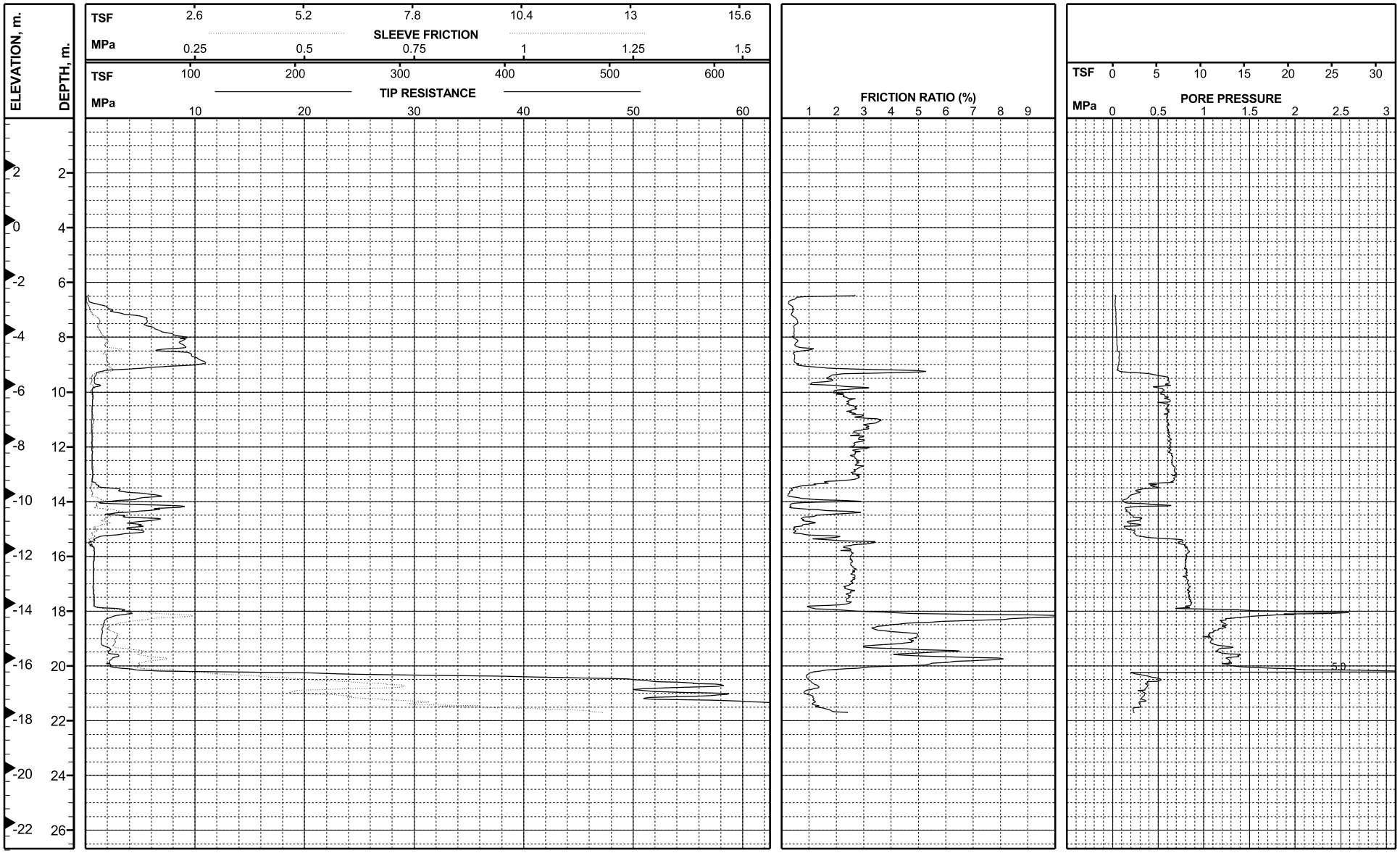
PLATE 98C-102.2



PRECONSOLIDATION STRESS INTERPRETED FROM CPT DATA
Sounding 98C-102
SFOBB East Span Seismic Safety Project

No Relevant Relative Density Data Interpreted From This Sounding

PROJECT NO:	98-42-0058	**COORDINATES:**	E1839304 N648323 CA State Plane Zone 3, NAD83, Meters	**VEHICLE:**	Fugro Geosciences
EXPLORATION NO.:	98C-104 (1m right of W. Sta 88+46)	**GROUND ELEVATION:**	3.7 m (MSL)	**TEST DATE:**	10/13/98



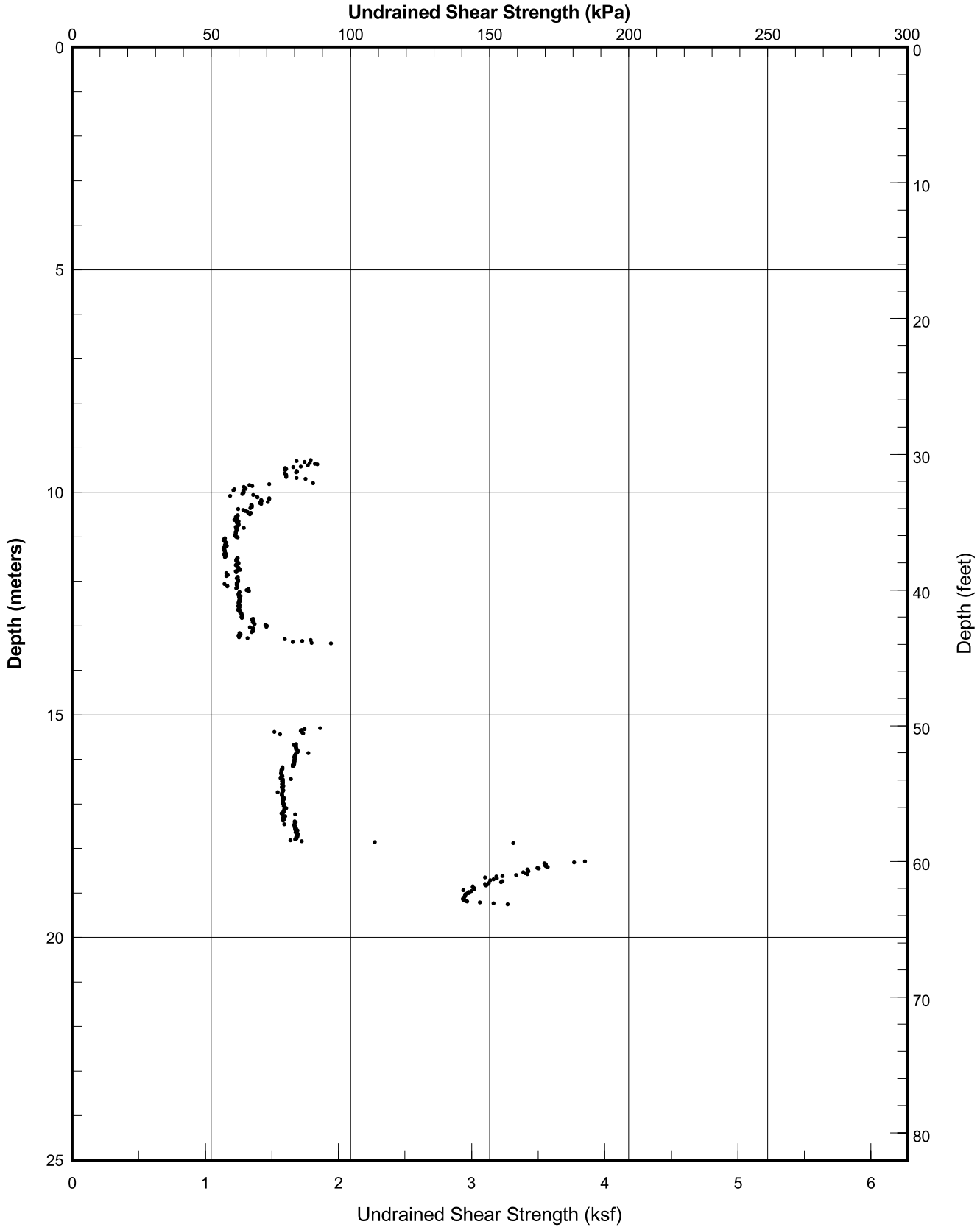
LOG OF CPT

SOUNDING 98C-104

SFOBB East Span Seismic Safety Project

Report Date: 07/06/99

PLATE 98C-104.1

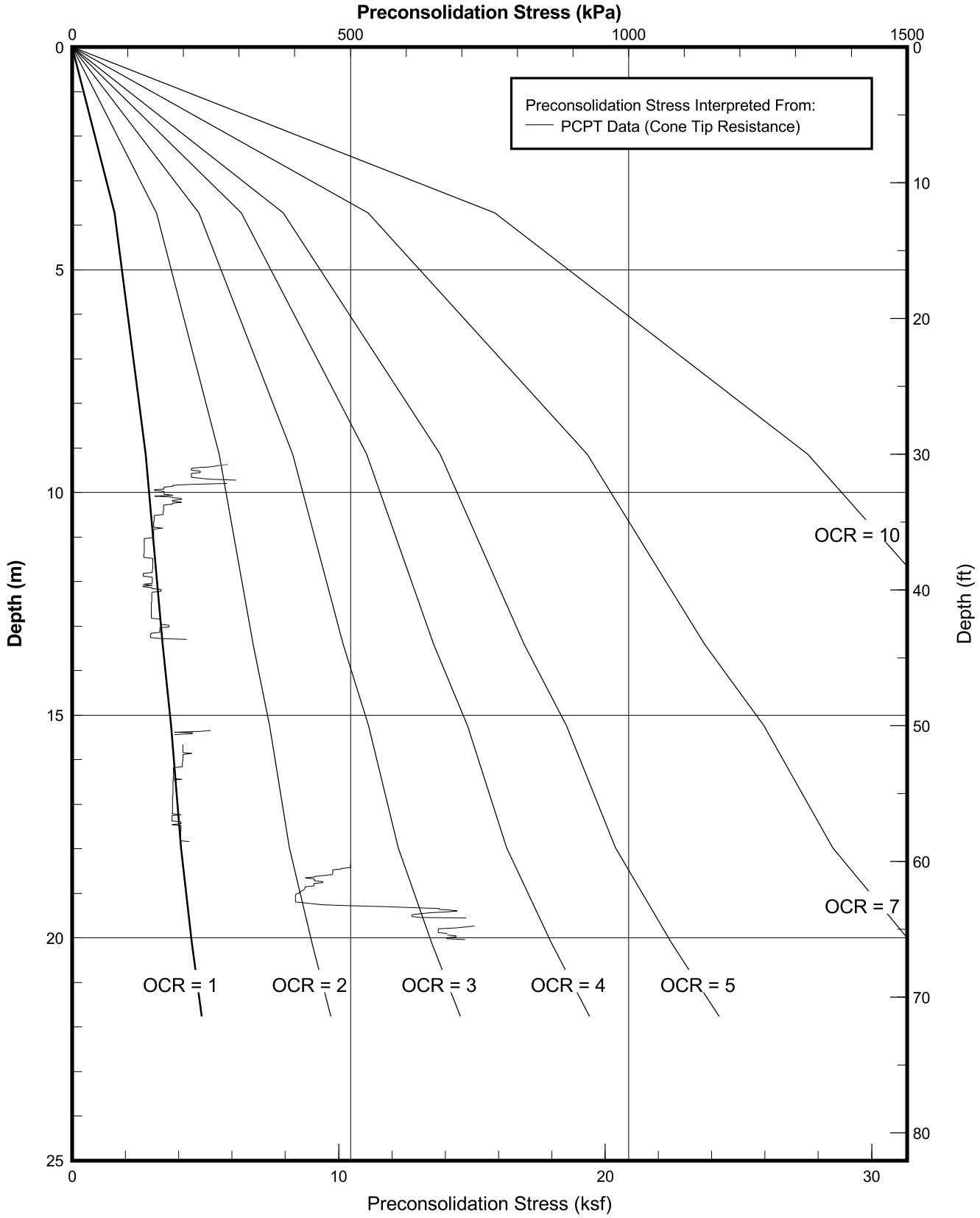


UNDRAINED SHEAR STRENGTH PROFILE INTERPRETED FROM CPT TIP RESISTANCE (Nk=12)

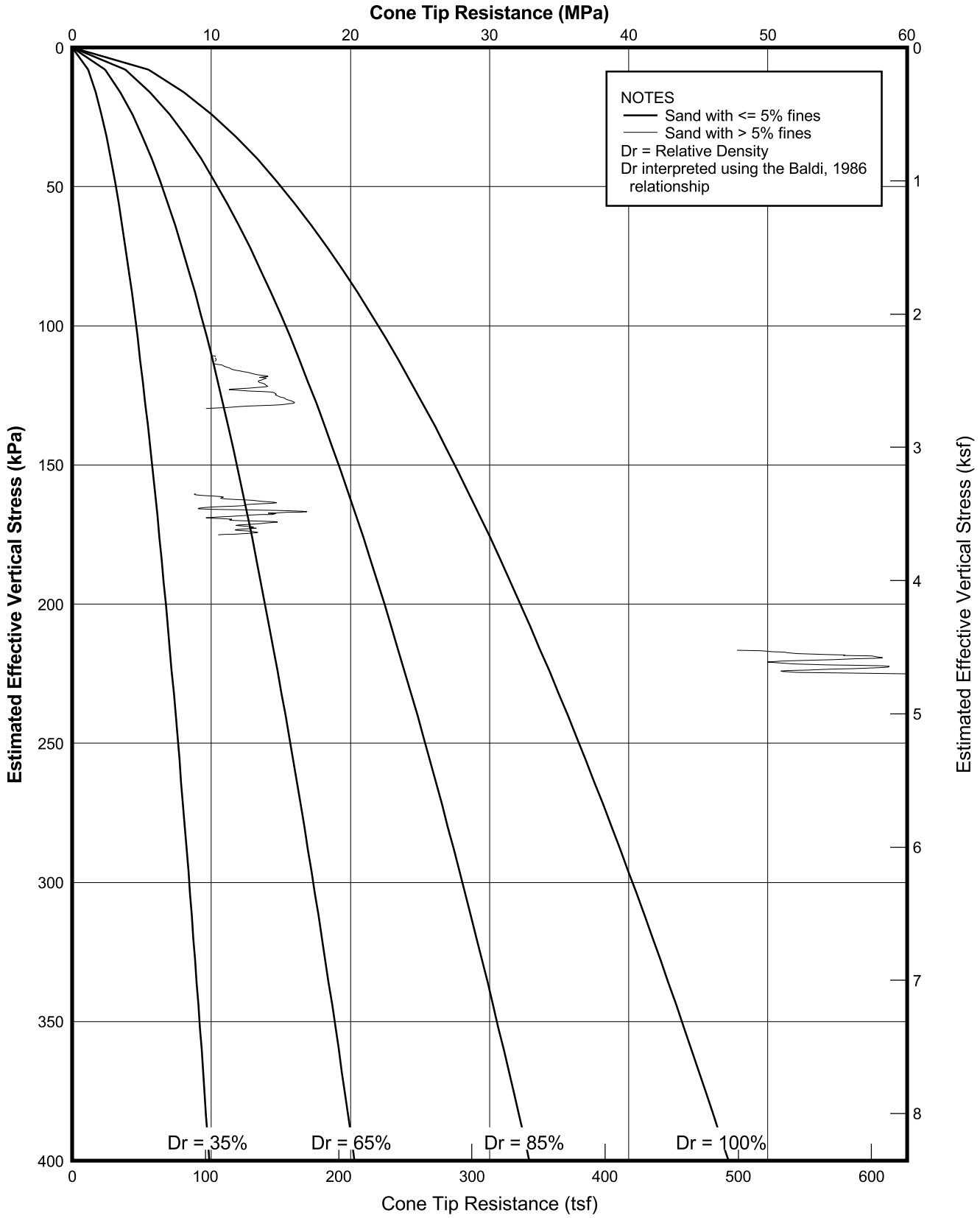
Sounding 98C-104

SFOBB East Span Seismic Safety Project

PLATE 98C-104.2

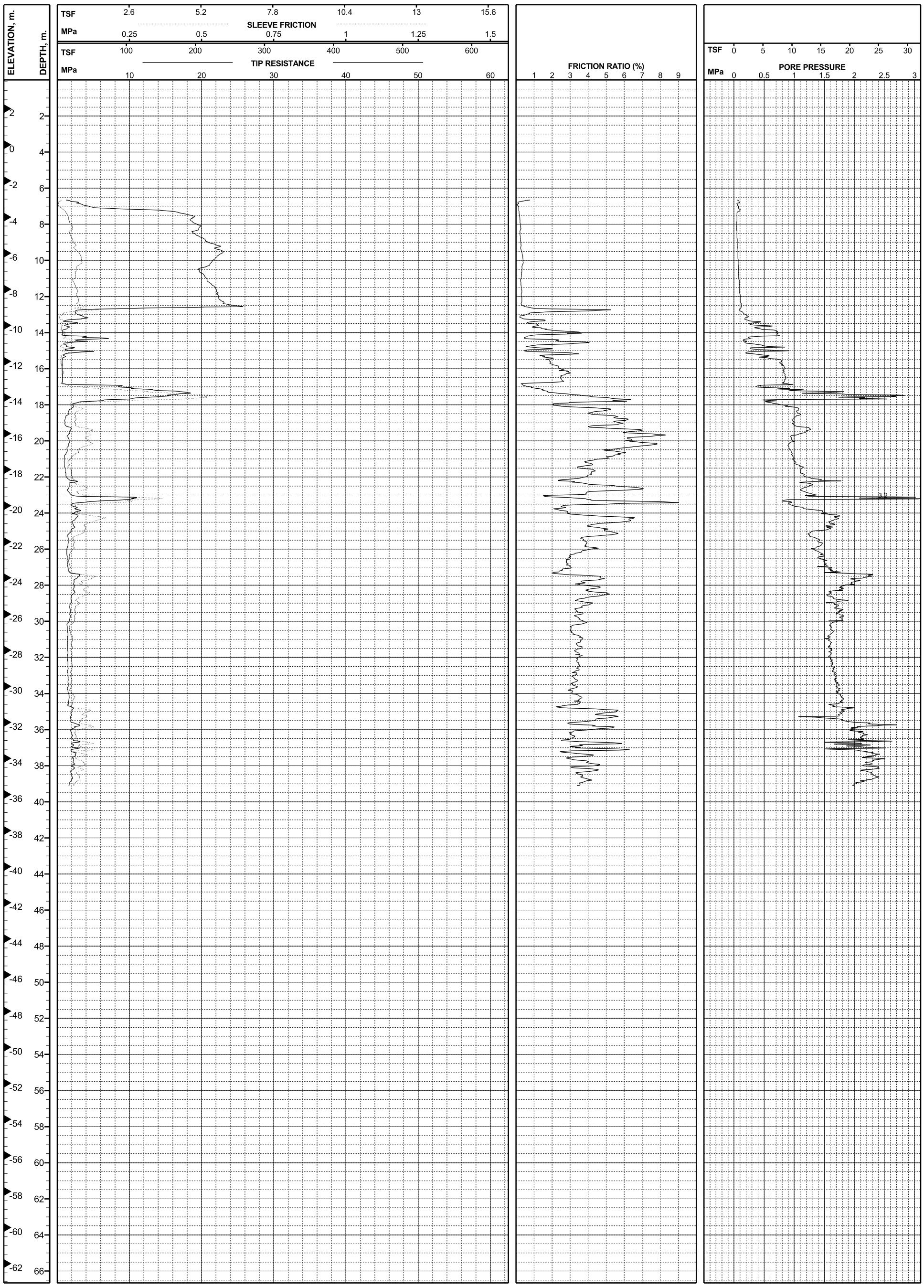


PRECONSOLIDATION STRESS INTERPRETED FROM CPT DATA
Sounding 98C-104
SFOBB East Span Seismic Safety Project



RELATIVE DENSITY INTERPRETED FROM CPT DATA
Sounding 98C-104
SFOBB East Span Seismic Safety Project

PROJECT NO:	98-42-0058	**COORDINATES:**	E1839372 N648313 CA State Plane Zone 3, NAD83, Meters	**VEHICLE:**	Fugro Geosciences
EXPLORATION NO.:	98C-105 (16m right of W. Sta 89+13)	**GROUND ELEVATION:**	3.6 m (MSL)	**TEST DATE:**	10/19/98



LOG OF CPT

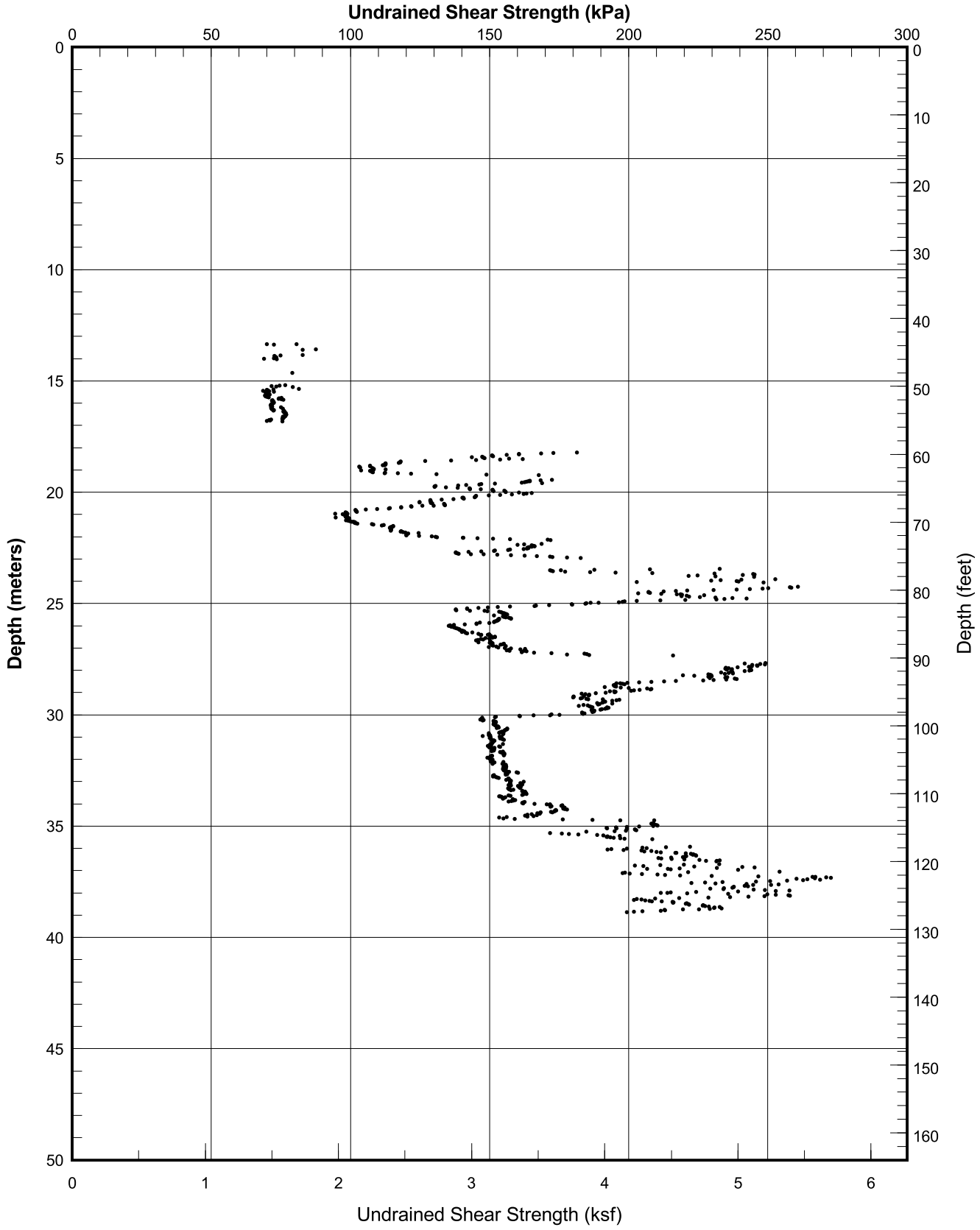
SOUNDING 98C-105

SFOBB East Span Seismic Safety Project

Report Date: 07/06/99

FUGRO

PLATE 98C-105.1

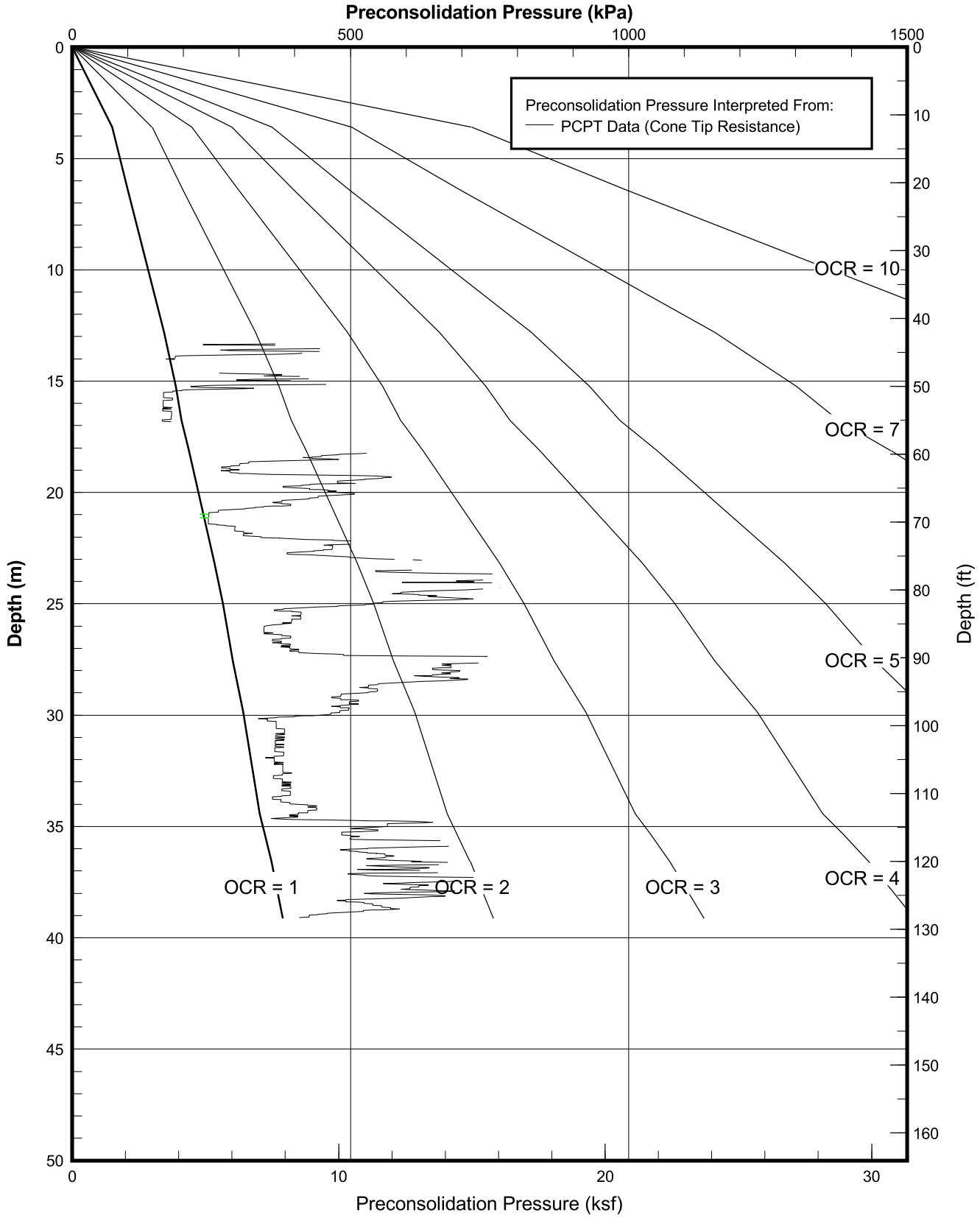


UNDRAINED SHEAR STRENGTH PROFILE INTERPRETED FROM CPT TIP RESISTANCE (Nk=12)

Sounding 98C-105

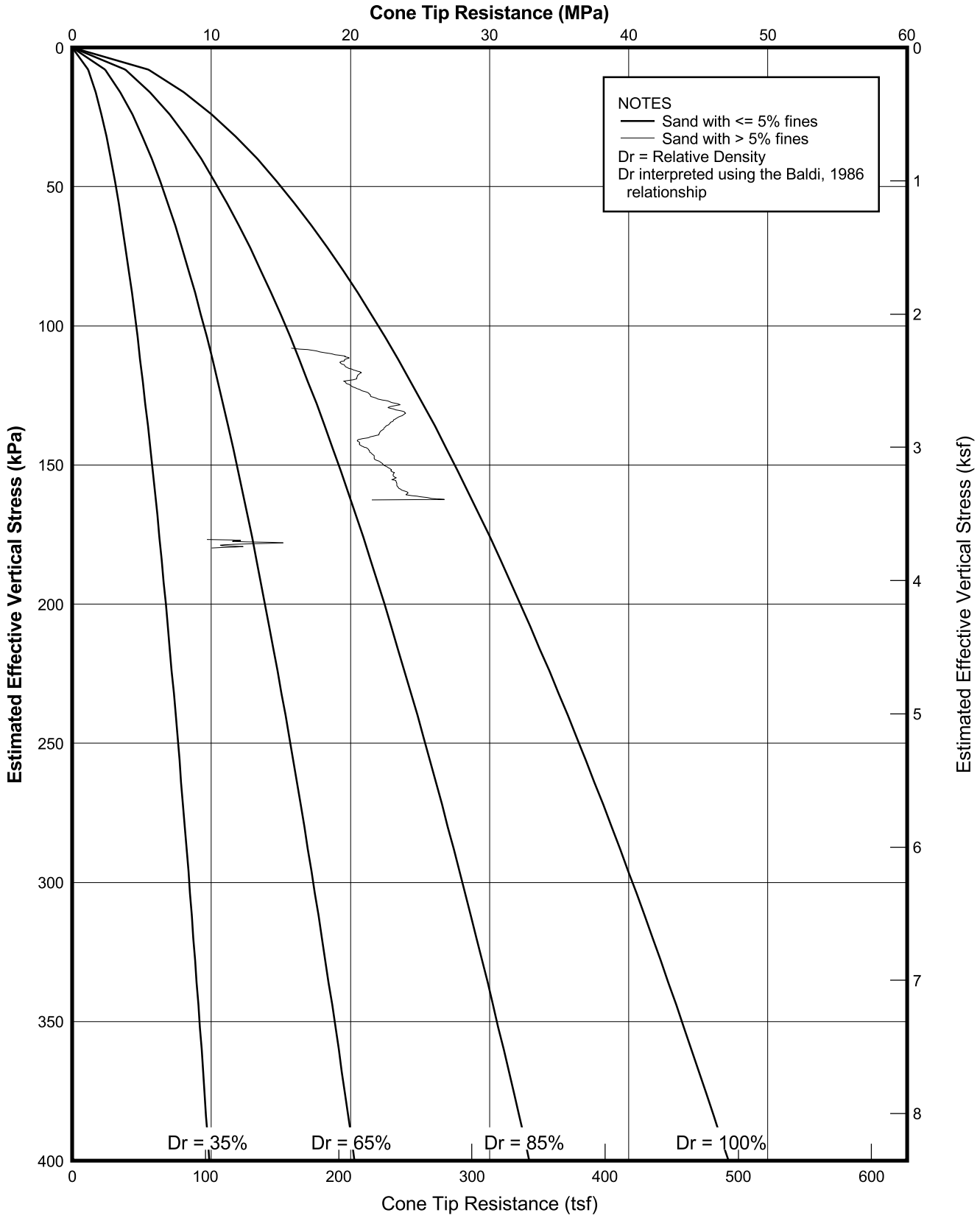
SFOBB East Span Seismic Safety Project

PLATE 98C-105.2



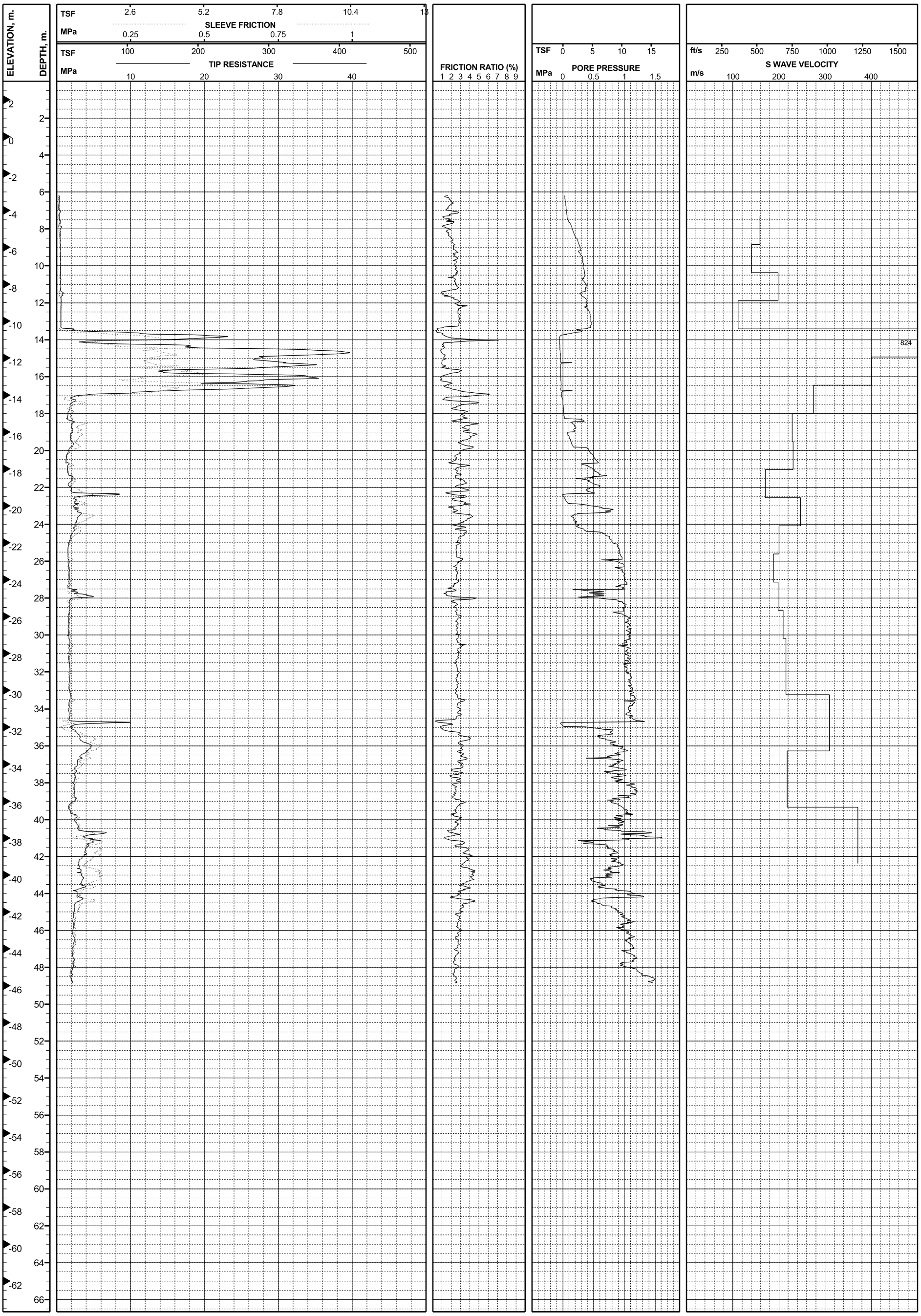
PRECONSOLIDATION PRESSURE INTERPRETED FROM CPT DATA
Sounding 98C-105
SFOBB East Span Seismic Safety Project

PLATE 98C-105.3



RELATIVE DENSITY INTERPRETED FROM CPT DATA
Sounding 98C-105
SFOBB East Span Seismic Safety Project

PROJECT NO:	98-42-0058	**COORDINATES:**	E1839339 N648260 CA State Plane Zone 3, NAD83, Meters	**VEHICLE:**	Fugro Geosciences
EXPLORATION NO.:	98C-109 (26m right of E. Sta 88+45)	**GROUND ELEVATION:**	3.0 m (MSL)	**TEST DATE:**	10/21/98



LOG OF CPT

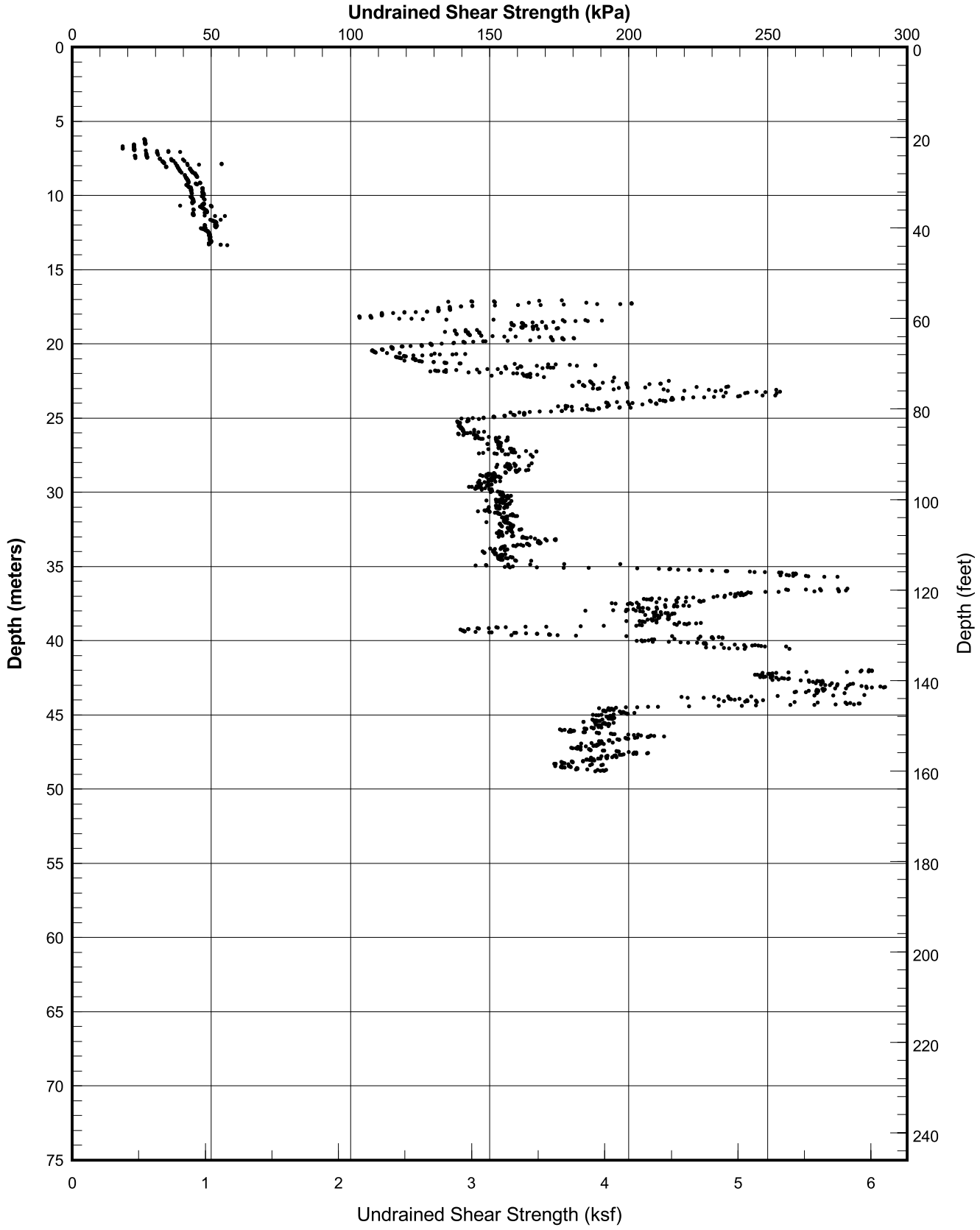
SOUNDING 98C-109

SFOBB East Span Seismic Safety Project

Report Date: 07/12/99

FUGRO

PLATE 98C-109.1

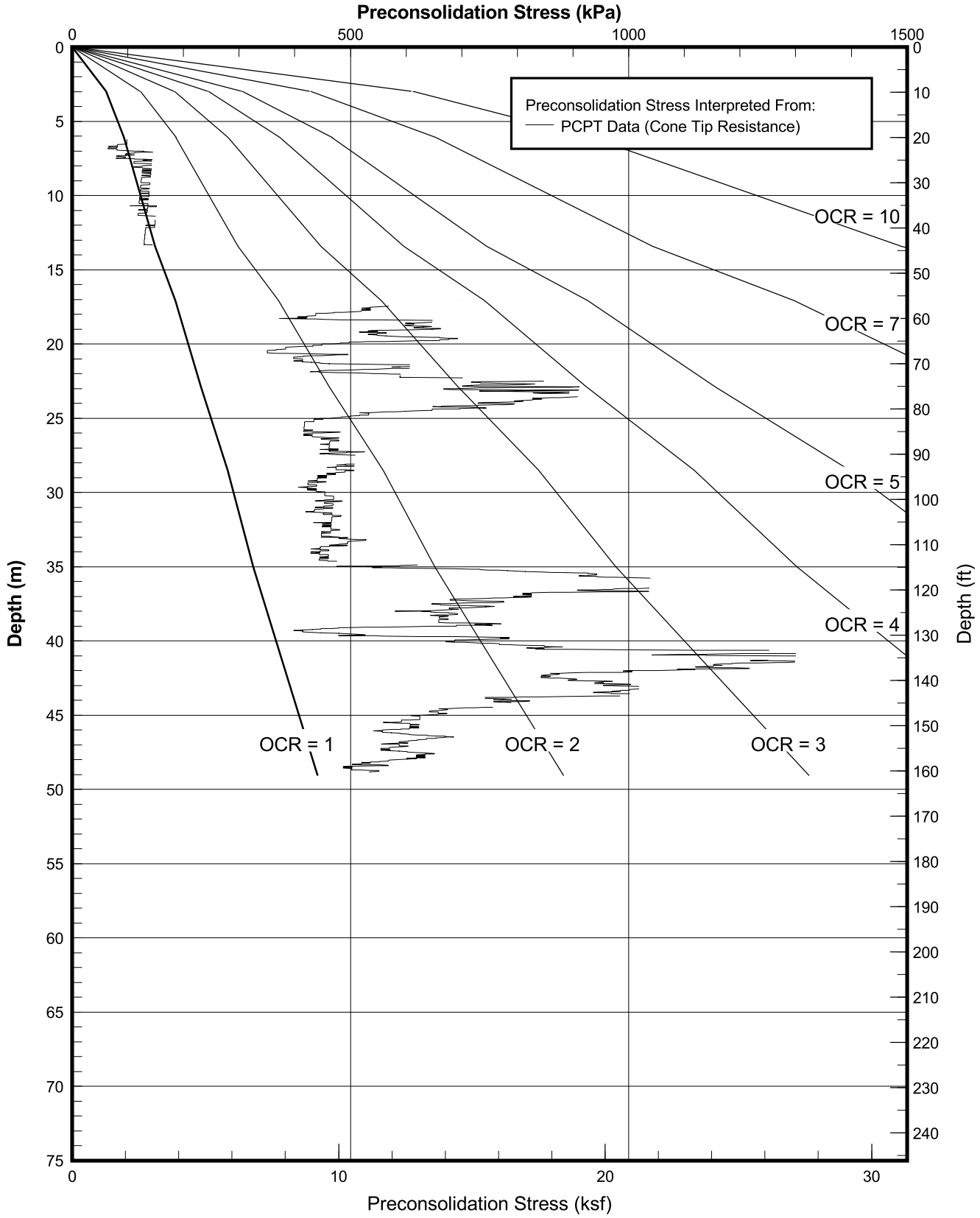


UNDRAINED SHEAR STRENGTH PROFILE INTERPRETED FROM CPT TIP RESISTANCE (Nk=12)

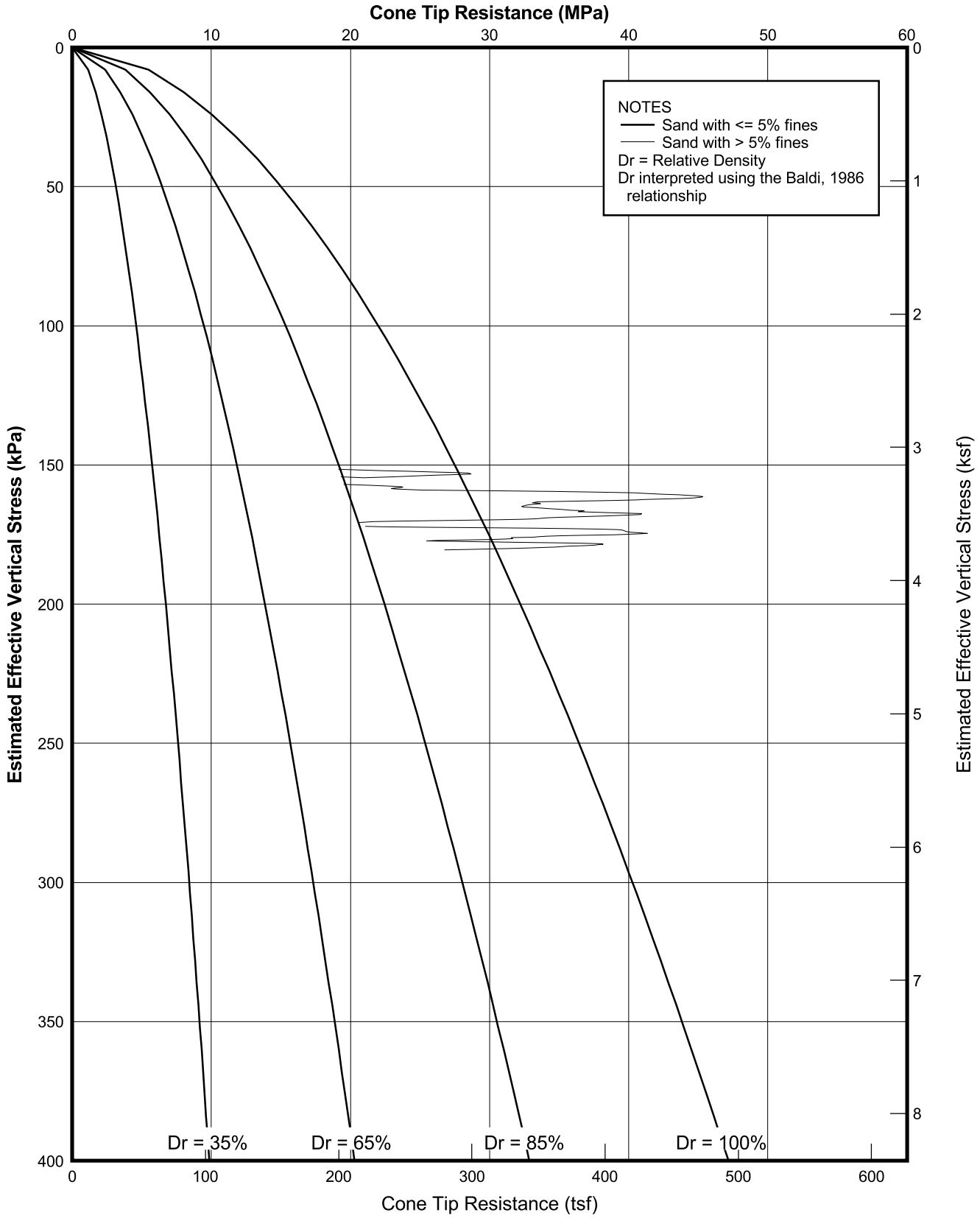
Sounding 98C-109

SFOBB East Span Seismic Safety Project

PLATE 98C-109.2

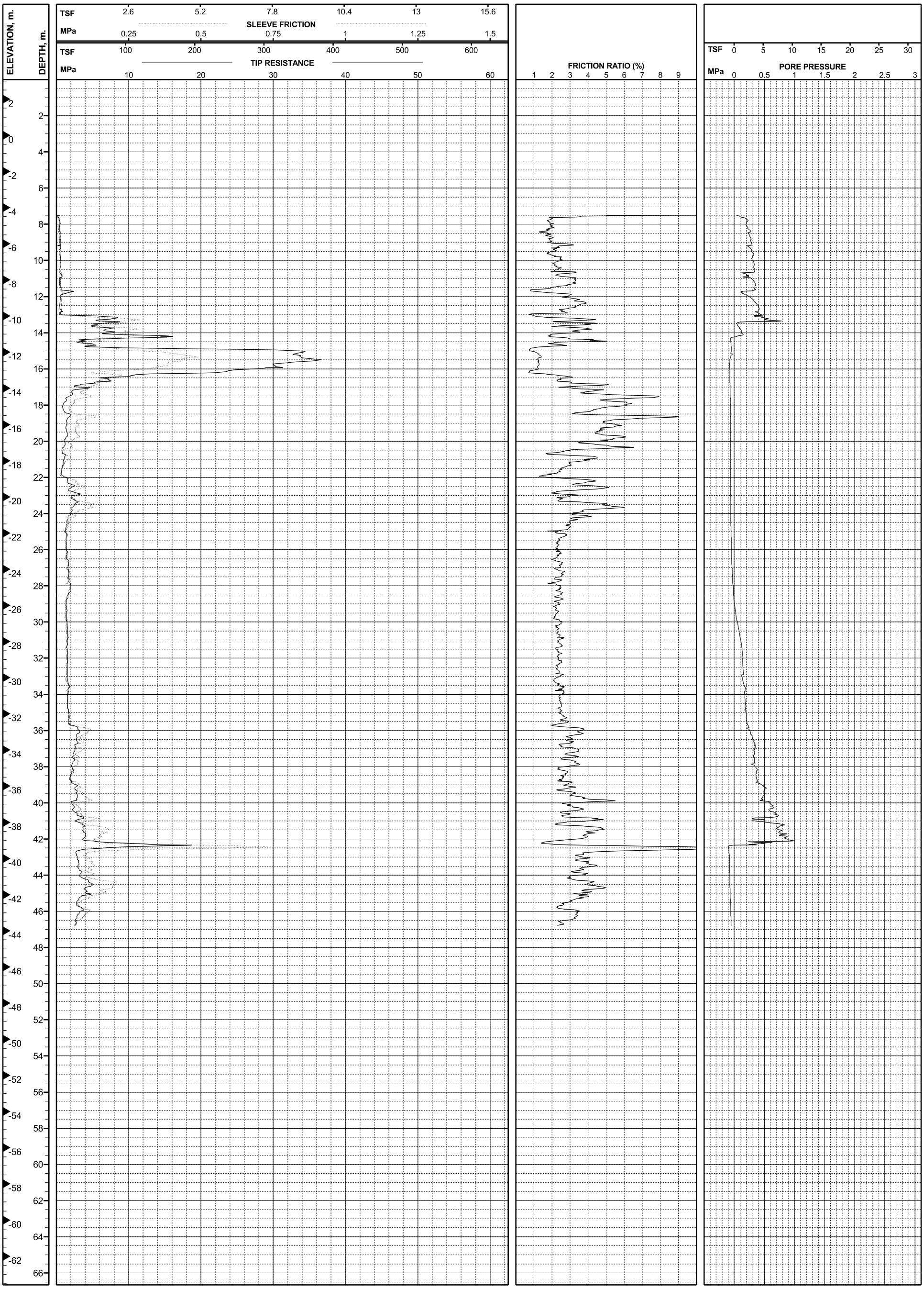


PRECONSOLIDATION STRESS INTERPRETED FROM CPT DATA
Sounding 98C-109
SFOBB East Span Seismic Safety Project



RELATIVE DENSITY INTERPRETED FROM CPT DATA
Sounding 98C-109
SFOBB East Span Seismic Safety Project

PROJECT NO:	98-42-0058	**COORDINATES:**	E1839489 N648287 CA State Plane Zone 3, NAD83, Meters	**VEHICLE:**	Fugro Geosciences
EXPLORATION NO.:	98C-110 (15m right of E. Sta 89+96)	**GROUND ELEVATION:**	3.1 m (MSL)	**TEST DATE:**	10/13/98



LOG OF CPT

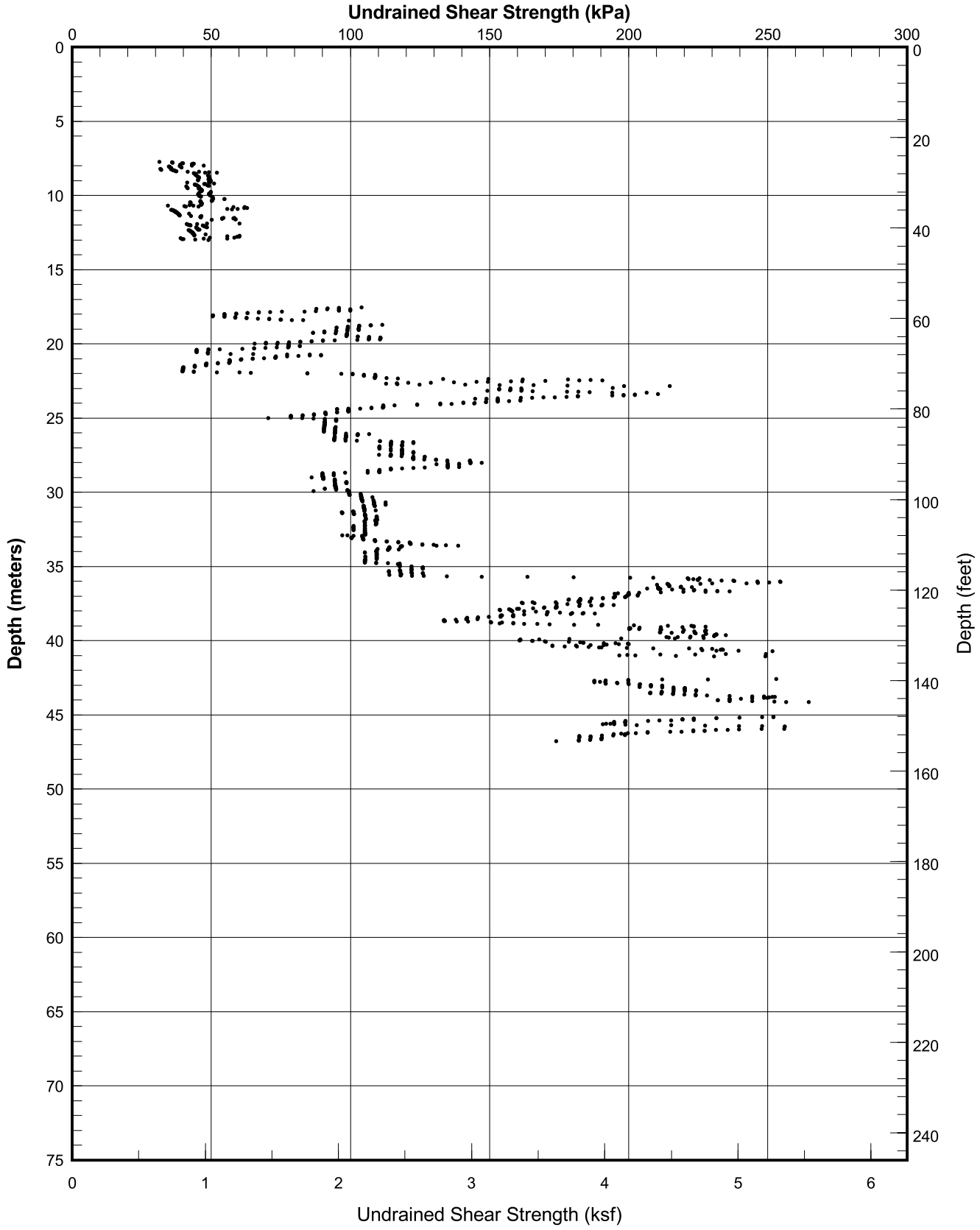
SOUNDING 98C-110

SFOBB East Span Seismic Safety Project

Report Date: 07/06/99

FUGRO

PLATE 98C-110.1

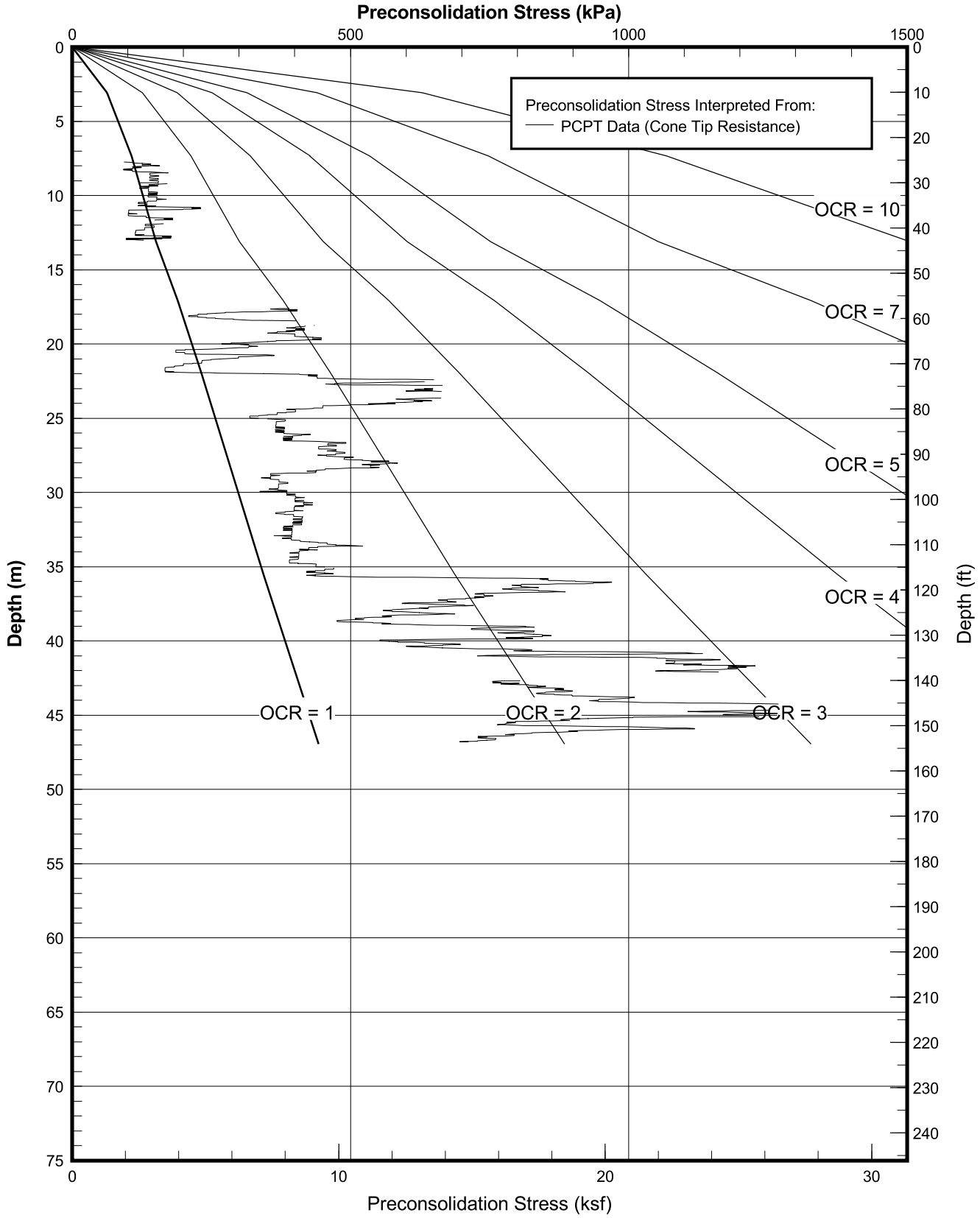


UNDRAINED SHEAR STRENGTH PROFILE INTERPRETED FROM CPT TIP RESISTANCE (Nk=12)

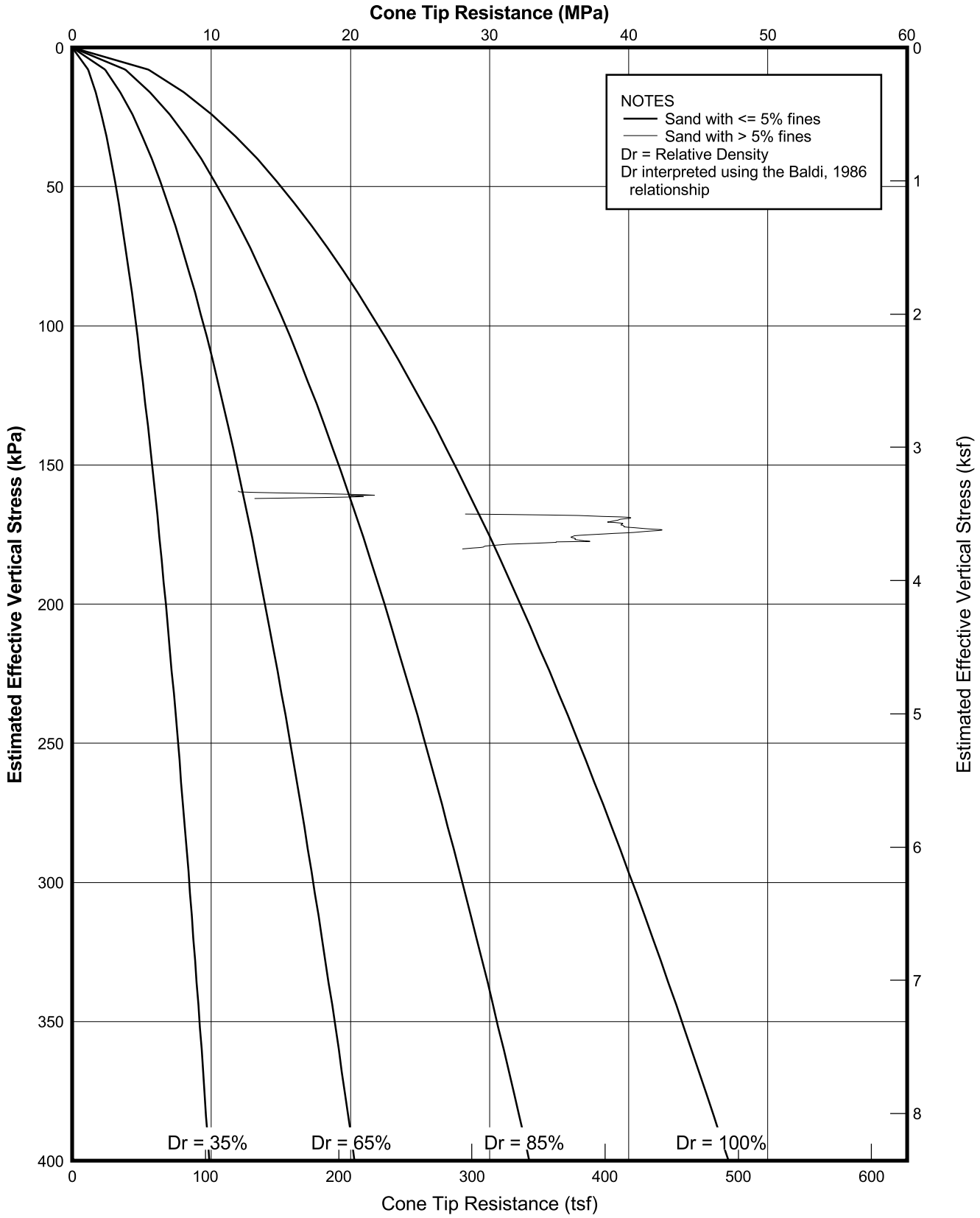
Sounding 98C-110

SFOBB East Span Seismic Safety Project

PLATE 98C-110.2

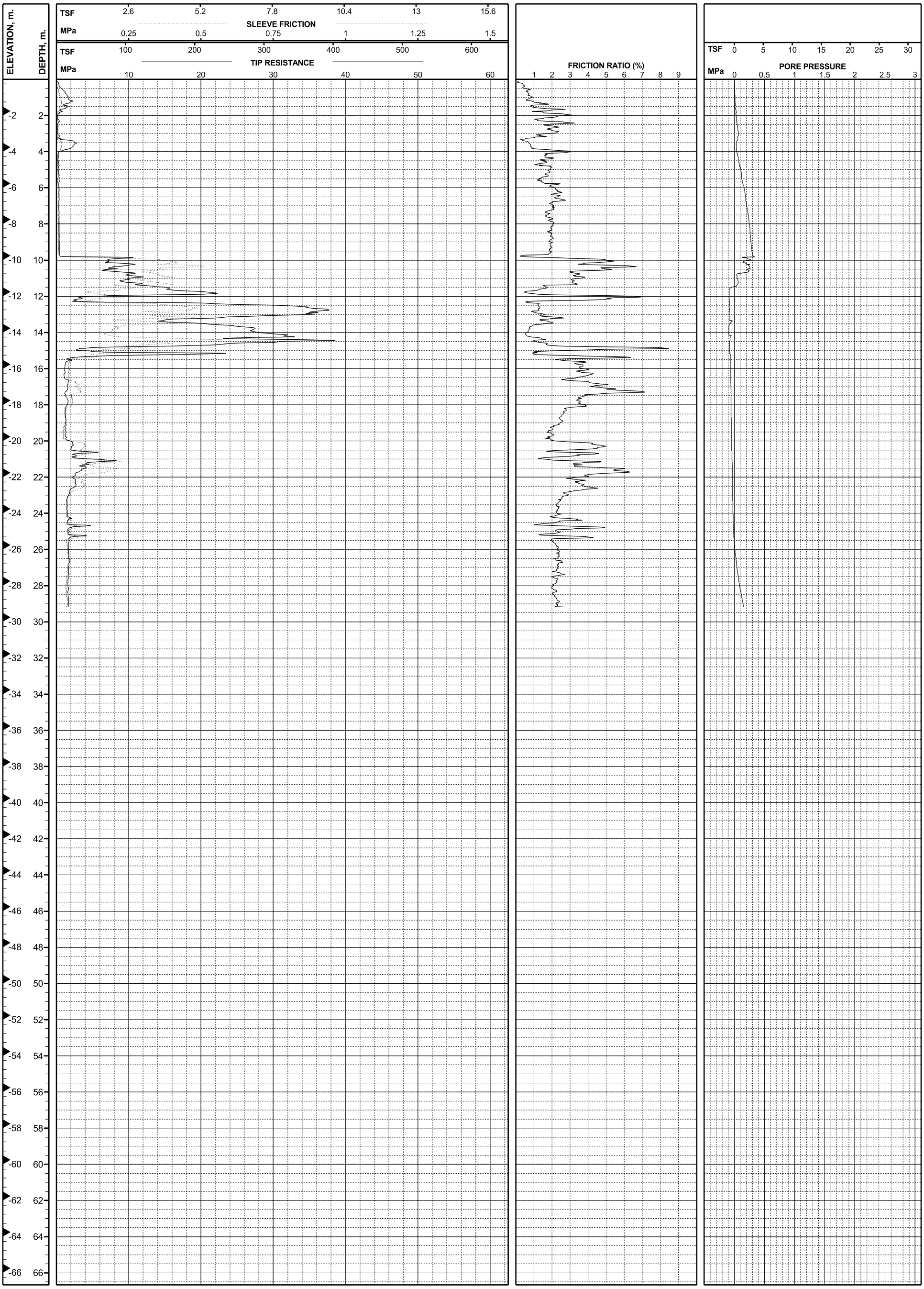


PRECONSOLIDATION STRESS INTERPRETED FROM CPT DATA
Sounding 98C-110
SFOBB East Span Seismic Safety Project



RELATIVE DENSITY INTERPRETED FROM CPT DATA
Sounding 98C-110
SFOBB East Span Seismic Safety Project

PROJECT NO:	98-42-0058	**COORDINATES:**	E1838969 N648274 CA State Plane Zone 3, NAD83, Meters	**VEHICLE:**	Fugro Geosciences
EXPLORATION NO.:	99C-1 (22.8m right of W. Sta 85+08)	**GROUND ELEVATION:**	-0.2 m (MSL)	**TEST DATE:**	03/15/99



LOG OF CPT

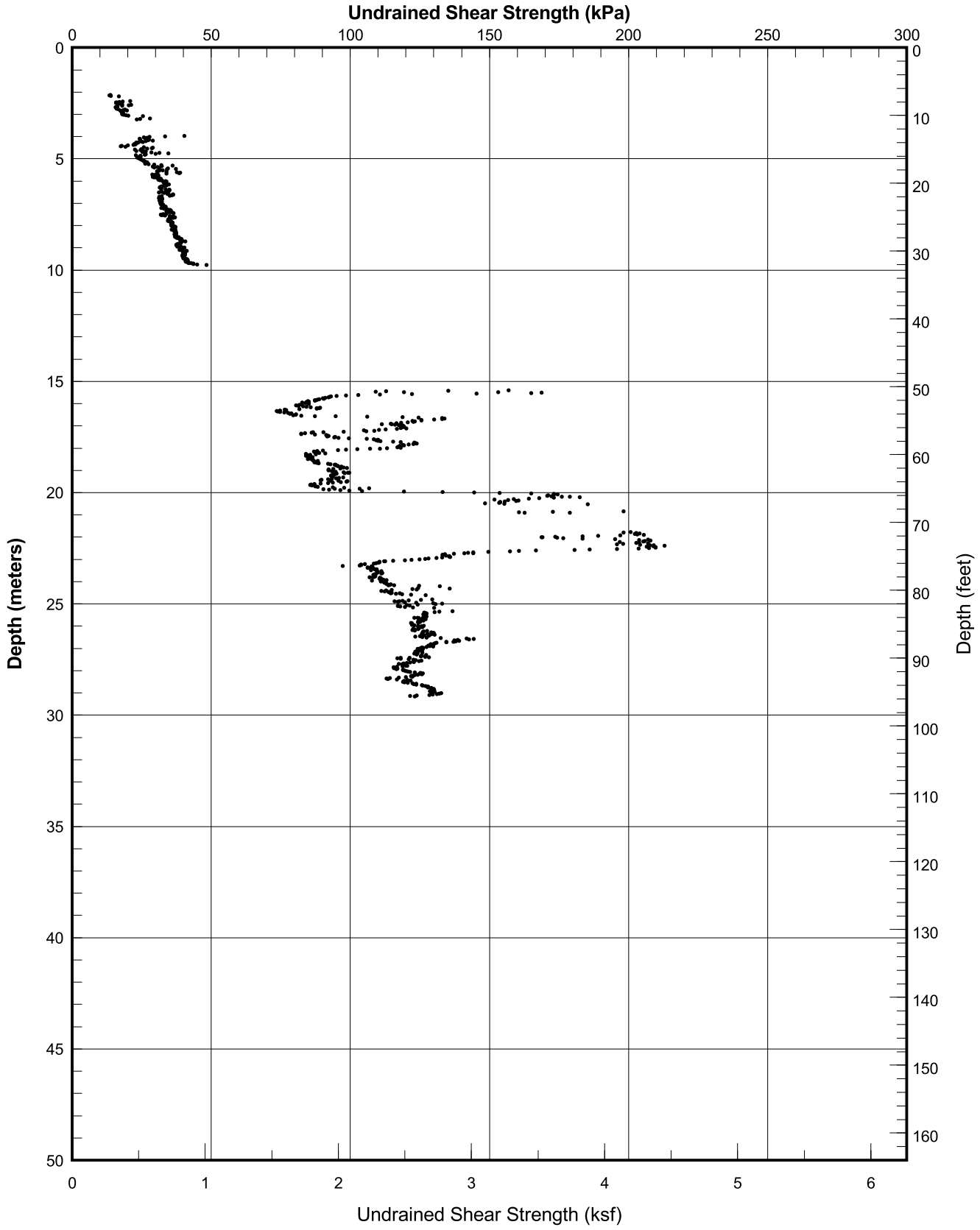
SOUNDING 99C-1

SFOBB East Span Seismic Safety Project

Report Date: 07/06/99

FUGRO

PLATE 99C-1.1

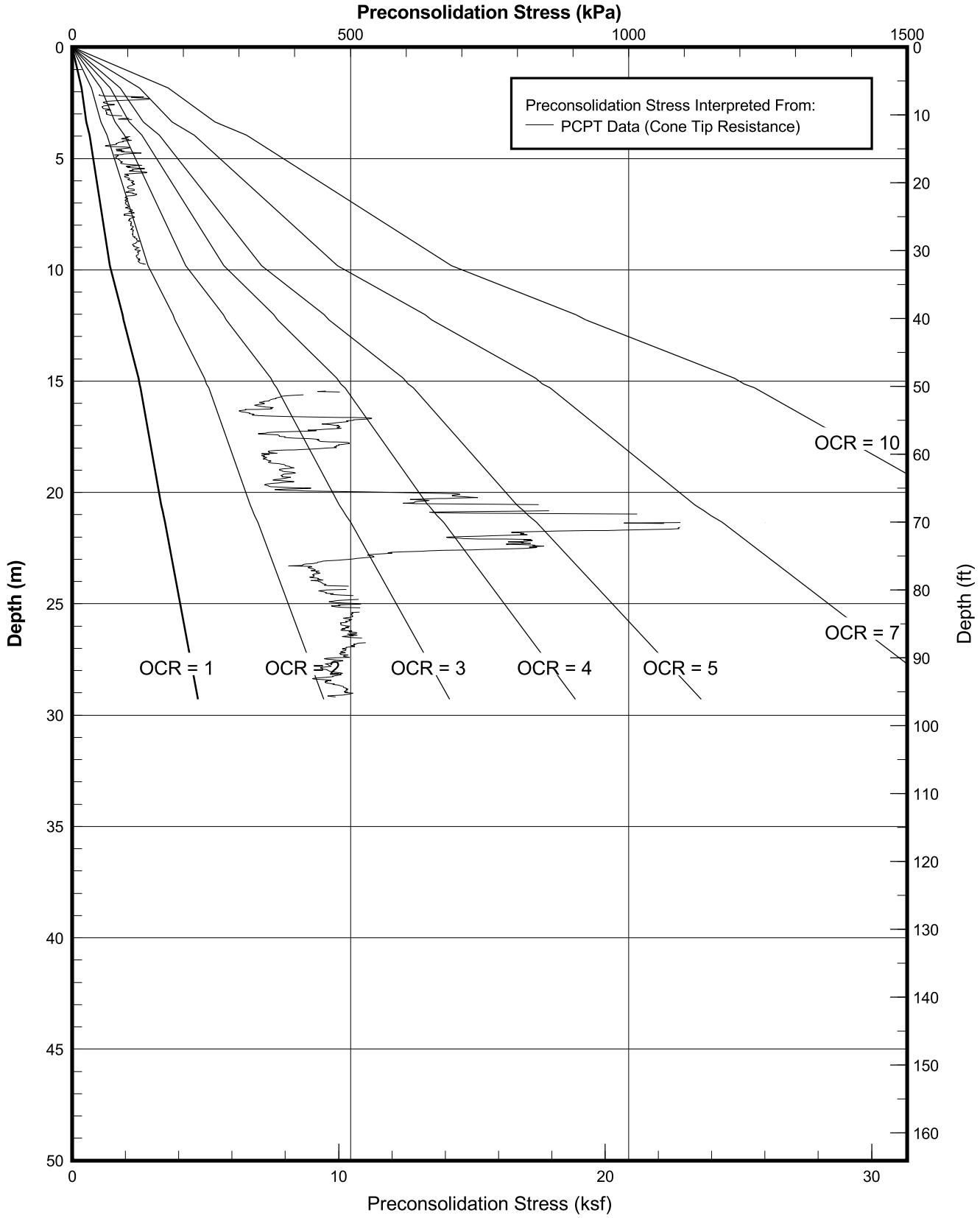


UNDRAINED SHEAR STRENGTH PROFILE INTERPRETED FROM CPT TIP RESISTANCE (Nk=12)

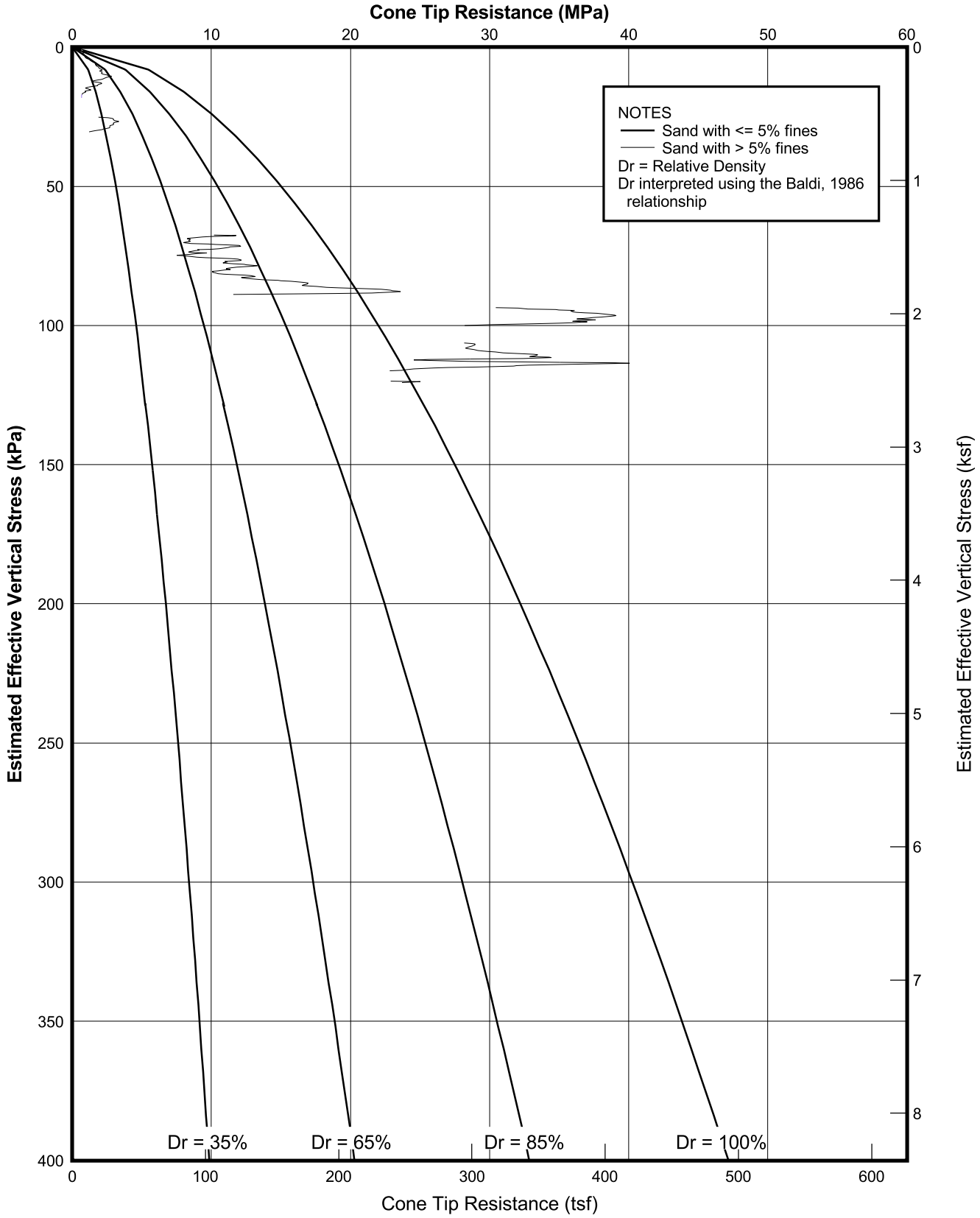
Sounding 99C-1

SFOBB East Span Seismic Safety Project

PLATE 99C-1.2

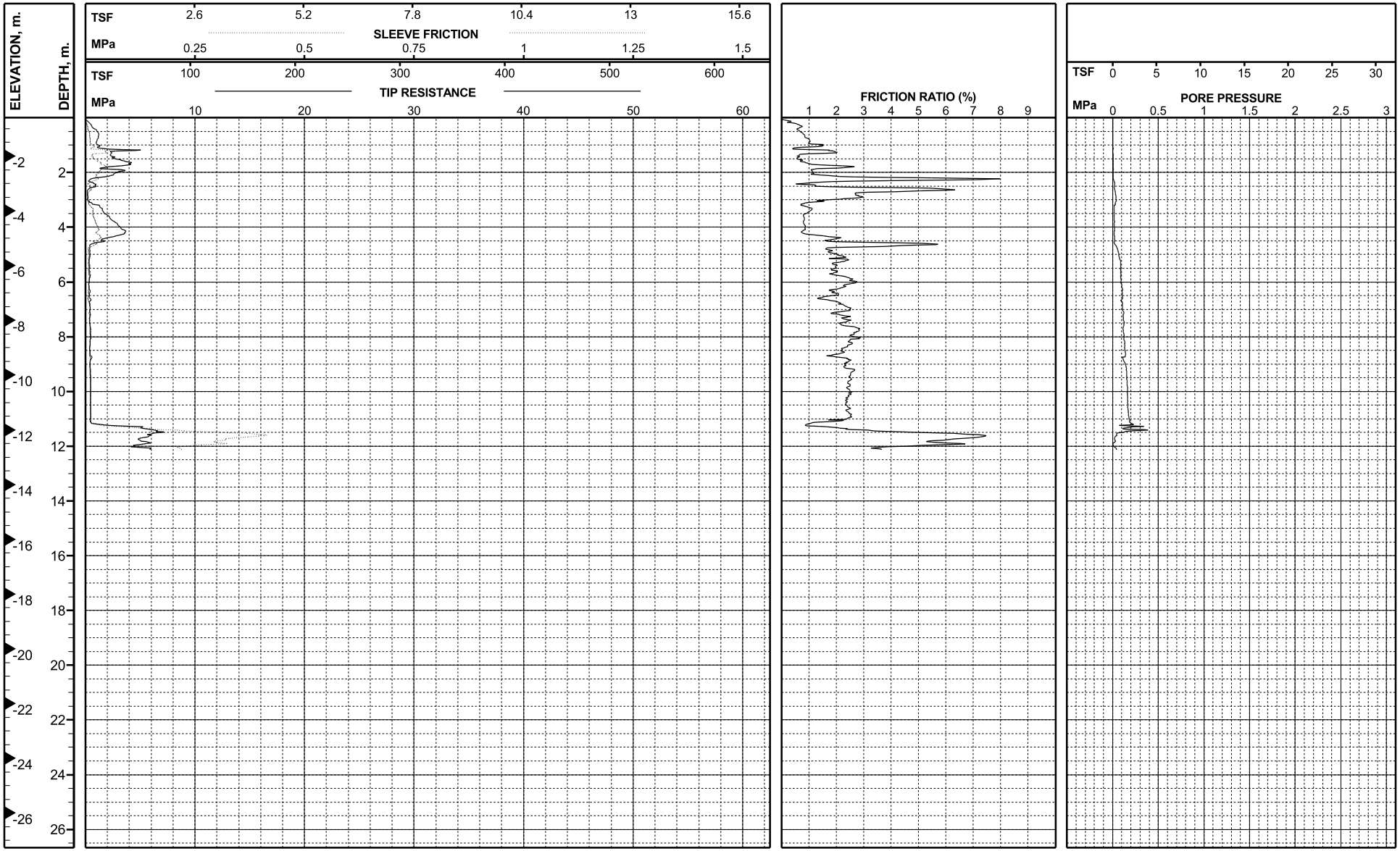


PRECONSOLIDATION STRESS INTERPRETED FROM CPT DATA
Sounding 99C-1
SFOBB East Span Seismic Safety Project



RELATIVE DENSITY INTERPRETED FROM CPT DATA
Sounding 99C-1
SFOBB East Span Seismic Safety Project

PROJECT NO:	98-42-0058	**COORDINATES:**	E1839037 N648290 CA State Plane Zone 3, NAD83, Meters	**VEHICLE:**	Fugro Geosciences
EXPLORATION NO.:	99C-2 (13.1m right of W. Sta. 85+77)	**GROUND ELEVATION:**	-0.6 m (MSL)	**TEST DATE:**	03/18/99



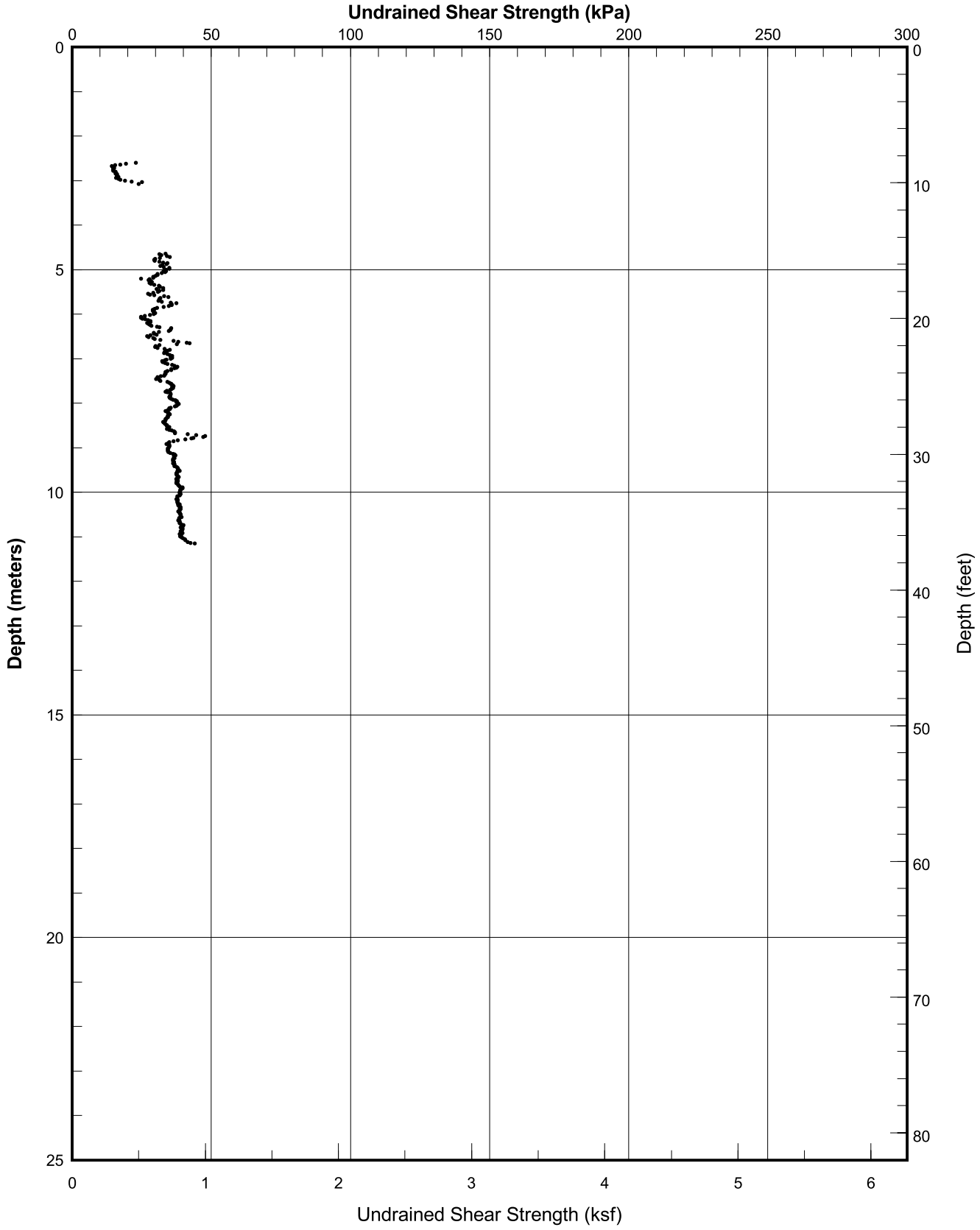
LOG OF CPT

SOUNDING 99C-2

SFOBB East Span Seismic Safety Project

Report Date: 08/26/99

PLATE 99C-2.1

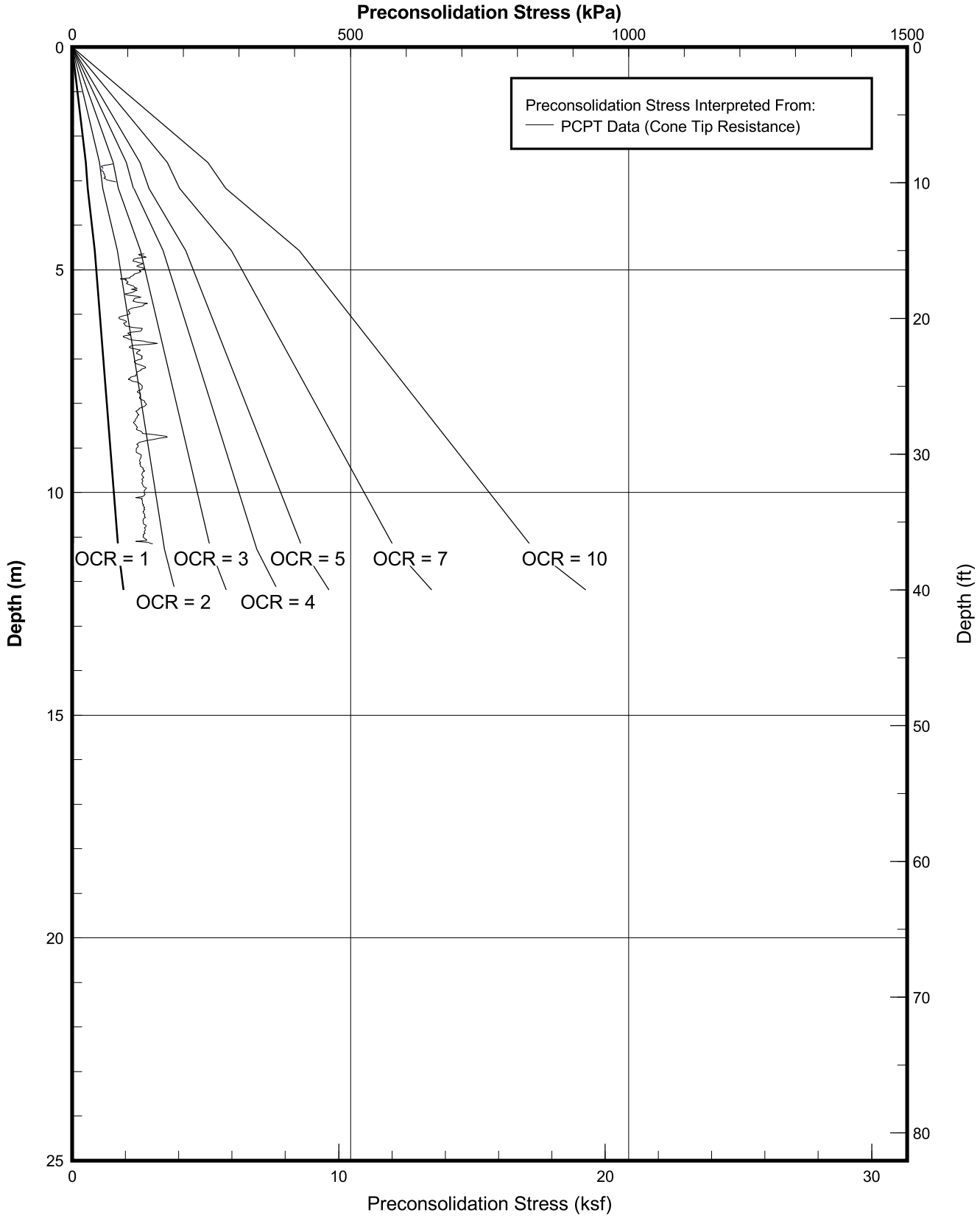


UNDRAINED SHEAR STRENGTH PROFILE INTERPRETED FROM CPT TIP RESISTANCE (Nk=12)

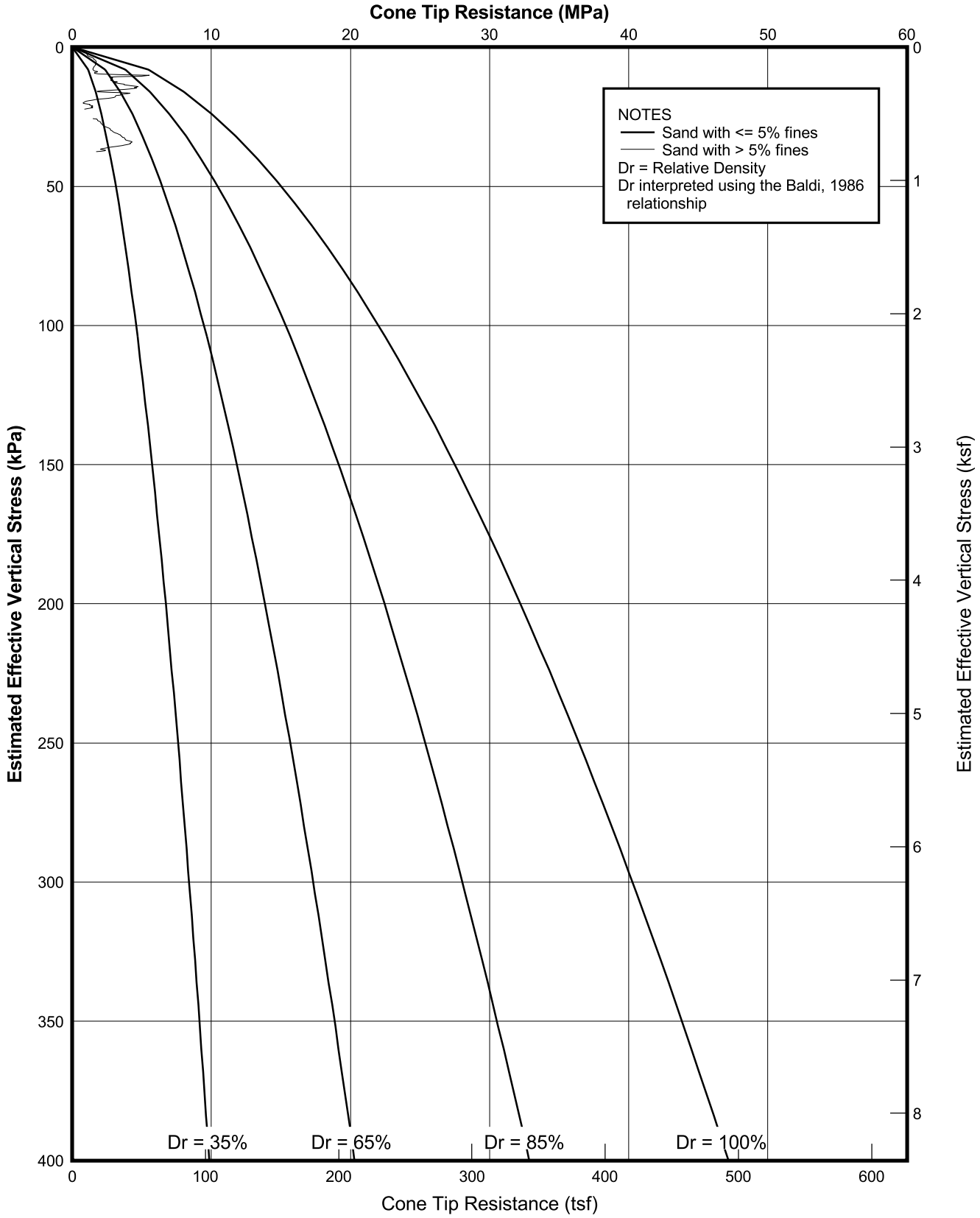
Sounding 99C-2

SFOBB East Span Seismic Safety Project

PLATE 99C-2.2

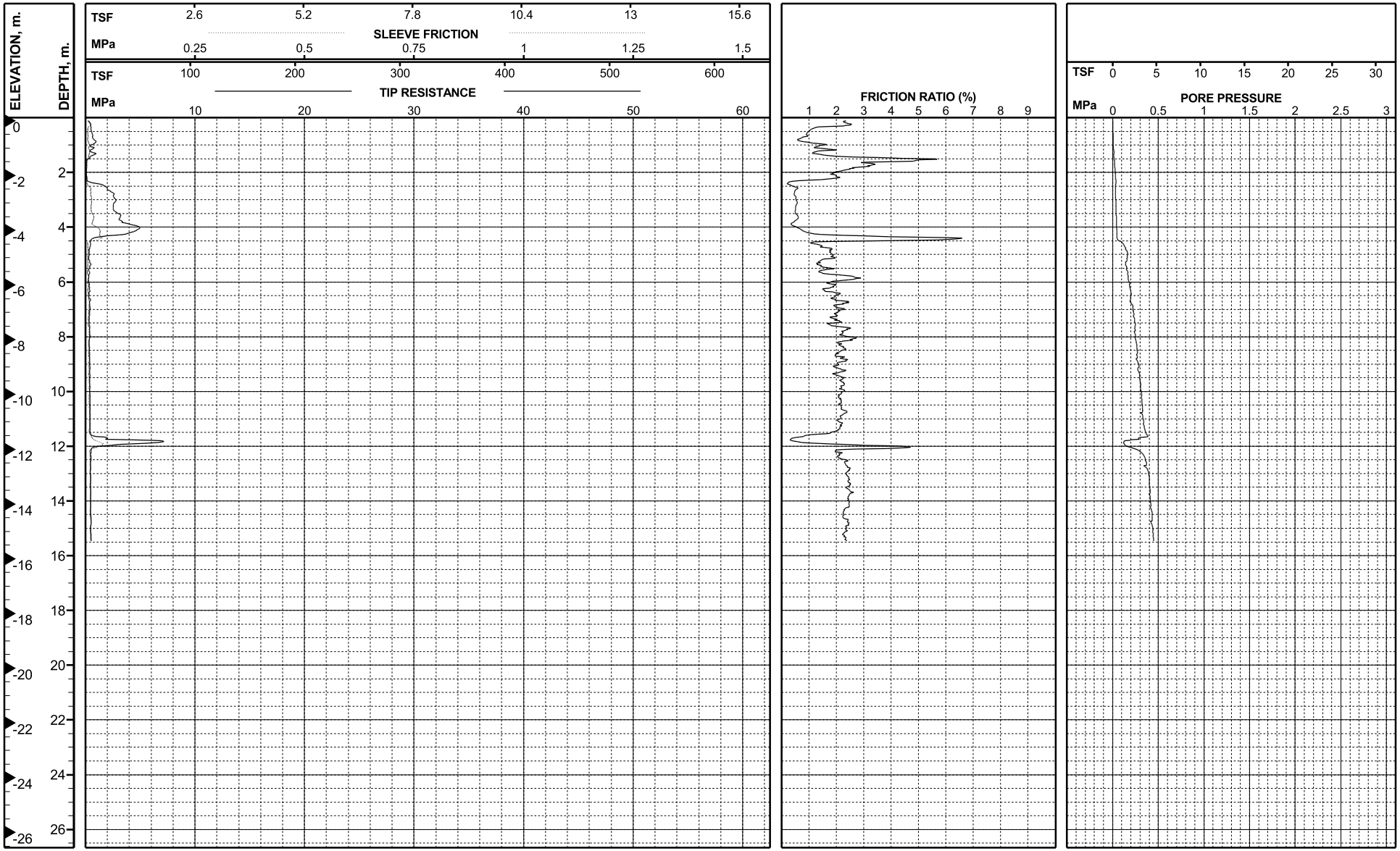


PRECONSOLIDATION STRESS INTERPRETED FROM CPT DATA
Sounding 99C-2
SFOBB East Span Seismic Safety Project



RELATIVE DENSITY INTERPRETED FROM CPT DATA
Sounding 99C-2
SFOBB East Span Seismic Safety Project

PROJECT NO:	98-42-0058	**COORDINATES:**	E1839150 N648311 CA State Plane Zone 3, NAD83, Meters	**VEHICLE:**	Fugro Geosciences
EXPLORATION NO.:	99C-3 (1.0m right of W. Sta 86+91)	**GROUND ELEVATION:**	0.1 m (MSL)	**TEST DATE:**	03/02/99



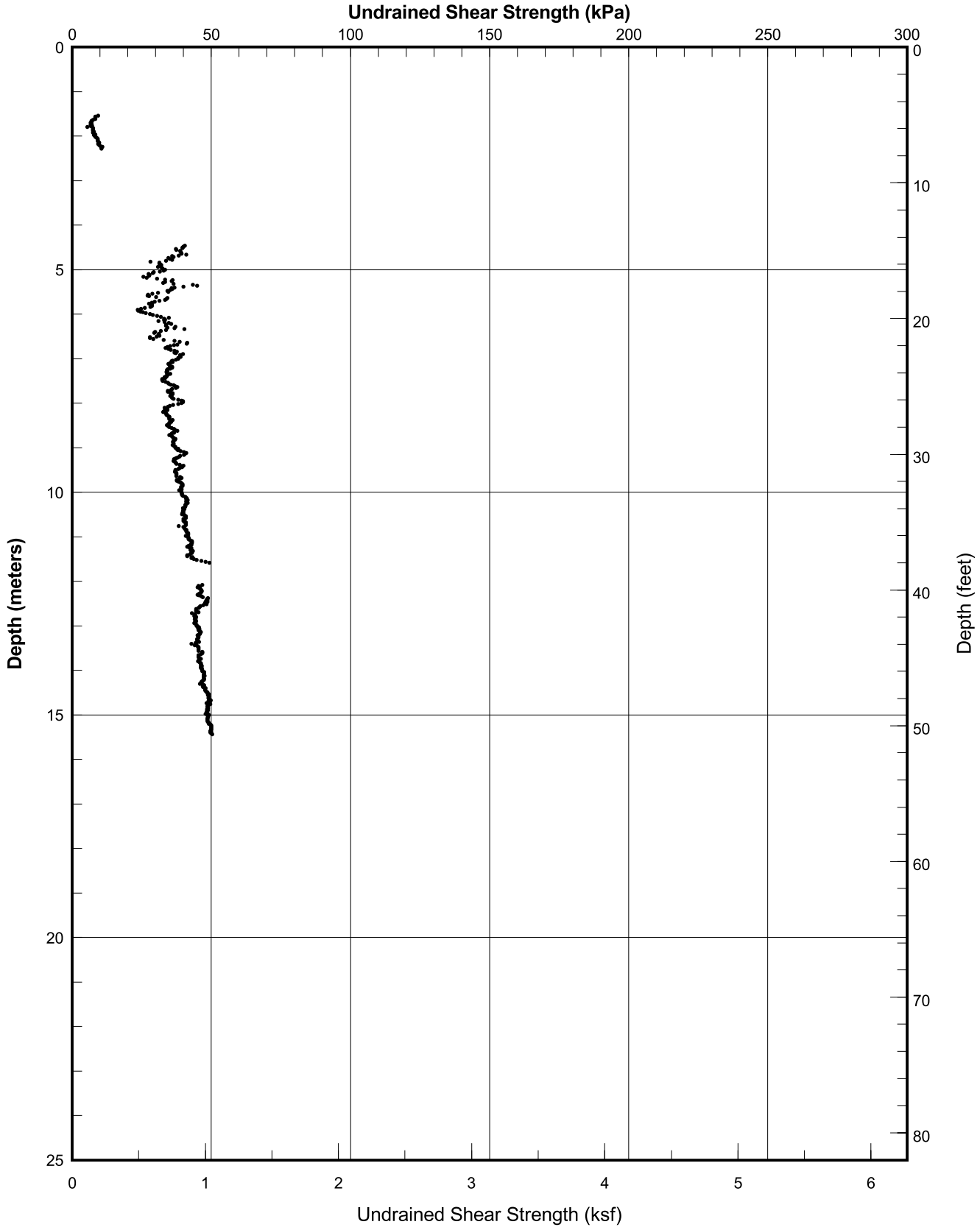
LOG OF CPT

SOUNDING 99C-3

SFOBB East Span Seismic Safety Project

Report Date: 07/06/99

PLATE 99C-3.1

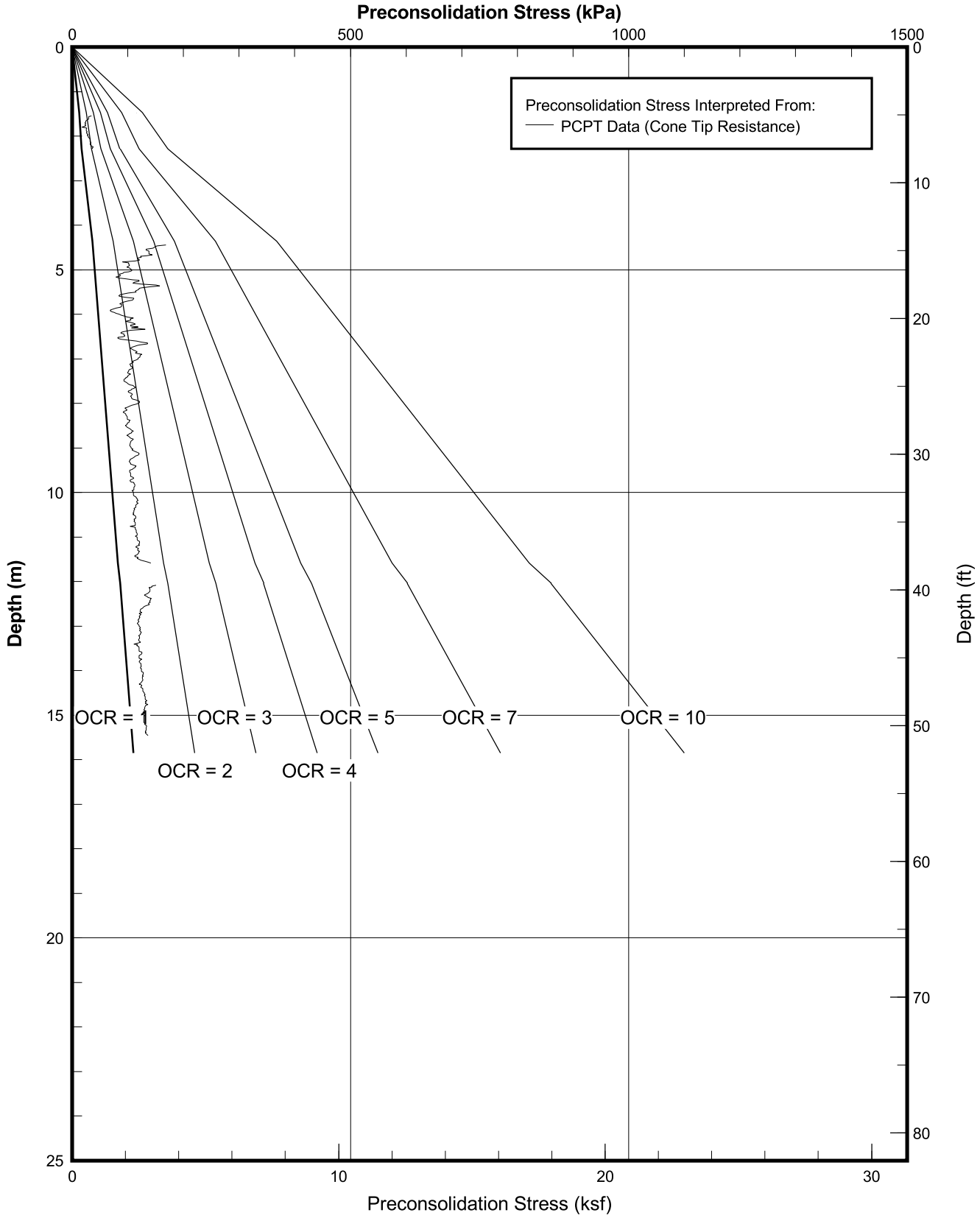


UNDRAINED SHEAR STRENGTH PROFILE INTERPRETED FROM CPT TIP RESISTANCE (Nk=12)

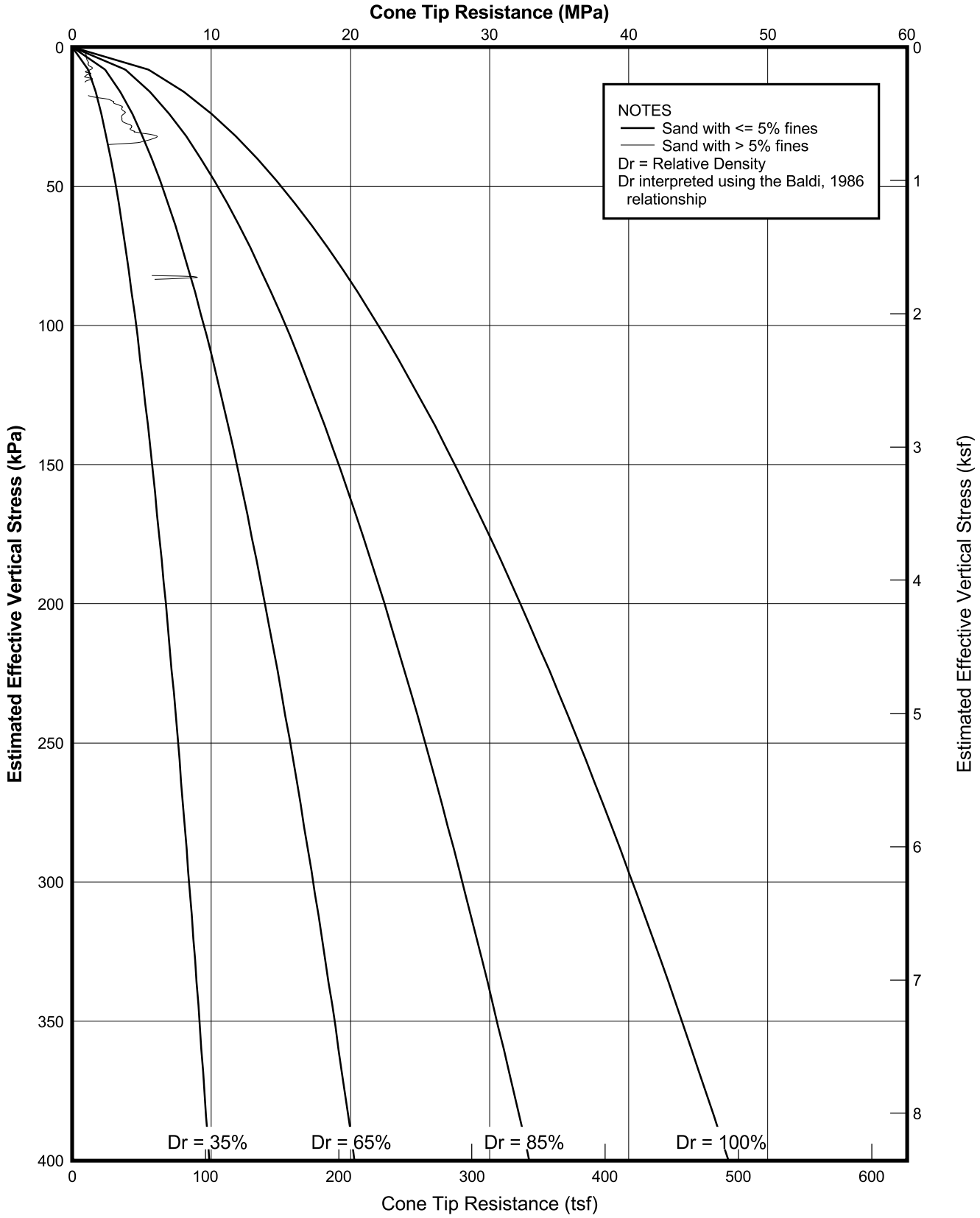
Sounding 99C-3

SFOBB East Span Seismic Safety Project

PLATE 99C-3.2

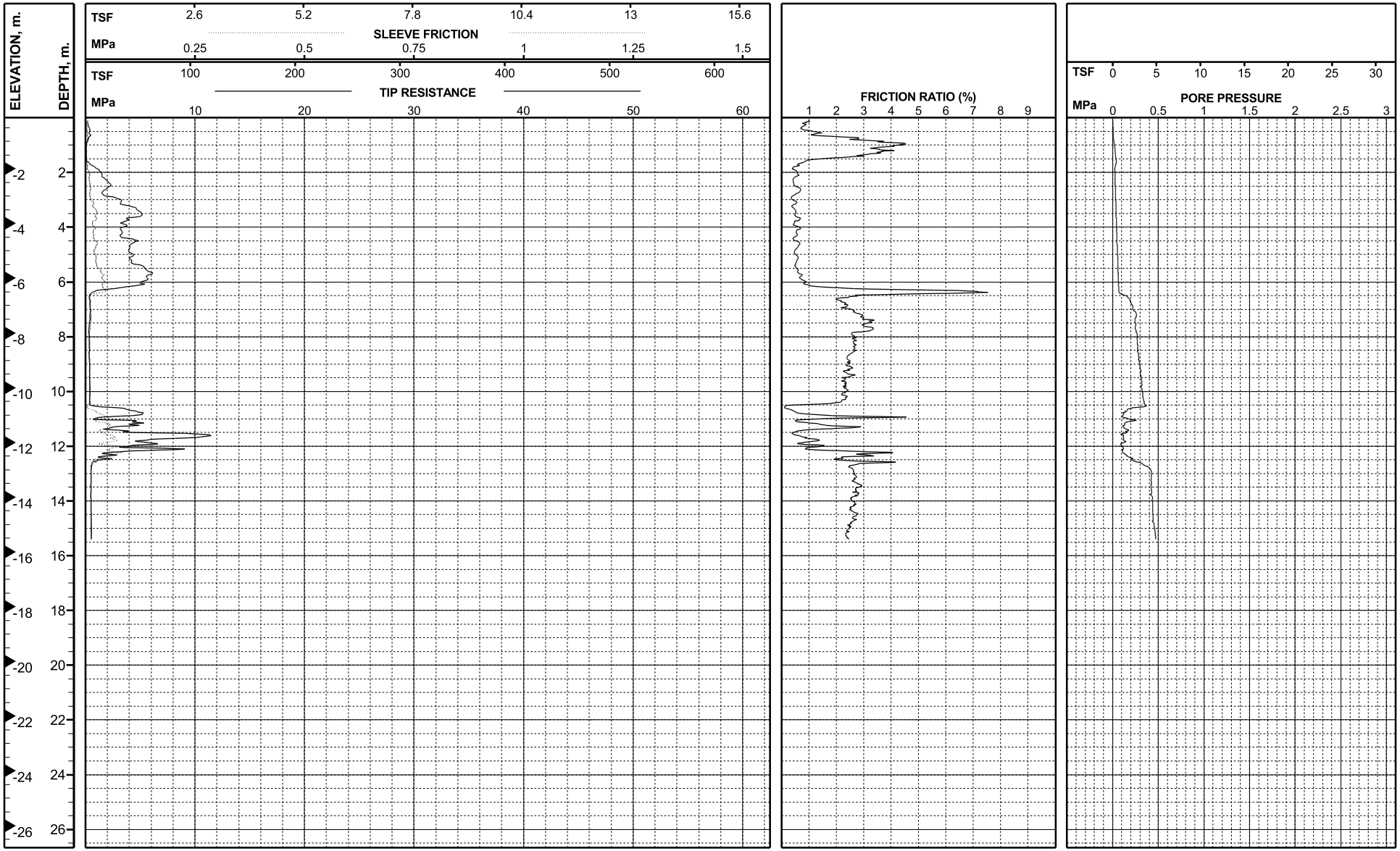


PRECONSOLIDATION STRESS INTERPRETED FROM CPT DATA
Sounding 99C-3
SFOBB East Span Seismic Safety Project



RELATIVE DENSITY INTERPRETED FROM CPT DATA
Sounding 99C-3
SFOBB East Span Seismic Safety Project

PROJECT NO:	98-42-0058	**COORDINATES:**	E1839208 N648316 CA State Plane Zone 3, NAD83, Meters	**VEHICLE:**	Fugro Geosciences
EXPLORATION NO.:	99C-4 (0.5m right of W. Sta 87+50)	**GROUND ELEVATION:**	-0.1 m (MSL)	**TEST DATE:**	03/02/99



LOG OF CPT

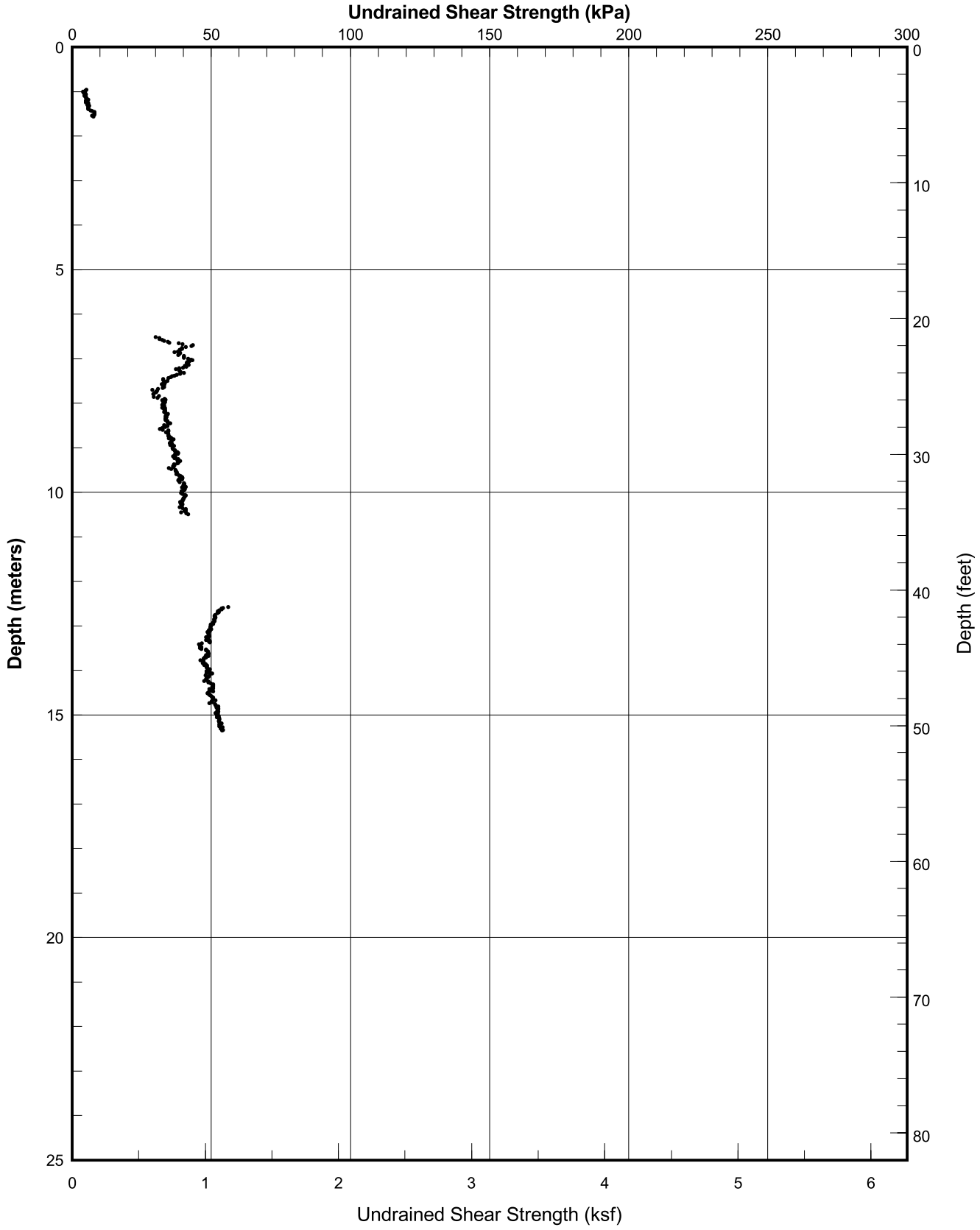
SOUNDING 99C-4

SFOBB East Span Seismic Safety Project

Report Date: 07/06/99

FUGRO

PLATE 99C-4.1

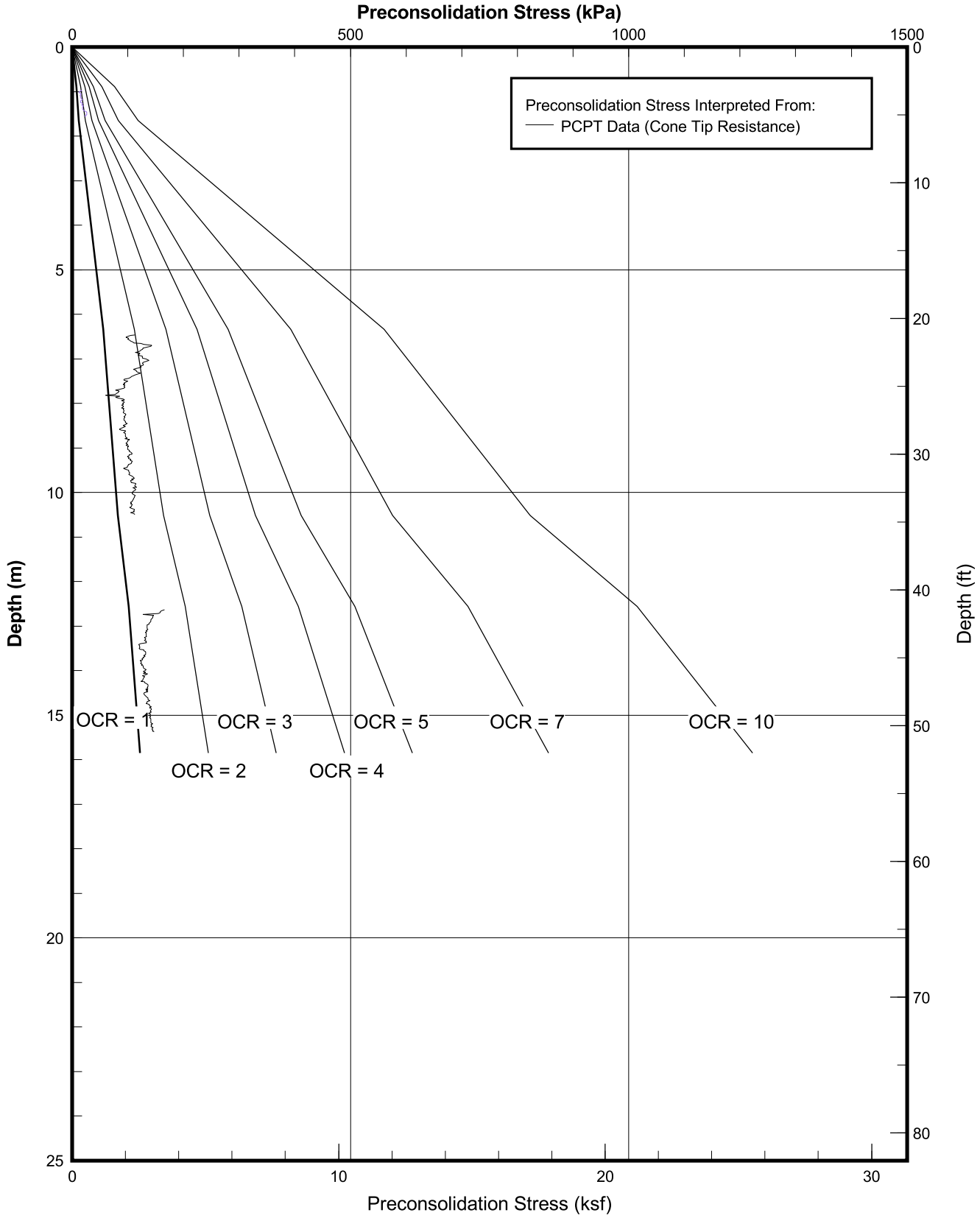


UNDRAINED SHEAR STRENGTH PROFILE INTERPRETED FROM CPT TIP RESISTANCE (Nk=12)

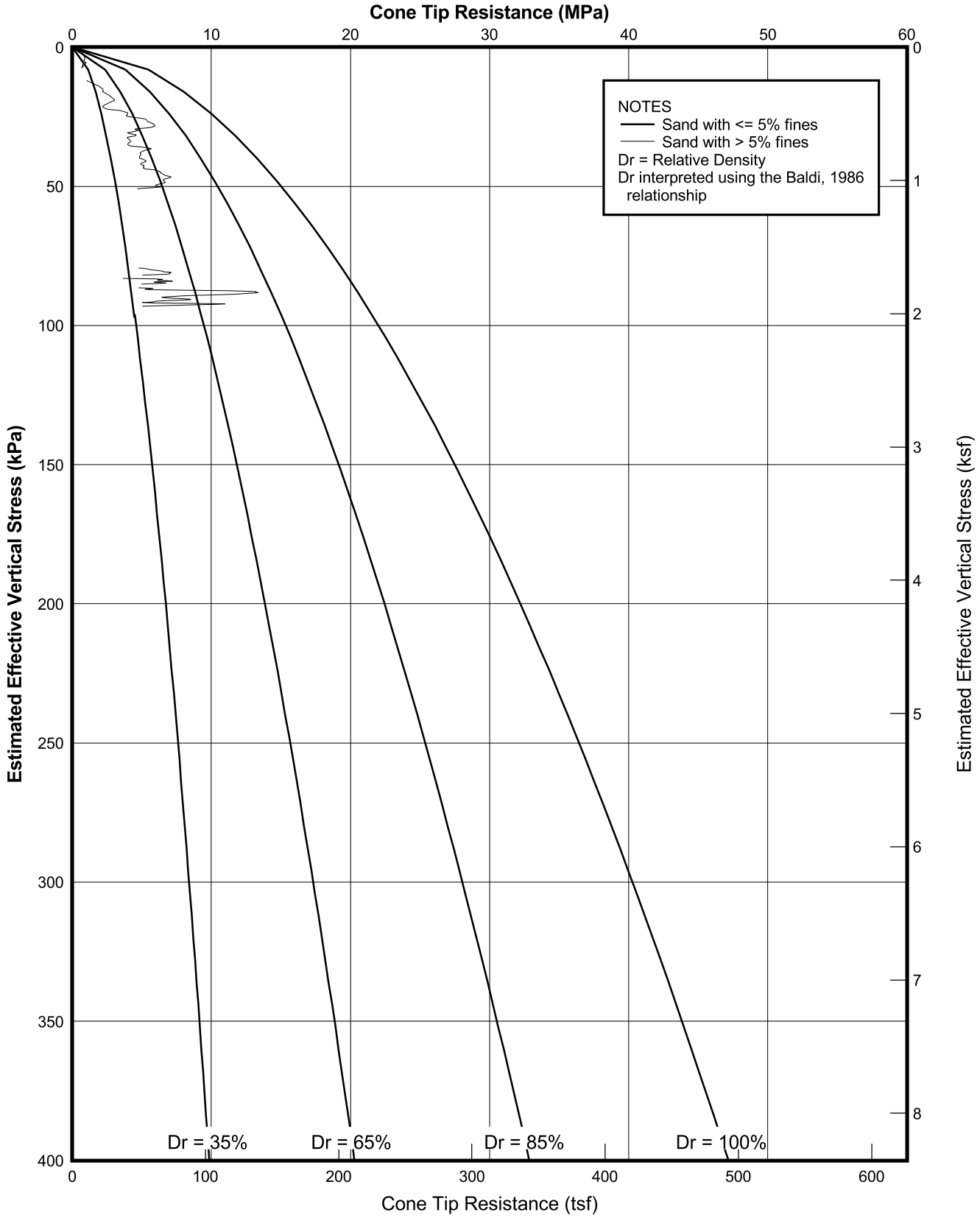
Sounding 99C-4

SFOBB East Span Seismic Safety Project

PLATE 99C-4.2

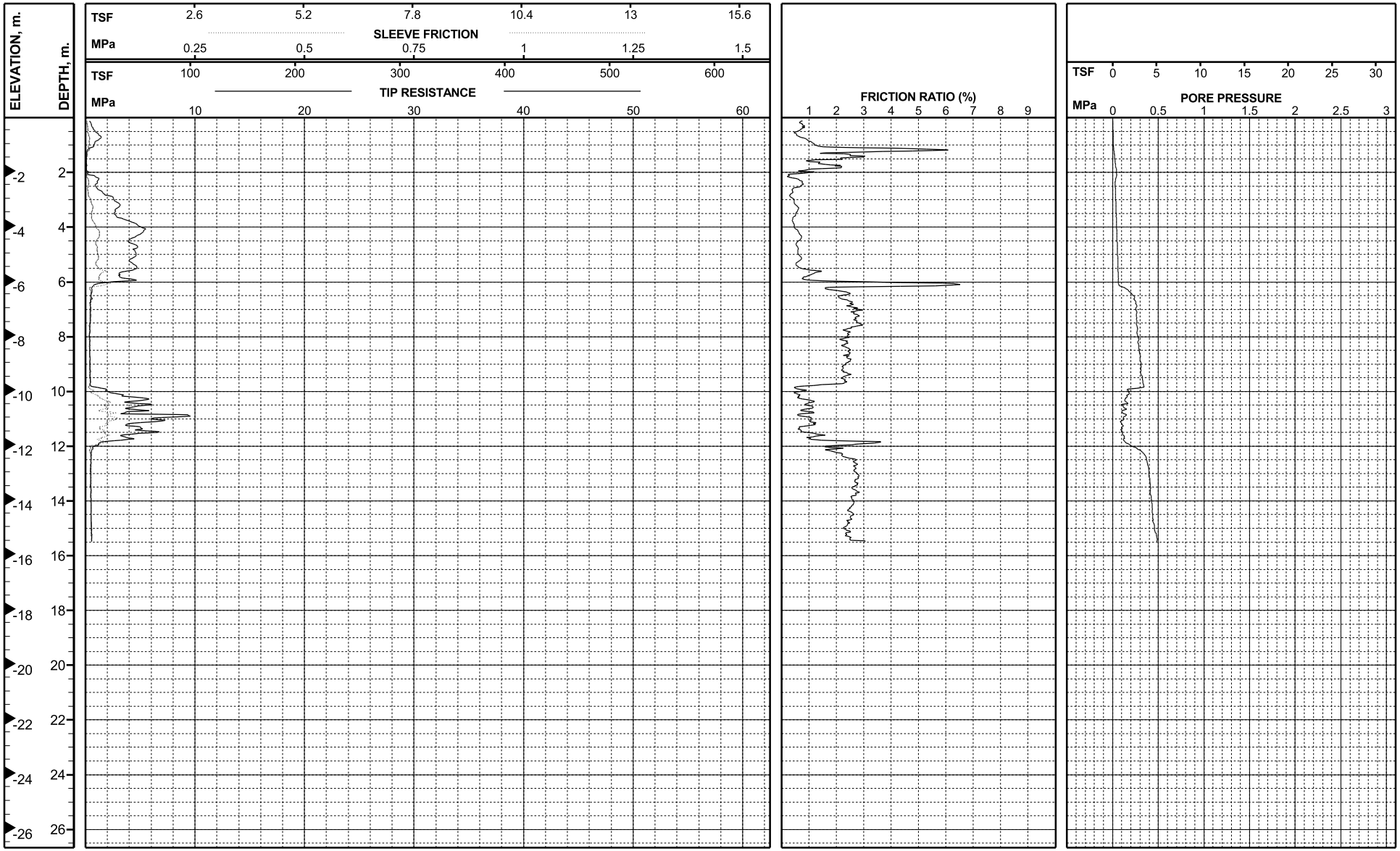


PRECONSOLIDATION STRESS INTERPRETED FROM CPT DATA
Sounding 99C-4
SFOBB East Span Seismic Safety Project



RELATIVE DENSITY INTERPRETED FROM CPT DATA
Sounding 99C-4
SFOBB East Span Seismic Safety Project

PROJECT NO:	98-42-0058	**COORDINATES:**	E1839262 N648328 CA State Plane Zone 3, NAD83, Meters	**VEHICLE:**	Fugro Geosciences
EXPLORATION NO.:	99C-5 (7.4m left of W. Sta 88+04)	**GROUND ELEVATION:**	-0.1 m (MSL)	**TEST DATE:**	03/02/99



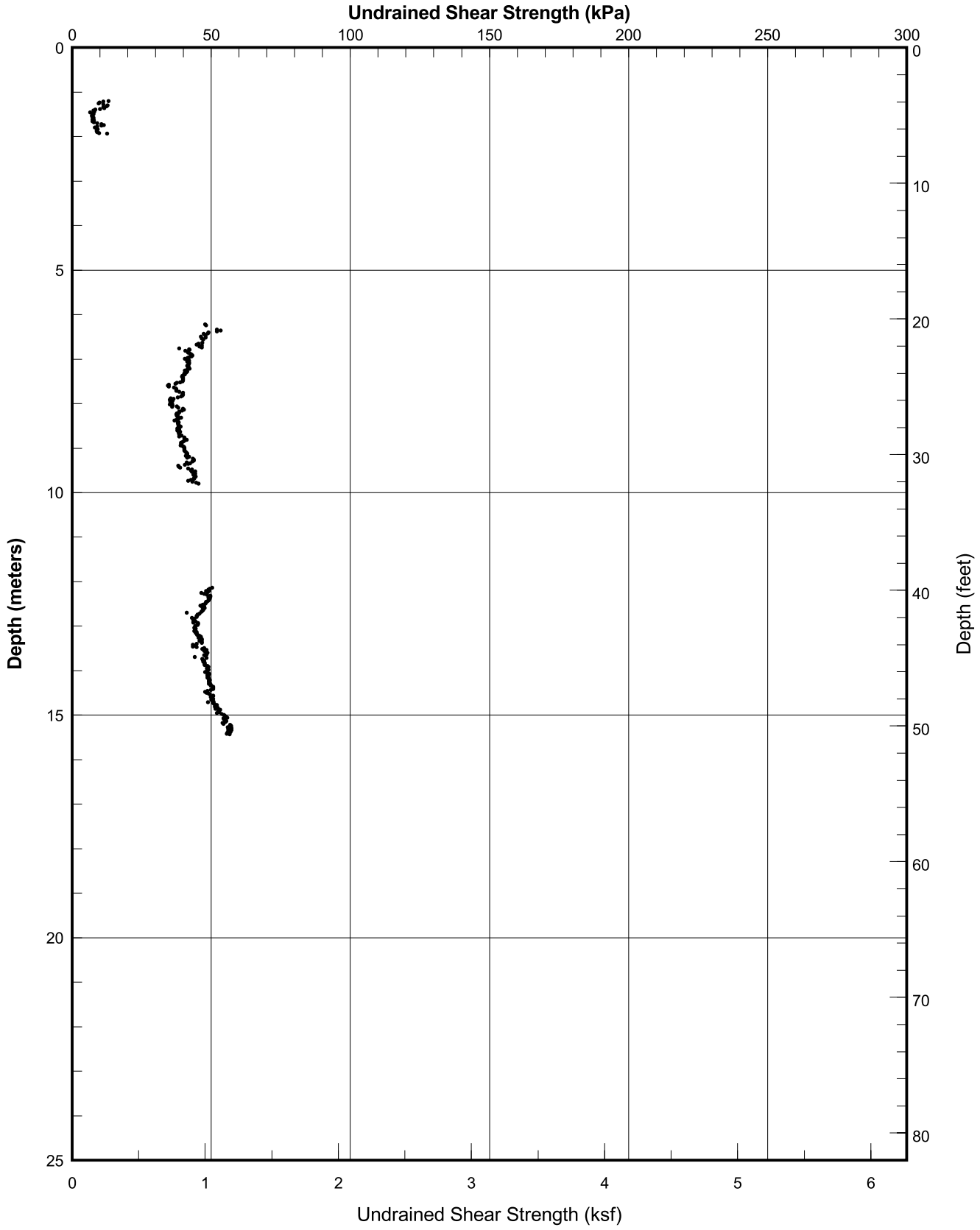
LOG OF CPT

SOUNDING 99C-5

SFOBB East Span Seismic Safety Project

Report Date: 07/06/99

PLATE 99C-5.1

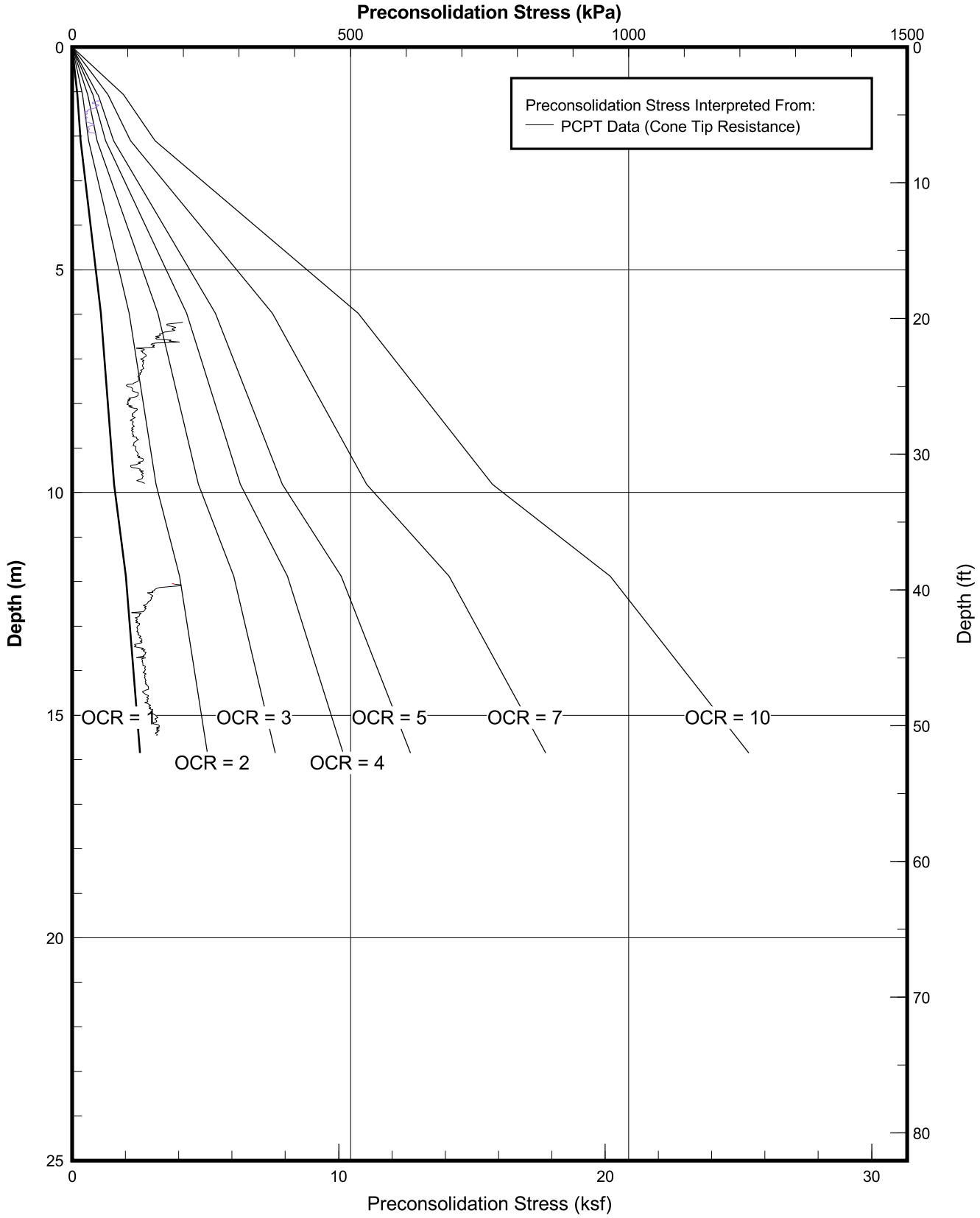


UNDRAINED SHEAR STRENGTH PROFILE INTERPRETED FROM CPT TIP RESISTANCE (Nk=12)

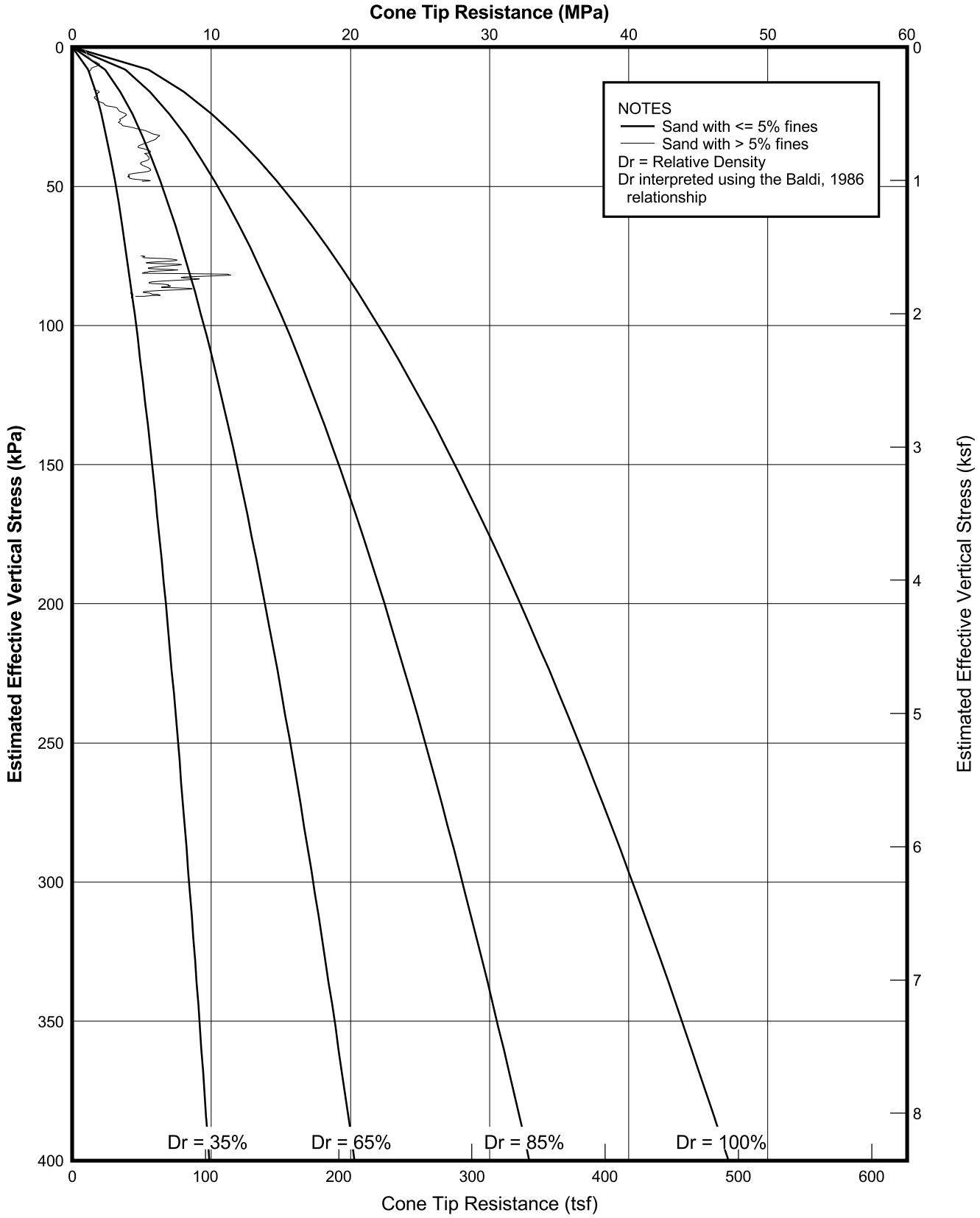
Sounding 99C-5

SFOBB East Span Seismic Safety Project

PLATE 99C-5.2

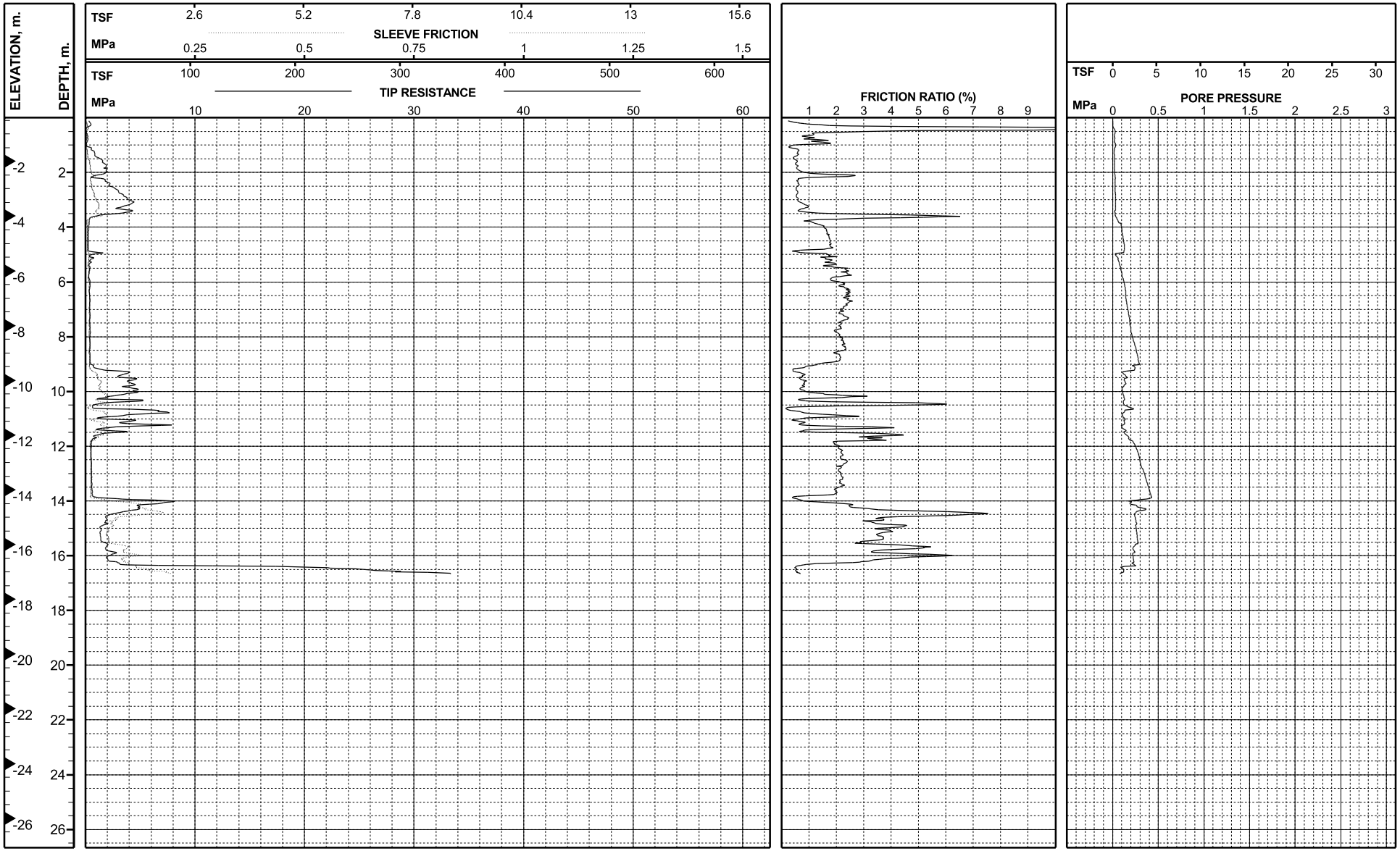


PRECONSOLIDATION STRESS INTERPRETED FROM CPT DATA
Sounding 99C-5
SFOBB East Span Seismic Safety Project



RELATIVE DENSITY INTERPRETED FROM CPT DATA
Sounding 99C-5
SFOBB East Span Seismic Safety Project

PROJECT NO:	98-42-0058	**COORDINATES:**	E1839329 N648333 CA State Plane Zone 3, NAD83, Meters	**VEHICLE:**	Fugro Geosciences
EXPLORATION NO.:	99C-6 (7.3m left of W. Sta. 88+72)	**GROUND ELEVATION:**	-0.4 m (MSL)	**TEST DATE:**	03/03/99



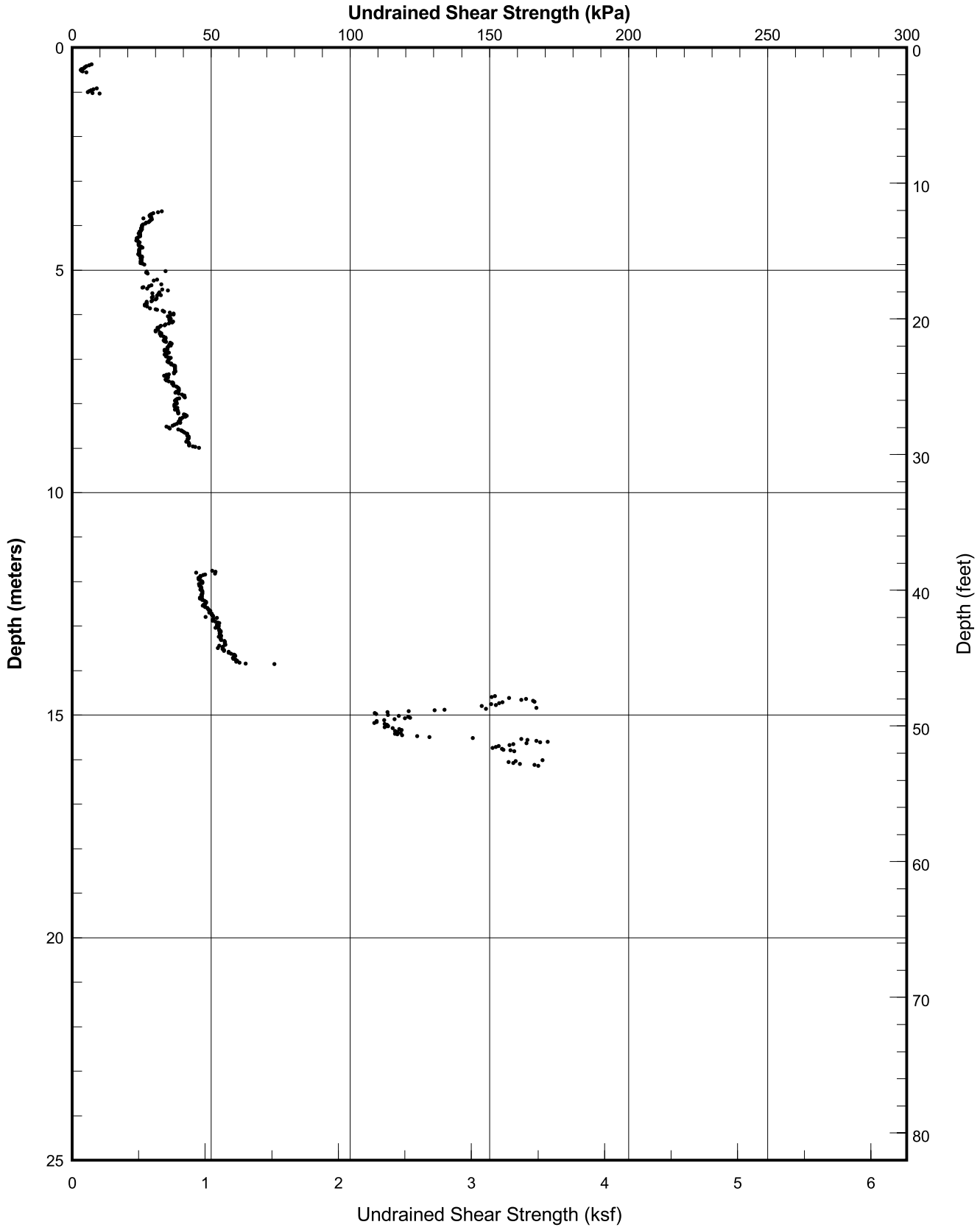
LOG OF CPT

SOUNDING 99C-6

SFOBB East Span Seismic Safety Project

Report Date: 07/06/99

PLATE 99C-6.1

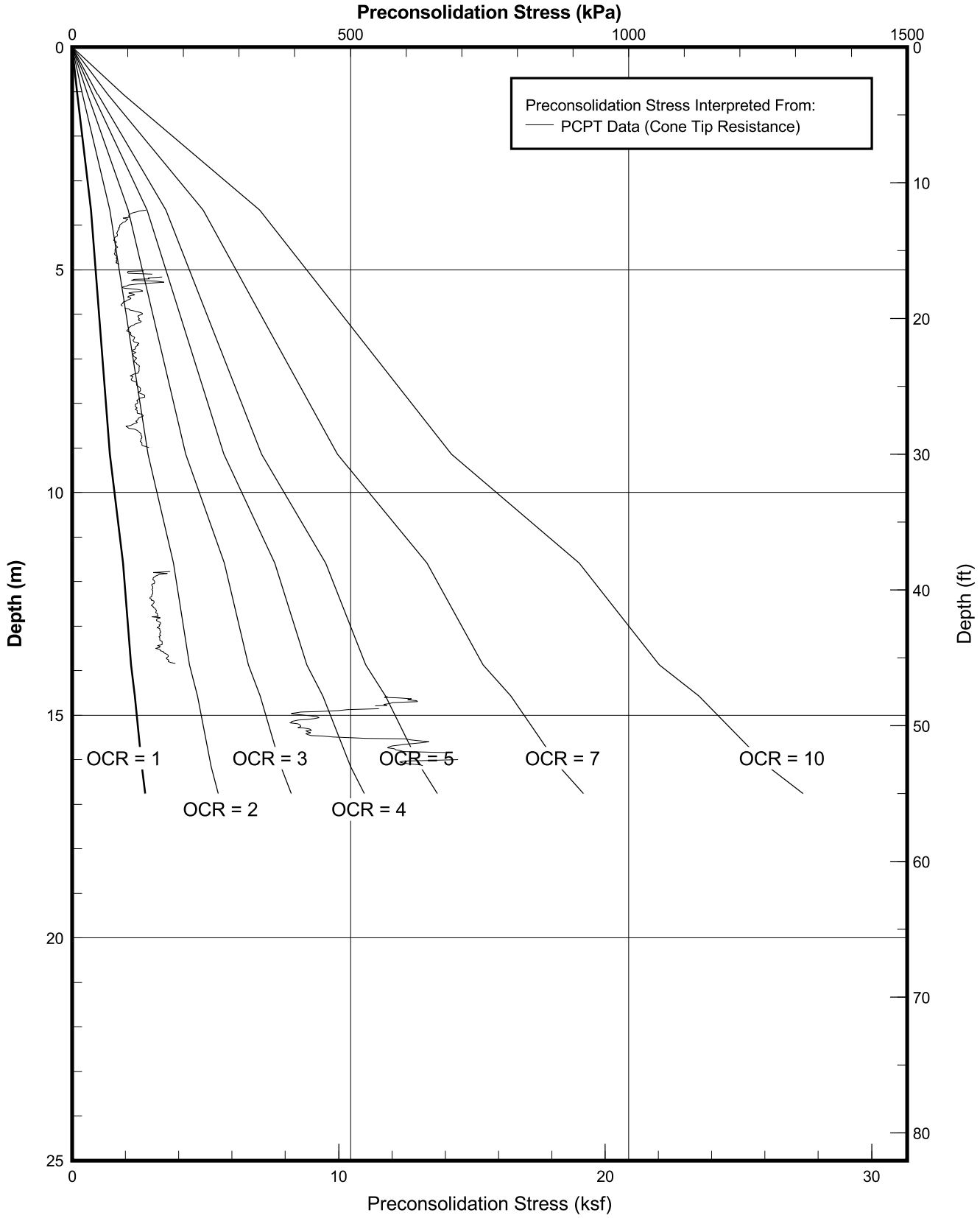


UNDRAINED SHEAR STRENGTH PROFILE INTERPRETED FROM CPT TIP RESISTANCE (Nk=12)

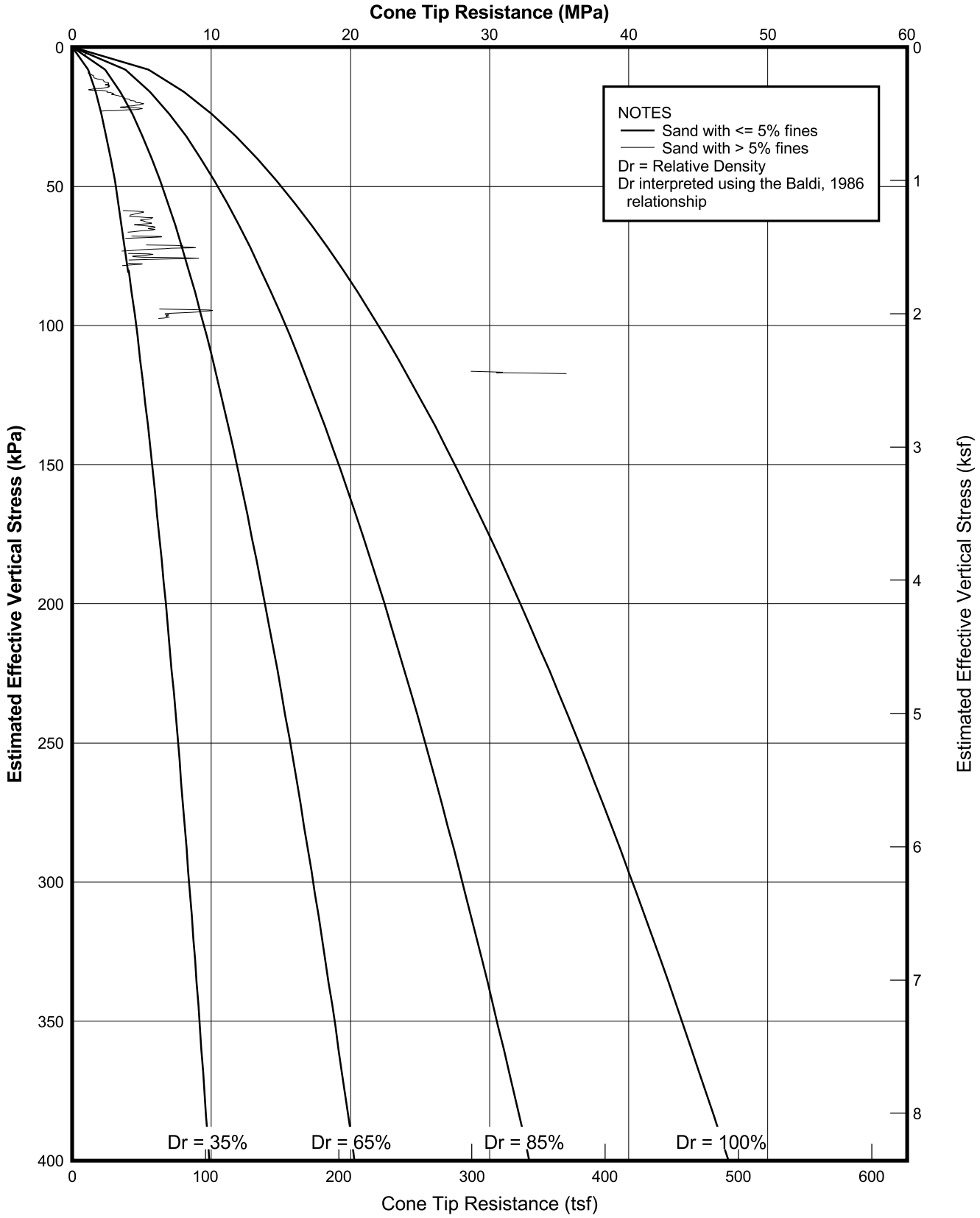
Sounding 99C-6

SFOBB East Span Seismic Safety Project

PLATE 99C-6.2

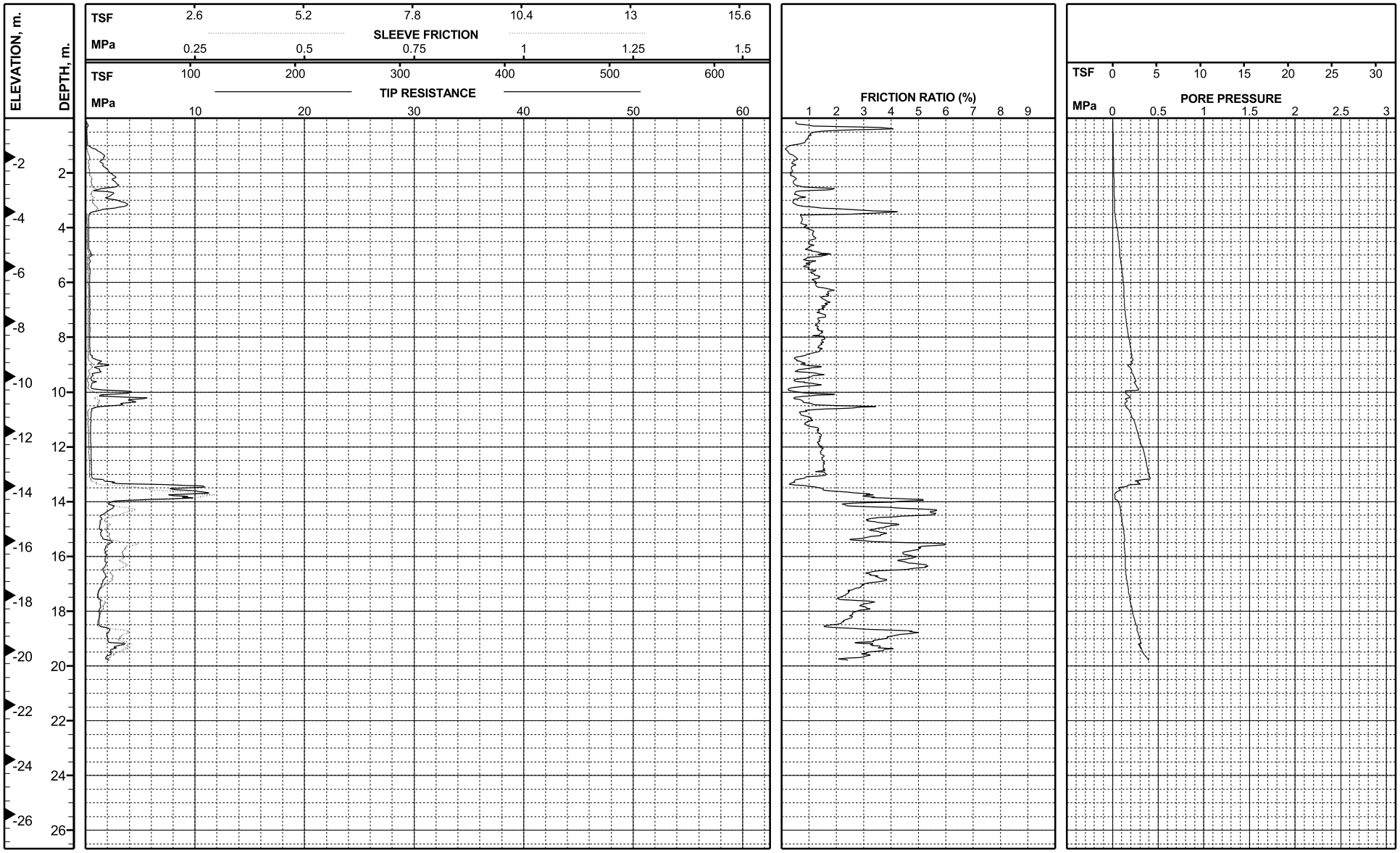


PRECONSOLIDATION STRESS INTERPRETED FROM CPT DATA
Sounding 99C-6
SFOBB East Span Seismic Safety Project



RELATIVE DENSITY INTERPRETED FROM CPT DATA
Sounding 99C-6
SFOBB East Span Seismic Safety Project

PROJECT NO:	98-42-0058	**COORDINATES:**	E1839384 N648343 CA State Plane Zone 3, NAD83, Meters	**VEHICLE:**	Fugro Geosciences
EXPLORATION NO.:	99C-7 (13.2m left of W. Sta 89+27)	**GROUND ELEVATION:**	-0.6 m (MSL)	**TEST DATE:**	03/03/99



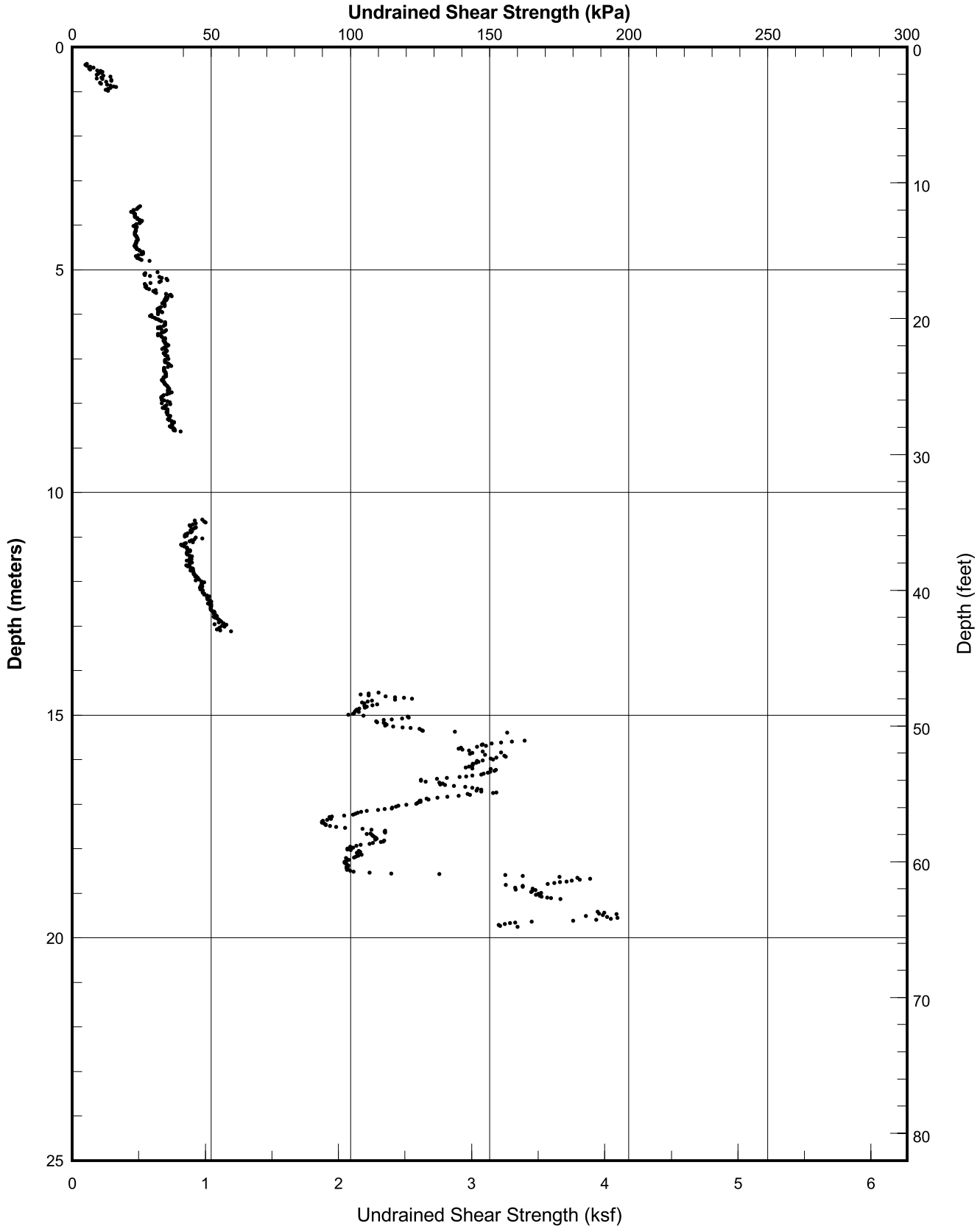
LOG OF CPT

SOUNDING 99C-7

SFOBB East Span Seismic Safety Project

Report Date: 07/09/99

PLATE 99C-7.1

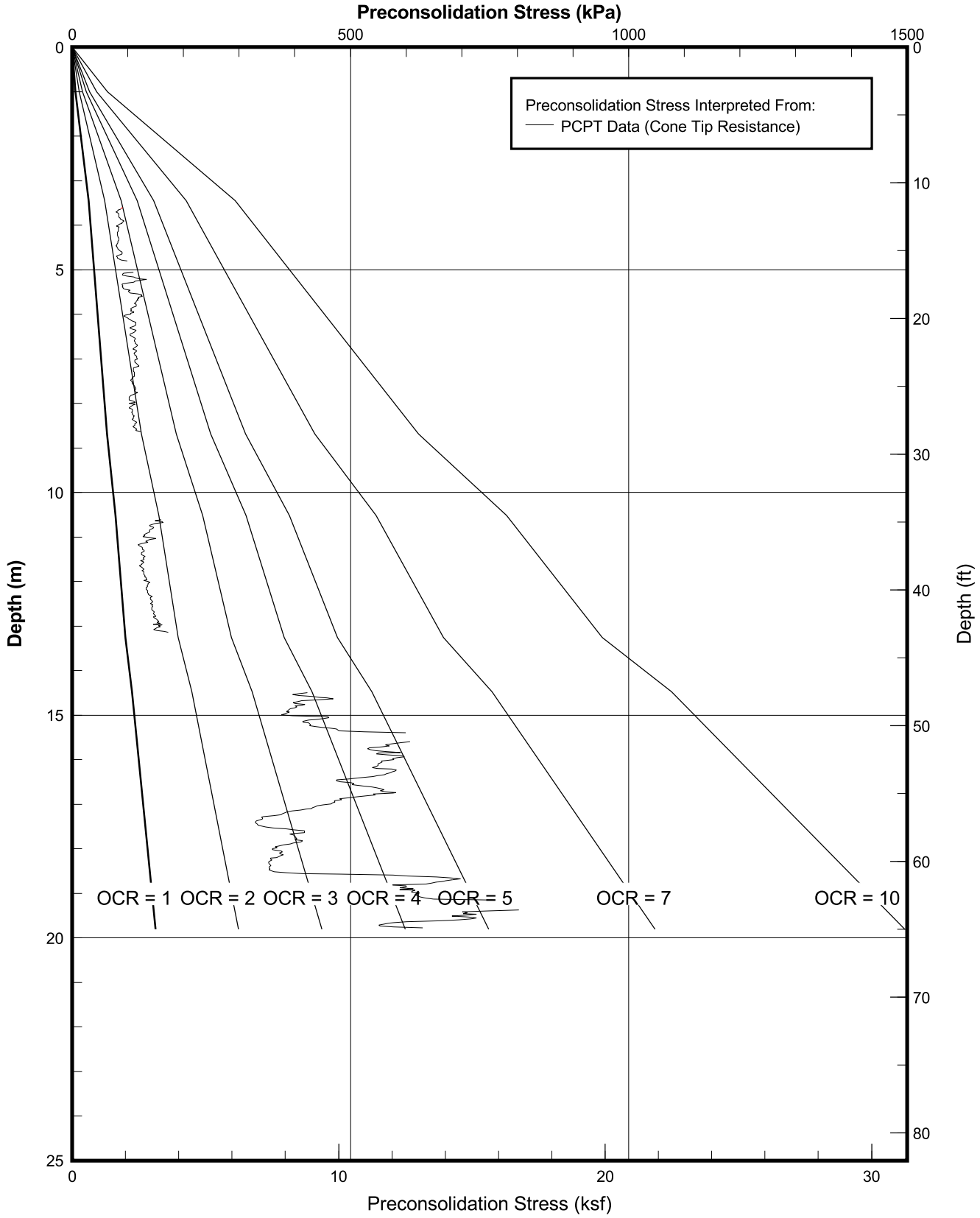


UNDRAINED SHEAR STRENGTH PROFILE INTERPRETED FROM CPT TIP RESISTANCE (Nk=12)

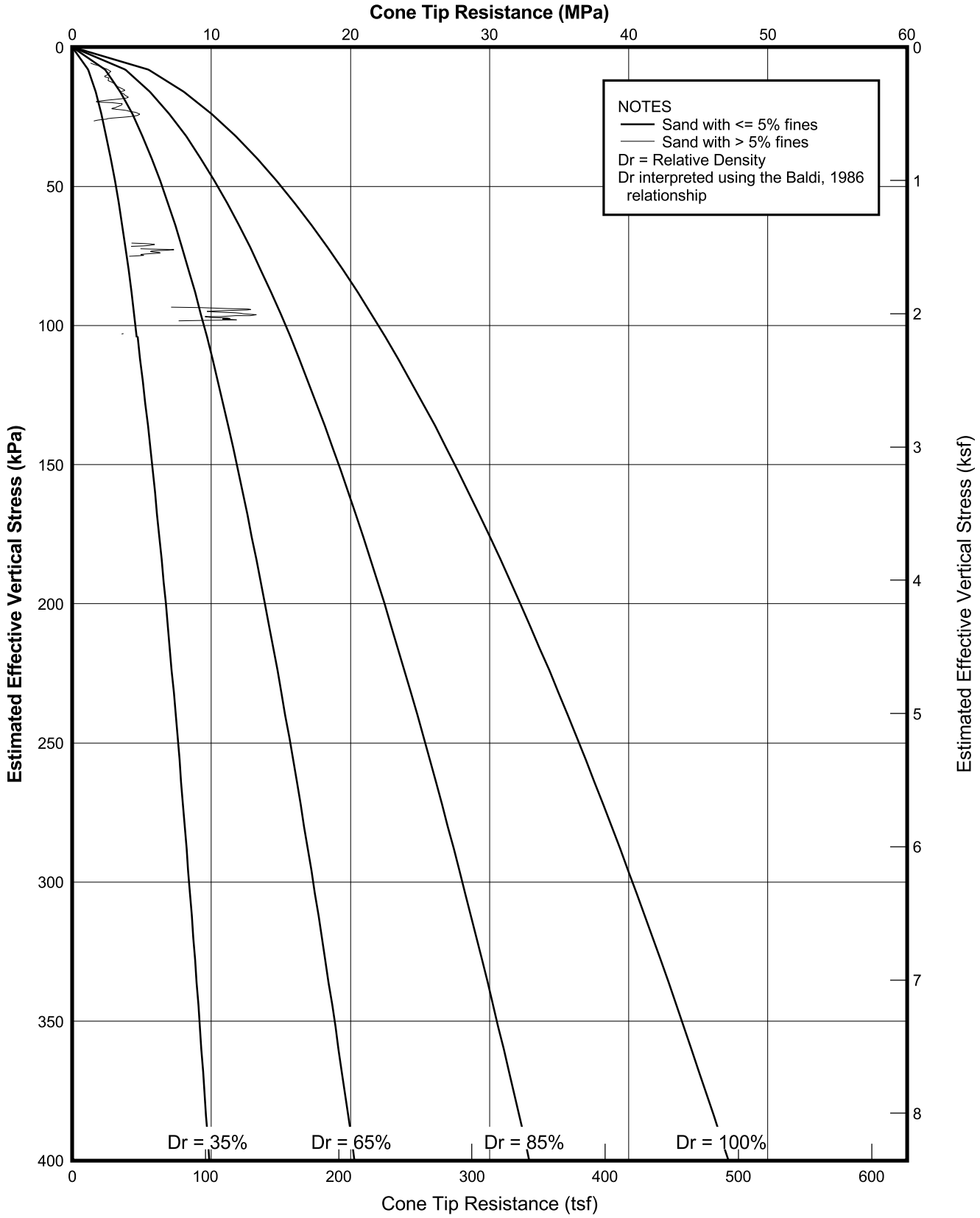
Sounding 99C-7

SFOBB East Span Seismic Safety Project

PLATE 99C-7.2

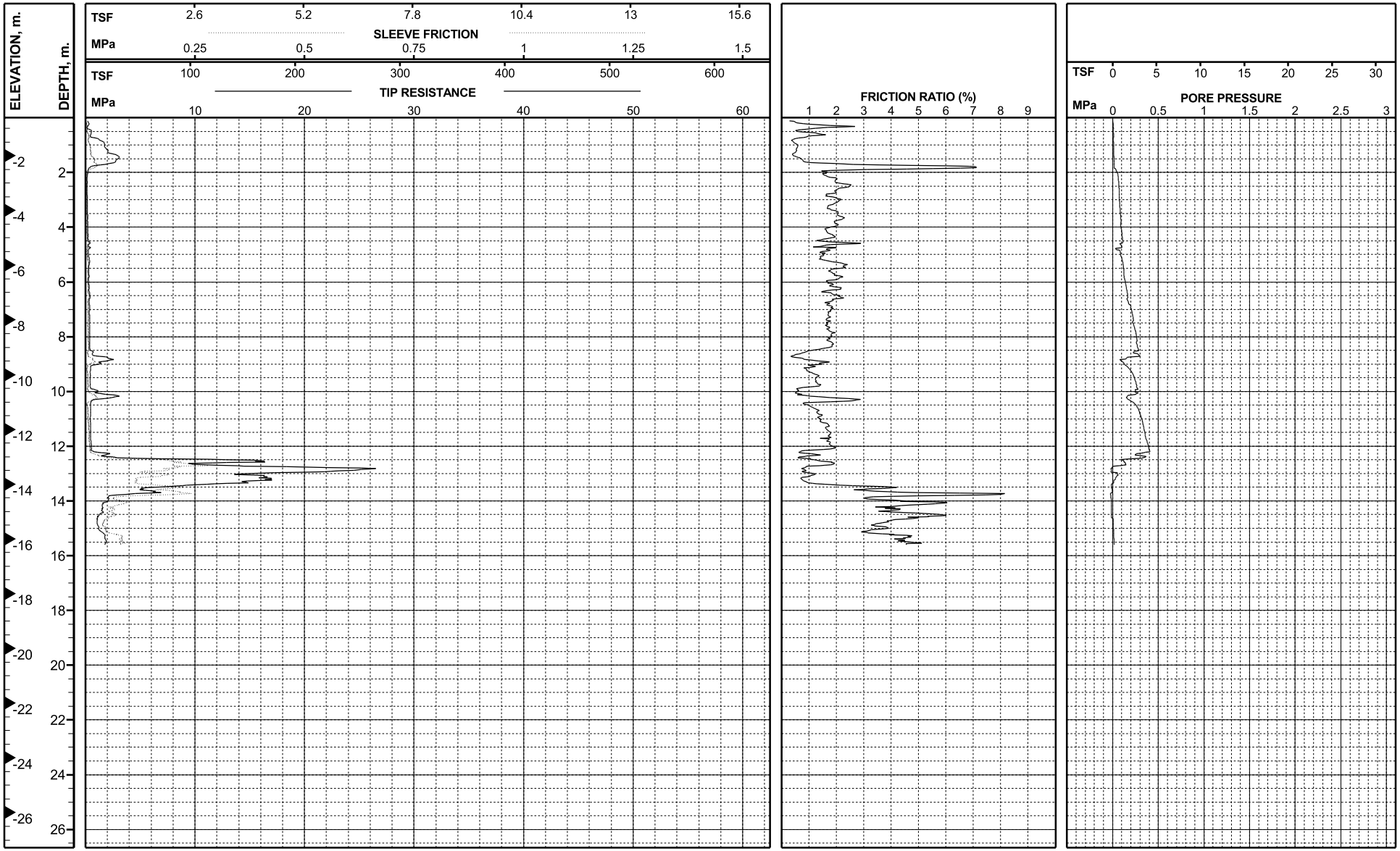


PRECONSOLIDATION STRESS INTERPRETED FROM CPT DATA
Sounding 99C-7
SFOBB East Span Seismic Safety Project



RELATIVE DENSITY INTERPRETED FROM CPT DATA
Sounding 99C-7
SFOBB East Span Seismic Safety Project

PROJECT NO:	98-42-0058	**COORDINATES:**	E1839431 N648353 CA State Plane Zone 3, NAD83, Meters	**VEHICLE:**	Fugro Geosciences
EXPLORATION NO.:	99C-8 (19.4m left of W. Sta 89+75)	**GROUND ELEVATION:**	-0.6 m (MSL)	**TEST DATE:**	03/04/99



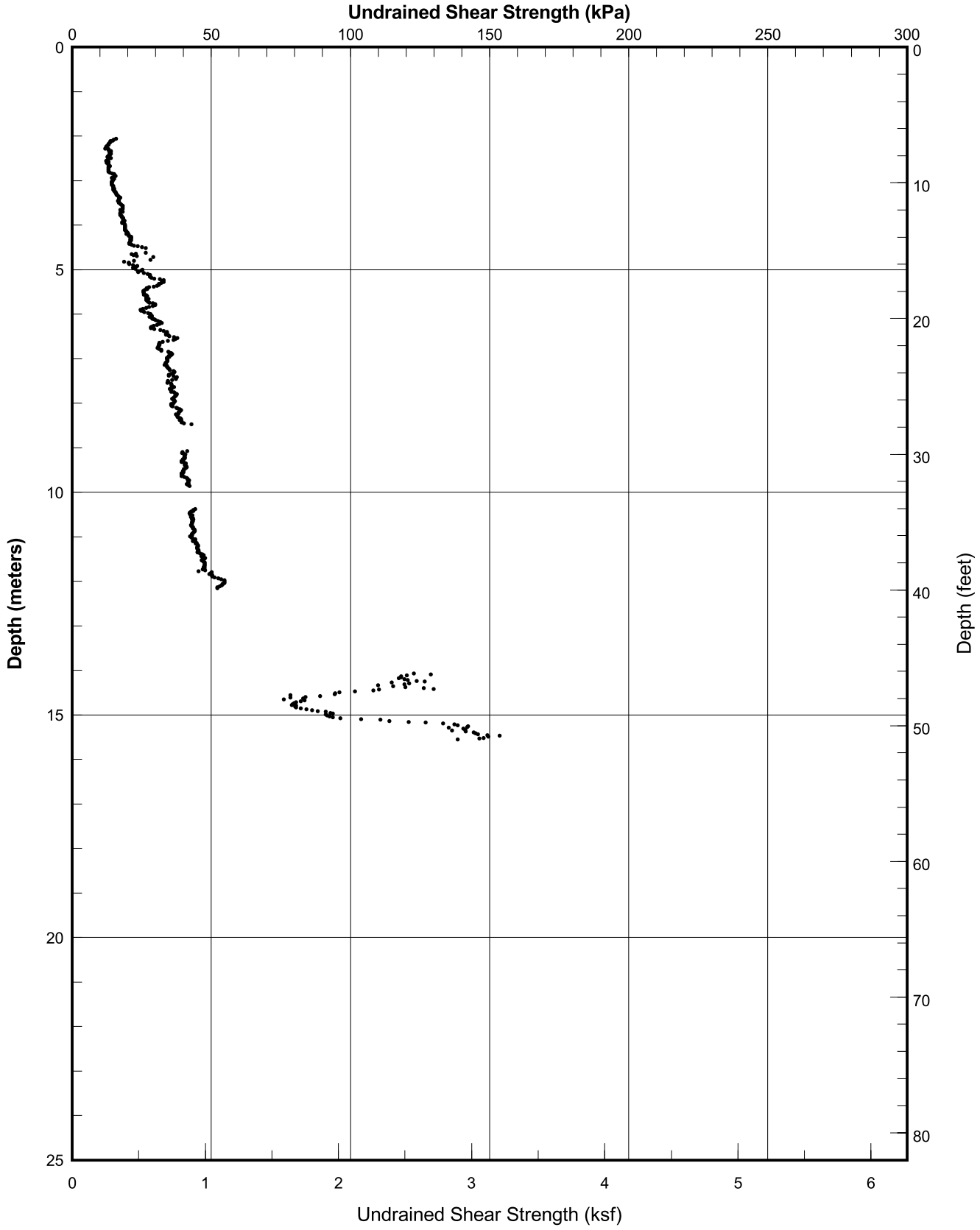
LOG OF CPT

SOUNDING 99C-8

SFOBB East Span Seismic Safety Project

Report Date: 07/06/99

PLATE 99C-8.1

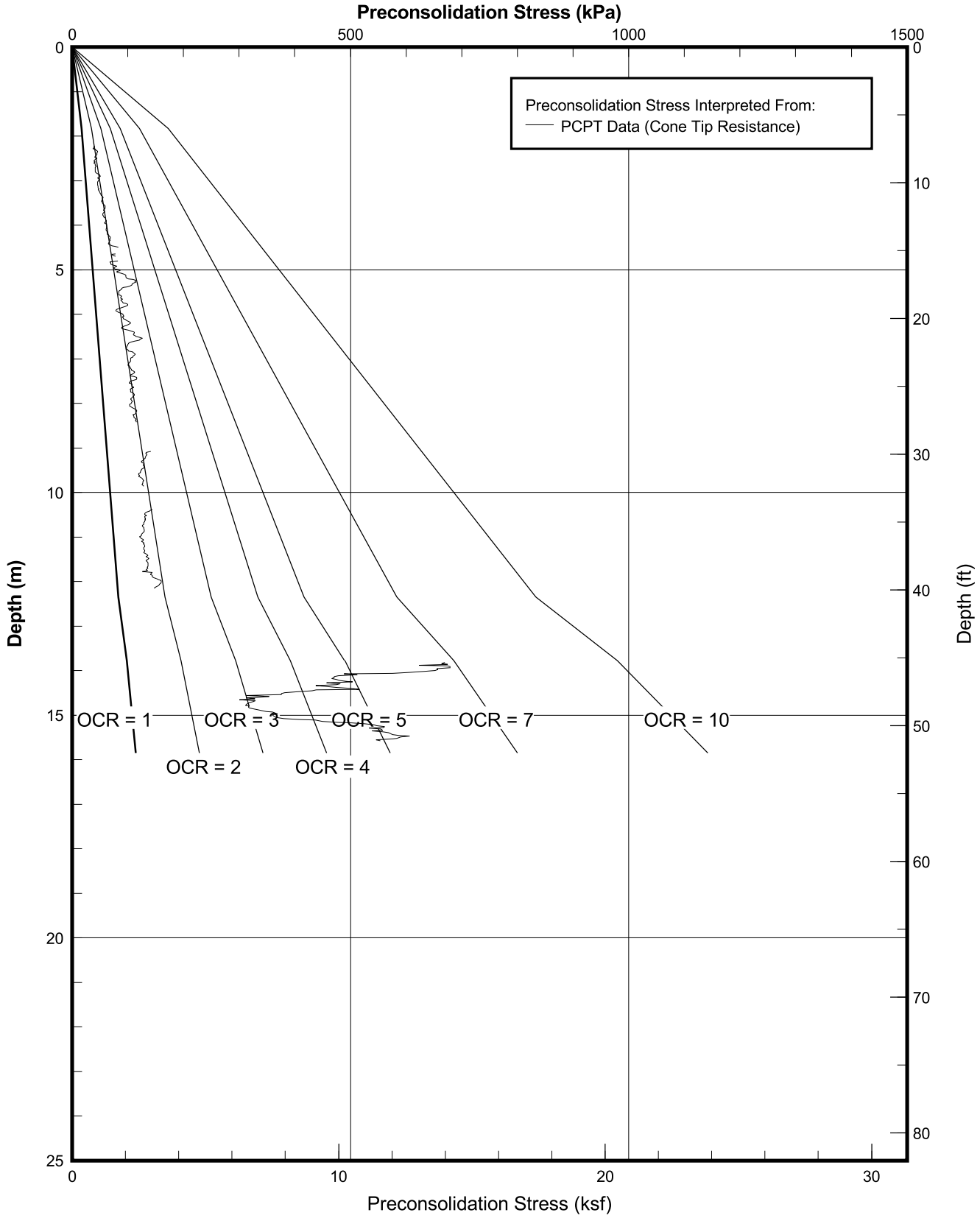


UNDRAINED SHEAR STRENGTH PROFILE INTERPRETED FROM CPT TIP RESISTANCE (Nk=12)

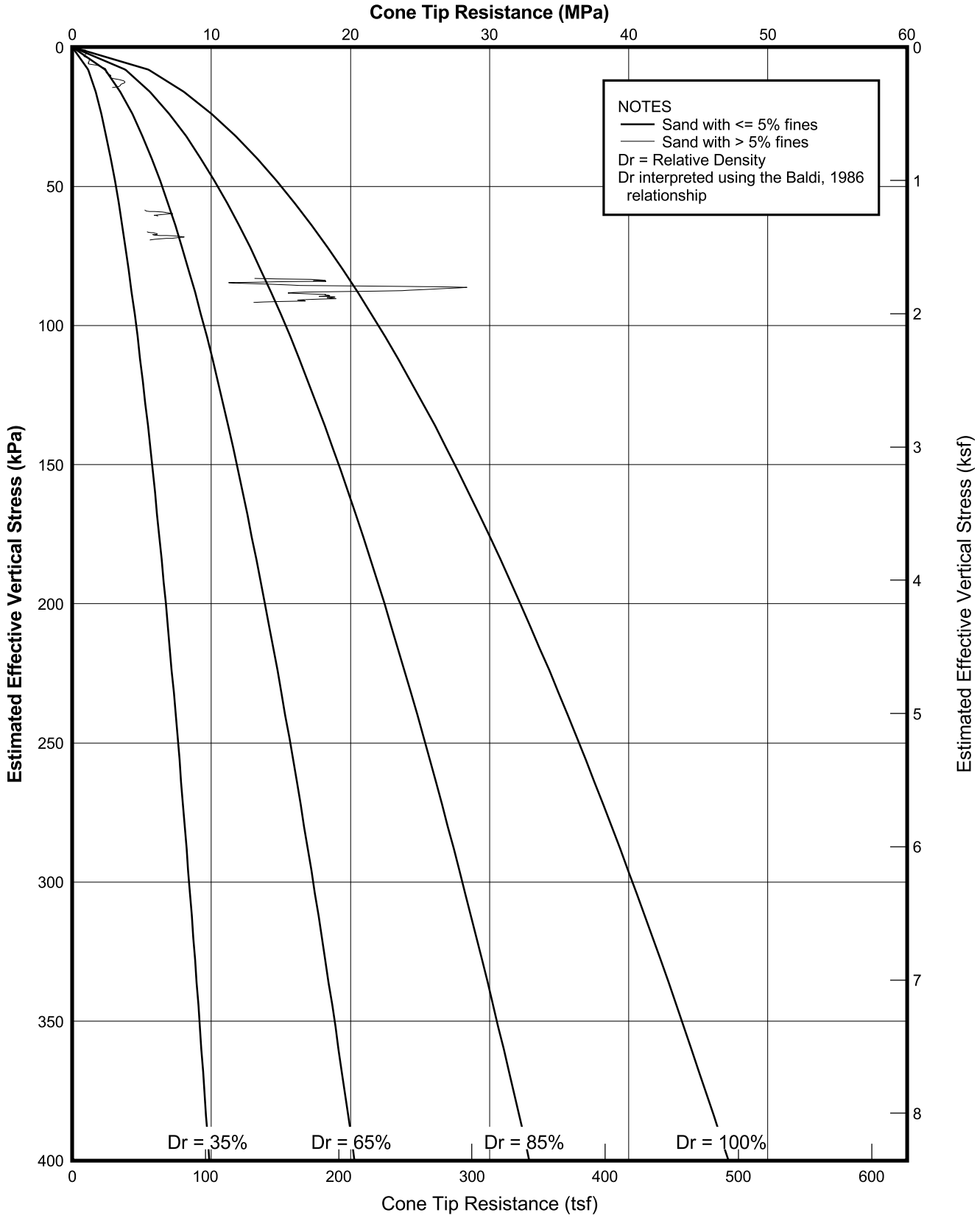
Sounding 99C-8

SFOBB East Span Seismic Safety Project

PLATE 99C-8.2

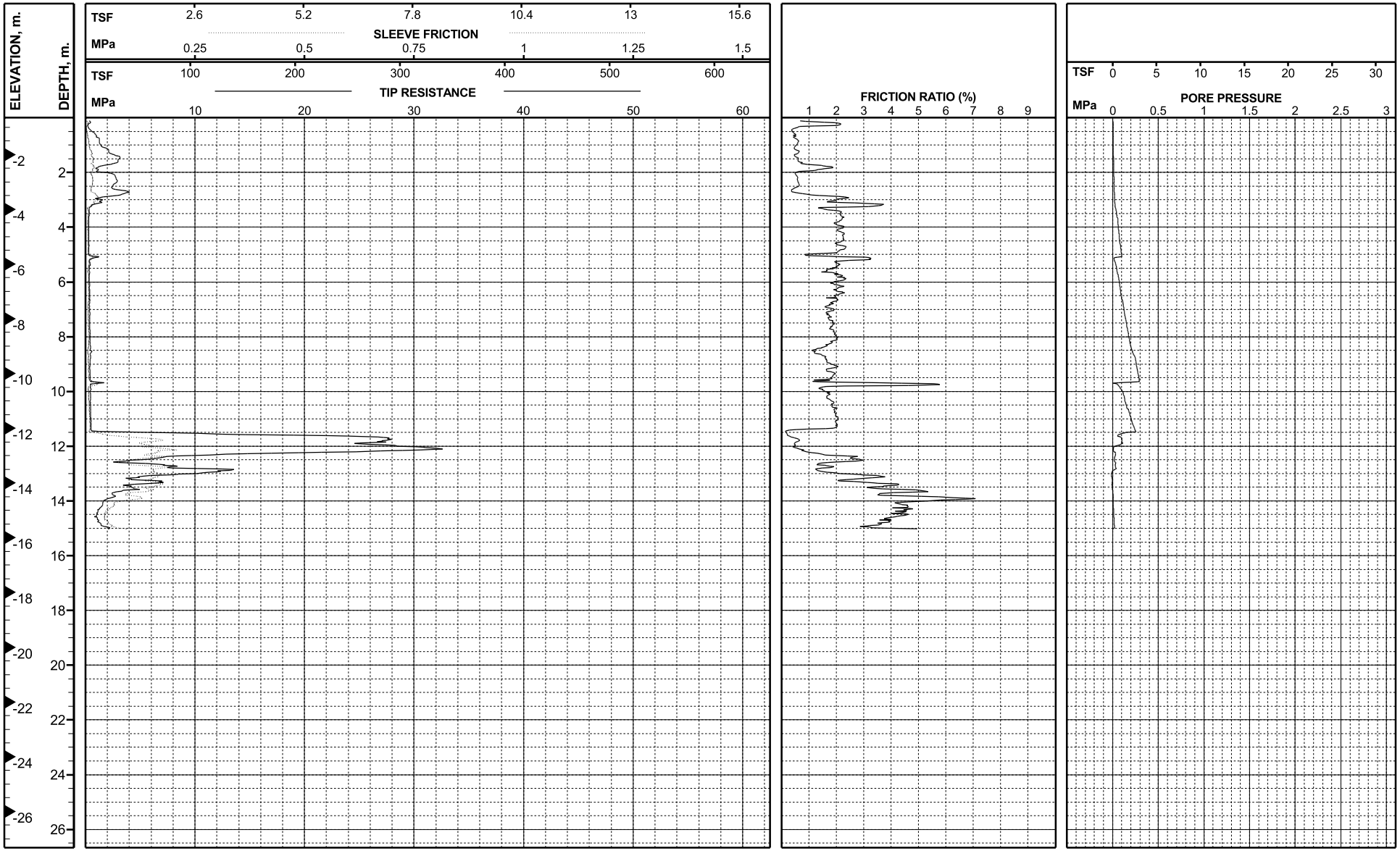


PRECONSOLIDATION STRESS INTERPRETED FROM CPT DATA
Sounding 99C-8
SFOBB East Span Seismic Safety Project



RELATIVE DENSITY INTERPRETED FROM CPT DATA
Sounding 99C-8
SFOBB East Span Seismic Safety Project

PROJECT NO:	98-42-0058	**COORDINATES:**	E1839496 N648364 CA State Plane Zone 3, NAD83, Meters	**VEHICLE:**	Fugro Geosciences
EXPLORATION NO.:	99C-9 (22.9m left of W. Sta 90+42)	**GROUND ELEVATION:**	-0.7 m (MSL)	**TEST DATE:**	03/03/99



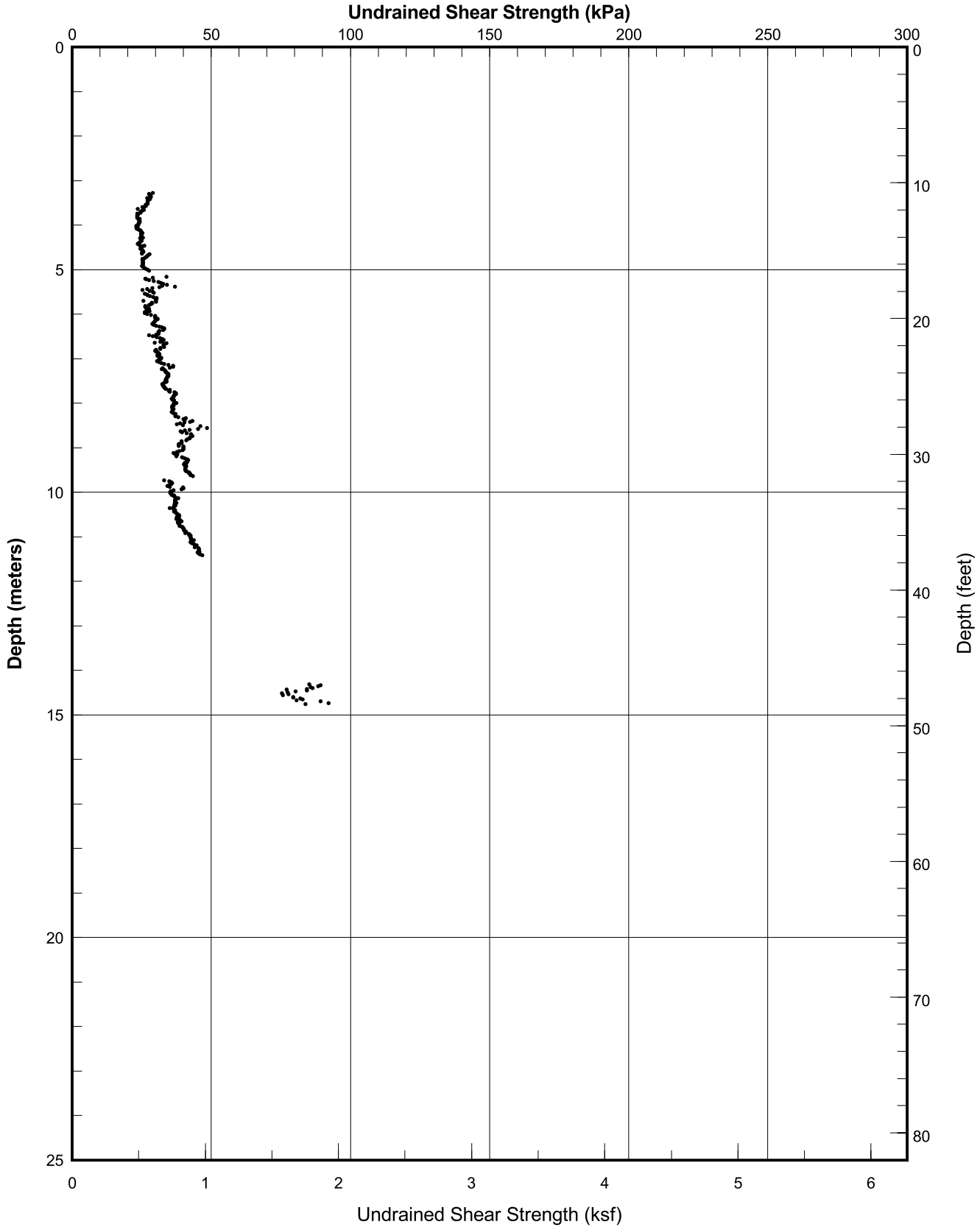
LOG OF CPT

SOUNDING 99C-9

SFOBB East Span Seismic Safety Project

Report Date: 07/06/99

PLATE 99C-9.1

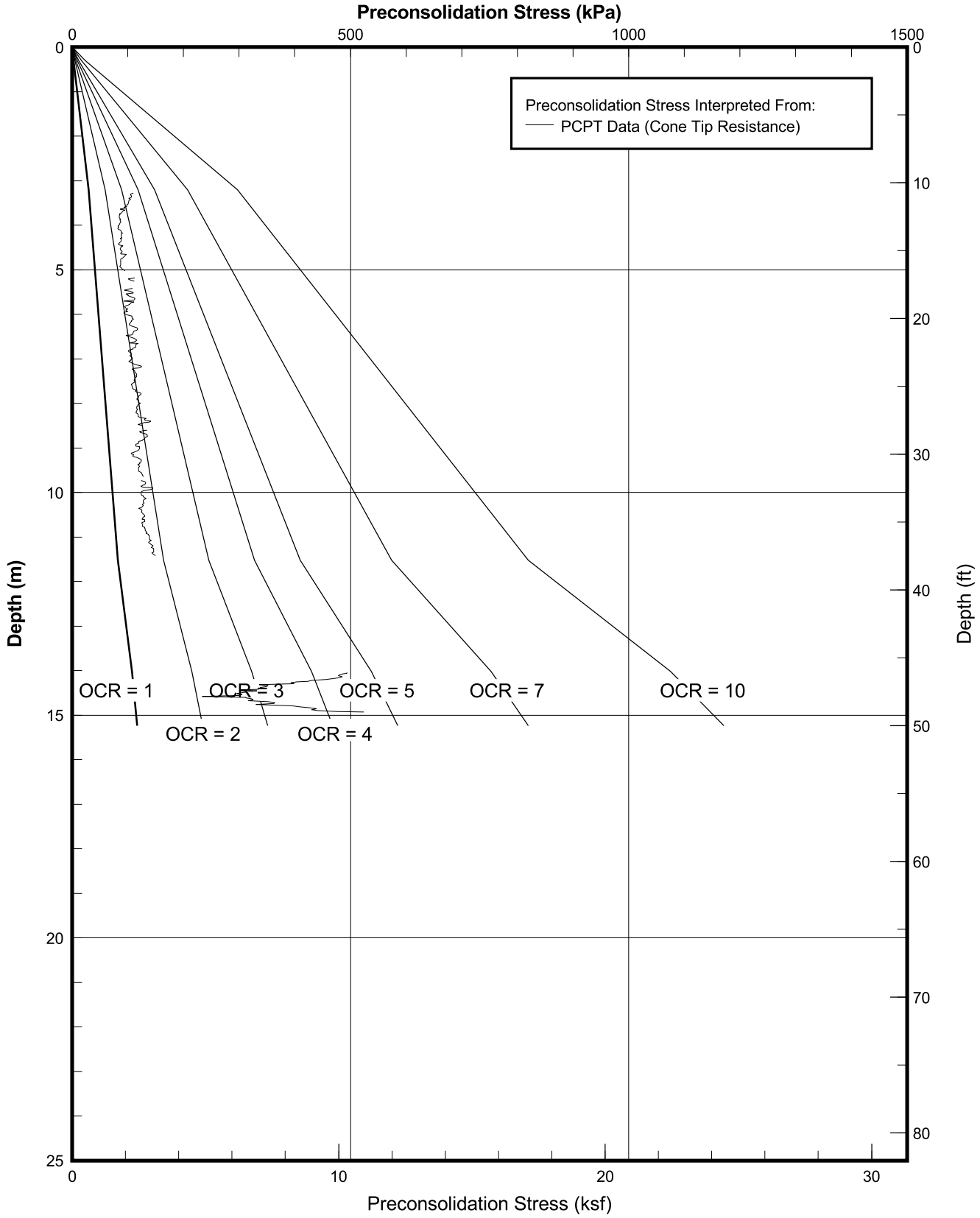


UNDRAINED SHEAR STRENGTH PROFILE INTERPRETED FROM CPT TIP RESISTANCE (Nk=12)

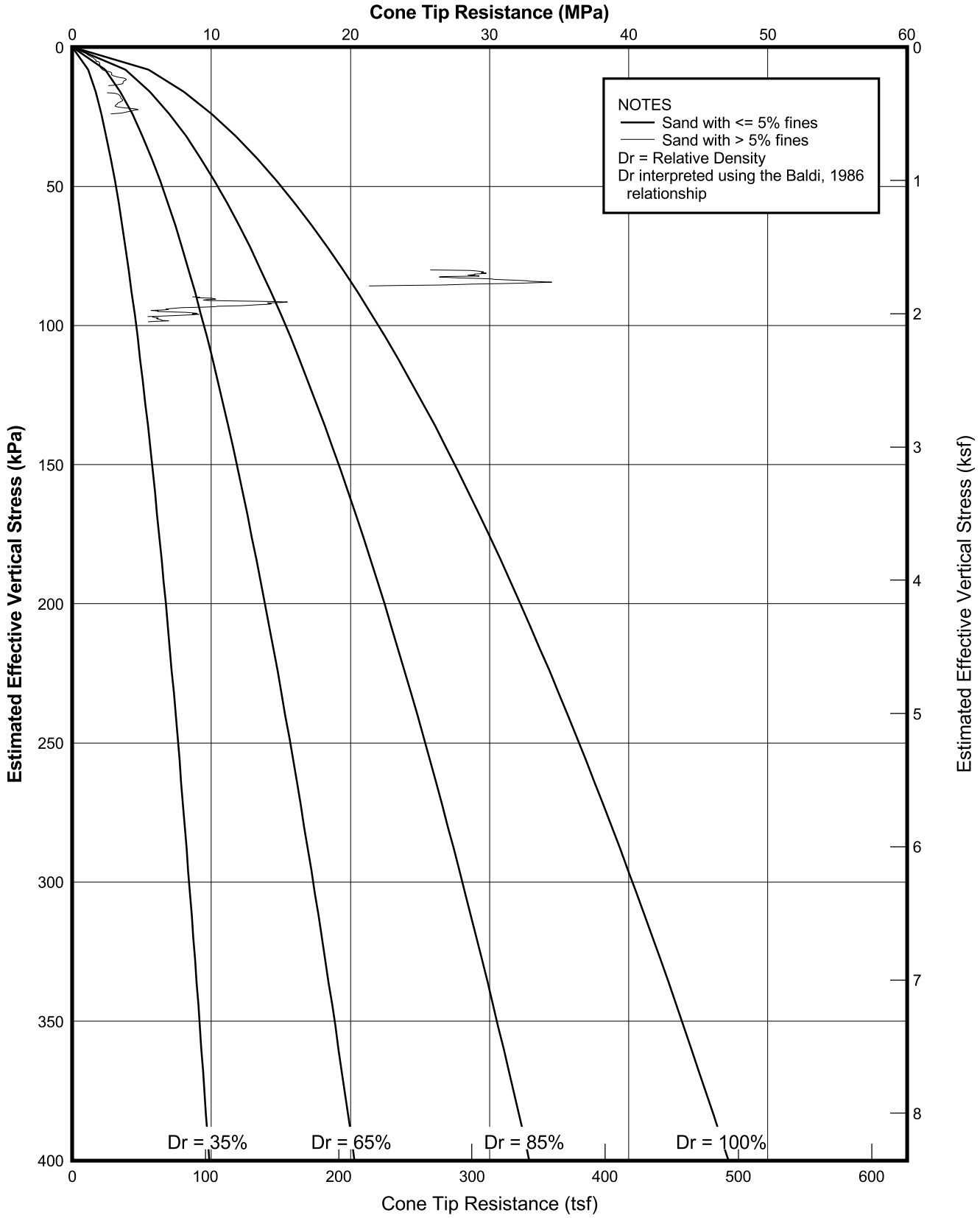
Sounding 99C-9

SFOBB East Span Seismic Safety Project

PLATE 99C-9.2

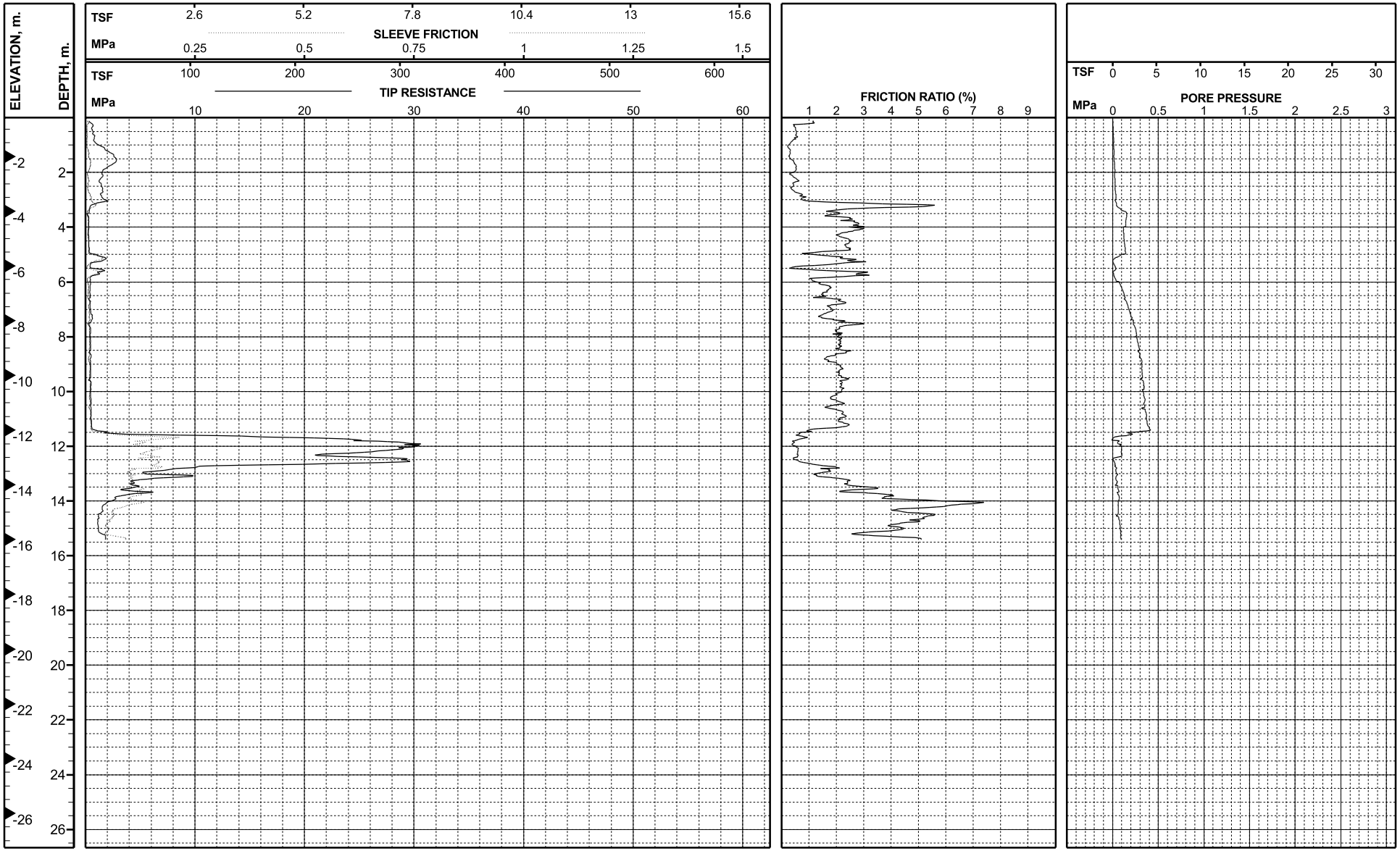


PRECONSOLIDATION STRESS INTERPRETED FROM CPT DATA
Sounding 99C-9
SFOBB East Span Seismic Safety Project



RELATIVE DENSITY INTERPRETED FROM CPT DATA
Sounding 99C-9
SFOBB East Span Seismic Safety Project

PROJECT NO:	98-42-0058	**COORDINATES:**	E1839558 N648374 CA State Plane Zone 3, NAD83, Meters	**VEHICLE:**	Fugro Geosciences
EXPLORATION NO.:	99C-10 (22.7m left of W. Sta 91+06)	**GROUND ELEVATION:**	-0.6 m (MSL)	**TEST DATE:**	03/02/99



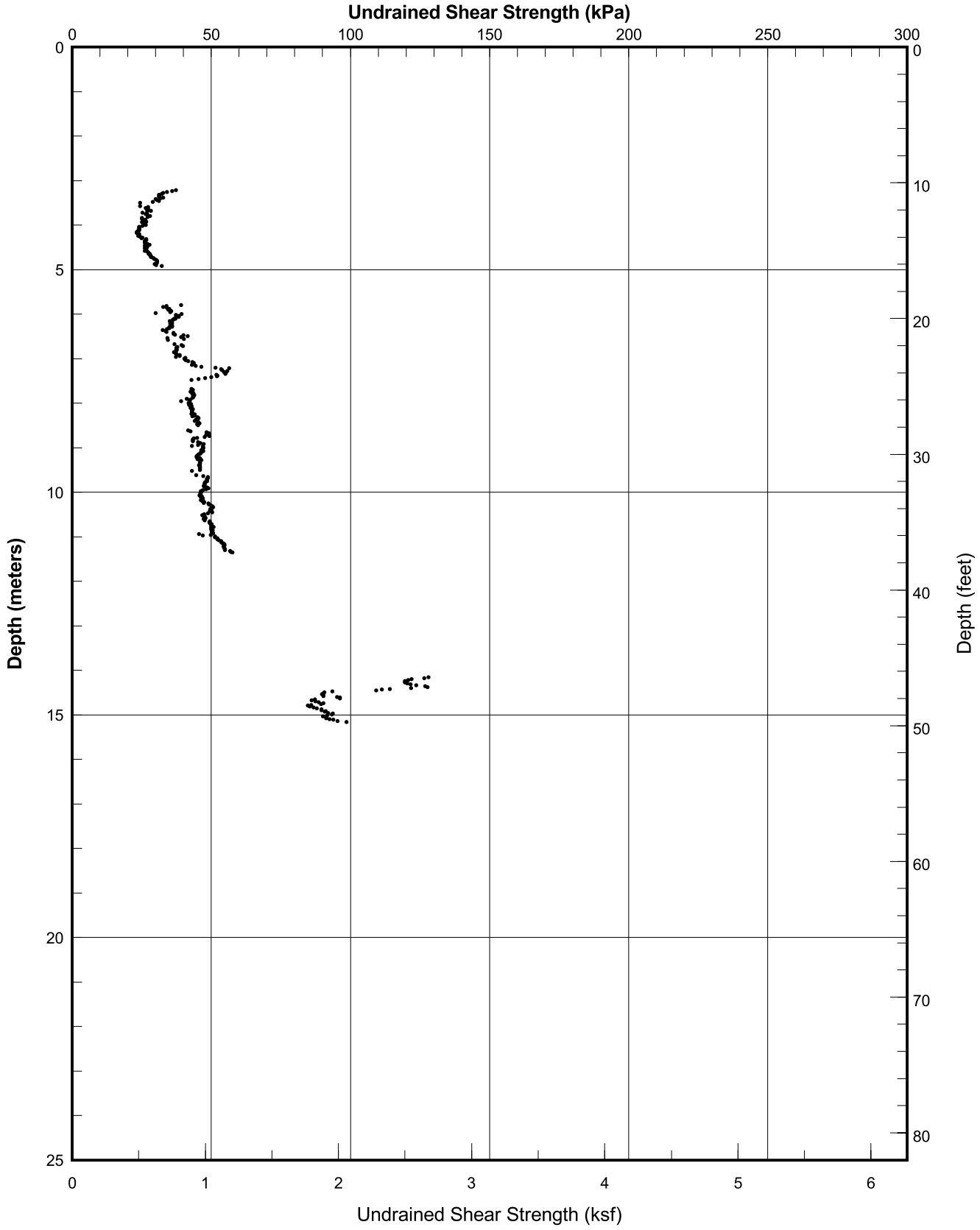
LOG OF CPT

SOUNDING 99C-10

SFOBB East Span Seismic Safety Project

Report Date: 07/06/99

PLATE 99C-10.1

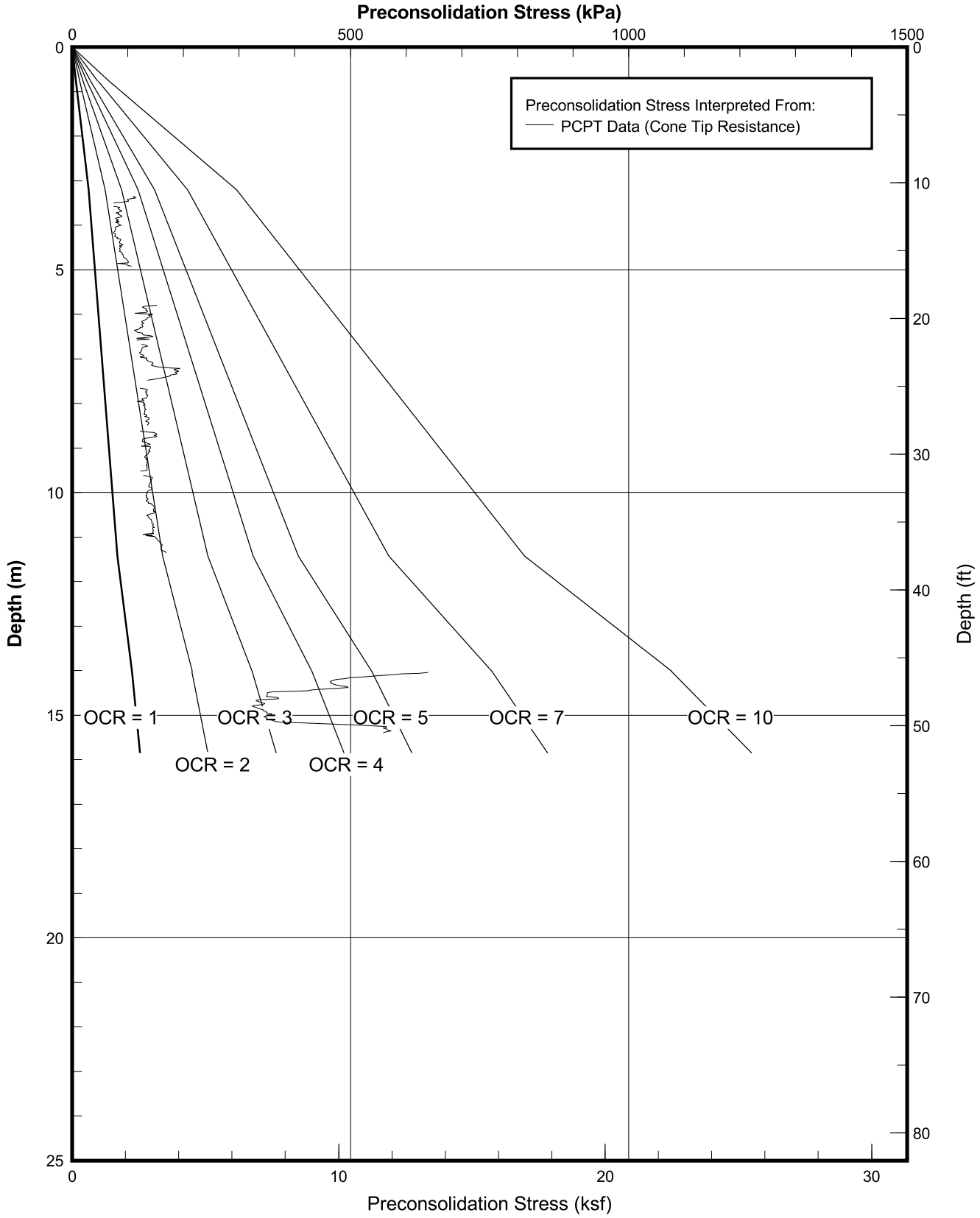


UNDRAINED SHEAR STRENGTH PROFILE INTERPRETED FROM CPT TIP RESISTANCE (Nk=12)

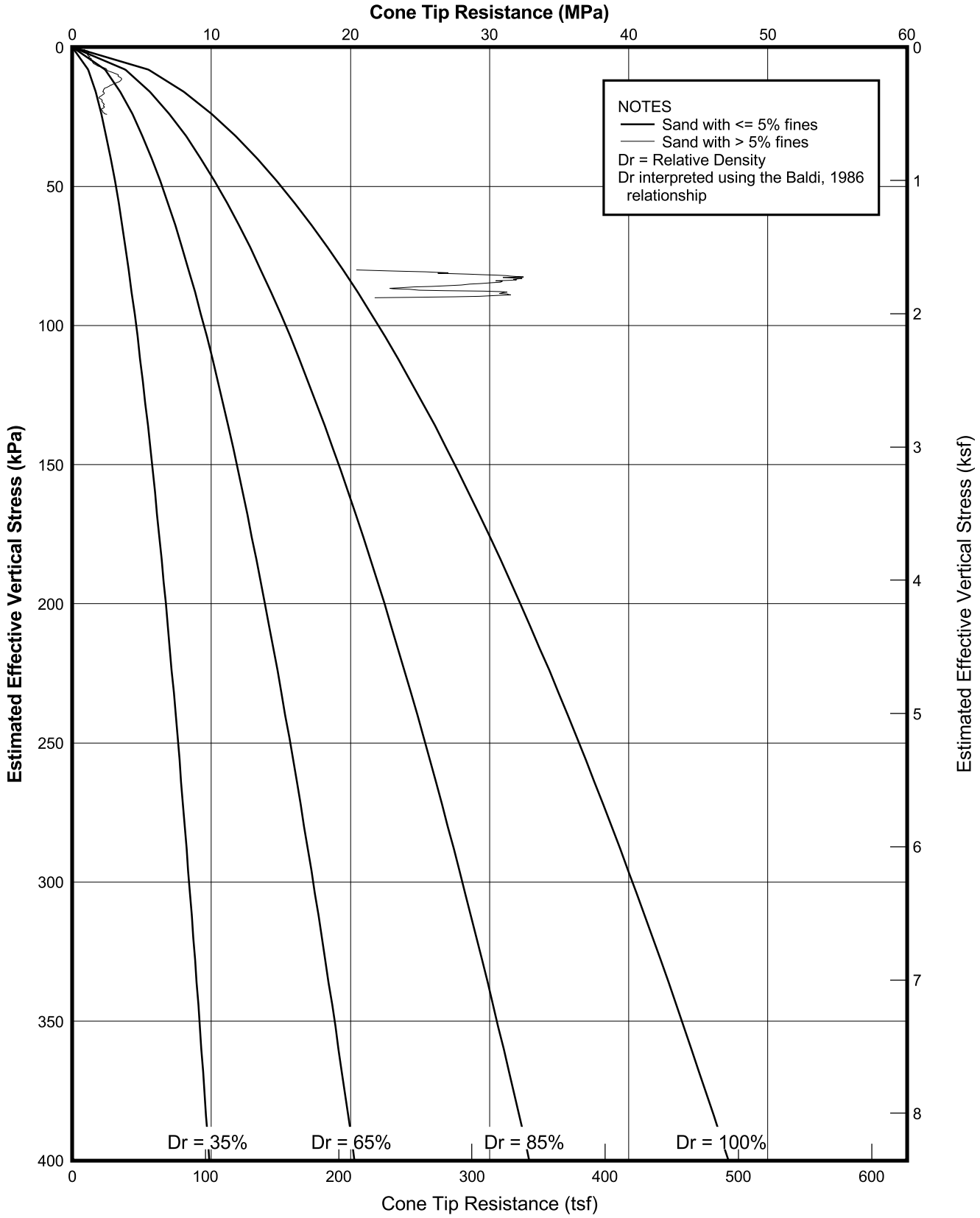
Souding 99C-10

SFOBB East Span Seismic Safety Project

PLATE 99C-10.2

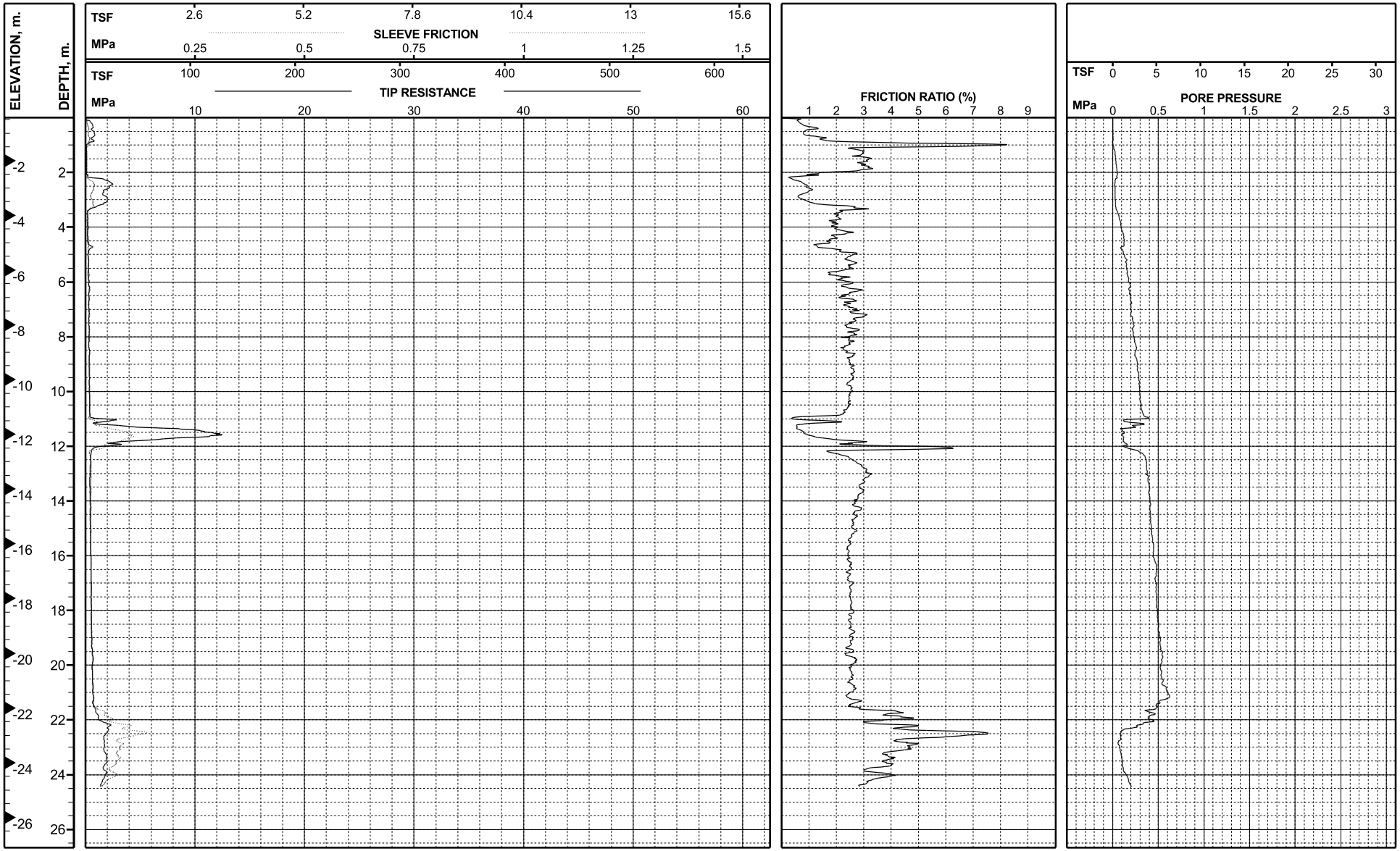


PRECONSOLIDATION STRESS INTERPRETED FROM CPT DATA
Sounding 99C-10
SFOBB East Span Seismic Safety Project



RELATIVE DENSITY INTERPRETED FROM CPT DATA
Sounding 99C-10
SFOBB East Span Seismic Safety Project

PROJECT NO:	98-42-0058	**COORDINATES:**	E1839139 N648320 CA State Plane Zone 3, NAD83, Meters	**VEHICLE:**	Fugro Geosciences
EXPLORATION NO.:	99C-11 (9.7m left of W. 86+81)	**GROUND ELEVATION:**	-0.4 m (MSL)	**TEST DATE:**	03/17/99



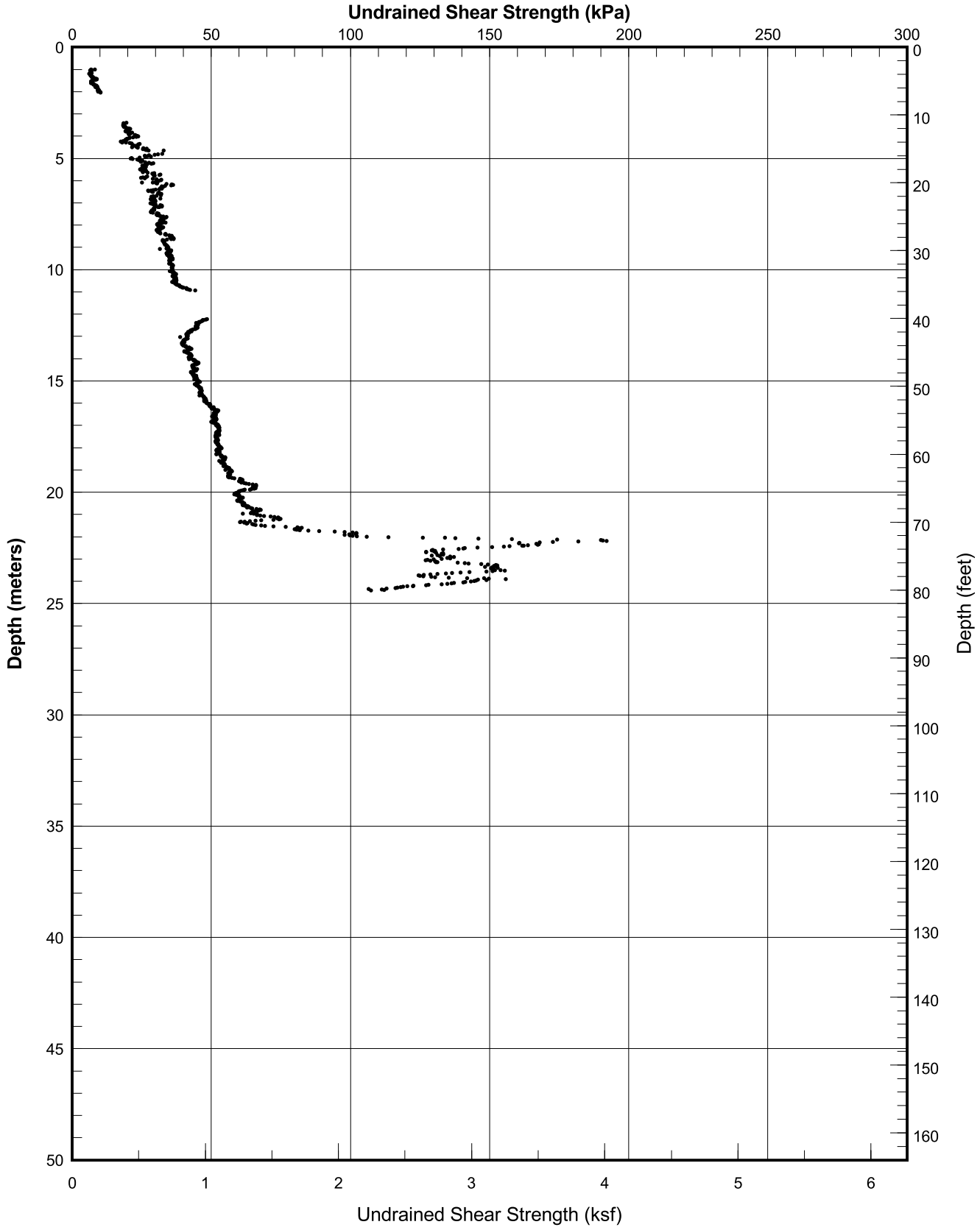
LOG OF CPT

SOUNDING 99C-11

SFOBB East Span Seismic Safety Project

Report Date: 08/26/99

PLATE 99C-11.1

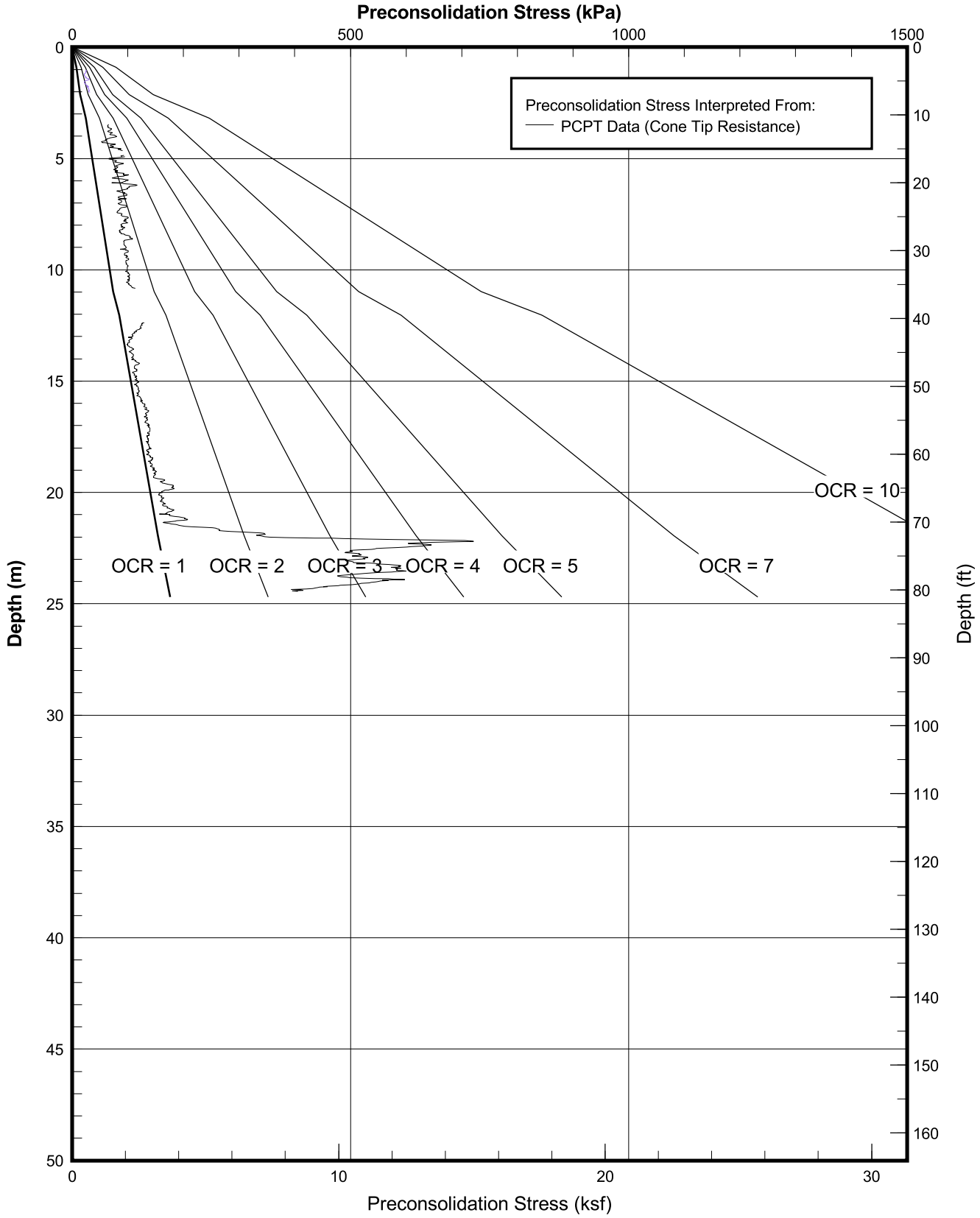


UNDRAINED SHEAR STRENGTH PROFILE INTERPRETED FROM CPT TIP RESISTANCE (Nk=12)

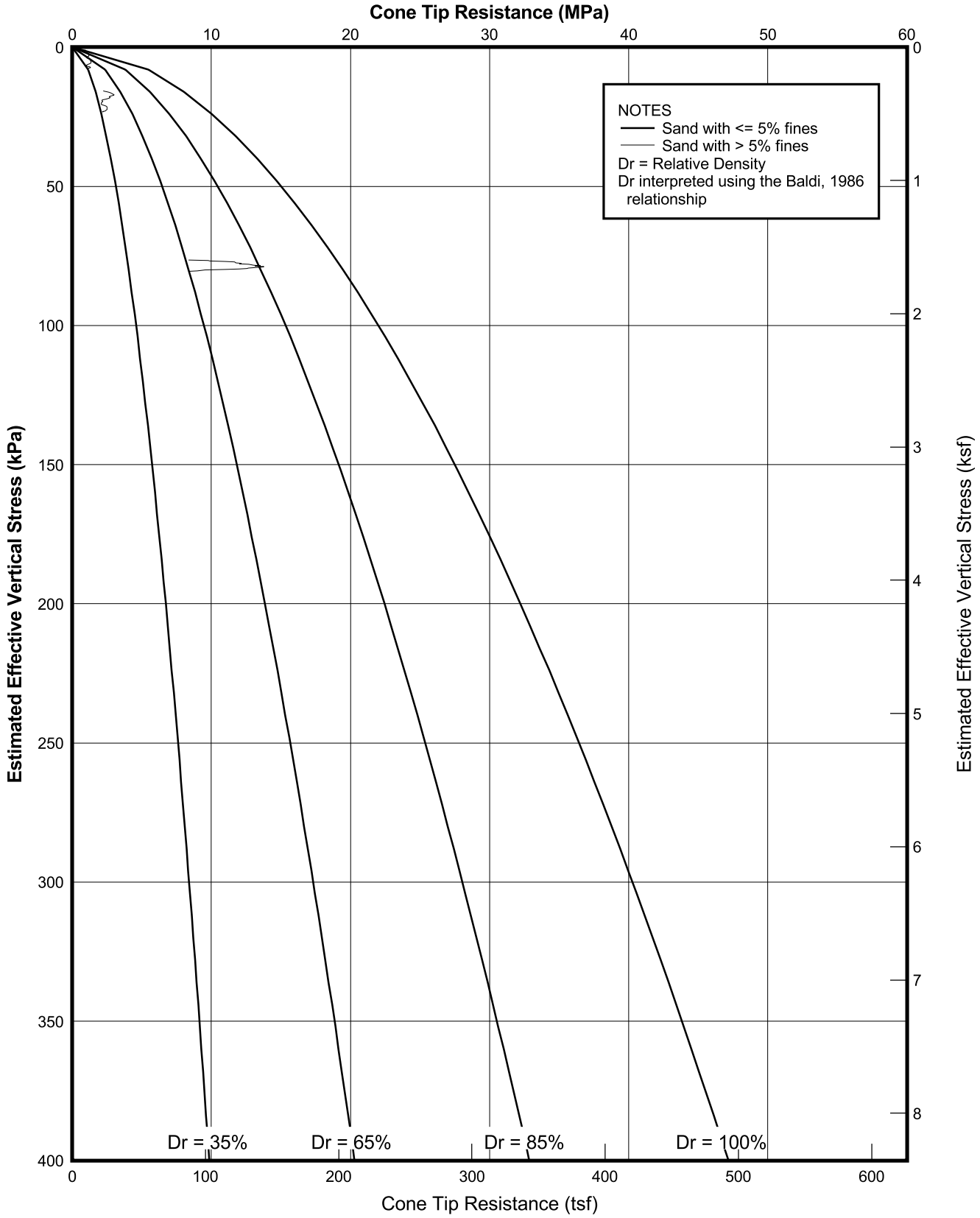
Sounding 99C-11

SFOBB East Span Seismic Safety Project

PLATE 99C-11.2

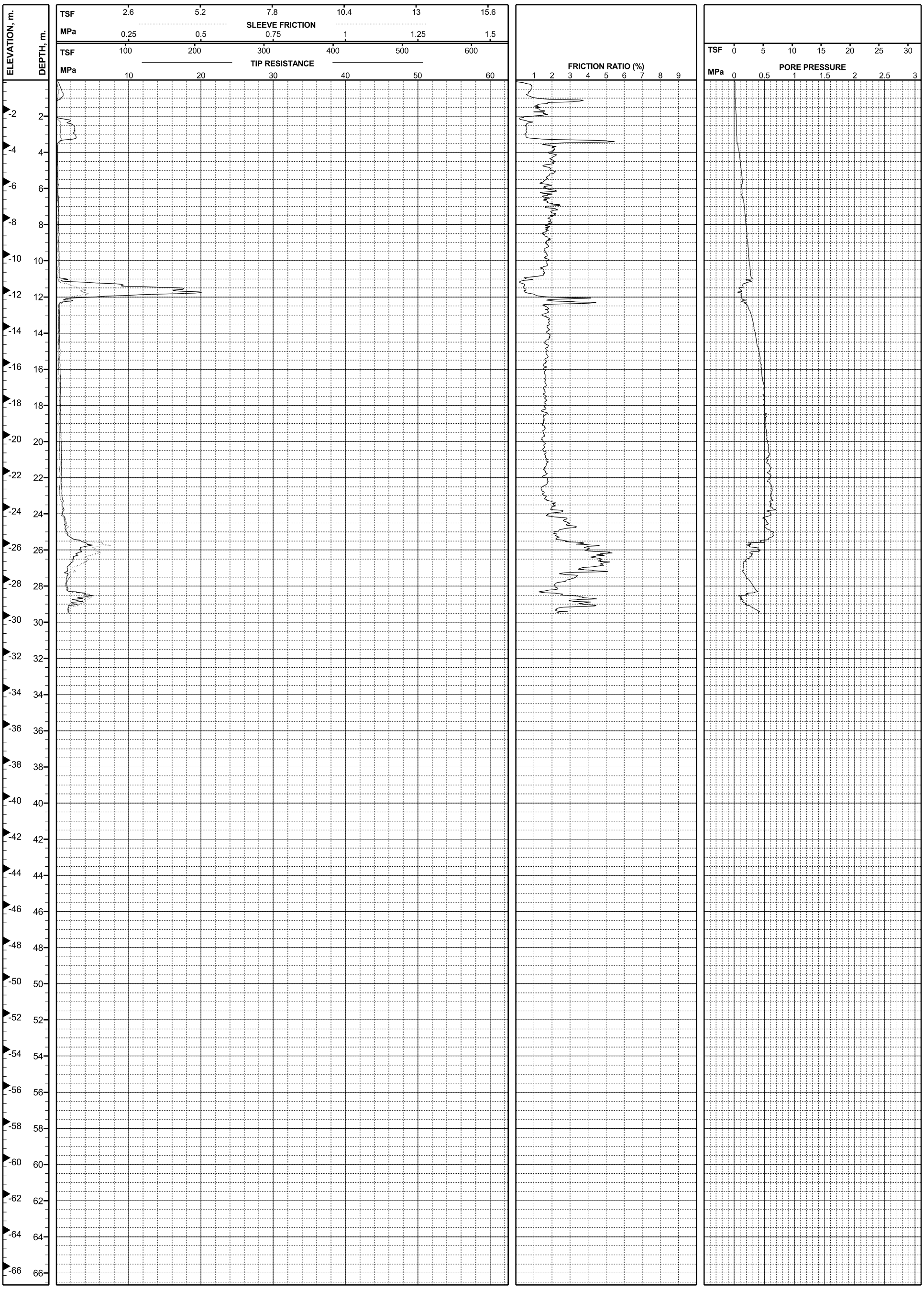


PRECONSOLIDATION STRESS INTERPRETED FROM CPT DATA
Sounding 99C-11
SFOBB East Span Seismic Safety Project



RELATIVE DENSITY INTERPRETED FROM CPT DATA
Sounding 99C-11
SFOBB East Span Seismic Safety Project

PROJECT NO:	98-42-0058	**COORDINATES:**	E1839174 N648323 CA State Plane Zone 3, NAD83, Meters	**VEHICLE:**	Fugro Geosciences
EXPLORATION NO.:	99C-12 (10.0m left of W. Sta 87+16)	**GROUND ELEVATION:**	-0.4 m (MSL)	**TEST DATE:**	03/15/99



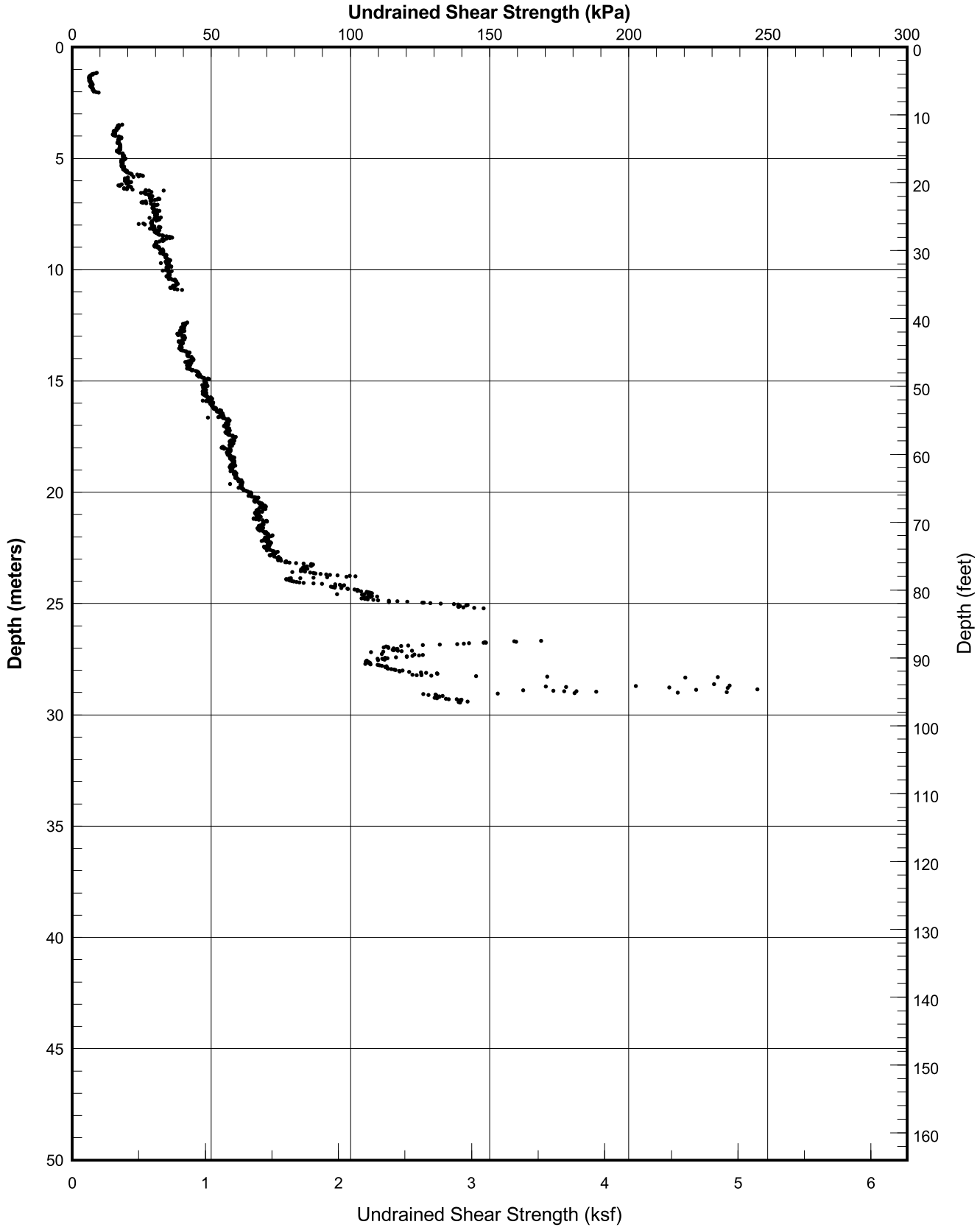
LOG OF CPT

SOUNDING 99C-12

SFOBB East Span Seismic Safety Project

Report Date: 08/26/99

PLATE 99C-12.1

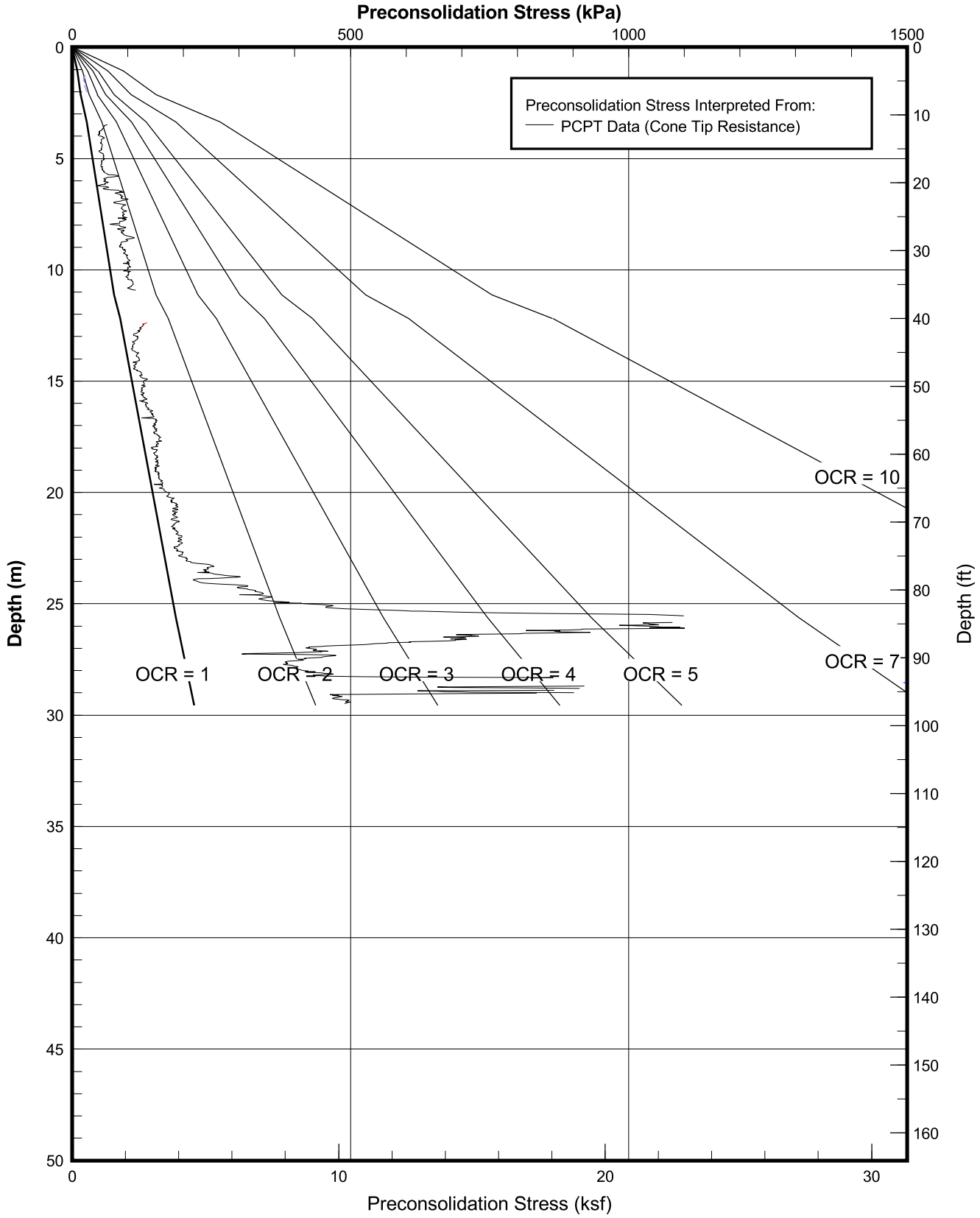


UNDRAINED SHEAR STRENGTH PROFILE INTERPRETED FROM CPT TIP RESISTANCE (Nk=12)

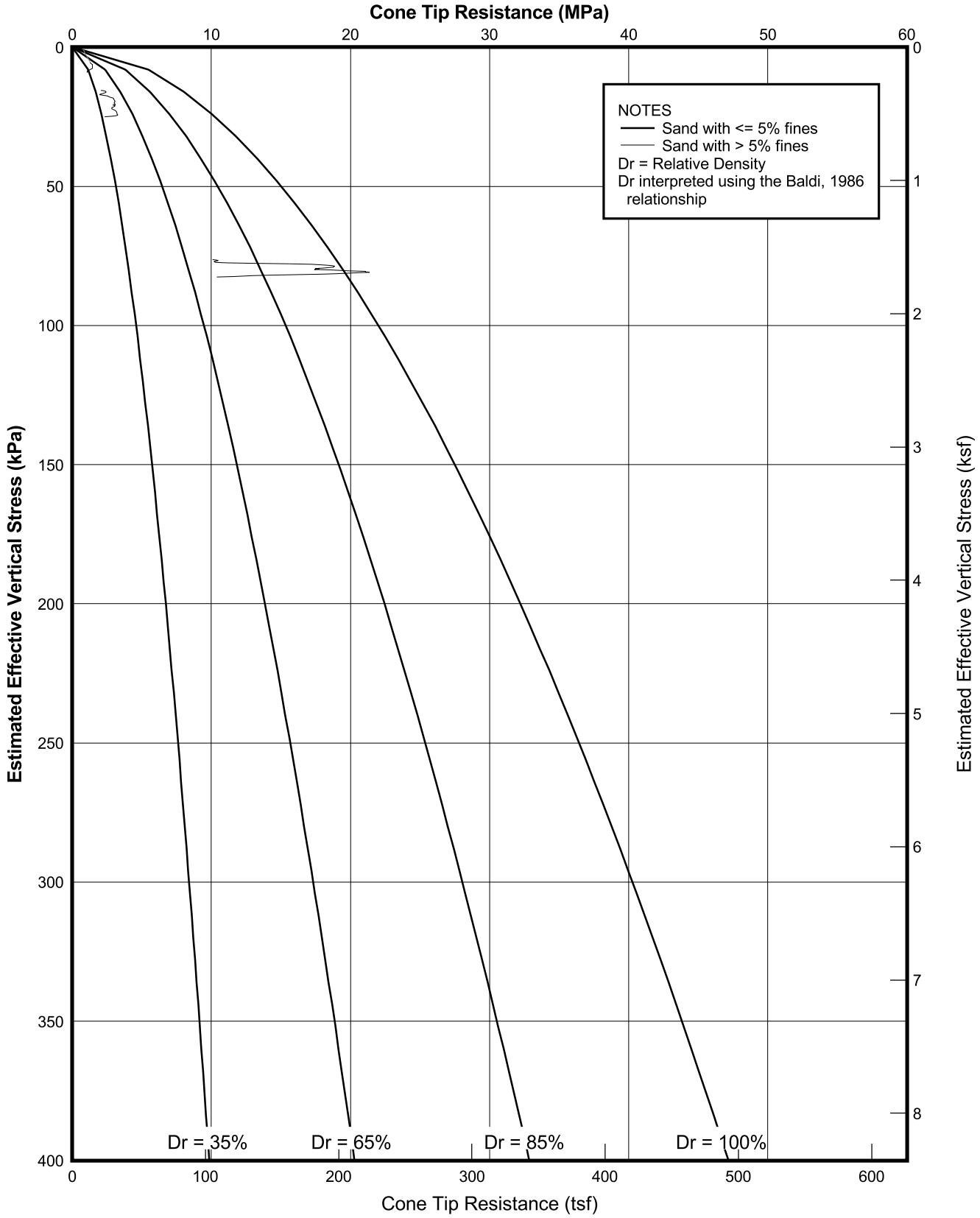
Sounding 99C-12

SFOBB East Span Seismic Safety Project

PLATE 99C-12.2



PRECONSOLIDATION STRESS INTERPRETED FROM CPT DATA
Sounding 99C-12
SFOBB East Span Seismic Safety Project



RELATIVE DENSITY INTERPRETED FROM CPT DATA
Sounding 99C-12
SFOBB East Span Seismic Safety Project

SFOBB Task Order No. 5
Project No. 98-42-0058

99C-12		IDENTIFICATION TESTS						STRENGTH ESTIMATE			MINIATURE VANE TESTS			UU TRIAXIAL		DIRECT SHEAR TESTS				CORROSIVITY TESTS				COMPACTION TESTS		ADDITIONAL TESTS	SPECIFIC GRAVITY
DEPTH (m)	Sample No.	MC (%)	LL (%)	PL (%)	LI	TUW (kN/m3)	Fines (%)	Torvane (kPa)	Pocket Pen. (kPa)	Fall Cone (kPa)	Undist. (kPa)	Remold. (kPa)	Resid. (kPa)	Undist. (kPa)	Remold. (kPa)	Peak c (kPa)	Peak phi (deg)	Post Peak c (kPa)	Post Peak phi (deg)	R (o-cm)	pH	Cl (ppm)	SO4 (ppm)	Max DD (kN/m3)	OMC (%)		
1.8	1	67	62	24	1.12		75																				2.65
3.0	2						3																				
4.0	3	75	71	29	1.09		98																				2.67
5.5	4	75	91	31	0.72		98																				2.72

Identification Tests
MC = Moisture Content
LL = Liquid Limit
PL = Plastic Limit
LI = Liquidity Index

Identification Tests
TUW = Total Unit Weight
Fines = % Passing No. 200 Sieve

Strength Tests
UU = Unconsolidated Undrained
c = Effective Cohesion
phi = Effective Angle of Friction

Corrosivity Tests
R = Resistivity (ohm-cm)
pH = pH
Cl = Chloride Content
SO4 = Sulfate Content

Additional Tests
H = Hydrometer
C = Consolidation Test
RC = Resonant Column
CS = Cyclic Simple Shear

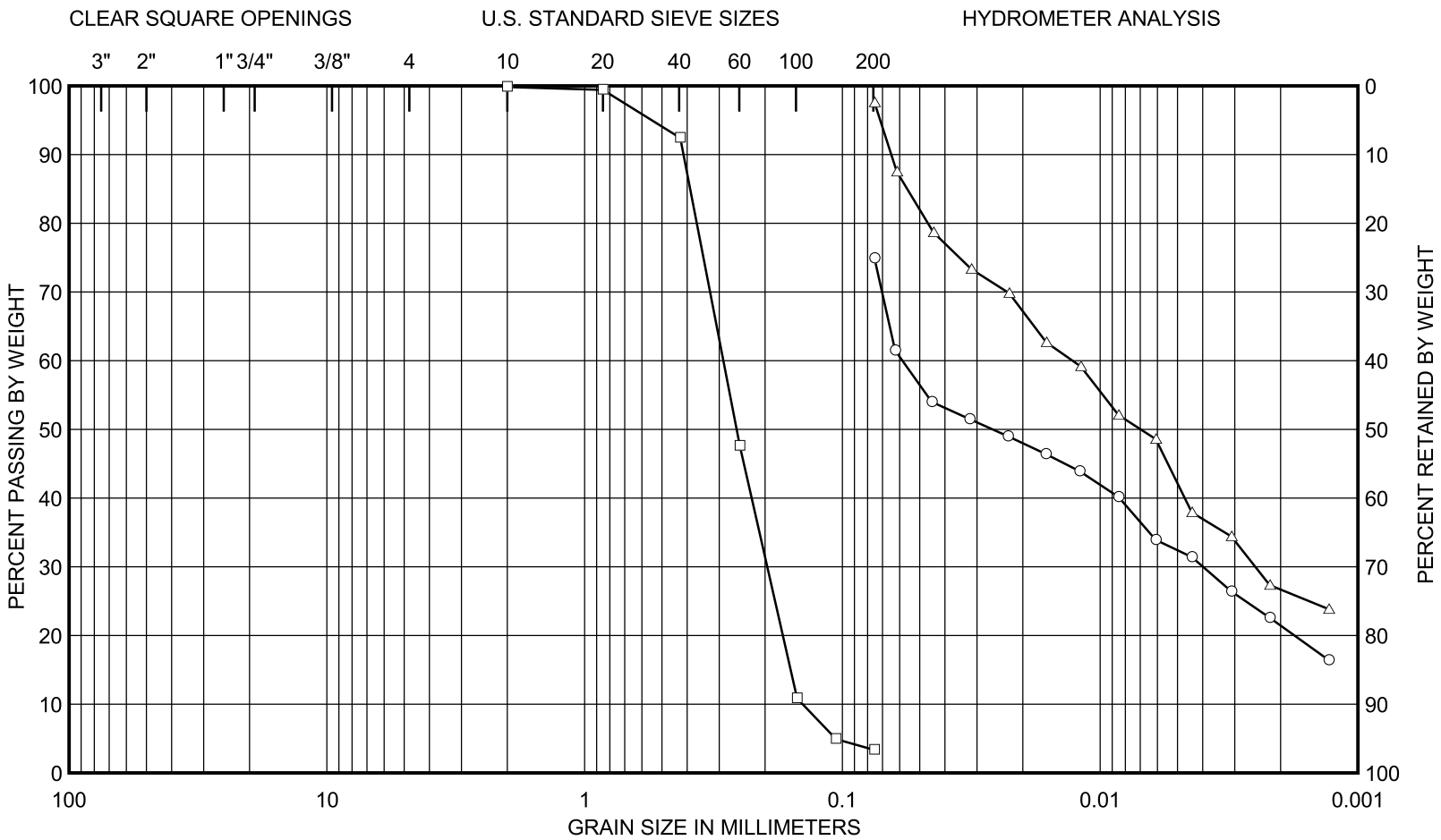
Additional Tests
K = Ko Consolidated Triaxial Test

+ Soil : Strength exceeds capacity of measuring device
Rock: Sample broke along discontinuity; (Intact sample would have greater strength)

SUMMARY OF LABORATORY TEST RESULTS
Sounding 99C-12
SFOBB East Span Seismic Safety Project

Earth Mechanics

FUGRO



GRAVEL		SAND			SILT (nonplastic)
COARSE	FINE	COARSE	MEDIUM	FINE	to CLAY (plastic)

SAMPLE NO.	DEPTH (m)	CURVE	CLASSIFICATION	Cc	Cu	D50 (mm)
1	1.8	○——○	FAT CLAY (CH)			0.026
2	3.0	□——□	FINE SAND (SP) with a trace of medium sand	0.9	2.0	0.26
4	5.5	△——△	FAT CLAY (CH)			0.0070

GRAIN SIZE DISTRIBUTION CURVES
Sounding 99C-12
SFOBB East Span Seismic Safety Project

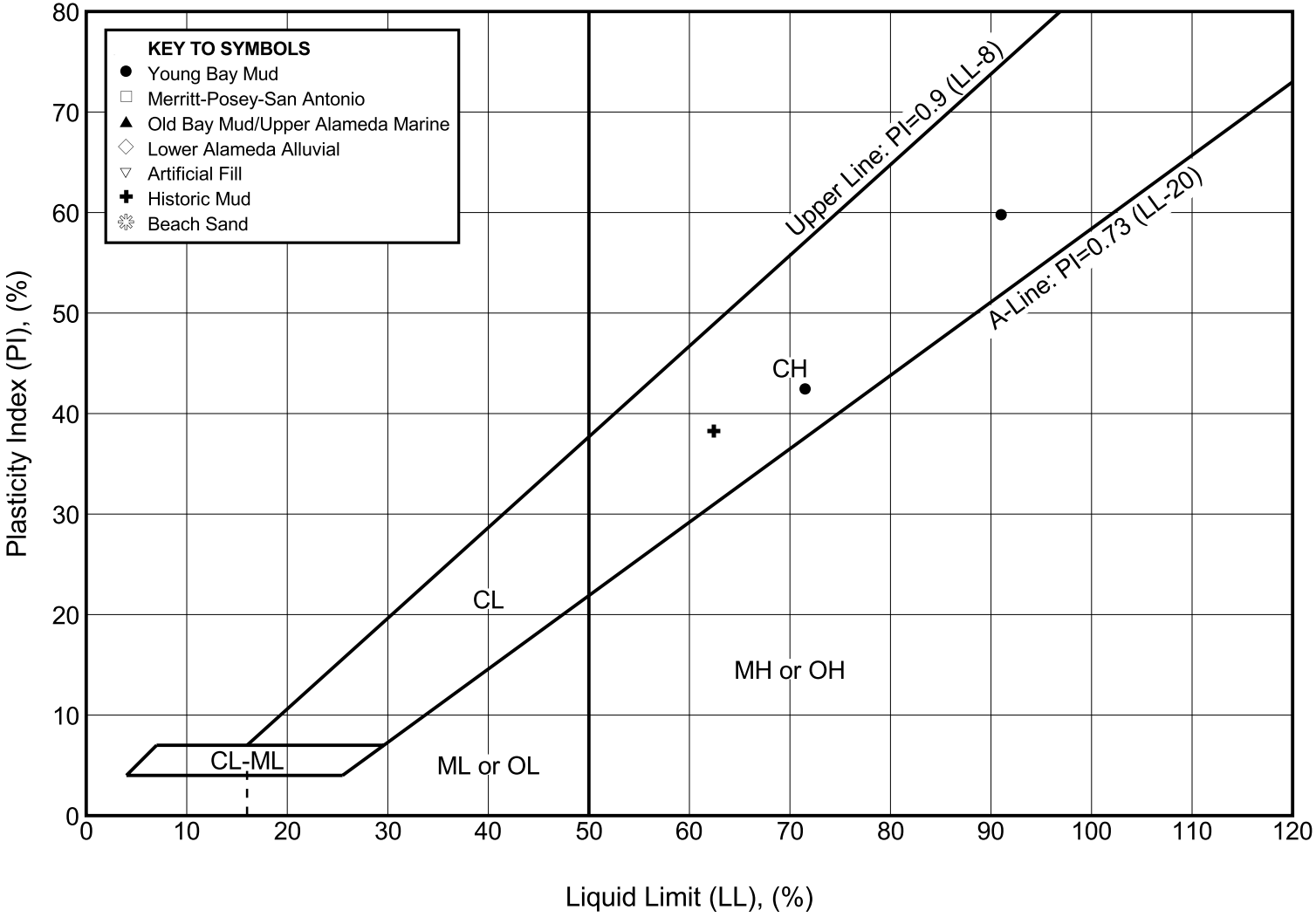
SFOBB Task Order No. 5
Project No. 98-42-0058

Earth Mechanics

FUGRO

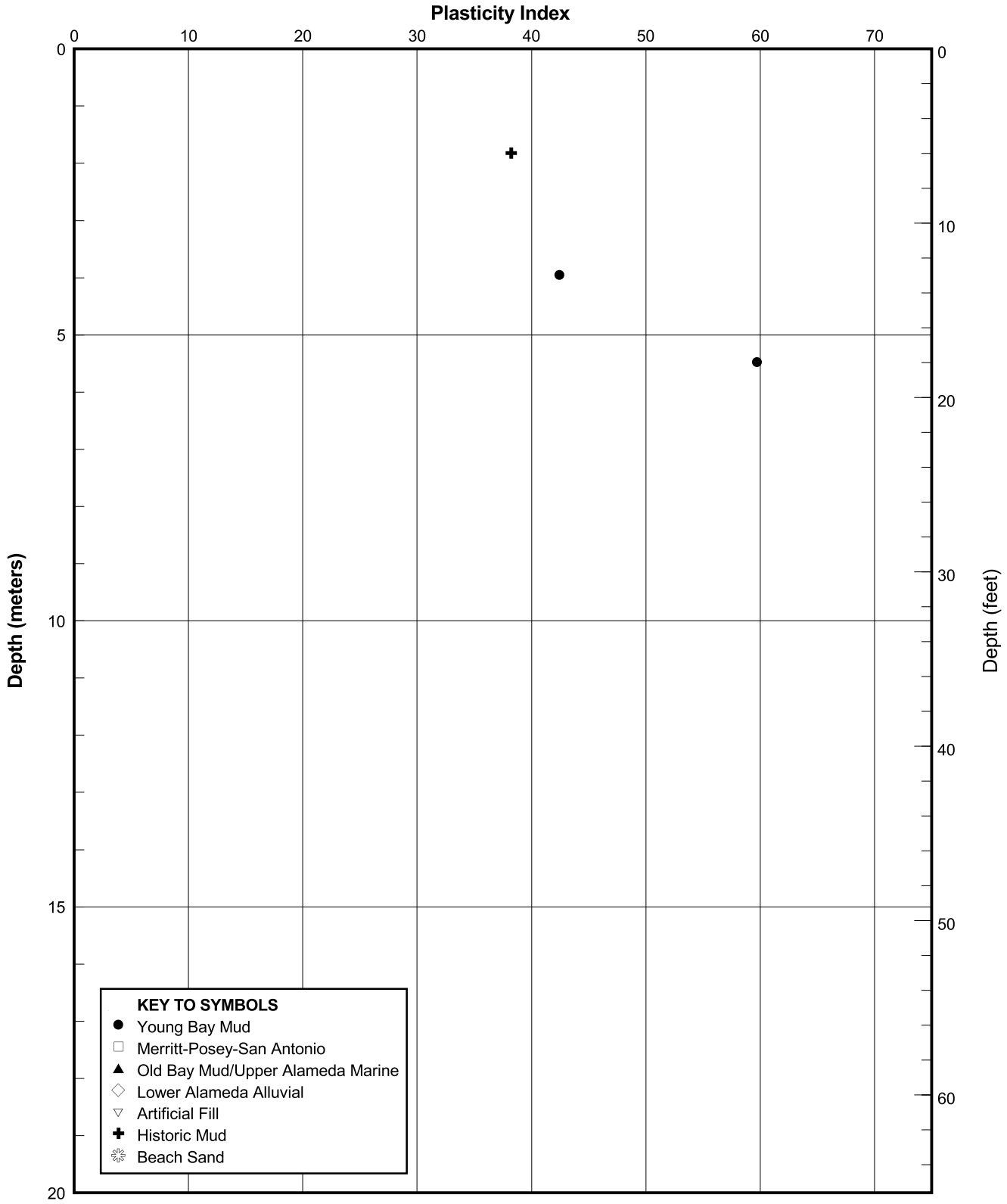
PLATE 99C-12.6

j:\caltrans\99C-12 08/33/YY

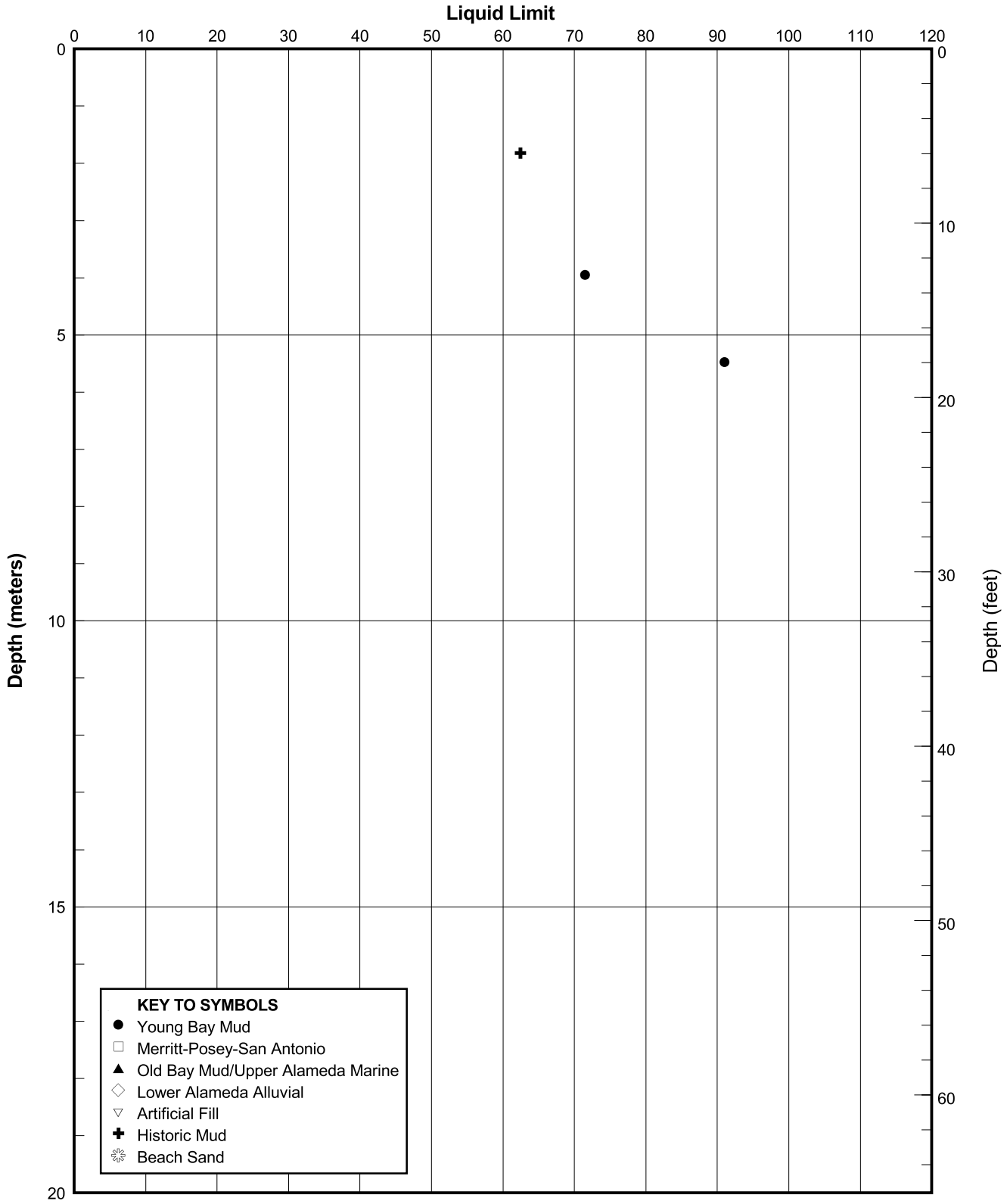


PLASTICITY CHART
Sounding 99C-12
SFOBB East Span Seismic Safety Project

j:\caltrans\ 08/33/YY

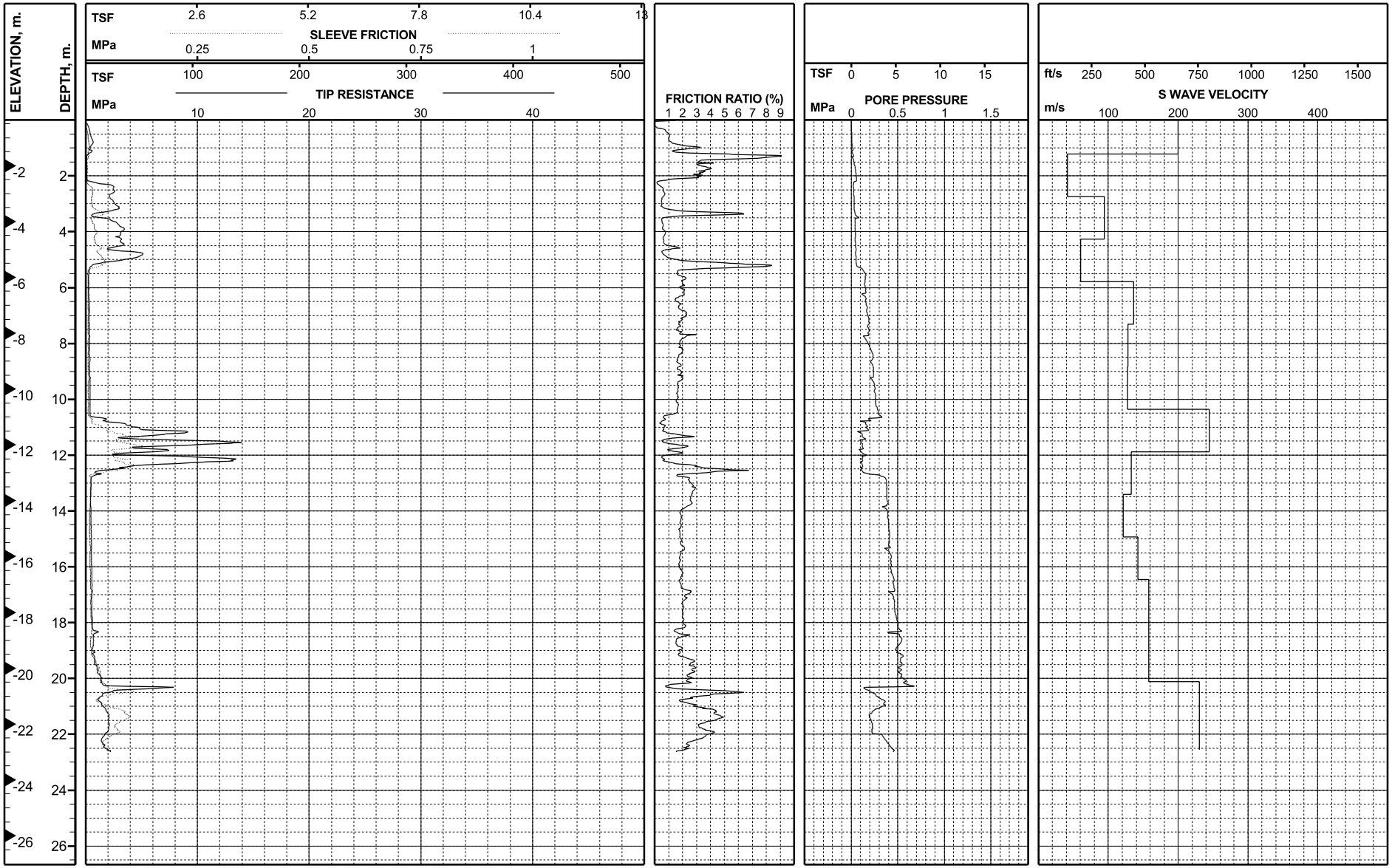


PLASTICITY INDEX PROFILE
Sounding 99C-12
SFOBB East Span Seismic Safety Project



LIQUID LIMIT PROFILE
Sounding 99C-12
SFOBB East Span Seismic Safety Project

PROJECT NO:	98-42-0058	**COORDINATES:**	E1839205 N648325 CA State Plane Zone 3, NAD83, Meters	**VEHICLE:**	Fugro Geosciences
EXPLORATION NO.:	99C-13 (8.7m left of W. Sta. 87+47)	**GROUND ELEVATION:**	-0.4 m (MSL)	**TEST DATE:**	03/16/99



LOG OF CPT

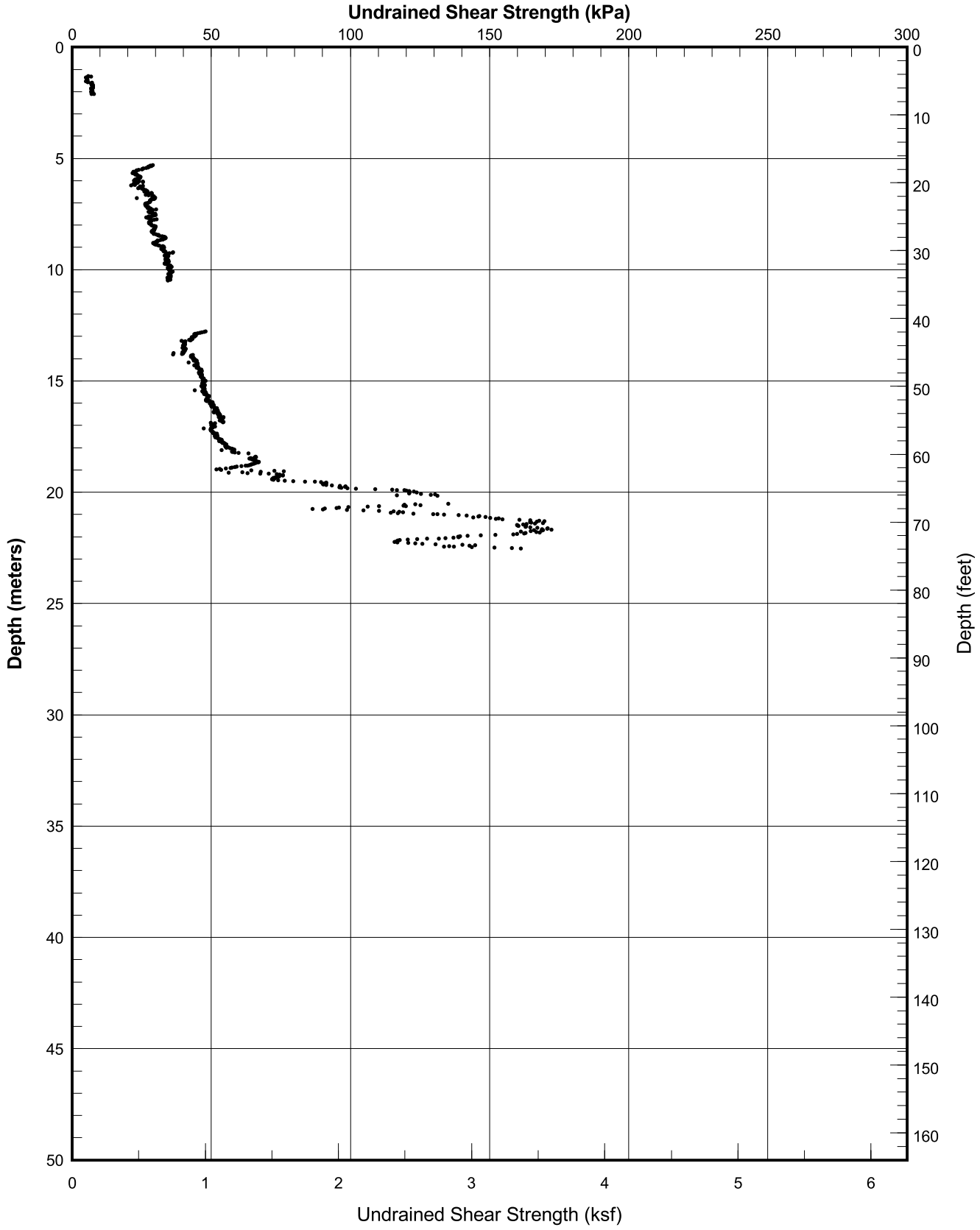
SOUNDING 99C-13

SFOBB East Span Seismic Safety Project

Report Date: 08/26/99

FUGRO

PLATE 99C-13.1

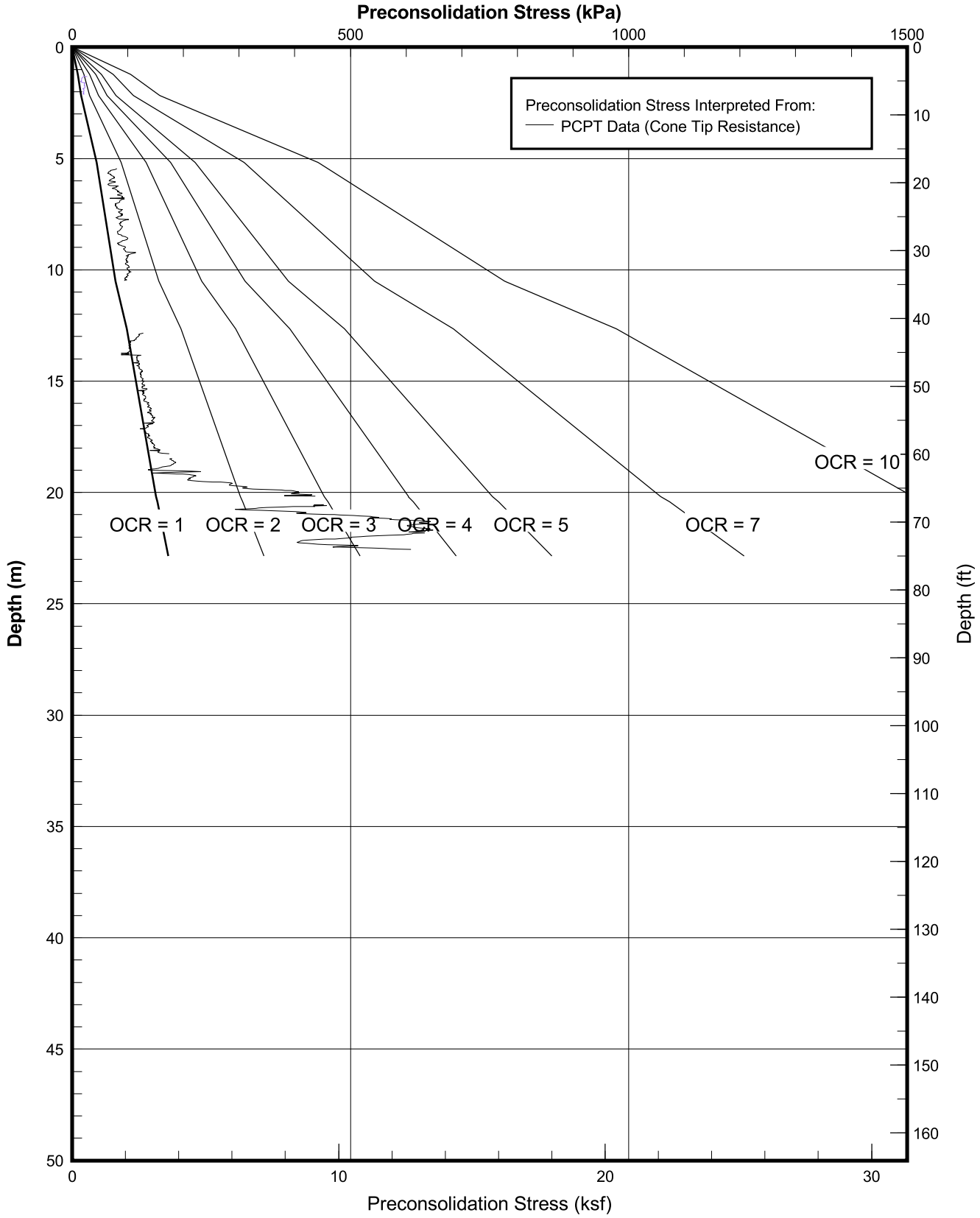


UNDRAINED SHEAR STRENGTH PROFILE INTERPRETED FROM CPT TIP RESISTANCE (Nk=12)

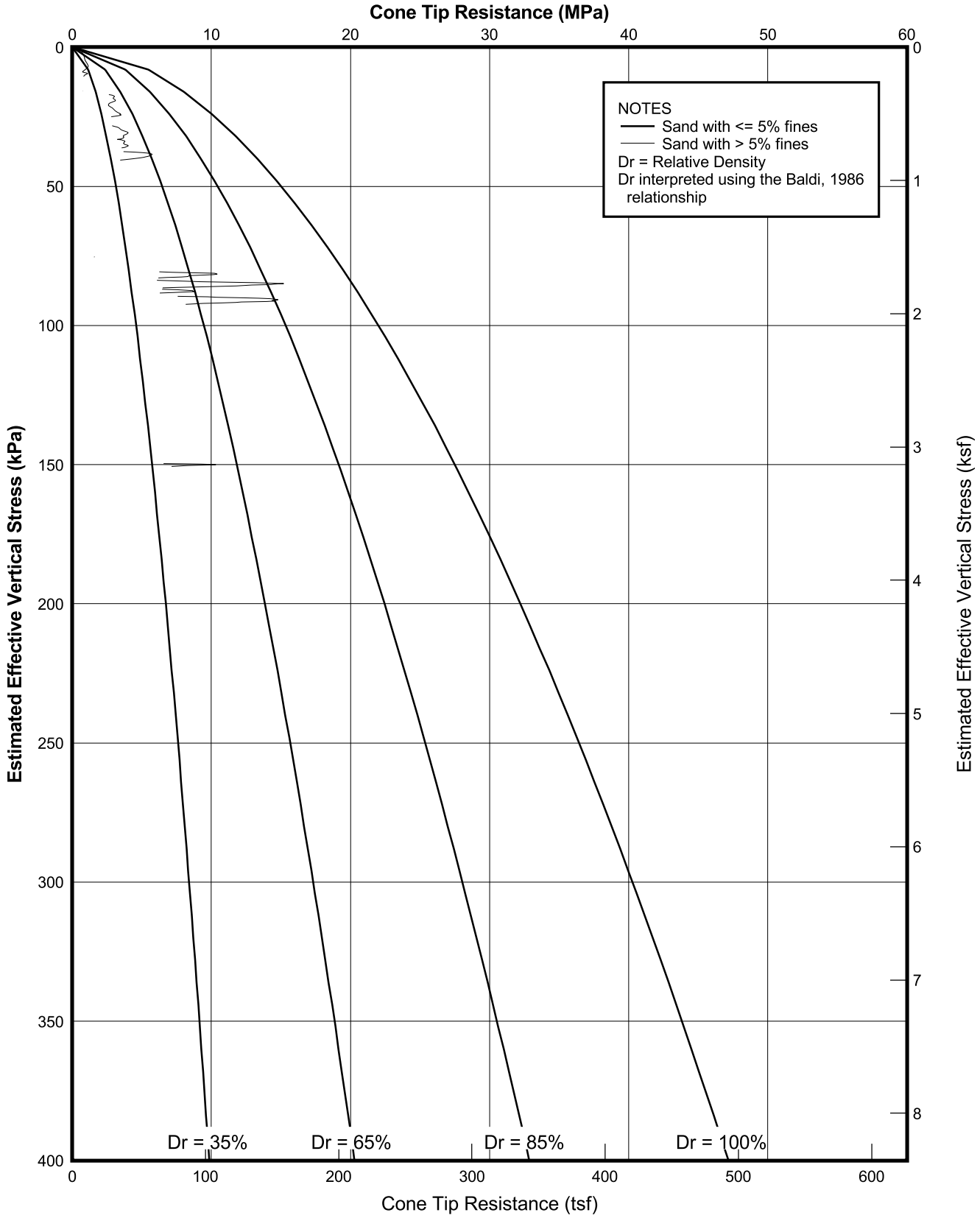
Sounding 99C-13

SFOBB East Span Seismic Safety Project

PLATE 99C-13.2

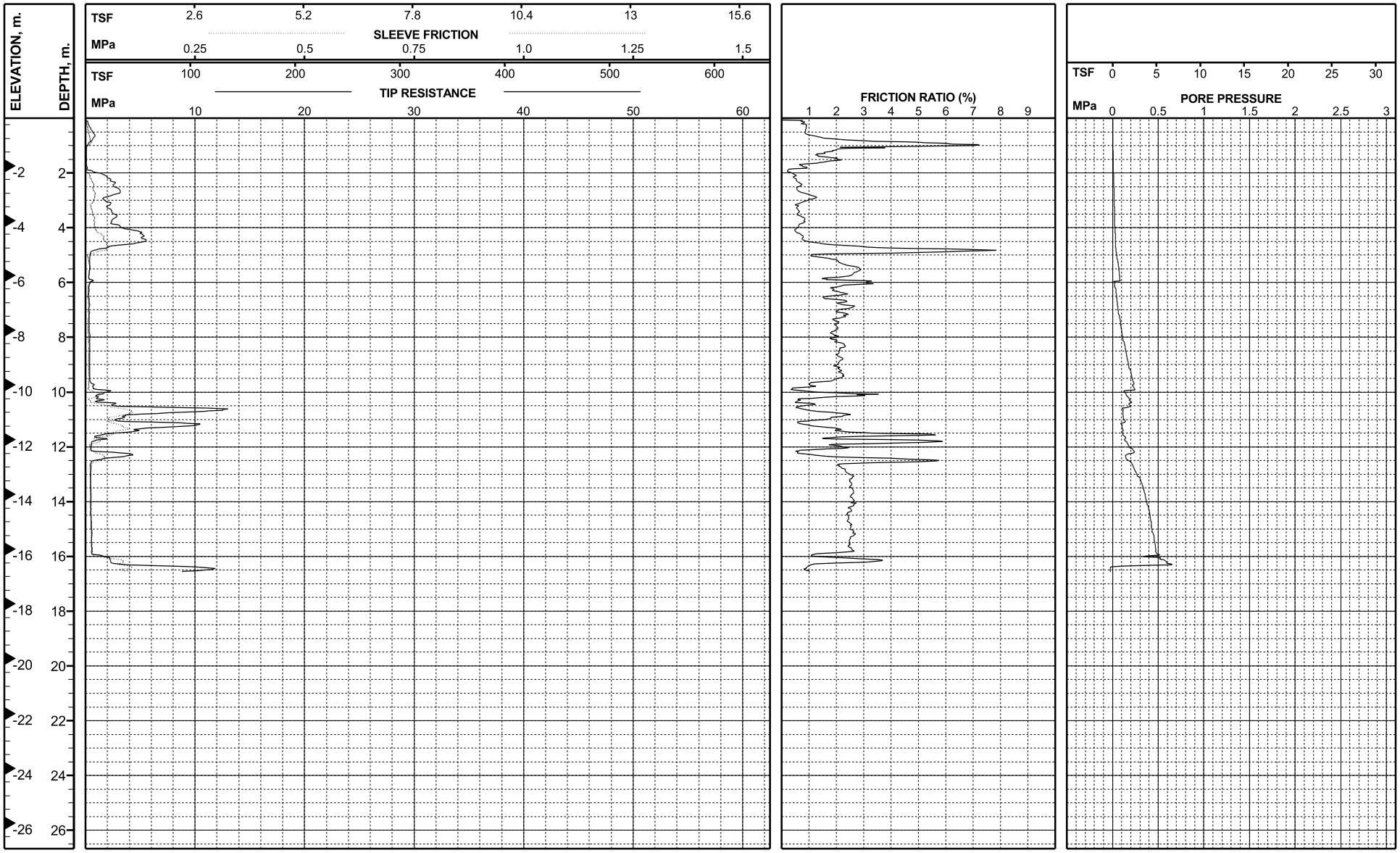


PRECONSOLIDATION STRESS INTERPRETED FROM CPT DATA
Sounding 99C-13
SFOBB East Span Seismic Safety Project



RELATIVE DENSITY INTERPRETED FROM CPT DATA
Sounding 99C-13
SFOBB East Span Seismic Safety Project

PROJECT NO:	98-42-0058	**COORDINATES:**	E1839250 N648329 CA State Plane Zone 3, NAD83, Meters	**VEHICLE:**	Fugro Geosciences
EXPLORATION NO.:	99C-14 (9.3m left of W. Sta. 87+92)	**GROUND ELEVATION:**	-0.3 m (MSL)	**TEST DATE:**	03/18/99



NOTE: SeaScout CPT uses 1 sq. cm cone

LOG OF CPT

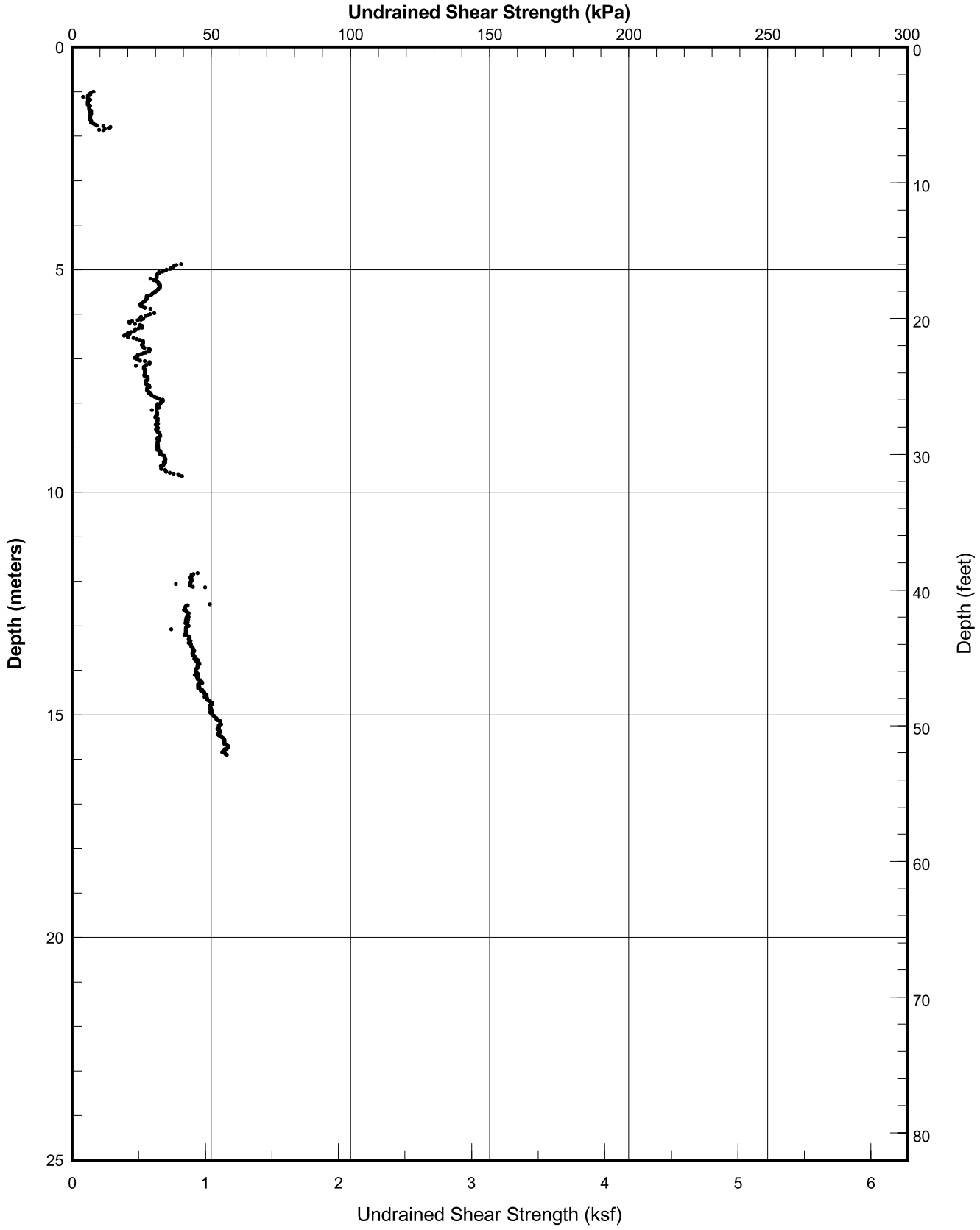
SOUNDING 99C-14

SFOBB East Span Seismic Safety Project

Report Date: 08/30/99

FUGRO

PLATE 99C-14.1

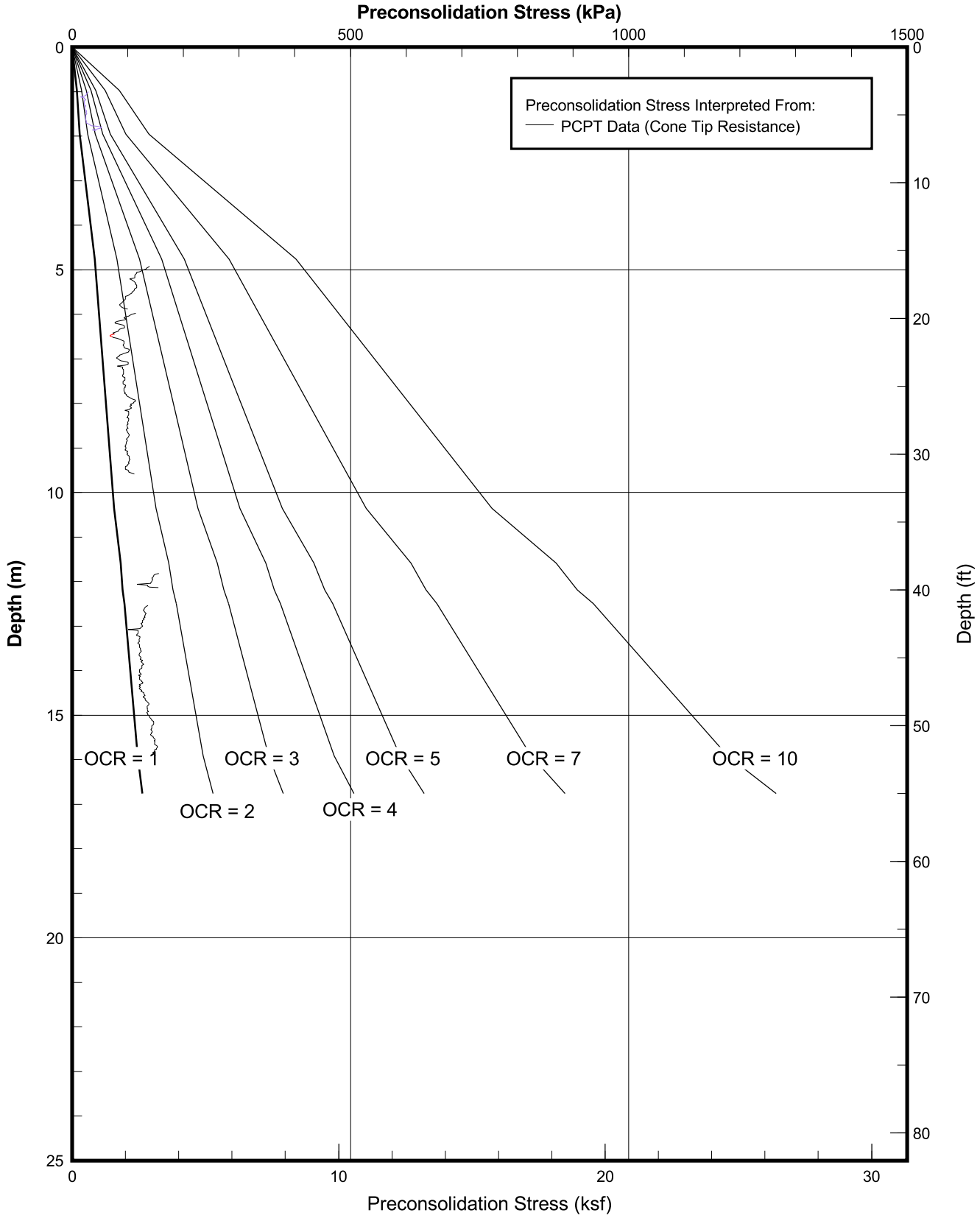


UNDRAINED SHEAR STRENGTH PROFILE INTERPRETED FROM CPT TIP RESISTANCE (Nk=12)

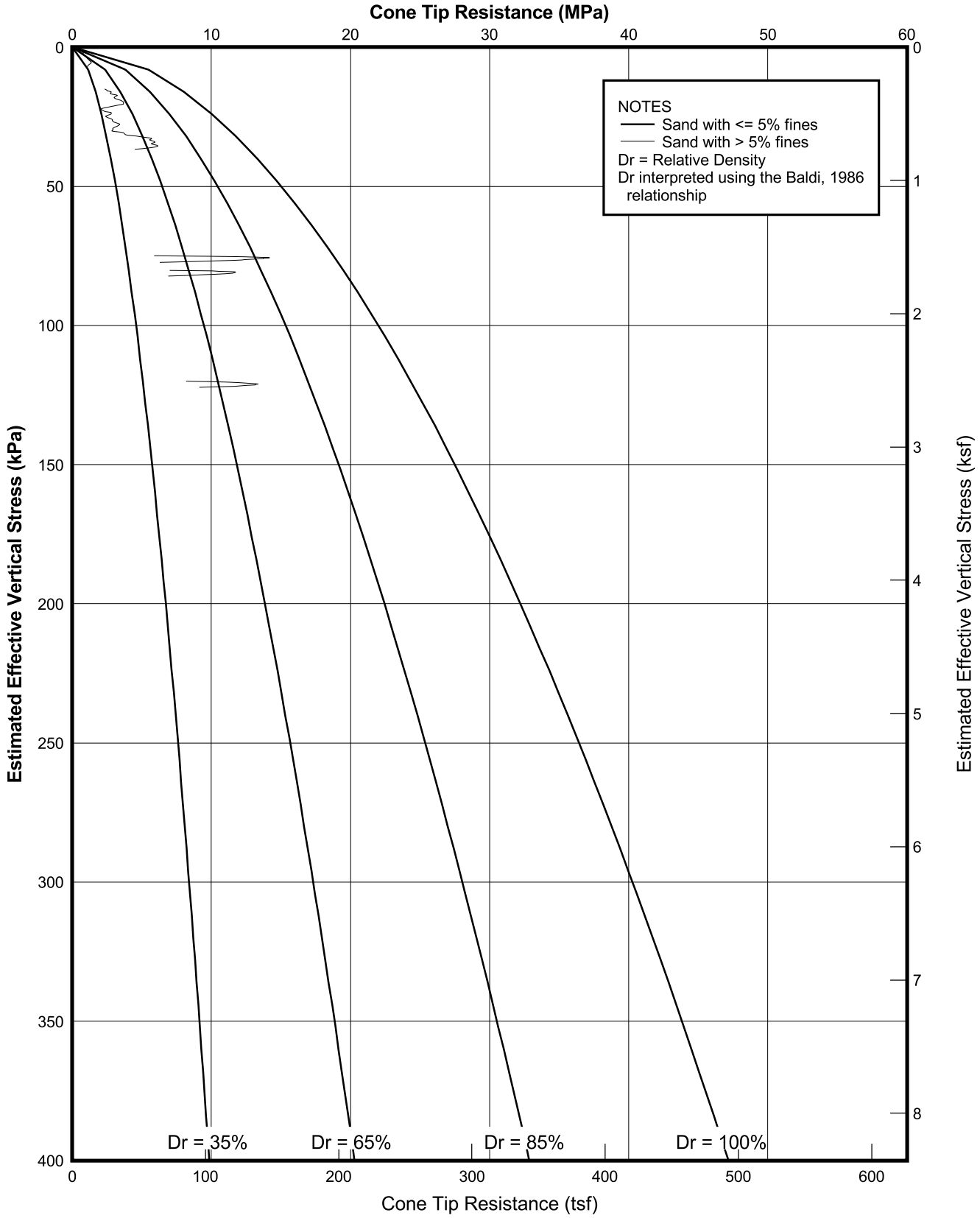
Sounding 99C-14

SFOBB East Span Seismic Safety Project

PLATE 99C-14.2



PRECONSOLIDATION STRESS INTERPRETED FROM CPT DATA
Sounding 99C-14
SFOBB East Span Seismic Safety Project



RELATIVE DENSITY INTERPRETED FROM CPT DATA
Sounding 99C-14
SFOBB East Span Seismic Safety Project

99C-14		IDENTIFICATION TESTS						STRENGTH ESTIMATE			MINIATURE VANE TESTS			UU TRIAXIAL		DIRECT SHEAR TESTS				CORROSIVITY TESTS				COMPACTION TESTS		ADDITIONAL TESTS	SPECIFIC GRAVITY
DEPTH (m)	Sample No.	MC (%)	LL (%)	PL (%)	LI	TUW (kN/m3)	Fines (%)	Torvane (kPa)	Pocket Pen. (kPa)	Fall Cone (kPa)	Undist. (kPa)	Remold. (kPa)	Resid. (kPa)	Undist. (kPa)	Remold. (kPa)	Peak c (kPa)	Peak phi (deg)	Post Peak c (kPa)	Post Peak phi (deg)	R (o-cm)	pH	Cl (ppm)	SO4 (ppm)	Max DD (kN/m3)	OMC (%)		
1.5	1	86	92	38	0.88																						2.84
1.5	2						26																				
3.0	3						9																				
5.5	4	69	80	31	0.78		97																				2.76
7.3	5	1061	49	25	43.01		94																				

Identification Tests
MC = Moisture Content
LL = Liquid Limit
PL = Plastic Limit
LI = Liquidity Index

Identification Tests
TUW = Total Unit Weight
Fines = % Passing No. 200 Sieve

Strength Tests
UU = Unconsolidated Undrained
c = Effective Cohesion
phi = Effective Angle of Friction

Corrosivity Tests
R = Resistivity (ohm-cm)
pH = pH
Cl = Chloride Content
SO4 = Sulfate Content

Additional Tests
H = Hydrometer
C = Consolidation Test
RC = Resonant Column
CS = Cyclic Simple Shear

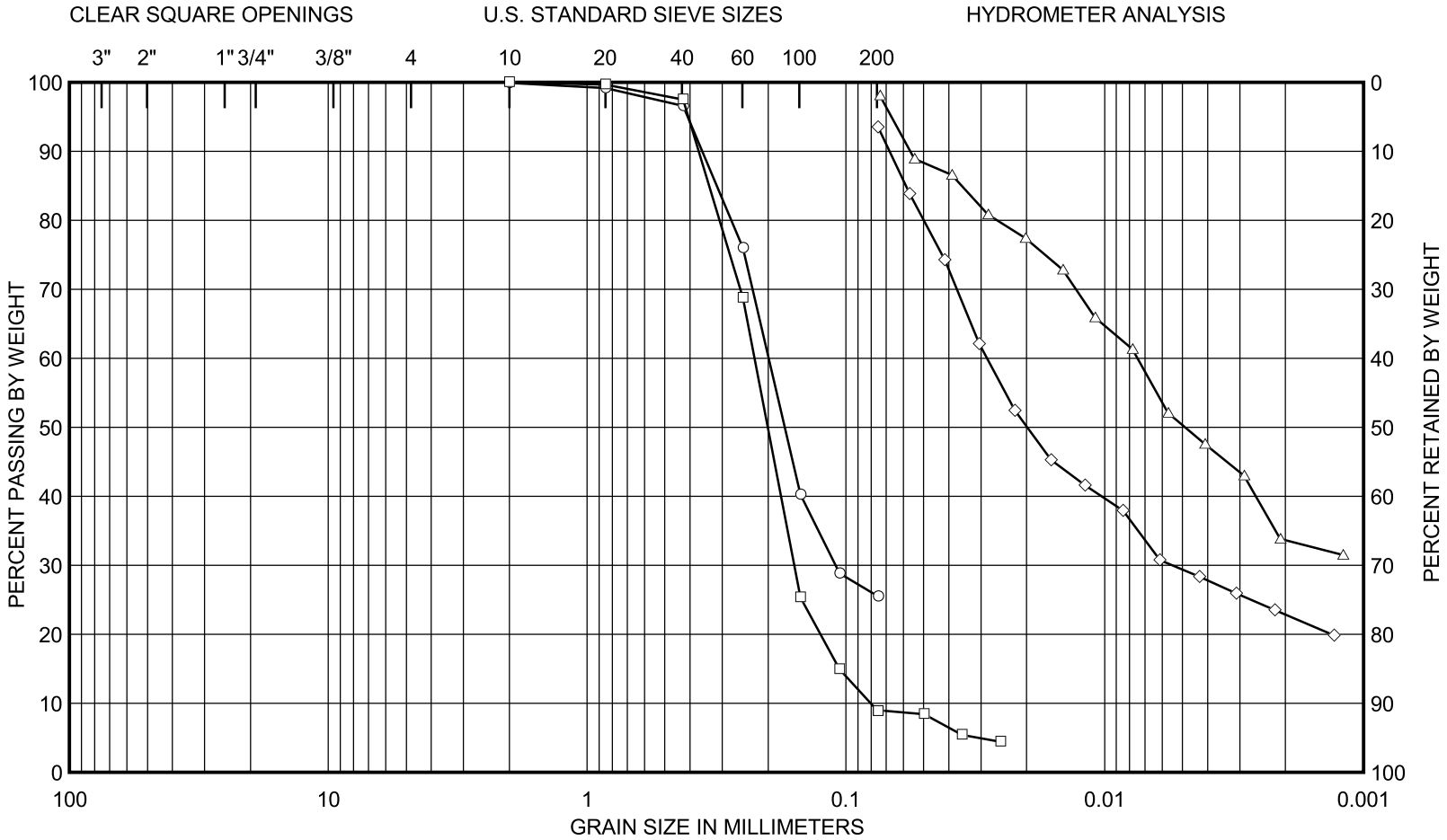
Additional Tests
K = Ko Consolidated Triaxial Test

+ Soil : Strength exceeds capacity of measuring device
Rock: Sample broke along discontinuity; (Intact sample would have greater strength)

SUMMARY OF LABORATORY TEST RESULTS
Sounding 99C-14
SFOBB East Span Seismic Safety Project

Earth Mechanics

FUGRO



GRAVEL		SAND			SILT (nonplastic)
COARSE	FINE	COARSE	MEDIUM	FINE	to CLAY (plastic)

SAMPLE NO.	DEPTH (m)	CURVE	CLASSIFICATION	Cc	Cu	D50 (mm)
2	1.5	○——○	SILTY FINE SAND (SM)			0.17
3	3.0	□——□	FINE SAND (SP-SM) with silt	1.4	2.8	0.20
4	5.5	△——△	FAT CLAY (CH)			0.0049
5	7.3	◇——◇	FAT CLAY (CH)			0.020

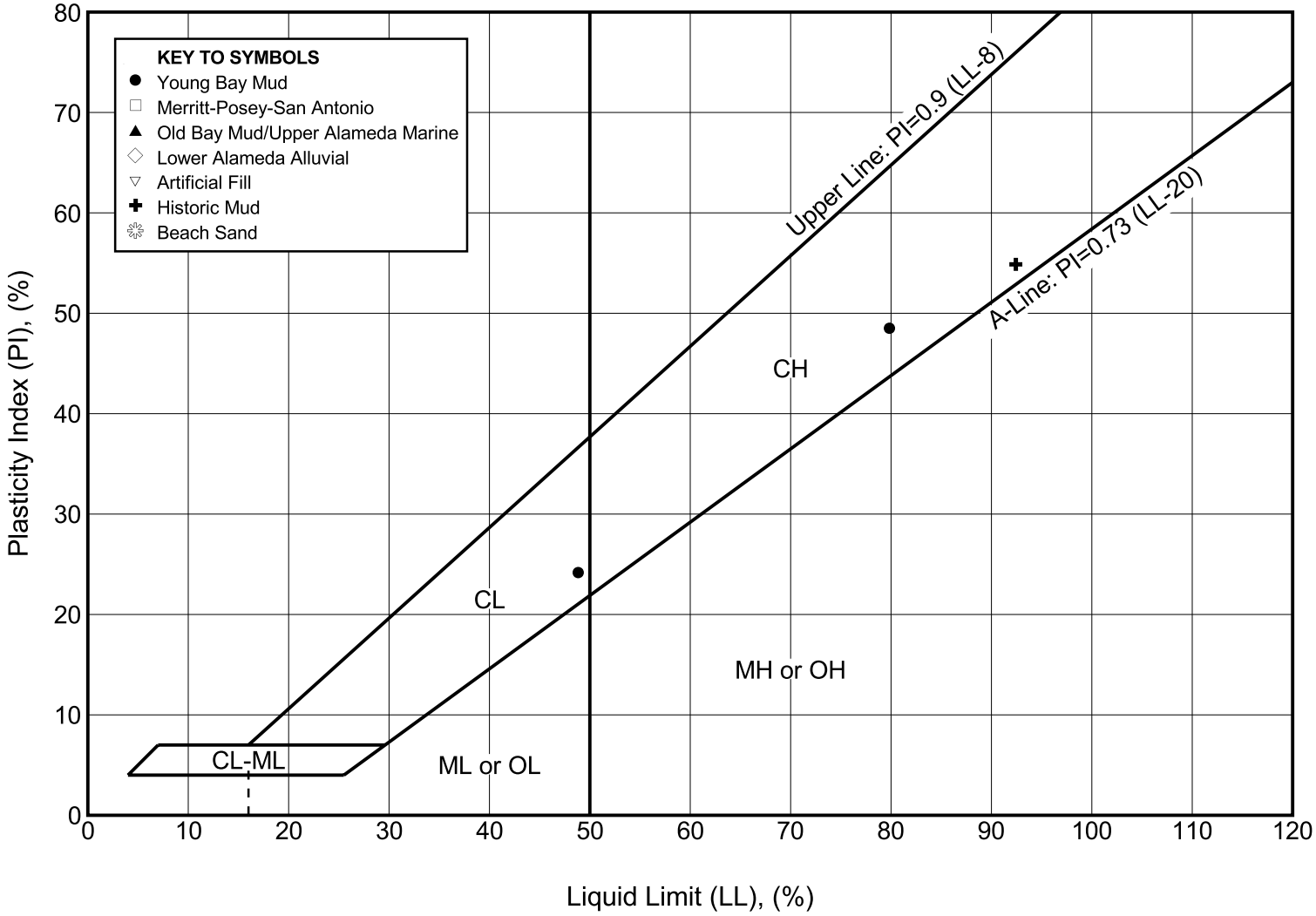
GRAIN SIZE DISTRIBUTION CURVES
Sounding 99C-14
SFOBB East Span Seismic Safety Project

SFOBB Task Order No. 5
Project No. 98-42-0058

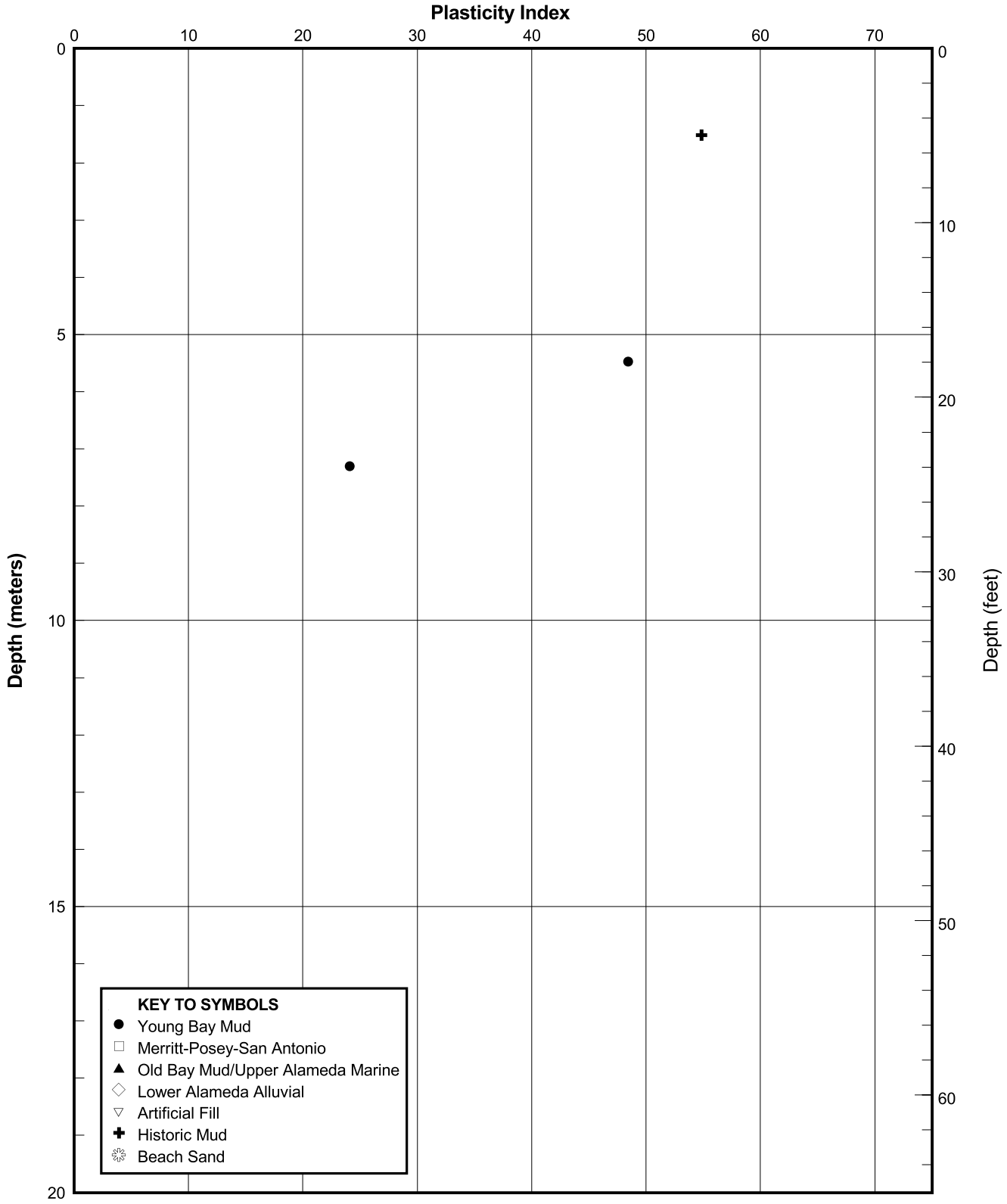
Earth Mechanics

FUGRO

PLATE 99C-14.6

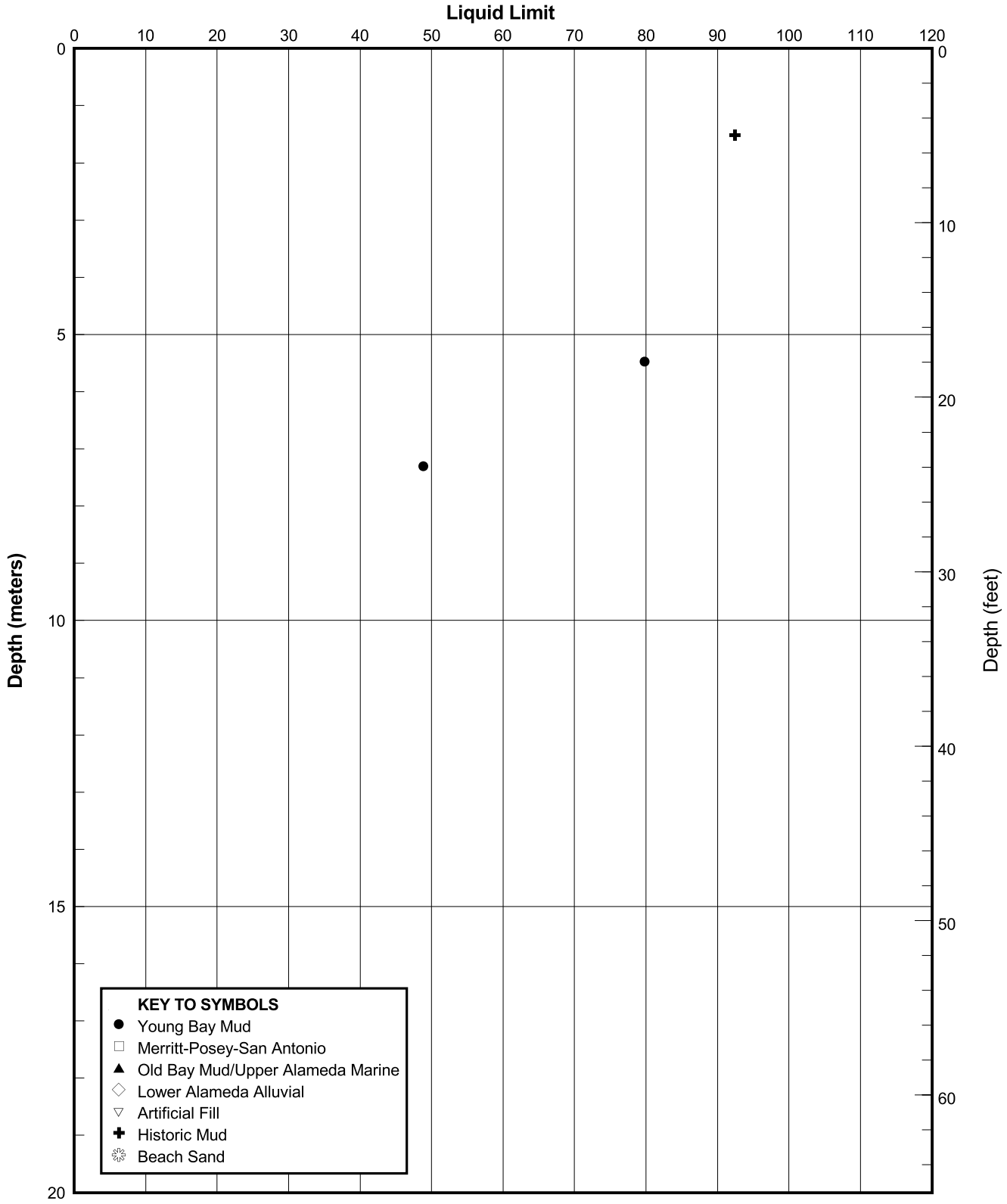


PLASTICITY CHART
Sounding 99C-14
SFOBB East Span Seismic Safety Project



PLASTICITY INDEX PROFILE
Sounding 99C-14
SFOBB East Span Seismic Safety Project

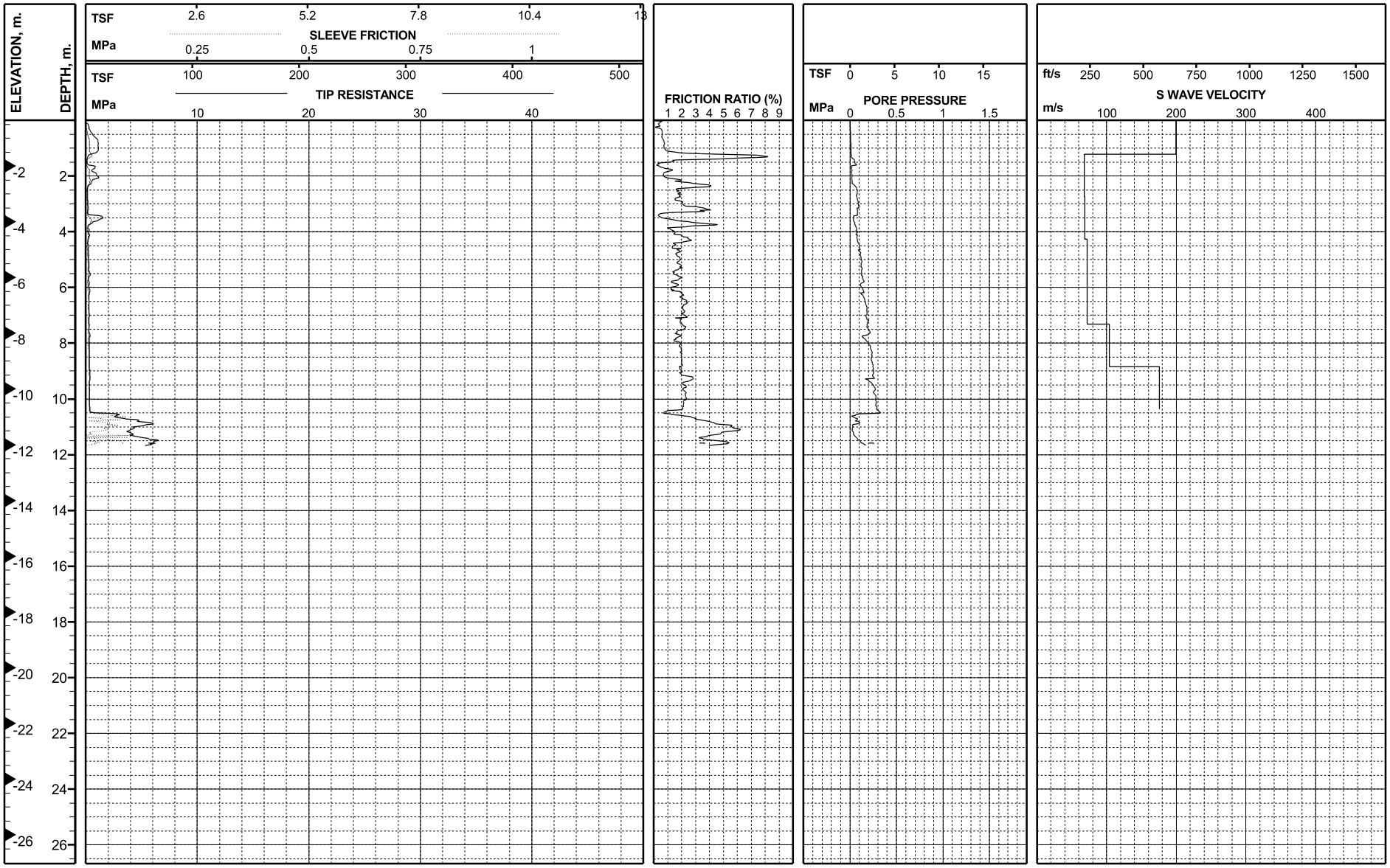
PLATE 99C-14.8



LIQUID LIMIT PROFILE
Sounding 99C-14
SFOBB East Span Seismic Safety Project

PLATE 99C-14.9

PROJECT NO:	98-42-	**COORDINATES:**	E1839014 N648299 CA State Plane Zone 3, NAD83, Meters	**VEHICLE:**	Fugro Geosciences
EXPLORATION NO.:	99C-15 (2.1m right of W. Sta. 85+55)	**GROUND ELEVATION:**	-0.4 m (MSL)	**TEST DATE:**	03/17/99



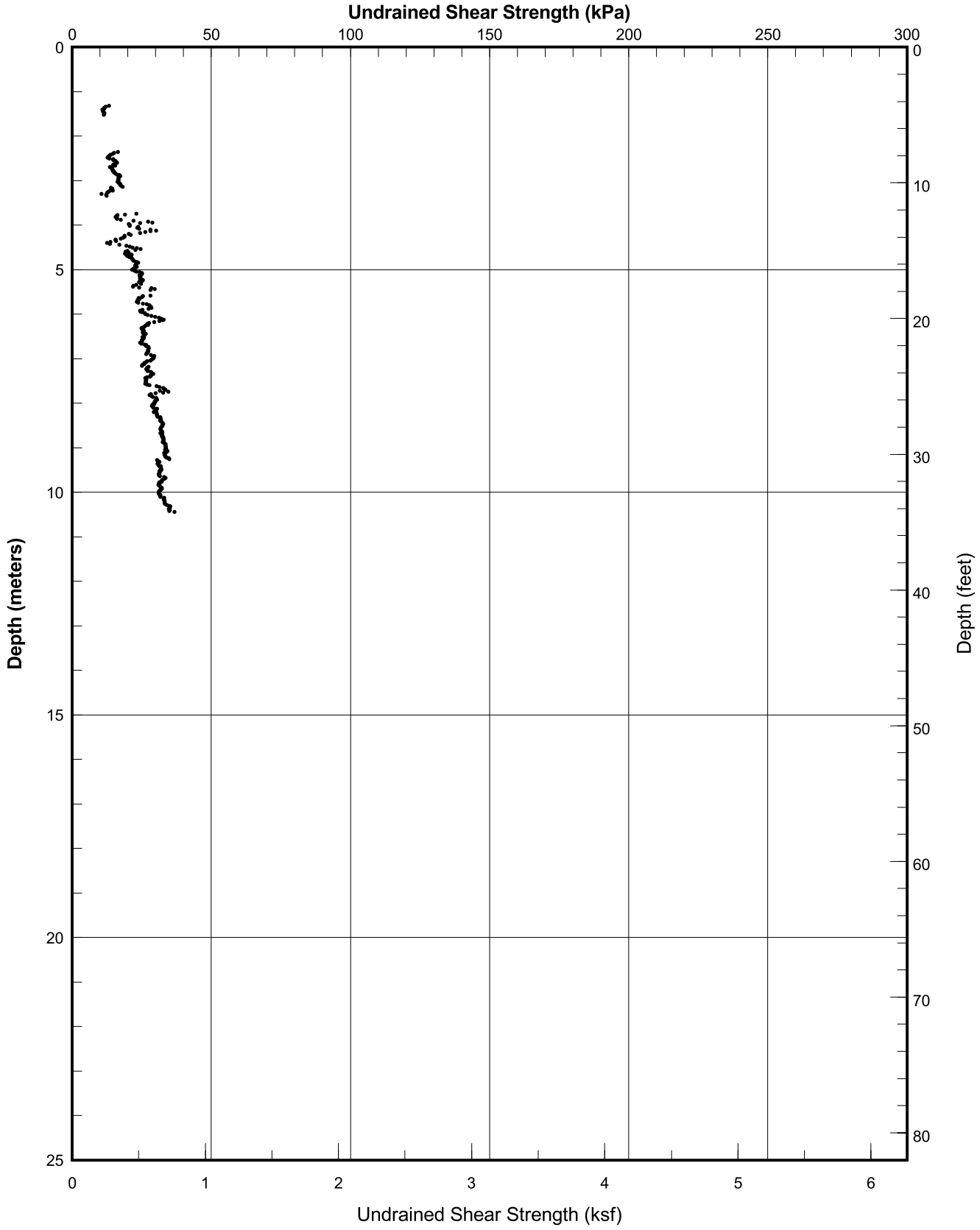
LOG OF CPT

SOUNDING 99C-15

SFOBB East Span Seismic Safety Project

Report Date: 08/26/99

FUGRO

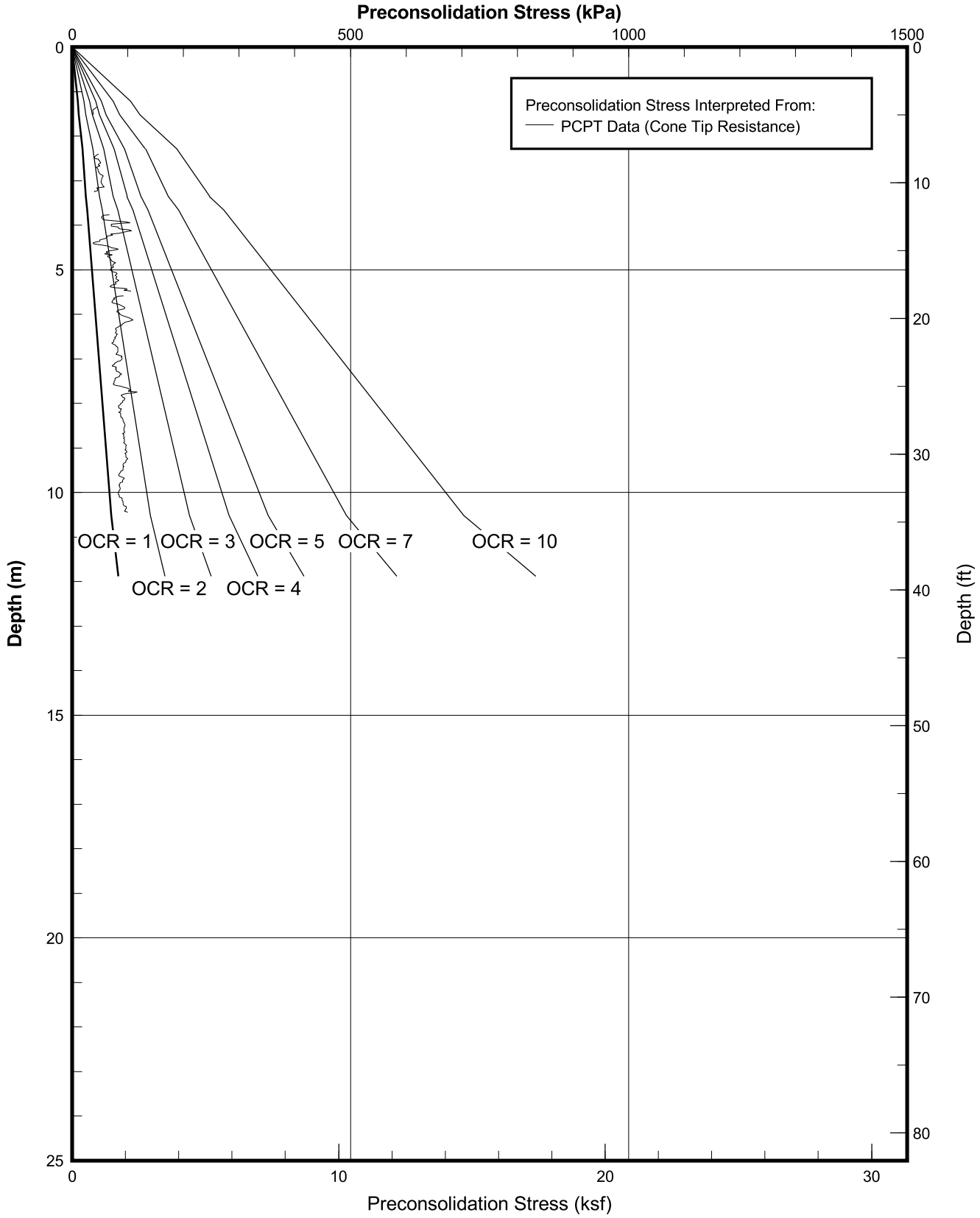


UNDRAINED SHEAR STRENGTH PROFILE INTERPRETED FROM CPT TIP RESISTANCE (Nk=12)

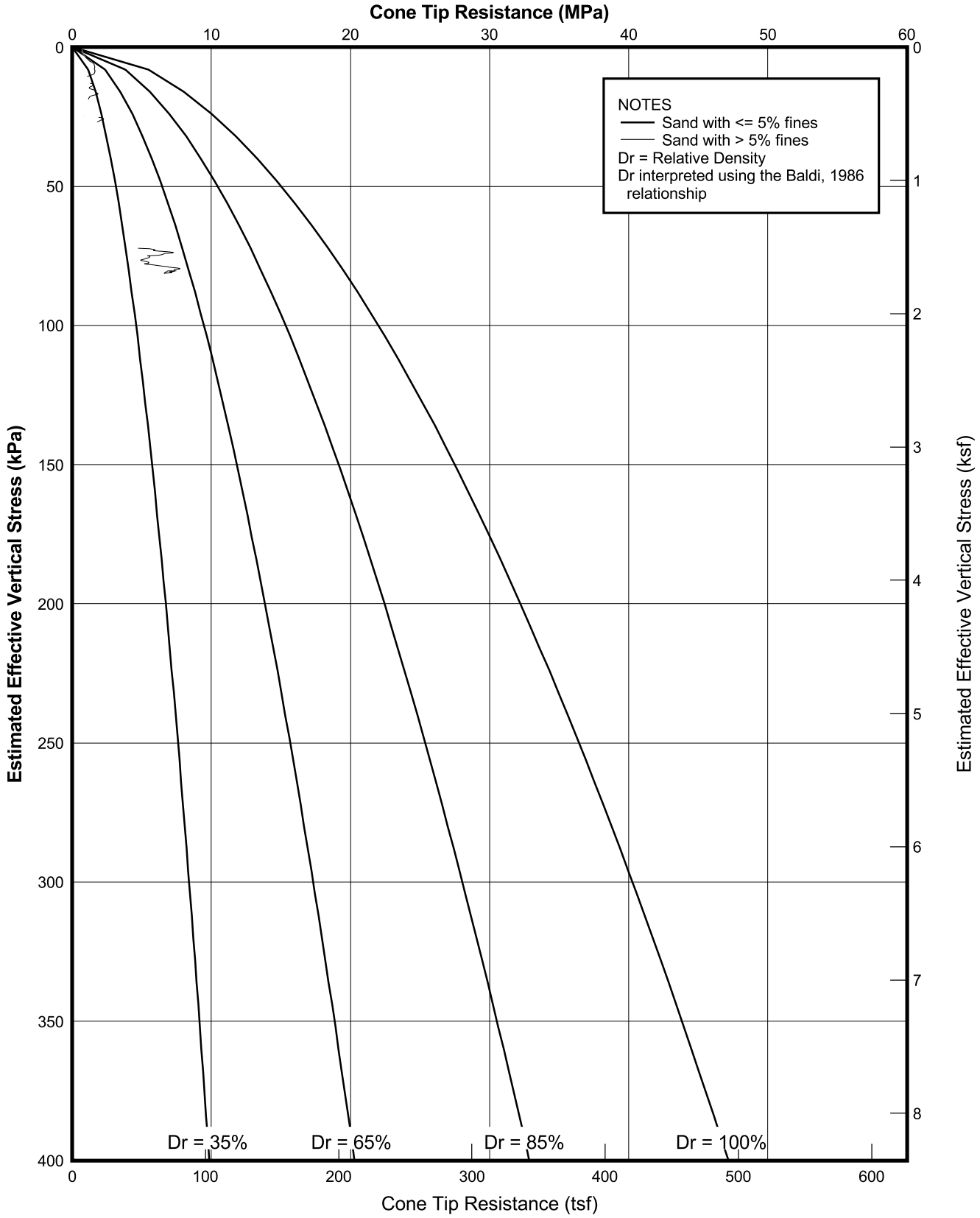
Sounding 99C-15

SFOBB East Span Seismic Safety Project

PLATE 99C-15.2



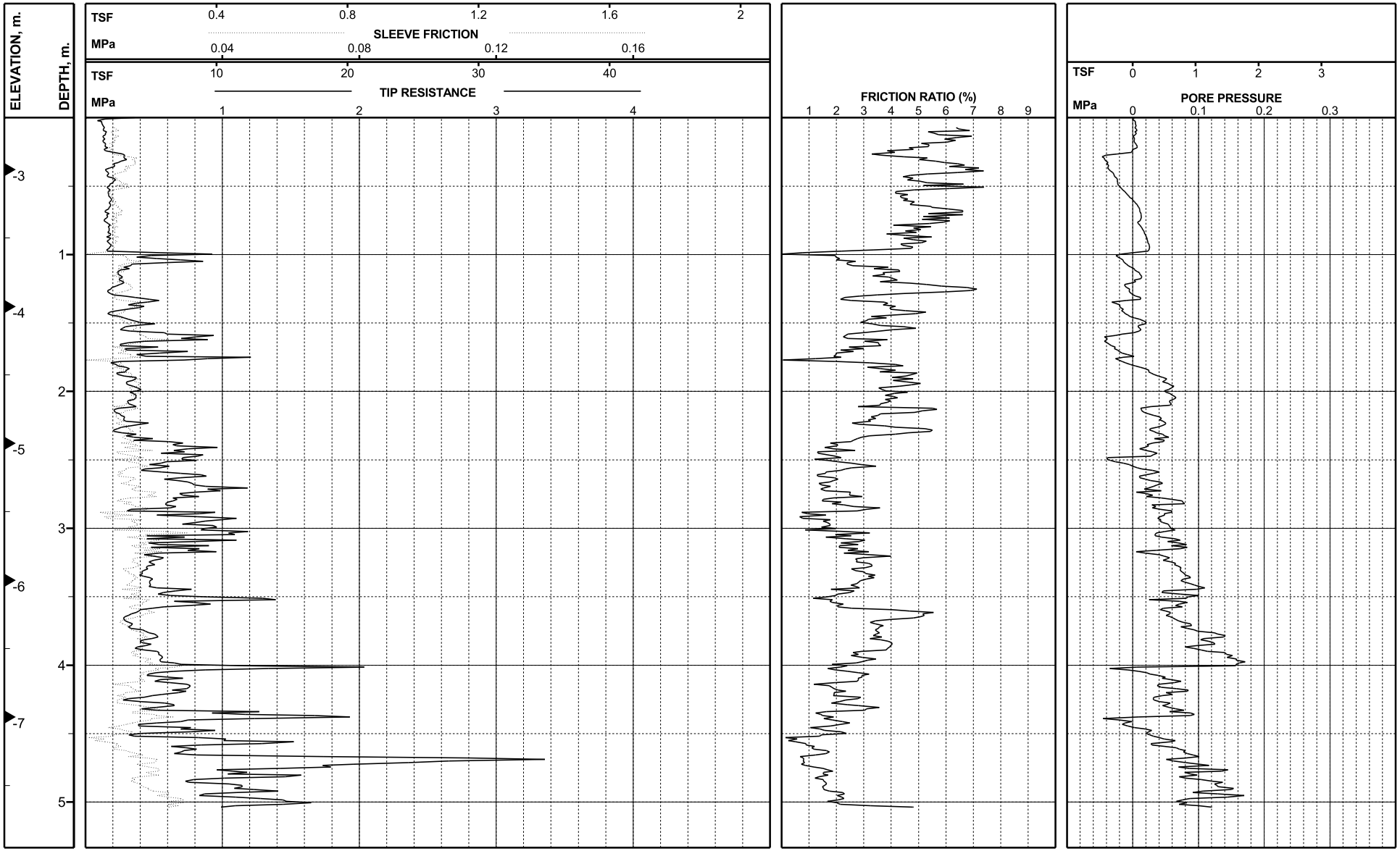
PRECONSOLIDATION STRESS INTERPRETED FROM CPT DATA
Sounding 99C-15
SFOBB East Span Seismic Safety Project



RELATIVE DENSITY INTERPRETED FROM CPT DATA
Sounding 99C-15
SFOBB East Span Seismic Safety Project

APPENDIX B
TETHERED SEASCOUT CPT DATA

PROJECT NO:	98-42-0054	**COORDINATES:**	E1838757 N648272 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-446 (W. Sta. 82+96)	**MUDLINE ELEVATION:**	-2.6 m (MSL)	**TEST DATE:**	12/15/98



NOTE: SeaScout CPT uses 1 sq. cm cone

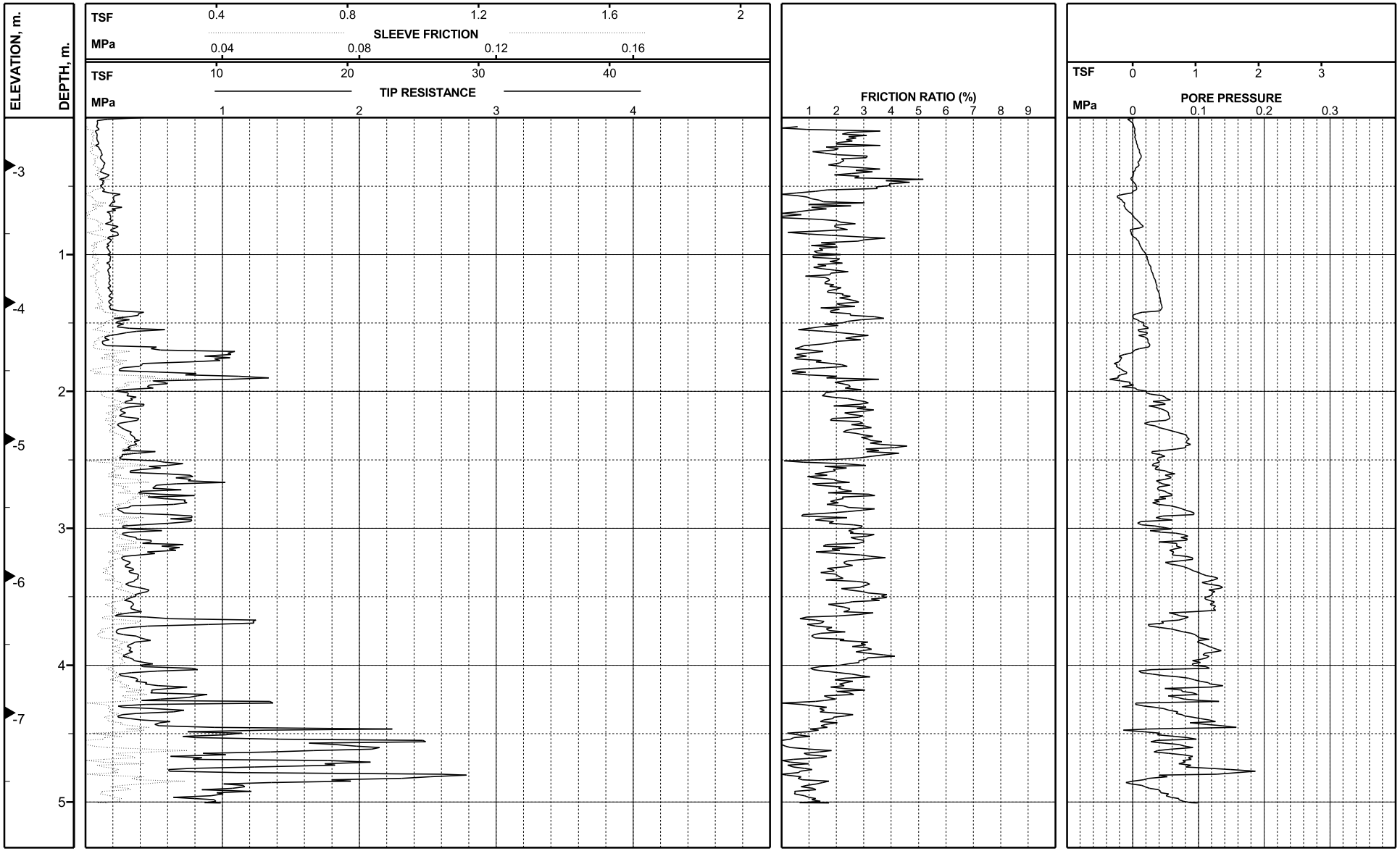
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-446

SFOBB East Span Seismic Safety Project

Report Date: 08/29/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1838762 N648241 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-447 (8m left of E. Sta. 82+69)	**MUDLINE ELEVATION:**	-2.7 m (MSL)	**TEST DATE:**	12/15/98



NOTE: SeaScout CPT uses 1 sq. cm cone

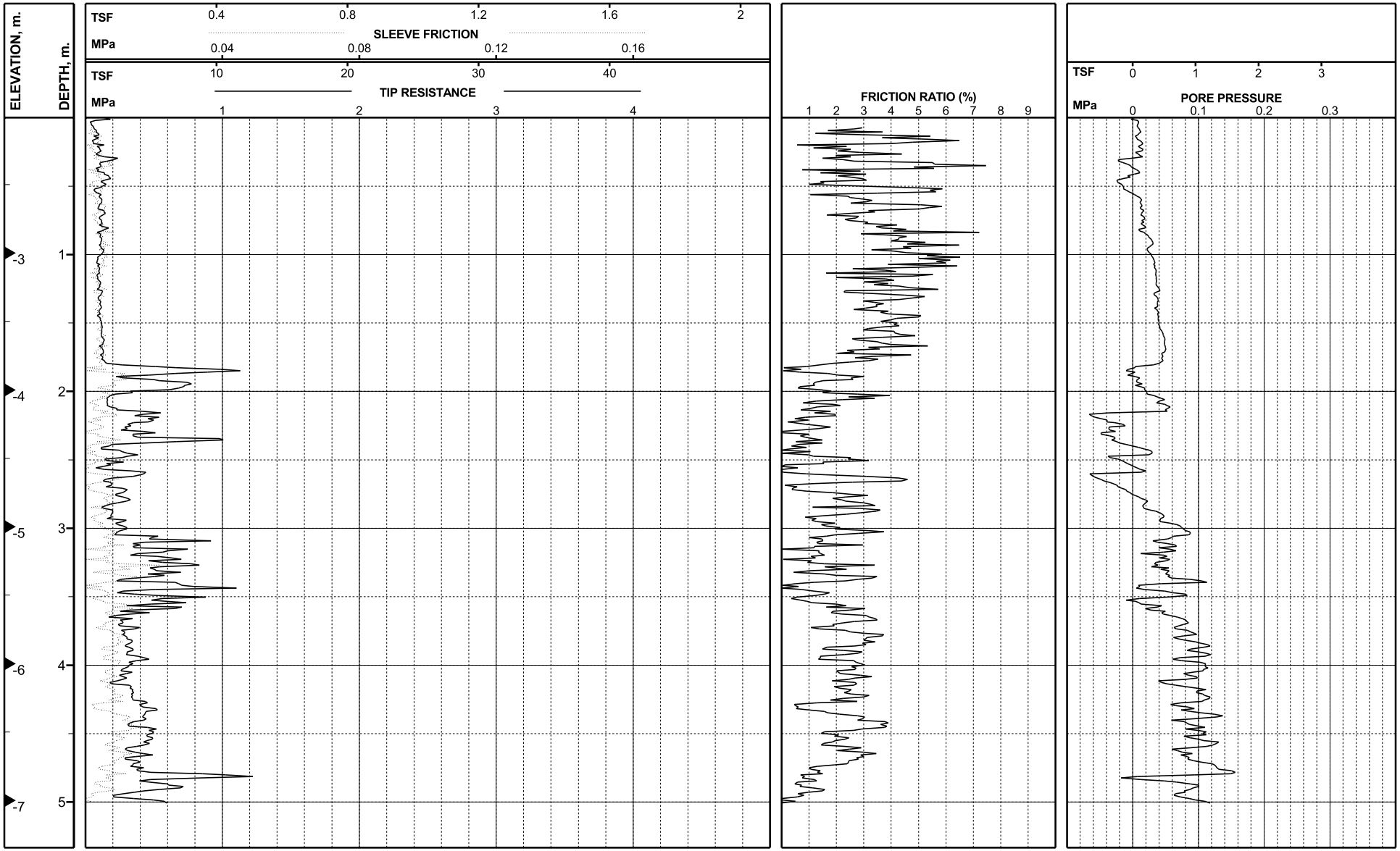
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-447

SFOBB East Span Seismic Safety Project

Report Date: 08/29/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1838808 N648270 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-448 (9m right of W. Sta. 83+47)	**MUDLINE ELEVATION:**	-2.0 m (MSL)	**TEST DATE:**	12/15/98



NOTE: SeaScout CPT uses 1 sq. cm cone

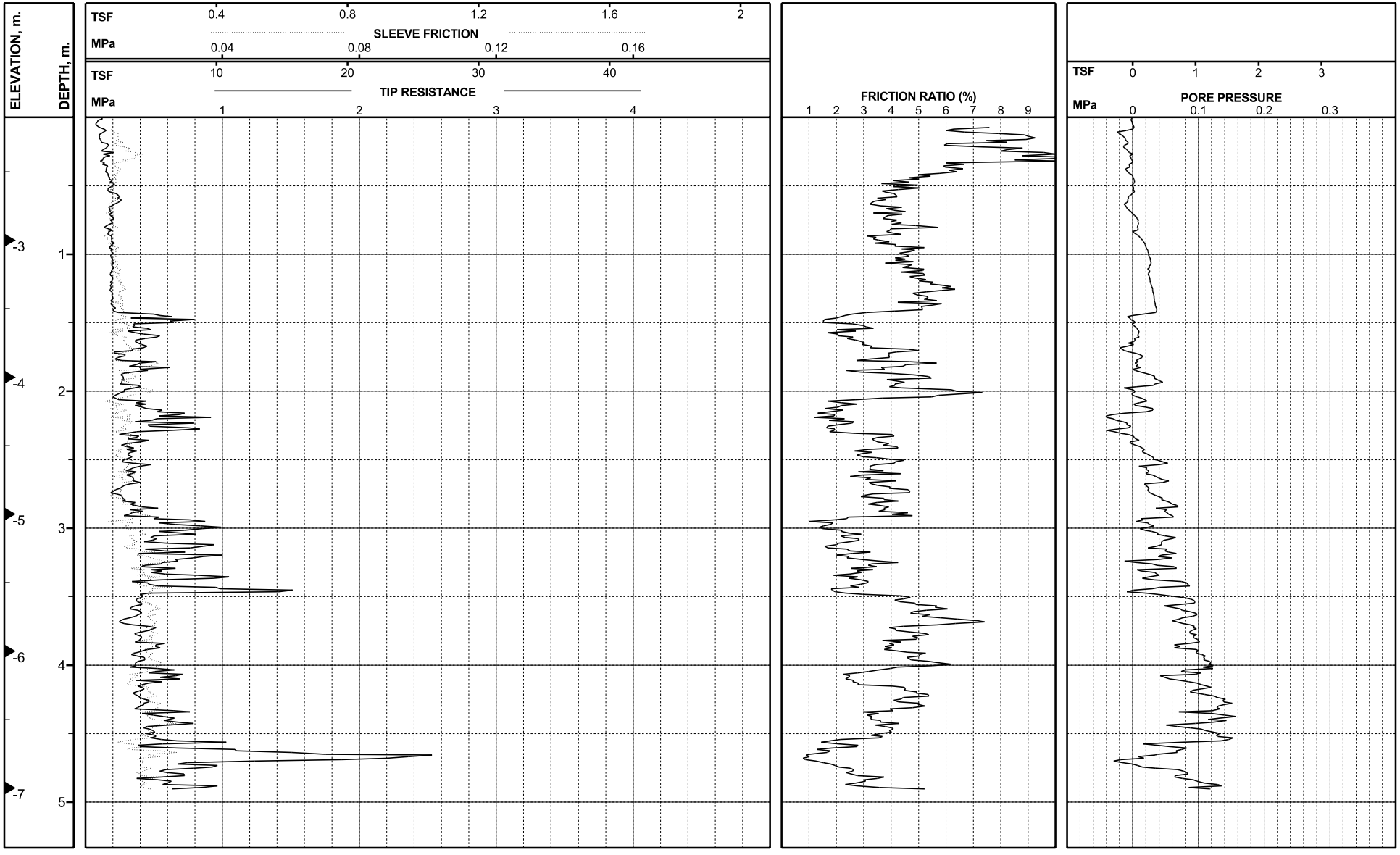
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-448

SFOBB East Span Seismic Safety Project

Report Date: 08/29/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1838807 N648239 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-449 (1m right of E. Sta. 60+47)	**MUDLINE ELEVATION:**	-2.1 m (MSL)	**TEST DATE:**	12/15/98



NOTE: SeaScout CPT uses 1 sq. cm cone

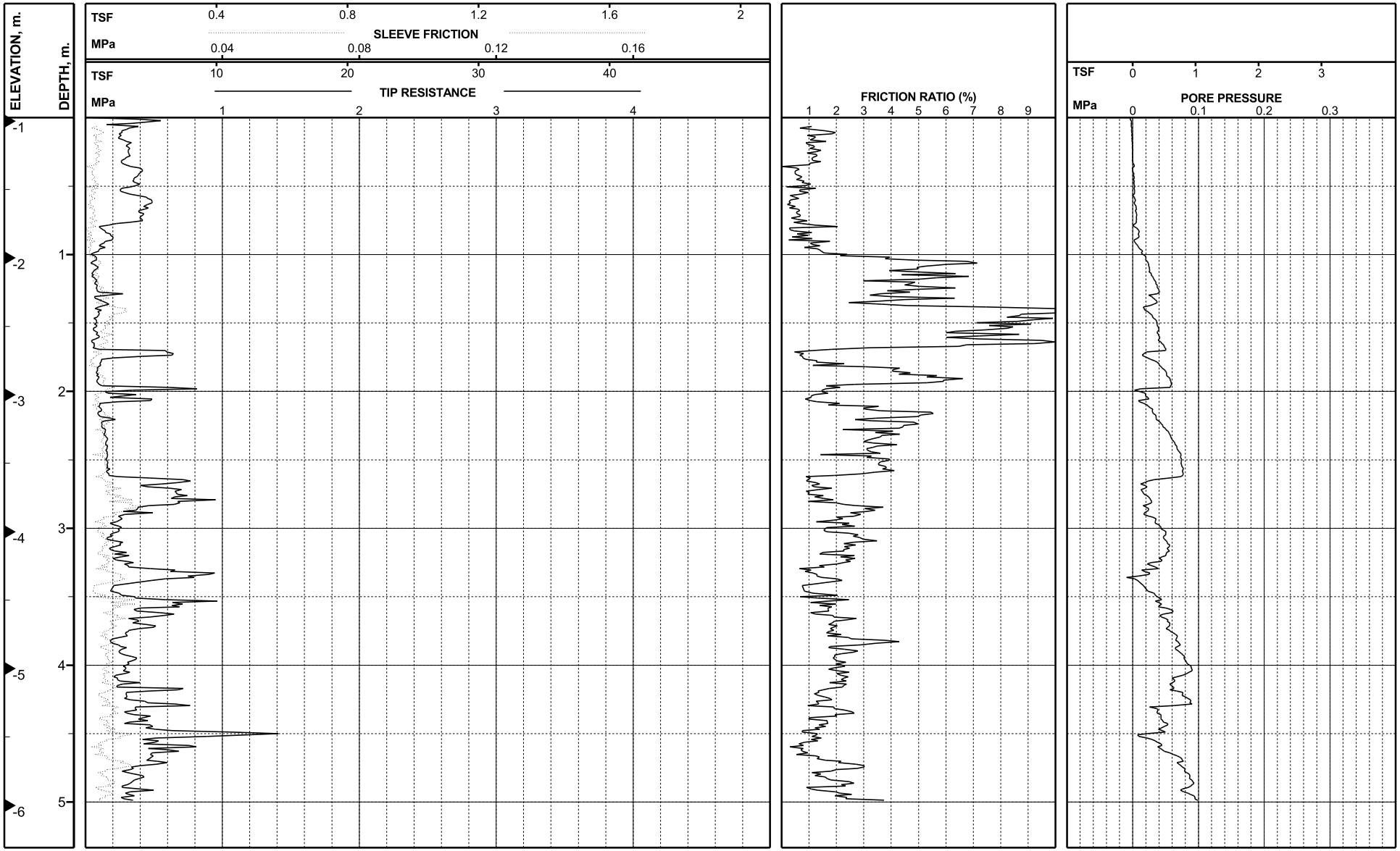
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-449

SFOBB East Span Seismic Safety Project

Report Date: 08/30/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1838892 N648303 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-450 (14m left of W. Sta. 84+34)	**MUDLINE ELEVATION:**	-1.0 m (MSL)	**TEST DATE:**	12/17/98



NOTE: SeaScout CPT uses 1 sq. cm cone

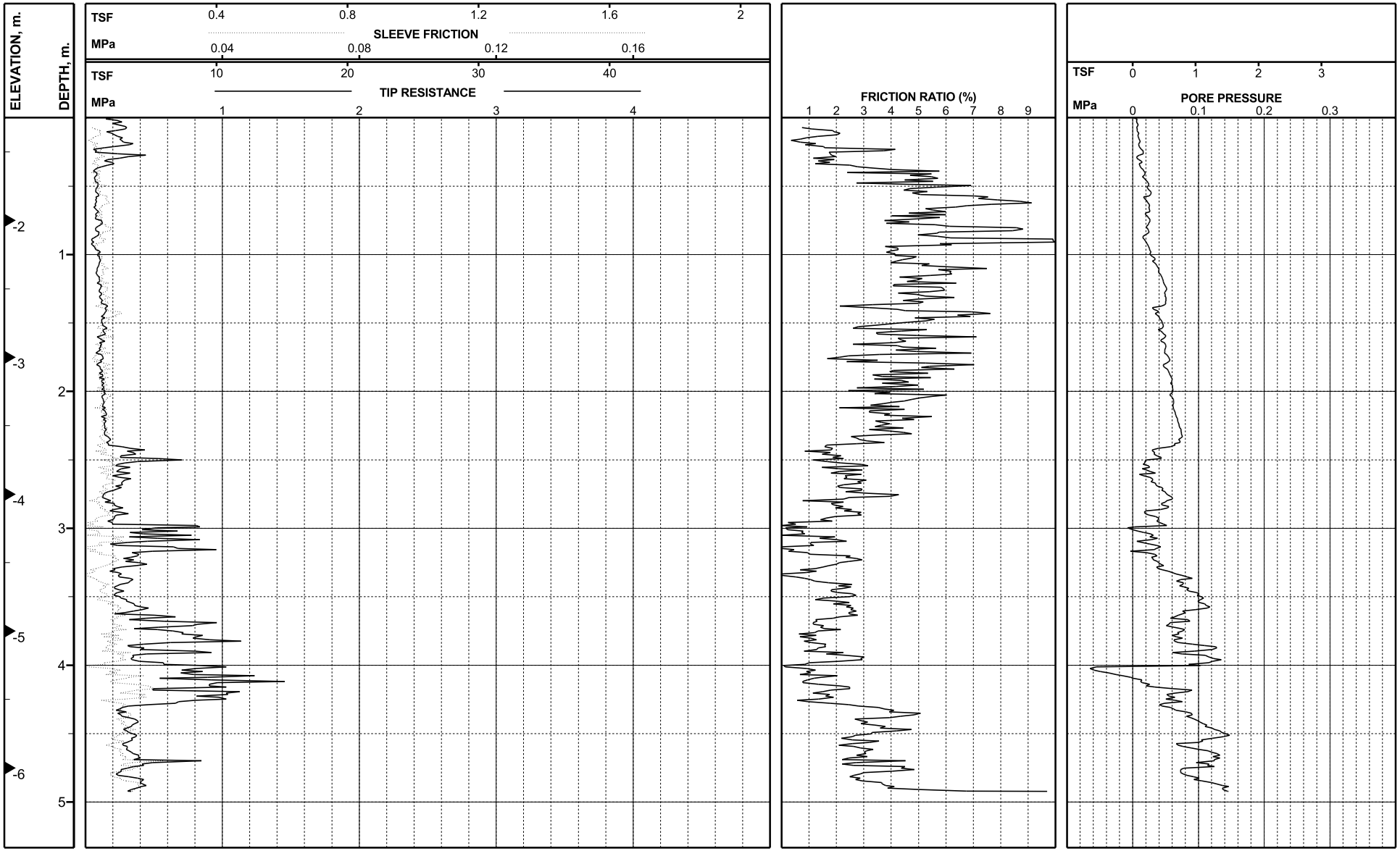
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-450

SFOBB East Span Seismic Safety Project

Report Date: 08/29/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1838855 N648246 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-451 (2m right of E. Sta. 59+99)	**MUDLINE ELEVATION:**	-1.2 m (MSL)	**TEST DATE:**	12/15/98



NOTE: SeaScout CPT uses 1 sq. cm cone

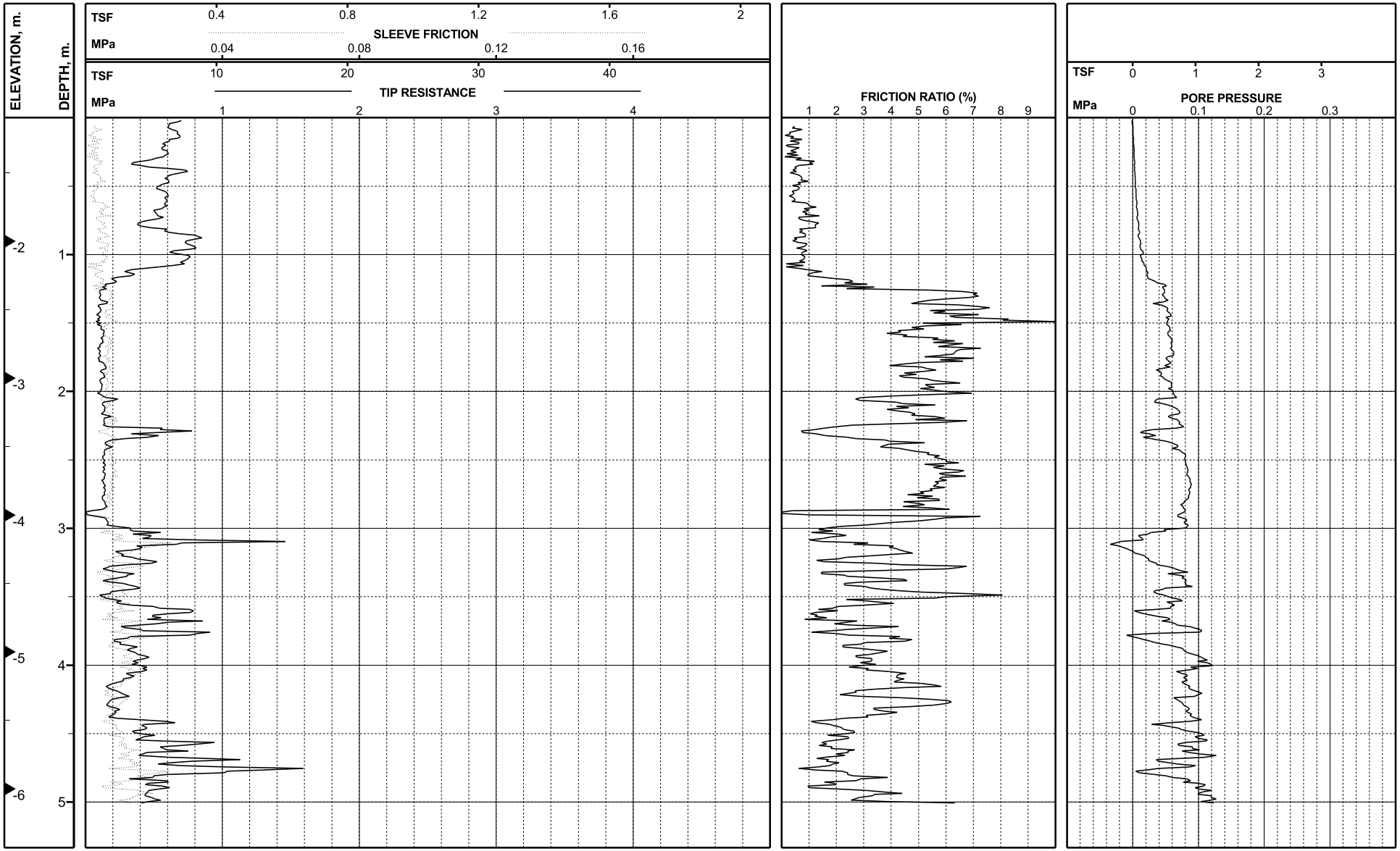
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-451

SFOBB East Span Seismic Safety Project

Report Date: 08/29/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1838909 N648295 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-501 (4m left of W. Sta. 84+50)	**MUDLINE ELEVATION:**	-1.1 m (MSL)	**TEST DATE:**	12/15/98



NOTE: SeaScout CPT uses 1 sq. cm cone

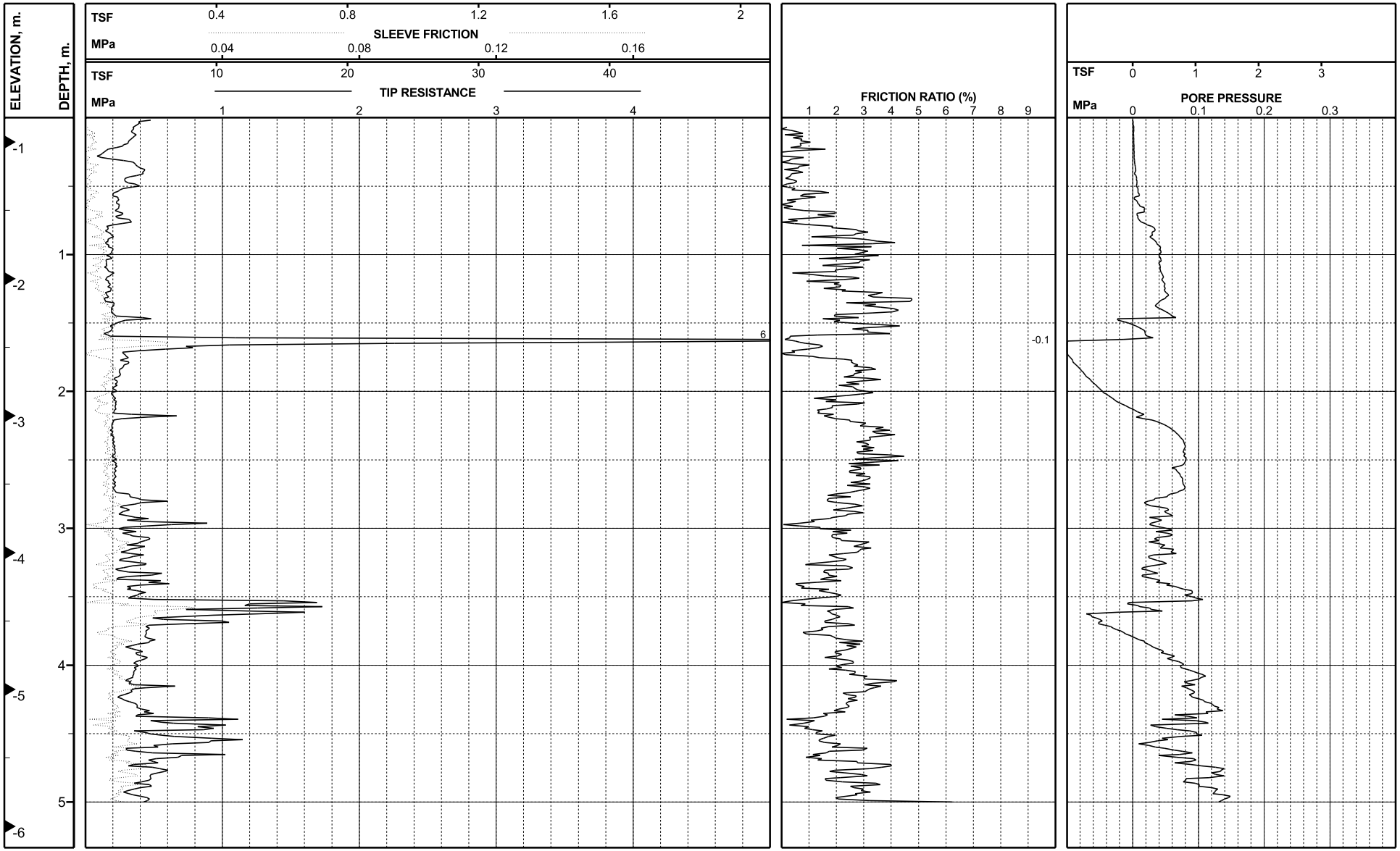
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-501

SFOBB East Span Seismic Safety Project

Report Date: 08/29/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1838941 N648351 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-503 (57m left of W. Sta. 84+87)	**MUDLINE ELEVATION:**	-0.8 m (MSL)	**TEST DATE:**	12/15/98



NOTE: SeaScout CPT uses 1 sq. cm cone

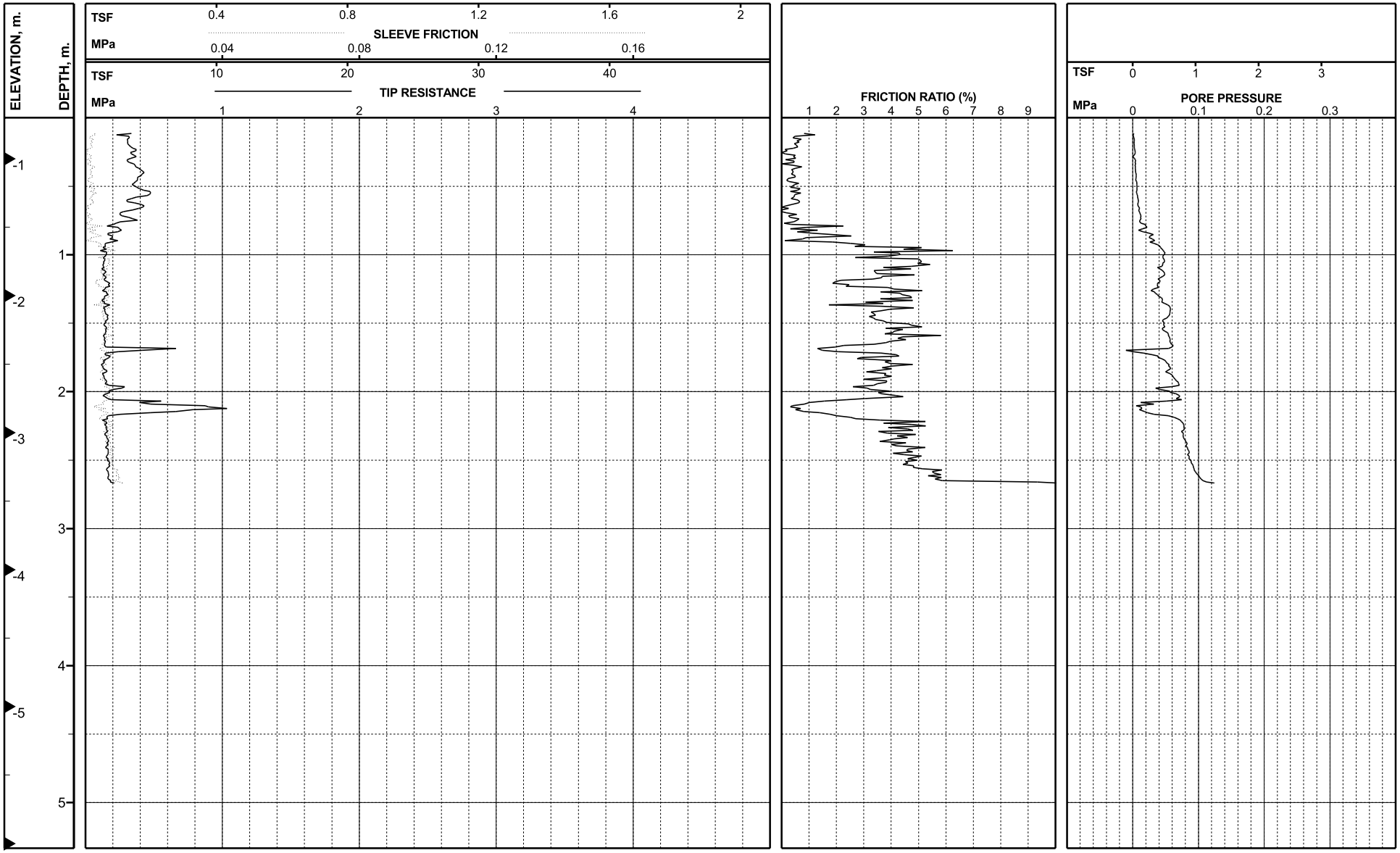
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-503

SFOBB East Span Seismic Safety Project

Report Date: 08/29/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1838941 N648330 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-504 (36m left of W. Sta. 84+85)	**MUDLINE ELEVATION:**	-0.7 m (MSL)	**TEST DATE:**	12/15/98



NOTE: SeaScout CPT uses 1 sq. cm cone

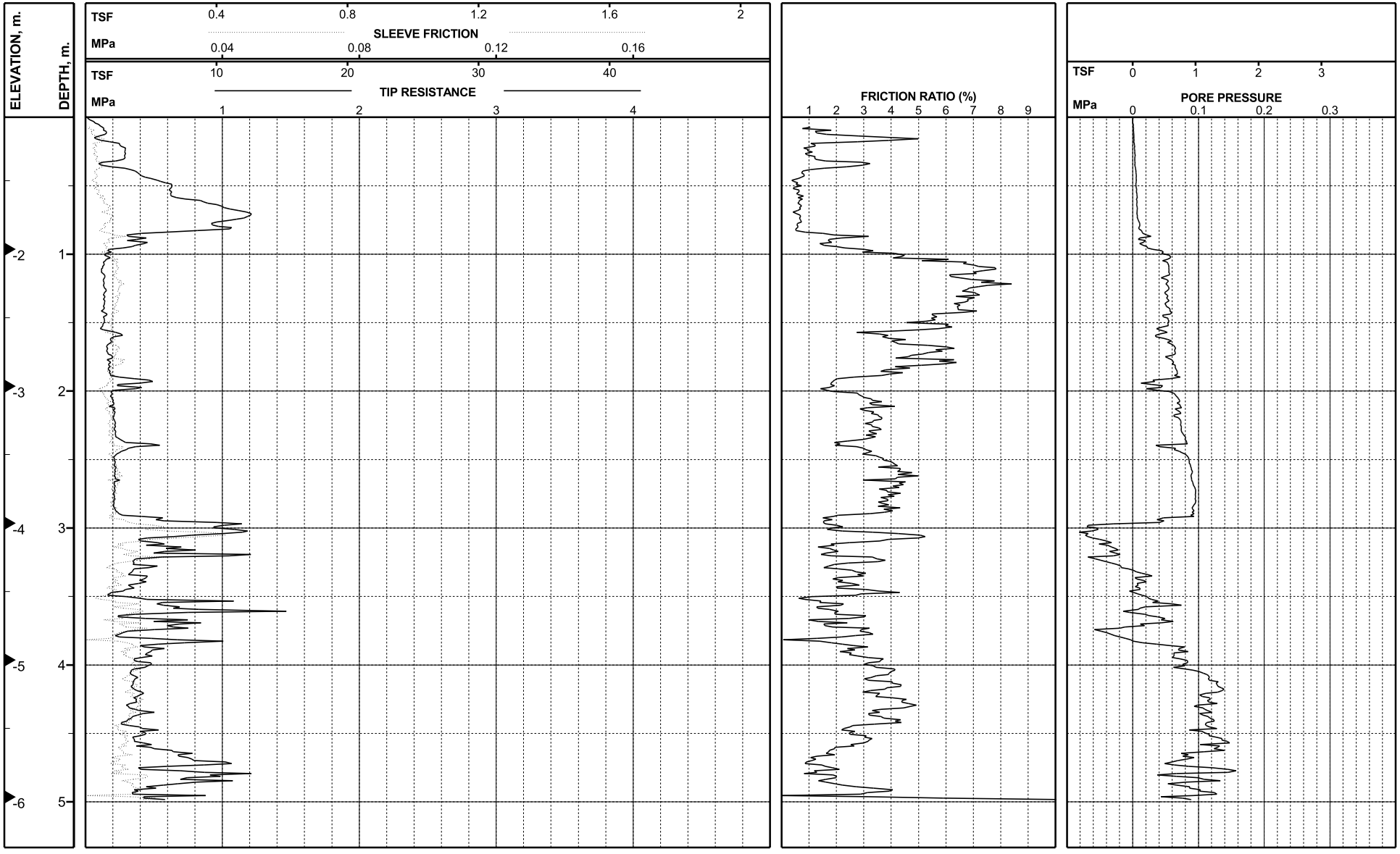
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-504

SFOBB East Span Seismic Safety Project

Report Date: 08/29/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1838943 N648302 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightening
EXPLORATION NO.:	98C-505 (7m left of W. Sta. 84+84)	**MUDLINE ELEVATION:**	-1.0 m (MSL)	**TEST DATE:**	12/15/98



NOTE: SeaScout CPT uses 1 sq. cm cone

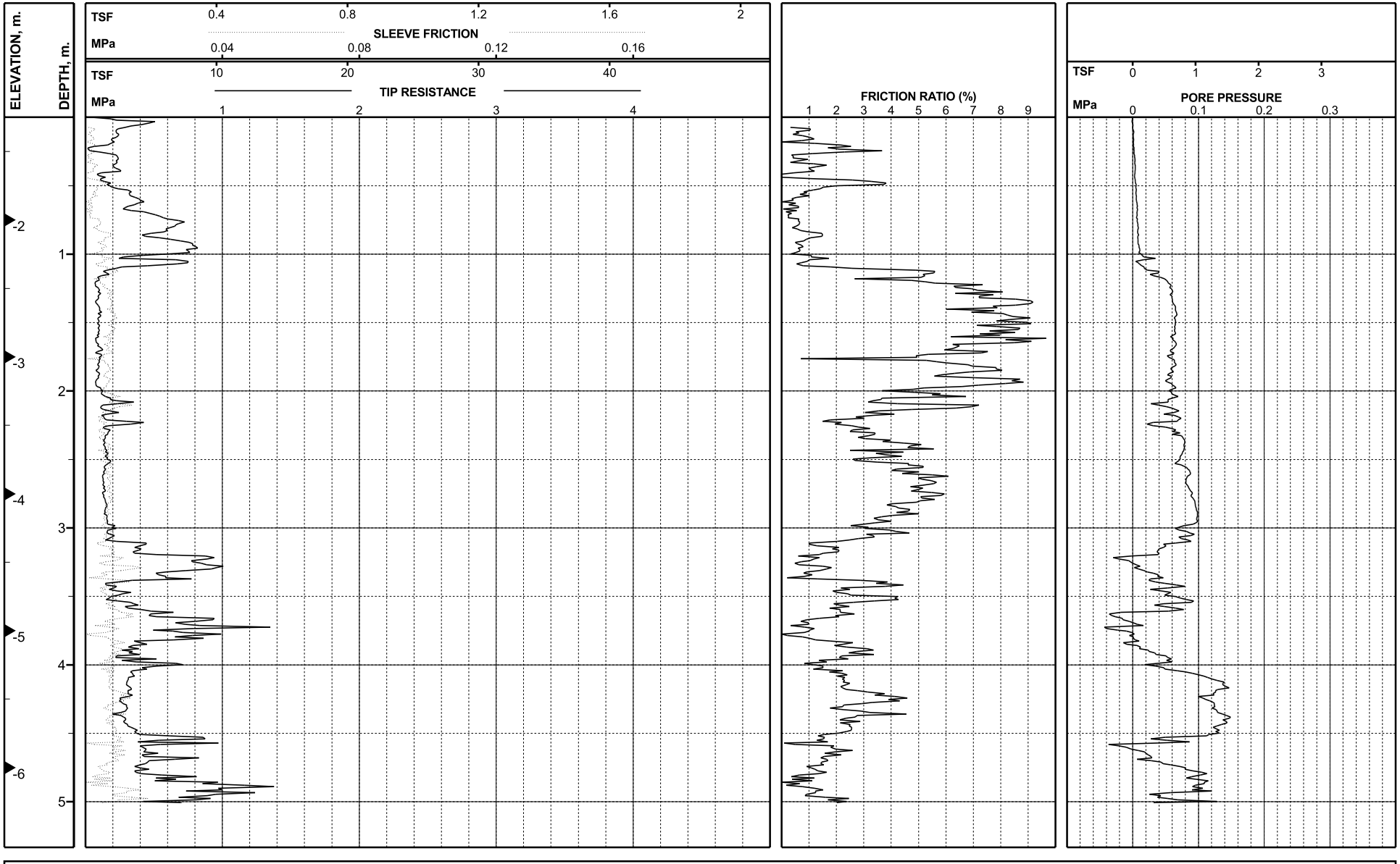
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-505

SFOBB East Span Seismic Safety Project

Report Date: 08/30/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1838935 N648297 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-506 (3m left of W. Sta. 84+76)	**MUDLINE ELEVATION:**	-1.2 m (MSL)	**TEST DATE:**	12/15/98



NOTE: SeaScout CPT uses 1 sq. cm cone

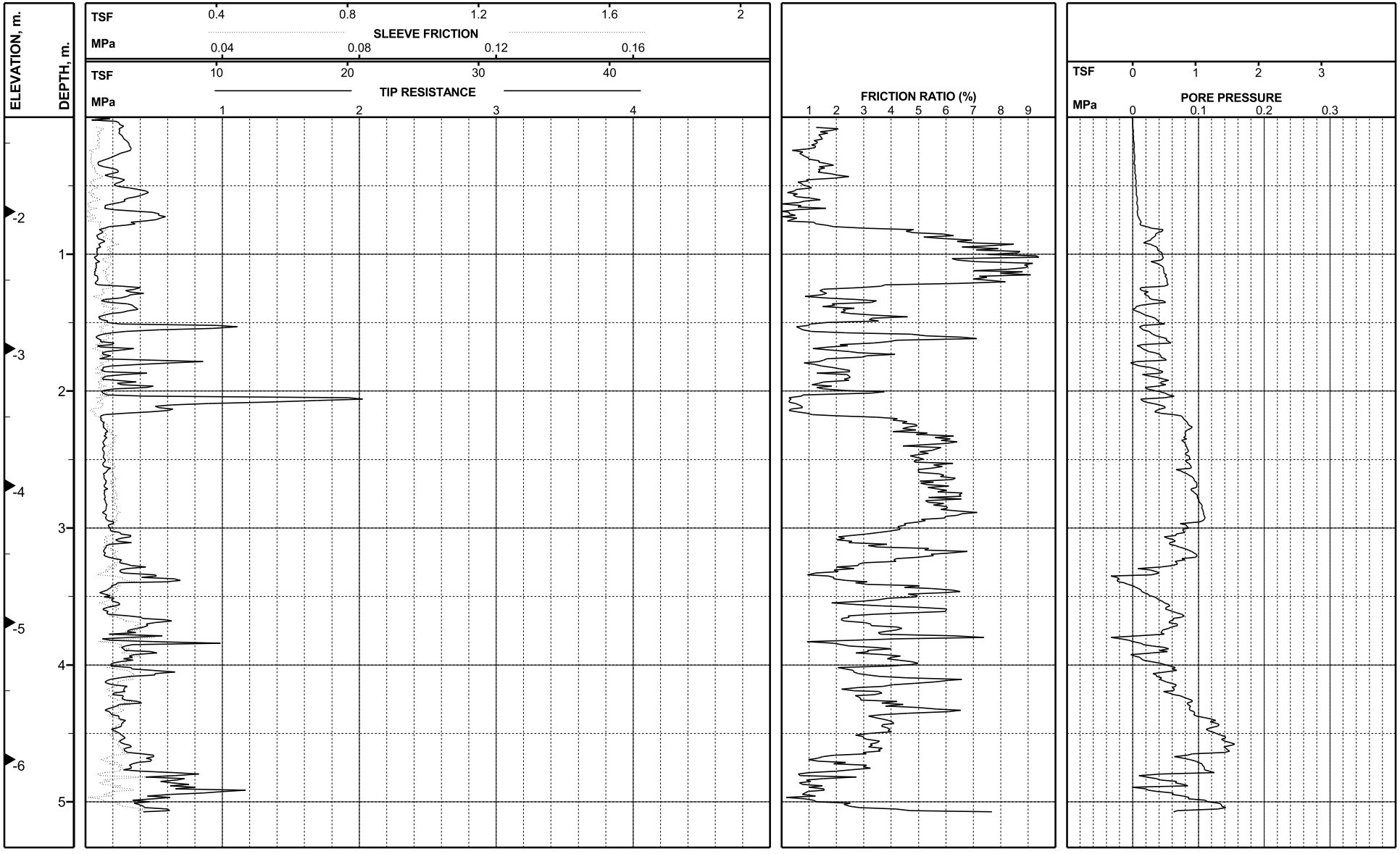
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-506

SFOBB East Span Seismic Safety Project

Report Date: 08/30/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1838996 N648319 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-508 (19m left of W. Sta. 85+39)	**MUDLINE ELEVATION:**	-1.3 m (MSL)	**TEST DATE:**	12/15/98



NOTE: SeaScout CPT uses 1 sq. cm cone

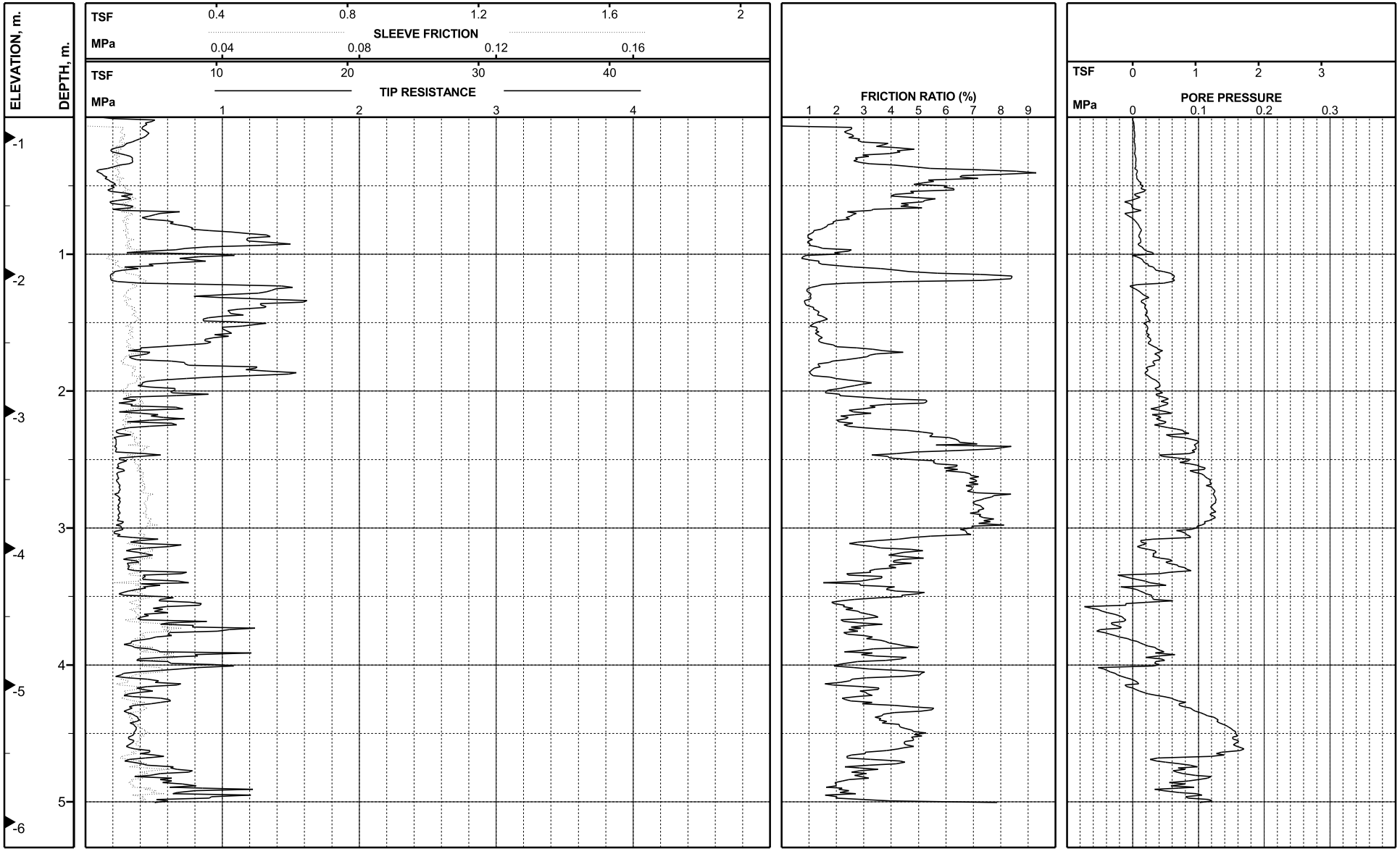
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-508

SFOBB East Span Seismic Safety Project

Report Date: 08/30/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1839032 N648365 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-510 (62m left of W. Sta. 85+78)	**MUDLINE ELEVATION:**	-0.9 m (MSL)	**TEST DATE:**	12/15/98



NOTE: SeaScout CPT uses 1 sq. cm cone

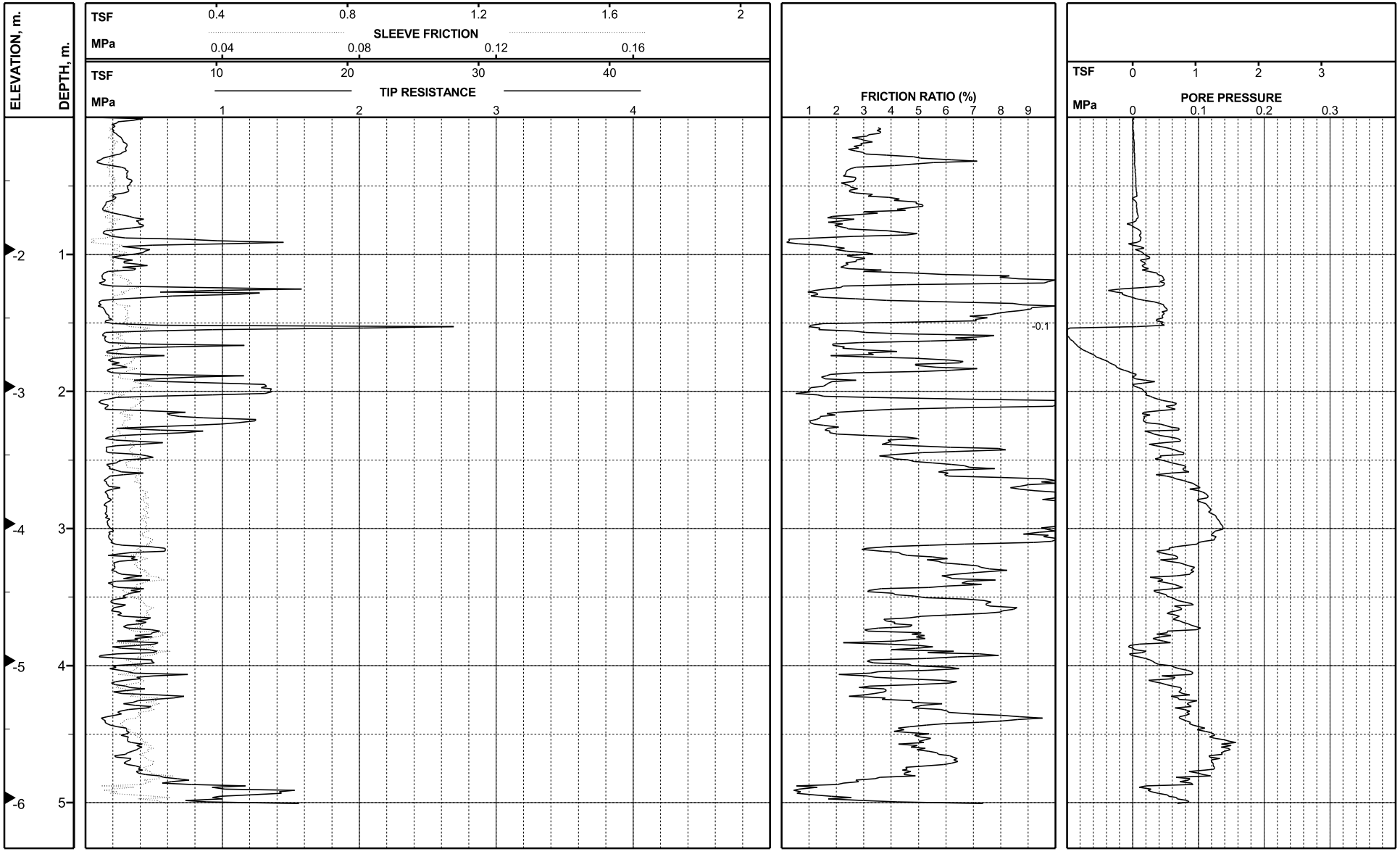
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-510

SFOBB East Span Seismic Safety Project

Report Date: 08/30/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1839036 N648344 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-511 (41m left of W. Sta. 85+81)	**MUDLINE ELEVATION:**	-1.0 m (MSL)	**TEST DATE:**	12/15/98



NOTE: SeaScout CPT uses 1 sq. cm cone

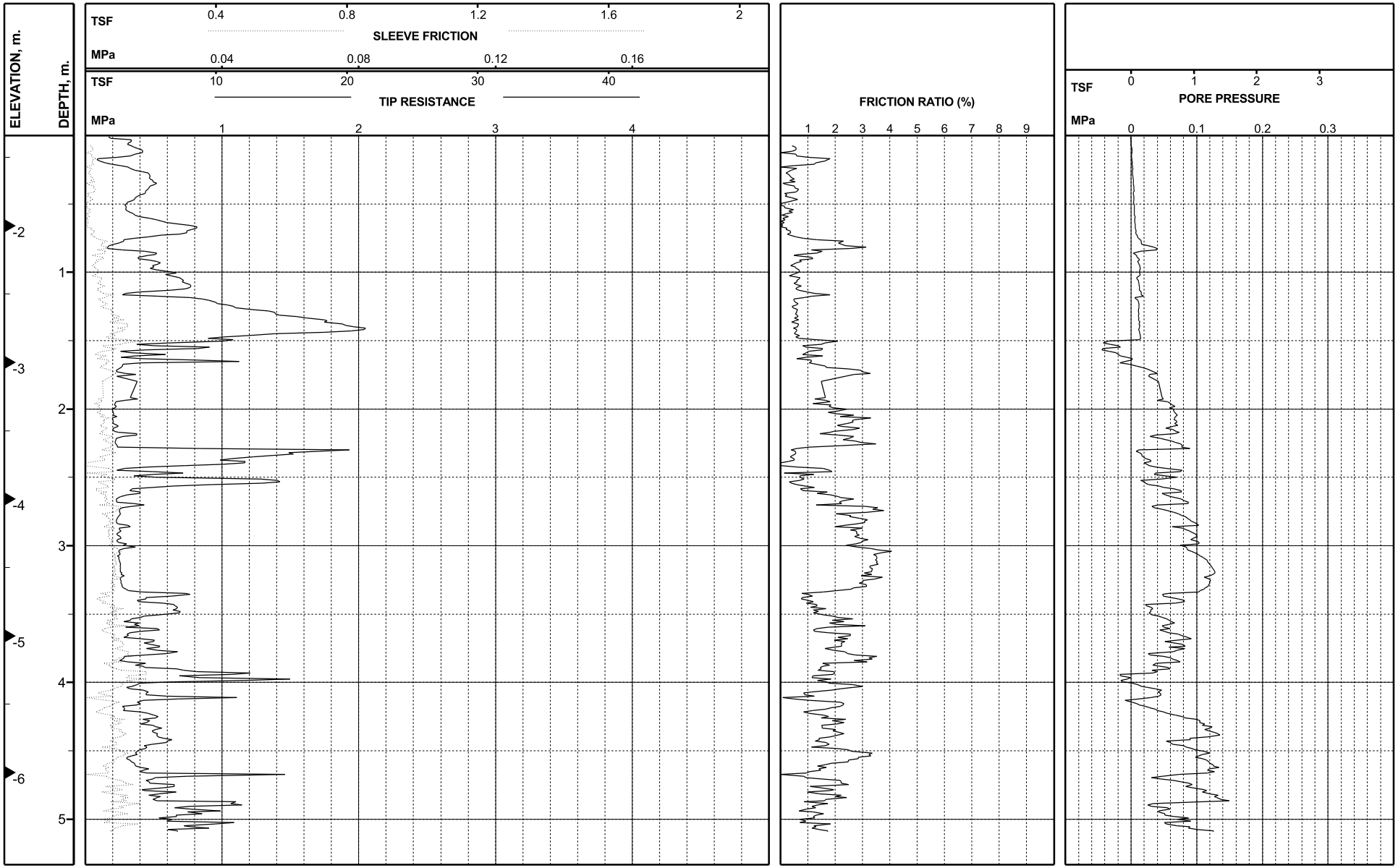
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-511

SFOBB East Span Seismic Safety Project

Report Date: 08/30/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1839031 N648330 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
SOUNDING:	98C-512 (27m left of W. Sta. 85+74)	**MUDLINE ELEVATION:**	-1.3 m (MSL)	**TEST DATE:**	12/15/98



NOTE: SeaScout CPT uses 1 sq. cm cone

LOG OF CPT

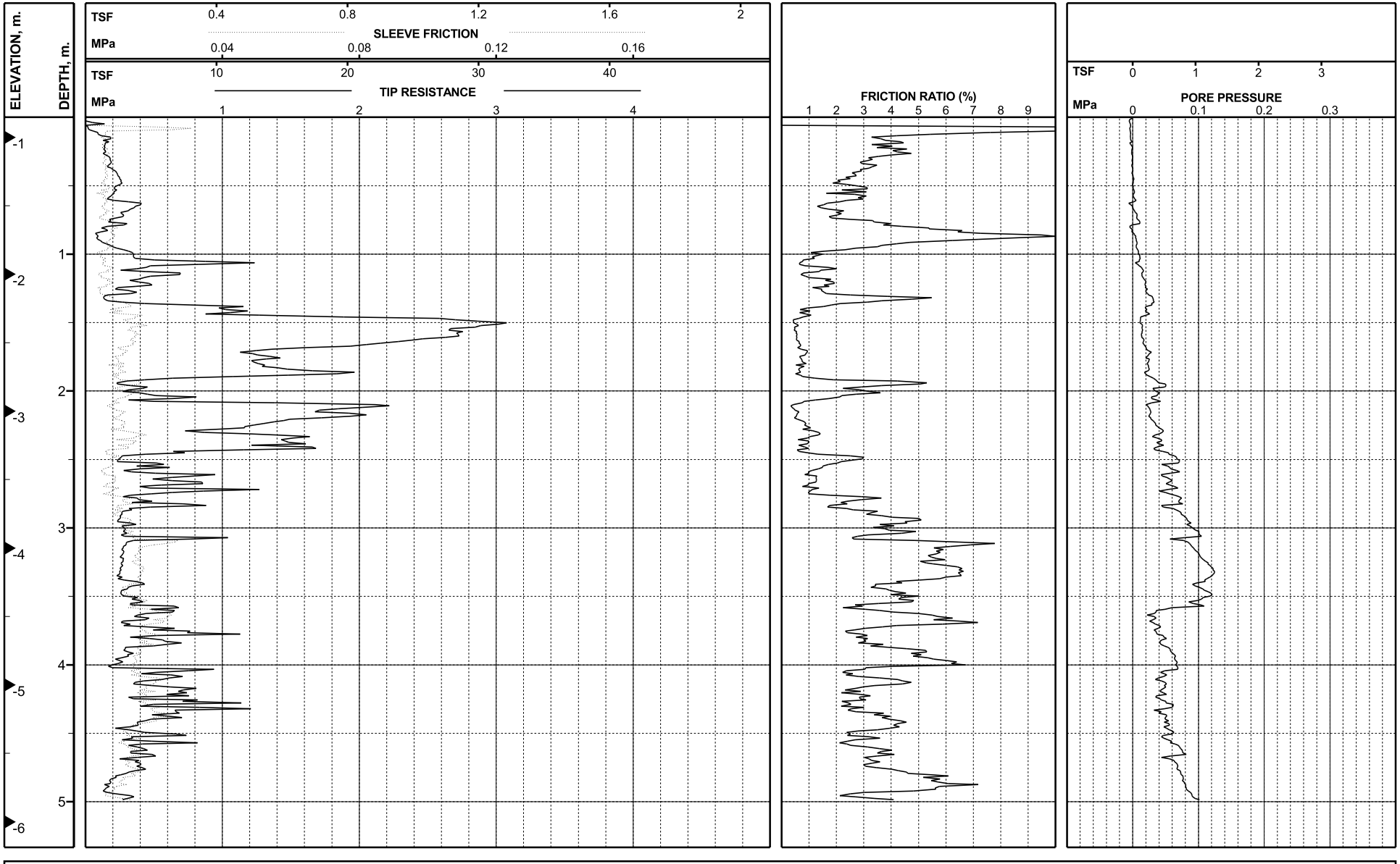
TETHERED SEASCOUT SOUNDING 98C-512

SFOBB East Span Seismic Safety Project

Report Date: 02/19/01

j:\caltrans\reports\finalreports\finaloaksitechar_book5\vol3\vol3_b\odb\98c-512.odb

PROJECT NO:	98-42-0054	**COORDINATES:**	E1839068 N648363 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-513 (57m left of W. Sta. 86+14)	**MUDLINE ELEVATION:**	-0.9 m (MSL)	**TEST DATE:**	12/17/98



NOTE: SeaScout CPT uses 1 sq. cm cone

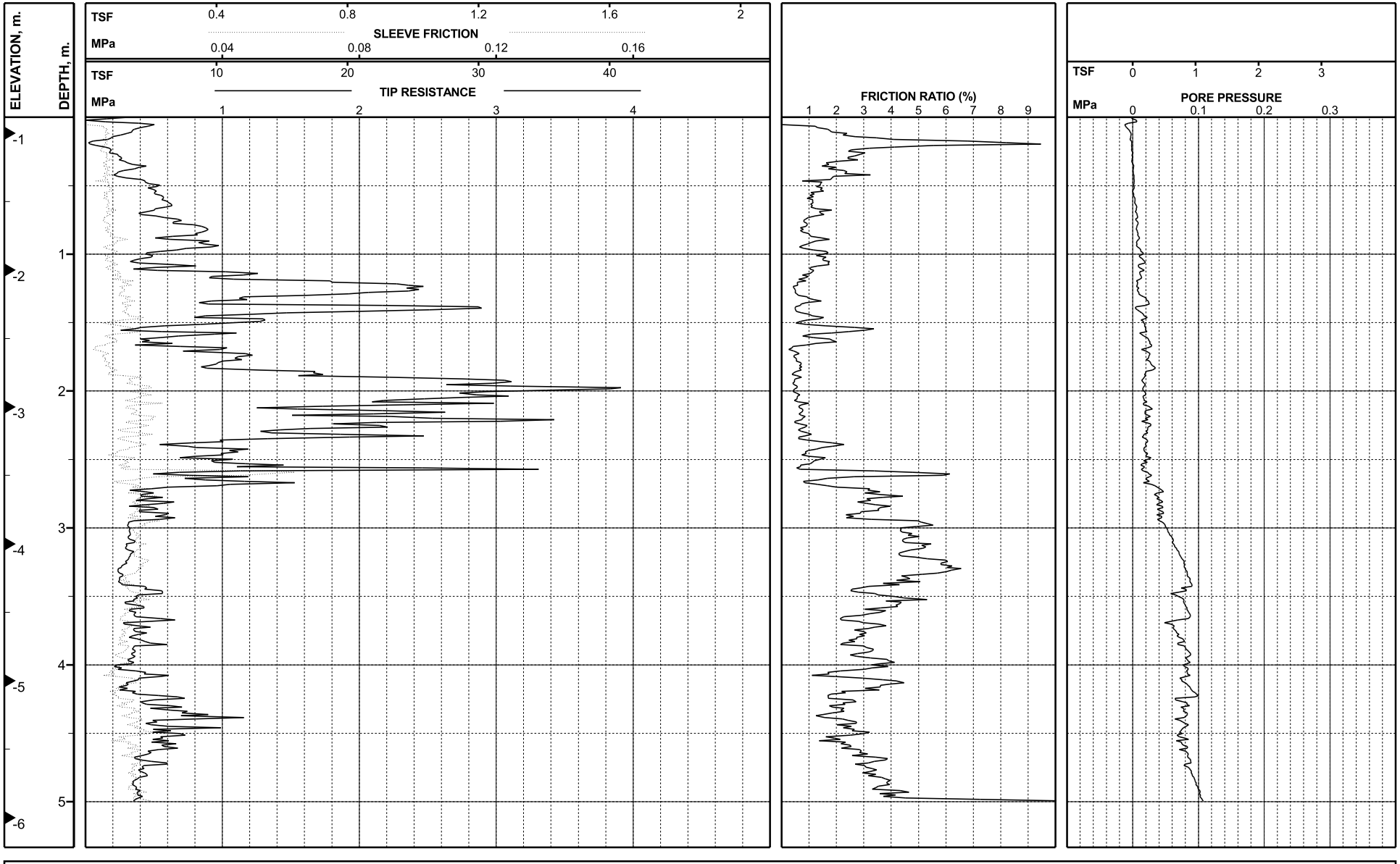
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-513

SFOBB East Span Seismic Safety Project

Report Date: 08/30/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1839119 N648376 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-514 (66m left of W. Sta. 86+65)	**MUDLINE ELEVATION:**	-0.9 m (MSL)	**TEST DATE:**	12/17/98



NOTE: SeaScout CPT uses 1 sq. cm cone

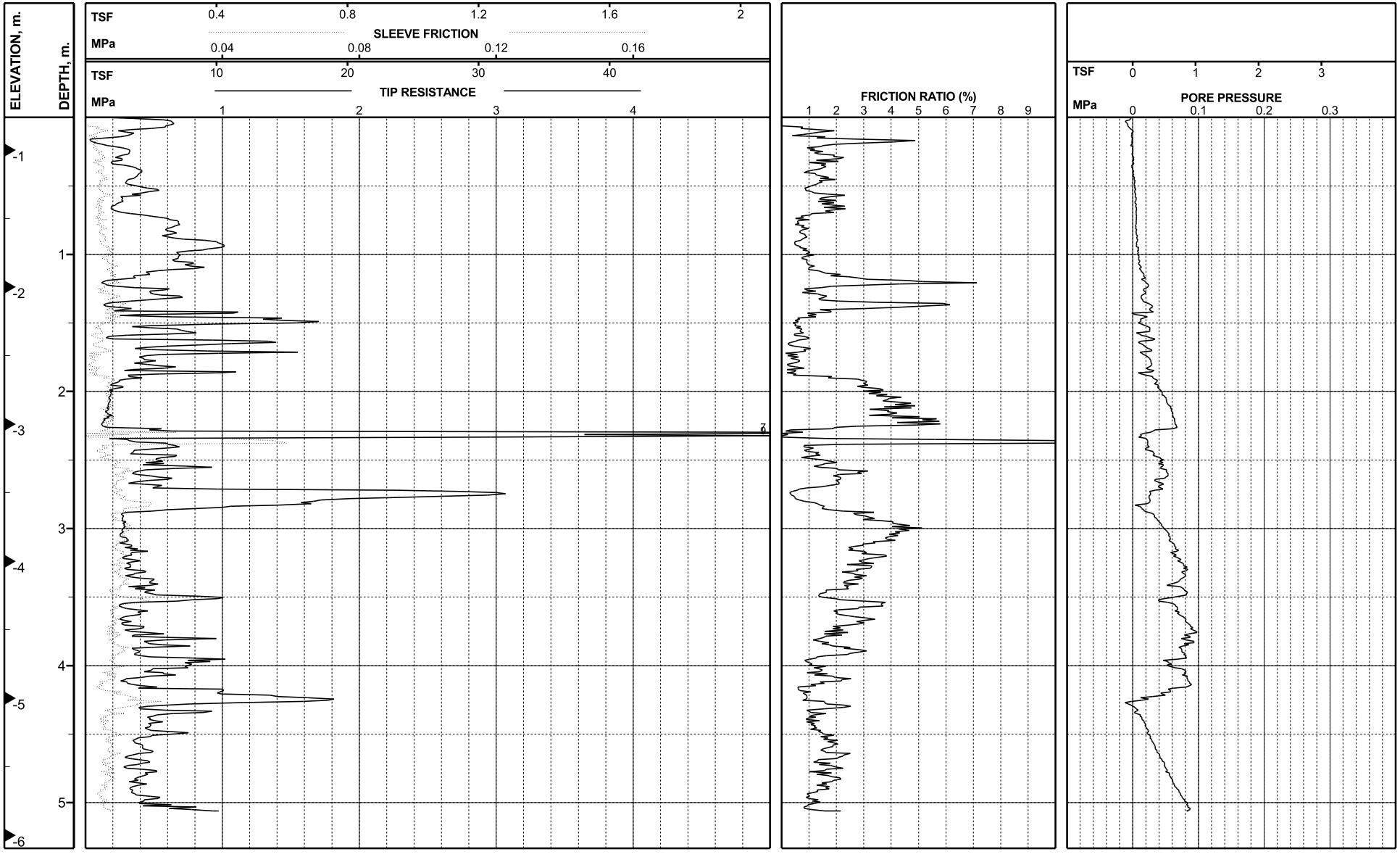
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-514

SFOBB East Span Seismic Safety Project

Report Date: 08/30/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1839123 N648357 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-515 (46m left of W. Sta. 86+68)	**MUDLINE ELEVATION:**	-0.8 m (MSL)	**TEST DATE:**	12/18/98



NOTE: SeaScout CPT uses 1 sq. cm cone

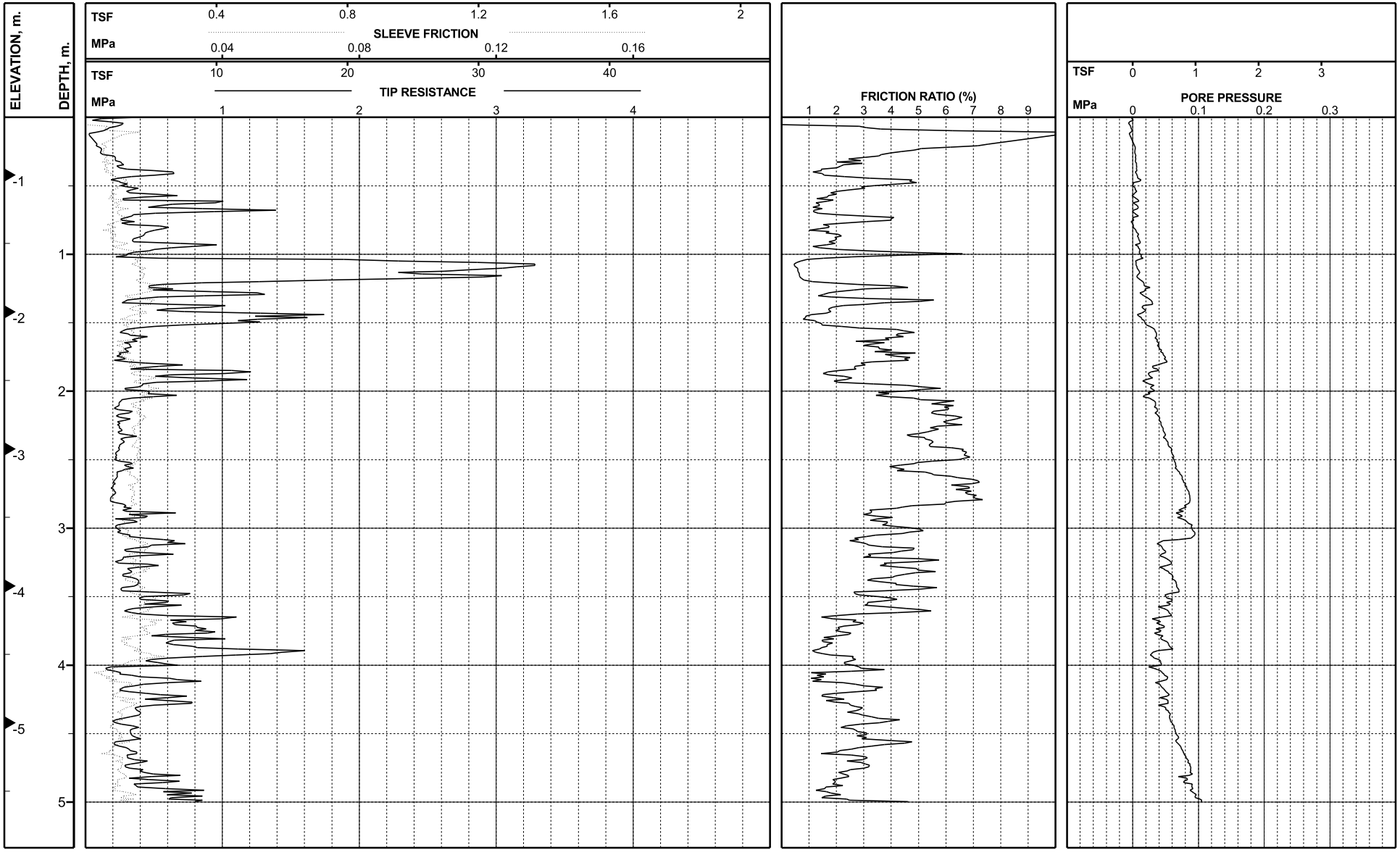
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-515

SFOBB East Span Seismic Safety Project

Report Date: 08/30/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1839154 N648399 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-517 (86m left of W. Sta. 87+02)	**MUDLINE ELEVATION:**	-0.6 m (MSL)	**TEST DATE:**	12/17/98



NOTE: SeaScout CPT uses 1 sq. cm cone

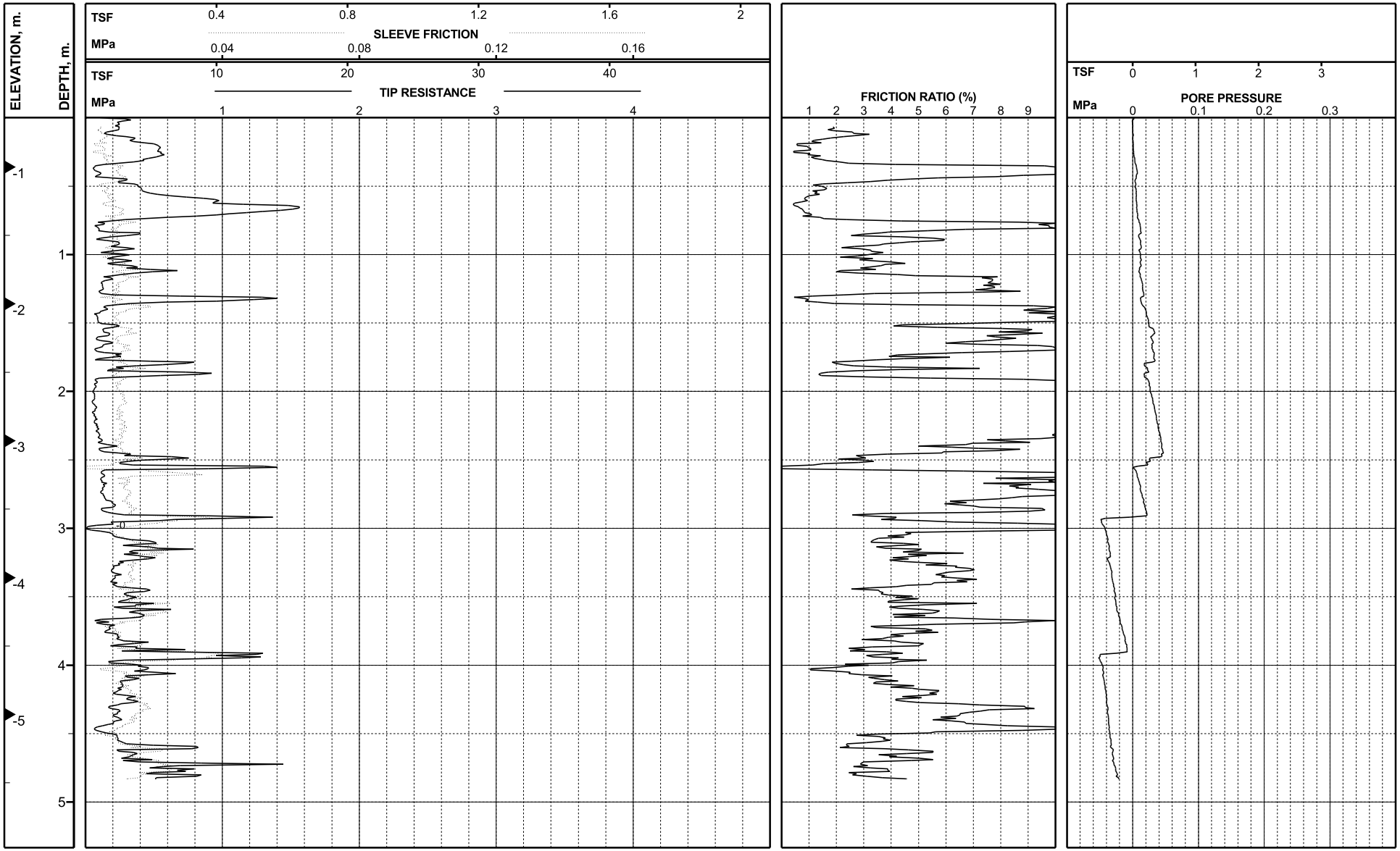
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-517

SFOBB East Span Seismic Safety Project

Report Date: 08/30/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1839155 N648371 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-518 (58m left of W. Sta. 87+01)	**MUDLINE ELEVATION:**	-0.6 m (MSL)	**TEST DATE:**	12/19/98



NOTE: SeaScout CPT uses 1 sq. cm cone

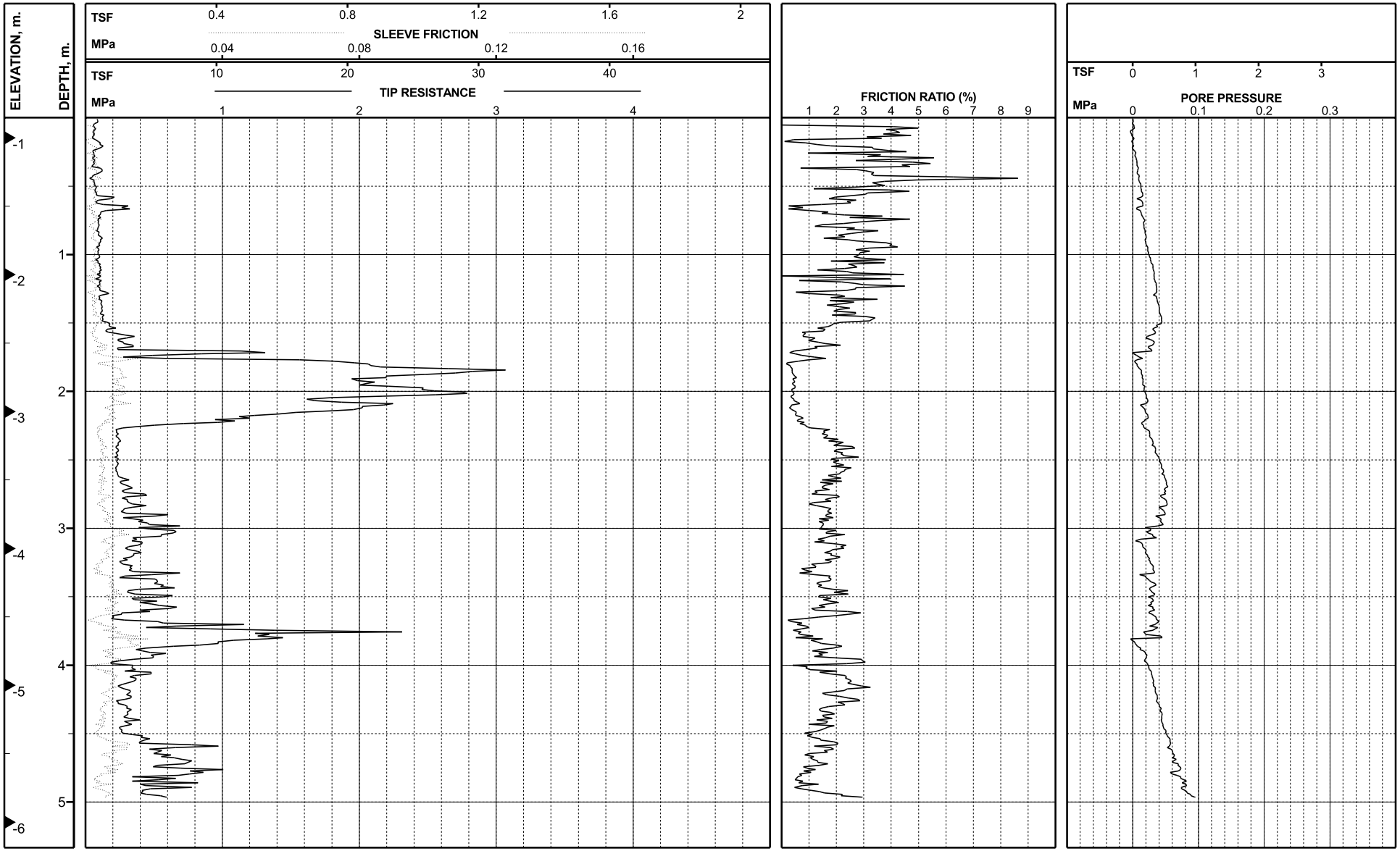
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-518

SFOBB East Span Seismic Safety Project

Report Date: 08/30/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1839166 N648347 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-519 (33m left of W. Sta. 87+10)	**MUDLINE ELEVATION:**	-0.9 m (MSL)	**TEST DATE:**	12/17/98



NOTE: SeaScout CPT uses 1 sq. cm cone

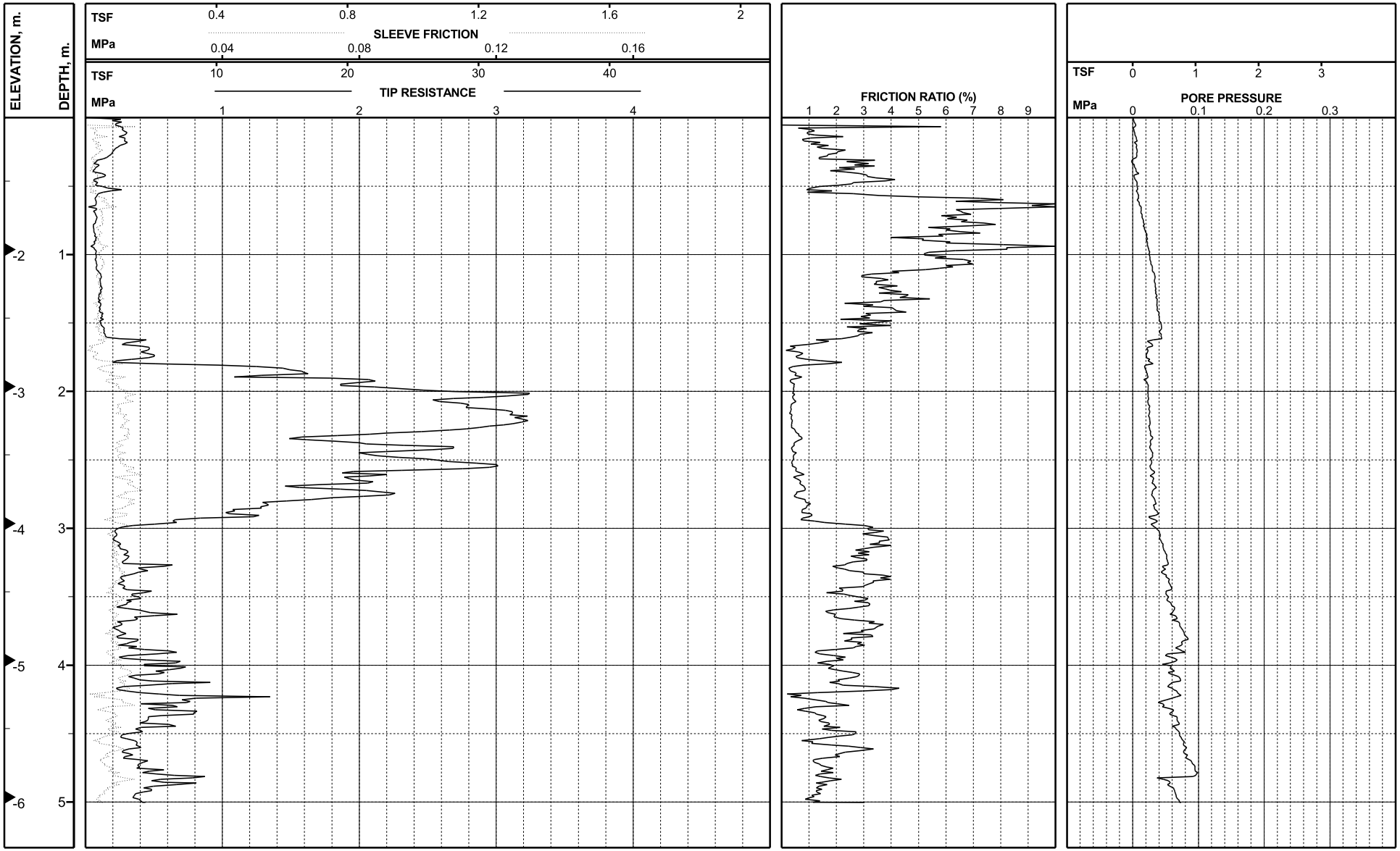
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-519

SFOBB East Span Seismic Safety Project

Report Date: 08/30/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1839154 N648332 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-520 (20m left of W. Sta. 86+97)	**MUDLINE ELEVATION:**	-1.0 m (MSL)	**TEST DATE:**	12/17/98



NOTE: SeaScout CPT uses 1 sq. cm cone

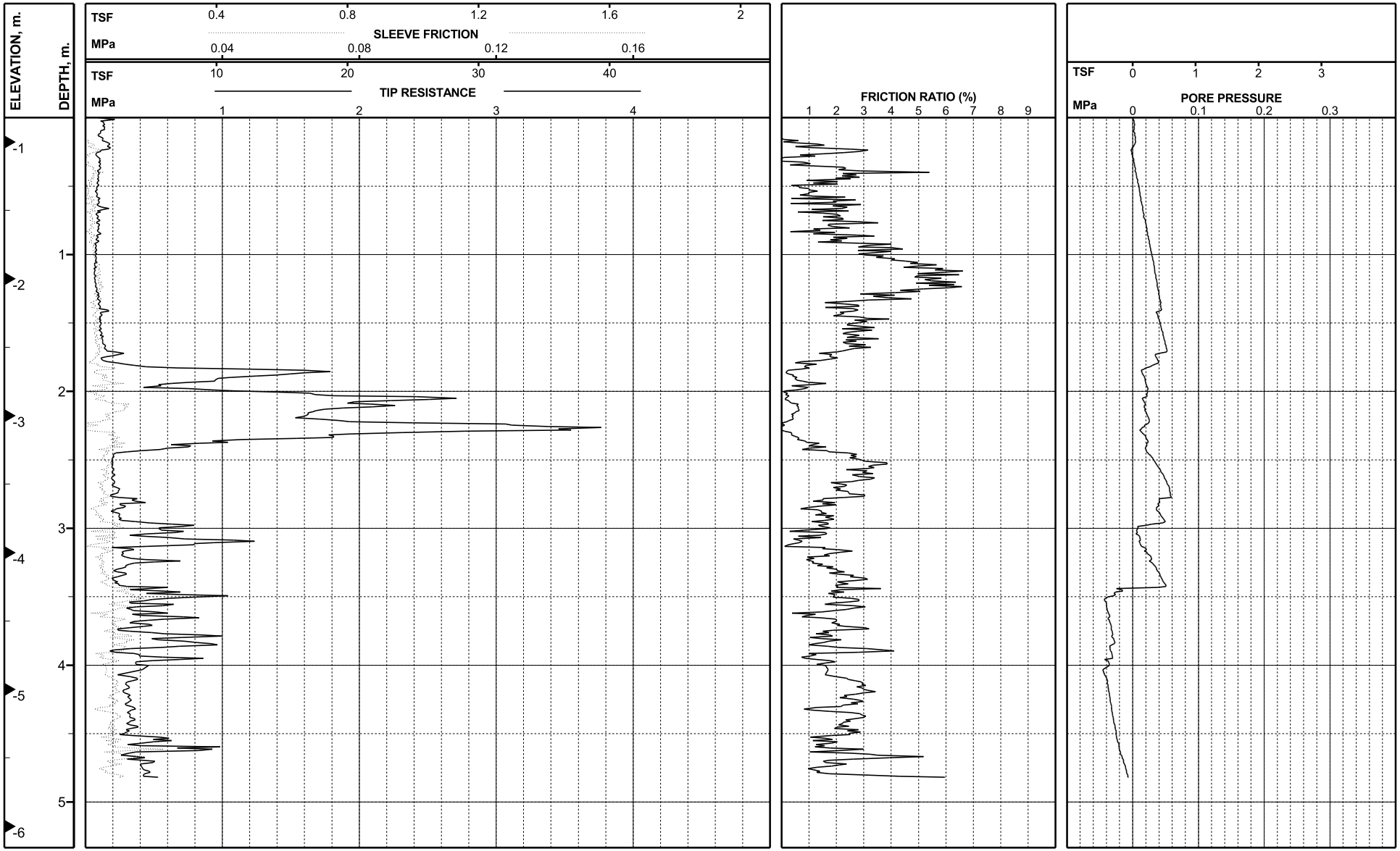
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-520

SFOBB East Span Seismic Safety Project

Report Date: 08/30/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1839190 N648351 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-522 (36m left of W. Sta. 87+35)	**MUDLINE ELEVATION:**	-0.8 m (MSL)	**TEST DATE:**	12/19/98



NOTE: SeaScout CPT uses 1 sq. cm cone

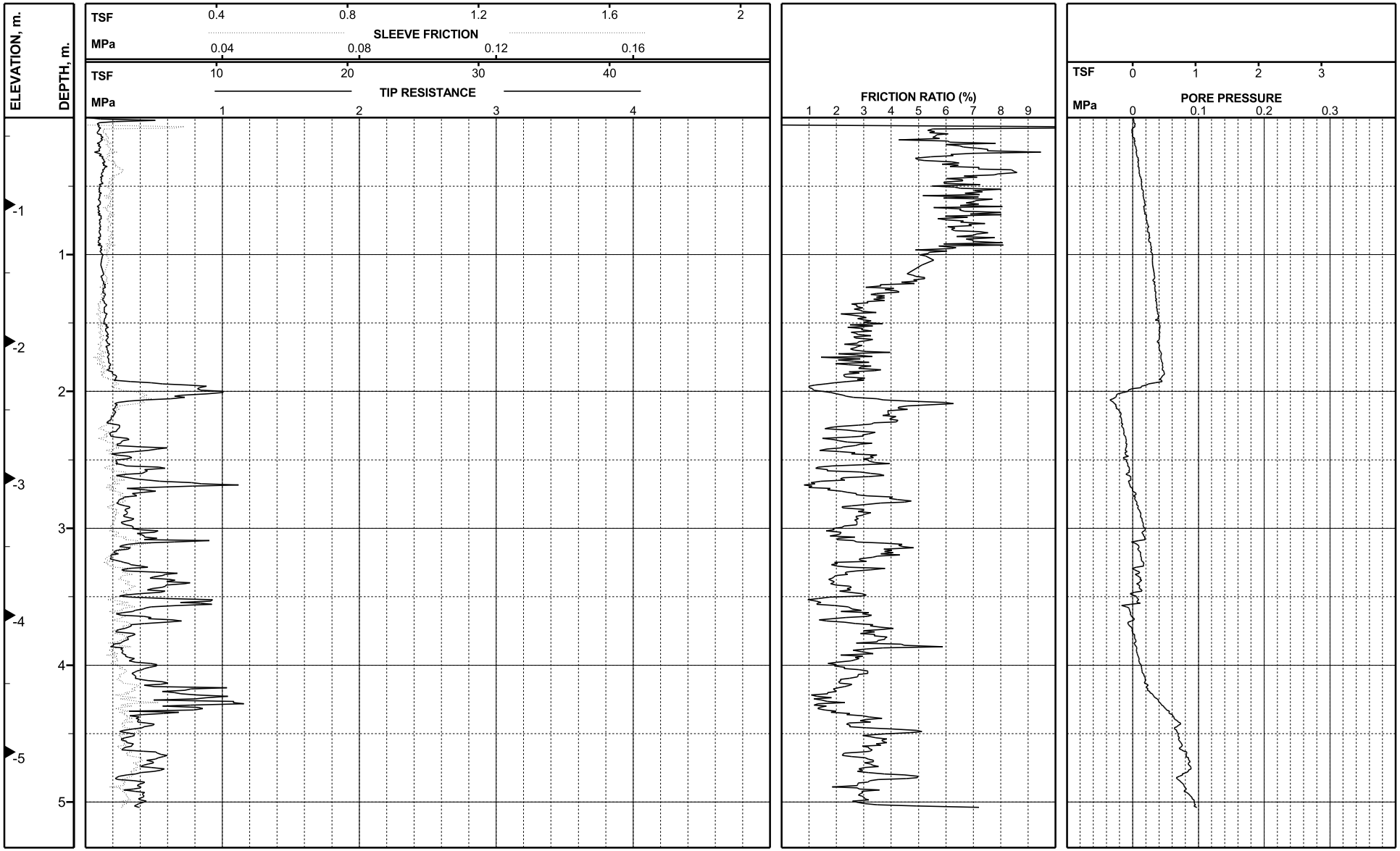
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-522

SFOBB East Span Seismic Safety Project

Report Date: 08/30/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1839233 N648400 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-525 (81m left of W. Sta. 87+81)	**MUDLINE ELEVATION:**	-0.4 m (MSL)	**TEST DATE:**	12/18/98



NOTE: SeaScout CPT uses 1 sq. cm cone

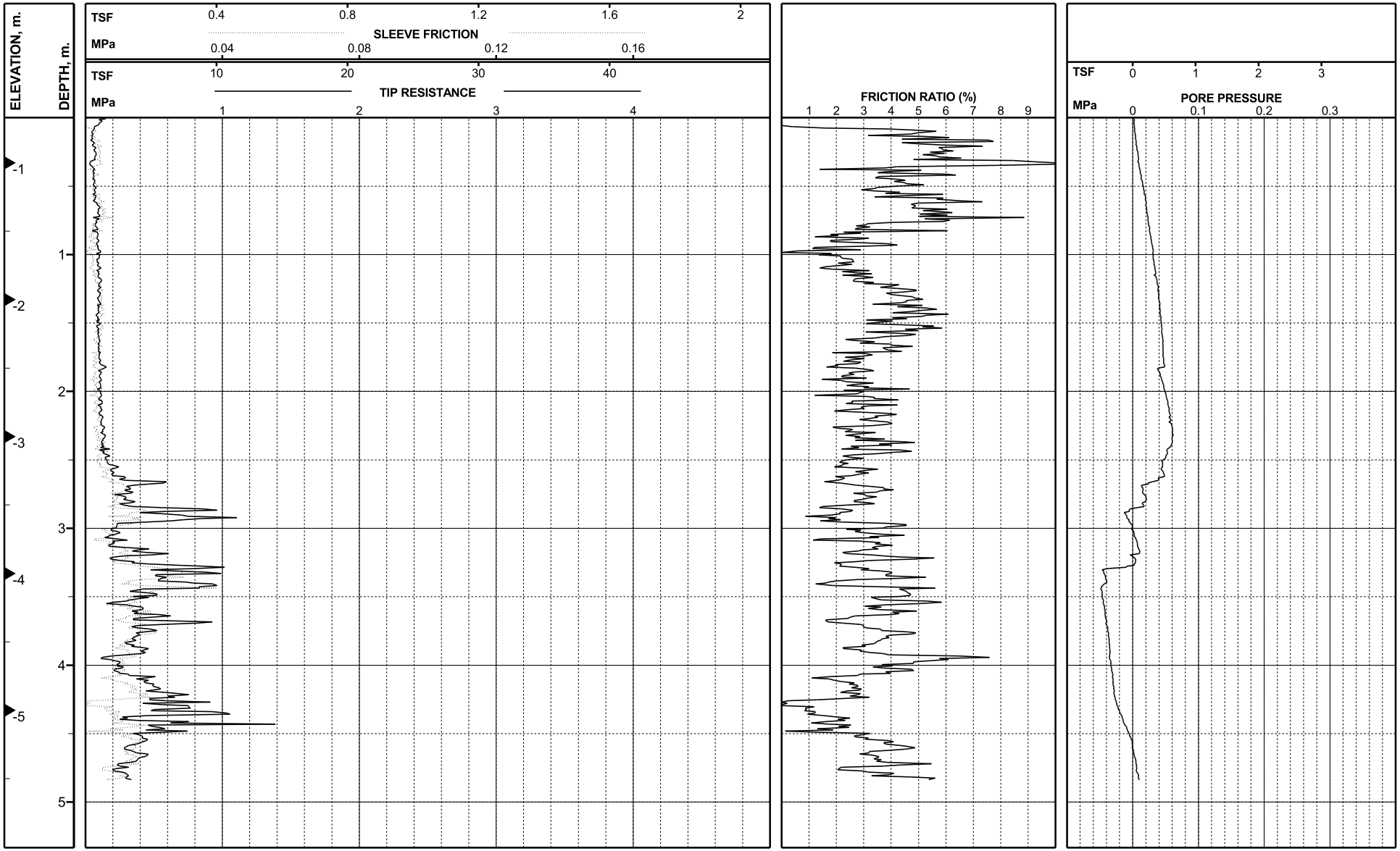
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-525

SFOBB East Span Seismic Safety Project

Report Date: 08/30/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1839241 N648380 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-526 (61m left of W. Sta. 87+87)	**MUDLINE ELEVATION:**	-0.7 m (MSL)	**TEST DATE:**	12/19/98



NOTE: SeaScout CPT uses 1 sq. cm cone

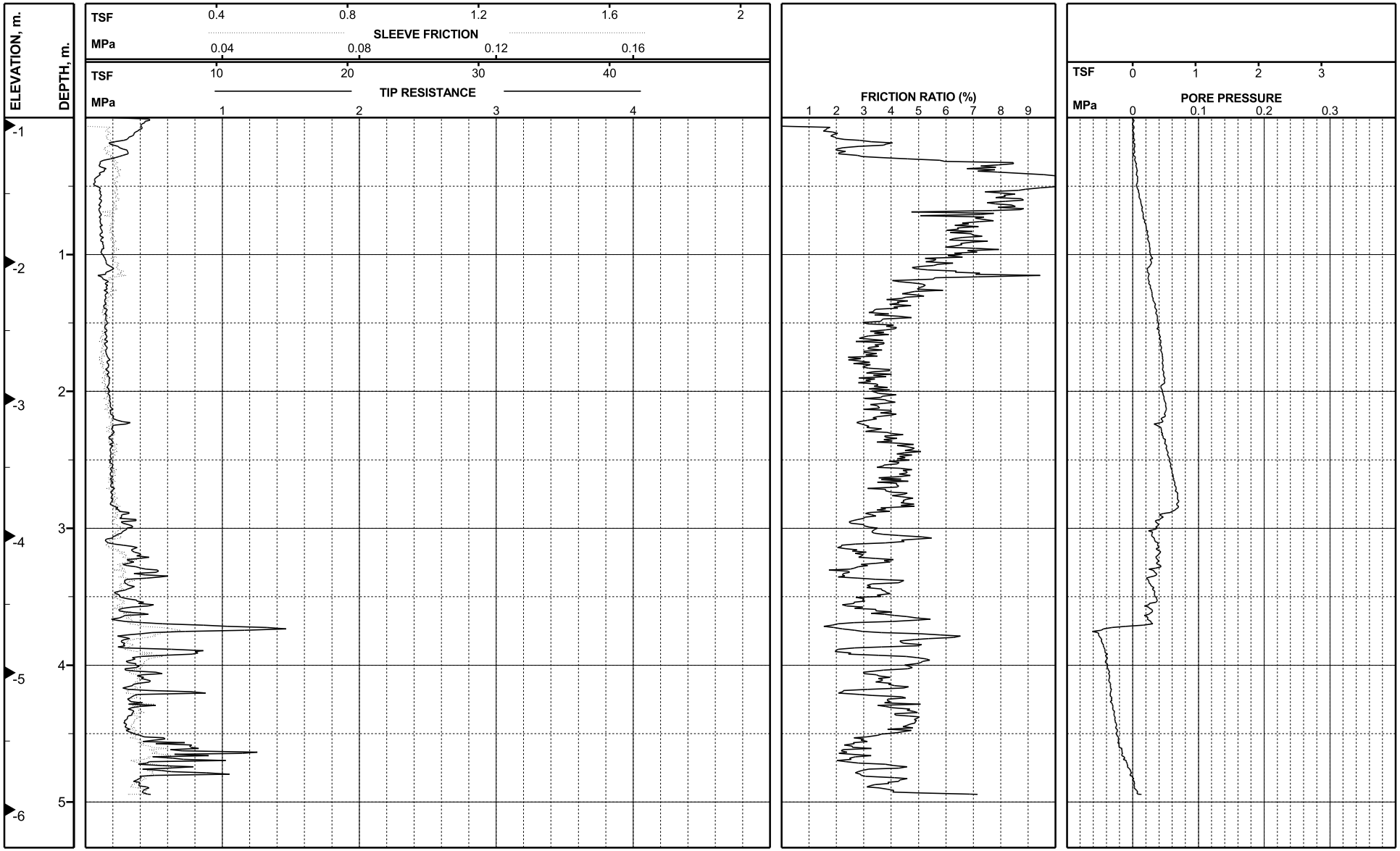
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-526

SFOBB East Span Seismic Safety Project

Report Date: 08/30/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1839244 N648357 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-527 (38m left of W. Sta. 87+89)	**MUDLINE ELEVATION:**	-0.9 m (MSL)	**TEST DATE:**	12/18/98



NOTE: SeaScout CPT uses 1 sq. cm cone

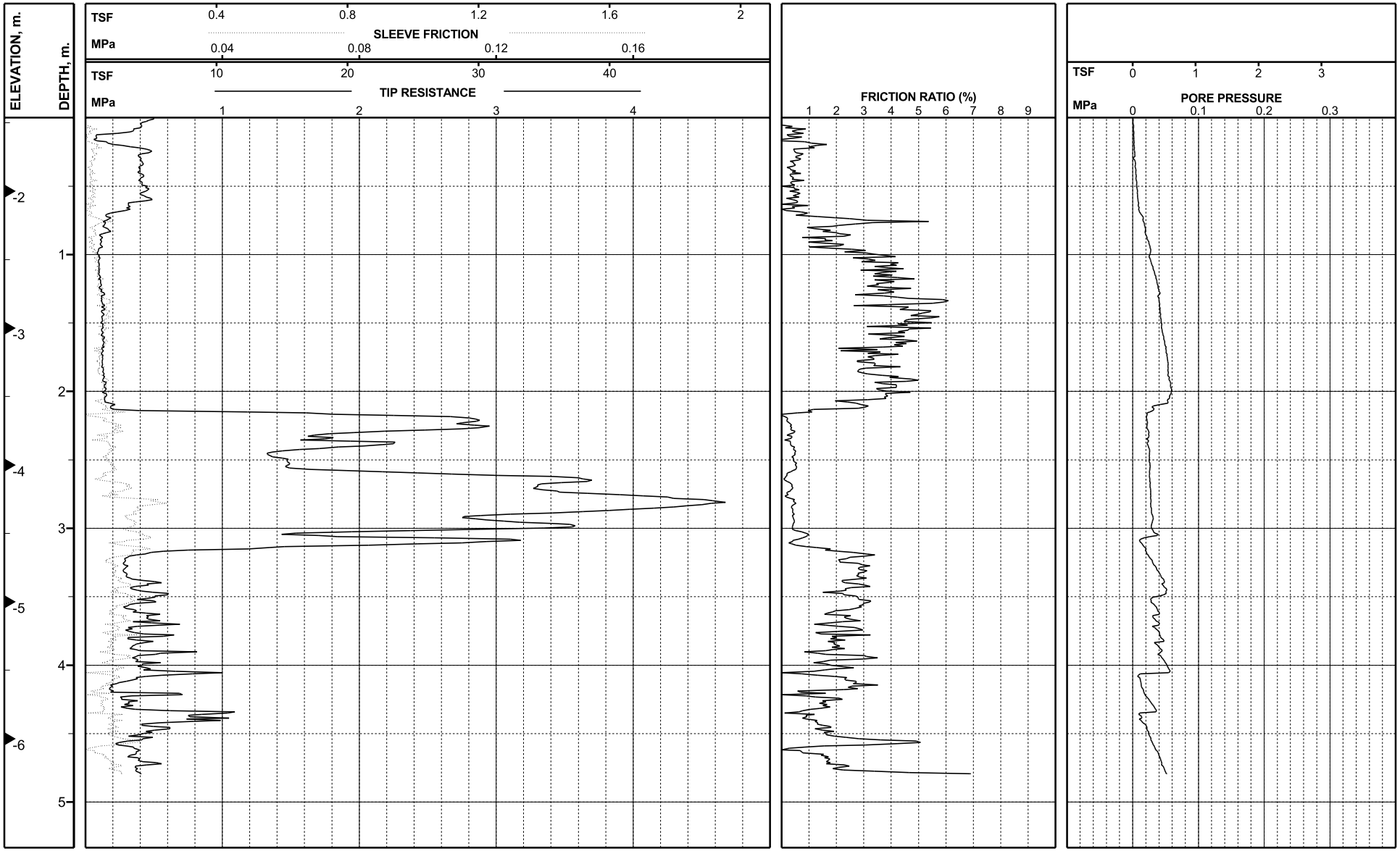
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-527

SFOBB East Span Seismic Safety Project

Report Date: 08/30/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1839248 N648343 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-528 (23m left of W. Sta. 87+91)	**MUDLINE ELEVATION:**	-1.5 m (MSL)	**TEST DATE:**	12/19/98



NOTE: SeaScout CPT uses 1 sq. cm cone

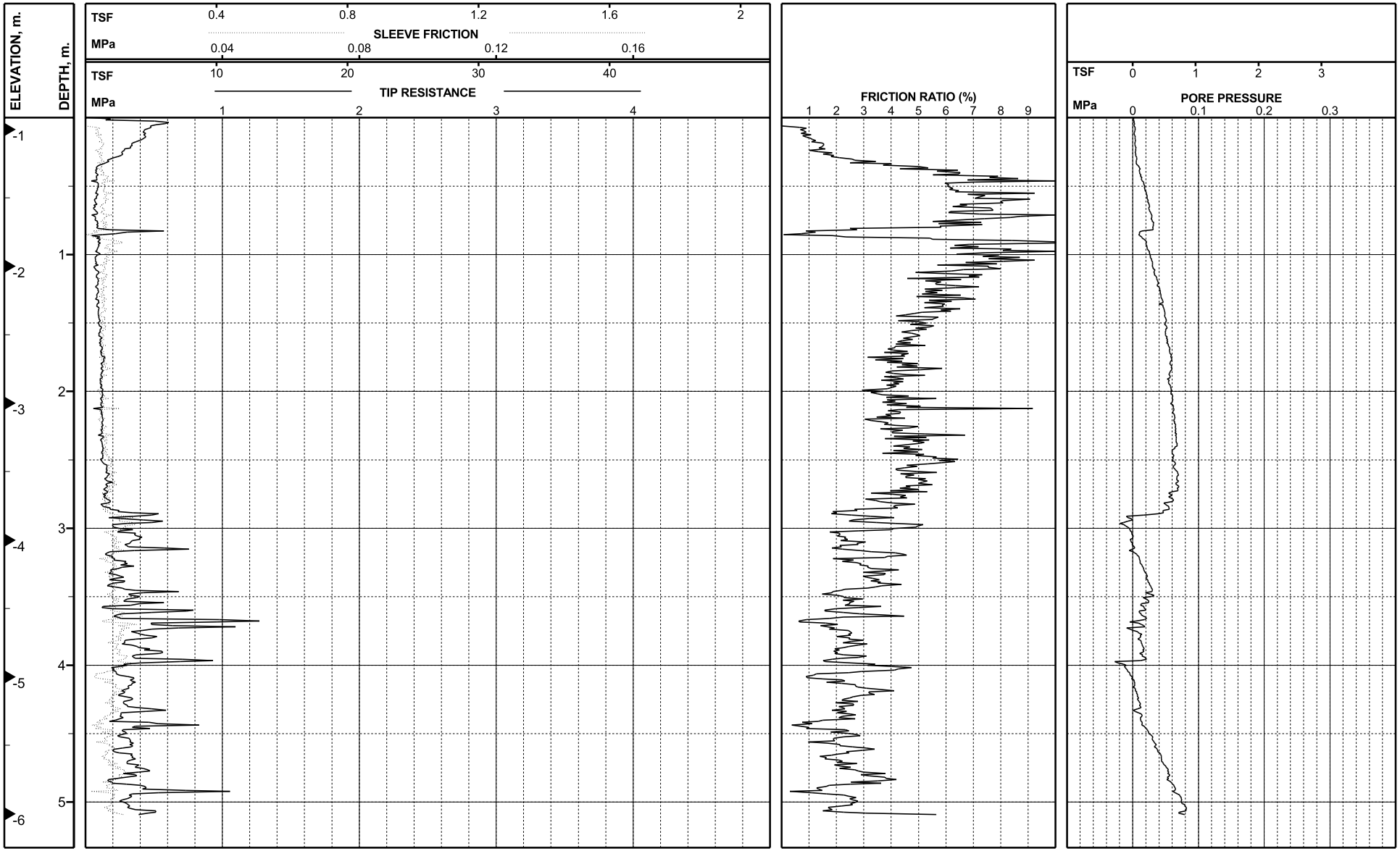
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-528

SFOBB East Span Seismic Safety Project

Report Date: 08/30/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1839291 N648393 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-530 (70m left of W. Sta. 88+39)	**MUDLINE ELEVATION:**	-0.9 m (MSL)	**TEST DATE:**	12/18/98



NOTE: SeaScout CPT uses 1 sq. cm cone

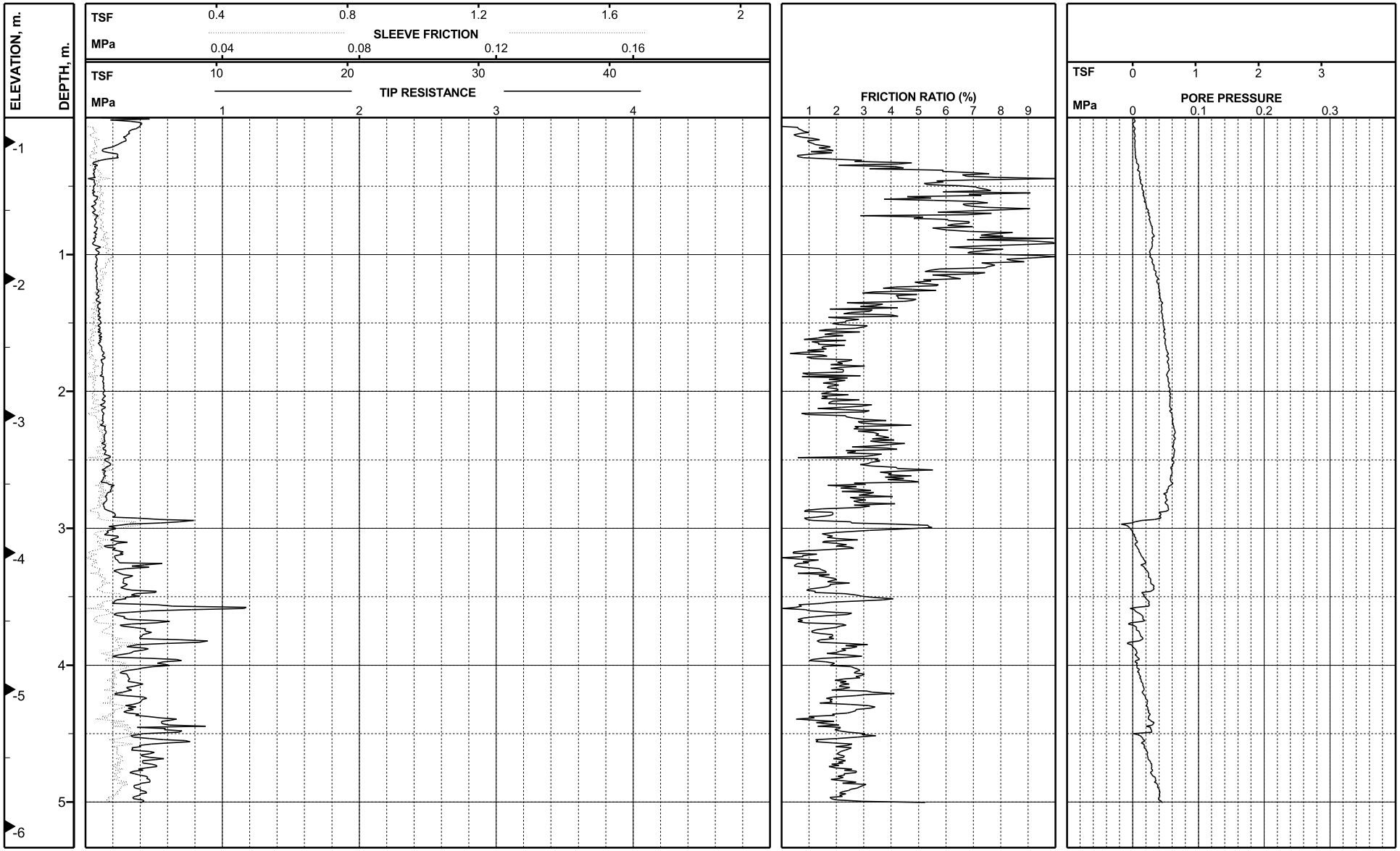
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-530

SFOBB East Span Seismic Safety Project

Report Date: 08/30/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1839288 N648373 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-531 (51m left of W. Sta. 88+34)	**MUDLINE ELEVATION:**	-0.8 m (MSL)	**TEST DATE:**	12/18/98



NOTE: SeaScout CPT uses 1 sq. cm cone

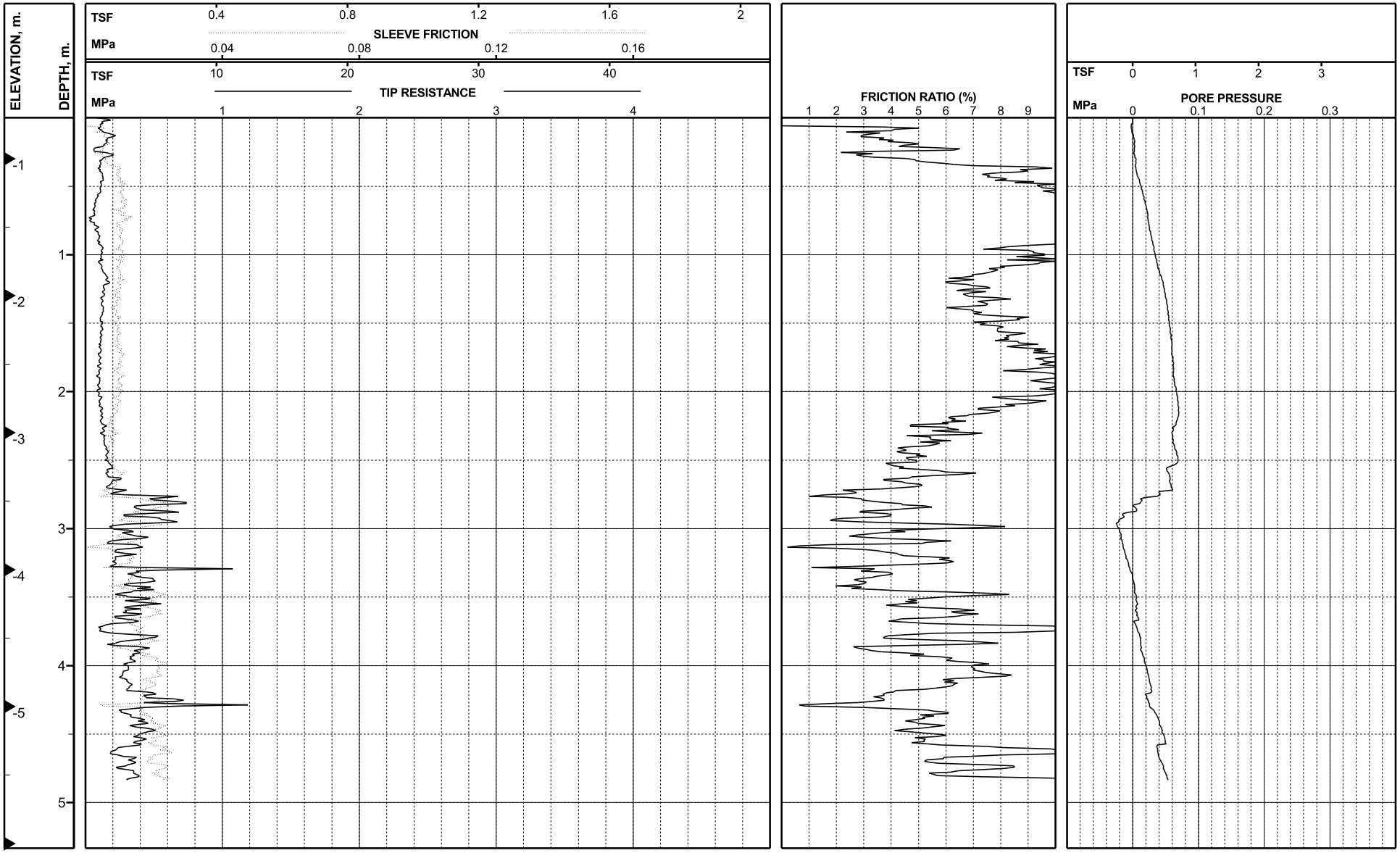
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-531

SFOBB East Span Seismic Safety Project

Report Date: 08/30/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1839323 N648410 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-532 (84m left of W. Sta. 88+71)	**MUDLINE ELEVATION:**	-0.7 m (MSL)	**TEST DATE:**	12/19/98



NOTE: SeaScout CPT uses 1 sq. cm cone

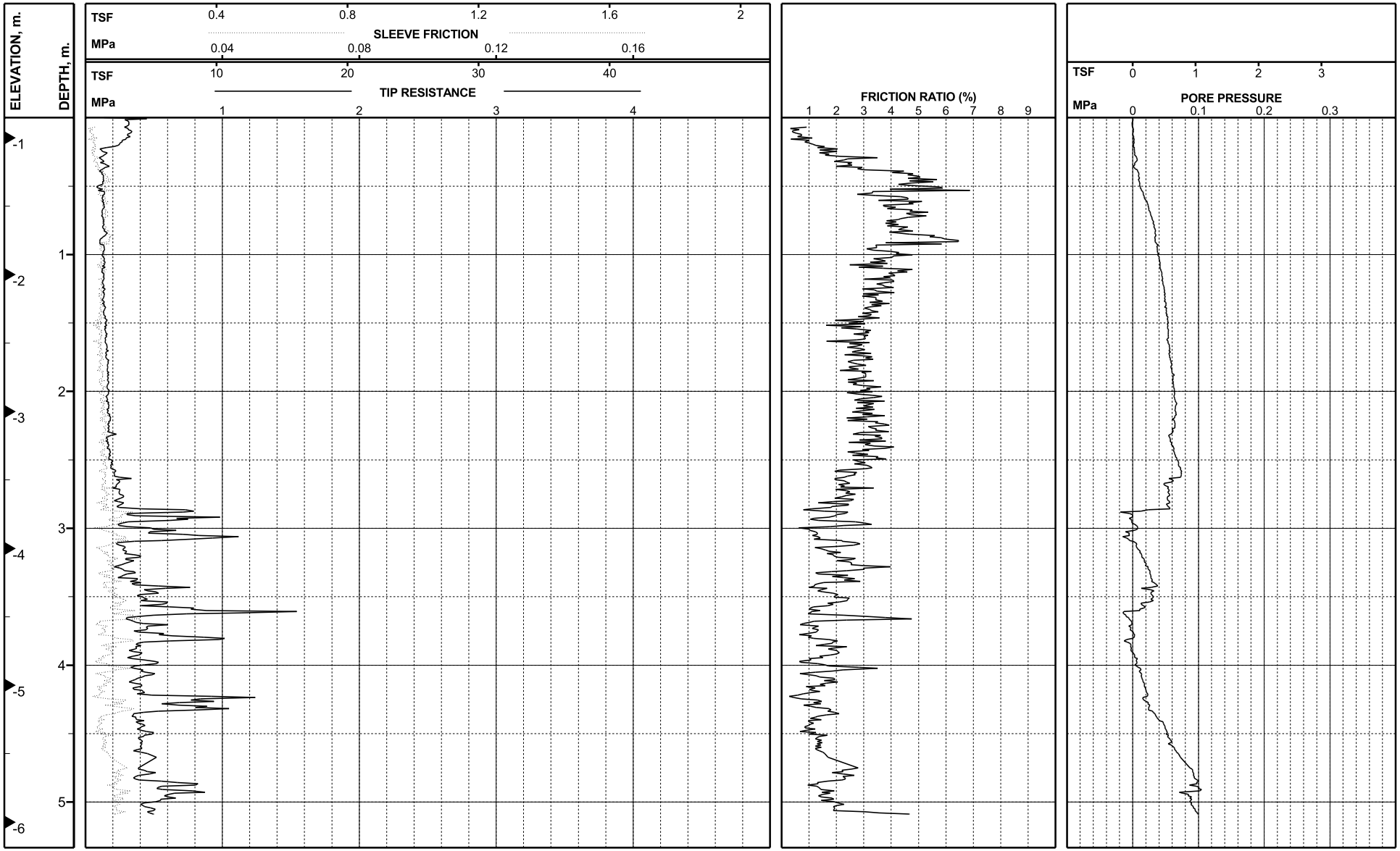
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-532

SFOBB East Span Seismic Safety Project

Report Date: 08/30/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1839323 N648386 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-533 (60m left of W. Sta. 88+69)	**MUDLINE ELEVATION:**	-0.9 m (MSL)	**TEST DATE:**	12/18/98



NOTE: SeaScout CPT uses 1 sq. cm cone

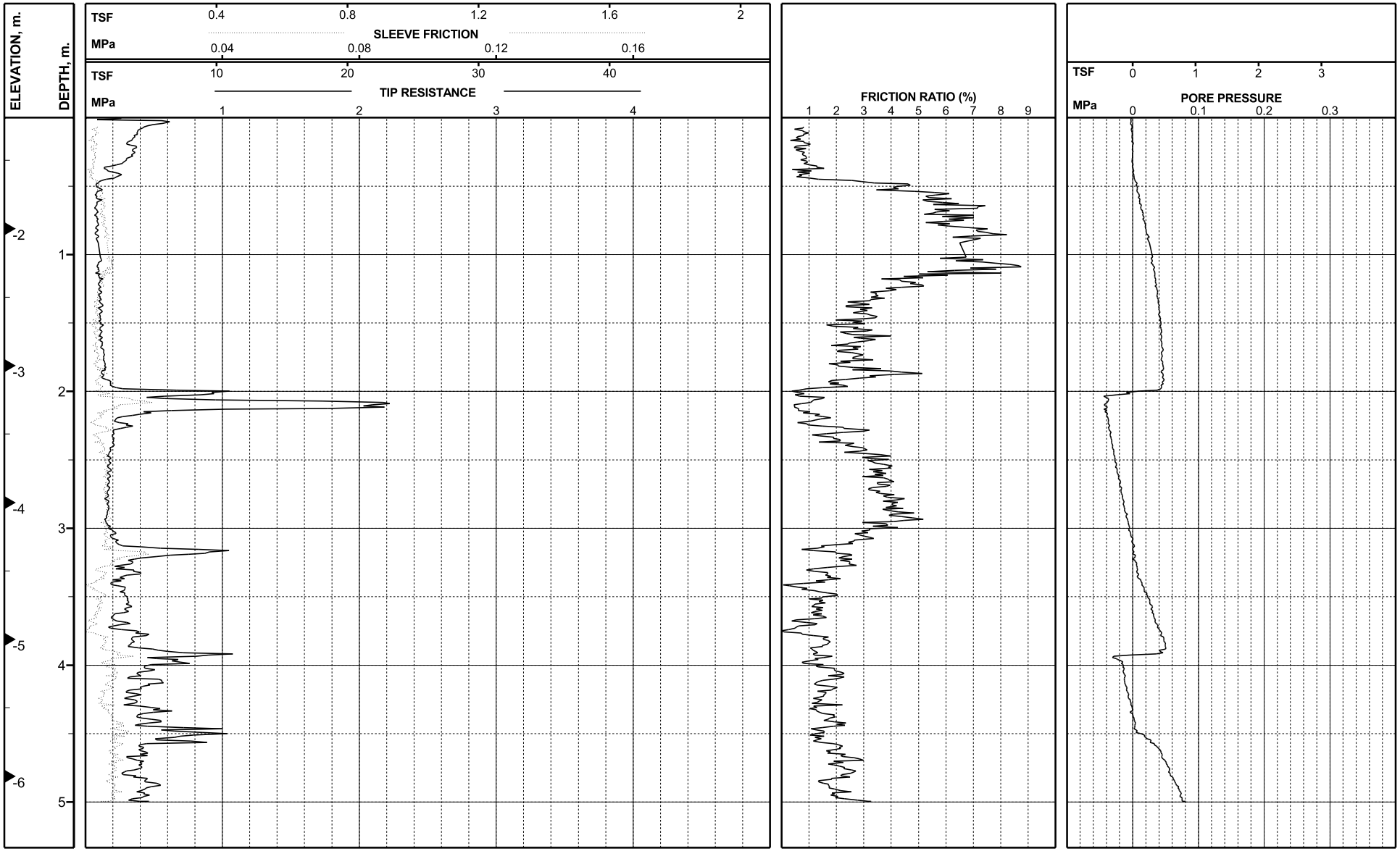
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-533

SFOBB East Span Seismic Safety Project

Report Date: 08/30/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1839331 N648370 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-534 (44m left of W. Sta.88+77)	**MUDLINE ELEVATION:**	-1.2 m (MSL)	**TEST DATE:**	12/18/98



NOTE: SeaScout CPT uses 1 sq. cm cone

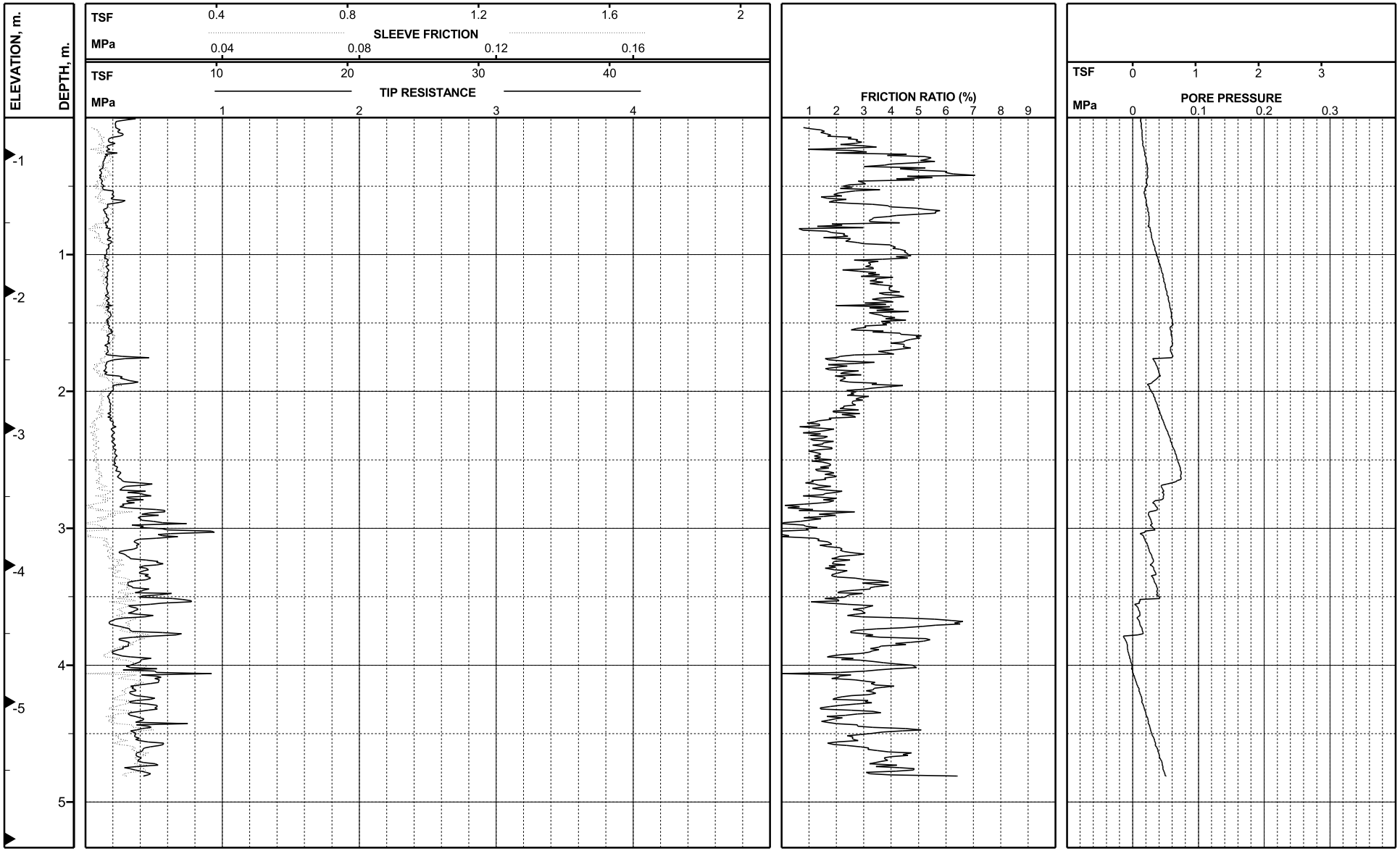
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-534

SFOBB East Span Seismic Safety Project

Report Date: 08/30/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1839363 N648410 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-536 (81m left of W. Sta. 89+11)	**MUDLINE ELEVATION:**	-0.7 m (MSL)	**TEST DATE:**	12/19/98



NOTE: SeaScout CPT uses 1 sq. cm cone

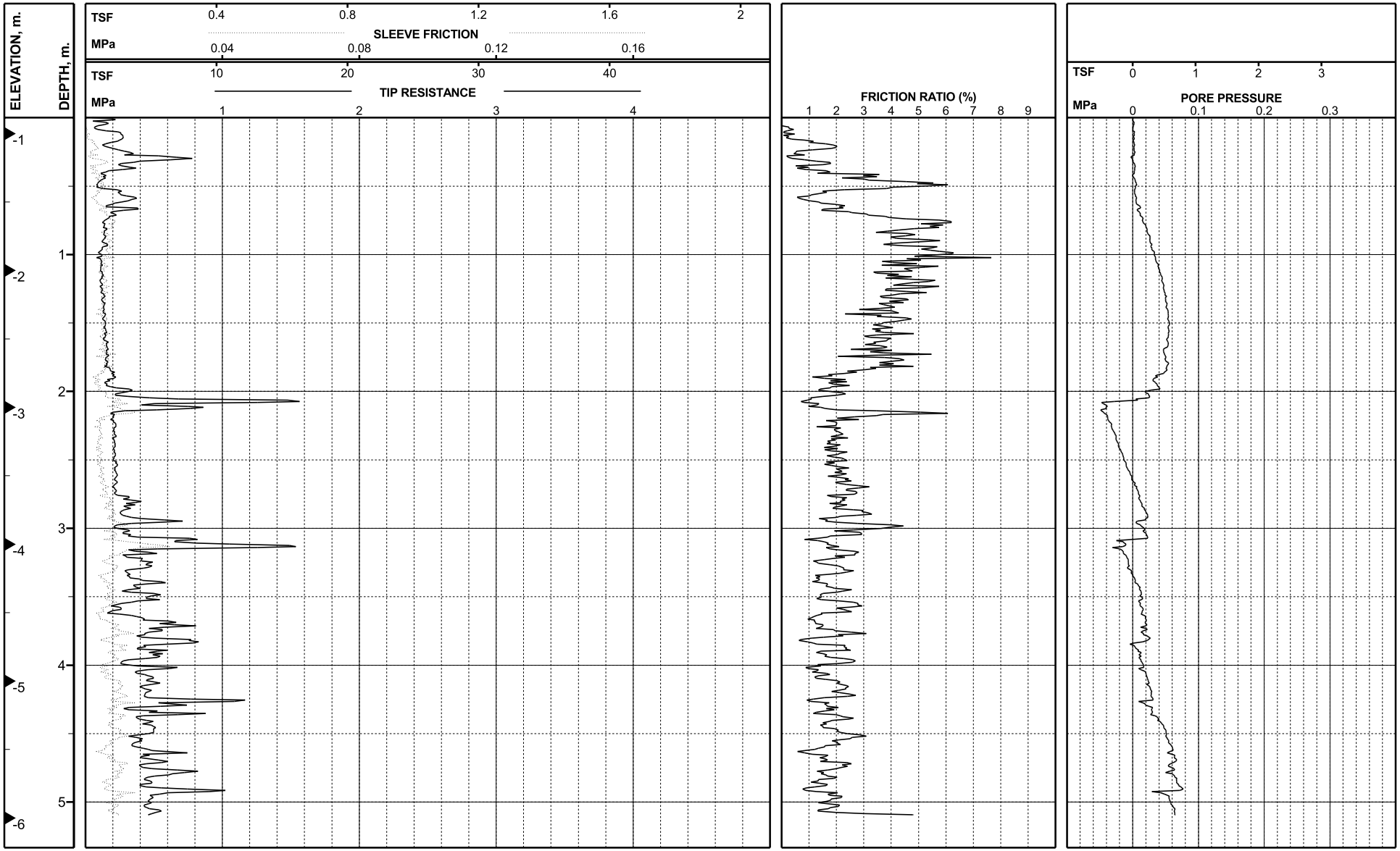
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-536

SFOBB East Span Seismic Safety Project

Report Date: 08/30/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1839362 N648389 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-537 (61m left of W. Sta. 89+08)	**MUDLINE ELEVATION:**	-0.9 m (MSL)	**TEST DATE:**	12/18/98



NOTE: SeaScout CPT uses 1 sq. cm cone

LOG OF CPT

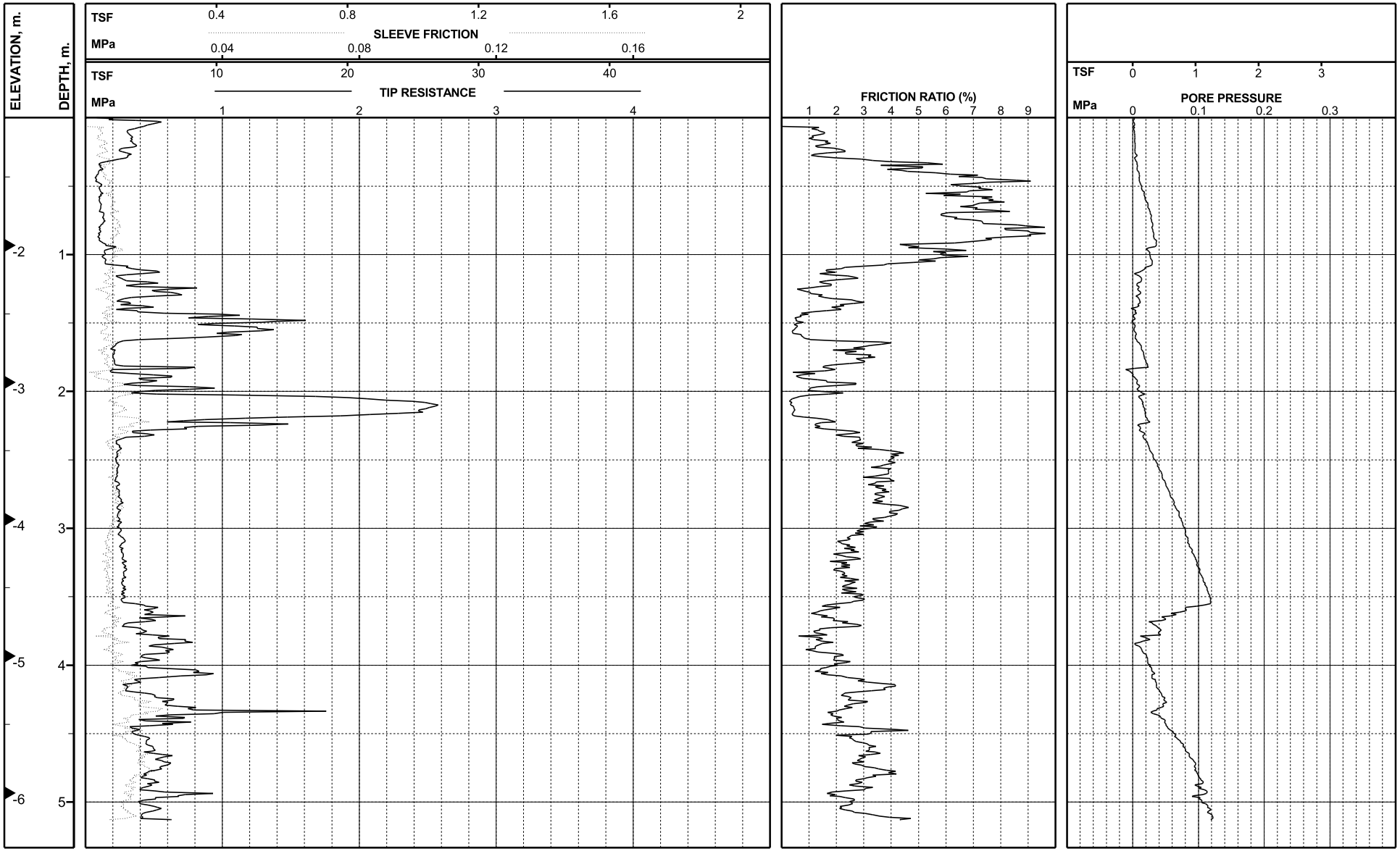
TETHERED SEASCOUT SOUNDING 98C-537

SFOBB East Span Seismic Safety Project

Report Date: 08/30/99

FUGRO

PROJECT NO:	98-42-0054	**COORDINATES:**	E1839369 N648362 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-538 (34m left of W. Sta. 89+13)	**MUDLINE ELEVATION:**	-1.1 m (MSL)	**TEST DATE:**	12/18/98



NOTE: SeaScout CPT uses 1 sq. cm cone

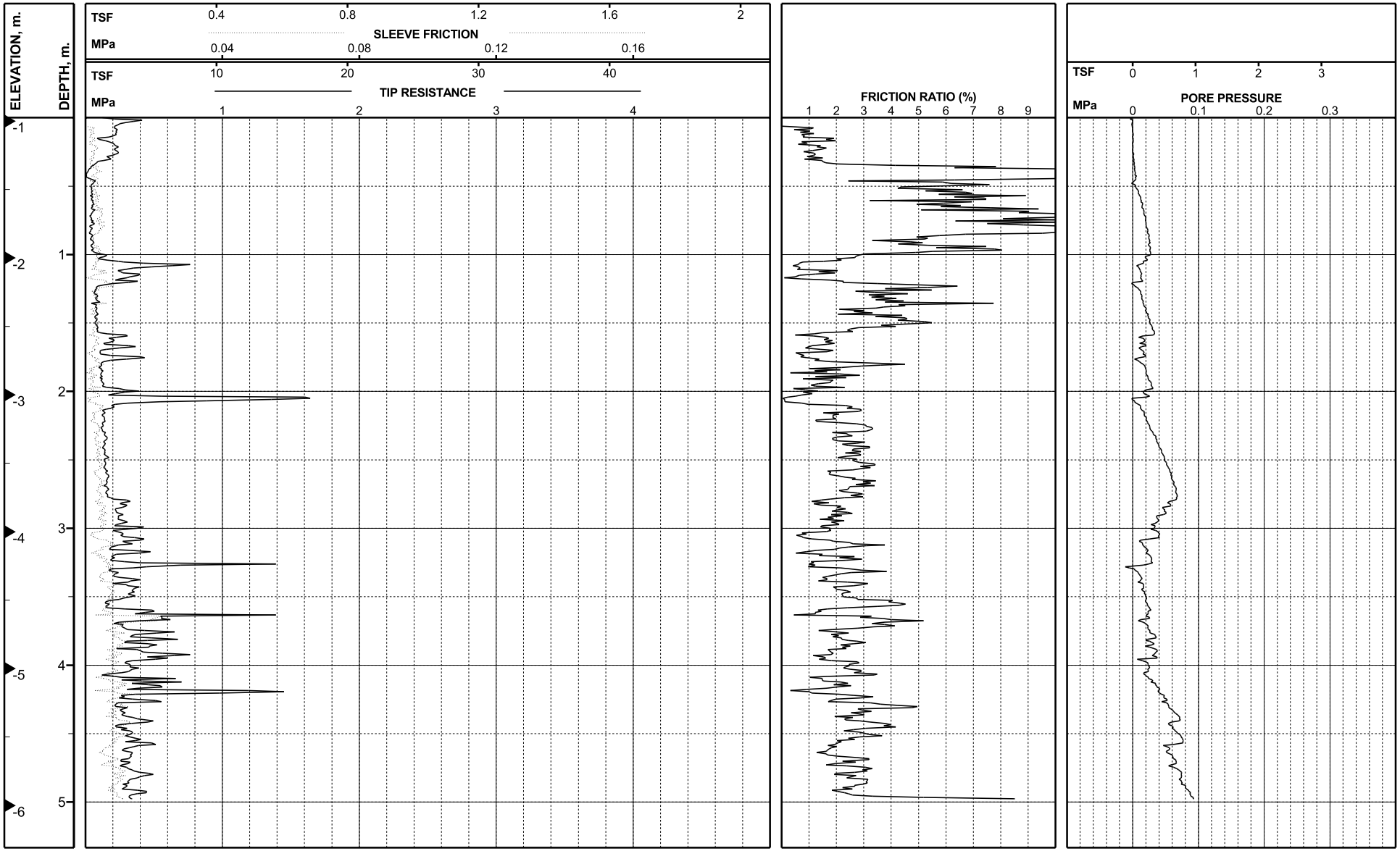
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-538

SFOBB East Span Seismic Safety Project

Report Date: 08/30/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1839426 N648394 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-540 (60m left of W. Sta. 89+73)	**MUDLINE ELEVATION:**	-1.0 m (MSL)	**TEST DATE:**	12/18/98



NOTE: SeaScout CPT uses 1 sq. cm cone

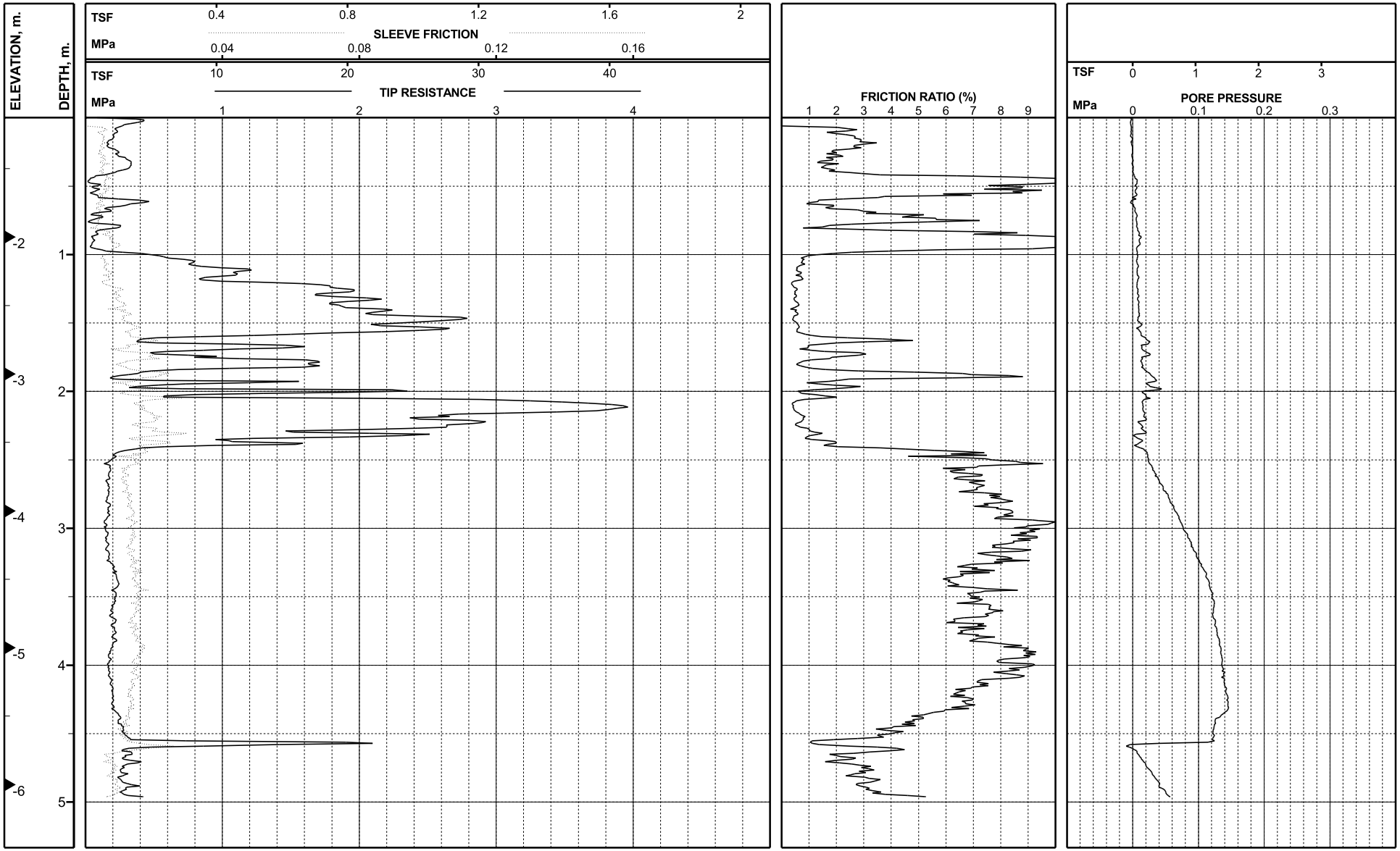
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-540

SFOBB East Span Seismic Safety Project

Report Date: 08/30/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1839432 N648368 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-541 (34m left of W. Sta.89+77)	**MUDLINE ELEVATION:**	-1.1 m (MSL)	**TEST DATE:**	12/18/98



NOTE: SeaScout CPT uses 1 sq. cm cone

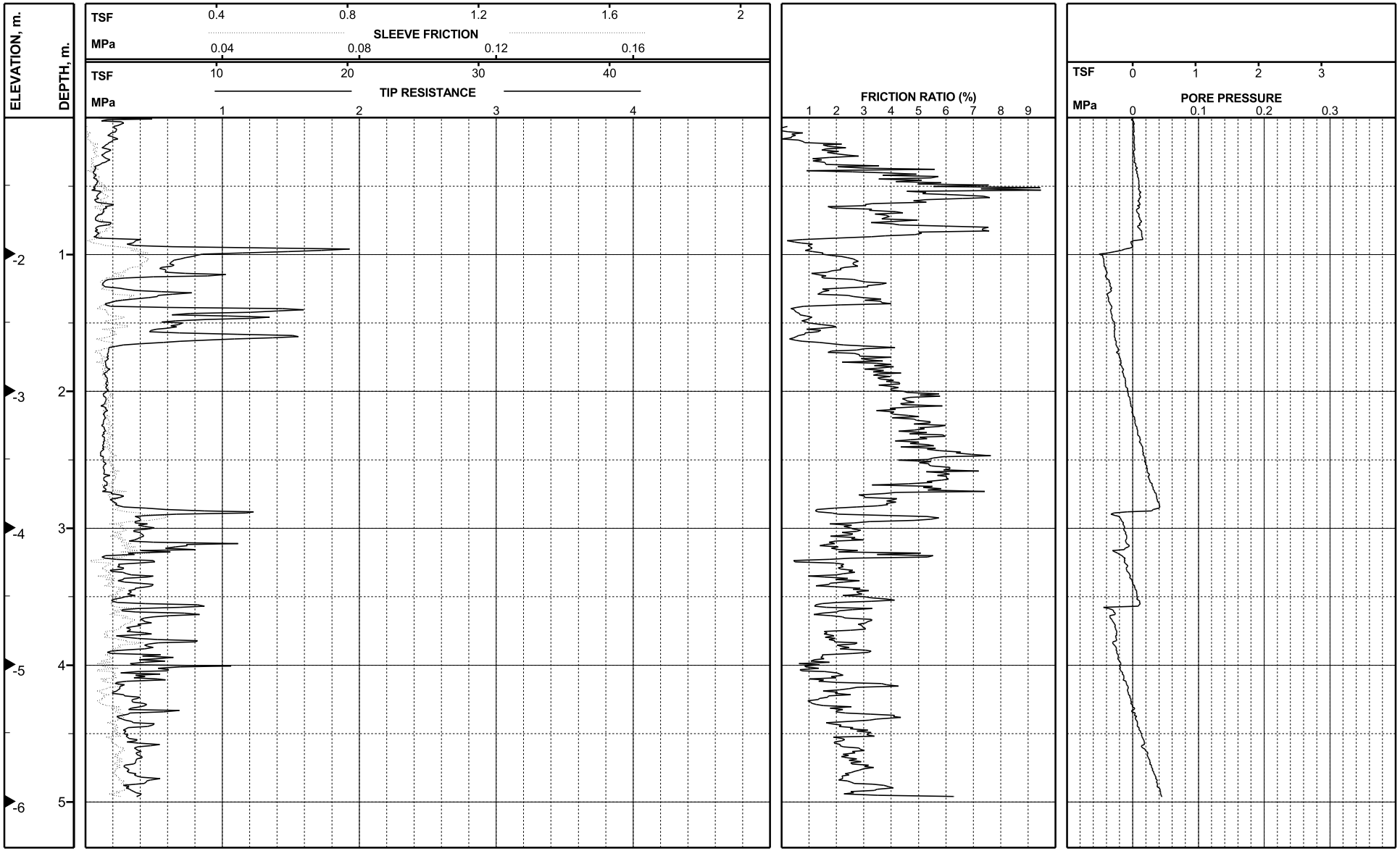
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-541

SFOBB East Span Seismic Safety Project

Report Date: 08/30/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1839479 N648401 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-543 (62m left of W. Sta. 90+30)	**MUDLINE ELEVATION:**	-1.0 m (MSL)	**TEST DATE:**	12/18/98



NOTE: SeaScout CPT uses 1 sq. cm cone

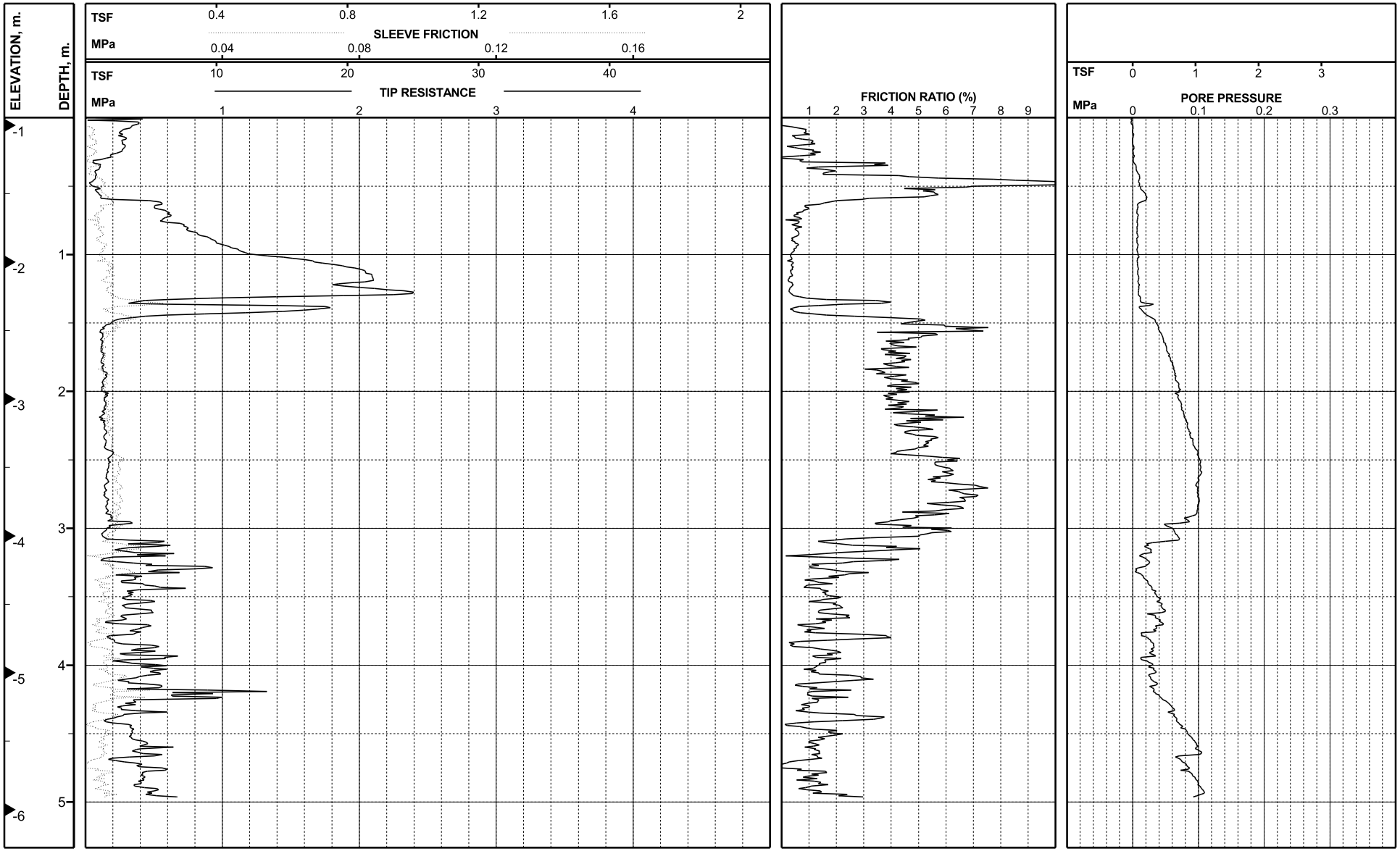
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-543

SFOBB East Span Seismic Safety Project

Report Date: 08/30/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1839475 N648382 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-544 (44m left of W. Sta. 90+24)	**MUDLINE ELEVATION:**	-0.9 m (MSL)	**TEST DATE:**	12/18/98



NOTE: SeaScout CPT uses 1 sq. cm cone

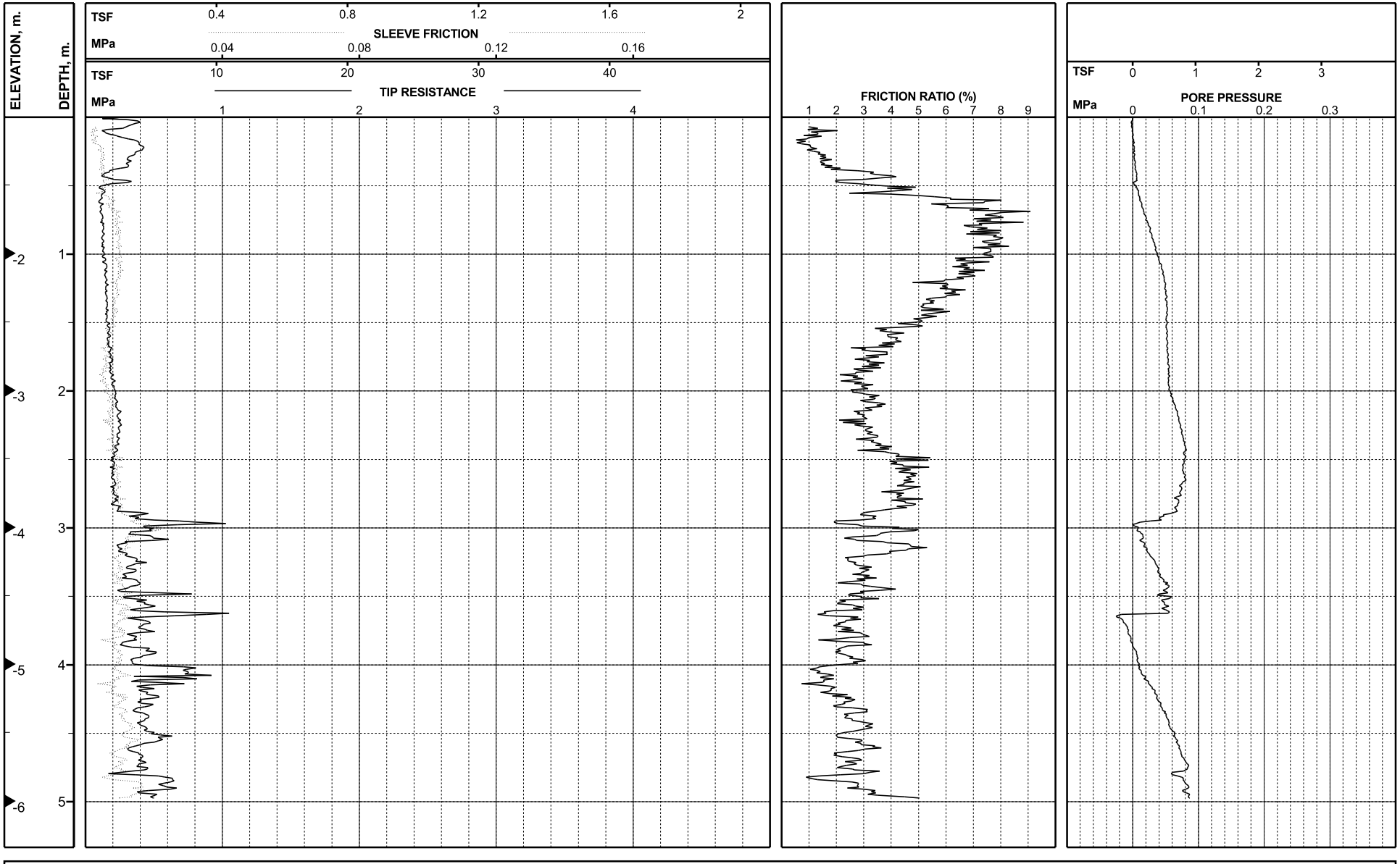
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-544

SFOBB East Span Seismic Safety Project

Report Date: 08/30/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1839535 N648410 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-546 (62m left of W. Sta. 90+89)	**MUDLINE ELEVATION:**	-1.0 m (MSL)	**TEST DATE:**	12/18/98



NOTE: SeaScout CPT uses 1 sq. cm cone

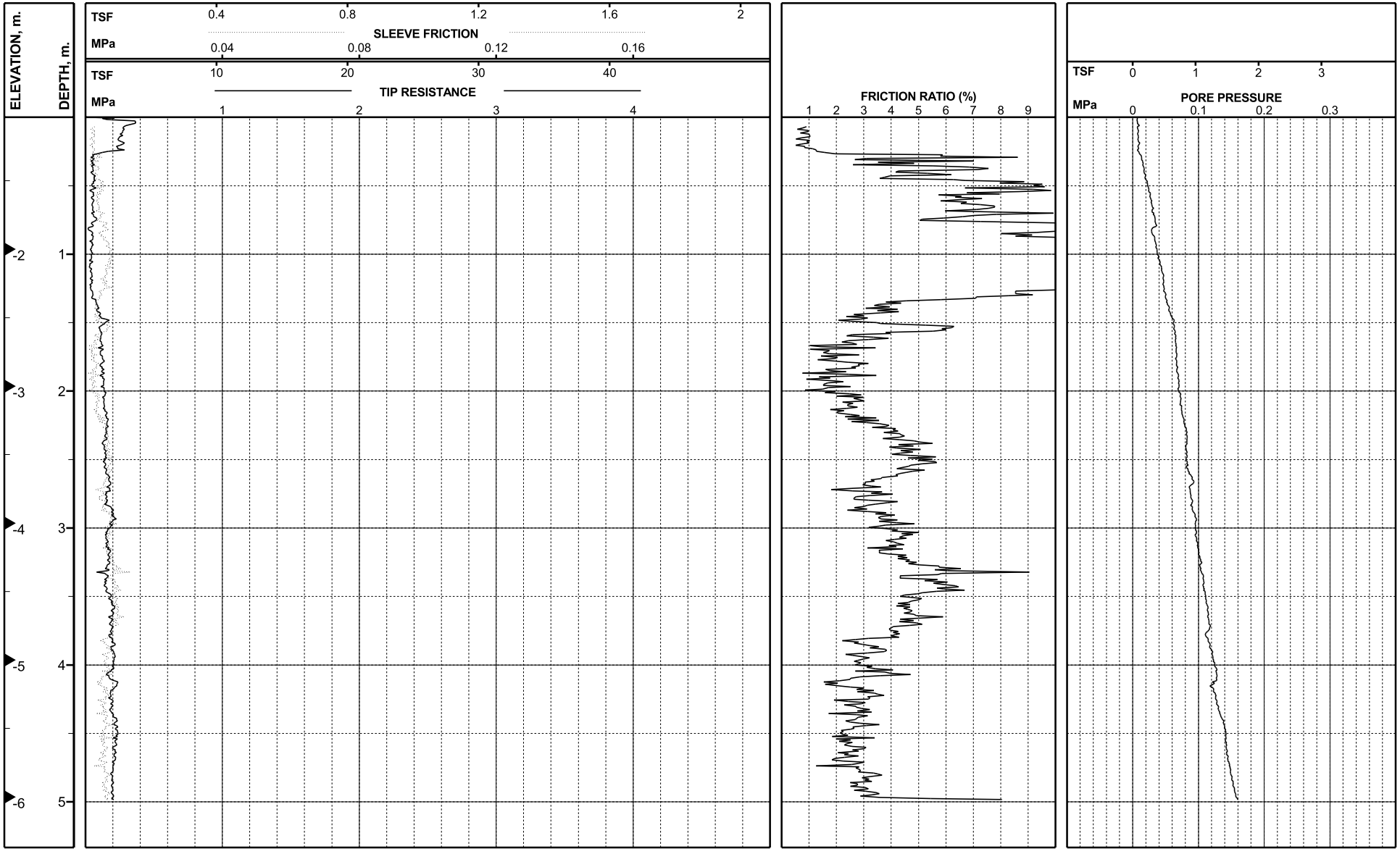
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-546

SFOBB East Span Seismic Safety Project

Report Date: 08/30/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1839540 N648389 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-547 (40m left of W. Sta. 90+91)	**MUDLINE ELEVATION:**	-1.0 m (MSL)	**TEST DATE:**	12/18/98



NOTE: SeaScout CPT uses 1 sq. cm cone

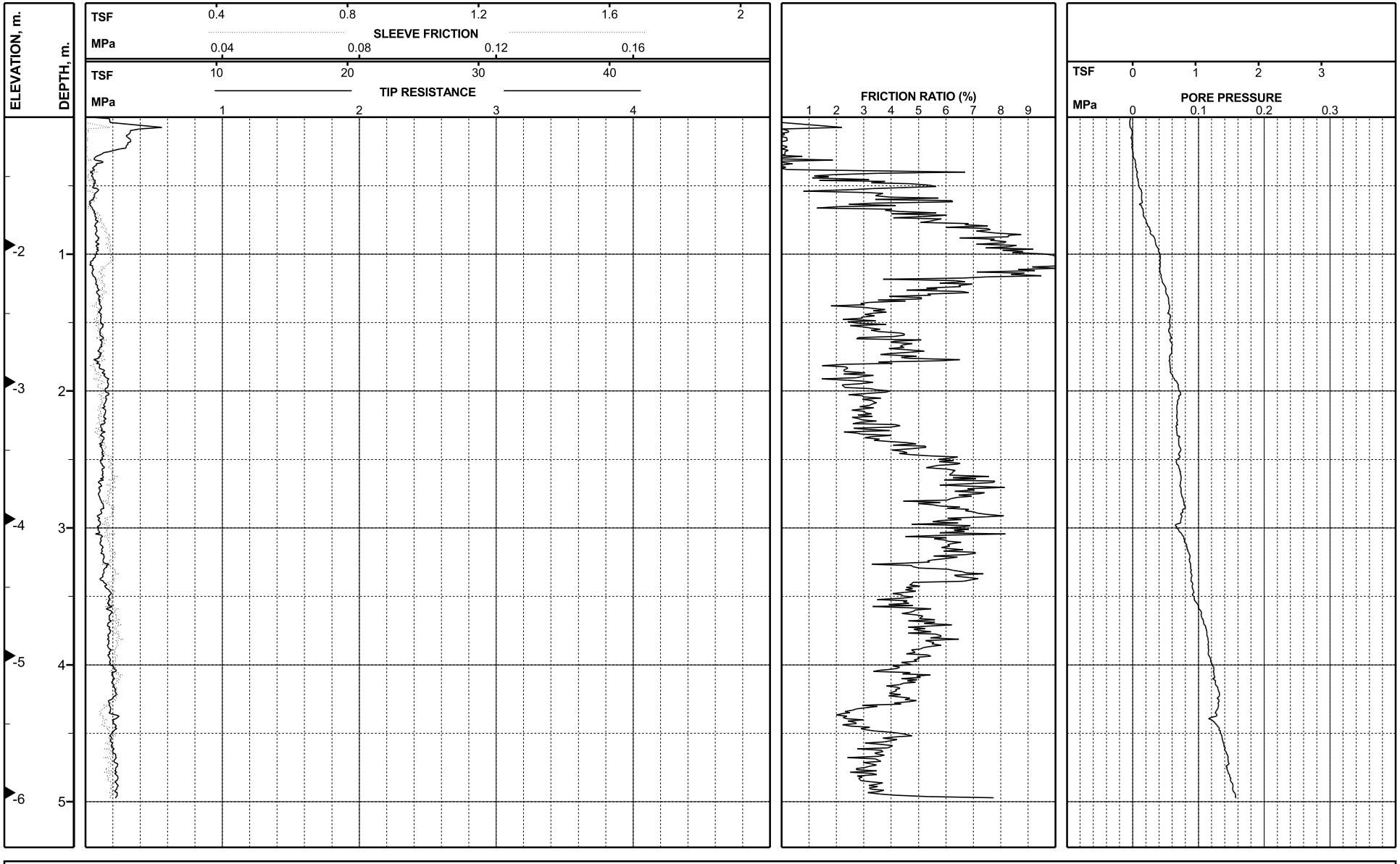
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-547

SFOBB East Span Seismic Safety Project

Report Date: 08/30/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1839537 N648384 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-548 (36m left of W. Sta. 90+86)	**MUDLINE ELEVATION:**	-1.1 m (MSL)	**TEST DATE:**	12/18/98



NOTE: SeaScout CPT uses 1 sq. cm cone

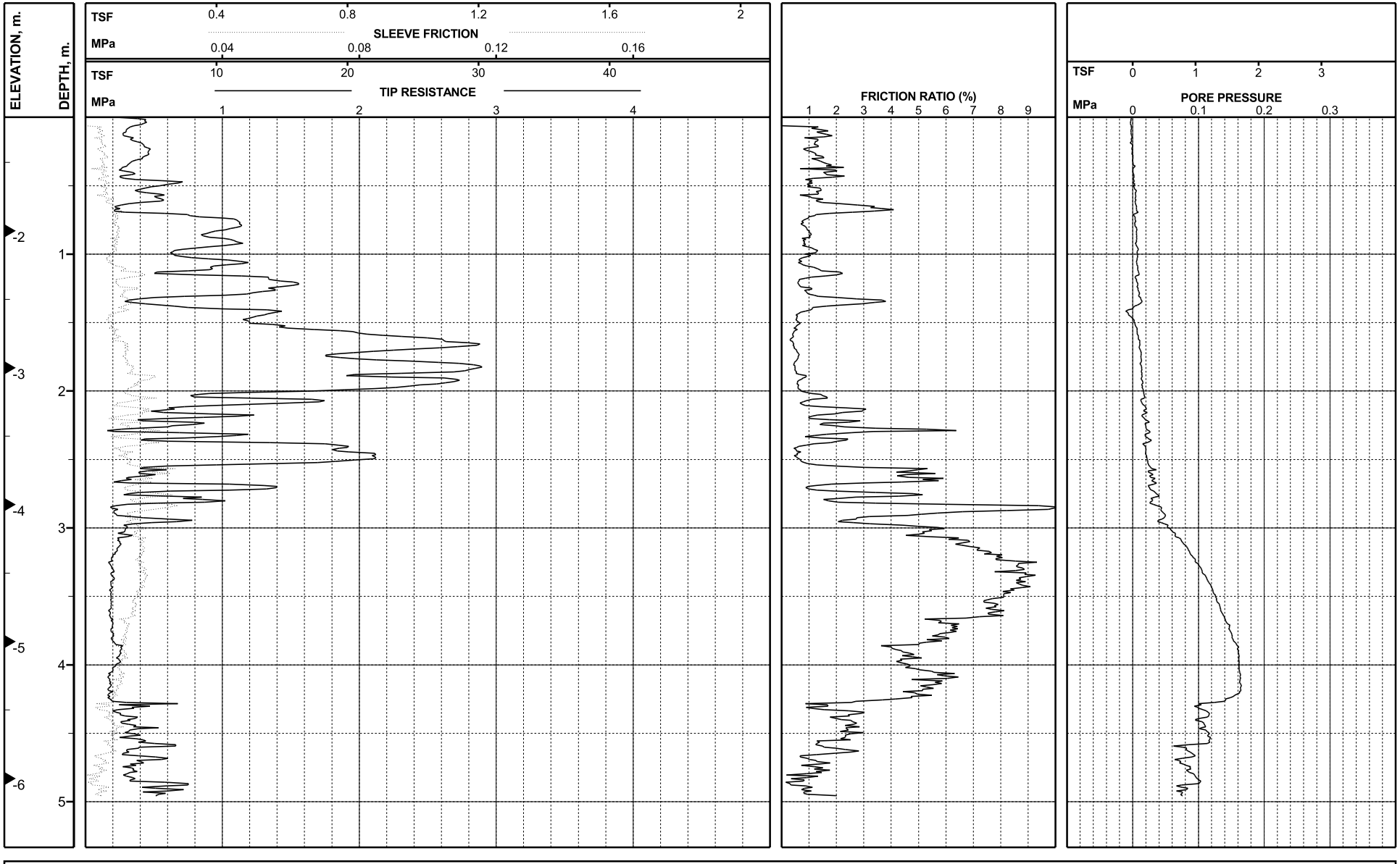
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-548

SFOBB East Span Seismic Safety Project

Report Date: 08/30/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1839604 N648404 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightening
EXPLORATION NO.:	98C-549 (42m left of W. Sta. 91+58)	**MUDLINE ELEVATION:**	-1.2 m (MSL)	**TEST DATE:**	12/18/98



NOTE: SeaScout CPT uses 1 sq. cm cone

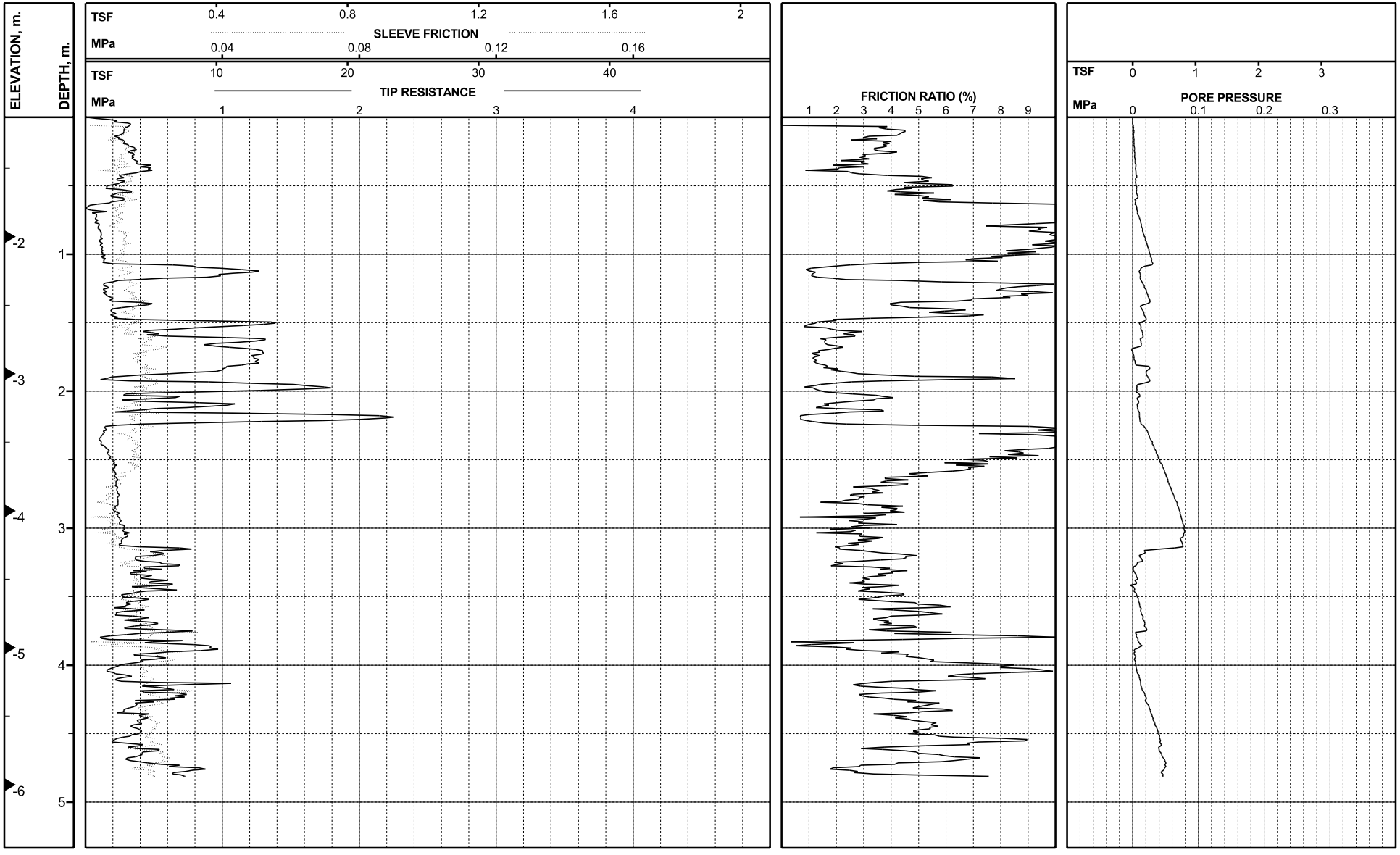
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-549

SFOBB East Span Seismic Safety Project

Report Date: 08/30/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1839586 N648410 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-550 (53m left of W. Sta. 91+41)	**MUDLINE ELEVATION:**	-1.1 m (MSL)	**TEST DATE:**	12/19/98



NOTE: SeaScout CPT uses 1 sq. cm cone

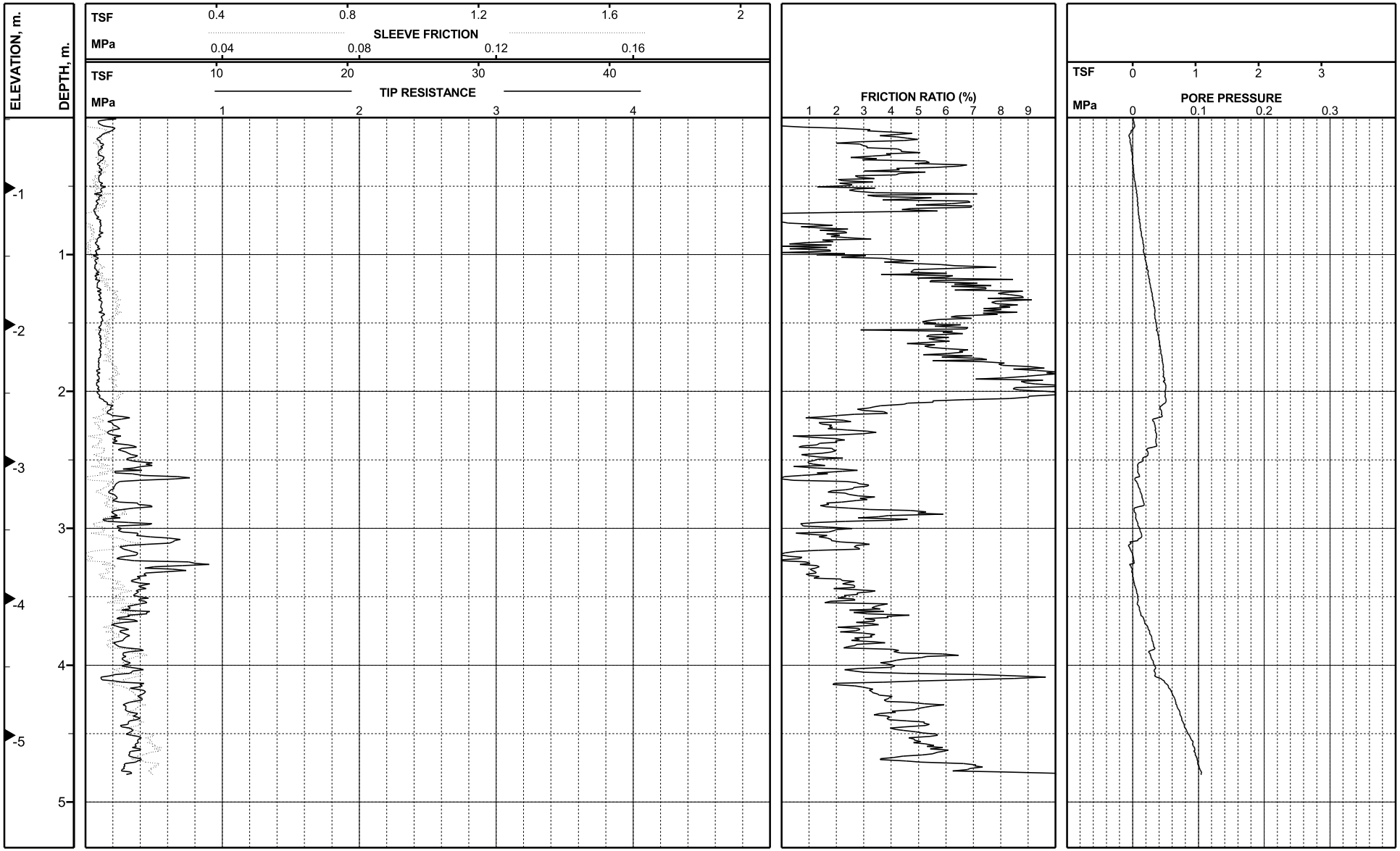
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-550

SFOBB East Span Seismic Safety Project

Report Date: 08/30/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1839467 N648449 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-552 (111m left of W. Sta. 90+24)	**MUDLINE ELEVATION:**	-0.5 m (MSL)	**TEST DATE:**	12/19/98



NOTE: SeaScout CPT uses 1 sq. cm cone

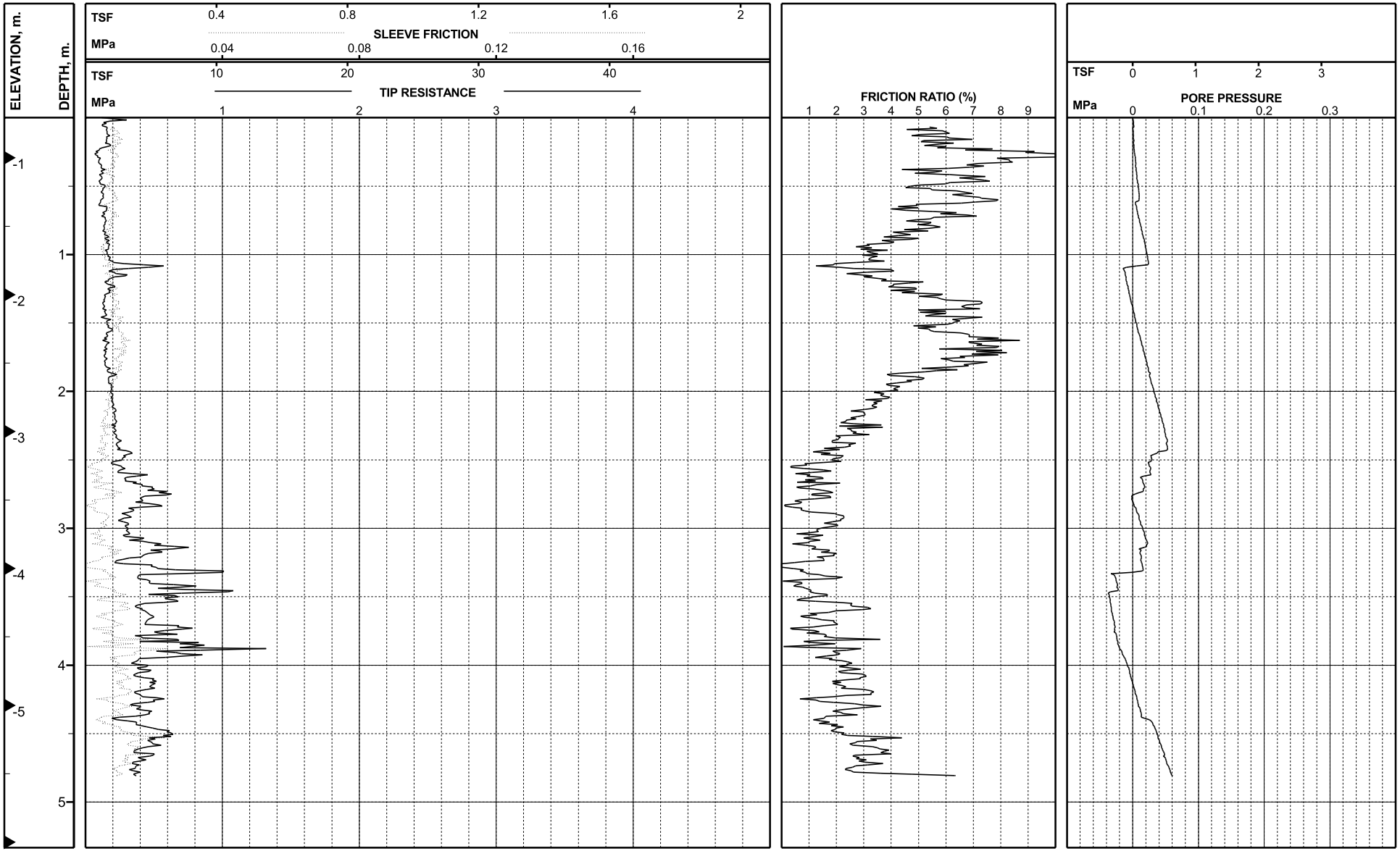
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-552

SFOBB East Span Seismic Safety Project

Report Date: 08/30/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1839429 N648414 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-553 (81m left of W. Sta. 89+78)	**MUDLINE ELEVATION:**	-0.7 m (MSL)	**TEST DATE:**	12/15/98



NOTE: SeaScout CPT uses 1 sq. cm cone

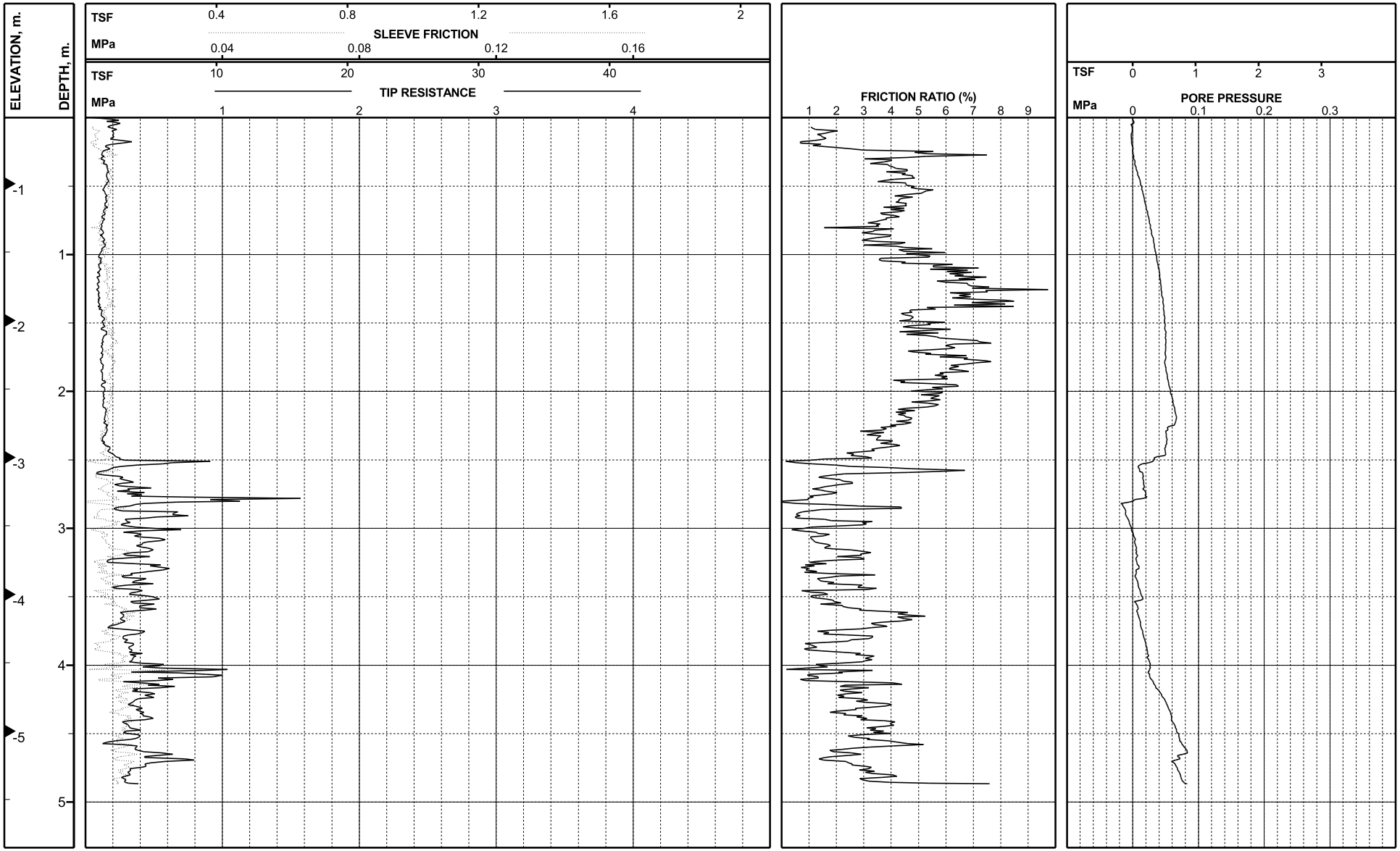
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-553

SFOBB East Span Seismic Safety Project

Report Date: 08/30/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1839362 N648440 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-554 (112m left of W. Sta. 89+12)	**MUDLINE ELEVATION:**	-0.5 m (MSL)	**TEST DATE:**	12/19/98



NOTE: SeaScout CPT uses 1 sq. cm cone

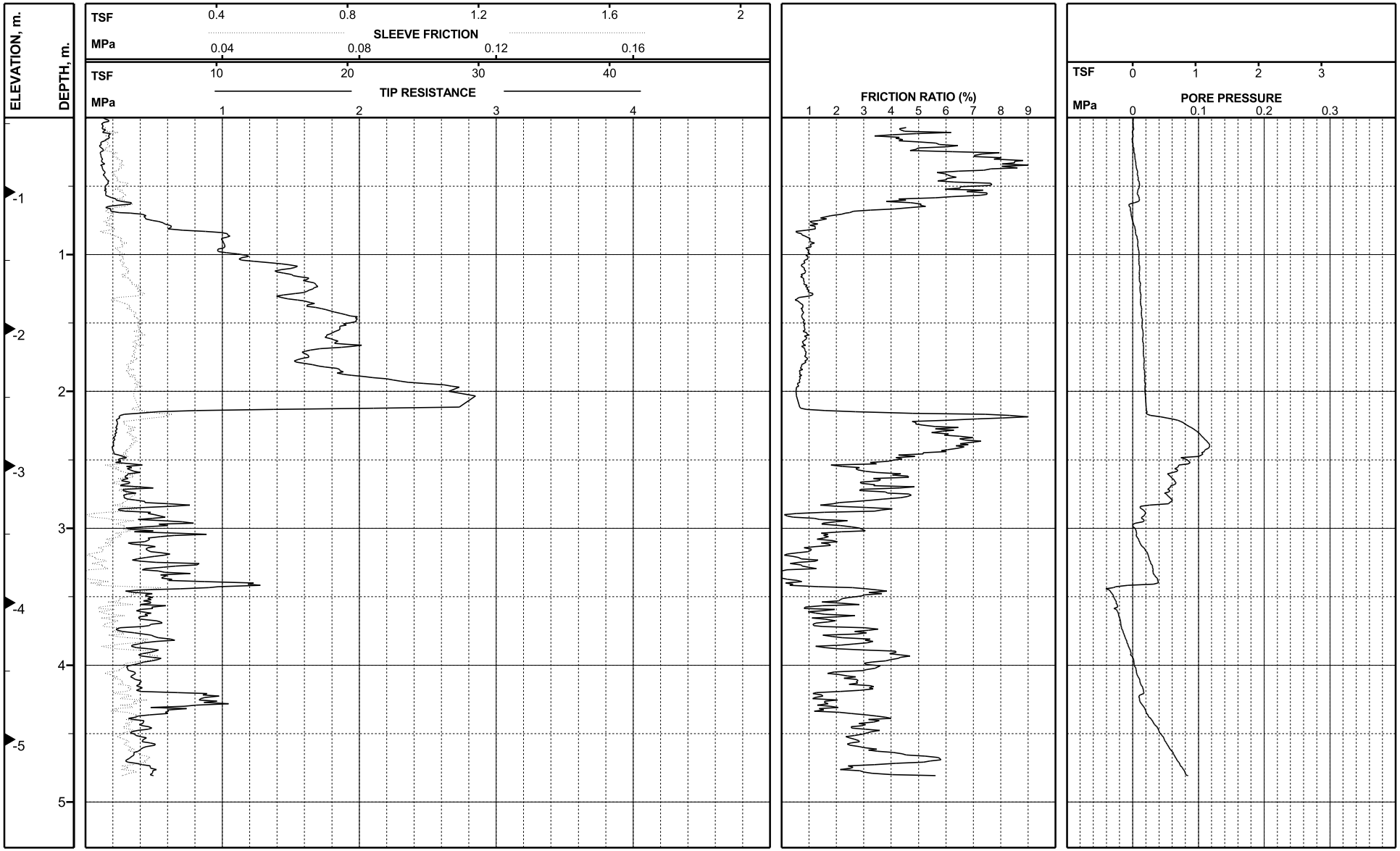
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-554

SFOBB East Span Seismic Safety Project

Report Date: 08/30/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1839323 N648435 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-555 (109m left of W. Sta. 88+74)	**MUDLINE ELEVATION:**	-0.5 m (MSL)	**TEST DATE:**	12/19/98



NOTE: SeaScout CPT uses 1 sq. cm cone

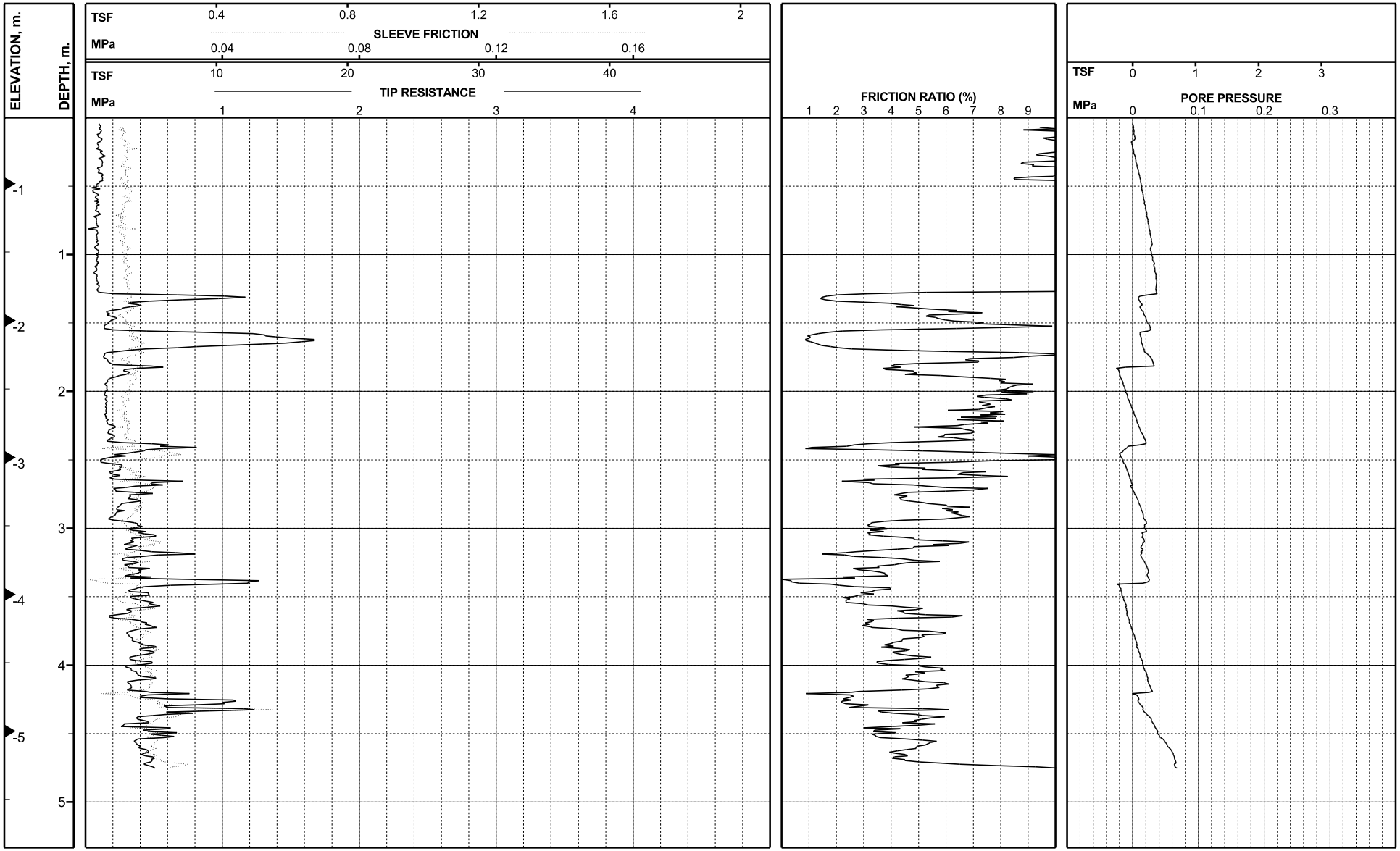
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-555

SFOBB East Span Seismic Safety Project

Report Date: 08/30/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1839239 N648439 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-556 (120m left of W. Sta. 87+89)	**MUDLINE ELEVATION:**	-0.5 m (MSL)	**TEST DATE:**	12/19/98



NOTE: SeaScout CPT uses 1 sq. cm cone

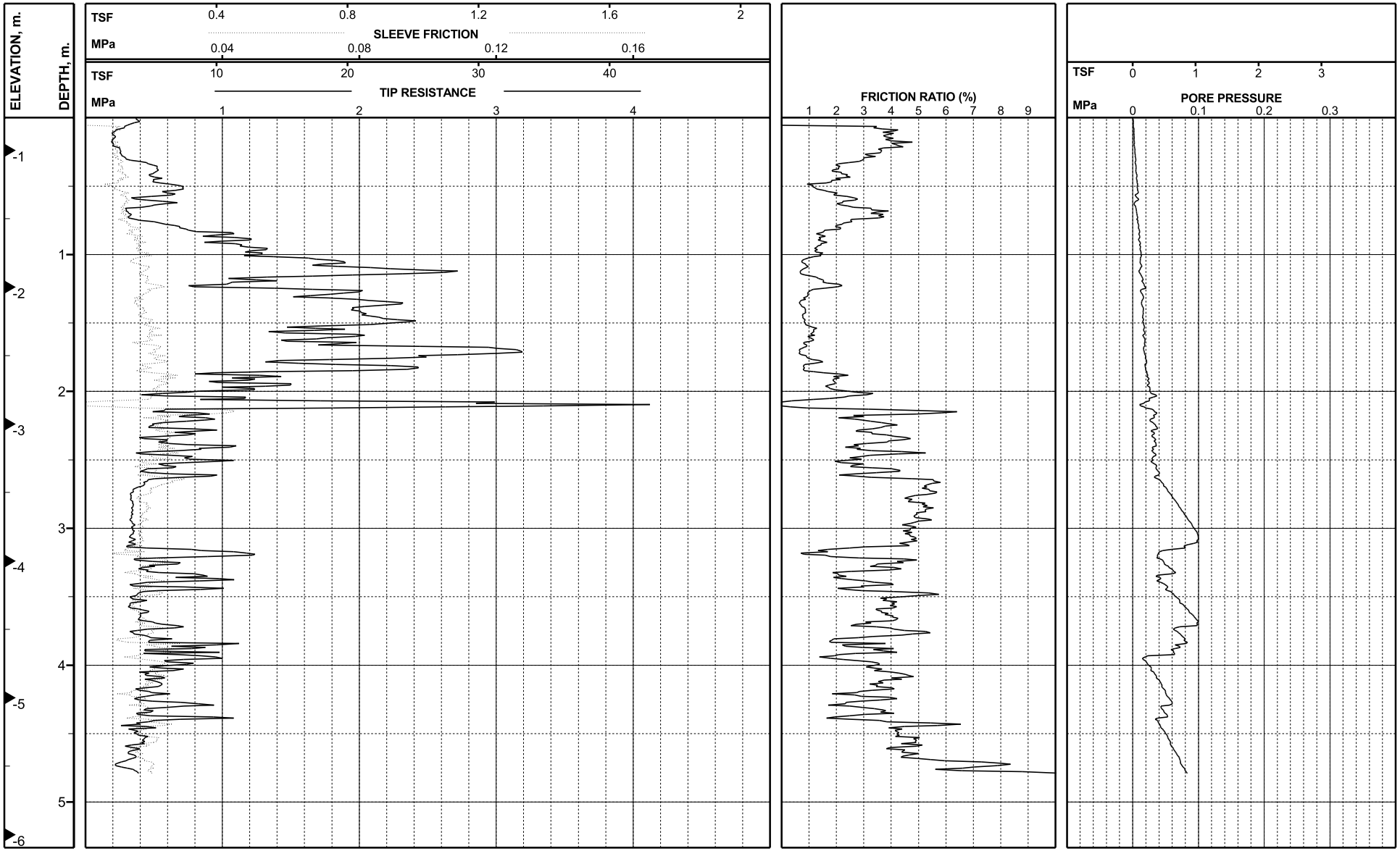
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-556

SFOBB East Span Seismic Safety Project

Report Date: 08/30/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1839154 N648421 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-557 (109m left of W. Sta. 87+04)	**MUDLINE ELEVATION:**	-0.8 m (MSL)	**TEST DATE:**	12/19/98



NOTE: SeaScout CPT uses 1 sq. cm cone

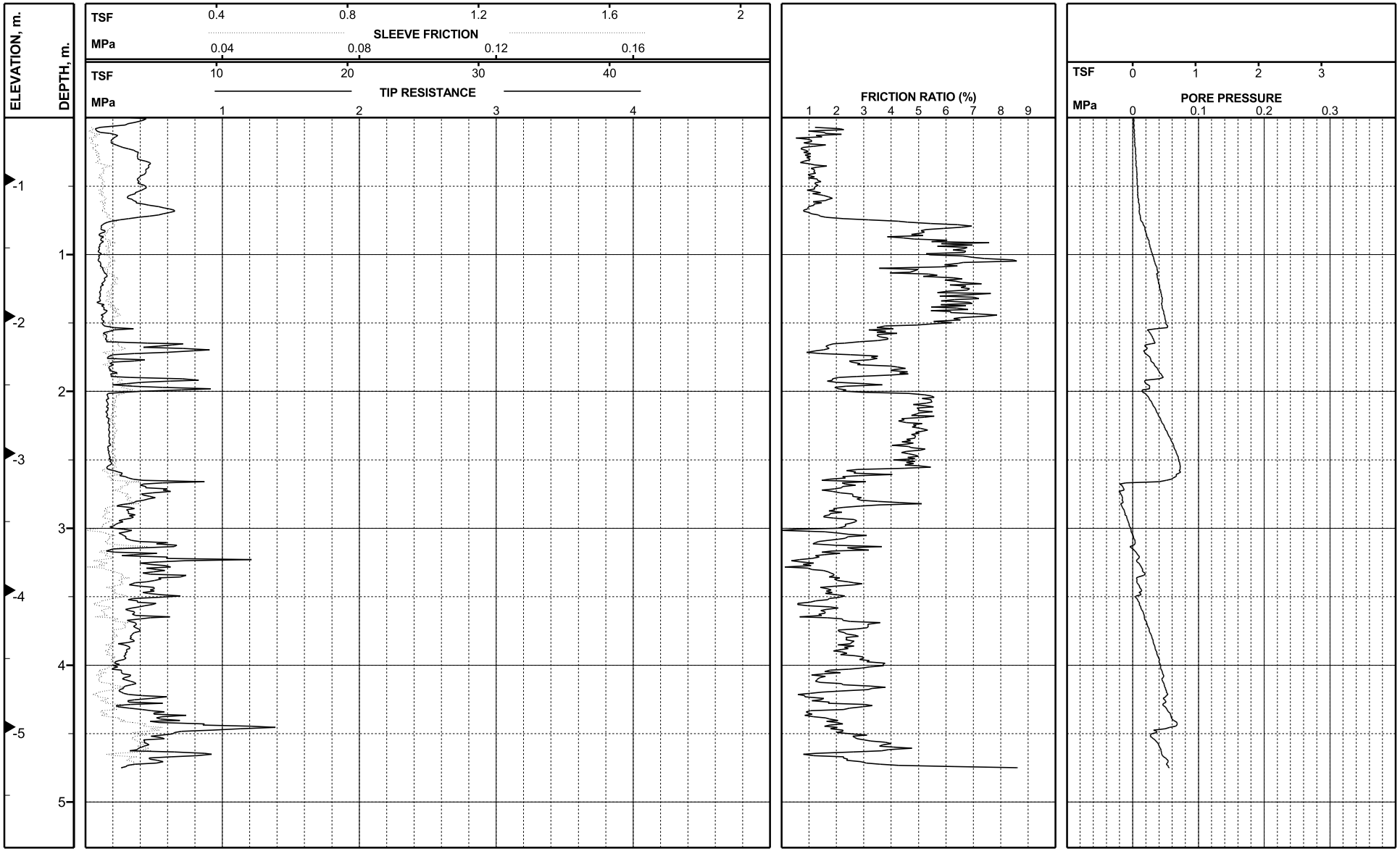
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-557

SFOBB East Span Seismic Safety Project

Report Date: 08/30/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1838910 N648317 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-558 (26m left of W. Sta. 84+53)	**MUDLINE ELEVATION:**	-0.5 m (MSL)	**TEST DATE:**	12/19/98



NOTE: SeaScout CPT uses 1 sq. cm cone

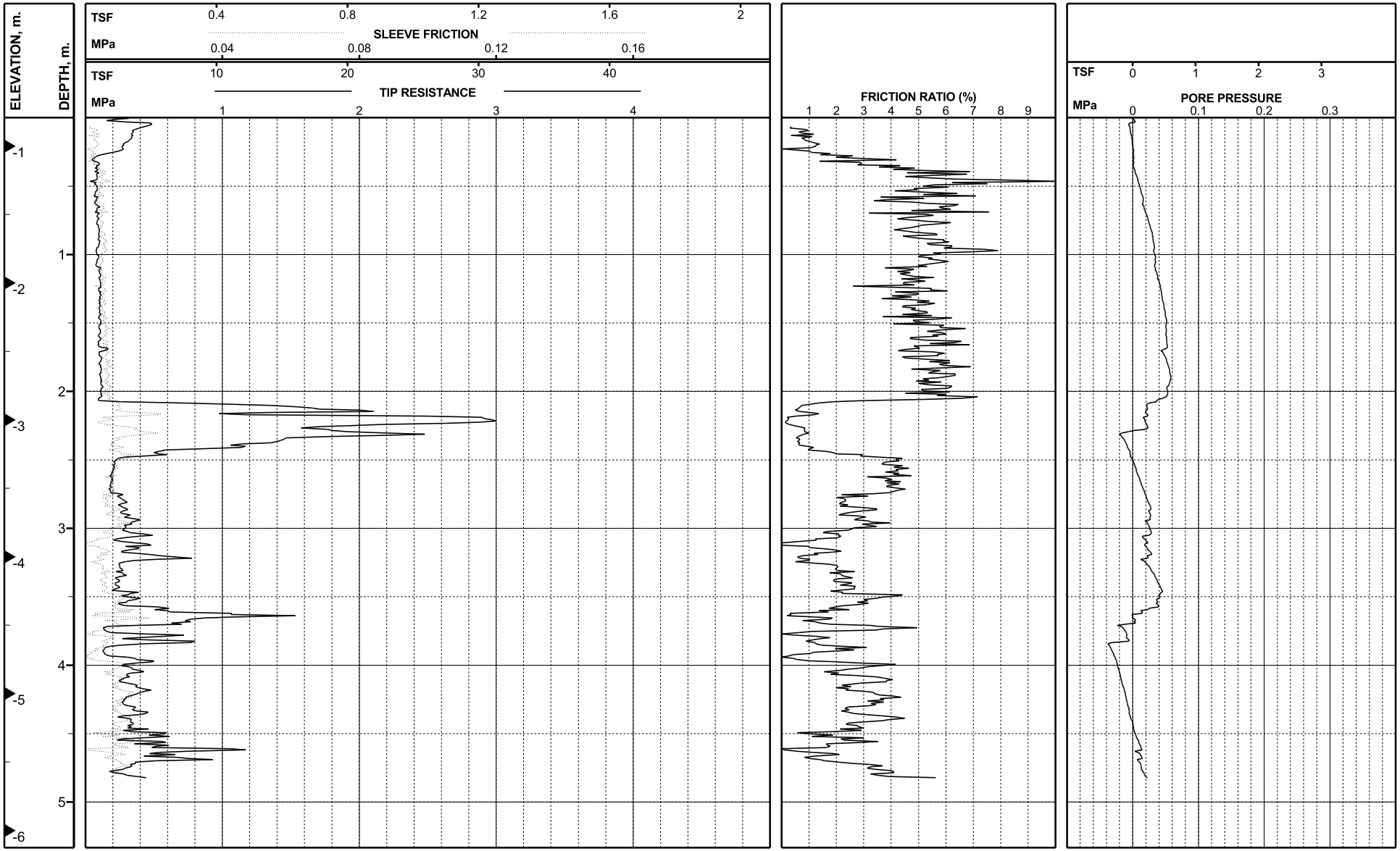
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-558

SFOBB East Span Seismic Safety Project

Report Date: 08/30/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1839213 N648355 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-559 (38m left of W. Sta.87+58)	**MUDLINE ELEVATION:**	-0.8 m (MSL)	**TEST DATE:**	12/19/98



NOTE: SeaScout CPT uses 1 sq. cm cone

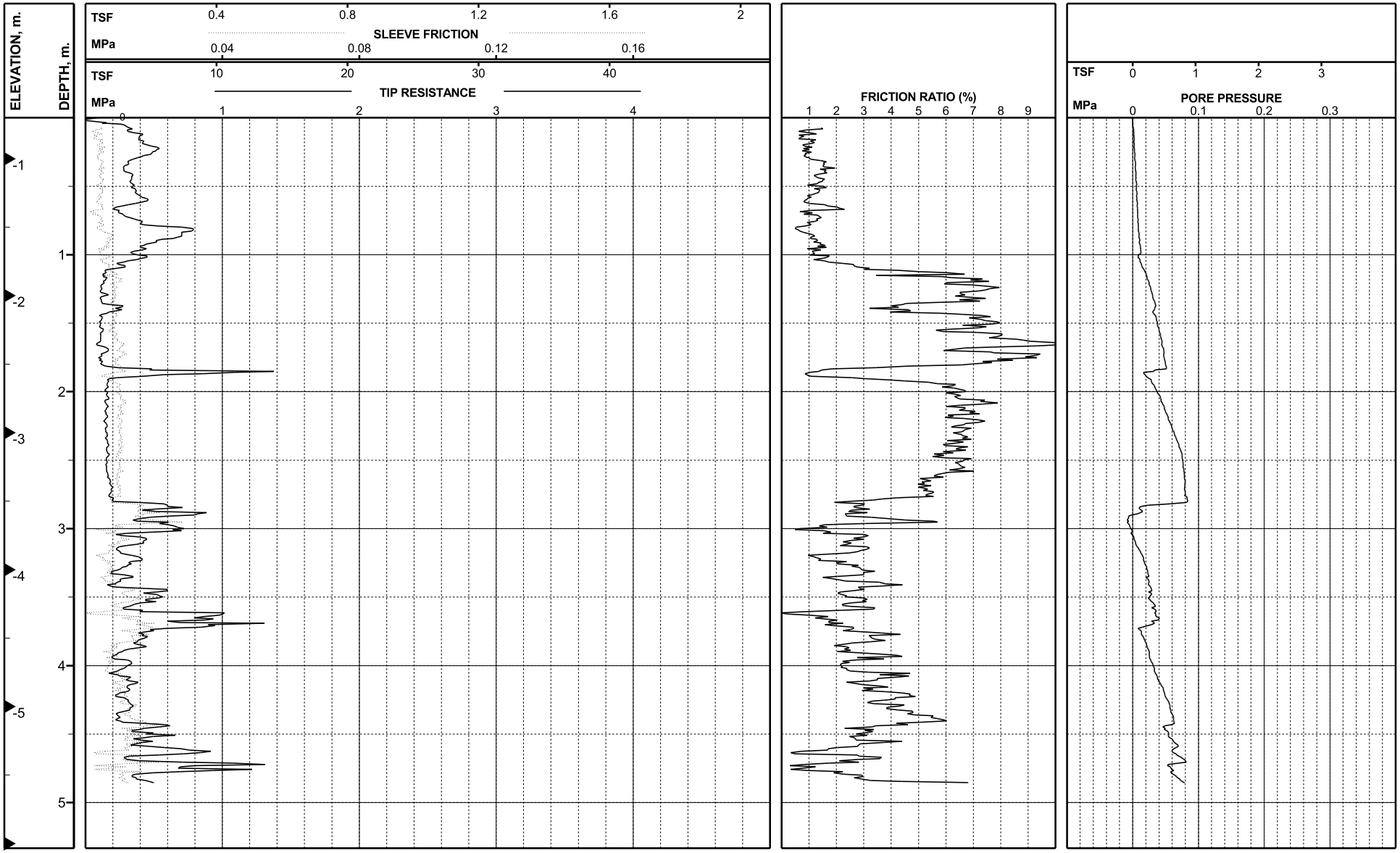
LOG OF CPT

TETHERED SEASCOUT SOUNDING 98C-559

SFOBB East Span Seismic Safety Project

Report Date: 08/30/99

PROJECT NO:	98-42-0054	**COORDINATES:**	E1838911 N648341 CA State Plane Zone 3, NAD83, Meters	**VESSEL:**	MV White Lightning
EXPLORATION NO.:	98C-560 (50m left of W. Sta. 84+57)	**MUDLINE ELEVATION:**	-0.7 m (MSL)	**TEST DATE:**	12/19/98



NOTE: SeaScout CPT uses 1 sq. cm cone

LOG OF CPT

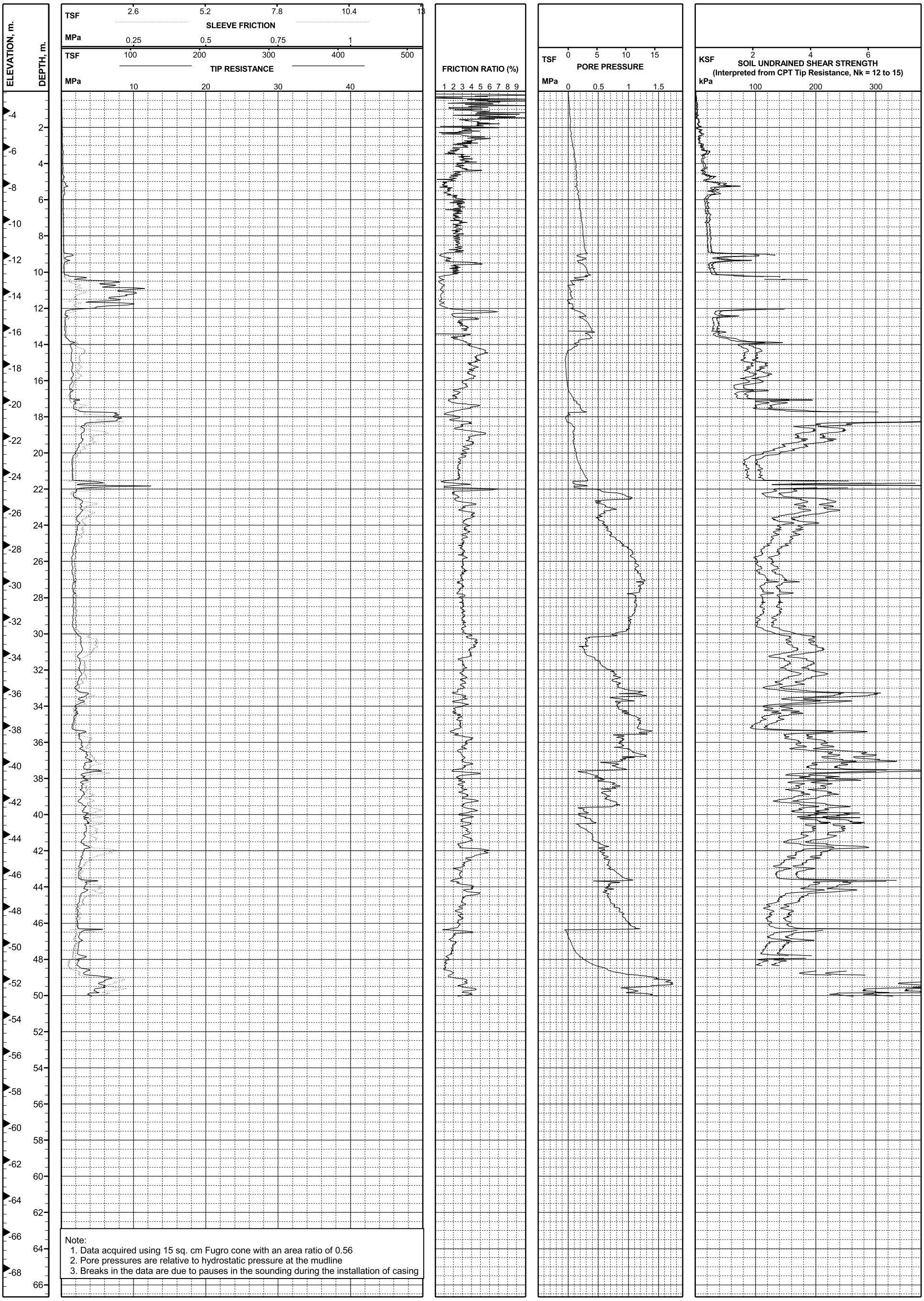
TETHERED SEASCOUT SOUNDING 98C-560

SFOBB East Span Seismic Safety Project

Report Date: 08/30/99

APPENDIX C
MARINE-BASED SEACALF CPT DATA

PROJECT NO:	98-42-0059	**COORDINATES:**	E1838758 N648273 CA State Plane Zone 3, NAD83, meters	**OPERATOR:**	Fugro-McClelland Marine Geosciences
SOUNDING:	00C-64 (1 m Left of "W" Stn. 83+00)	**MUDLINE ELEVATION:**	-2.9 m (MSL)	**TEST DATE:**	09/24/00



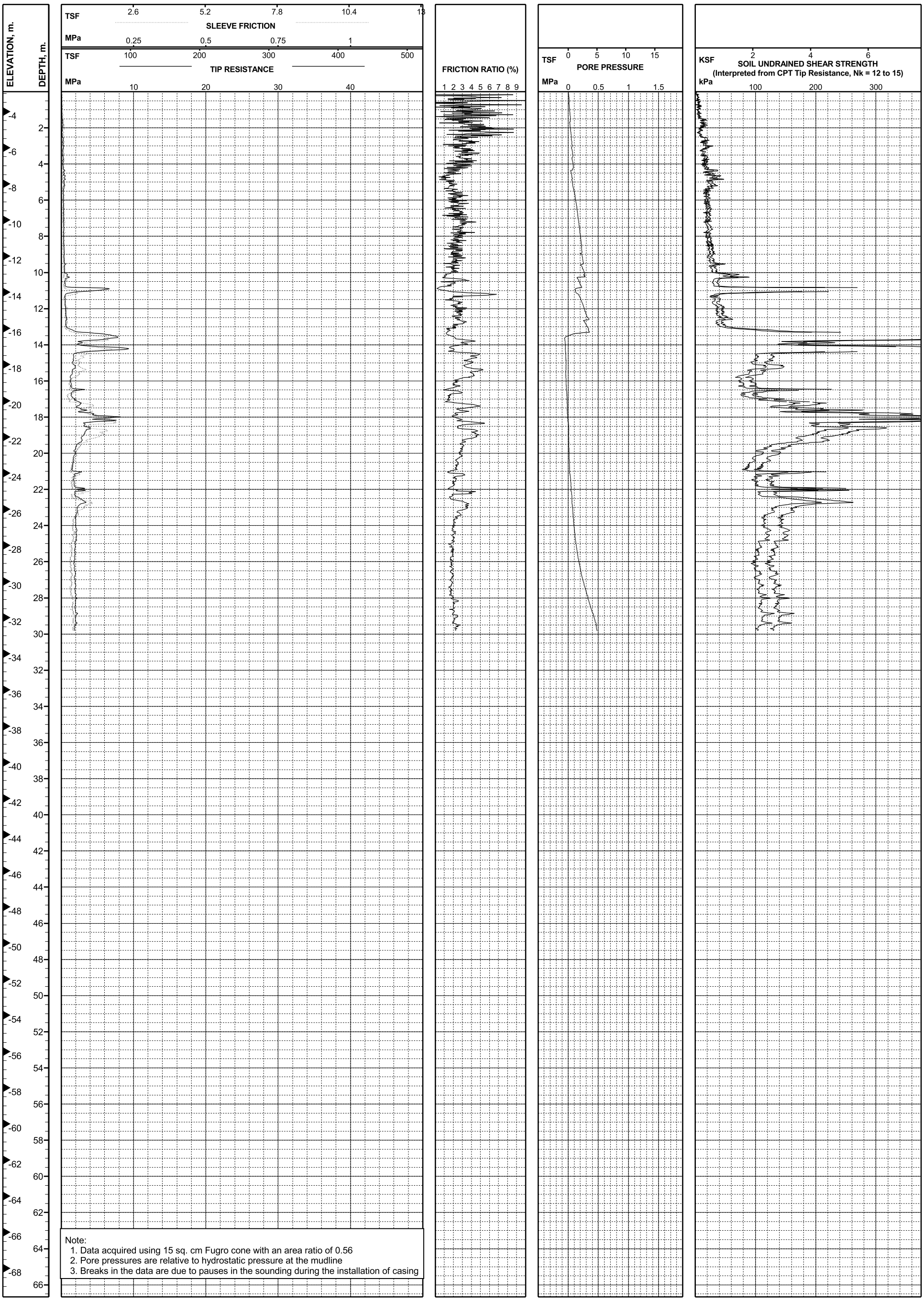
Note:
1. Data acquired using 15 sq. cm Fugro cone with an area ratio of 0.56
2. Pore pressures are relative to hydrostatic pressure at the mudline
3. Breaks in the data are due to pauses in the sounding during the installation of casing

LOG OF CPT
SOUNDING 00C-64
SFOBB East Span Seismic Safety Project

Report Date: 02/07/01

PLATE 00C-64

PROJECT NO:	98-42-0059	**COORDINATES:**	E1838765 N648233 CA State Plane Zone 3, NAD83, meters	**OPERATOR:**	Fugro-McClelland Marine Geosciences
SOUNDING:	00C-65 (1 m Right of "E" Stn. 82+79)	**MUDLINE ELEVATION:**	-2.9 m (MSL)	**TEST DATE:**	09/26/00



Note:
1. Data acquired using 15 sq. cm Fugro cone with an area ratio of 0.56
2. Pore pressures are relative to hydrostatic pressure at the mudline
3. Breaks in the data are due to pauses in the sounding during the installation of casing

LOG OF CPT

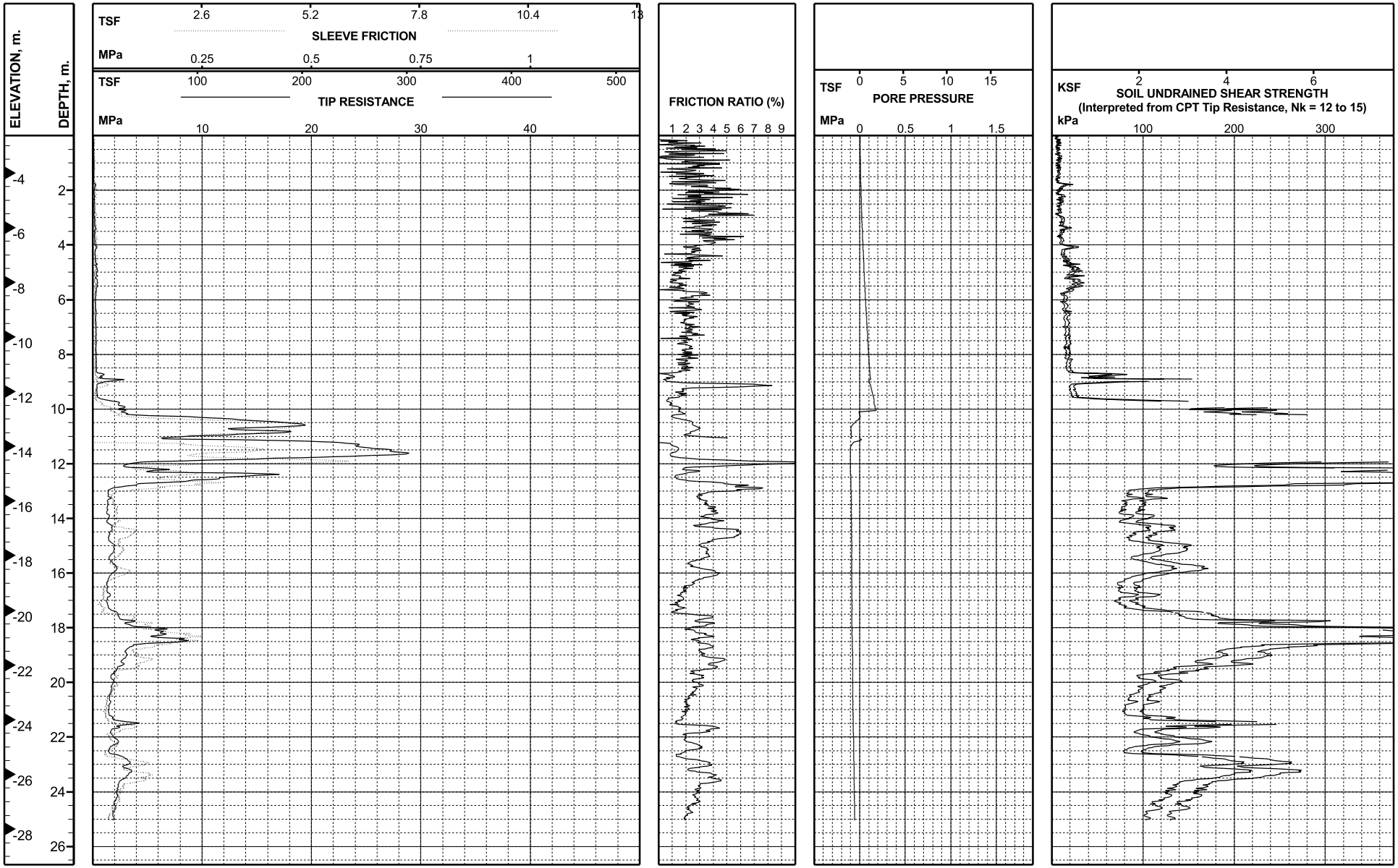
SOUNDING 00C-65

SFOBB East Span Seismic Safety Project

Report Date: 02/07/01

PLATE 00C-65

PROJECT NO:	98-42-0059	**COORDINATES:**	E1838780 N648262 CA State Plane Zone 3, NAD83, meters	**OPERATOR:**	Fugro-McClelland Marine Geosciences
SOUNDING:	00C-66 (13 m Right of "W" Stn. 83+20)	**MUDLINE ELEVATION:**	-2.6 m (MSL)	**TEST DATE:**	09/25/00



Note:
1. Data acquired using 15 sq. cm Fugro cone with an area ratio of 0.56
2. Pore pressures are relative to hydrostatic pressure at the mudline
3. Breaks in the data are due to pauses in the sounding during the installation of casing

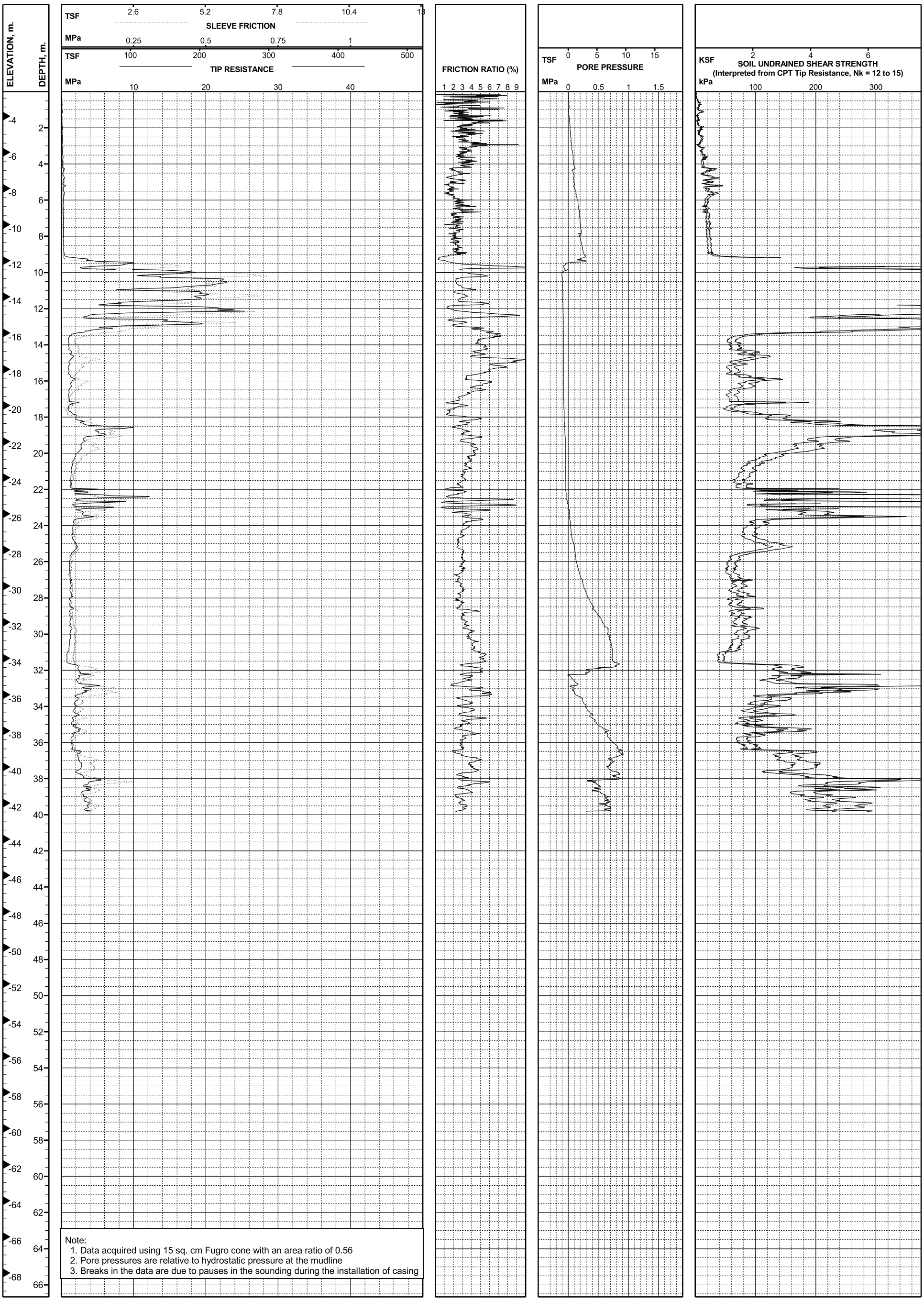
Report Date: 02/08/01

LOG OF CPT
SOUNDING 00C-66
SFOBB East Span Seismic Safety Project

FUGRO

PLATE 00C-66

PROJECT NO: 98-42-0059
SOUNDING: 00C-67 (4 m Right of "E" Stn. 83+00)
COORDINATES: E1838787 N648232 CA State Plane Zone 3, NAD83, meters
MUDLINE ELEVATION: -2.6 m (MSL)
OPERATOR: Fugro-McClelland Marine Geosciences
TEST DATE: 09/25/00



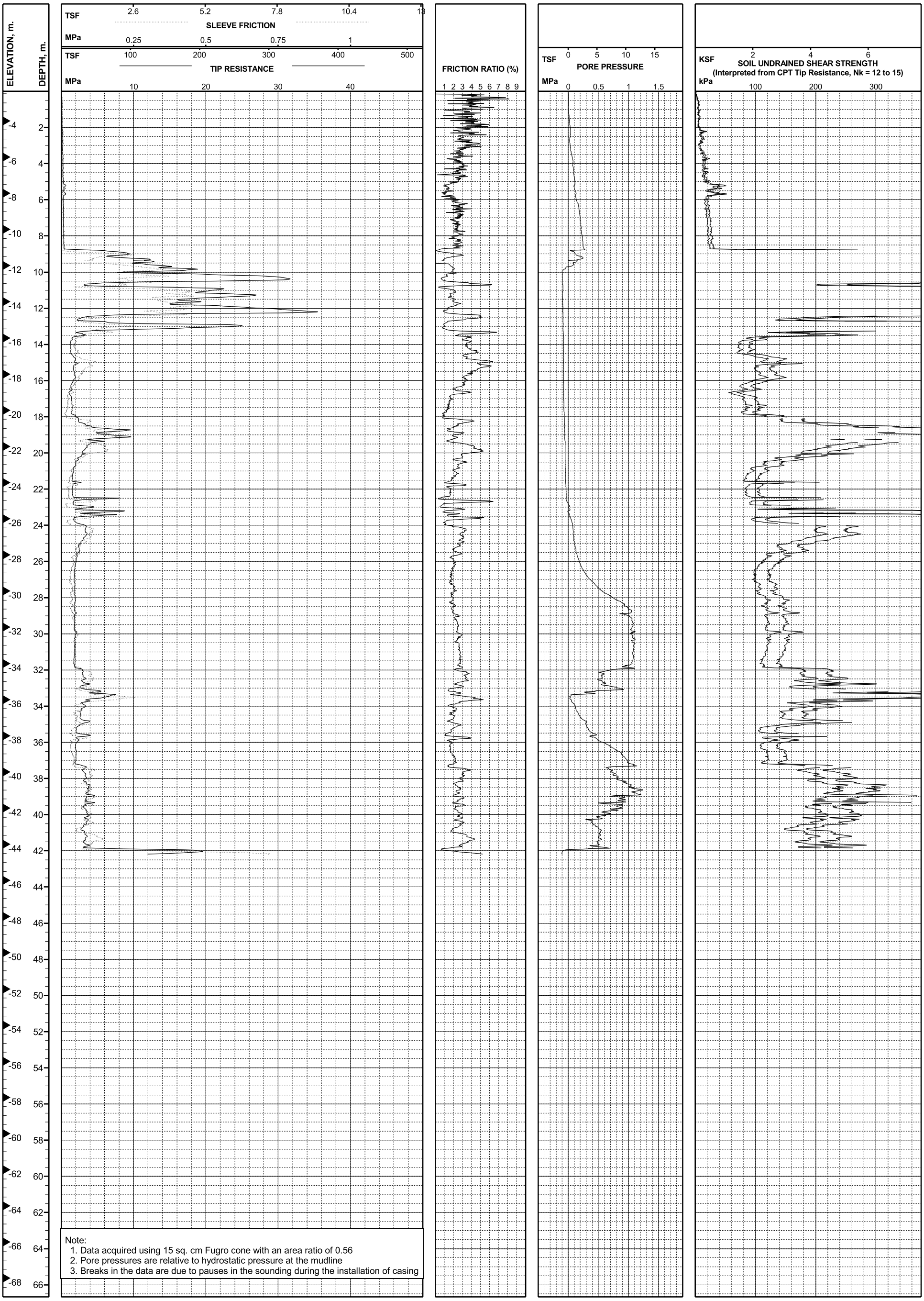
Note:
1. Data acquired using 15 sq. cm Fugro cone with an area ratio of 0.56
2. Pore pressures are relative to hydrostatic pressure at the mudline
3. Breaks in the data are due to pauses in the sounding during the installation of casing

LOG OF CPT
SOUNDING 00C-67
SFOBB East Span Seismic Safety Project

Report Date: 02/07/01

PLATE 00C-67

PROJECT NO:	98-42-0059	**COORDINATES:**	E1838806 N648225 CA State Plane Zone 3, NAD83, meters	**OPERATOR:**	Fugro-McClelland Marine Geosciences
SOUNDING:	00C-68 (14 m Right of "E" Stn. 83+20)	**MUDLINE ELEVATION:**	-2.4 m (MSL)	**TEST DATE:**	09/24/00



Note:
1. Data acquired using 15 sq. cm Fugro cone with an area ratio of 0.56
2. Pore pressures are relative to hydrostatic pressure at the mudline
3. Breaks in the data are due to pauses in the sounding during the installation of casing

LOG OF CPT

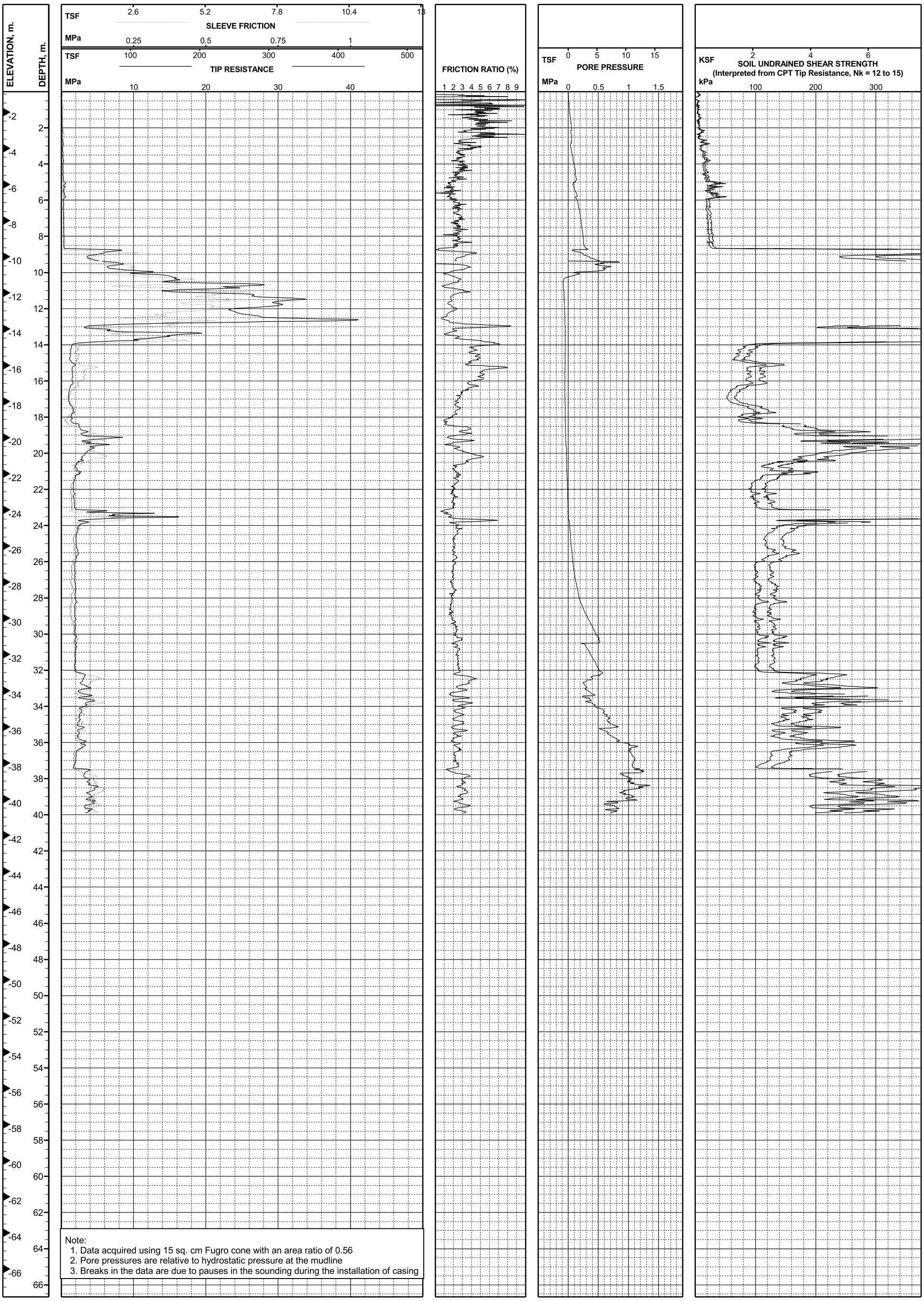
SOUNDING 00C-68

SFOBB East Span Seismic Safety Project

Report Date: 02/07/01

PLATE 00C-68

PROJECT NO: 98-42-0059
SOUNDING: 00C-69 (8 m Left of "E" Stn. 83+40)
COORDINATES: E1838824 N648249 CA State Plane Zone 3, NAD83, meters
MUDLINE ELEVATION: -0.9 m (MSL)
OPERATOR: Fugro-McClelland Marine Geosciences
TEST DATE: 09/24/00



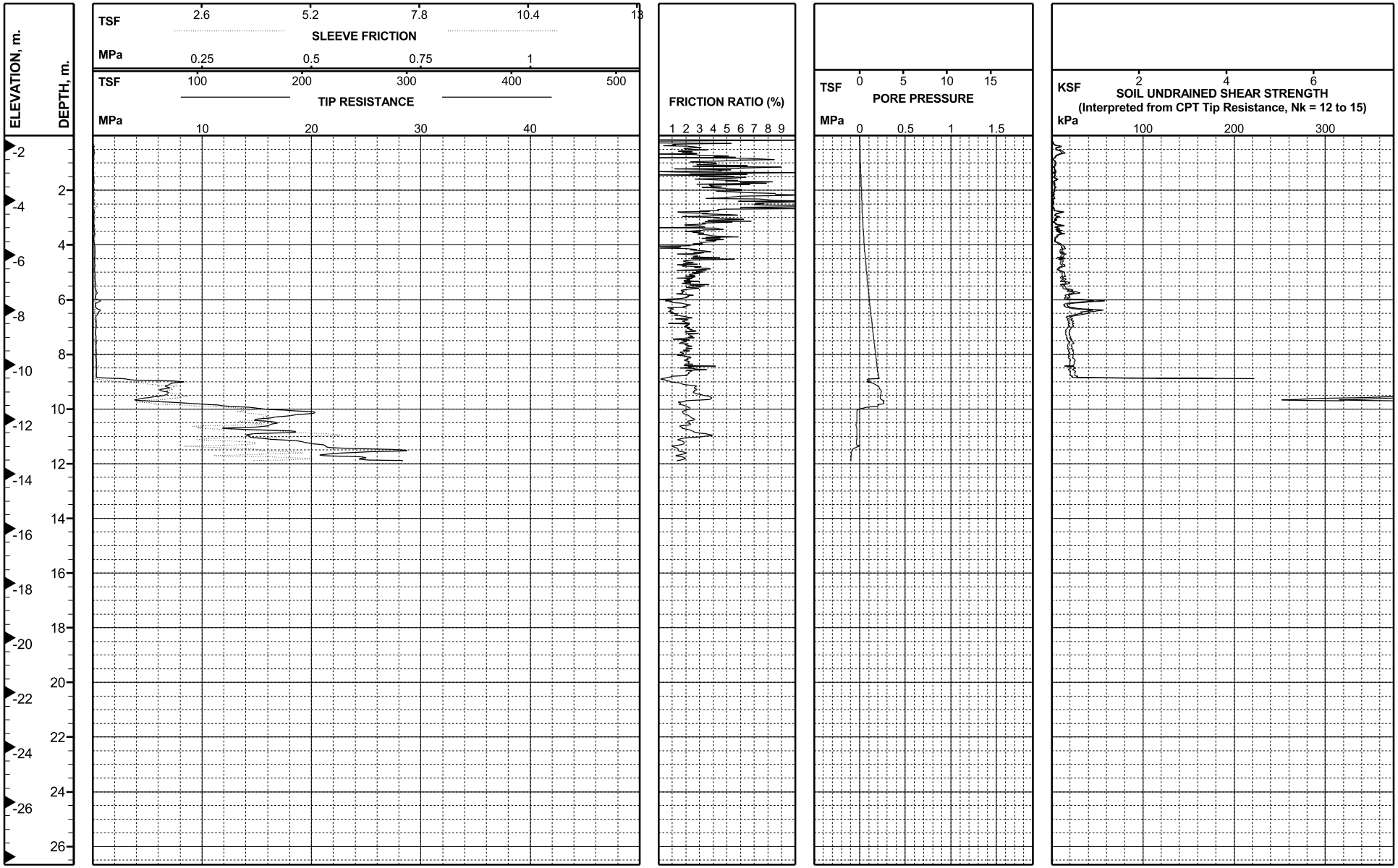
Note:
1. Data acquired using 15 sq. cm Fugro cone with an area ratio of 0.56
2. Pore pressures are relative to hydrostatic pressure at the mudline
3. Breaks in the data are due to pauses in the sounding during the installation of casing

LOG OF CPT
SOUNDING 00C-69
SFOBB East Span Seismic Safety Project

Report Date: 02/07/01

PLATE 00C-69

PROJECT NO:	98-42-0059	**COORDINATES:**	E1838849 N648228 CA State Plane Zone 3, NAD83, meters	**OPERATOR:**	Fugro-McClelland Marine Geosciences
SOUNDING:	00C-70 (16 m Right of "E" Stn. 83+59)	**MUDLINE ELEVATION:**	-1.6 m (MSL)	**TEST DATE:**	09/24/00



Note:
1. Data acquired using 15 sq. cm Fugro cone with an area ratio of 0.56
2. Pore pressures are relative to hydrostatic pressure at the mudline
3. Breaks in the data are due to pauses in the sounding during the installation of casing

Report Date: 02/08/01

LOG OF CPT

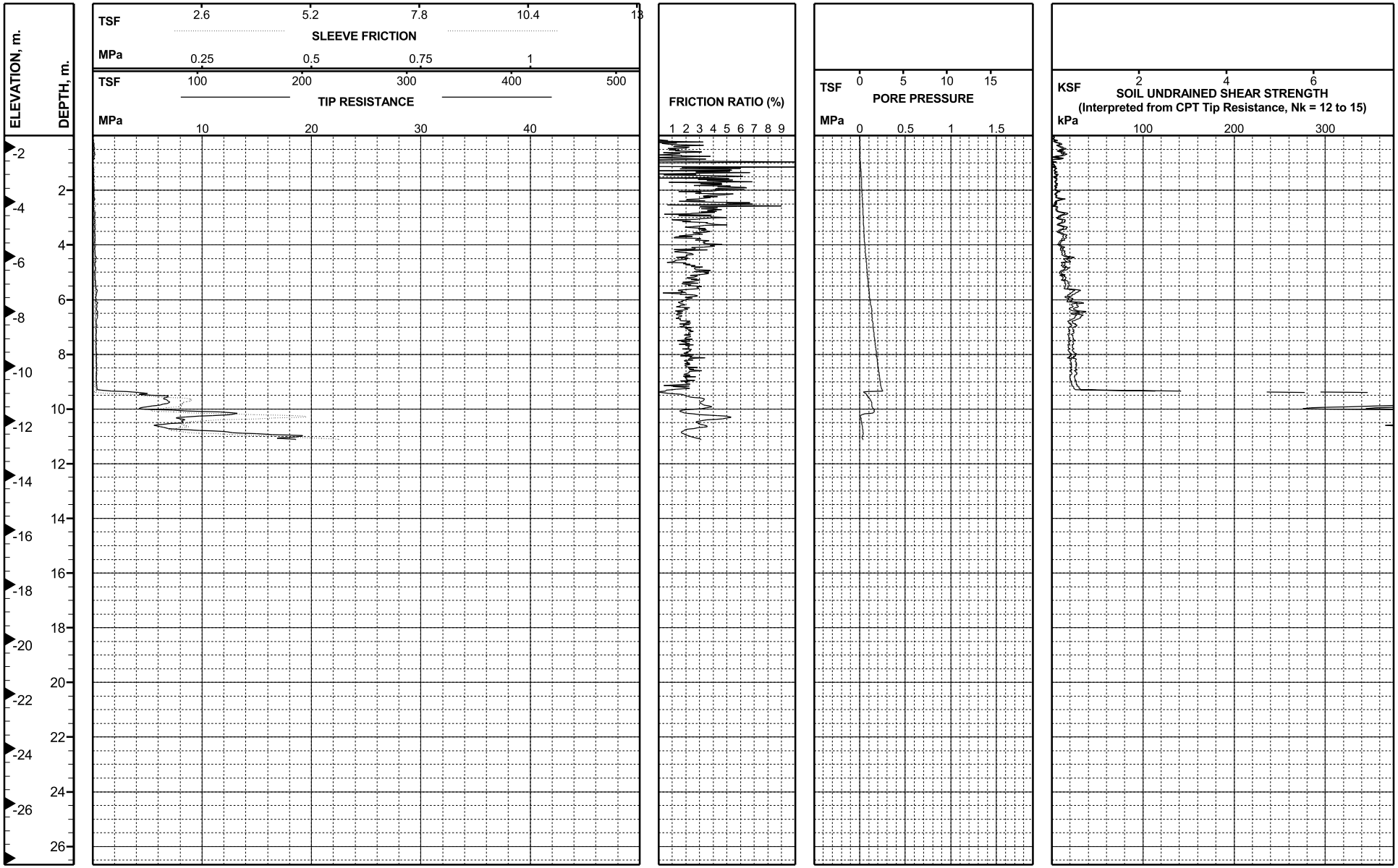
SOUNDING 00C-70

SFOBB East Span Seismic Safety Project

FUGRO

PLATE 00C-70

PROJECT NO:	98-42-0059	**COORDINATES:**	E1838846 N648252 CA State Plane Zone 3, NAD83, meters	**OPERATOR:**	Fugro-McClelland Marine Geosciences
SOUNDING:	00C-71 (8 m Left of "E" Stn. 83+59)	**MUDLINE ELEVATION:**	-1.6 m (MSL)	**TEST DATE:**	09/24/00



Note:
1. Data acquired using 15 sq. cm Fugro cone with an area ratio of 0.56
2. Pore pressures are relative to hydrostatic pressure at the mudline
3. Breaks in the data are due to pauses in the sounding during the installation of casing

Report Date: 02/08/01

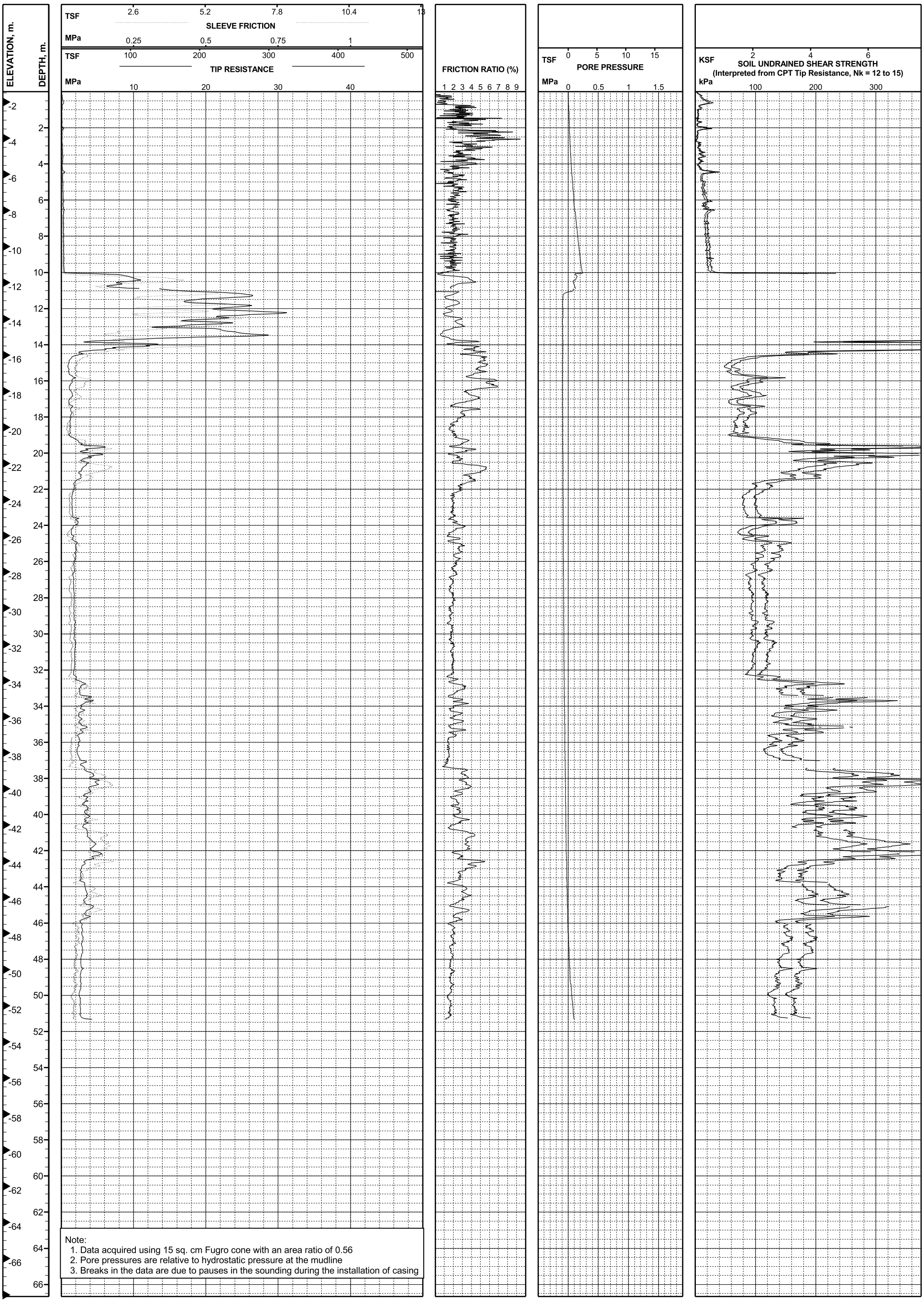
LOG OF CPT

SOUNDING 00C-71

SFOBB East Span Seismic Safety Project

PLATE 00C-71

PROJECT NO: 98-42-0059
SOUNDING: 00C-72 (14 m Left of "W" Stn. 84+40)
COORDINATES: E1838892 N648302 CA State Plane Zone 3, NAD83, meters
MUDLINE ELEVATION: -1.4 m (MSL)
OPERATOR: Fugro-McClelland Marine Geosciences
TEST DATE: 09/23/00



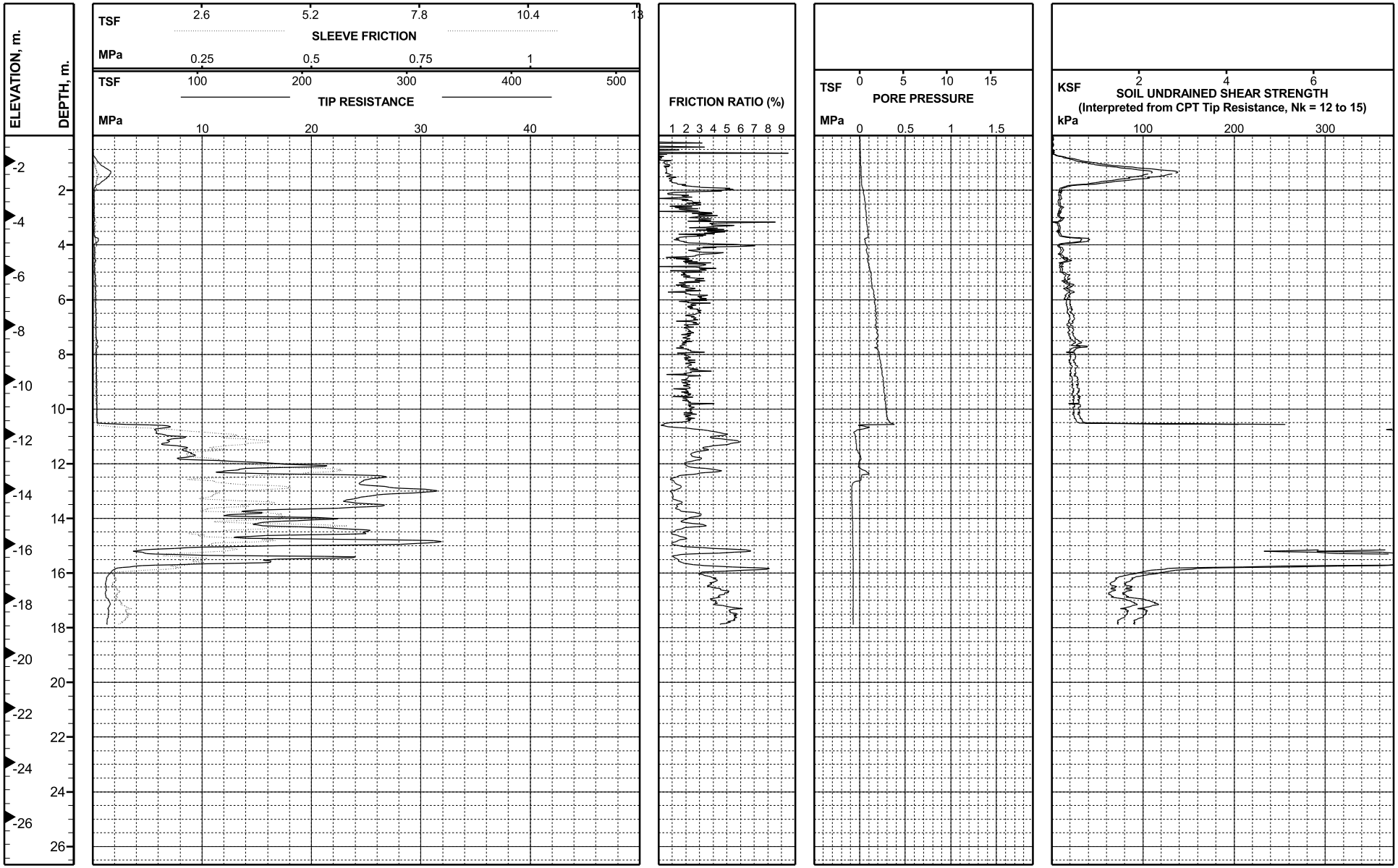
Note:
1. Data acquired using 15 sq. cm Fugro cone with an area ratio of 0.56
2. Pore pressures are relative to hydrostatic pressure at the mudline
3. Breaks in the data are due to pauses in the sounding during the installation of casing

LOG OF CPT
SOUNDING 00C-72
SFOBB East Span Seismic Safety Project

Report Date: 02/07/01

PLATE 00C-72

PROJECT NO:	98-42-0059	**COORDINATES:**	E1838919 N648292 CA State Plane Zone 3, NAD83, meters	**OPERATOR:**	Fugro-McClelland Marine Geosciences
SOUNDING:	00C-73 (W Stn. 84+59)	**MUDLINE ELEVATION:**	-1.1 m (MSL)	**TEST DATE:**	09/24/00



Note:
1. Data acquired using 15 sq. cm Fugro cone with an area ratio of 0.56
2. Pore pressures are relative to hydrostatic pressure at the mudline
3. Breaks in the data are due to pauses in the sounding during the installation of casing

Report Date: 02/08/01

LOG OF CPT

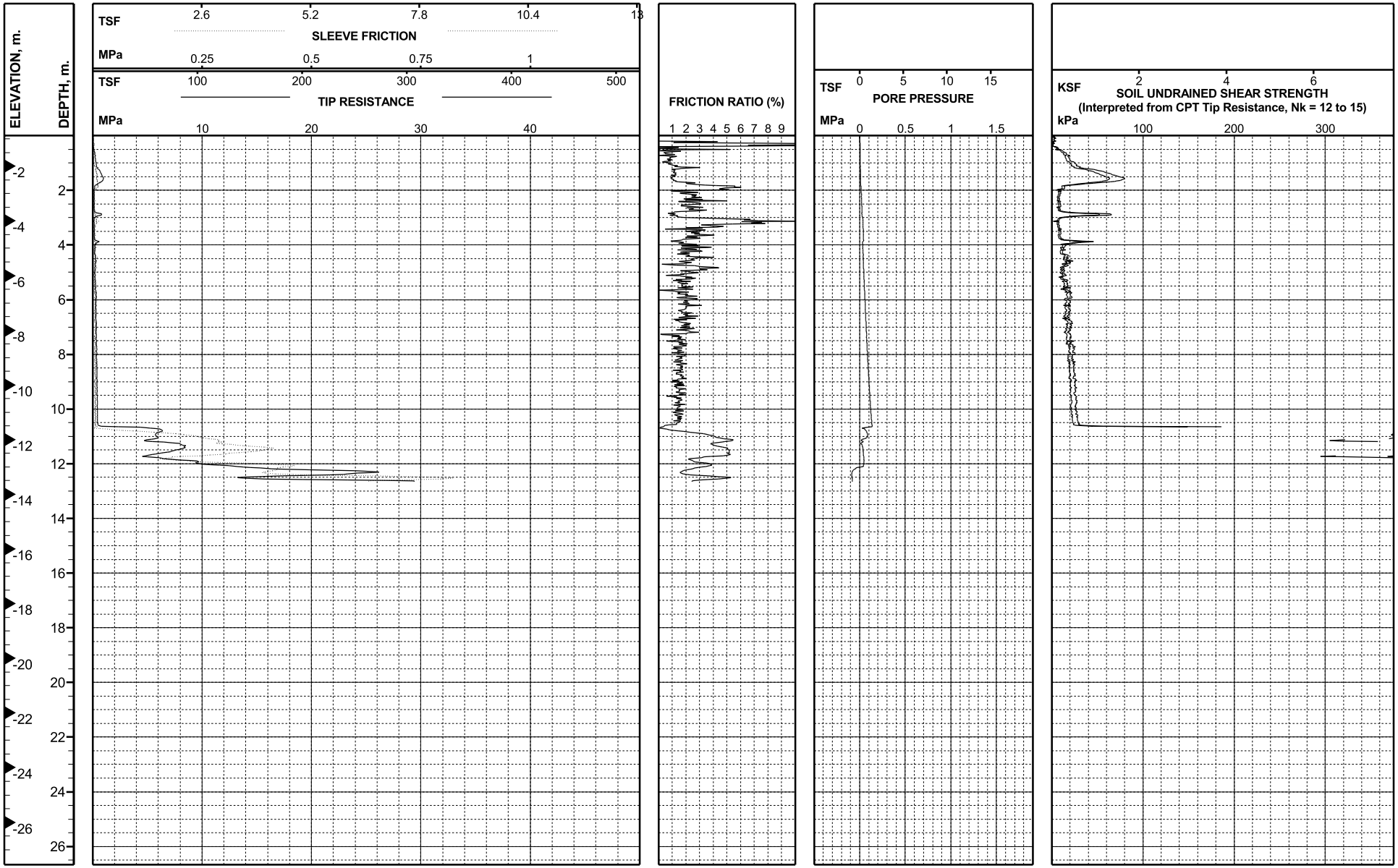
SOUNDING 00C-73

SFOBB East Span Seismic Safety Project

FUGRO

PLATE 00C-73

PROJECT NO:	98-42-0059	**COORDINATES:**	E1838941 N648292 CA State Plane Zone 3, NAD83, meters	**OPERATOR:**	Fugro-McClelland Marine Geosciences
SOUNDING:	00C-74 (2 m Right of "W" Stn. 85+00)	**MUDLINE ELEVATION:**	-0.9 m (MSL)	**TEST DATE:**	09/25/00



Note:
1. Data acquired using 15 sq. cm Fugro cone with an area ratio of 0.56
2. Pore pressures are relative to hydrostatic pressure at the mudline
3. Breaks in the data are due to pauses in the sounding during the installation of casing

Report Date: 02/08/01

LOG OF CPT

SOUNDING 00C-74

SFOBB East Span Seismic Safety Project

FUGRO

PLATE 00C-74