

APPENDIX D

CONSOLIDATION TEST RESULTS



One-Dimensional Consolidation Properties of Soil

Client: HVJ Associates, Inc.
 Project: IHSC ECIP (PN: HG1910092.2.1)
 Specimen: ECP-2003 (6-8 ft) (4Q/B)

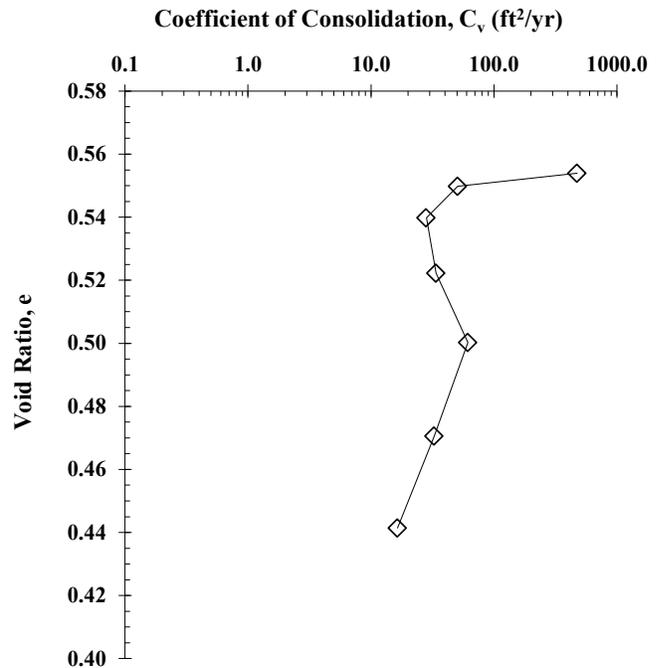
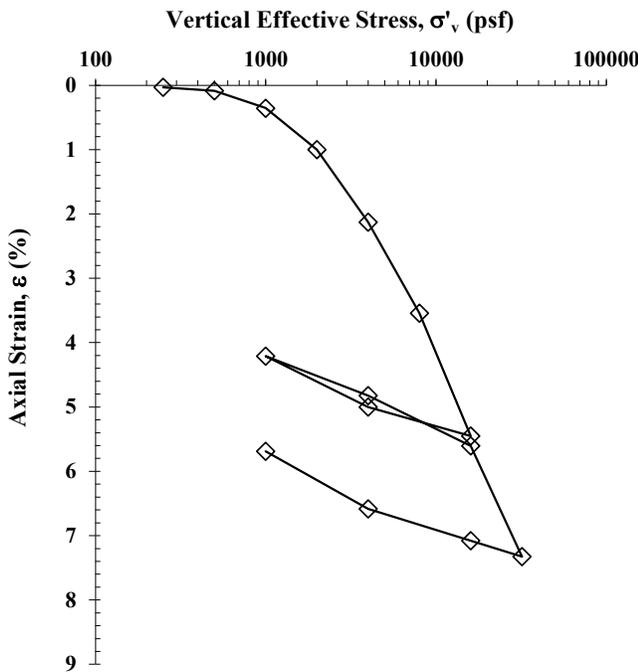
Beyond Project No.: LT2001012
 Test Method: ASTM D2435, Method A
 Test Date: 02/06/20

Soil Specimen Properties	
Initial Specimen Water Content (%)	19.1
Final Specimen Water Content (%)	17.8
Initial Specimen Height (in)	0.892
Final Specimen Height (in)	0.841
Initial Dry Unit Weight, γ_d (pcf)	107.6
Final Dry Unit Weight, γ_d (pcf)	114.0
Initial Void Ratio, e_o	0.556
Final Void Ratio, e_f	0.467
Initial Degree of Saturation (%)	92.3
Preconsolidation Pressure, p'_c (psf)	3800
Seating Load (psf)	250

Specimen was trimmed using a trimming turntable. Specimen was inundated with tap water during testing. Coefficient of Consolidation was determined using the Log Time Method. Loading increment duration was 24 hours. The calculation was included the machine deflections that measured in each loading steps. G_s assumed to be 2.68.

Preconsolidation pressure was determined by using the Casagrande construction technique. Compression Index, C_c & Recompression Index, C_r calculated in accordance with void ratio (Δe).

Specimen Diameter: 2.499 inches



σ'_v (psf)	250	500	1000	2000	4000	8000	16000	4000	1000	4000	16000
C_v (ft ² /yr)	--	476.01	50.84	28.21	33.79	61.36	32.60	--	--	21.73	36.70
Axial Strain (%)	0.03	0.09	0.36	1.00	2.13	3.54	5.45	5.00	4.21	4.82	5.61
e	0.555	0.554	0.550	0.540	0.522	0.500	0.471	0.478	0.490	0.480	0.468

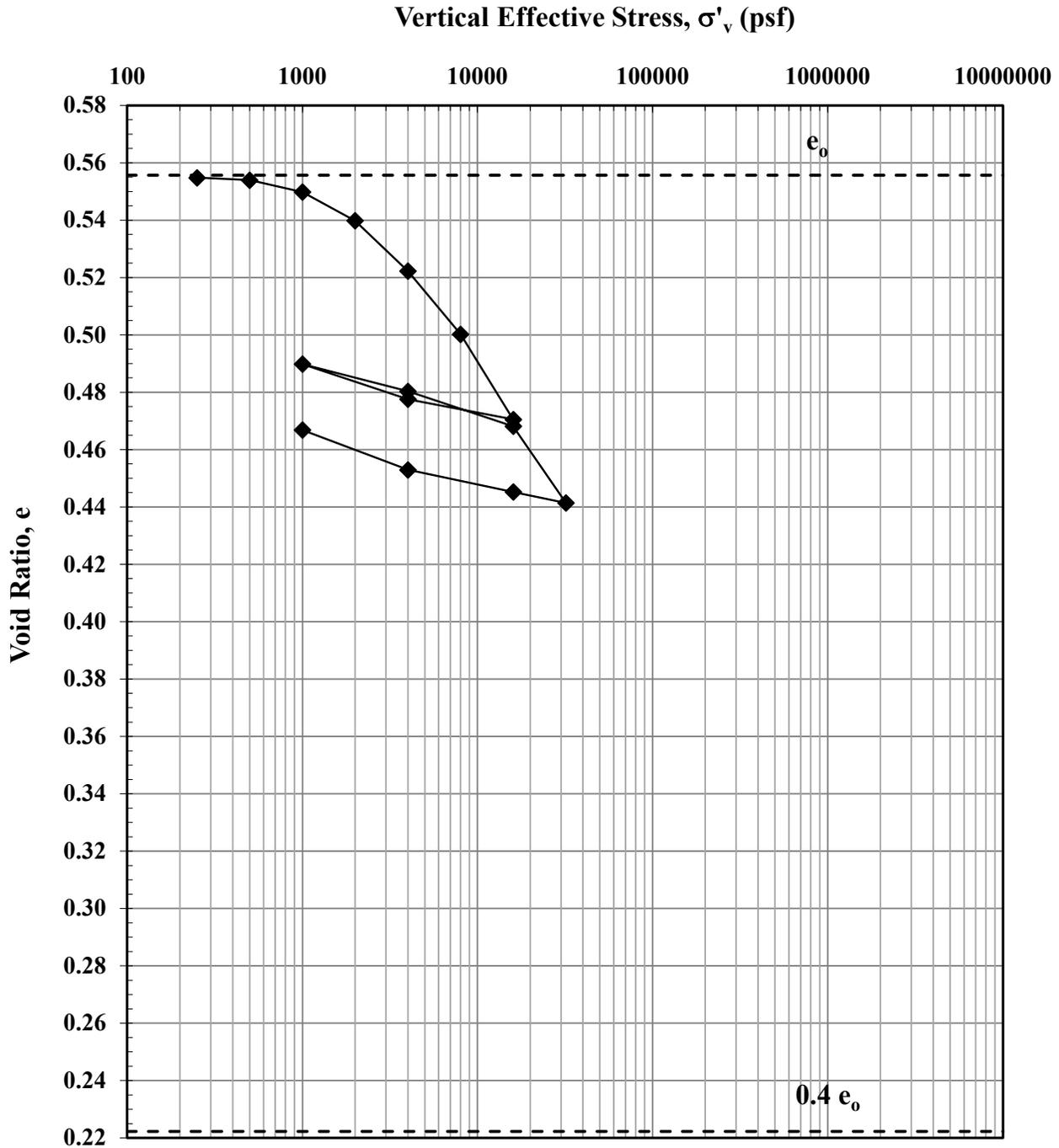
σ'_v (psf)	32000	16000	4000	1000
C_v (ft ² /yr)	16.46	--	--	--
Axial Strain (%)	7.33	7.08	6.58	5.69
e	0.441	0.445	0.453	0.467

Compression Index, C_c 0.103
 Recompression Index, C_r (1st Rebound) 0.018
 Recompression Index, C_r (2nd Rebound) 0.017

One-Dimensional Consolidation Properties of Soil

Client: HVJ Associates, Inc.
 Project: IHSC ECIP (PN: HG1910092.2.1)
 Specimen: ECP-2003 (6-8 ft) (4Q/B)

Beyond Project No.: LT2001012
 Test Method: ASTM D2435, Method A
 Test Date: 02/06/20



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One-Dimensional Consolidation Properties of Soil Appendix

Client: HVJ Associates, Inc.
Project: IHSC ECIP (PN: HG1910092.2.1)
Specimen: ECP-2003 (6-8 ft) (4Q/B)

Beyond Project No.: LT2001012
Test Method: ASTM D2435, Method A
Test Date: 02/06/20



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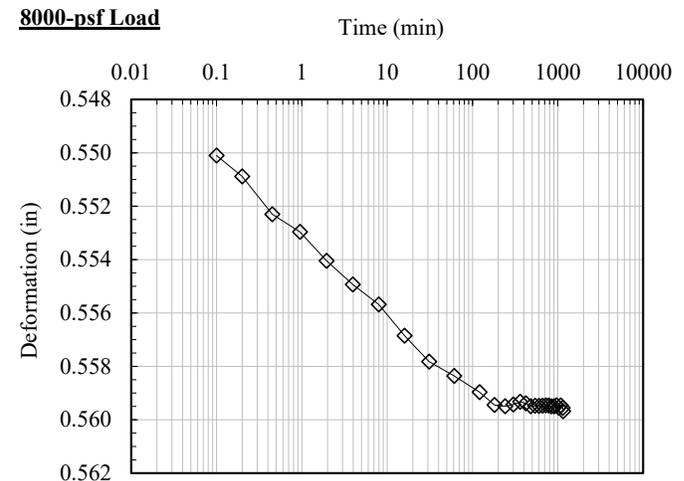
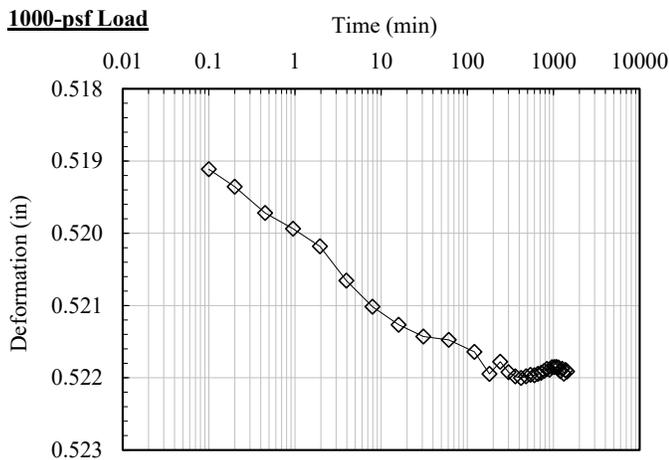
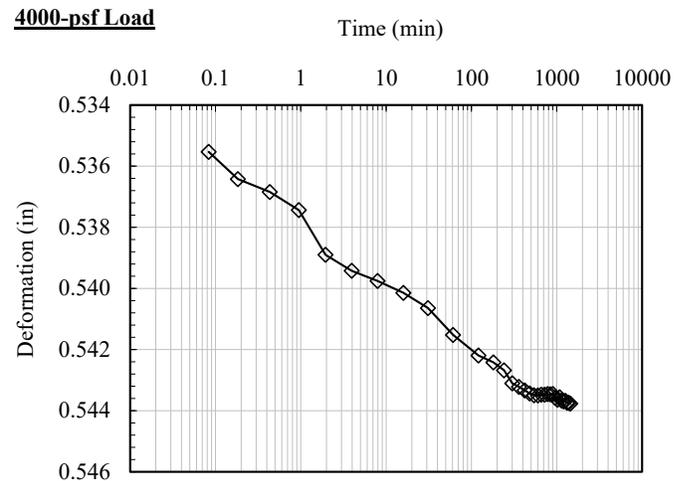
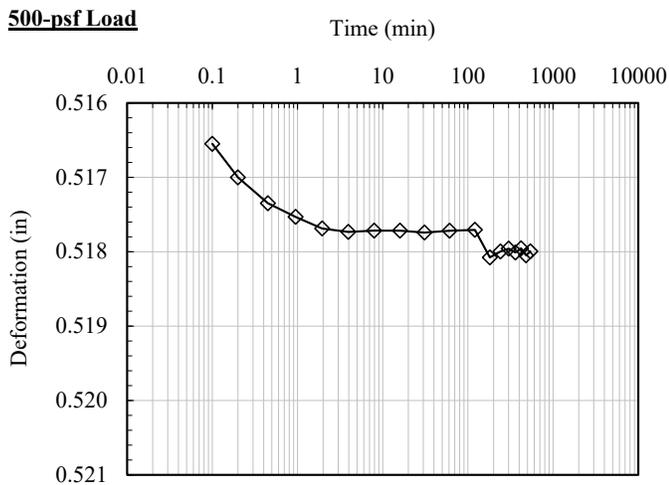
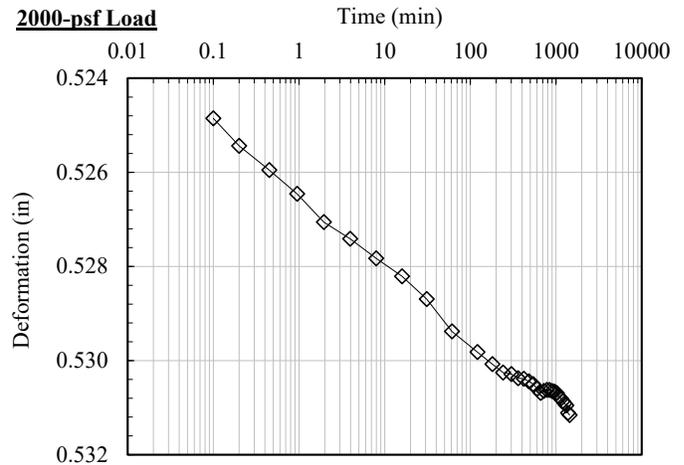
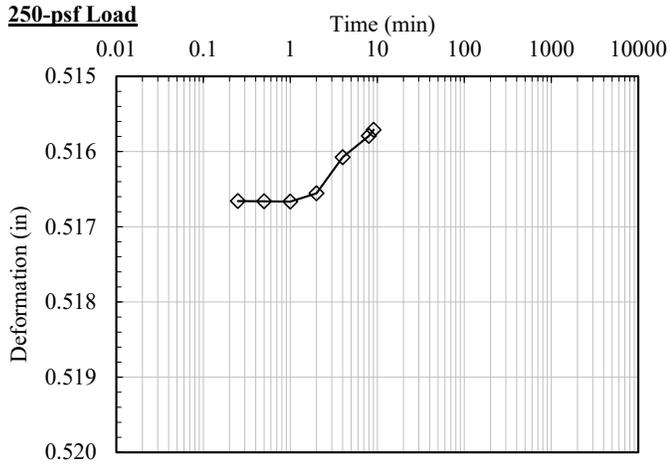
Quality Review/Date

Sample Prepared by: T.D.

One-Dimensional Consolidation Properties of Soil Appendix

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 Project: IHSC ECIP (PN: HG1910092.2.1)
 Specimen: ECP-2003 (6-8 ft) (4Q/B)

Beyond Project No.: LT2001012
 Test Method: ASTM D2435, Method A
 Test Date: 02/06/20

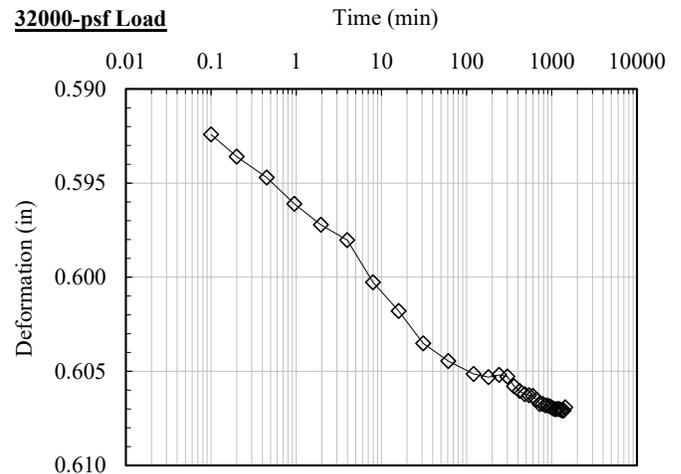
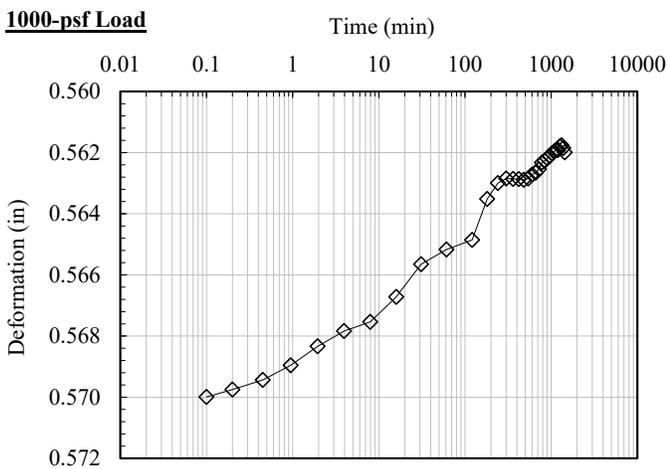
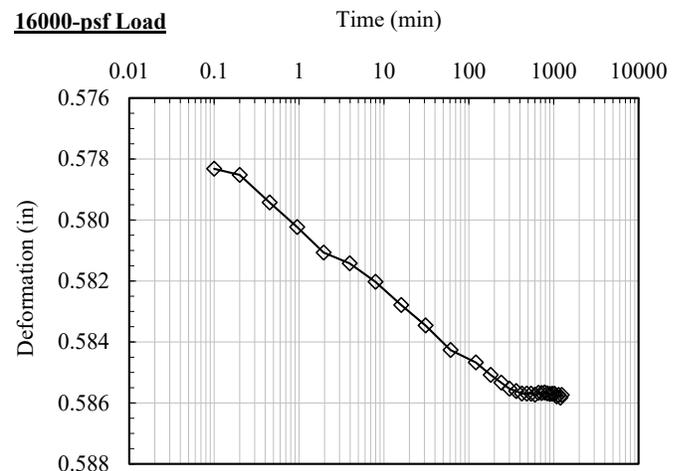
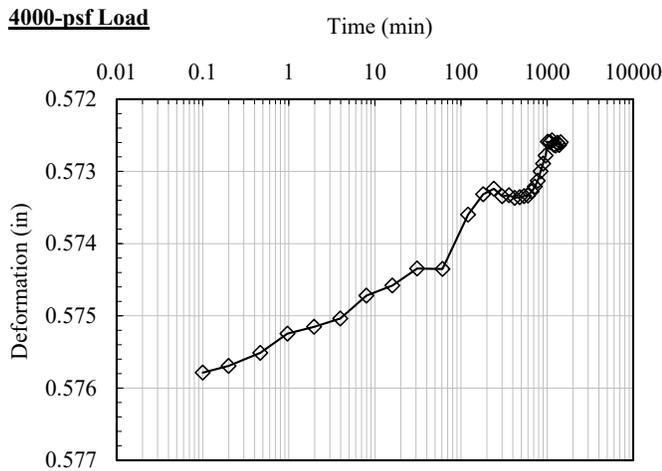
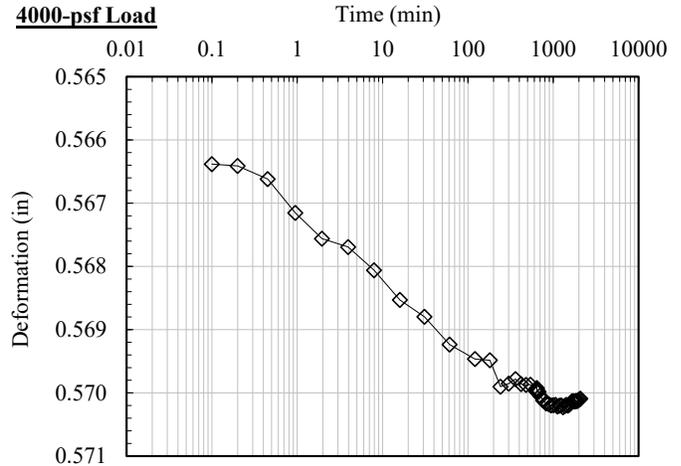
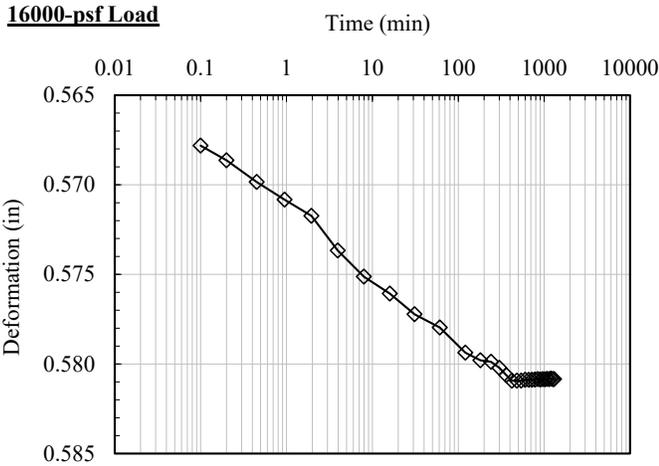


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One-Dimensional Consolidation Properties of Soil Appendix

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 Project: IHSC ECIP (PN: HG1910092.2.1)
 Specimen: ECP-2003 (6-8 ft) (4Q/B)

Beyond Project No.: LT2001012
 Test Method: ASTM D2435, Method A
 Test Date: 02/06/20

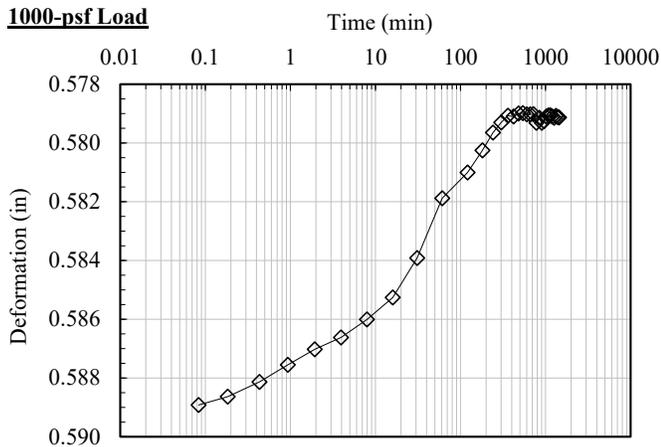
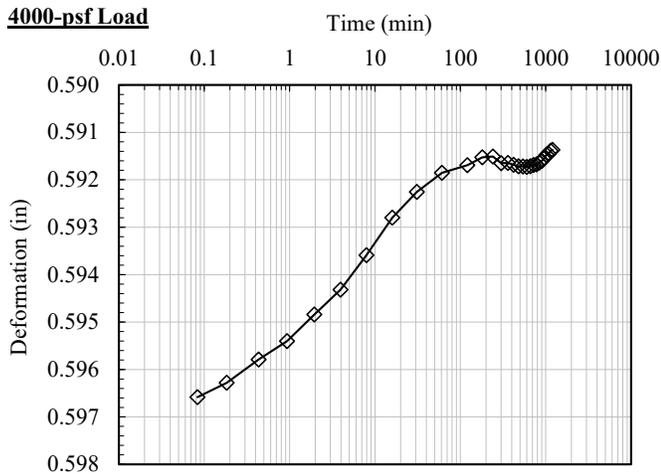
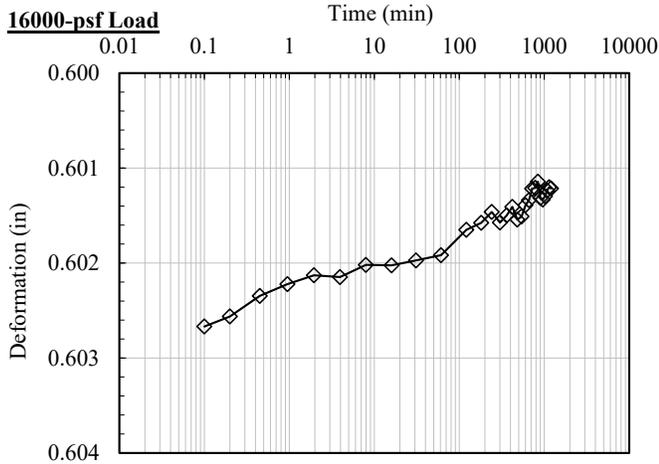


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One-Dimensional Consolidation Properties of Soil

Client: HVJ Associates, Inc.
 Project: IHSC ECIP (PN: HG1910092.2.1)
 Specimen: ECP-2005 (28-30 ft)

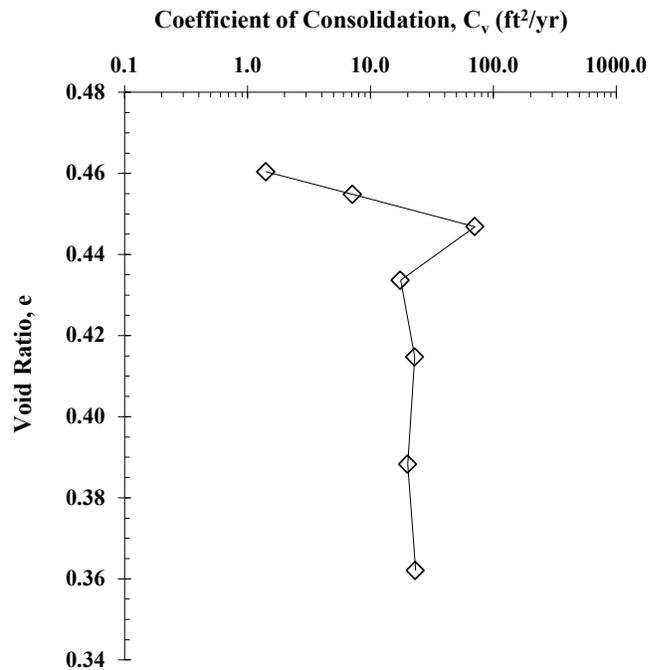
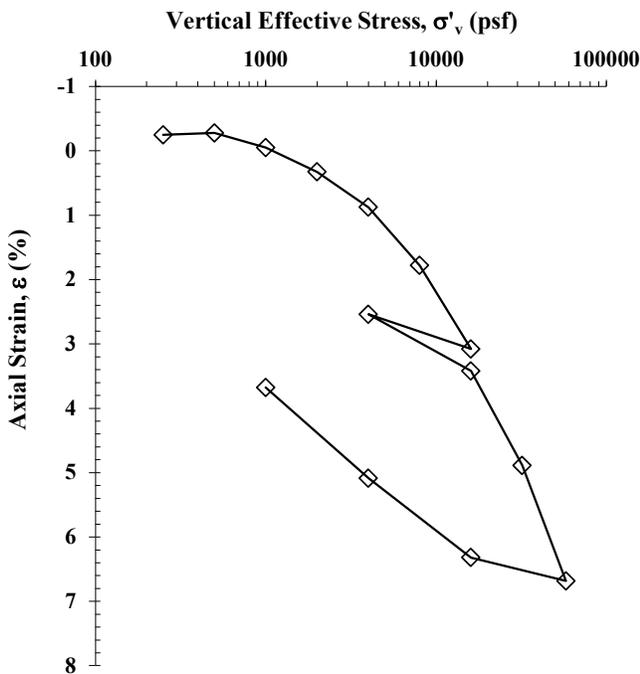
Beyond Project No.: LT2001012
 Test Method: ASTM D2435, Method A
 Test Date: 03/24/20

Soil Specimen Properties	
Initial Specimen Water Content (%)	14.5
Final Specimen Water Content (%)	14.5
Initial Specimen Height (in)	0.895
Final Specimen Height (in)	0.864
Initial Dry Unit Weight, γ_o (pcf)	114.6
Final Dry Unit Weight, γ_f (pcf)	118.8
Initial Void Ratio, e_o	0.460
Final Void Ratio, e_f	0.406
Initial Degree of Saturation (%)	84.5
Preconsolidation Pressure, p'_c (psf)	6650
Seating Load (psf)	250

Specimen was trimmed using a trimming turntable.
 Specimen was inundated with tap water during testing.
 Coefficient of Consolidation was determined using the Log Time Method. Loading increment duration was 24 hours. The calculation was included the machine deflections that measured in each loading steps. G_s assumed to be 2.68.

Preconsolidation pressure was determined by using the Casagrande construction technique.
 Compression Index, C_c & Recompression Index, C_r calculated in accordance with void ratio (Δe).

Specimen Diameter: 2.497 inches



σ'_v (psf)	250	500	1000	2000	4000	8000	16000	4000	16000	32000	58000
C_v (ft ² /yr)	--	--	1.42	7.15	70.83	17.54	22.86	--	--	20.06	23.26
Axial Strain (%)	-0.25	-0.27	-0.05	0.33	0.88	1.78	3.08	2.54	3.42	4.89	6.68
e	0.463	0.464	0.460	0.455	0.447	0.434	0.415	0.423	0.410	0.388	0.362

σ'_v (psf)	16000	4000	1000
C_v (ft ² /yr)	--	--	--
Axial Strain (%)	6.32	5.09	3.68
e	0.367	0.385	0.406

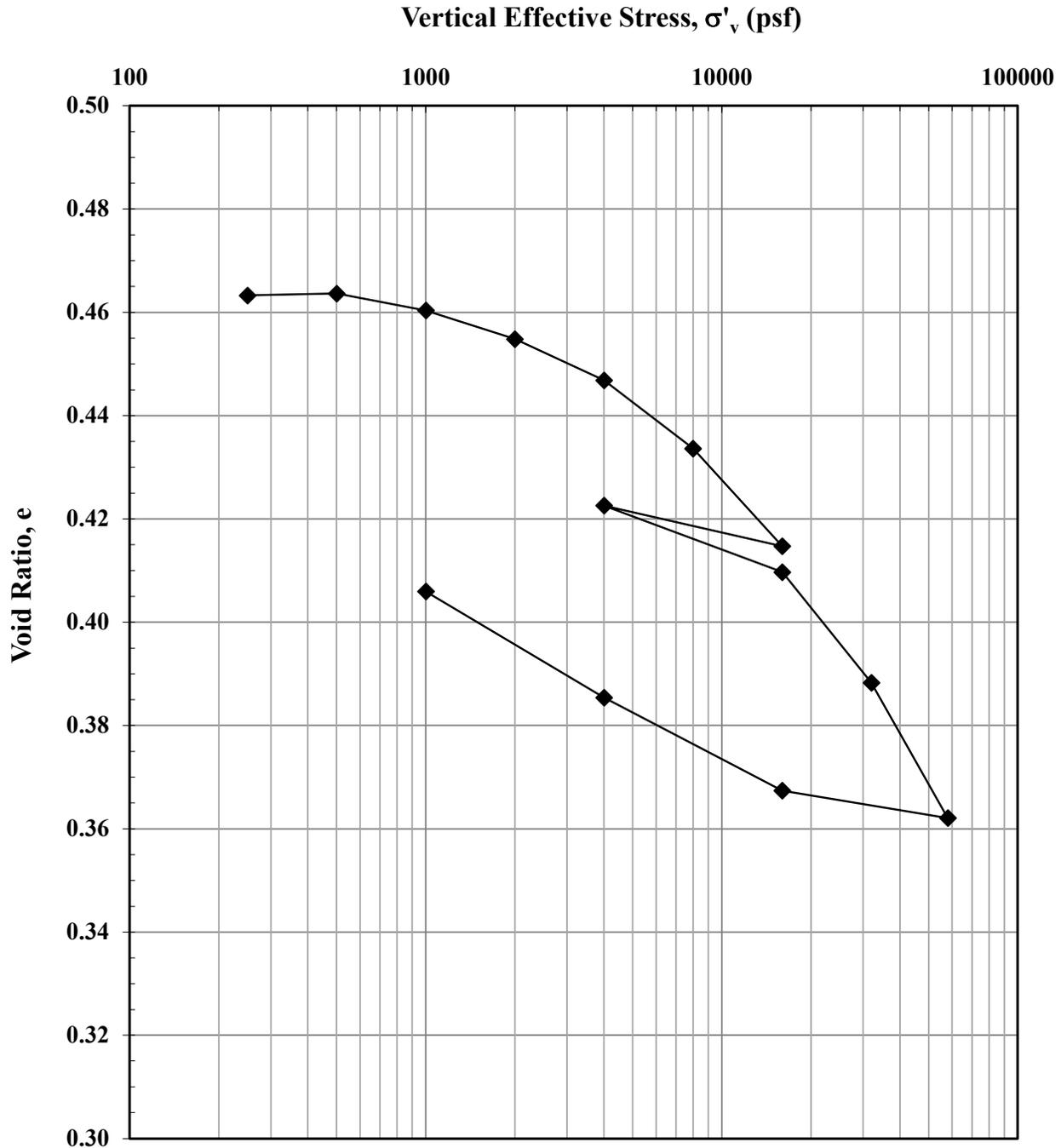
Compression Index, C_c 0.100
 Recompression Index, C_r (1st Rebound) 0.013
 Recompression Index, C_r (2nd Rebound) 0.025



One-Dimensional Consolidation Properties of Soil

Client: HVJ Associates, Inc.
Project: IHSC ECIP (PN: HG1910092.2.1)
Specimen: ECP-2005 (28-30 ft)

Beyond Project No.: LT2001012
Test Method: ASTM D2435, Method A
Test Date: 03/24/20



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One-Dimensional Consolidation Properties of Soil Appendix

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Specimen: ECP-2005 (28-30 ft)

Beyond Project No.: LT2001012
Test Method: ASTM D2435, Method A
Test Date: 03/24/20



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Quality Review/Date

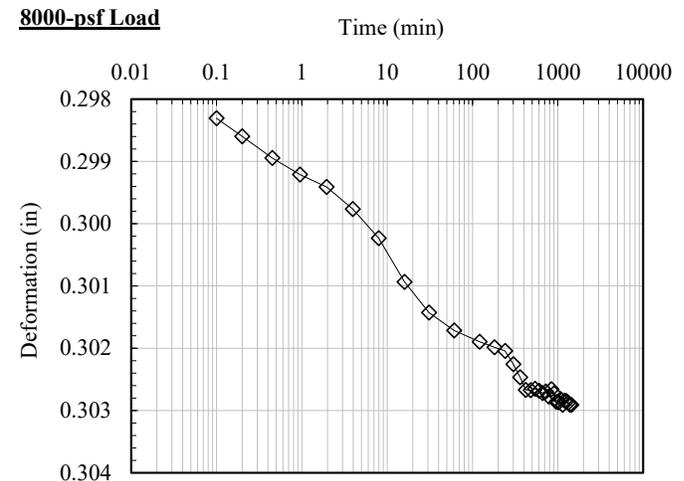
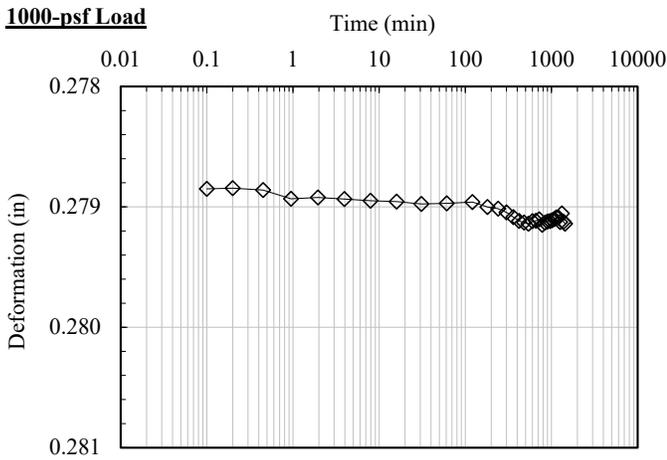
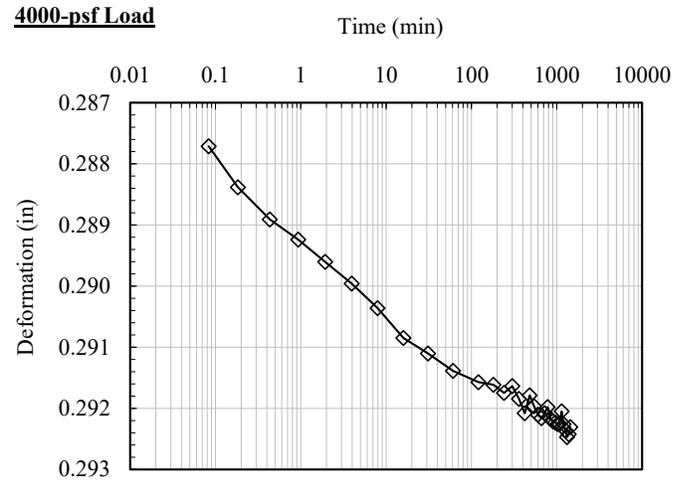
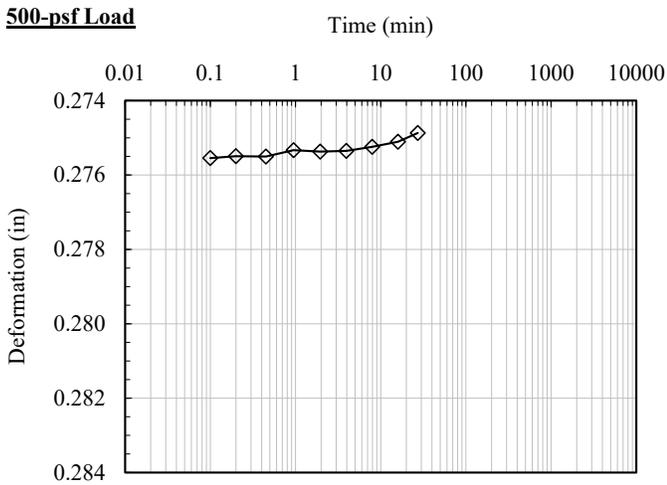
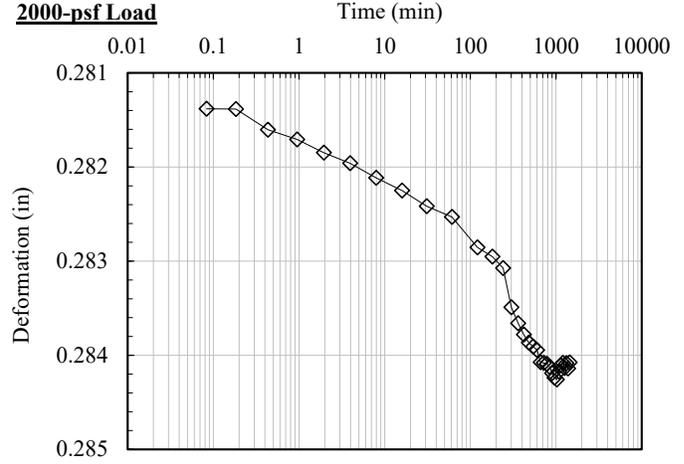
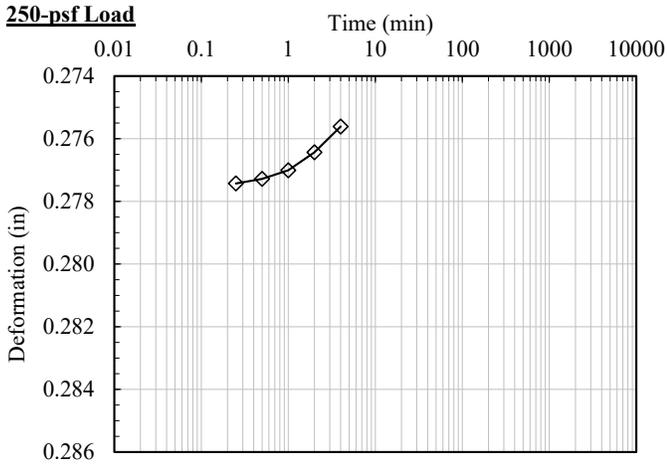
Sample Prepared by: T.D.

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One-Dimensional Consolidation Properties of Soil Appendix

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 Project: IHSC ECIP (PN: HG1910092.2.1)
 Specimen: ECP-2005 (28-30 ft)

Beyond Project No.: LT2001012
 Test Method: ASTM D2435, Method A
 Test Date: 03/24/20

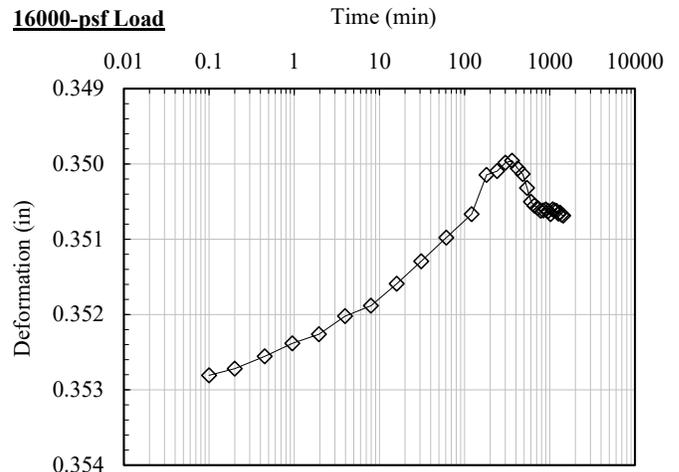
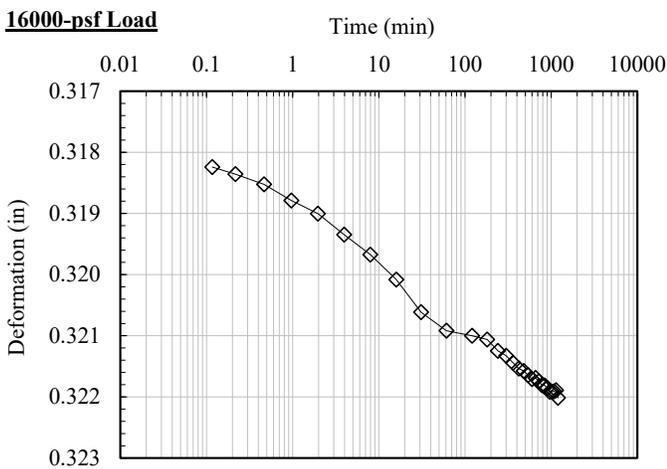
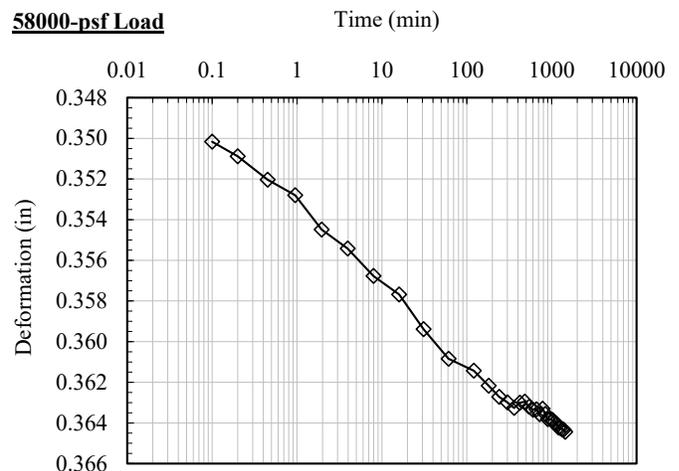
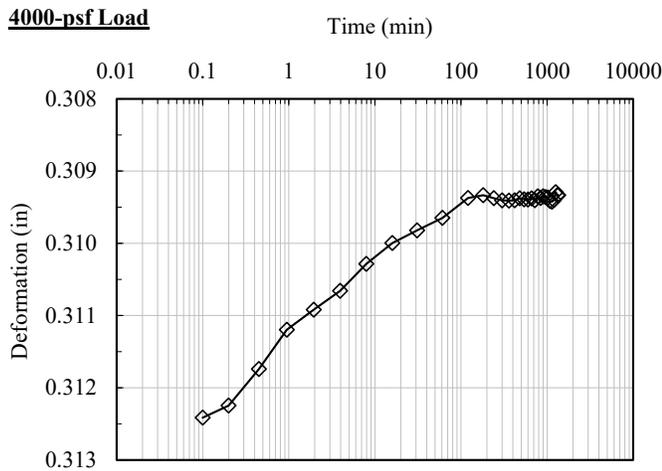
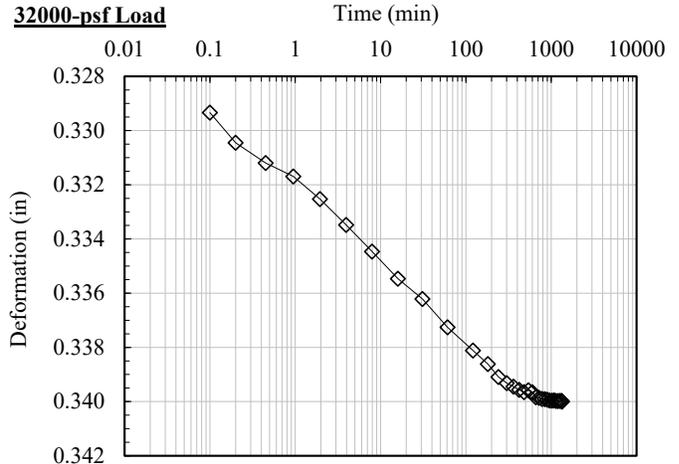
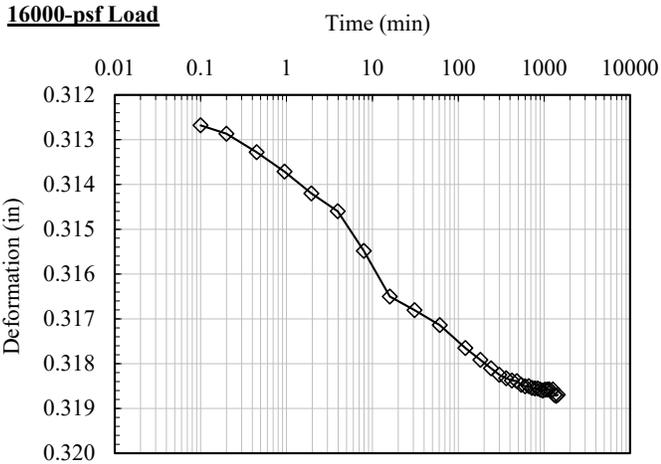


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 Specimen: ECP-2005 (28-30 ft)

Beyond Project No.: LT2001012
 Test Method: ASTM D2435, Method A
 Test Date: 03/24/20



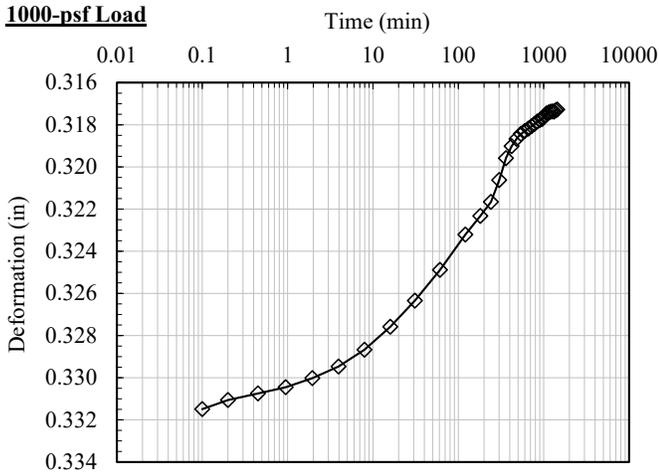
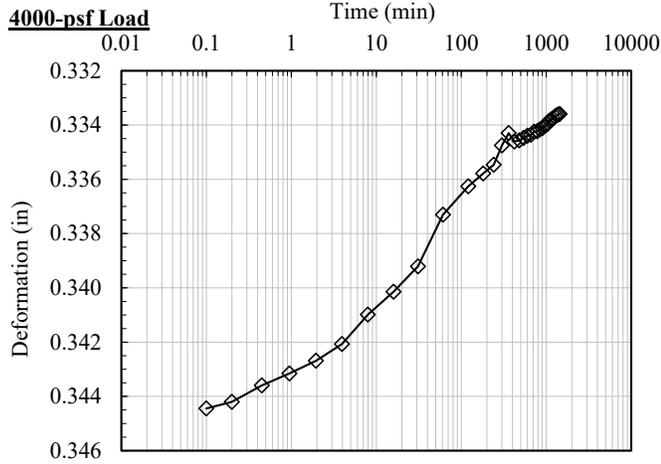
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Specimen: ECP-2005 (28-30 ft)

Beyond Project No.: LT2001012
Test Method: ASTM D2435, Method A
Test Date: 03/24/20





One-Dimensional Consolidation Properties of Soil

Client: HVJ Associates, Inc.
 Project: IHSC ECIP (PN: HG1910092.2.1)
 Specimen: ECP-2006 (14-16 ft) (8Q/B)

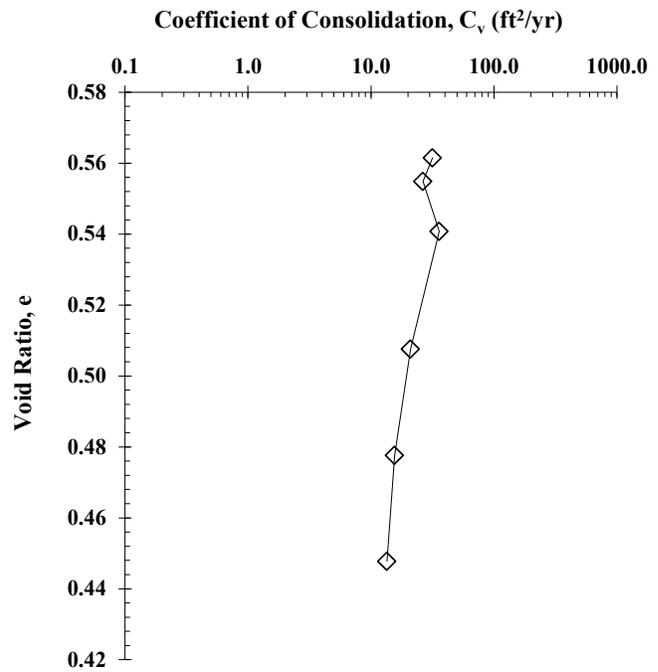
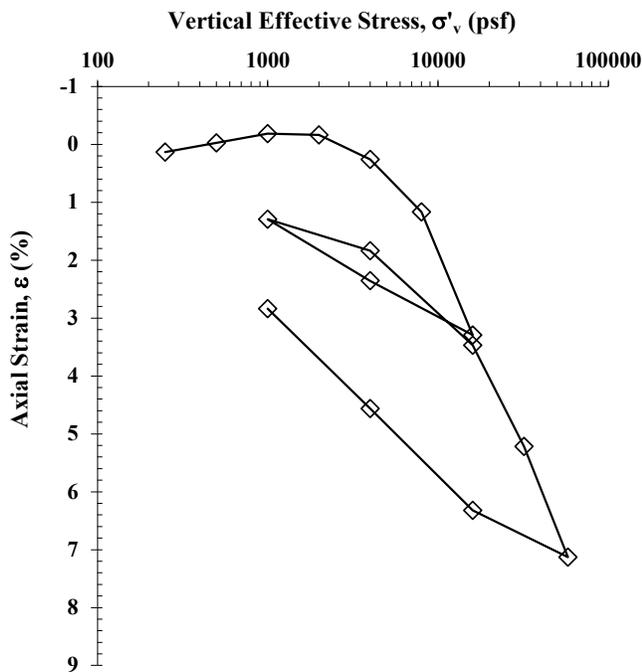
Beyond Project No.: LT2001012
 Test Method: ASTM D2435, Method A
 Test Date: 02/10/20

Soil Specimen Properties	
Initial Specimen Water Content (%)	18.7
Final Specimen Water Content (%)	15.9
Initial Specimen Height (in)	0.924
Final Specimen Height (in)	0.899
Initial Dry Unit Weight, γ_o (pcf)	107.3
Final Dry Unit Weight, γ_f (pcf)	110.3
Initial Void Ratio, e_o	0.559
Final Void Ratio, e_f	0.515
Initial Degree of Saturation (%)	89.7
Preconsolidation Pressure, p'_c (psf)	6000
Seating Load (psf)	250

Specimen was trimmed using a trimming turntable. Specimen was inundated with tap water during testing. Coefficient of Consolidation was determined using the Log Time Method. Loading increment duration was 24 hours. The calculation was included the machine deflections that measured in each loading steps. G_s assumed to be 2.68.

Preconsolidation pressure was determined by using the Casagrande construction technique. Compression Index, C_c & Recompression Index, C_r calculated in accordance with void ratio (Δe).

Specimen Diameter: 2.498 inches



σ'_v (psf)	250	500	1000	2000	4000	8000	16000	4000	1000	4000	16000
C_v (ft ² /yr)	--	--	--	31.74	26.42	36.01	20.95	--	--	33.78	37.28
Axial Strain (%)	0.14	-0.03	-0.18	-0.16	0.26	1.17	3.30	2.36	1.29	1.84	3.47
e	0.557	0.559	0.562	0.561	0.555	0.541	0.508	0.522	0.539	0.530	0.505

σ'_v (psf)	32000	58000	16000	4000	1000
C_v (ft ² /yr)	15.60	13.50	--	--	--
Axial Strain (%)	5.22	7.13	6.32	4.56	2.84
e	0.478	0.448	0.460	0.488	0.515

Compression Index, C_c 0.102
 Recompression Index, C_r (1st Rebound) 0.028
 Recompression Index, C_r (2nd Rebound) 0.038

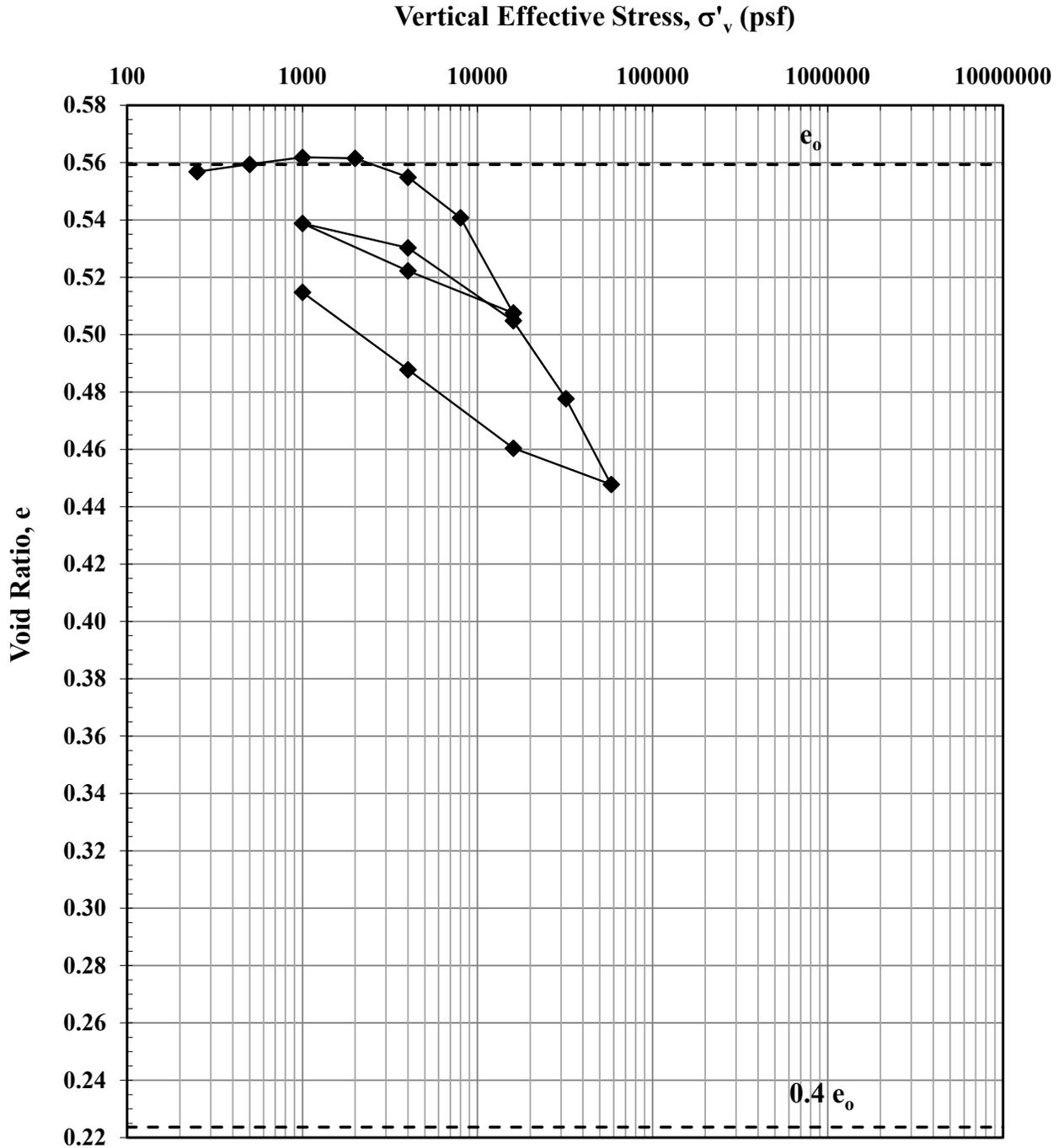
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One-Dimensional Consolidation Properties of Soil

Client: HVJ Associates, Inc.
Project: IHSC ECIP (PN: HG1910092.2.1)
Specimen: ECP-2006 (14-16 ft) (8Q/B)

Beyond Project No.: LT2001012
Test Method: ASTM D2435, Method A
Test Date: 02/10/20



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Test Method: ASTM D2435, Method A
Test Date: 02/10/20



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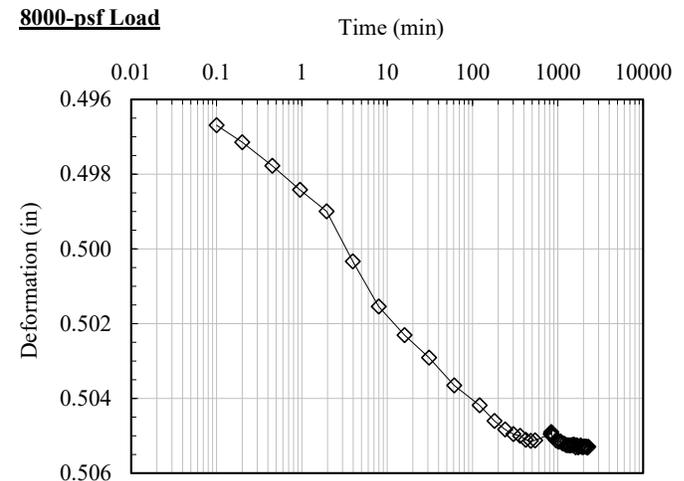
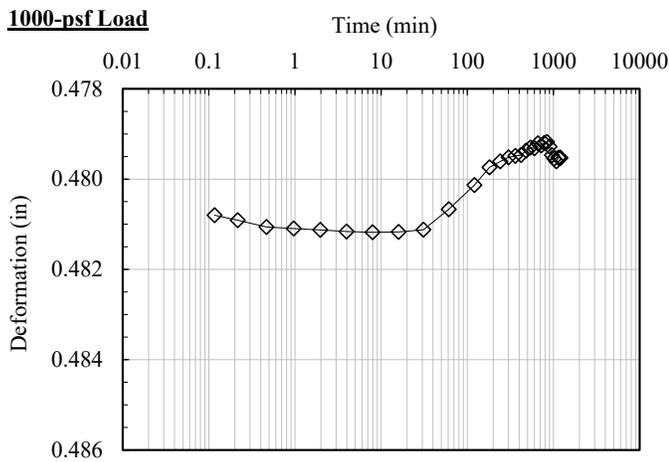
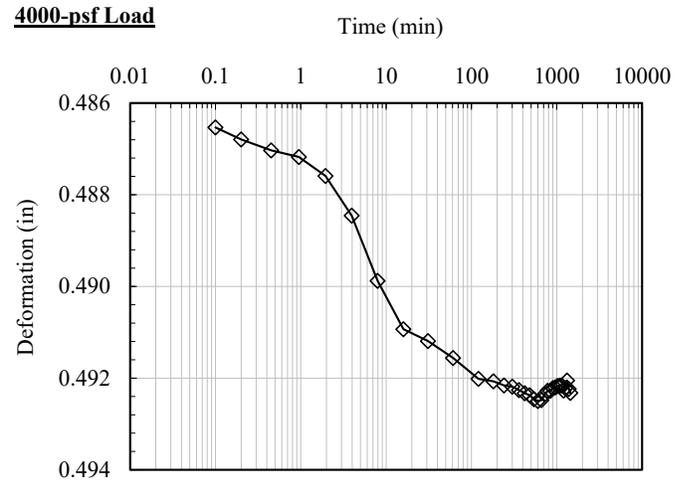
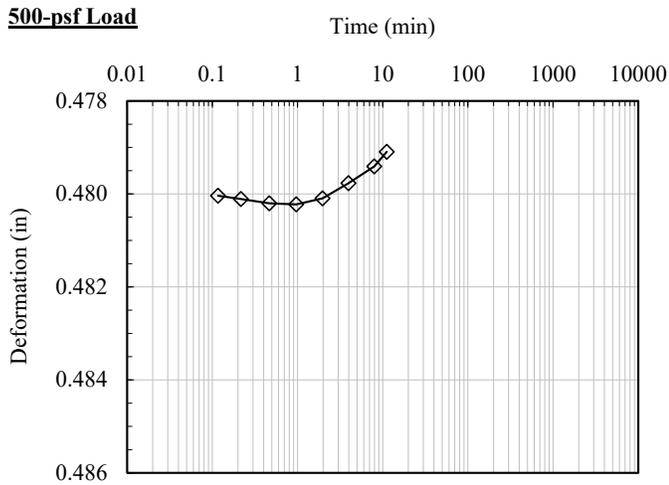
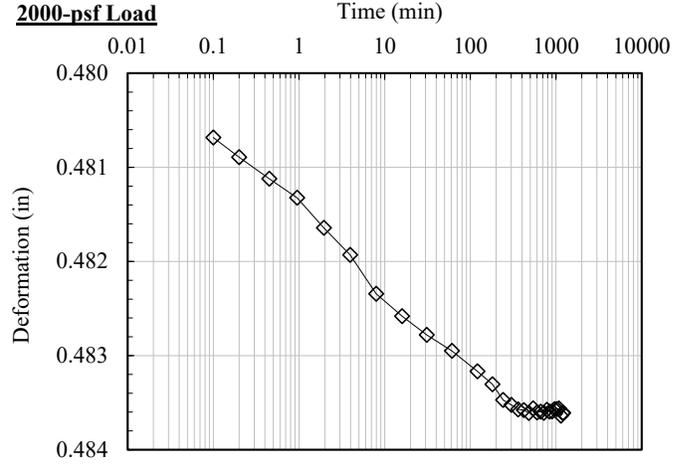
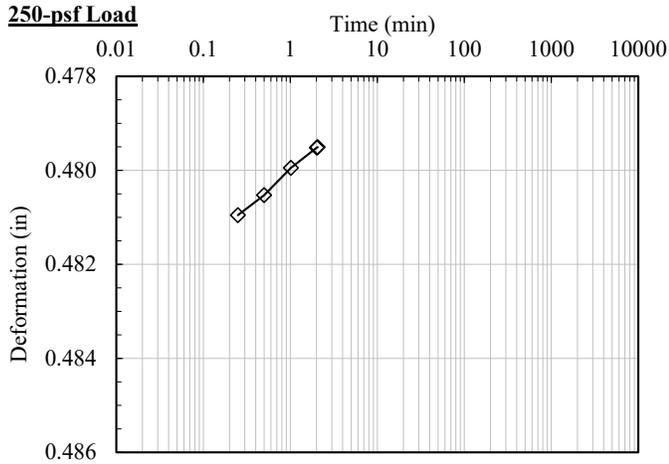
Quality Review/Date

Sample Prepared by: T.D.

One-Dimensional Consolidation Properties of Soil Appendix

Client: HVJ Associates, Inc.
 Project: IHSC ECIP (PN: HG1910092.2.1)
 Specimen: ECP-2006 (14-16 ft) (8Q/B)

Beyond Project No.: LT2001012
 Test Method: ASTM D2435, Method A
 Test Date: 02/10/20

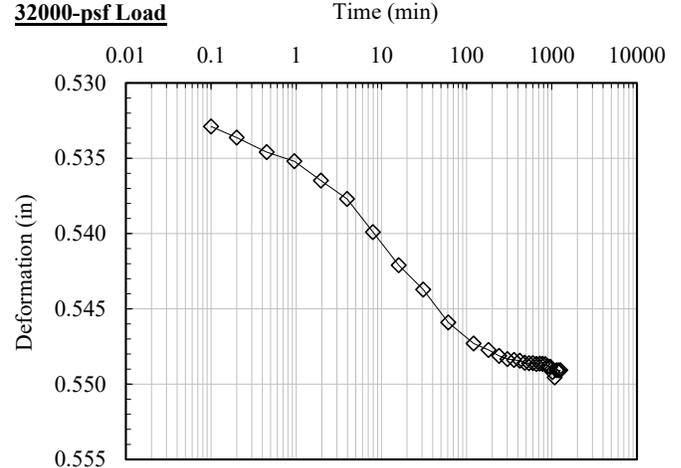
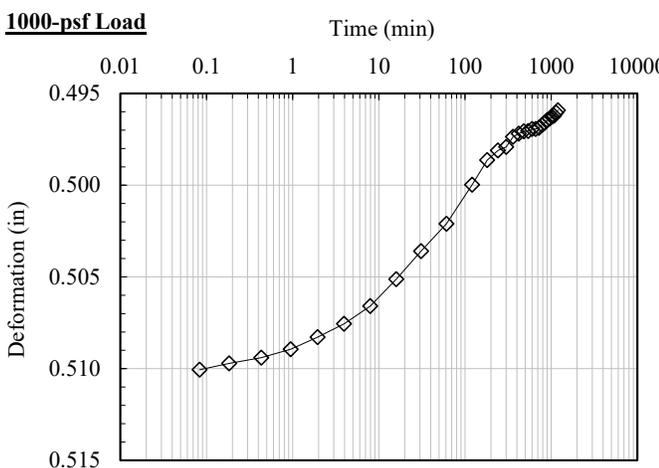
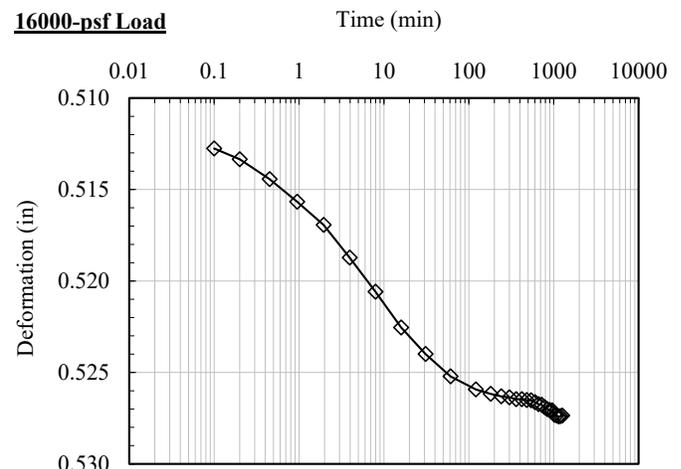
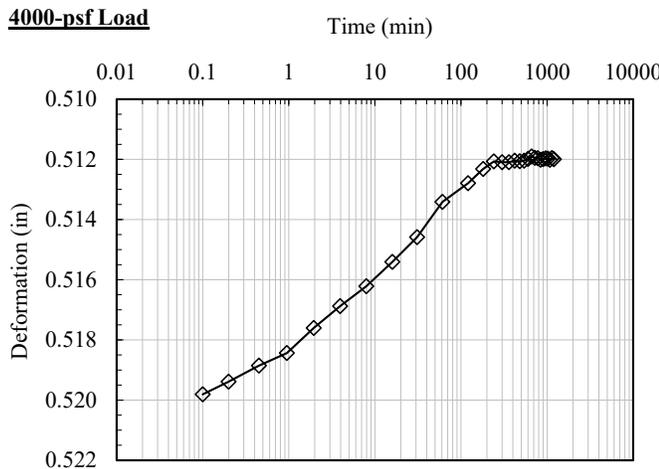
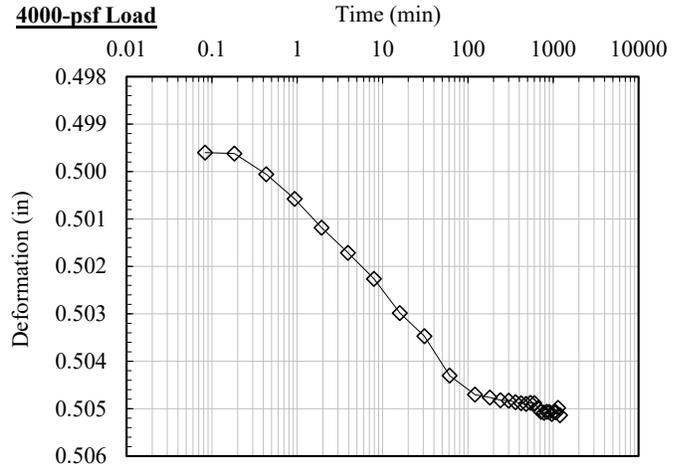
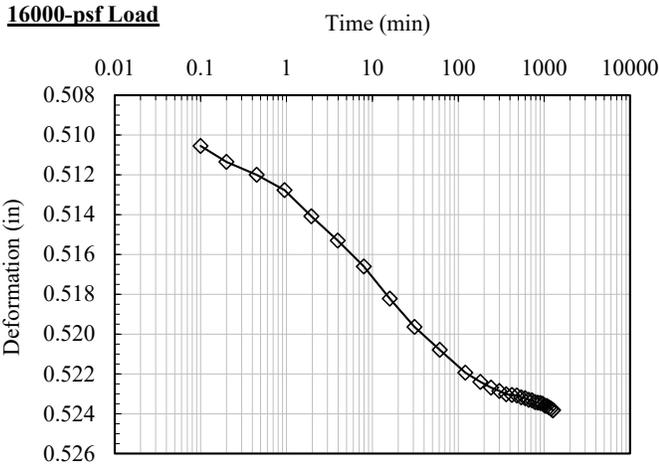


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One-Dimensional Consolidation Properties of Soil Appendix

Client: HVJ Associates, Inc.
 Project: IHSC ECIP (PN: HG1910092.2.1)
 Specimen: ECP-2006 (14-16 ft) (8Q/B)

Beyond Project No.: LT2001012
 Test Method: ASTM D2435, Method A
 Test Date: 02/10/20

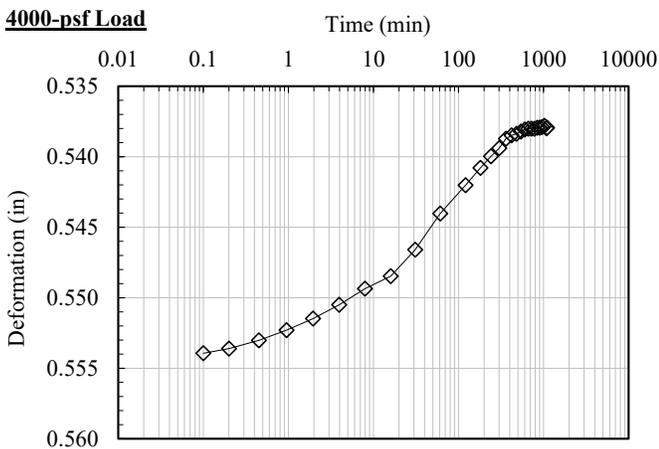
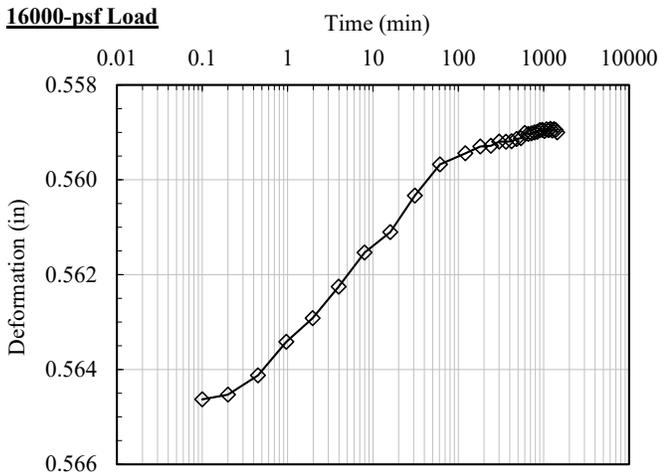
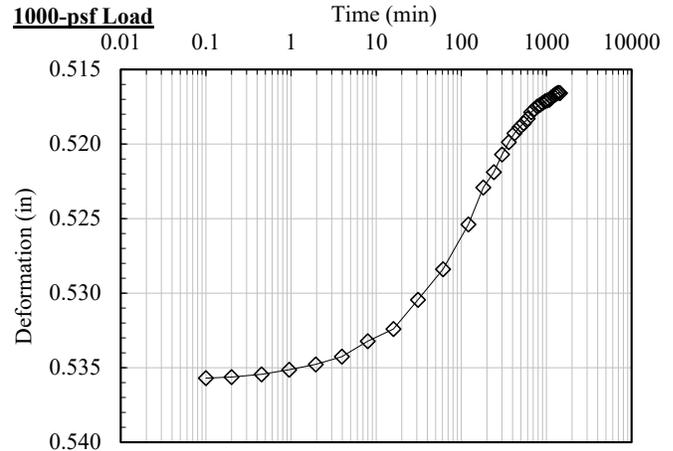
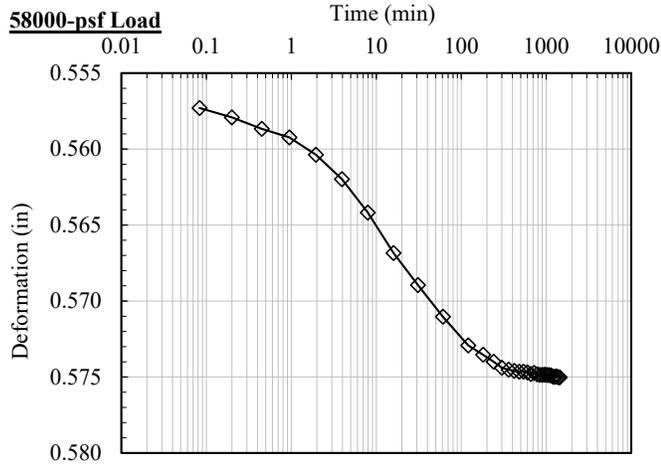


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One-Dimensional Consolidation Properties of Soil Appendix

Client: HVJ Associates, Inc.
 Project: IHSC ECIP (PN: HG1910092.2.1)
 Specimen: ECP-2006 (14-16 ft) (8Q/B)

Beyond Project No.: LT2001012
 Test Method: ASTM D2435, Method A
 Test Date: 02/10/20



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One-Dimensional Consolidation Properties of Soil

Client: HVJ Associates, Inc.
 Project: IHSC ECIP (PN: HG1910092.2.1)
 Specimen: ECP-2008 (14-16 ft) (8Q/B)

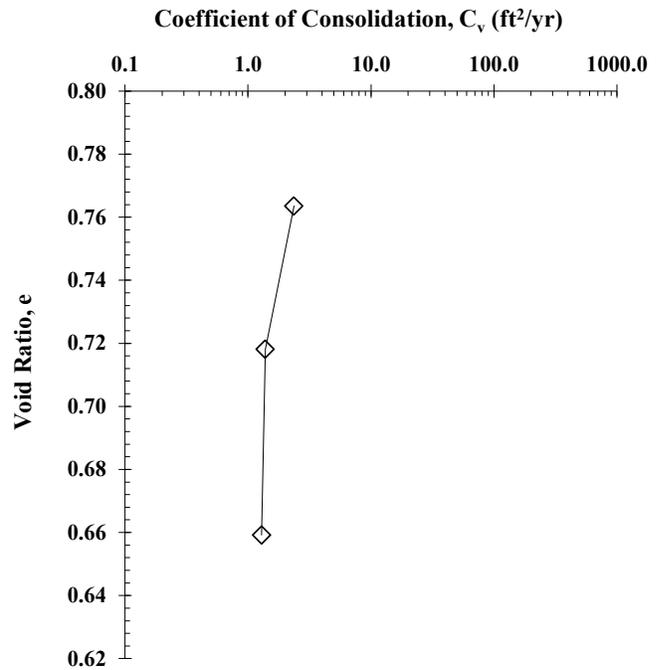
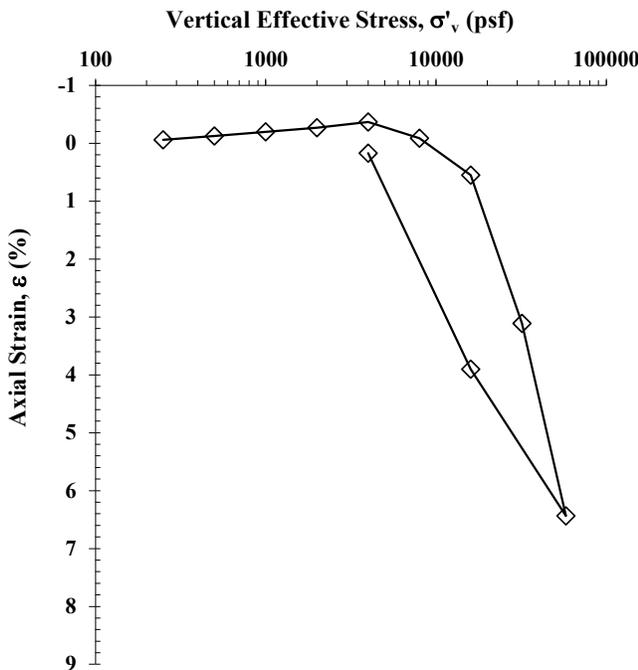
Beyond Project No.: LT2001012
 Test Method: ASTM D2435, Method A
 Test Date: 03/21/20

Soil Specimen Properties	
Initial Specimen Water Content (%)	25.0
Final Specimen Water Content (%)	27.9
Initial Specimen Height (in)	0.899
Final Specimen Height (in)	0.899
Initial Dry Unit Weight, γ_o (pcf)	100.7
Final Dry Unit Weight, γ_f (pcf)	100.7
Initial Void Ratio, e_o	0.774
Final Void Ratio, e_f	0.771
Initial Degree of Saturation (%)	92.3
Preconsolidation Pressure, p'_c (psf)	20000
Seating Load (psf)	250

Specimen was trimmed using a trimming turntable. Specimen was inundated with tap water during testing. Coefficient of Consolidation was determined using the Log Time Method. Loading increment duration was 24 hours. The calculation was included the machine deflections that measured in each loading steps. G_s was assumed to be 2.86.

Preconsolidation pressure was determined by using the Casagrande construction technique. Compression Index, C_c & Recompression Index, C_r calculated in accordance with void ratio (Δe).

Specimen Diameter: 2.497 inches



σ'_v (psf)	250	500	1000	2000	4000	8000	16000	32000	58000	16000	4000
C_v (ft ² /yr)	--	--	--	--	--	--	2.37	1.39	1.29	--	--
Axial Strain (%)	-0.06	-0.12	-0.20	-0.27	-0.37	-0.08	0.55	3.11	6.44	3.90	0.17
e	0.774	0.776	0.777	0.778	0.780	0.775	0.764	0.718	0.659	0.704	0.770

Compression Index, C_c 0.170
 Recompression Index, C_r 0.096

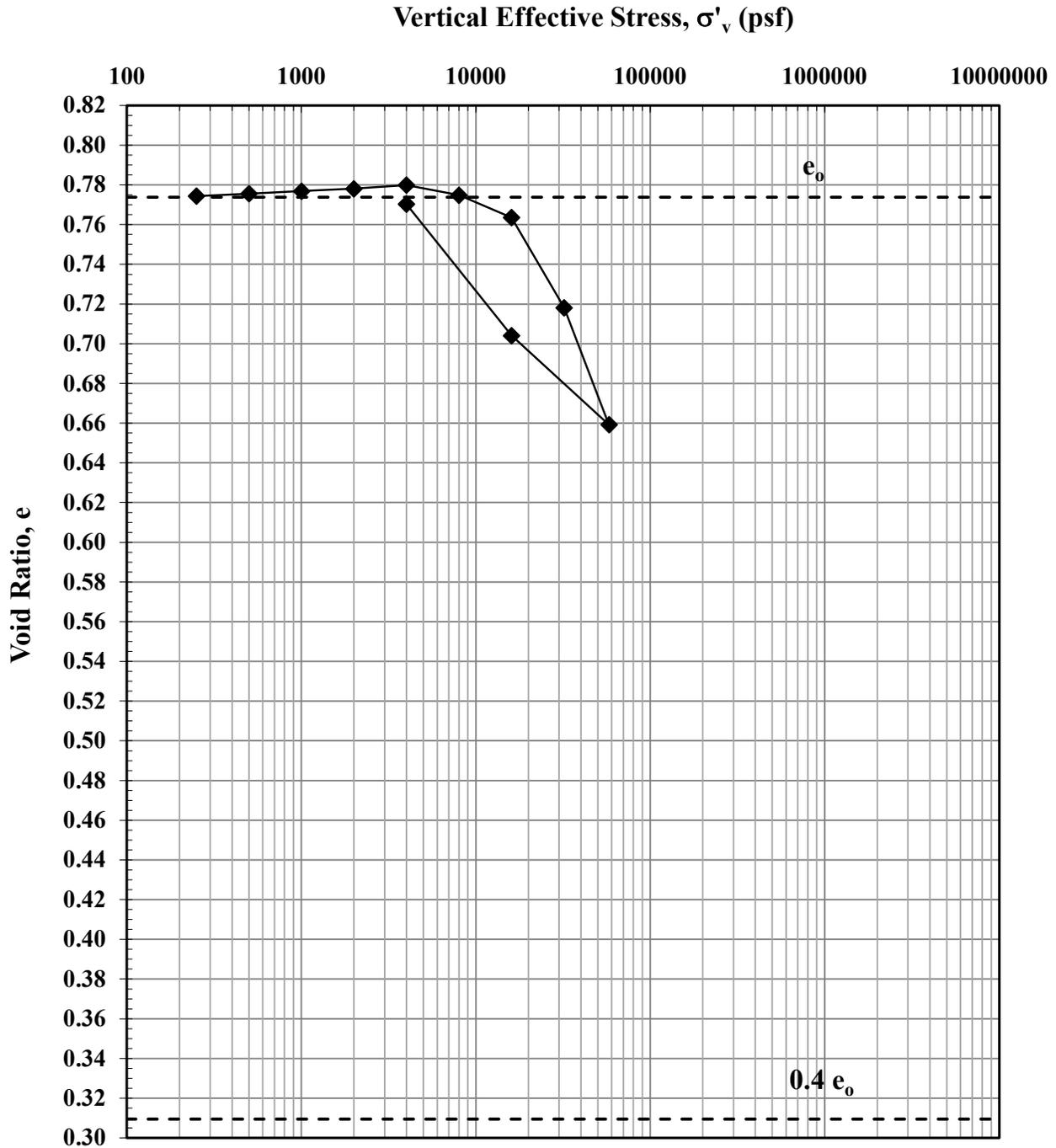
Cheng-Wei Chen, Ph.D. 04/13/20

Quality Review/Date
 Sample Prepared by: T.D.

One-Dimensional Consolidation Properties of Soil

Client: HVJ Associates, Inc.
 Project: IHSC ECIP (PN: HG1910092.2.1)
 Specimen: ECP-2008 (14-16 ft) (8Q/B)

Beyond Project No.: LT2001012
 Test Method: ASTM D2435, Method A
 Test Date: 03/21/20



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One-Dimensional Consolidation Properties of Soil Appendix

Client: HVJ Associates, Inc.
Project: IHSC ECIP (PN: HG1910092.2.1)
Specimen: ECP-2008 (14-16 ft) (8Q/B)

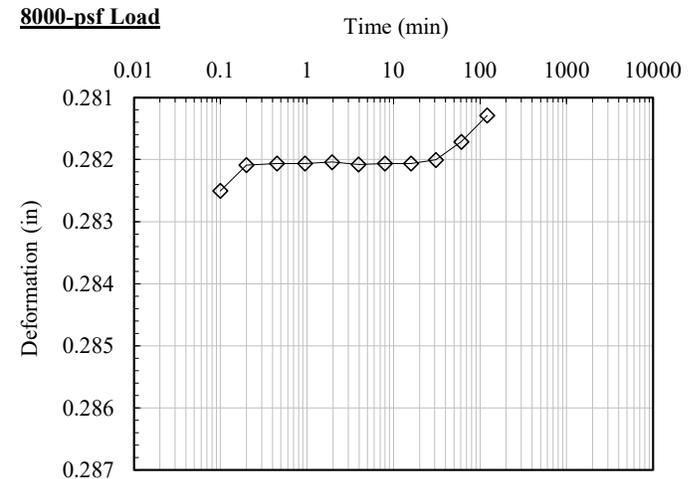
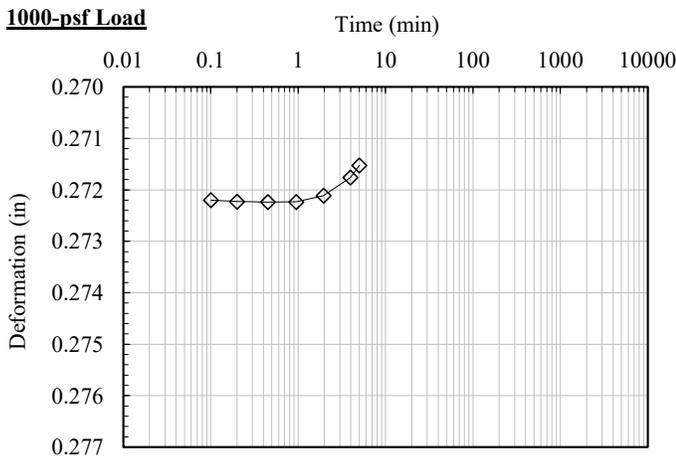
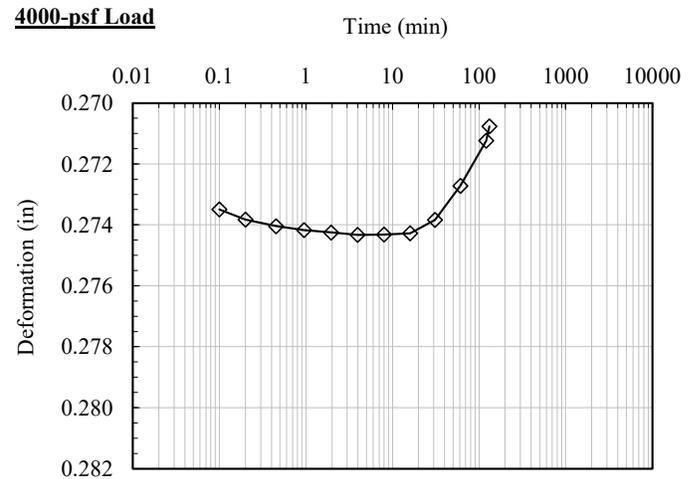
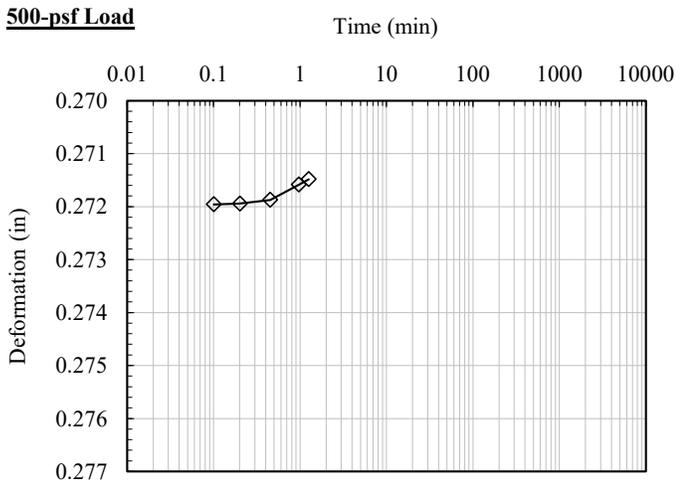
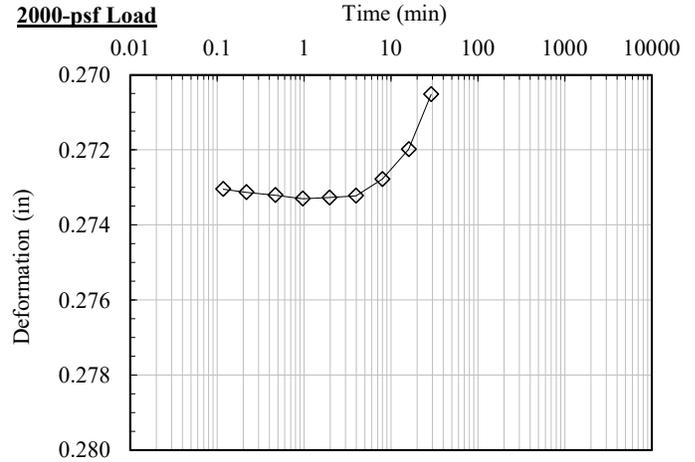
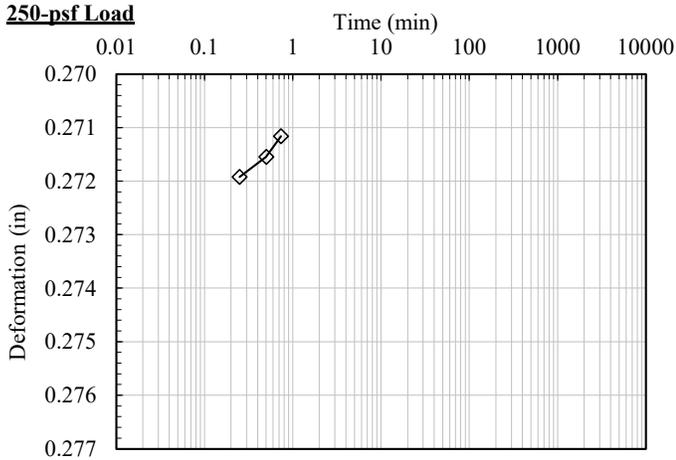
Beyond Project No.: LT2001012
Test Method: ASTM D2435, Method A
Test Date: 03/21/20



One-Dimensional Consolidation Properties of Soil Appendix

Client: HVJ Associates, Inc.
 Project: IHSC ECIP (PN: HG1910092.2.1)
 Specimen: ECP-2008 (14-16 ft) (8Q/B)

Beyond Project No.: LT2001012
 Test Method: ASTM D2435, Method A
 Test Date: 03/21/20

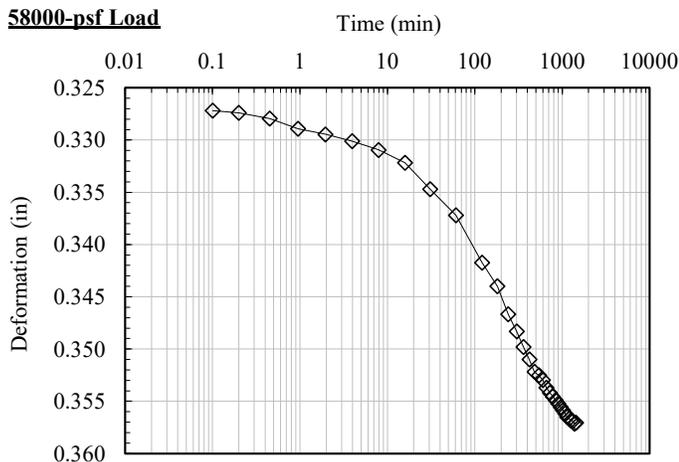
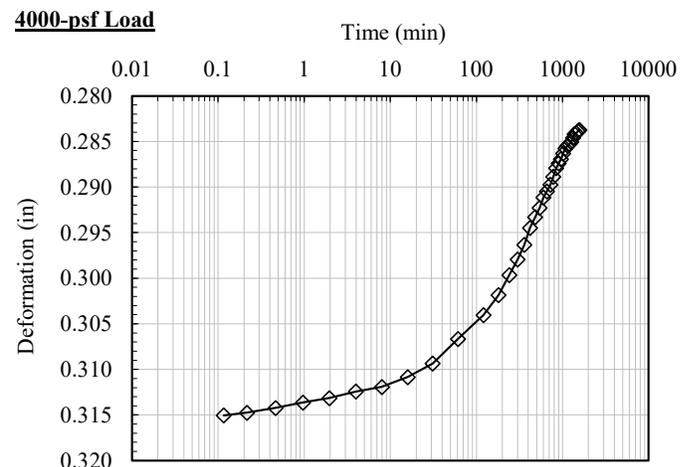
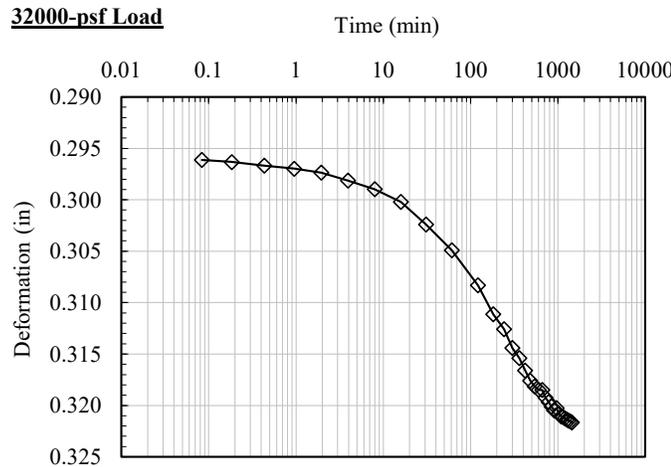
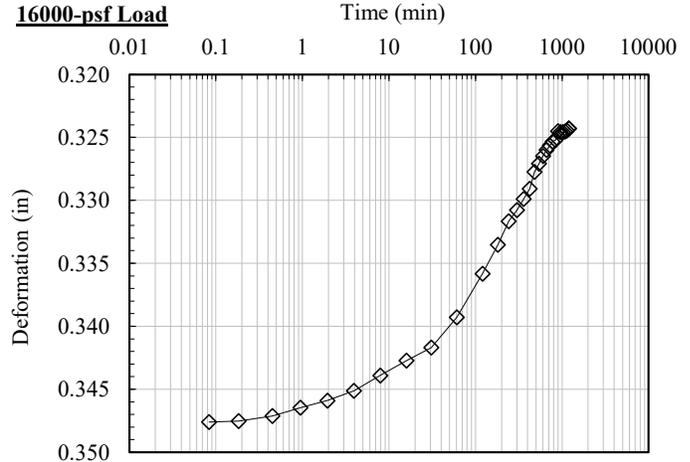
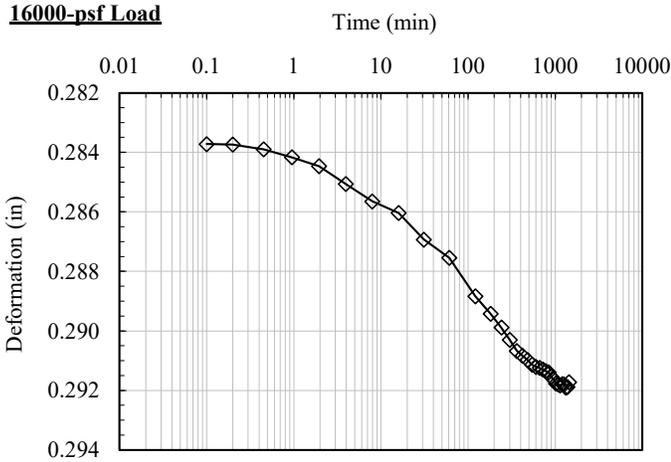


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One-Dimensional Consolidation Properties of Soil Appendix

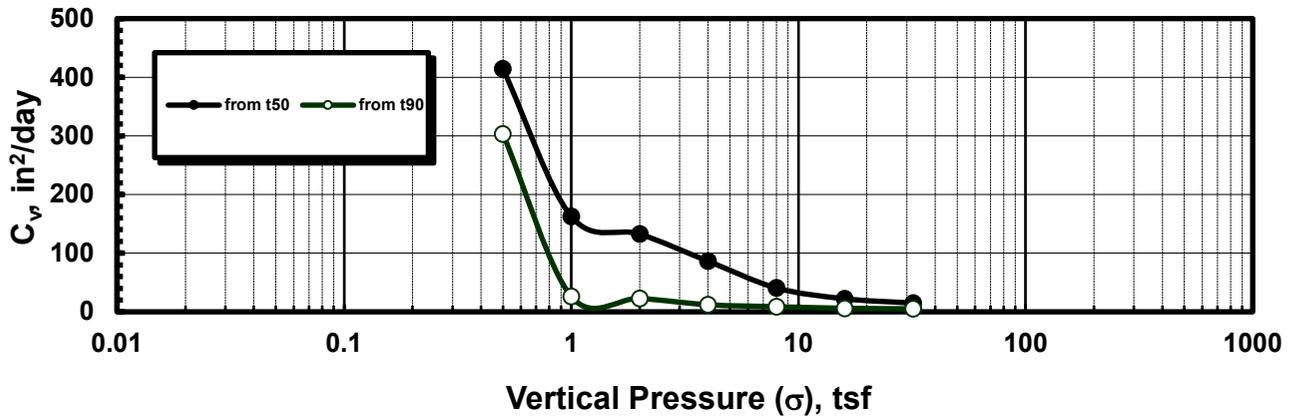
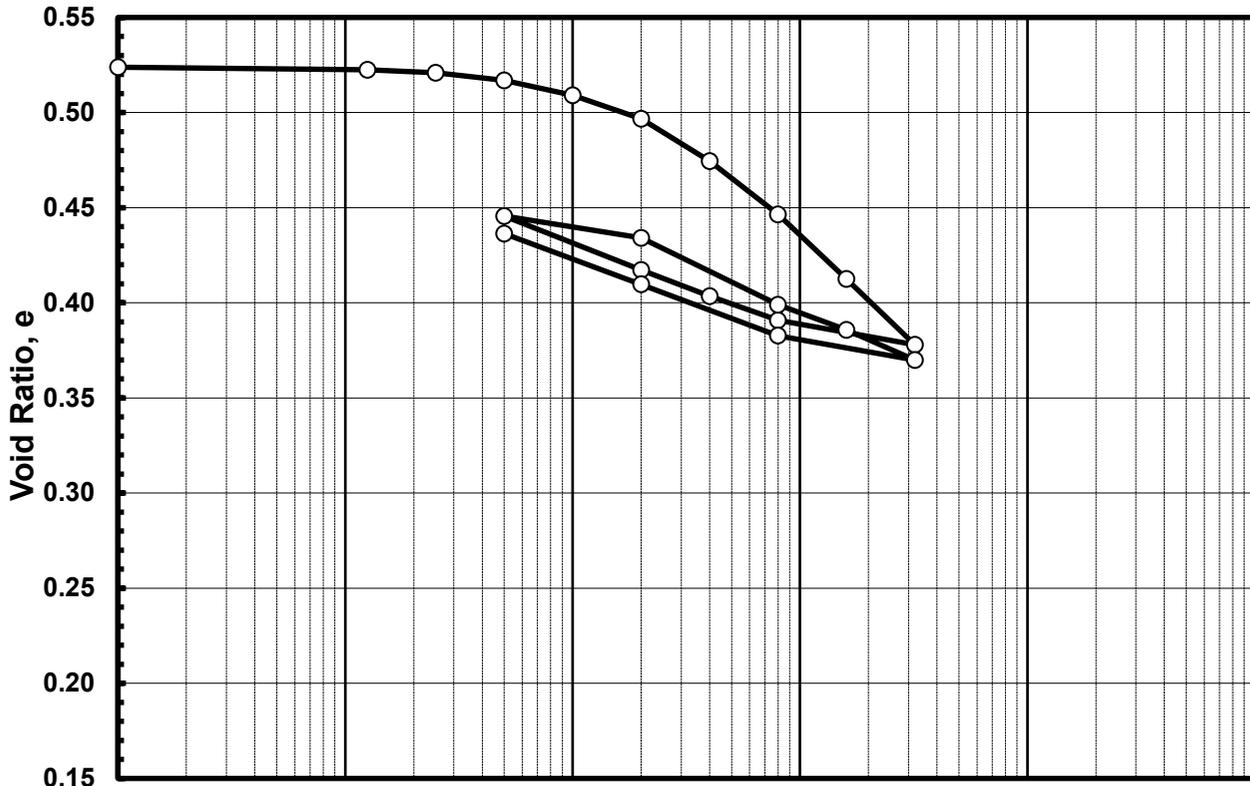
Client: HVJ Associates, Inc.
 Project: IHSC ECIP (PN: HG1910092.2.1)
 Specimen: ECP-2008 (14-16 ft) (8Q/B)

Beyond Project No.: LT2001012
 Test Method: ASTM D2435, Method A
 Test Date: 03/21/20



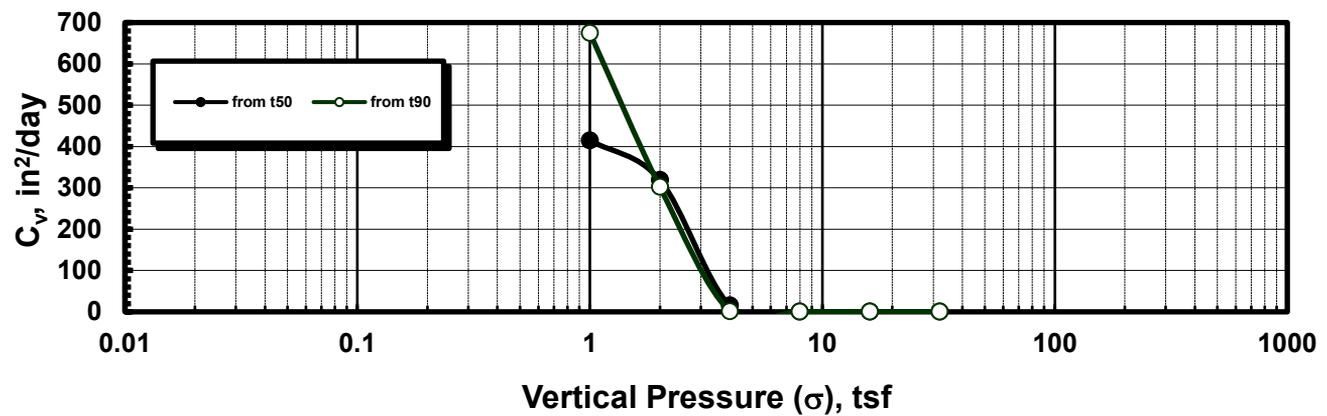
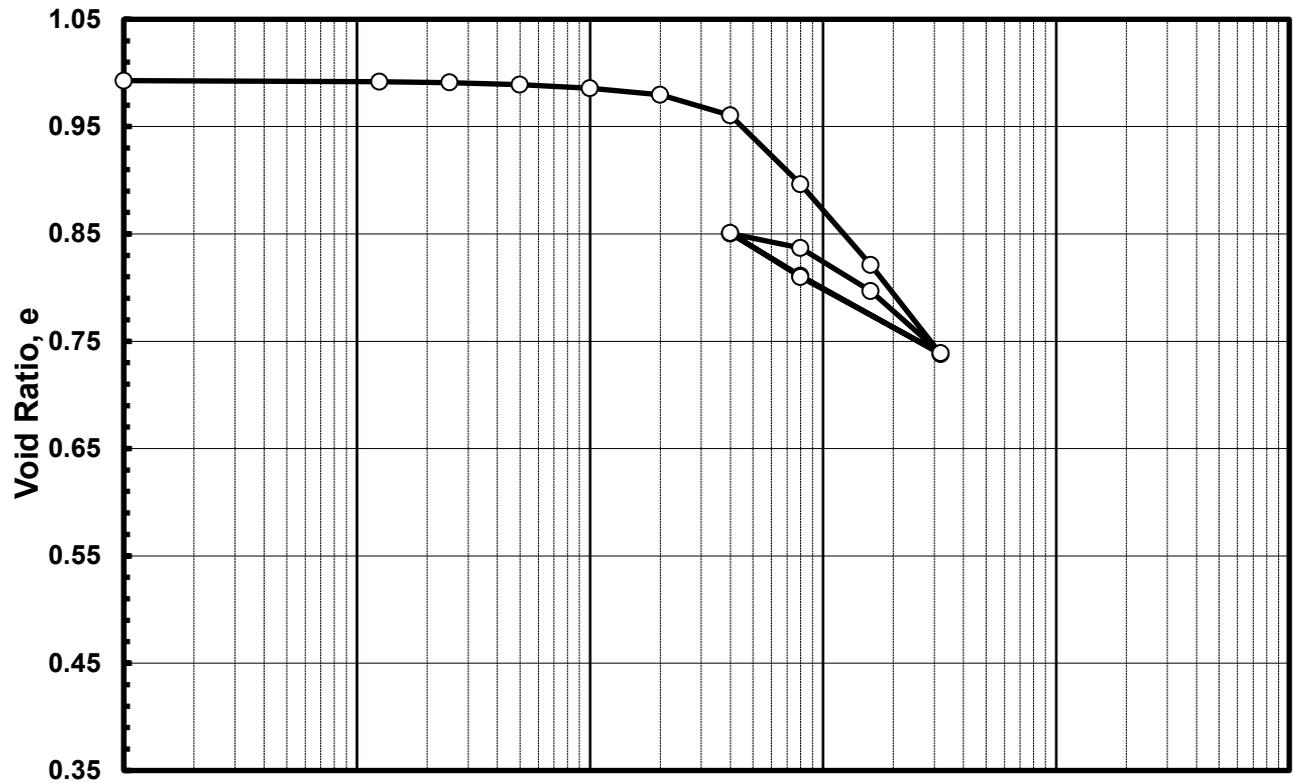
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CONSOLIDATION TEST RESULTS - ASTM D 2435



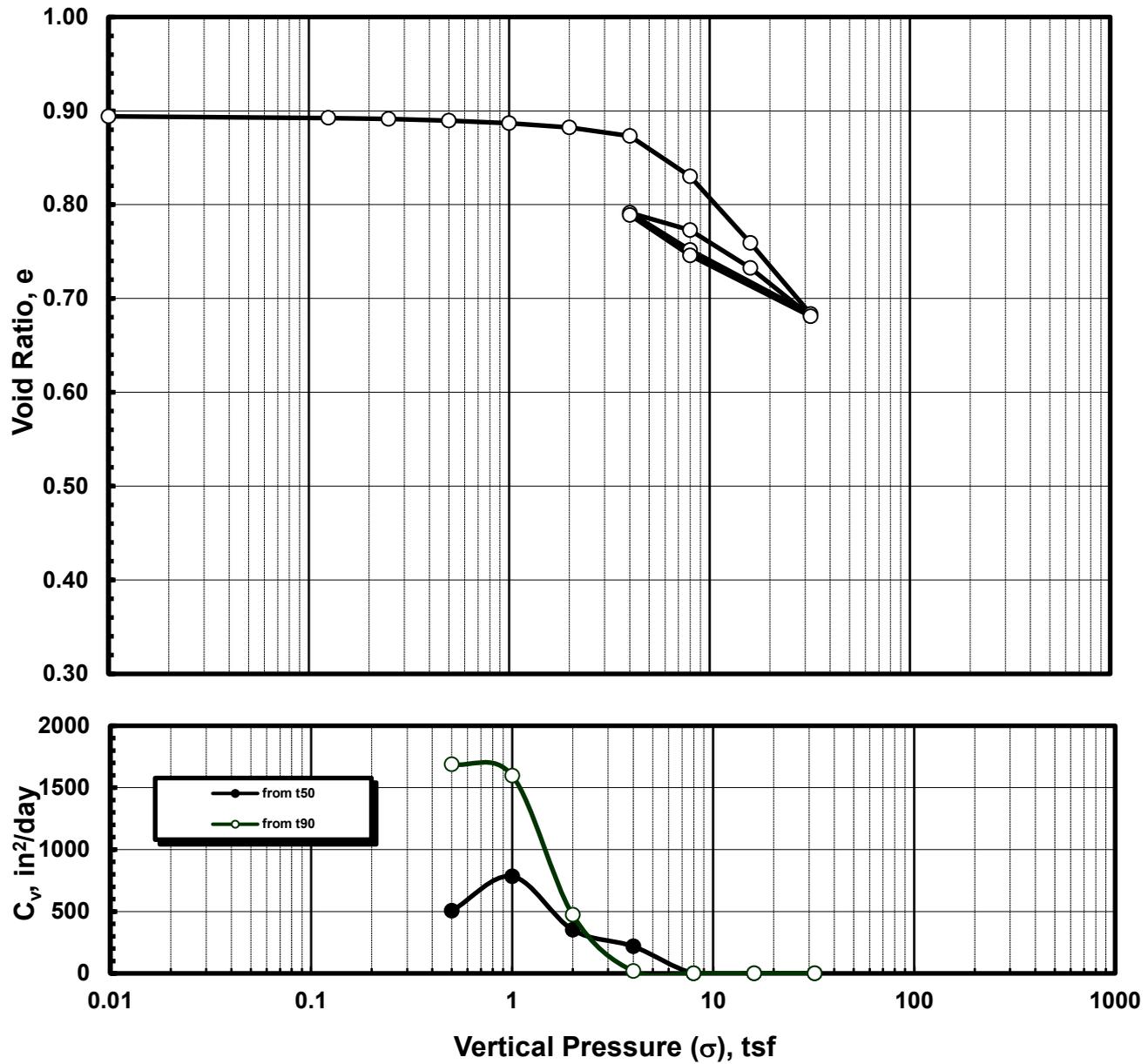
Sample Condition	Before	After	Consolidation Parameters	
Moisture Content, %:	18.2%	16.2%	Overburden Pressure, tsf:	0.44
Sample Height, in.:	1.0000	0.9426	Preconsolidation Pressure, tsf:	3.3
Void Ratio, e:	0.5238	0.4364	Compression Index, (C_c):	0.118
Unit Weight, pcf:	110.6	117.3	Re-Compression Index, (C_r):	0.037
Degree of Saturation:	0.94	1.00	Swell Index, C_s :	-
Project Number:	HG1910092.2.1		Liquid Limit:	42
Project Name:	Houston Ship Channel		Hand Pen:	0.75 tsf
Boring No.:	ECP-2018		Plastic Limit:	14
Sample ID, Depth:	S-4, 6-8 FT		-200 %:	69
			Plasticity Index:	28
			SPG:	2.7
			Classification:	Sandy Lean Clay (CL); Red-Br w/ calc.

CONSOLIDATION TEST RESULTS - ASTM D 2435



Sample Condition	Before	After	Consolidation Parameters	
Moisture Content, %:	36.9%	31.5%	Overburden Pressure, tsf:	1.2
Sample Height, in.:	1.0000	0.9287	Preconsolidation Pressure, tsf:	5.1
Void Ratio, e:	0.9929	0.8508	Compression Index, (Cc):	0.250
Unit Weight, pcf:	84.5	91.0	Re-Compression Index, (Cr)	0.126
Degree of Saturation:	1.00	1.00	Swell Index, Cs:	-
Project Number:	HG1910092.2.1		Liquid Limit:	62
Project Name:	Houston Ship Channel		Hand Pen:	0.66 tsf
Boring No.:	ECP-2026		Plastic Limit:	20
Sample ID, Depth:	S-10, 18-20 FT		-200 %:	96
			Plasticity Index:	42
			SPG:	2.7
			Classification:	Fat Clay (CH); Br-Gray w/calc. nod.

CONSOLIDATION TEST RESULTS - ASTM D 2435



Sample Condition	Before	After	Consolidation Parameters			
Moisture Content, %:	31.7%	28.7%	Overburden Pressure, tsf:	0.94		
Sample Height, in.:	1.0000	0.9444	Preconsolidation Pressure, tsf:	5.8		
Void Ratio, e:	0.8941	0.7888	Compression Index, (Cc):	0.207		
Unit Weight, pcf:	90.6	95.9	Re-Compression Index, (Cr)	0.126		
Degree of Saturation:	0.97	1.00	Swell Index, Cs:	-		
Project Number:	HG1910092.2.1		Liquid Limit:	82	Hand Pen:	0.83 tsf
Project Name:	Houston Ship Channel		Plastic Limit:	26	-200 %:	99
Boring No.:	ECP-2037		Plasticity Index:	56	SPG:	2.75
Sample ID, Depth:	S-8, 14-16 FT		Classification:	Fat Clay (CH); Br & Gray w/calc. nod.		

APPENDIX E

PIEZOCONE PENETRATION AND VANE SHEAR TEST REPORT – SPILMANS ISLAND



FUGRO
Fugro USA Land, Inc.
6100 Hillcroft Ave.
Houston, Texas 77081
USA

July 6, 2020
Report Number 04.19200015

HVJ Associates, Inc.
6120 S. Dairy Ashford
Houston, Texas 77072
USA

Attn.: Mr. Anil Raavi

**REPORT FOR
PIEZOCONE PENETRATION TESTING
AND VANE SHEAR TESTS
SPILLMAN'S ISLAND
TEXAS**

Dear Mr. Raavi,

Introduction

Fugro is pleased to present data report for Piezocone Penetration Testing and Related Services performed at the above-referenced site. This report contains the scope of services performed and the test results.

Scope of Services

We performed three (3) Piezocone Penetration Tests (PCPT) to depths of 60 ft. below ground surface and three (3) Vane Shear Tests. All PCPT sounding locations were grouted after the completion of the tests.

PCPT Testing

The PCPT soundings were conducted in general accordance with ASTM D5778-12, *Electronic Friction Cone and Piezocone Penetration Testing of Soils* using a 25-ton truck mounted CPT unit. The in-situ soil data was obtained by hydraulically advancing a cylindrical steel rod, with an instrumented probe at the base, vertically into the subsurface materials at a constant rate of 2 centimeters per second. The instrumented probe consists of a cone-shaped tip element, with an apex angle of 60 degrees with a base area of 15 square centimeters (cm²) and a cylindrical-shaped side friction sleeve with a surface area of 200 cm². A pore transducer is mounted between the tip and friction sleeve. Measurements of penetration resistance at the cone tip (q_c), frictional resistance along the friction sleeve (f_s), and pore water pressure (u_2), were recorded with depth during penetration. PCPT sounding measurements collected for this project are presented on the logs attached at the end of this report.

PCPT methods test the soil *in situ* and soil samples are not obtained. There are several methods to identify the soil type using the PCPT data collected. For your reference, we have presented soil stratigraphy using the attached *Campanella and Robertson's Simplified Soil Behavior Chart (12-zone, 1986)*.

Please note that because of the empirical nature of the soil behavior chart, the soil identification should be verified locally from soil borings and laboratory testing. Some soils, such as cemented or calcareous soils, or glacial tills are outside the limits of the soil behavior chart.

VST Testing

Vane Shear Testing was conducted in general accordance with ASTM D2583-08, *Standard Test Method for Field Vane Shear Test in Cohesive Soil* using a 20-ton track mounted CPT unit. The equipment utilized in this investigation for the vane shear testing was a Geotech EVT 2000 Vane System. This system included Eurocode model downhole equipment which provides protection for the 65 x 130 mm rectangular vane blade when pushing the tool to the desired test depth. The EVT 2000 instrument head provided the motor controls for turning the vane and instrumentation for measure torque and speed. The downhole equipment was pushed using 55 mm x 1 meter casing to a depth 1.25 feet short of the desired test depth. After securing the casing to hold it in place the inner rod was then pushed 1.25 feet to deploy the vane blade to the desired depth. The inner rod used to deploy the vane and apply torque was 1 inch x 1 meter Geoprobe push rod. The instrument head than was attached to he secured casing and the inner rod turned by the drive motor.

The motor of the instrument head is turned on to begin the test. The speed of rotation was adjusted while monitoring the readings on the computer. Speed was maintained at approximately 0.1 degrees per second. The first 18 to 23 degrees was the friction of the inner rod in the slip coupling. The test was continued until past soil shear or a maximum reading of 80 Nm.

Results of the VST are presented in the attached Field Vane Shear Test Report tables. The correction factors used to calculate S_u Mob were provided by HVJ Associates in the attached Vane Shear Correction Factor document dated January 3, 2014.

Closing

Fugro appreciates the opportunity to be of service to you. If you have any questions, please feel free to contact me at 713.346.4004.

Best Regards,



Sheldon Collins,
Service Line Manager – CPT
North America

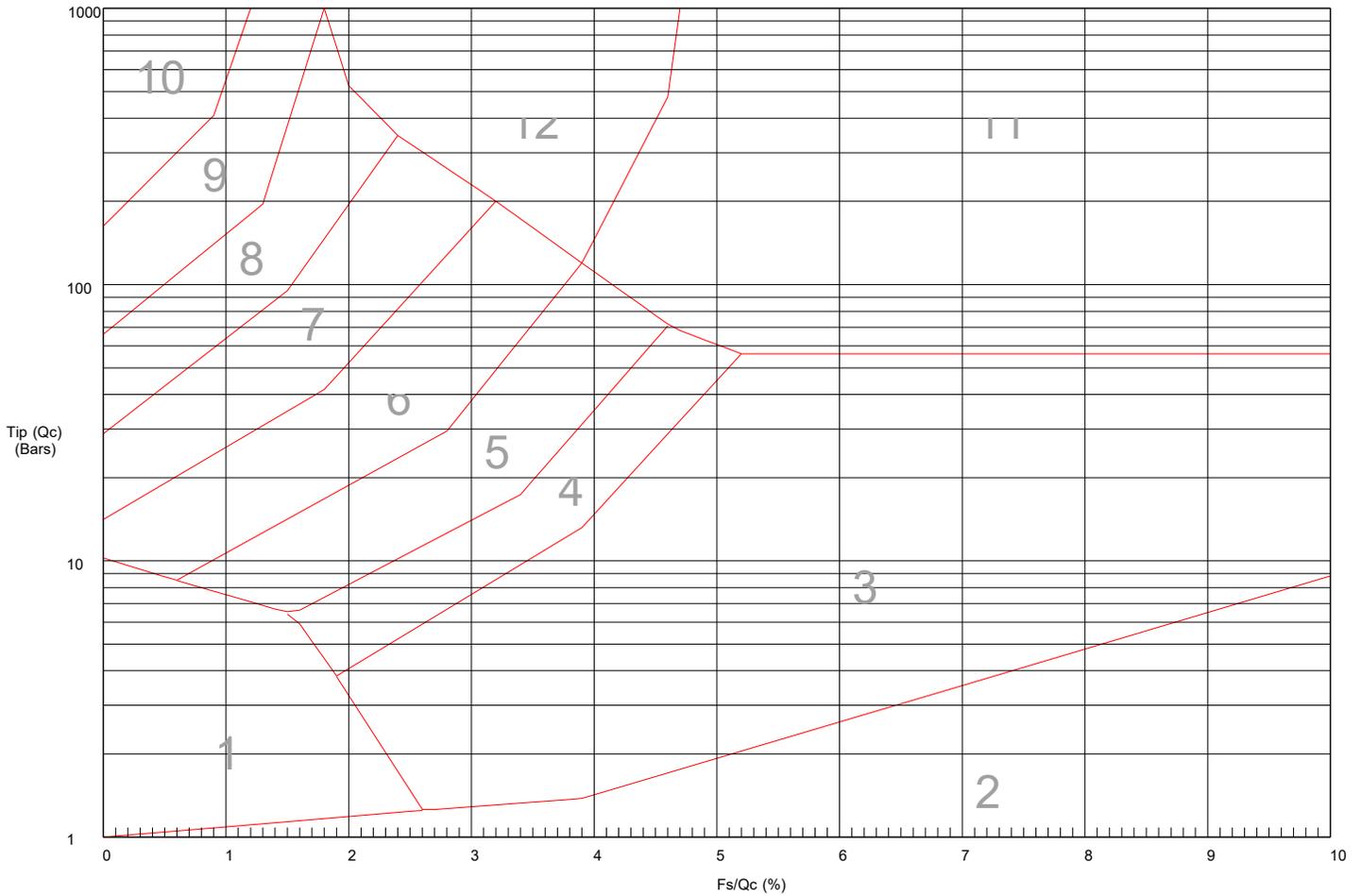
SC/am

Attachments: *Campanella and Robertson's Simplified Soil Behavior Chart* (1 page)
PCPT Sounding Logs (3 pages)
Three (3) Electronic Data Files
Vane Shear Plots (17)
Three (3) Vane Shear Reports



12 Zone Soil Behavior Chart

Classification Data:
Robertson and Campanella UBC-1986



- 1 sensitive fine grained
- 2 organic material
- 3 clay

- 4 silty clay to clay
- 5 clayey silt to silty clay
- 6 sandy silt to clayey silt

- 7 silty sand to sandy silt
- 8 sand to silty sand
- 9 sand

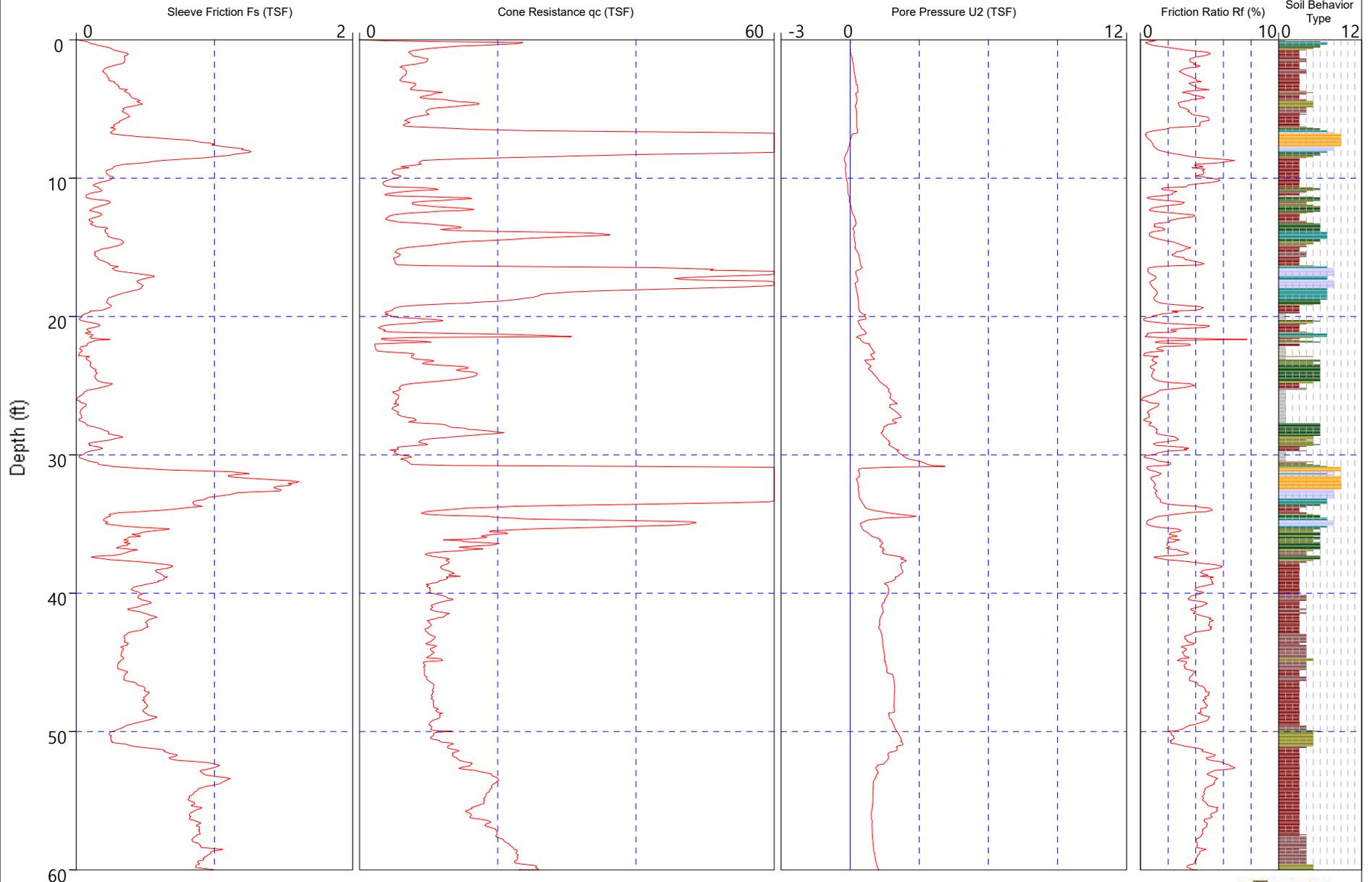
- 10 gravelly sand to sand
- 11 very stiff fine grained (*)
- 12 sand to clayey sand (*)

* Overconsolidated or cemented

Job Number: 04.19200015
Operator: Albert Fonseca
Location: Spilmans Island

CPT Number: HVJ ECP-C-01
Date: 09-Jun-2020
Elevation: 0.00

Coordinates: 29.68489, -94.99097
Cone Number: CP15-CF75PB1SN2-P1E1 0071



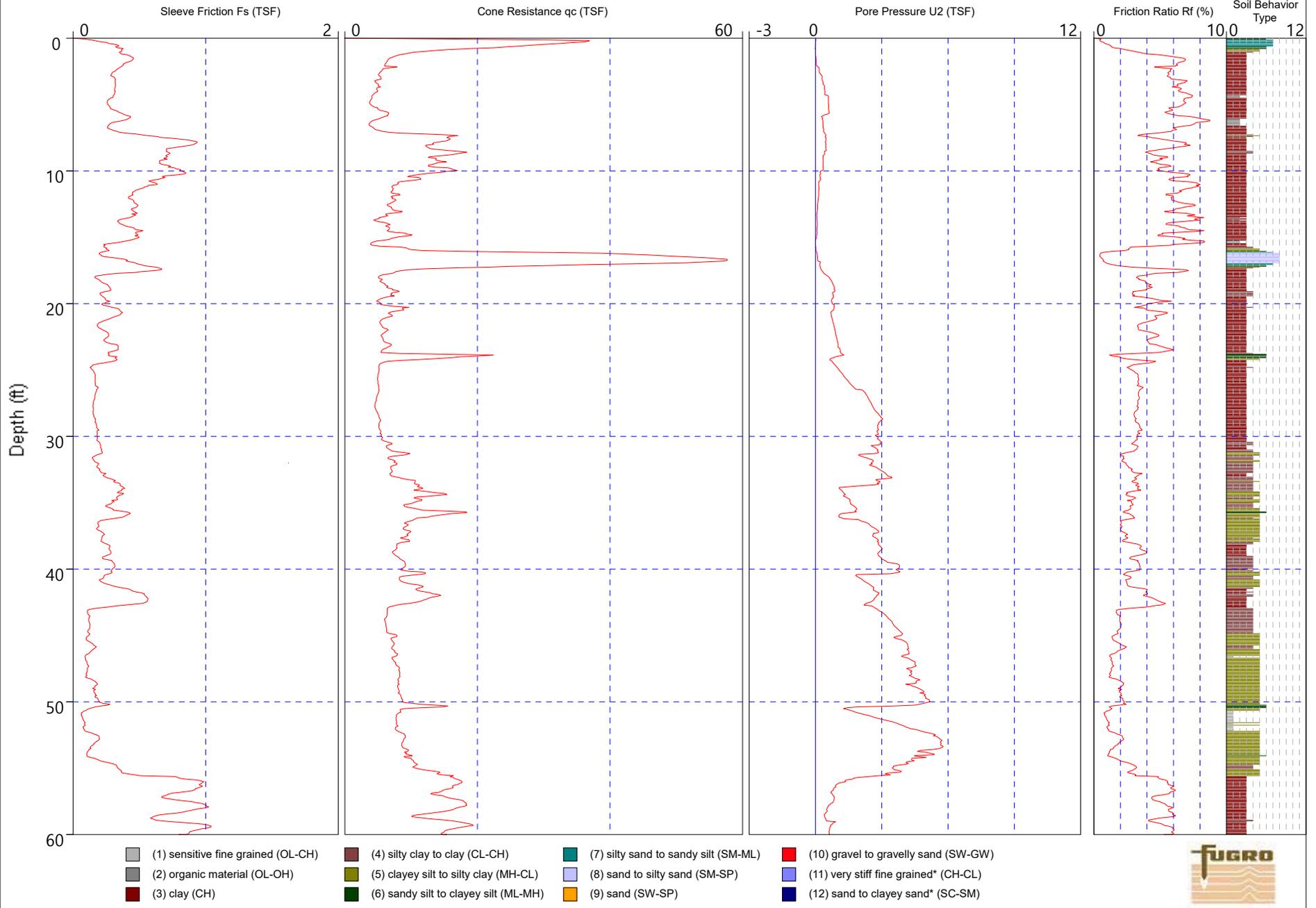
- | | | | |
|------------------------------------|---------------------------------------|--------------------------------------|---------------------------------------|
| (1) sensitive fine grained (OL-CH) | (4) silty clay to clay (CL-CH) | (7) silty sand to sandy silt (SM-ML) | (10) gravel to gravelly sand (SW-GW) |
| (2) organic material (OL-OH) | (5) clayey silt to silty clay (MH-CL) | (8) sand to silty sand (SM-SP) | (11) very stiff fine grained* (CH-CL) |
| (3) clay (CH) | (6) sandy silt to clayey silt (ML-MH) | (9) sand (SW-SP) | (12) sand to clayey sand* (SC-SM) |



Job Number: 04.19200015
Operator: Albert Fonseca
Location: Spilmans Island

CPT Number: HVJ ECP-C-02
Date: 09-Jun-2020
Elevation: 0.00

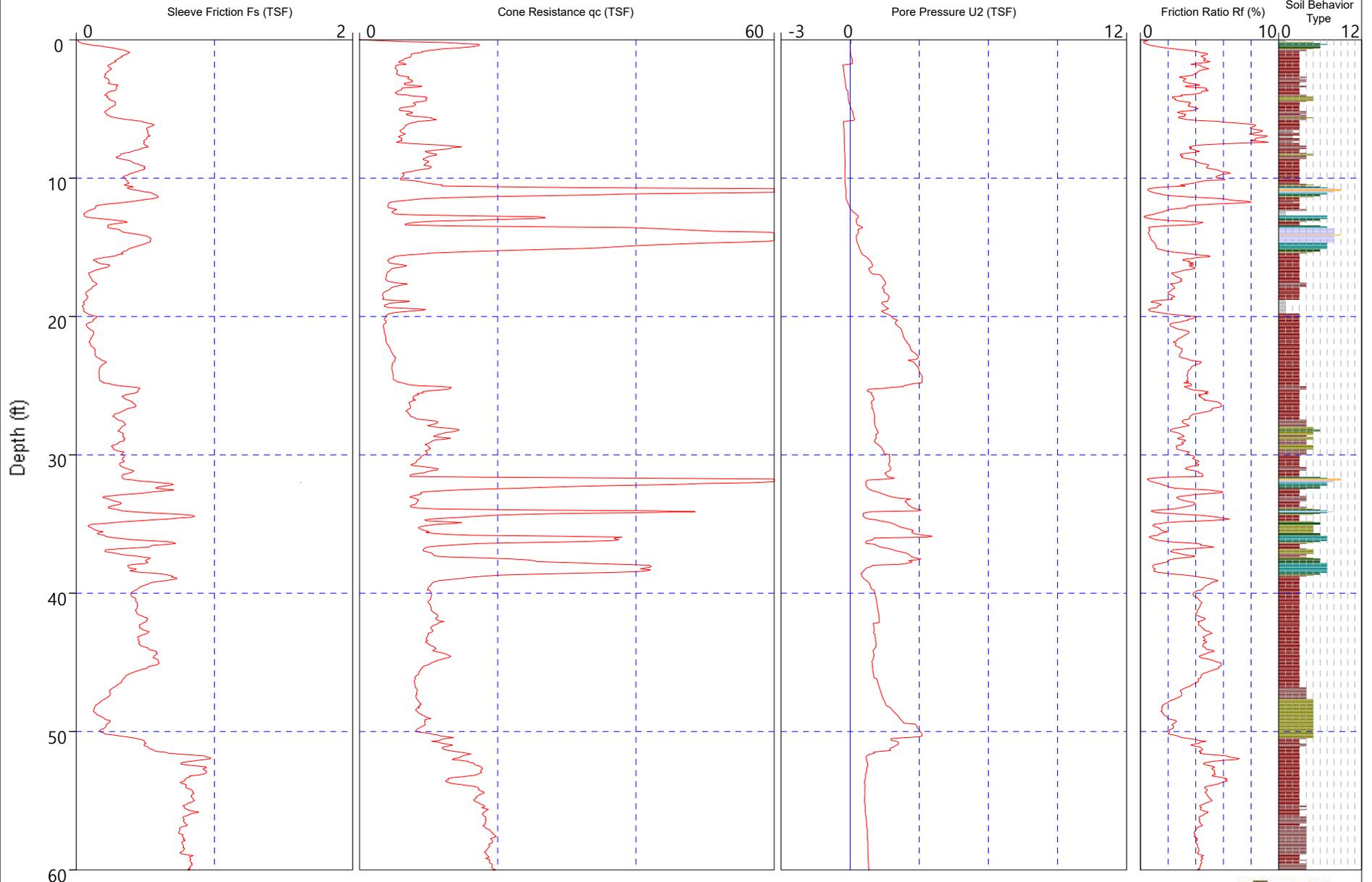
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Cone Number: CP15-CF75PB1SN2-P1E1 0071



Job Number: 04.19200015
Operator: Albert Fonseca
Location: Spilmans Island

CPT Number: HVJ ECP-C-03
Date: 09-Jun-2020
Elevation: 0.00

Coordinates: 29.6846, -94.99323
Cone Number: CP15-CF75PB1SN2-P1E1 0071



- | | | | |
|------------------------------------|---------------------------------------|--------------------------------------|---------------------------------------|
| (1) sensitive fine grained (OL-CH) | (4) silty clay to clay (CL-CH) | (7) silty sand to sandy silt (SM-ML) | (10) gravel to gravelly sand (SW-GW) |
| (2) organic material (OL-OH) | (5) clayey silt to silty clay (MH-CL) | (8) sand to silty sand (SM-SP) | (11) very stiff fine grained* (CH-CL) |
| (3) clay (CH) | (6) sandy silt to clayey silt (ML-MH) | (9) sand (SW-SP) | (12) sand to clayey sand* (SC-SM) |



Field Vane Shear Test Report, Ref: ASTM D 2573-01(2007)

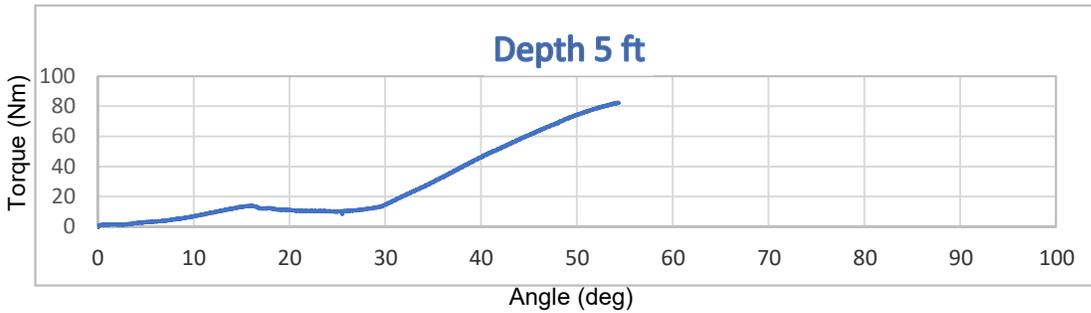
Project: 04.19200015 Location: Spilmans Island, LaPorte, T Coord: 29.68489, -94.99097 El (ft): _____
 Sounding ID: HVJ ECP-C-01 Vane Shape/Size: Rectangular, 130 x 65 mm Date: 6/12/2020

Test #	Undist/ Remold	Depth Vane Tip (m)	Depth Vane Tip (ft)	Housing Tip (ft)	Time End Push/ Rotations	Pause Prior to Start Test (min)	Time to Failure (min)	Avg. Rotation Speed Deg/sec	Max Torque (Nm)	Rod Friction (Nm)	Su (kPa)	Su (psf)	α^*	Su Mob (psf)*	Remold Su Mob (psf)	S _T (ratio)	Remold Rotations
1	U		5.0	3.8	NR	1		0.10	82.46	10.28	71.67	1497	0.80	1198	Maxout	NA	NA
2	U		10.0	8.8	NR	1		0.10	20.98	9.10	11.80	246	0.80	197		NA	NA
3	R		10.0	8.8	NR	1		0.10	10.73	7.02	3.68	77	0.80	3	3	3.20	10
4	U		15.0	13.8	NR	1		0.10	37.13	13.16	23.80	497	0.80	398		NA	NA
5	R		15.0	13.8	NR	1		0.10	9.19	7.32	1.86	39	0.80	1	1	12.82	10
6	U		20.0	18.8	NR	1		0.10	25.41	9.38	15.92	332	0.80	266		NA	NA
7	R		20.0	18.8	NR	1		0.10	8.51	6.76	1.74	36	0.80	1	1	9.16	10
8	U		22.0	20.8	NR	1		0.10	16.89	9.71	7.13	149	0.80	119		NA	NA
9	R		22.0	20.8	NR	1		0.10	8.09	7.28	0.80	17	0.80	1	1	8.86	10
10	U		25.0	23.8	NR	1		0.10	36.47	6.59	29.67	620	0.80	496		NA	NA
11	R		25.0	23.8	NR	1		0.10	18.92	5.95	12.88	269	0.80	10	10	2.30	10
12	U		30.0	28.8	NR	1		0.10	22.76	6.39	16.26	340	0.80	272		NA	NA
13	R		30.0	28.8	NR	1		0.10	13.09	7.52	5.53	116	0.80	4	4	2.94	10
14	U		35.0	33.8	NR	1		0.10	75.13	6.80	67.85	1417	0.80	1134	Maxout	NA	NA
15	U		40.0	38.8	NR	1		0.10	73.91	4.83	68.60	1433	0.80	1146		NA	NA
16	R		40.0	38.8	NR	1		0.10	21.10	4.08	16.90	353	0.80	14	14	4.06	10
17	U		45.0	43.8	NR	1		0.10	75.76	1.67	73.57	1537	0.80	1229		NA	NA
18	R		45.0	43.8	NR	1		0.10	33.52	5.77	27.56	576	0.80	22	22	2.67	10
19	U		50.0	48.8	NR	1		0.10	61.54	3.82	57.32	1197	0.80	958		NA	NA
20	R		50.0	48.8	NR	1		0.10	22.37	1.23	20.99	438	0.80	17	17	2.73	10
21	U		55.0	53.8	NR	1		0.10	75.07	3.98	70.59	1474	0.80	1179	Maxout	NA	NA
22	U		60.0	58.8	NR	1		0.10	75.17	2.91	71.75	1499	0.80	1199	Maxout	NA	NA

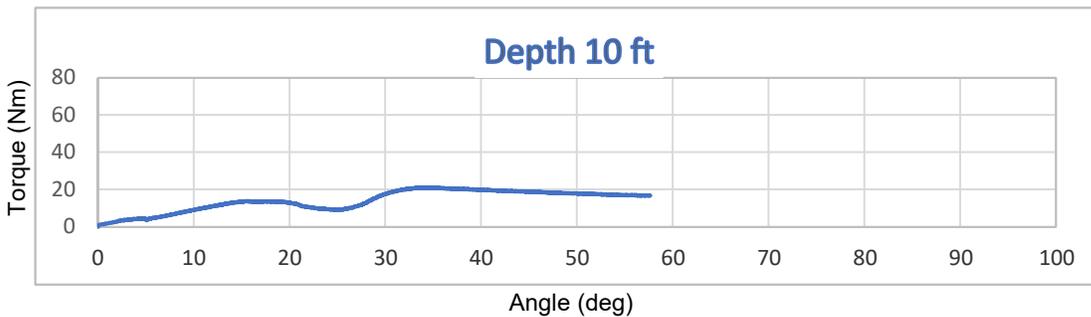
* As per Bjerrum, 1972. $\alpha = 0.8$ is a default mid-range value based on $PI = 50$. Whenever possible, α should be based on site-specific PI data. α will typically range between 0.6 and 1.0 based on PI. Accurate PI data from the discrete VST interval should improve the accuracy of the su mob result. For this report, specific PI data were used in corrections when available if the inference of PI to the discrete VST interval was reasonable.
 Note: time to failure does not include rod friction measurement time.

Calculate Alpha	
PI =	50
$\alpha =$	0.80

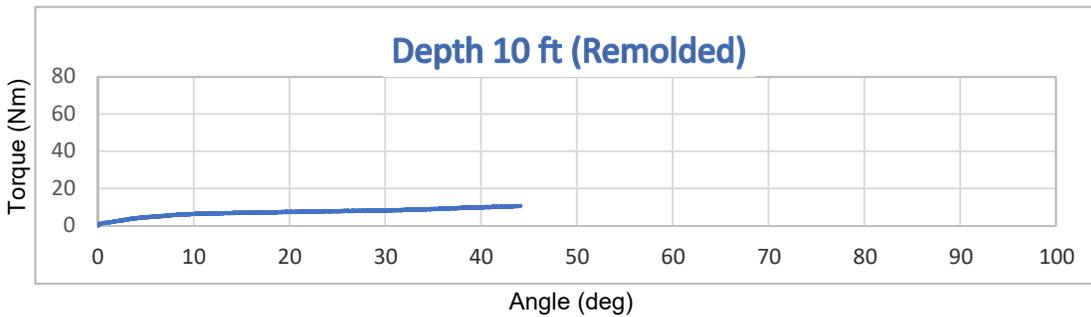




Shear strength = 71.67 [kPa], Max torque = 82.46 [Nm], Rod friction = 10.28 [Nm]



Shear strength = 11.80 [kPa], Max torque = 20.98 [Nm], Rod friction = 9.10 [Nm]



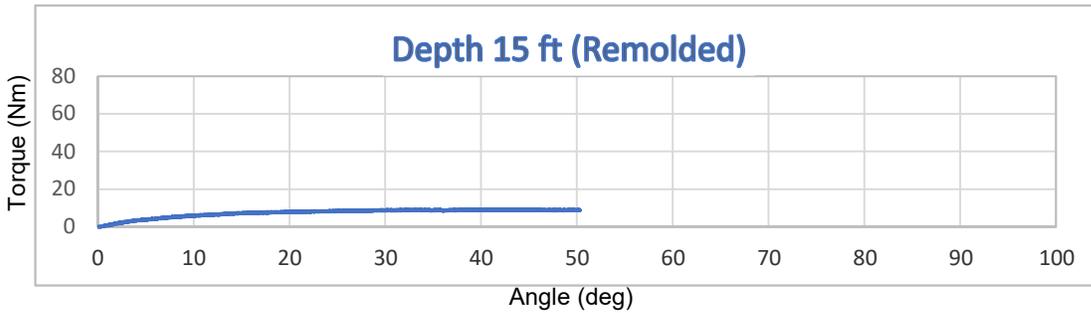
Shear strength = 3.68 [kPa], Max torque = 10.73 [Nm], Rod friction = 7.02 [Nm]



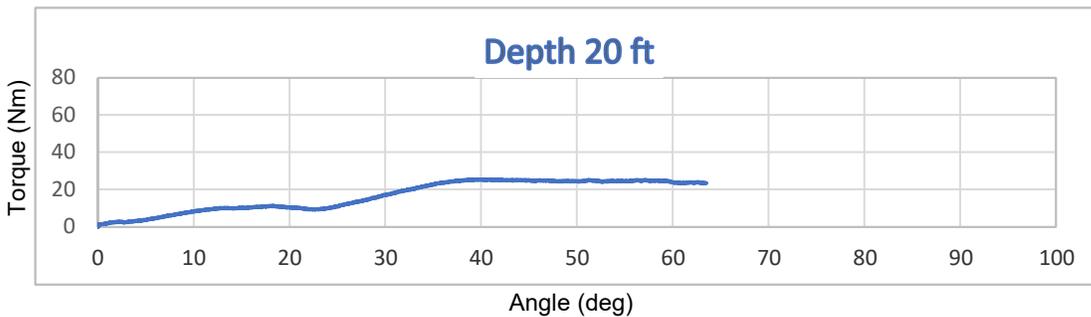
Shear strength = 23.80 [kPa], Max torque = 37.13 [Nm], Rod friction = 13.16 [Nm]

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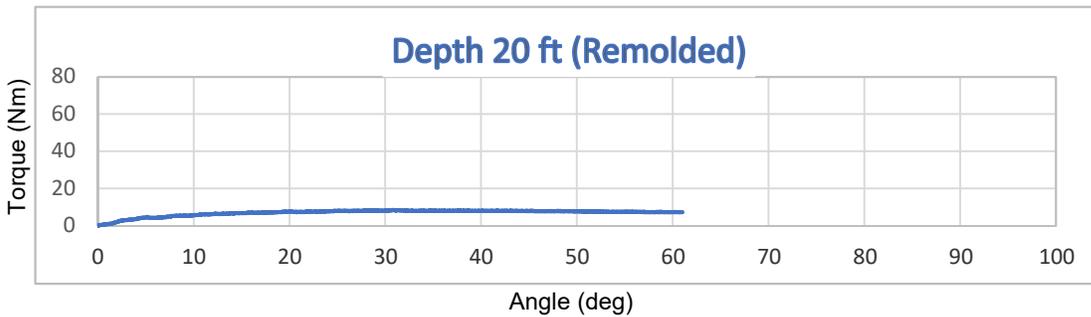




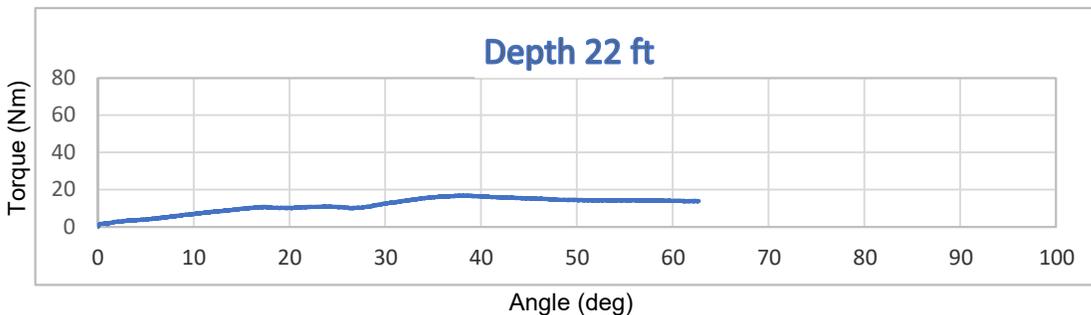
Shear strength = 1.86 [kPa], Max torque = 9.19 [Nm], Rod friction = 7.32 [Nm]



Shear strength = 15.92 [kPa], Max torque = 25.41 [Nm], Rod friction = 9.38 [Nm]



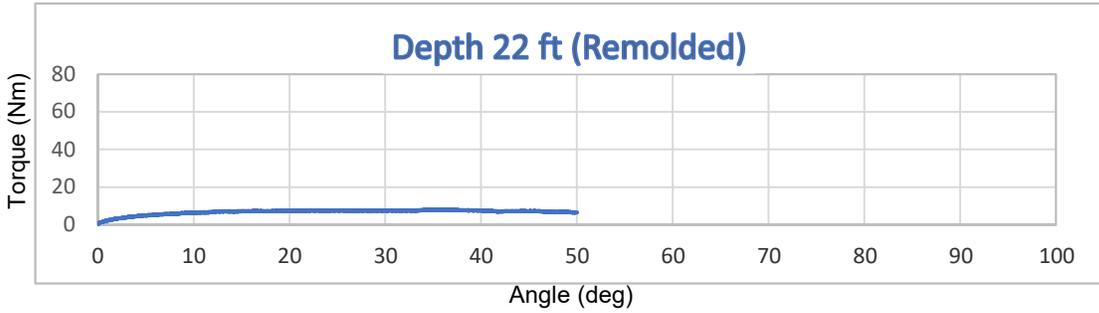
Shear strength = 1.74 [kPa], Max torque = 8.51 [Nm], Rod friction = 6.76 [Nm]



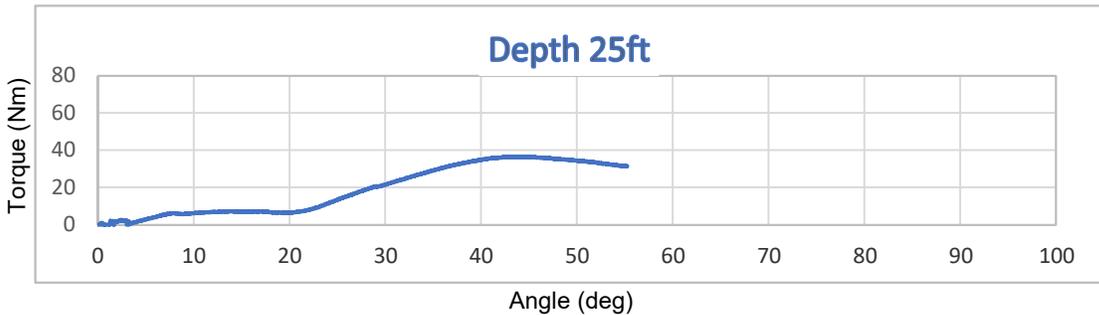
Shear strength = 7.13 [kPa], Max torque = 16.89 [Nm], Rod friction = 9.71 [Nm]

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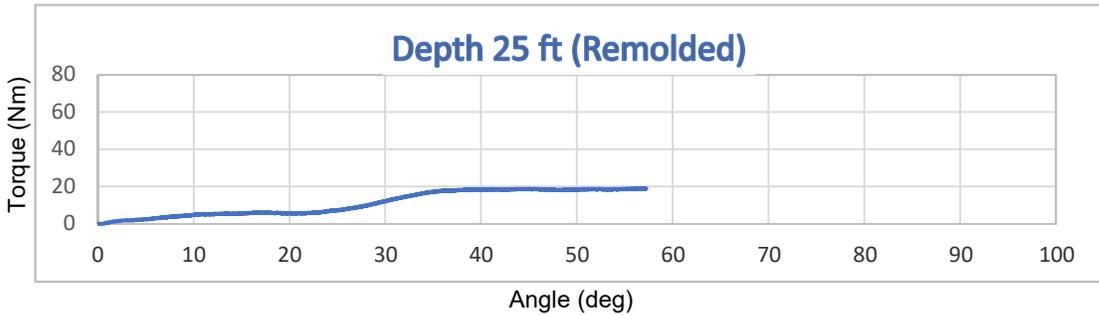




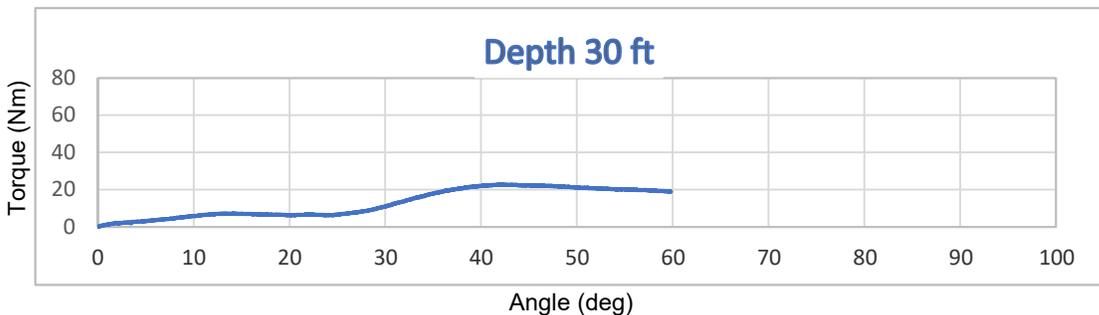
Shear strength = 0.80 [kPa], Max torque = 8.09 [Nm], Rod friction = 7.28 [Nm]



Shear strength = 29.67 [kPa], Max torque = 36.47 [Nm], Rod friction = 6.59 [Nm]



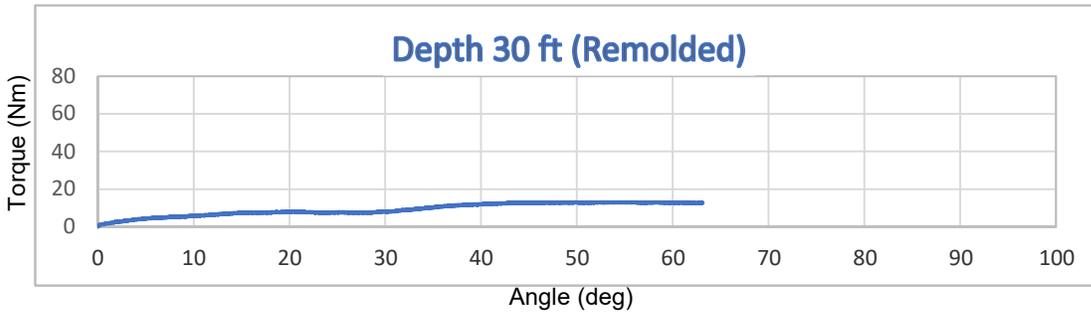
Shear strength = 12.88 [kPa], Max torque = 18.92 [Nm], Rod friction = 5.95 [Nm]



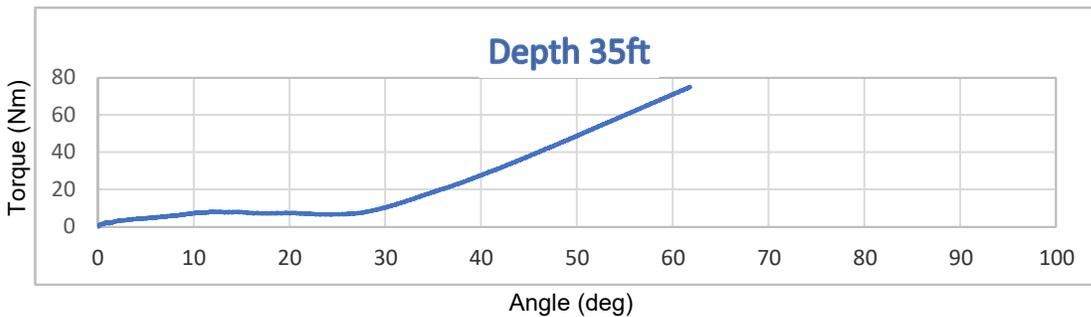
Shear strength = 16.26 [kPa], Max torque = 22.76 [Nm], Rod friction = 6.39 [Nm]

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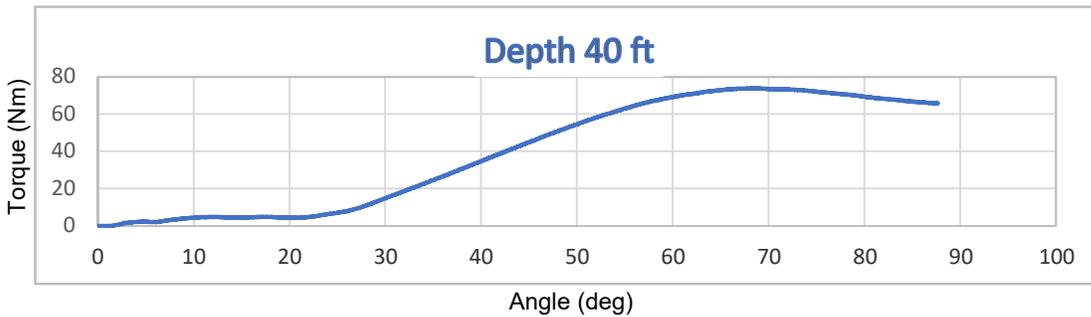




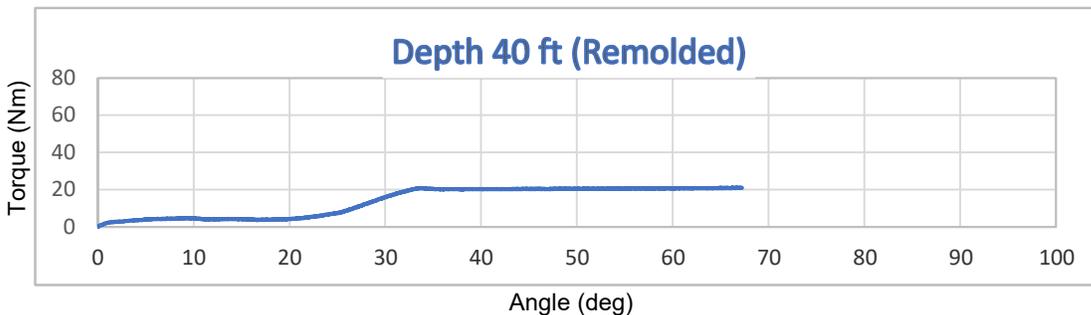
Shear strength = 5.53 [kPa], Max torque = 13.09 [Nm], Rod friction = 7.52 [Nm]



Shear strength = 67.85 [kPa], Max torque = 75.13 [Nm], Rod friction = 6.80 [Nm]



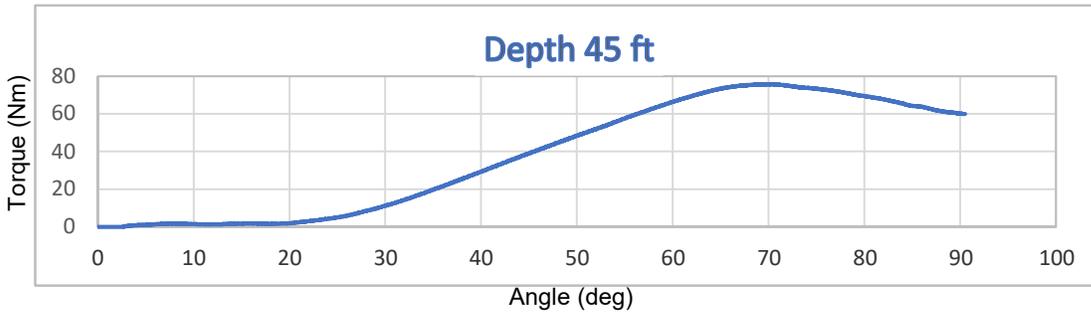
Shear strength = 68.60 [kPa], Max torque = 73.91 [Nm], Rod friction = 4.83 [Nm]



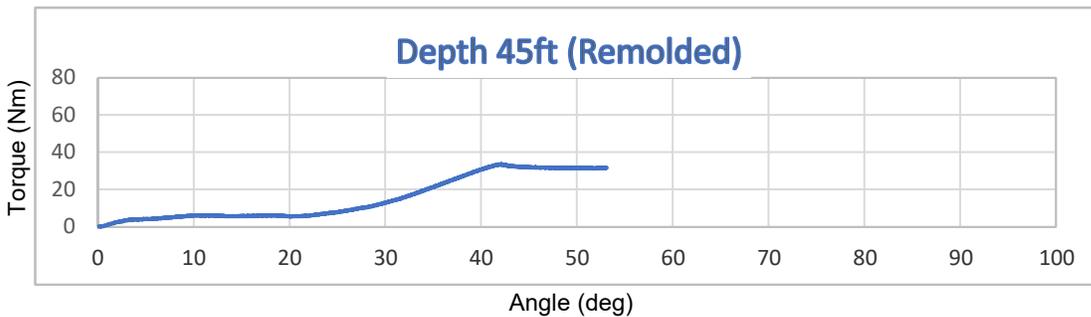
Shear strength = 16.90 [kPa], Max torque = 21.10 [Nm], Rod friction = 4.08 [Nm]

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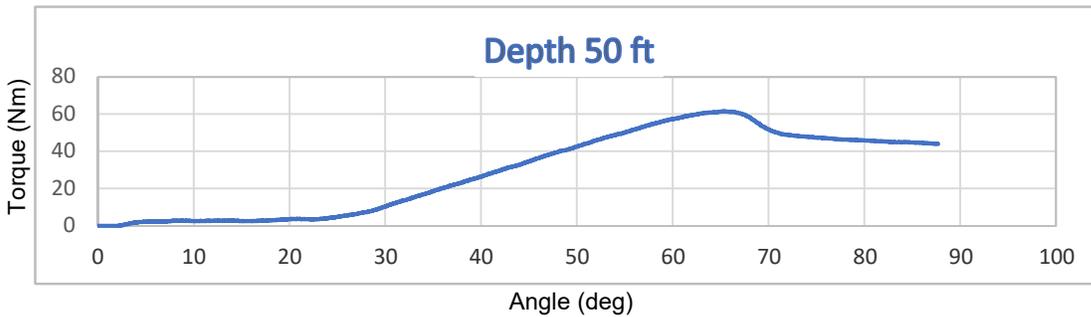




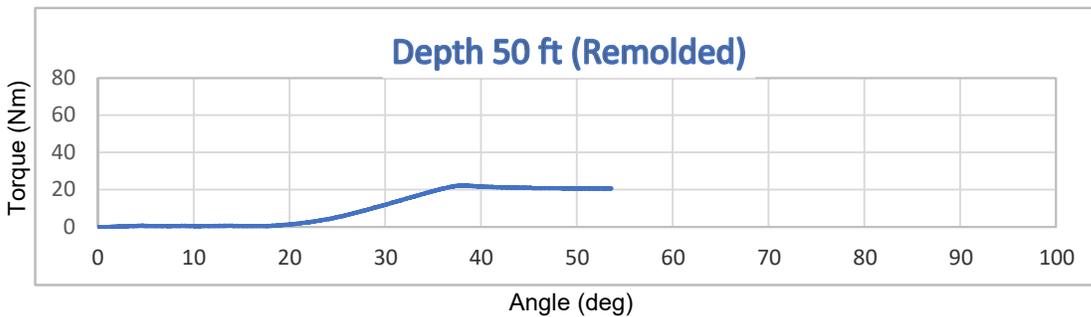
Shear strength = 73.57 [kPa], Max torque = 75.76 [Nm], Rod friction = 1.67 [Nm]



Shear strength = 27.56 [kPa], Max torque = 33.52 [Nm], Rod friction = 5.77 [Nm]



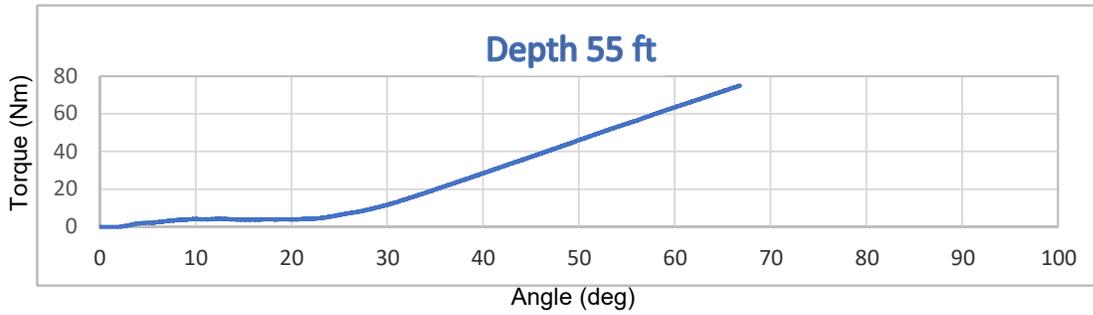
Shear strength = 57.32 [kPa], Max torque = 61.54 [Nm], Rod friction = 3.82 [Nm]



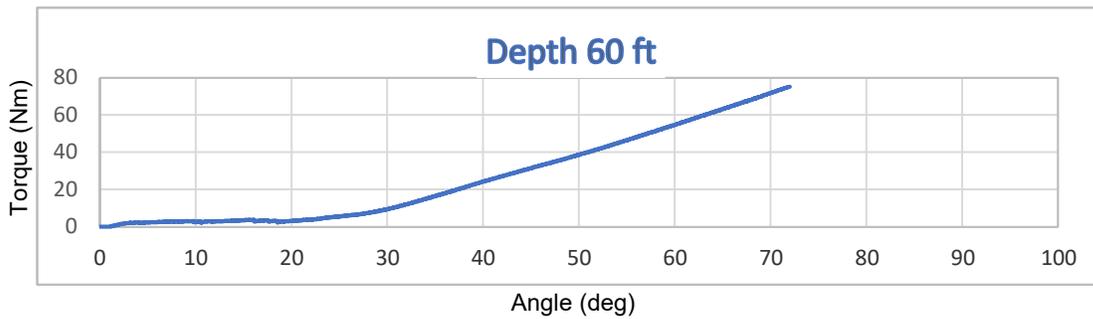
Shear strength = 20.99 [kPa], Max torque = 22.37 [Nm], Rod friction = 1.23 [Nm]

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Shear strength = 70.59 [kPa], Max torque = 75.07 [Nm], Rod friction = 3.98 [Nm]



Shear strength = 71.75 [kPa], Max torque = 75.17 [Nm], Rod friction = 2.91 [Nm]

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Field Vane Shear Test Report, Ref: ASTM D 2573-01(2007)

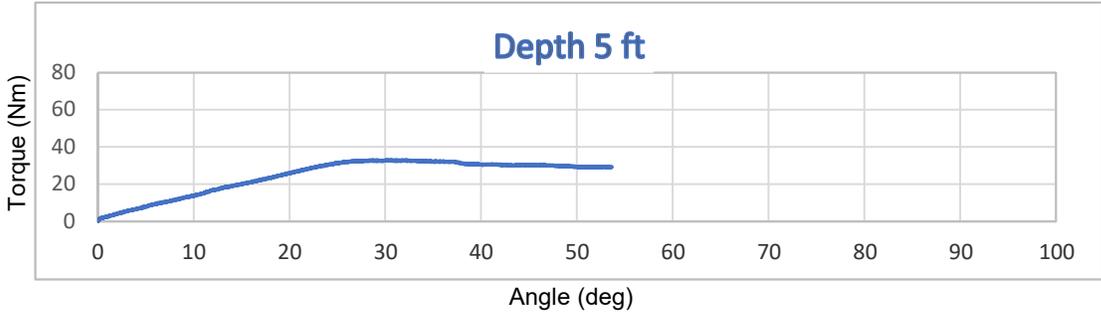
Project: 04.19200015 Location: Spilmans Island, LaPorte, T Coord: 29.68422, -94.99707 El (ft): _____
 Sounding ID: HVJ ECP-C-02 Vane Shape/Size: Rectangular, 130 x 65 mm Date: 6/9/2020

Test #	Undist/ Remold	Depth Vane Tip (m)	Depth Vane Tip (ft)	Housing Tip (ft)	Time End Push/ Rotations	Pause Prior to Start Test (min)	Time to Failure (min)	Avg. Rotation Speed Deg/sec	Max Torque (Nm)	Rod Friction (Nm)	Su (kPa)	Su (psf)	α^*	Su Mob (psf)*	Remold Su Mob (psf)	S _T (ratio)	Remold Rotations
1	U		5.0	3.8	NR	1		0.10	32.87	1.35	31.30	654	0.80	523		NA	NA
2	R		5.0	3.8	NR	1		0.10	3.84	1.07	2.75	57	0.80		2	11.38	10
3	U		6.5	5.3	NR	1		0.10	5.05	1.38	3.64	76	0.80	61		NA	NA
4	U		10.0	8.8	NR	1		0.10	74.07	3.72	69.86	1459	0.80	1167	Maxout	NA	NA
5	U		15.0	13.8	NR	1		0.10	47.74	3.62	43.81	915	0.80	732		NA	NA
6	R		15.0	13.8	NR	1		0.10	21.94	6.32	15.51	324	0.80		12	2.82	10
7	U		20.0	18.8	NR	1		0.10	46.75	5.08	41.38	864	0.80	691		NA	NA
8	R		20.0	18.8	NR	1		0.10	12.09	7.63	4.43	92	0.80		4	9.34	10
9	U		25.0	23.8	NR	1		0.10	35.32	4.64	30.47	636	0.80	509		NA	NA
10	R		25.0	23.8	NR	1		0.10	13.10	5.90	7.15	149	0.80		6	4.26	10
11	U		30.0	28.8	NR	1		0.10	38.05	4.45	33.36	697	0.80	557		NA	NA
12	R		30.0	28.8	NR	1		0.10	20.25	6.35	13.80	288	0.80		11	2.42	10
13	U		35.0	33.8	NR	1		0.10	76.22	4.35	71.37	1491	0.80	1192	Maxout	NA	NA
14	U		40.0	38.8	NR	1		0.10	68.98	5.39	63.14	1319	0.80	1055		NA	NA
15	R		40.0	38.8	NR	1		0.10	30.67	6.31	24.19	505	0.80		19	2.61	10
16	U		45.0	43.8	NR	1		0.10	54.26	5.41	48.51	1013	0.80	810		NA	NA
17	R		45.0	43.8	NR	1		0.10	18.89	7.95	10.86	227	0.80		9	4.47	10
18	U		50.0	48.8	NR	1		0.10	56.57	4.38	51.82	1082	0.80	866		NA	NA
19	R		50.0	48.8	NR	1		0.10	23.82	7.56	16.15	337	0.80		13	3.21	10
20	U		55.0	53.8	NR	1		0.10	61.25	7.89	52.99	1107	0.80	885		NA	NA
21	R		55.0	53.8	NR	1		0.10	24.91	9.77	15.03	314	0.80		12	3.52	10
22	U		60.0	58.8	NR	1		0.10	74.88	5.36	69.03	1442	0.80	1153	Maxout	NA	NA

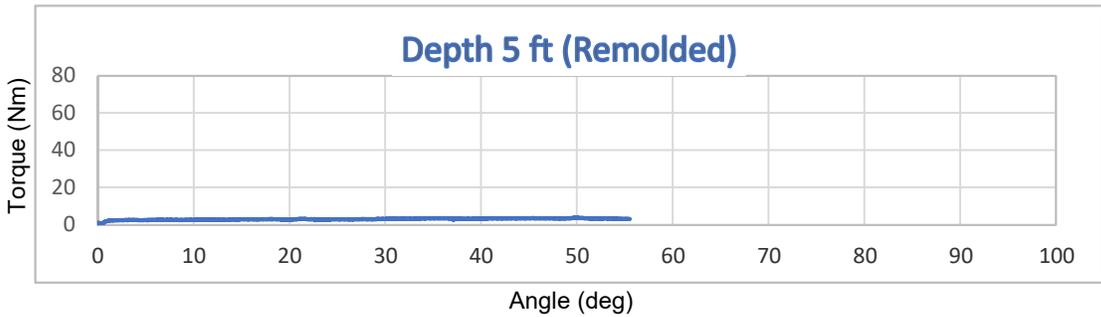
* As per Bjerrum, 1972. $\alpha = 0.8$ is a default mid-range value based on $PI = 50$. Whenever possible, α should be based on site-specific PI data. α will typically range between 0.6 and 1.0 based on PI. Accurate PI data from the discrete VST interval should improve the accuracy of the su mob result. For this report, specific PI data were used in corrections when available if the inference of PI to the discrete VST interval was reasonable.
 Note: time to failure does not include rod friction measurement time.

Calculate Alpha	
PI =	50
$\alpha =$	0.80

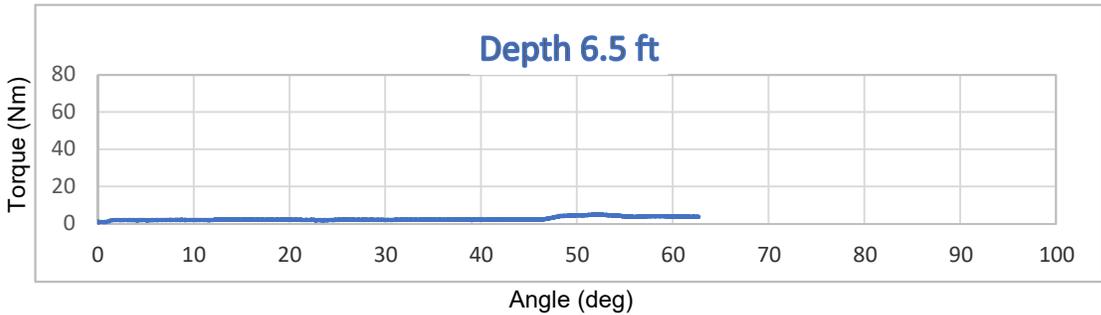




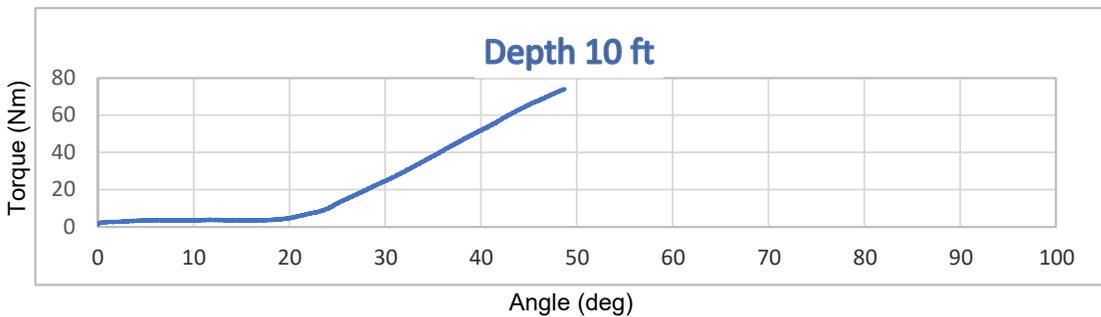
Shear strength = 31.30 [kPa], Max torque = 32.87 [Nm], Rod friction = 1.35 [Nm]



Shear strength = 2.75 [kPa], Max torque = 3.84 [Nm], Rod friction = 1.07 [Nm]



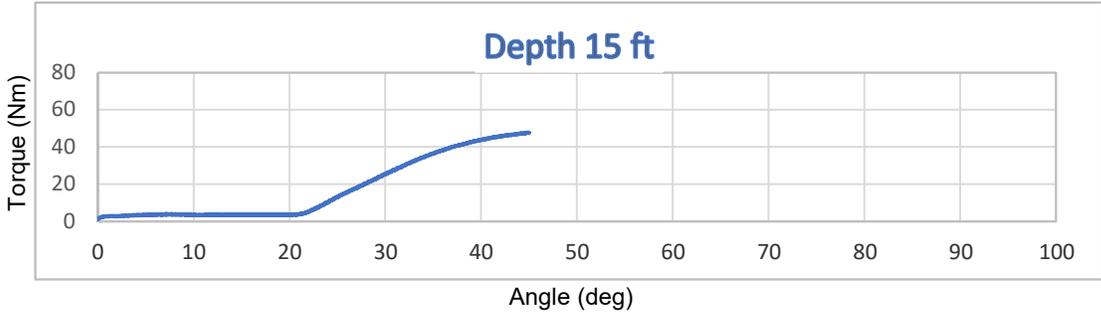
Shear strength = 3.64 [kPa], Max torque = 5.05 [Nm], Rod friction = 1.38 [Nm]



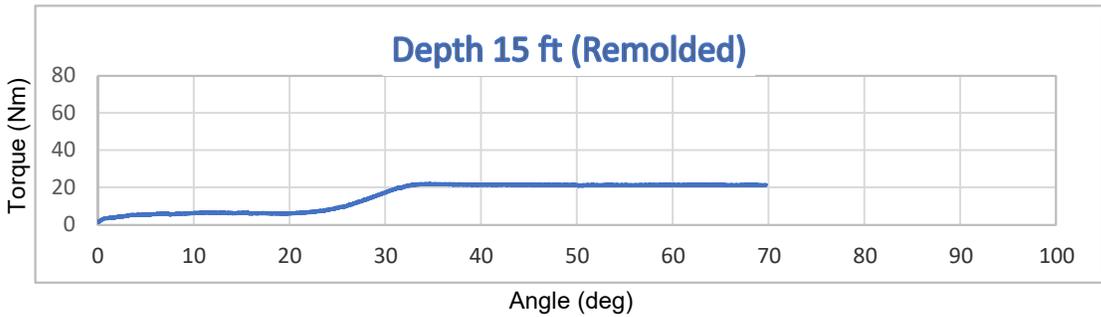
Shear strength = 69.86 [kPa], Max torque = 74.07 [Nm], Rod friction = 3.72 [Nm]

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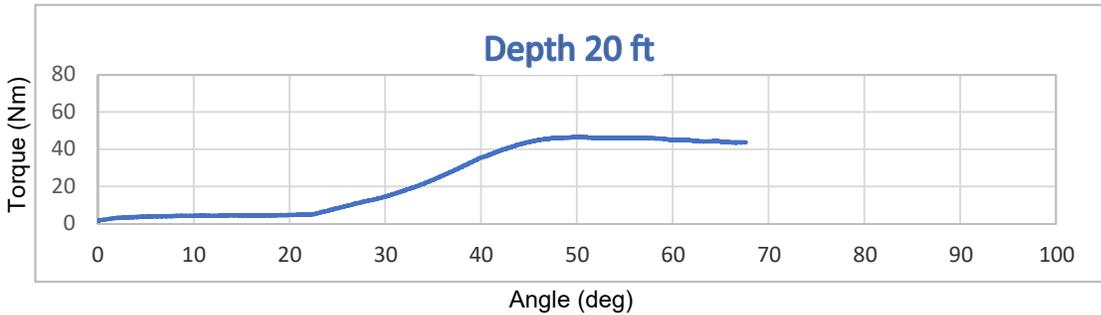




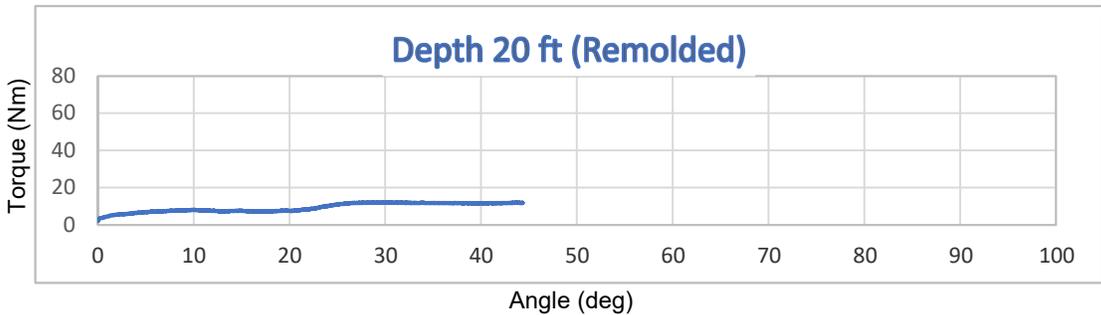
Shear strength = 43.81 [kPa], Max torque = 47.74 [Nm], Rod friction = 3.62 [Nm]



Shear strength = 15.51 [kPa], Max torque = 21.94 [Nm], Rod friction = 6.32 [Nm]



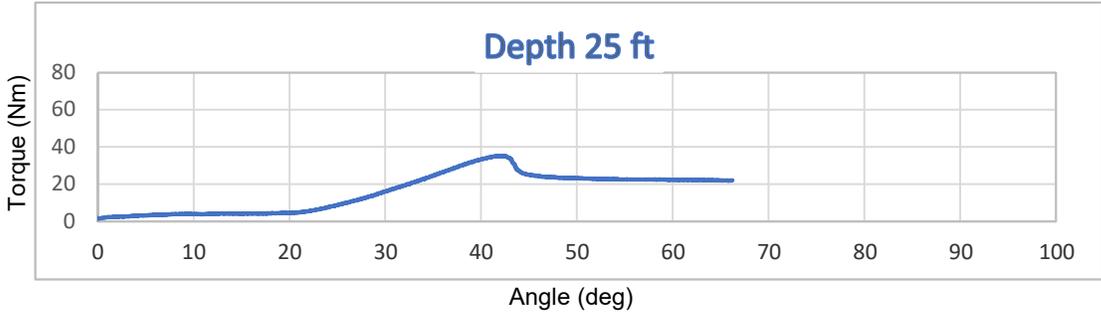
Shear strength = 41.38 [kPa], Max torque = 46.75 [Nm], Rod friction = 5.08 [Nm]



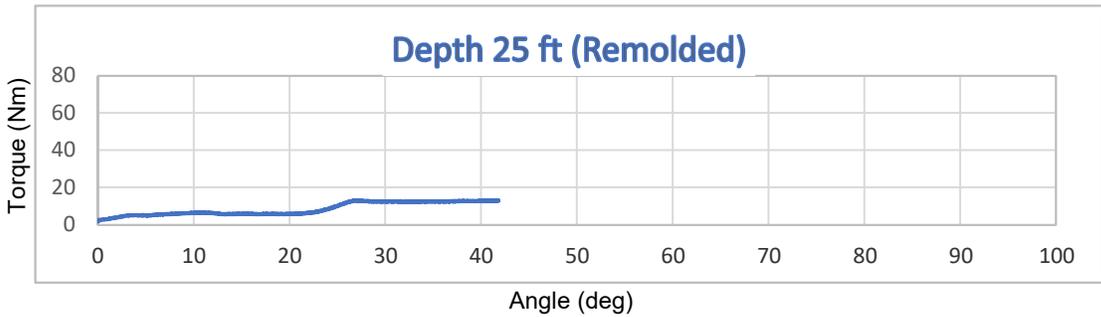
Shear strength = 4.43 [kPa], Max torque = 12.09 [Nm], Rod friction = 7.63 [Nm]

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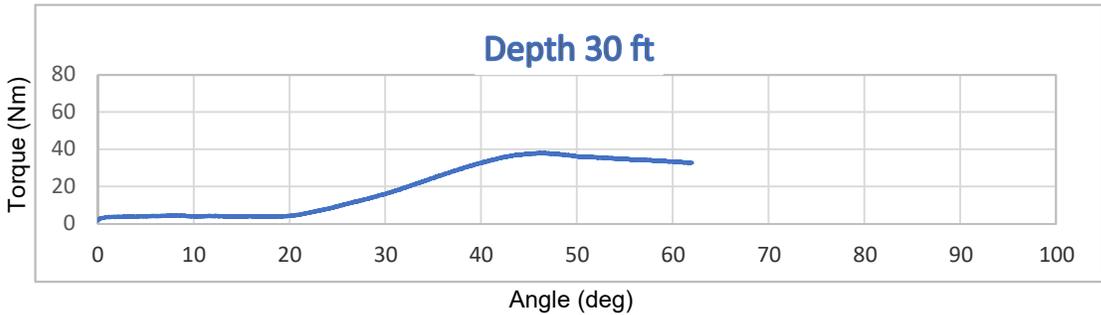




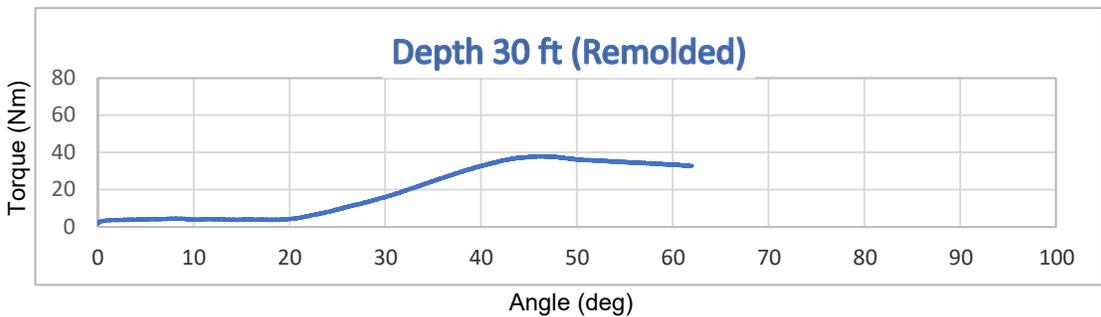
Shear strength = 30.47 [kPa], Max torque = 35.32 [Nm], Rod friction = 4.64 [Nm]



Shear strength = 7.15 [kPa], Max torque = 13.10 [Nm], Rod friction = 5.90 [Nm]



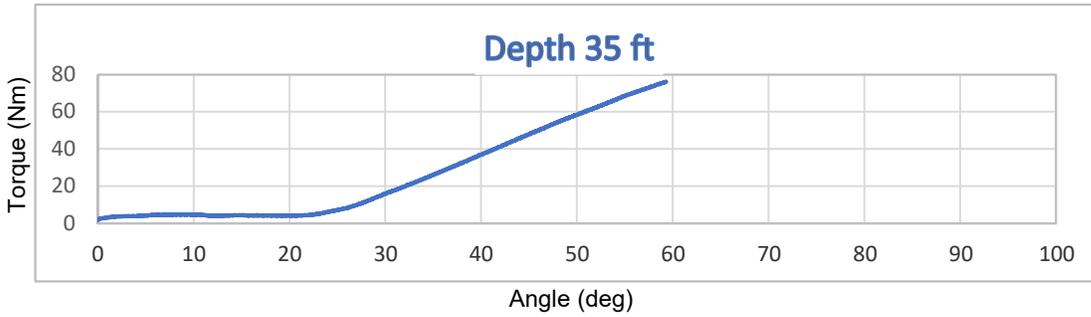
Shear strength = 33.36 [kPa], Max torque = 38.05 [Nm], Rod friction = 4.45 [Nm]



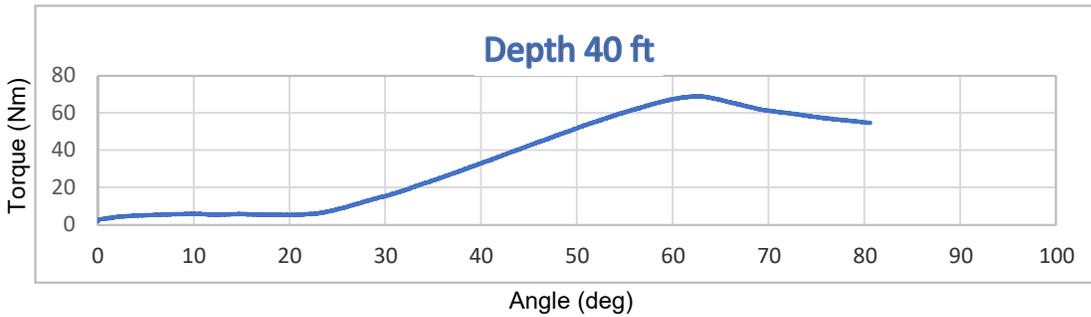
Shear strength = 13.80 [kPa], Max torque = 20.25 [Nm], Rod friction = 6.35 [Nm]

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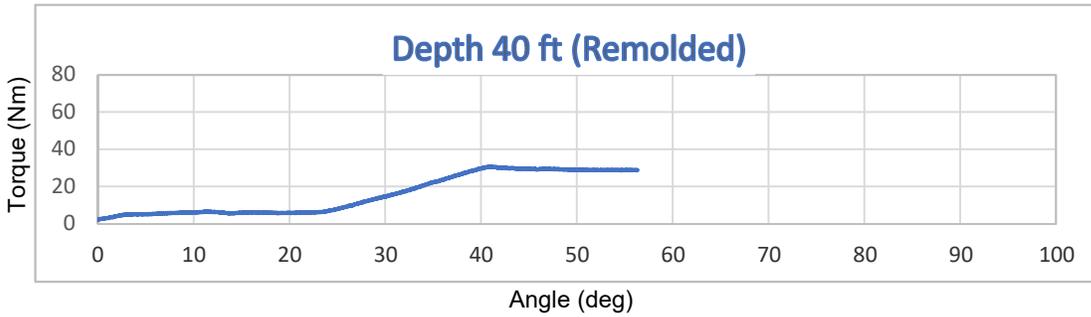




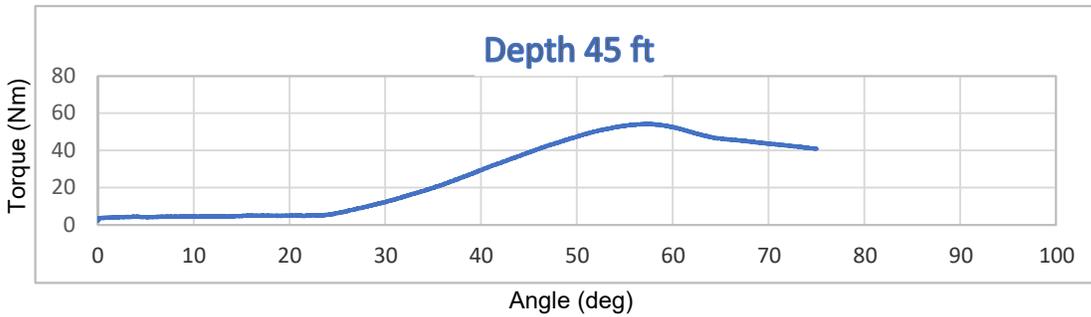
Shear strength = 71.37 [kPa], Max torque = 76.22 [Nm], Rod friction = 4.35 [Nm]



Shear strength = 63.14 [kPa], Max torque = 68.98 [Nm], Rod friction = 5.39 [Nm]



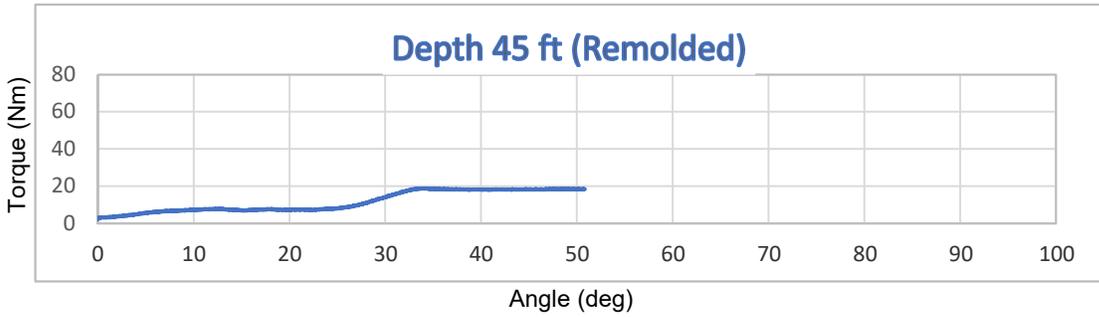
Shear strength = 24.19 [kPa], Max torque = 30.67 [Nm], Rod friction = 6.31 [Nm]



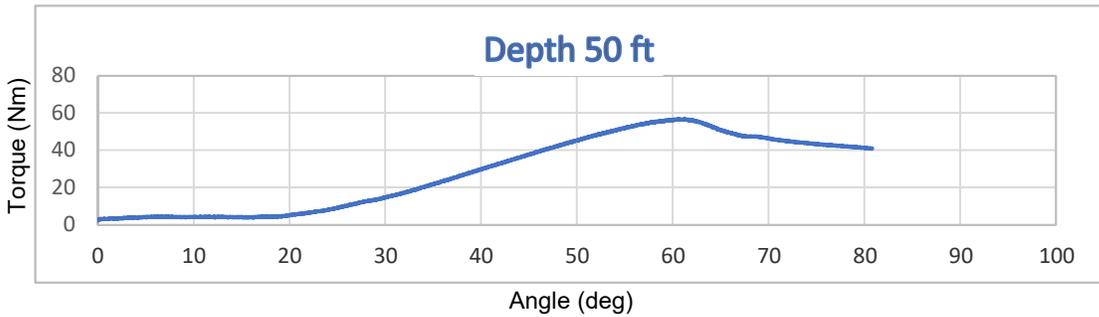
Shear strength = 48.51 [kPa], Max torque = 54.26 [Nm], Rod friction = 5.41 [Nm]

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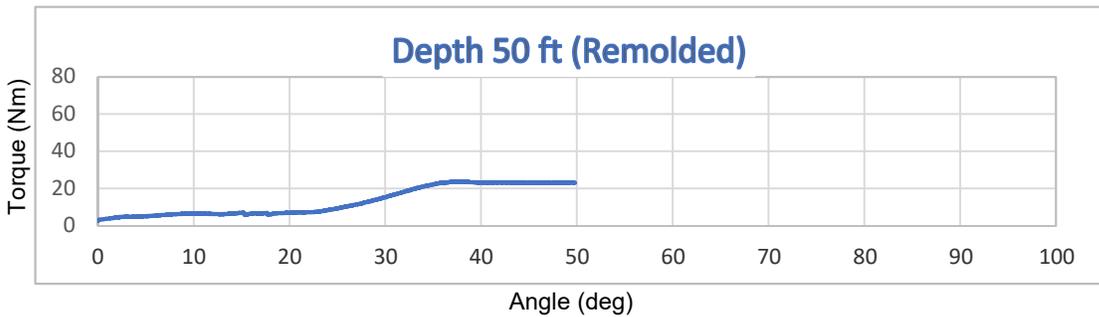




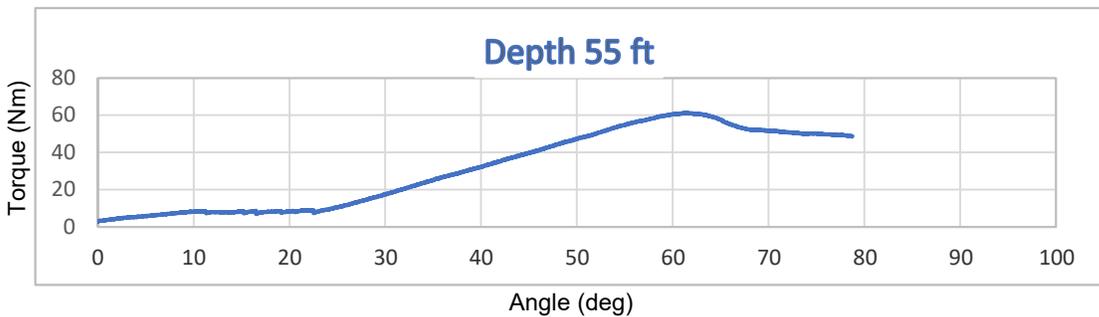
Shear strength = 10.86 [kPa], Max torque = 18.89 [Nm], Rod friction = 7.95 [Nm]



Shear strength = 51.82 [kPa], Max torque = 56.57 [Nm], Rod friction = 4.38 [Nm]



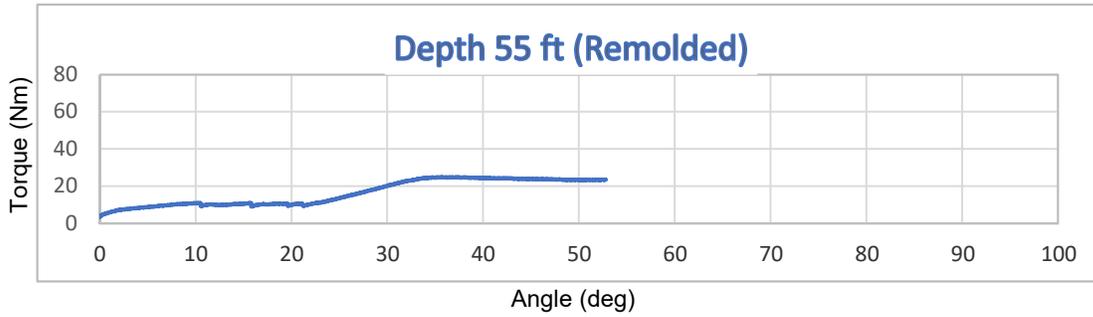
Shear strength = 16.15 [kPa], Max torque = 23.82 [Nm], Rod friction = 7.56 [Nm]



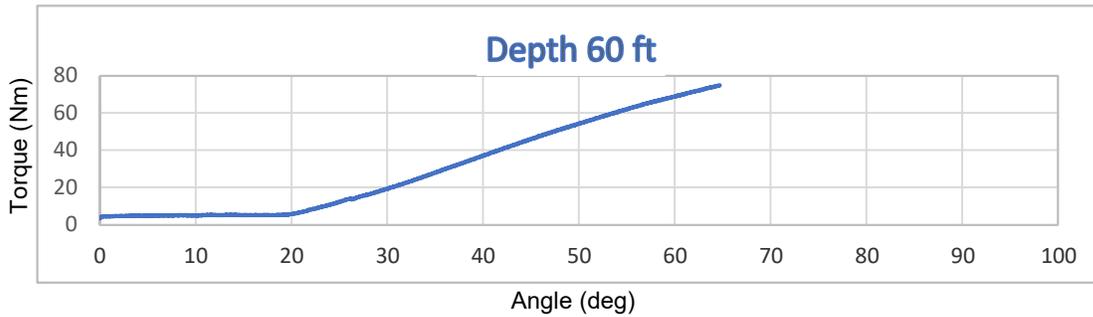
Shear strength = 52.99 [kPa], Max torque = 61.25 [Nm], Rod friction = 7.89 [Nm]

VANE SHEAR TEST
HVJ ECP-C-02
 SPILMANS ISLAND
 LA PORTE, TEXAS
 HVJ ASSOCIATES





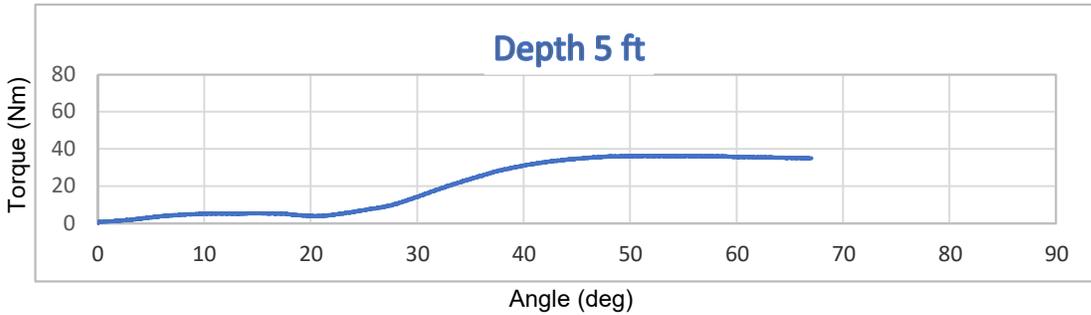
Shear strength = 15.03 [kPa], Max torque = 24.91 [Nm], Rod friction = 9.77 [Nm]



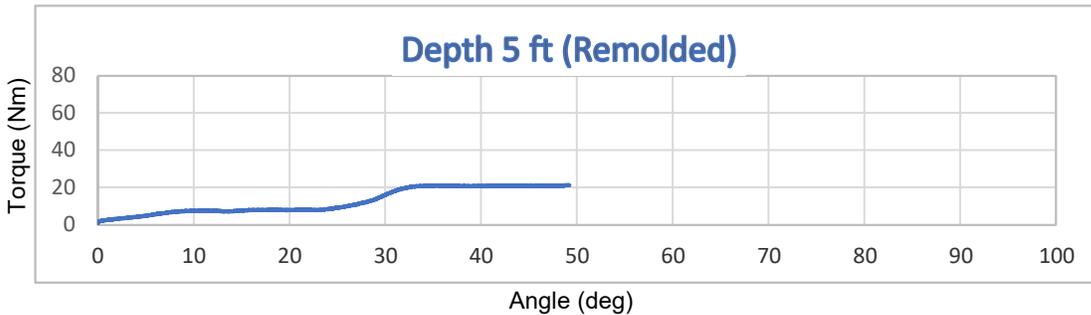
Shear strength = 69.03 [kPa], Max torque = 74.88 [Nm], Rod friction = 5.36 [Nm]

VANE SHEAR TEST
HVJ ECP-C-02
 SPILMANS ISLAND
 LA PORTE, TEXAS
 HVJ ASSOCIATES

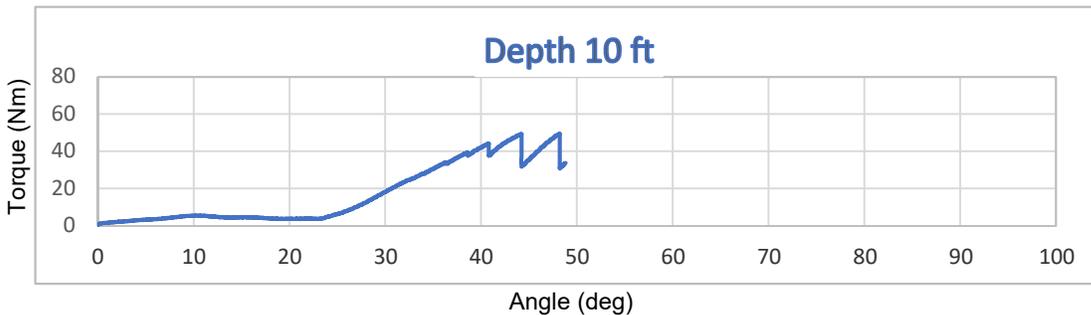




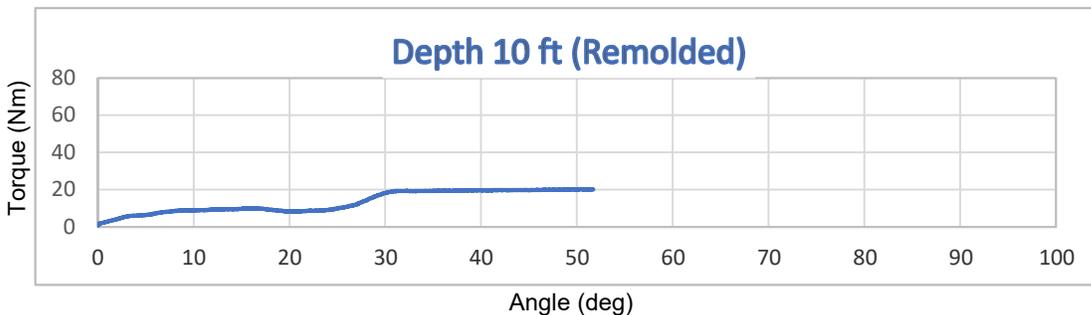
Shear strength = 31.60 [kPa], Max torque = 36.37 [Nm], Rod friction = 4.55 [Nm]



Shear strength = 13.24 [kPa], Max torque = 21.24 [Nm], Rod friction = 7.91 [Nm]



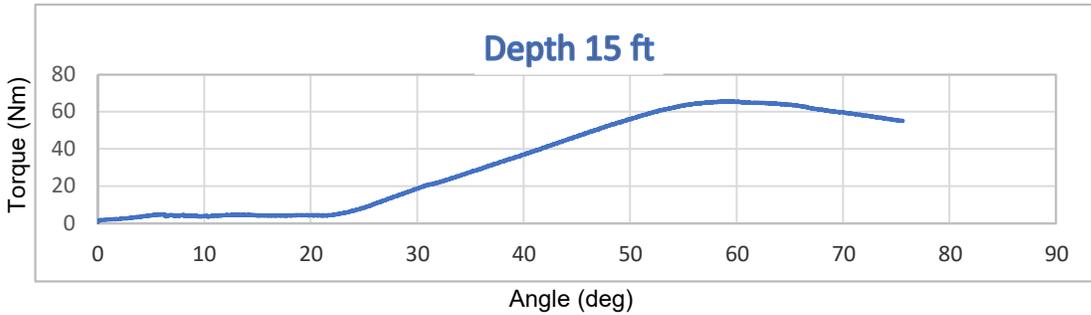
Shear strength = 45.32 [kPa], Max torque = 49.53 [Nm], Rod friction = 3.89 [Nm]



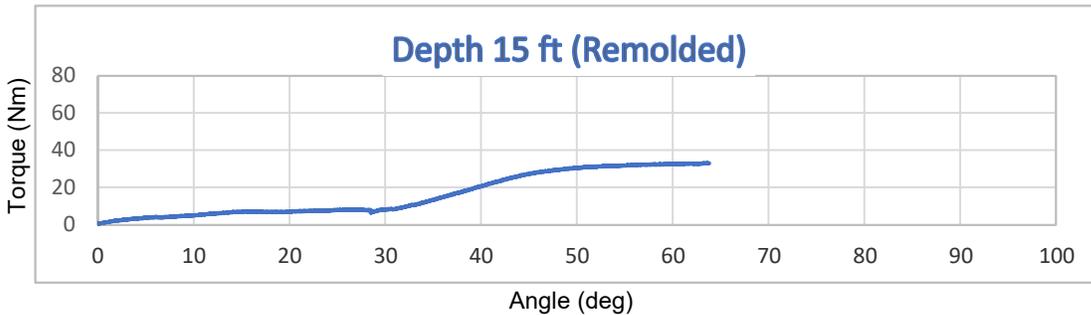
Shear strength = 11.21 [kPa], Max torque = 20.31 [Nm], Rod friction = 9.02 [Nm]

VANE SHEAR TEST
HVJ ECP-C-01
 SPILMANS ISLAND
 LA PORTE, TEXAS
 HVJ ASSOCIATES

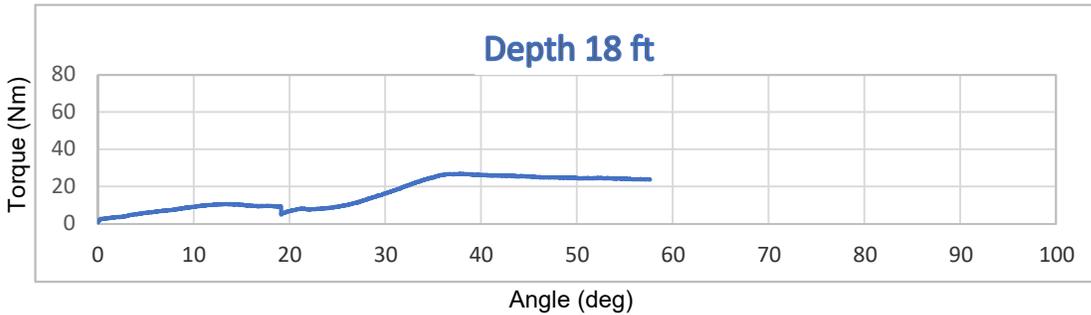




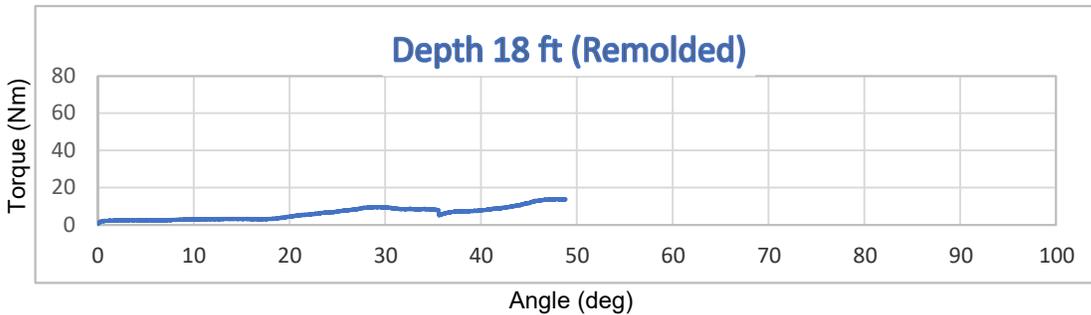
Shear strength = 60.72 [kPa], Max torque = 65.65 [Nm], Rod friction = 4.50 [Nm]



Shear strength = 25.96 [kPa], Max torque = 33.15 [Nm], Rod friction = 7.01 [Nm]



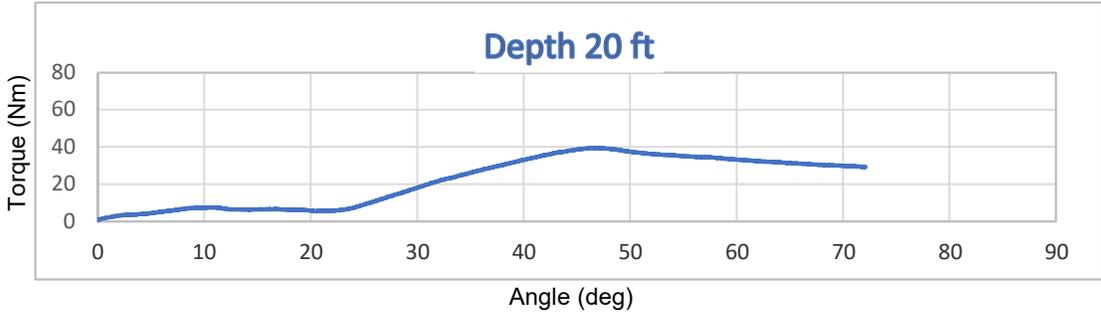
Shear strength = 18.74 [kPa], Max torque = 26.81 [Nm], Rod friction = 7.94 [Nm]



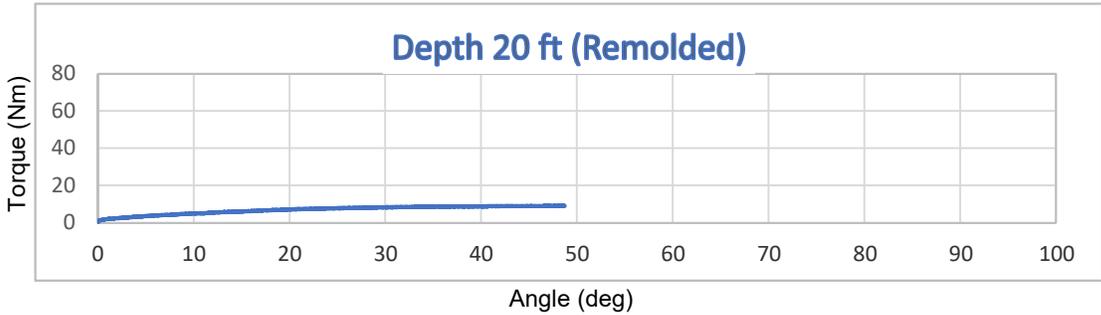
Shear strength = 10.53 [kPa], Max torque = 13.89 [Nm], Rod friction = 3.29 [Nm]

VANE SHEAR TEST
HVJ ECP-C-01
 SPILMANS ISLAND
 LA PORTE, TEXAS
 HVJ ASSOCIATES

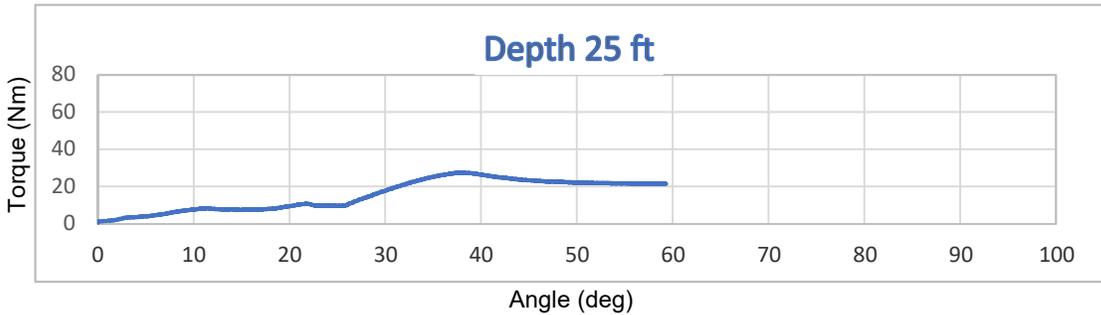




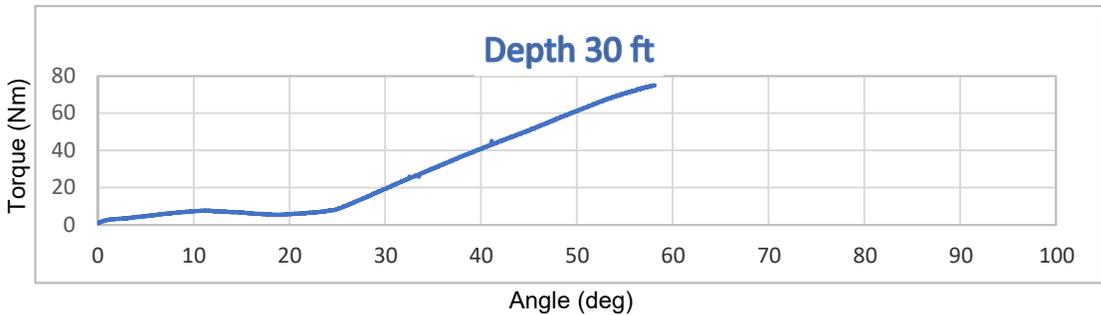
Shear strength = 33.43 [kPa], Max torque = 39.59 [Nm], Rod friction = 5.92 [Nm]



Shear strength = 3.05 [kPa], Max torque = 9.14 [Nm], Rod friction = 6.07 [Nm]



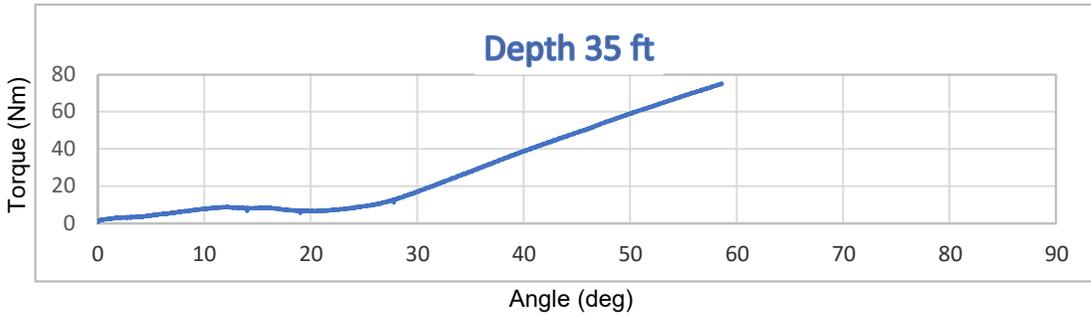
Shear strength = 17.68 [kPa], Max torque = 27.49 [Nm], Rod friction = 9.69 [Nm]



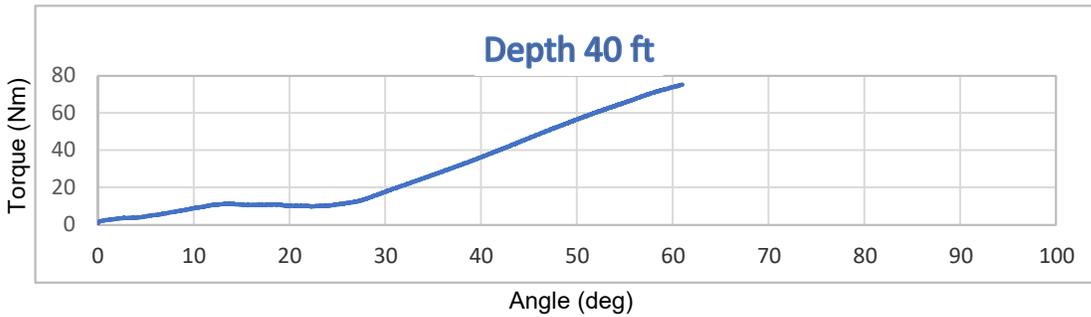
Shear strength = 68.41 [kPa], Max torque = 75.04 [Nm], Rod friction = 6.15 [Nm]

VANE SHEAR TEST
HVJ ECP-C-01
 SPILMANS ISLAND
 LA PORTE, TEXAS
 HVJ ASSOCIATES

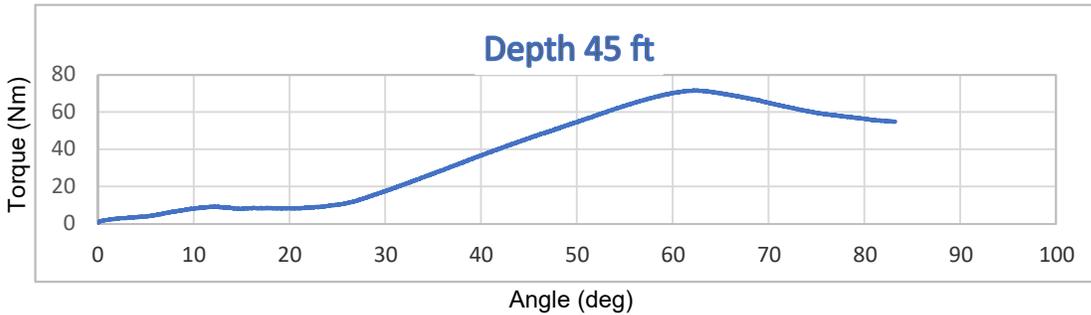




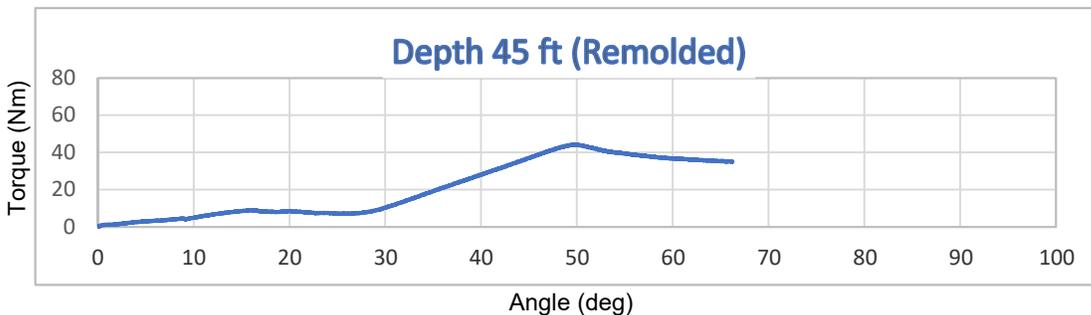
Shear strength = 67.71 [kPa], Max torque = 75.17 [Nm], Rod friction = 6.98 [Nm]



Shear strength = 65.02 [kPa], Max torque = 75.32 [Nm], Rod friction = 9.84 [Nm]



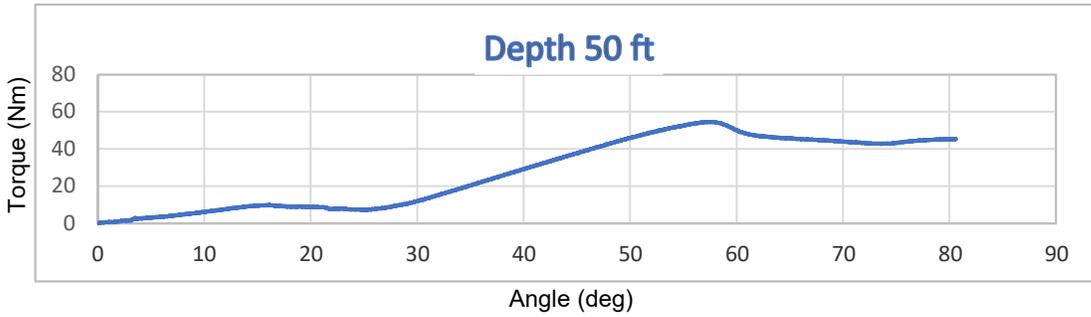
Shear strength = 62.56 [kPa], Max torque = 71.64 [Nm], Rod friction = 8.64 [Nm]



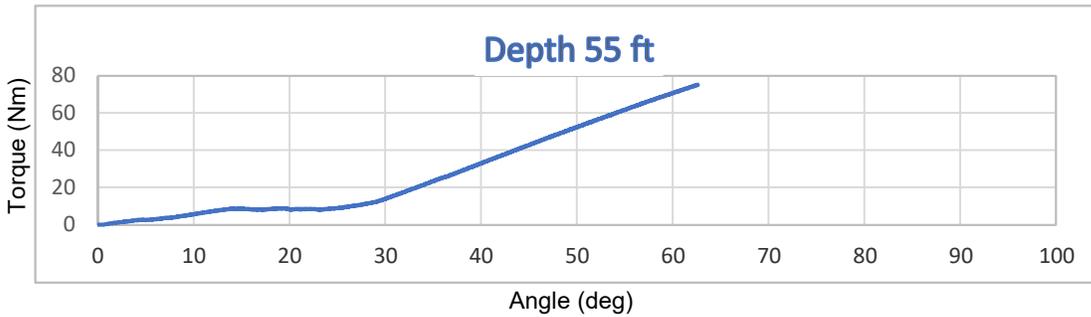
Shear strength = 36.07 [kPa], Max torque = 44.15 [Nm], Rod friction = 7.83 [Nm]

VANE SHEAR TEST
HVJ ECP-C-01
 SPILMANS ISLAND
 LA PORTE, TEXAS
 HVJ ASSOCIATES

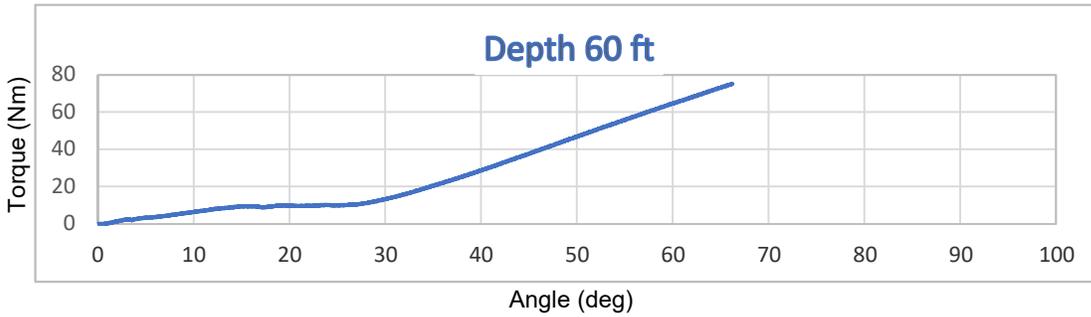




Shear strength = 46.63 [kPa], Max torque = 54.62 [Nm], Rod friction = 7.66 [Nm]



Shear strength = 66.14 [kPa], Max torque = 75.24 [Nm], Rod friction = 8.63 [Nm]



Shear strength = 64.38 [kPa], Max torque = 75.19 [Nm], Rod friction = 10.36 [Nm]

VANE SHEAR TEST
HVJ ECP-C-01
 SPILMANS ISLAND
 LA PORTE, TEXAS
 HVJ ASSOCIATES



APPENDIX F

PIEZOCONE PENETRATION AND VANE SHEAR
TEST REPORT – E2 CLINTON PLACEMENT AREA



FUGRO
Fugro USA Land, Inc.
6100 Hillcroft Ave.
Houston, Texas 77081
USA

June 9, 2020
Report Number 04.19200014

HVJ Associates, Inc.
6120 S. Dairy Ashford
Houston, Texas 77072
USA

Attn.: Mr. Anil Raavi

**REPORT FOR
PIEZOCONE PENETRATION TESTING
AND RELATED SERVICES
EAST CLINTON SITE
HOUSTON, TEXAS**

Dear Mr. Raavi,

Introduction

Fugro is pleased to present data report for Piezocone Penetration Testing and Related Services performed at the above-referenced site. This report contains the scope of services performed and the test results.

Scope of Services

We performed thirty-one (31) Piezocone Penetration Tests (PCPT) to depths ranging from 16 ft to 41 ft below ground surface. All PCPT sounding locations were grouted after the completion of the tests.

PCPT Testing

The PCPT soundings were conducted in general accordance with ASTM D5778-12, *Electronic Friction Cone and Piezocone Penetration Testing of Soils* using a 25-ton truck mounted CPT unit. The in-situ soil data was obtained by hydraulically advancing a cylindrical steel rod, with an instrumented probe at the base, vertically into the subsurface materials at a constant rate of 2 centimeters per second. The instrumented probe consists of a cone-shaped tip element, with an apex angle of 60 degrees with a base area of 15 square centimeters (cm²) and a cylindrical-shaped side friction sleeve with a surface area of 200 cm². A pore transducer is mounted between the tip and friction sleeve. Measurements of penetration resistance at the cone tip (q_c), frictional resistance along the friction sleeve (f_s), and pore water pressure (u_2), were recorded with depth during penetration. PCPT sounding measurements collected for this project are presented on the logs attached at the end of this report.

PCPT methods test the soil *in situ* and soil samples are not obtained. There are several methods to identify the soil type using the PCPT data collected. For your reference, we have presented soil stratigraphy using the attached *Campanella and Robertson's Simplified Soil Behavior Chart (12-zone, 1986)*.

Please note that because of the empirical nature of the soil behavior chart, the soil identification should be verified locally from soil borings and laboratory testing. Some soils, such as cemented or calcareous soils, or glacial tills are outside the limits of the soil behavior chart.

Closing

Fugro appreciates the opportunity to be of service to you. If you have any questions, please feel free to contact me at 713.346.4004.

Best Regards,



Sheldon Collins,
Service Line Manager – CPT
North America

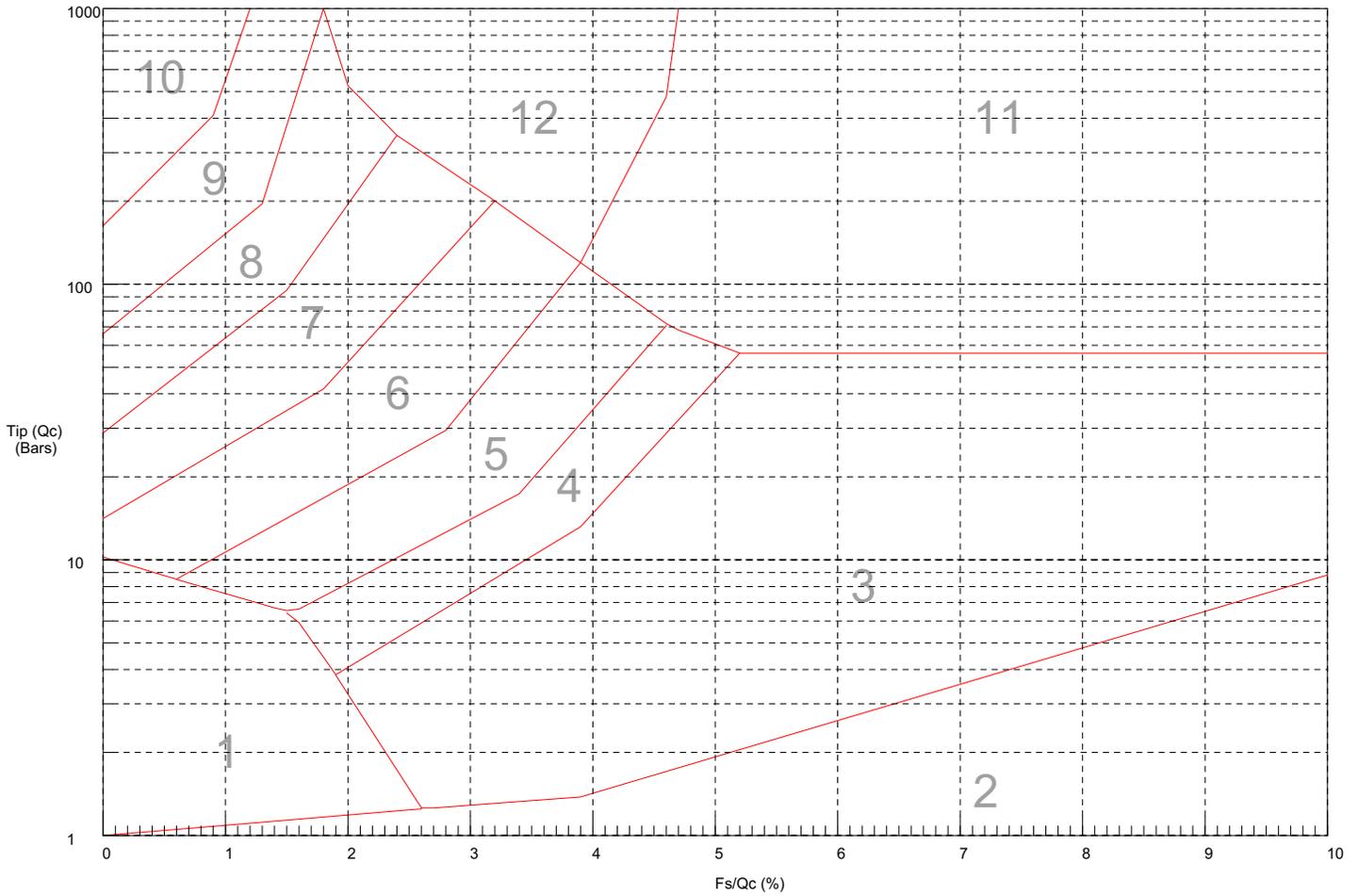
SC/am

Attachments: *Campanella and Robertson's Simplified Soil Behavior Chart* (1 page)
PCPT Sounding Logs (31 pages)
Thirty-one (31) Electronic Data Files



12 Zone Soil Behavior Chart

Classification Data:
Robertson and Campanella UBC-1986



1 sensitive fine grained
2 organic material
3 clay

4 silty clay to clay
5 clayey silt to silty clay
6 sandy silt to clayey silt

7 silty sand to sandy silt
8 sand to silty sand
9 sand

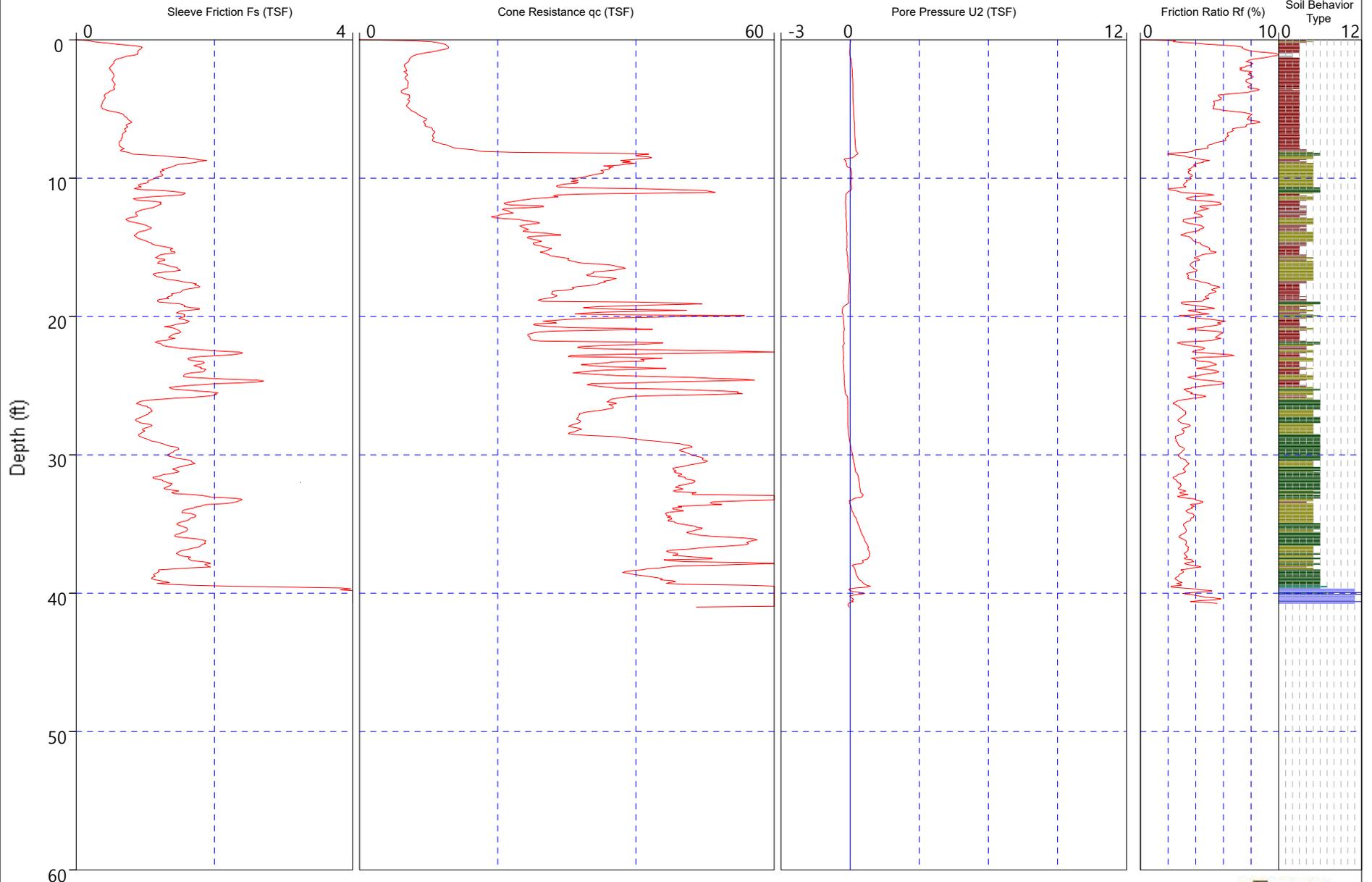
10 gravelly sand to sand
11 very stiff fine grained (*)
12 sand to clayey sand (*)

* Overconsolidated or cemented

Job Number: 04.19200014
Operator: Bobby Brandt
Location: Houston, TX

CPT Number: ECP-EC-C01
Date: 04-Jun-2020
Elevation: 0.00

Coordinates: 29.75689, -95.23203
Cone Number: CP15-CF75PB7SN2-P1E1 2422



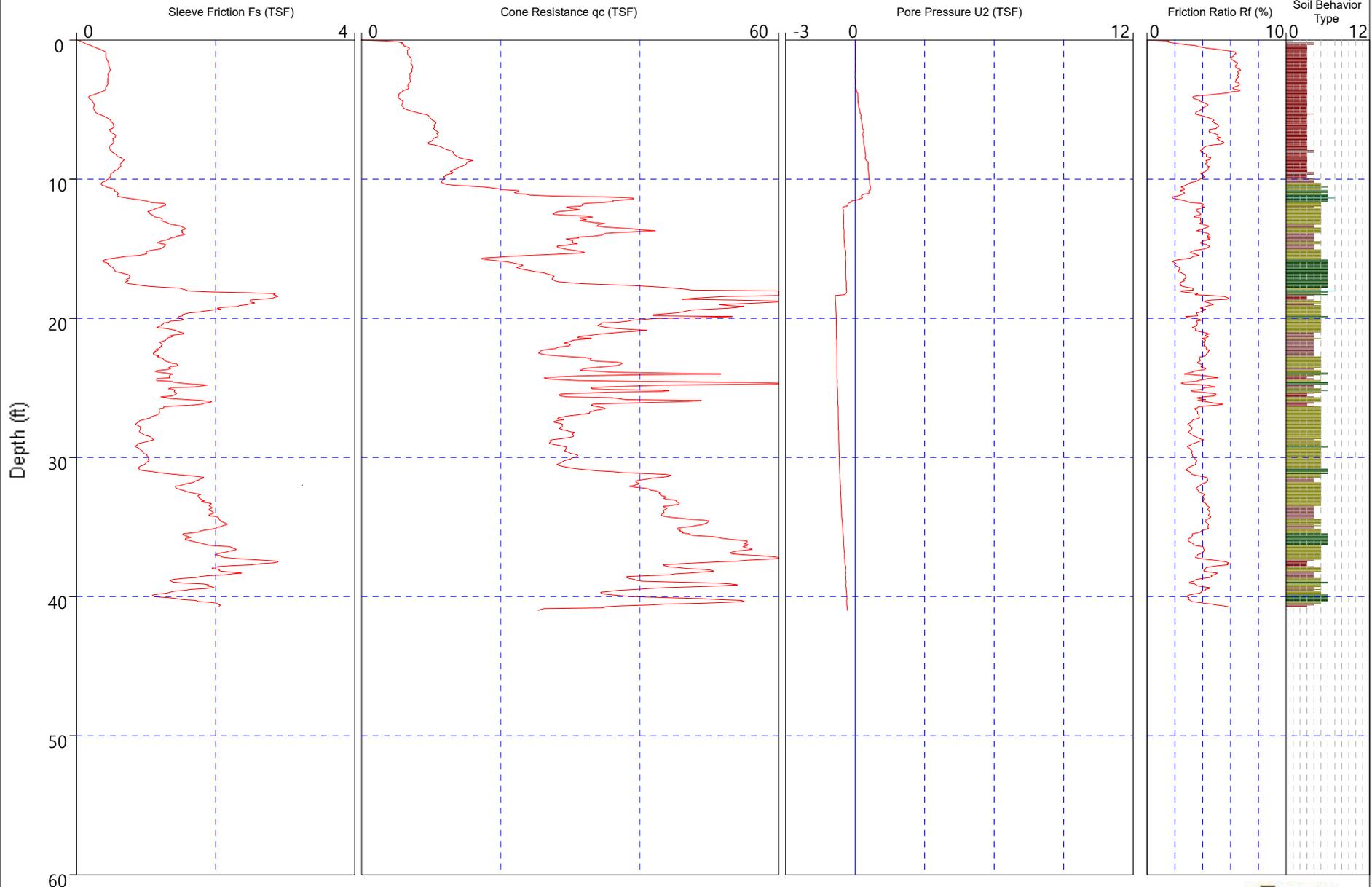
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|------------------------------------|---------------------------------------|--------------------------------------|---------------------------------------|
| (1) sensitive fine grained (OL-CH) | (4) silty clay to clay (CL-CH) | (7) silty sand to sandy silt (SM-ML) | (10) gravel to gravelly sand (SW-GW) |
| (2) organic material (OL-OH) | (5) clayey silt to silty clay (MH-CL) | (8) sand to silty sand (SM-SP) | (11) very stiff fine grained* (CH-CL) |
| (3) clay (CH) | (6) sandy silt to clayey silt (ML-MH) | (9) sand (SW-SP) | (12) sand to clayey sand* (SC-SM) |



Job Number: 04.19200014
Operator: Bobby Brandt
Location: Houston, TX

CPT Number: ECP-EC-C02
Date: 04-Jun-2020
Elevation: 0.00

Coordinates: 29.75694, -95.23098
Cone Number: CP15-CF75PB7SN2-P1E1 2422



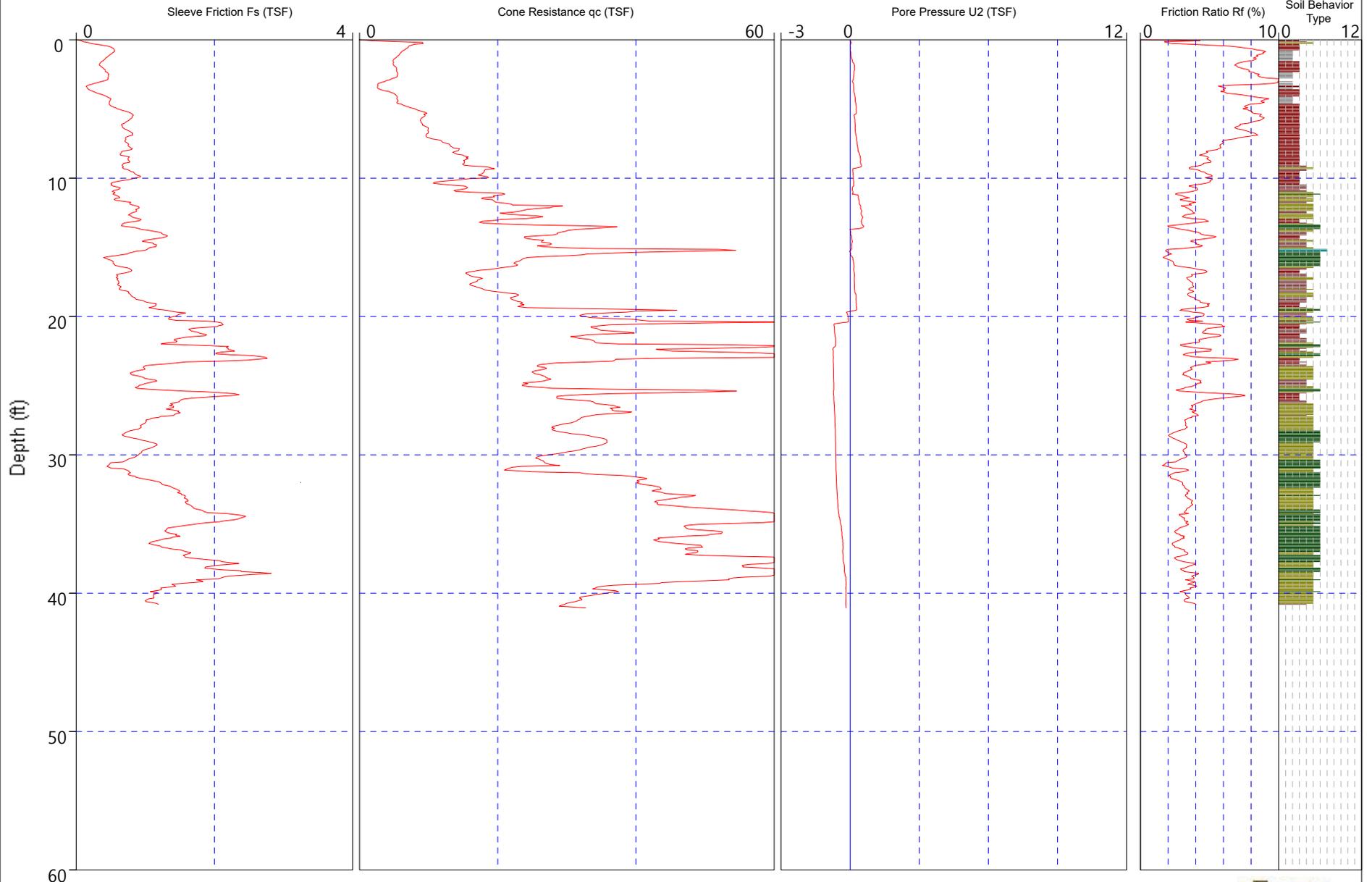
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|------------------------------------|---------------------------------------|--------------------------------------|---------------------------------------|
| (1) sensitive fine grained (OL-CH) | (4) silty clay to clay (CL-CH) | (7) silty sand to sandy silt (SM-ML) | (10) gravel to gravelly sand (SW-GW) |
| (2) organic material (OL-OH) | (5) clayey silt to silty clay (MH-CL) | (8) sand to silty sand (SM-SP) | (11) very stiff fine grained* (CH-CL) |
| (3) clay (CH) | (6) sandy silt to clayey silt (ML-MH) | (9) sand (SW-SP) | (12) sand to clayey sand* (SC-SM) |



Job Number: 04.19200014
Operator: Bobby Brandt
Location: Houston, TX

CPT Number: ECP-EC-C03
Date: 04-Jun-2020
Elevation: 0.00

Coordinates: 29.75595, -95.23093
Cone Number: CP15-CF75PB7SN2-P1E1 2422



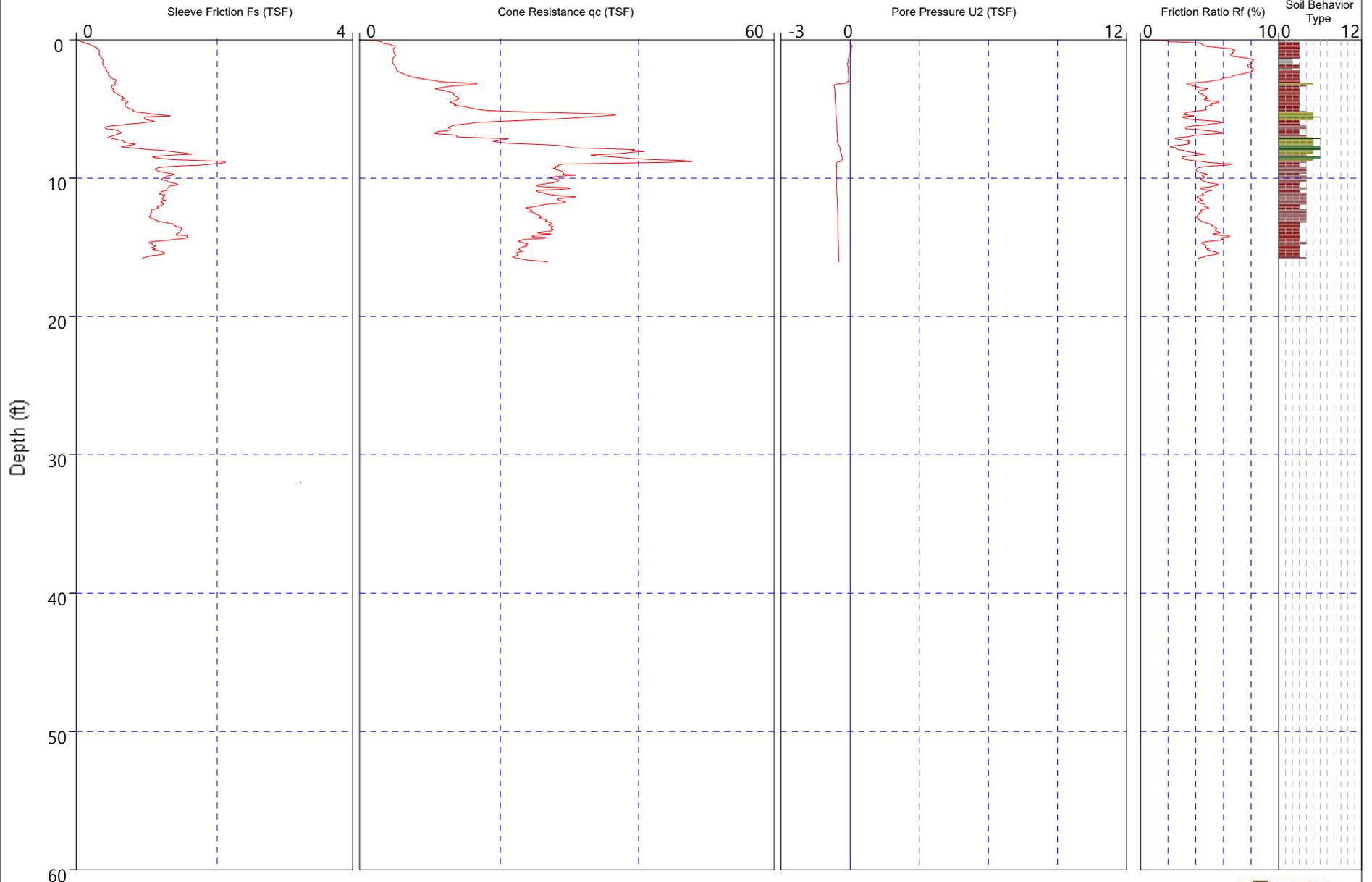
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|------------------------------------|---------------------------------------|--------------------------------------|---------------------------------------|
| (1) sensitive fine grained (OL-CH) | (4) silty clay to clay (CL-CH) | (7) silty sand to sandy silt (SM-ML) | (10) gravel to gravelly sand (SW-GW) |
| (2) organic material (OL-OH) | (5) clayey silt to silty clay (MH-CL) | (8) sand to silty sand (SM-SP) | (11) very stiff fine grained* (CH-CL) |
| (3) clay (CH) | (6) sandy silt to clayey silt (ML-MH) | (9) sand (SW-SP) | (12) sand to clayey sand* (SC-SM) |



Job Number: 04.19200014
Operator: Bobby Brandt
Location: Houston, TX

CPT Number: ECP-EC-C04
Date: 04-Jun-2020
Elevation: 0.00

Coordinates: 29.75582, -95.23212
Cone Number: CP15-CF75PB7SN2-P1E1 2422



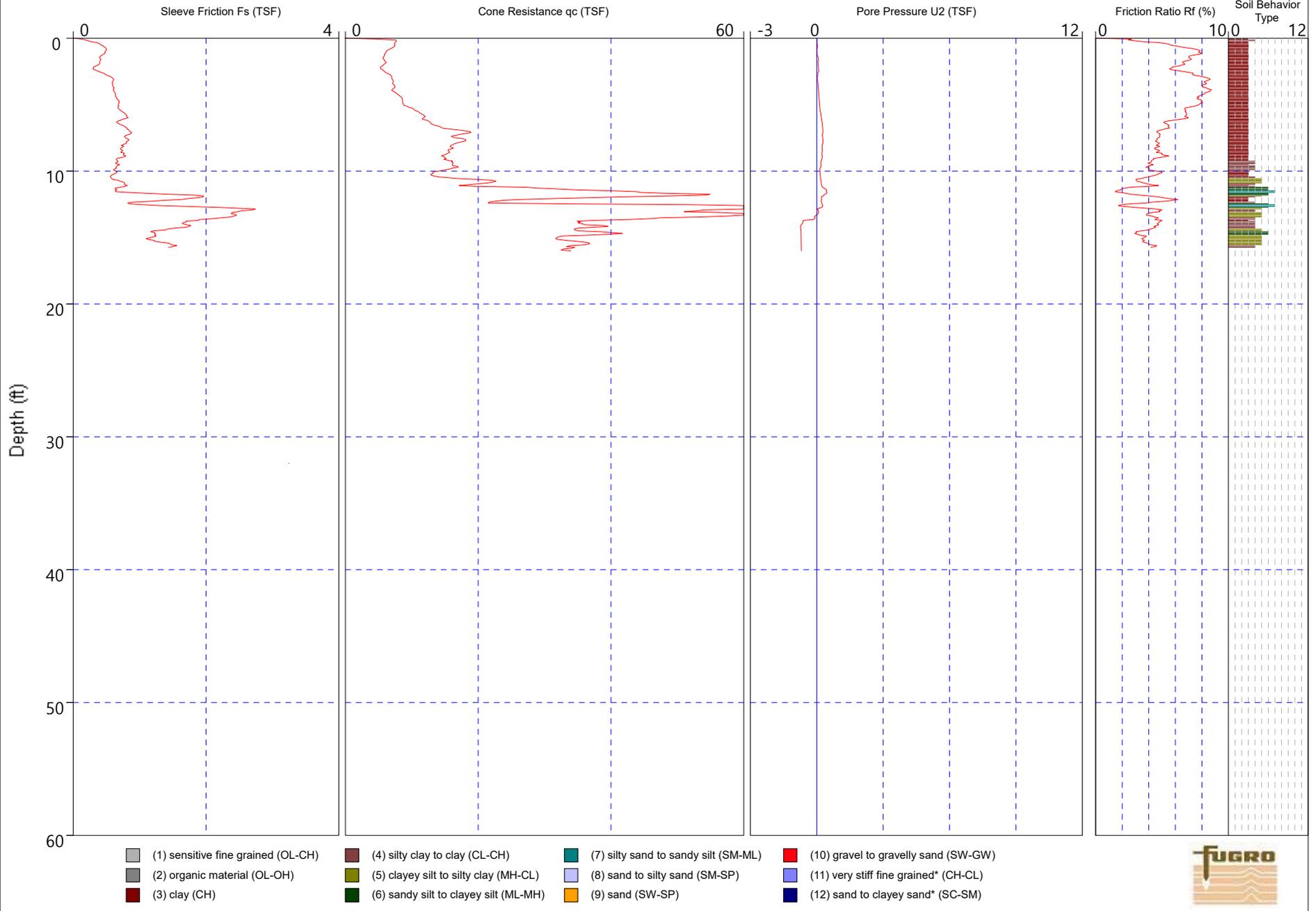
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|------------------------------------|---------------------------------------|--------------------------------------|---------------------------------------|
| (1) sensitive fine grained (OL-CH) | (4) silty clay to clay (CL-CH) | (7) silty sand to sandy silt (SM-ML) | (10) gravel to gravelly sand (SW-GW) |
| (2) organic material (OL-OH) | (5) clayey silt to silty clay (MH-CL) | (8) sand to silty sand (SM-SP) | (11) very stiff fine grained* (CH-CL) |
| (3) clay (CH) | (6) sandy silt to clayey silt (ML-MH) | (9) sand (SW-SP) | (12) sand to clayey sand* (SC-SM) |



Job Number: 04.19200014
Operator: Bobby Brandt
Location: Houston, TX

CPT Number: ECP-EC-C05
Date: 04-Jun-2020
Elevation: 0.00

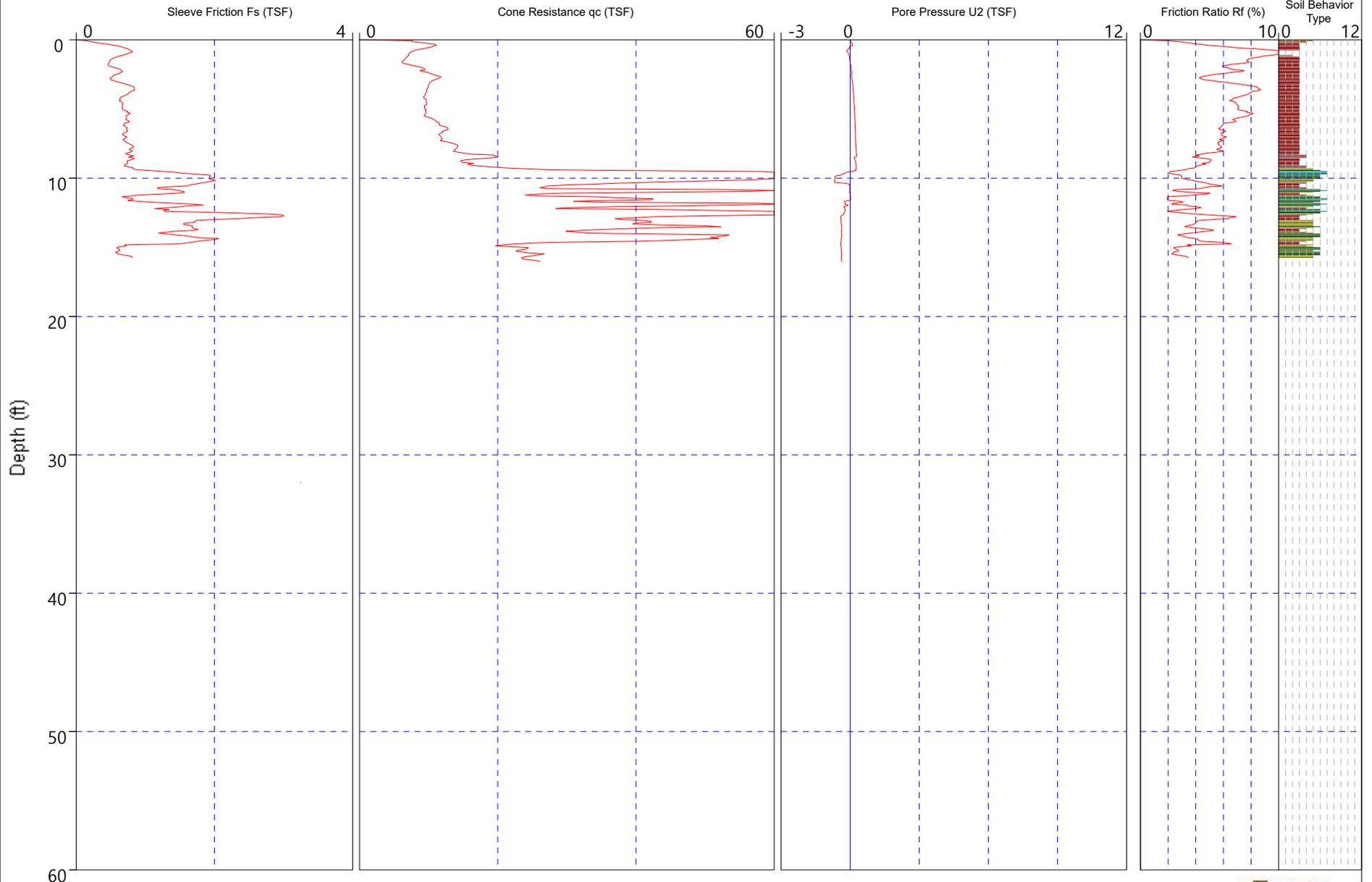
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Cone Number: CP15-CF75PB7SN2-P1E1 2422



Job Number: 04.19200014
Operator: Bobby Brandt
Location: Houston, TX

CPT Number: ECP-EC-C06
Date: 05-Jun-2020
Elevation: 0.00

Coordinates: 29.75491, -95.23302
Cone Number: CP15-CF75PB7SN2-P1E1 2422



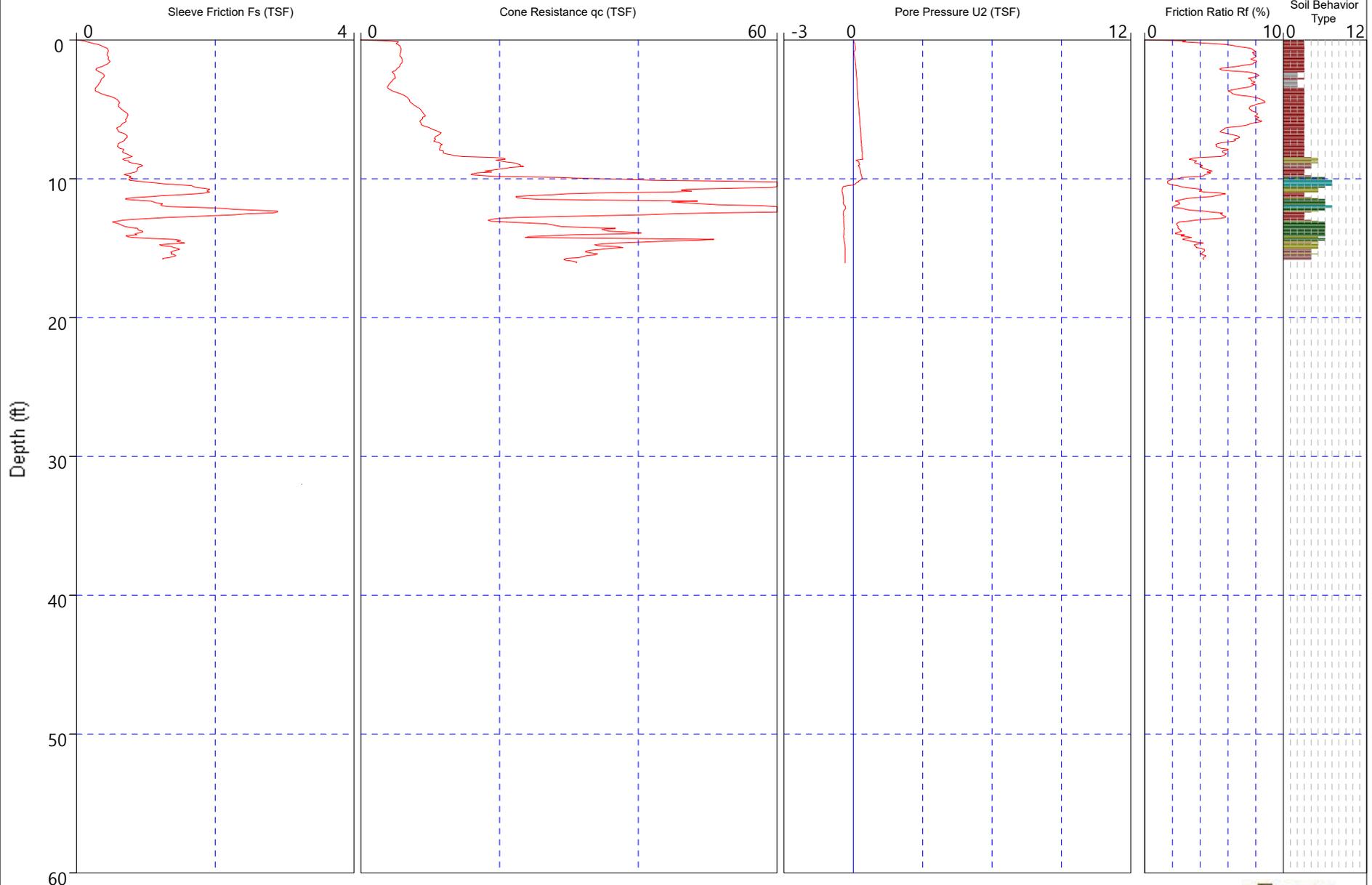
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|------------------------------------|---------------------------------------|--------------------------------------|---------------------------------------|
| (1) sensitive fine grained (OL-CH) | (4) silty clay to clay (CL-CH) | (7) silty sand to sandy silt (SM-ML) | (10) gravel to gravelly sand (SW-GW) |
| (2) organic material (OL-OH) | (5) clayey silt to silty clay (MH-CL) | (8) sand to silty sand (SM-SP) | (11) very stiff fine grained* (CH-CL) |
| (3) clay (CH) | (6) sandy silt to clayey silt (ML-MH) | (9) sand (SW-SP) | (12) sand to clayey sand* (SC-SM) |



Job Number: 04.19200014
Operator: Bobby Brandt
Location: Houston, TX

CPT Number: ECP-EC-C07
Date: 05-Jun-2020
Elevation: 0.00

Coordinates: 29.75392, -95.23228
Cone Number: CP15-CF75PB7SN2-P1E1 2422



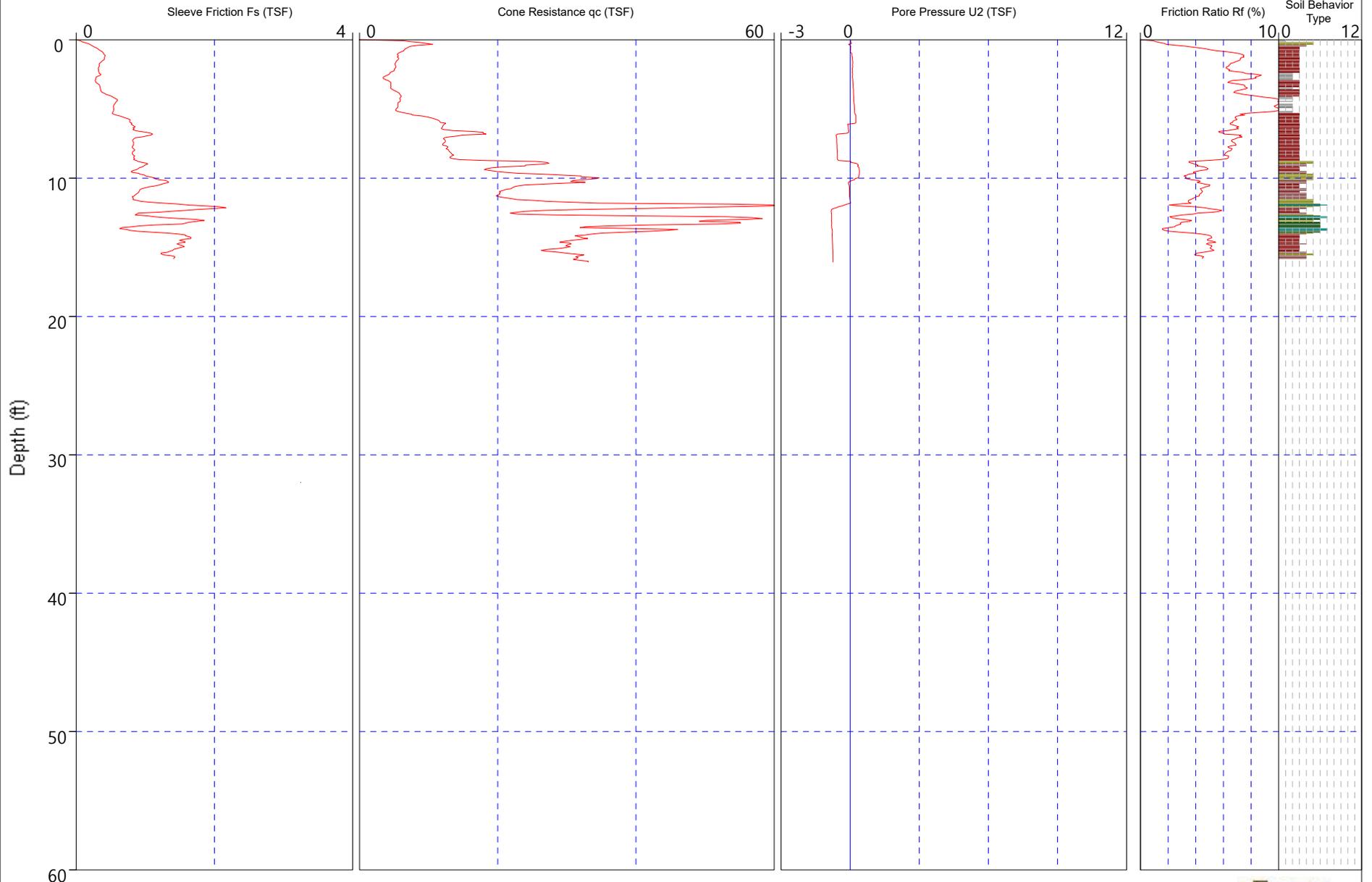
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|------------------------------------|---------------------------------------|--------------------------------------|---------------------------------------|
| (1) sensitive fine grained (OL-CH) | (4) silty clay to clay (CL-CH) | (7) silty sand to sandy silt (SM-ML) | (10) gravel to gravelly sand (SW-GW) |
| (2) organic material (OL-OH) | (5) clayey silt to silty clay (MH-CL) | (8) sand to silty sand (SM-SP) | (11) very stiff fine grained* (CH-CL) |
| (3) clay (CH) | (6) sandy silt to clayey silt (ML-MH) | (9) sand (SW-SP) | (12) sand to clayey sand* (SC-SM) |



Job Number: 04.19200014
Operator: Bobby Brandt
Location: Houston, TX

CPT Number: ECP-EC-C08
Date: 05-Jun-2020
Elevation: 0.00

Coordinates: 29.75378, -95.23296
Cone Number: CP15-CF75PB7SN2-P1E1 2422



Soil Behavior Type

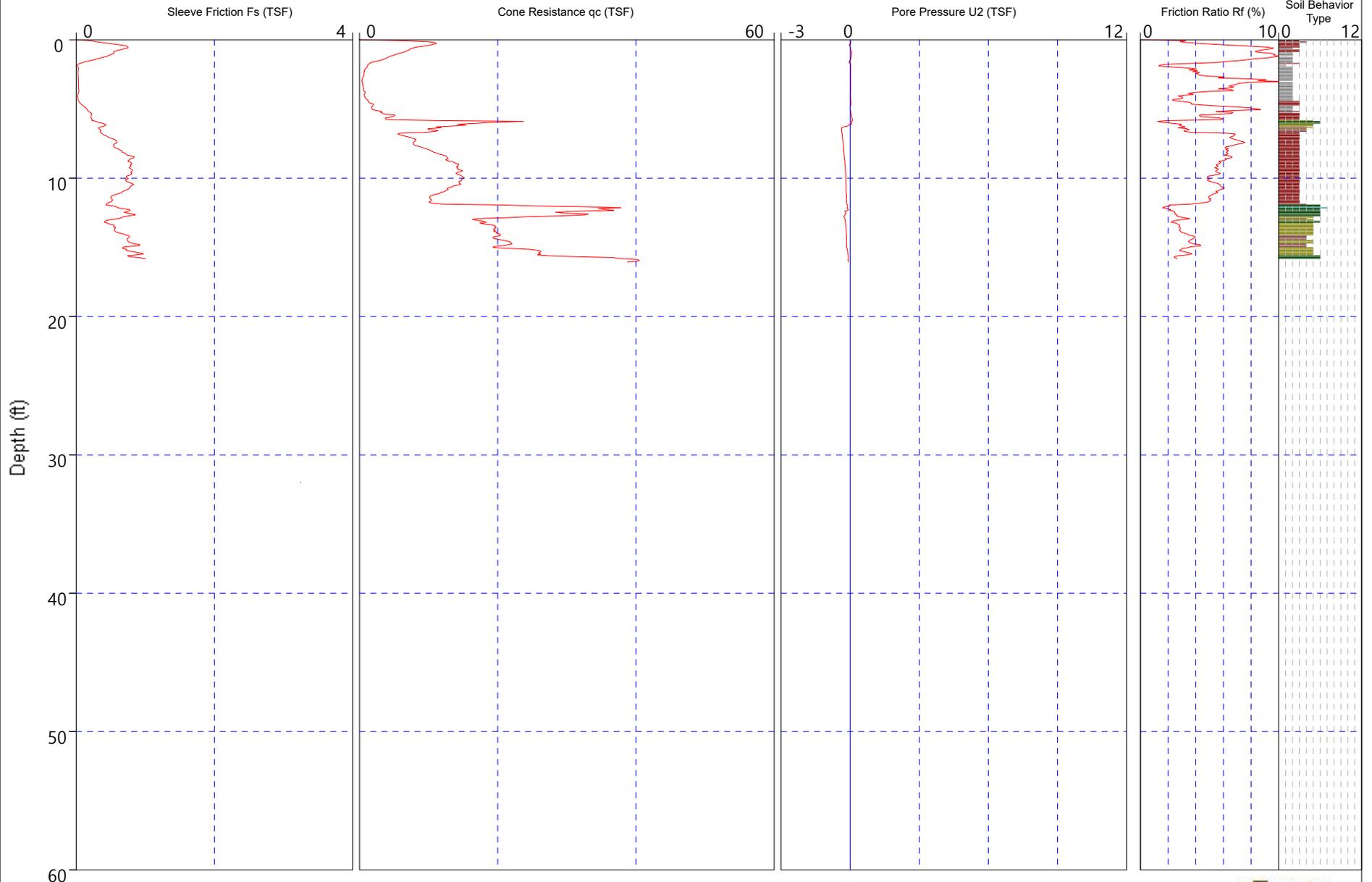
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|------------------------------------|---------------------------------------|--------------------------------------|---------------------------------------|
| (1) sensitive fine grained (OL-CH) | (4) silty clay to clay (CL-CH) | (7) silty sand to sandy silt (SM-ML) | (10) gravel to gravelly sand (SW-GW) |
| (2) organic material (OL-OH) | (5) clayey silt to silty clay (MH-CL) | (8) sand to silty sand (SM-SP) | (11) very stiff fine grained* (CH-CL) |
| (3) clay (CH) | (6) sandy silt to clayey silt (ML-MH) | (9) sand (SW-SP) | (12) sand to clayey sand* (SC-SM) |



Job Number: 04.19200014
Operator: Bobby Brandt
Location: Houston, TX

CPT Number: ECP-EC-C09
Date: 05-Jun-2020
Elevation: 0.00

Coordinates: 29.75270, -95.23296
Cone Number: CP15-CF75PB7SN2-P1E1 2422



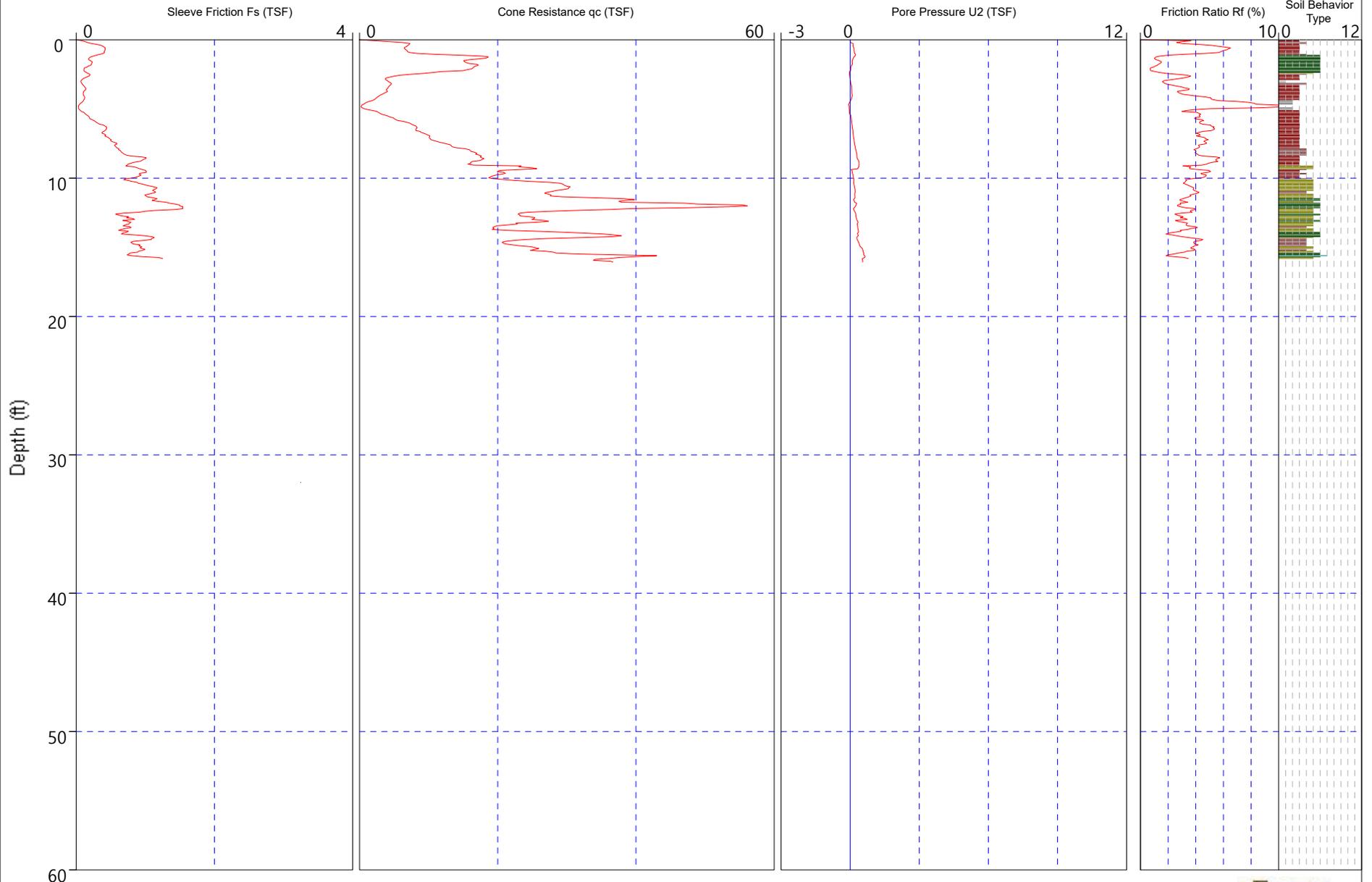
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|------------------------------------|---------------------------------------|--------------------------------------|---------------------------------------|
| (1) sensitive fine grained (OL-CH) | (4) silty clay to clay (CL-CH) | (7) silty sand to sandy silt (SM-ML) | (10) gravel to gravelly sand (SW-GW) |
| (2) organic material (OL-OH) | (5) clayey silt to silty clay (MH-CL) | (8) sand to silty sand (SM-SP) | (11) very stiff fine grained* (CH-CL) |
| (3) clay (CH) | (6) sandy silt to clayey silt (ML-MH) | (9) sand (SW-SP) | (12) sand to clayey sand* (SC-SM) |



Job Number: 04.19200014
Operator: Bobby Brandt
Location: Houston, TX

CPT Number: ECP-EC-C10
Date: 05-Jun-2020
Elevation: 0.00

Coordinates: 29.75214, -95.23291
Cone Number: CP15-CF75PB7SN2-P1E1 2422



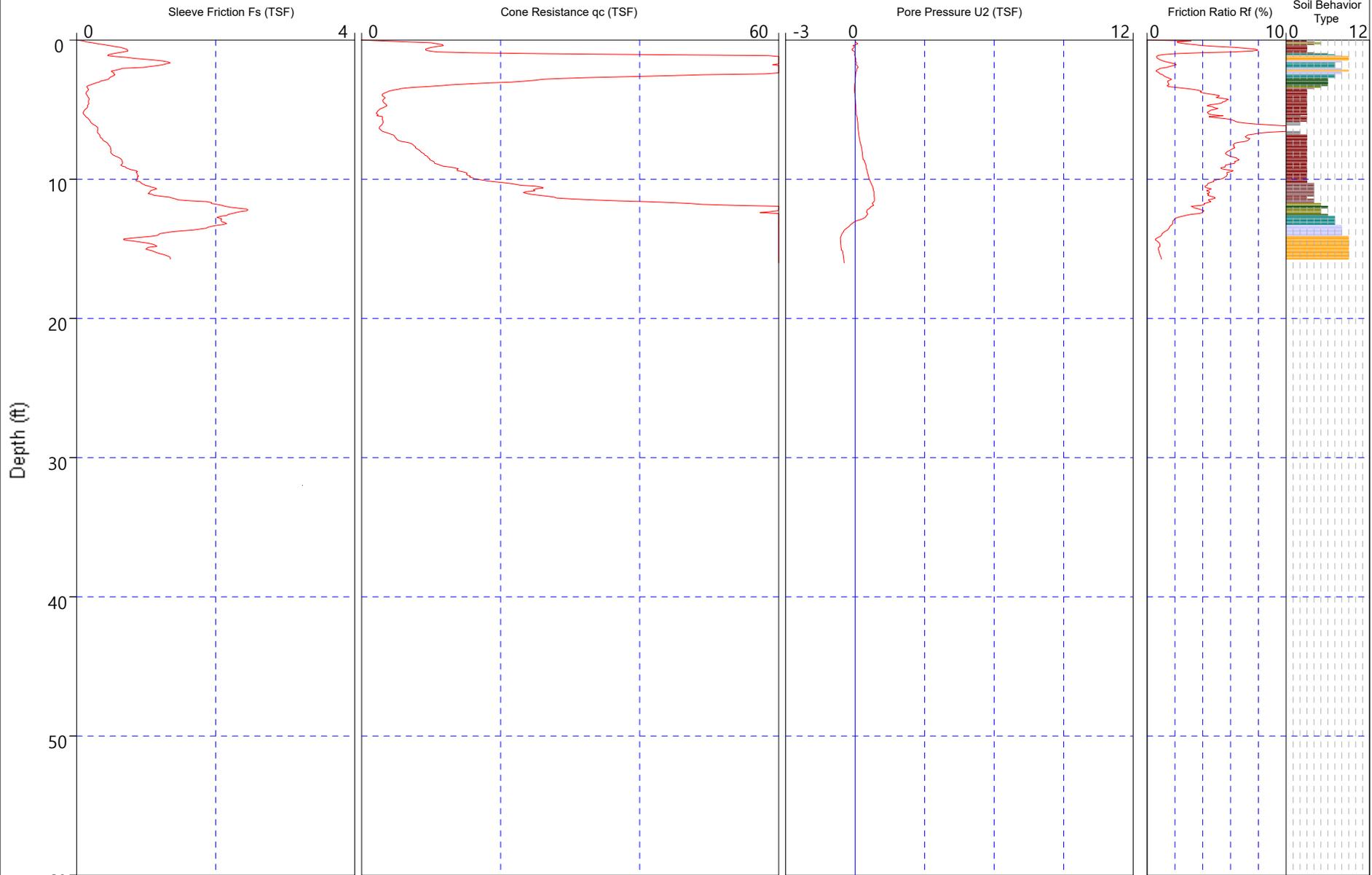
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|------------------------------------|---------------------------------------|--------------------------------------|---------------------------------------|
| (1) sensitive fine grained (OL-CH) | (4) silty clay to clay (CL-CH) | (7) silty sand to sandy silt (SM-ML) | (10) gravel to gravelly sand (SW-GW) |
| (2) organic material (OL-OH) | (5) clayey silt to silty clay (MH-CL) | (8) sand to silty sand (SM-SP) | (11) very stiff fine grained* (CH-CL) |
| (3) clay (CH) | (6) sandy silt to clayey silt (ML-MH) | (9) sand (SW-SP) | (12) sand to clayey sand* (SC-SM) |



Job Number: 04.19200014
Operator: Bobby Brandt
Location: Houston, TX

CPT Number: ECP-EC-C11
Date: 05-Jun-2020
Elevation: 0.00

Coordinates: 29.75160, -95.23289
Cone Number: CP15-CF75PB7SN2-P1E1 2422



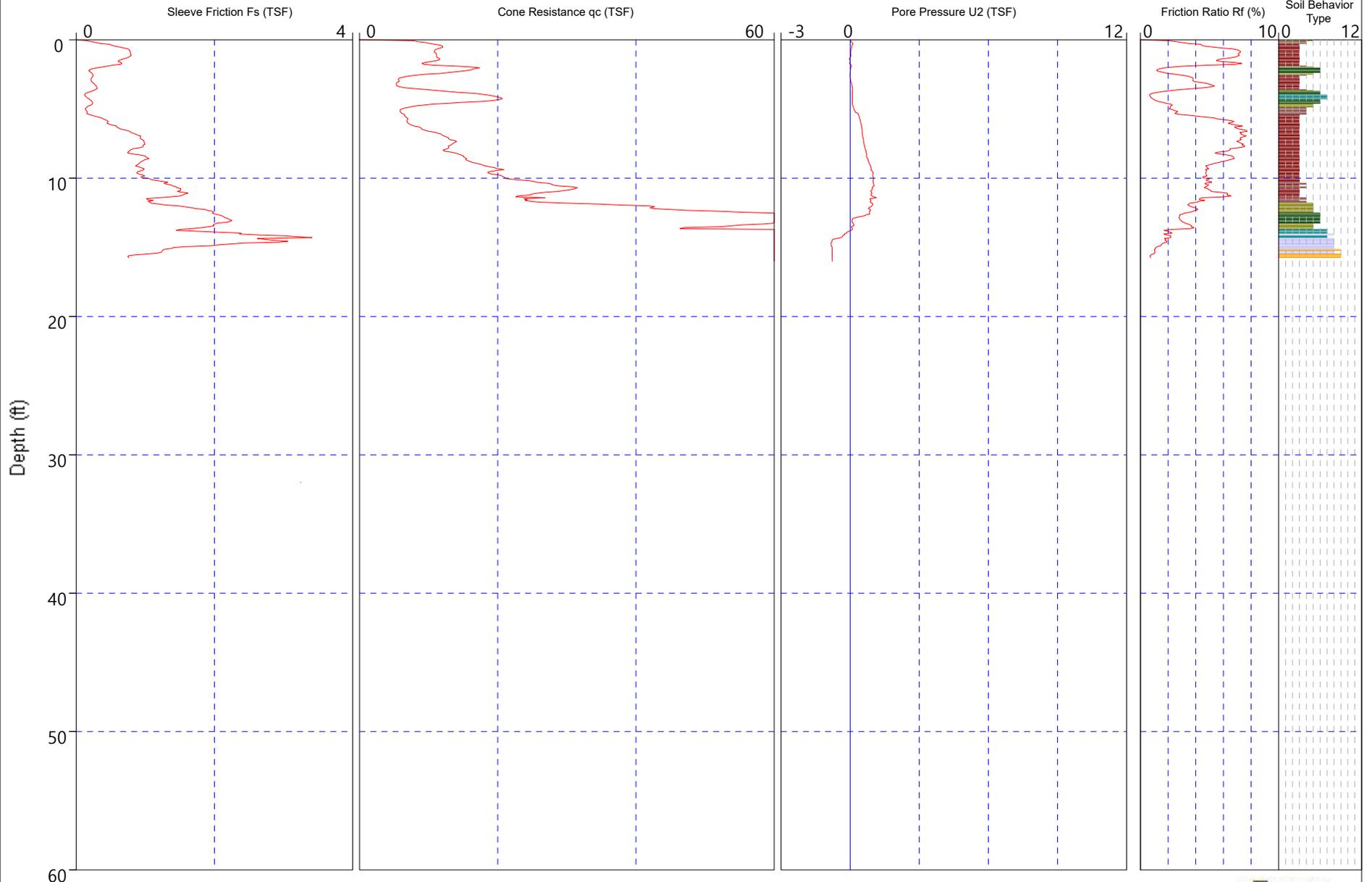
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|------------------------------------|---------------------------------------|--------------------------------------|---------------------------------------|
| (1) sensitive fine grained (OL-CH) | (4) silty clay to clay (CL-CH) | (7) silty sand to sandy silt (SM-ML) | (10) gravel to gravelly sand (SW-GW) |
| (2) organic material (OL-OH) | (5) clayey silt to silty clay (MH-CL) | (8) sand to silty sand (SM-SP) | (11) very stiff fine grained* (CH-CL) |
| (3) clay (CH) | (6) sandy silt to clayey silt (ML-MH) | (9) sand (SW-SP) | (12) sand to clayey sand* (SC-SM) |



Job Number: 04.19200014
Operator: Bobby Brandt
Location: Houston, TX

CPT Number: ECP-EC-C12
Date: 05-Jun-2020
Elevation: 0.00

Coordinates: 29.75102, -95.23288
Cone Number: CP15-CF75PB7SN2-P1E1 2422



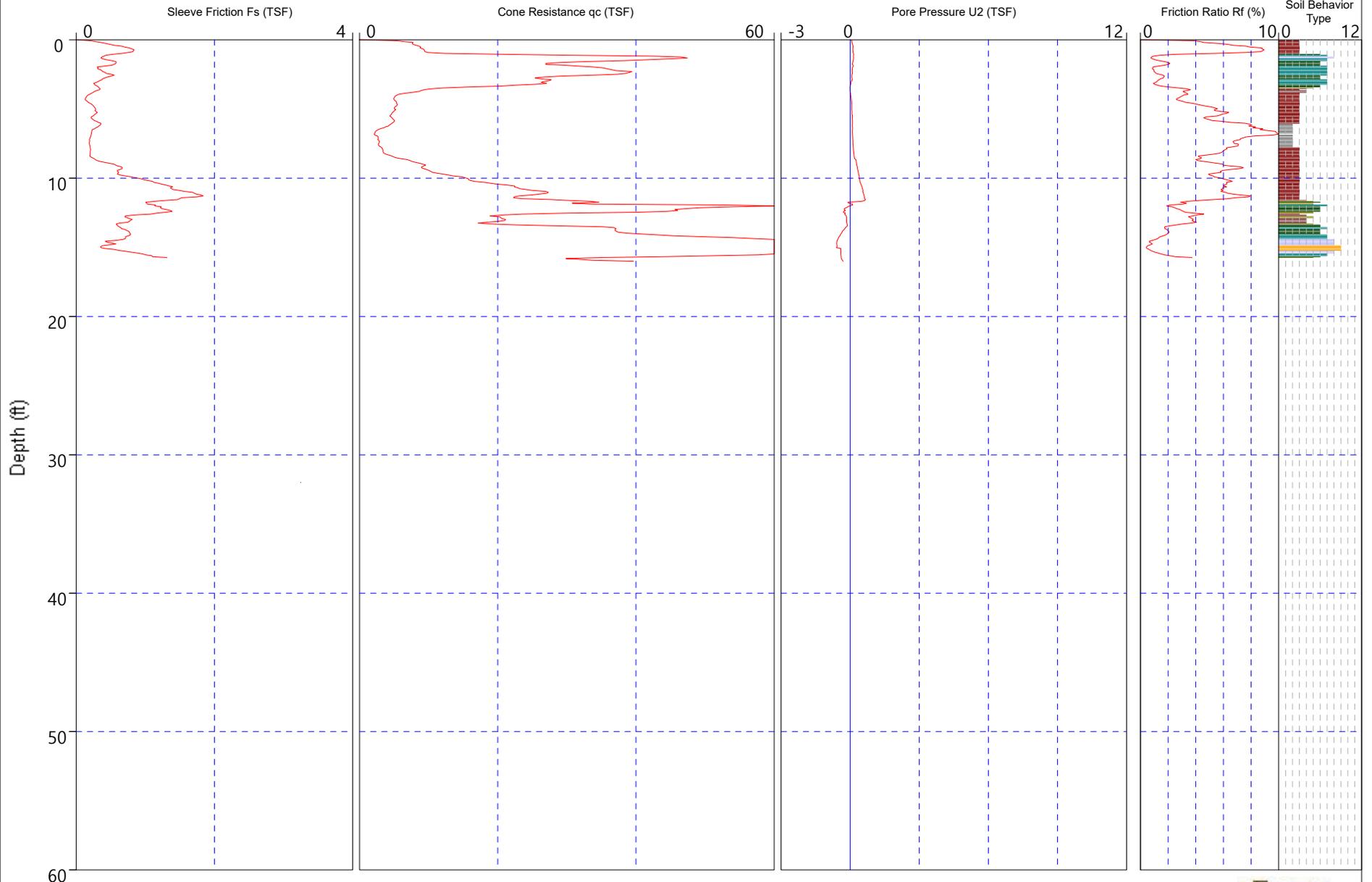
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|------------------------------------|---------------------------------------|--------------------------------------|---------------------------------------|
| (1) sensitive fine grained (OL-CH) | (4) silty clay to clay (CL-CH) | (7) silty sand to sandy silt (SM-ML) | (10) gravel to gravelly sand (SW-GW) |
| (2) organic material (OL-OH) | (5) clayey silt to silty clay (MH-CL) | (8) sand to silty sand (SM-SP) | (11) very stiff fine grained* (CH-CL) |
| (3) clay (CH) | (6) sandy silt to clayey silt (ML-MH) | (9) sand (SW-SP) | (12) sand to clayey sand* (SC-SM) |



Job Number: 04.19200014
Operator: Bobby Brandt
Location: Houston, TX

CPT Number: ECP-EC-C13
Date: 05-Jun-2020
Elevation: 0.00

Coordinates: 29.75049, -95.23286
Cone Number: CP15-CF75PB7SN2-P1E1 2422



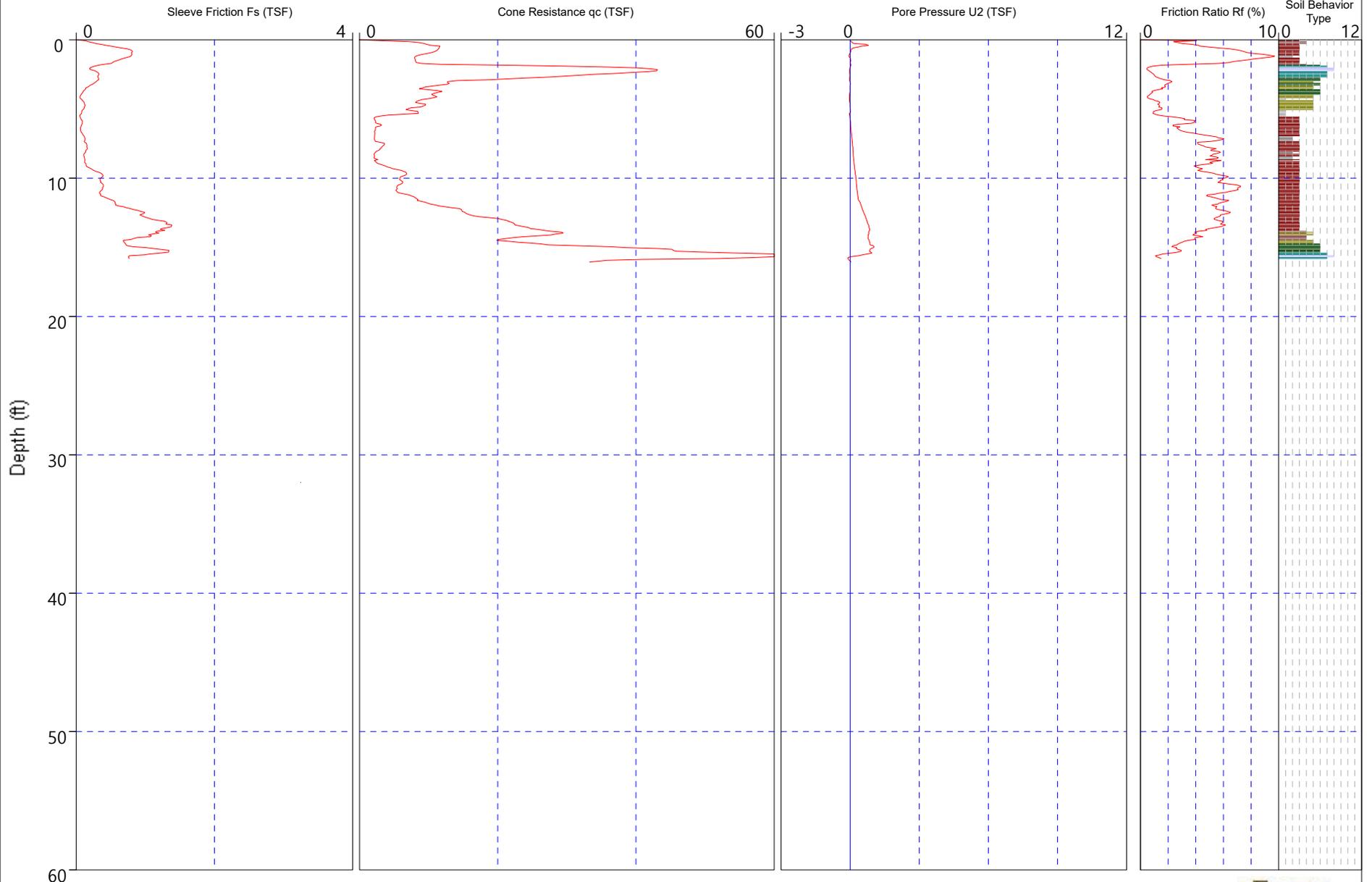
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| (1) sensitive fine grained (OL-CH) | (4) silty clay to clay (CL-CH) | (7) silty sand to sandy silt (SM-ML) | (10) gravel to gravelly sand (SW-GW) |
| (2) organic material (OL-OH) | (5) clayey silt to silty clay (MH-CL) | (8) sand to silty sand (SM-SP) | (11) very stiff fine grained* (CH-CL) |
| (3) clay (CH) | (6) sandy silt to clayey silt (ML-MH) | (9) sand (SW-SP) | (12) sand to clayey sand* (SC-SM) |



Job Number: 04.19200014
Operator: Bobby Brandt
Location: Houston, TX

CPT Number: ECP-EC-C14
Date: 05-Jun-2020
Elevation: 0.00

Coordinates: 29.74959, -95.23283
Cone Number: CP15-CF75PB7SN2-P1E1 2422



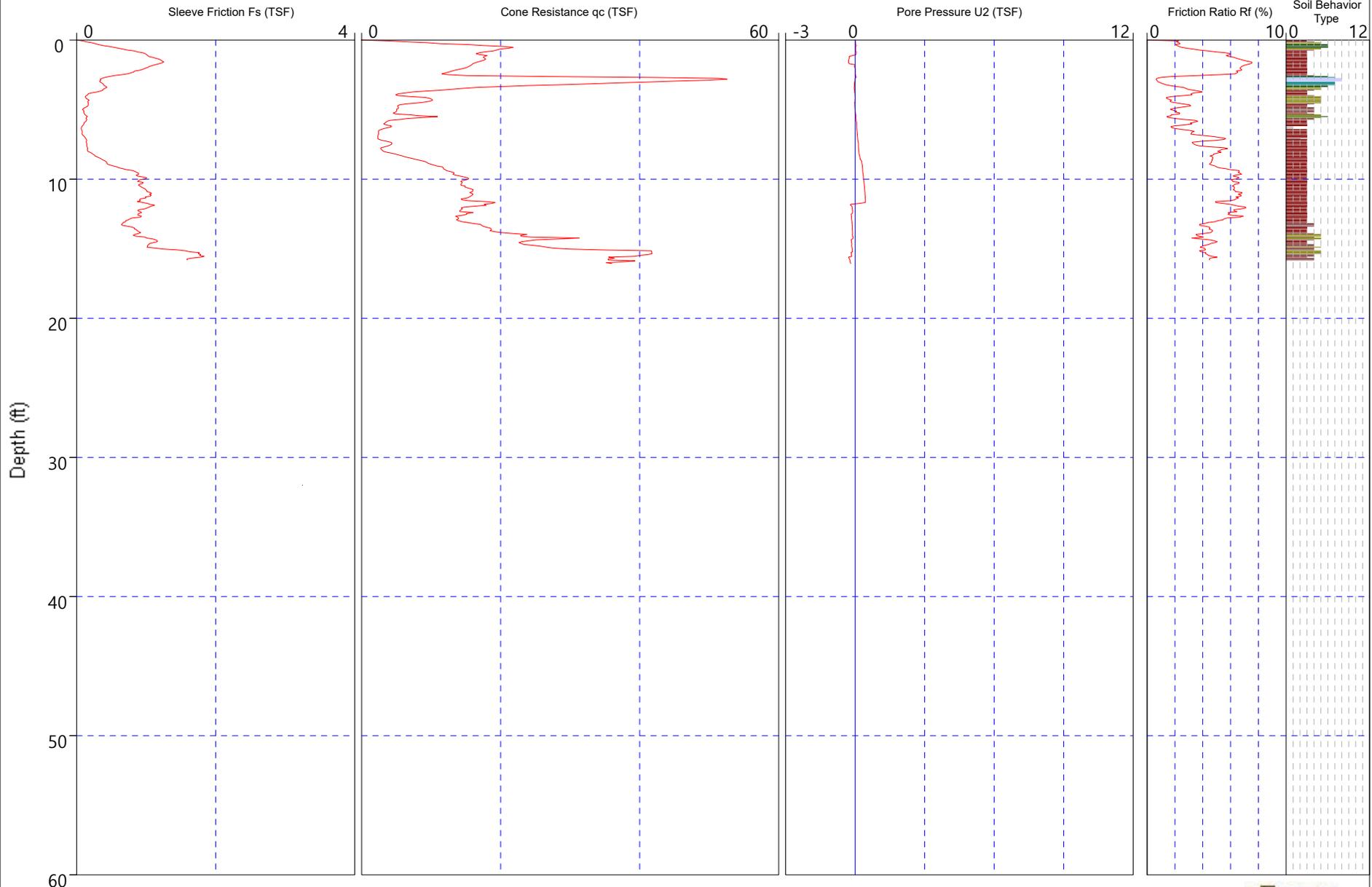
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|------------------------------------|---------------------------------------|--------------------------------------|---------------------------------------|
| (1) sensitive fine grained (OL-CH) | (4) silty clay to clay (CL-CH) | (7) silty sand to sandy silt (SM-ML) | (10) gravel to gravelly sand (SW-GW) |
| (2) organic material (OL-OH) | (5) clayey silt to silty clay (MH-CL) | (8) sand to silty sand (SM-SP) | (11) very stiff fine grained* (CH-CL) |
| (3) clay (CH) | (6) sandy silt to clayey silt (ML-MH) | (9) sand (SW-SP) | (12) sand to clayey sand* (SC-SM) |



Job Number: 04.19200014
Operator: Bobby Brandt
Location: Houston, TX

CPT Number: ECP-EC-C15
Date: 05-Jun-2020
Elevation: 0.00

Coordinates: 29.74864, -95.23276
Cone Number: CP15-CF75PB7SN2-P1E1 2422



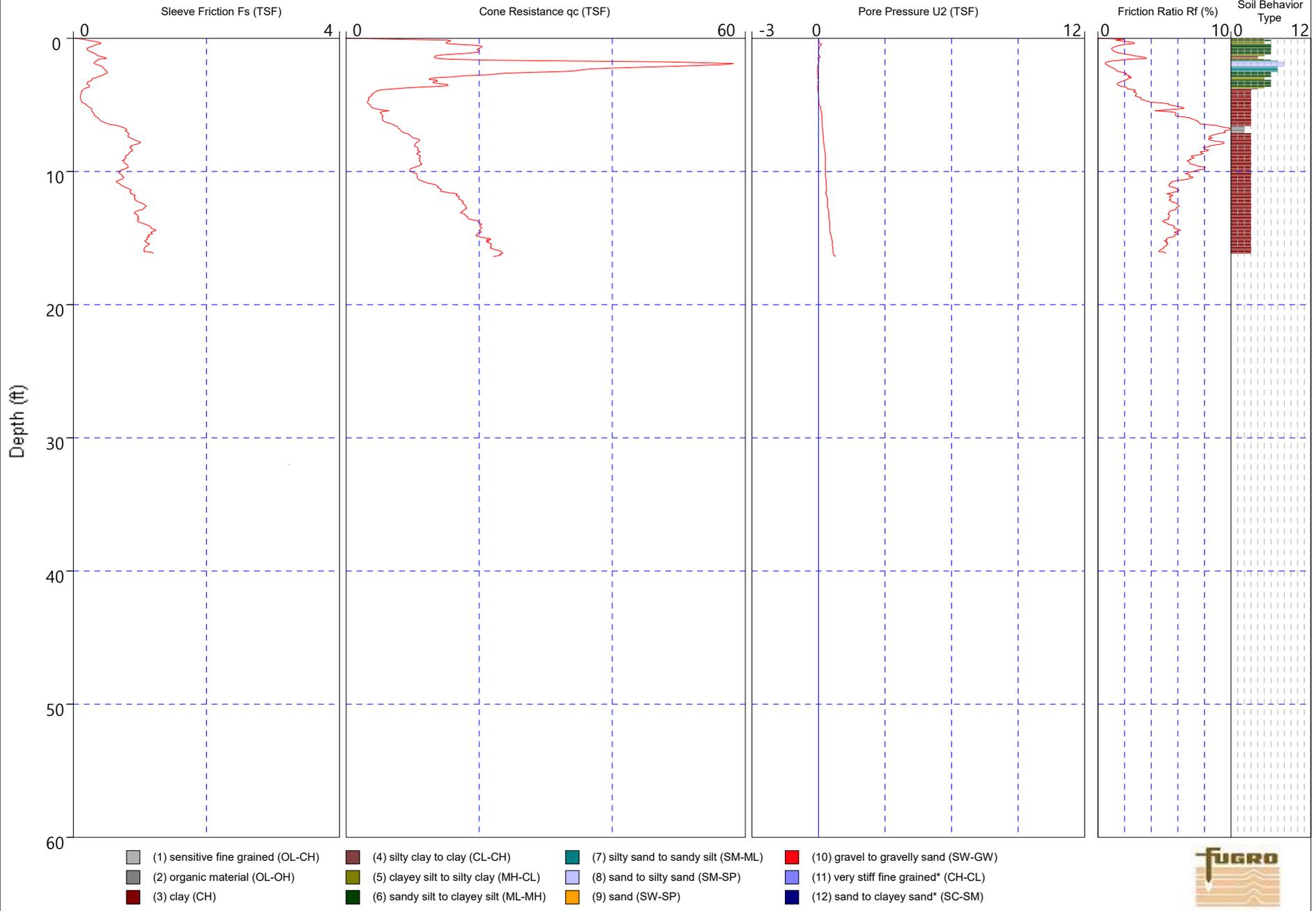
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|------------------------------------|---------------------------------------|--------------------------------------|---------------------------------------|
| (1) sensitive fine grained (OL-CH) | (4) silty clay to clay (CL-CH) | (7) silty sand to sandy silt (SM-ML) | (10) gravel to gravelly sand (SW-GW) |
| (2) organic material (OL-OH) | (5) clayey silt to silty clay (MH-CL) | (8) sand to silty sand (SM-SP) | (11) very stiff fine grained* (CH-CL) |
| (3) clay (CH) | (6) sandy silt to clayey silt (ML-MH) | (9) sand (SW-SP) | (12) sand to clayey sand* (SC-SM) |



Job Number: 04.19200014
Operator: Bobby Brandt
Location: Houston, TX

CPT Number: ECP-EC-C16
Date: 05-Jun-2020
Elevation: 0.00

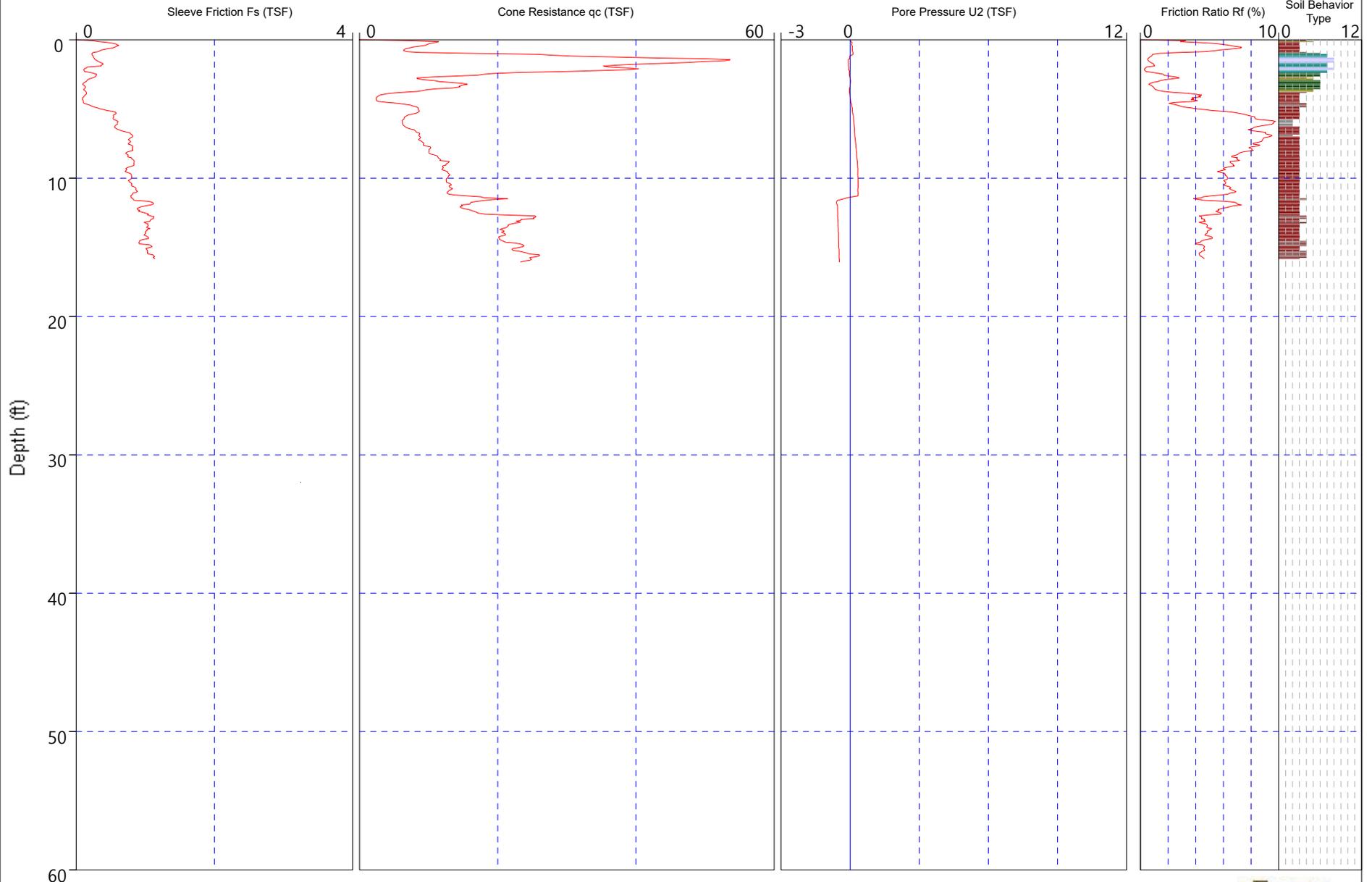
Coordinates: 29.74788, -95.23289
Cone Number: CP15-CF75PB7SN2-P1E1 2422



Job Number: 04.19200014
Operator: Bobby Brandt
Location: Houston, TX

CPT Number: ECP-EC-C17
Date: 05-Jun-2020
Elevation: 0.00

Coordinates: 29.74765, -95.23262
Cone Number: CP15-CF75PB7SN2-P1E1 2422



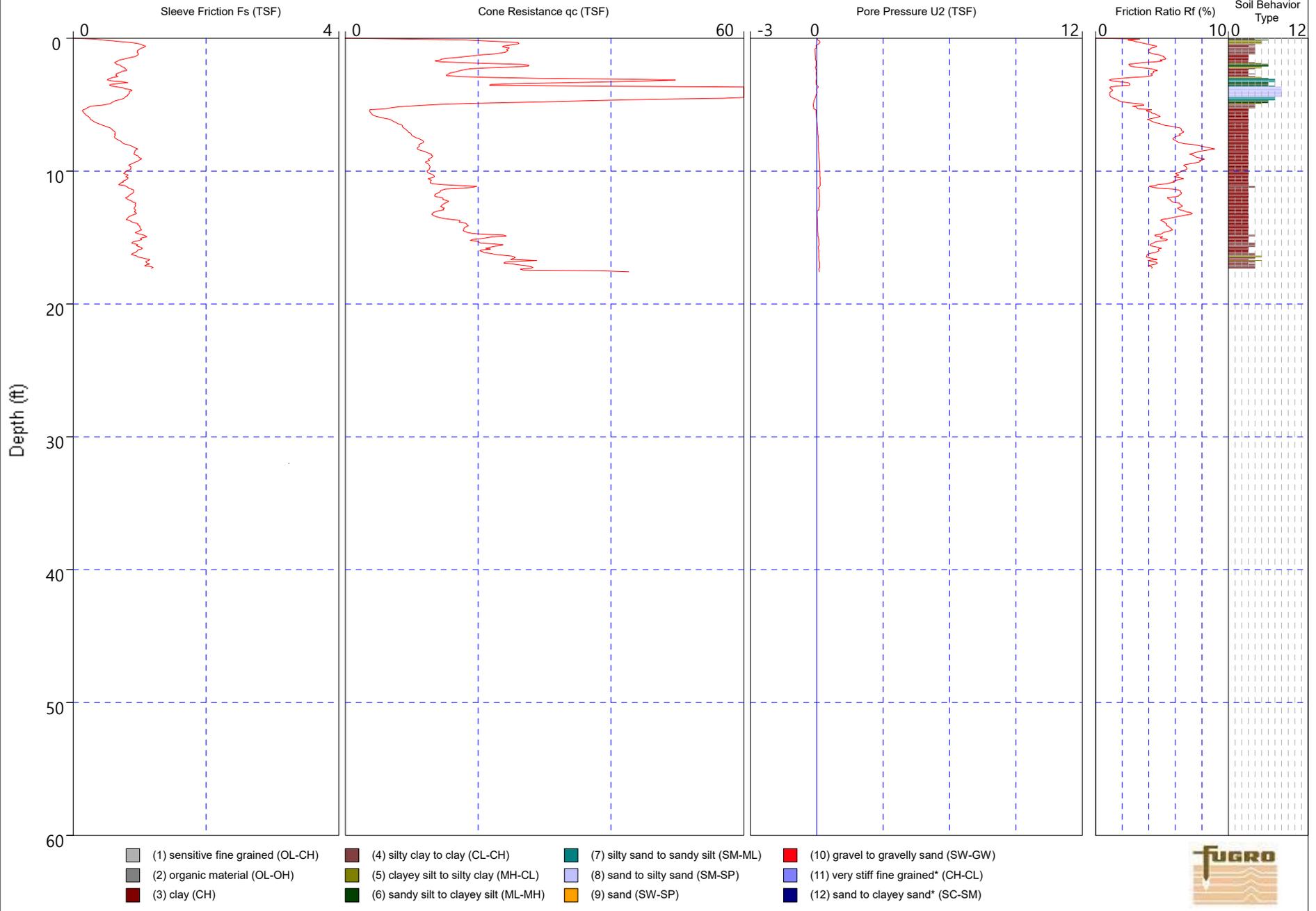
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|------------------------------------|---------------------------------------|--------------------------------------|---------------------------------------|
| (1) sensitive fine grained (OL-CH) | (4) silty clay to clay (CL-CH) | (7) silty sand to sandy silt (SM-ML) | (10) gravel to gravelly sand (SW-GW) |
| (2) organic material (OL-OH) | (5) clayey silt to silty clay (MH-CL) | (8) sand to silty sand (SM-SP) | (11) very stiff fine grained* (CH-CL) |
| (3) clay (CH) | (6) sandy silt to clayey silt (ML-MH) | (9) sand (SW-SP) | (12) sand to clayey sand* (SC-SM) |



Job Number: 04.19200014
Operator: Bobby Brandt
Location: Houston, TX

CPT Number: ECP-EC-C18
Date: 05-Jun-2020
Elevation: 0.00

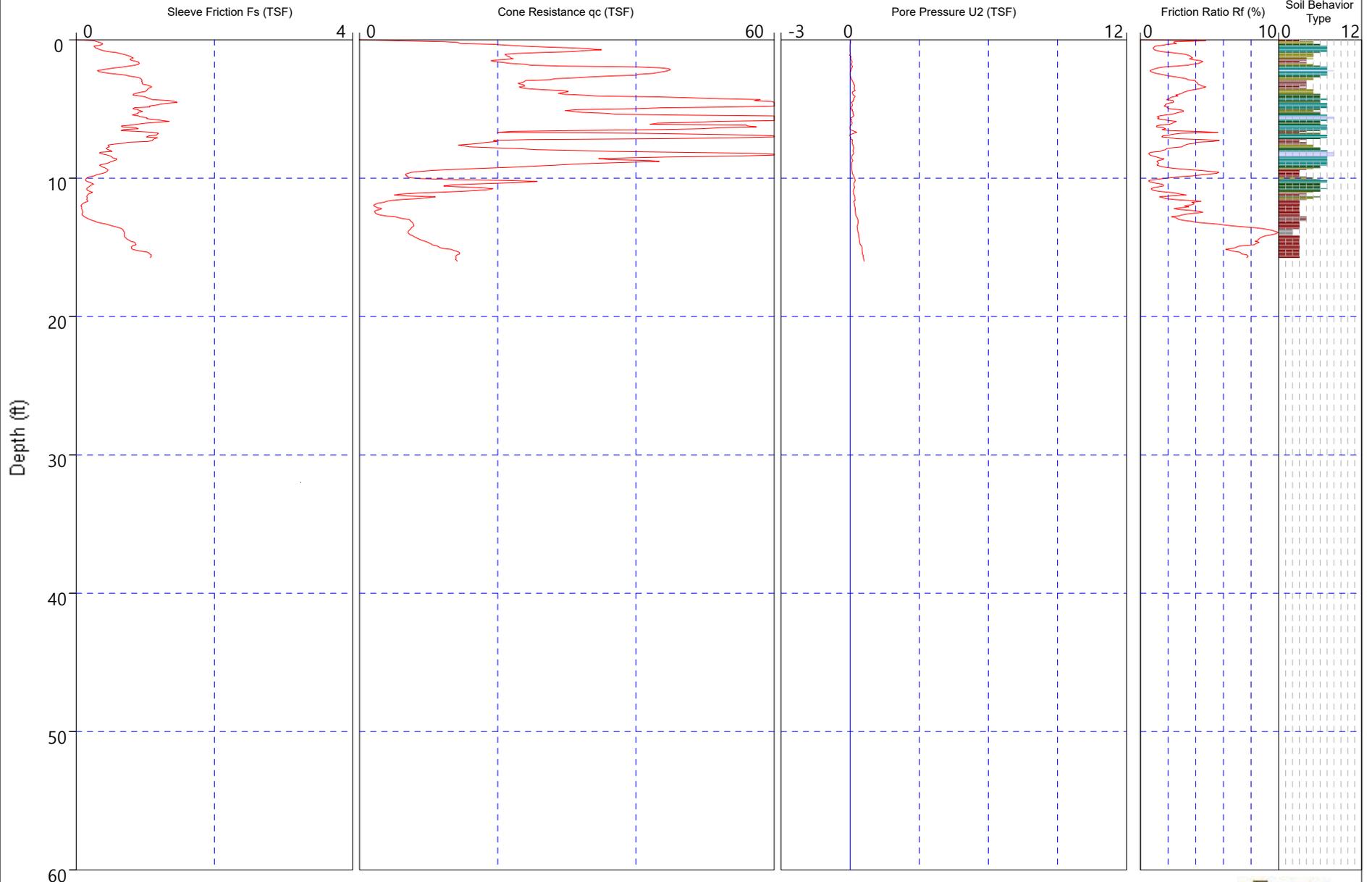
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Cone Number: CP15-CF75PB7SN2-P1E1 2422



Job Number: 04.19200014
Operator: Bobby Brandt
Location: Houston, TX

CPT Number: ECP-EC-C20
Date: 06-Jun-2020
Elevation: 0.00

Coordinates: 29.74742, -95.23089
Cone Number: CP15-CF75PB7SN2-P1E1 2422



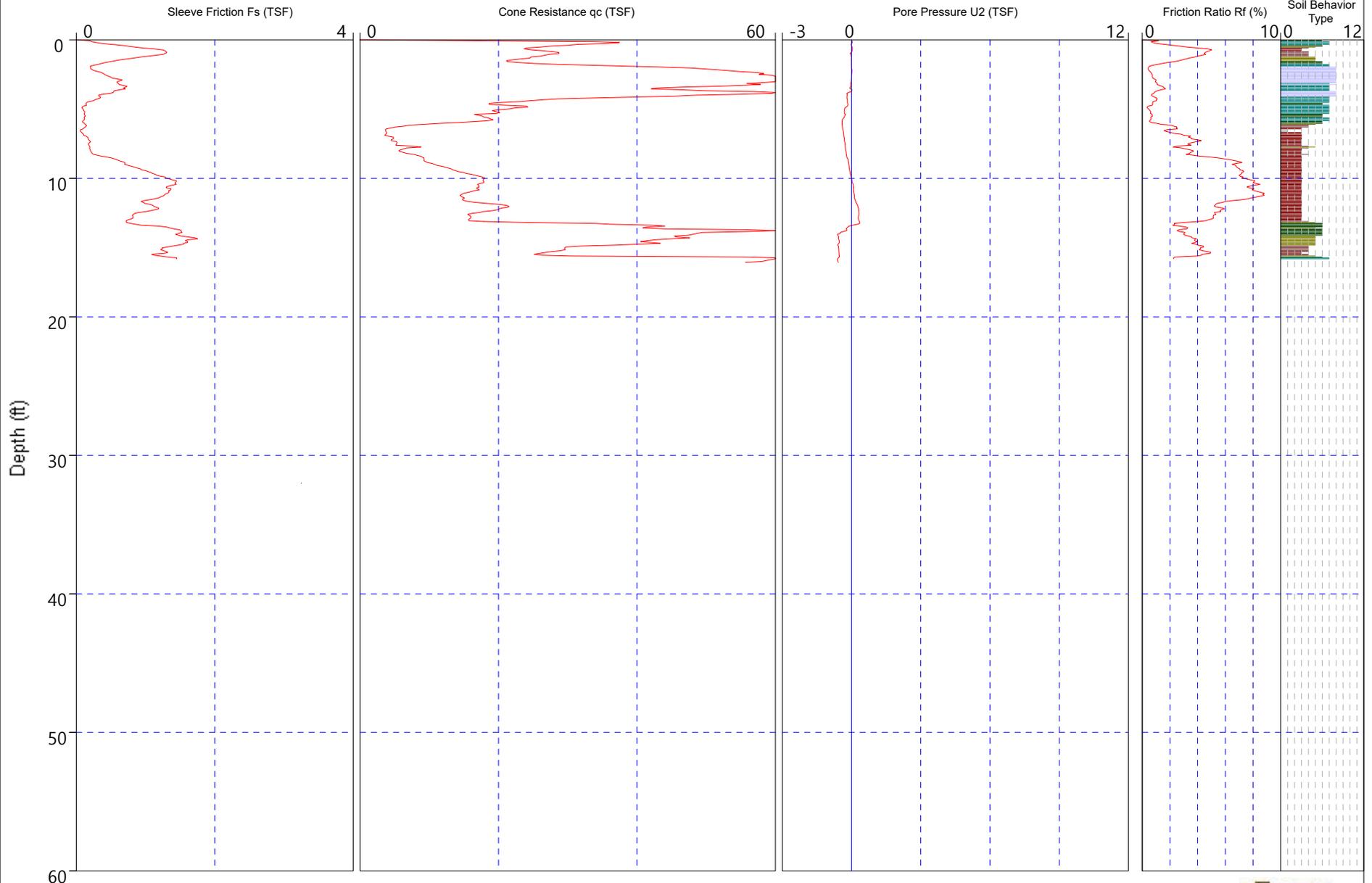
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|------------------------------------|---------------------------------------|--------------------------------------|---------------------------------------|
| (1) sensitive fine grained (OL-CH) | (4) silty clay to clay (CL-CH) | (7) silty sand to sandy silt (SM-ML) | (10) gravel to gravelly sand (SW-GW) |
| (2) organic material (OL-OH) | (5) clayey silt to silty clay (MH-CL) | (8) sand to silty sand (SM-SP) | (11) very stiff fine grained* (CH-CL) |
| (3) clay (CH) | (6) sandy silt to clayey silt (ML-MH) | (9) sand (SW-SP) | (12) sand to clayey sand* (SC-SM) |



Job Number: 04.19200014
Operator: Bobby Brandt
Location: Houston, TX

CPT Number: ECP-EC-C21
Date: 06-Jun-2020
Elevation: 0.00

Coordinates: 29.74853, -95.23055
Cone Number: CP15-CF75PB7SN2-P1E1 2422



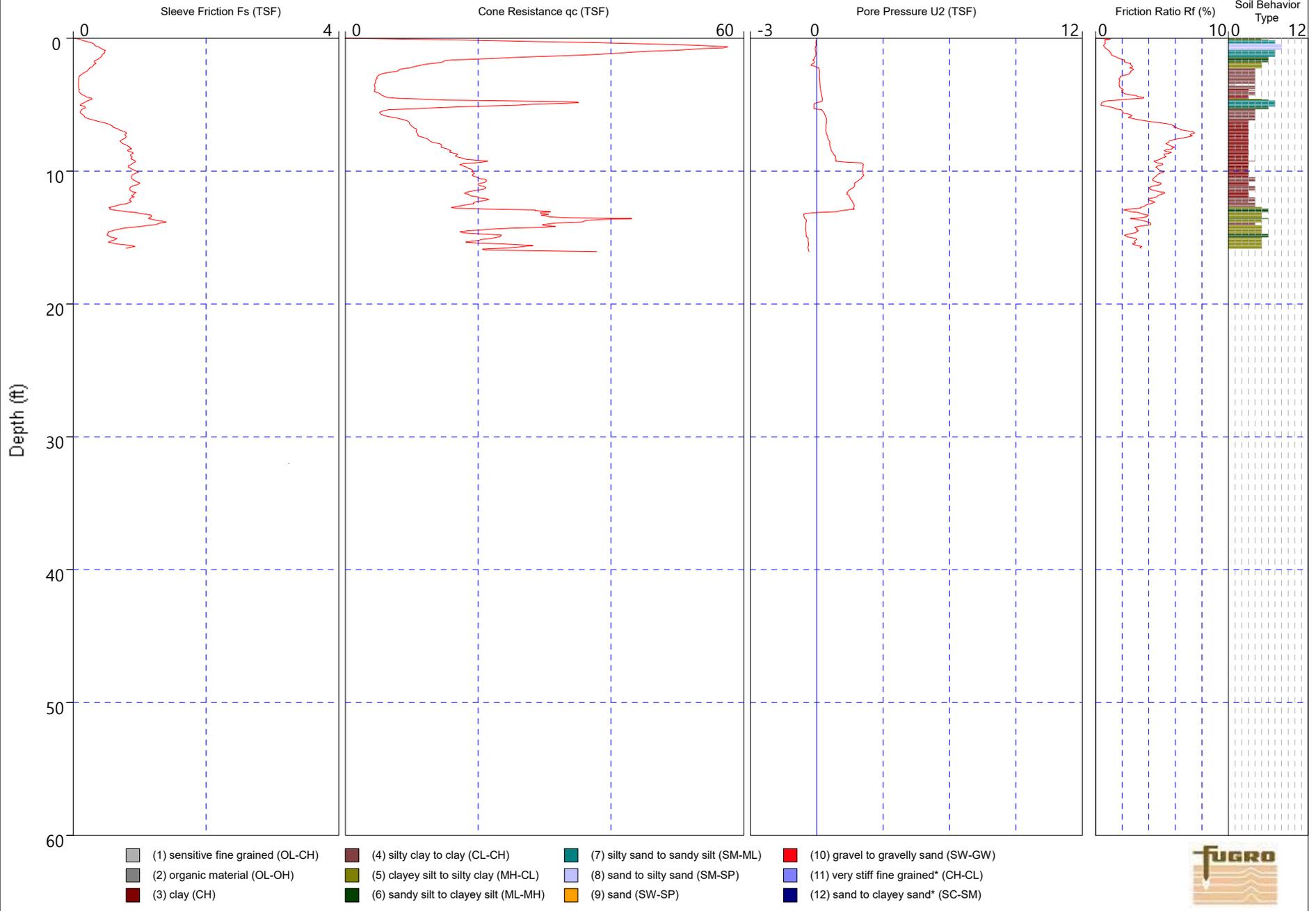
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|------------------------------------|---------------------------------------|--------------------------------------|---------------------------------------|
| (1) sensitive fine grained (OL-CH) | (4) silty clay to clay (CL-CH) | (7) silty sand to sandy silt (SM-ML) | (10) gravel to gravelly sand (SW-GW) |
| (2) organic material (OL-OH) | (5) clayey silt to silty clay (MH-CL) | (8) sand to silty sand (SM-SP) | (11) very stiff fine grained* (CH-CL) |
| (3) clay (CH) | (6) sandy silt to clayey silt (ML-MH) | (9) sand (SW-SP) | (12) sand to clayey sand* (SC-SM) |



Job Number: 04.19200014
Operator: Bobby Brandt
Location: Houston, TX

CPT Number: ECP-EC-C22
Date: 06-Jun-2020
Elevation: 0.00

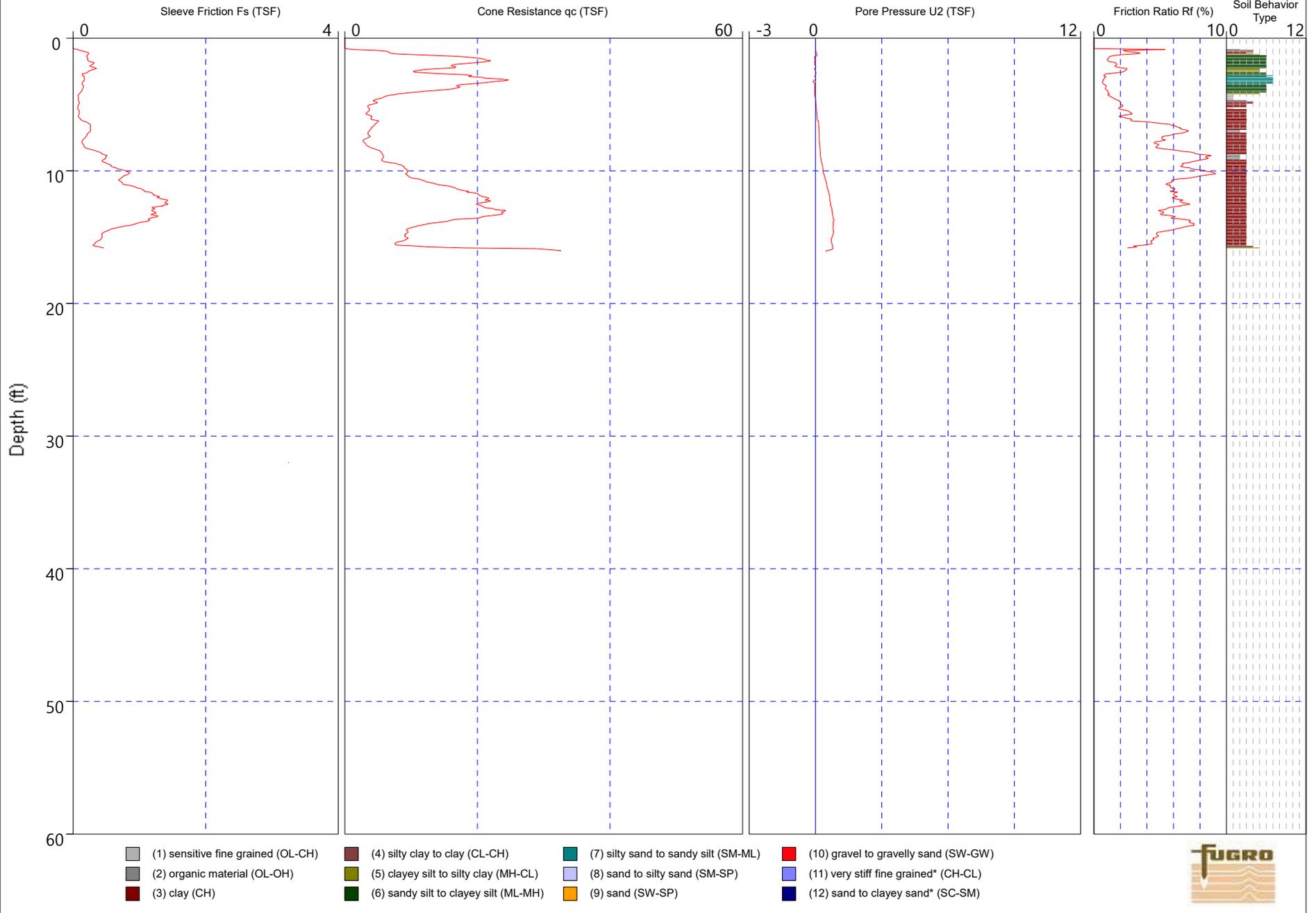
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Cone Number: CP15-CF75PB7SN2-P1E1 2422



Job Number: 04.19200014
Operator: Bobby Brandt
Location: Houston, TX

CPT Number: ECP-EC-C23
Date: 05-Jun-2020
Elevation: 0.00

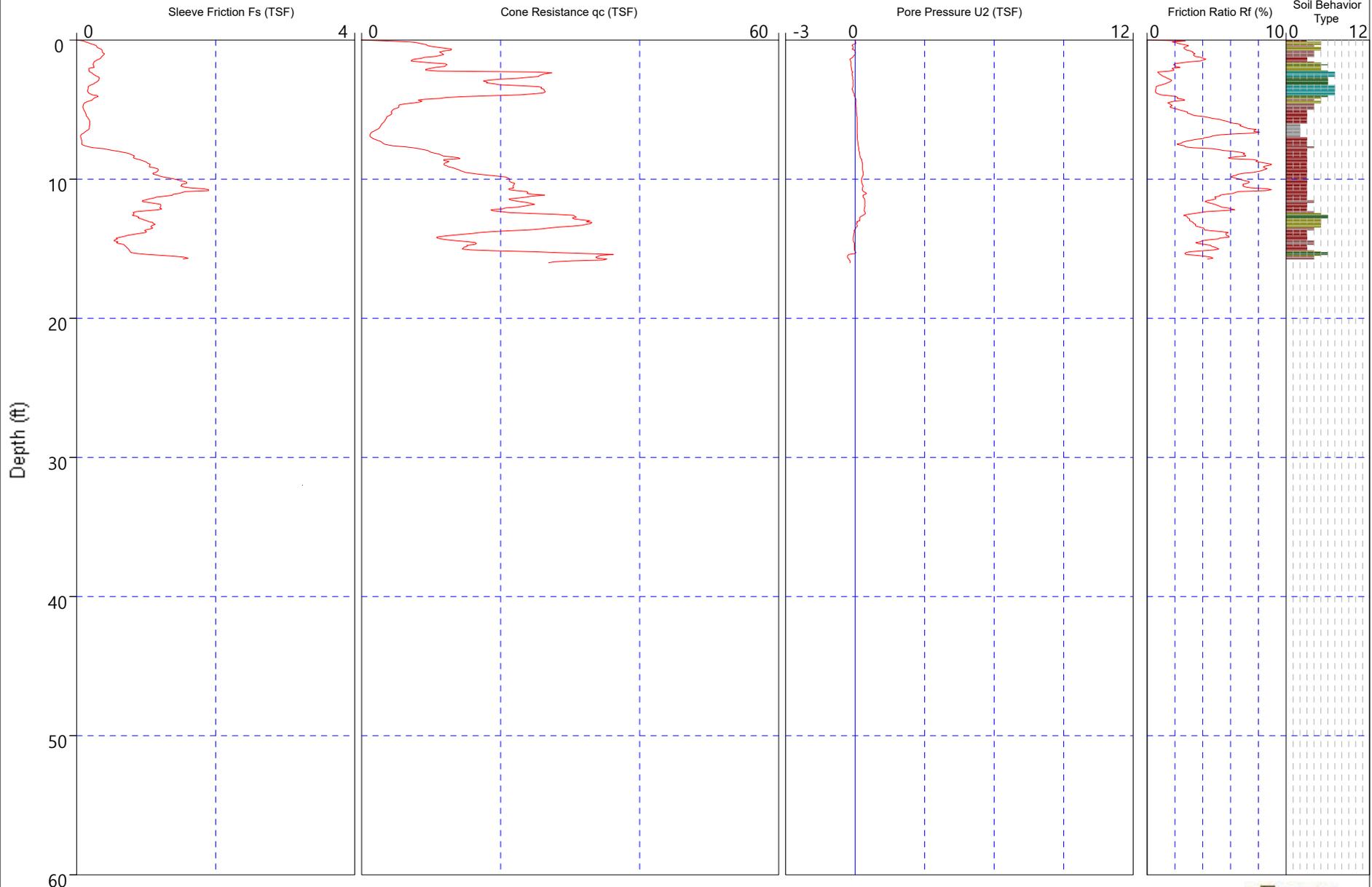
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Cone Number: CP15-CF75PB7SN2-P1E1 2422



Job Number: 04.19200014
Operator: Bobby Brandt
Location: Houston, TX

CPT Number: ECP-EC-C24
Date: 05-Jun-2020
Elevation: 0.00

Coordinates: 29.75007, -95.23066
Cone Number: CP15-CF75PB7SN2-P1E1 2422



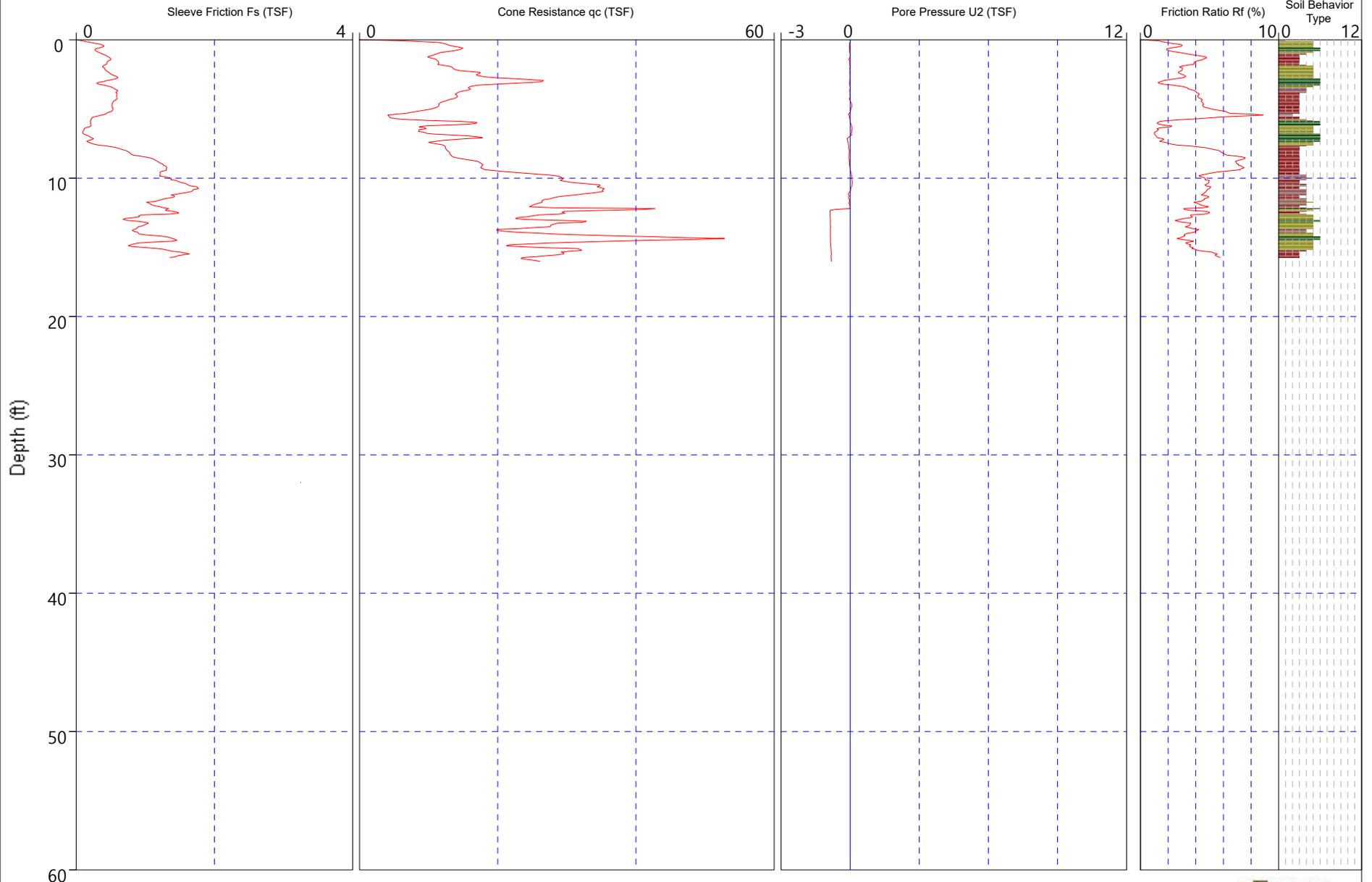
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|------------------------------------|---------------------------------------|--------------------------------------|---------------------------------------|
| (1) sensitive fine grained (OL-CH) | (4) silty clay to clay (CL-CH) | (7) silty sand to sandy silt (SM-ML) | (10) gravel to gravelly sand (SW-GW) |
| (2) organic material (OL-OH) | (5) clayey silt to silty clay (MH-CL) | (8) sand to silty sand (SM-SP) | (11) very stiff fine grained* (CH-CL) |
| (3) clay (CH) | (6) sandy silt to clayey silt (ML-MH) | (9) sand (SW-SP) | (12) sand to clayey sand* (SC-SM) |



Job Number: 04.19200014
Operator: Bobby Brandt
Location: Houston, TX

CPT Number: ECP-EC-C25
Date: 05-Jun-2020
Elevation: 0.00

Coordinates: 29.75065, -95.23070
Cone Number: CP15-CF75PB7SN2-P1E1 2422



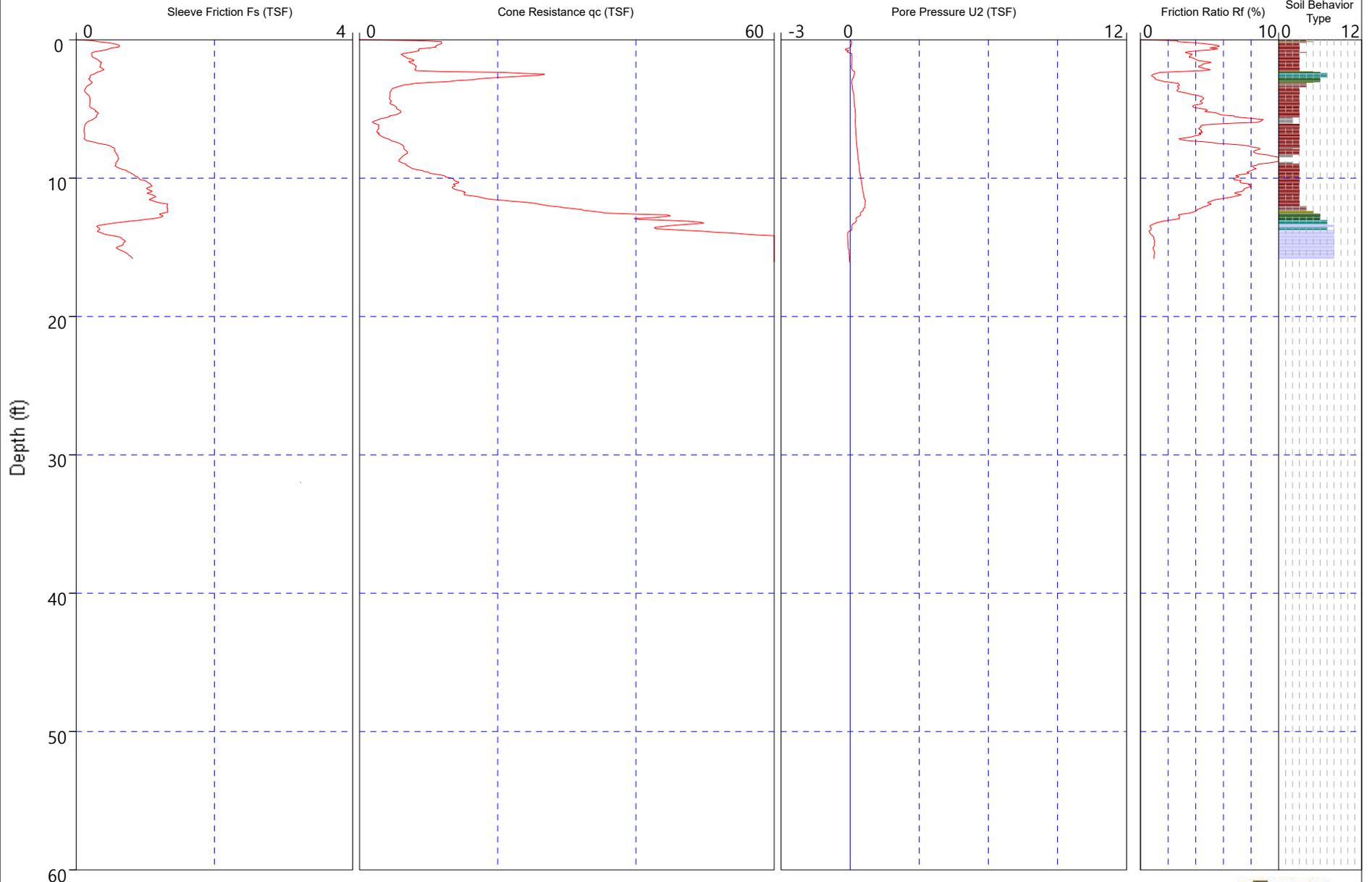
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|------------------------------------|---------------------------------------|--------------------------------------|---------------------------------------|
| (1) sensitive fine grained (OL-CH) | (4) silty clay to clay (CL-CH) | (7) silty sand to sandy silt (SM-ML) | (10) gravel to gravelly sand (SW-GW) |
| (2) organic material (OL-OH) | (5) clayey silt to silty clay (MH-CL) | (8) sand to silty sand (SM-SP) | (11) very stiff fine grained* (CH-CL) |
| (3) clay (CH) | (6) sandy silt to clayey silt (ML-MH) | (9) sand (SW-SP) | (12) sand to clayey sand* (SC-SM) |



Job Number: 04.19200014
Operator: Bobby Brandt
Location: Houston, TX

CPT Number: ECP-EC-C26
Date: 04-Jun-2020
Elevation: 0.00

Coordinates: 29.75168, -95.23070
Cone Number: CP15-CF75PB7SN2-P1E1 2422



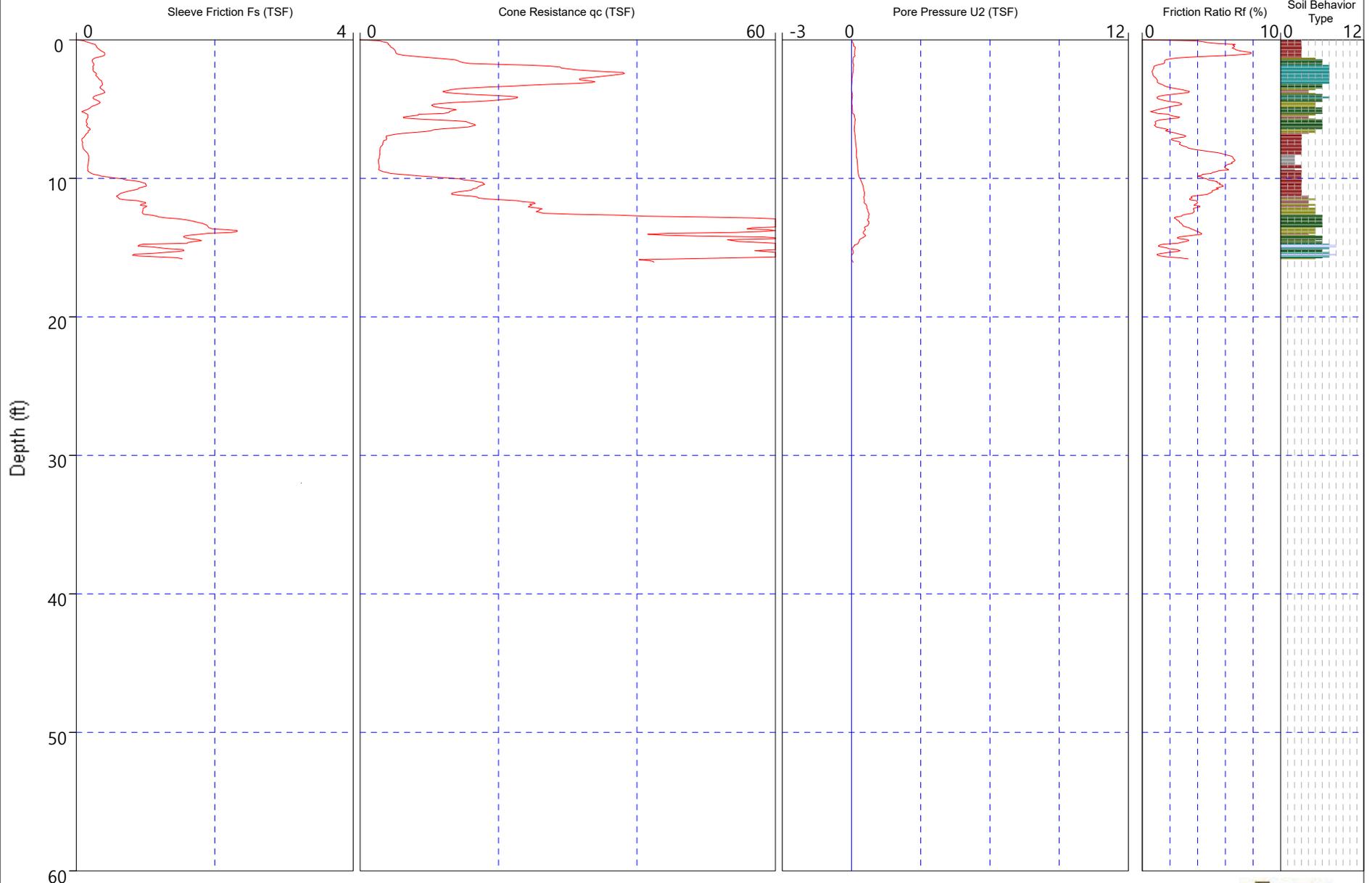
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|------------------------------------|---------------------------------------|--------------------------------------|---------------------------------------|
| (1) sensitive fine grained (OL-CH) | (4) silty clay to clay (CL-CH) | (7) silty sand to sandy silt (SM-ML) | (10) gravel to gravelly sand (SW-GW) |
| (2) organic material (OL-OH) | (5) clayey silt to silty clay (MH-CL) | (8) sand to silty sand (SM-SP) | (11) very stiff fine grained* (CH-CL) |
| (3) clay (CH) | (6) sandy silt to clayey silt (ML-MH) | (9) sand (SW-SP) | (12) sand to clayey sand* (SC-SM) |



Job Number: 04.19200014
Operator: Bobby Brandt
Location: Houston, TX

CPT Number: ECP-EC-C27
Date: 05-Jun-2020
Elevation: 0.00

Coordinates: 29.75256, -95.23054
Cone Number: CP15-CF75PB7SN2-P1E1 2422



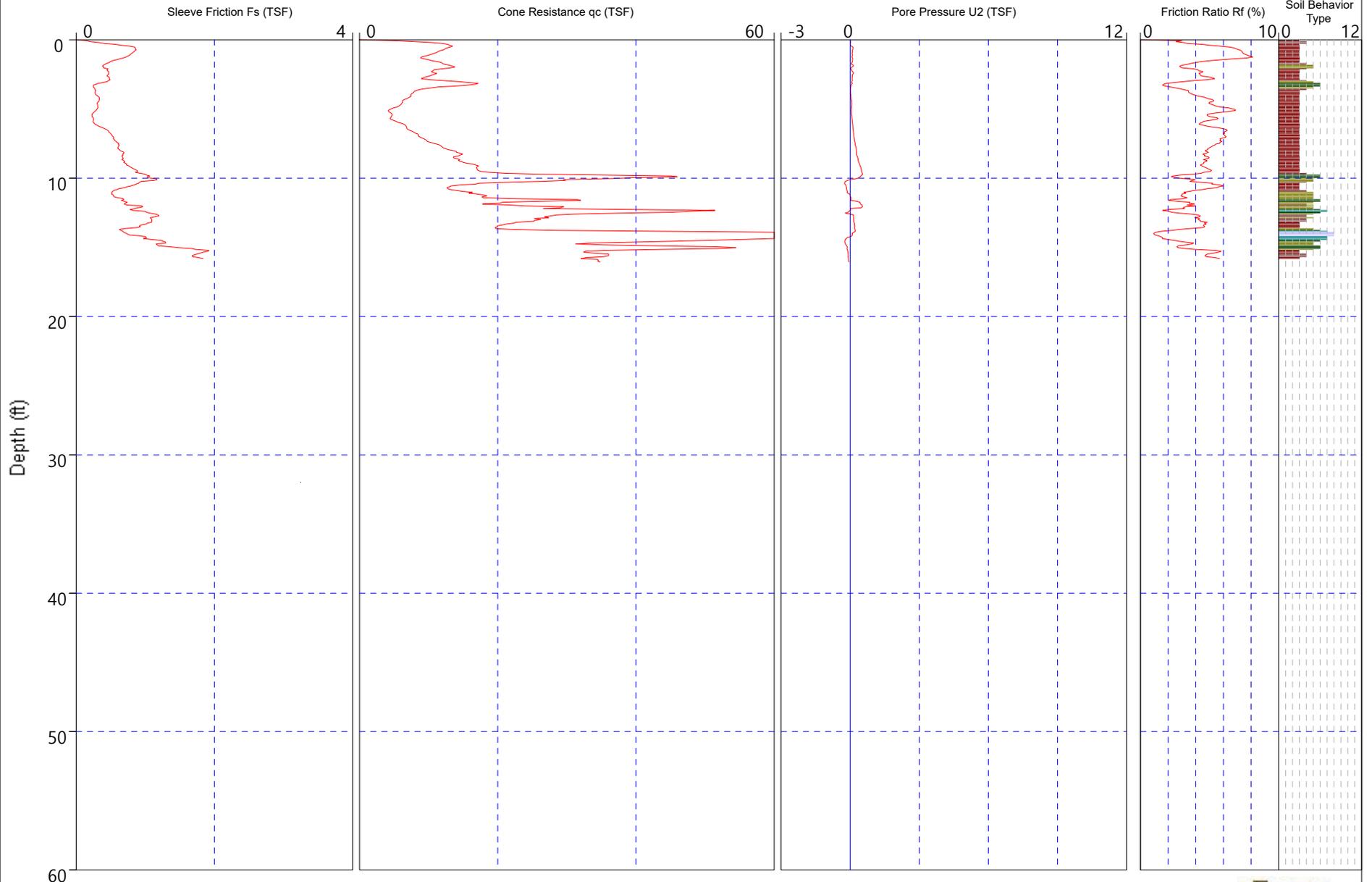
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|------------------------------------|---------------------------------------|--------------------------------------|---------------------------------------|
| (1) sensitive fine grained (OL-CH) | (4) silty clay to clay (CL-CH) | (7) silty sand to sandy silt (SM-ML) | (10) gravel to gravelly sand (SW-GW) |
| (2) organic material (OL-OH) | (5) clayey silt to silty clay (MH-CL) | (8) sand to silty sand (SM-SP) | (11) very stiff fine grained* (CH-CL) |
| (3) clay (CH) | (6) sandy silt to clayey silt (ML-MH) | (9) sand (SW-SP) | (12) sand to clayey sand* (SC-SM) |



Job Number: 04.19200014
Operator: Bobby Brandt
Location: Houston, TX

CPT Number: ECP-EC-C28
Date: 04-Jun-2020
Elevation: 0.00

Coordinates: 29.75284, -95.23077
Cone Number: CP15-CF75PB7SN2-P1E1 2422



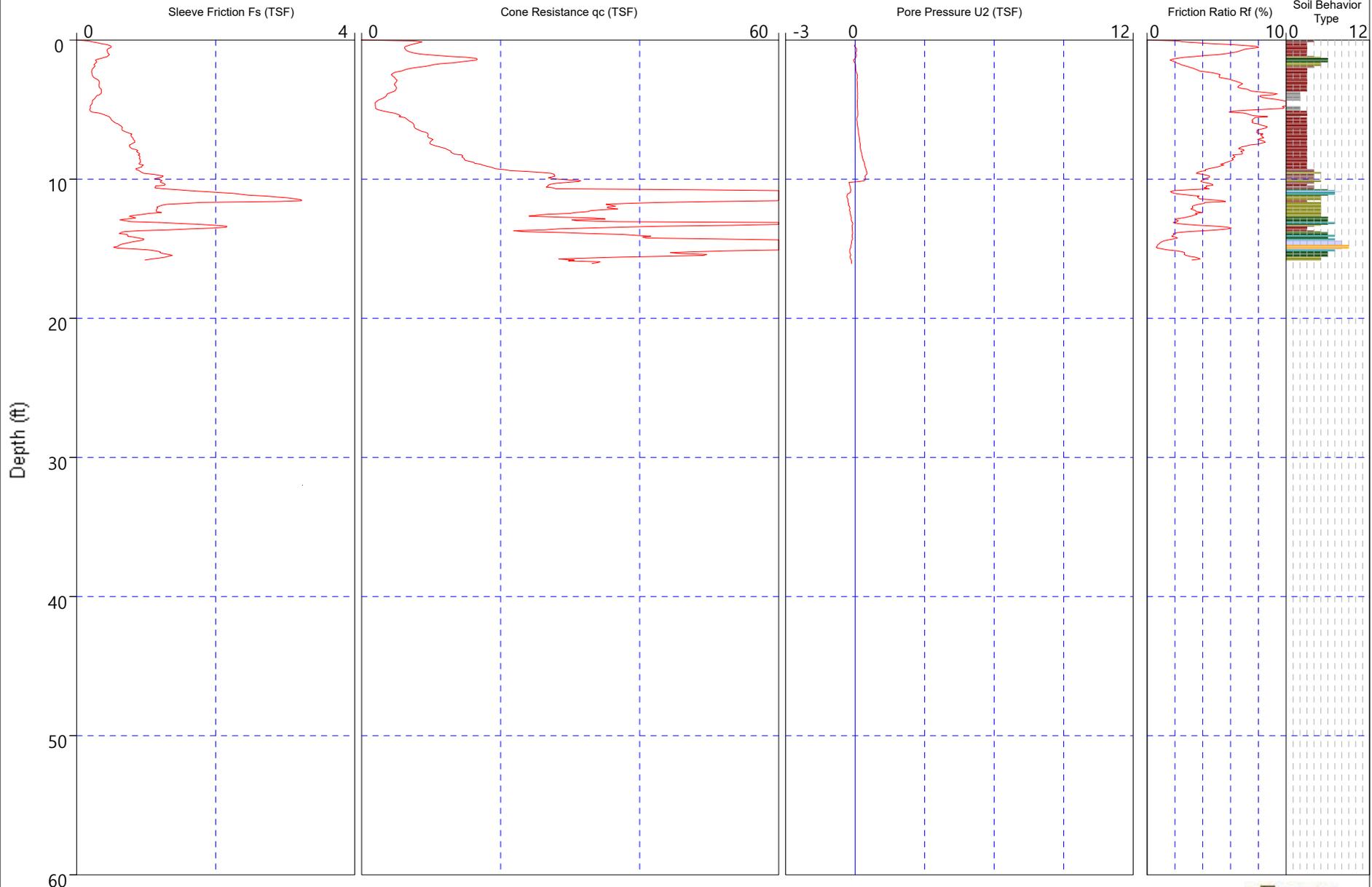
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|------------------------------------|---------------------------------------|--------------------------------------|---------------------------------------|
| (1) sensitive fine grained (OL-CH) | (4) silty clay to clay (CL-CH) | (7) silty sand to sandy silt (SM-ML) | (10) gravel to gravelly sand (SW-GW) |
| (2) organic material (OL-OH) | (5) clayey silt to silty clay (MH-CL) | (8) sand to silty sand (SM-SP) | (11) very stiff fine grained* (CH-CL) |
| (3) clay (CH) | (6) sandy silt to clayey silt (ML-MH) | (9) sand (SW-SP) | (12) sand to clayey sand* (SC-SM) |



Job Number: 04.19200014
Operator: Bobby Brandt
Location: Houston, TX

CPT Number: ECP-EC-C29
Date: 04-Jun-2020
Elevation: 0.00

Coordinates: 29.75341, -95.23077
Cone Number: CP15-CF75PB7SN2-P1E1 2422



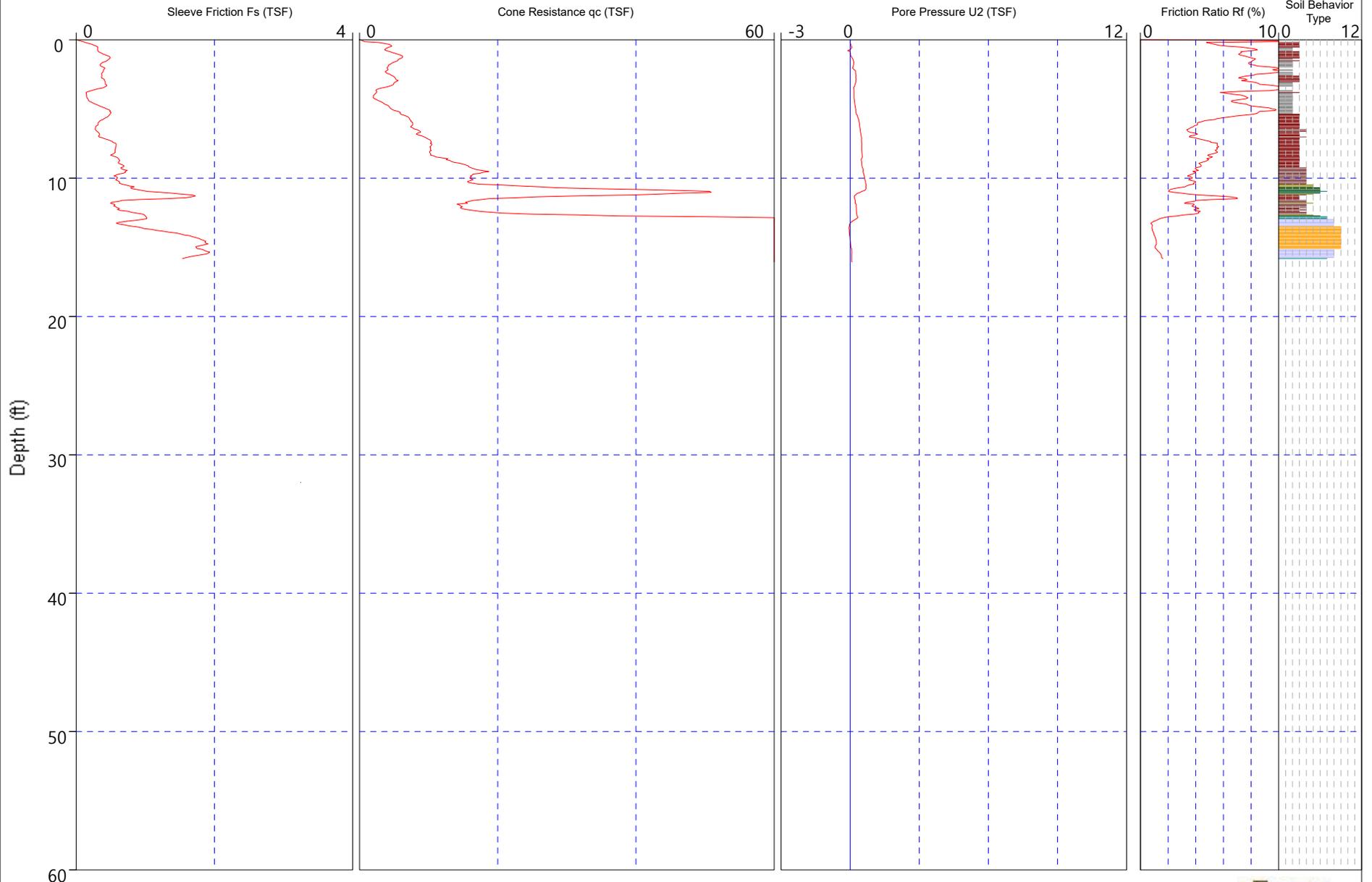
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|------------------------------------|---------------------------------------|--------------------------------------|---------------------------------------|
| (1) sensitive fine grained (OL-CH) | (4) silty clay to clay (CL-CH) | (7) silty sand to sandy silt (SM-ML) | (10) gravel to gravelly sand (SW-GW) |
| (2) organic material (OL-OH) | (5) clayey silt to silty clay (MH-CL) | (8) sand to silty sand (SM-SP) | (11) very stiff fine grained* (CH-CL) |
| (3) clay (CH) | (6) sandy silt to clayey silt (ML-MH) | (9) sand (SW-SP) | (12) sand to clayey sand* (SC-SM) |



Job Number: 04.19200014
Operator: Bobby Brandt
Location: Houston, TX

CPT Number: ECP-EC-C30
Date: 04-Jun-2020
Elevation: 0.00

Coordinates: 29.75400, -95.23080
Cone Number: CP15-CF75PB7SN2-P1E1 2422



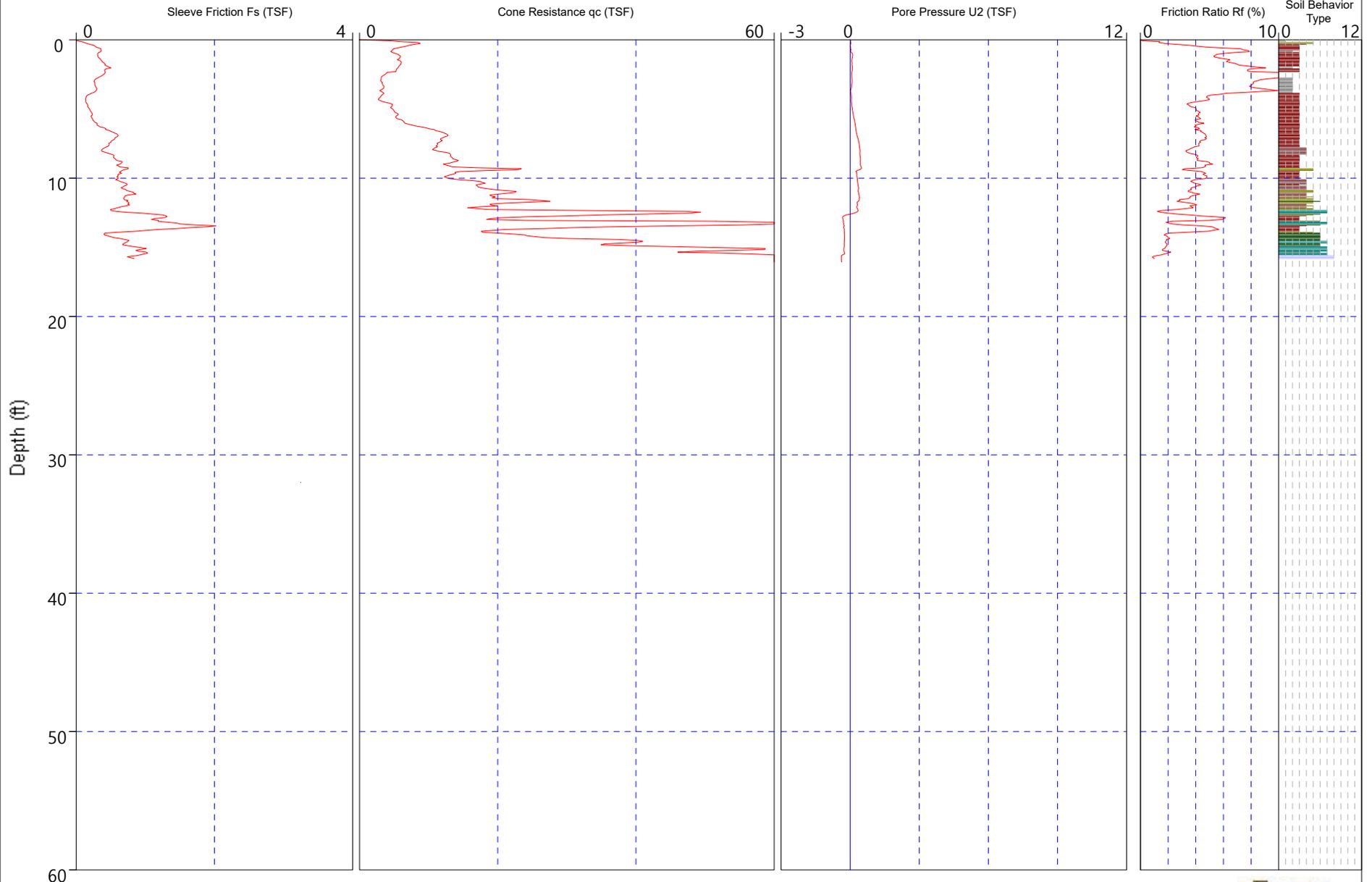
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|------------------------------------|---------------------------------------|--------------------------------------|---------------------------------------|
| (1) sensitive fine grained (OL-CH) | (4) silty clay to clay (CL-CH) | (7) silty sand to sandy silt (SM-ML) | (10) gravel to gravelly sand (SW-GW) |
| (2) organic material (OL-OH) | (5) clayey silt to silty clay (MH-CL) | (8) sand to silty sand (SM-SP) | (11) very stiff fine grained* (CH-CL) |
| (3) clay (CH) | (6) sandy silt to clayey silt (ML-MH) | (9) sand (SW-SP) | (12) sand to clayey sand* (SC-SM) |



Job Number: 04.19200014
Operator: Bobby Brandt
Location: Houston, TX

CPT Number: ECP-EC-C31
Date: 04-Jun-2020
Elevation: 0.00

Coordinates: 29.75455, -95.23077
Cone Number: CP15-CF75PB7SN2-P1E1 2422



- | | | | |
|------------------------------------|---------------------------------------|--------------------------------------|---------------------------------------|
| (1) sensitive fine grained (OL-CH) | (4) silty clay to clay (CL-CH) | (7) silty sand to sandy silt (SM-ML) | (10) gravel to gravelly sand (SW-GW) |
| (2) organic material (OL-OH) | (5) clayey silt to silty clay (MH-CL) | (8) sand to silty sand (SM-SP) | (11) very stiff fine grained* (CH-CL) |
| (3) clay (CH) | (6) sandy silt to clayey silt (ML-MH) | (9) sand (SW-SP) | (12) sand to clayey sand* (SC-SM) |



APPENDIX G

UNCONFINED COMPRESSIVE STRENGTH AND UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION TEST DATA

UNCONFINED COMPRESSIVE STRENGTH
TEST DATA

Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-207
Depth: 6'-8'



Peak Point	15.01	1.185
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-208
Depth: 4'-6'



Peak Point	9.79	1.464
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-208
Depth: 10'-12'



Peak Point	8.30	1.593
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-209
Depth: 2'-4'



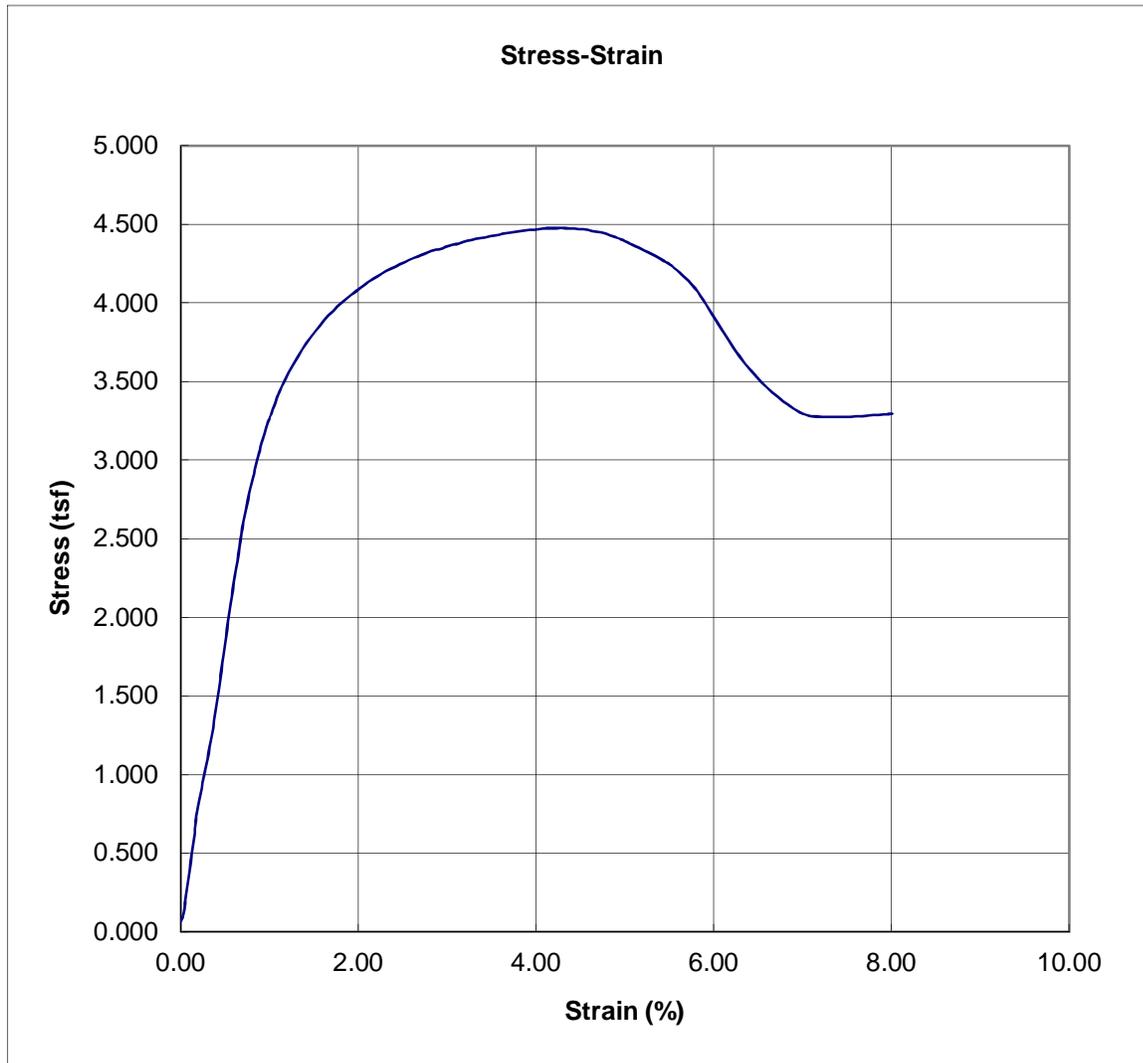
Peak Point	11.06	3.494
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-209
Depth: 12'-14'



Peak Point	3.90	1.964
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-210
Depth: 2'-4'



Peak Point	4.33	4.475
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-210
Depth: 10'-12'



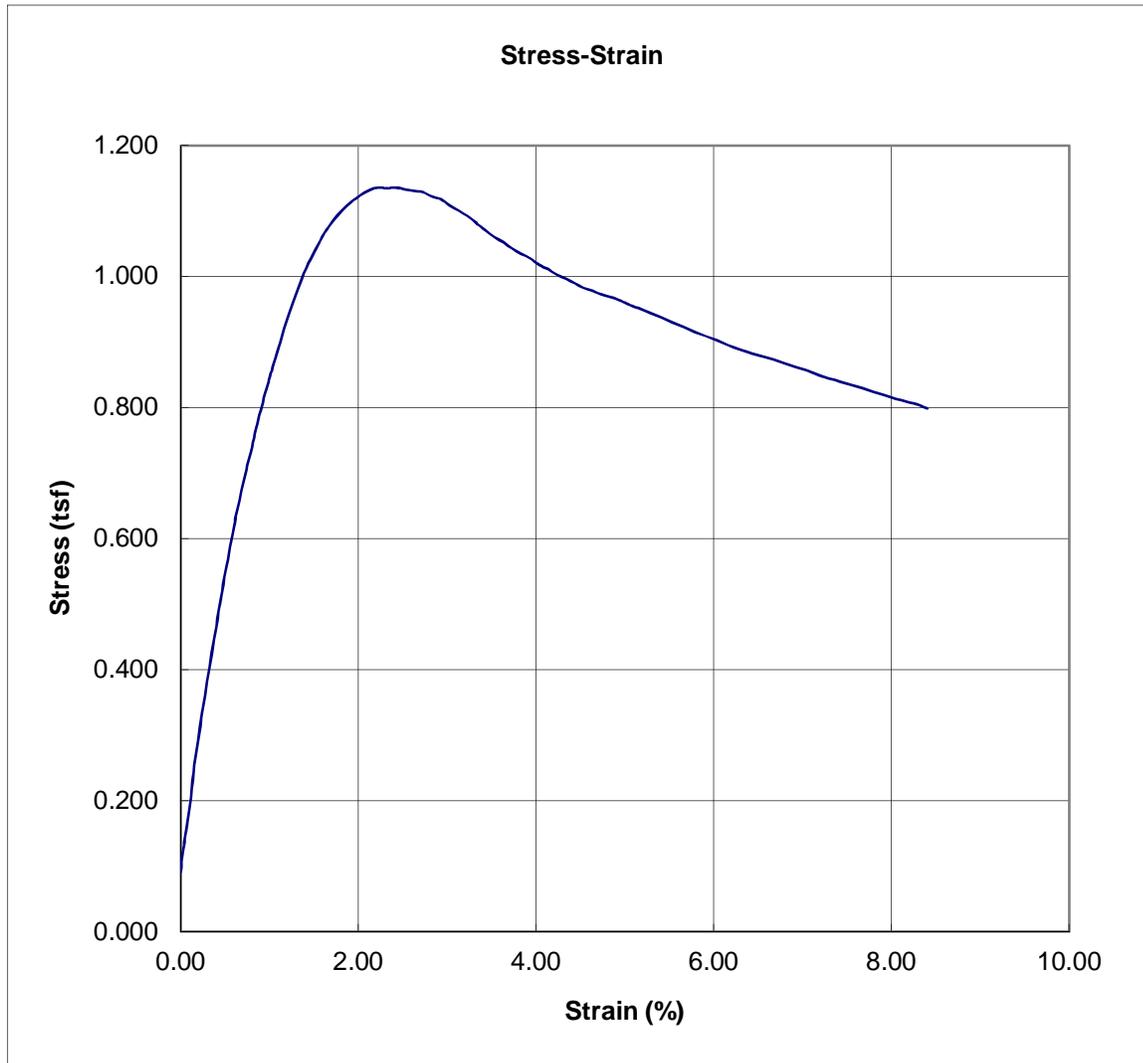
Peak Point	3.04	2.011
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-211
Depth: 2'-4'



Peak Point	15.01	1.957
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-211
Depth: 10'-12'



Peak Point	2.22	1.136
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-212
Depth: 2'-4'



Peak Point	14.29	2.579
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-212
Depth: 10'-12'



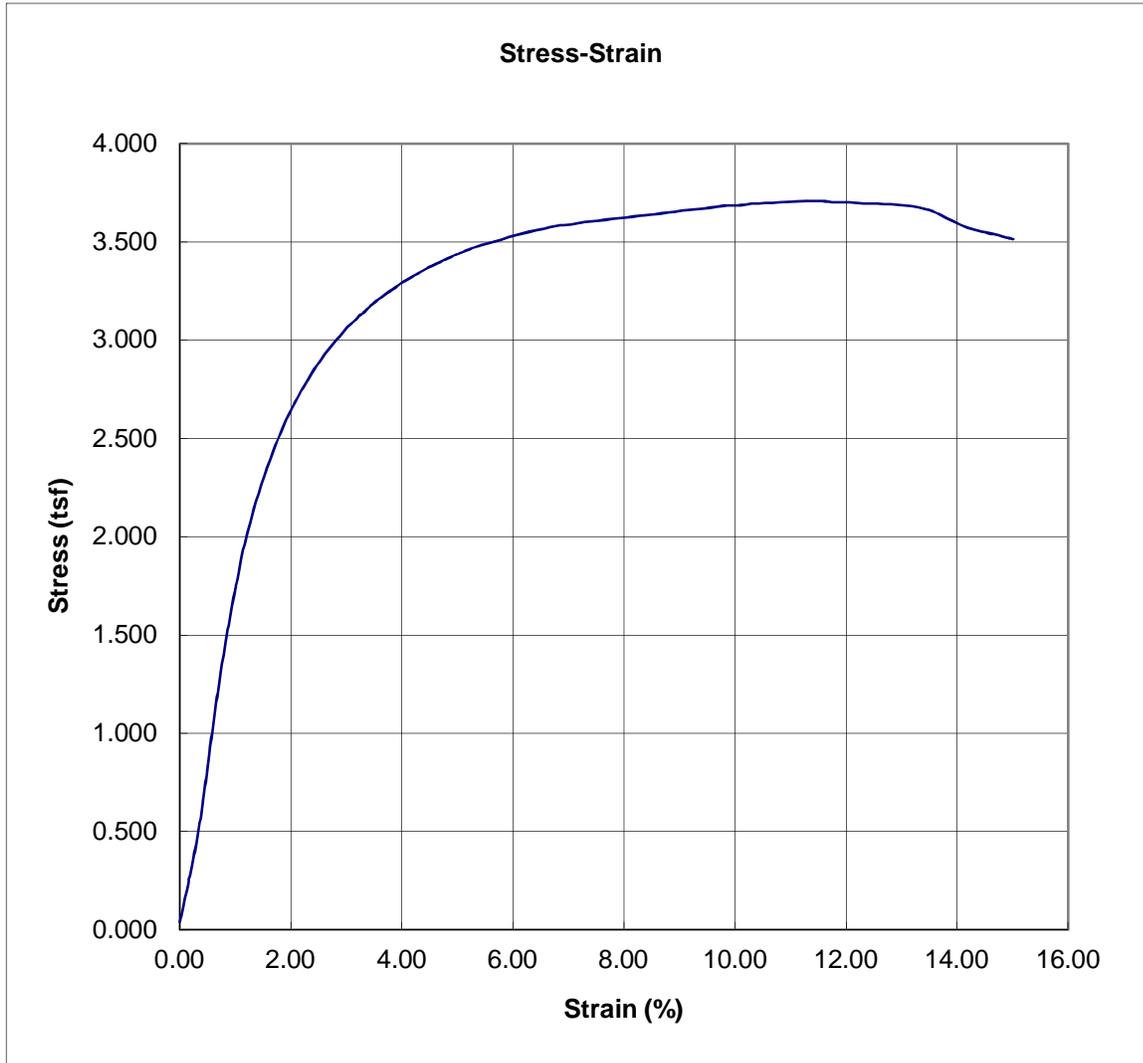
Peak Point	3.32	1.333
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-213
Depth: 4'-6'



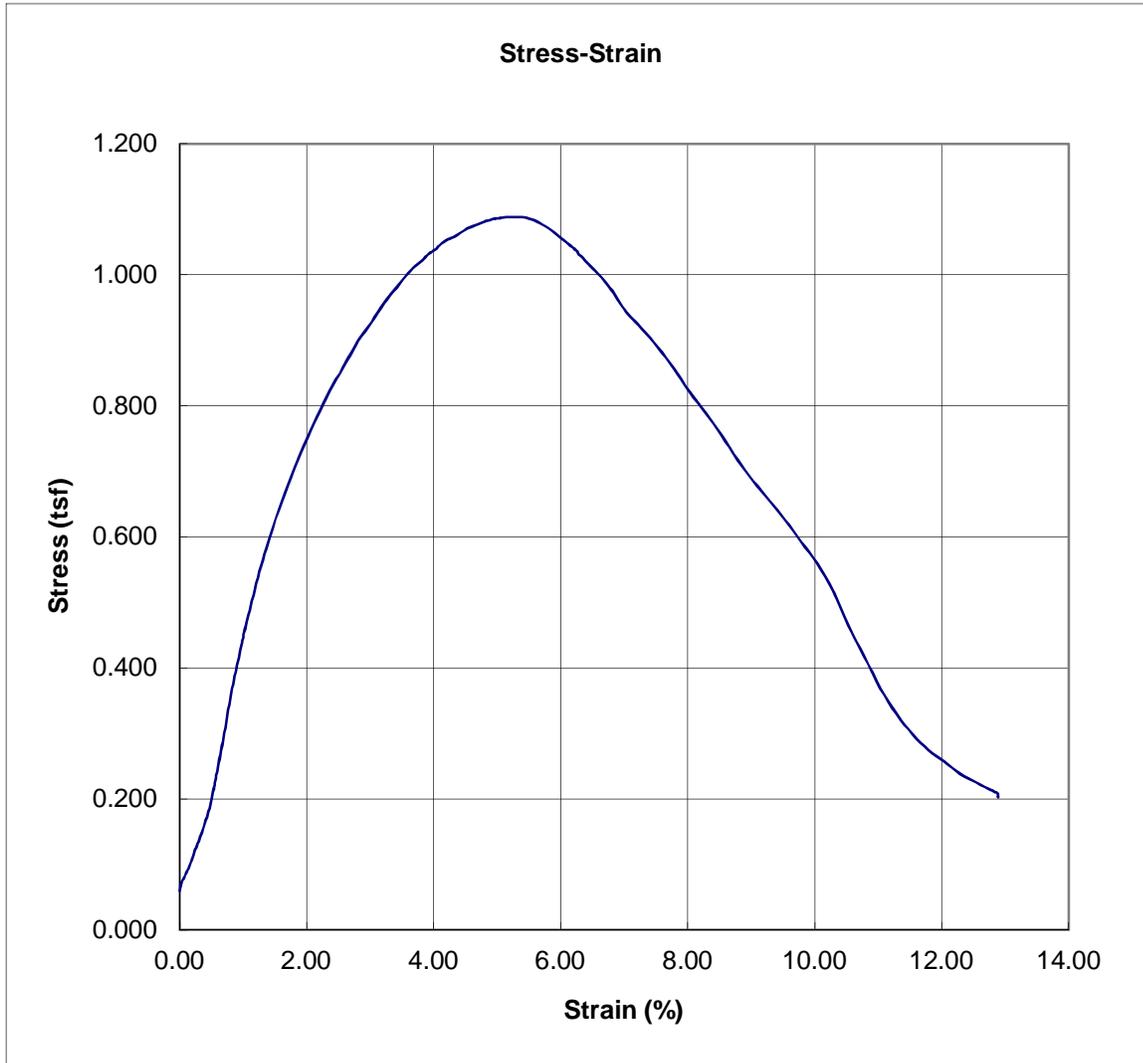
Peak Point	10.79	2.451
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-214
Depth: 4'-6'



Peak Point	11.56	3.708
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-214
Depth: 8'-10'



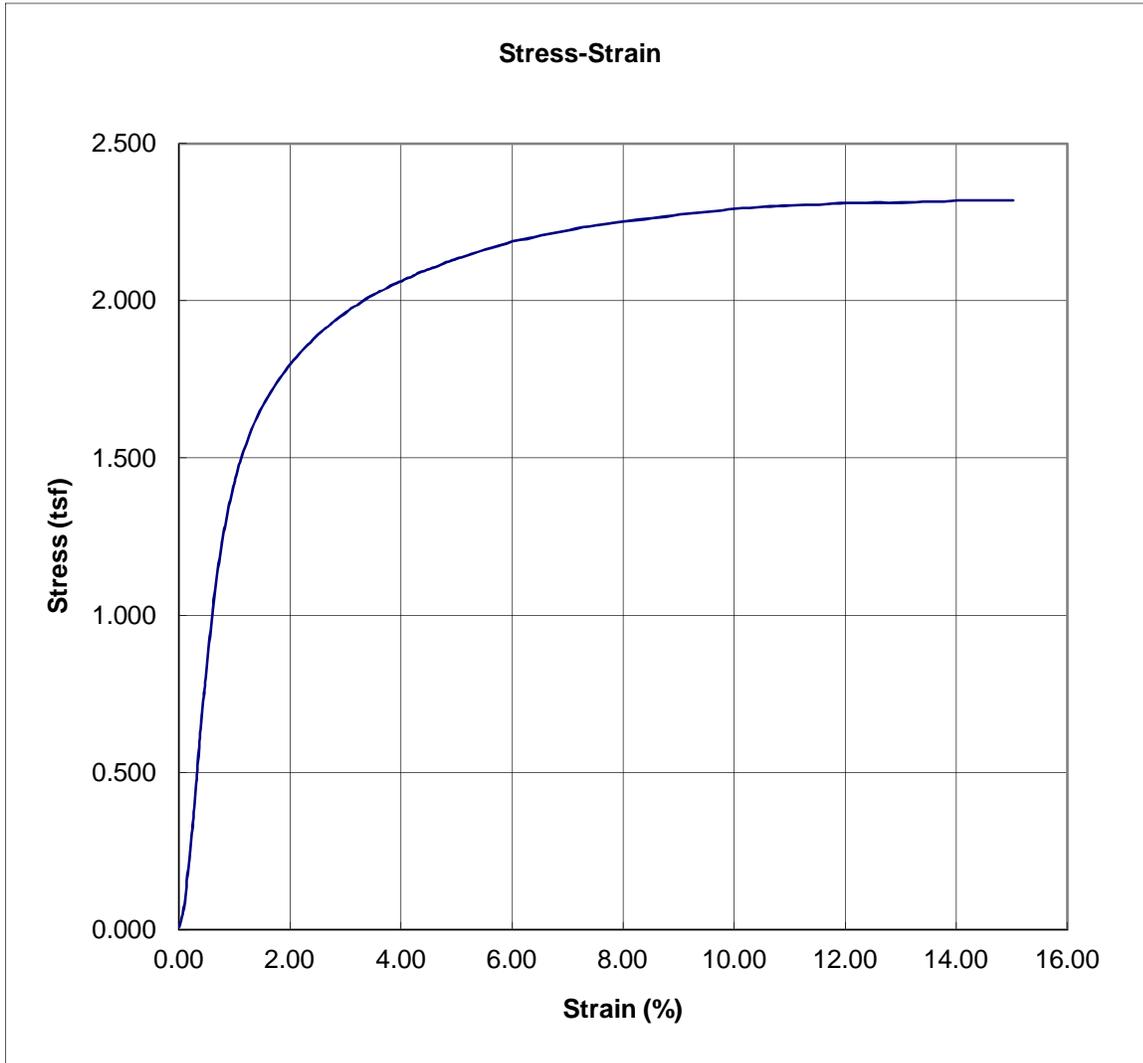
Peak Point	5.27	1.088
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-214
Depth: 14'-16'



Peak Point	4.10	1.411
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-215
Depth: 4'-6'



Peak Point	15.02	2.320
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-216
Depth: 4'-6'



Peak Point	13.56	1.906
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-216
Depth: 10'-12'



Peak Point	3.82	1.721
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-217
Depth: 4'-6'



Peak Point	11.81	1.877
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-217
Depth: 14'-16'



Peak Point	9.29	0.803
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-218
Depth: 6'-8'



Peak Point	8.55	1.616
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-218
Depth: 12'-14'



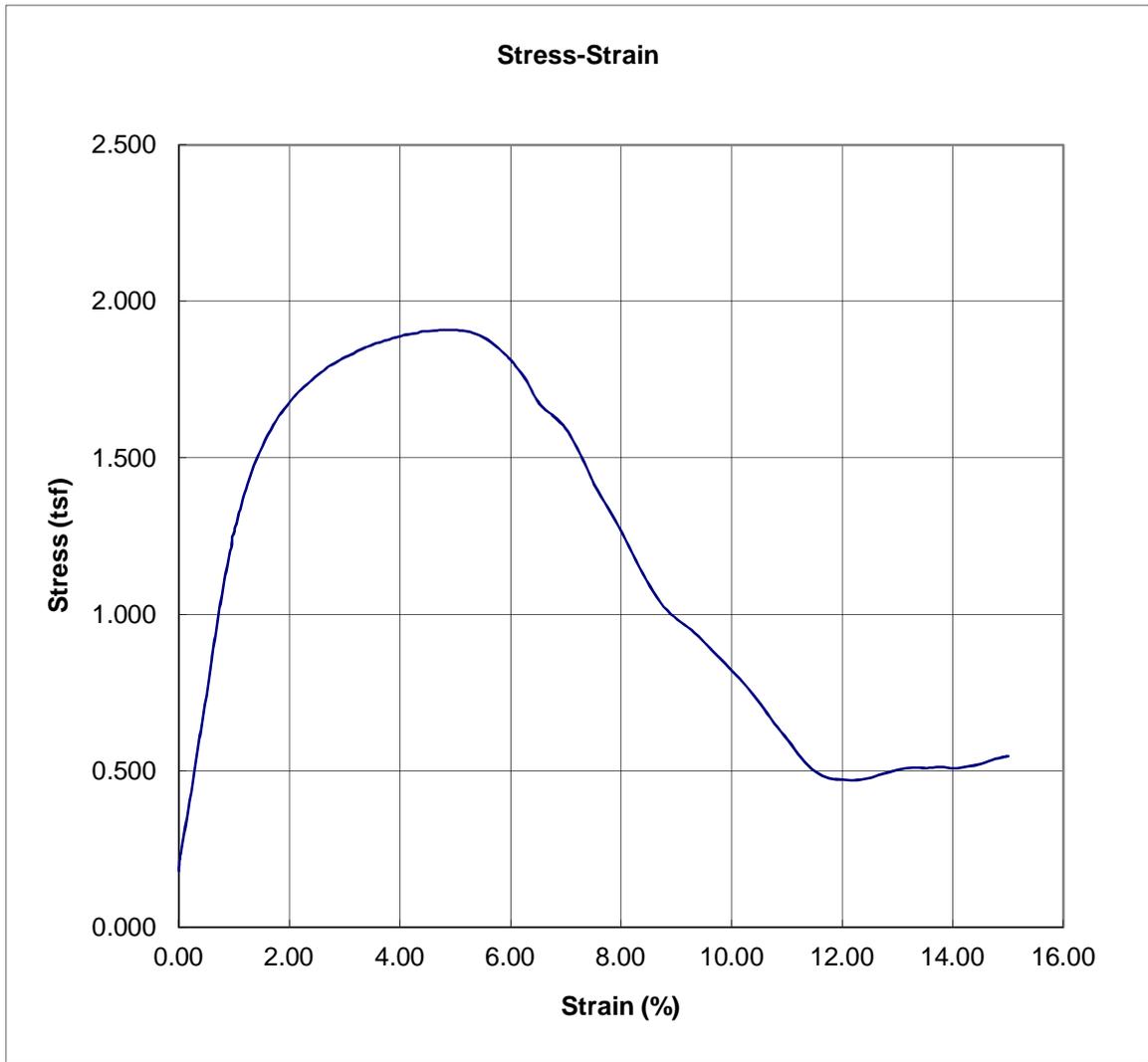
Peak Point	15.01	1.827
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-219
Depth: 2'-4'



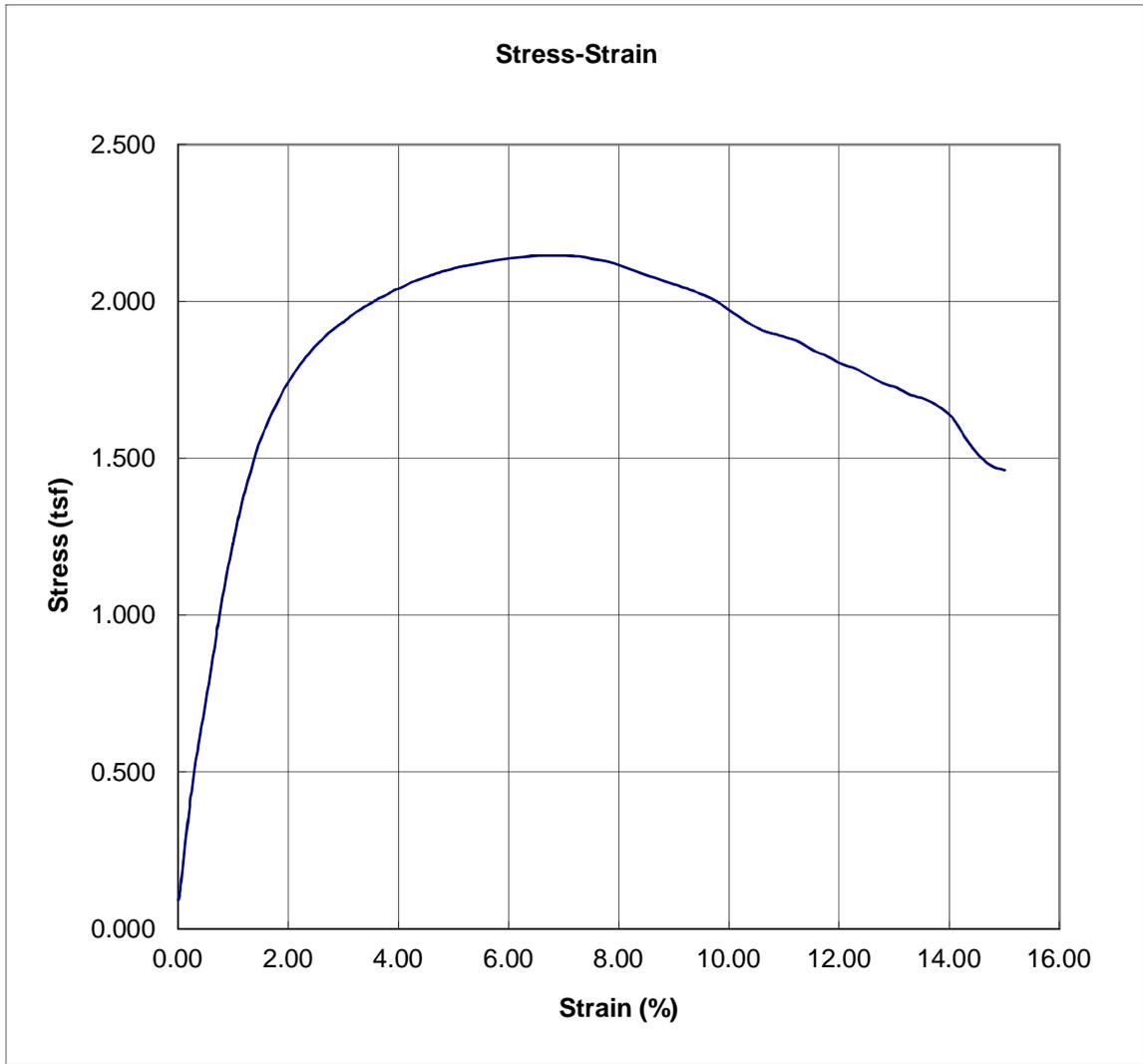
Peak Point	7.04	3.101
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-219
Depth: 8'-10'



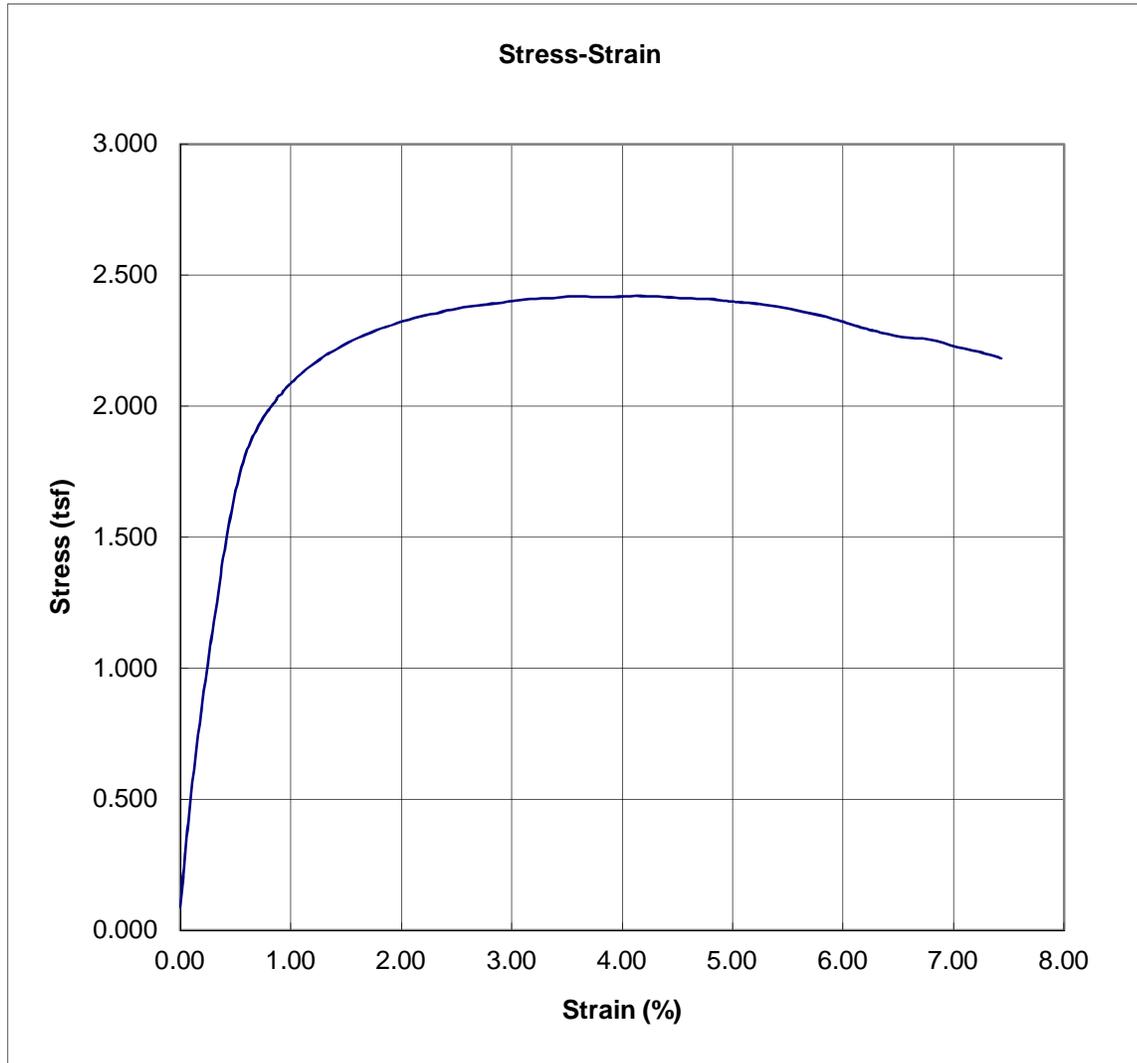
Peak Point	4.91	1.909
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-220
Depth: 2'-4'



Peak Point	6.54	2.146
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-220
Depth: 12'-14'



Peak Point	4.13	2.421
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-221
Depth: 4'-6'



Peak Point	3.52	1.143
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-221
Depth: 10'-12'



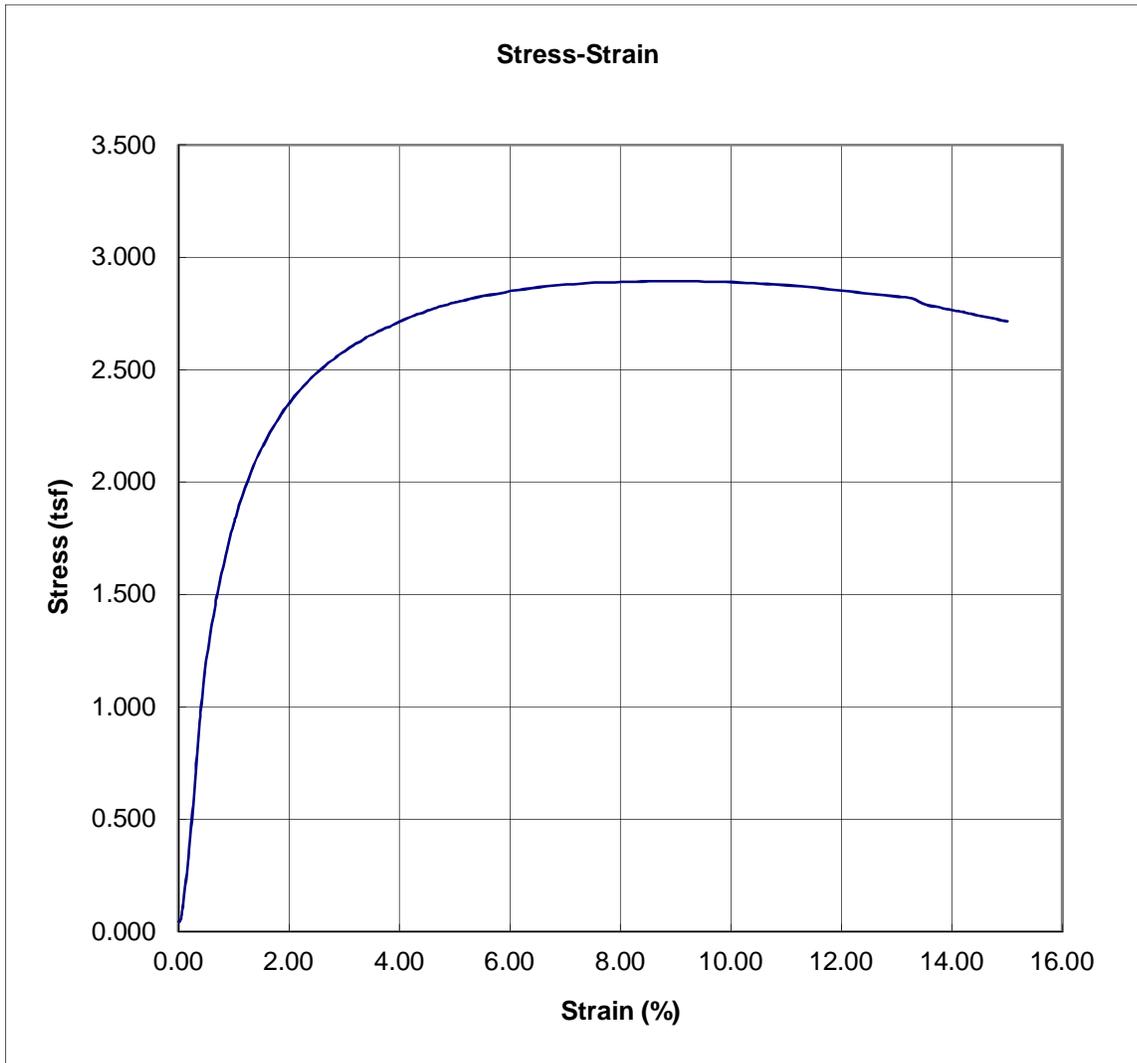
Peak Point	3.42	2.148
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-222
Depth: 6'-8'



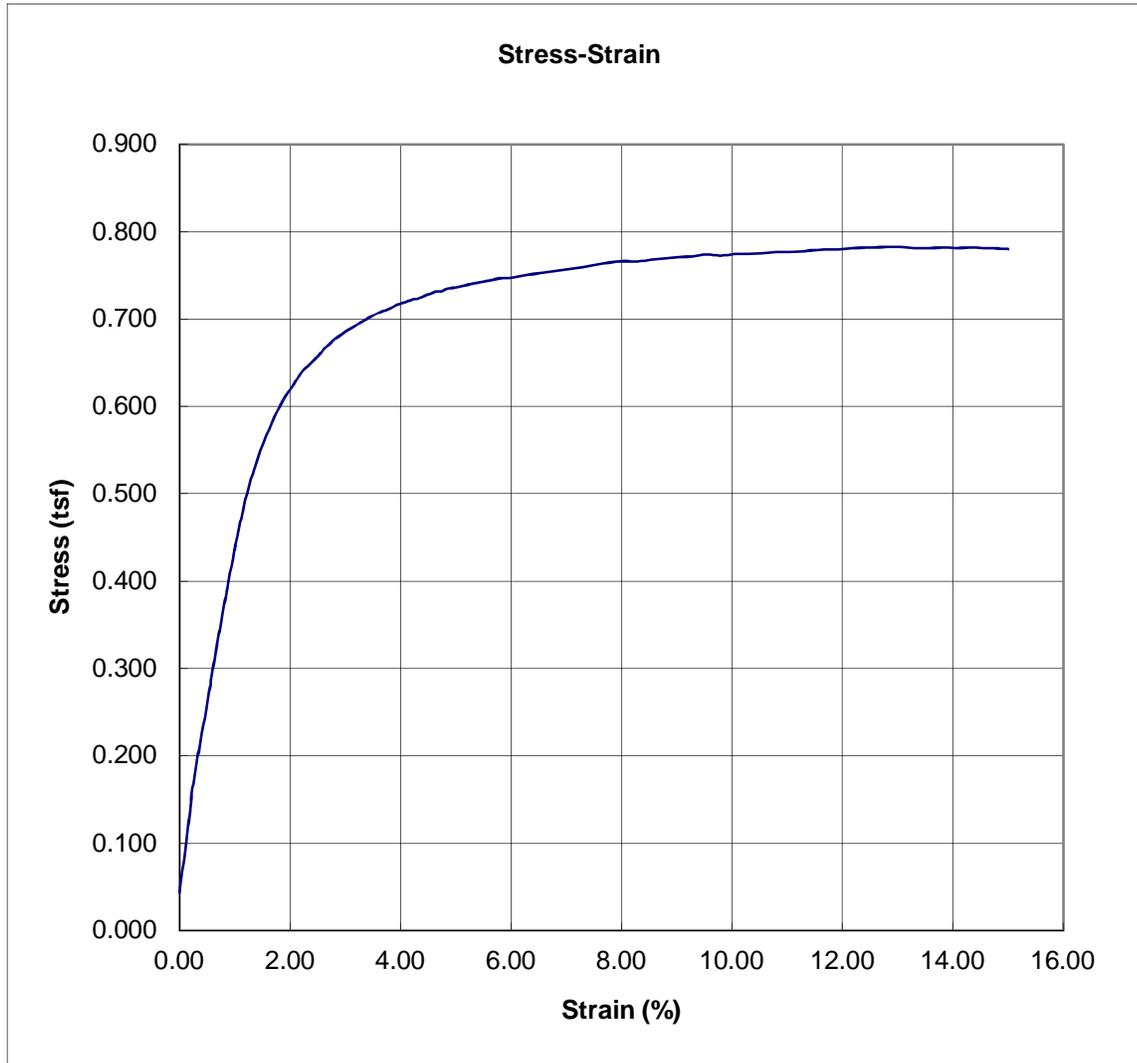
Peak Point	2.01	1.240
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-222
Depth: 12'-14'



Peak Point	9.27	2.894
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-309
Depth: 2'-4'



Peak Point	12.81	0.783
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-309
Depth: 6'-8'



Peak Point	7.03	0.996
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-310
Depth: 10'-12'



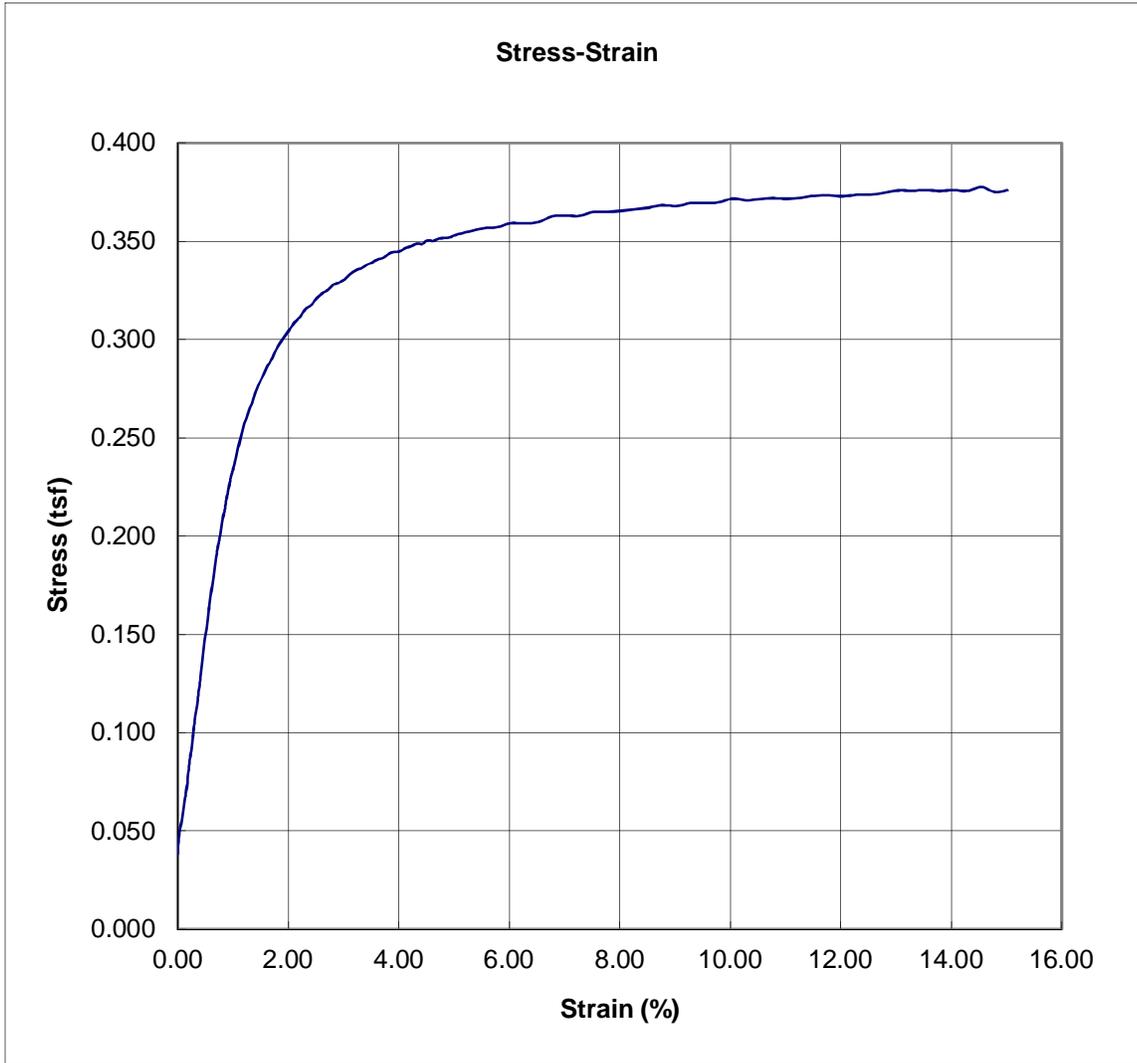
Peak Point	2.02	0.266
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-310
Depth: 14'-16'



Peak Point	1.72	0.240
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-310
Depth: 18'-20'



Peak Point	14.54	0.378
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-311
Depth: 12'-14'



Peak Point	9.30	0.172
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-311
Depth: 16'-18'



Peak Point	10.79	2.451
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-313
Depth: 2'-4'



Peak Point	14.79	0.442
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-313
Depth: 6'-8'



Peak Point	15.02	0.941
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-313
Depth: 18'-20'



Peak Point	15.01	1.154
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-315
Depth: 4'-6'



Peak Point	13.02	0.744
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-315
Depth: 12'-14'



Peak Point	7.80	0.701
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-316
Depth: 2'-4'



Peak Point	12.30	16.739
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-316
Depth: 6'-8'



Peak Point	4.93	1.142
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-316
Depth: 12'-14'



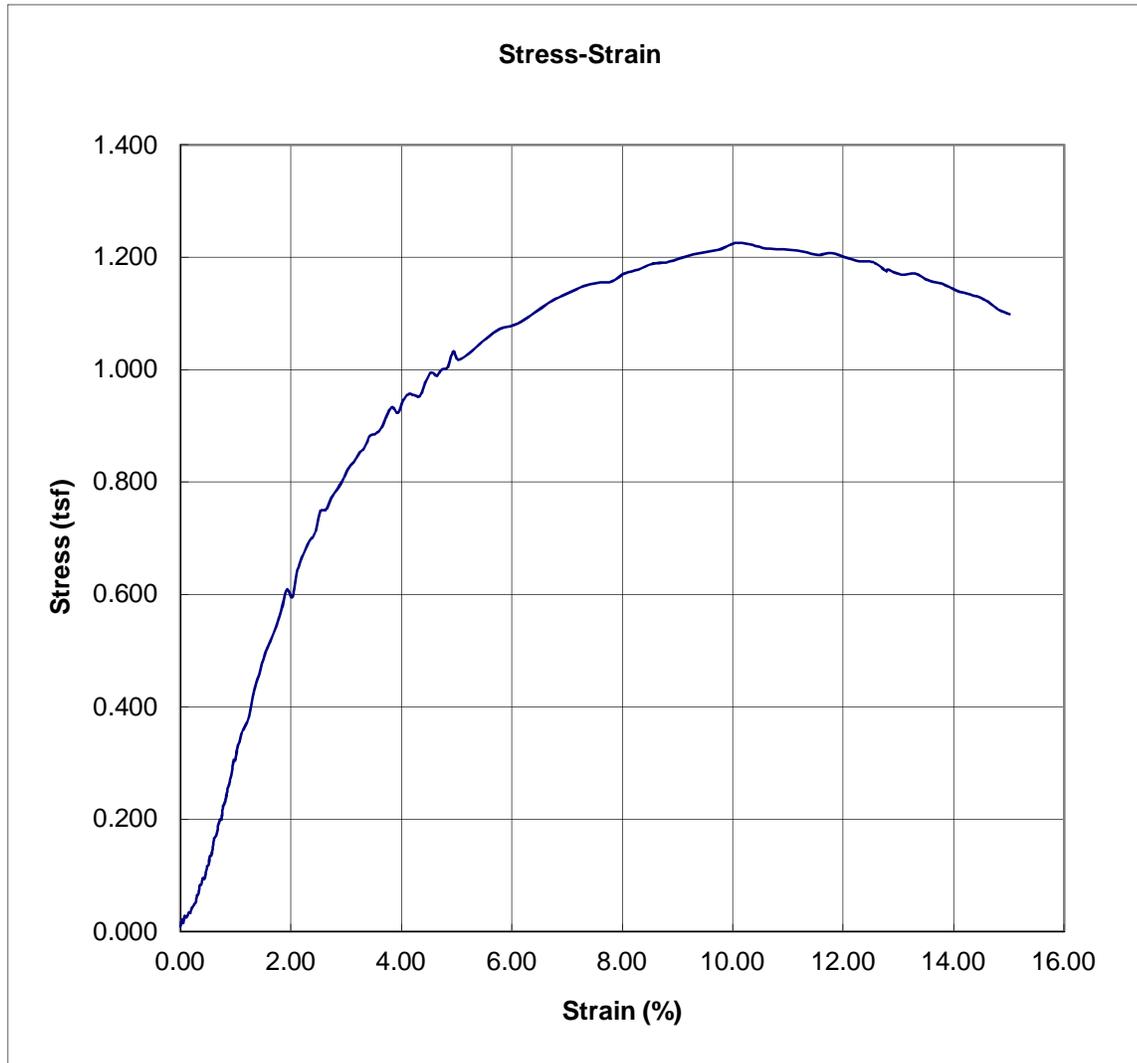
Peak Point	8.05	1.129
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-316
Depth: 18'-20'



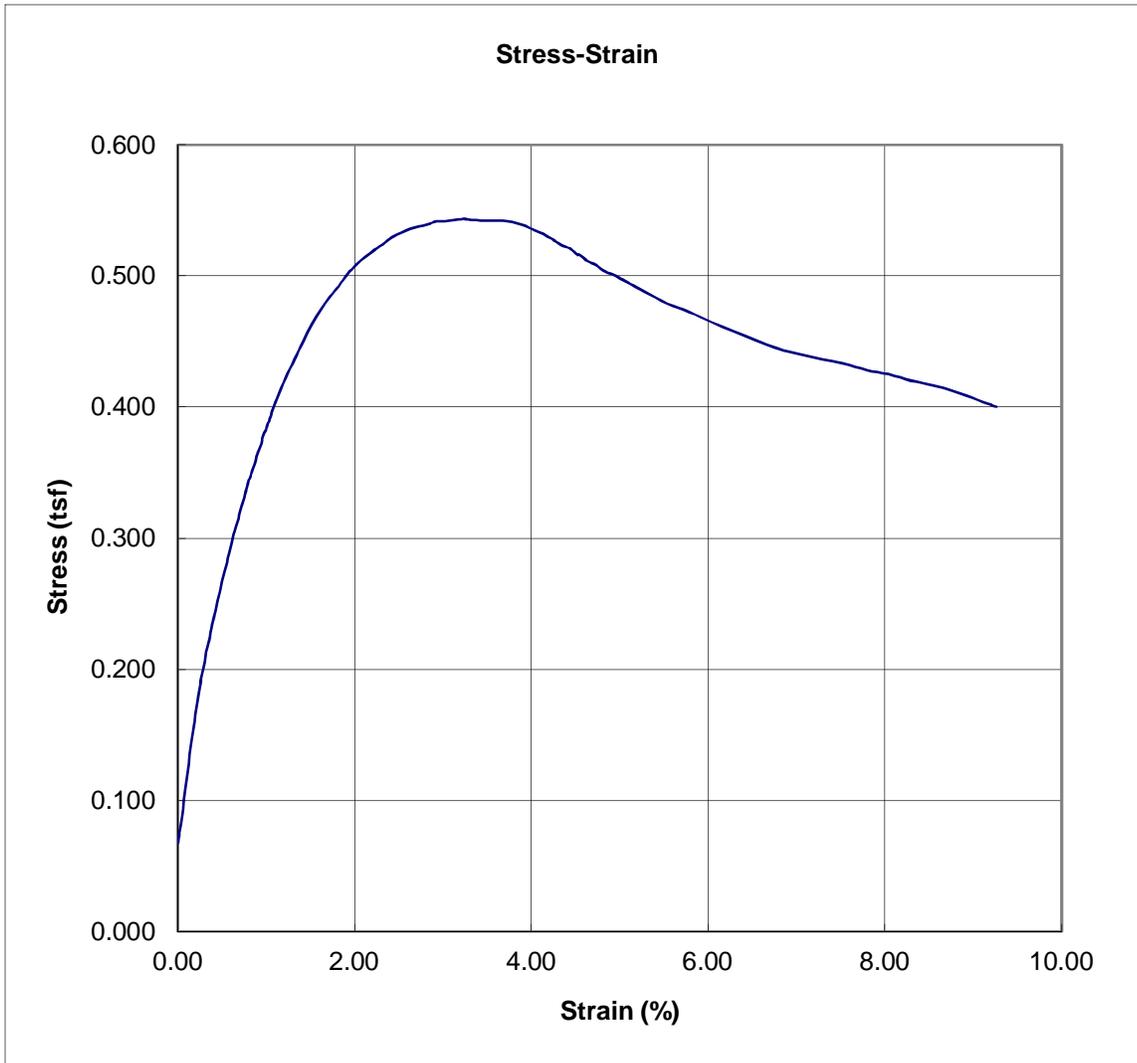
Peak Point	6.04	0.991
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-319
Depth: 12'-14'



Peak Point	10.04	1.225
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-319
Depth: 6'-8'



Peak Point	3.23	0.543
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2001
Depth: 4'-6'



Peak Point	2.80	0.728
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2001
Depth: 8'-10'



Peak Point	15.03	1.728
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2001
Depth: 12'-14'



Peak Point	7.79	1.143
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2001
Depth: 16'-18'



Peak Point	3.33	1.752
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2002
Depth: 4'-6'



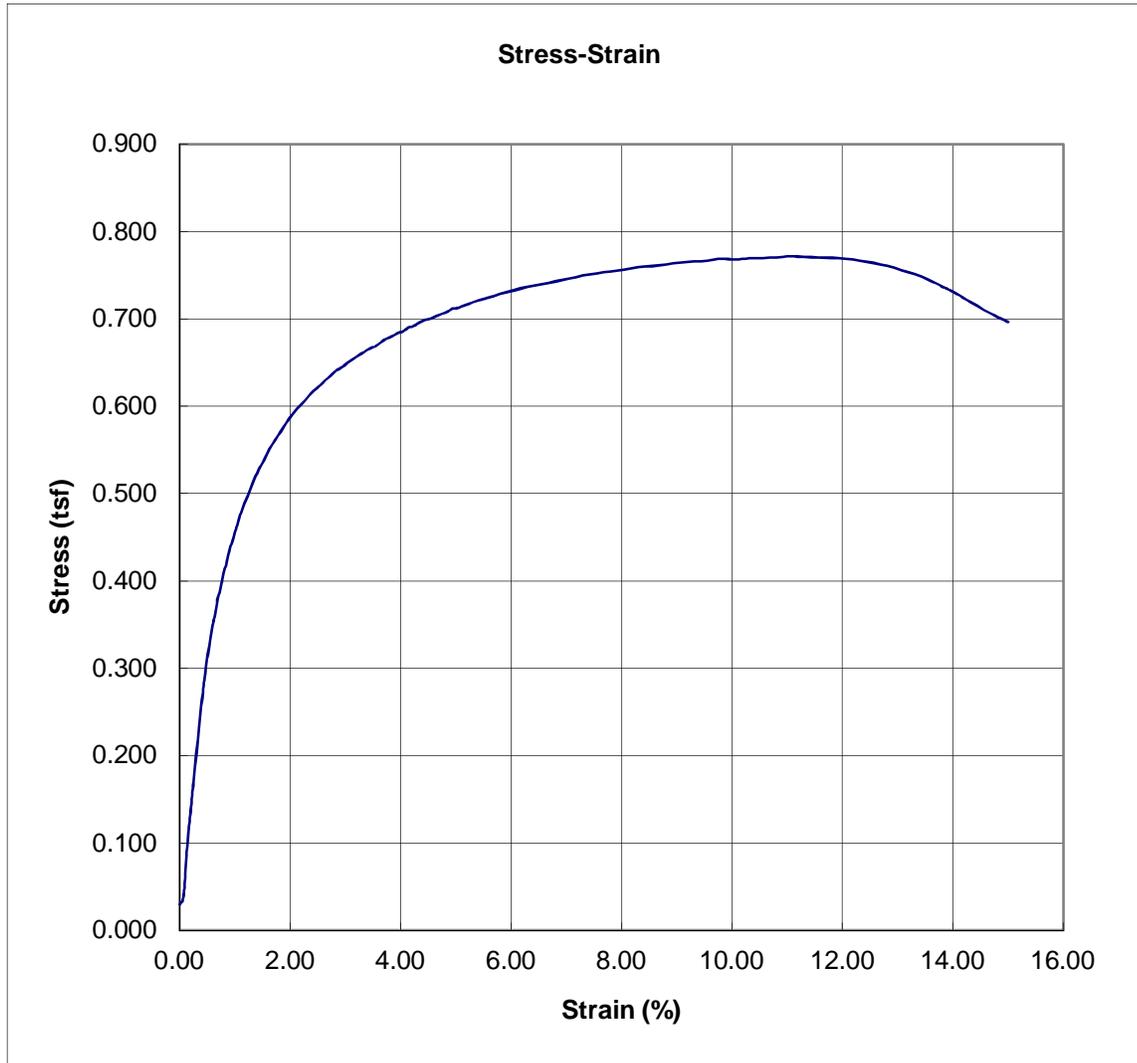
Peak Point	15.00	1.120
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2002
Depth: 10'-12'



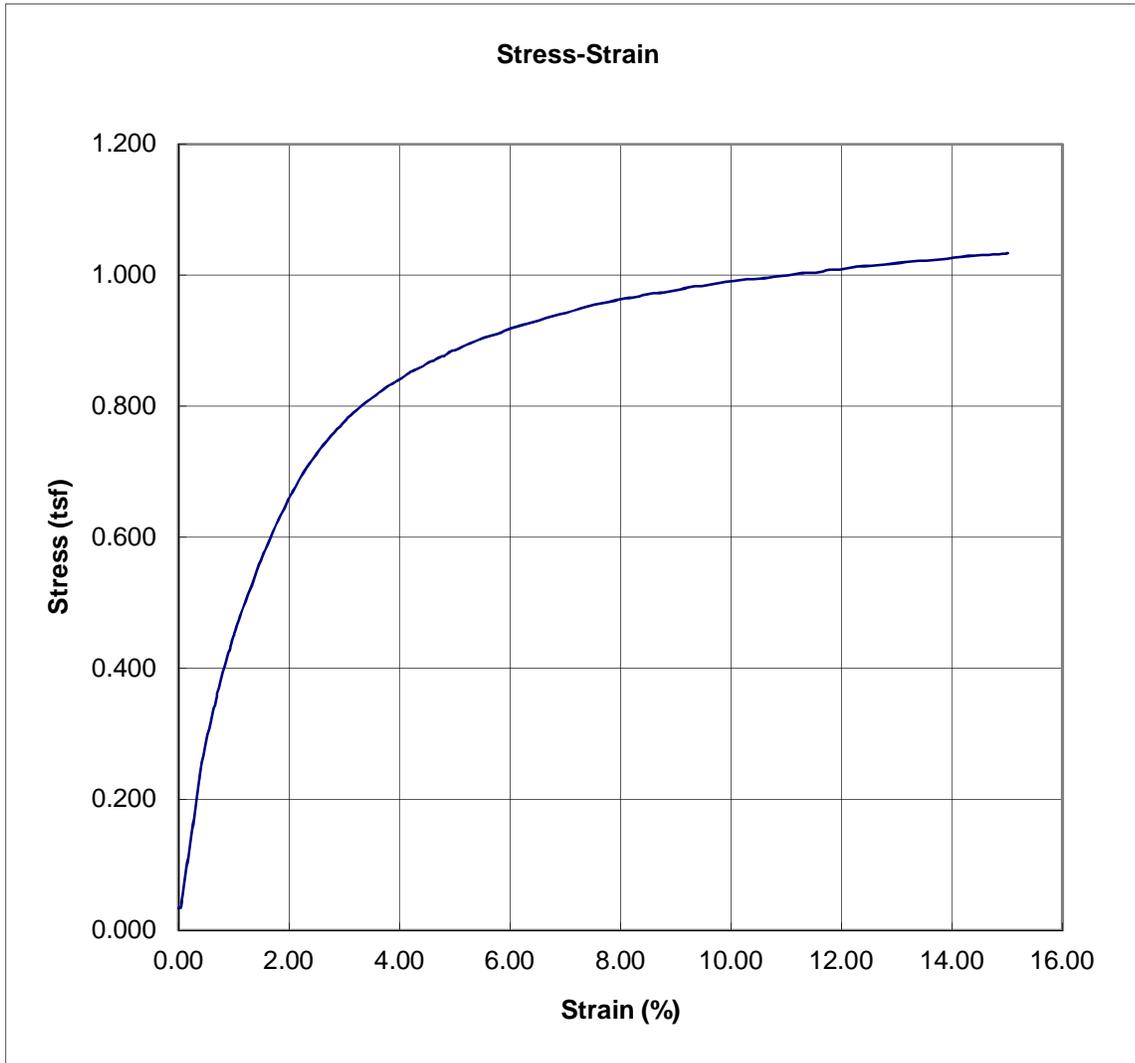
Peak Point	3.61	1.156
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2003
Depth: 0'-2'



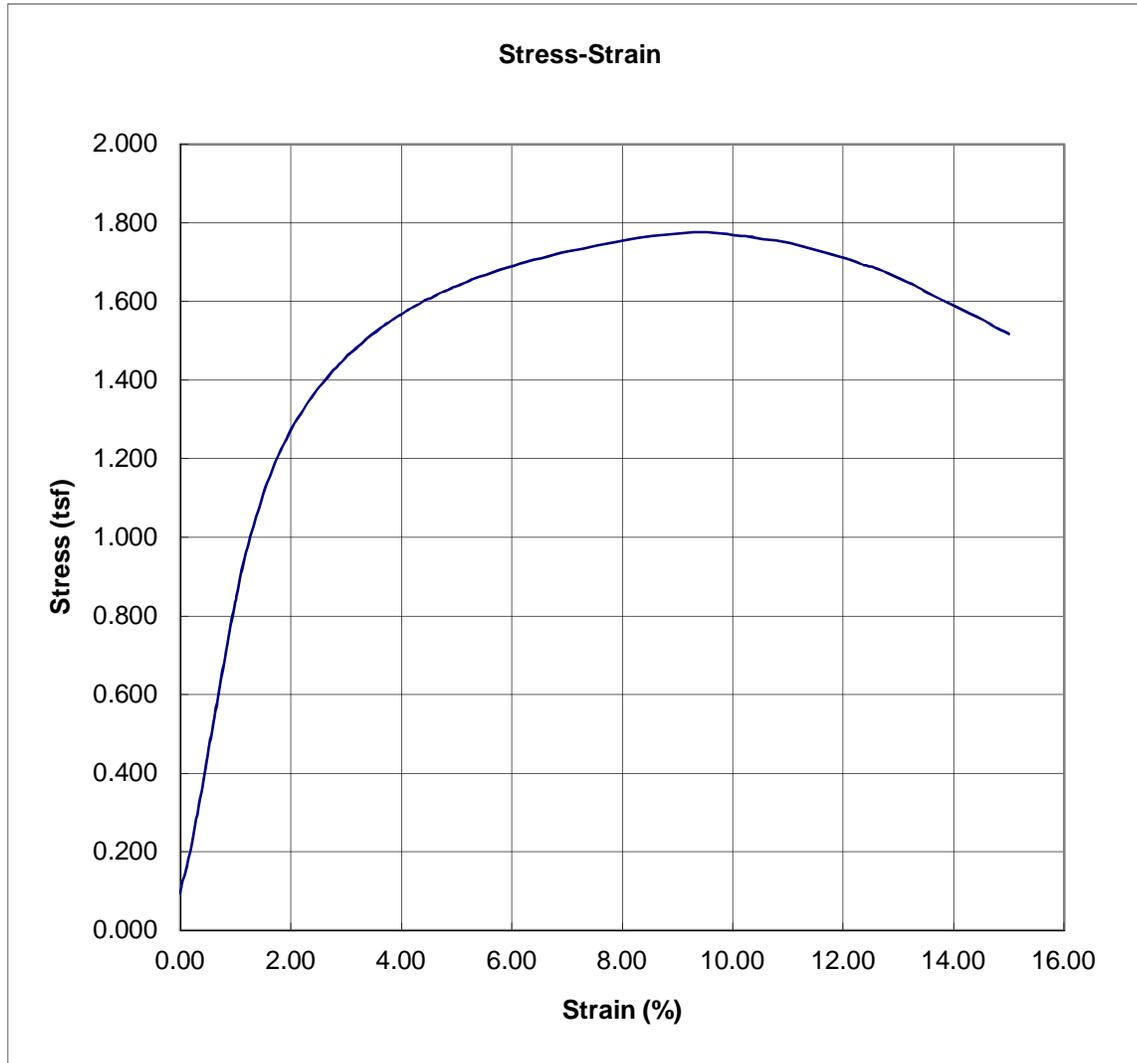
Peak Point	11.06	0.772
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2003
Depth: 2'-4'



Peak Point	15.01	1.033
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2003
Depth: 6'-8'



Peak Point	9.54	1.776
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2003
Depth: 12'-14'



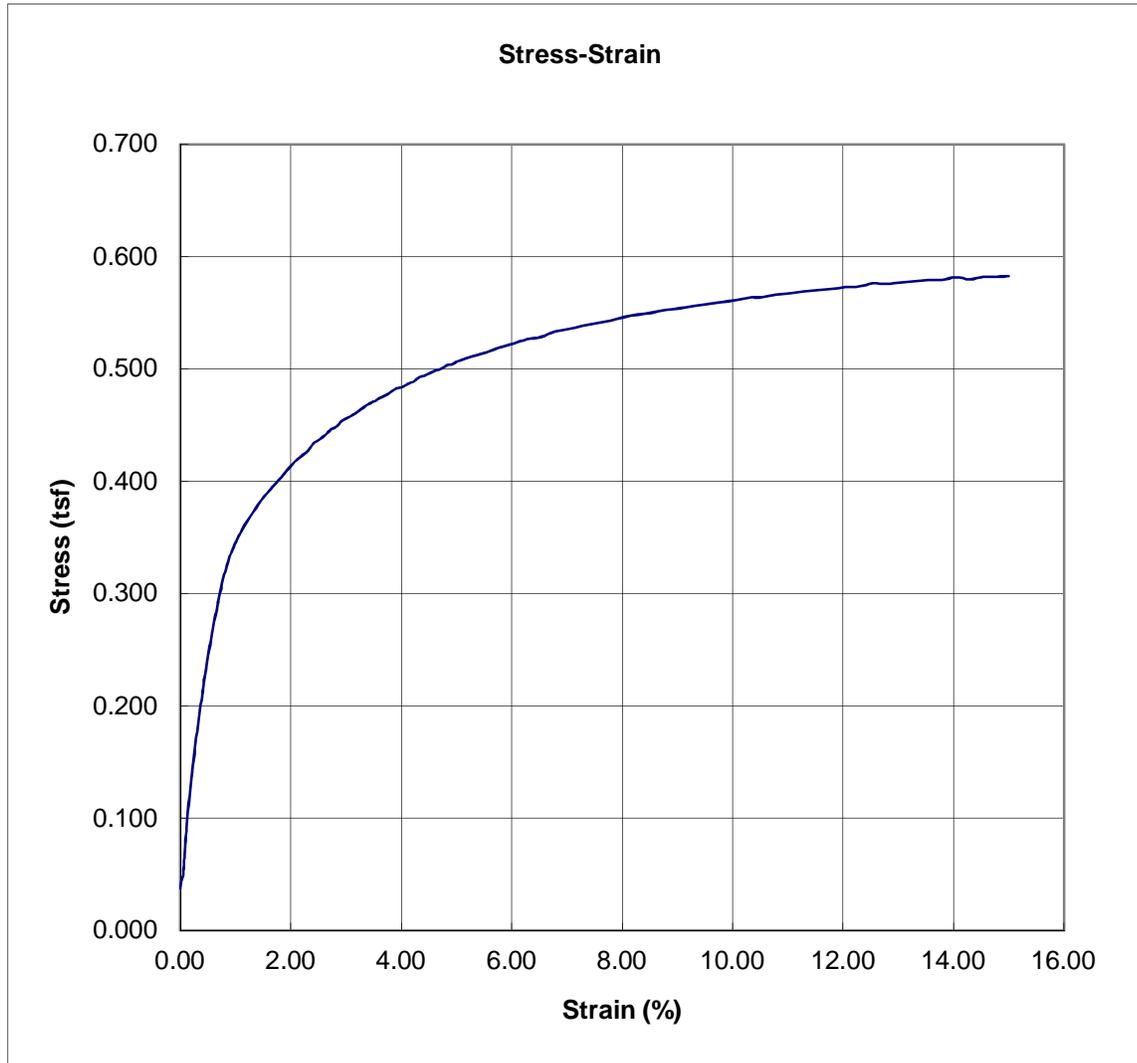
Peak Point	10.03	2.805
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2003
Depth: 16'-18'



Peak Point	4.84	3.510
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2004
Depth: 4'-6'



Peak Point	15.00	0.582
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2004
Depth: 10'-12'



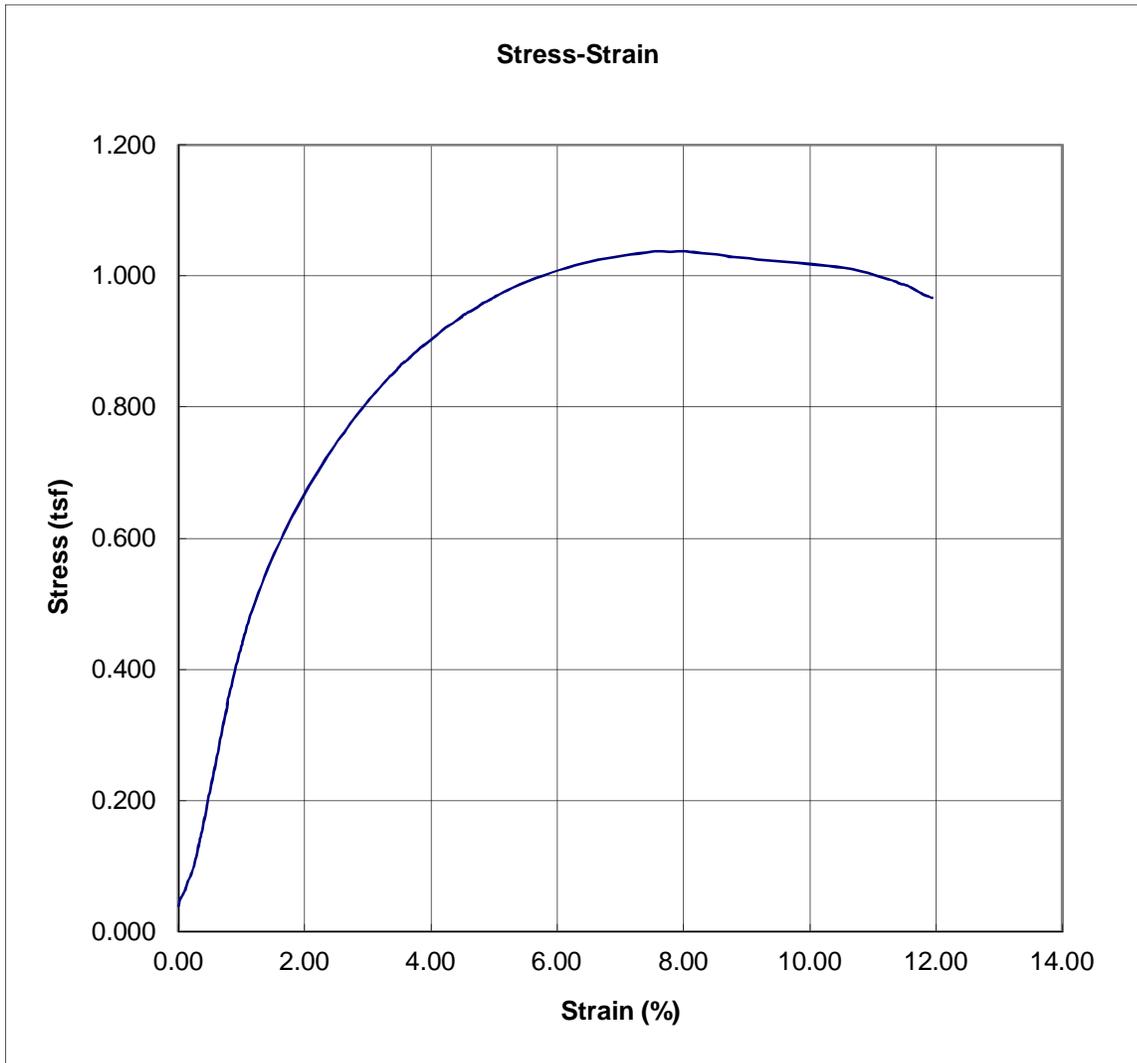
Peak Point	10.79	2.451
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2005
Depth: 10'-12'



Peak Point	7.02	2.106
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2006
Depth: 4'-6'



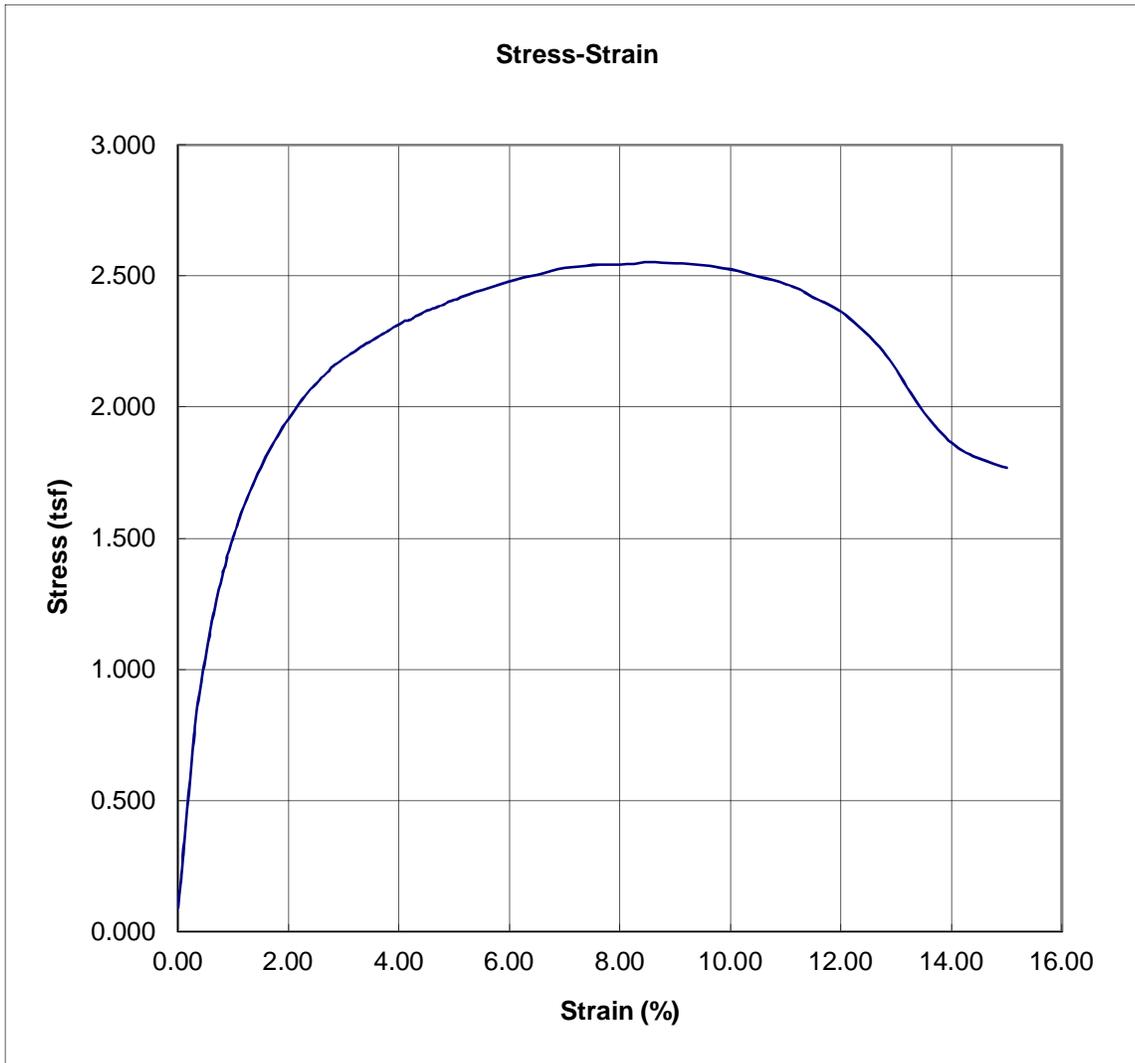
Peak Point	7.54	1.038
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2006
Depth: 10'-12'



Peak Point	15.01	2.336
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2009
Depth: 8'-10'



Peak Point	8.51	2.554
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2009
Depth: 10'-12'



Peak Point	15.01	2.208
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2009
Depth: 14'-16'



Peak Point	6.27	1.828
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2010
Depth: 8'-10'



Peak Point	4.53	0.191
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2011
Depth: 10'-12'



Peak Point	15.02	1.651
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2012
Depth: 4'-6'



Peak Point	6.00	0.387
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2012
Depth: 8'-10'



Peak Point	15.02	1.413
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2013
Depth: 6'-8'



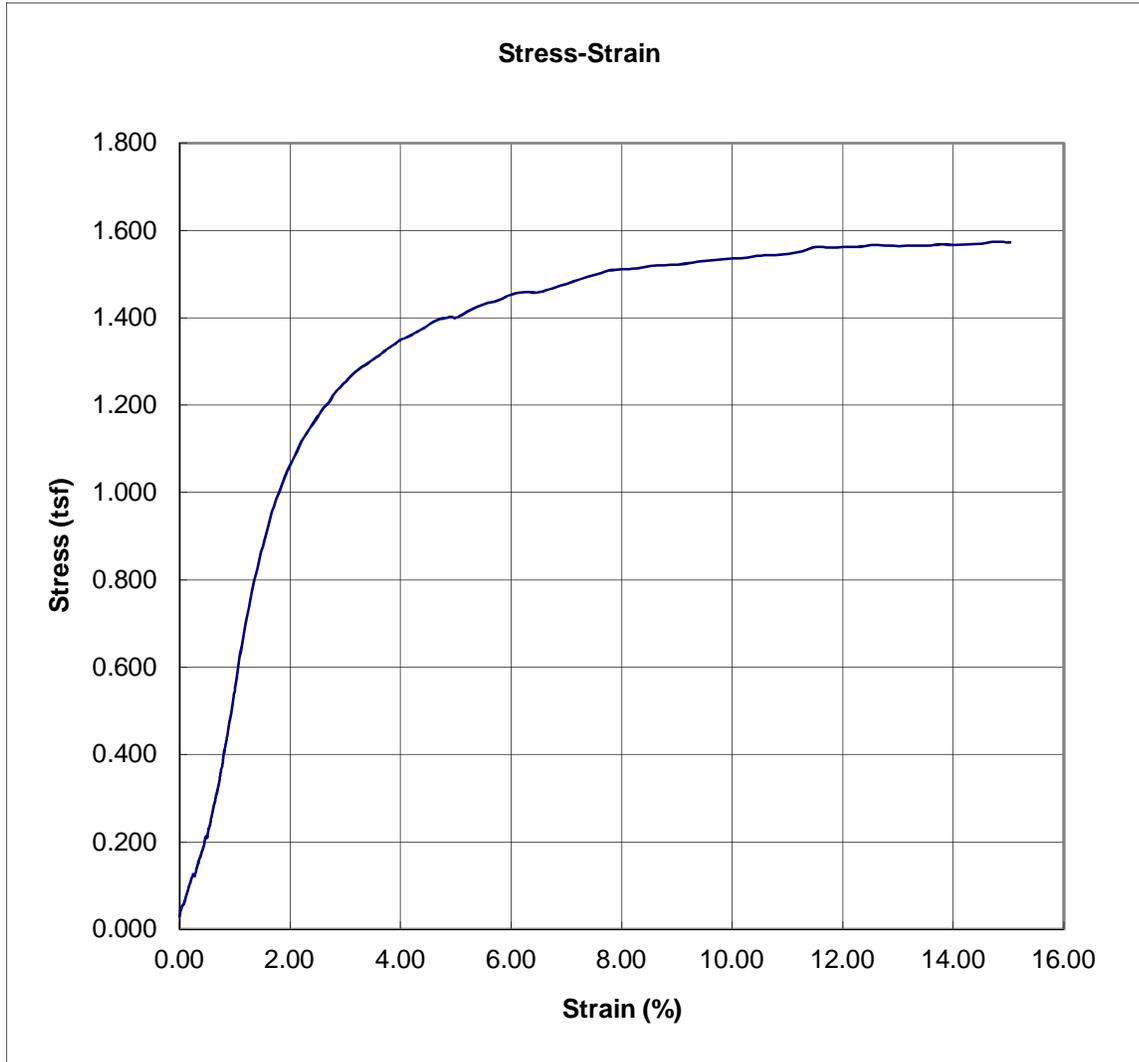
Peak Point	15.02	1.072
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2013
Depth: 14'-16'



Peak Point	8.51	1.672
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2016
Depth: 4'-6'



Peak Point	14.77	1.574
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2017
Depth: 4'-6'



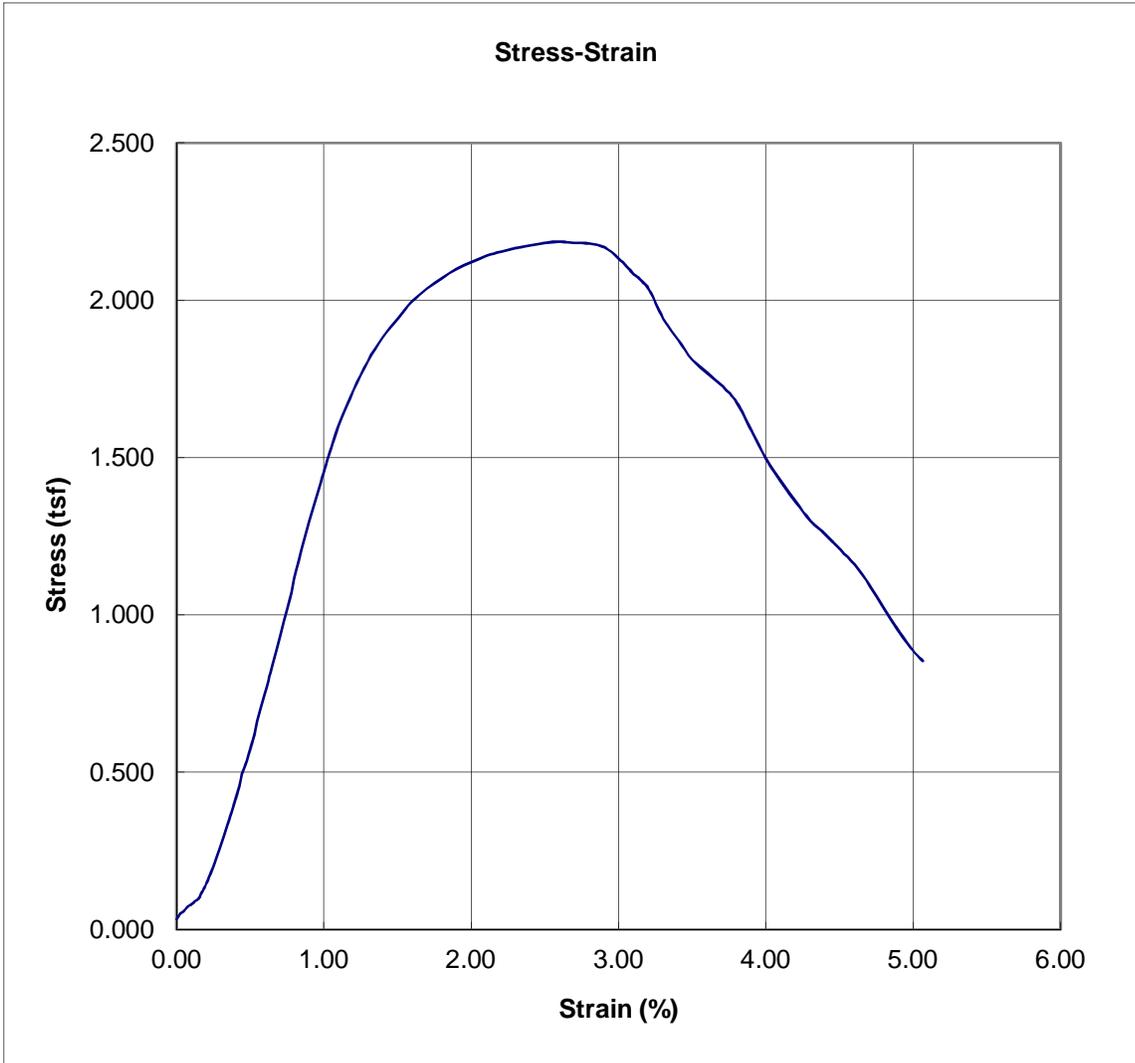
Peak Point	13.03	3.869
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2018
Depth: 4'-6'



Peak Point	10.79	2.451
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2019
Depth: 14'-16'



Peak Point	2.60	2.186
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2020
Depth: 2'-4'



Peak Point	7.79	3.247
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2020
Depth: 8'-10'



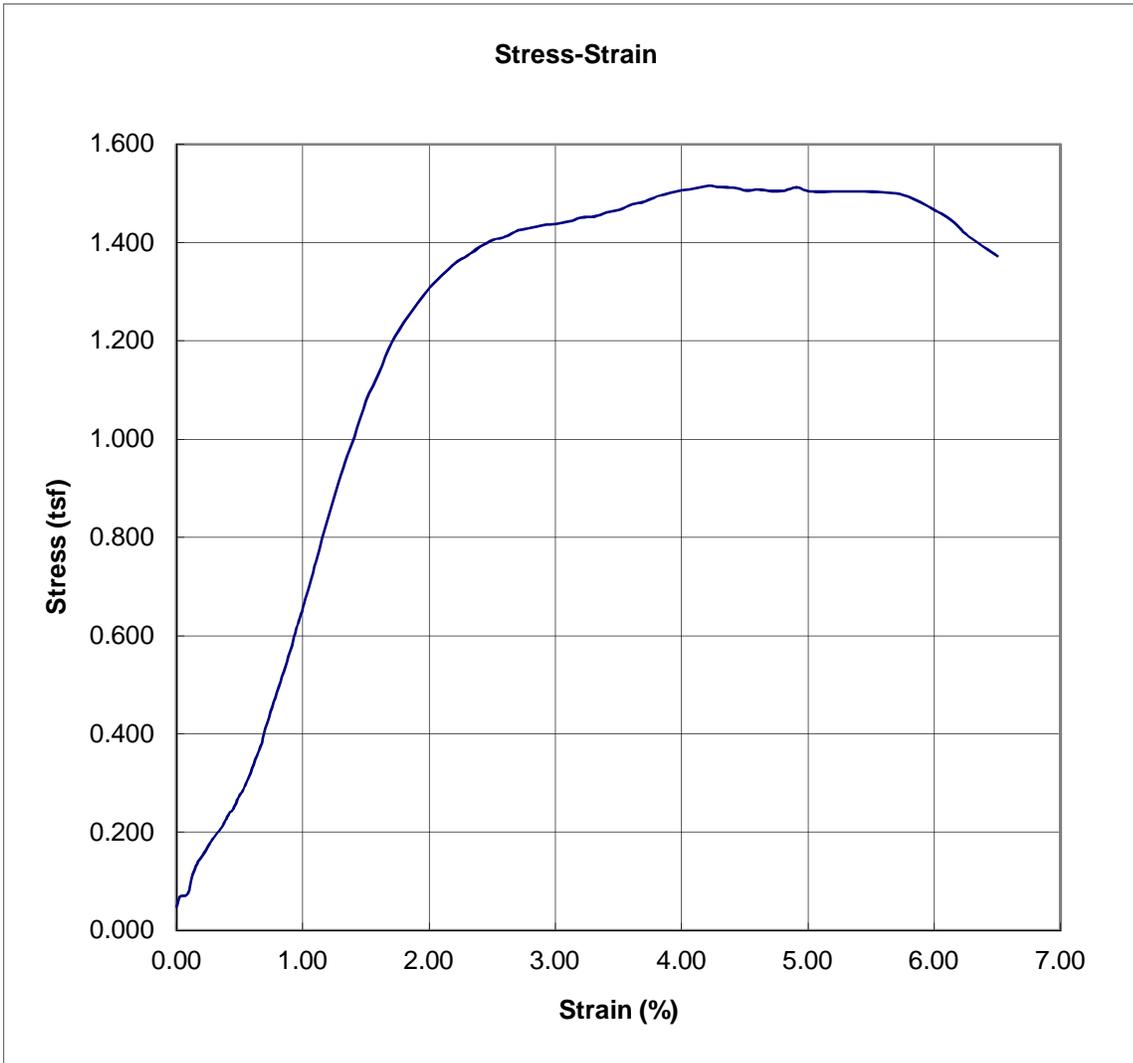
Peak Point	3.32	2.072
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2021
Depth: 2'-4'



Peak Point	9.29	1.152
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2021
Depth: 8'-10'



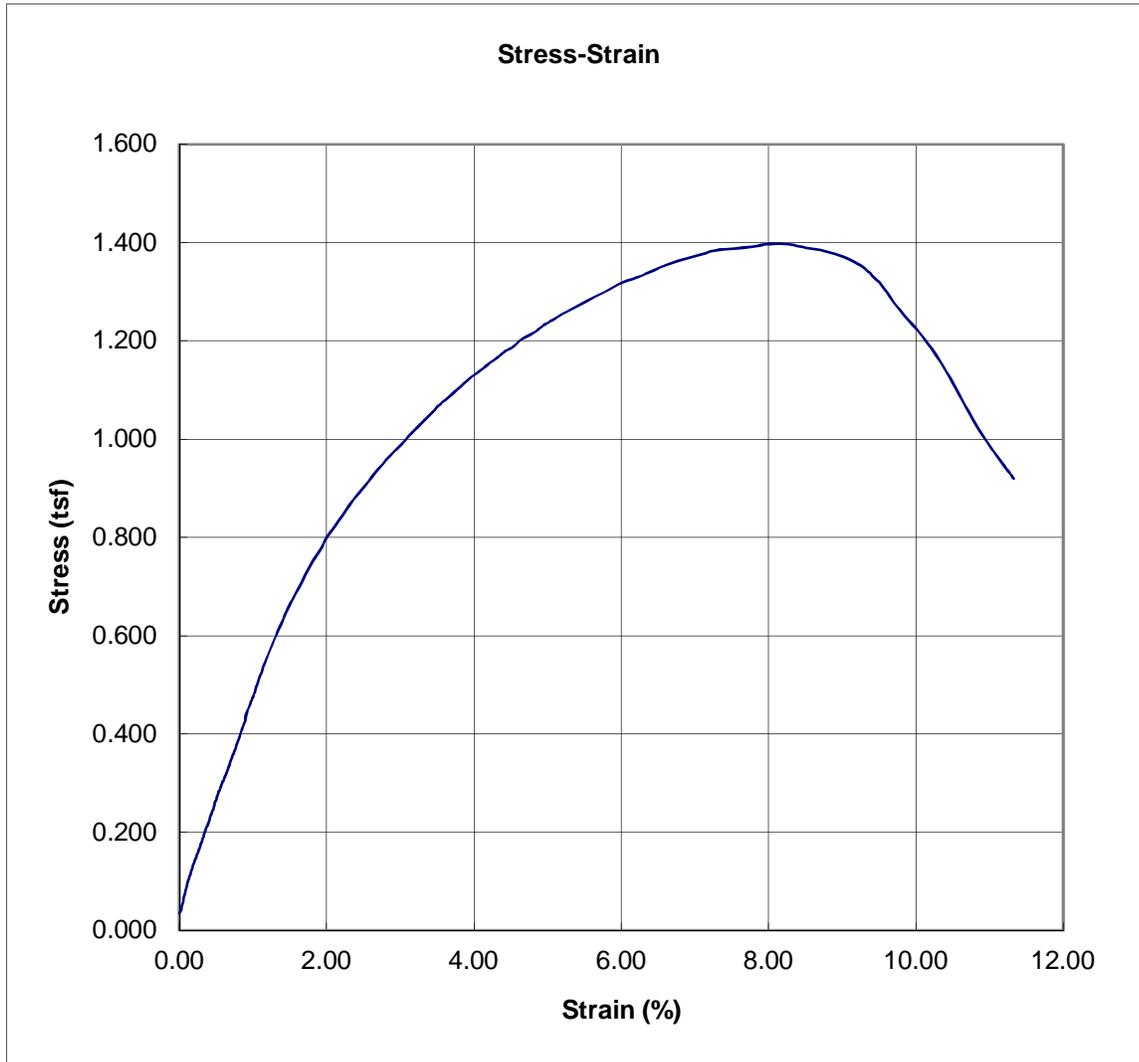
Peak Point	4.21	1.515
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2022
Depth: 4'-6'



Peak Point	12.51	2.437
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2022
Depth: 8'-10'



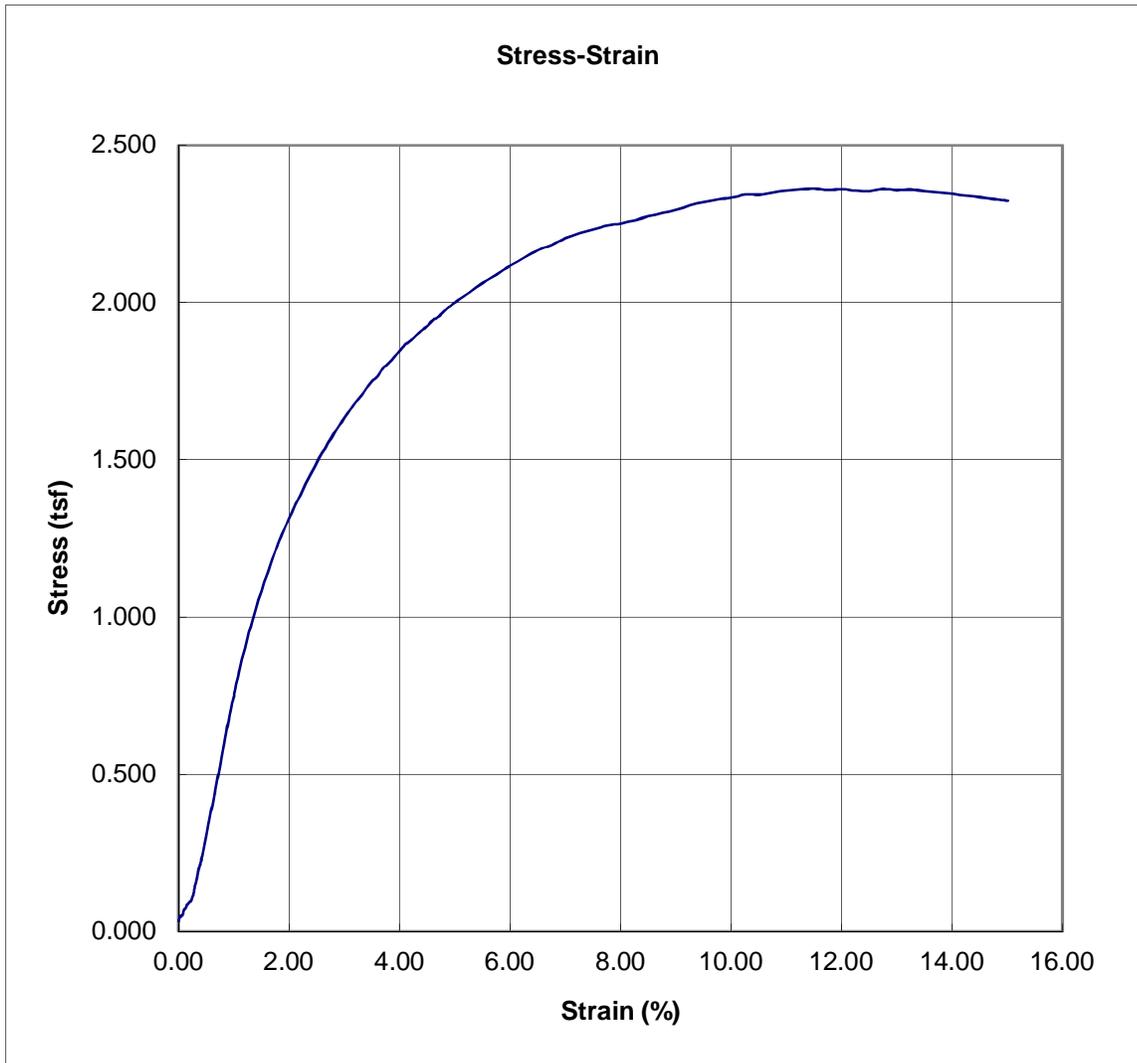
Peak Point	8.02	1.397
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2023
Depth: 4'-6'



Peak Point	9.54	2.071
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2024
Depth: 4'-6'



Peak Point	11.51	2.362
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2024
Depth: 14'-16'



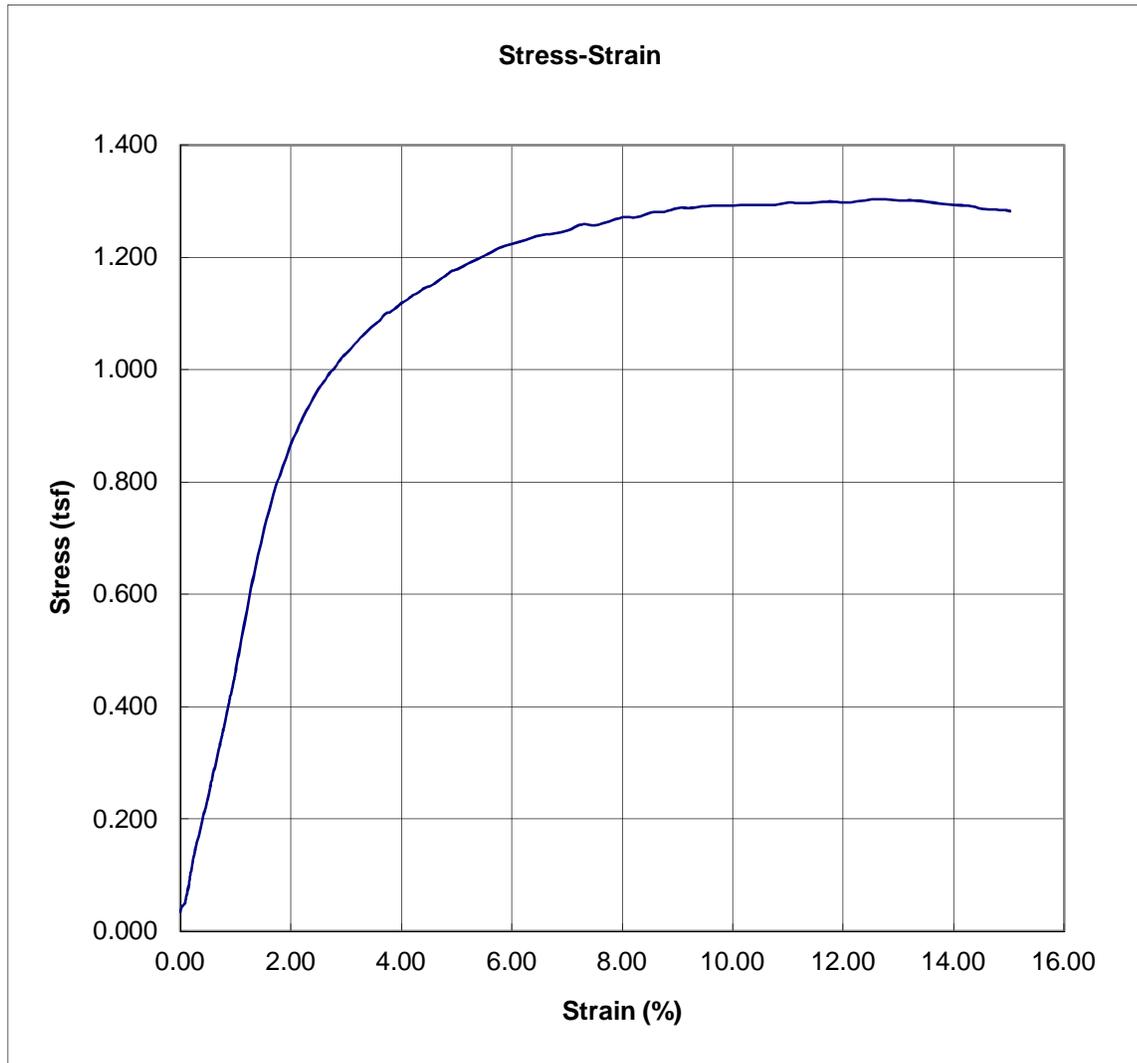
Peak Point	2.33	1.837
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2025
Depth: 4'-6'



Peak Point	14.54	2.449
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2026
Depth: 4'-6'



Peak Point	12.52	1.303
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2027
Depth: 4'-6'



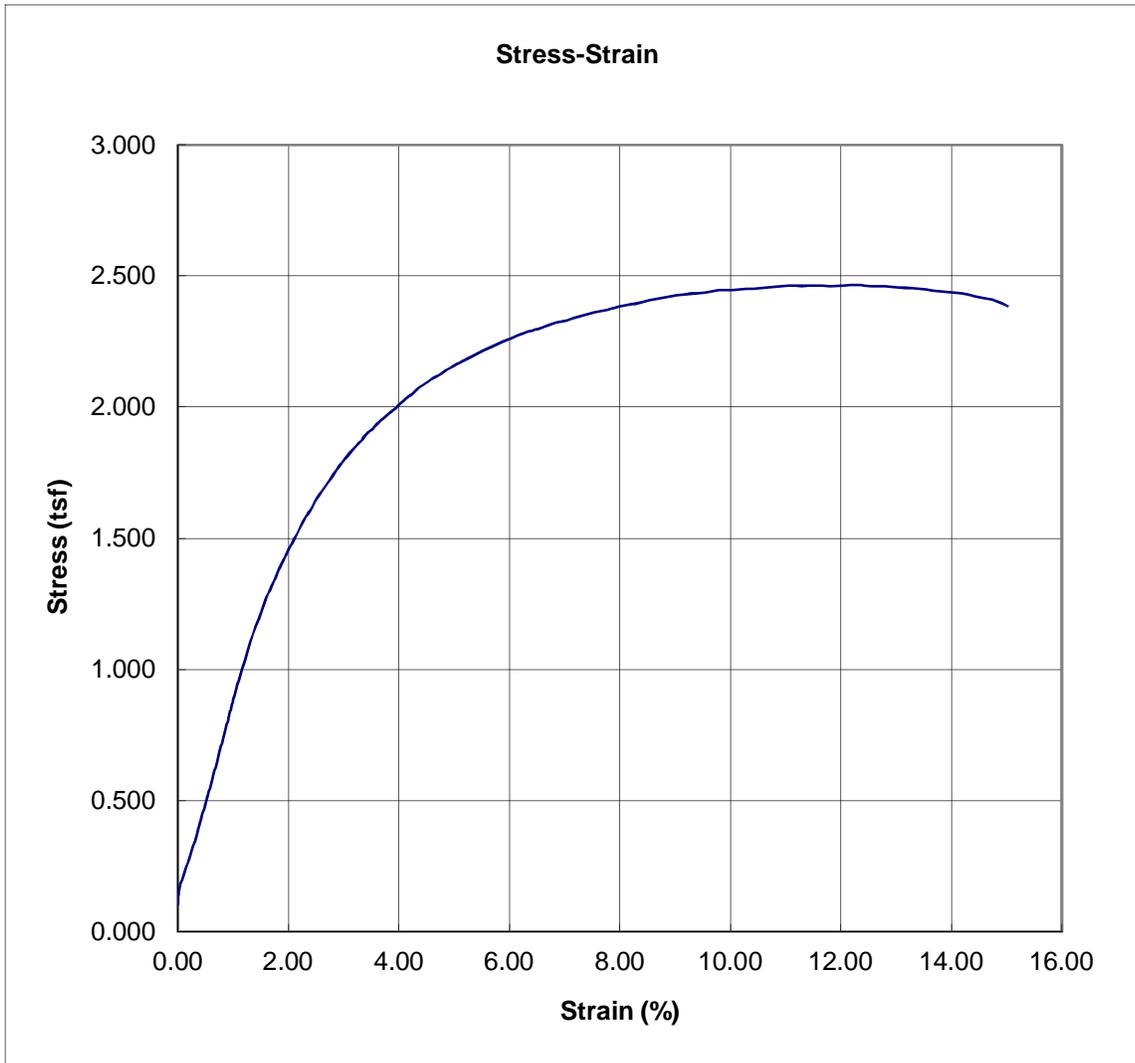
Peak Point	8.77	1.715
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2028
Depth: 2'-4'



Peak Point	15.02	1.455
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2029
Depth: 6'-8'



Peak Point	12.30	2.466
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2030
Depth: 4'-6'



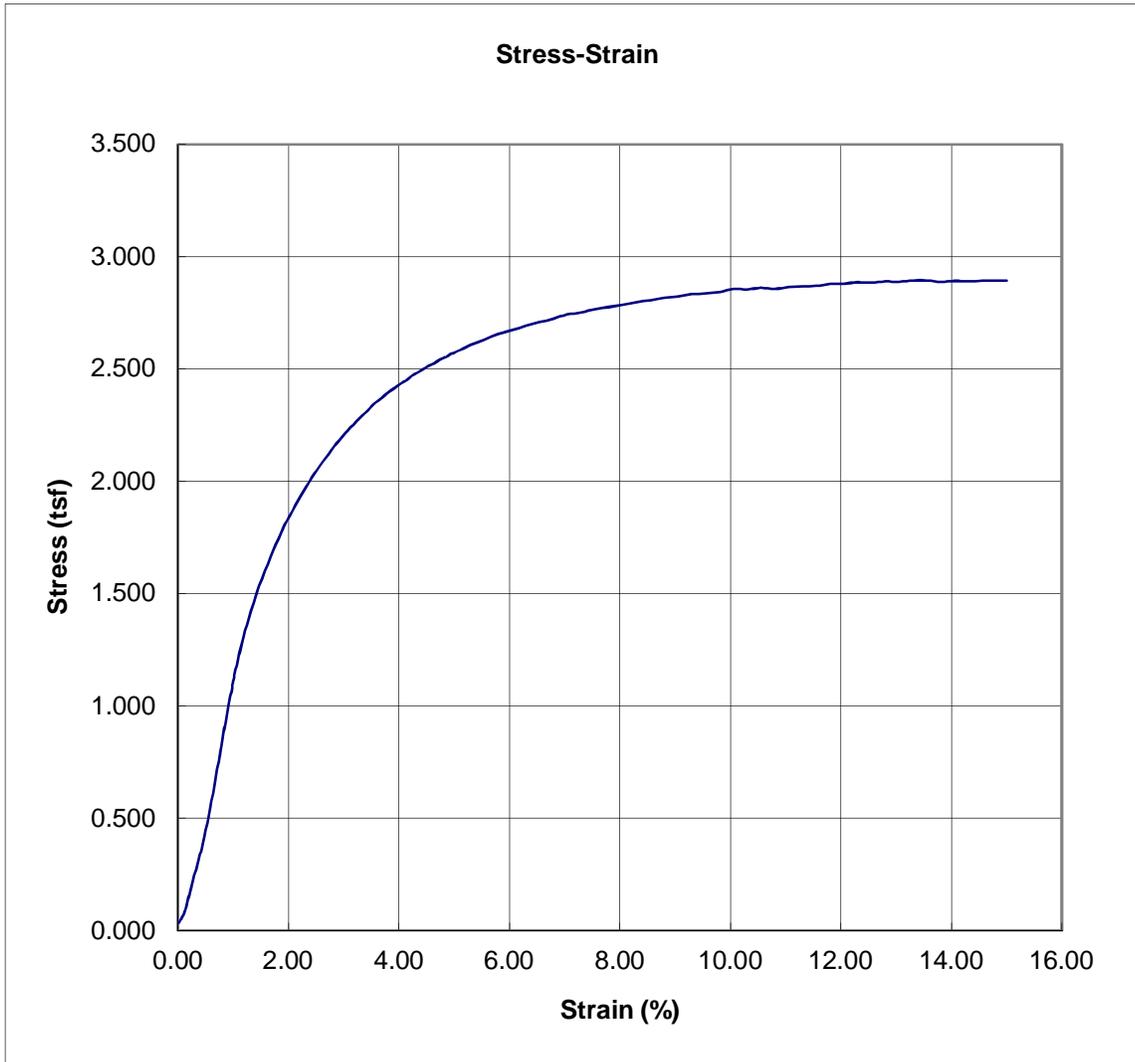
Peak Point	14.27	1.353
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2031
Depth: 6'-8'



Peak Point	14.03	2.558
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2032
Depth: 4'-6'



Peak Point	13.31	2.894
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2033
Depth: 6'-8'



Peak Point	6.01	1.654
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2034
Depth: 6'-8'



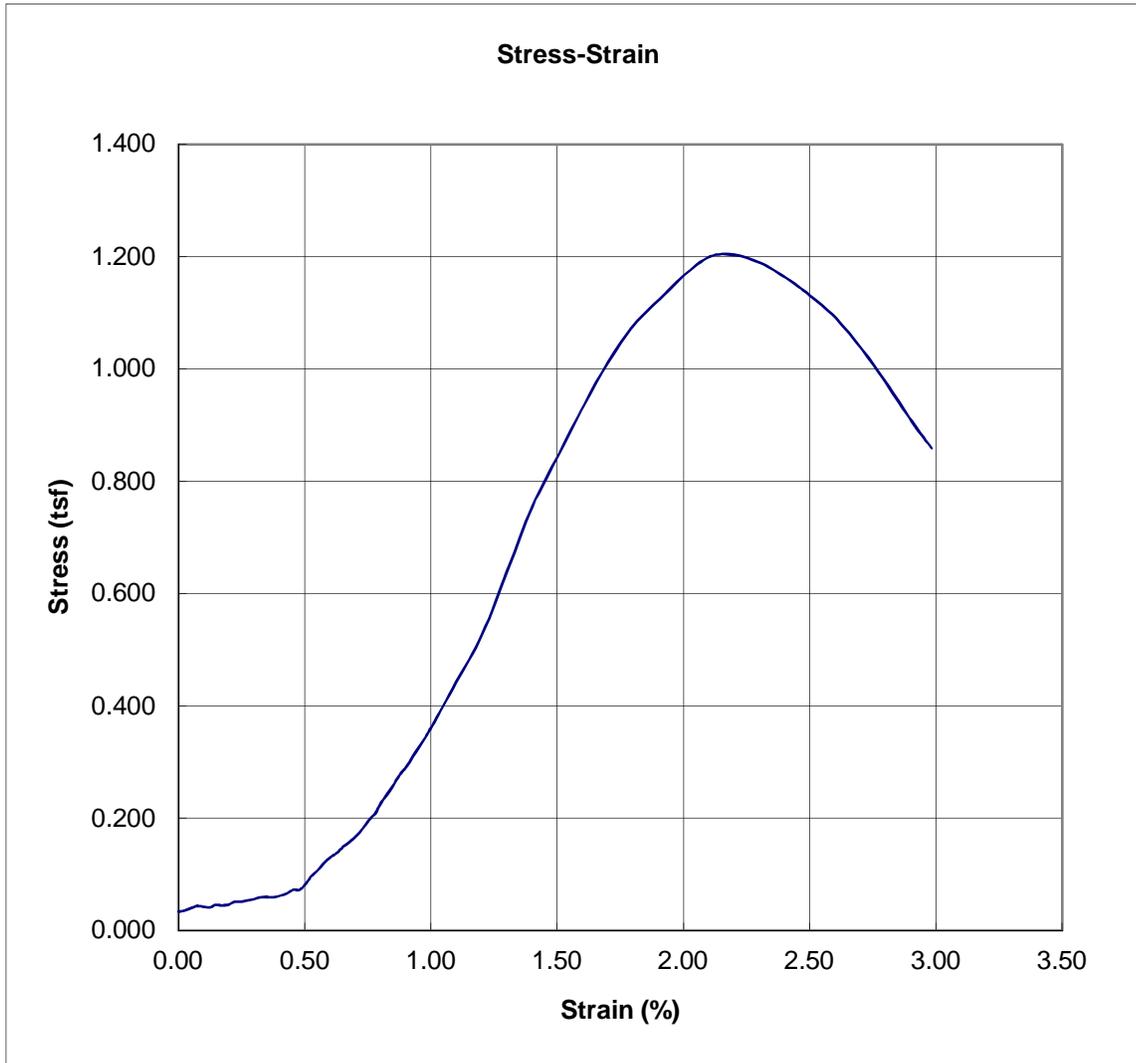
Peak Point	5.04	1.240
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2035
Depth: 6'-8'



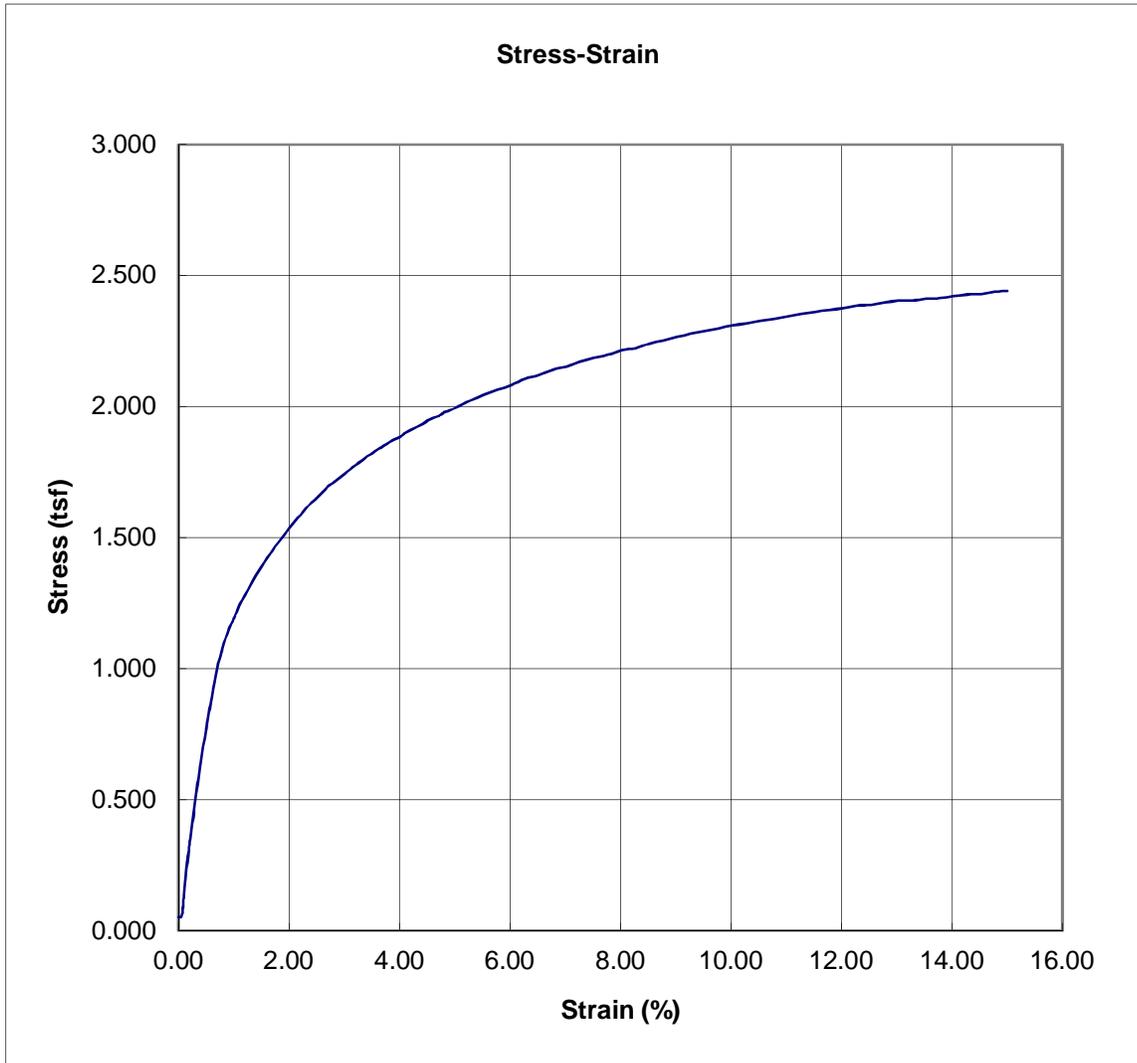
Peak Point	4.03	1.619
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2036
Depth: 10'-12'



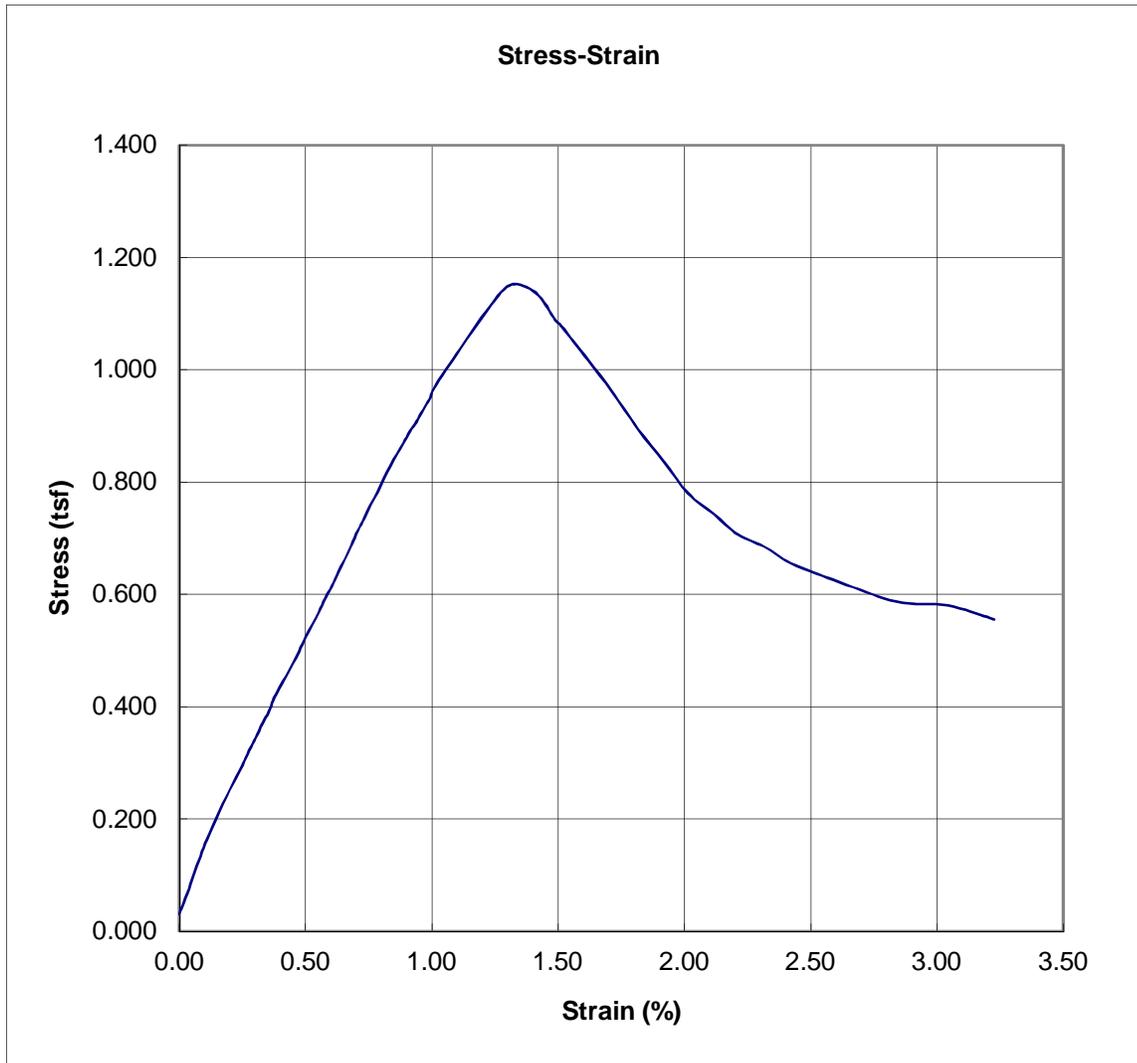
Peak Point	2.20	1.203
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2037
Depth: 2'-4'



Peak Point	15.00	2.441
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2037
Depth: 8'-10'



Peak Point	1.31	1.151
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2038
Depth: 4'-6'



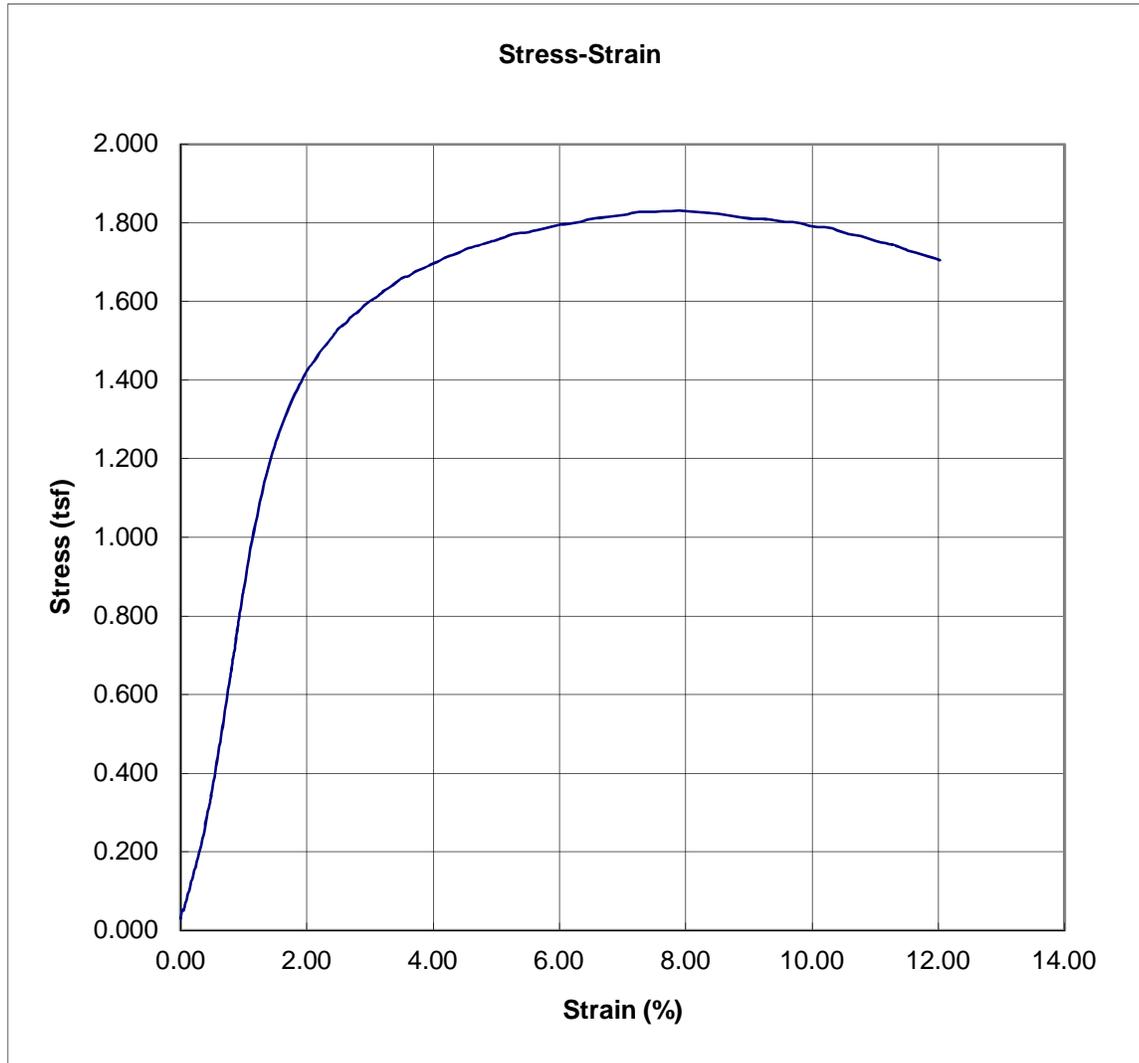
Peak Point	7.51	1.328
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2039
Depth: 6'-8'



Peak Point	6.51	1.593
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2040
Depth: 2'-4'



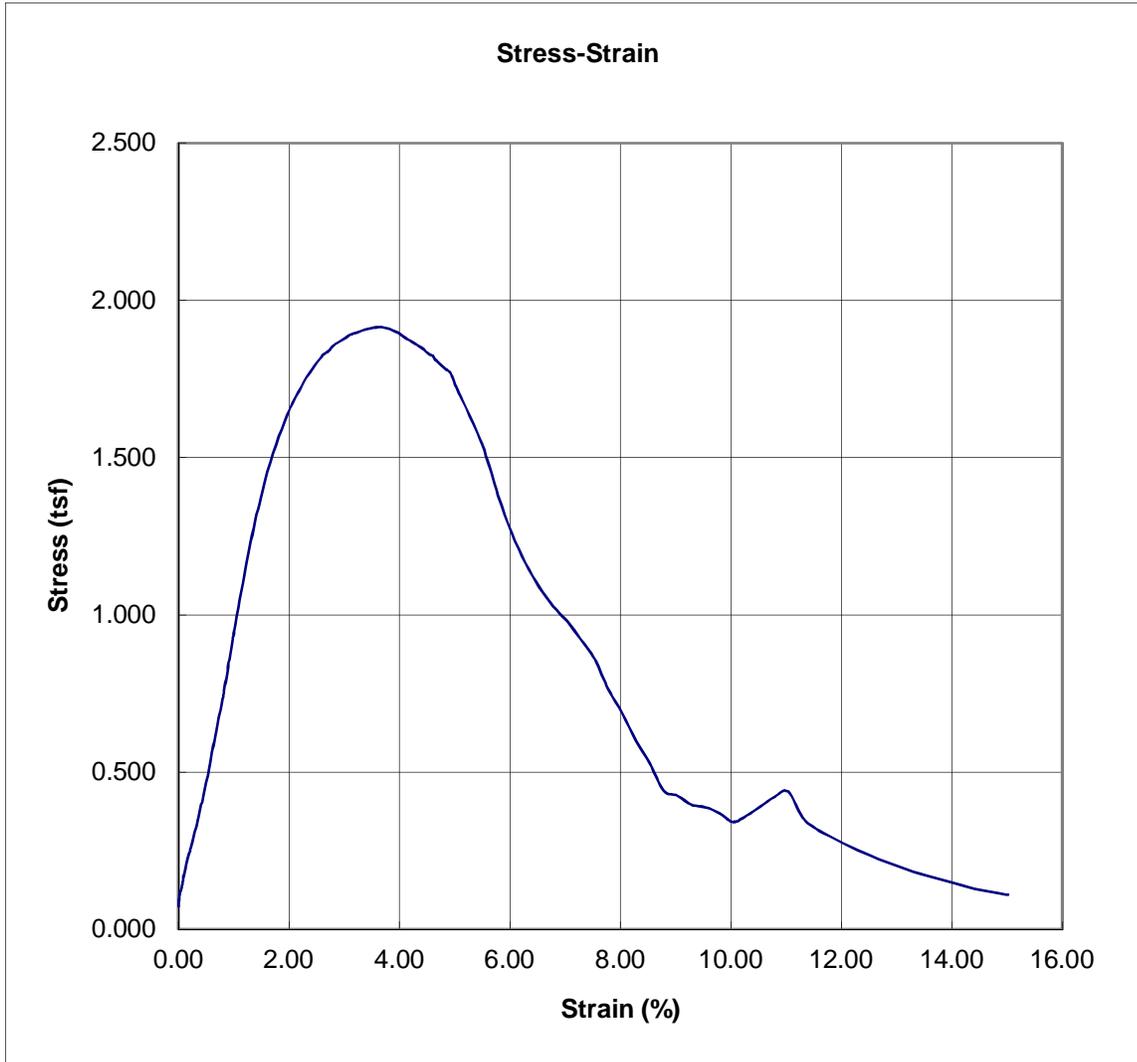
Peak Point	7.76	1.830
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2040
Depth: 10'-12'



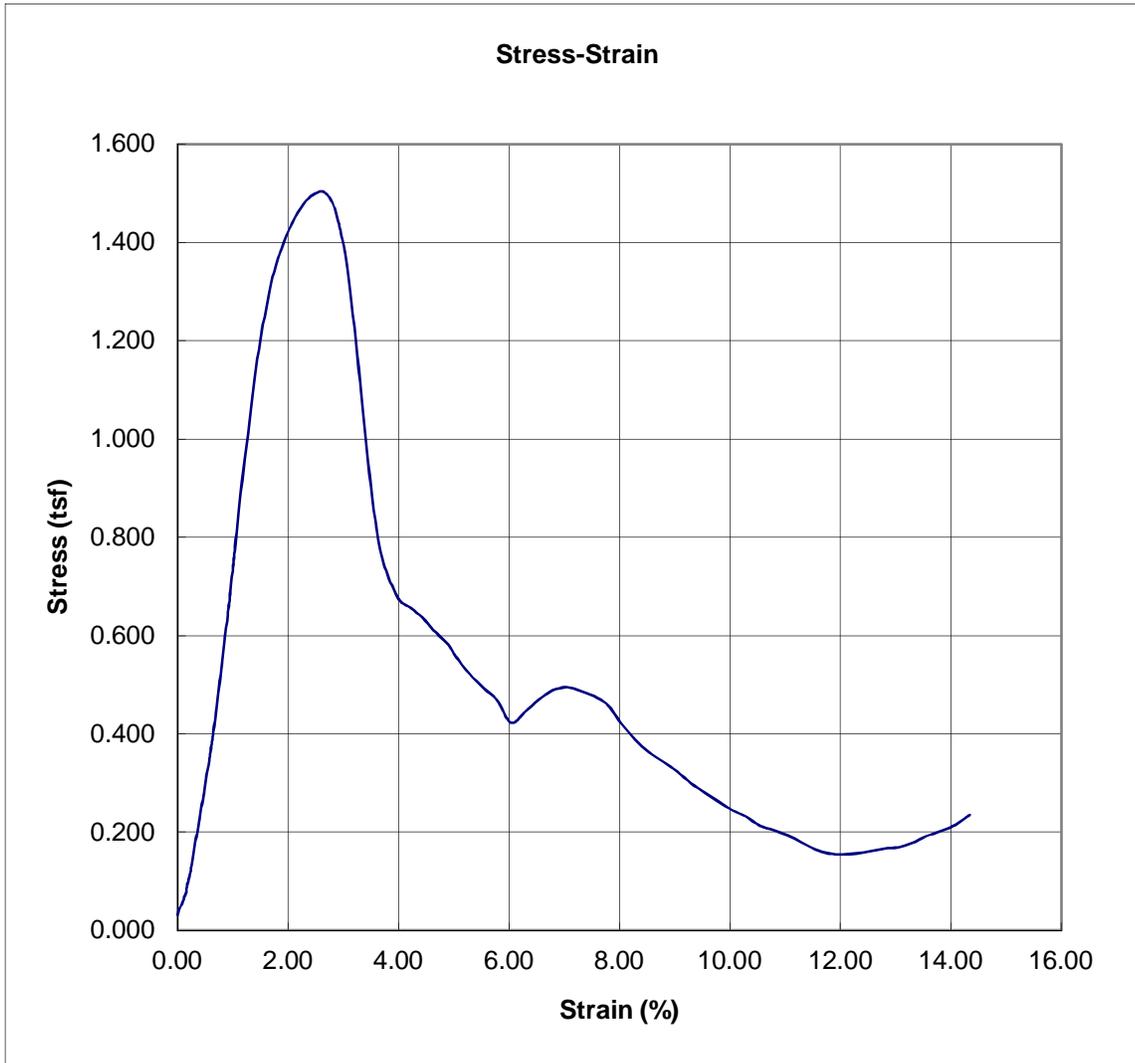
Peak Point	11.54	1.854
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2041
Depth: 6'-8'



Peak Point	3.63	1.914
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2043
Depth: 4'-6'



Peak Point	2.62	1.504
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2042
Depth: 4'-6'



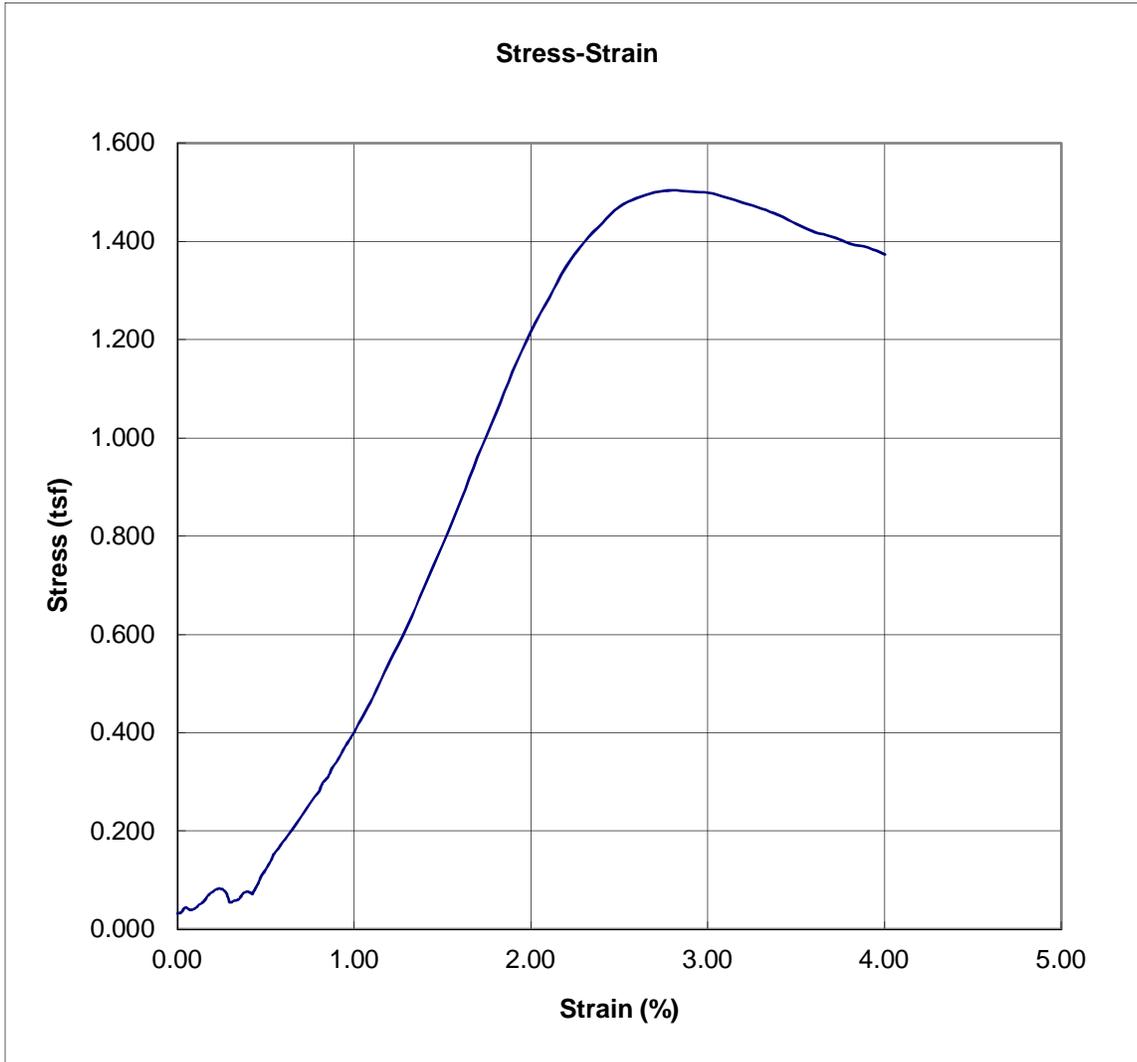
Peak Point	6.77	2.472
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2043
Depth: 8'-10'



Peak Point	9.00	4.179
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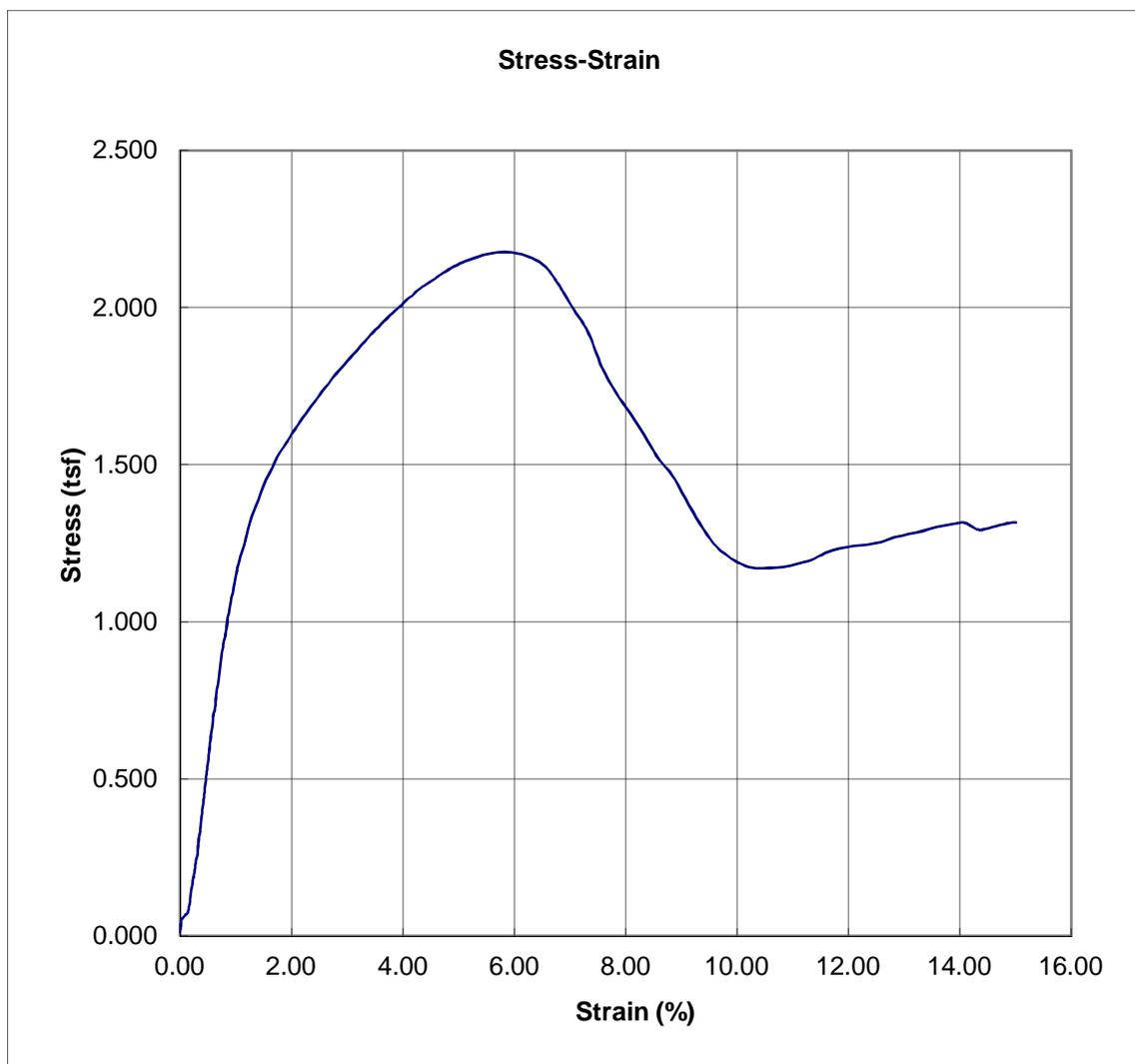
Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-2044
Depth: 18'-20'



Peak Point	2.80	1.503
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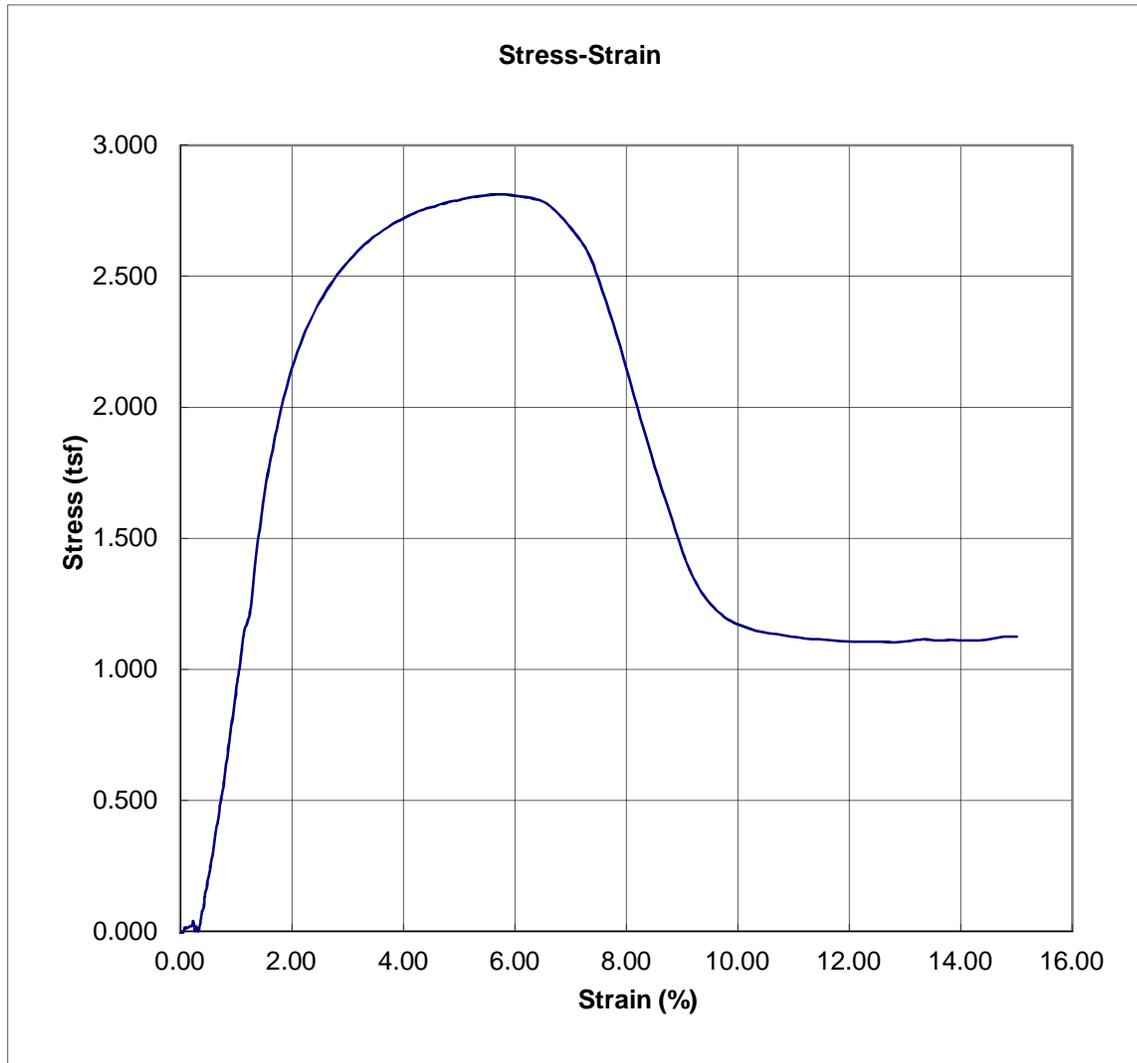
UNCONSOLIDATED-UNDRAINED TRIAXIAL
COMPRESSION TEST DATA

Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-207
Depth: 14'-16'



Peak Point	5.82	2.177
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-207
Depth: 23'-25'



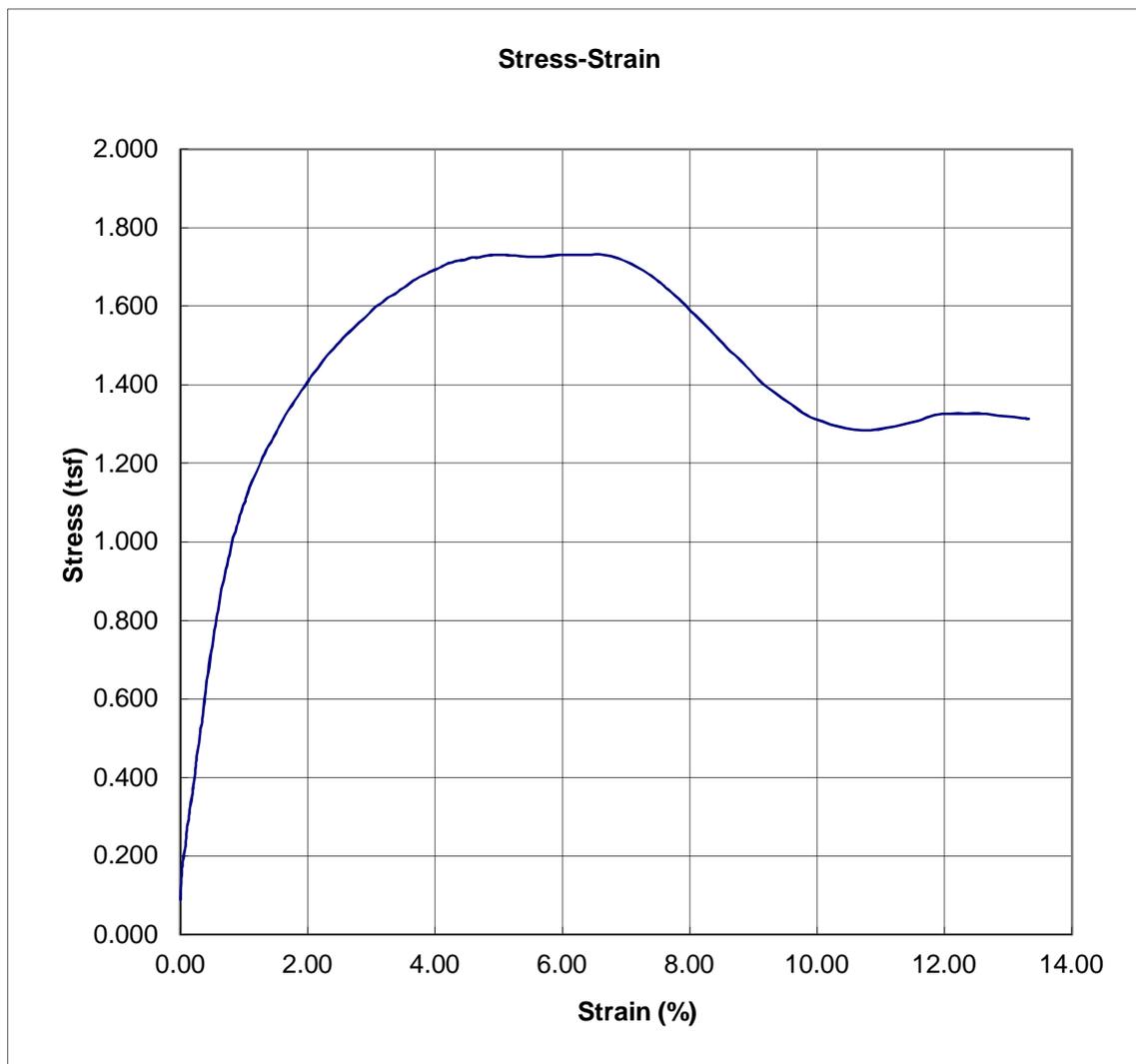
Peak Point	5.82	2.812
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-207
Depth: 98'-100'



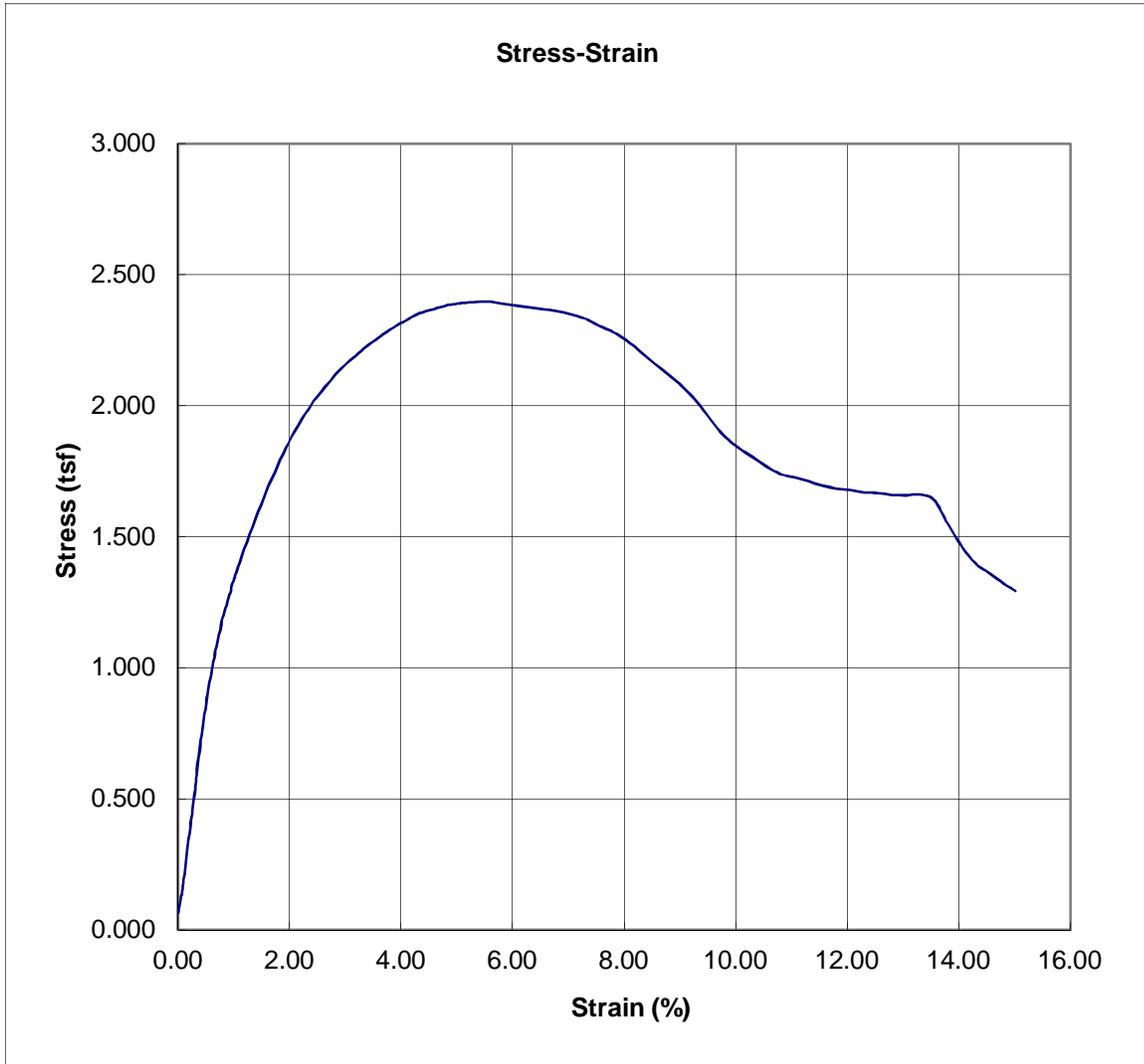
Peak Point	14.83	2.888
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-208
Depth: 18'-20'



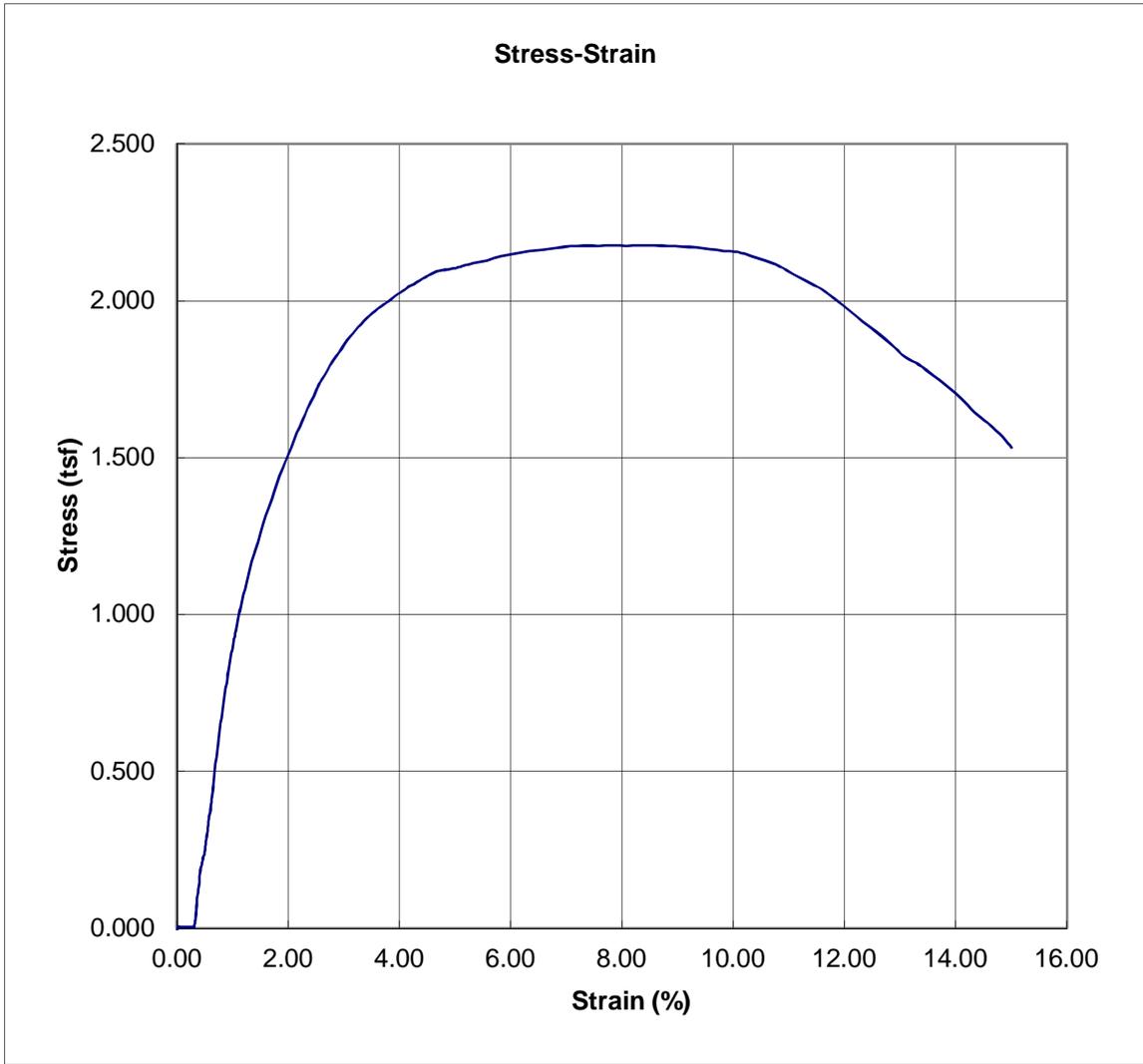
Peak Point	6.58	1.732
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-208
Depth: 33'-35'



Peak Point	5.54	2.398
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-208
Depth: 43'-45'



Peak Point	8.33	2.176
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-208
Depth: 83'-85'



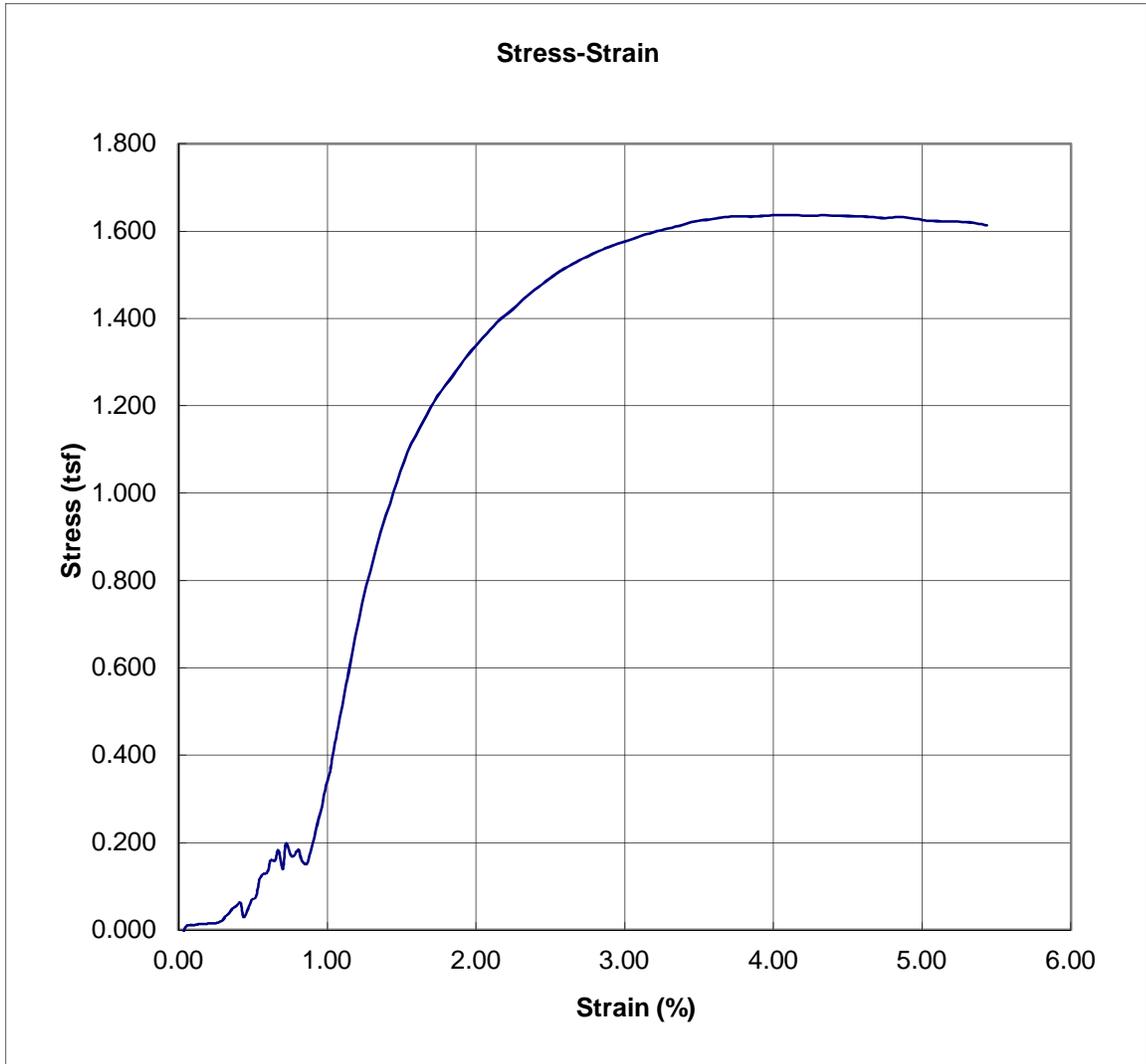
Peak Point	14.83	1.089
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-208
Depth: 93'-95'



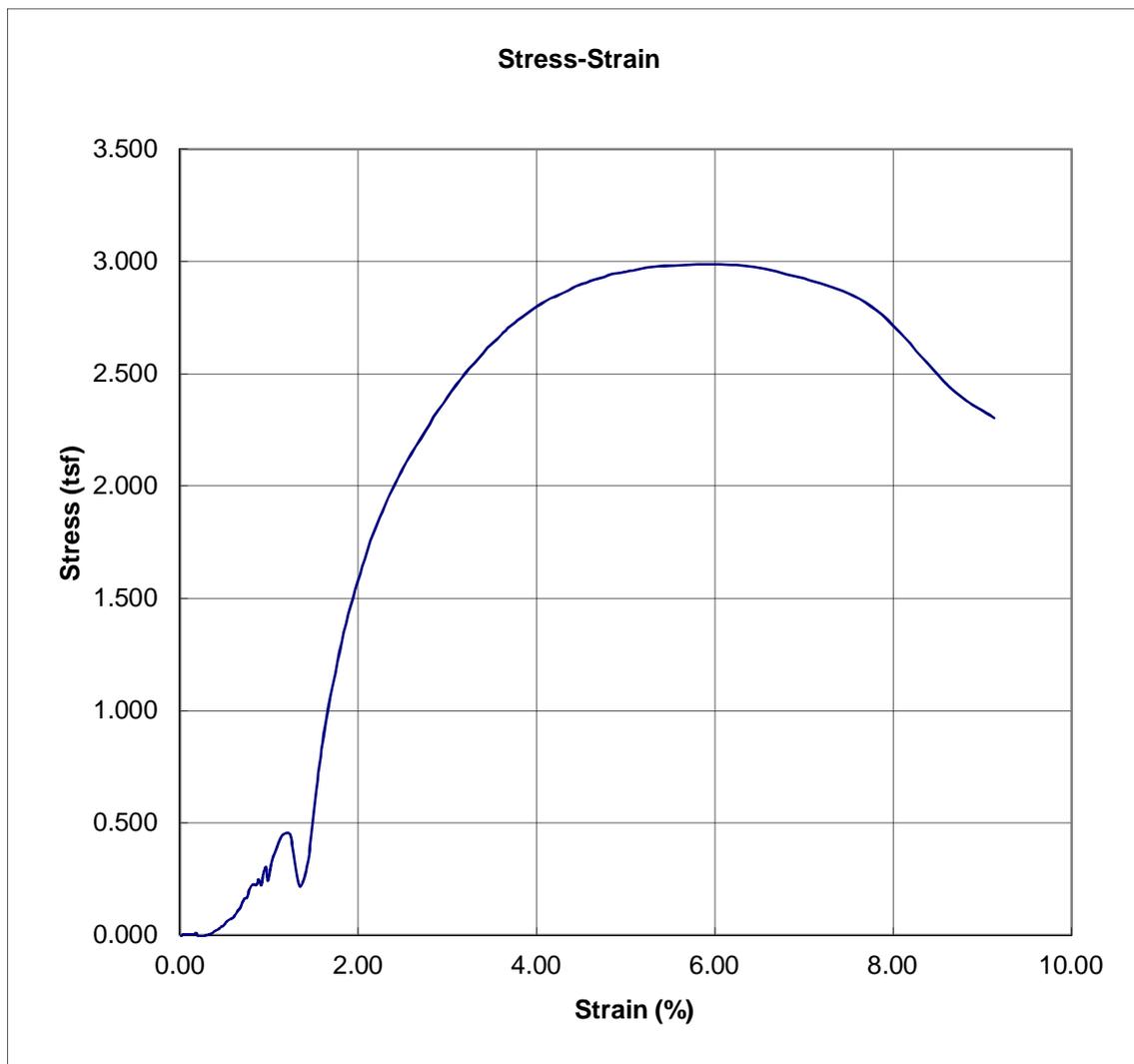
Peak Point	15.02	3.489
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-209
Depth: 33'-35'



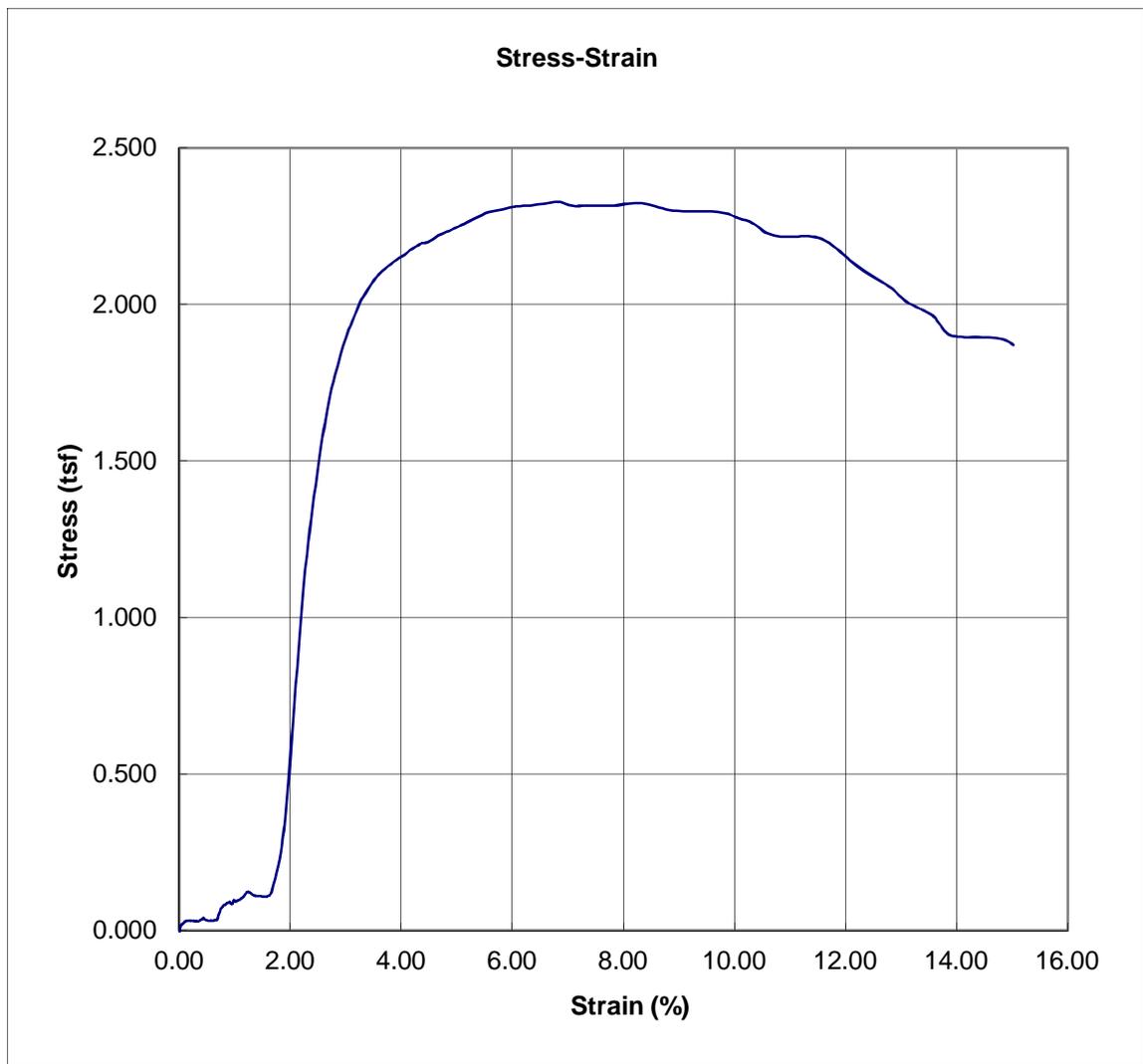
Peak Point	4.05	1.637
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-209
Depth: 48'-50'



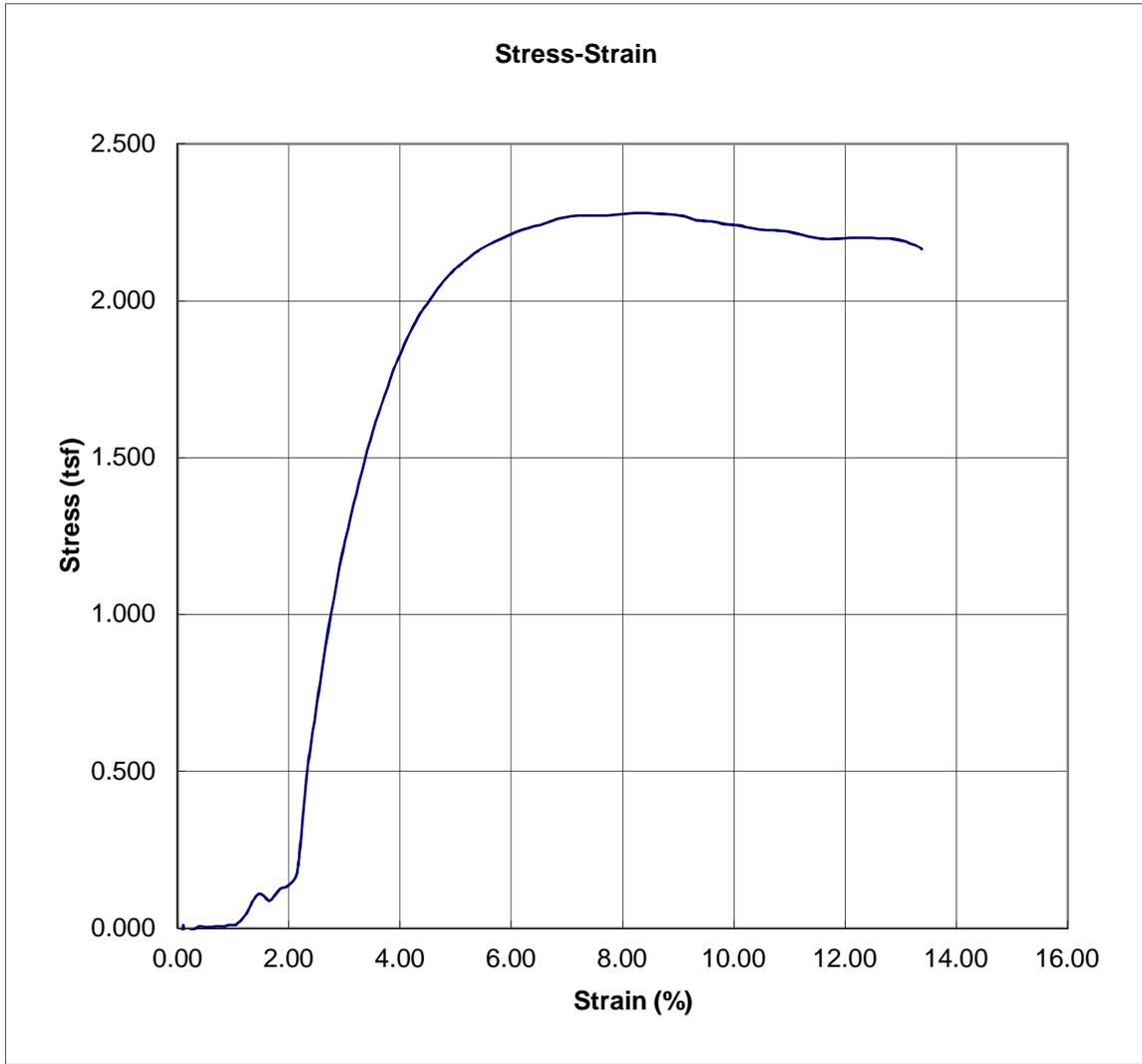
Peak Point	5.81	2.987
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-210
Depth: 33'-35'



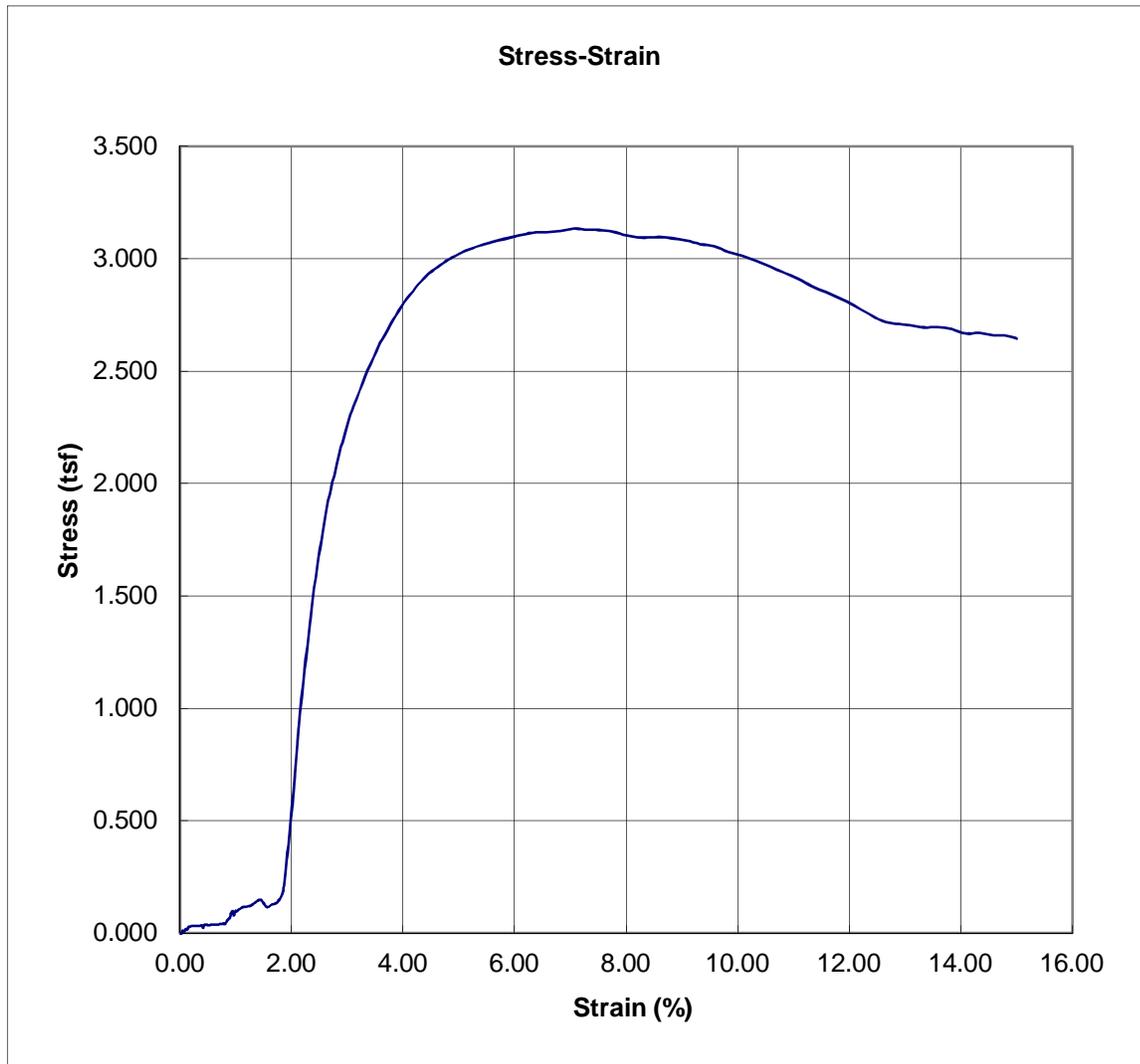
Peak Point	6.83	2.327
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-210
Depth: 48'-50'



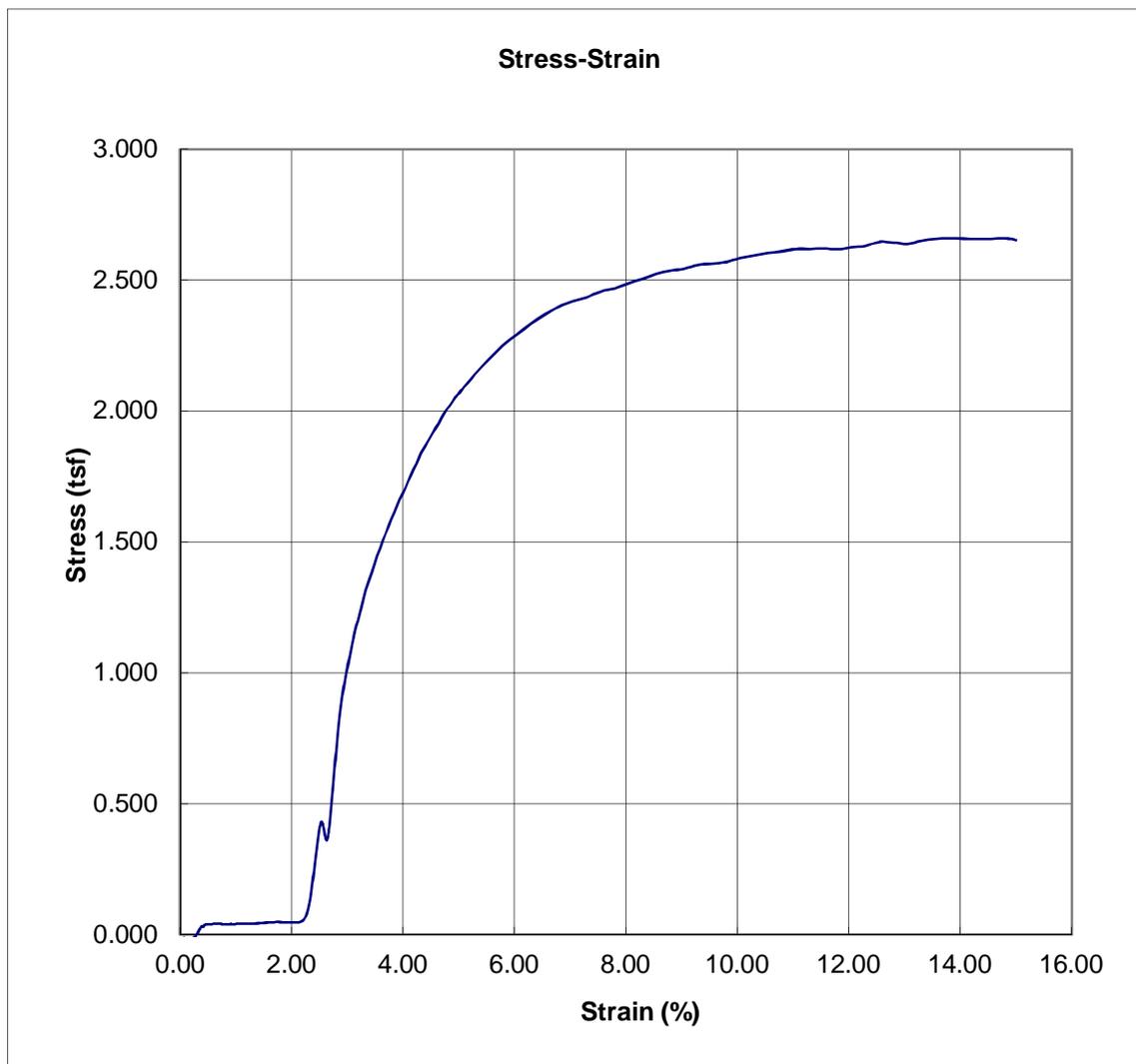
Peak Point	8.33	2.280
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-210
Depth: 58'-60'



Peak Point	7.07	3.133
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-210
Depth: 88'-90'



Peak Point	14.81	2.659
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-211
Depth: 33'-35'



Peak Point	8.55	2.418
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-211
Depth: 48'-50'



Peak Point	7.80	2.466
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-211
Depth: 58'-60'



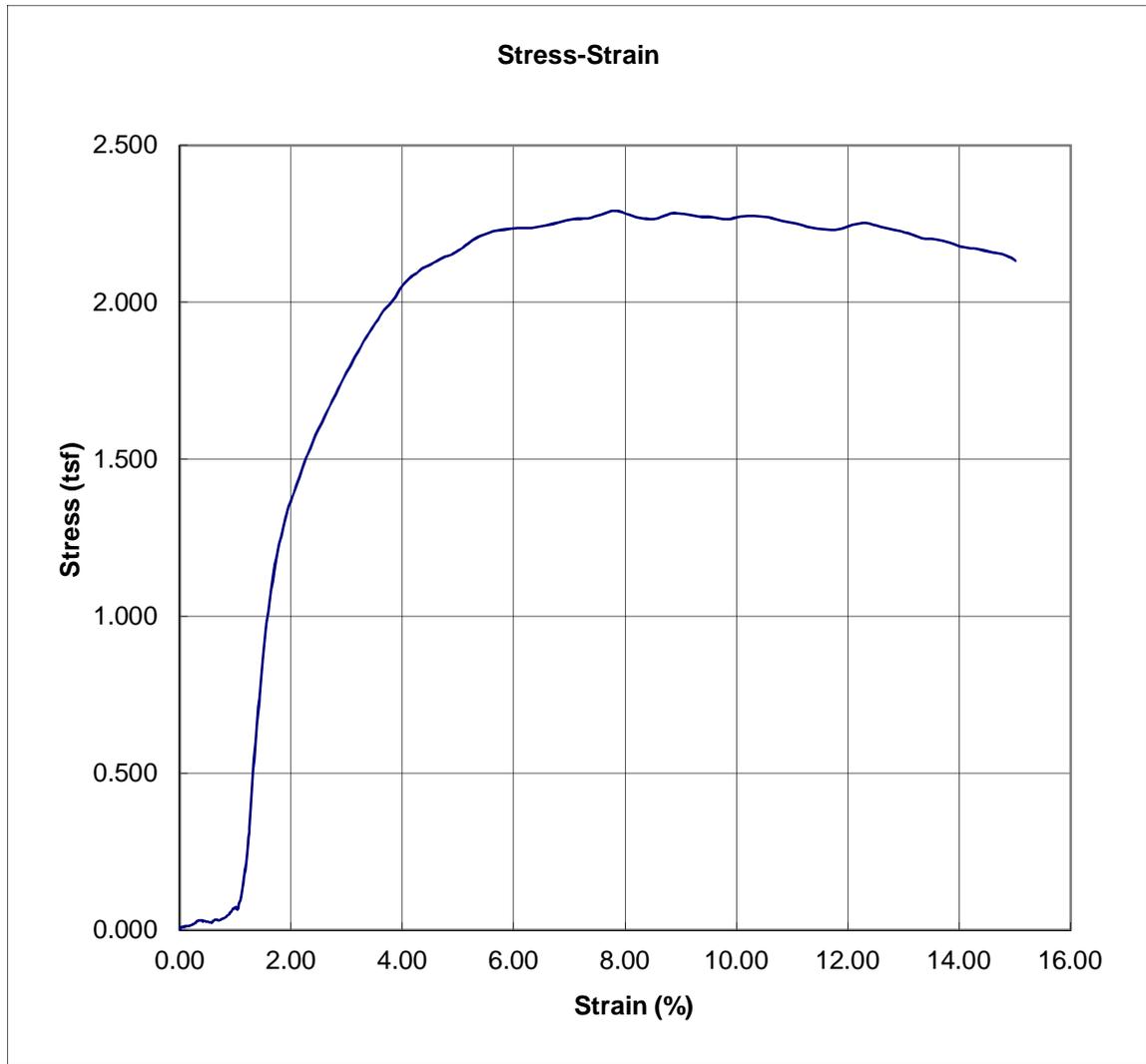
Peak Point	14.84	3.052
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-211
Depth: 83'-85'



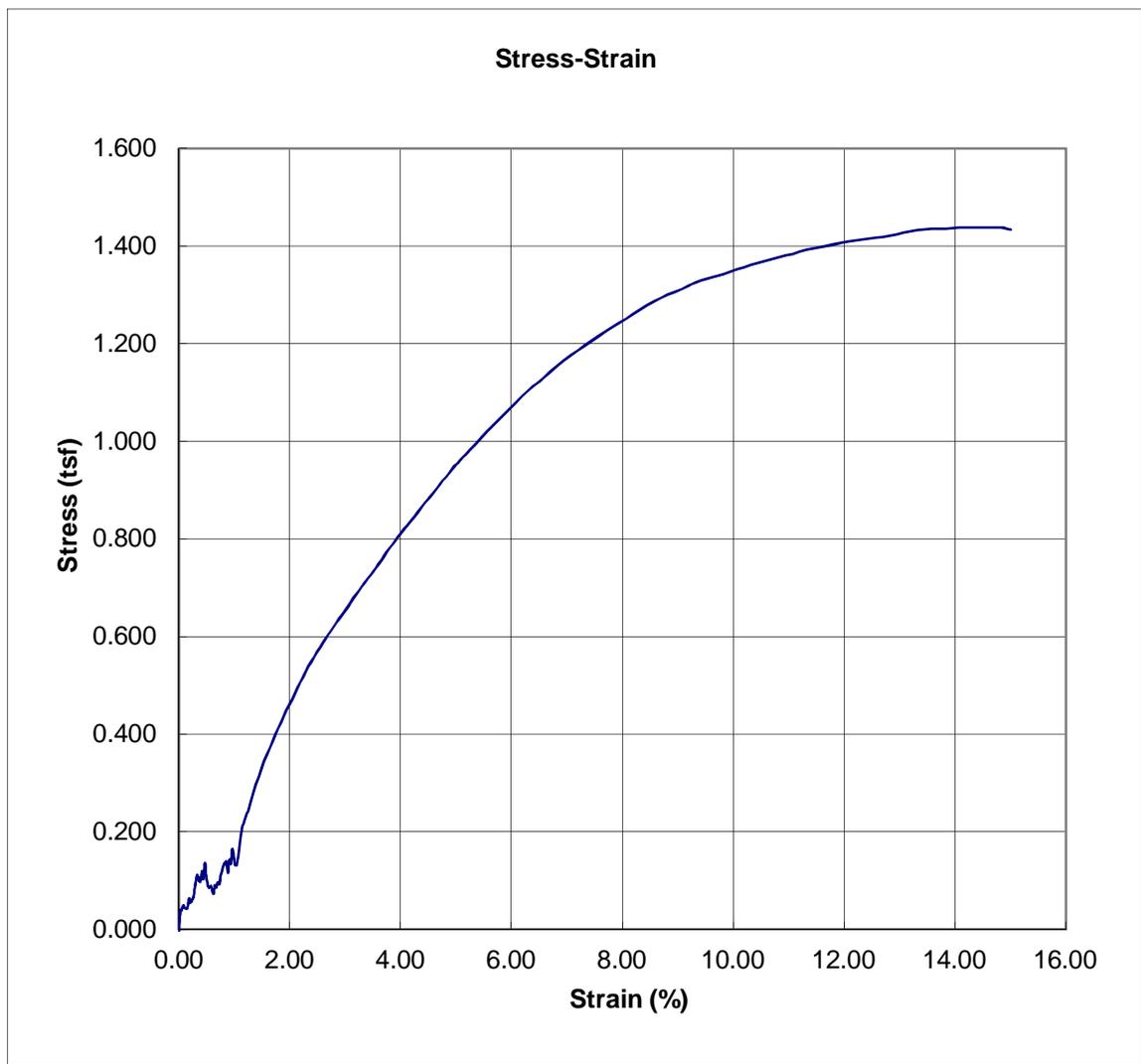
Peak Point	3.06	2.002
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-212
Depth: 33'-35'



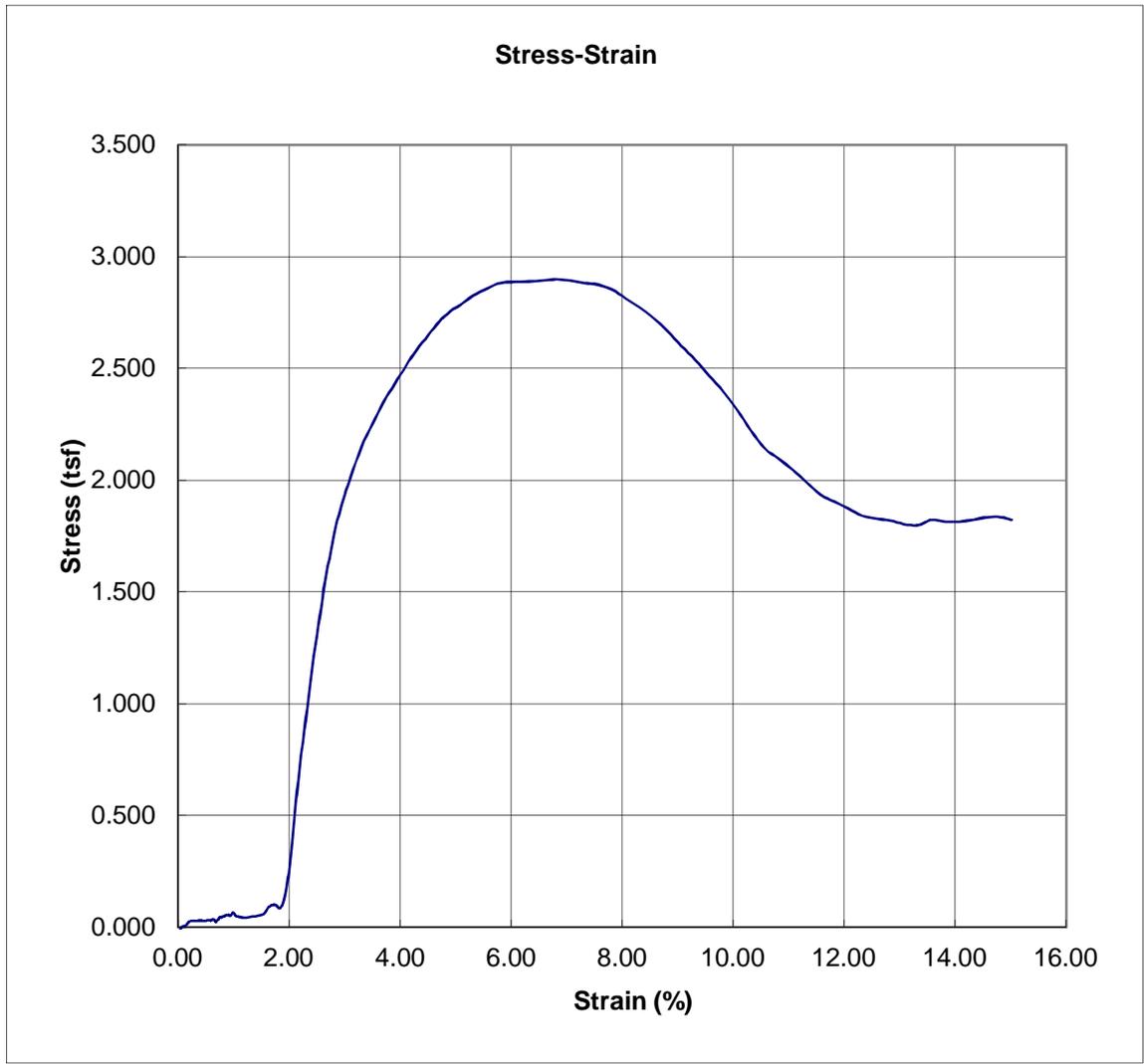
Peak Point	7.82	2.292
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-212
Depth: 43'-45'



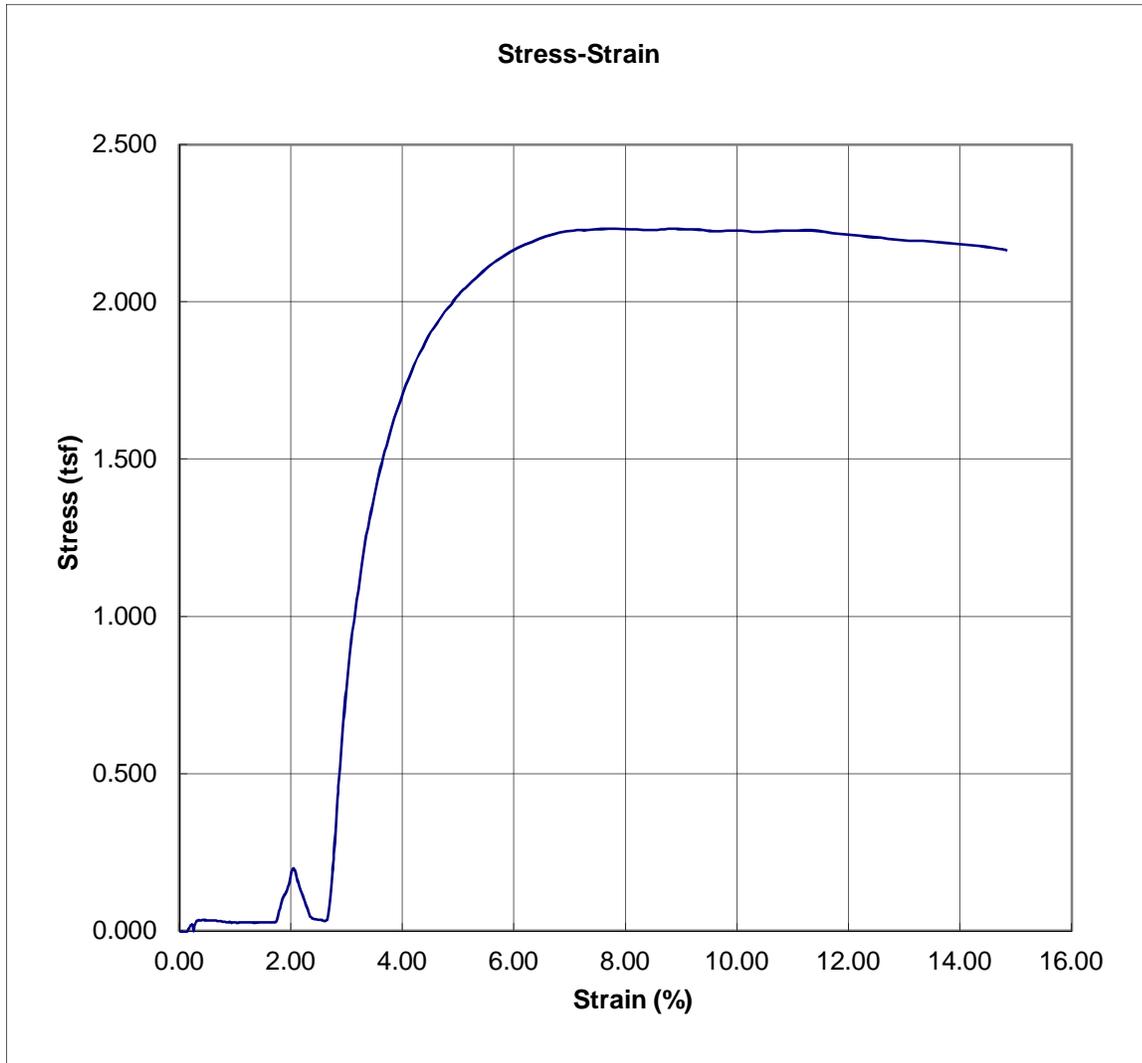
Peak Point	14.83	1.438
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-212
Depth: 53'-55'



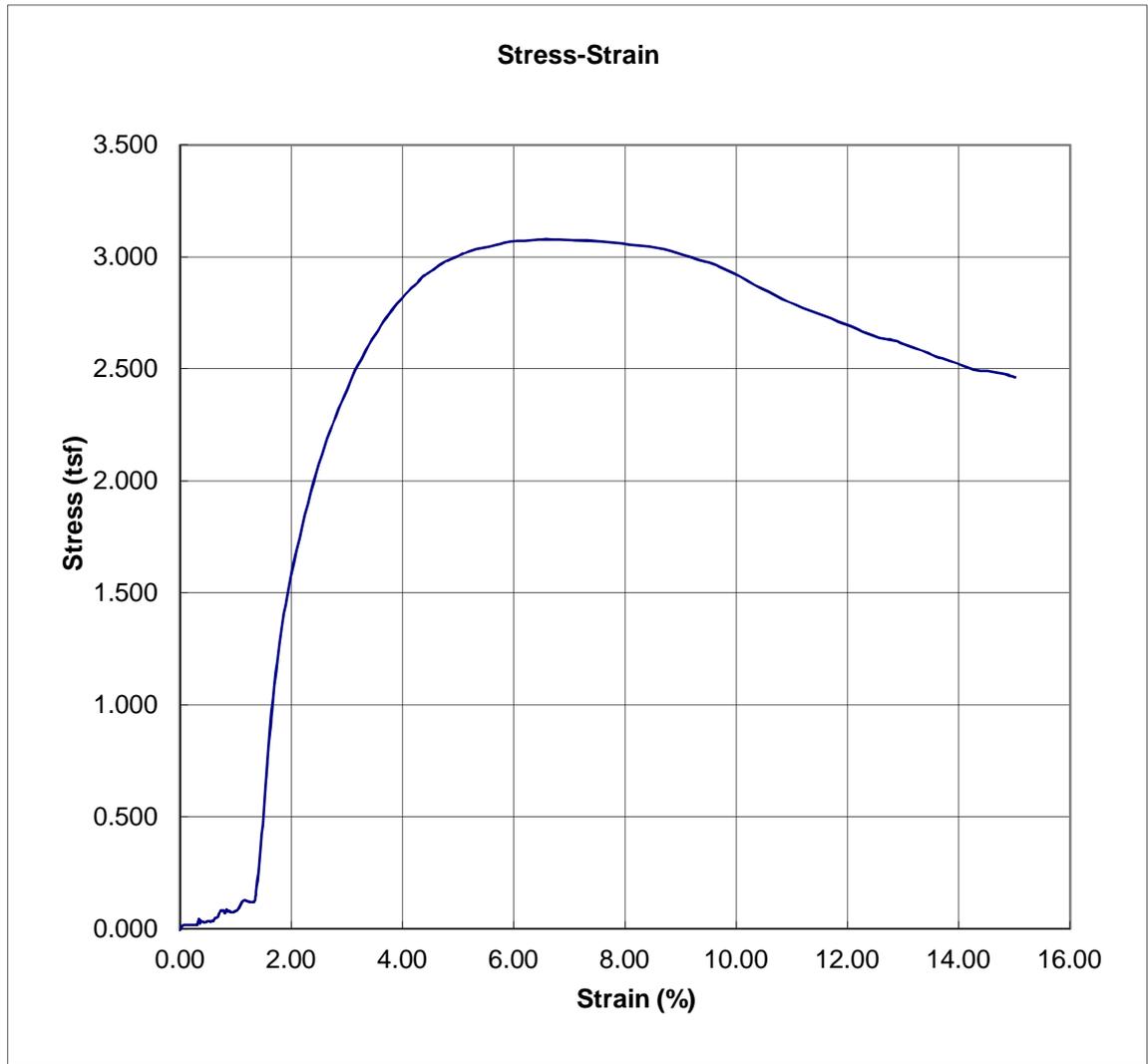
Peak Point	6.81	2.898
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-212
Depth: 68'-70'



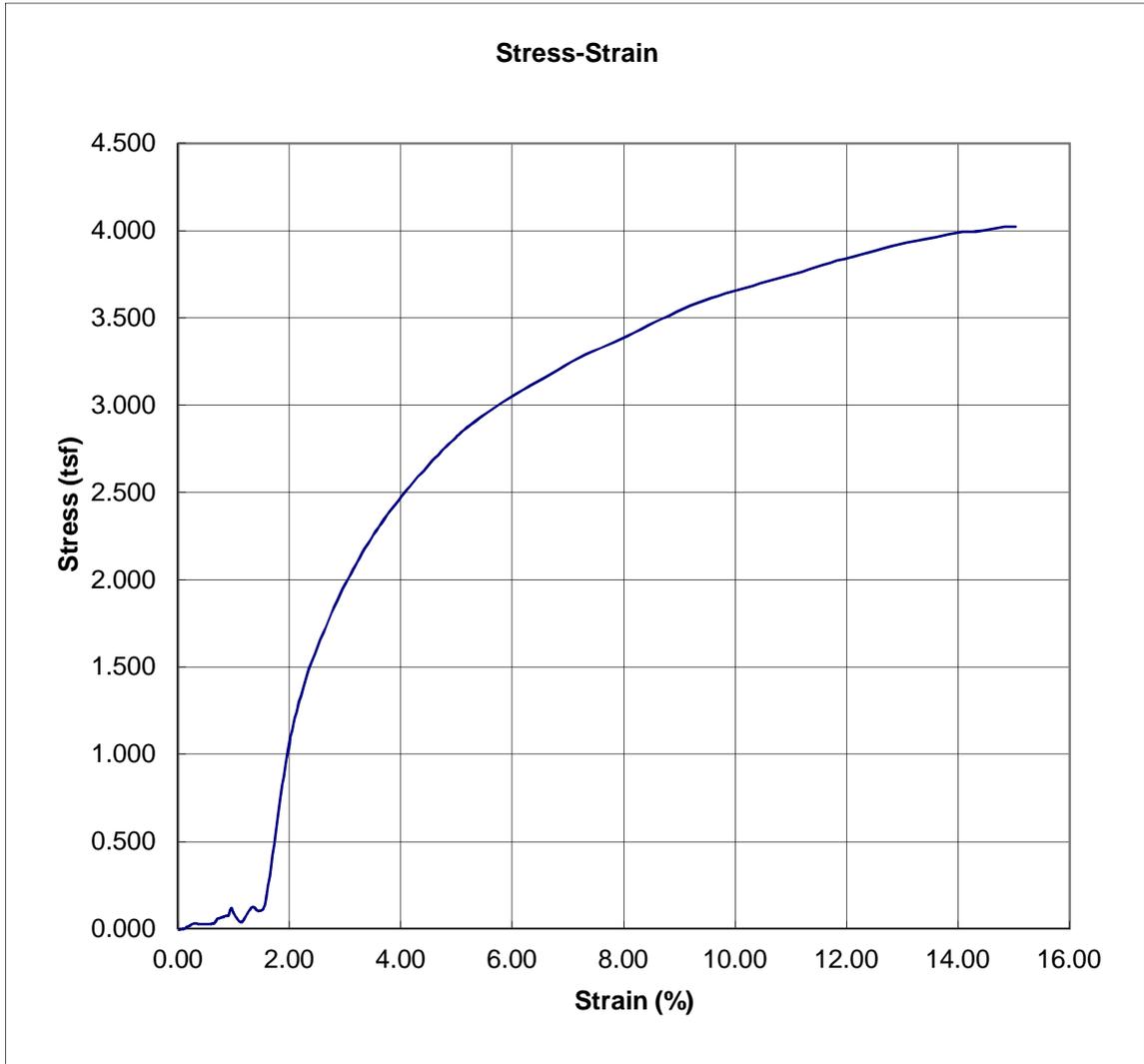
Peak Point	8.82	2.233
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-212
Depth: 78'-80'



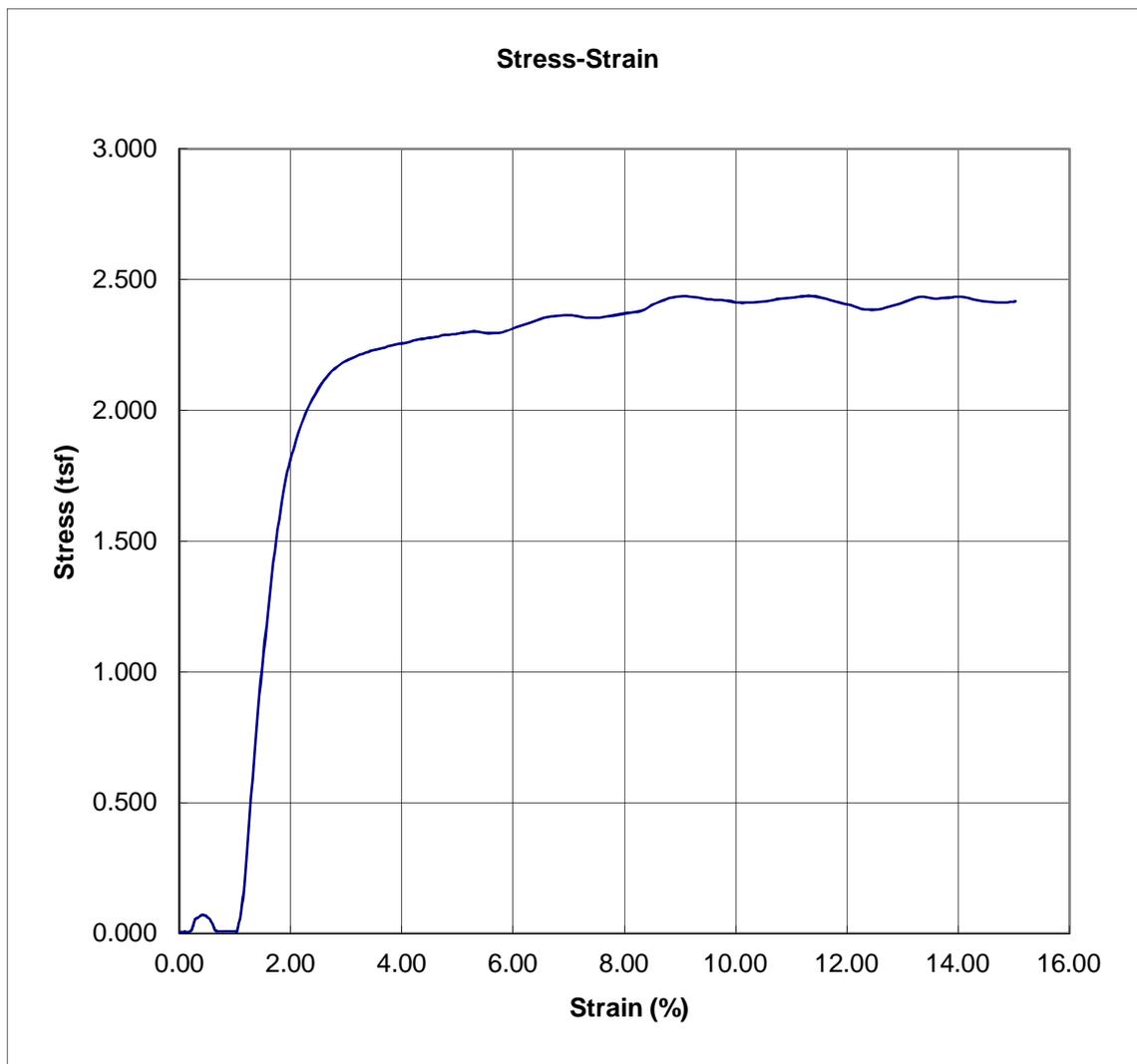
Peak Point	6.57	3.079
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-212
Depth: 83'-85'



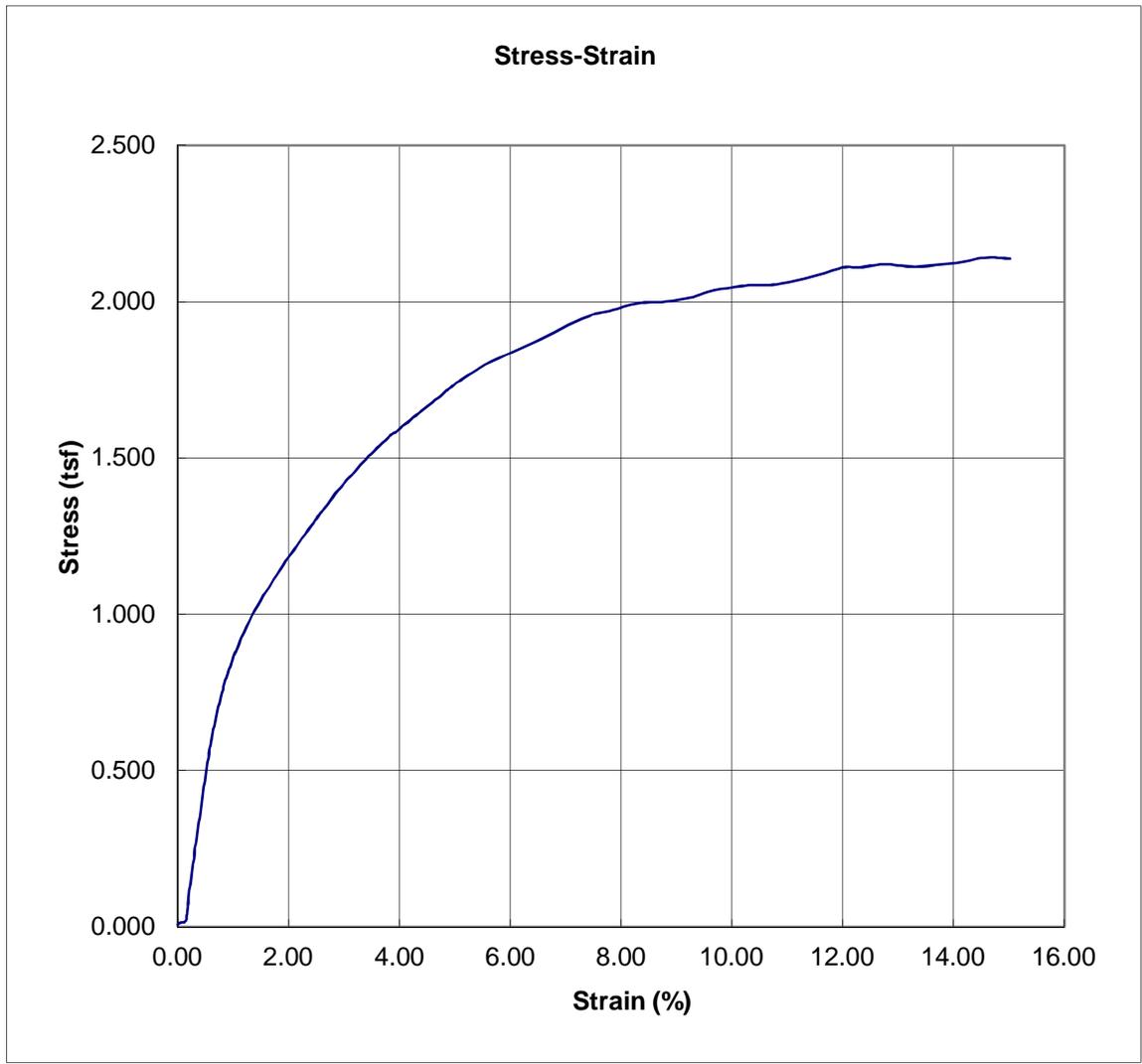
Peak Point	15.03	4.023
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-213
Depth: 18'-20'



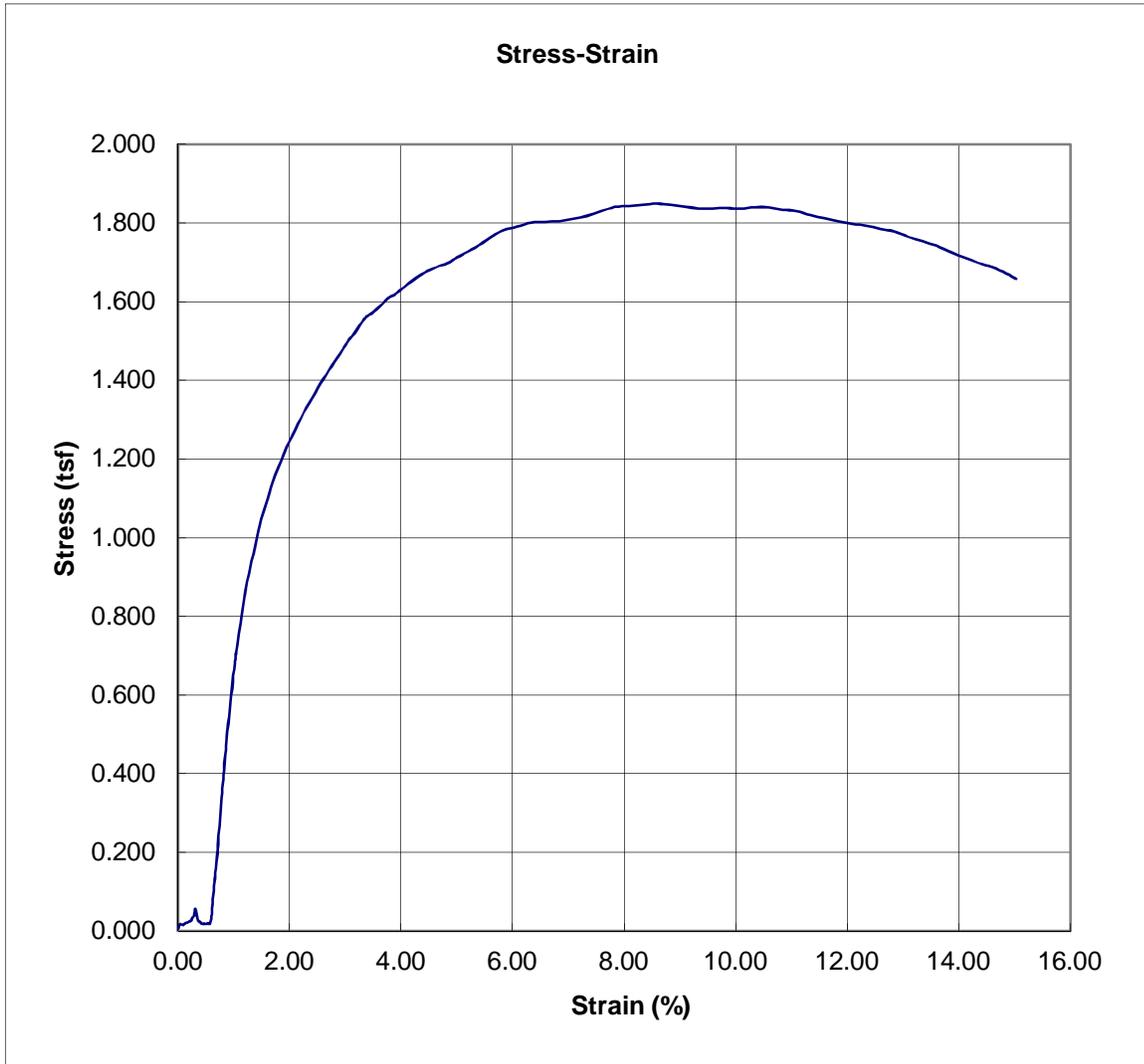
Peak Point	11.31	2.438
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-213
Depth: 23'-25'



Peak Point	14.80	2.141
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-213
Depth: 38'-40'



Peak Point	8.59	1.849
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-213
Depth: 48'-50'



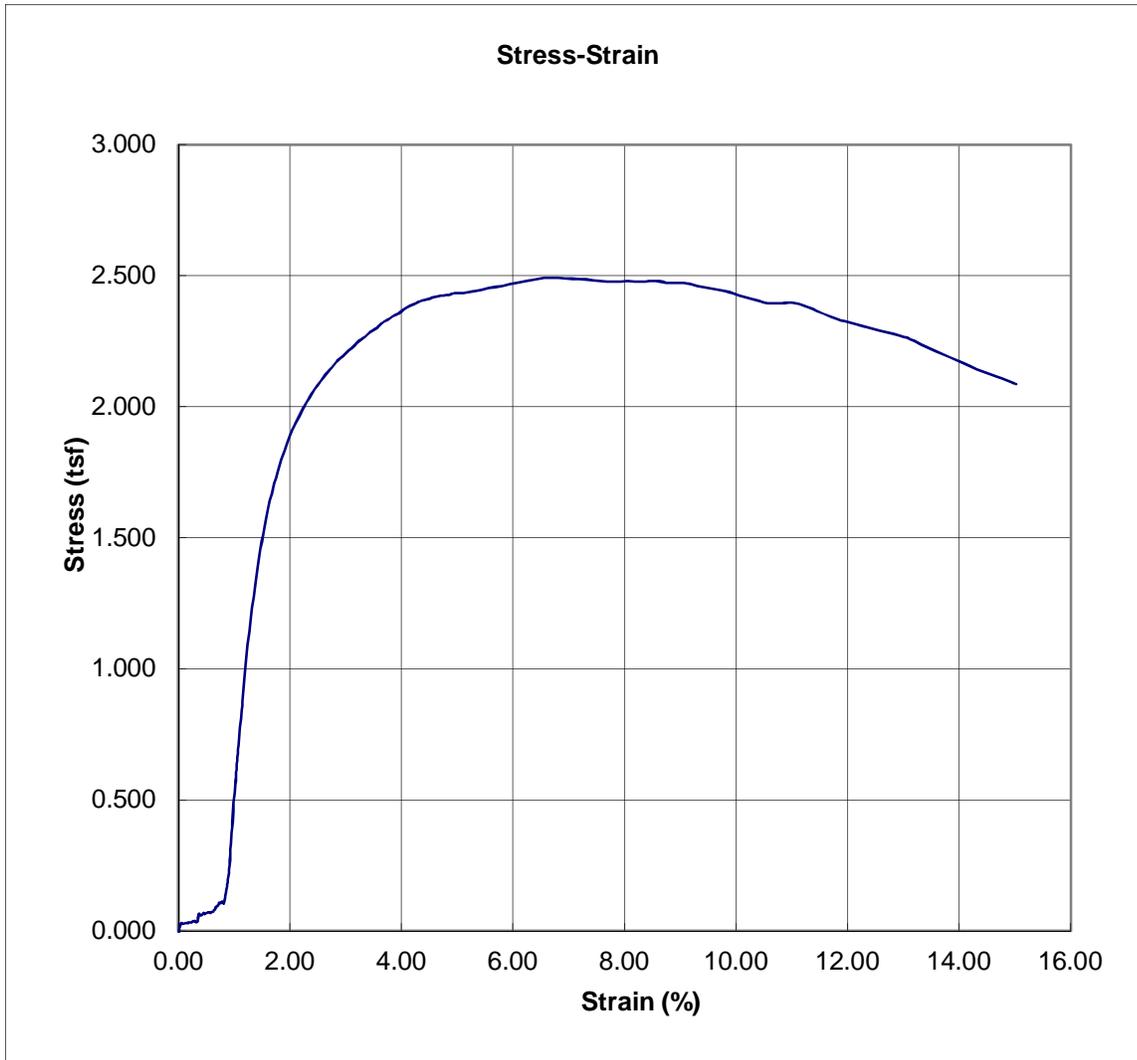
Peak Point	8.56	2.099
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-213
Depth: 88'-90'



Peak Point	11.31	3.061
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-214
Depth: 43'-45'



Peak Point	6.81	2.492
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-214
Depth: 53'-55'



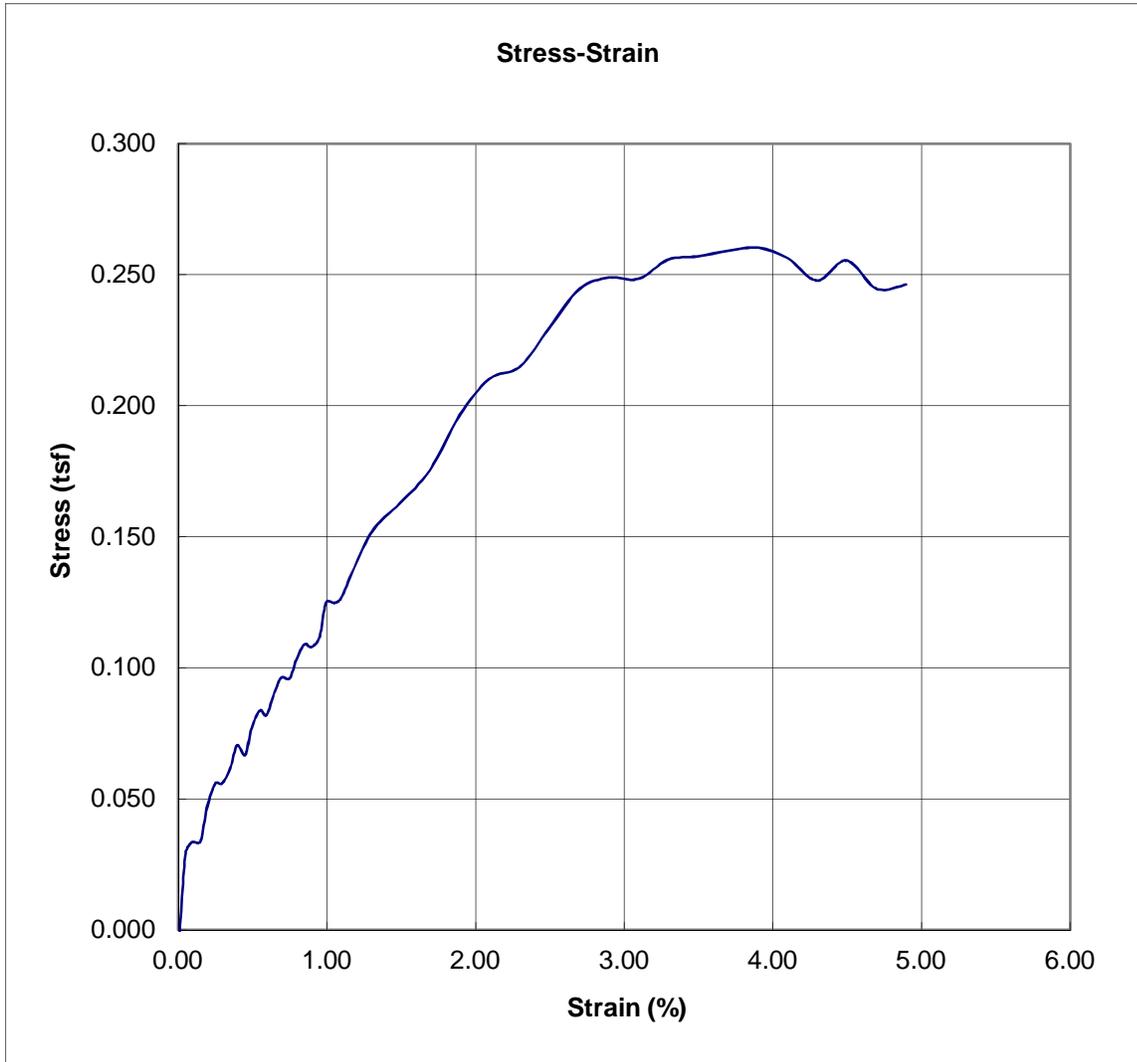
Peak Point	9.58	3.038
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-214
Depth: 78'-80'



Peak Point	15.00	3.616
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-214
Depth: 88'-90'



Peak Point	3.90	0.260
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-215
Depth: 28'-30'



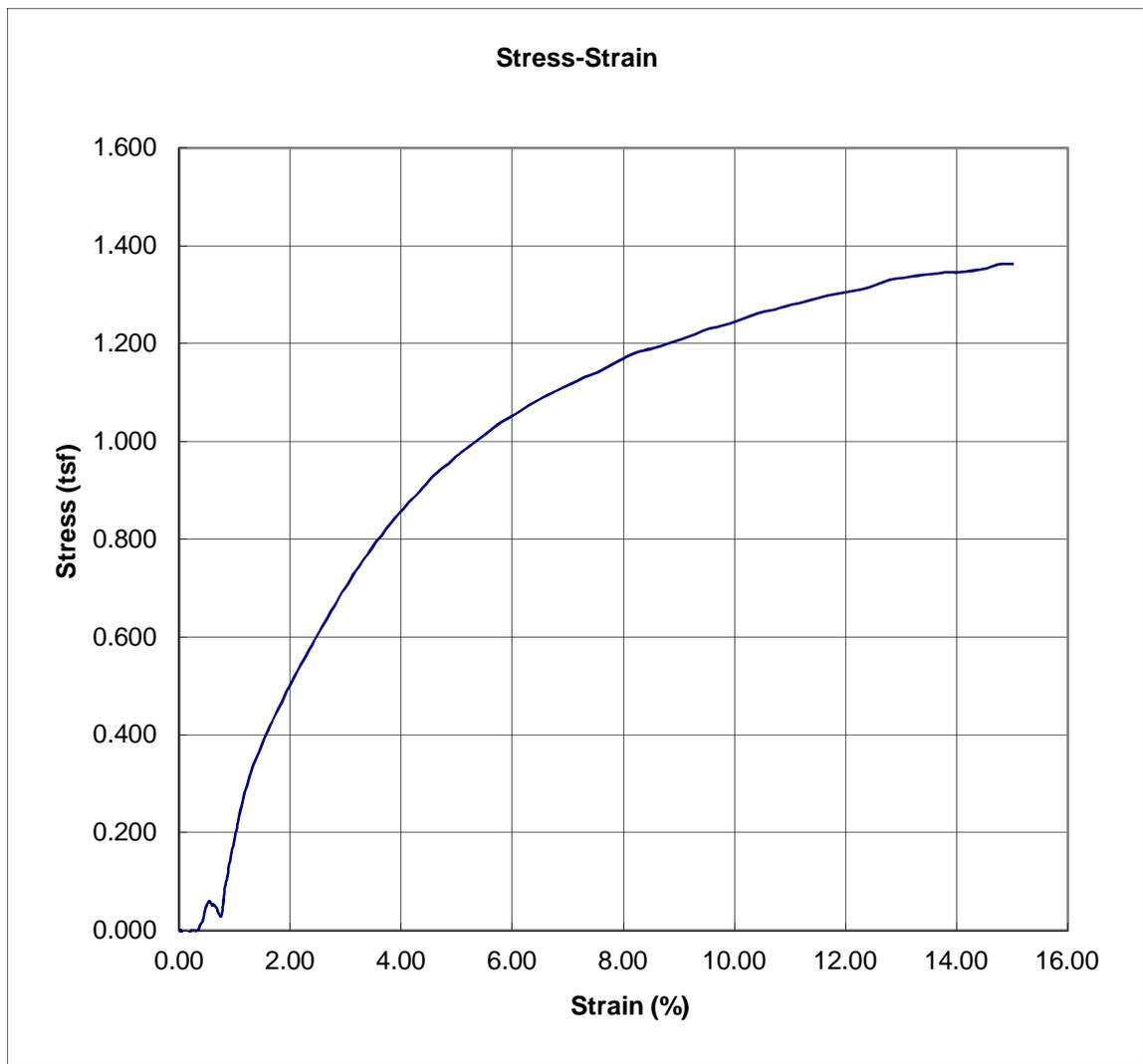
Peak Point	8.31	2.424
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-215
Depth: 43'-45'



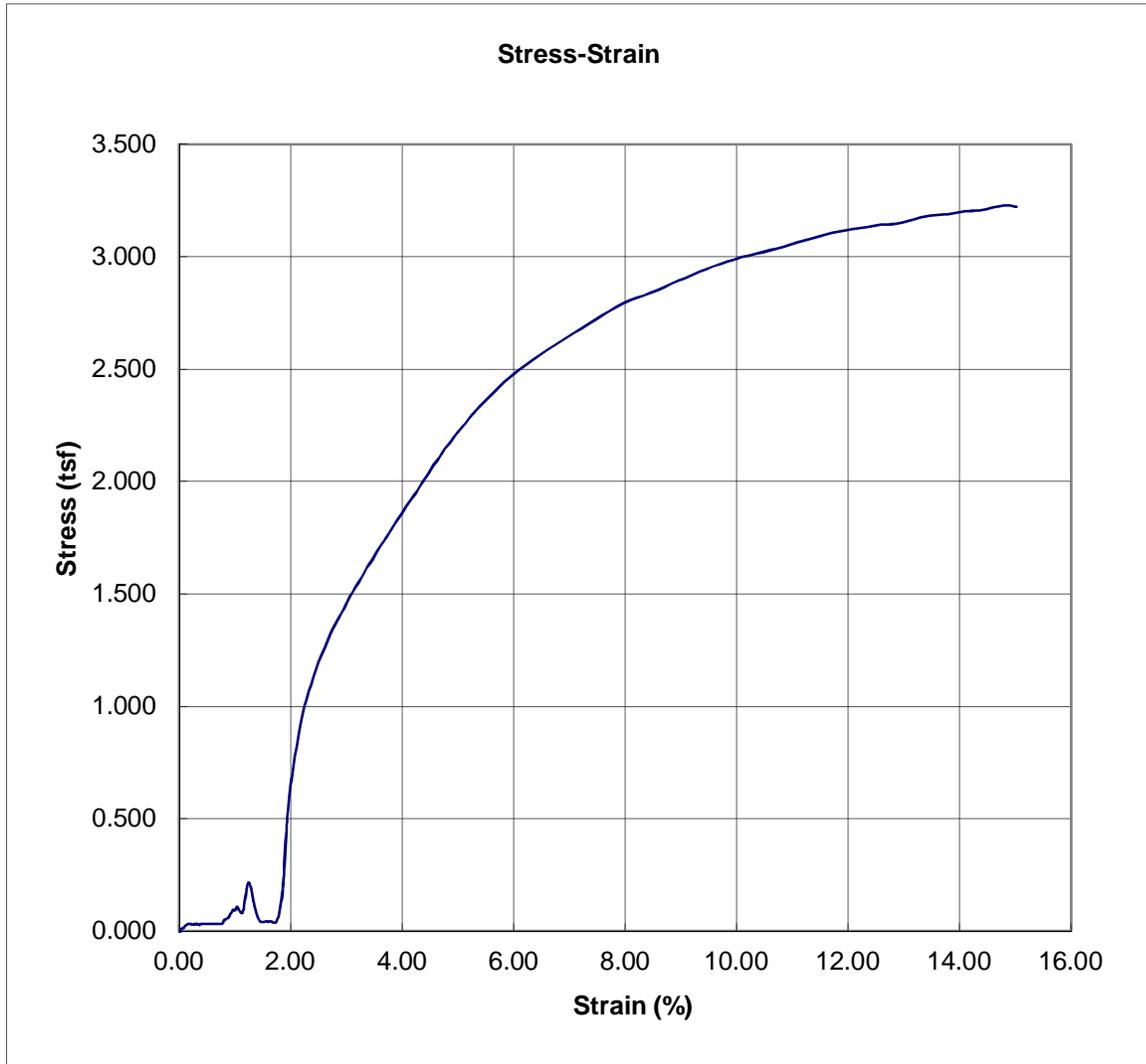
Peak Point	7.82	2.623
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-215
Depth: 53'-55'



Peak Point	14.80	1.363
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-215
Depth: 78'-80'



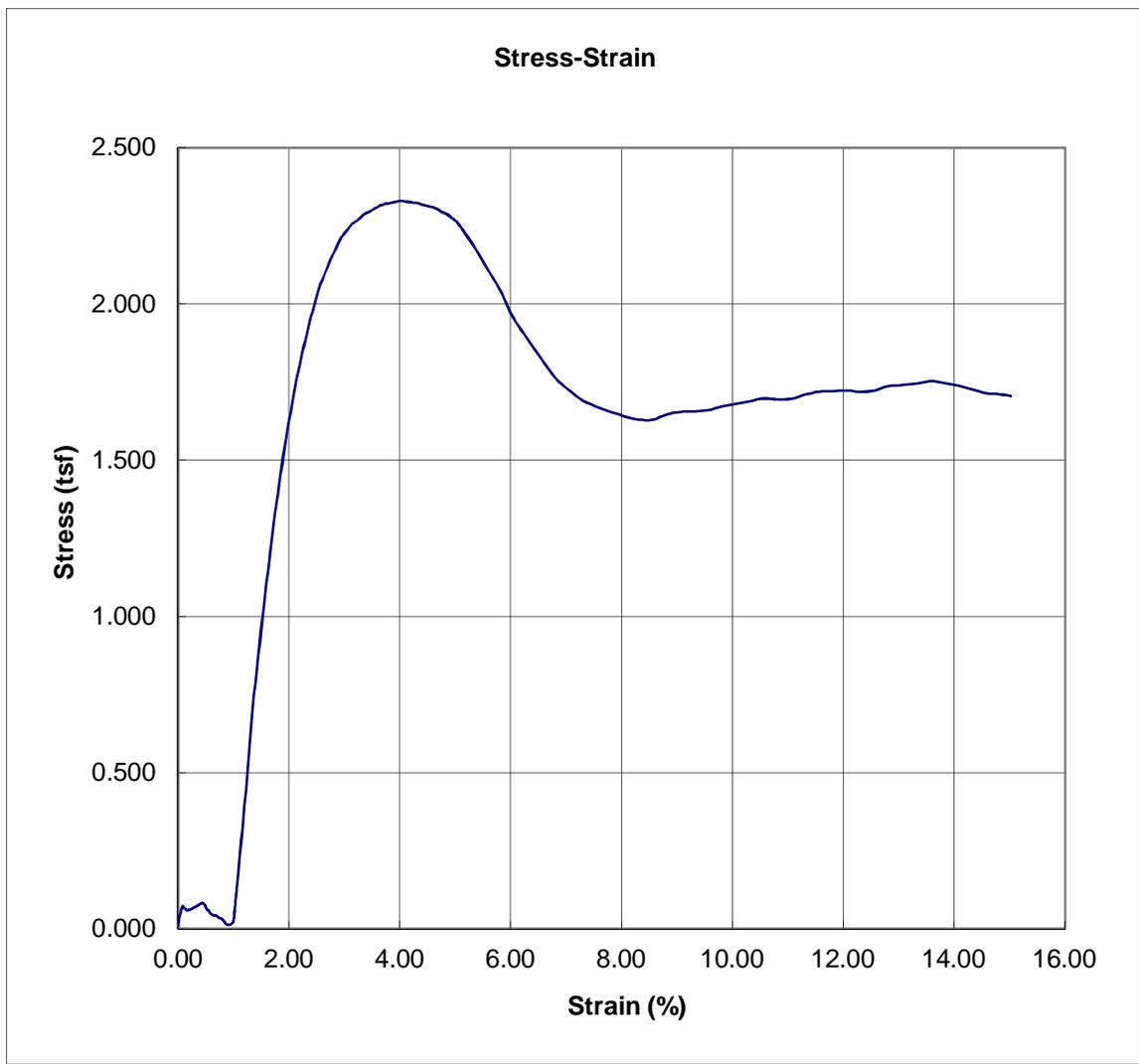
Peak Point	14.85	3.228
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-216
Depth: 33'-35'



Peak Point	12.33	2.526
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-216
Depth: 48'-50'



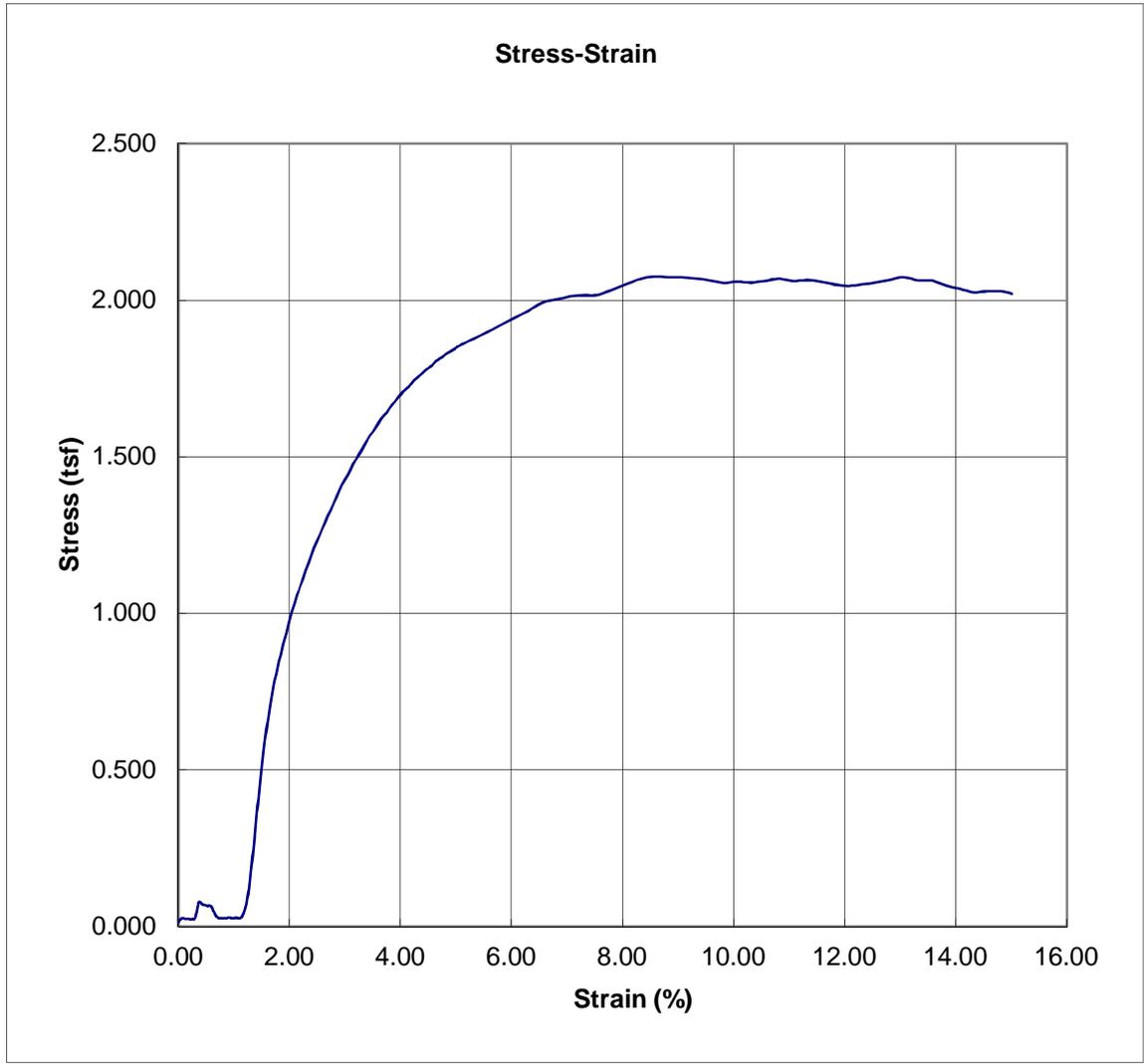
Peak Point	4.05	2.329
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-216
Depth: 58'-60'



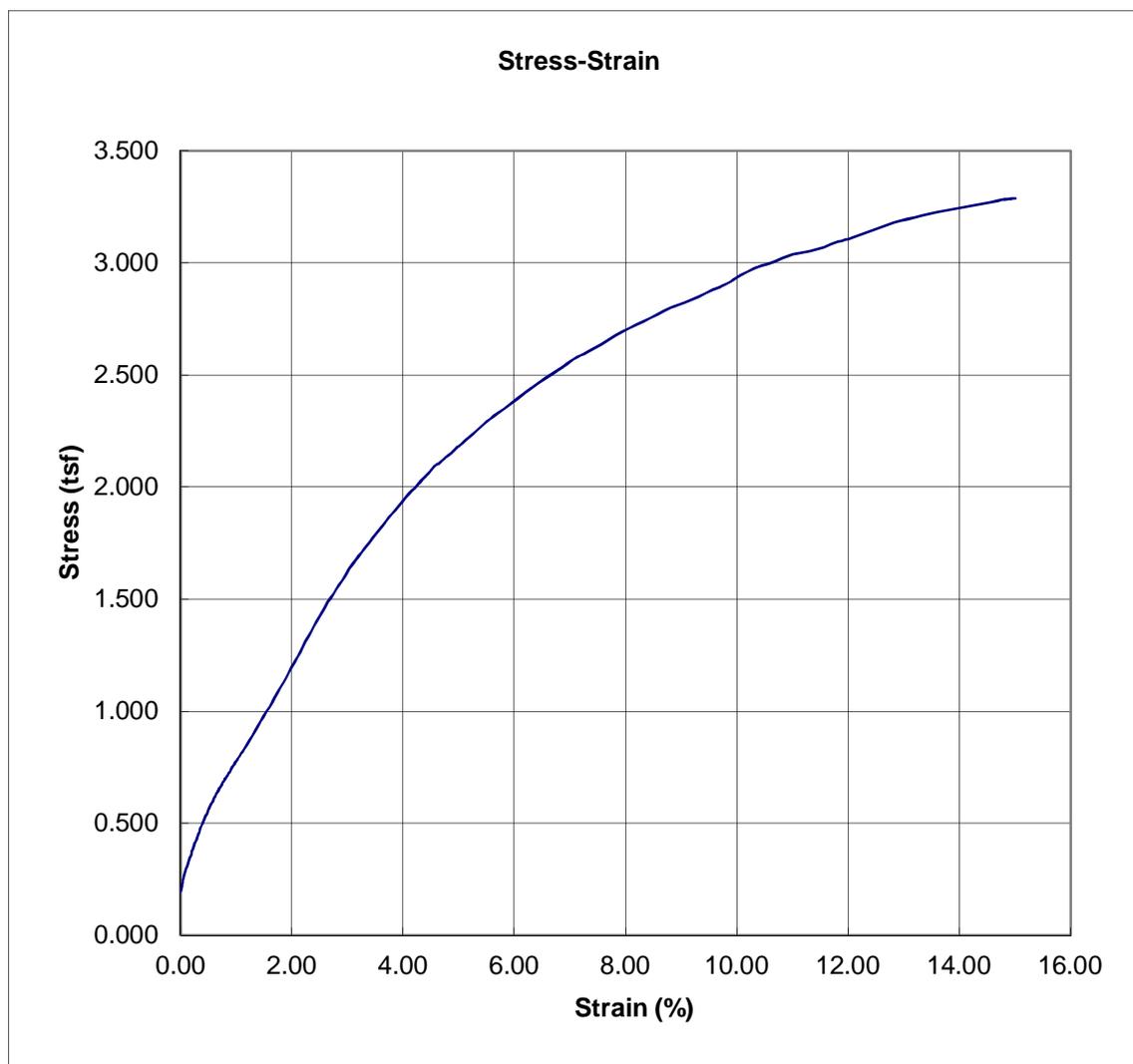
Peak Point	6.80	3.244
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-216
Depth: 73'-75'



Peak Point	8.56	2.075
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Project Name: Houston Ship Channel Expansion Channel Improvement Project
Project No.: HG1910092.2.1
Boring No.: ECP-216
Depth: 83'-85'



Peak Point	15.01	3.287
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