Aptim Environmental & Infrastructure, LLC
6401 Congress Avenue, Suite 140
Boca Raton, Florida 33487
Phone # 1-561-391-8102

Legend for Geotechnical Data

Grain Size Scale for Sediments

Unified Soil Classification System (USCS) (ASTM D2487/2488)		APTIM Standard Sieve Stack		
		Sieve Number	Size (phi)	Size (mm)
Gravel	Coarse Gravel	3/4	-4.25	19.03
	Fine Gravel	5/8	-4.00	16.00
		7/16	-3.50	11.20
		5/16	-3.00	8.00
		3 ½	-2.50	5.60
		4	-2.25	4.75
Sand	Coarse Sand	5	-2.00	4.00
		7	-1.50	2.80
		10	-1.00	2.00
	Medium Sand	14	-0.50	1.40
		18	0.00	1.00
		25	0.50	0.71
		35	1.00	0.50
	Fine Sand	45	1.50	0.36
		60	2.00	0.25
		80	2.50	0.18
		120	3.00	0.13
		170	3.50	0.09
		200	3.75	0.08
Fines	Silt/Clay	230	4.00	0.06

Proportional Definition of Descriptive Terms

Descriptive Term	Range of Proportions
Sandy, gravelly, etc.	35 % to 50 %
Some	20 % to 35 %
Little	10 % to 20 %
Trace	1 % to 10 %

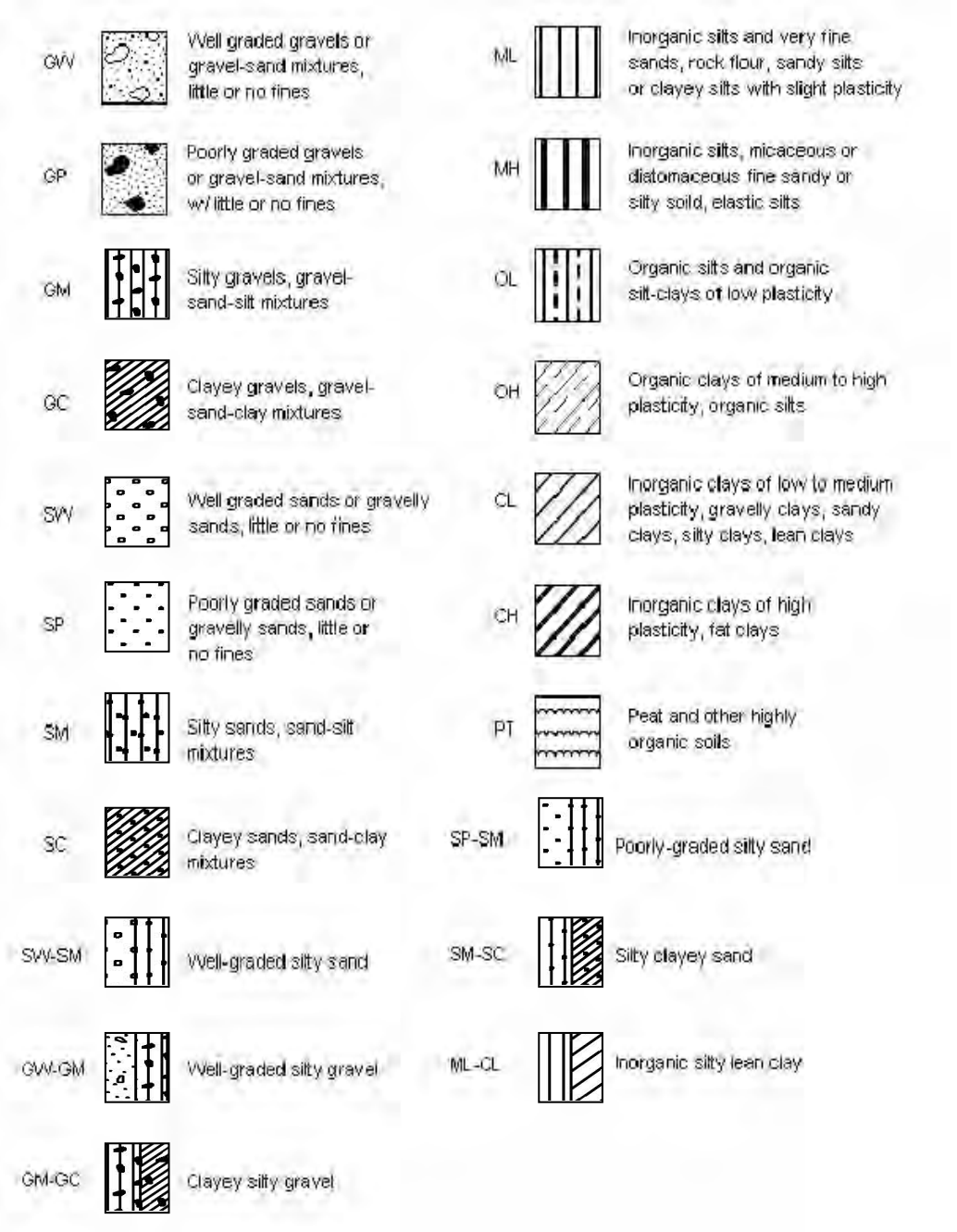
Consistency of Cohesive Soils

Description	Consistency Index	Approximate Undrained Shear Strength (kPa)	Field Identification
Hard		Over 300	Indented with difficulty by thumbnail, brittle.
Very Stiff	>1	150-300	Readily indented by thumbnail, still very tough.
Stiff	0.75-1	75-150	Readily indented by thumb but penetrated only with difficulty. Cannot be moulded in the fingers.
Firm	0.5-0.75	40-75	Can be penetrated several centimeters by thumb with moderate effort and moulded in fingers by strong pressure.
Soft	< 0.5	20-40	Easily penetrated several centimeters by thumb, easily moulded.
Very Soft		Less than 20	Easily penetrated several centimeters by fist, exudes between fingers when squeezed in fist.

Source: Engineering Properties of Soils and Rocks, Fourth Edition by Fred G. Bell

USCS Classifications

Refers to the Army Corps of Engineers Unified Soils Classification System. Class types are defined primarily by grain size, sorting and percent of material passing the #200 sieve. Classification of materials on the core logs based on visual field examinations are identified on the core logs under the Classification of Materials Description. Classifications based on laboratory sieve analyses are identified on the core logs in the Legend and under Remarks.



Note: Information is after ACOE Atlantic Division Manual # 1110-1-1 titled *Engineering and Design Geotechnical Manual for Surface and Subsurface Investigations*

Boring Designation TXGLO1-VC-23-032

DRILLING LOG

DIVISION

INSTALLATION

SHEET 1 OF 1 SHEETS

1. PROJECT
TX GLO Region 1 Recon Geotechnical Sand Search
Jefferson, Chambers, Galveston and Brazoria Co.

APTIM

9. SIZE AND TYPE OF BIT 3.0 In.

10. COORDINATE SYSTEM/DATUM: Texas State Plane South | HORIZONTAL: NAD 1983 | VERTICAL: NAVD88

2. BORING DESIGNATION: TXGLO1-VC-23-032
LOCATION COORDINATES (ft): X = 3,483,976 Y = 13,777,961

11. MANUFACTURER'S DESIGNATION OF DRILL: APTIM SEAS VC-700 Vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER

3. DRILLING AGENCY: APTIM
CONTRACTOR FILE NO.:

12. TOTAL SAMPLES: DISTURBED 0 | UNDISTURBED (UD) 6

4. NAME OF DRILLER: APTIM

13. TOTAL NUMBER CORE BOXES

5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL:
BEARING:

14. ELEVATION GROUND WATER

15. DATE BORING: STARTED 10-09-23 | COMPLETED 10-09-23

6. THICKNESS OF OVERBURDEN 0.0 Ft.

16. ELEVATION TOP OF BORING -32.8 Ft.

7. DEPTH DRILLED INTO ROCK 0.0 Ft.

17. TOTAL RECOVERY FOR BORING 19.4 Ft.

8. TOTAL DEPTH OF BORING 19.5 Ft.

18. SIGNATURE AND TITLE OF INSPECTOR: SM

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS The USCS classification system defines silt as the percent passing the No.200 (0.075 mm) sieve
-32.8	0.0					
-36.6	3.8		FAT CLAY, very stiff, little sand, fine grained, quartz, trace shell fragments, trace shell hash, trace silt, sand distributed in pockets typically up to 1.0", silt distributed in laminae, oxidation throughout layer, partially lithified clay pockets up to 1.5" throughout layer, 2.0" sand pocket @ top of layer, 3.0" pocket of bivalve fragments @ 3.5', greenish gray (10G-5/1), (CH).		T1	Sample #T1, Depth = 2.5' Ave. Field Vane (tsf): 0.31
-41.0	8.2		FAT CLAY, hard, trace rock fragments, trace silt, silt distributed in pockets up to 1.0", silt increases with depth in layer, partially lithified clay throughout layer, (2.0" x 2.75") rock fragment @ 6.4', (1.25" x 1.75") rock fragment @ 6.9', dark greenish gray (10G-4/1), (CH).		T2	Sample #T2, Depth = 6.0' Ave. Field Vane (tsf): 0.51
-48.2	15.4		FAT CLAY, very stiff to hard, little sand, fine grained, quartz, little silt, trace organics, sand distributed in pockets up to 2.0", hardness increases with depth in layer, 0.75" organic pocket @ 11.3', greenish gray (10GY-6/1), (CH).		T3	Sample #T3, Depth = 10.7' Ave. Field Vane (tsf): 0.26
					T4	Sample #T4, Depth = 14.6' Ave. Field Vane (tsf): 0.67
-49.1	16.3		FAT CLAY, hard, trace silt, dark greenish gray (10Y-4/1), (CH).		T5	Sample #T5, Depth = 16.0' Ave. Field Vane (tsf): 0.56
-52.2	19.4		FAT CLAY, hard, trace silt, oxidation between 18.6' & 19.4', Bit sample from 19.1' to 19.4', dark greenish gray (10G-4/1), (CH).		T6	Sample #T6, Depth = 17.8' Ave. Field Vane (tsf): 0.82
-52.3	19.5		No recovery.			
			End of Boring			

0 5 10 15 20 25

REGION1_RECON_GEOTECH.GPJ 3/25/24

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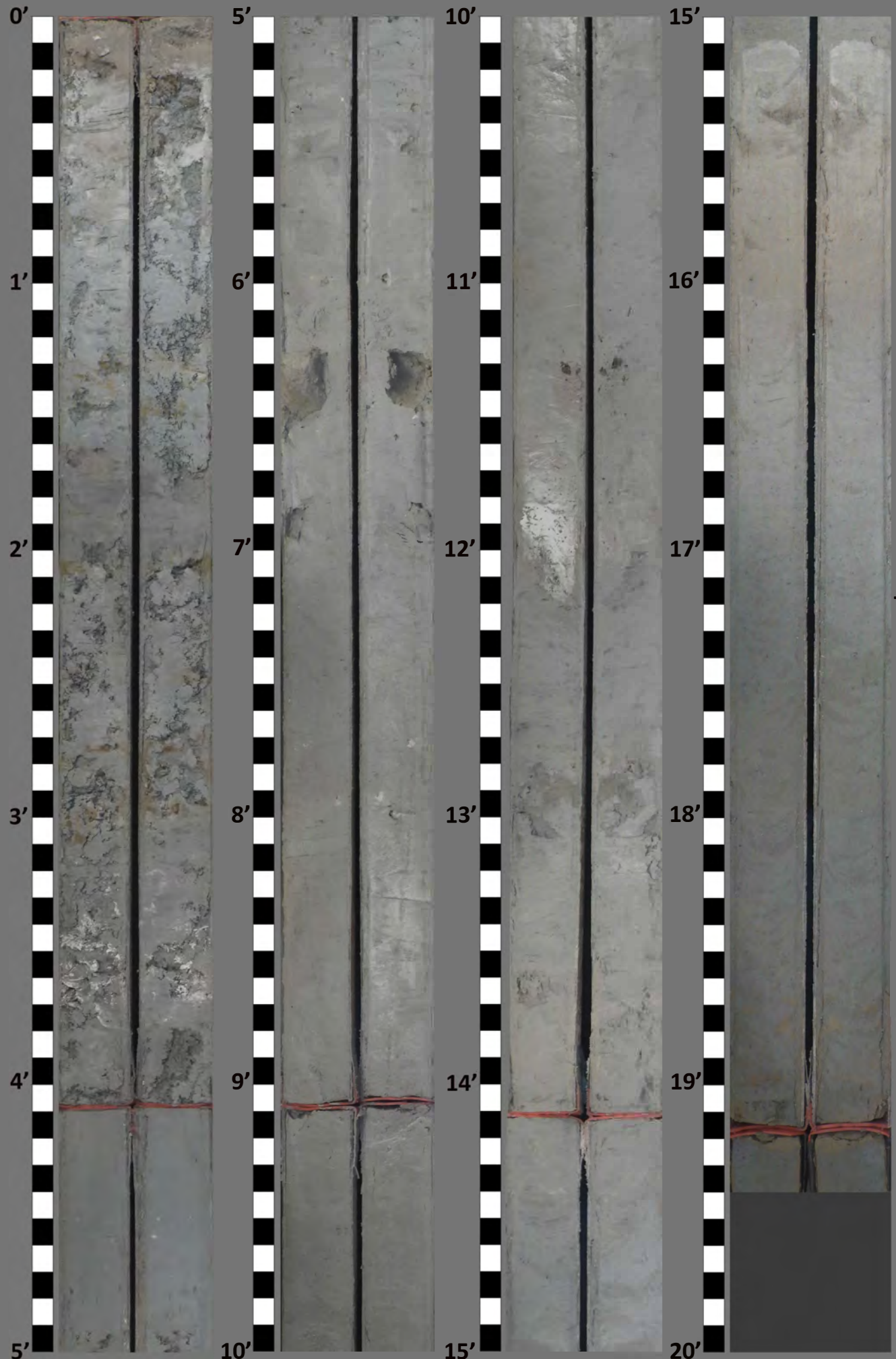

Texas General Land Office

Texas GLO Region 1 Geotechnical Reconnaissance Survey

TXGLO1-VC-23-032

Date Collected: 10/9/23
Top Elev. (ft NAVD88): -32.8
Bottom Elev. (ft NAVD88): -52.2
Core Length (ft): 19.4

APTIM
6401 Congress Avenue, Suite 140
Boca Raton, FL 33487
www.aptim.com
(561)391-8102

Mini Vane Shear Test Results

CORE ID	SAMPLE DEPTH (ft)	TORVANE (kg/cm²)	TORVANE (tsf)	TORVANE (kpa)	DESCRIPTION[1]
TXGLO1-VC-23-029	2.7	1.3	0.13	122.58	Stiff
	5.3	2.0	0.20	196.13	Very Stiff
	11.4	1.5	0.15	147.10	Stiff
	14.0	1.5	0.15	147.10	Stiff
TXGLO1-VC-23-030	No Torvane Conducted				
TXGLO1-VC-23-031	0.5	4.8	0.49	465.82	Hard
	3.4	4.3	0.44	416.78	Hard
	7.1	6.0	0.61	588.40	Hard
	11.9	5.5	0.56	539.37	Hard
	15.8	3.5	0.36	343.23	Hard
TXGLO1-VC-23-032	2.5	3.0	0.31	294.20	Very Stiff
	6.0	5.0	0.51	490.33	Hard
	10.7	2.5	0.26	245.17	Very Stiff
	14.6	6.5	0.67	637.43	Hard
	16.0	5.5	0.56	539.37	Hard
	17.8	8.0	0.82	784.53	Hard
TXGLO1-VC-23-033	0.6	1.0	0.10	98.07	Stiff
	1.2	4.0	0.41	392.27	Hard
	4.1	6.0	0.61	588.40	Hard
	8.2	4.5	0.46	441.30	Hard
	11.7	4.0	0.41	392.27	Hard
TXGLO1-VC-23-034	2.0	4.5	0.46	441.30	Hard
	4.1	5.0	0.51	490.33	Hard
	7.1	4.0	0.41	392.27	Hard
	10.1	3.8	0.38	367.75	Hard
	13.4	4.2	0.43	411.88	Hard
	15.6	4.5	0.46	441.30	Hard
	18.2	4.0	0.41	392.27	Hard
TXGLO1-VC-23-035	2.2	3.0	0.31	294.20	Very Stiff
	5.0	4.0	0.41	392.27	Hard
	7.5	5.0	0.51	490.33	Hard
	18.0	5.5	0.56	539.37	Hard
TXGLO1-VC-23-036	3.0	1.0	0.10	98.07	Stiff
	8.0	0.8	0.08	73.55	Firm
	17.8	4.5	0.46	441.30	Hard
TXGLO1-VC-23-037	1.0	2.8	0.28	269.68	Very Stiff
	5.0	4.0	0.41	392.27	Hard
	7.2	2.5	0.26	245.17	Very Stiff
	11.5	1.5	0.15	147.10	Stiff
	15.5	2.5	0.26	245.17	Very Stiff