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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 1/2	-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

<u>Descriptive Term</u>	<u>Range of Proportions</u>
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

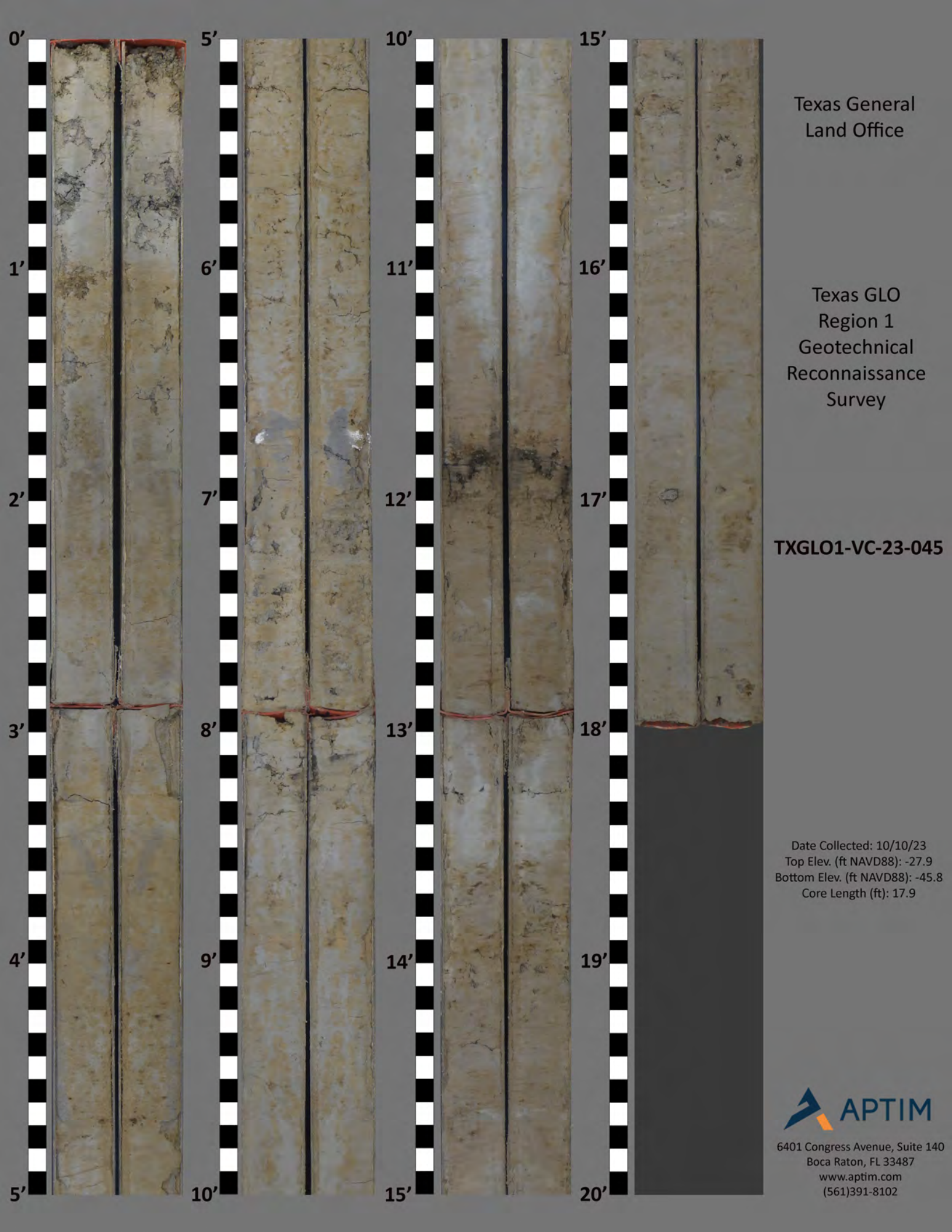
Refers to the Army Corps of Engineers Unified Soils Classification System. Class types are defined primarily by grain size, sorting and percent of material passing the #200 sieve. Classification of materials on the core logs based on visual field examinations are identified on the core logs under the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

GW		Well graded gravels or gravel-sand mixtures, little or no fines
GP		Poorly graded gravels or gravel-sand mixtures, w/ little or no fines
GM		Silty gravels, gravel-sand-silt mixtures
GC		Clayey gravels, gravel-sand-clay mixtures
SW		Well graded sands or gravelly sands, little or no fines
SP		Poorly graded sands or gravelly sands, little or no fines
SM		Silty sands, sand-silt mixtures
SC		Clayey sands, sand-clay mixtures
SW-SM		Well-graded silty sand
GW-GM		Well-graded silty gravel
GM-GC		Clayey silty gravel
ML		Inorganic silts and very fine sands, rock flour, sandy silts or clayey silts with slight plasticity
MH		Inorganic silts, micaceous or diatomaceous fine sandy or silty soil, elastic silts
OL		Organic silts and organic silt-clays of low plasticity
OH		Organic clays of medium to high plasticity, organic silts
CL		Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
CH		Inorganic clays of high plasticity, fat clays
PT		Peat and other highly organic soils
SP-SM		Poorly-graded silty sand
SM-SC		Silty clayey sand
ML-CL		Inorganic silty lean clay

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

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. 				9. SIZE AND TYPE OF BIT 3.0 In.			
2. BORING DESIGNATION TXGLO1-VC-23-045				10. COORDINATE SYSTEM/DATUM Texas State Plane South		HORIZONTAL NAD 1983	
3. DRILLING AGENCY APTIM				11. MANUFACTURER'S DESIGNATION OF DRILL APTIM SEAS VC-700 Vibracore		VERTICAL NAVD88	
4. NAME OF DRILLER APTIM				12. TOTAL SAMPLES 0			
5. DIRECTION OF BORING ☒ VERTICAL ☐ INCLINED				13. TOTAL NUMBER CORE BOXES			
6. THICKNESS OF OVERBURDEN 0.0 Ft.				14. ELEVATION GROUND WATER			
7. DEPTH DRILLED INTO ROCK 0.0 Ft.				15. DATE BORING 10-10-23			
8. TOTAL DEPTH OF BORING 17.6 Ft.				16. ELEVATION TOP OF BORING -27.9 Ft.			
				17. TOTAL RECOVERY FOR BORING 17.9 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	
-27.9	0.0						
-29.4	1.5		FAT CLAY, stiff, partially lithified clay decreases with depth in layer, oxidation throughout layer, color is mottled light olive brown (2.5Y-5/3) and greenish gray (10Y-6/1), (CH).		T1	Sample #T1, Depth = 1.1' Ave. Field Vane (tsf): 0.15	
-31.2	3.3		FAT CLAY, hard, trace sand, fine grained, quartz, sand distributed in laminae between 3.0' & 3.2', color is mottled light olive brown (2.5Y-5/3) and gray (2.5Y-5/1), (CH).		T2	Sample #T2, Depth = 2.3' Ave. Field Vane (tsf): 0.46	
-35.1	7.2		FAT CLAY, hard, trace organics, oxidation throughout layer, organics distributed between 4.2' & 6.3', 0.75" pocket of partially lithified clay @ 6.7', color is mottled gray (2.5Y-5/1), gray (10YR-5/1) and light yellowish brown (2.5Y-6/4), (CH).		T3	Sample #T3, Depth = 5.4' Ave. Field Vane (tsf): 0.56	
-39.3	11.4		FAT CLAY, hard, trace organics, trace sand, fine grained, quartz, oxidation throughout layer, organics distributed between 7.9' & 8.9', 1.5" sand pocket @ 9.7' color is mottled yellowish brown (10YR-5/6) and gray (2.5Y-6/1), (CH).		T4	Sample #T4, Depth = 9.5' Ave. Field Vane (tsf): 0.61	
-41.8	13.9		FAT CLAY, very stiff, little silt, trace organics, 5.0" partially lithified clay pocket @ 11.8', 1.5" organic pocket @ 11.8', brown (10YR-5/3), (CH).		T5	Sample #T5, Depth = 12.4' Ave. Field Vane (tsf): 0.31	
-45.8	17.9		FAT CLAY, hard, little sand, fine grained, quartz, trace organics, trace rock fragments, organics distributed in pockets up to 2.0", sand distributed in laminae and throughout layer, sand increases with depth in layer, oxidation throughout layer, 4.0" partially lithified clay pocket @ 15.4', possible bioturbation between 15.8' & 16.1', (0.5" x 1.0") rock fragment (possibly gypsum) @ 17.0', expansion from 17.6' to 17.9', color is mottled greenish gray (10Y-6/1) and light olive brown (2.5Y-5/3), (CH).		T6	Sample #T6, Depth = 15.0' Ave. Field Vane (tsf): 0.56	
			End of Boring				

REGION 1 RECON GEOTECH GP-1 3/25/24



Texas General
Land Office

Texas GLO
Region 1
Geotechnical
Reconnaissance
Survey

TXGLO1-VC-23-045

Date Collected: 10/10/23
Top Elev. (ft NAVD88): -27.9
Bottom Elev. (ft NAVD88): -45.8
Core Length (ft): 17.9



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Mini Vane Shear Test Results

CORE ID	SAMPLE DEPTH (ft)	TORVANE (kg/cm ²)	TORVANE (tsf)	TORVANE (kpa)	DESCRIPTION ¹
TXGLO1-VC-23-038	3.0	7.5	0.77	735.50	Hard
	9.3	6.0	0.61	588.40	Hard
	15.8	4.0	0.41	392.27	Hard
TXGLO1-VC-23-039	1.7	3.5	0.36	343.23	Hard
	5.0	3.0	0.31	294.20	Very Stiff
	12.2	2.0	0.20	196.13	Very Stiff
	16.0	4.5	0.46	441.30	Hard
TXGLO1-VC-23-040	No Torvane Conducted				
TXGLO1-VC-23-041	1.5	2.0	0.20	196.13	Very Stiff
	17.5	8.0	0.82	784.53	Hard
TXGLO1-VC-23-042	0.6	3.5	0.36	343.23	Hard
	1.7	3.5	0.36	343.23	Hard
	3.3	4.0	0.41	392.27	Hard
	5.5	3.5	0.36	343.23	Hard
	7.7	4.5	0.46	441.30	Hard
	10.3	5.0	0.51	490.33	Hard
	13.0	2.8	0.28	269.68	Very Stiff
	15.0	1.5	0.15	147.10	Stiff
	17.0	1.8	0.18	171.62	Very Stiff
TXGLO1-VC-23-043	No Torvane Conducted				
TXGLO1-VC-23-044	0.7	1.0	0.10	98.07	Stiff
	3.0	5.0	0.51	490.33	Hard
	5.6	8.5	0.87	833.57	Hard
	9.0	6.0	0.61	588.40	Hard
TXGLO1-VC-23-045	1.1	1.5	0.15	147.10	Stiff
	2.3	4.5	0.46	441.30	Hard
	5.4	5.5	0.56	539.37	Hard
	9.5	6.0	0.61	588.40	Hard
	12.4	3.0	0.31	294.20	Very Stiff
	15.0	5.5	0.56	539.37	Hard
TXGLO1-VC-23-046	3.6	5.0	0.51	490.33	Hard
	6.4	5.5	0.56	539.37	Hard
	8.1	6.0	0.61	588.40	Hard
	9.8	4.5	0.46	441.30	Hard
	12.1	5.0	0.51	490.33	Hard
	14.4	2.5	0.26	245.17	Very Stiff
	15.9	4.5	0.46	441.30	Hard
	17.4	3.5	0.36	343.23	Hard
	18.6	3.5	0.36	343.23	Hard
TXGLO1-VC-23-047	4.5	8.0	0.82	784.53	Hard
	9.8	10.0	1.02	980.67	Hard