Aptim Environmental & Infrastructure, LLC
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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 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 %

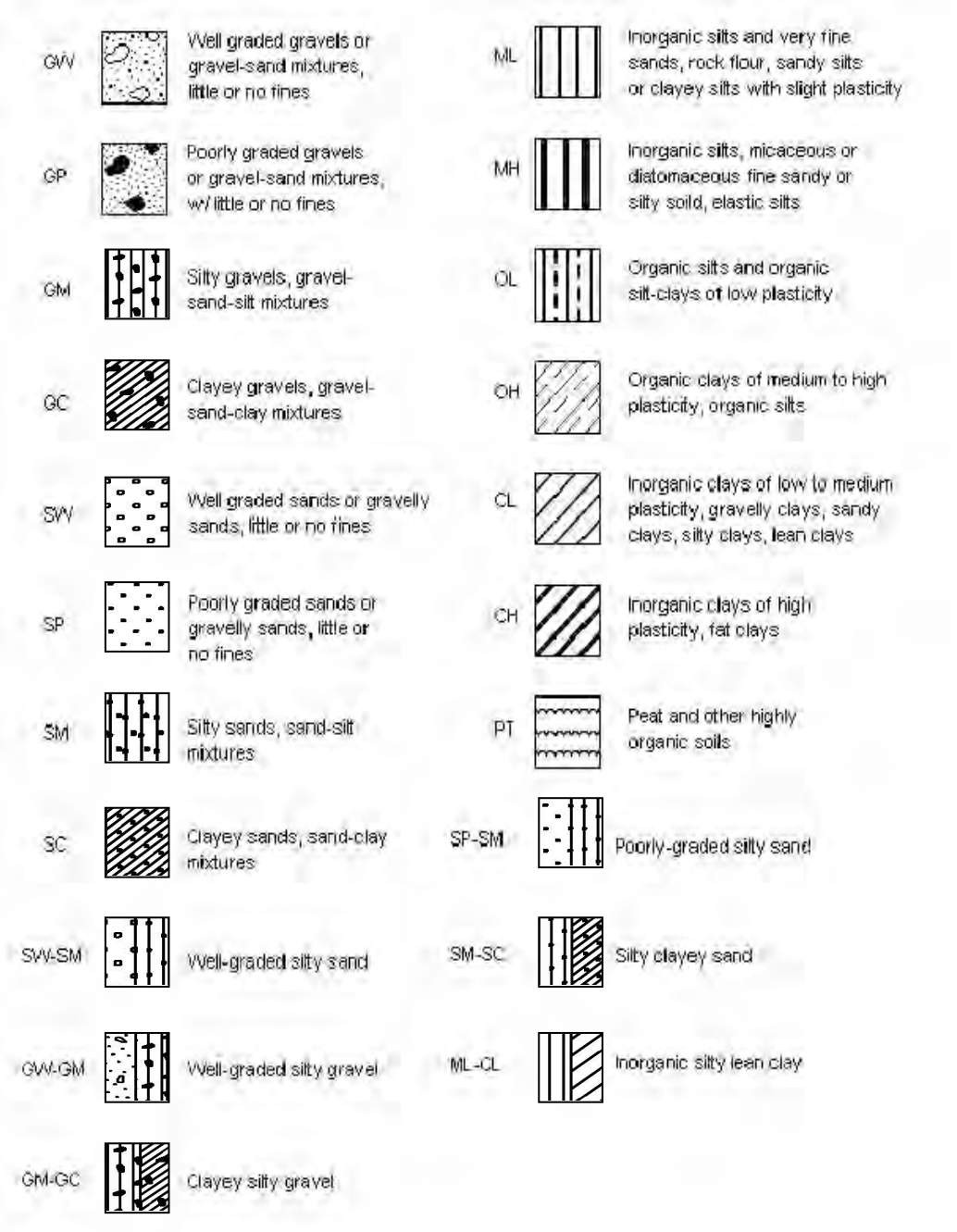
Consistency of Cohesive Soils

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-23-082

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-23-082 | LOCATION COORDINATES (ft): X = 3,181,966 Y = 13,556,373

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): 3

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: 10-17-23 | COMPLETED: 10-17-23

6. THICKNESS OF OVERBURDEN 0.0 Ft.

16. ELEVATION TOP OF BORING -37.5 Ft.

7. DEPTH DRILLED INTO ROCK 0.0 Ft.

17. TOTAL RECOVERY FOR BORING 11.4 Ft.

8. TOTAL DEPTH OF BORING 11.0 Ft.

18. SIGNATURE AND TITLE OF INSPECTOR: BF

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
-37.5	0.0					
-38.7	1.2		LEAN CLAY, soft, trace sand, fine grained, quartz, sand distributed in laminae, color is mottled brown (7.5YR-4/2) and dark gray (5Y-4/1), (CL).		T1	Sample #T1, Depth = 0.6' Ave. Field Vane (tsf): 0.03
-43.5	6.0		FAT CLAY, hard, trace wood fragments, wood fragments up to 0.5", color is mottled reddish brown (5YR-4/3), brown (10YR-5/3) and light brownish gray (2.5Y-6/2), (CH).		T2	Sample #T2, Depth = 3.7' Ave. Field Vane (tsf): 0.61
-48.9	11.4		FAT CLAY, hard, trace organics, organics distributed in laminae, expansion from 11.0' to 11.4', Bit sample from 11.0' to 11.4', color is mottled light brownish gray (2.5Y-6/2) and yellowish brown (10YR-5/4), (CH).		T3	Sample #T3, Depth = 8.3' Ave. Field Vane (tsf): 0.67
			End of Boring			

0 5 10 15 20 25

REGION1_RECON_GEOTECH.GPJ 3/25/24

SAJ FORM 1836
JUN 04

Texas General Land Office

Texas GLO Region 1 Geotechnical Reconnaissance Survey

TXGLO1-VC-23-082

Date Collected: 10/17/23
Top Elev. (ft NAVD88): -37.5
Bottom Elev. (ft NAVD88): -48.9
Core Length (ft): 11.4

APTIM
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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-23-081	0.4	0.0	0.00	0.00	Very Soft
	1.8	1.0	0.10	98.07	Stiff
	8.0	7.0	0.72	686.47	Hard
	13.0	7.5	0.77	735.50	Hard
TXGLO1-VC-23-082	0.6	0.3	0.03	24.52	Soft
	3.7	6.0	0.61	588.40	Hard
	8.3	6.5	0.67	637.43	Hard
TXGLO1-VC-23-083	2.0	2.1	0.22	205.94	Very Stiff
	4.1	0.3	0.03	29.42	Soft
	7.0	3.0	0.31	294.20	Very Stiff
	12.5	3.8	0.38	367.75	Hard
	16.5	3.0	0.31	294.20	Very Stiff
TXGLO1-VC-23-084	0.6	0.5	0.05	49.03	Firm
	2.6	2.0	0.20	196.13	Very Stiff
	6.0	2.5	0.26	245.17	Very Stiff
	11.2	3.5	0.36	343.23	Hard
	12.1	6.0	0.61	588.40	Hard
	15.0	6.5	0.67	637.43	Hard
TXGLO1-VC-23-085	2.7	2.0	0.20	196.13	Very Stiff
	8.7	1.8	0.18	171.62	Very Stiff
	15.0	4.0	0.41	392.27	Hard
TXGLO1-VC-23-086	1.2	0.0	0.00	0.00	Very Soft
	4.6	1.5	0.15	147.10	Stiff
	10.2	2.0	0.20	196.13	Very Stiff
	13.0	0.8	0.08	73.55	Firm
	15.1	6.0	0.61	588.40	Hard
TXGLO1-VC-23-087	No Torvane Conducted				
TXGLO1-VC-23-088	2.5	2.0	0.20	196.13	Very Stiff
	6.0	2.0	0.20	196.13	Very Stiff
	7.7	2.5	0.26	245.17	Very Stiff
	10.2	5.0	0.51	490.33	Hard
	12.8	4.0	0.41	392.27	Hard
	16.7	3.0	0.31	294.20	Very Stiff
TXGLO1-VC-23-089	14.5	2.0	0.20	196.13	Very Stiff
	17.6	2.5	0.26	245.17	Very Stiff
TXGLO1-VC-23-090	5.4	0.8	0.08	73.55	Firm
	10.8	1.5	0.15	147.10	Stiff
	16.2	4.0	0.41	392.27	Hard
TXGLO1-VC-23-091	2.2	0.5	0.05	49.03	Firm
	11.3	1.0	0.10	98.07	Stiff
TXGLO1-VC-23-092	13.3	0.5	0.05	49.03	Firm
	17.2	0.3	0.03	24.52	Soft
TXGLO1-VC-23-093	0.4	0.3	0.03	24.52	Soft
	10.0	3.0	0.31	294.20	Very Stiff
	12.3	4.5	0.46	441.30	Hard
	18.6	9.3	0.95	907.12	Hard