LOG OF BORING BW-3

PROJECT: Oliver Point and Oliver Reef Restoration Project CLIENT: Matagorda County, TX

COORDINATES: N 28° 38' 46.80"
W 96° 14' 11.90"
SURFACE ELEVATION:

DRILLING METHOD:
Dry Augered: to
Wash Bored: 0' to 30'

ELEVATION (FT) / DEPTH (FT)	SAMPLE TYPE	SYMBOL	MATERIAL DESCRIPTION	(P) POCKET PEN (tsf) (T) TORVANE (tsf)	STD. PENETRATION TEST BLOWCOUNT	N_{60}	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN (%)	CONFINING PRESSURE (psi)	PASSING #200 SIEVE (%)	OTHER TESTS PERFORMED
0			Very soft gray LEAN CLAY w/ SILT (CL) w/ sand pockets & shell fragments		WOR/ 6" WOR/ 6" WOR/ 6" WOR/ 6" WOR/ 6" WOR/ 6"		63		49	23				77	
5															
			Very stiff reddishbrown SANDY LEAN CLAY (CL) w/ shell fragments, silt & sand pockets		4/6" 8/6" 10/6"										
10				(P)3.25			16	117						48	
			-firm @ 12'-14'	(P)1.25			20	113	30	12					
15			-very stiff w/ ferrous nodules @ 15'-17'	(P)3.50			28	97			1.50	15	7		
			Medium dense reddishbrown SILTY SAND (SM) w/ clay pockets		6/6" 9/6" 9/6"										
20															
			-dense w/ shell fragments @ 23.5'-30'		10/6" 16/6" 22/6"		25							34	
25															
			-light brown @ 28.5'-30'		14/6" 14/6" 17/6"										
30			Bottom @ 30'												
35															

COMPLETION DEPTH: 30 ft
DATE BORING STARTED: 10/4/2022
DATE BORING COMPLETED: 10/4/2022
LOGGER: Charlie H.
PROJECT NO.: 21.14.259

NOTES: Water Depth at 3.1' @ 11:35am.
Boring backfilled with soil cuttings.
SPT Hammer Type: Safety Hammer Drilling Equipment: Air Boat Rig

SUMMARY OF LABORATORY TESTS

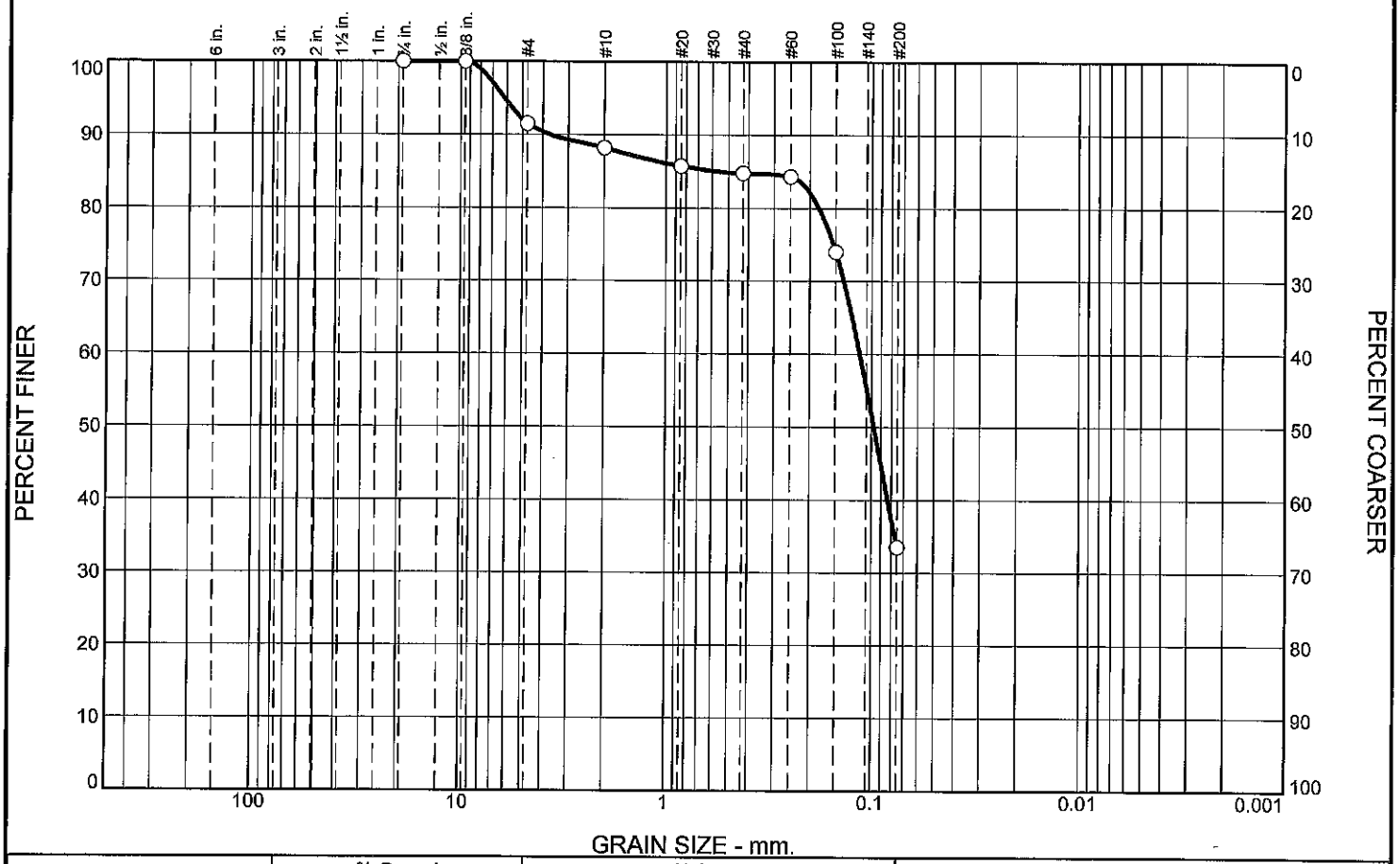
Project No. 21.14.259 Client: Matagorda County, TX

Project: Oliver Point and Oliver Reef Restoration Project

Boring No.	Sample No.	Depth (ft)	Pocket Pen. (tsf)	Torvane (tsf)	Soil Description	USCS	Water Content (%)	Dry Density (pcf)	Liquid Limit	Plastic Limit	Plast. Index	Finer than #200 Sieve (%)	pH	Lab Vane Shear (tsf)	Uc/UU. Compr. (tsf)	Failure Strain (%)	Conf. Pres. (psi)	Failure Type
BW-1																		
		0																
		0.5																
		3	1.50			CL	22.4	110.9	38	17	21	63.4		0.33	0.66			
		6.5			Reddish-brown SILTY SAND	SM	24.2					25.6						
		9.5																
		10																
		12	3.00		Reddish-brown LEAN CLAY with SAND; calcareous	CL	16.2	115.1	34	17	17				2.13	14.6	6.0	Bulge
		15	3.25			CH	30.6	95.5										
		16																
		18.5																
		19																
		23.5			Reddish-brown SILTY SAND	SM	22.1					33.3						
		28.5																
		30																
BW-2																		
		0																
		0.5																
		1																
		3	3.00		Reddish-brown FAT CLAY; calcareous	CH	29.9	95.3	67	27	40				1.79	4.4	5.0	Slickensided
		6.5																
		9.5			Reddish-brown SILTY SAND	SM	25.6					23.7						
		12.5				SC-SM	26.2		NV	NP	NP							
		13																
		15.5				CH	22.1					90.1						
		18	3.00		Reddish-brown LEAN CLAY with SAND	CL	21.1	107.4	42	20	22				1.99	14.6	7.0	Bulge
		23																
		27																
		28.5				SM	23.1					40.2						
		30																
BW-3																		
		0																
		0.5																
		3.5				OL	62.6		49	26	23	77.4						
		6.5																
		9	2.50			SC	15.9	117.0				47.9						

ASTM D422 Sieve Analysis

ASTM D422 & D1140



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	8.5	3.3	3.4	51.2	33.6	

Test Results (ASTM D422 & D1140)

Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
3/4	100.0			
3/8	100.0			
#4	91.5			
#10	88.2			
#20	85.8			
#40	84.8			
#60	84.3			
#100	74.0			
#200	33.6			

* (no specification provided)

Material Description

Reddish-brown SILTY SAND

Atterberg Limits

PL= LL= PI=

Classification

USCS= SM AASHTO=

Test Remarks

Source of Sample: BW-3 **Depth:** 23.5

Sample Date:

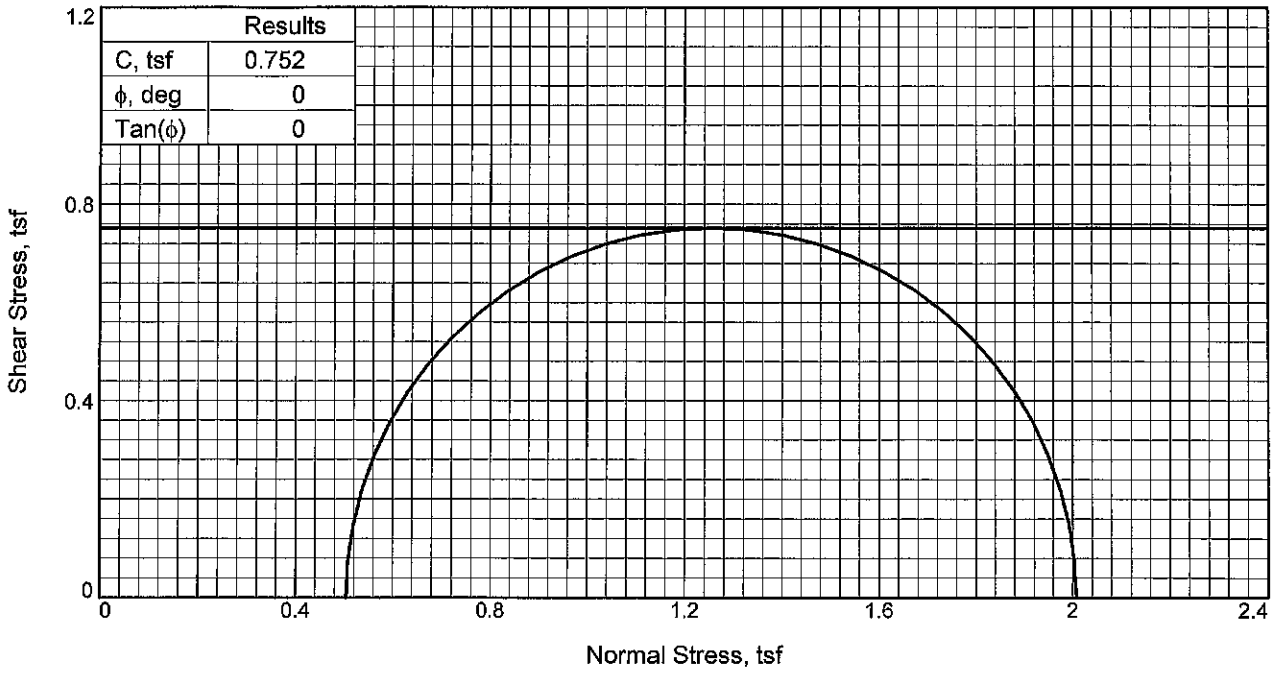
Tolunay-Wong Engineers, Inc.
Houston, Texas

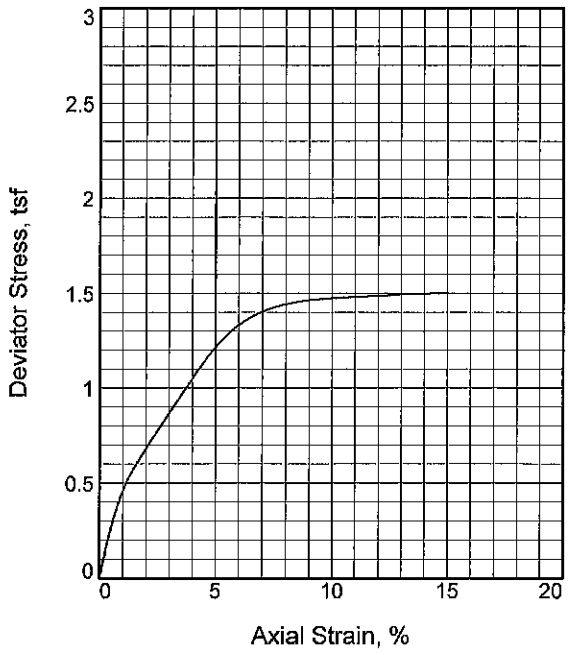
Client: Matagorda County, TX

Project: Oliver Point and Oliver Reef Restoration Project

Project No: 21.14.259

Figure





Sample No.		1
Initial	Water Content, %	28.0
	Dry Density, pcf	96.6
	Saturation, %	99.0
	Void Ratio	0.7770
	Diameter, in.	2.78
	Height, in.	5.88
At Test	Water Content, %	28.1
	Dry Density, pcf	96.6
	Saturation, %	99.3
	Void Ratio	0.7770
	Diameter, in.	2.78
	Height, in.	5.88
Strain rate, %/min.		1.00
Back Pressure, psi		0.00
Cell Pressure, psi		7.00
Fail. Stress, tsf		1.50
Strain, %		14.8
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		2.01
σ_3 Failure, tsf		0.50

Type of Test: Unconsolidated Undrained

Sample Type: Undisturbed

Description: Gray and brown LEAN CLAY with SAND

Assumed Specific Gravity= 2.75

Remarks:

Test method: ASTM D2850

Failure type: Multiple shear

Figure _____

Client: Matagorda County, TX

Project: Oliver Point and Oliver Reef Restoration Project

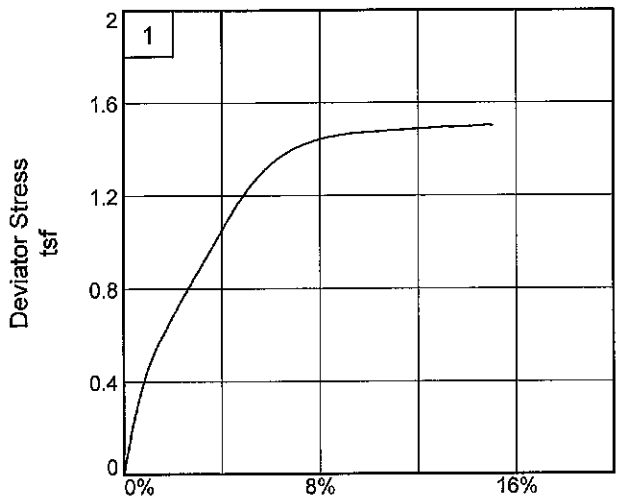
Source of Sample: BW-3 **Depth:** 15

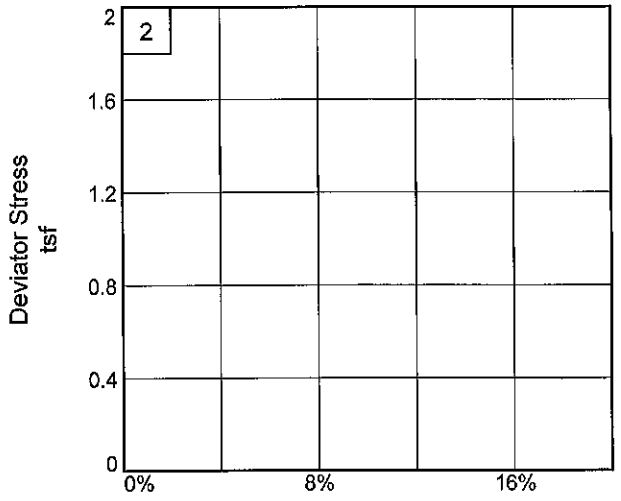
Proj. No.: 21.14.259 **Date Sampled:** 11/1/22

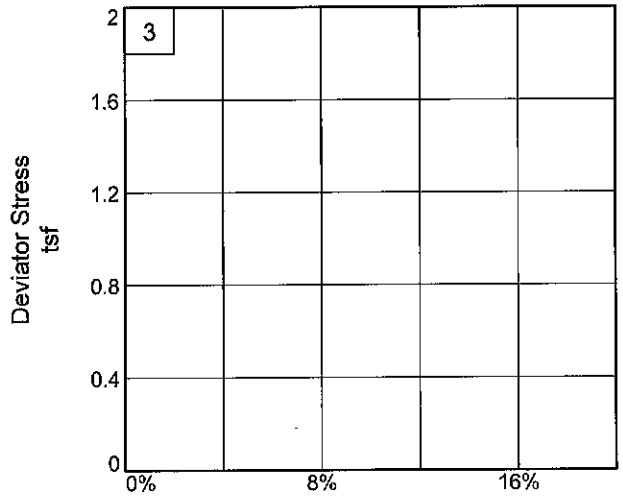
TRIAXIAL SHEAR TEST REPORT

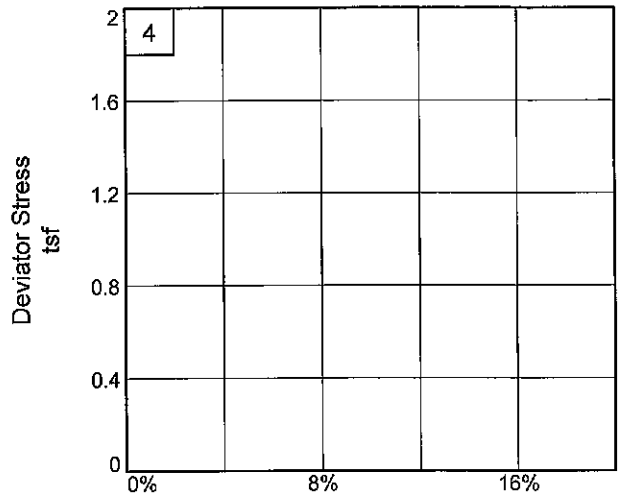
Tolunay-Wong Engineers, Inc.

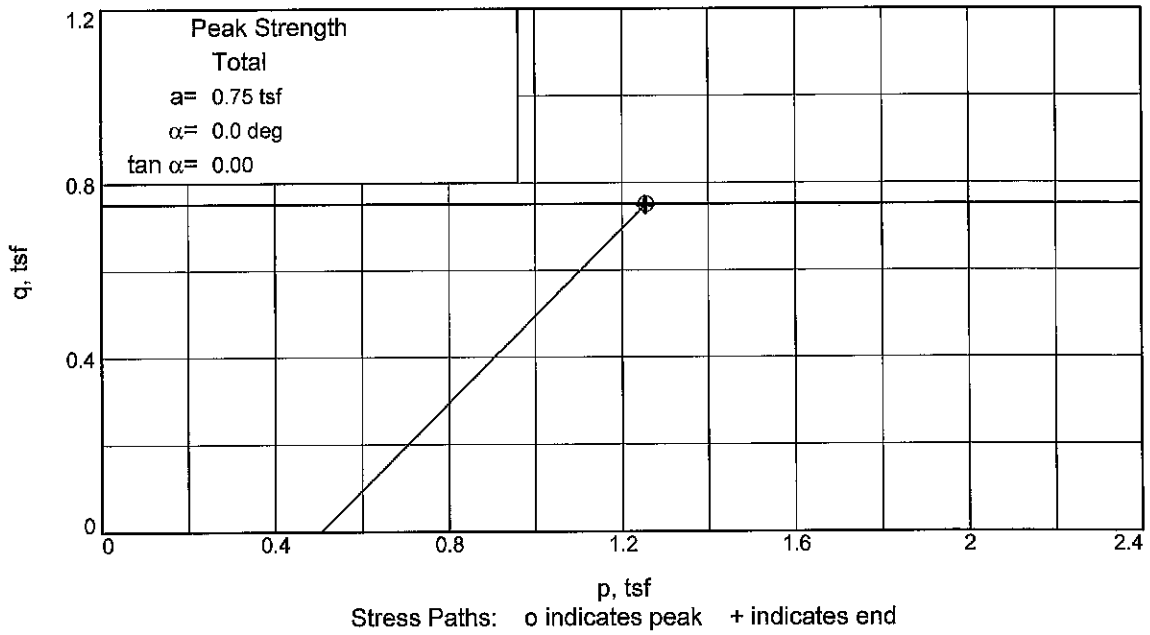
Houston, Texas











Stress Paths: o indicates peak + indicates end

Client: Matagorda County, TX
Project: Oliver Point and Oliver Reef Restoration Project
Source of Sample: BW-3 **Depth:** 15
Project No.: 21.14.259

Figure _____

TOLUNAY-WONG ENGINEERS, INC.