Hole No. 07-181

BORING LOG	DISTRICT	INSTALLATION	SHEET 1 OF 2 SHEETS

1. PROJECT Galveston Channel and Pelican Island PA	7. ELEVATION OF HOLE
2. LOCATION (Coordinates or Station) N=13694660 E=3301547	8. DATUM FOR ELEVATION
3. DRILLING AGENCY Dempsey (Geotest Engineering, Inc.)	9. ELEVATION OF GROUNDWATER ▽ TOD: ▼ 24-HR:
4. LABORATORY TESTING AGENCY Tolunay-Wong Engineers, Inc.	10. DRILLING DATE and TIME STARTED: COMPLETED:
5. DEPTH OF WATER ▽ TOD: ▼ 24-HR:	11. CLASSIFICATION REFERENCE
6. DEPTH OF HOLE 50 ft	12. ENGINEER

DEPTH (ft)	ELEVATION (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE	NUMBER	RECOVERY (%)	SPT (N)	PENETROMETER (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	FINES CONTENT (% <200)
			FAT CLAY(CH), firm, gray & tan		1			0.50	68.7	51.8				
					2			0.75	74.7	43.0	85	24	61	93.4
5			**FAT CLAY WITH SAND(CH)**, firm, gray & tan, w/ sand seams		3			0.75	79.4	42.6				
					4			1.00	75.9	44.2	67	22	45	84.7
			FAT CLAY(CH), very soft to firm, gray & tan		5			1.00	82.1	36.6				
10					6			0.50	75.8	39.9				
			-gray @ 12' - 14'		7			0.25	71.9	44.5				
			-w/ sand pockets @ 14' - 16' -w/ sand seams @ 14' - 18'		8			0.00	69.9	45.4	78	24	54	88.3
15					9			1.25	84.2	38.5				
			-tan & light gray @ 18' - 22' -w/ calcareous nodules @ 18' - 20'		10			0.75	84.0	31.7	74	23	51	97.8
20					11			0.75	83.1	34.7				
			-dark gray @ 22' - 24'		12			0.75	62.3	64.1				
			-gray @ 24' - 26'		13			0.25	66.5	51.3	71	22	49	99
25					14			0.50	64.9	57.1				
					15			0.25	61.6	59.4	90	25	65	91
30			-gray below 30'		16			0.00	59.6	61.8				31
			-w/ sand pockets & shell fragments @ 32' - 34'		17			0.00	96.1	25.2				
			SILTY SAND(CH), medium dense, gray, w/		18		14							26.6

SWG 1836 BOR 08.18.918.GPJ TOLUNAY-WONG ENGINEERS.GDT 10/2/08

ENG FORM: SWG 1836 BOR

Hole No. 07-181

BORING LOG	DISTRICT	INSTALLATION	SHEET 2 OF 2 SHEETS

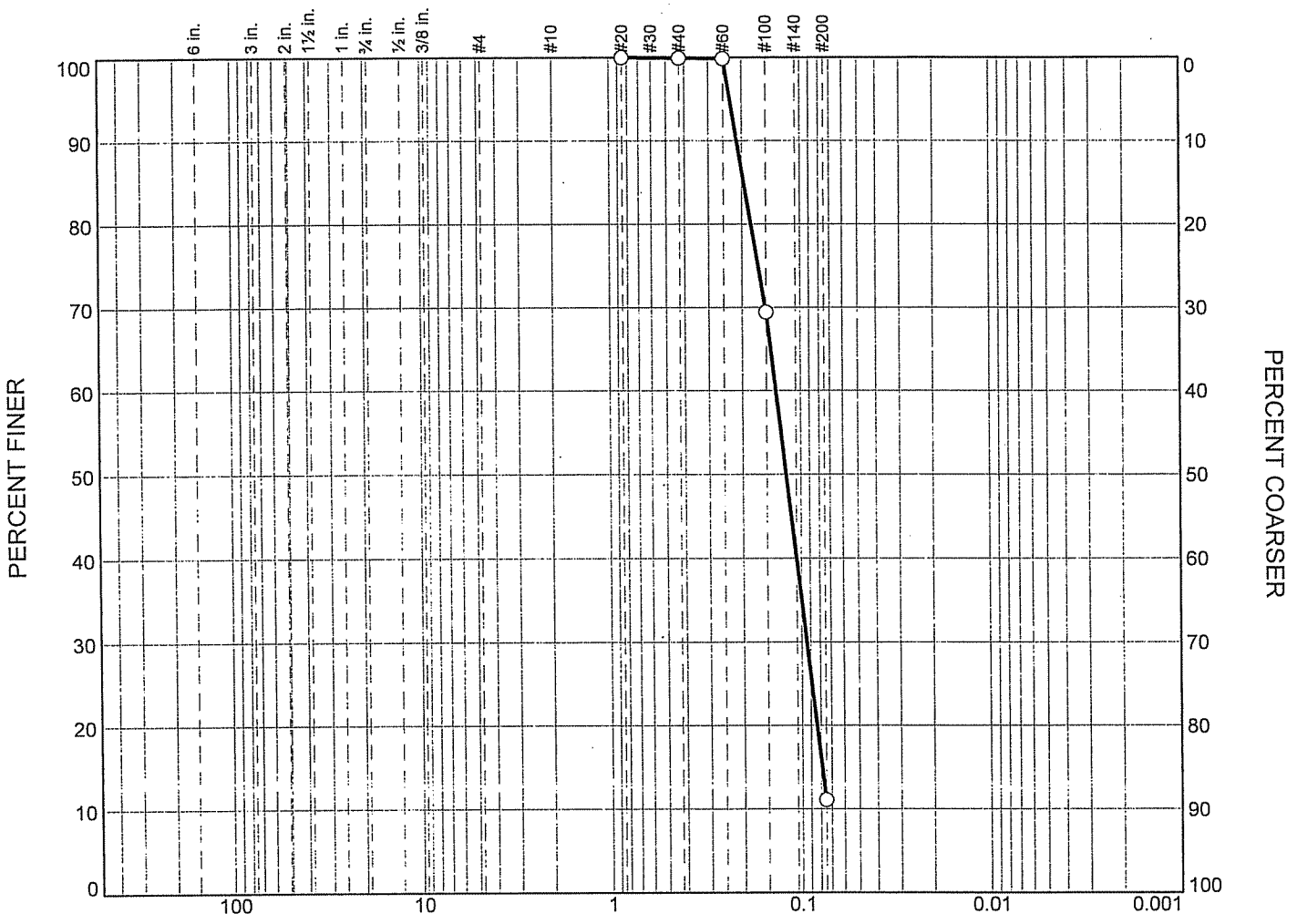
1. PROJECT Galveston Channel and Pelican Island PA	7. ELEVATION OF HOLE
2. LOCATION (Coordinates or Station) N=13694660 E=3301547	8. DATUM FOR ELEVATION
3. DRILLING AGENCY Dempsey (Geotest Engineering, Inc.)	9. ELEVATION OF GROUNDWATER ▽ TOD: ▼ 24-HR:
4. LABORATORY TESTING AGENCY Tolunay-Wong Engineers, Inc.	10. DRILLING DATE and TIME STARTED: COMPLETED:
5. DEPTH OF WATER ▽ TOD: ▼ 24-HR:	11. CLASSIFICATION REFERENCE
6. DEPTH OF HOLE 50 ft	12. ENGINEER

DEPTH (ft)	ELEVATION (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE	NUMBER	RECOVERY (%)	SPT (N)	PENETROMETER (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	FINES CONTENT (% <200)
			shell fragments											
			FAT CLAY(CH), very soft, gray, w/ sand pockets & seams		19			0.00	61.7	56.3				
					20			0.00	74.9	44.0	56	20	36	85.3
40					21			0.00	77.4	42.7				
			POORLY GRADED SAND WITH SILT(SP-SM), very dense, gray		22		73							11.1
45														
			FAT CLAY(CH), stiff, gray & tan, w/ shell fragments & ferrous nodules		23			2.25	103.2	21.8				
			SANDY LEAN CLAY(CL), firm, light gray & tan		24			1.25	108.8	19.9				
50														
55														
60														
65														

SWG 1836 BOR 08.18.918.GPJ TOLUNAY-WONG ENGINEERS.GDT 10/2/08

ENG FORM: SWG 1836 BOR

Particle Size Analysis - ASTM D 422



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	0.1	88.8	11.1	

SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	07-181	22	42-43.5	Gray SAND with SILT	SP-SM

Tolunay-Wong Engineers, Inc.
Houston, Texas

Client: United States Army Corps of Engineers

Project: Galveston Channel and Pelican Island PA
Contract No. DACW64-03-D-0008, Task Order No. 0077

Project No.: 08.18.918

GRAIN SIZE DISTRIBUTION TEST DATA

7/18/2008

Client: United States Army Corps of Engineers
Project: Galveston Channel and Pelican Island PA
Contract No. DACW64-03-D-0008, Task Order No. 0077
Project Number: 08.18.918
Location: 07-181
Depth: 42-43.5 **Sample Number:** 22
Material Description: Gray SAND with SILT
USCS: SP-SM
Material specification: (no specification envelope)

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer	Lower Spec. Limit, %	Upper Spec. Limit, %	Deviation From Spec., %
66.14	6.63	6.63	3"					
			0.75"					
			#4					
			#10					
			#20	6.63	100.0			
			#40	6.67	99.9			
			#60	6.71	99.9			
			#100	24.83	69.4			
			#200	59.53	11.1			

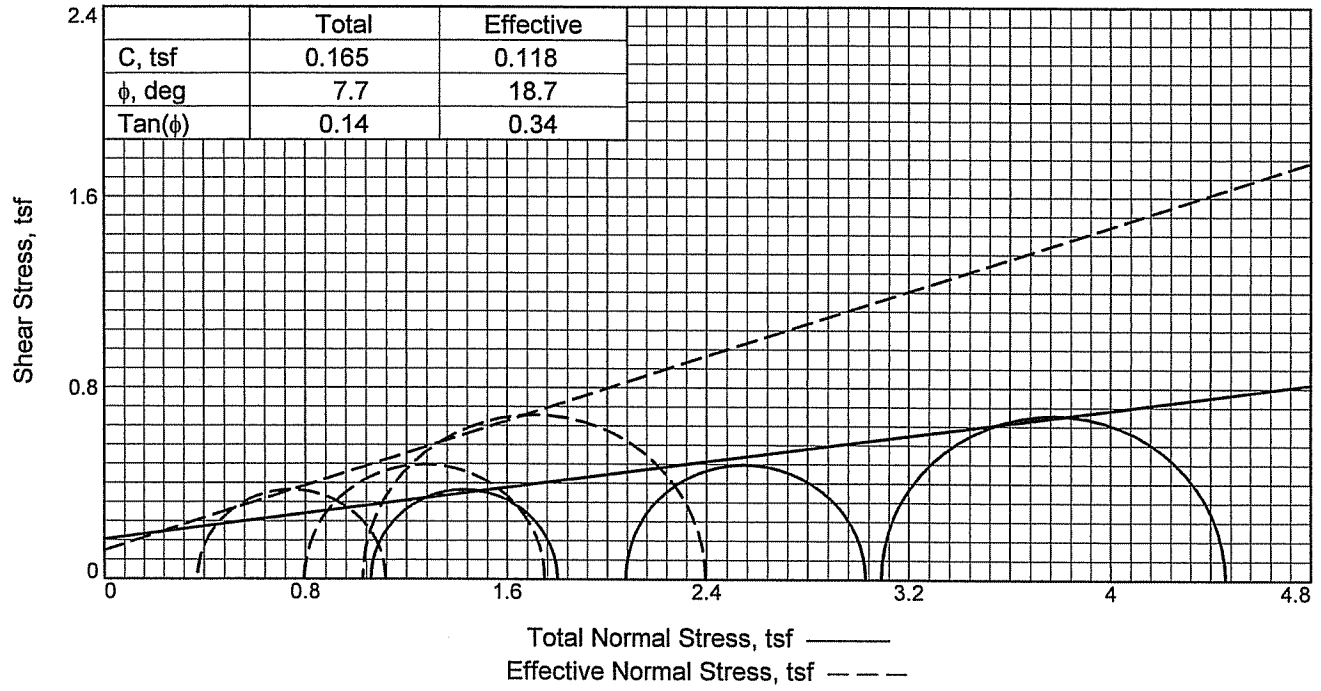
Fractional Components

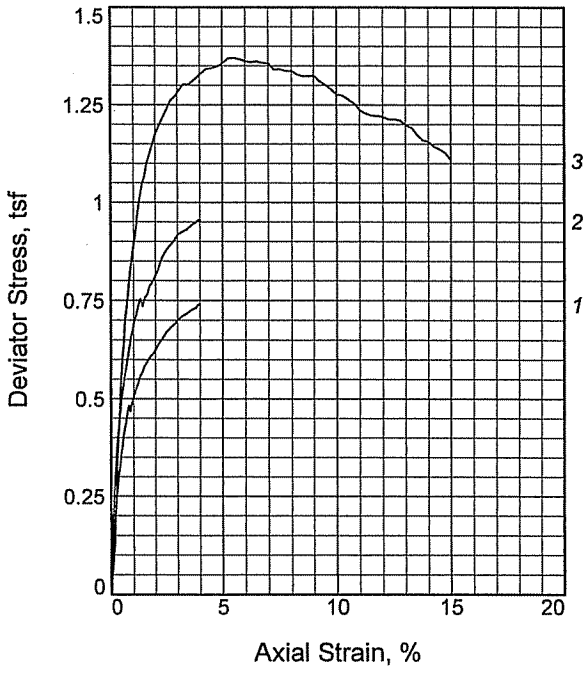
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.1	88.8	88.9			11.1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0786	0.0834	0.0939	0.1191	0.1341	0.1791	0.1948	0.2119	0.2304

Fineness Modulus
0.31

	Total	Effective
C, tsf	0.165	0.118
ϕ, deg	7.7	18.7
Tan(ϕ)	0.14	0.34





Sample No.		1	2	3
Initial	Water Content, %	51.3	51.3	51.3
	Dry Density, pcf	66.5	66.5	66.5
	Saturation, %	90.2	90.2	90.2
	Void Ratio	1.5353	1.5353	1.5353
	Diameter, in.	2.78	2.78	2.78
	Height, in.	5.79	5.79	5.79
At Test	Water Content, %	52.0	52.0	52.0
	Dry Density, pcf	70.2	70.2	70.2
	Saturation, %	100.0	100.0	100.0
	Void Ratio	1.4027	1.4027	1.4027
	Diameter, in.	2.72	2.78	2.83
	Height, in.	5.73	5.50	5.29
Strain rate, %/min.		0.02	0.05	0.0027
Back Pressure, tsf		2.20	2.22	2.21
Cell Pressure, tsf		3.25	4.29	5.30
Fail. Stress, tsf		0.74	0.95	1.37
Excess Pore Pr., tsf		0.68	1.28	2.06
Ult. Stress, tsf		0.74	0.95	1.11
Excess Pore Pr., tsf		0.68	1.28	2.21
$\bar{\sigma}_1$ Failure, tsf		1.12	1.75	2.40
$\bar{\sigma}_3$ Failure, tsf		0.37	0.80	1.03

Type of Test:
CU with Pore Pressures

Sample Type: Undisturbed

Description: Gray FAT CLAY

LL= 71 **PL=** 22 **PI=** 49

Assumed Specific Gravity= 2.70

Remarks:
Test method: ASTM D 4767
Pocket pen; tsf: 0.75
Failure type: Multiple shear

Client: United States Army Corps of Engineers

Project: Galveston Channel and Pelican Island PA
Contract No. DACW64-03-D-0008, Task Order No. 0077

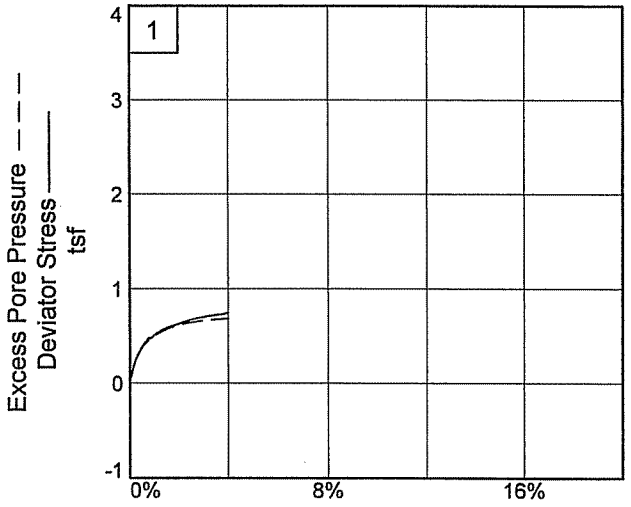
Source of Sample: 07-181 **Depth:** 24-26

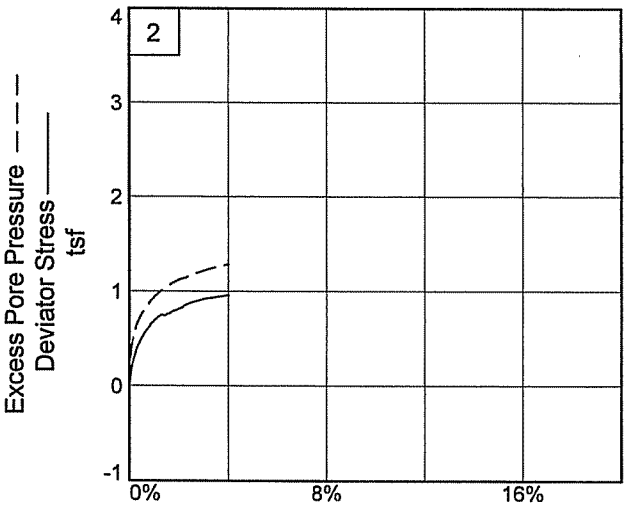
Sample Number: 13

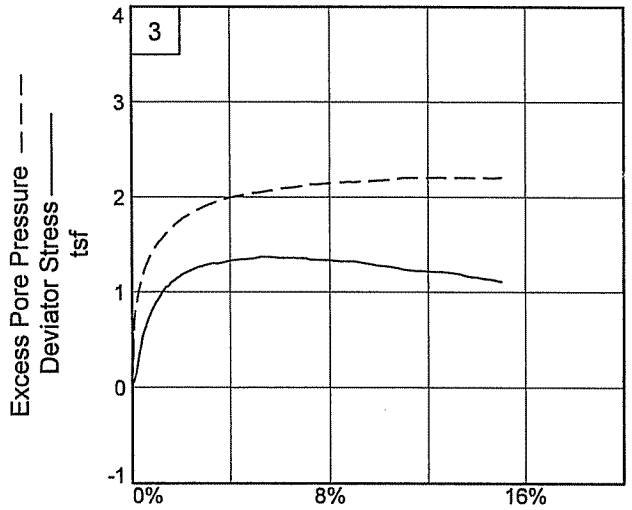
Proj. No.: 08.18.918 **Date Sampled:** 7/18/08

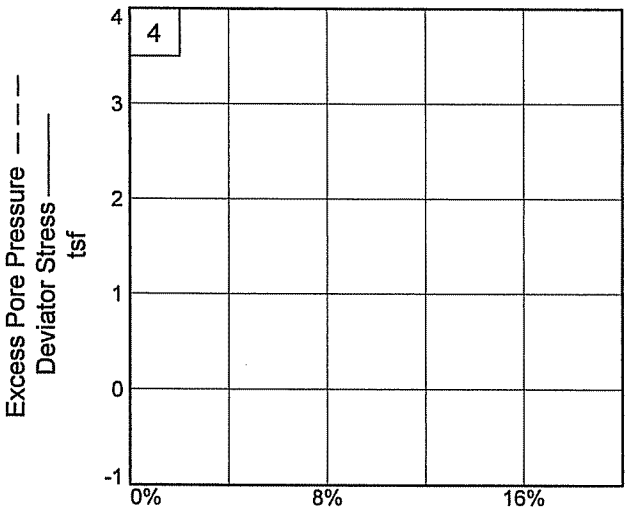
TRIAXIAL SHEAR TEST REPORT

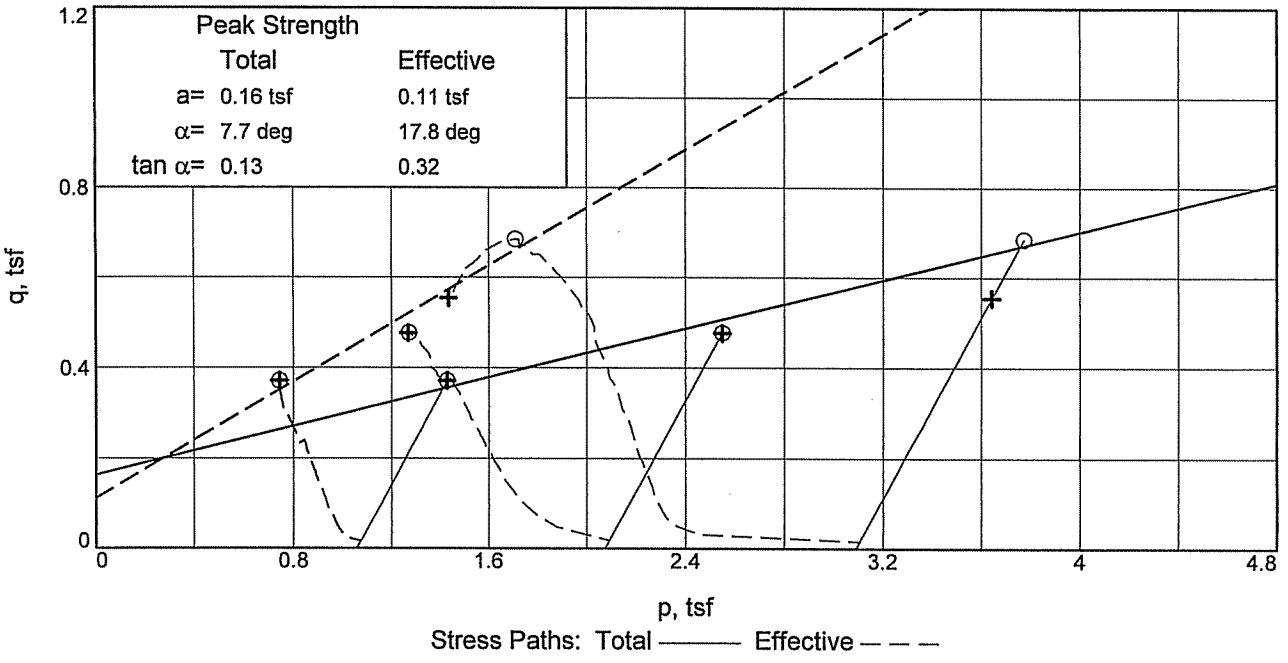
Tolunay-Wong Engineers, Inc.











Client: United States Army Corps of Engineers
Project: Galveston Channel and Pelican Island PA
Source of Sample: 07-181 **Depth:** 24-26 **Sample Number:** 13
Project No.: 08.18.918

TOLUNAY-WONG ENGINEERS, INC.

TRIAXIAL COMPRESSION TEST

CU with Pore Pressures

8/11/2008
6:25 PM

Date: 7/18/08
Client: United States Army Corps of Engineers
Project: Galveston Channel and Pelican Island PA
Contract No. DACW64-03-D-0008, Task Order No. 0077
Project No.: 08.18.918
Location: 07-181
Depth: 24-26 **Sample Number:** 13
Description: Gray FAT CLAY
Remarks:
Test method: ASTM D 4767
Pocket pen; tsf: 0.75
Failure type: Multiple shear
Type of Sample: Undisturbed
Assumed Specific Gravity=2.70 **LL=**71 **PL=**22 **PI=**49
Test Method: ASTM D 4767 Method B

Parameters for Specimen No. 1

Specimen Parameter	Initial	Saturated	Consolidated	Final
Moisture content: Moist soil+tare, gms.	100.530			84.920
Moisture content: Dry soil+tare, gms.	76.870			66.410
Moisture content: Tare, gms.	30.730			30.780
Moisture, %	51.3	54.0	52.0	52.0
Moist specimen weight, gms.	927.3			
Diameter, in.	2.78	2.74	2.72	
Area, in.^{2}	6.07	5.88	5.81	
Height, in.	5.79	5.79	5.73	
Net decrease in height, in.		0.00	0.06	
Net decrease in water volume, cc.			12.30	
Wet Density, pcf	100.6	105.6	106.6	
Dry density, pcf	66.5	68.6	70.2	
Void ratio	1.5353	1.4568	1.4027	
Saturation, %	90.2	100.0	100.0	

Test Readings for Specimen No. 1

Membrane modulus = .130 kN/cm^2
Membrane thickness = .031 cm
Filter paper coefficient = 0.0019 kN/cm
Filter paper coverage = 50%
Consolidation cell pressure = 45.20 psi (3.254 tsf)
Consolidation back pressure = 30.50 psi (2.196 tsf)
Consolidation effective confining stress = 1.058 tsf
Strain rate, %/min. = 0.02
Fail. Stress = 0.742 tsf **at reading no.** 57
Ult. Stress = 0.742 tsf **at reading no.** 57

Test Readings for Specimen No. 1

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress tsf	Minor Eff. Stress tsf	Major Eff. Stress tsf	1:3 Ratio	Pore Press. psi	P tsf	Q tsf
0	0.1720	0.000	0.0	0.0	0.000	1.057	1.057	1.00	30.52	1.057	0.000
1	0.1723	0.000	0.0	0.0	0.000	1.057	1.057	1.00	30.52	1.057	0.000
2	0.1724	2.661	2.7	0.0	0.033	1.057	1.090	1.03	30.52	1.073	0.016
3	0.1738	3.616	3.6	0.0	0.045	1.009	1.054	1.04	31.18	1.032	0.022
4	0.1752	5.108	5.1	0.1	0.063	0.972	1.035	1.07	31.70	1.004	0.032
5	0.1767	7.086	7.1	0.1	0.088	0.942	1.030	1.09	32.12	0.986	0.044
6	0.1781	9.261	9.3	0.1	0.115	0.915	1.029	1.13	32.49	0.972	0.057
7	0.1796	11.494	11.5	0.1	0.142	0.892	1.034	1.16	32.82	0.963	0.071
8	0.1810	13.146	13.1	0.2	0.163	0.869	1.032	1.19	33.13	0.951	0.081
9	0.1824	14.656	14.7	0.2	0.181	0.851	1.032	1.21	33.39	0.941	0.091
10	0.1839	16.528	16.5	0.2	0.204	0.833	1.037	1.25	33.64	0.935	0.102
11	0.1853	18.184	18.2	0.2	0.225	0.815	1.040	1.28	33.87	0.928	0.112
12	0.1867	19.581	19.6	0.3	0.242	0.800	1.042	1.30	34.08	0.921	0.121
13	0.1882	21.042	21.0	0.3	0.260	0.786	1.046	1.33	34.28	0.916	0.130
14	0.1896	22.217	22.2	0.3	0.274	0.773	1.047	1.36	34.47	0.910	0.137
15	0.1910	23.080	23.1	0.3	0.285	0.762	1.047	1.37	34.62	0.904	0.142
16	0.1925	24.128	24.1	0.4	0.298	0.750	1.048	1.40	34.78	0.899	0.149
17	0.1939	25.504	25.5	0.4	0.315	0.739	1.053	1.43	34.94	0.896	0.157
18	0.1953	26.363	26.4	0.4	0.325	0.727	1.052	1.45	35.10	0.890	0.163
19	0.1968	27.608	27.6	0.4	0.341	0.718	1.059	1.47	35.23	0.888	0.170
20	0.1982	28.551	28.6	0.5	0.352	0.707	1.059	1.50	35.38	0.883	0.176
21	0.1996	29.518	29.5	0.5	0.364	0.698	1.062	1.52	35.51	0.880	0.182
22	0.2011	30.233	30.2	0.5	0.373	0.690	1.063	1.54	35.62	0.876	0.186
23	0.2025	31.035	31.0	0.5	0.382	0.682	1.064	1.56	35.73	0.873	0.191
24	0.2039	31.897	31.9	0.6	0.393	0.673	1.066	1.58	35.86	0.869	0.196
25	0.2054	33.033	33.0	0.6	0.407	0.663	1.069	1.61	36.00	0.866	0.203
26	0.2068	33.713	33.7	0.6	0.415	0.655	1.070	1.63	36.11	0.862	0.208
27	0.2082	34.614	34.6	0.6	0.426	0.647	1.073	1.66	36.21	0.860	0.213
28	0.2111	35.691	35.7	0.7	0.439	0.634	1.073	1.69	36.40	0.853	0.220
29	0.2125	36.553	36.6	0.7	0.450	0.628	1.077	1.72	36.48	0.852	0.225
30	0.2154	38.046	38.0	0.8	0.468	0.615	1.082	1.76	36.66	0.849	0.234
31	0.2183	39.138	39.1	0.8	0.481	0.602	1.083	1.80	36.84	0.842	0.240
32	0.2212	40.067	40.1	0.9	0.467	0.592	1.059	1.79	36.97	0.826	0.233
33	0.2240	41.432	41.4	0.9	0.482	0.581	1.063	1.83	37.13	0.822	0.241
34	0.2269	42.402	42.4	1.0	0.492	0.571	1.063	1.86	37.27	0.817	0.246
35	0.2298	43.452	43.5	1.0	0.503	0.562	1.065	1.90	37.40	0.814	0.252
36	0.2355	45.379	45.4	1.1	0.523	0.544	1.068	1.96	37.64	0.806	0.262
37	0.2412	46.808	46.8	1.2	0.537	0.530	1.068	2.01	37.83	0.799	0.269
38	0.2470	48.695	48.7	1.3	0.557	0.516	1.073	2.08	38.03	0.794	0.278
39	0.2527	49.844	49.8	1.4	0.567	0.503	1.070	2.13	38.21	0.787	0.284
40	0.2584	51.415	51.4	1.5	0.583	0.491	1.074	2.19	38.39	0.782	0.291
41	0.2642	52.404	52.4	1.6	0.591	0.480	1.071	2.23	38.54	0.775	0.296
42	0.2699	53.595	53.6	1.7	0.602	0.471	1.073	2.28	38.66	0.772	0.301
43	0.2756	54.529	54.5	1.8	0.610	0.462	1.072	2.32	38.78	0.767	0.305
44	0.2814	55.268	55.3	1.9	0.616	0.454	1.069	2.36	38.90	0.761	0.308
45	0.2871	56.380	56.4	2.0	0.626	0.446	1.072	2.40	39.00	0.759	0.313
46	0.2928	57.352	57.4	2.1	0.637	0.440	1.077	2.45	39.09	0.758	0.318

Test Readings for Specimen No. 1

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress tsf	Minor Eff. Stress tsf	Major Eff. Stress tsf	1:3 Ratio	Pore Press. psi	P tsf	Q tsf
47	0.3043	58.806	58.8	2.3	0.653	0.427	1.080	2.53	39.27	0.754	0.326
48	0.3158	60.337	60.3	2.5	0.670	0.417	1.087	2.61	39.41	0.752	0.335
49	0.3272	61.503	61.5	2.7	0.683	0.408	1.090	2.67	39.54	0.749	0.341
50	0.3387	62.473	62.5	2.9	0.693	0.401	1.093	2.73	39.63	0.747	0.346
51	0.3444	63.208	63.2	3.0	0.701	0.397	1.098	2.76	39.68	0.748	0.350
52	0.3559	64.143	64.1	3.2	0.710	0.391	1.101	2.82	39.77	0.746	0.355
53	0.3673	64.833	64.8	3.4	0.717	0.386	1.103	2.86	39.83	0.745	0.359
54	0.3788	65.704	65.7	3.6	0.726	0.381	1.107	2.91	39.91	0.744	0.363
55	0.3903	66.310	66.3	3.8	0.731	0.378	1.109	2.94	39.96	0.743	0.366
56	0.3960	66.995	67.0	3.9	0.739	0.376	1.115	2.96	39.97	0.746	0.369
57	0.4017	67.328	67.3	4.0	0.742	0.374	1.116	2.98	40.01	0.745	0.371

Parameters for Specimen No. 2

Specimen Parameter	Initial	Saturated	Consolidated	Final
Moisture content: Moist soil+tare, gms.	100.530			84.920
Moisture content: Dry soil+tare, gms.	76.870			66.410
Moisture content: Tare, gms.	30.730			30.780
Moisture, %	51.3	56.8	52.0	52.0
Moist specimen weight, gms.	927.3			
Diameter, in.	2.78	2.78	2.78	
Area, in.²	6.07	6.06	6.06	
Height, in.	5.79	5.79	5.50	
Net decrease in height, in.		0.00	0.29	
Net decrease in water volume, cc.			29.80	
Wet Density, pcf	100.6	104.3	106.6	
Dry density, pcf	66.5	66.5	70.2	
Void ratio	1.5353	1.5339	1.4027	
Saturation, %	90.2	100.0	100.0	

Test Readings for Specimen No. 2

Membrane modulus = .130 kN/cm²

Membrane thickness = .031 cm

Filter paper coefficient = 0.0019 kN/cm

Filter paper coverage = 50%

Consolidation cell pressure = 59.60 psi (4.291 tsf)

Consolidation back pressure = 30.80 psi (2.218 tsf)

Consolidation effective confining stress = 2.074 tsf

Strain rate, %/min. = 0.05

Fail. Stress = 0.954 tsf **at reading no.** 52

Ult. Stress = 0.953 tsf **at reading no.** 53

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress tsf	Minor Eff. Stress tsf	Major Eff. Stress tsf	1:3 Ratio	Pore Press. psi	P tsf	Q tsf
0	0.1200	0.000	0.0	0.0	0.000	2.074	2.074	1.00	30.80	2.074	0.000
1	0.1212	0.000	0.0	0.0	0.000	2.074	2.074	1.00	30.80	2.074	0.000
2	0.1213	3.103	3.1	0.0	0.037	2.074	2.111	1.02	30.80	2.092	0.018
3	0.1227	8.085	8.1	0.0	0.096	1.831	1.927	1.05	34.17	1.879	0.048
4	0.1240	12.630	12.6	0.1	0.150	1.722	1.872	1.09	35.69	1.797	0.075
5	0.1254	16.213	16.2	0.1	0.193	1.655	1.848	1.12	36.61	1.751	0.096

Test Readings for Specimen No. 2

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress tsf	Minor Eff. Stress tsf	Major Eff. Stress tsf	1:3 Ratio	Pore Press. psi	P tsf	Q tsf
6	0.1268	19.087	19.1	0.1	0.227	1.608	1.835	1.14	37.26	1.722	0.113
7	0.1282	21.705	21.7	0.1	0.258	1.572	1.829	1.16	37.77	1.701	0.129
8	0.1295	23.823	23.8	0.2	0.283	1.542	1.824	1.18	38.19	1.683	0.141
9	0.1309	25.646	25.6	0.2	0.304	1.516	1.820	1.20	38.55	1.668	0.152
10	0.1323	27.402	27.4	0.2	0.325	1.492	1.817	1.22	38.88	1.654	0.163
11	0.1337	29.578	29.6	0.2	0.351	1.470	1.821	1.24	39.18	1.646	0.175
12	0.1350	31.369	31.4	0.3	0.372	1.449	1.821	1.26	39.48	1.635	0.186
13	0.1364	32.795	32.8	0.3	0.389	1.430	1.819	1.27	39.74	1.624	0.194
14	0.1378	34.347	34.3	0.3	0.407	1.412	1.819	1.29	39.99	1.616	0.204
15	0.1392	35.536	35.5	0.3	0.421	1.398	1.819	1.30	40.19	1.608	0.211
16	0.1405	36.667	36.7	0.4	0.434	1.382	1.817	1.31	40.40	1.599	0.217
17	0.1419	37.560	37.6	0.4	0.445	1.368	1.813	1.33	40.60	1.590	0.222
18	0.1433	39.175	39.2	0.4	0.464	1.355	1.818	1.34	40.79	1.586	0.232
19	0.1447	40.378	40.4	0.4	0.478	1.341	1.818	1.36	40.98	1.579	0.239
20	0.1460	41.650	41.7	0.5	0.493	1.327	1.820	1.37	41.17	1.573	0.246
21	0.1474	42.572	42.6	0.5	0.504	1.315	1.819	1.38	41.34	1.567	0.252
22	0.1488	43.618	43.6	0.5	0.516	1.304	1.820	1.40	41.49	1.562	0.258
23	0.1515	45.194	45.2	0.6	0.534	1.283	1.817	1.42	41.78	1.550	0.267
24	0.1543	47.417	47.4	0.6	0.560	1.262	1.823	1.44	42.07	1.542	0.280
25	0.1570	48.822	48.8	0.7	0.577	1.241	1.817	1.46	42.37	1.529	0.288
26	0.1598	50.353	50.4	0.7	0.594	1.225	1.819	1.49	42.59	1.522	0.297
27	0.1625	51.836	51.8	0.8	0.612	1.208	1.820	1.51	42.82	1.514	0.306
28	0.1639	52.730	52.7	0.8	0.622	1.199	1.821	1.52	42.95	1.510	0.311
29	0.1667	54.249	54.2	0.8	0.640	1.182	1.821	1.54	43.19	1.502	0.320
30	0.1694	55.842	55.8	0.9	0.658	1.169	1.827	1.56	43.37	1.498	0.329
31	0.1735	57.368	57.4	1.0	0.675	1.147	1.823	1.59	43.66	1.485	0.338
32	0.1763	58.806	58.8	1.0	0.692	1.133	1.825	1.61	43.87	1.479	0.346
33	0.1818	60.617	60.6	1.1	0.713	1.109	1.821	1.64	44.20	1.465	0.356
34	0.1873	62.574	62.6	1.2	0.735	1.084	1.819	1.68	44.54	1.451	0.367
35	0.1928	64.227	64.2	1.3	0.754	1.064	1.818	1.71	44.82	1.441	0.377
36	0.1983	66.190	66.2	1.4	0.736	1.044	1.779	1.70	45.11	1.411	0.368
37	0.2038	68.191	68.2	1.5	0.755	1.026	1.782	1.74	45.35	1.404	0.378
38	0.2093	69.255	69.3	1.6	0.764	1.008	1.772	1.76	45.60	1.390	0.382
39	0.2148	71.297	71.3	1.7	0.785	0.991	1.776	1.79	45.84	1.383	0.392
40	0.2258	73.479	73.5	1.9	0.803	0.961	1.764	1.83	46.25	1.363	0.401
41	0.2368	75.996	76.0	2.1	0.828	0.939	1.767	1.88	46.55	1.353	0.414
42	0.2423	77.624	77.6	2.2	0.846	0.937	1.783	1.90	46.59	1.360	0.423
43	0.2478	78.917	78.9	2.3	0.860	0.924	1.785	1.93	46.76	1.355	0.430
44	0.2533	79.918	79.9	2.4	0.871	0.913	1.783	1.95	46.92	1.348	0.435
45	0.2643	81.408	81.4	2.6	0.886	0.891	1.777	1.99	47.23	1.334	0.443
46	0.2753	82.747	82.7	2.8	0.900	0.872	1.772	2.03	47.49	1.322	0.450
47	0.2863	84.454	84.5	3.0	0.917	0.856	1.774	2.07	47.71	1.315	0.459
48	0.2973	85.238	85.2	3.2	0.924	0.840	1.765	2.10	47.93	1.302	0.462
49	0.3083	85.975	86.0	3.4	0.931	0.826	1.757	2.13	48.13	1.291	0.465
50	0.3193	87.070	87.1	3.6	0.941	0.815	1.757	2.15	48.28	1.286	0.471
51	0.3303	87.916	87.9	3.8	0.949	0.802	1.751	2.18	48.46	1.277	0.474
52	0.3358	88.492	88.5	3.9	0.954	0.795	1.750	2.20	48.56	1.272	0.477

Test Readings for Specimen No. 2

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress tsf	Minor Eff. Stress tsf	Major Eff. Stress tsf	1:3 Ratio	Pore Press. psi	P tsf	Q tsf
53	0.3413	88.492	88.5	4.0	0.953	0.793	1.747	2.20	48.58	1.270	0.477

Parameters for Specimen No. 3

Specimen Parameter	Initial	Saturated	Consolidated	Final
Moisture content: Moist soil+tare, gms.	100.530			84.920
Moisture content: Dry soil+tare, gms.	76.870			66.410
Moisture content: Tare, gms.	30.730			30.780
Moisture, %	51.3	59.8	52.0	52.0
Moist specimen weight, gms.	927.3			
Diameter, in.	2.78	2.82	2.83	
Area, in.^{2}	6.07	6.26	6.30	
Height, in.	5.79	5.79	5.29	
Net decrease in height, in.		0.00	0.50	
Net decrease in water volume, cc.			48.40	
Wet Density, pcf	100.6	103.0	106.6	
Dry density, pcf	66.5	64.4	70.2	
Void ratio	1.5353	1.6158	1.4027	
Saturation, %	90.2	100.0	100.0	

Test Readings for Specimen No. 3

Membrane modulus = .130 kN/cm^2

Membrane thickness = .031 cm

Filter paper coefficient = 0.0019 kN/cm

Filter paper coverage = 50%

Consolidation cell pressure = 73.60 psi (5.299 tsf)

Consolidation back pressure = 30.70 psi (2.210 tsf)

Consolidation effective confining stress = 3.089 tsf

Strain rate, %/min. = 0.0027

Fail. Stress = 1.370 tsf **at reading no.** 61

Ult. Stress = 1.109 tsf **at reading no.** 99

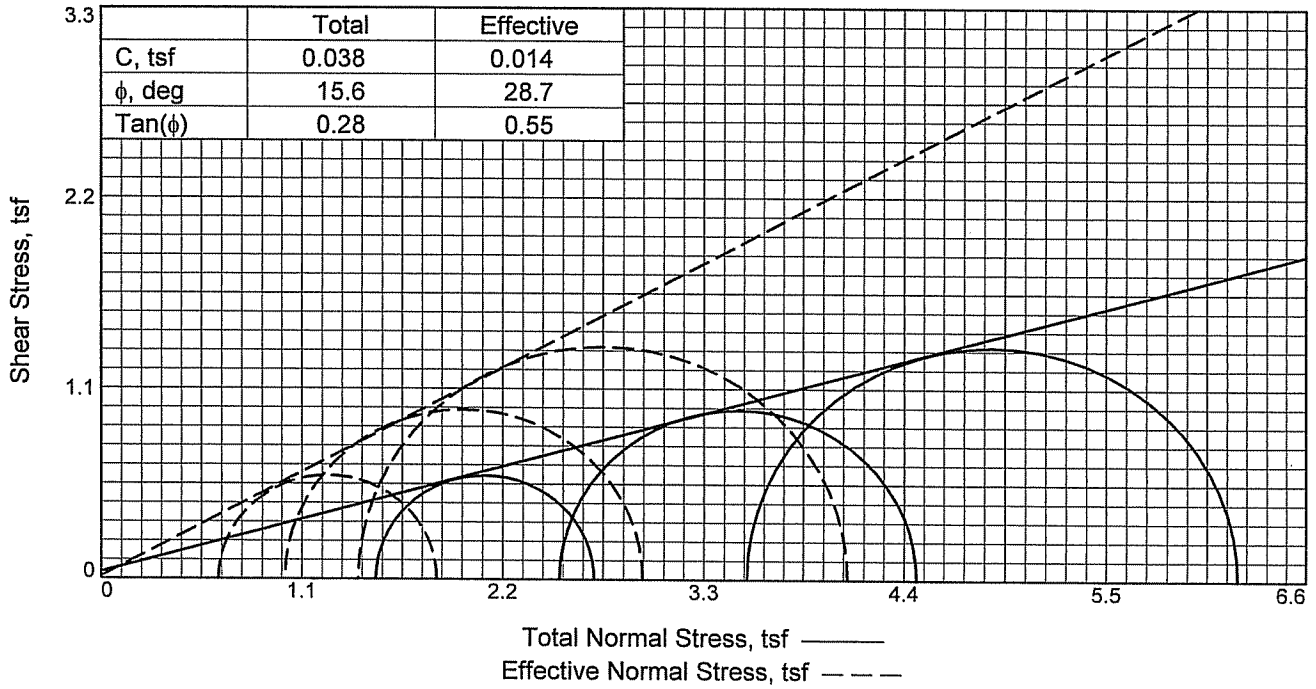
No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress tsf	Minor Eff. Stress tsf	Major Eff. Stress tsf	1:3 Ratio	Pore Press. psi	P tsf	Q tsf
0	-0.0278	0.000	0.0	0.0	0.000	3.090	3.090	1.00	30.68	3.090	0.000
1	-0.0277	0.000	0.0	0.0	0.000	3.090	3.090	1.00	30.68	3.090	0.000
2	-0.0276	2.795	2.8	0.0	0.032	3.090	3.122	1.01	30.68	3.106	0.016
3	-0.0236	5.614	5.6	0.1	0.064	2.429	2.493	1.03	39.86	2.461	0.032
4	-0.0223	7.348	7.3	0.1	0.084	2.364	2.448	1.04	40.77	2.406	0.042
5	-0.0210	8.866	8.9	0.1	0.101	2.317	2.418	1.04	41.42	2.368	0.051
6	-0.0197	10.513	10.5	0.2	0.120	2.281	2.401	1.05	41.92	2.341	0.060
7	-0.0184	12.853	12.9	0.2	0.147	2.244	2.391	1.07	42.43	2.318	0.073
8	-0.0170	16.201	16.2	0.2	0.185	2.206	2.391	1.08	42.96	2.299	0.092
9	-0.0157	19.665	19.7	0.2	0.224	2.166	2.391	1.10	43.51	2.279	0.112
10	-0.0144	23.663	23.7	0.3	0.270	2.132	2.401	1.13	44.00	2.266	0.135
11	-0.0131	27.446	27.4	0.3	0.313	2.096	2.409	1.15	44.49	2.252	0.156
12	-0.0117	30.361	30.4	0.3	0.346	2.066	2.412	1.17	44.91	2.239	0.173
13	-0.0104	33.516	33.5	0.3	0.382	2.036	2.418	1.19	45.32	2.227	0.191
14	-0.0091	35.982	36.0	0.4	0.410	2.009	2.419	1.20	45.69	2.214	0.205
15	-0.0078	38.483	38.5	0.4	0.438	1.985	2.424	1.22	46.03	2.205	0.219

Test Readings for Specimen No. 3

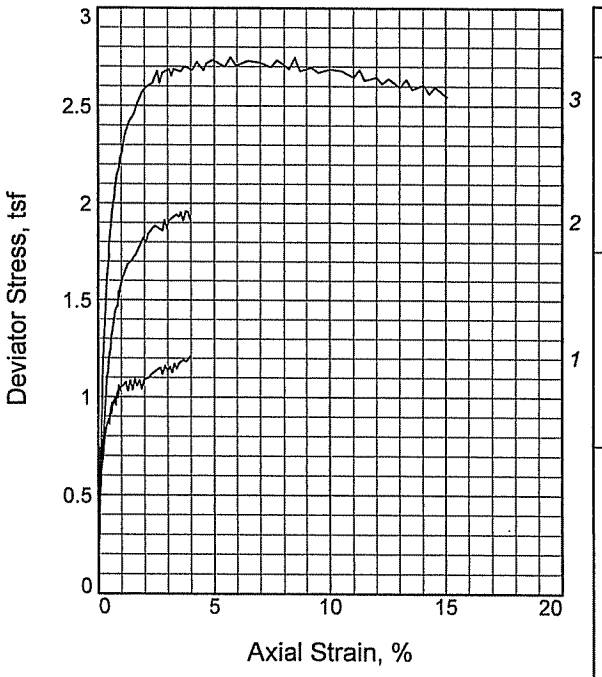
No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress tsf	Minor Eff. Stress tsf	Major Eff. Stress tsf	1:3 Ratio	Pore Press. psi	P tsf	Q tsf
16	-0.0064	41.622	41.6	0.4	0.474	1.961	2.434	1.24	46.37	2.198	0.237
17	-0.0051	44.477	44.5	0.4	0.506	1.935	2.441	1.26	46.73	2.188	0.253
18	-0.0038	47.183	47.2	0.5	0.537	1.911	2.448	1.28	47.05	2.180	0.269
19	-0.0025	49.325	49.3	0.5	0.561	1.892	2.453	1.30	47.33	2.172	0.281
20	-0.0011	51.227	51.2	0.5	0.583	1.872	2.455	1.31	47.60	2.164	0.291
21	0.0002	52.914	52.9	0.5	0.602	1.854	2.456	1.32	47.85	2.155	0.301
22	0.0015	54.193	54.2	0.6	0.616	1.836	2.452	1.34	48.10	2.144	0.308
23	0.0028	56.161	56.2	0.6	0.638	1.822	2.460	1.35	48.30	2.141	0.319
24	0.0042	58.342	58.3	0.6	0.663	1.802	2.465	1.37	48.57	2.133	0.332
25	0.0055	60.324	60.3	0.6	0.685	1.785	2.471	1.38	48.80	2.128	0.343
26	0.0081	63.285	63.3	0.7	0.719	1.755	2.474	1.41	49.22	2.115	0.359
27	0.0094	64.587	64.6	0.7	0.733	1.741	2.474	1.42	49.42	2.108	0.367
28	0.0121	66.460	66.5	0.8	0.754	1.716	2.470	1.44	49.76	2.093	0.377
29	0.0134	68.003	68.0	0.8	0.771	1.703	2.475	1.45	49.94	2.089	0.386
30	0.0147	70.076	70.1	0.8	0.795	1.688	2.483	1.47	50.15	2.086	0.397
31	0.0161	71.443	71.4	0.8	0.810	1.677	2.487	1.48	50.31	2.082	0.405
32	0.0187	73.437	73.4	0.9	0.832	1.656	2.488	1.50	50.61	2.072	0.416
33	0.0214	75.392	75.4	0.9	0.854	1.635	2.489	1.52	50.89	2.062	0.427
34	0.0240	77.412	77.4	1.0	0.876	1.613	2.489	1.54	51.20	2.051	0.438
35	0.0306	82.021	82.0	1.1	0.927	1.568	2.495	1.59	51.83	2.031	0.464
36	0.0359	86.622	86.6	1.2	0.978	1.541	2.520	1.63	52.19	2.031	0.489
37	0.0412	89.890	89.9	1.3	1.014	1.511	2.526	1.67	52.61	2.018	0.507
38	0.0465	92.983	93.0	1.4	1.048	1.476	2.524	1.71	53.10	2.000	0.524
39	0.0518	94.400	94.4	1.5	1.063	1.450	2.513	1.73	53.46	1.981	0.532
40	0.0571	97.467	97.5	1.6	1.096	1.422	2.518	1.77	53.85	1.970	0.548
41	0.0624	99.281	99.3	1.7	1.116	1.399	2.514	1.80	54.17	1.957	0.558
42	0.0677	101.192	101.2	1.8	1.136	1.374	2.510	1.83	54.52	1.942	0.568
43	0.0730	102.798	102.8	1.9	1.153	1.353	2.505	1.85	54.82	1.929	0.576
44	0.0783	104.750	104.8	2.0	1.174	1.332	2.506	1.88	55.10	1.919	0.587
45	0.0836	106.166	106.2	2.1	1.188	1.312	2.500	1.91	55.38	1.906	0.594
46	0.0941	108.608	108.6	2.3	1.213	1.281	2.494	1.95	55.81	1.888	0.607
47	0.1047	110.908	110.9	2.5	1.236	1.248	2.484	1.99	56.27	1.866	0.618
48	0.1153	113.312	113.3	2.7	1.260	1.223	2.483	2.03	56.62	1.853	0.630
49	0.1259	114.571	114.6	2.9	1.272	1.197	2.469	2.06	56.97	1.833	0.636
50	0.1365	116.481	116.5	3.1	1.290	1.174	2.465	2.10	57.29	1.819	0.645
51	0.1471	117.935	117.9	3.3	1.304	1.154	2.458	2.13	57.57	1.806	0.652
52	0.1577	117.979	118.0	3.5	1.302	1.131	2.432	2.15	57.89	1.782	0.651
53	0.1682	119.032	119.0	3.7	1.310	1.117	2.428	2.17	58.08	1.773	0.655
54	0.1788	120.385	120.4	3.9	1.323	1.103	2.425	2.20	58.28	1.764	0.661
55	0.1894	121.593	121.6	4.1	1.333	1.091	2.424	2.22	58.44	1.758	0.667
56	0.2000	122.635	122.6	4.3	1.342	1.080	2.422	2.24	58.60	1.751	0.671
57	0.2106	123.049	123.0	4.5	1.343	1.068	2.412	2.26	58.76	1.740	0.672
58	0.2212	123.620	123.6	4.7	1.347	1.058	2.405	2.27	58.91	1.731	0.673
59	0.2318	124.347	124.3	4.9	1.352	1.048	2.400	2.29	59.05	1.724	0.676
60	0.2503	126.423	126.4	5.3	1.369	1.039	2.409	2.32	59.16	1.724	0.685
61	0.2635	126.851	126.9	5.5	1.370	1.025	2.396	2.34	59.36	1.711	0.685
62	0.2768	126.925	126.9	5.8	1.368	1.015	2.382	2.35	59.51	1.698	0.684

Test Readings for Specimen No. 3

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress tsf	Minor Eff. Stress tsf	Major Eff. Stress tsf	1:3 Ratio	Pore Press. psi	P tsf	Q tsf
63	0.2900	126.769	126.8	6.0	1.362	1.004	2.366	2.36	59.66	1.685	0.681
64	0.3032	126.824	126.8	6.3	1.359	0.993	2.352	2.37	59.81	1.672	0.680
65	0.3165	127.412	127.4	6.5	1.362	0.987	2.349	2.38	59.89	1.668	0.681
66	0.3297	127.327	127.3	6.8	1.357	0.978	2.335	2.39	60.02	1.656	0.679
67	0.3429	127.591	127.6	7.0	1.356	0.970	2.327	2.40	60.12	1.648	0.678
68	0.3562	126.418	126.4	7.3	1.340	0.954	2.294	2.40	60.35	1.624	0.670
69	0.3694	126.891	126.9	7.5	1.342	0.955	2.297	2.40	60.33	1.626	0.671
70	0.3826	126.819	126.8	7.8	1.337	0.950	2.287	2.41	60.40	1.619	0.669
71	0.3958	127.110	127.1	8.0	1.337	0.946	2.282	2.41	60.47	1.614	0.668
72	0.4091	126.630	126.6	8.3	1.328	0.939	2.267	2.41	60.56	1.603	0.664
73	0.4223	126.573	126.6	8.5	1.324	0.936	2.260	2.41	60.60	1.598	0.662
74	0.4355	126.894	126.9	8.8	1.324	0.929	2.252	2.43	60.70	1.591	0.662
75	0.4488	127.320	127.3	9.0	1.324	0.932	2.256	2.42	60.66	1.594	0.662
76	0.4620	126.363	126.4	9.3	1.311	0.926	2.237	2.42	60.74	1.582	0.655
77	0.4752	125.750	125.7	9.5	1.301	0.920	2.221	2.41	60.82	1.571	0.650
78	0.4885	124.962	125.0	9.8	1.289	0.918	2.207	2.40	60.85	1.562	0.645
79	0.5017	124.151	124.2	10.0	1.277	0.914	2.192	2.40	60.90	1.553	0.639
80	0.5149	124.155	124.2	10.3	1.274	0.910	2.184	2.40	60.96	1.547	0.637
81	0.5282	123.542	123.5	10.5	1.264	0.906	2.170	2.39	61.01	1.538	0.632
82	0.5414	122.927	122.9	10.8	1.254	0.896	2.150	2.40	61.16	1.523	0.627
83	0.5546	121.463	121.5	11.0	1.236	0.886	2.121	2.40	61.30	1.503	0.618
84	0.5679	121.081	121.1	11.3	1.228	0.886	2.114	2.39	61.29	1.500	0.614
85	0.5811	120.915	120.9	11.5	1.223	0.886	2.109	2.38	61.29	1.498	0.612
86	0.5943	121.159	121.2	11.8	1.222	0.885	2.107	2.38	61.31	1.496	0.611
87	0.6076	121.237	121.2	12.0	1.220	0.886	2.106	2.38	61.29	1.496	0.610
88	0.6208	120.963	121.0	12.3	1.213	0.885	2.098	2.37	61.31	1.491	0.607
89	0.6340	121.284	121.3	12.5	1.213	0.882	2.095	2.38	61.35	1.489	0.607
90	0.6473	121.411	121.4	12.8	1.211	0.888	2.099	2.36	61.27	1.493	0.605
91	0.6605	120.507	120.5	13.0	1.198	0.886	2.085	2.35	61.29	1.486	0.599
92	0.6737	120.136	120.1	13.3	1.191	0.886	2.077	2.34	61.29	1.482	0.596
93	0.6870	118.707	118.7	13.5	1.174	0.885	2.059	2.33	61.30	1.472	0.587
94	0.7002	117.608	117.6	13.8	1.159	0.885	2.045	2.31	61.30	1.465	0.580
95	0.7134	117.534	117.5	14.0	1.155	0.887	2.042	2.30	61.28	1.465	0.578
96	0.7267	116.644	116.6	14.3	1.143	0.885	2.029	2.29	61.30	1.457	0.572
97	0.7399	116.260	116.3	14.5	1.136	0.887	2.023	2.28	61.28	1.455	0.568
98	0.7531	115.575	115.6	14.8	1.126	0.889	2.015	2.27	61.26	1.452	0.563
99	0.7660	114.123	114.1	15.0	1.109	0.882	1.991	2.26	61.35	1.436	0.554



	Total	Effective
C, tsf	0.038	0.014
ϕ, deg	15.6	28.7
Tan(ϕ)	0.28	0.55



Sample No.		1	2	3
Initial	Water Content, %	44.0	44.0	44.0
	Dry Density, pcf	74.9	74.9	74.9
	Saturation, %	95.0	95.0	95.0
	Void Ratio	1.2491	1.2491	1.2491
	Diameter, in.	2.02	2.02	2.02
	Height, in.	4.36	4.36	4.36
At Test	Water Content, %	33.6	33.6	33.6
	Dry Density, pcf	88.4	88.4	88.4
	Saturation, %	100.0	100.0	100.0
	Void Ratio	0.9060	0.9060	0.9060
	Diameter, in.	1.90	1.91	1.98
	Height, in.	4.17	4.10	3.81
Strain rate, %/min.		0.05	0.02	0.05
Back Pressure, tsf		2.18	2.18	2.19
Cell Pressure, tsf		3.69	4.69	5.72
Fail. Stress, tsf		1.20	1.96	2.68
Excess Pore Pr., tsf		0.86	1.50	2.13
Ult. Stress, tsf		1.21	1.91	2.55
Excess Pore Pr., tsf		0.86	1.50	2.13
$\bar{\sigma}_1$ Failure, tsf		1.84	2.97	4.09
$\bar{\sigma}_3$ Failure, tsf		0.64	1.01	1.41

Type of Test:
CU with Pore Pressures

Sample Type: Undisturbed

Description: Gray FAT CLAY

LL= 56 **PL=** 20 **PI=** 36

Assumed Specific Gravity= 2.70

Remarks:
Test method: ASTM D 4767
Pocket pen; tsf: 0.75
Failure type: Bulge

Client: United States Army Corps of Engineers

Project: Galveston Channel and Pelican Island PA
Contract No. DACW64-03-D-0008, Task Order No. 0077

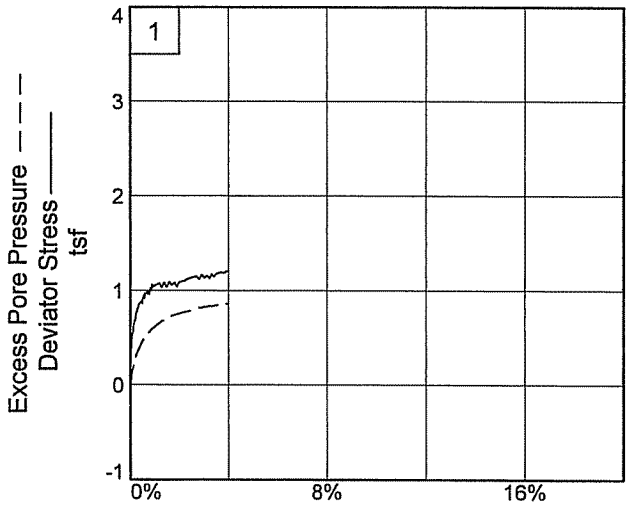
Source of Sample: 07-181 **Depth:** 38-40

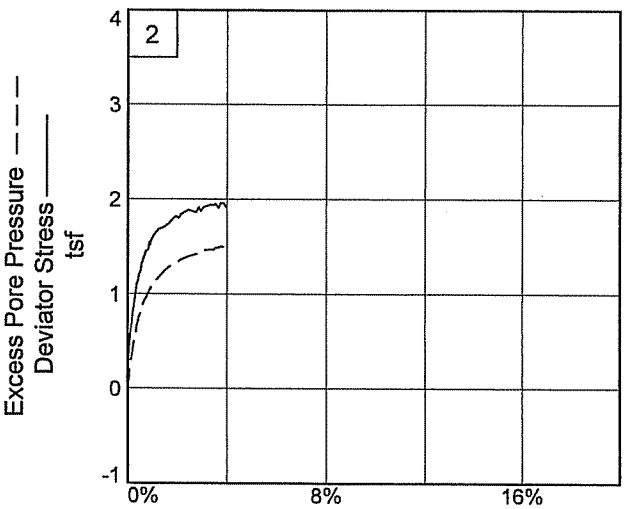
Sample Number: 20

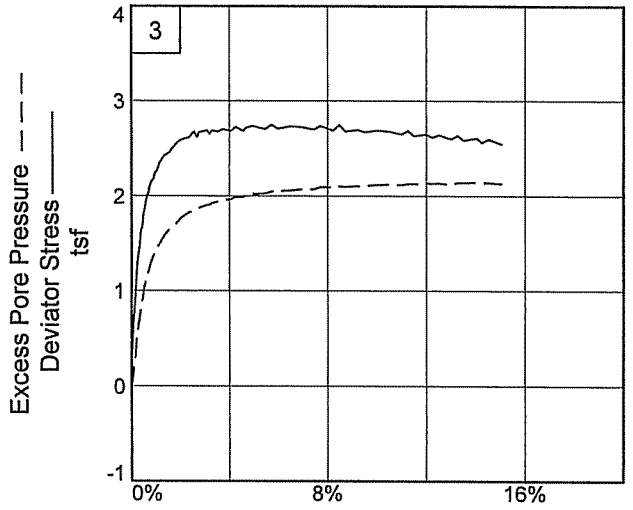
Proj. No.: 08.18.918 **Date Sampled:** 713/08

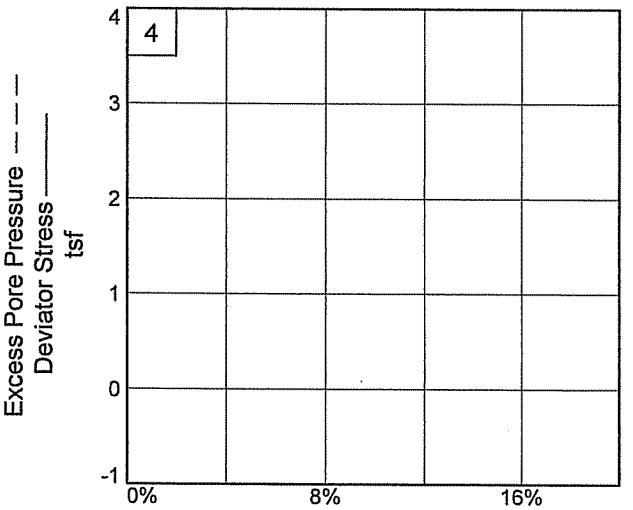
TRIAXIAL SHEAR TEST REPORT

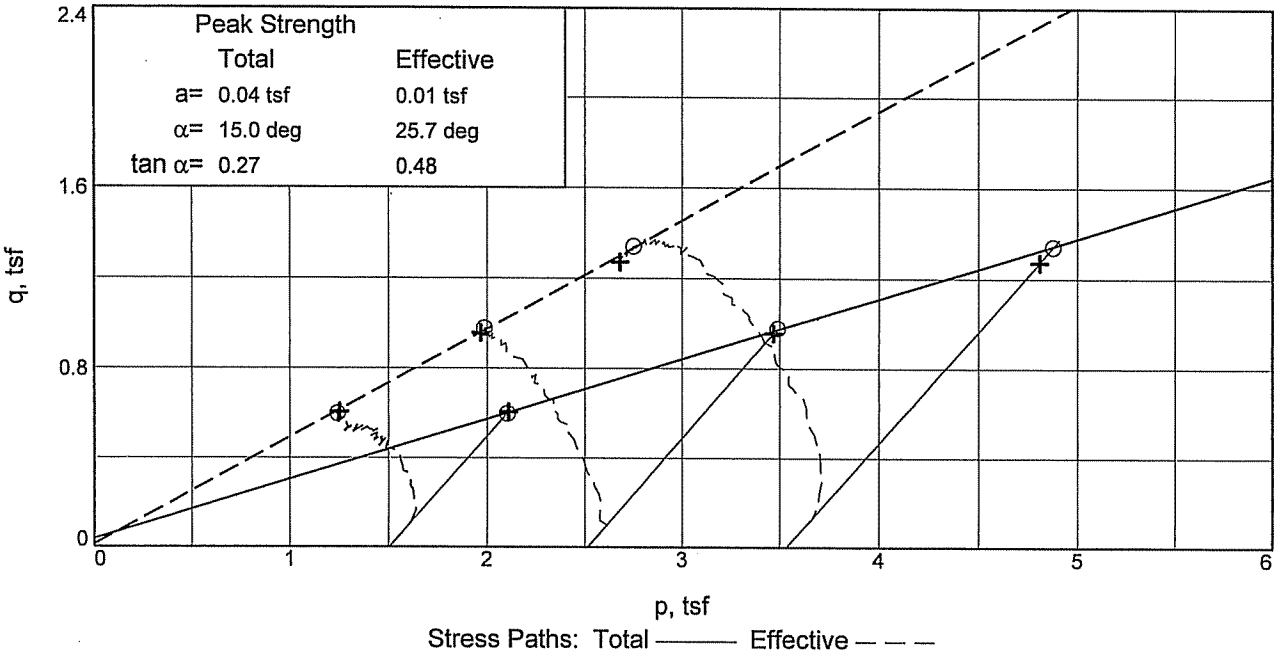
Tolunay-Wong Engineers, Inc.











Client: United States Army Corps of Engineers
Project: Galveston Channel and Pelican Island PA
Source of Sample: 07-181 **Depth:** 38-40 **Sample Number:** 20
Project No.: 08.18.918

TOLUNAY-WONG ENGINEERS, INC.

TRIAXIAL COMPRESSION TEST

CU with Pore Pressures

7/28/2008
11:26 AM

Date: 713/08
Client: United States Army Corps of Engineers
Project: Galveston Channel and Pelican Island PA
Contract No. DACW64-03-D-0008, Task Order No. 0077
Project No.: 08.18.918
Location: 07-181
Depth: 38-40 **Sample Number:** 20
Description: Gray FAT CLAY
Remarks:
Test method: ASTM D 4767
Pocket pen; tsf: 0.75
Failure type: Bulge
Type of Sample: Undisturbed
Assumed Specific Gravity=2.70 **LL=**56 **PL=**20 **PI=**36
Test Method: ASTM D 4767 Method B

Parameters for Specimen No. 1

Specimen Parameter	Initial	Saturated	Consolidated	Final
Moisture content: Moist soil+tare, gms.	91.380			132.970
Moisture content: Dry soil+tare, gms.	72.830			107.160
Moisture content: Tare, gms.	30.630			30.240
Moisture, %	44.0	40.2	33.6	33.6
Moist specimen weight, gms.	393.8			
Diameter, in.	2.02	1.94	1.90	
Area, in.^{2}	3.19	2.96	2.82	
Height, in.	4.36	4.36	4.17	
Net decrease in height, in.		0.00	0.18	
Net decrease in water volume, cc.			18.30	
Wet Density, pcf	107.9	113.3	118.1	
Dry density, pcf	74.9	80.8	88.4	
Void ratio	1.2491	1.0866	0.9060	
Saturation, %	95.0	100.0	100.0	

Test Readings for Specimen No. 1

Membrane modulus = .130 kN/cm^2
Membrane thickness = .031 cm
Filter paper coefficient = 0.0019 kN/cm
Filter paper coverage = 50%
Consolidation cell pressure = 51.20 psi (3.686 tsf)
Consolidation back pressure = 30.30 psi (2.182 tsf)
Consolidation effective confining stress = 1.505 tsf
Strain rate, %/min. = 0.05
Fail. Stress = 1.196 tsf **at reading no.** 54
Ult. Stress = 1.210 tsf **at reading no.** 55

Test Readings for Specimen No. 1

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress tsf	Minor Eff. Stress tsf	Major Eff. Stress tsf	1:3 Ratio	Pore Press. psi	P tsf	Q tsf
0	0.0006	0.000	0.0	0.0	0.000	1.506	1.506	1.00	30.29	1.506	0.000
1	0.0007	8.591	8.6	0.0	0.219	1.505	1.724	1.15	30.29	1.615	0.110
2	0.0008	12.947	12.9	0.0	0.330	1.478	1.808	1.22	30.67	1.643	0.165
3	0.0023	15.344	15.3	0.0	0.391	1.439	1.830	1.27	31.22	1.634	0.196
4	0.0026	17.500	17.5	0.0	0.446	1.408	1.853	1.32	31.65	1.631	0.223
5	0.0036	20.460	20.5	0.1	0.521	1.366	1.887	1.38	32.23	1.626	0.261
6	0.0051	21.558	21.6	0.1	0.549	1.339	1.888	1.41	32.60	1.614	0.275
7	0.0060	24.323	24.3	0.1	0.619	1.307	1.926	1.47	33.05	1.617	0.310
8	0.0081	26.455	26.5	0.2	0.673	1.257	1.930	1.54	33.75	1.593	0.337
9	0.0095	27.044	27.0	0.2	0.688	1.230	1.918	1.56	34.12	1.574	0.344
10	0.0097	28.561	28.6	0.2	0.727	1.210	1.936	1.60	34.40	1.573	0.363
11	0.0123	31.038	31.0	0.3	0.789	1.166	1.955	1.68	35.00	1.561	0.395
12	0.0145	32.977	33.0	0.3	0.838	1.138	1.976	1.74	35.40	1.557	0.419
13	0.0164	34.065	34.1	0.4	0.865	1.104	1.969	1.78	35.87	1.536	0.433
14	0.0197	34.905	34.9	0.5	0.886	1.065	1.951	1.83	36.41	1.508	0.443
15	0.0209	33.940	33.9	0.5	0.861	1.054	1.915	1.82	36.56	1.485	0.431
16	0.0212	35.320	35.3	0.5	0.896	1.040	1.936	1.86	36.75	1.488	0.448
17	0.0242	37.589	37.6	0.6	0.953	1.020	1.973	1.93	37.03	1.496	0.476
18	0.0250	36.017	36.0	0.6	0.913	0.999	1.912	1.91	37.33	1.455	0.456
19	0.0252	38.228	38.2	0.6	0.969	1.000	1.969	1.97	37.31	1.485	0.484
20	0.0266	37.624	37.6	0.6	0.953	0.986	1.939	1.97	37.50	1.463	0.477
21	0.0294	38.899	38.9	0.7	0.985	0.975	1.960	2.01	37.66	1.467	0.492
22	0.0302	38.183	38.2	0.7	0.967	0.962	1.929	2.00	37.84	1.446	0.483
23	0.0310	39.262	39.3	0.7	0.994	0.962	1.955	2.03	37.84	1.459	0.497
24	0.0323	37.822	37.8	0.8	0.957	0.950	1.907	2.01	38.01	1.428	0.478
25	0.0335	39.244	39.2	0.8	0.993	0.944	1.936	2.05	38.09	1.440	0.496
26	0.0352	40.519	40.5	0.8	1.024	0.929	1.953	2.10	38.30	1.441	0.512
27	0.0366	39.400	39.4	0.9	0.996	0.915	1.911	2.09	38.49	1.413	0.498
28	0.0373	41.871	41.9	0.9	1.058	0.916	1.974	2.15	38.47	1.445	0.529
29	0.0392	40.807	40.8	0.9	1.031	0.907	1.938	2.14	38.60	1.423	0.515
30	0.0406	41.409	41.4	1.0	1.046	0.898	1.944	2.16	38.72	1.421	0.523
31	0.0461	42.068	42.1	1.1	1.061	0.870	1.931	2.22	39.11	1.401	0.530
32	0.0501	42.704	42.7	1.2	1.076	0.855	1.931	2.26	39.33	1.393	0.538
33	0.0544	43.247	43.2	1.3	1.032	0.830	1.862	2.24	39.67	1.346	0.516
34	0.0581	45.511	45.5	1.4	1.084	0.826	1.910	2.31	39.72	1.368	0.542
35	0.0627	43.847	43.8	1.5	1.036	0.803	1.839	2.29	40.04	1.321	0.518
36	0.0667	46.228	46.2	1.6	1.090	0.797	1.888	2.37	40.13	1.342	0.545
37	0.0709	45.107	45.1	1.7	1.057	0.774	1.831	2.37	40.45	1.303	0.528
38	0.0751	46.382	46.4	1.8	1.083	0.769	1.852	2.41	40.52	1.311	0.542
39	0.0794	44.920	44.9	1.9	1.041	0.758	1.799	2.37	40.67	1.279	0.520
40	0.0832	46.868	46.9	2.0	1.085	0.753	1.838	2.44	40.74	1.295	0.542
41	0.0915	47.544	47.5	2.2	1.098	0.739	1.837	2.49	40.94	1.288	0.549
42	0.1003	48.705	48.7	2.4	1.125	0.724	1.849	2.55	41.14	1.286	0.562
43	0.1123	49.909	49.9	2.7	1.151	0.699	1.850	2.65	41.49	1.275	0.575
44	0.1168	48.703	48.7	2.8	1.120	0.687	1.807	2.63	41.66	1.247	0.560
45	0.1214	50.454	50.5	2.9	1.162	0.692	1.854	2.68	41.58	1.273	0.581
46	0.1256	49.358	49.4	3.0	1.133	0.676	1.809	2.68	41.81	1.243	0.567

Test Readings for Specimen No. 1

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress tsf	Minor Eff. Stress tsf	Major Eff. Stress tsf	1:3 Ratio	Pore Press. psi	P tsf	Q tsf
47	0.1299	50.354	50.4	3.1	1.156	0.681	1.837	2.70	41.75	1.259	0.578
48	0.1340	49.171	49.2	3.2	1.126	0.669	1.795	2.68	41.91	1.232	0.563
49	0.1378	51.063	51.1	3.3	1.171	0.674	1.846	2.74	41.83	1.260	0.586
50	0.1420	50.070	50.1	3.4	1.146	0.669	1.815	2.71	41.91	1.242	0.573
51	0.1461	51.224	51.2	3.5	1.173	0.665	1.838	2.76	41.96	1.251	0.586
52	0.1546	52.123	52.1	3.7	1.192	0.653	1.846	2.82	42.12	1.250	0.596
53	0.1590	51.783	51.8	3.8	1.183	0.653	1.835	2.81	42.14	1.244	0.591
54	0.1633	52.402	52.4	3.9	1.196	0.644	1.841	2.86	42.25	1.243	0.598
55	0.1676	53.015	53.0	4.0	1.210	0.649	1.859	2.86	42.19	1.254	0.605

Parameters for Specimen No. 2

Specimen Parameter	Initial	Saturated	Consolidated	Final
Moisture content: Moist soil+tare, gms.	91.380			132.970
Moisture content: Dry soil+tare, gms.	72.830			107.160
Moisture content: Tare, gms.	30.630			30.240
Moisture, %	44.0	42.7	33.6	33.6
Moist specimen weight, gms.	393.8			
Diameter, in.	2.02	1.97	1.91	
Area, in.²	3.19	3.05	2.87	
Height, in.	4.36	4.36	4.10	
Net decrease in height, in.		0.00	0.25	
Net decrease in water volume, cc.			24.90	
Wet Density, pcf	107.9	111.8	118.1	
Dry density, pcf	74.9	78.3	88.4	
Void ratio	1.2491	1.1517	0.9060	
Saturation, %	95.0	100.0	100.0	

Test Readings for Specimen No. 2

Membrane modulus = .130 kN/cm²

Membrane thickness = .031 cm

Filter paper coefficient = 0.0019 kN/cm

Filter paper coverage = 50%

Consolidation cell pressure = 65.20 psi (4.694 tsf)

Consolidation back pressure = 30.30 psi (2.182 tsf)

Consolidation effective confining stress = 2.513 tsf

Strain rate, %/min. = 0.02

Fail. Stress = 1.957 tsf **at reading no.** 48

Ult. Stress = 1.914 tsf **at reading no.** 50

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress tsf	Minor Eff. Stress tsf	Major Eff. Stress tsf	1:3 Ratio	Pore Press. psi	P tsf	Q tsf
0	0.0009	0.000	0.0	0.0	0.000	2.516	2.516	1.00	30.25	2.516	0.000
1	0.0010	7.785	7.8	0.0	0.195	2.516	2.711	1.08	30.25	2.614	0.098
2	0.0011	9.655	9.7	0.0	0.242	2.455	2.697	1.10	31.10	2.576	0.121
3	0.0030	12.219	12.2	0.1	0.306	2.424	2.730	1.13	31.53	2.577	0.153
4	0.0033	16.216	16.2	0.1	0.406	2.377	2.784	1.17	32.18	2.581	0.203
5	0.0039	19.085	19.1	0.1	0.478	2.331	2.809	1.21	32.83	2.570	0.239
6	0.0049	21.927	21.9	0.1	0.549	2.274	2.823	1.24	33.61	2.549	0.275
7	0.0060	24.994	25.0	0.1	0.626	2.224	2.850	1.28	34.31	2.537	0.313

Test Readings for Specimen No. 2

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress tsf	Minor Eff. Stress tsf	Major Eff. Stress tsf	1:3 Ratio	Pore Press. psi	P tsf	Q tsf
8	0.0070	26.543	26.5	0.1	0.664	2.182	2.846	1.30	34.90	2.514	0.332
9	0.0082	28.839	28.8	0.2	0.722	2.143	2.864	1.34	35.44	2.503	0.361
10	0.0090	30.756	30.8	0.2	0.769	2.111	2.881	1.36	35.87	2.496	0.385
11	0.0099	32.544	32.5	0.2	0.814	2.076	2.890	1.39	36.36	2.483	0.407
12	0.0109	34.044	34.0	0.2	0.851	2.043	2.895	1.42	36.82	2.469	0.426
13	0.0121	36.253	36.3	0.3	0.906	2.003	2.909	1.45	37.38	2.456	0.453
14	0.0133	38.766	38.8	0.3	0.969	1.959	2.928	1.49	37.99	2.443	0.484
15	0.0150	41.008	41.0	0.3	1.024	1.903	2.928	1.54	38.76	2.416	0.512
16	0.0158	43.892	43.9	0.4	1.096	1.869	2.966	1.59	39.24	2.417	0.548
17	0.0179	44.951	45.0	0.4	1.122	1.818	2.940	1.62	39.96	2.379	0.561
18	0.0189	45.934	45.9	0.4	1.146	1.788	2.934	1.64	40.37	2.361	0.573
19	0.0195	47.943	47.9	0.5	1.196	1.762	2.958	1.68	40.73	2.360	0.598
20	0.0220	49.235	49.2	0.5	1.228	1.728	2.956	1.71	41.20	2.342	0.614
21	0.0233	50.130	50.1	0.5	1.250	1.707	2.956	1.73	41.50	2.331	0.625
22	0.0242	52.629	52.6	0.6	1.312	1.687	2.999	1.78	41.76	2.343	0.656
23	0.0259	53.594	53.6	0.6	1.335	1.639	2.974	1.81	42.43	2.307	0.668
24	0.0269	54.513	54.5	0.6	1.358	1.617	2.974	1.84	42.75	2.296	0.679
25	0.0301	57.169	57.2	0.7	1.423	1.575	2.998	1.90	43.33	2.286	0.711
26	0.0311	58.034	58.0	0.7	1.444	1.561	3.005	1.93	43.52	2.283	0.722
27	0.0355	59.109	59.1	0.8	1.469	1.505	2.974	1.98	44.30	2.239	0.735
28	0.0372	62.055	62.1	0.9	1.542	1.478	3.020	2.04	44.67	2.249	0.771
29	0.0384	60.884	60.9	0.9	1.512	1.471	2.984	2.03	44.76	2.228	0.756
30	0.0392	62.546	62.5	0.9	1.553	1.454	3.007	2.07	45.01	2.230	0.777
31	0.0442	64.976	65.0	1.1	1.612	1.398	3.010	2.15	45.78	2.204	0.806
32	0.0529	67.963	68.0	1.3	1.682	1.338	3.021	2.26	46.61	2.179	0.841
33	0.0606	68.896	68.9	1.5	1.702	1.278	2.980	2.33	47.45	2.129	0.851
34	0.0692	70.590	70.6	1.7	1.740	1.228	2.968	2.42	48.15	2.098	0.870
35	0.0735	71.912	71.9	1.8	1.771	1.216	2.986	2.46	48.32	2.101	0.885
36	0.0816	74.116	74.1	2.0	1.821	1.184	3.006	2.54	48.75	2.095	0.911
37	0.0861	73.262	73.3	2.1	1.798	1.171	2.969	2.54	48.94	2.070	0.899
38	0.0895	74.992	75.0	2.2	1.839	1.153	2.992	2.60	49.19	2.072	0.920
39	0.1021	77.075	77.1	2.5	1.884	1.116	3.001	2.69	49.69	2.059	0.942
40	0.1146	76.282	76.3	2.8	1.859	1.093	2.952	2.70	50.02	2.023	0.930
41	0.1185	78.509	78.5	2.9	1.912	1.073	2.985	2.78	50.29	2.029	0.956
42	0.1222	76.919	76.9	3.0	1.871	1.075	2.946	2.74	50.27	2.011	0.936
43	0.1268	78.642	78.6	3.1	1.911	1.054	2.965	2.81	50.56	2.009	0.955
44	0.1398	80.166	80.2	3.4	1.941	1.042	2.984	2.86	50.72	2.013	0.971
45	0.1437	79.819	79.8	3.5	1.931	1.047	2.978	2.84	50.66	2.013	0.966
46	0.1469	80.680	80.7	3.6	1.950	1.028	2.978	2.90	50.93	2.003	0.975
47	0.1518	79.118	79.1	3.7	1.910	1.028	2.938	2.86	50.92	1.983	0.955
48	0.1555	81.120	81.1	3.8	1.957	1.009	2.966	2.94	51.19	1.987	0.978
49	0.1597	81.155	81.2	3.9	1.956	1.017	2.972	2.92	51.08	1.995	0.978
50	0.1642	79.515	79.5	4.0	1.914	1.013	2.927	2.89	51.13	1.970	0.957

Parameters for Specimen No. 3

Specimen Parameter	Initial	Saturated	Consolidated	Final
Moisture content: Moist soil+tare, gms.	91.380			132.970
Moisture content: Dry soil+tare, gms.	72.830			107.160
Moisture content: Tare, gms.	30.630			30.240
Moisture, %	44.0	45.4	33.6	33.6
Moist specimen weight, gms.	393.8			
Diameter, in.	2.02	2.01	1.98	
Area, in.^{2}	3.19	3.16	3.09	
Height, in.	4.36	4.36	3.81	
Net decrease in height, in.		0.00	0.54	
Net decrease in water volume, cc.			32.50	
Wet Density, pcf	107.9	110.1	118.1	
Dry density, pcf	74.9	75.7	88.4	
Void ratio	1.2491	1.2267	0.9060	
Saturation, %	95.0	100.0	100.0	

Test Readings for Specimen No. 3

Membrane modulus = .130 kN/cm^2

Membrane thickness = .031 cm

Filter paper coefficient = 0.0019 kN/cm

Filter paper coverage = 50%

Consolidation cell pressure = 79.50 psi (5.724 tsf)

Consolidation back pressure = 30.40 psi (2.189 tsf)

Consolidation effective confining stress = 3.535 tsf

Strain rate, %/min. = 0.05

Fail. Stress = 2.684 tsf **at reading no.** 66

Ult. Stress = 2.546 tsf **at reading no.** 77

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress tsf	Minor Eff. Stress tsf	Major Eff. Stress tsf	1:3 Ratio	Pore Press. psi	P tsf	Q tsf
0	0.0008	0.000	0.0	0.0	0.000	3.535	3.535	1.00	30.40	3.535	0.000
1	0.0009	7.442	7.4	0.0	0.173	3.535	3.708	1.05	30.40	3.622	0.087
2	0.0010	11.016	11.0	0.0	0.257	3.537	3.794	1.07	30.37	3.666	0.128
3	0.0019	15.783	15.8	0.0	0.368	3.509	3.877	1.10	30.76	3.693	0.184
4	0.0028	21.674	21.7	0.1	0.505	3.451	3.955	1.15	31.57	3.703	0.252
5	0.0037	25.408	25.4	0.1	0.592	3.420	4.011	1.17	32.01	3.715	0.296
6	0.0045	30.611	30.6	0.1	0.713	3.351	4.064	1.21	32.96	3.707	0.356
7	0.0055	35.440	35.4	0.1	0.825	3.294	4.118	1.25	33.75	3.706	0.412
8	0.0064	39.055	39.1	0.1	0.909	3.237	4.146	1.28	34.54	3.692	0.454
9	0.0074	43.459	43.5	0.2	1.011	3.170	4.180	1.32	35.48	3.675	0.505
10	0.0079	46.076	46.1	0.2	1.072	3.118	4.190	1.34	36.19	3.654	0.536
11	0.0083	49.586	49.6	0.2	1.153	3.061	4.215	1.38	36.98	3.638	0.577
12	0.0097	53.670	53.7	0.2	1.248	3.013	4.261	1.41	37.65	3.637	0.624
13	0.0106	57.446	57.4	0.3	1.335	2.952	4.287	1.45	38.50	3.620	0.668
14	0.0117	59.245	59.2	0.3	1.377	2.899	4.275	1.47	39.24	3.587	0.688
15	0.0126	61.217	61.2	0.3	1.422	2.859	4.281	1.50	39.79	3.570	0.711
16	0.0134	62.837	62.8	0.3	1.459	2.817	4.276	1.52	40.38	3.546	0.730
17	0.0143	67.215	67.2	0.4	1.561	2.768	4.329	1.56	41.06	3.548	0.780
18	0.0153	70.050	70.1	0.4	1.626	2.681	4.307	1.61	42.27	3.494	0.813
19	0.0168	71.411	71.4	0.4	1.657	2.652	4.309	1.62	42.67	3.480	0.828
20	0.0185	74.036	74.0	0.5	1.717	2.615	4.332	1.66	43.18	3.474	0.859

Test Readings for Specimen No. 3

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress tsf	Minor Eff. Stress tsf	Major Eff. Stress tsf	1:3 Ratio	Pore Press. psi	P tsf	Q tsf
21	0.0190	77.010	77.0	0.5	1.786	2.582	4.367	1.69	43.64	3.475	0.893
22	0.0204	79.059	79.1	0.5	1.833	2.508	4.341	1.73	44.66	3.425	0.916
23	0.0224	82.301	82.3	0.6	1.907	2.450	4.357	1.78	45.47	3.404	0.953
24	0.0242	84.695	84.7	0.6	1.961	2.398	4.360	1.82	46.19	3.379	0.981
25	0.0274	88.058	88.1	0.7	2.038	2.326	4.364	1.88	47.19	3.345	1.019
26	0.0281	89.467	89.5	0.7	2.070	2.311	4.381	1.90	47.40	3.346	1.035
27	0.0316	92.824	92.8	0.8	2.145	2.228	4.373	1.96	48.56	3.301	1.073
28	0.0350	94.312	94.3	0.9	2.178	2.167	4.345	2.00	49.40	3.256	1.089
29	0.0364	96.602	96.6	0.9	2.230	2.143	4.373	2.04	49.74	3.258	1.115
30	0.0402	98.288	98.3	1.0	2.267	2.079	4.345	2.09	50.63	3.212	1.133
31	0.0442	101.763	101.8	1.1	2.344	2.043	4.387	2.15	51.13	3.215	1.172
32	0.0519	105.241	105.2	1.3	2.419	1.957	4.376	2.24	52.32	3.167	1.210
33	0.0597	107.075	107.1	1.5	2.456	1.888	4.344	2.30	53.28	3.116	1.228
34	0.0635	108.802	108.8	1.6	2.494	1.871	4.365	2.33	53.51	3.118	1.247
35	0.0718	112.013	112.0	1.9	2.561	1.813	4.375	2.41	54.31	3.094	1.281
36	0.0787	113.520	113.5	2.0	2.591	1.766	4.357	2.47	54.98	3.061	1.296
37	0.0903	114.938	114.9	2.3	2.615	1.712	4.327	2.53	55.72	3.019	1.308
38	0.0981	117.813	117.8	2.6	2.675	1.689	4.364	2.58	56.04	3.027	1.338
39	0.1022	115.346	115.3	2.7	2.616	1.686	4.302	2.55	56.09	2.994	1.308
40	0.1060	117.672	117.7	2.8	2.666	1.663	4.330	2.60	56.40	2.997	1.333
41	0.1175	118.986	119.0	3.1	2.688	1.632	4.320	2.65	56.83	2.976	1.344
42	0.1215	117.545	117.5	3.2	2.652	1.632	4.284	2.63	56.84	2.958	1.326
43	0.1251	119.246	119.2	3.3	2.688	1.613	4.301	2.67	57.10	2.957	1.344
44	0.1360	119.011	119.0	3.5	2.675	1.596	4.271	2.68	57.33	2.934	1.337
45	0.1438	120.426	120.4	3.7	2.701	1.580	4.281	2.71	57.56	2.930	1.350
46	0.1559	120.002	120.0	4.1	2.682	1.575	4.257	2.70	57.63	2.916	1.341
47	0.1640	122.104	122.1	4.3	2.723	1.547	4.270	2.76	58.01	2.909	1.362
48	0.1749	120.508	120.5	4.6	2.680	1.551	4.231	2.73	57.96	2.891	1.340
49	0.1789	122.220	122.2	4.7	2.715	1.525	4.240	2.78	58.31	2.883	1.357
50	0.1901	123.466	123.5	5.0	2.734	1.516	4.250	2.80	58.45	2.883	1.367
51	0.2095	122.556	122.6	5.5	2.699	1.514	4.213	2.78	58.48	2.863	1.350
52	0.2192	125.095	125.1	5.7	2.748	1.489	4.237	2.85	58.83	2.863	1.374
53	0.2286	123.407	123.4	6.0	2.704	1.484	4.188	2.82	58.89	2.836	1.352
54	0.2481	125.269	125.3	6.5	2.730	1.479	4.208	2.85	58.97	2.843	1.365
55	0.2670	125.603	125.6	7.0	2.722	1.464	4.186	2.86	59.17	2.825	1.361
56	0.2854	125.095	125.1	7.5	2.697	1.465	4.162	2.84	59.16	2.813	1.349
57	0.2953	127.143	127.1	7.7	2.734	1.443	4.177	2.89	59.45	2.810	1.367
58	0.3149	125.636	125.6	8.2	2.686	1.445	4.132	2.86	59.42	2.789	1.343
59	0.3249	128.728	128.7	8.5	2.745	1.436	4.181	2.91	59.55	2.809	1.372
60	0.3340	125.921	125.9	8.7	2.678	1.438	4.116	2.86	59.53	2.777	1.339
61	0.3530	127.462	127.5	9.2	2.696	1.431	4.127	2.88	59.63	2.779	1.348
62	0.3634	126.616	126.6	9.5	2.670	1.429	4.099	2.87	59.65	2.764	1.335
63	0.3830	128.135	128.1	10.0	2.686	1.418	4.104	2.89	59.81	2.761	1.343
64	0.4020	128.371	128.4	10.5	2.677	1.414	4.091	2.89	59.86	2.753	1.338
65	0.4208	127.653	127.7	11.0	2.647	1.420	4.067	2.86	59.78	2.743	1.323
66	0.4306	129.810	129.8	11.3	2.684	1.408	4.092	2.91	59.95	2.750	1.342
67	0.4396	127.511	127.5	11.5	2.629	1.410	4.039	2.86	59.92	2.725	1.315

Test Readings for Specimen No. 3

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress tsf	Minor Eff. Stress tsf	Major Eff. Stress tsf	1:3 Ratio	Pore Press. psi	P tsf	Q tsf
68	0.4589	129.096	129.1	12.0	2.647	1.403	4.050	2.89	60.01	2.727	1.323
69	0.4684	127.764	127.8	12.3	2.612	1.404	4.016	2.86	59.99	2.710	1.306
70	0.4783	129.496	129.5	12.5	2.640	1.403	4.043	2.88	60.01	2.723	1.320
71	0.4977	128.074	128.1	13.0	2.595	1.414	4.010	2.84	59.86	2.712	1.298
72	0.5077	130.402	130.4	13.3	2.635	1.396	4.031	2.89	60.11	2.714	1.317
73	0.5173	128.252	128.3	13.5	2.584	1.396	3.979	2.85	60.12	2.688	1.292
74	0.5363	130.153	130.2	14.0	2.607	1.392	3.999	2.87	60.17	2.695	1.303
75	0.5454	128.166	128.2	14.3	2.560	1.395	3.955	2.83	60.12	2.675	1.280
76	0.5554	130.382	130.4	14.5	2.596	1.396	3.992	2.86	60.12	2.694	1.298
77	0.5751	128.607	128.6	15.1	2.546	1.406	3.951	2.81	59.97	2.679	1.273

SUMMARY OF LABORATORY TESTS

Project No. 08.18.918

Client: United States Army Corps of Engineers

Project: Galveston Channel and Pelican Island PA
Contract No. DACW64-03-D-0008, Task Order No. 0077

Boring No.	Sample No.	Depth (ft)	Soil Description	USCS	Water Content (%)	Dry Density (pcf)	Liquid Limit	Plastic Limit	Plast. Index	Finer than #200 Sieve (%)	Lab Vane (tsf)	Uc/UU. Compr. (tsf)	Failure Strain (%)	Conf. Pres. (psi)	Failure Type
	11	30.5-32	Gray FAT CLAY	CH	59.3	43.1									
	12	32-34	Gray FAT CLAY; sand seams	CH	45.6	74.4									
	13	34-36	Gray SANDY FAT CLAY	CH	47.0	70.1	63	21	42	69.4		0.36	13.9	21.0	Bulge
	14	36-38	Gray FAT CLAY; sand seams	CH	49.9	70.2									
	15	38-40	Gray SANDY LEAN CLAY	CL	30.9		41	21	20	51.8					
	16	40-42	Gray FAT CLAY; sand seams	CH	42.5	75.8									
	17	42-44	Gray FAT CLAY; sand seams and pockets	CH	36.0	79.3									
	18	44-46	Gray FAT CLAY; sand seams	CH	50.7	69.5	50	20	30	96.2		0.30	6.4	25.0	Bulge
	19	46-48	Gray FAT CLAY; sand seams	CH	47.9	70.5									
	20	48-50	Gray SILTY CLAYEY SAND	SC-SM	24.1	88.2									
07-177															
	1	0-1	Brown and gray FAT CLAY	CH											
	2	1-2	Gray FAT CLAY	CH	84.8		106	33	73	99.5					
	3	2-3	Brown and gray FAT CLAY	CH											
	4	3-4	Brown and gray FAT CLAY	CH	77.9		116	32	84	99.1					
	5	4-5	Gray FAT CLAY	CH											
	6	5-6	Gray FAT CLAY	CH	56.6										
07-178															
	1	0-2	Gray and brown FAT CLAY	CH	30.6	83.3	92	25	67	97.4		1.44	3.0		Slickensided
	2	2-4	Gray and brown FAT CLAY	CH	42.9	74.5									
	3	4-6	Gray and brown FAT CLAY	CH	44.4	71.7	92	25	67	98.2		0.39	2.7		Slickensided
	4	6-8	Gray and brown FAT CLAY	CH	54.5	63.3									
	5	8-10	Gray FAT CLAY	CH	52.6	66.3									
	6	10-12	Gray FAT CLAY; calcareous nodules	CH	31.1	85.2									
	7	12-14	Reddish-brown and gray FAT CLAY with SAND; shell fragments	CH	33.1	85.0	62	22	40	80.8		0.57	4.7		60 degree
	8	14-16	Reddish-brown and gray FAT CLAY	CH	30.7	87.6									
	9	16-18	Reddish-brown and gray FAT CLAY; shell fragments	CH	28.9	91.5									
	10	18-20	Reddish-brown and gray FAT CLAY	CH	30.5		83	25	58	96.4					
07-180															
	1	0-1	Gray FAT CLAY; organics	CH											
	2	1-2	Gray FAT CLAY	CH	69.3		102	32	70	98.8					
	3	2-3	Gray FAT CLAY	CH											
	4	3-4	Gray FAT CLAY	CH	127.6										
	5	4-5	Gray FAT CLAY	CH											
	6	5-6	Gray FAT CLAY	CH	62.6		95	30	65	99.2					
07-181															

SUMMARY OF LABORATORY TESTS

Project No. 08.18.918

Client: United States Army Corps of Engineers

Project: Galveston Channel and Pelican Island PA
Contract No. DACW64-03-D-0008, Task Order No. 0077

Boring No.	Sample No.	Depth (ft)	Soil Description	USCS	Water Content (%)	Dry Density (pcf)	Liquid Limit	Plastic Limit	Plast. Index	Finer than #200 Sieve (%)	Lab Vane (tsf)	Uc/UU. Compr. (tsf)	Failure Strain (%)	Conf. Pres. (psi)	Failure Type
	1	0-2	Gray and tan FAT CLAY	CH	51.8	68.7									
	2	2-4	Gray and tan FAT CLAY	CH	43.0	74.7	85	24	61	93.4		0.65	3.4		Multiple shear
	3	4-6	Gray and tan FAT CLAY with SAND	CH	42.6	79.4									
	4	6-8	Gray and tan FAT CLAY with SAND	CH	44.2	75.9	67	22	45	84.7		0.53	4.9		45 degree
	5	8-10	Gray and tan FAT CLAY	CH	36.6	82.1									
	6	10-12	Gray and tan FAT CLAY	CH	39.9	75.8									
	7	12-14	Gray FAT CLAY	CH	44.5	71.9						0.45	3.8		45 degree
	8	14-16	Gray and tan FAT CLAY; sand pockets	CH	45.4	69.9	78	24	54	88.3		0.44	5.5		Multiple shear
	9	16-18	Gray and tan FAT CLAY	CH	38.5	84.2									
	10	18-20	Tan and light gray FAT CLAY; calcareous nodules	CH	31.7	84.0	74	23	51	97.8		1.14	11.5		Multiple shear
	11	20-22	Tan and light gray FAT CLAY	CH	34.7	83.1									
	12	22-24	Dark gray FAT CLAY	CH	64.1	62.3									
	13	24-26	Gray FAT CLAY	CH	51.3	66.5	71	22	49	99.0					Multiple shear
	14	26-28	Tan and gray FAT CLAY	CH	57.1	64.9									
	15	28-30	Gray and tan FAT CLAY	CH	59.4	61.6									
	16	30-32	Gray FAT CLAY	CH	61.8	59.6	90	25	65	91.0		0.33	4.3		60 degree
	17	32-34	Gray FAT CLAY; sand pockets	CH	25.2	96.1									
	18	34-35.5	Gray SILTY SAND	SM						26.6					
	19	36-38	Gray FAT CLAY; sand pockets	CH	56.3	61.7									
	20	38-40	Gray FAT CLAY	CH	44.0	74.9	56	20	36	85.3					Bulge
	21	40-42	Gray FAT CLAY; sand pockets	CH	42.7	77.4									
	22	42-43.5	Gray POORLY GRADED SAND with SILT	SP-SM						11.1					
	23	46-48	Gray and tan FAT CLAY; shell fragments	CH	21.8	103.2									
	24	48-50	Light gray and tan SANDY LEAN CLAY	CL	19.9	108.8									
07-183															
	1	0-1	Gray FAT CLAY	CH											
	2	1-2	Gray FAT CLAY; organics	CH	93.8		110	28	82	99.5					
	3	2-3	Gray and tan FAT CLAY	CH											
	4	3-4	Gray FAT CLAY	CH	60.6		86	24	62	97.9					
	5	4-5	Gray and tan FAT CLAY	CH											
	6	5-6	Gray and tan FAT CLAY	CH	77.1										
07-184															
	1	0-2	Gray FAT CLAY	CH	41.6	79.5									
	2	2-4	Gray and tan FAT CLAY with SAND	CH	39.5	76.7	90	25	65	73.7		0.38	4.7		45 degree
	3	4-6	Gray and tan FAT CLAY	CH	75.5	51.3									
	4	6-8	Gray FAT CLAY; organics	CH	66.0	56.9	108	28	80	98.0		0.29	8.2		45 degree
	5	8-10	Gray FAT CLAY	CH	78.9	56.5									