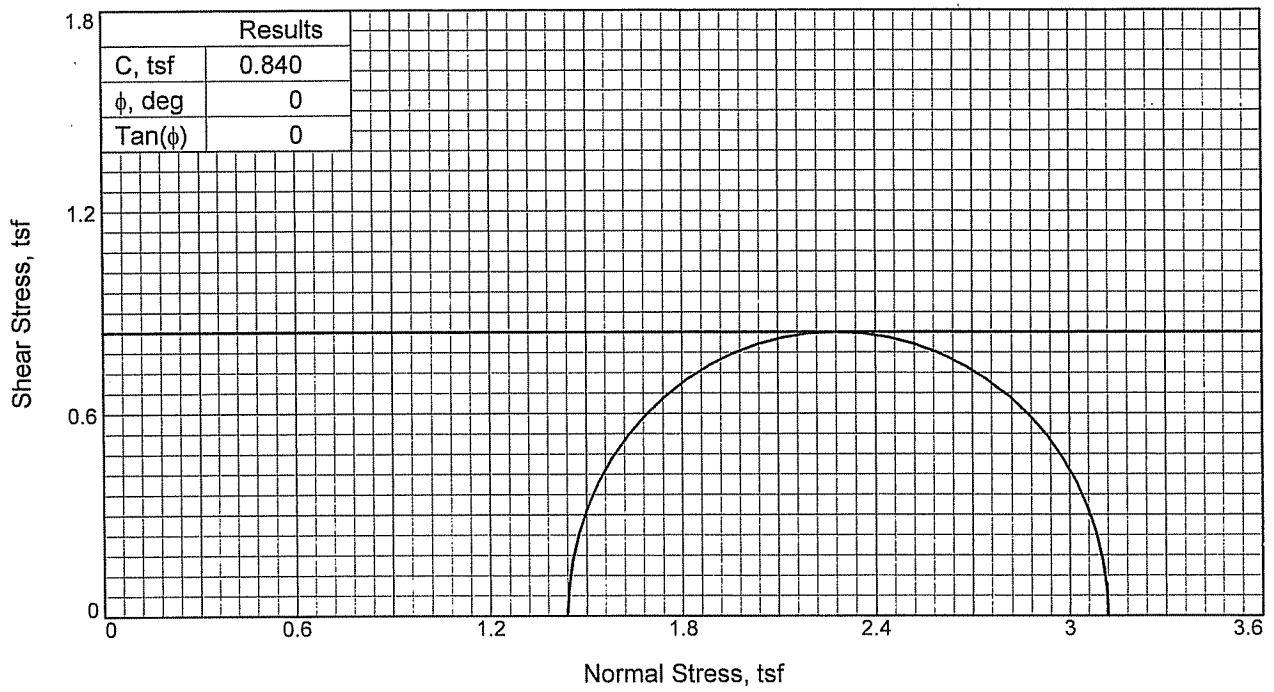
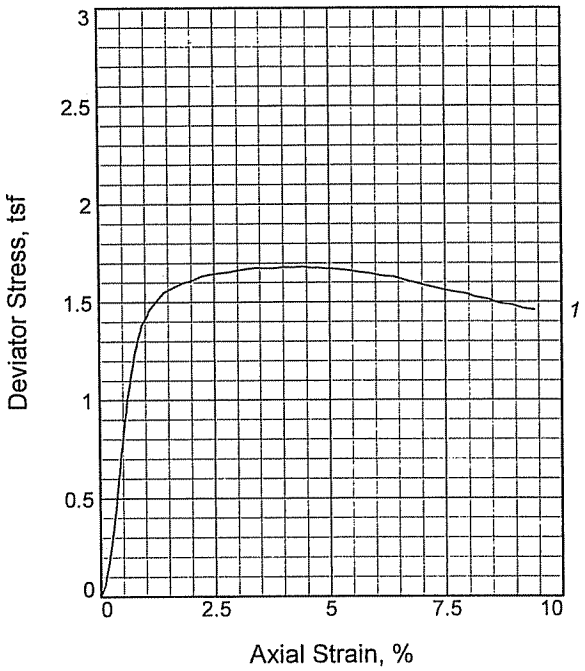
	8	14-16	Reddish-brown and gray SANDY LEAN CLAY	CL	21.6	103.6								
	9	16-18	Reddish-brown and gray FAT CLAY	CH	24.4	102.2								
	10	18-20	Reddish-brown and gray FAT CLAY	CH	24.0	99.1								
08-85			**El. 13.00, E=3182722 N=13648072**											
	2	2-4	Gray SANDY LEAN CLAY	CL	10.0	103.1								
	3	4-6	Gray SANDY LEAN CLAY	CL	11.8	100.2								
	4	6-8	Tan and gray FAT CLAY	CH	26.3	96.0								
	5	8-10	Gray and tan FAT CLAY; calcareous nodules	CH	40.2	85.5								
	6	10-12	Gray and tan FAT CLAY; calcareous nodules	CH	24.5	97.3								
	7	12-14	Gray and tan SANDY LEAN CLAY	CL	22.3	100.6								
	8	14-16	Tan and gray SANDY LEAN CLAY; ferrous nodules	CL	18.7	109.5								
	9	16-18	Tan and gray SANDY LEAN CLAY	CL	17.1	112.7								
	10	18-20	Reddish-brown and gray FAT CLAY; calcareous nodules	CH	26.9	98.3								
	11	20-22	Reddish-brown and gray FAT CLAY; calcareous nodules	CH	27.8	96.4								
	12	22-24	Reddish-brown and gray FAT CLAY; calcareous nodules	CH	25.6	97.1								
	13	24-26	Reddish-brown and gray FAT CLAY	CH	26.1	99.6	59	20	39	99.0				
	14	26-28	Reddish-brown and gray SILTY CLAY	CL-ML	25.1	98.6								
	15	28-30	Reddish-brown and gray FAT CLAY	CH	22.3	103.6								
	16	30-32	Reddish-brown and gray FAT CLAY; calcareous nodules	CH	30.5	90.9								
	17	32-34	Reddish-brown and gray FAT CLAY	CH	31.7	89.7								
	18	34-36	Reddish-brown and gray FAT CLAY; calcareous nodules	CH	29.5	94.7								
	19	36-38	Reddish-brown and gray FAT CLAY; calcareous nodules	CH	30.5	93.2								
	20	38-40	Reddish-brown and gray FAT CLAY; calcareous nodules	CH	22.0	100.7								
08-86			**El. 14.25, E=3181829 N=13646700**											
	2	2-4	Tan and gray FAT CLAY	CH	23.1	100.7								
	3	4-6	Gray and tan FAT CLAY	CH	25.8	96.1								
	4	6-8	Reddish-brown and tan FAT CLAY	CH	32.2	88.1								
	5	8-10	Reddish-brown and gray FAT CLAY	CH	33.2	88.7								
	6	10-12	Gray FAT CLAY	CH	29.2	91.5								
	7	12-14	Gray FAT CLAY	CH	24.7	98.1								
	8	14-16	Tan and gray FAT CLAY; ferrous and calcareous nodules	CH	28.4	90.4								
	9	16-18	Tan and gray FAT CLAY; calcareous nodules	CH	24.3	102.2								
	10	18-20	Reddish-brown and gray FAT CLAY; calcareous nodules	CH	24.4	101.7								
	11	20-22	Reddish-brown and gray FAT CLAY	CH	26.8	96.5								
	12	22-24	Reddish-brown and gray FAT CLAY	CH	25.5	97.3								
	13	24-26	Reddish-brown and gray FAT CLAY	CH	26.3	97.9								
	14	26-28	Reddish-brown and gray FAT CLAY	CH	28.0	94.2								
	15	28-30	Reddish-brown and gray FAT CLAY	CH	33.7	83.2	72	22	50	96.9	0.63	3.1		60 degree
	16	30-32	Reddish-brown and gray FAT CLAY	CH	32.2	86.2								
	17	32-34	Reddish-brown and gray FAT CLAY	CH	32.3	89.1								
	18	34-36	Tan and light gray FAT CLAY	CH	30.2	90.6	77	23	54	99.5	1.04	7.7		60 degree
08-87			**El. 21.50, E=3182848 N=13646032**											
	2	2-4	Tan and gray FAT CLAY; calcareous nodules	CH	18.0	102.0								
	3	4-6	Tan and gray FAT CLAY	CH	23.3	99.3								
	4	6-8	Reddish-brown and gray FAT CLAY; shells	CH	28.1	90.7								
	5	8-10	Gray and reddish-brown FAT CLAY	CH	24.1	94.8								
	6	10-12	Gray and tan FAT CLAY	CH	29.7	90.0								
	7	12-14	Dark gray FAT CLAY	CH	23.3	97.0								
	8	14-16	Dark gray FAT CLAY	CH	28.4	92.8								
	9	16-18	Gray FAT CLAY; ferrous nodules	CH	29.2	92.6								
	10	18-20	Tan and gray FAT CLAY; ferrous nodules	CH	27.7	95.1								
	11	20-22	Tan and gray FAT CLAY; calcareous nodules	CH	27.7	96.0								
	12	22-24	Reddish-brown and gray FAT CLAY	CH	27.9	94.8	72	22	50	98.6	1.68	4.4	20	Slickensided
	13	24-26	Reddish-brown and gray FAT CLAY	CH	27.7	95.9								
	14	26-28	Reddish-brown and gray FAT CLAY	CH	26.5	97.4								
	15	28-30	Reddish-brown and gray FAT CLAY	CH	29.5	92.2								
	16	30-32	Reddish-brown and gray FAT CLAY	CH	26.8	95.3								
	17	32-34	Reddish-brown and gray FAT CLAY; calcareous nodules	CH	28.6	93.3								
	18	34-36	Reddish-brown and gray FAT CLAY; calcareous nodules	CH	29.2	94.1								
	19	36-38	Reddish-brown and gray FAT CLAY; calcareous nodules	CH	29.9	92.6								
	20	38-40	Reddish-brown and gray FAT CLAY; calcareous nodules	CH	29.9	92.6								
08-88			**El. 10.00, E=3182997 N=13645999**											





Sample No.		1
Initial	Water Content, %	27.9
	Dry Density, pcf	94.8
	Saturation, %	96.6
	Void Ratio	0.7783
	Diameter, in.	2.85
	Height, in.	5.99
At Test	Water Content, %	28.6
	Dry Density, pcf	94.8
	Saturation, %	99.2
	Void Ratio	0.7783
	Diameter, in.	2.85
	Height, in.	5.99
Strain rate, %/min.		1.00
Back Pressure, tsf		0.00
Cell Pressure, tsf		1.44
Fail. Stress, tsf		1.68
Ult. Stress, tsf		
σ_1 Failure, tsf		3.12
σ_3 Failure, tsf		1.44

Type of Test:
Unconsolidated Undrained

Sample Type: Undisturbed

Description: Reddish-brown and gray FAT CLAY

LL= 72 **PL=** 22 **PI=** 50

Assumed Specific Gravity= 2.70

Remarks:

Test method: ASTM D 2850

Pocket pen; tsf: 2.50

Failure type: Slickensided

Client: United States Army Corps of Engineers

Project: Chocolate Bayou Placement Area
Contract DACW64-03-D-0008; Task Order 0079

Source of Sample: 08-87 **Depth:** 22-24

Sample Number: 12

Proj. No.: 08.18.921 **Date Sampled:** 8/14/08

TRIAXIAL SHEAR TEST REPORT

Tolunay-Wong Engineers, Inc.

TRIAXIAL COMPRESSION TEST

Unconsolidated Undrained

8/19/2008
1:17 PM

Date: 8/14/08
Client: United States Army Corps of Engineers
Project: Chocolate Bayou Placement Area
Contract DACW64-03-D-0008; Task Order 0079
Project No.: 08.18.921
Location: 08-87
Depth: 22-24 **Sample Number:** 12
Description: Reddish-brown and gray FAT CLAY
Remarks:
Test method: ASTM D 2850
Pocket pen; tsf: 2.50
Failure type: Slickensided
Type of Sample: Undisturbed
Assumed Specific Gravity=2.70 **LL=**72 **PL=**22 **PI=**50
Test Method: ASTM D 2850

Parameters for Specimen No. 1

Specimen Parameter	Initial	Final
Moisture content: Moist soil+tare, gms.	151.690	109.280
Moisture content: Dry soil+tare, gms.	125.260	91.990
Moisture content: Tare, gms.	30.380	31.550
Moisture, %	27.9	28.6
Moist specimen weight, gms.	1216.2	
Diameter, in.	2.85	
Area, in.^{2}	6.38	
Height, in.	5.99	
Wet Density, pcf	121.2	
Dry density, pcf	94.8	
Void ratio	0.7783	
Saturation, %	96.6	

Test Readings for Specimen No. 1

Membrane modulus = .130 kN/cm^2
Membrane thickness = .031 cm
Cell pressure = 20.00 psi (1.440 tsf)
Back pressure = 0.00 psi (0.000 tsf)
Strain rate, %/min. = 1.00
Fail. Stress = 1.681 tsf **at reading no.** 54

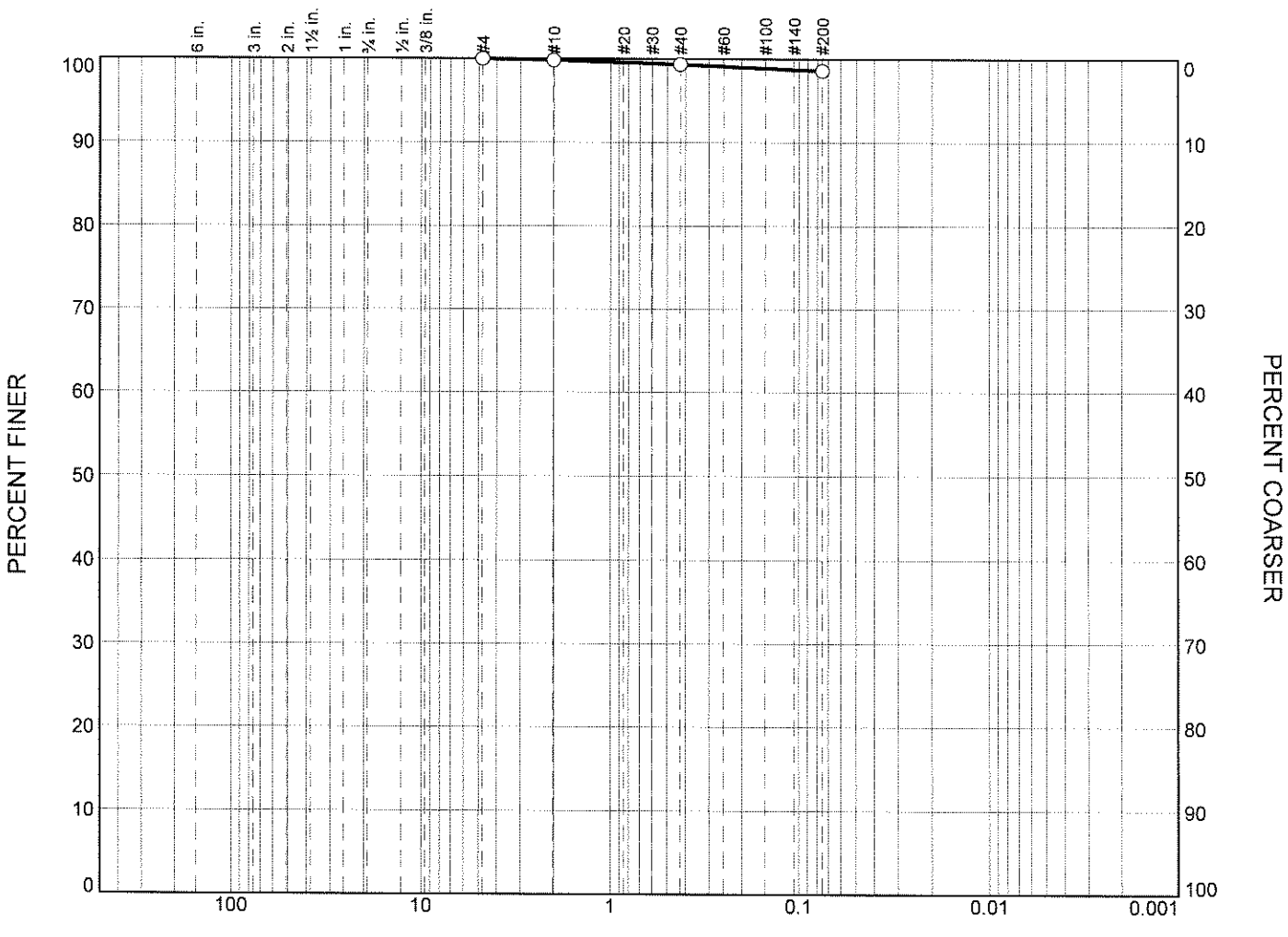
Test Readings for Specimen No. 1

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress tsf	Minor Princ. Stress tsf	Major Princ. Stress tsf	1:3 Ratio	P tsf	Q tsf
0	0.0290	0.000	0.0	0.0	0.000	1.440	1.440	1.00	1.440	0.000
1	0.0345	4.848	4.8	0.1	0.055	1.440	1.495	1.04	1.467	0.027
2	0.0361	7.962	8.0	0.1	0.090	1.440	1.530	1.06	1.485	0.045
3	0.0374	10.358	10.4	0.1	0.117	1.440	1.557	1.08	1.498	0.058
4	0.0386	12.504	12.5	0.2	0.141	1.440	1.581	1.10	1.510	0.070
5	0.0406	16.048	16.0	0.2	0.181	1.440	1.621	1.13	1.530	0.090
6	0.0419	19.128	19.1	0.2	0.215	1.440	1.655	1.15	1.548	0.108
7	0.0432	22.677	22.7	0.2	0.255	1.440	1.695	1.18	1.568	0.128
8	0.0452	27.038	27.0	0.3	0.304	1.440	1.744	1.21	1.592	0.152
9	0.0465	31.065	31.1	0.3	0.350	1.440	1.790	1.24	1.615	0.175
10	0.0478	35.381	35.4	0.3	0.398	1.440	1.838	1.28	1.639	0.199
11	0.0498	40.076	40.1	0.3	0.451	1.440	1.891	1.31	1.665	0.225
12	0.0511	44.804	44.8	0.4	0.504	1.440	1.944	1.35	1.692	0.252
13	0.0524	49.802	49.8	0.4	0.560	1.440	2.000	1.39	1.720	0.280
14	0.0544	55.789	55.8	0.4	0.627	1.440	2.067	1.44	1.753	0.313
15	0.0557	60.664	60.7	0.4	0.682	1.440	2.122	1.47	1.781	0.341
16	0.0570	65.331	65.3	0.5	0.734	1.440	2.174	1.51	1.807	0.367
17	0.0590	70.038	70.0	0.5	0.787	1.440	2.227	1.55	1.833	0.393
18	0.0603	74.452	74.5	0.5	0.836	1.440	2.276	1.58	1.858	0.418
19	0.0616	79.202	79.2	0.5	0.889	1.440	2.329	1.62	1.885	0.445
20	0.0636	83.818	83.8	0.6	0.941	1.440	2.381	1.65	1.910	0.470
21	0.0649	88.595	88.6	0.6	0.994	1.440	2.434	1.69	1.937	0.497
22	0.0662	92.070	92.1	0.6	1.033	1.440	2.473	1.72	1.956	0.516
23	0.0682	95.412	95.4	0.7	1.070	1.440	2.510	1.74	1.975	0.535
24	0.0695	98.726	98.7	0.7	1.107	1.440	2.547	1.77	1.993	0.553
25	0.0708	101.832	101.8	0.7	1.141	1.440	2.581	1.79	2.011	0.571
26	0.0728	105.052	105.1	0.7	1.177	1.440	2.617	1.82	2.028	0.588
27	0.0741	108.416	108.4	0.8	1.214	1.440	2.654	1.84	2.047	0.607
28	0.0754	111.109	111.1	0.8	1.244	1.440	2.684	1.86	2.062	0.622
29	0.0774	113.402	113.4	0.8	1.270	1.440	2.710	1.88	2.075	0.635
30	0.0787	115.760	115.8	0.8	1.296	1.440	2.736	1.90	2.088	0.648
31	0.0800	117.619	117.6	0.9	1.316	1.440	2.756	1.91	2.098	0.658
32	0.0820	119.879	119.9	0.9	1.341	1.440	2.781	1.93	2.111	0.671
33	0.0846	123.577	123.6	0.9	1.382	1.440	2.822	1.96	2.131	0.691
34	0.0879	125.626	125.6	1.0	1.404	1.440	2.844	1.97	2.142	0.702
35	0.0912	127.877	127.9	1.0	1.428	1.440	2.868	1.99	2.154	0.714
36	0.0938	130.368	130.4	1.1	1.455	1.440	2.895	2.01	2.168	0.728
37	0.1016	133.999	134.0	1.2	1.494	1.440	2.934	2.04	2.187	0.747
38	0.1073	136.511	136.5	1.3	1.521	1.440	2.961	2.06	2.200	0.760
39	0.1138	139.085	139.1	1.4	1.548	1.440	2.988	2.07	2.214	0.774
40	0.1260	141.863	141.9	1.6	1.575	1.440	3.015	2.09	2.228	0.788
41	0.1382	144.149	144.1	1.8	1.597	1.440	3.037	2.11	2.239	0.799
42	0.1504	145.623	145.6	2.0	1.610	1.440	3.050	2.12	2.245	0.805
43	0.1619	147.842	147.8	2.2	1.632	1.440	3.072	2.13	2.256	0.816
44	0.1742	149.087	149.1	2.4	1.642	1.440	3.082	2.14	2.261	0.821
45	0.1865	150.013	150.0	2.6	1.649	1.440	3.089	2.14	2.264	0.824
46	0.1980	150.794	150.8	2.8	1.654	1.440	3.094	2.15	2.267	0.827

Test Readings for Specimen No. 1

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress tsf	Minor Princ. Stress tsf	Major Princ. Stress tsf	1:3 Ratio	P tsf	Q tsf
47	0.2103	151.896	151.9	3.0	1.662	1.440	3.102	2.15	2.271	0.831
48	0.2226	152.952	153.0	3.2	1.670	1.440	3.110	2.16	2.275	0.835
49	0.2342	153.685	153.7	3.4	1.675	1.440	3.115	2.16	2.278	0.838
50	0.2465	153.756	153.8	3.6	1.672	1.440	3.112	2.16	2.276	0.836
51	0.2588	154.193	154.2	3.8	1.674	1.440	3.114	2.16	2.277	0.837
52	0.2704	155.054	155.1	4.0	1.680	1.440	3.120	2.17	2.280	0.840
53	0.2827	155.243	155.2	4.2	1.678	1.440	3.118	2.17	2.279	0.839
54	0.2948	155.840	155.8	4.4	1.681	1.440	3.121	2.17	2.280	0.840
55	0.3070	155.665	155.7	4.6	1.675	1.440	3.115	2.16	2.278	0.838
56	0.3134	155.944	155.9	4.7	1.677	1.440	3.117	2.16	2.278	0.838
57	0.3256	155.852	155.9	4.9	1.672	1.440	3.112	2.16	2.276	0.836
58	0.3314	155.922	155.9	5.0	1.671	1.440	3.111	2.16	2.275	0.835
59	0.3525	155.752	155.8	5.4	1.663	1.440	3.103	2.15	2.271	0.831
60	0.3679	155.195	155.2	5.7	1.653	1.440	3.093	2.15	2.266	0.826
61	0.3826	155.089	155.1	5.9	1.647	1.440	3.087	2.14	2.264	0.824
62	0.3980	154.251	154.3	6.2	1.634	1.440	3.074	2.13	2.257	0.817
63	0.4128	154.270	154.3	6.4	1.630	1.440	3.070	2.13	2.255	0.815
64	0.4275	153.072	153.1	6.6	1.613	1.440	3.053	2.12	2.246	0.806
65	0.4385	152.190	152.2	6.8	1.600	1.440	3.040	2.11	2.240	0.800
66	0.4577	150.812	150.8	7.2	1.580	1.440	3.020	2.10	2.230	0.790
67	0.4731	149.834	149.8	7.4	1.566	1.440	3.006	2.09	2.223	0.783
68	0.4879	149.058	149.1	7.7	1.554	1.440	2.994	2.08	2.217	0.777
69	0.5027	148.570	148.6	7.9	1.544	1.440	2.984	2.07	2.212	0.772
70	0.5181	147.183	147.2	8.2	1.526	1.440	2.966	2.06	2.203	0.763
71	0.5328	146.557	146.6	8.4	1.515	1.440	2.955	2.05	2.198	0.758
72	0.5482	144.687	144.7	8.7	1.492	1.440	2.932	2.04	2.186	0.746
73	0.5629	144.630	144.6	8.9	1.487	1.440	2.927	2.03	2.183	0.743
74	0.5783	143.192	143.2	9.2	1.468	1.440	2.908	2.02	2.174	0.734
75	0.5930	142.788	142.8	9.4	1.460	1.440	2.900	2.01	2.170	0.730

Particle Size Analysis - ASTM D 422



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.1	0.5	0.8	98.6	

SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	08-87	12	22-24	Reddish-brown and gray FAT CLAY	CH

Tolunay-Wong Engineers, Inc.
Houston, Texas

Client: United States Army Corps of Engineers
Project: Chocolate Bayou Placement Area
Contract DACW64-03-D-0008; Task Order 0079
Project No.: 08.18.921