

JOB NO. 94G783-4

DATE 10/19/94

PROJECT Houston-Galveston Navigation
Channel

AREA Houston, Texas

BORING NO. 93-116

SAMPLE NO. 4

DEPTH 6-8 ft

SPECIMEN NO. 1

CLASSIFICATION

Yellowish gray, Clay, Soft, w/sand pockets and sand pockets

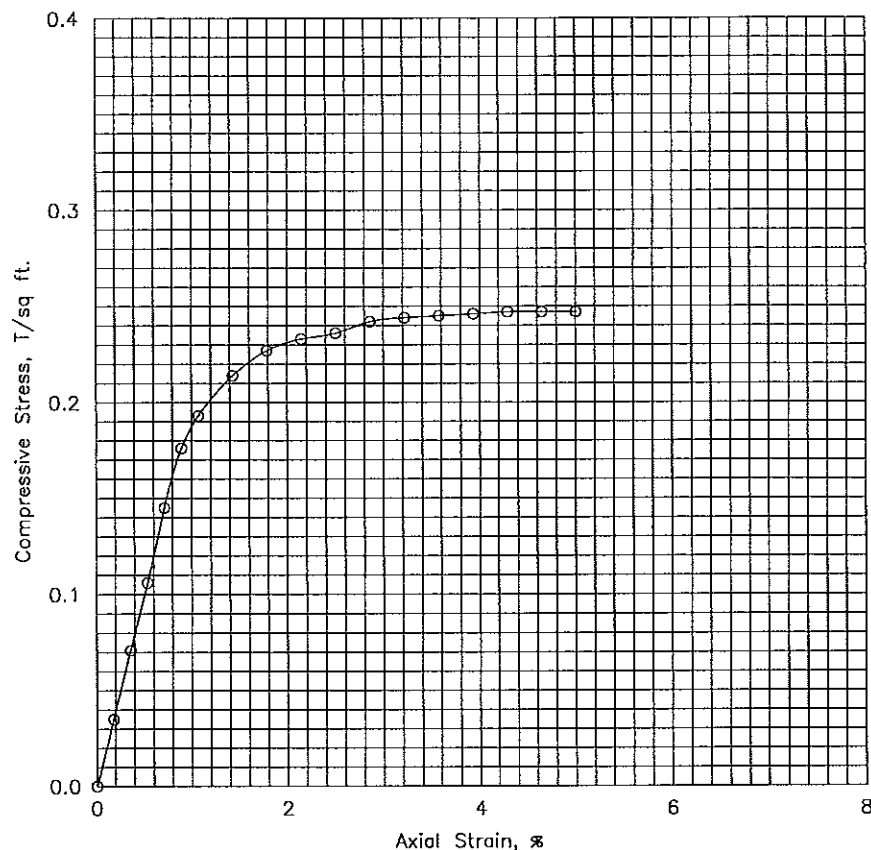
Tare No.	W-30	Height	5.595 in.
Tare plus Wet Specimen	372.11 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	287.17 gm	Initial Area	6.290 sq in.
Water Weight	84.94 gm	Volume	35.194 cu in.
Tare Weight	42.27 gm	Volume of Solids	cu in.
Wet Specimen	1025.89 gm	Void Ratio	
Dry Specimen	761.70 gm	Saturation	%
Water Content	34.68 %	Dry Density	82.5 lb/cu ft
Specific Gravity of Solids			
LL = 58	PL = 26	PI = 32	

Proving Ring No. 17015

Proving Ring Constant, K = .311 lbs/div.

Elapsed Time min.	Dial Reading 0.001"	Cumulative Change in.	Proving Ring Dial Reading	Axial Load lb	Axial Strain	Area Corr. sq in.	Compr. Stress tsf
.0	0.	.000	.0	.0	.000	6.29	.000
.2	10.	.010	10.0	3.1	.002	6.30	.035
.3	20.	.020	20.0	6.2	.004	6.31	.071
.5	30.	.030	30.0	9.3	.005	6.32	.106
.7	40.	.040	41.0	12.7	.007	6.34	.145
.9	50.	.050	50.0	15.5	.009	6.35	.176
1.0	60.	.060	55.0	17.1	.011	6.36	.193
1.4	80.	.080	61.0	18.9	.014	6.38	.214
1.7	100.	.100	65.0	20.2	.018	6.40	.227
2.0	120.	.120	67.0	20.8	.021	6.43	.233
2.3	140.	.140	68.0	21.1	.025	6.45	.236
2.6	160.	.160	70.0	21.7	.029	6.48	.242
3.0	180.	.180	71.0	22.1	.032	6.50	.244
3.3	200.	.200	71.5	22.2	.036	6.52	.245
3.5	220.	.220	72.0	22.4	.039	6.55	.246
3.9	240.	.240	72.5	22.5	.043	6.57	.247
4.3	260.	.260	73.0	22.7	.046	6.60	.247
4.6	280.	.280	73.0	22.7	.050	6.62	.247

Failure Sketches



☐ Controlled stress
☒ Controlled strain

Test No.		1			
Type of Specimen		Undisturbed			
Initial	Water content	w_0	34.7 %	%	%
	Void ratio	e_0			
	Saturation	S_0	%	%	%
	Dry density, lb/cu ft	γ_d	82.5		
Time to failure, min		t_f	4.32		
Unconfined compressive strength, T/sq ft		q_u	.25		
Undrained shear strength, T/sq ft		S_u	.12		
Sensitivity ratio		S_t			
Initial specimen diameter, in.		D_0	2.830		
Initial specimen height, in.		H_0	5.595		
Classification Yellowish gray, Clay, Soft, w/sand pockets and sand pockets					
LL	58	PL	26	PI	32
				G_s	
Remarks		Project Houston—Galveston Navigation			
		Channel			
		Area Houston, Texas			
		Boring No. 93-116		Sample No. 4	
		Depth 6-8 ft		Date 10/19/94	
		EI			
UNCONFINED COMPRESSION TEST REPORT					

JOB NO. 94G783-4

DATE 10/19/94

PROJECT Houston-Galveston Navigation
Channel

AREA Houston, Texas

BORING NO. 93-116

SAMPLE NO. 8

DEPTH 14-16 ft

SPECIMEN NO. 1

CLASSIFICATION

Gray, Clay, Medium stiff, Silty

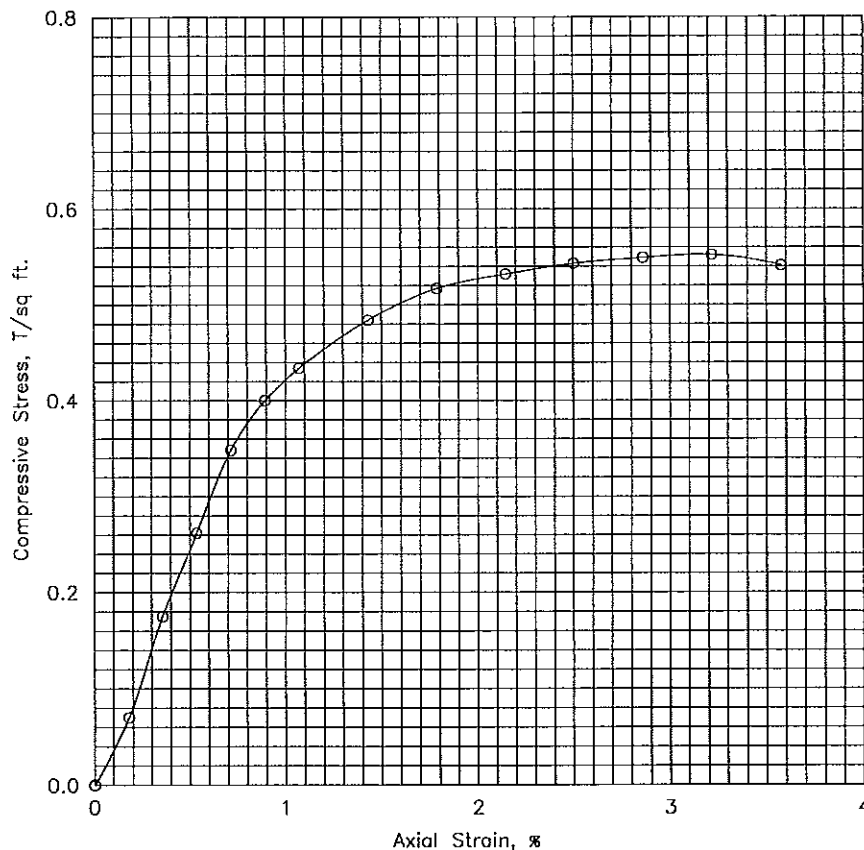
Tare No.	P-204	Height	5.595 in.
Tare plus Wet Specimen	543.27 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	424.48 gm	Initial Area	6.290 sq in.
Water Weight	118.79 gm	Volume	35.194 cu in.
Tare Weight	42.74 gm	Volume of Solids	cu in.
Wet Specimen	1063.74 gm	Void Ratio	
Dry Specimen	811.28 gm	Saturation	%
Water Content	31.12 %	Dry Density	87.8 lb/cu ft
Specific Gravity of Solids			
LL = 35	PL = 19	PI = 16	

Proving Ring No. 10170

Proving Ring Constant, K = .766 lbs/div.

Elapsed Time min.	Dial Reading 0.001"	Cumulative Change in.	Proving Ring Dial Reading	Axial Load lb	Axial Strain	Area Corr. sq in.	Compr. Stress tsf
.0	0.	.000	.0	.0	.000	6.29	.000
.2	10.	.010	8.0	6.1	.002	6.30	.070
.3	20.	.020	20.0	15.3	.004	6.31	.175
.5	30.	.030	30.0	23.0	.005	6.32	.262
.6	40.	.040	40.0	30.6	.007	6.34	.348
.8	50.	.050	46.0	35.2	.009	6.35	.400
.9	60.	.060	50.0	38.3	.011	6.36	.434
1.3	80.	.080	56.0	42.9	.014	6.38	.484
1.6	100.	.100	60.0	46.0	.018	6.40	.517
2.0	120.	.120	62.0	47.5	.021	6.43	.532
2.3	140.	.140	63.5	48.6	.025	6.45	.543
2.6	160.	.160	64.5	49.4	.029	6.48	.549
2.9	180.	.180	65.0	49.8	.032	6.50	.552
3.3	200.	.200	64.0	49.0	.036	6.52	.541

Failure Sketches



☐ Controlled stress
☒ Controlled strain

Test No.		1			
Type of Specimen		Undisturbed			
Initial	Water content	w_0	31.1 %	%	%
	Void ratio	e_0			
	Saturation	S_0	%	%	%
	Dry density, lb/cu ft	γ_d	87.8		
Time to failure, min		t_f	2.90		
Unconfined compressive strength, T/sq ft		q_u	.55		
Undrained shear strength, T/sq ft		S_u	.28		
Sensitivity ratio		S_t			
Initial specimen diameter, in.		D_0	2.830		
Initial specimen height, in.		H_0	5.595		
Classification Gray, Clay, Medium stiff, Silty					
LL	35	PL	19	PI	16
		G_s			
Remarks		Project Houston-Galveston Navigation			
		Channel			
		Area Houston, Texas			
		Boring No. 93-116		Sample No. 8	
		Depth 14-16 ft		Date 10/19/94	
		UNCONFINED COMPRESSION TEST REPORT			

U.S. ARMY CORPS OF ENGINEERS

DEPTH, FEET		SAMPLE NO.	PEN./TORVANE	SPT.-BLOW COUNT	COLOR	MATERIAL TYPE	CONSISTENCY	SECONDARY CONSTITUENTS	STRUCTURAL FEATURES AND COMMENTS
BORING NO. <u>93-116</u> DATE: BEGIN <u>7-29-94</u> PAGE <u>111</u> JOB NO. <u>946783-1</u> COMPLETE <u>7-29-94</u> Thin Walled Tube PROJECT <u>HOUSTON-GALVESTON Navigation Channel</u> ☒ 3" ☐ 6" LOCATION <u>LEEVE BETWEEN DISPOSAL AREA 15 & 16</u> ELEVATION OF HOLE _____ MANUFACTURER'S DESIGNATION OF DRILL RIG <u>Arco K4x4, C-1000 Marsh Buggy</u> GROUNDWATER: DEPTH <u>0</u> ft., ELEV. _____ ft., at end of Drilling WEATHER <u>Sunny and Hot</u> DRILLER <u>David</u> LOGGER <u>Willie Barnes</u>									
Torvane Reading									
0	1	2.0	Brown	Clay	Vstiff	Sandy	W/ shell fragments		
	2	0.50	Brown	Clay	M.stiff	Sandy			
0.13	3	0.25	Brown	Clay	Soft	Sandy			
0.15	4	0.30	Brown	Clay	Soft	Sandy			
0.15	5	0.30	Brown	Clay	Soft	Sandy			
10	6	1.0	Gray	Clay	Stiff	Sandy			
	7	1.0	Gray	Clay	Stiff	Sandy			
	8	0.5	Dark Gray	Clay	M.stiff	Sand			
	9	5/4	Gray	Sand	Loose	Silty			
	10	2 1/2	Gray	Sand	Loose	Silty			
25	11	3 1/2	Gray	Sand	Loose	Silty	W/ shell fragments		
30	12	3 1/2	Gray	Sand	Loose	Silty			
35									

Project: Houston-Galveston Navigation Channel

SUMMARY OF LABORATORY TEST RESULTS

Contract No. DACW64-94-C-0040

Boring No. 93-116

S #	Depth (ft)	P P (tsf)	SPT Blows per Foot	Visual Classification	U S C	M c (%)	Dry Unit Wt (pcf)	Wet Unit Wt (pcf)	L L (%)	P L (%)	Mechanical Analysis % Passing					Torvane Shear Strength (tsf)	q u (tsf)
											#4	#10	#40	#100	#200		
1	0-2	1.75		Yellowish Gray, Clay, Stiff, Sandy, w/shell fragments	C L	25.5											
2	2 - 4	0.50		Yellowish gray, Clay, Medium stiff, w/sand pockets	C H	33.0											
3	4 - 6	0.25		Yellowish gray, Clay, Soft, w/sand pockets and shell fragments	C H	34.1											
4	6 - 8	0.25		Yellowish gray, Clay, Soft, w/sand pockets and shell fragments	C H	34.7	82.5	111.0	58.0	26.0	98.8*	97.6*	96.3*	95.7	91.9		0.25
5	8 - 10	0.25		Yellowish gray, Clay, Soft, w/sand pockets and shell fragments	C H	26.6											
6	10 - 12	0.75		Yellowish gray, Clay, Medium stiff	C H	34.3											
7	12 - 14	1.00		Gray, Clay, Stiff	C H	40.6											
8	14 - 16	0.75		Gray, Clay, Medium stiff, Silty	C L	31.1	87.8	115.1	35.0	19.0	100.0	99.9	99.7	98.4	95.8		0.55
9	16-17.5		7	Gray, Sand, Loose, Silty, w/shell fragments	S M												
10	21-22.5		5	Gray, Sand, Loose, Silty, w/shell fragments	SP-SM						100.0	99.6*	96.0*	61.7	10.2		
11	26-27.5		5	Gray, Sand, Loose, Silty, w/shell fragments	S M												
12	28.5-30		6	Gray, Sand, Loose, Silty, w/shell fragments	S M												

S # : Sample Number, P P : Pocket Penetrometer Reading, U S C : Unified Soil Classification, M c : Moisture Content

q u : Uncogined Compressive Strength, W O H : Weight of hammer, W O P : Weight of Pipe

* : Material retained are shell fragments