U.S. ARMY CORPS OF ENGINEERS

BORING NO. 93-294 DATE: BEGIN 7-8-93 PAGE 1 / 1
JOB NO. 146630 COMPLETE 7-8-93 Thin Walled Tube
PROJECT Brazos Island Harbor Project ■ 3" □ 6"
LOCATION Brownsville ship channel near Brownsville, Tx
ELEVATION OF HOLE
MANUFACTURER'S DESIGNATION OF DRILL RIG Ardco K 4X4
GROUNDWATER: DEPTH 0 ft., ELEV. ____ ft., at end of Drilling
WEATHER Sunny & Hot
DRILLER Scott Gregurek LOGGER Iraj Mostamand

DEPTH, FEET	SAMPLE	SAMPLE NO.	PEN./TORVANE SPT.-BLOW COUNT	COLOR	MATERIAL TYPE	CONSIS-TENCY	SECONDARY CONSTITUENTS	STRUCTURAL FEATURES AND COMMENTS
0		1	0.25	Brown	clay	soft		
		2	0.25	Brown	clay	soft		
5		3	1.00	Brown	clay	stiff		-w/Fe st
		4	1.50	Brown	clay	stiff		-w/Fe st
		5	2.00	Brown	clay	Very stiff		-w/Fe st
10		6	1.75	Brown	clay	stiff		-w/Fe st
		7	2.25	Brown	clay	Very stiff		-w/Fe st
15		8	2.00	Brown	clay	very stiff		-w/Fe st
		9	2.25	Brown	clay	Very stiff		-w/Fe st
		10	2.00	Brown	clay	Very stiff		-w/Fe st
20								
25								
30								
35								

Project : Brazos Island Harbor Project, Brownsville Shipchannel near Brownsville, Texas
Contract No. DACW64-92-D-0005 Delivery order No. 0018

SUMMARY OF LABORATORY TEST RESULTS

Boring No. 93-294

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 #4	#10	#40	#100	#200	Torvane Shear Strength (tsf)	q u (tsf)
1	0 - 2	0.00		Brown,Clay,Very soft	CH	49.3											
2	2 - 4	0.25		Brown,Clay,Soft	CH	49.3	71.7	107.1	51	20	100.0	100.0	100.0	100.0	100.0		0.33
3	4 - 6	1.50		Brown,Clay,Stiff	CH	26.1											
4	6 - 8	2.00		Brown,Clay,Very stiff	CH	25.9											
5	8 -10	2.00		Brown,Clay,Very stiff	CH	30.3											
6	10 -12	1.00		Brown,Clay,Stiff	CH	32.5	87.3	115.7	54	22	100.0	100.0	99.6	98.6	98.1		1.24
7	12 - 14	1.50		Brown,Clay,Stiff	CH	34.4											
8	14 - 16	2.50		Brown,Clay,Very stiff	CH	38.6	79.8	110.6	72								
9	16 - 18	2.00		Brown,Clay,Very stiff	CH	36.7											
10	18 - 20	2.00		Brown,Clay,Very stiff	CH	29.4											

S # : Sample Number, P P : Pocket Penetrometer Reading, U S C : Unified Soil Classification, M c : Moisture Content
q u : Unconfined Compressive Strength, W O H : Weight of hammer, W O P : Weight of pipe

Geotest Engineering, Inc.

JOB NO. 14G634 DATE 8/2/93

PROJECT Brazos Island Harbor Project
Brownsville Shipchannel

AREA near Brownsville, Texas

BORING NO. 93-294 SAMPLE NO. 2 DEPTH 2-4 ft

SPECIMEN NO. 1

CLASSIFICATION
Brown, Clay, Soft

Tare No.	KL-35	Height	5.595 in.
Tare plus Wet Specimen	440.20 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	308.96 gm	Initial Area	6.290 sq in.
Water Weight	131.24 gm	Volume	35.194 cu in.
Tare Weight	42.74 gm	Volume of Solids	cu in.
Wet Specimen	989.01 gm	Void Ratio	
Dry Specimen	662.44 gm	Saturation	%
Water Content	49.30 %	Dry Density	71.7 lb/cu ft

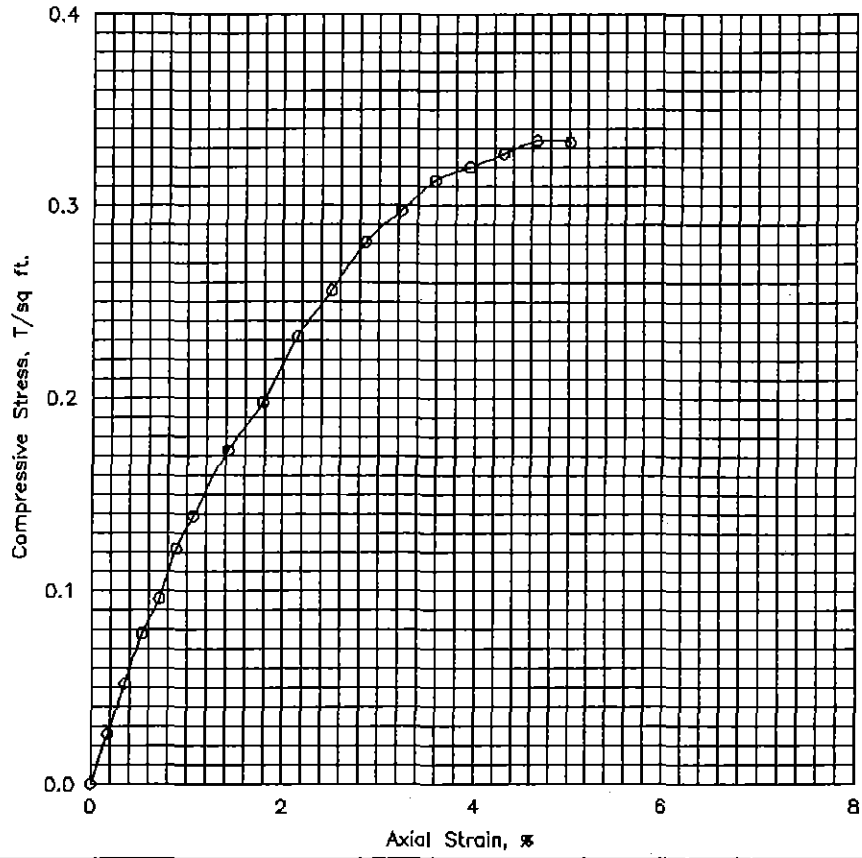
Specific Gravity of Solids
LL = 51 PL = 20 PI = 31

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
.3	10.	.010	3.0	2.3	.002	6.30	.026
.3	20.	.020	6.0	4.6	.004	6.31	.052
.7	30.	.030	9.0	6.9	.005	6.32	.078
.8	40.	.040	11.0	8.4	.007	6.34	.096
1.0	50.	.050	14.0	10.7	.009	6.35	.122
1.2	60.	.060	16.0	12.3	.011	6.36	.139
1.5	80.	.080	20.0	15.3	.014	6.38	.173
1.8	100.	.100	23.0	17.6	.018	6.40	.198
2.2	120.	.120	27.0	20.7	.021	6.43	.232
2.5	140.	.140	30.0	23.0	.025	6.45	.256
2.8	160.	.160	33.0	25.3	.029	6.48	.281
3.1	180.	.180	35.0	26.8	.032	6.50	.297
3.5	200.	.200	37.0	28.3	.036	6.52	.313
3.8	220.	.220	38.0	29.1	.039	6.55	.320
4.1	240.	.240	39.0	29.9	.043	6.57	.327
4.4	260.	.260	40.0	30.6	.046	6.60	.334
4.8	280.	.280	40.0	30.6	.050	6.62	.333

Job No. 14G634

Failure Sketches



☐ Controlled stress
☒ Controlled strain

Test No.			1			
Type of Specimen			Undisturbed			
Initial	Water content	w_0	49.3 %	%	%	%
	Void ratio	e_0				
	Saturation	S_0	%	%	%	%
	Dry density, lb/cu ft	γ_d	71.7			
Time to failure, min		t_f	4.45			
Unconfined compressive strength, T/sq ft		q_u	.33			
Undrained shear strength, T/sq ft		S_u	.17			
Sensitivity ratio		S_t				
Initial specimen diameter, in.		D_0	2.830			
Initial specimen height, in.		H_0	5.595			

Classification Brown,Clay,Soft

LL	51	PL	20	PI	31	G_s	

Remarks

Project Brazos Island Harbor Project
Brownsville Shipchannel
Area near Brownsville, Texas
Boring No. 93-294 Sample No. 2
Depth El 2-4 ft Date 8/2/93

UNCONFINED COMPRESSION TEST REPORT

ENG FORM 1 JUN 65 3659

PLATE XI-2

Geotest Engineering, Inc.

JOB NO. 14G634 DATE 8/2/93

PROJECT Brazos Island Harbor Project
Brownsville Shipchannel

AREA near Brownsville, Texas

BORING NO. 93-294 SAMPLE NO. 6 DEPTH 10-12 ft

SPECIMEN NO. 1

CLASSIFICATION
Brown,Clay,Stiff

Tare No.	W-4	Height	5.595 in.
Tare plus Wet Specimen	470.43 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	365.34 gm	Initial Area	6.290 sq in.
Water Weight	105.09 gm	Volume	35.194 cu in.
Tare Weight	42.32 gm	Volume of Solids	cu in.
Wet Specimen	1068.98 gm	Void Ratio	
Dry Specimen	806.57 gm	Saturation	%
Water Content	32.53 %	Dry Density	87.3 lb/cu ft
Specific Gravity of Solids			

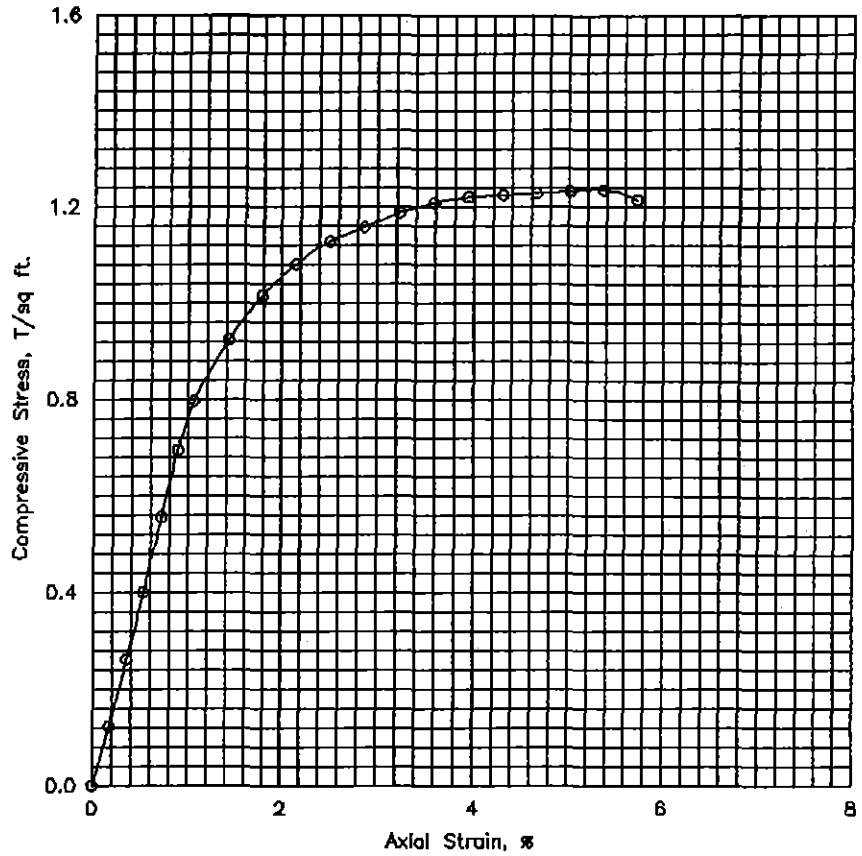
LL = 54 PL = 22 PI = 32

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	14.0	10.7	.002	6.30	.123
.5	20.	.020	30.0	23.0	.004	6.31	.262
.7	30.	.030	46.0	35.2	.005	6.32	.401
.8	40.	.040	64.0	49.0	.007	6.34	.557
.9	50.	.050	80.0	61.3	.009	6.35	.695
1.1	60.	.060	92.0	70.5	.011	6.36	.798
1.5	80.	.080	107.0	82.0	.014	6.38	.925
1.8	100.	.100	118.0	90.4	.018	6.40	1.016
2.2	120.	.120	126.0	96.5	.021	6.43	1.081
2.5	140.	.140	132.0	101.1	.025	6.45	1.128
2.8	160.	.160	136.0	104.2	.029	6.48	1.158
3.2	180.	.180	140.0	107.2	.032	6.50	1.188
3.5	200.	.200	143.0	109.5	.036	6.52	1.209
3.8	220.	.220	145.0	111.1	.039	6.55	1.221
4.1	240.	.240	146.0	111.8	.043	6.57	1.225
4.5	260.	.260	147.0	112.6	.046	6.60	1.229
4.8	280.	.280	148.0	113.4	.050	6.62	1.233
5.1	300.	.300	149.0	114.1	.054	6.65	1.236
5.4	320.	.320	147.0	112.6	.057	6.67	1.215

Job No. 14G634

Failure Sketches



☐ Controlled stress
☒ Controlled strain

Test No.			1			
Type of Specimen			Undisturbed			
Initial	Water content	w_0	32.5 %	%	%	%
	Void ratio	e_0				
	Saturation	S_0	%	%	%	%
	Dry density, lb/cu ft	γ_d	87.3			
Time to failure, min		t_f	5.12			
Unconfined compressive strength, T/sq ft		q_u	1.24			
Undrained shear strength, T/sq ft		S_u	.62			
Sensitivity ratio		S_t				
Initial specimen diameter, in.		D_0	2.830			
Initial specimen height, in.		H_0	5.595			

Classification Brown,Clay,Stiff

LL	54	PL	22	PI	32	G_s	

Remarks

Project Brazos Island Harbor Project
Brownsville Shipchannel
Area near Brownsville, Texas
Boring No. 93-294 Sample No. 6
Depth El 10-12 ft Date 8/2/93

UNCONFINED COMPRESSION TEST REPORT

ENG FORM 1 JUN 65 3659

Geotest Engineering, Inc.

PLATE