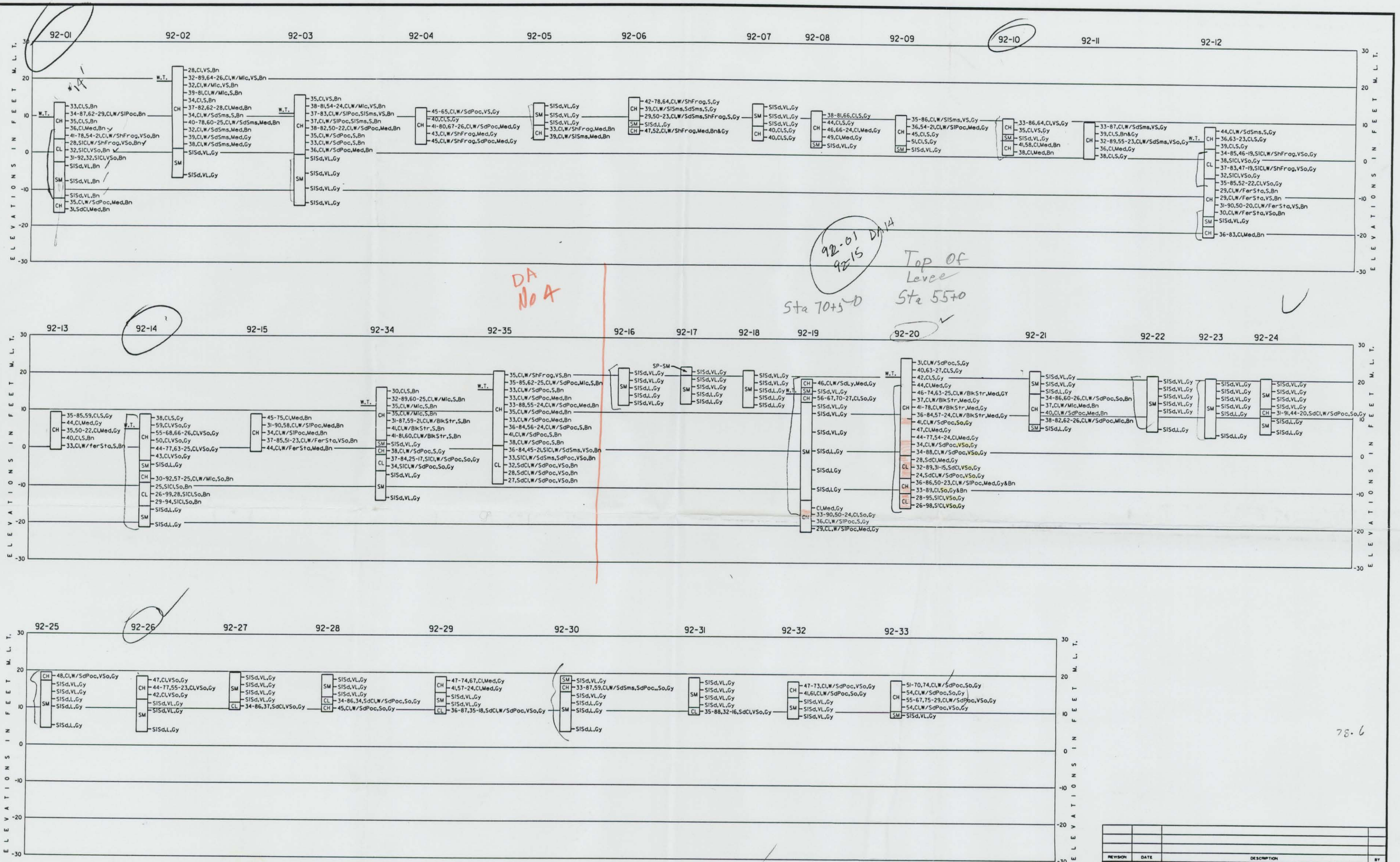




NOTE: SEE DRAWING NUMBER F-6 FOR SOILS NOTES.

REVISION		DATE	DESCRIPTION	BY
OFFICE OF THE DISTRICT ENGINEER U.S. ARMY ENGINEER DISTRICT, GALVESTON CORPS OF ENGINEERS GALVESTON, TEXAS				
DRAWN BY: P.B.S.		Brazos Island Harbor, Texas Brownsville Channel Dredging Inshore Reach No. 1 DISPOSAL AREAS Nos. 2 & 4 BORING LOGS		
CHECKED BY: J.T.F.		DATE: MAY 1992		
SUBMITTED BY: [Signature]		APPROVED BY: [Signature]		
Prepared under the direction of Brink P. Miller, Col., C.E., District Engineer		SCALE: AS SHOWN SPEC. DATE: DRAWING NUMBER F-7 SHEET 14 OF 17 FILE NO. RID 901-240		

Project : Disposal Areas Nos.2 and 4 for Brownsville Ship Channel
Brownsville, Texas
Contract No. DACW64-92-D-0001 Delivery order No. 0008

SUMMARY OF LABORATORY TEST RESULTS

Boring No. 92-19

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)	LL (%)	P L (%)	Mechanical Analysis % Passing					Torvane Shear Strength (tsf)	q u (tsf)
											#4	#10	#40	#100	#200		
1	0-2	0.75		Gray,Clay,Medium stiff.w/sand layer	CH	45.6											
2	2.5-4		1-12"/1	Gray,Sand,Very loose,Silty	S M						99.9	99.9	99.8	83.9	30.4		
3	4-6	0.25		Gray,Clay,Soft	CH	55.5	67.3	104.9	70	27	100.0	99.6	99.0	98.9	98.5	0.12	0.33
4	6.5-8		1/1-12"	Gray,sand,Very loose,Silty	S M												
5	8.5-10		1-12"/1	Gray,sand,Very loose,Silty	S M												
6	13.5-15		1-12"/1	Gray,sand,Very loose,Silty	S M						100.0	100.0	99.8	92.7	40.9		
7	18.5-20		4	Gray,Sand,loose,Silty	S M												
8	23.5-25		6	Gray,Sand,loose,Silty	S M												
9	28.5-30		4	Gray,Sand,loose,Silty	S M												
10	33.5-35	0.75	7	Gray,Clay,Medium stiff	CH												
11	35-37	0.25		Gray,Clay,Soft	CH	32.6	90.0	119.4	50	24	100.0	100.0	100.0	99.6	99.0		0.30
12	37-39	1.00		Gray,Clay,Stiff,w/silt pockets	CH	36.3											
13	39-41	0.50		Gray,Clay,Medium stiff,w/silt pockets	CH	28.7	95.9	123.4									0.52

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.

U.S. ARMY CORPS OF ENGINEERS

DEPTH, FEET		SAMPLE NO.	PEN./TORVANE	SPT.-BLOW COUNT	BORING NO.	DATE: BEGIN	PAGE	THIN WALLED TUBE
					92-19	3-19-92	112	
					JOB NO. 146534	COMPLETE 3-19-92		
					PROJECT BRAWNSVILLE DISP. AREA			
					LOCATION " SHIP CHANNEL			
					ELEVATION OF HOLE			
					MANUFACTURER'S DESIGNATION OF DRILL RIG ARDCO-C-1000			
					GROUNDWATER: DEPTH 4 ft., ELEV. ft., at end of Drilling			
					WEATHER P.C. - Warm - A.M. Fog			
					DRILLER D. Mitchell	LOGGER J. Berg		
COLOR	MATERIAL TYPE	CONSISTENCY	SECONDARY CONSTITUENTS	STRUCTURAL FEATURES AND COMMENTS				
1 25 TAN GRAY	Clay	soft	Sand					
2 1-12" TAN	Sand	VERY LOOSE		Sa. at 2'				
3 25 GRAY	Clay	soft	Silt	Si. cl. at 4'				
4 1-12" TAN	SAND	VERY LOOSE		Tan Sa. at 6'				
5 1-12" TAN GRAY	"	"						
6 1-12" GRAY	SAND	VERY LOOSE						
7 1 1/2 GRAY	Sand	Loose		w/shell frag.				
8 2 1/3 GRAY	Sand	Loose						
9 1 1/2 GRAY	"	Loose						
10 2 1/4 GRAY TAN	SAND	loose		clay w/ 35'				

U.S. ARMY CORPS OF ENGINEERS

DEPTH, FEET		SAMPLE	SAMPLE NO.	PEN./TORVANE	SPT.-BLOW COUNT	BORING NO. <u>92-19</u> DATE: BEGIN <u>3-19-92</u> PAGE <u>2 / 2</u> JOB NO. <u>146535</u> COMPLETE <u>3-19-92</u> Thin Walled Tube PROJECT <u>Brownsville Ship Channel</u> ☒ 3" ☐ 6" LOCATION <u>"</u> <u>DISP. AREA # 2</u> ELEVATION OF HOLE _____ MANUFACTURER'S DESIGNATION OF DRILL RIG <u>ARDCO-C-1000</u> GROUNDWATER: DEPTH <u>4'</u> ft., ELEV. _____ ft., at end of Drilling WEATHER <u>P.C. - warm - A.M. Fog</u> DRILLER <u>D. Mitchell</u> LOGGER <u>I. Berg</u>				
		COLOR	MATERIAL TYPE	CONSISTENCY	SECONDARY CONSTITUENTS	STRUCTURAL FEATURES AND COMMENTS				
35		11	1.75	GRAY TAN	clay	Med stiff				
		12	2.0	TAN GRAY	"	stiff				
40		13	1.5	TAN	"	stiff	<u>4/31.5 m.s.</u> <u>Bottom of 92-19</u> <u>4'</u>			
45										
50										
55										
60										
65										
70										

JOB NO. 14G538

DATE 4/7/92

PROJECT Disposal Areas Nos.2 and 4 for Brownsvill Ship Channel,Brown

LORING NO. 92-19

SAMPLE NO. 3

DEPTH 4-6 ft

SPECIMEN NO. 1

CLASSIFICATION

Gray,Clay,Soft

Tare No.	P229	Height	5.595 in.
Tare plus Wet Specimen	474.12 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	319.64 gm	Initial Area	6.290 sq in.
Water Weight	154.48 gm	Volume	35.194 cu in.
Tare Weight	42.66 gm	Volume of Solids	cu in.
Wet Specimen	969.05 gm	Void Ratio	
Dry Specimen	622.09 gm	Saturation	%
Water Content	55.77 %	Dry Density	67.3 lb/cu ft
Specific Gravity of Solids			
LL = 70	PL = 27	PI = 43	

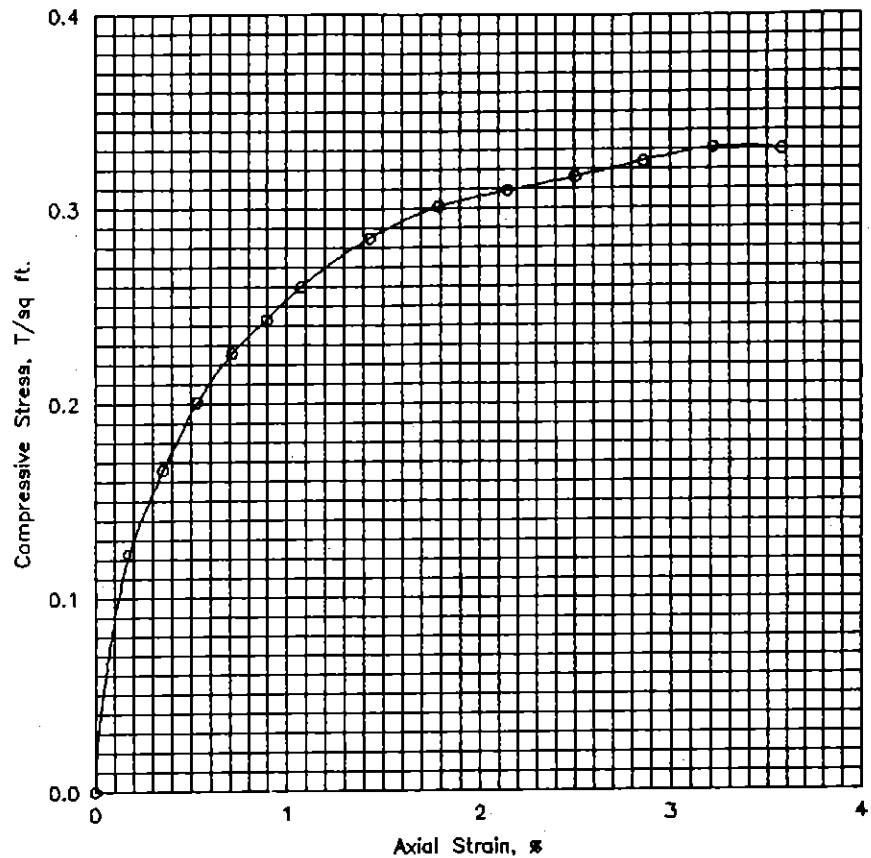
Proving Ring No. 10170

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
.4	20.	.020	19.0	14.6	.004	6.31	.166
.6	30.	.030	23.0	17.6	.005	6.32	.201
.7	40.	.040	26.0	19.9	.007	6.34	.226
.9	50.	.050	28.0	21.4	.009	6.35	.243
1.0	60.	.060	30.0	23.0	.011	6.36	.260
1.4	80.	.080	33.0	25.3	.014	6.38	.285
1.7	100.	.100	35.0	26.8	.018	6.40	.301
2.0	120.	.120	36.0	27.6	.021	6.43	.309
2.5	140.	.140	37.0	28.3	.025	6.45	.316
2.7	160.	.160	38.0	29.1	.029	6.48	.324
3.0	180.	.180	39.0	29.9	.032	6.50	.331
3.3	200.	.200	39.0	29.9	.036	6.52	.330

Job No. 146538

Failure Sketches



☐ Controlled stress
☒ Controlled strain

Test No.		1			
Type of Specimen		Undisturbed			
Initial	Water content	w_0	55.8 %	%	%
	Void ratio	e_0			
	Saturation	S_0	%	%	%
	Dry density, lb/cu ft	γ_d	67.3		
Time to failure, min		t_f	3.00		
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 Gray, Clay, Soft

LL 70 PL 27 PI 43 G_s

Remarks

Project Disposal Areas Nos. 2 and 4 for Brownsville

Area Ship Channel, Brownsville, Texas

Boring No. 92-19

Sample No. 3

Depth 4-6 ft
EI

Date 4/7/92

UNCONFINED COMPRESSION TEST REPORT

JOB NO. 14G538

DATE 4/7/92

PROJECT Disposal Areas Nos.2 and 4 for Brownsvill Ship Channel, Brown

CORING NO. 92-19

SAMPLE NO. 11

DEPTH 35-37 ft

SPECIMEN NO. 1

CLASSIFICATION

Gray, Clay, Soft

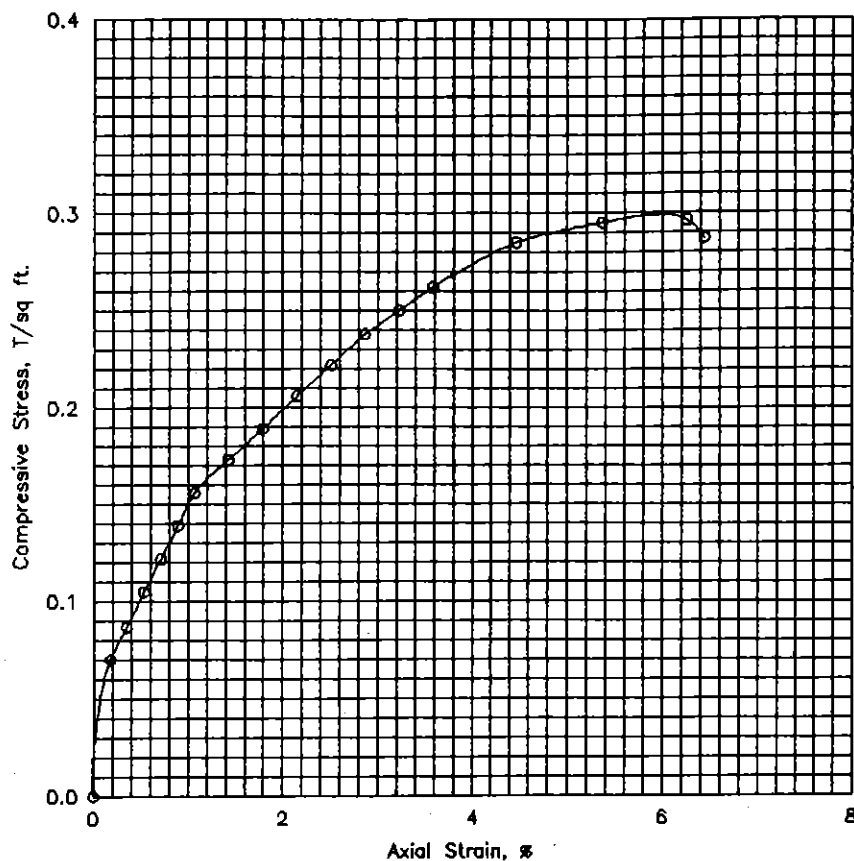
Tare No.	P-230	Height	5.595 in.
Tare plus Wet Specimen	393.45 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	307.30 gm	Initial Area	6.290 sq in.
Water Weight	86.15 gm	Volume	35.194 cu in.
Tare Weight	42.69 gm	Volume of Solids	cu in.
Wet Specimen	1102.61 gm	Void Ratio	
Dry Specimen	831.80 gm	Saturation	%
Water Content	32.56 %	Dry Density	90.0 lb/cu ft
Specific Gravity of Solids			
LL = 50	PL = 24	PI = 26	

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	10.0	7.7	.004	6.31	.087
.5	30.	.030	12.0	9.2	.005	6.32	.105
.7	40.	.040	14.0	10.7	.007	6.34	.122
.9	50.	.050	16.0	12.3	.009	6.35	.139
1.0	60.	.060	18.0	13.8	.011	6.36	.156
1.3	80.	.080	20.0	15.3	.014	6.38	.173
1.7	100.	.100	22.0	16.9	.018	6.40	.189
2.0	120.	.120	24.0	18.4	.021	6.43	.206
2.3	140.	.140	26.0	19.9	.025	6.45	.222
2.6	160.	.160	28.0	21.4	.029	6.48	.238
3.0	180.	.180	29.5	22.6	.032	6.50	.250
3.3	200.	.200	31.0	23.7	.036	6.52	.262
4.1	250.	.250	34.0	26.0	.045	6.58	.285
4.9	300.	.300	35.5	27.2	.054	6.65	.295
5.7	350.	.350	36.0	27.6	.063	6.71	.296
5.8	360.	.360	35.0	26.8	.064	6.72	.287

Failure Sketches



☐ Controlled stress
☒ Controlled strain

Test No.		1			
Type of Specimen		Undisturbed			
Initial	Water content	w_0	32.6 %		
	Void ratio	e_0			
	Saturation	S_0			
	Dry density, lb/cu ft	γ_d	90.0		
Time to failure, min		t_f	5.73		
Unconfined compressive strength, T/sq ft		q_u	.30		
Undrained shear strength, T/sq ft		S_u	.15		
Sensitivity ratio		S_t			
Initial specimen diameter, in.		D_0	2.830		
Initial specimen height, in.		H_0	5.595		
Classification Gray, Clay, Soft					
LL	50	PL	24	PI	26
		G_s			
Remarks		Project Disposal Areas Nos. 2 and 4 for Brownsville			
		Area Ship Channel, Brownsville, Texas			
		Boring No. 92-19		Sample No. 11	
		Depth 35-37 ft		Date 4/7/92	
		UNCONFINED COMPRESSION TEST REPORT			

JOB NO. 14G538

DATE 4/7/92

PROJECT Disposal Areas Nos.2 and 4 for Brownsvill Ship Channel, Brown

BORING NO. 92-19

SAMPLE NO. 13

DEPTH 39-41 ft

SPECIMEN NO. 1

CLASSIFICATION

Gray, Clay, Medium stiff, w/silt pockets

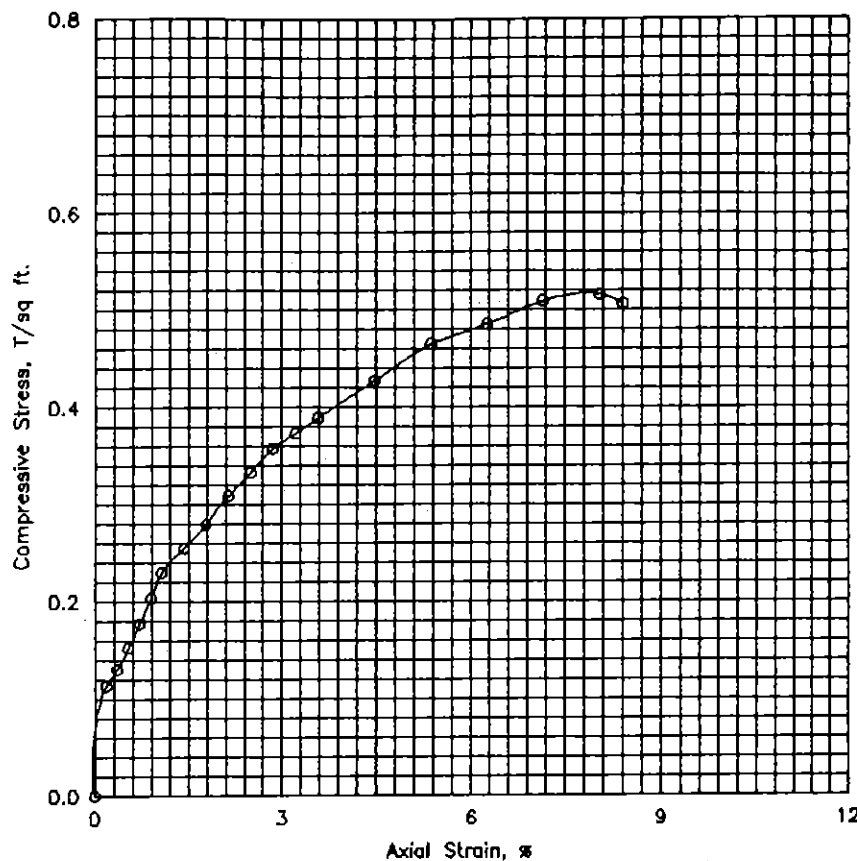
Tare No.	P-2	Height	5.595 in.
Tare plus Wet Specimen	565.55 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	448.88 gm	Initial Area	6.290 sq in.
Water Weight	116.67 gm	Volume	35.194 cu in.
Tare Weight	42.94 gm	Volume of Solids	cu in.
Wet Specimen	1140.15 gm	Void Ratio	
Dry Specimen	885.62 gm	Saturation	%
Water Content	28.74 %	Dry Density	95.9 lb/cu ft
Specific Gravity of Solids			
LL =	PL =	PI =	

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	13.0	10.0	.002	6.30	.114
.4	20.	.020	15.0	11.5	.004	6.31	.131
.6	30.	.030	17.5	13.4	.005	6.32	.153
.8	40.	.040	20.5	15.7	.007	6.34	.178
.9	50.	.050	23.5	18.0	.009	6.35	.204
1.0	60.	.060	26.5	20.3	.011	6.36	.230
1.4	80.	.080	29.5	22.6	.014	6.38	.255
1.8	100.	.100	32.5	24.9	.018	6.40	.280
2.0	120.	.120	36.0	27.6	.021	6.43	.309
2.5	140.	.140	39.0	29.9	.025	6.45	.333
2.8	160.	.160	42.0	32.2	.029	6.48	.358
3.0	180.	.180	44.0	33.7	.032	6.50	.373
3.3	200.	.200	46.0	35.2	.036	6.52	.389
4.2	250.	.250	51.0	39.1	.045	6.58	.427
5.0	300.	.300	56.0	42.9	.054	6.65	.465
5.8	350.	.350	59.0	45.2	.063	6.71	.485
6.6	400.	.400	62.5	47.9	.071	6.77	.509
7.5	450.	.450	64.0	49.0	.080	6.84	.516
7.7	470.	.470	63.0	48.3	.084	6.87	.506

Failure Sketches



- ☐ Controlled stress
☒ Controlled strain

Test No.		1			
Type of Specimen		Undisturbed			
Initial	Water content	w_0	28.7 %	%	%
	Void ratio	e_0			
	Saturation	S_0	%	%	%
	Dry density, lb/cu ft	γ_d	95.9		
Time to failure, min		t_f	7.47		
Unconfined compressive strength, T/sq ft		q_u	.52		
Undrained shear strength, T/sq ft		S_u	.26		
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, w/silt pockets					
LL		PL		PI	G_s
Remarks		Project Disposal Areas Nos. 2 and 4 for Brownsville			
		Area Ship Channel, Brownsville, Texas			
		Boring No. 92-19		Sample No. 13	
		Depth 39-41 ft		Date 4/7/92	
		UNCONFINED COMPRESSION TEST REPORT			