U.S. ARMY CORPS OF ENGINEERS

BORING NO. 91-285 DATE: BEGIN 12/30/91 PAGE 1 / 1
JOB NO. 416-521 COMPLETE 12/30/91 Thin Walled Tube
PROJECT GI Wall ☐ 3" ☐ 6"
LOCATION Seawall Reach Sta 159+50
ELEVATION OF HOLE
MANUFACTURER'S DESIGNATION OF DRILL RIG Failing CFD2
GROUNDWATER: DEPTH 0 ft., ELEV. ft., at end of Drilling
WEATHER Cool Cloudy
DRILLER D. Ecrua LOGGER D. Crewe II

DEPTH, FEET	SAMPLE	SAMPLE NO.	PEN./TORVANE SPT.-BLOW COUNT	COLOR	MATERIAL TYPE	CONSISTENCY	SECONDARY CONSTITUENTS	STRUCTURAL FEATURES AND COMMENTS
0								
	1		0.50	Tan	Clay	Medium stiff	silt	w/roots
	2		1.0	Gray	Clay	stiff	silt	w/roots
5	3		1.25	Gray	Clay	soft	silt	w/roots
	4		0.50	Gray	Clay	Medium stiff	silt	Tan
	5		0.50	Gray	Clay	"	silt	Tan
10	6		0.50	Gray	Clay	"	silt	Tan
	7		0.50	Gray	Clay	"	silt	Tan
	8		0.50	Gray		"	silt	Tan
15	9		2.0	Tan	clay	very stiff	silt	Gray
	10		0.50	Tan	clay	Medium stiff	silt	Gray
20	11		0.50	Tan	clay	"	silt	
	12		0.50	Tan	clay	"	Silt	Gray
	13		0.75	Tan	clay	"	Silt	Gray
25								Bottom of 91-285 @ 26'
30								
35								

GEOTEST ENGINEERING, INC.

Project : Gulf Intracoastal Waterway, near Sargent Beach, Texas
Contract No. DACW64-92-D-0001 Delivery No. 0005

SUMMARY OF LABORATORY TEST RESULTS

Boring No. 91-285

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	0.50		Brown,Clay,Medium stiff,w/organic material and roots	CH	40.3											
2	2-4	1.25		Dark gray,Clay,Stiff,w/silt seams	CH	25.5			56								
3	4-6	0.75		Dark gray & yellowish gray,Clay,Medium stiff,w/ silt pockets	CH	37.1										0.35	
4	6-8	0.50		Gray & yellowish brown,Clay,Medium stiff,w/ferrous stains,slickensided	CH	45.5	74.9	109.0								0.25	0.32
5	8-10	0.50		Gray & yellowish brown,Clay,Medium stiff,w/ferrous stains,slickensided	CH	42.2										0.25	
6	10-12	0.50		Brown,Clay,Medium stiff,Silty,w/blocky structure	CL	33.1	88.1	117.3	43	19	100.0	99.7	99.4	99.0	98.2	0.25	0.27
7	12-14	0.50 .25-.75		Gray & tan,Clay,Medium stiff,Silty SWD	~~CH~~ CH	33.8	85		55	18					91		
8	14-16	1.00		Gray & brown,Clay,Stiff,w/silt pockets	CH	38.7										0.45	
9	16-18	1.50		Brown,Clay,Stiff,w/ferrous stains and blocky structure	CH	34.2											
10	18-20	1.25		Brown,Clay,Stiff,w/ferrous stains and blocky structure	CH	37.6										0.60	
11	20-22	1.00		Brown,Clay,Stiff,w/silt seams,slickensided	CH	44.3	76.8	110.8	69	28	100.0	100.0	10.0	100.0	100.0	0.50	0.41
12	22-24	0.75		Brown,Clay,Medium stiff,w/blocky structure, slickensided	CH	34.6										0.35	
13	24-26	0.75		Brown,Clay,Medium stiff,w/blocky structure, slickensided	CH	39.5										0.35	

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

JOB NO. 14G533 DATE 1/29/92

PROJECT Gulf Intracostal Waterway near Sargen Beach, Texas

BORING NO. 91-285 SAMPLE NO. 4 DEPTH 6-8 ft

SPECIMEN NO. 1

CLASSIFICATION
Gray&yellowish brown,Clay,Medium stiff,w/fe st,slickensided

Tare No.	P-323	Height	5.595 in.
Tare plus Wet Specimen	412.23 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	296.62 gm	Initial Area	6.290 sq in.
Water Weight	115.61 gm	Volume	35.194 cu in.
Tare Weight	42.65 gm	Volume of Solids	cu in.
Wet Specimen	1006.95 gm	Void Ratio	
Dry Specimen	691.96 gm	Saturation	%
Water Content	45.52 %	Dry Density	74.9 lb/cu ft

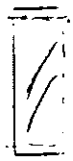
Specific Gravity of Solids
LL = PL = PI =

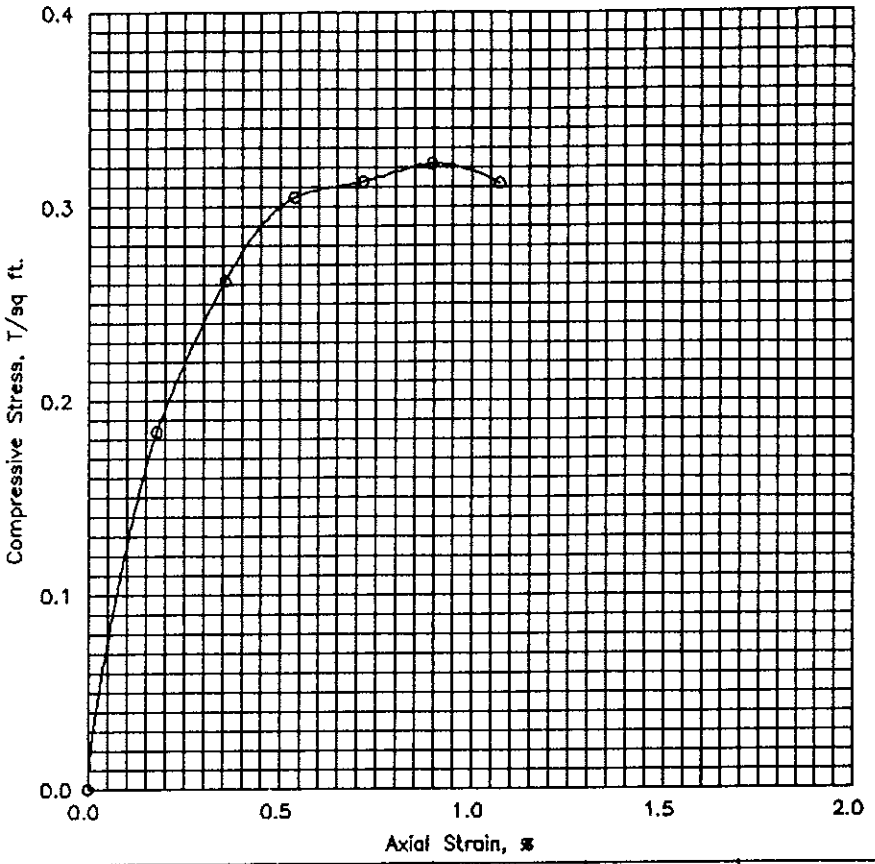
Proving Ring No. 10170
Proving Ring Constant, K = .766 lbs/div.

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	21.0	16.1	.002	6.30	.184
.3	20.	.020	30.0	23.0	.004	6.31	.262
.5	30.	.030	35.0	26.8	.005	6.32	.305
.7	40.	.040	36.0	27.6	.007	6.34	.313
.9	50.	.050	37.0	28.3	.009	6.35	.322
1.0	60.	.060	36.0	27.6	.011	6.36	.312

Job No. 14G533

Failure Sketches





☐ Controlled stress
☒ Controlled strain

Test No.			1			
Type of Specimen			Undisturbed			
Initial	Water content	w_0	45.5 %	%	%	%
	Void ratio	e_0				
	Saturation	S_0	%	%	%	%
	Dry density, lb/cu ft	γ_d	74.9			
Time to failure, min		t_f	.87			
Unconfined compressive strength, T/sq ft		q_u	.32			
Undrained shear strength, T/sq ft		S_u	.16			
Sensitivity ratio		S_t				
Initial specimen diameter, in.		D_0	2.830			
Initial specimen height, in.		H_0	5.595			

Classification Gray&yellowish brown,Clay,Medium stiff,w/ferrous stains,slickensided

LL	PL	PI	G_s

Remarks

Project Gulf Intracostal Waterway

Area Near Sargent Beach, Texas

Boring No. 91-285 | Sample No. 4

Depth El 6-8 ft | Date 1/29/92

UNCONFINED COMPRESSION TEST REPORT

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PLATE XI-2

JOB NO. 14G533 DATE 1/29/92

PROJECT Gulf Intracostal Waterway near Sargent Beach, Texas

BORING NO. 91-285 SAMPLE NO. 6 DEPTH 10-12 ft

SPECIMEN NO. 1

CLASSIFICATION
Brown,Clay,Medium stiff,Silty,w/silt pockets & blocky structure

Tare No.	P-229	Height	5.595 in.
Tare plus Wet Specimen	442.74 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	343.10 gm	Initial Area	6.290 sq in.
Water Weight	99.64 gm	Volume	35.194 cu in.
Tare Weight	42.48 gm	Volume of Solids	cu in.
Wet Specimen	1083.64 gm	Void Ratio	
Dry Specimen	813.88 gm	Saturation	%
Water Content	33.14 %	Dry Density	88.1 lb/cu ft

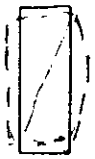
Specific Gravity of Solids
LL = 43 PL = 19 PI = 24

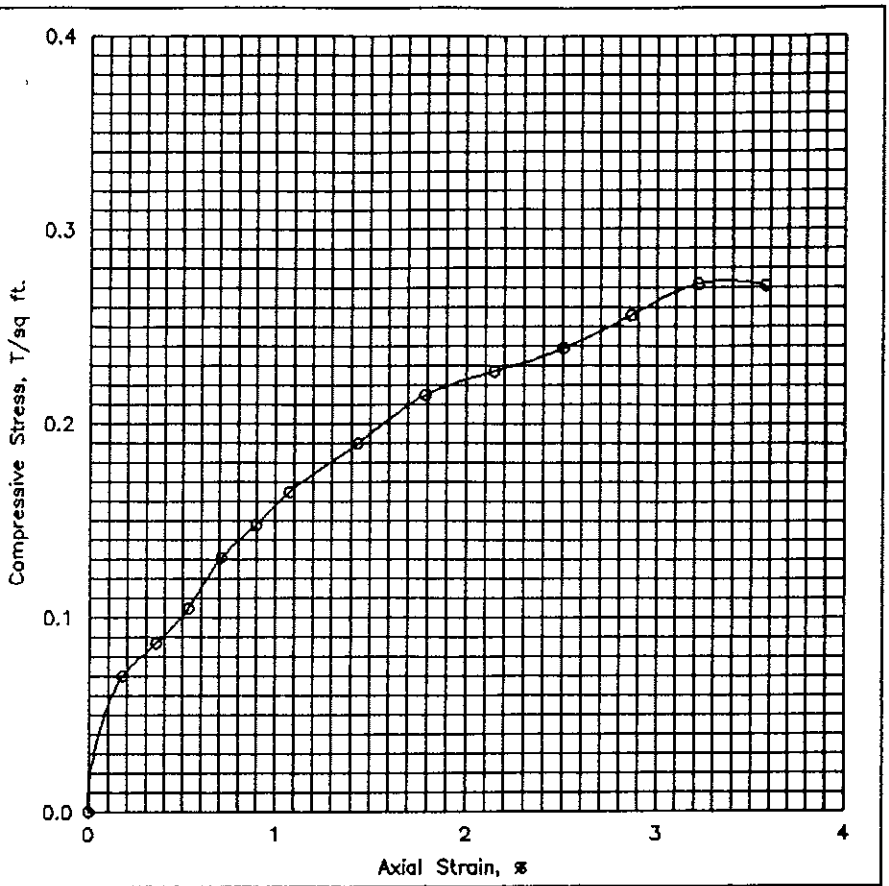
Proving Ring No. 10170
Proving Ring Constant, K = .766 lbs/div.

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	15.0	11.5	.007	6.34	.131
.9	50.	.050	17.0	13.0	.009	6.35	.148
1.0	60.	.060	19.0	14.6	.011	6.36	.165
1.4	80.	.080	22.0	16.9	.014	6.38	.190
1.6	100.	.100	25.0	19.1	.018	6.40	.215
2.0	120.	.120	26.5	20.3	.021	6.43	.227
2.3	140.	.140	28.0	21.4	.025	6.45	.239
2.7	160.	.160	30.0	23.0	.029	6.48	.256
3.0	180.	.180	32.0	24.5	.032	6.50	.272
3.3	200.	.200	32.0	24.5	.036	6.52	.271

Job No. 14G533

Failure Sketches





☐ Controlled stress
☒ Controlled strain

Test No.			1			
Type of Specimen			Undisturbed			
Initial	Water content	w_0	33.1 %	%	%	%
	Void ratio	e_0				
	Saturation	S_0	%	%	%	%
	Dry density, lb/cu ft	γ_d	88.1			
Time to failure, min		t_f	3.02			
Unconfined compressive strength, T/sq ft		q_u	.27			
Undrained shear strength, T/sq ft		S_u	.14			
Sensitivity ratio		S_t				
Initial specimen diameter, in.		D_0	2.830			
Initial specimen height, in.		H_0	5.595			

Classification Brown,Clay,Medium stiff,Silty,w/silt pockets & blocky structure

LL	43	PL	19	PI	24	G_s	

Remarks

Project Gulf Intracostal Waterway

Area Near Sargent Beach, Texas

Boring No. 91-285 | Sample No. 6

Depth El 10--12 ft | Date 1/29/92

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PLATE XI-2

JOB NO. 14G533 DATE 1/29/92

PROJECT Gulf Intracostal Waterway near Sargent Beach, Texas

BORING NO. 91-285 SAMPLE NO. 11 DEPTH 20-22 ft

SPECIMEN NO. 1

CLASSIFICATION
Brown,Clay,Stiff,w/silt seams,slickensided

Tare No.	P-228	Height	5.595 in.
Tare plus Wet Specimen	450.28 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	325.14 gm	Initial Area	6.290 sq in.
Water Weight	125.14 gm	Volume	35.194 cu in.
Tare Weight	42.48 gm	Volume of Solids	cu in.
Wet Specimen	1023.95 gm	Void Ratio	
Dry Specimen	709.73 gm	Saturation	%
Water Content	44.27 %	Dry Density	76.8 lb/cu ft

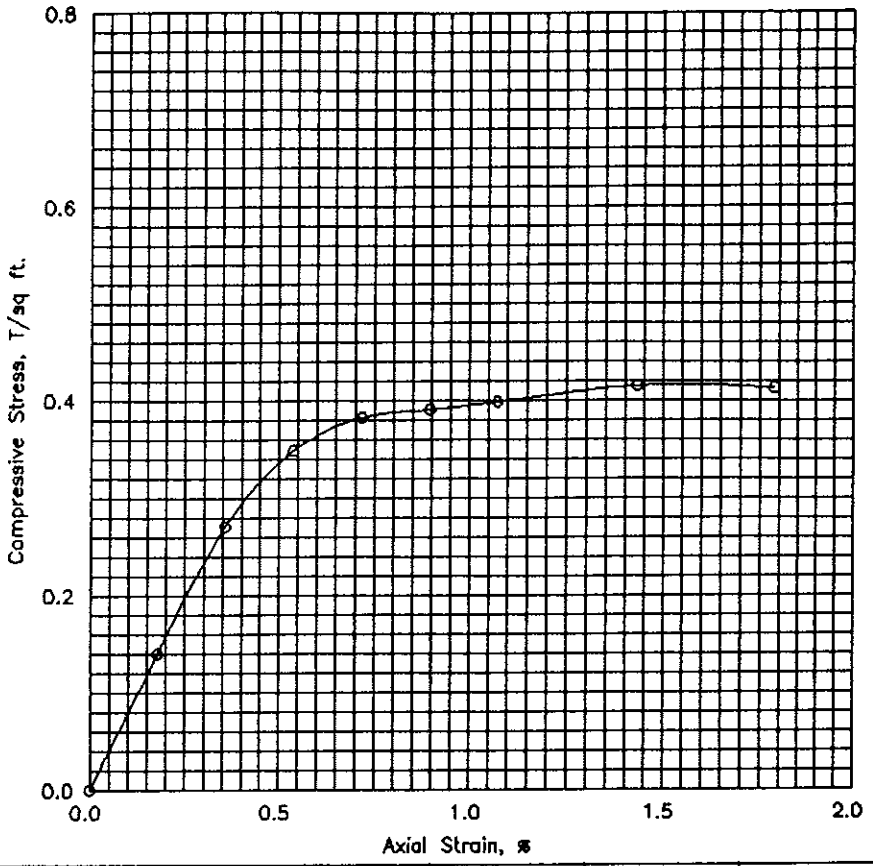
Specific Gravity of Solids
LL = 69 PL = 28 PI = 41

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	16.0	12.3	.002	6.30	.140
.4	20.	.020	31.0	23.7	.004	6.31	.271
.6	30.	.030	40.0	30.6	.005	6.32	.349
.8	40.	.040	44.0	33.7	.007	6.34	.383
.9	50.	.050	45.0	34.5	.009	6.35	.391
1.1	60.	.060	46.0	35.2	.011	6.36	.399
1.4	80.	.080	48.0	36.8	.014	6.38	.415
1.7	100.	.100	48.0	36.8	.018	6.40	.413

Job No. 14G533

Failure Sketches



☐ Controlled stress
☒ Controlled strain

Test No.			1			
Type of Specimen			Undisturbed			
Initial	Water content	w_o	44.3 %	%	%	%
	Void ratio	e_o				
	Saturation	S_o	%	%	%	%
	Dry density, lb/cu ft	γ_d	76.8			
Time to failure, min		t_f	1.42			
Unconfined compressive strength, T/sq ft		q_u	.41			
Undrained shear strength, T/sq ft		S_u	.21			
Sensitivity ratio		S_t				
Initial specimen diameter, in.		D_o	2.830			
Initial specimen height, in.		H_o	5.595			

Classification Brown,Clay,Stiff,w/silt seams,slickensided

LL	PL	PI	G_s
69	28	41	

Remarks

Project Gulf Intracostal Waterway

Area Near Sargent Beach, Texas

Boring No. 91-285 | Sample No. 11

Depth El 20-22 ft | Date 1/29/92

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PLATE XI-2