

U.S. ARMY CORPS OF ENGINEERS

DEPTH, FEET	SAMPLE NO.	SAMPLE NO.	PEN./TORVANE	SPT.-BLOW COUNT	BORING NO. <u>91-19</u> DATE: BEGIN <u>3-19-71</u> PAGE <u>1 / 1 / 1</u>				
					JOB NO. <u>146446</u> COMPLETE <u>3-19-71</u> Thin Walled Tube <input checked="" type="checkbox"/> 3" <input type="checkbox"/> 6"				
					PROJECT <u>Victoria Channel</u>				
					LOCATION <u>Victoria Channel</u>				
					ELEVATION OF HOLE _____				
					MANUFACTURER'S DESIGNATION OF DRILL RIG <u>FALING - 36</u>				
					GROUNDWATER: DEPTH <u>9'1"</u> ft., ELEV. _____ ft., at end of Drilling				
					WEATHER _____				
					DRILLER <u>W. DE JOR</u> LOGGER <u>J. BERG</u>				
					COLOR	MATERIAL TYPE	CONSISTENCY	SECONDARY CONSTITUENTS	STRUCTURAL FEATURES AND COMMENTS
0									
	1	4.5+	Brown	clay	Hard			w/roots	
	2	4.5+	Brown	"	"				
- 5 -	3	4.5+	"	"	"				
	4	4.5+	"	clay	"				
	5	3.0	Tan	clay	very stiff				
- 10 -	6	1.5	Tan	Sandy	stiff	clay			
	7	0.5	Tan	Sandy	Medium stiff	clay			
- 15 -	8	3/2/3	Tan	Sand	Loose			Sand at 14'	
	9	2/3/3	Tan	Sand	"				
- 20 -	10	3/4/4	Gray	Sand	Loose	w/clay seams			
- 25 -	11	1/3/4	Gray	Sand	Loose	w/clay balls			
- 30 -	12	2/3/5	Gray	Sand	Loose				
- 35 -									

U. S. ARMY CORPS OF ENGINEERS

DEPTH, FEET	SAMPLE NO.	PEN./TORVANE SPT.-BLOW COUNT	BORING NO. <u>91-19</u>	DATE: BEGIN <u>9-27</u>	PAGE <u>2</u> / <u>2</u>
			JOB NO. <u>146446</u>	COMPLETE <input type="checkbox"/>	Thin Walled Tube
			PROJECT <u>Victoria Channel</u>	<input checked="" type="checkbox"/> 3"	<input type="checkbox"/> 6"
			LOCATION <u>Victoria Channel</u>	ELEVATION OF HOLE _____	
			MANUFACTURER'S DESIGNATION OF DRILL RIG <u>Falling 36</u>		
			GROUNDWATER: DEPTH <u>9' 1"</u> ft., ELEV. _____ ft., at end of Drilling		
			WEATHER _____		
			DRILLER <u>W. De Feat</u>	LOGGER <u>J. Beck</u>	

			COLOR	MATERIAL TYPE	CONSIS-TENCY	SECONDARY CONSTITUENTS	STRUCTURAL FEATURES AND COMMENTS
35							
40	13	1/3/3	<u>GRAY</u>	<u>SAND</u>	<u>Loose</u>		<u>Bottom of 91-19 (40')</u>
45							
50							
55							
60							
65							
70							

Project : Channel enlargement channel to Victoria, Victoria, Texas

SUMMARY OF LABORATORY TEST RESULTS

El. 13.9' NGVD

Boring No. 91-19

Contract No. DACW64-91-D-0001 Delivery Order No. 0009

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 (%)	PL (%)	Mechanical Analysis % Passing					Torvane Shear Strength (tsf)	q u (tsf)
											#4	#10	#40	#100	#200		
1	0-2	3.50		Dark olive gray. Clay, Very stiff, w/roots	CH	21.7	98.6	120.0	68	25	100.0	99.9	99.1		87.9		1.74
2	2-4	4.5+		Dark olive gray. Clay, Hard, w/calcareous nodule	CH	22.6											
3	4-6	4.5+		Yellowish brown. Clay, Hard, Silty, w/calcareous nodule	CL	16.6											
4	6-8	4.5+		Yellowish brown. Clay, Hard, Silty, w/silt pockets	CL	16.7	106.2	124.0	38	19	99.5	99.3	98.5		97.8		4.36
5	8-10	2.00		Yellowish brown. Clay, Very stiff, Silty, w/ferrous nodules stains	CL	23.0											
6	10-12	0.50		Yellowish brown. Clay, Medium stiff, sandy	CL	27.2	96.5	122.7								0.15 .30	.40
7	12-14			Yellowish brown. Sand, Loose, Clayey	SC	26.6											
8	14.5-16		5	Dark gray, Sand, Loose, Silty	S M						100.0	100.0	99.9		19.3		
9	18.5-20		6	Yellowish brown, Sand, Loose, Silty	S M												
10	23.5-25		8	Gray, Sand, Loose, silty	S M												
11	28.5-30		7	Gray, Sand, Loose, Silty	S M						100.0	100.0	97.5		31.0		
12	33.5-35		8	Gray, Sand, Loose, Silty	S M												
13	38.5-40		6	Gray, Sand, Loose, Silty	S M												

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. 14G459

DATE 4/17/91

PROJECT CHANNEL ENLARGEMENT, CHANNEL TO VICTORIA, TEXAS

BORING NO. 91-19

SAMPLE NO. 1

DEPTH 0-2 ft

SPECIMEN NO. 1

CLASSIFICATION

Dark olive gray, clay, very stiff, with roots

Tare No.	P-3	Height	5.595 in.
Tare plus Wet Specimen	720.40 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	599.41 gm	Initial Area	6.290 sq in.
Water Weight	120.99 gm	Volume	35.194 cu in.
Tare Weight	42.70 gm	Volume of Solids	cu in.
Wet Specimen	1108.68 gm	Void Ratio	
Dry Specimen	910.75 gm	Saturation	%
Water Content	21.73 %	Dry Density	98.6 lb/cu ft
Specific Gravity of Solids			
LL = 68	PL = 25	PI = 43	

Proving Ring No. 10170

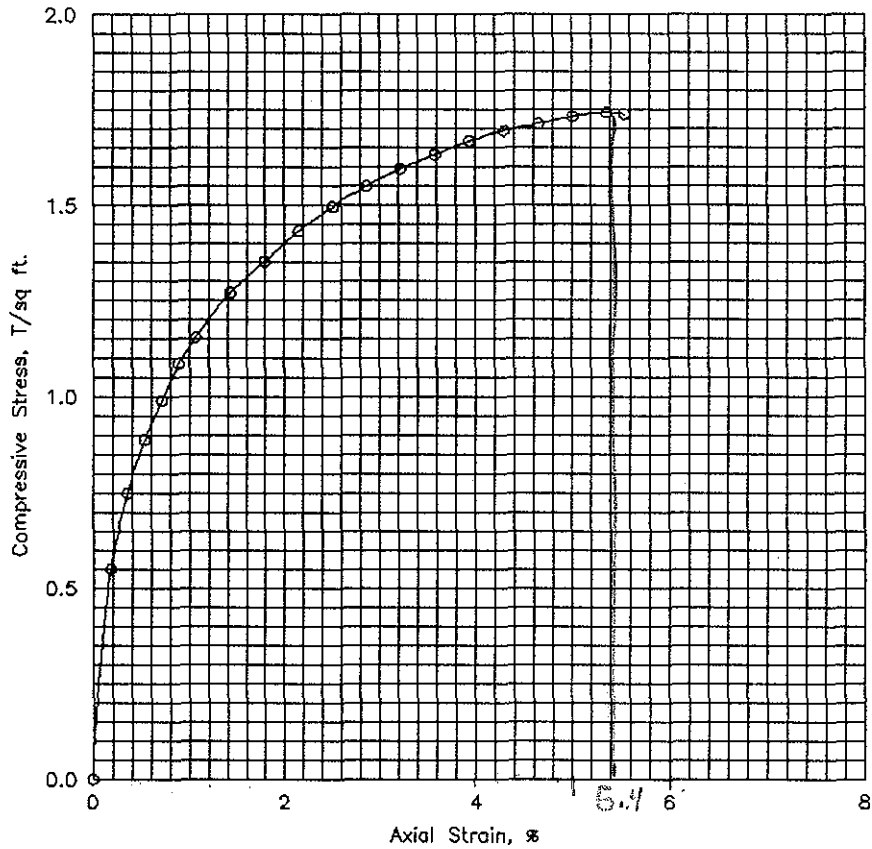
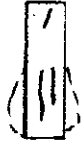
Proving Ring Constant, K = .766 lbs/div.

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
.3	10.	.010	63.0	48.3	.002	6.30	.551
.6	20.	.020	86.0	65.9	.004	6.31	.751
.8	30.	.030	102.0	78.1	.005	6.32	.890
.9	40.	.040	114.0	87.3	.007	6.34	.992
1.1	50.	.050	125.0	95.8	.009	6.35	1.086
1.4	60.	.060	133.0	101.9	.011	6.36	1.154
1.6	80.	.080	147.0	112.6	.014	6.38	1.270
2.0	100.	.100	157.0	120.3	.018	6.40	1.352
2.3	120.	.120	167.0	127.9	.021	6.43	1.433
2.8	140.	.140	175.0	134.0	.025	6.45	1.496
3.1	160.	.160	182.0	139.4	.029	6.48	1.550
3.3	180.	.180	188.0	144.0	.032	6.50	1.595
3.7	200.	.200	193.0	147.8	.036	6.52	1.632
4.0	220.	.220	198.0	151.7	.039	6.55	1.668
4.4	240.	.240	202.0	154.7	.043	6.57	1.695
4.7	260.	.260	205.0	157.0	.046	6.60	1.714
5.0	280.	.280	208.0	159.3	.050	6.62	1.732
5.4	300.	.300	210.0	160.9	.054	6.65	1.743
5.7	310.	.310	210.0	160.9	.055	6.66	1.739

Job No. 146459

EM 1110-2-1906
Appendix XI
30 Nov 70

Failure Sketches



- Controlled stress
- Controlled strain

Test No.		1	
Type of Specimen		Undisturbed	
Initial	Water content	w_0	21.7 %
	Void ratio	e_0	
	Saturation	S_0	%
	Dry density, lb/cu ft	γ_d	98.6
Time to failure, min		t_f	5.37
Unconfined compressive strength, T/sq ft		q_u	1.74
Undrained shear strength, T/sq ft		S_u	.87
Sensitivity ratio		S_t	
Initial specimen diameter, in.		D_0	2.830
Initial specimen height, in.		H_0	5.595
Classification Dark olive gray, clay, very stiff, w/roots			
LL	68	PL	25
		PI	43
		G_s	
Remarks		Project CHANNEL ENLARGEMENT, CHANNEL TO VICTORIA	
		Area Victoria, Texas	
		Boring No. 91-19	Sample No. 1
		Depth 0-2 ft	Date 4/17/91
		UNCONFINED COMPRESSION TEST REPORT	

JOB NO. 14G459

DATE 4/17/91

PROJECT CHANNEL ENLARGEMENT, CHANNEL TO VICTORIA, TEXAS

BORING NO. 91-19

SAMPLE NO. 4

DEPTH 6-8 ft

SPECIMEN NO. 1

CLASSIFICATION

Yellowish brown, clay, hard, silty, with silt pockets

Tare No.	GE-2	Height	5.595 in.
Tare plus Wet Specimen	516.06 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	448.36 gm	Initial Area	6.290 sq in.
Water Weight	67.70 gm	Volume	35.194 cu in.
Tare Weight	42.60 gm	Volume of Solids	cu in.
Wet Specimen	1145.12 gm	Void Ratio	
Dry Specimen	981.38 gm	Saturation	%
Water Content	16.68 %	Dry Density	106.2 lb/cu ft
Specific Gravity of Solids			
LL = 38	PL = 19	PI = 19	

Proving Ring No. 10170

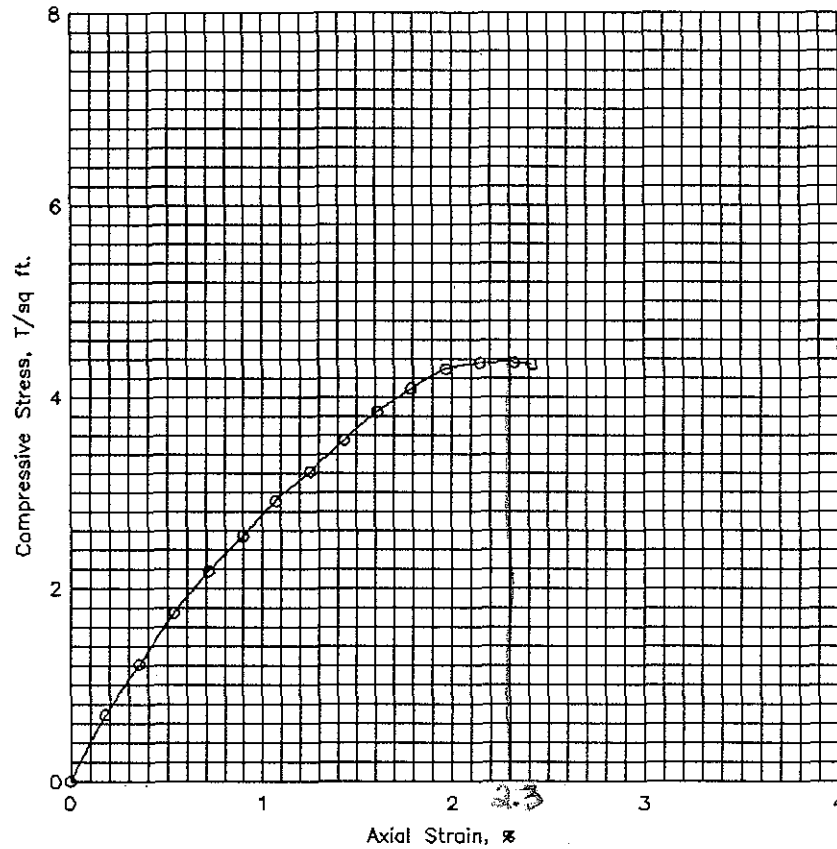
Proving Ring Constant, K = .766 lbs/div.

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	79.0	60.5	.002	6.30	.691
.5	20.	.020	139.0	106.5	.004	6.31	1.214
.9	30.	.030	201.0	154.0	.005	6.32	1.753
1.1	40.	.040	250.0	191.5	.007	6.34	2.176
1.3	50.	.050	293.0	224.4	.009	6.35	2.546
1.5	60.	.060	336.0	257.4	.011	6.36	2.914
1.7	70.	.070	372.0	285.0	.013	6.37	3.221
1.9	80.	.080	411.0	314.8	.014	6.38	3.552
2.2	90.	.090	446.0	341.6	.016	6.39	3.848
2.4	100.	.100	475.0	363.8	.018	6.40	4.090
2.6	110.	.110	500.0	383.0	.020	6.42	4.298
2.8	120.	.120	508.0	389.1	.021	6.43	4.359
2.9	130.	.130	510.0	390.7	.023	6.44	4.368
3.0	135.	.135	508.0	389.1	.024	6.45	4.347

Job No. 14C459

EM 1110-2-1906
Appendix XI
30 Nov 70

Failure Sketches



Controlled stress
 Controlled strain

Test No.		1	
Type of Specimen		Undisturbed	
Initial	Water content	w_o	16.7 %
	Void ratio	e_o	
	Saturation	S_o	%
	Dry density, lb/cu ft	γ_d	106.2
Time to failure, min		t_f	2.92
Unconfined compressive strength, T/sq ft		q_u	4.37
Undrained shear strength, T/sq ft		S_u	2.18
Sensitivity ratio		S_t	
Initial specimen diameter, in.		D_o	2.830
Initial specimen height, in.		H_o	5.595
Classification Yellowish brown, clay, hard, silty, with silt pockets			
LL	38	PL	19
		PI	19
		G_s	
Remarks		Project CHANNEL ENLARGEMENT, CHANNEL TO VICTORIA	
		Area Victoria, Texas	
		Boring No. 91-19	Sample No. 4
		Depth 6-8 ft	Date 4/17/91
		UNCONFINED COMPRESSION TEST REPORT	

ENG FORM 3659
1 JUN 65

Geotest Engineering, Inc.

PLATE XI-2

PLATE

JOB NO. 14G459

DATE 4/17/91

PROJECT CHANNEL ENLARGEMENT, CHANNEL TO VICTORIA, TEXAS

BORING NO. 91-19

SAMPLE NO. 6

DEPTH 10-12 ft

SPECIMEN NO. 1

CLASSIFICATION

Yellowish brown, clay, medium stiff, sandy

Tare No.	P-28	Height	5.595 in.
Tare plus Wet Specimen	1176.52 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	934.15 gm	Initial Area	6.290 sq in.
Water Weight	242.37 gm	Volume	35.194 cu in.
Tare Weight	42.68 gm	Volume of Solids	cu in.
Wet Specimen	1133.84 gm	Void Ratio	
Dry Specimen	891.47 gm	Saturation	%
Water Content	27.19 %	Dry Density	96.5 lb/cu ft
Specific Gravity of Solids			

LL = NP

PL = NP

PI = NP

Proving Ring No. 10170

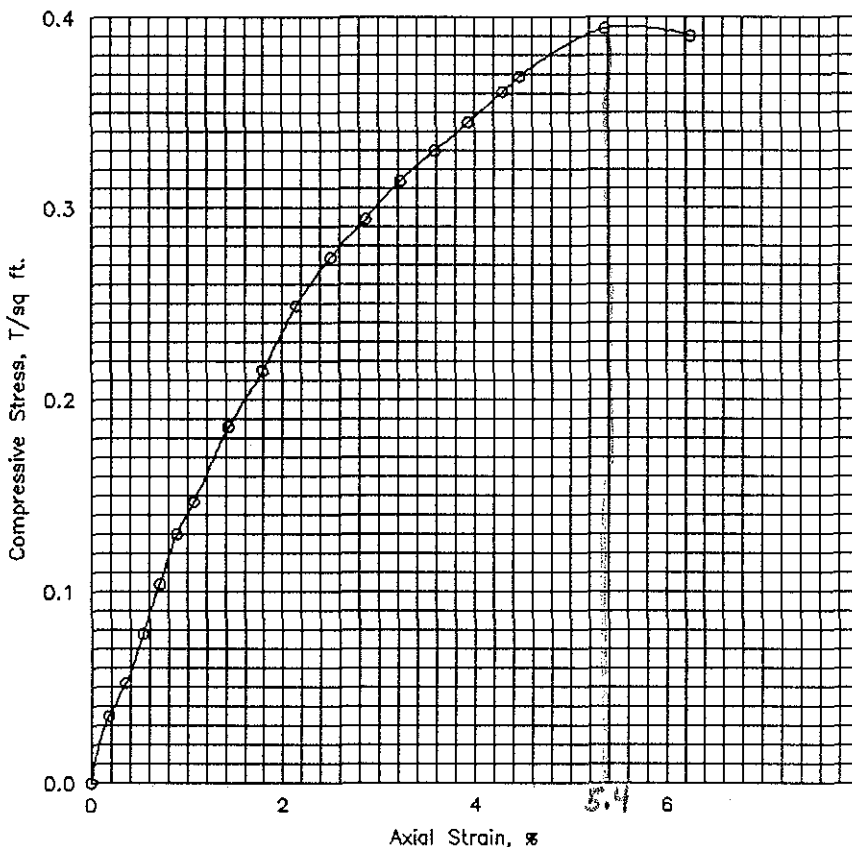
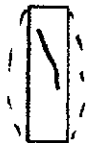
Proving Ring Constant, K = .766 lbs/div.

Elapsed Time n.	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	4.0	3.1	.002	6.30	.035
.3	20.	.020	6.0	4.6	.004	6.31	.052
.5	30.	.030	9.0	6.9	.005	6.32	.078
.7	40.	.040	12.0	9.2	.007	6.34	.104
.9	50.	.050	15.0	11.5	.009	6.35	.130
1.0	60.	.060	17.0	13.0	.011	6.36	.147
1.4	80.	.080	21.5	16.5	.014	6.38	.186
1.7	100.	.100	25.0	19.1	.018	6.40	.215
2.1	120.	.120	29.0	22.2	.021	6.43	.249
2.4	140.	.140	32.0	24.5	.025	6.45	.274
2.7	160.	.160	34.5	26.4	.029	6.48	.294
3.0	180.	.180	37.0	28.3	.032	6.50	.314
3.3	200.	.200	39.0	29.9	.036	6.52	.330
3.7	220.	.220	41.0	31.4	.039	6.55	.345
4.0	240.	.240	43.0	32.9	.043	6.57	.361
4.2	250.	.250	44.0	33.7	.045	6.58	.369
5.0	300.	.300	47.5	36.4	.054	6.65	.394
5.8	350.	.350	47.5	36.4	.063	6.71	.390

Job No. 14G459

EM 1110-2-1906
Appendix XI
30 Nov 70

Failure Sketches



Controlled stress
 Controlled strain

Test No.		1			
Type of Specimen		Undisturbed			
Initial	Water content	w_d	27.2 %	%	%
	Void ratio	e_0			
	Saturation	S_0	%	%	%
	Dry density, lb/cu ft	γ_d	96.5		
Time to failure, min		t_f	4.98		
Unconfined compressive strength, T/sq ft		q_u	.39		
Undrained shear strength, T/sq ft		S_u	.20		
Sensitivity ratio		S_t			
Initial specimen diameter, in.		D_0	2.830		
Initial specimen height, in.		H_0	5.595		

Classification Yellowish brown, clay, medium stiff, sandy

LL NP PL NP PI NP G_s

Remarks	Project CHANNEL ENLARGEMENT, CHANNEL TO VICTORIA	
	Area Victoria, Texas	
	Boring No. 91-19	Sample No. 6
	Depth 10-12 ft	Date 4/17/91
	UNCONFINED COMPRESSION TEST REPORT	