JOB NO. 14G783-4 DATE 8/23/94

PROJECT Houston-Galvaston Navigation Channel

AREA Houston, Texas

BORING NO. 93-84 SAMPLE NO. 4 DEPTH 15-17 ft

SPECIMEN NO. 1

CLASSIFICATION
Gray,Clay,Very soft,Sandy,w/shell fragments

Tare No.	P-8	Height	5.595 in.
Tare plus Wet Specimen	427.65 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	310.52 gm	Initial Area	6.290 sq in.
Water Weight	117.13 gm	Volume	35.194 cu in.
Tare Weight	42.57 gm	Volume of Solids	cu in.
Wet Specimen	1027.06 gm	Void Ratio	
Dry Specimen	714.66 gm	Saturation	%
Water Content	43.71 %	Dry Density	77.4 lb/cu ft

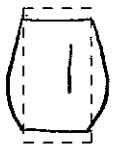
Specific Gravity of Solids
LL = 28 PL = 17 PI = 11

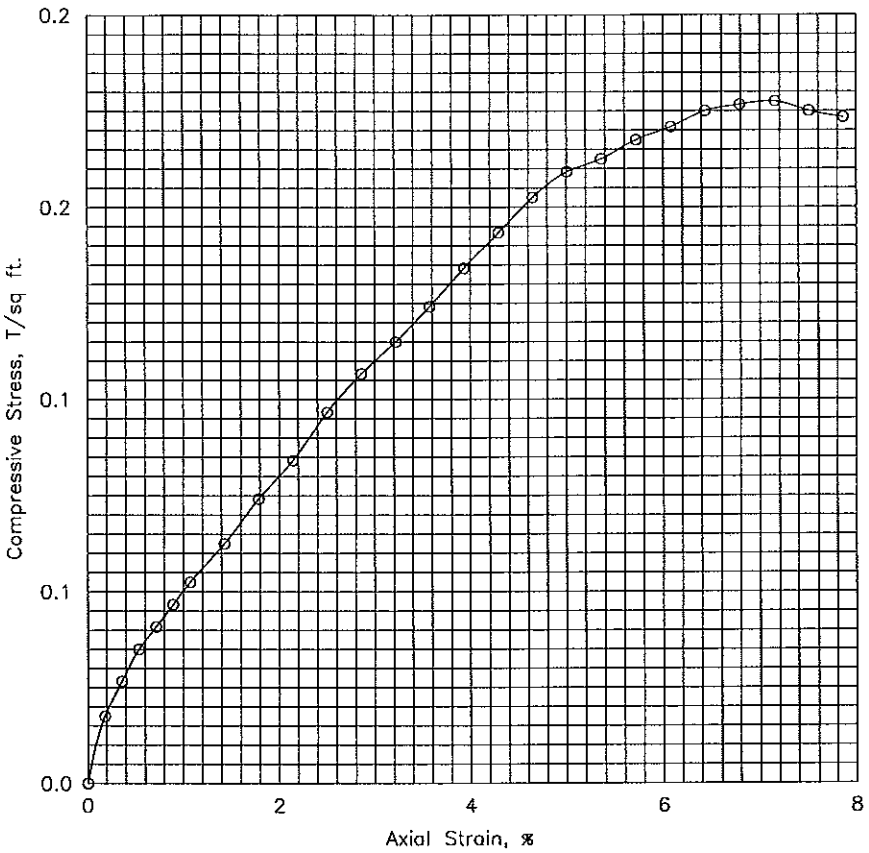
Proving Ring No. 17015
Proving Ring Constant, K = .311 lbs/div.

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	6.0	1.9	.002	6.30	.021
.4	20.	.020	9.0	2.8	.004	6.31	.032
.5	30.	.030	12.0	3.7	.005	6.32	.042
.7	40.	.040	14.0	4.3	.007	6.34	.049
.9	50.	.050	16.0	5.0	.009	6.35	.056
1.0	60.	.060	18.0	5.6	.011	6.36	.063
1.3	80.	.080	21.5	6.7	.014	6.38	.075
1.6	100.	.100	25.5	7.9	.018	6.40	.089
2.0	120.	.120	29.0	9.0	.021	6.43	.101
2.3	140.	.140	33.5	10.4	.025	6.45	.116
2.6	160.	.160	37.0	11.5	.029	6.48	.128
2.8	180.	.180	40.0	12.4	.032	6.50	.138
3.2	200.	.200	43.5	13.5	.036	6.52	.149
3.6	220.	.220	47.0	14.6	.039	6.55	.161
3.9	240.	.240	50.5	15.7	.043	6.57	.172
4.3	260.	.260	54.0	16.8	.046	6.60	.183
4.6	280.	.280	56.5	17.5	.050	6.62	.191
4.9	300.	.300	58.0	18.0	.054	6.65	.195
5.2	320.	.320	60.0	18.6	.057	6.67	.201
5.6	340.	.340	61.5	19.1	.061	6.70	.205
5.9	360.	.360	63.0	19.6	.064	6.72	.210
6.2	380.	.380	64.0	19.9	.068	6.75	.212
6.5	400.	.400	64.5	20.0	.071	6.77	.213
6.8	420.	.420	64.0	19.9	.075	6.80	.210
7.2	440.	.440	63.5	19.7	.079	6.83	.208

Job No. 14G783-4

Failure Sketches





☐ Controlled stress
☒ Controlled strain

Test No.			1			
Type of Specimen			Undisturbed			
Initial	Water content	w_0	43.7 %	%	%	%
	Void ratio	e_0				
	Saturation	S_0	%	%	%	%
	Dry density, lb/cu ft	γ_d	77.4			
Time to failure, min		t_f	6.53			
Unconfined compressive strength, T/sq ft		q_u	.21			
Undrained shear strength, T/sq ft		S_u	.11			
Sensitivity ratio		S_t				
Initial specimen diameter, in.		D_0	2.830			
Initial specimen height, in.		H_0	5.595			

Classification Gray,Clay,Very soft,Sandy,w/shell fragments

LL	28	PL	17	PI	11	G_s	

Remarks

Project Houston-Galvaston Navigation Channel

Area Houston, Texas

Boring No. 93-84 | Sample No. 4

Depth El 15-17 ft | Date 8/23/94

UNCONFINED COMPRESSION TEST REPORT

ENG FORM 3659
1 JUN 65

PLATE XI-2

Geotest Engineering, Inc.

PLATE

JOB NO. 14G783-4 DATE 8/23/94

PROJECT Houston-Galvaston Navigation Channel

AREA Houston, Texas

BORING NO. 93-84 SAMPLE NO. 7 DEPTH 21-23 ft

SPECIMEN NO. 1

CLASSIFICATION
Gray,Clay,Very soft,Sandy,w/shell fragments

Tare No.	GE-4	Height	5.595 in.
Tare plus Wet Specimen	476.68 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	370.92 gm	Initial Area	6.290 sq in.
Water Weight	105.76 gm	Volume	35.194 cu in.
Tare Weight	42.50 gm	Volume of Solids	cu in.
Wet Specimen	1129.23 gm	Void Ratio	
Dry Specimen	854.17 gm	Saturation	%
Water Content	32.20 %	Dry Density	92.5 lb/cu ft

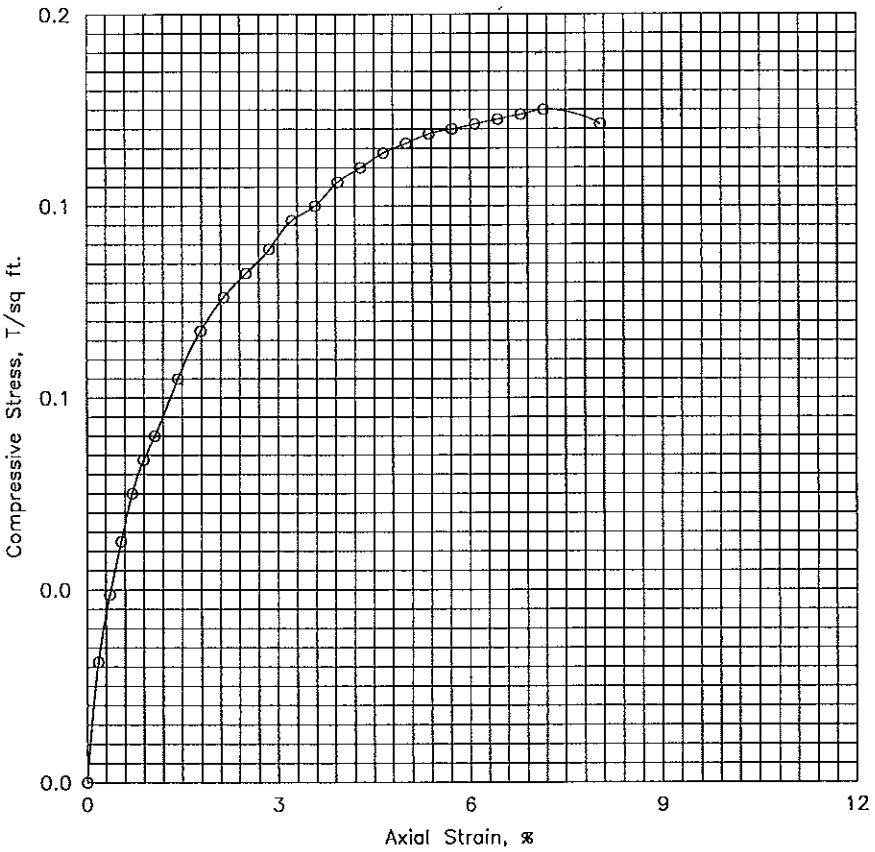
Specific Gravity of Solids
LL = 33 PL = 19 PI = 14

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	7.0	2.2	.002	6.30	.025
.3	20.	.020	11.0	3.4	.004	6.31	.039
.5	30.	.030	14.0	4.3	.005	6.32	.050
.7	40.	.040	17.0	5.3	.007	6.34	.060
.8	50.	.050	19.0	5.9	.009	6.35	.067
1.0	60.	.060	20.5	6.4	.011	6.36	.072
1.3	80.	.080	24.0	7.5	.014	6.38	.084
1.6	100.	.100	27.0	8.4	.018	6.40	.094
2.0	120.	.120	29.0	9.0	.021	6.43	.101
2.3	140.	.140	30.5	9.5	.025	6.45	.106
2.6	160.	.160	32.0	9.9	.029	6.48	.111
2.9	180.	.180	34.0	10.6	.032	6.50	.117
3.3	200.	.200	35.0	10.9	.036	6.52	.120
3.6	220.	.220	36.5	11.3	.039	6.55	.125
3.9	240.	.240	37.5	11.6	.043	6.57	.128
4.2	260.	.260	38.5	12.0	.046	6.60	.131
4.6	280.	.280	39.5	12.3	.050	6.62	.133
4.9	300.	.300	40.0	12.4	.054	6.65	.135
5.2	320.	.320	40.5	12.6	.057	6.67	.136
5.6	340.	.340	41.0	12.7	.061	6.70	.137
5.8	360.	.360	41.5	12.9	.064	6.72	.138
6.2	380.	.380	42.0	13.0	.068	6.75	.139
6.5	400.	.400	42.5	13.2	.071	6.77	.140
7.3	450.	.450	42.0	13.0	.080	6.84	.137

Job No. 146783-4

Failure Sketches



☐ Controlled stress
☒ Controlled strain

Test No.			1			
Type of Specimen			Undisturbed			
Initial	Water content	w_0	32.2 %	%	%	%
	Void ratio	e_0				
	Saturation	S_0	%	%	%	%
	Dry density, lb/cu ft	γ_d	92.5			
Time to failure, min		t_f	6.53			
Unconfined compressive strength, T/sq ft		q_u	.14			
Undrained shear strength, T/sq ft		S_u	.07			
Sensitivity ratio		S_t				
Initial specimen diameter, in.		D_0	2.830			
Initial specimen height, in.		H_0	5.595			

Classification Gray,Clay,Very soft,Sandy,w/shell fragments

LL	33	PL	19	PI	14	G_s	

Remarks

Project Houston--Galvaston Navigation Channel

Area Houston, Texas

Boring No. 93-84 | Sample No. 7

Depth El 21-23 ft | Date 8/23/94

UNCONFINED COMPRESSION TEST REPORT

ENG FORM 3659
1 JUN 65

PLATE XI-2

JOB NO. 14G783-4 DATE 8/23/94

PROJECT Houston-Galvaston Navigation Channel

AREA Houston, Texas

BORING NO. 93-84 SAMPLE NO. 10 DEPTH 27-29 ft

SPECIMEN NO. 1

CLASSIFICATION
Yellowish gray,Clay,Soft,w/shell fragments

Tare No.	KL-6	Height	5.595 in.
Tare plus Wet Specimen	289.22 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	221.38 gm	Initial Area	6.290 sq in.
Water Weight	67.84 gm	Volume	35.194 cu in.
Tare Weight	42.54 gm	Volume of Solids	cu in.
Wet Specimen	1051.43 gm	Void Ratio	
Dry Specimen	762.27 gm	Saturation	%
Water Content	37.93 %	Dry Density	82.5 lb/cu ft

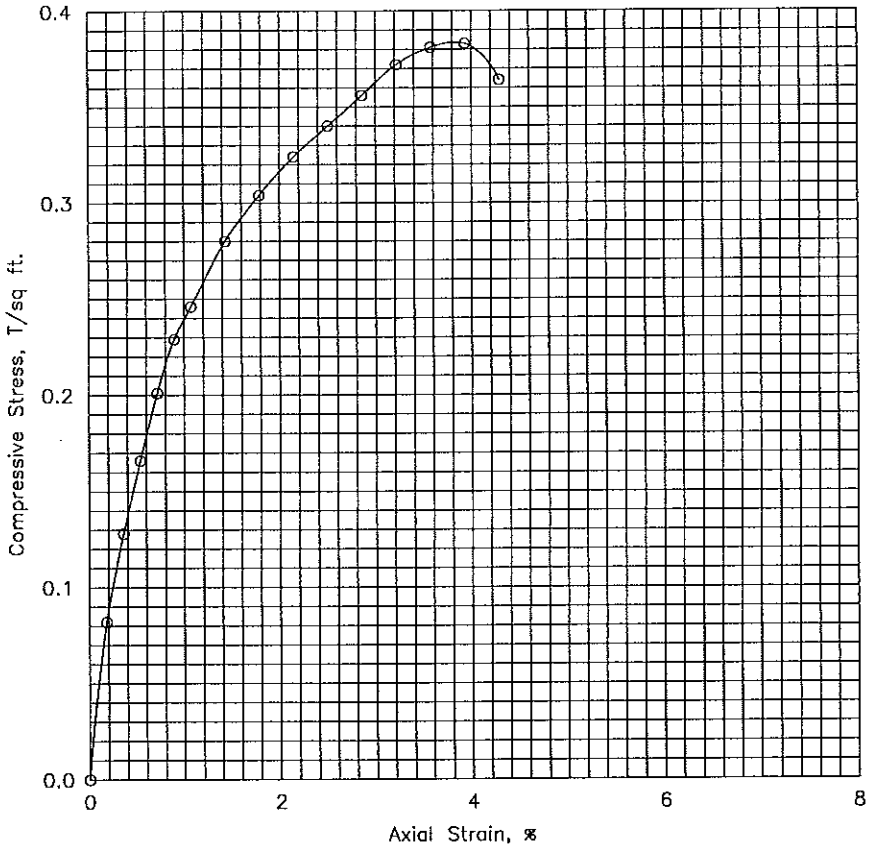
Specific Gravity of Solids
LL = 90 PL = 31 PI = 59

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	23.0	7.1	.002	6.30	.082
.3	20.	.020	36.0	11.2	.004	6.31	.128
.5	30.	.030	47.0	14.6	.005	6.32	.166
.7	40.	.040	57.0	17.7	.007	6.34	.201
.9	50.	.050	65.0	20.2	.009	6.35	.229
1.0	60.	.060	70.0	21.7	.011	6.36	.246
1.3	80.	.080	80.0	24.8	.014	6.38	.280
1.7	100.	.100	87.0	27.0	.018	6.40	.304
1.9	120.	.120	93.0	28.9	.021	6.43	.324
2.3	140.	.140	98.0	30.4	.025	6.45	.340
2.7	160.	.160	103.0	32.0	.029	6.48	.356
3.0	180.	.180	108.0	33.5	.032	6.50	.372
3.3	200.	.200	111.0	34.5	.036	6.52	.381
3.7	220.	.220	112.0	34.8	.039	6.55	.383
3.9	240.	.240	107.0	33.2	.043	6.57	.364

Job No. 14G783-4

Failure Sketches



☐ Controlled stress
☒ Controlled strain

Test No.			1			
Type of Specimen			Undisturbed			
Initial	Water content	w_0	37.9 %	%	%	%
	Void ratio	e_0				
	Saturation	S_0	%	%	%	%
	Dry density, lb/cu ft	γ_d	82.5			
Time to failure, min		t_f	3.65			
Unconfined compressive strength, T/sq ft		q_u	.38			
Undrained shear strength, T/sq ft		S_u	.19			
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/shell fragments

LL	PL	PI	G_s
90	31	59	

Remarks

Project Houston-Galvaston Navigation Channel

Area Houston, Texas

Boring No. 93-84 | Sample No. 10

Depth 27-29 ft | Date 8/23/94

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UNCONFINED COMPRESSION TEST REPORT

ENG FORM 3659
1 JUN 65

PLATE XI-2

Geotest Engineering, Inc.

PLATE

JOB NO. 14G783-4 DATE 8/23/94

PROJECT Houston-Galvaston Navigation Channel

AREA Houston, Texas

BORING NO. 93-84 SAMPLE NO. 14 DEPTH 35-37 ft

SPECIMEN NO. 1

CLASSIFICATION
Yellowish gray,Clay,Hard,Sandy

Tare No.	KL-31	Height	5.595 in.
Tare plus Wet Specimen	425.46 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	369.98 gm	Initial Area	6.290 sq in.
Water Weight	55.48 gm	Volume	35.194 cu in.
Tare Weight	42.50 gm	Volume of Solids	cu in.
Wet Specimen	1237.95 gm	Void Ratio	
Dry Specimen	1058.61 gm	Saturation	%
Water Content	16.94 %	Dry Density	114.6 lb/cu ft

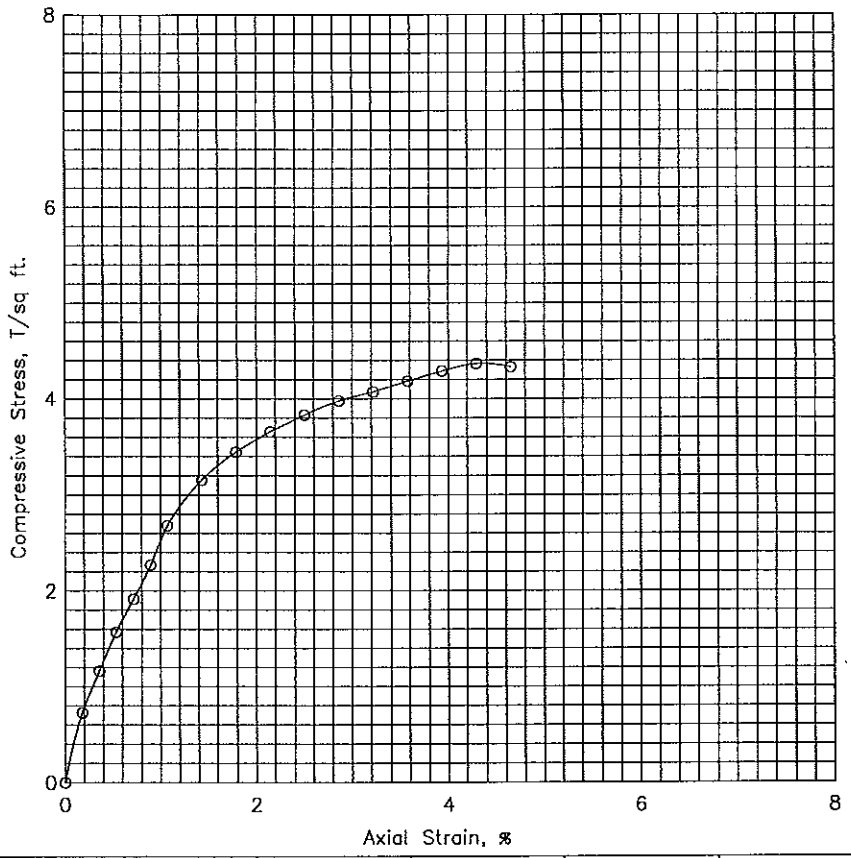
Specific Gravity of Solids
LL = 39 PL = 18 PI = 21

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	83.0	63.6	.002	6.30	.726
.4	20.	.020	133.0	101.9	.004	6.31	1.162
.6	30.	.030	180.0	137.9	.005	6.32	1.570
.8	40.	.040	220.0	168.5	.007	6.34	1.915
.9	50.	.050	261.0	199.9	.009	6.35	2.268
1.1	60.	.060	309.0	236.7	.011	6.36	2.680
1.5	80.	.080	365.0	279.6	.014	6.38	3.155
1.8	100.	.100	400.0	306.4	.018	6.40	3.444
2.2	120.	.120	426.0	326.3	.021	6.43	3.655
2.5	140.	.140	448.0	343.2	.025	6.45	3.830
2.9	160.	.160	467.0	357.7	.029	6.48	3.978
3.2	180.	.180	480.0	367.7	.032	6.50	4.073
3.6	200.	.200	495.0	379.2	.036	6.52	4.185
3.9	220.	.220	509.0	389.9	.039	6.55	4.287
4.3	240.	.240	520.0	398.3	.043	6.57	4.364
4.7	260.	.260	518.0	396.8	.046	6.60	4.331

Job No. 14G783-4

Failure Sketches



☐ Controlled stress
☒ Controlled strain

Test No.			1			
Type of Specimen			Undisturbed			
Initial	Water content	w_o	16.9 %	%	%	%
	Void ratio	e_o				
	Saturation	S_o	%	%	%	%
	Dry density, lb/cu ft	γ_d	114.6			
Time to failure, min		t_f	4.35			
Unconfined compressive strength, T/sq ft		q_u	4.36			
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 gray,Clay,Hard,Sandy

LL	39	PL	18	PI	21	G_s	

Remarks

Project Houston-Galvaston Navigation Channel

Area Houston, Texas

Boring No. 93-84 | Sample No. 14

Depth El 35-37 ft | Date 8/23/94

UNCONFINED COMPRESSION TEST REPORT

ENG FORM 3659
1 JUN 65

PLATE XI-2

JOB NO. 14G783-4 DATE 8/23/94

PROJECT Houston-Galvaston Navigation Channel

AREA Houston, Texas

BORING NO. 93-84 SAMPLE NO. 19 DEPTH 45-47 ft

SPECIMEN NO. 1

CLASSIFICATION
Yellowish gray,Clay,Very stiff,Sandy,w/ sand pockets

Tare No.	KL-28	Height	5.595 in.
Tare plus Wet Specimen	426.78 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	369.37 gm	Initial Area	6.290 sq in.
Water Weight	57.41 gm	Volume	35.194 cu in.
Tare Weight	42.75 gm	Volume of Solids	cu in.
Wet Specimen	1220.73 gm	Void Ratio	
Dry Specimen	1038.24 gm	Saturation	%
Water Content	17.58 %	Dry Density	112.4 lb/cu ft

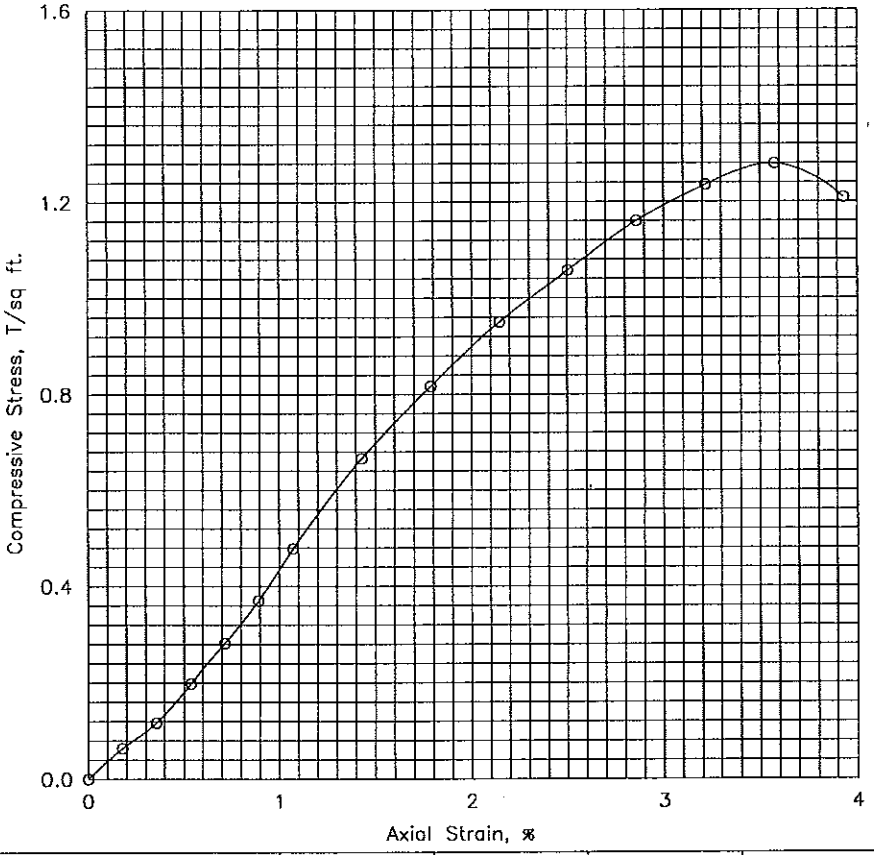
Specific Gravity of Solids
LL = 38 PL = 15 PI = 23

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	18.0	5.6	.002	6.30	.064
.3	20.	.020	33.0	10.2	.004	6.31	.117
.5	30.	.030	56.0	17.4	.005	6.32	.198
.7	40.	.040	80.0	24.8	.007	6.34	.282
.9	50.	.050	105.0	32.6	.009	6.35	.370
1.1	60.	.060	136.0	42.2	.011	6.36	.478
1.4	80.	.080	190.0	59.0	.014	6.38	.666
1.8	100.	.100	234.0	72.7	.018	6.40	.817
2.1	120.	.120	273.0	84.8	.021	6.43	.950
2.5	140.	.140	305.0	94.7	.025	6.45	1.057
2.8	160.	.160	336.0	104.4	.029	6.48	1.160
3.2	180.	.180	359.0	111.5	.032	6.50	1.235
3.5	200.	.200	373.0	115.9	.036	6.52	1.279
3.8	220.	.220	354.0	110.0	.039	6.55	1.209

Job No. 14G783-4

Failure Sketches



☐ Controlled stress
☒ Controlled strain

Test No.			1			
Type of Specimen			Undisturbed			
Initial	Water content	w_0	17.6 %	%	%	%
	Void ratio	e_0				
	Saturation	S_0	%	%	%	%
	Dry density, lb/cu ft	γ_d	112.4			
Time to failure, min		t_f	3.48			
Unconfined compressive strength, T/sq ft		q_u	1.28			
Undrained shear strength, T/sq ft		S_u	.64			
Sensitivity ratio		S_t				
Initial specimen diameter, in.		D_0	2.830			
Initial specimen height, in.		H_0	5.595			

Classification Yellowish gray,Clay,Very stiff,Sandy,w/ sand pockets

LL	38	PL	15	PI	23	G_s	

Remarks

Project Houston-Galvaston Navigation
Channel
Area Houston, Texas
Boring No. 93-84 Sample No. 19
Depth 45-47 ft Date 8/23/94
El
UNCONFINED COMPRESSION TEST REPORT

ENG FORM 3659
1 JUN 65

PLATE XI-2

Project: n-Galveston Navigation Channel

SUMM OF LABORATORY TEST RESULTS

Contract No. DACW64-94-C-0040

Boring No. 93-84

S #	Depth (ft)	P P (tsf)	SPT Blows per Foot	Visual Classification	U S C	Mc (%)	Dry Unit Wt (pcf)	Wet Unit Wt (pcf)	L L (%)	PL (%)	Mechanical Analysis % Passing					Torvane Shear Strength (tsf)	q u (tsf)
											#4	#10	#40	#100	#200		
21	49-51	3.50		Yellowish gray,Clay,Very stiff,Sandy,w/sand seams	C L	14.9											
22	51-53	3.50		Yellowish gray,Clay,Very stiff,Sandy	C L	16.6											
23	53-55	3.50		Yellowish gray,Clay,Very stiff,Sandy,w/sand pockets	C L	20.8											
24	55-57	4.50		Yellowish gray,Clay,Hard,Sandy,w/calcareous nodules	C L	20.3											
25	57-59	4.50		Yellowish gray,Clay,Hard,w/silt parting	C H	27.6											
26	59-61	4.00		Yellowish gray,Clay,Very stiff,w/silt parting	C H	26.7											

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

U.S. ARMY CORPS OF ENGINEERS

BORING NO. 9384 DATE: BEGIN 7-22-94 PAGE 1 / 2
JOB NO. 946783-1 COMPLETE 7-22-94 Thin Walled Tube
PROJECT HOUSTON-GALVESTON Navigation Channel ■ 3" □ 6"
LOCATION DISPOSAL AREA 15
ELEVATION OF HOLE
MANUFACTURER'S DESIGNATION OF DRILL RIG Arco K4X4, C-1000 Marsh Buggy
GROUNDWATER: DEPTH 0 ft., ELEV. ____ ft., at end of Drilling
WEATHER PARTLY CLOUDY & HOT
DRILLER DAVID GREGUSEK LOGGER JOHN A. GENTRY

Torvane Reading	DEPTH, FEET	SAMPLE	SAMPLE NO.	PEN./TORVANE SPT.-BLOW COUNT	COLOR	MATERIAL TYPE	CONSISTENCY	SECONDARY CONSTITUENTS	STRUCTURAL FEATURES AND COMMENTS
	0	X	1	1/WOH	TAN	SAND	VERY LOOSE	SILTY	FINE - w/ ROOTS 0-1'
	5	X	2	1 1 1	TAN	SAND	VERY LOOSE	SILTY	
	10	X	3	1/WOH	TAN	SAND	VERY LOOSE	SILTY	
	15								CLAY AT 15'
0	U		4	0.00/0.00	Gray	clay	Very soft	SANDY	
0.05			5	0.00/0.10	Gray	clay	Very soft	SANDY	
0.15	20		6	0.00/0.03	Gray	clay	Very soft	Sandy	w/ shell Fragment
0.1	U		7	0.00/0.2	Gray	clay	Very soft	sandy	w/ shell Fragment
0.2			8	0.00/0.04	Gray	clay	Very soft	Sandy	w/ shell Fragment
0.2	25		9	0.00/0.00	Gray	clay	Very soft	Sandy	
	U		10	0.75	Gray	clay	M. stiff		
	30		11	1.50	Gray	clay	stiff		
			12	1.0	Gray	clay	stiff		
			13	2.25	Gray	clay	V. stiff		
	35								

U.S. ARMY CORPS OF ENGINEERS

BORING NO. 93-84 DATE: BEGIN 7-22-94 PAGE 2 12
JOB NO. 946783.1 COMPLETE 7-22-94 Thin Walled Tube
PROJECT Houston-Galveston Navigation channel ■ 3" □ 6"
LOCATION DISPOSAL AREA 15
ELEVATION OF HOLE
MANUFACTURER'S DESIGNATION OF DRILL RIG Ardco K4X4, C-1000 Marsh Buggy
GROUNDWATER: DEPTH ____ ft., ELEV. ____ ft., at end of Drilling
WEATHER PARTLY CLOUDY & HOT
DRILLER DAVID GREGORY LOGGER JOHN A. GENTRY

DEPTH, FEET	SAMPLE	SAMPLE NO.	PEN./TORVANE SPT.-BLOW COUNT	COLOR	MATERIAL TYPE	CONSISTENCY	SECONDARY CONSTITUENTS	STRUCTURAL FEATURES AND COMMENTS
35	U	14	2.5	Brown	clay	V. stiff		
		15	3.75	Reddish Brown	Clay	V. stiff	Sandy	
40		16	3.5	Reddish Brown	clay	V. stiff	Sandy	- w/calc nod
		17	4.0	Reddish Brown	clay	V. stiff	Sandy	
		18	2.25	Gray	clay	V. stiff	Sandy	- w/Sa layer
45	U	19	3.5	Gray	clay	V. stiff	Sandy	
		20	3.75	Gray	clay	V. stiff	Sandy	
50		21	3.75	Gray	clay	V. stiff	Sandy	
		22	3.0	Gray	clay	V. stiff	Sandy	
		23	2.5	Gray	clay	V. stiff	Sandy	
55		24	3.75	Gray	clay	V. stiff		- w/calc nod
		25	35	Gray	clay	V. stiff		
60		26	3.25	Gray	clay	V. stiff		
								Torvane Multiplier 0.2
								W.O.H: Weight of Hammer
65								
70								

GEOTEST ENGINEERING, INC.

Project: ...n-Galveston Navigation Channel

SUMM... OF LABORATORY TEST RESULTS

Contract No. DACW64-94-C-0040

Boring No. 93-84

S #	Depth (ft)	P P (tsf)	SPT Blows per Foot	Visual Classification	U S C	Mc (%)	Dry Unit Wt (pcf)	Wet Unit Wt (pcf)	L L (%)	PL (%)	Mechanical Analysis % Passing					Torvane Shear Strength (tsf)	q u (tsf)
											#4	#10	#40	#100	#200		
1	0-1.5		W.O.H	Brown,Sand,Very loose,Silty,w/shell fragments	S M												
2	5-6.5		2	Brown,Sand,Very loose,Silty,w/shell fragments	S M												
3	10-11.5		W.O.H	Brown,Sand,Very loose,Silty,w/shell fragments	S M						100.0	100.0	99.9	78.5	31.7		
4	15-17	0.00		Gray,Clay,Very soft,Sandy,w/shell fragments	C L	43.7	77.4	111.2	28	17	95.4	94.8	93.9	91.3	73.2		0.21
5	17-19	0.00		Gray,Clay,Very soft,Sandy,w/shell fragments	C L	22.0											
6	19-21	0.00		Gray,Clay,Very soft,Sandy,w/shell fragments	C L	23.3											
7	21-23	0.00		Gray,Clay,Very soft,Sandy,w/shell fragments	C L	32.2	92.5	122.2	33	19	100.0	99.9	98.8	98.5	98.0		0.14
8	23-25	0.00		Gray,Clay,Very soft,Sandy,w/shell fragments	C L	50.4											
9	25-27	0.00		Gray,Clay,Very soft,Sandy,w/shell fragments	C L	30.2											
10	27-29	0.25		Yellowish gray,Clay,Soft,w/shell fragments	C H	37.9	82.5	113.8	90	31	100.0	100.0	99.9	99.3	98.2		0.38
11	29-31	1.25		Yellowish gray,Clay,Stiff	C H	28.3											
12	31-33	1.25		Yellowish gray,Clay,Stiff,Sandy,w/calcareous nodules	C L	25.4											
13	33-35	1.50		Yellowish gray,Clay,Stiff,Sandy,w/calcareous nodules	C L	22.6											
14	35-37	4.50		Yellowish gray,Clay,Hard,Sandy	C L	16.9	114.6	134.0	39	18	100.0	100.0	99.4	97.8	97.6		4.36
15	37-39	4.50		Yellowish gray,Clay,Hard,Sandy	C L	15.6											
16	39-41	4.50		Yellowish,Gray,Clay,Hard,Sandy,w/calcareous nodules	C L	15.3											
17	41-43	4.50		Yellowish,Gray,Clay,Hard,Sandy,w/calcareous nodules	C L	19.8											
18	43-45	1.75		Yellowish gray,Clay,Stiff,Sandy	C L	18.2											
19	45-47	1.75		Yellowish gray,Clay,Stiff,Sandy,w/ sand pockets	C L	17.6	112.4	132.1	38	15	100.0	100.0	99.9	91.7	54.2		1.28
20	47-49	4.50		Yellowish gray,Clay,Hard,Sandy	C L	15.3											

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