Project: Greens Bayou

SUMMARY OF LABORATORY TEST RESULTS

Contract No. DACW64-95-D-0007 Delivery Order No. 0047

Boring No. 97-86

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 #4	#10	#40	#100	#200	Torvane Shear Strength (tsf)	q u (tsf)	
1	0 - 2	2.50		Sandy Clay,w/roots,Very stiff,Gray & brown	C L	12.7												
2	2 - 4	2.25		Sandy Clay,Very stiff,Gray	C L	15.2												
3	4 - 6	2.25		Sandy Clay,Very stiff,Gray	C L	9.9												
4	6 - 8	2.25		Sandy Clay,Very stiff,Gray	C L	11.1												
5	8 - 10	3.50		Sandy Clay,w/fer nod,Very stiff,Gray	C L	13.0	109.7	124.0	23.0	14.0	98.7	98.6	98.5	95.2	77.9		2.93	5
6	10 - 12	2.25		Sandy Clay,w/fer nod,Very stiff,Yellowish Gray	C L	13.9												
7	12 - 14	2.75		Clay,w/sand seams,Very stiff,Red & Gray	C H	17.2												
8	14 - 16	3.75		Clay,w/sand seams,Very stiff,Red & Gray	C H													
9	16 - 18	4.5+		Clay,w/sand seams,Hard,Red & Gray	C H	23.5												
10	18 - 20	2.75		Silty Clay,Very stiff,Red & Gray	C L	23.2	100.0	123.2	45.0	18.0	100.0	100.0	99.9	99.4	91.9		2.67	6
11	20 - 22	2.00		Silty Clay,w/silt seams,Red & Gray	C L	22.9												
12	22 - 24	4.5+		Clay,w/calc nod,Hard,Red & Gray	C H	25.8												
13	24 - 26	4.5+		Clay,w/calc nod,Hard,Red & Gray	C H	20.5												
14	26-27.5		68	Silty Sand,Very dense,Reddish brown	S M	25.0												
15	31-32.5		68	Silty Sand,Very dense,Reddish brown	S M	25.3					100.0	99.8	99.7	97.9	36.6			
16	32.5-34	4.5+		Clay,w/calc nod,Hard,Red & Gray	C H	27.1												
17	34-36	3.75		Clay,w/calc nod,Very stiff,Red & Gray	C H	24.4												
18	36-38	3.75		Clay,w/blocky structure,slks,Very stiff, Red & Gray	C H	27.9												
19	38-40	4.50		Clay,w/blocky structure,slks,Hard,Red & Gray	C H	26.0												
20	40-42	4.00		Clay,w/calc nod & blocky structure,slks,Very stiff,Red & Gray	C H	17.4	110.3	129.5	58.0	23.0	100.0	100.0	100.0	99.6	97.7		3.67	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

Project: Greens Bayou

SUMMARY OF LABORATORY TEST RESULTS

Contract No. DACW64-95-D-0007 Delivery Order No. 0047

Boring No. 97-86

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	42-44	4.00		Clay,w/calc nod & blocky structure,slks, Very stiff,Red & Gray	C H	17.2											
22	44-45.5		63	Silty Sand,Very dense,Reddish brown	S M	17.9											
23	48-50	4.5+		Clay,w/calc nod,slks,Hard,Red & Gray	C H	27.2											
24	50-52	4.5+		Clay,w/calc nod,slks,Hard,Red & Gray	C H	28.6											
25	52-54	4.5+		Clay,w/calc nod,slks,Hard,Red & Gray	C H	23.7											
26	54-56	4.5+		Clay,w/calc nod,slks,Hard,Red & Gray	C H	21.7	105.0	127.8									
27	56-58	4.5+		Clay,w/calc nod,slks,Hard,Red & Gray	C H	23.0											
28	58-60	2.75		Sandy Clay,Very stiff,Yellowish gray	C L	17.8	109.6	129.1	30.0	15.0							

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

JOB NO. 114008614 DATE 3/8/98

PROJECT Greens Bayou

AREA Houston, Texas

BORING NO. 97-86 SAMPLE NO. 5 DEPTH 8-10 ft

SPECIMEN NO. 1

CLASSIFICATION
Sandy Clay,w/fer nod,Very stiff,Gray

Tare No.	IB1B	Height	5.595 in.
Tare plus Wet Specimen	164.09 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	150.12 gm	Initial Area	6.290 sq in.
Water Weight	13.97 gm	Volume	35.194 cu in.
Tare Weight	42.65 gm	Volume of Solids	cu in.
Wet Specimen	1145.37 gm	Void Ratio	
Dry Specimen	1013.61 gm	Saturation	%
Water Content	13.00 %	Dry Density	109.7 lb/cu ft
Specific Gravity of Solids			

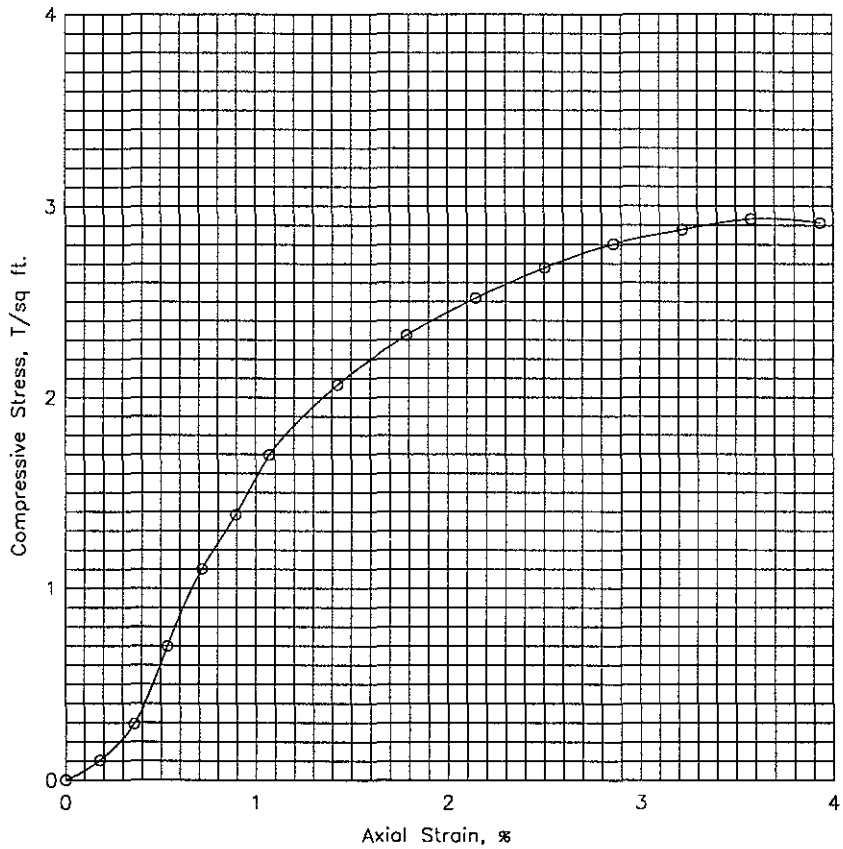
LL = 23 PL = 14 PI = 9

Proving Ring No. 10170
Proving Ring Constant, K = .757 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	12.0	9.1	.002	6.30	.104
.4	20.	.020	34.0	25.7	.004	6.31	.294
.5	30.	.030	81.0	61.3	.005	6.32	.698
.7	40.	.040	128.0	96.9	.007	6.34	1.101
.9	50.	.050	161.0	121.9	.009	6.35	1.383
1.1	60.	.060	198.0	149.9	.011	6.36	1.697
1.4	80.	.080	242.0	183.2	.014	6.38	2.067
1.7	100.	.100	273.0	206.7	.018	6.40	2.323
2.0	120.	.120	297.0	224.8	.021	6.43	2.518
2.3	140.	.140	317.0	240.0	.025	6.45	2.678
2.7	160.	.160	333.0	252.1	.029	6.48	2.803
3.0	180.	.180	343.0	259.7	.032	6.50	2.876
3.3	200.	.200	351.0	265.7	.036	6.52	2.933
3.7	220.	.220	350.0	265.0	.039	6.55	2.913

Job No. 114008614

Failure Sketches



☐ Controlled stress
☒ Controlled strain

Test No.		1			
Type of Specimen		Undisturbed			
Initial: Water content	w_0	13.0 %	%	%	%
Initial: Void ratio	e_0				
Initial: Saturation	S_0	%	%	%	%
Initial: Dry density, lb/cu ft	γ_d	109.7			
Time to failure, min	t_f	3.35			
Unconfined compressive strength, T/sq ft	q_u	2.93			
Undrained shear strength, T/sq ft	S_u	1.47			
Sensitivity ratio	S_t				
Initial specimen diameter, in.	D_0	2.830			
Initial specimen height, in.	H_0	5.595			

Classification Sandy Clay,w/fer nod,Very stiff,Gray

LL	23	PL	14	PI	9	G_s	

Remarks

Project Greens Bayou

Area Houston, Texas

Boring No. 97-86 | Sample No. 5

Depth 8-10 ft | Date 3/8/98

El

UNCONFINED COMPRESSION TEST REPORT

ENG FORM 1 JUN 65 3659

PLATE XI-2

Geotest Engineering, Inc.

JOB NO. 114008614 DATE 3/8/98

PROJECT Greens Bayou

AREA Houston, Texas

BORING NO. 97-86 SAMPLE NO. 10 DEPTH 18-20 ft

SPECIMEN NO. 1

CLASSIFICATION
Silty Clay,Very stiff,Red & Gray

Tare No.	HP34	Height	5.595 in.
Tare plus Wet Specimen	298.60 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	250.57 gm	Initial Area	6.290 sq in.
Water Weight	48.03 gm	Volume	35.194 cu in.
Tare Weight	43.24 gm	Volume of Solids	cu in.
Wet Specimen	1137.38 gm	Void Ratio	
Dry Specimen	923.45 gm	Saturation	%
Water Content	23.17 %	Dry Density	100.0 lb/cu ft

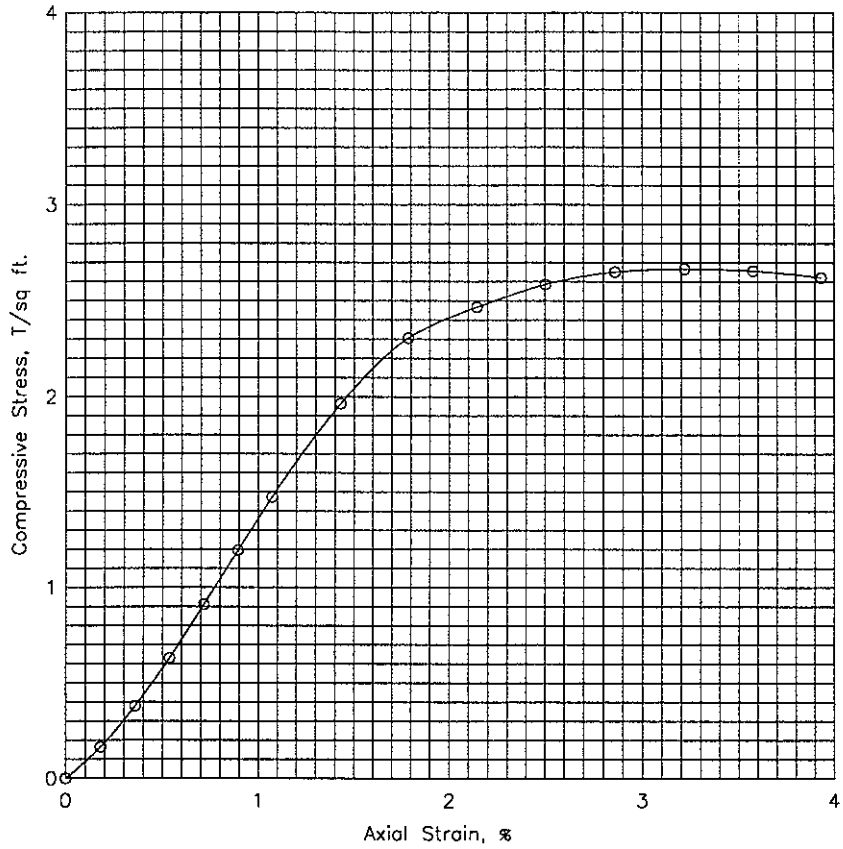
Specific Gravity of Solids
LL = 45 PL = 18 PI = 27

Proving Ring No. 10170
Proving Ring Constant, K = .757 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	19.0	14.4	.002	6.30	.164
.3	20.	.020	44.0	33.3	.004	6.31	.380
.5	30.	.030	73.0	55.3	.005	6.32	.629
.7	40.	.040	106.0	80.2	.007	6.34	.912
.9	50.	.050	139.0	105.2	.009	6.35	1.194
1.0	60.	.060	172.0	130.2	.011	6.36	1.474
1.4	80.	.080	230.0	174.1	.014	6.38	1.964
1.7	100.	.100	271.0	205.1	.018	6.40	2.306
2.0	120.	.120	291.0	220.3	.021	6.43	2.467
2.3	140.	.140	306.0	231.6	.025	6.45	2.585
2.7	160.	.160	315.0	238.5	.029	6.48	2.651
3.0	180.	.180	318.0	240.7	.032	6.50	2.667
3.3	200.	.200	318.0	240.7	.036	6.52	2.657
3.7	220.	.220	315.0	238.5	.039	6.55	2.622

Job No. 114008614

Failure Sketches



☐ Controlled stress
☒ Controlled strain

Test No.			1			
Type of Specimen			Undisturbed			
Initial	Water content	w_0	23.2 %	%	%	%
	Void ratio	e_0				
	Saturation	S_0	%	%	%	%
	Dry density, lb/cu ft	γ_d	100.0			
Time to failure, min		t_f	3.00			
Unconfined compressive strength, T/sq ft		q_u	2.67			
Undrained shear strength, T/sq ft		S_u	1.33			
Sensitivity ratio		S_t				
Initial specimen diameter, in.		D_0	2.830			
Initial specimen height, in.		H_0	5.595			

Classification Silty Clay,Very stiff,Red & Gray

LL	45	PL	18	PI	27	G_s	

Remarks

Project Greens Bayou

Area Houston, Texas

Boring No. 97-86 | Sample No. 10

Depth El 18-20 ft | Date 3/8/98

UNCONFINED COMPRESSION TEST REPORT

ENG FORM 1 JUN 65 3659

PLATE XI-2

Geotest Engineering, Inc.

JOB NO. 114008614 DATE 3/8/98

PROJECT Greens Bayou

AREA Houston, Texas

BORING NO. 97-86 SAMPLE NO. 20 DEPTH 40-42 ft

SPECIMEN NO. 1

CLASSIFICATION
Clay,w/calc nod & blocky structure,slks,Very stiff,Red & Gray

Tare No.	KL-14	Height	5.595 in.
Tare plus Wet Specimen	288.19 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	251.80 gm	Initial Area	6.290 sq in.
Water Weight	36.39 gm	Volume	35.194 cu in.
Tare Weight	42.53 gm	Volume of Solids	cu in.
Wet Specimen	1196.59 gm	Void Ratio	
Dry Specimen	1019.34 gm	Saturation	%
Water Content	17.39 %	Dry Density	110.3 lb/cu ft
Specific Gravity of Solids			

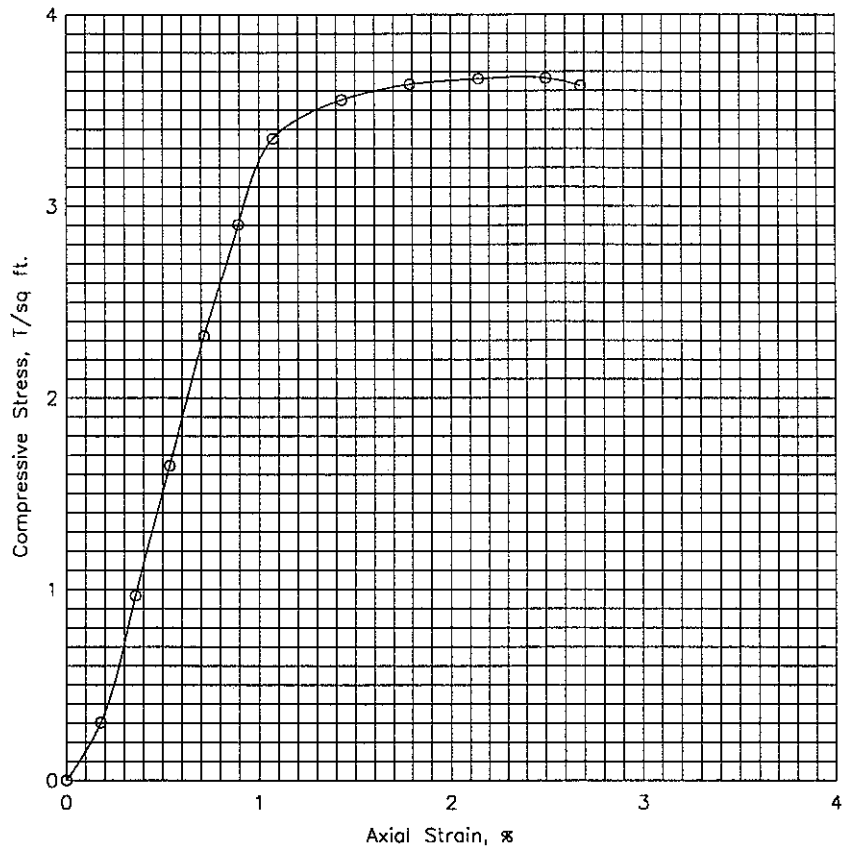
LL = 58 PL = 23 PI = 35

Proving Ring No. 10170
Proving Ring Constant, K = .757 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	35.0	26.5	.002	6.30	.303
.3	20.	.020	112.0	84.8	.004	6.31	.967
.5	30.	.030	191.0	144.6	.005	6.32	1.646
.7	40.	.040	270.0	204.4	.007	6.34	2.323
.9	50.	.050	338.0	255.9	.009	6.35	2.903
1.0	60.	.060	391.0	296.0	.011	6.36	3.352
1.4	80.	.080	416.0	314.9	.014	6.38	3.553
1.7	100.	.100	427.0	323.2	.018	6.40	3.634
2.0	120.	.120	432.0	327.0	.021	6.43	3.663
2.3	140.	.140	434.0	328.5	.025	6.45	3.666
2.6	150.	.150	430.0	325.5	.027	6.46	3.626

Job No. 114008614

Failure Sketches



☐ Controlled stress
☒ Controlled strain

Test No.			1			
Type of Specimen			Undisturbed			
Initial	Water content	w_0	17.4 %	%	%	%
	Void ratio	e_0				
	Saturation	S_0	%	%	%	%
	Dry density, lb/cu ft	γ_d	110.3			
Time to failure, min		t_f	2.33			
Unconfined compressive strength, T/sq ft		q_u	3.67			
Undrained shear strength, T/sq ft		S_u	1.83			
Sensitivity ratio		S_t				
Initial specimen diameter, in.		D_0	2.830			
Initial specimen height, in.		H_0	5.595			

Classification Clay,w/calc nod & blocky structure,slks,Very stiff,Red & Gray

LL	58	PL	23	PI	35	G_s

Remarks

Project Greens Bayou

Area Houston, Texas

Boring No. 97-86 | Sample No. 20

Depth El 40-42 ft | Date 3/8/98

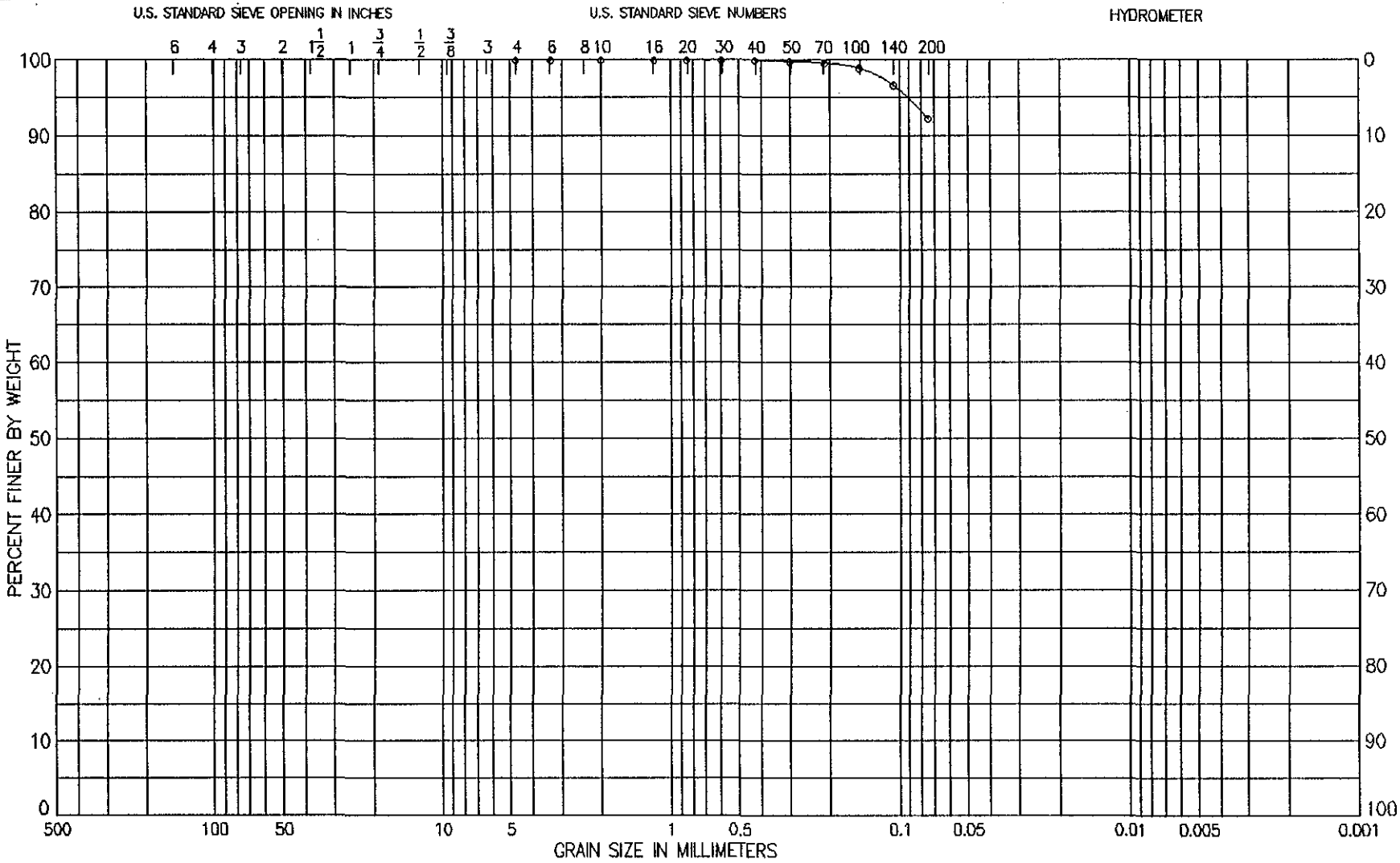
UNCONFINED COMPRESSION TEST REPORT

ENG FORM 1 JUN 65 3659

PLATE XI-2

Geotest Engineering, Inc.

PLATE



COBBLES	GRAVEL		SAND			SILT or CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

LL	PL	PI	GS	NAT W,%	ORG,%
46	18	28			

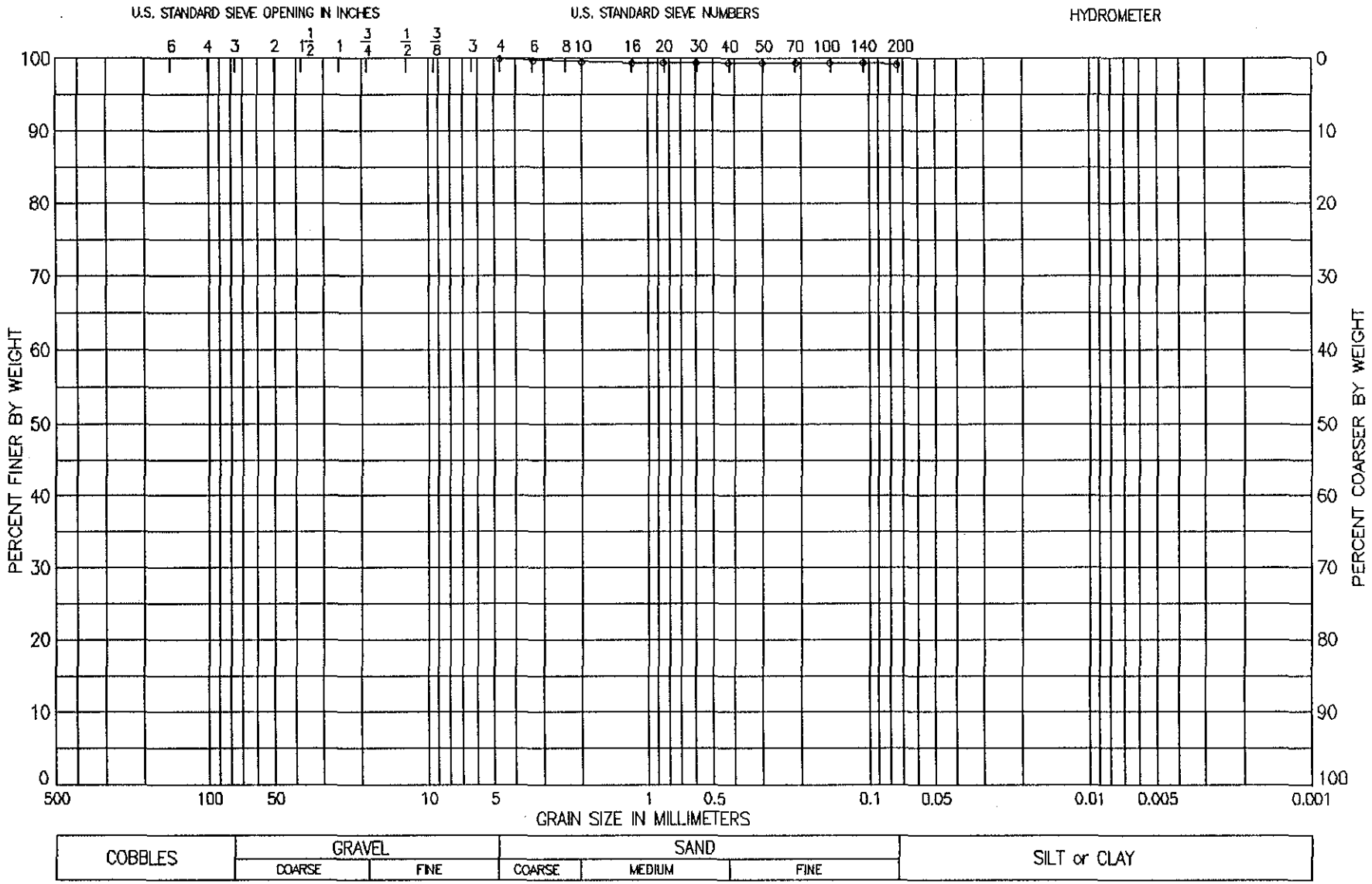
CLASSIFICATION
CLAY (CL), REDDISH BROWN; WITH SAND

PROJECT GREENS BAYOU

BORING NO. 97-86 SAMPLE NO. 8

DEPTH/ELEV 14-16 DATE 30 APR 98

GRADATION CURVE | LABORATORY USAE WES - STF/GL



LL	PL	PI	GS	NAT W,%	ORG,%
59	23	36			

CLASSIFICATION
CLAY (CH), REDDISH BROWN

PROJECT GREENS BAYOU

BORING NO. 97-85 SAMPLE NO. 16

DEPTH/ELEV 38-40 DATE 28 APR 98

GRADATION CURVE

LABORATORY USAE WES – STF/GL