U.S. ARMY CORPS OF ENGINEERS

BORING NO. 97-23 DATE: BEGIN 6-27-97 PAGE 1 / 1
JOB NO. 11400861134 COMPLETE 6-27-97 Thin Walled Tube
PROJECT Upper Basin Detention Area B ■ 3" □ 6"
LOCATION along Brays Bayou
ELEVATION OF HOLE
MANUFACTURER'S DESIGNATION OF DRILL RIG Marsh Buggy K4x4, F-36
GROUNDWATER: DEPTH 0 ft., ELEV. ft., at end of Drilling
WEATHER PARTLY CLOUDY SUNNY & HOT!
DRILLER Dempsey Gennen LOGGER John Gentry

DEPTH, FEET	SAMPLE	SAMPLE NO.	PEN./TORVANE SPT.-BLOW COUNT	COLOR	MATERIAL TYPE	CONSISTENCY	SECONDARY CONSTITUENTS	STRUCTURAL FEATURES AND COMMENTS
0		1	0.75	GRAY	CLAY	MEDIUM STIFF		-W/ROOTS 0-4 BROWN 0-
		2	1.5	GRAY	CLAY	STIFF		-W/SAND POCKETS 4-6' -W/FE NODS 4-6
5		3	2.0	GRAY	CLAY	VERY STIFF		
		4	2.25	LT GRAY	CLAY	VERY STIFF	SANDY	▼ YELLOW 6-8 -W/CALC NODS 6- -W/FE NODS 6-
		5	1.75	LT GRAY	CLAY	STIFF	SANDY	↓ BROWN 8-10 -W/SILT SEAMS 8-10
10		6	2.5	REDDISH BROWN	CLAY	VERY STIFF		-W/SILT LAYER 10-10'3" -W/CALC NODS 10'3"-13'4"
		7	1.75	REDDISH BROWN	CLAY	STIFF		▼GRAY 10-14 -W/SAND/SILT SEAMS 12- -W/CRAWFISH HOLE 12-13
15	X	8	23	REDDISH BROWN	SAND	LOOSE	SILTY	
		9	2.75	LT GRAY	CLAY	VERY STIFF		▼BROWN 18-32 -W/CALC NODS 18-32 -W/FE NODS 18-32
20		10	2.75	LT GRAY	CLAY	VERY STIFF		
		11	2.75	LT GRAY	CLAY	VERY STIFF		-W/SILTY SAND POCKETS 24-32
25		12	3.0	LT GRAY	CLAY	VERY STIFF		-W/CALC NODS 25-32
		13	3.25	LT GRAY	CLAY	VERY STIFF		
		14	3.25	LT GRAY	CLAY	VERY STIFF		
30		15	3.5	LT GRAY	CLAY	VERY STIFF		
		16	3.25	LT GRAY	CLAY	VERY STIFF		
		16	1.0	LT GRAY	CLAY	STIFF	SANDY	
		17	1.75	LT GRAY	CLAY	STIFF	SANDY	
35								

GEOTEST ENGINEERING, INC.

Project: Brays Bayou PDM

SUMMARY OF LABORATORY TEST RESULTS

Contract No. DACW64-95-D-0007 Delivery Order No. 0035

Boring No. 97-23

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 - 2	0.75		Clay,w/grass roots,Medium stiff,Gray & Brown	C H	25.7											
2	2 - 4	1.50		Clay,w/grass roots,Stiff,Gray & Brown	C H	25.7	96.3	121.0	52.0	19.0							
3	4 - 6	2.00		Clay,w/ferrous nodules,Very stiff,Gray & brown	C H	21.0											
4	6 - 8	2.25		Sandy Clay,w/calcareous & ferrous nodules, Very stiff,Gray	C L	19.2											
5	8 - 10	1.75		Sandy Clay,w/calcareous & ferrous nodules, Stiff,Gray	C L	19.0											
6	10 - 12	2.50		Clay,w/calcreous nodules & silt seams, slickensided,Very stiff,Reddish brown	C H	22.0											
7	12 - 14	1.75		Clay,w/calcareous nodules & sand seams, slickensided,Stiff,Reddish brown	C H	21.9											
8	14-15.5		6	Silty Sand,Loose,Reddish brown	S M												
9	18-20	2.75		Clay,w/calc & fe nod,slickensided,Very stiff, Gray & Brown	C H	21.4											
10	20-22	2.75		Clay,w/calc & fe nod,slickensided,Very stiff, Gray & Brown	C H	20.5											
11	22-24	2.75		Clay,w/calc & fe nod,slickensided,Very stiff, Gray & Brown	C H	25.0	95.2	118.9	74.0	25.0	100.0	99.1	98.7	98.2	97.1		2.31
12	24-26	3.00		Clay,w/calc & fe nod,slickensided,Very stiff, Gray & Brown	C H	26.1											
13	26-28	3.25		Clay,w/calc & fe nod,slickensided,Very stiff, Gray & Brown	C H	25.1											
14	28-30	3.25		Clay,w/calc & fe nod,slickensided,Very stiff, Gray & Brown	C H	26.6											
15	30-32	3.50		Clay,w/calc & fe nod,slickensided,Very stiff, Gray & Brown	C H	22.7											
16	32-34	3.00		Clay,w/calc & fe nod,slickensided,Very stiff, Gray & Brown	C H	18.8											
17	34-35	1.75		Sandy Clay,Stiff,Gray	C L	16.4	110.7	128.9	33.0	16.0							

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. 114008613 DATE 7/7/97

PROJECT Brays Bayou PDM

AREA Houston, Texas

BORING NO. 97-23 SAMPLE NO. 11 DEPTH 22-24 ft

SPECIMEN NO. 1

CLASSIFICATION
Clay,w/calc & fer nod,slickensided,Very stiff,Gray & Brown

Tare No.	W2	Height	5.595 in.
Tare plus Wet Specimen	500.13 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	408.75 gm	Initial Area	6.290 sq in.
Water Weight	91.38 gm	Volume	35.194 cu in.
Tare Weight	42.74 gm	Volume of Solids	cu in.
Wet Specimen	1098.50 gm	Void Ratio	
Dry Specimen	879.04 gm	Saturation	%
Water Content	24.97 %	Dry Density	95.2 lb/cu ft

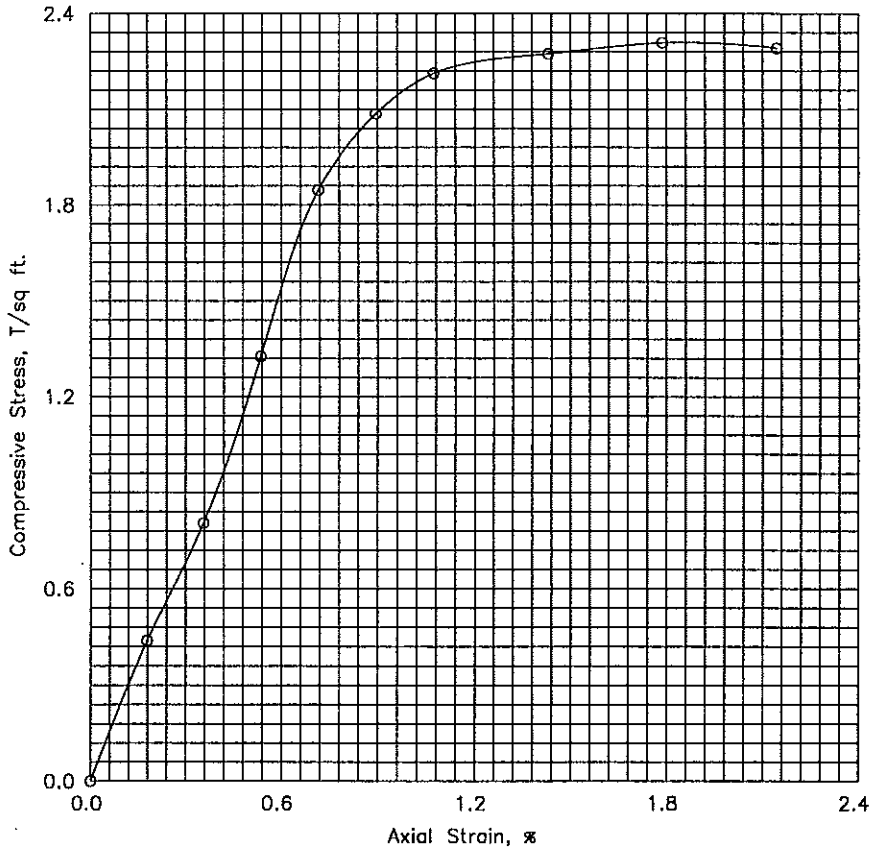
Specific Gravity of Solids
LL = 74 PL = 25 PI = 49

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	50.0	38.3	.002	6.30	.438
.4	20.	.020	92.0	70.5	.004	6.31	.804
.6	30.	.030	152.0	116.4	.005	6.32	1.326
.8	40.	.040	212.0	162.4	.007	6.34	1.846
.9	50.	.050	240.0	183.8	.009	6.35	2.086
1.1	60.	.060	255.0	195.3	.011	6.36	2.212
1.4	80.	.080	263.0	201.5	.014	6.38	2.273
1.8	100.	.100	268.0	205.3	.018	6.40	2.308
2.0	120.	.120	267.0	204.5	.021	6.43	2.291

Job No. 114008613

Failure Sketches



☐ Controlled stress
☒ Controlled strain

Test No.			1			
Type of Specimen			Undisturbed			
Initial	Water content	w_0	25.0 %	%	%	%
	Void ratio	e_0				
	Saturation	S_0	%	%	%	%
	Dry density, lb/cu ft	γ_d	95.2			
Time to failure, min		t_f	1.78			
Unconfined compressive strength, T/sq ft		q_u	2.31			
Undrained shear strength, T/sq ft		S_u	1.15			
Sensitivity ratio		S_t				
Initial specimen diameter, in.		D_0	2.830			
Initial specimen height, in.		H_0	5.595			

Classification Clay,w/calc & fer nod,slickensided,Very stiff,Gray & Brown

LL	74	PL	25	PI	49	G_s	

Remarks

Project Brays Bayou PDM

Area Houston, Texas

Boring No. 97-23 | Sample No. 11

Depth El 22-24 ft | Date 7/7/97

UNCONFINED COMPRESSION TEST REPORT

ENG FORM 3659
1 JUN 65

PLATE XI-2

Geotest Engineering, Inc.

PLATE