Project : BROWNSVILLE SHIP CHANNEL, TEXAS

SUMMARY OF LABORATORY TEST RESULTS

Boring No. 89-54

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 #4	#10	#40	#100	#200	Torvane Shear Strength (tsf)	q u (tsf)
1	0 - 2			Gray, SILTY SAND	S M												
2	2 - 4	2.50		Gray, CLAY, very stiff, with sand layers	CH												
3	4 - 6	2.50		Gray and tan, CLAY, very stiff, slightly sandy	CH	30.4											
4	6 - 8	2.50		Gray and tan, CLAY, very stiff, slightly sandy	CL	30.4											
5	8 - 10	2.00		Gray and tan, CLAY, very stiff	CH	33.4	87.6	116.9	71	28	100.0	100.0	100.0	100.0	99.4	0.60	0.97
6	10 - 12	1.50		Gray and tan, CLAY, stiff	CH	29.0											
7	12 - 14	1.00		Gray, SANDY CLAY, sitff, with silt layers	CL	28.9											
8	14 - 16	1.00		Gray and tan, SANDY CLAY, stiff	CL	30.8	91.7	119.9	32	17	100.0	100.0	99.9	96.5	87.7	0.50	0.43
9	16 - 18	0.75		Dark gray, SANDY CLAY, stiff	CL	23.2											
10	18 - 20	0.75		Dark gray, SANDY CLAY, firm	CL	20.4											
11	20 - 22	1.50		Gray, SILTY CLAY, stiff, with calcareous nodules	CL	18.9											
12	22 - 24	2.50		Light tan and gray, SANDY CLAY, very stiff, with calcareous nodules	CL	23.0	109.4	134.6	24	15	99.9	99.6	99.0	83.8	56.2	0.60	0.87
13	24 - 26	2.00		Light tan and gray, SANDY CLAY, very stiff, with calcareous nodules	CL	19.9											
14	26 - 28	1.50		Gray and tan, CLAYEY SILT, stiff, with calcareous nodules	M L	22.1											
15	28 - 30	0.75		Gray and tan, CLAYEY SILT, firm, with calcareous nodules	M L	20.3	104.6	125.9	NP	NP	100.0	100.0	100.0	100.0	100.0		0.44
16	30 - 32			Gray and tan, CLAYEY SILT, with calcareous nodules	M L	22.0											
17	32 - 34			Gray and tan, CLAYEY SILT, with calcareous nodules	M L												
	34 - 36			No recovery													

S # : Sample Number, P P : Pocket Penetrometer Reading, U S C : Unified Soil Classification, M c : M[illegible] Content, q u : Unconfined Compressive Strength

Project : BROWNSVILLE SHIP CHANNEL, TEXAS

SUMMARY OF LABORATORY TEST RESULTS

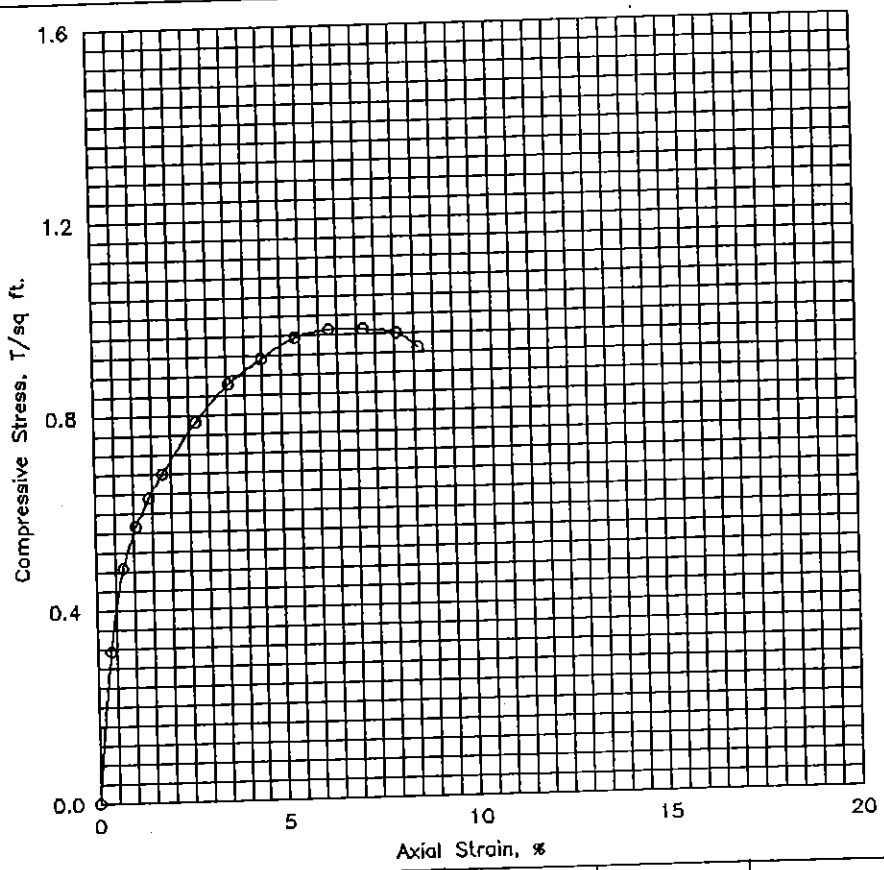
Boring No. 89-54

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 #4	#10	#40	#100	#200	Torvane Shear Strength (tsf)	q u (tsf)
18	36 - 37.5		56	Gray, SANDY SILT, very dense	M L						98.5	97.7	96.0	93.8	62.3		
19	41 - 42.5		54	Gray, SILTY SAND, very dense, with calcareous nodules	S M												
20	44.5 -46		40	Gray, SILTY SAND, dense, with calcareous nodules	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

Job No. 14G403

Failure Sketches



☐ Controlled stress
☒ Controlled strain

Test No.		1			
Type of Specimen		Undisturbed			
Initial: Water content	w_o	33.4 %	%	%	%
Initial: Void ratio	e_o				
Initial: Saturation	S_o	%	%	%	%
Initial: Dry density, lb/cu ft	γ_d	87.6			
Time to failure, min	t_f	5.88			
Unconfined compressive strength, T/sq ft	q_u	.97			
Undrained shear strength, T/sq ft	S_u	.49			
Sensitivity ratio	S_t				
Initial specimen diameter, in.	D_o	2.835			
Initial specimen height, in.	H_o	5.585			

Classification Gray and Tan, CLAY, Stiff

LL 71	PL 28	PI 43	G_s

Remarks

Project BROWNSVILLE SHIP CHANNEL, TEXAS

Area Between Port Isabel and Brownsville, Texas

Boring No. 89-54 | Sample No. 5

Depth El 8-10 ft | Date 7/3/90

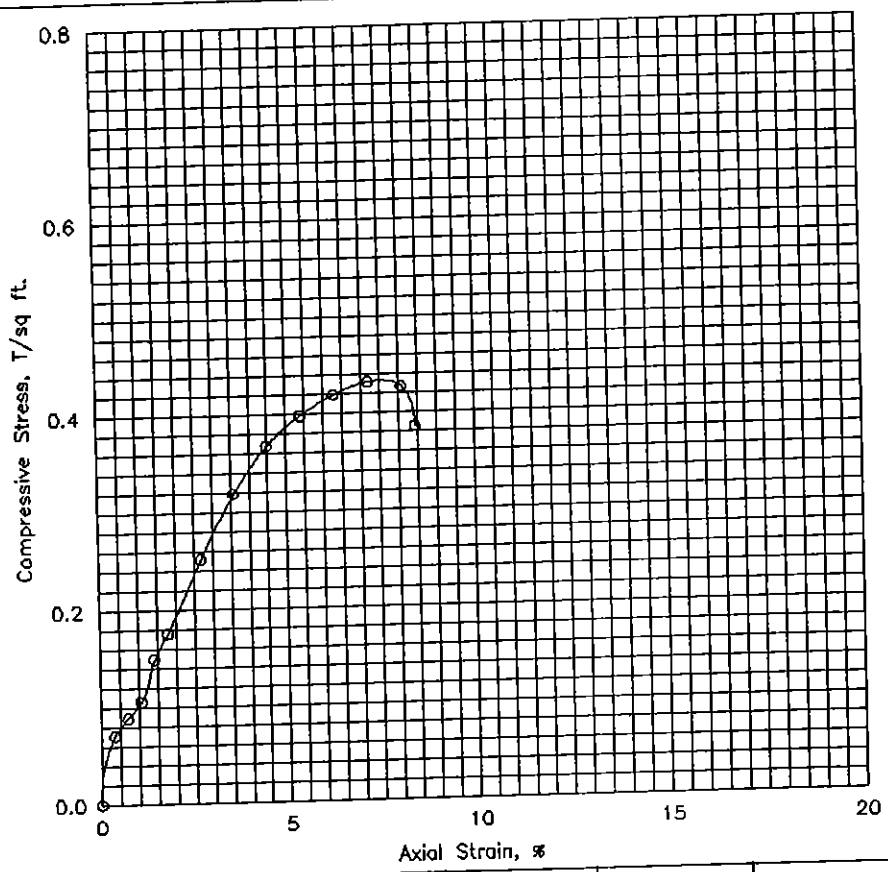
UNCONFINED COMPRESSION TEST REPORT

ENG FORM 1 JUN 65 3659

Geotest Engineering, Inc.

Job No. 14G403

Failure Sketches



☐ Controlled stress
☒ Controlled strain

Test No.		1			
Type of Specimen		Undisturbed			
Initial: Water content	w_0	30.8 %	%	%	%
Initial: Void ratio	e_0				
Initial: Saturation	S_0	%	%	%	%
Initial: Dry density, lb/cu ft	γ_d	91.6			
Time to failure, min	t_f	6.65			
Unconfined compressive strength, T/sq ft	q_u	.43			
Undrained shear strength, T/sq ft	S_u	.22			
Sensitivity ratio	S_t				
Initial specimen diameter, in.	D_0	2.810			
Initial specimen height, in.	H_0	5.585			

Classification Gray and Tan, CLAY, Stiff, Sandy

LL	32	PL	17	PI	15	G_s	

Remarks

Project BROWNSVILLE SHIP CHANNEL, TEXAS

Area Between Port Isabel and Brownsville, Texas

Boring No. 89-54 | Sample No. 8

Depth El 14-16 ft | Date 7/3/90

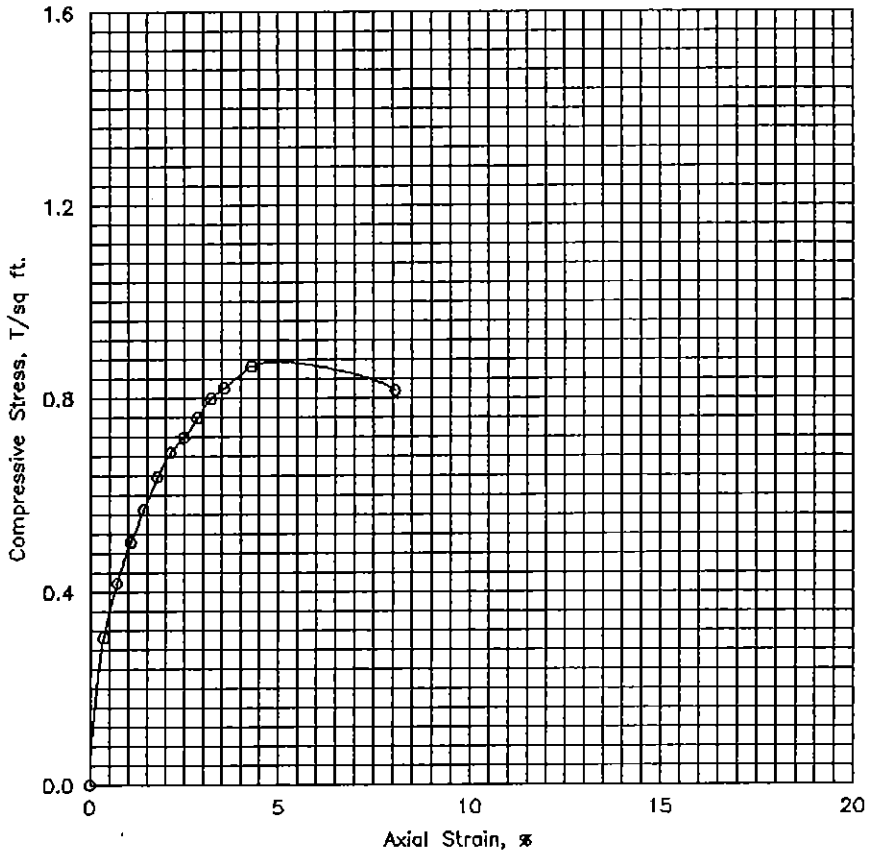
UNCONFINED COMPRESSION TEST REPORT

ENG FORM 1 JUN 65 3659

Geotest Engineering, Inc.

Job No. 14G403

Failure Sketches



☐ Controlled stress
☒ Controlled strain

Test No.			1			
Type of Specimen			Undisturbed			
Initial	Water content	w_0	23.0 %	%	%	%
	Void ratio	e_0				
	Saturation	S_0	%	%	%	%
	Dry density, lb/cu ft	γ_d	109.4			
Time to failure, min		t_f	4.25			
Unconfined compressive strength, T/sq ft		q_u	.87			
Undrained shear strength, T/sq ft		S_u	.43			
Sensitivity ratio		S_t				
Initial specimen diameter, in.		D_0	2.835			
Initial specimen height, in.		H_0	5.585			

Classification Light Tan, CLAY, Stiff, Sandy, w/ Calcareous nodul

LL 24	PL 15	PI 9	G_s

Remarks

Project BROWNSVILLE SHIP CHANNEL, TEXAS

Area Between Port Isabel and Brownsville, Texas

Boring No. 89-54 | Sample No. 12

Depth El 22-24 ft | Date 7/3/90

UNCONFINED COMPRESSION TEST REPORT

ENG FORM 1 JUN 65 3659

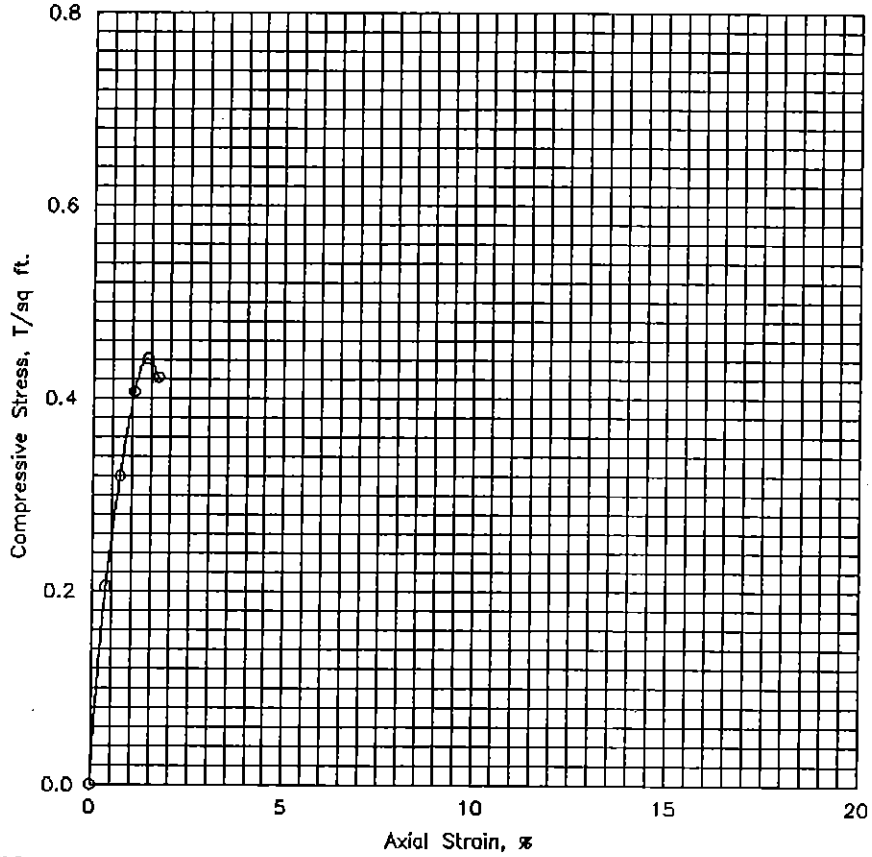
PLATE XI-2

Geotest Engineering, Inc.

PLATE

Job No. 14G403

Failure Sketches



☐ Controlled stress
☒ Controlled strain

Test No.			1			
Type of Specimen			Undisturbed			
Initial	Water content	w_o	20.3 %	%	%	%
	Void ratio	e_o				
	Saturation	S_o	%	%	%	%
	Dry density, lb/cu ft	γ_d	104.6			
Time to failure, min		t_f	1.45			
Unconfined compressive strength, T/sq ft		q_u	.44			
Undrained shear strength, T/sq ft		S_u	.22			
Sensitivity ratio		S_t				
Initial specimen diameter, in.		D_o	2.810			
Initial specimen height, in.		H_o	5.590			

Classification Gray and Tan, CLAY, Silt, with calcareous nodules

LL	NP	PL	NP	PI	NP	G_s

Remarks

Project BROWNSVILLE SHIP CHANNEL, TEXAS

Area Between Port Isabel and Brownsville, Texas

Boring No. 89-54 | Sample No. 15

Depth El 28-30 ft | Date 7/10/90

UNCONFINED COMPRESSION TEST REPORT

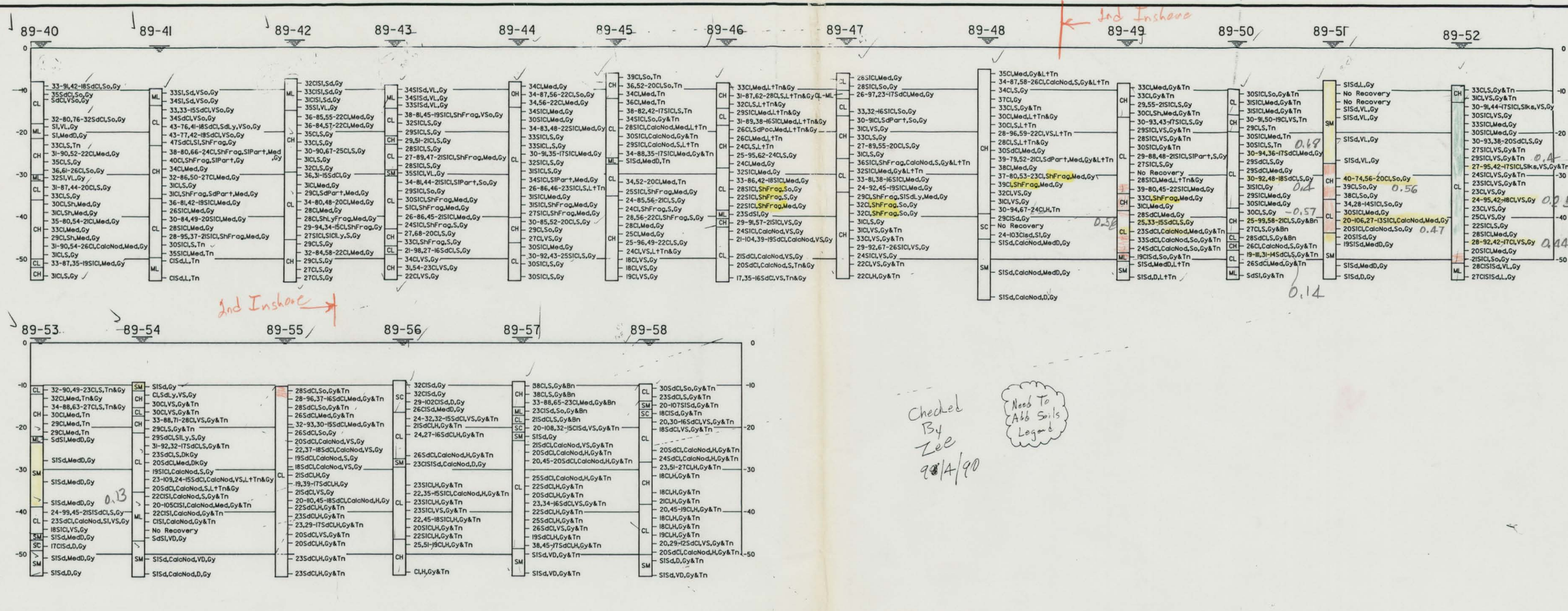
ENG FORM 1 JUN 65 3659

Geotest Engineering, Inc.

PLATE

SUMMARY OF QUESTIONABLE
ERRONEOUS OR MISSING DATA
FOR
CONTRACT NO. DACW64-90-C-0024
PROJECT: LABORATORY TESTING OF SOIL SAMPLES, BROWNSVILLE SHIP CHANNEL, TEXAS

BORING NO.	SAMPLE NO.	COMMENTS ON TEST RESULTS
89-49	9	Moisture-density relationship as derived from moisture content and unit dry weight tests appears unreasonable.
89-50	4	Unconfined compression test result appears low.
89-51	8	Moisture-density relationship as derived from moisture content and unit dry weight tests appears unreasonable.
89-52	14	Moisture-density relationship as derived from moisture content and unit dry weight tests appears unreasonable.
	22, 23	Visual classifications do not agree with classifications under the U.S.C. system.
89-54	12	Moisture-density relationship as derived from moisture content and unit dry weight tests appears unreasonable.
	15	No liquid limit or plastic limits were determined for material described as clayey silt.
	17	Moisture content test not performed.
89-55	2	Stress strain curve missing.
	5	Moisture content appears high for a firm material when compared to the liquid limit.
89-56	3	Moisture-density relationship as derived from moisture content and unit dry weight tests appears low. Unconfined compression test results appears low.
	5	Unit dry weight test result appears erroneous.



REVISION	DATE	DESCRIPTION	BY

OFFICE OF THE DISTRICT ENGINEER
U.S. ARMY ENGINEER DISTRICT, GALVESTON
CORPS OF ENGINEERS
GALVESTON, TEXAS

CADD

DRAWN BY: X
TRACED BY: X
CHECKED BY: X
SUBMITTED BY:
CHIEF, SOILS DESIGN SECTION
APPROVED:
CHIEF, GEOTECH. & SURVEY BRANCH

BIH
Brownsville Channel Borings

APPROVED:
CHIEF ENGINEERING DIVISION
DATE:

Prepared under the direction of
Brink P. Miller, Col., C.E.,
District Engineer

SCALE: AS SHOWN
SPEC. DATE:
DRAWING NUMBER X
SHEET X OF X
FILE NO. X

DESIGN FILE: ZF1:(28,2573)RONALDON1
CREATED BY: GRANDPA
ON: 30-AUG-1990
AT: 08:41