WHITE OAK BAYOU

SUMMARY OF CONSOLIDATED-DRAINED (S) DIRECT SHEAR TEST DATA

Boring No.	Depth Ft.	Density Data MC %	Density Data UDW p.c.f	SHEAR DATA Actual φ	SHEAR DATA Actual C, psf	SHEAR DATA Revised φ	SHEAR DATA Revised C, psf	Atterberg Limits L.L.	Atterberg Limits P.L.	Gradation Gr.	Gradation Sa.	Gradation Fines	Classification
					(CH)								
6ST-29	32-33	24	102	18.1	.5	27.5	0	62.3	22.5	0	0	100	Red Clay (CH)
					CL								
6ST-27	22-24	16	110	28.8	.20	31.5	0	31.5	15.2	0	12	88	Tan Clay (CL)
6ST-28	10-12	21	103	20.0	.25	24.5	0	34.2	13.2	0	20	80	Rust Clay (CL)
6ST-31	37.5-39	25	100	34.5	.05	35.7	0	35.0	14.8	0	15	85	Rust Clay (CL)
					SM								
6ST-31	14-16	3	109	34.2	0.0	34.2	0	NP	NP	0	59	41	Gray Silty Sand (SM)
6ST-113	32-34	—	101	35.0	0.0	35.0	0	—	—				Tan Silty Sand (SM-SP)
					CH								
6ST-123	42-43.5	24	100	20.6	0.5	28.0	0	57	23	0	0	100	Red Clay (CH)
6ST-157	39-40	32	89	17.6	0.4	25.0	0	68	27	0	0	100	Brown Clay (CH)
					CL								
6ST-117	6-8	21	106	17.5	0.6	26.0	0	48	19	2	16	82	Tan Sandy Clay (CL)
6ST-117	14-16	19	108	29.2	0.6	35.5	0	39	13	0	21	79	Red Sandy Clay (CL)
6ST-123	0-2	15	109	22.0	0.6	28.5	0	45	18	0	21	79	Gray Sandy Clay (CL)
6ST-156	30-32	17	106	27.9	0.1	30.6	0	33	19	0	0	100	Red Clay (CL)
6ST-159	10-12	12	113	22.5	0.3	28.0	0	27	13	0	30	70	Tan Sandy Clay (CL)
					CL-ML								
6ST-117	24-26	21	104	33.1	0.1	33.0	0	—	—	0	11	89	Red Clayey Silt (CL-ML)
					ML								
6ST-154	20-22	23	100	32.4	0.1	33.5	0	—	—	8	19	73	Red Sandy Silt (ML)

SUBJECT
COMPUTATION
COMPUTED BY
DATE
CHECKED BY
DATE
FILE NO.
Page ___ of ___

SWD FORM 521-J
8 Jan 65

STA.	Y	X	ELEV.	DESCRIPTION
B-1	721,311.87	3,155,008.92	35.730	R.R. SPIKE
B-2	721,228.31	3,154,923.28	34.720	R.R. SPIKE
B-3	721,763.62	3,154,378.93	32.976	R.R. SPIKE
B-175	721,772.07	3,153,709.31	26.387	
B-176	721,418.27	3,153,680.90	40.329	R.R. SPIKE
B-177	721,325.12	3,154,102.72	35.397	
B-178	721,185.90	3,154,411.23	34.105	IRON PIN
B-179	721,164.46	3,154,591.31	33.359	
B-180	720,978.39	3,154,749.06		R.R. SPIKE
B-181	720,952.73	3,154,889.72	33.346	
B-182	721,049.47	3,155,027.90	33.749	IRON PIN
B-183	720,554.89	3,155,302.19	37.317	"X" ON CONC. BLK.
B-184	720,369.26	3,155,479.57	39.171	
B-185	720,874.21	3,155,497.56		
B-186	720,981.41	3,155,478.96		
B-187	721,034.10	3,155,285.11		R.R. SPIKE
B-188	721,169.13	3,155,248.43		R.R. SPIKE
STA-131	720,361.75	3,155,357.84		

Galveston Dist. Lab. Report No. 1013

BUFFALO BAYOU, TEXAS

WHITE OAK BAYOU PROPOSED ALIGNMENT

SCALE 100' 0' 100'

U.S. ARMY ENGINEER DISTRICT, GALVESTON, TEXAS APRIL 1963

TO ACCOMPANY GENERAL DESIGN MEMORANDUM NO. 1 BUFFALO AND WHITE OAK BAYOUS AND WHITE OAK BAYOU FEATURE DESIGN MEMORANDUM NO. 2, MILE 1.07 TO YALE STREET. DATED: APRIL 1963

FILE: HSC 402-133

Sheet 6 of 7

PLATE 45

CORE BORINGS
WHITE OAK BAYOU, HOUSTON

Core Hole No.	Coordinates X	Coordinates Y	M.S.L. Elev.
6 St 26	3,155,165	720,440	37.60
27	3,155,450	720,370	39.3
28	3,155,275	720,465 ?	36.2
29	3,155,325	720,950	28.2
30	3,155,000	720,930	33.8
31	3,154,495	721,145	33.4
* 32	3,153,575	722,170	21.0
* 33	3,153,240	722,540	22.0
** 34	Never	drilled	
* 35	3,152,640	723,275	21.5
* 36	3,152,510	723,625	13.0
37	3,151,210	724,895	14.1
** 38			
39	3,150,300	725,020	31.6
** 40			
41	3,149,115	725,590	21.3
** 42			
** 43			
44	3,147,545	725,075	35.2
45	3,147,700	724,925	37.9
** 46	3,147,280	724,730	12.0
47	3,146,780	724,755	31.4
48	3,146,405	724,485	22.1
49	3,145,305	724,905	24.3
** 50	3,144,990	724,180	24.5
** 51	3,144,870	723,910	17.0
** 52			
** 53			
54	3,143,480	723,365	32.1
55	3,142,790	723,450	44.0
56	3,142,755	723,735	43.8
57	3,142,515	723,515	47.0
58	3,142,420	723,840	37.5
59	3,142,325	723,500	48.8
* 60			
61	3,141,890	724,290	43.8
62	3,141,750	724,970	47.9
63	3,140,570	725,070	51.0
64	3,140,200	725,465	50.5
65	3,138,940	725,205	49.0
66	3,137,960	726,015	50.5
67	3,137,385	726,500	46.2
68	3,130,375	734,185	61.5
69	3,126,995	738,435	69.9

* Core Holes covered up by fill material
** Core Holes not drilled

HOLE NO. 6ST-29

DEPARTMENT OF THE ARMY
DIVISION Southwestern
INSTALLATION Galv Dist. Eng Div

DRILLING LOG

1. PROJECT	White Oak Bayou
SHEET OF	
2. LOCATION (Coordinates or Station)	Houston, Texas (3,155,325 - 720,950)
3. DRILLING AGENCY	U. S. Army Corps of Engineers 125'L
4. HOLE NO. (As shown on drawing title and file No.)	6ST-29
5. NAME OF DRILLER	K. D. West
6. DIRECTION OF HOLE	☒ VERTICAL ☐ INCLINED; DEGREES WITH VERTICAL
7. THICKNESS OF OVER-BURDEN	
8. DEPTH DRILLED INTO ROCK	
9. TOTAL DEPTH OF HOLE	50.0
10. SIZE AND TYPE OF BIT	Shelby Tube-6"
11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	M.S.L.
12. MANUFACTURER'S DESIGNATION OF DRILL	
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN	DISTURBED; UNDISTURBED
14. TOTAL NO. CORE BOXES	
15. ELEV. GROUND WATER	
16. DATE HOLE	STARTED 5/26/60; COMPLETED 5/31/60
17. ELEV. TOP OF HOLE	28.2
18. TOTAL CORE RECOVERY FOR BORING (%)	
19. SIGNATURE OF INSPECTOR	Both Elev. -21.8

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
0.0	2.5	SC	Tan clayey sand, w/shell gravel	Lab SM	w=8	Jar 1 Fines=35 25.7	
2.5	4.5		Gray-red sandy clay, fill, soft			Cont. 1	0.75
4.5	6.5		Black gray tan sandy clay plastic, stiff		w=21 LL=37	Cont. 2	1.00
6.5	7.5		Tan-gray sandy fill, plastic stiff	CL	γ= Sandy	Cont. 3	1.00
7.5	9.0		Sandy clay fill w/pine logs			Jar 2 19.2	
9.0	11.0	CL	Gray-tan sandy clay, w/fill		w=19	No sample Sandy Fines=62	
11.0	12.5		Gray-red sandy clay, fill	ML		Cont. 4 15.7	2.75
12.5	14.0		Gray-red Hard clay w/chalk gravel		w=17	Cont. 5	4.50+
14.0	15.0		Red-gray sandy clay, stiff, fill	CL	γ=113 LL=37	Cont. 6 13.2	1.00
15.0	16.0		Gray-red sandy clay, stiff, fill	ML	w=20 γ=102	Sandy Cont. 7 Fines=66 12.2	3.50
16.0	17.0		Gray-red sandy clay, hard	CL	w=35 γ=96	Cont. 8 LL=34	4.50+
17.0	19.0		Gray-red Beaumont clay, hard		w=20 γ=114	Cont. 9 9.2	4.50
19.0	20.0	CH	Red Beaumont clay, hard		w=22	Cont. 10 LL=56	4.50+
20.0	22.0		Red sandy clay, v/stiff	CH	γ=105	Cont. 11	3.50
22.0	23.5		Gray-red Beaumont Clay, hard			Cont. 12 4.7	4.50
23.5	25.0		Red silty clay, stiff			Cont. 13	2.75
25.0	26.5		Red silty clay, hard		w=23	Cont. 14 LL=30	4.00
26.5	28.5		Red sandy clay, stiff	CL	γ=102	Cont. 15	1.50
28.5	30.0	CL	Red sandy clay			No sample	
30.0	32.0		Red sandy clay, v/stiff			Cont. 16 -3.8	2.00
32.0	33.0		Red silty Beaumont clay, hard	CH	w=24 γ=102	LL=62 Cont. 17 -4.8	4.00
33.0	35.0		Red silty clay, stiff	CL	w=21 γ=106	LL=25 Cont. 18 -6.8	1.75
35.0	37.0	SM	Red fine silty water sand, soft	ML	w=27	Jar 3 Fines=99	
37.0	39.0		Red fine silty water sand,			Washed away -10.8	
39.0	41.0	CL	Red silty clay, hard	CH	w=26 γ=101	LL=57 Cont. 19 -12.8	4.25
41.0	42.0		Red silty clay, w/hard sandstone bands	GP	×	Jar 4 -13.8	
42.0	47.5	SM	Brown fine water sand	SM	w=27	Jar 5 Fines=24 -19.3	

HOLE NO. 6ST-29

DEPARTMENT OF THE ARMY

DIVISION Southwestern

INSTALLATION

DRILLING LOG

1. PROJECT White Oak Bayou	SHEET OF
2. LOCATION (Coordinates or Station)	
3. DRILLING AGENCY	
4. HOLE NO. (As shown on drawing title and file No.)	5. NAME OF DRILLER

6. DIRECTION OF HOLE			7. THICKNESS OF OVER-BURDEN	8. DEPTH DRILLED INTO ROCK	9. TOTAL DEPTH OF HOLE
☐ VERTICAL	☐ INCLINED	DEGREES WITH VERTICAL			

10. SIZE AND TYPE OF BIT	11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	12. MANUFACTURER'S DESIGNATION OF DRILL

13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN		14. TOTAL NO. CORE BOXES	15. ELEV. GROUND WATER	16. DATE HOLE	
DISTURBED	UNDISTURBED			STARTED 5/26/60	COMPLETED 5/31/60

17. ELEV. TOP OF HOLE	18. TOTAL CORE RECOVERY FOR BORING (%)	19. SIGNATURE OF INSPECTOR

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
47.5	49.0	CH	Blue-red silty clay, v/stiff	CH	W=34	Cont. 20 -19.3 3.00
49.0	50.0		Blue-red silty clay, stiff		LL=58 D=88	Cont. 21 -21.8 2.00
			Hole bottomed in above at 50.0			

White Oak Bayou
Channel Rectification
Houston, Texas

Sheet 7 of 56

TEST DATA SUMMARY

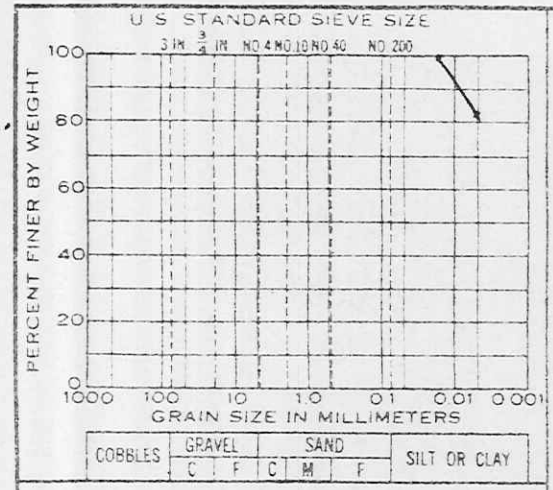
FEATURE Log of Soil Borings

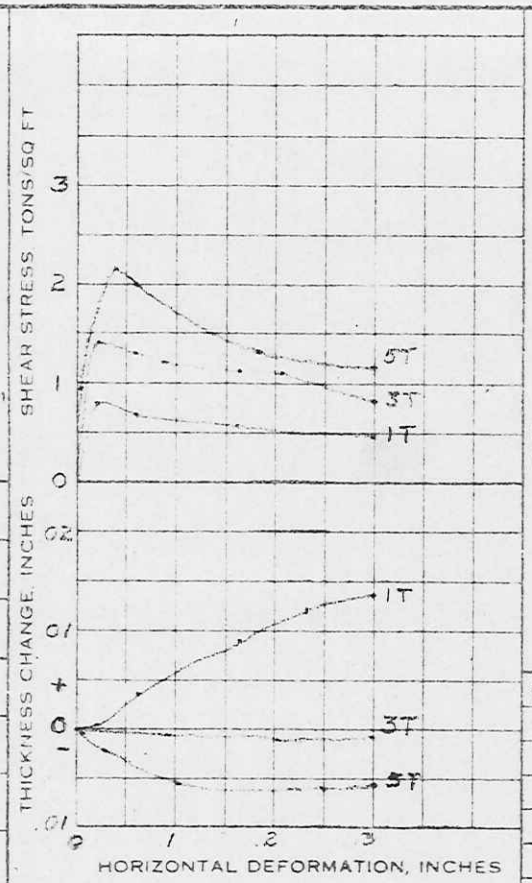
BORING NO.	SAMPLE NO.	DEPTH OR ELEV. OF SAMPLE	MECHANICAL ANALYSIS GRAVEL %	SAND %	FINES %	D/%	ATTERBERG LIMITS LL	PL	BAR L.S. %	NATURAL WATER CONTENT %	NATURAL DRY DENSITY LBS./CU.FT.	LABORATORY CLASSIFICATION
BSF 29 Cont.	-60- 2505	16.0	Same as 60-2506			3.25				34.7	95.8	R, Cl(CL), v/st w/Sa pocks.
		17.0								(27)		
	2506		0	10	90	2.75	33.9		11.0	19.9	104.0	R, Cl (CL), v/st. w/Sa pocks.
		19.0										
	2507		Same as 60-2508			3.75				19.1	109.7	R, Cl (CH) v/st. w/calc. nod.
		20.0								(22)		
	2508		0	0	100	2.50	55.9		20.0	26.1	100.5	R, Cl (CH) v/st. w/calc. nod.
		22.0										
	2509		Same as 60-2508			2.75				20.8	106.3	R, Cl (CH) v/st. w/calc. nod.
		23.5										
	2510		0	1	99	2.75	29.5		8.0	19.6	108.2	R, Cl (CL), v/st.
		25.0										
	2511		0	1	99	2.25	29.3		6.0	23.3	105.9	R, Cl (CL), v/st.
		26.5								(23)		
	2512		Same as 60-2511			1.75				23.7	102.9	R, Cl (CL), st.
		28.5										
	—		No Sample				Drillers Classification					R, SaCl
		30.0										
	2513		0	0	100	2.25	30.1		7.0	25.6	98.9	R, Cl (CL), v/st.
		32.0										
	2514		0	0	100	3.50	62.3	22.5	20.0	24.1	102.3	R, Cl (CH), v/st. w/calc. nod.
		33.0										
	2515		0	7	93	2.25	25.2		4.0	21.4	105.6	R, Cl (CL-ML), v/st.
		35.0								(24)		
	2516		0	1	99	—			0.5	26.9	—	R, Ru, Si (ML)
		37.0										
	—		No Sample				Drillers Classification				—	R, Si Sa (Fine, H2O bearing)
		39.0										
	2517		0	4	96	3.25	57.1		18.0	26.2	100.9	R, Cl (CH), v/st w/calc. nod.
		41.0										
	2518		No test			—					—	Weathered Coarse gravel (GP)
		42.0		0-0-76								
	2519		0	76*	24	—			0.0	26.6	—	F. Br, Si Sa (SM)
		47.5										
	2520		0	2	98	3.25	57.0		19.0	31.3	93.1	R, Cl (CH), v/st. w/Sa pocks.
		49.0								(34)		
	2521		0	0	100	1.25	69.0		21.0	36.9	83.7	Mot. R, Cl (CH), st.
		50.0										

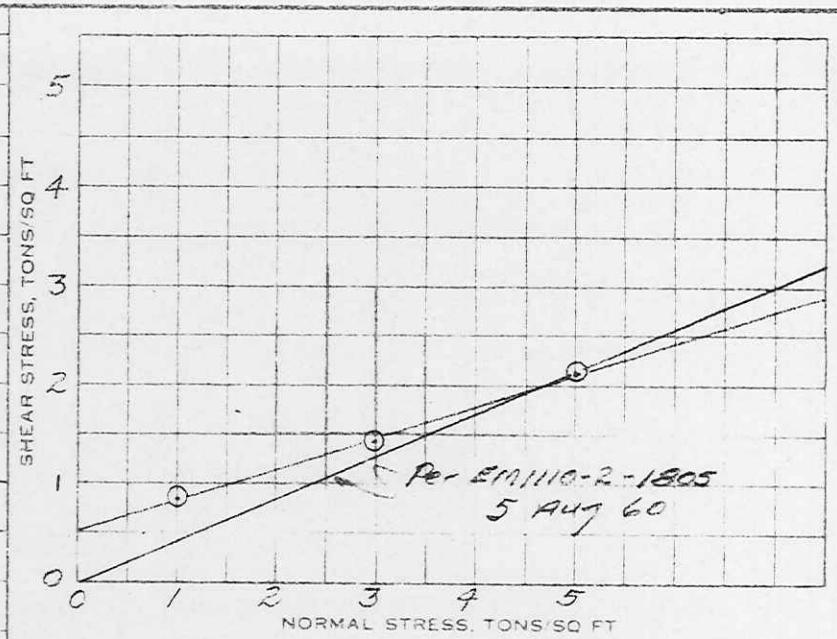
Bottomed @ 50.0' in R, Cl (CH), St.

* Laboratory Penetrometer Reading

DLR-853







Classification	R, CL (CH)		
LL	60.3	G	
PL	23.5	D_{10}	
Test No.	1	2	3
Initial Water Content, W_0 %	22.7	22.7	22.7
Dry Density Lbs/Cu Ft	103.6	99.9	99.8
Void Ratio, e_0			
Saturation, S_0 %			
Duration of Test hrs	5½	6½	6¾
WC after Test, W_f %	24.5	28.2	27.2
Normal Stress, σ T/Sq Ft	1	3	5
Max. Shear Stress, τ T/Sq Ft	0.83	1.42	2.13

Remarks:

Type of Test	Type of Specimen
– Control	undisturbed
col Mun approx	
✓ Consolidated	3 in. square
✓ Drained	¾ in. thickness

SHEAR VALUES	Ø	TAN Ø	C, T/SQ FT
Maximum	23.8	.426	
Ultimate			

Project White Oak Bayou Channel Rectification

Area HOUSTON, TEXAS

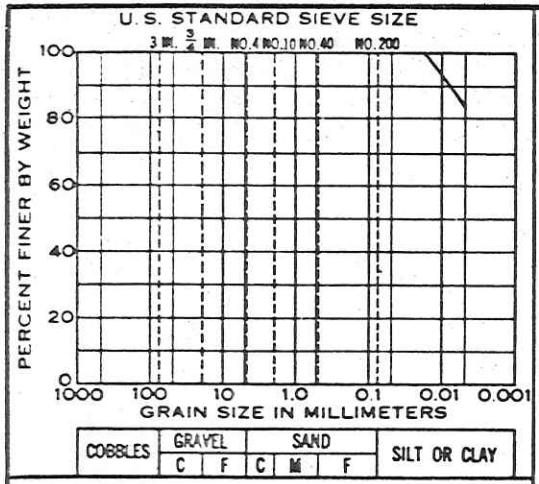
Boring No. 6ST-29 Sample No. 60-2514

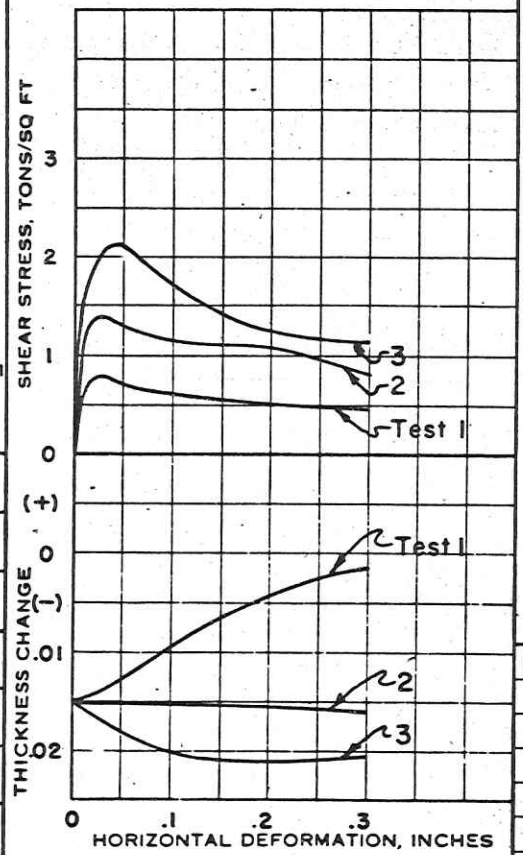
Elev or Depth 33.0-33.0 Date

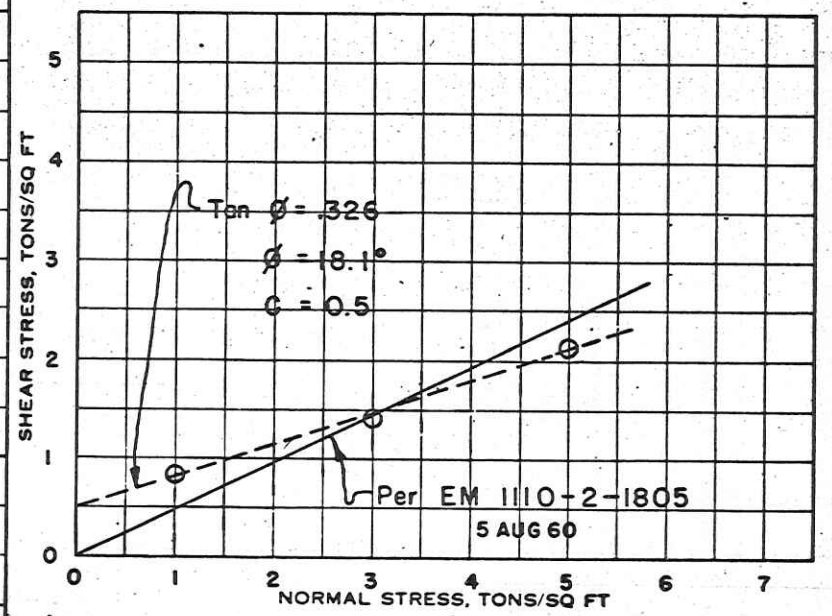
DIRECT SHEAR TEST REPORT

DLP 853 Plate 3

ENG FORM 2092







Classification Red Clay (CH)

LL 62.3	G
PL 22.5	D_{10}

Test No.	1	2	3
Initial Water Content, W_o %	22.7	22.7	22.7
Dry Density Lbs/Cu Ft	103.6	99.9	99.8
Void Ratio, e_o			
Saturation, S_o %			
Duration of Test (to τ)	330'	405'	405'
WC after Test, W_f %	24.5	28.2	27.2
Normal Stress, σ T/Sq Ft	1	3	5
Max. Shear Stress, τ T/Sq Ft	.83	1.42	2.13

Type of Test
Strain - Control
Rate, 0.001 in/min
x Consolidated
x Drained

Type of Specimen
Undisturbed
3.0 in. square
0.75 in. thickness

SHEAR VALUES	ø	TAN ø	C, T/SQ FT
Maximum	26.0	.487	0.0

Remarks:
S Test

Project WHITE OAK BAYOU
Foundation Materials
Area Galveston District
Boring No. 6ST - 29 Sample No. 60-2514
Elev or Depth 32.0 - 33.0 Date 1961

DIRECT SHEAR TEST REPORT

APPENDIX B ~~EXHIBIT~~ PLATE 19