13 to 20

Hole No. 6ST-169

DRILLING LOG

DIVISION	Southwestern
INSTALLATION	Galv Dist, Eng Div
SHEET	OF SHEETS
1. PROJECT	White Oak Bayou
2. LOCATION (Coordinates or Station)	
3. DRILLING AGENCY	Dept of the Army, CD, Corps of Engineers
4. HOLE NO. (As shown on drawing title and file number)	6ST-169
5. NAME OF DRILLER	Eck
6. DIRECTION OF HOLE	☐ VERTICAL ☐ INCLINED _____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN	
8. DEPTH DRILLED INTO ROCK	
9. TOTAL DEPTH OF HOLE	56.0
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	DISTURBED: 8 Jar; UNDISTURBED: 19 Cont
14. TOTAL NUMBER CORE BOXES	
15. ELEVATION GROUND WATER	
16. DATE HOLE	STARTED: 17 Oct; COMPLETED: 18 Oct 1966
17. ELEVATION TOP OF HOLE	
18. TOTAL CORE RECOVERY FOR BORING	%
19. SIGNATURE OF INSPECTOR	

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
0.0	2.0		Shell w/some soil,fill,v/soft			Jar 1	0.0
2.0	4.0		Shell, fill			Jar 2	
4.0	6.0		Shell, fill			Jar 3	
6.0	8.0		Shell w/some clay particles fill			Jar 4	
8.0	10.0		Shell, brown clay, mixed, med			Cont. 1	0.75
10.0	12.0		Tan and gray clay, stiff	"S"		Cont. 2	1.00
12.0	14.0		Same as above, stiff	Unc		Cont. 3	1.75
14.0	16.0		Gray and brown clay, med	Unc		Cont. 4	0.75
16.0	18.0		Gray clay w/cal nod,stiff	Consol		Cont. 5	1.25
18.0	20.0		Same asaabove, stiff			Cont. 6	1.75
20.0	22.0		Dark gray clayey sandy silt v/stiff			Cont. 7	2.25
22.0	24.0		Gray fine sandy silty w/thin layers of silty clay,soft			Jar 5	0.25
24.0	26.0		Gray silty fine sand,v/soft			Cont. 8	0.25
26.0	28.0		Brown fine sandy silty clay stiff			Cont. 9	1.75
28.0	30.0		Brown clayey silty fine sand med			Cont. 10	0.75
30.0	32.0		Same as above, stiff			Cont. 11	1.00
32.0	34.0		Same as above, soft			Cont. 12	0.25
34.0	36.0		Gray sand, soft			Jar 6	0.25
36.0	38.0		Gray sand 36.0-36.5 No count 36.5-37.0 12 blows 37.0-37.5 8 blows 37.5-38.0 Washed			Jar 7	
38.0	40.0		Same as above, washed	Med Dense - Dense		No sample	
40.0	42.0		Gray sand w/seams clay 40.0-40.5 No count 40.5-41.0 5 blows 41.0-41.5 8 blows 41.5-42.0 Washed			Jar 8	
42.0	44.0		Gray sand w/lumps gray clay v/soft to medium			Cont. 13	0.00-0.75
			continued				

Hole No. 6ST-169(Cont'd)

DRILLING LOG	DIVISION	INSTALLATION	SHEET OF SHEETS

1. PROJECT White Oak Bayou	10. SIZE AND TYPE OF BIT
2. LOCATION *(Coordinates or Station)*	11. DATUM FOR ELEVATION SHOWN *(TBM or MSL)*
3. DRILLING AGENCY	12. MANUFACTURER'S DESIGNATION OF DRILL
4. HOLE NO. *(As shown on drawing title and file number)*	13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN — DISTURBED — UNDISTURBED
5. NAME OF DRILLER	14. TOTAL NUMBER CORE BOXES
	15. ELEVATION GROUND WATER
6. DIRECTION OF HOLE ☐ VERTICAL ☐ INCLINED ____ DEG. FROM VERT.	16. DATE HOLE — STARTED — COMPLETED
7. THICKNESS OF OVERBURDEN	17. ELEVATION TOP OF HOLE
8. DEPTH DRILLED INTO ROCK	18. TOTAL CORE RECOVERY FOR BORING %
9. TOTAL DEPTH OF HOLE	19. SIGNATURE OF INSPECTOR

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS *(Description)* d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS *(Drilling time, water loss, depth of weathering, etc., if significant)* g
44.0	46.0		Same as above, medium			Cont. 14 0.50
46.0	48.0		Tan clay, v/stiff	Consol		Cont. 15 3.50
48.0	50.0		Tan and gray silty clay w/cal nod, hard			Cont. 16 4.50+
50.0	52.0		Tan clay w/cal nod, v/stiff	"S"		Cont. 17 3.00
52.0	54.0		Tan clay w/tan silt and siltstone, v/stiff to hard			Cont. 18 2.00-4.50+
54.0	56.0		Tan silty clay w/siltstone nod, v/stiff			Cont. 19 2.50
			BOTTOMED			
			Water @ 17.8			

1 December 1966

WHITE OAK BAYOU

TEST REQUEST CE-28-67

A. Samples submitted

Borings 6ST-169 thru 6ST-171, 50 containers and 31 jars.

B. Identification tests requested

S-1	Processing and preparation	50 @ $8	$400
		31 @ $1	31
S-2	Moisture content	81 @ $1	81
S-4	Mechanical analysis, sieves only	40 @ $7	280
S-9	Liquid limit	20 @ $8	160
S-10	Plastic limit	20 @ $8	160
S-15	Unit weight	50 @ $7	350
S-20	Visual classification	81 @ $2	162

C. Special tests requested

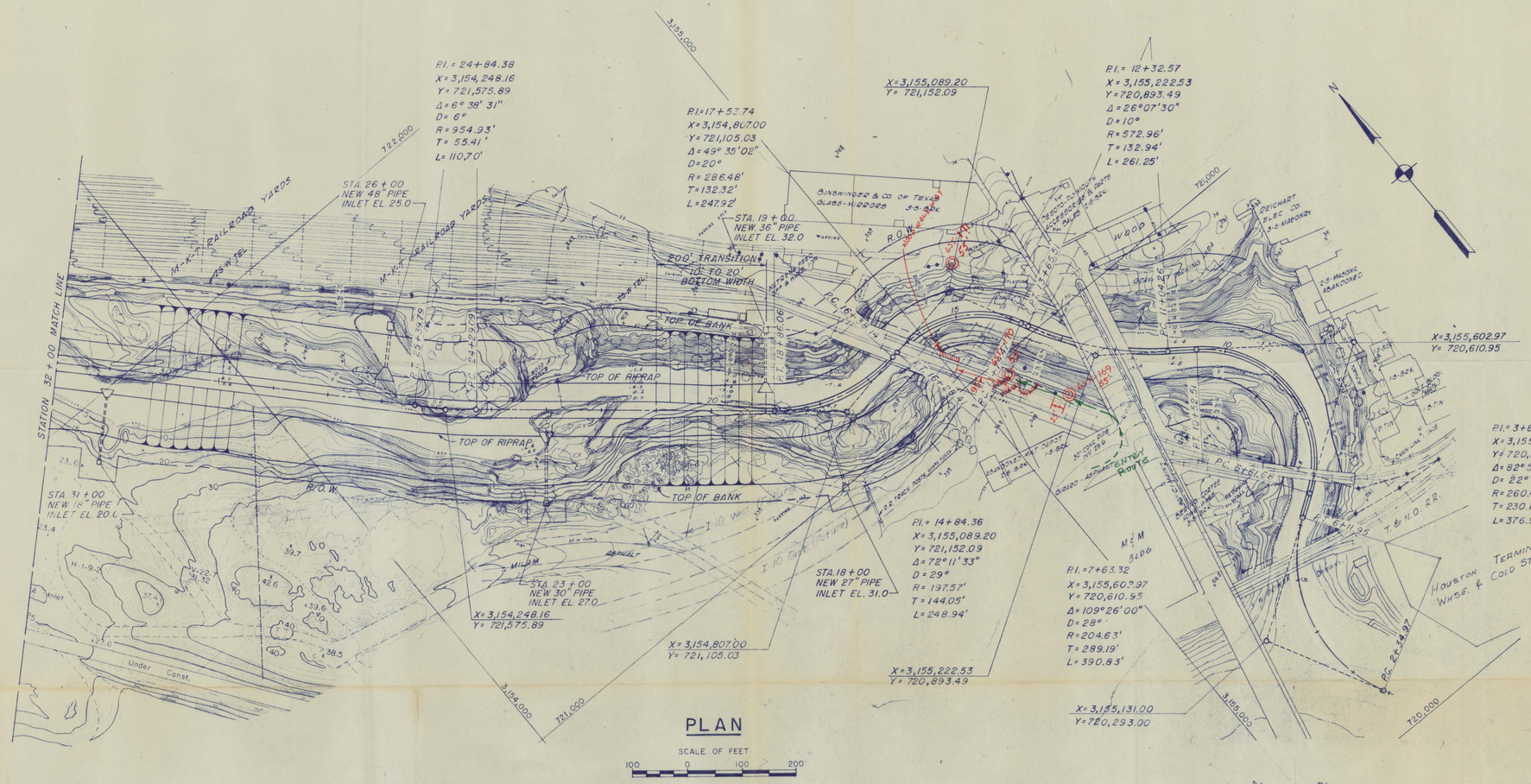
1. S-42 Direct shear (maximum lateral stress 3tons/sq ft) 3 @ $100 $300

Boring No.	Cont. No.
6ST-169	2
6ST-169	17
6ST-171	6

2. Unconfined compression 4 @ $27 $108

Boring No.	Cont. No.
6ST-169	3
6ST-169	4
6ST-170	1
6ST-170	2

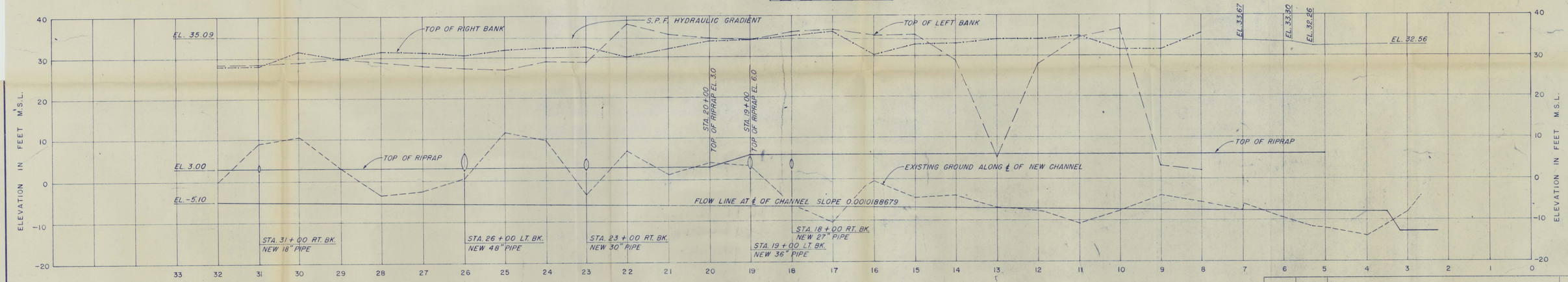
$2,032



PLAN

SCALE OF FEET

100 0 100 200



PROFILE

REVISION	DATE	BY

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

DRAWN BY:
TRACED BY:
CHECKED BY:
SUBMITTED BY:
CHIEF
APPROVED:
CHIEF DESIGN BRANCH

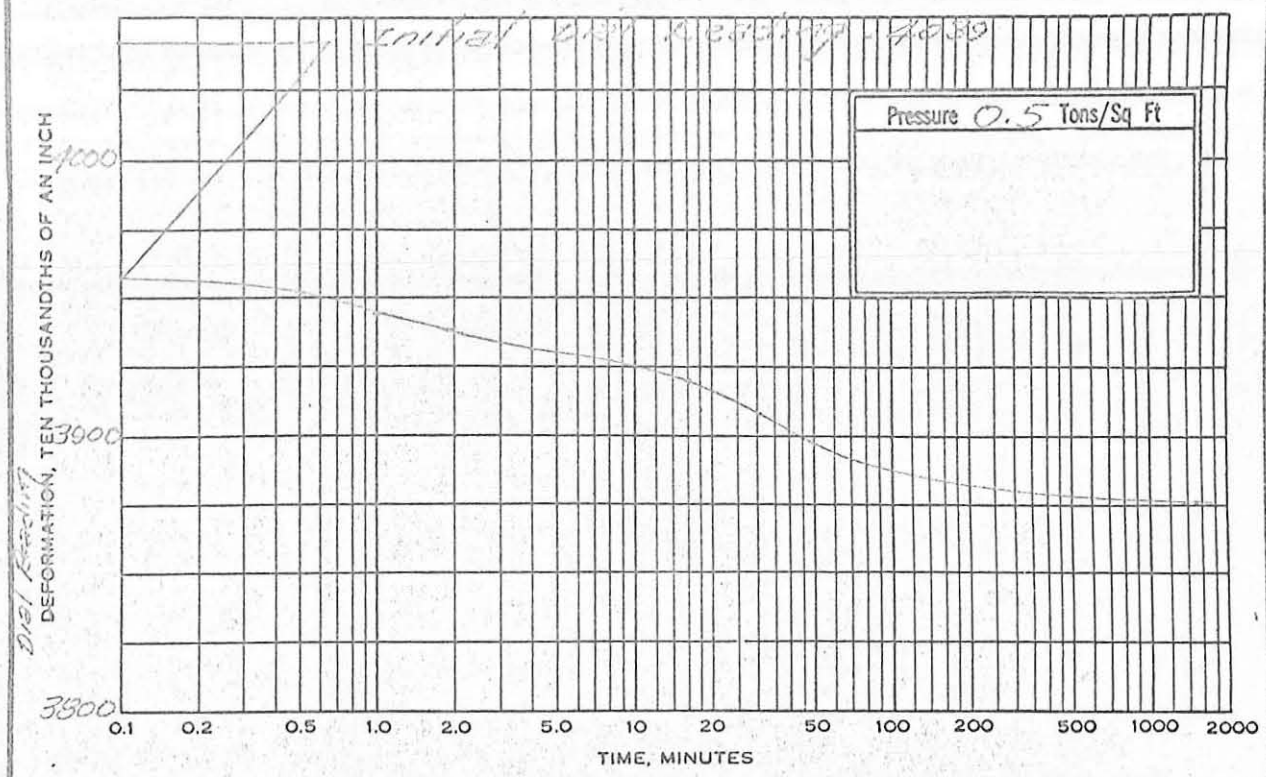
BORING LAYOUT
BUFFALO BAYOU, TEXAS
WHITE OAK BAYOU

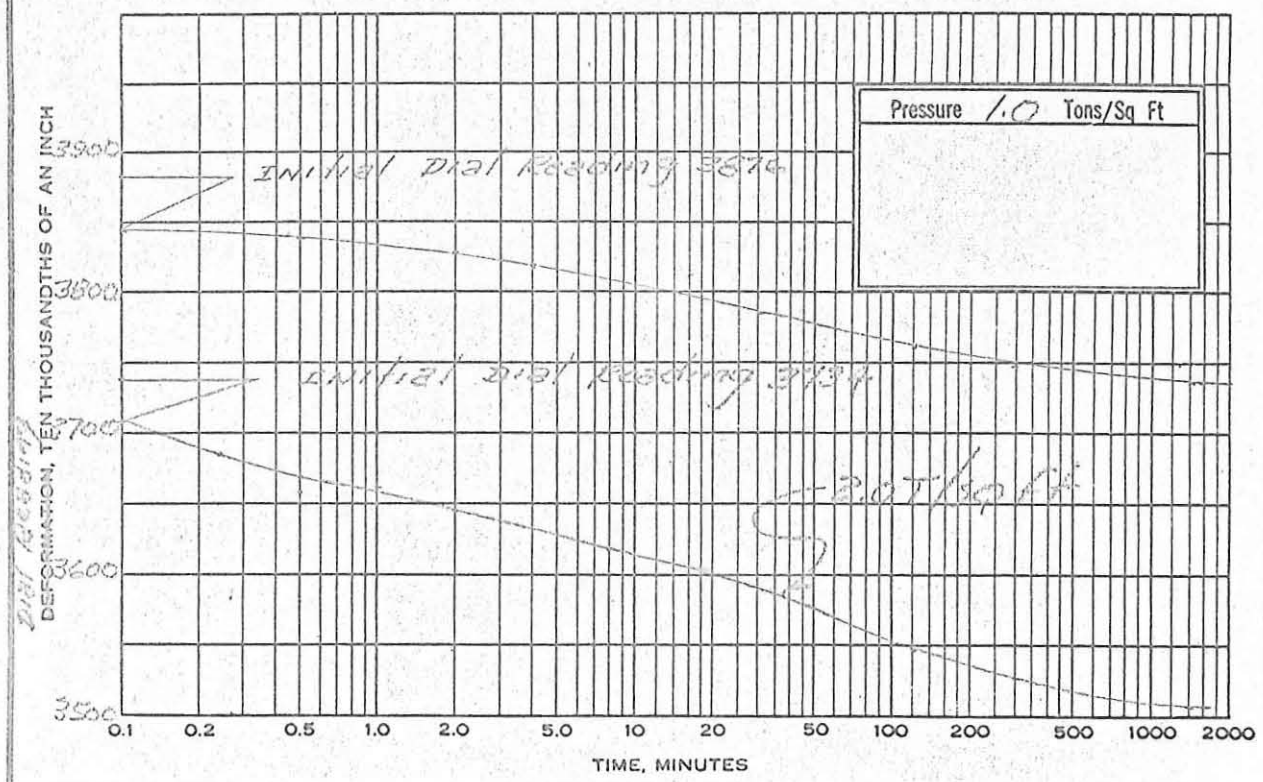
GALVESTON DISTRICT LABORATORY REPORT NO. 1155
SHEET 1 OF 1

APPROVED: DATE
CHIEF ENGINEERING DIVISION

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

DLR 1155 Plate No 2



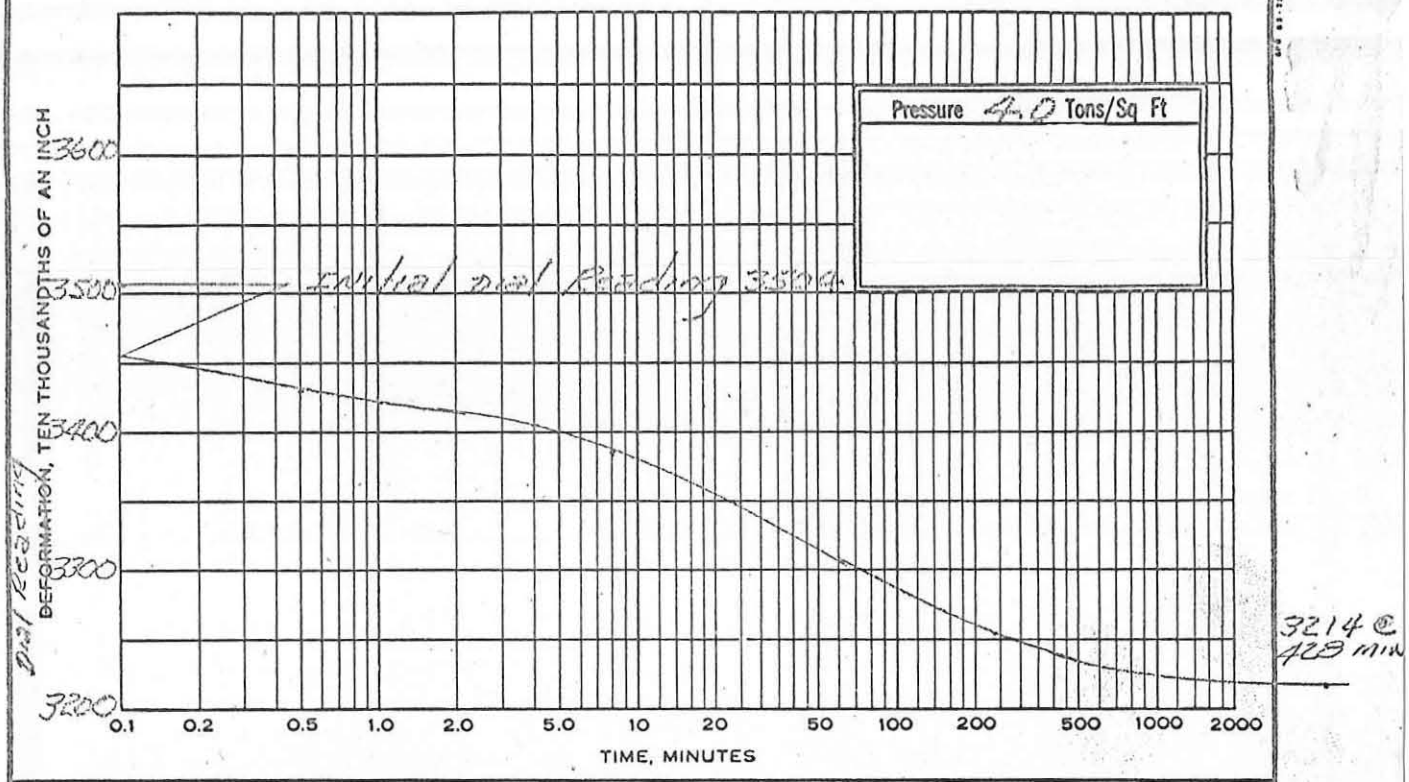


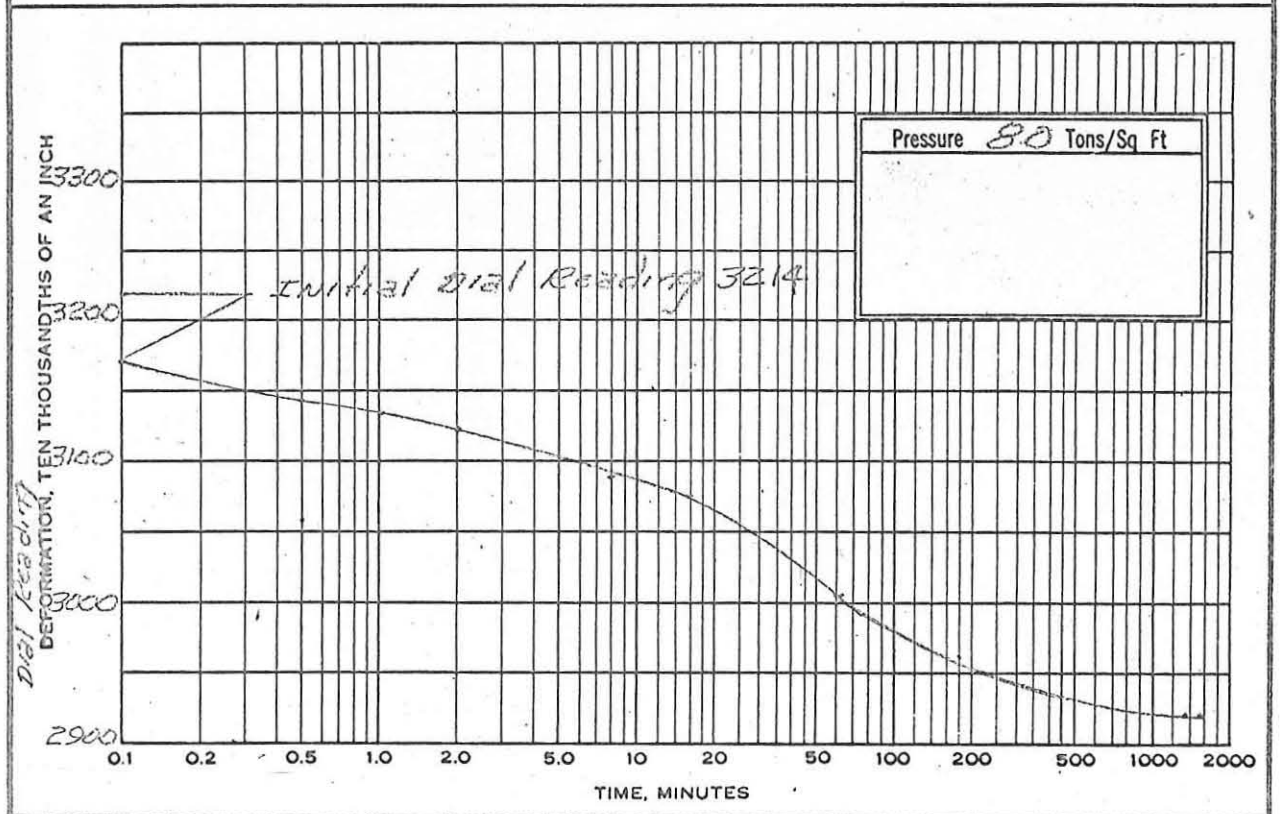
Project	White Oak Bayou		
Area	Mouth to mile 1.07		
Boring No. GST-169	Sample No. C-5	Elev or Depth 16-18	Date Dec 1966

CONSOLIDATION TEST-TIME CURVES

ENG FORM 1 DEC 53 2088 (Translucent) (EM 1110-2-1803)

DLP 1155 Plate No 3



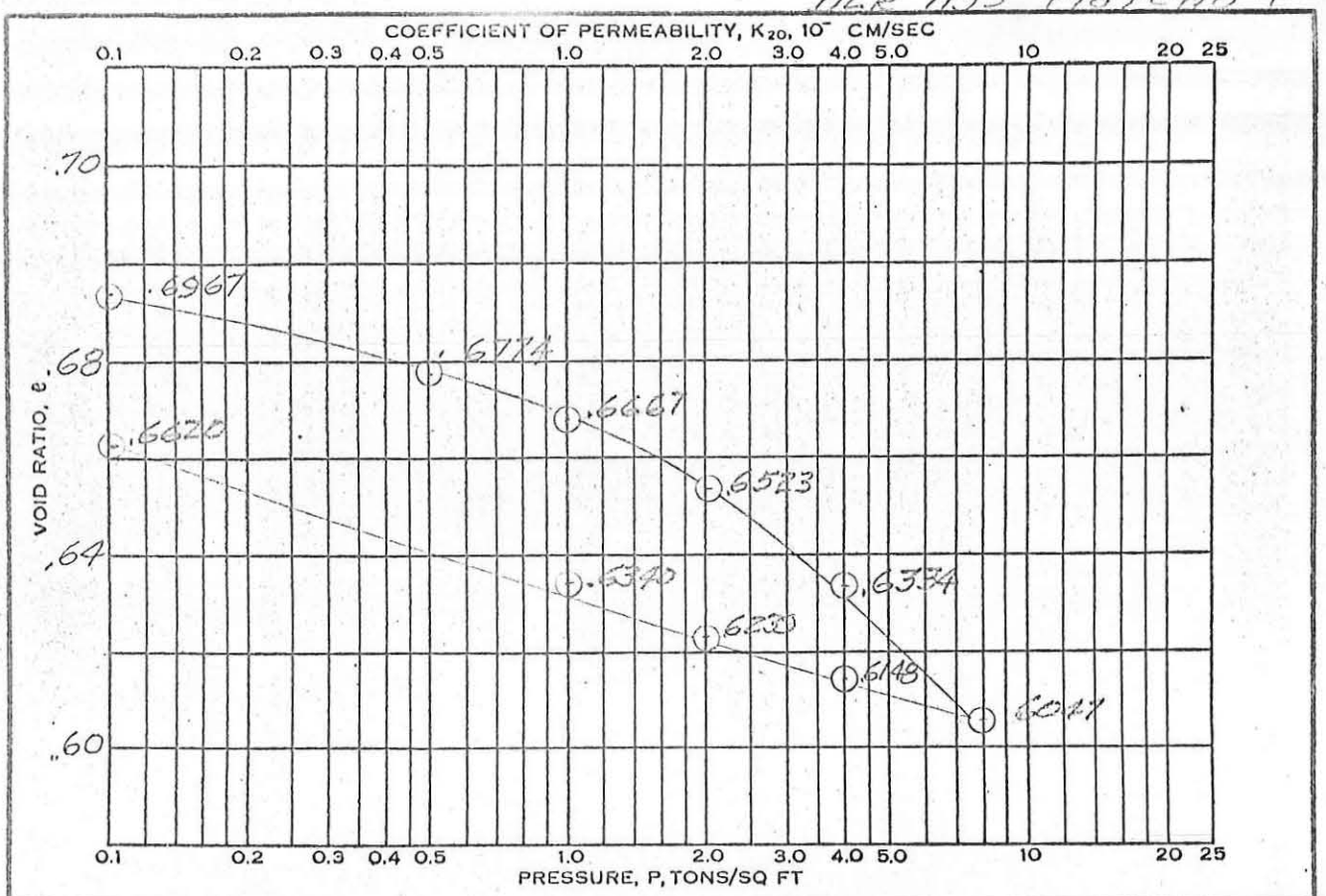


Project	White Oak Bayou		
Area	Mouth to mile 1.07		
Boring No. GST-169	Sample No. C-5	Elev. or Depth 16-18	Date Dec 1966

CONSOLIDATION TEST-TIME CURVES

ENG FORM 1 DEC 51 2088 (Translucent) (EM 1110-2-1803)

DLR 1155 Plate no 4



TEST DATA

Type of Specimen: undisturbed

Overburden Pressure, P_o Tons/Sq Ft

Preconsol Pressure, P_c Tons/Sq Ft

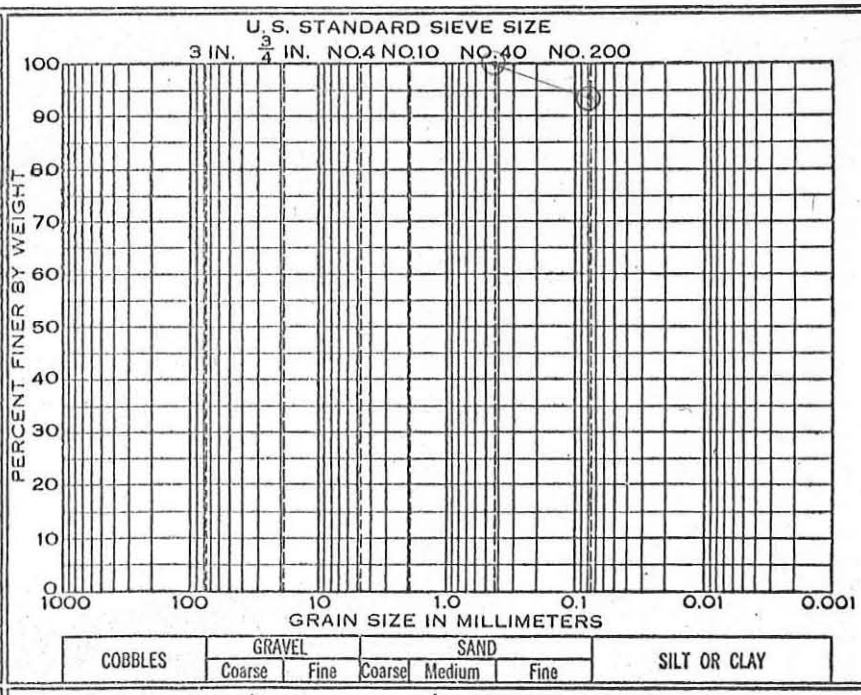
Compression Index, C_c

Permeability at Initial e

K_{20} _____ x 10^{-} Cm/Sec

_____ Ft/Min

Initial Ht.	1.158 in.	Diam.	4 in.
Initial Saturation, S_o	%		97
Final Saturation, S_f	%		100
Initial Dry Density	Lbs/Cu Ft		99
Initial Water Content, W_o	%		24.7



Remarks:

Brown clay (CH)

Classification

LL 59.9	G
PI 27.3	D_{50}

Project White Oak Bayou

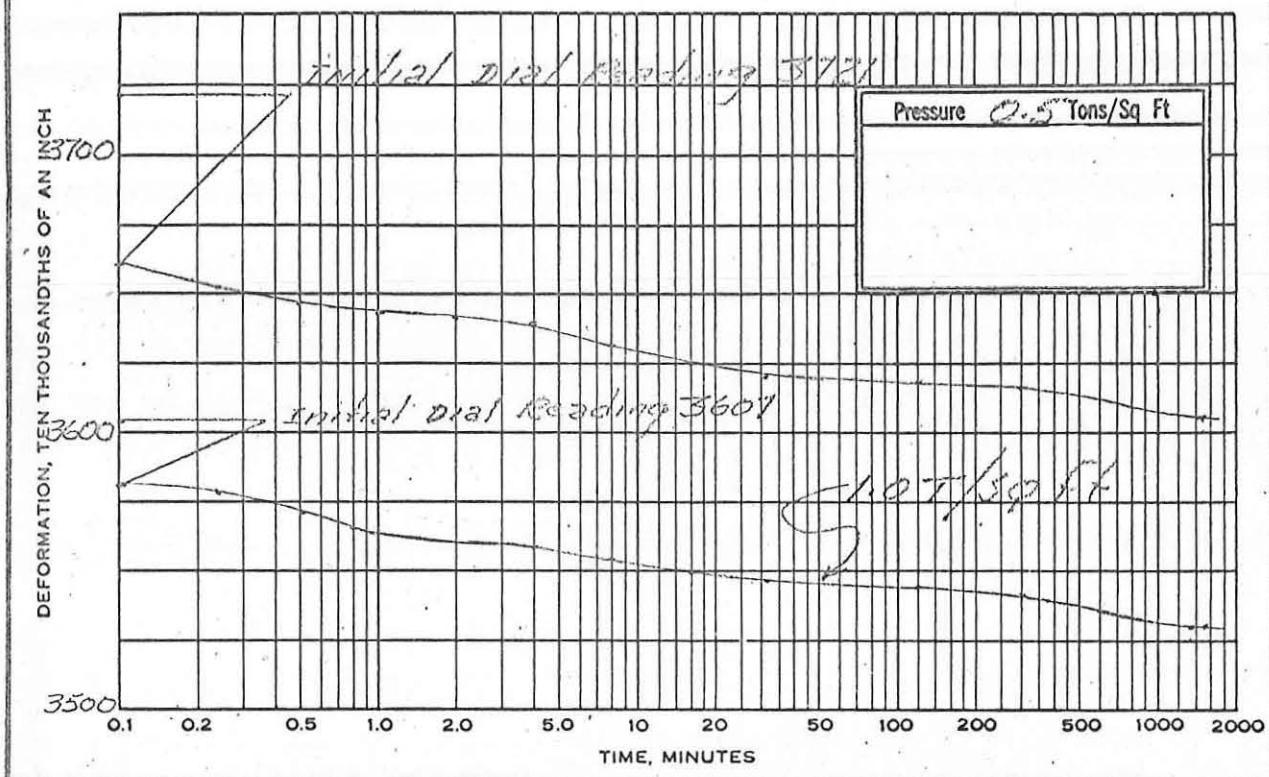
Area Mouth to mile 1.07

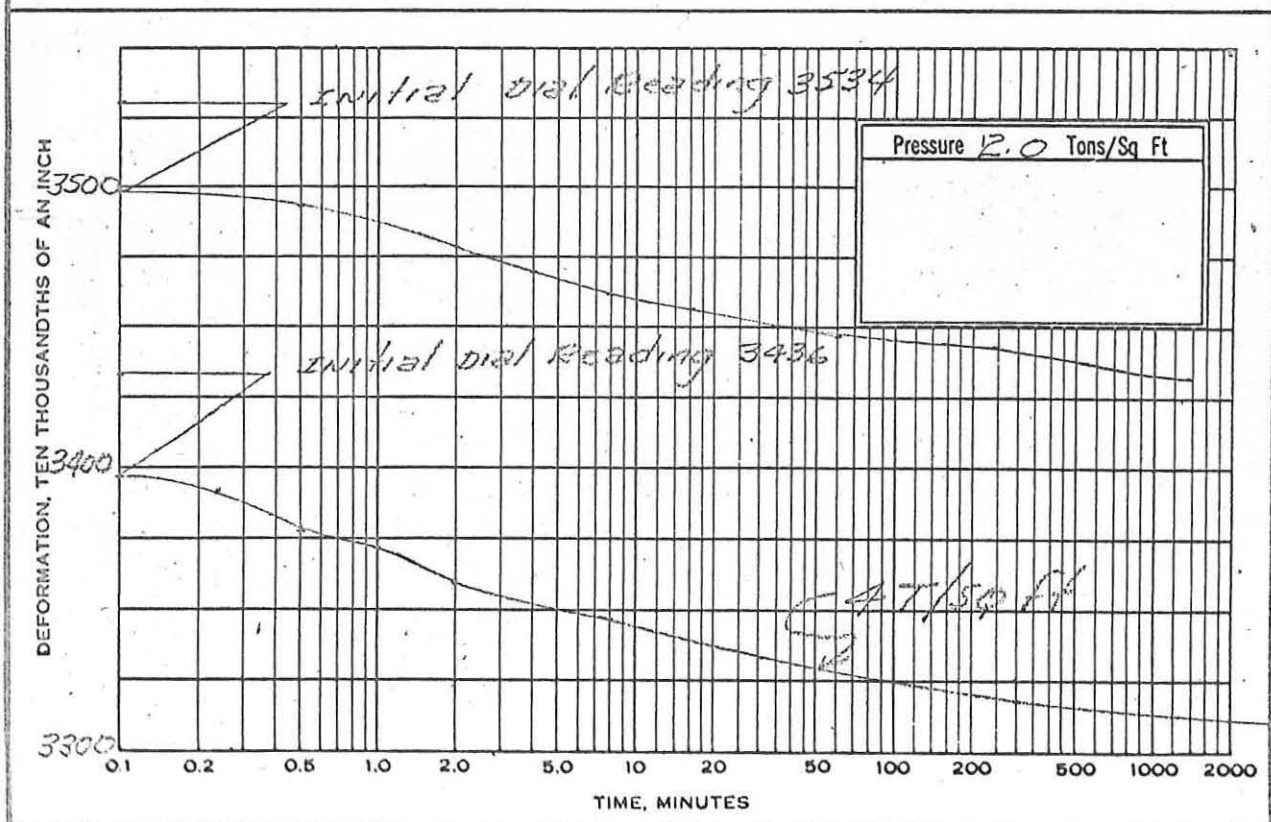
Boring No. GST-169 Sample No. C-15

Elev or Depth 46'-48' Date Dec 1966

CONSOLIDATION TEST REPORT

DLR 1155 Plate no 5



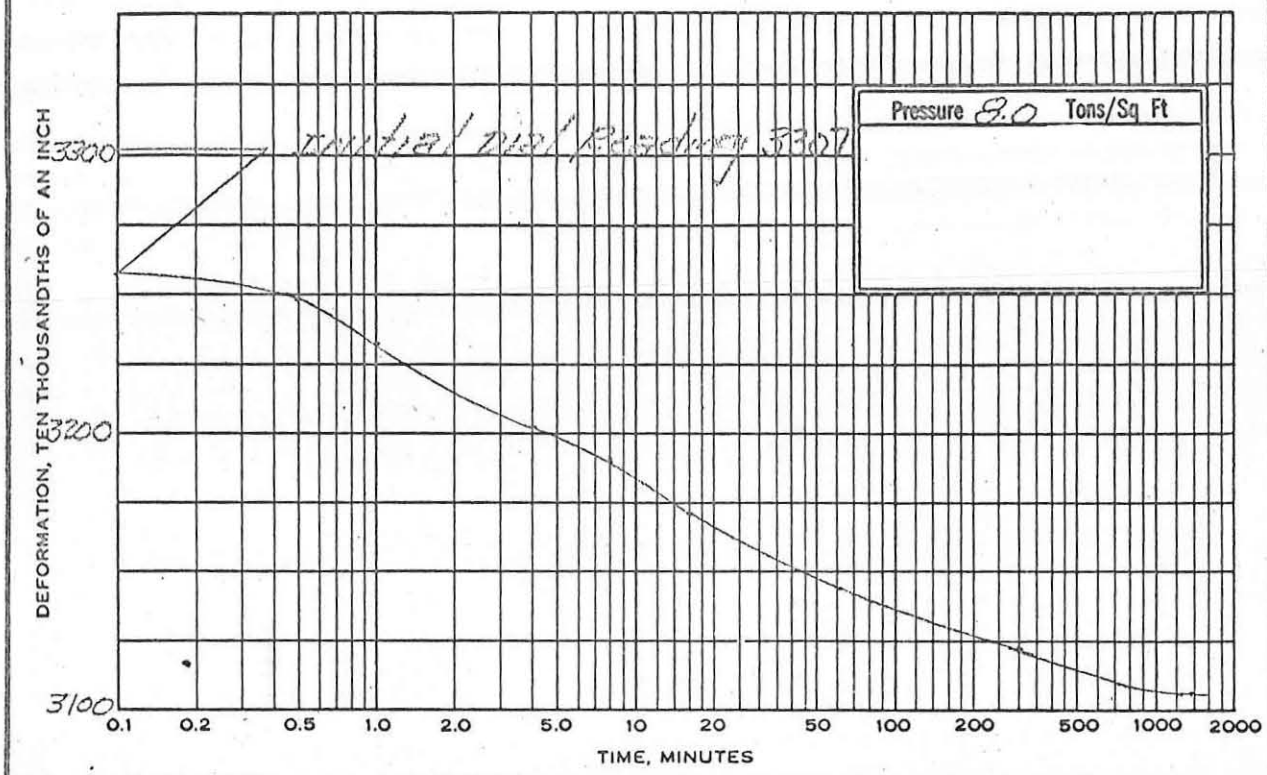


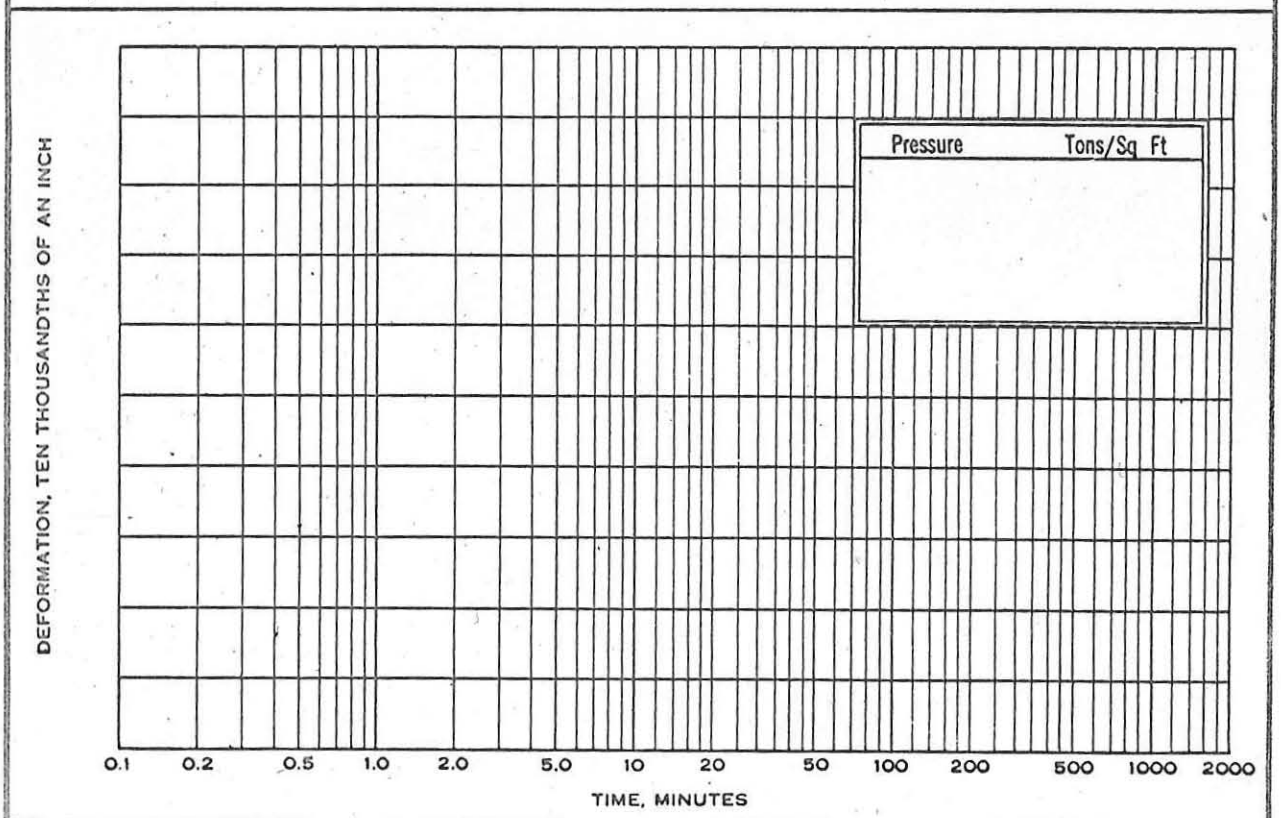
Project White Oak Bayou			
Area North to mile 1.07			
Boring No. 65T-109	Sample No. C-15	Elev or Depth 46-48'	Date Dec 1966

CONSOLIDATION TEST-TIME CURVES

ENG FORM 1 DEC 51 2088 (Translucent) (EM 1110-2-1803)

DLE 1155 Plate No 6





Project White Oak Bayou			
Area North to mile 6.07			
Boring No. GST-149	Sample No. C-15	Elev or Depth 46'-48'	Date Dec 1966

CONSOLIDATION TEST-TIME CURVES

ENG FORM 1 DEC 51 2088 (Translucent) (EM 1110-2-1803)

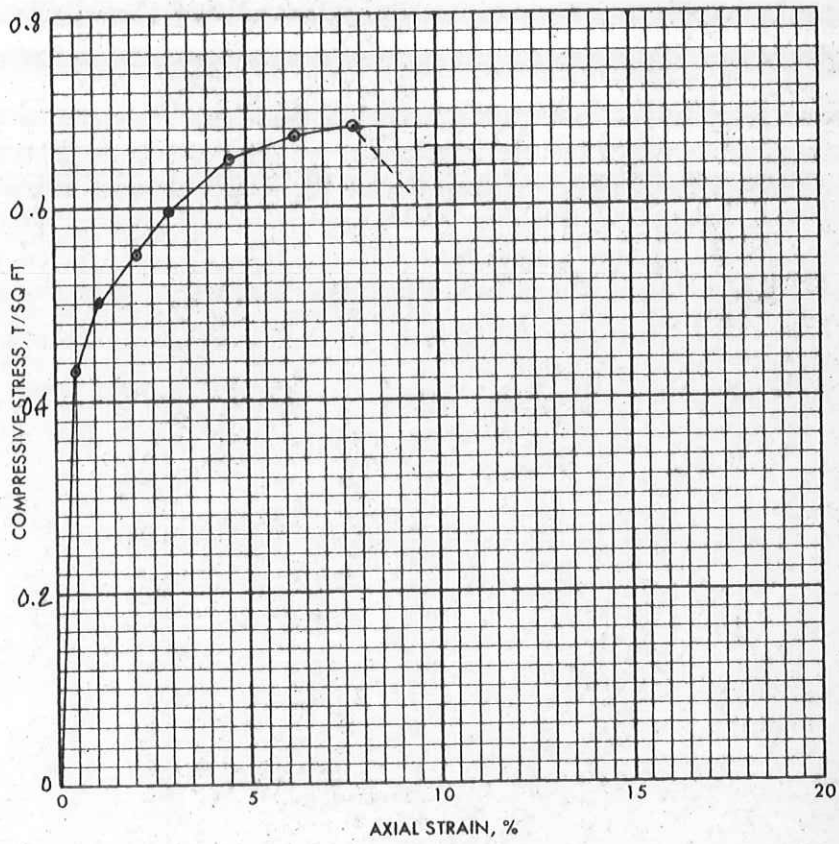
Results of Tests of Foundation Materials

Hole No.	SWD Sample No.	Depth, feet	Type of Sample	Mechanical Analysis, % Passing 1"	3/4"	1/2"	3/8"	No. 4	No. 10	No. 20	No. 40	No. 100	No. 200	Limits LL	PL	LS	Natural Conditions Water Content %	Dry Density lbs/cu.ft.	Classification
6ST-169	X-3335	0.0 - 2.0	Jar														7.7		- SHELL; 3/4" max. size
	3607	2.0 - 4.0	"	100	92	89	84	65	47	31	22	15	13				8.7		- SHELL; 3/4" max. size
	3608	4.0 - 6.0	"														7.6		- SHELL; 3/4" max. size
	3609	6.0 - 8.0	"		100	96	90	77	60	48	41	32	28	22	14		7.9		SC SAND, clayey; much shell.
	3336	8.0 - 10.0	Ctn														10.5	119	CH CLAY, red stiff.
	3337	10.0 - 12.0	"									100	99	62	18		28.7	93	CH CLAY, red and gray, stiff. DIRECT SHEAR TEST: PLATE 5
	3338	12.0 - 14.0	"								100	99	99	57	18		27.4	97	CH CLAY, red and gray, medium consistency. UNCONFINED COMPRESSION TEST: PLATE 1.
	3339	14.0 - 16.0	"			100	99	97	96	95	94	92	88	42	13		23.6	102	CL CLAY, red and gray, medium consistency; nodules to 1/4 size. UNCONFINED COMPRESSIC TEST: PLATE 2.
	W.T. 3340	-	"					Sample not received.				2	10	80			18.5	108	CL CLAY, sandy - Consolidation test
	3341	18.0 - 20.0	"														19.6	107	CL CLAY, sandy, light gray, very stiff; pockets of red clay (CH).
	3342	20.0 - 22.0	"				100	99	99	98	97	81	54				15.5	78	CL CLAY, sandy, grayish-brown, very stiff; few thin CH seams; organic material in lower 0.3'.
	3610	22.0 - 24.0	Jar							100	99	87	61	21	15		15.4		CL-ML CLAY, sandy, silty, gray.
	3343	24.0 - 26.0	Ctn														15.7	110	SC SAND, clayey, light gray.
	3344	26.0 - 28.0	"								100	80	51	24	15		17.1	111	CL CLAY, sandy, reddish-brown and gray, stiff.
	3345	28.0 - 30.0	"														17.9	109	CL CLAY, sandy, reddish-brown and gray, stiff.
	3346	30.0 - 32.0	"								100	88	63				19.1	108	CL CLAY, sandy, brown, medium.
	3347	32.0 - 34.0	"														15.8	115	SC SAND, clayey, brown and gra
	3611	34.0 - 36.0	Jar							100	99	74	33	NP	NP		22.3		SM SAND, silty, light gray. Free water.
	3612	36.0 - 38.0	"														20.8		SM SAND, silty, light gray. Free water.
	3613	40.0 - 42.0	"				100	99	96	95	95	73	39				23.7		SC SAND, clayey, brown and gra
	3348	42.0 - 44.0	Ctn								100	64	29	NP	NP		19.3	108	SM SAND, silty, gray.
	3349	44.0 - 44.8	"														21.0	106	SM SAND, silty, gray; occasional 1/4" clay layers.
	3349A	44.8 - 46.0	"														21.9	109	CL CLAY, sandy, gray, ~~soft~~.
	3350	-						Sample not received.											
	3351	48.0 - 50.0	"		100	99	98	96	95	95	94	84					23.3	105	CH CLAY, red and greenish-gray very stiff; large pocket of clayey sand at bottom.
	3352	50.0 - 52.0	"				100	99	99	99	99	98	57	20			25.5	100	CH CLAY, red, hard. DIRECT SHEAR TEST: PLATE 6.

Results of Tests of Foundation Materials

Hole No.	SWD Sample No.	Depth, feet	Type of Sample	Mechanical Analysis, % Passing 1"	3/4"	1/2"	3/8"	No. 4	No. 10	No. 20	No. 40	No. 100	No. 200	Limits LL	PL	LS	Natural Conditions Water Content %	Dry Density lbs/cu.ft.	Classification
6ST-169 (Cont'd)	3353	52.0 - 53.0	Ctn								100	99	99	36	16		26.7	100	CL CLAY, red, stiff; slickensided.
	3353A	53.0 - 54.0	"														12.9	103	- SANDSTONE, red, hard.
	3354	54.0 - 56.0	"														19.9	111	CH CLAY, red, medium to stiff; 1" silty layers; sandstone fragments.
6ST-170	X-3355	0.0 - 2.0	Jar														12.9		- Mixed SAND, CLAY and GRAVEL, brown.
	3356	2.0 - 4.0	"	100	94	91	86	72	62	54	49	40	32				11.2		SC SAND, clayey, gravelly, brown; shells and rock fragments to 3/4" size.
	3357	4.0 - 6.0	"														6.4		CL CLAY, sandy, brown; gravel sizes to 3/4".
	3358	6.0 - 8.0	"	73	57	44	39	31	25	20	17	14	12	28	12		5.5		GC-GP GRAVEL, clayey, sandy, brown; 100% finer than 1-1/2 inch screen.
	3359	8.0 - 10.0	"														4.4		GC-GP GRAVEL, clayey, sandy, brown; 100% finer than 1-1/2 inch screen.
	3360	10.0 - 12.0	"		100	94	78	52	32	20	15	11	10				5.4		GC-GP GRAVEL, clayey, sandy, brown.
	3361	12.0 - 14.0	"														6.3		GC-GP GRAVEL, clayey, sandy, brown; 100% finer than 1" screen.
	3362	14.0 - 16.0	"											25	13		7.9		GC-GP GRAVEL, clayey, sandy, brown; 100% finer than 1" screen.
	3363	16.0 - 18.0	"														15.7		GC-GP GRAVEL, clayey, sandy, brown; 100% finer than 1" screen.
	3364	18.0 - 20.0	"	81	73	61	57	44	34	27	23	19	17				11.2		GC-GP GRAVEL, clayey, sandy, red, 100% finer than 1-1/2" screen.
	3365	W.T. 20.0 - 22.0	Ctn	83	83	83	81	78	76	75	74	71	64	52	15		20.6	104	CH CLAY, gravelly, light red and gray; 100% finer than 1-1/2" screen. UNCONFINED COMPRESSION TEST: PLATE 3.
	3366	22.0 - 24.0	"		100	91	86	80	76	73	71	67	59	47	14		20.1	104	CL CLAY, gravelly sandy, medium, calcareous particles SEE UNCONFINED COMPRESSION TEST: PLATE 4.
	3367	24.0 - 26.0	"														25.8	99	CH CLAY, yellowish-brown and gray, medium, calcareous particles.
	3368	26.0 - 28.0	"				100	99	99	99	99	97	88				26.0	91	CH CLAY, yellowish-brown and gray, stiff.

FAILURE SKETCHES



☐ CONTROLLED STRESS

☑ CONTROLLED STRAIN
Rate 0.2 % min

TEST NO.						
TYPE OF SPECIMEN		Undisturbed				
INITIAL	WATER CONTENT	w_o	27.1 %	%	%	%
	VOID RATIO	e_o				
	SATURATION	S_o	%	%	%	%
	DRY DENSITY, LB/CU FT	γ_d	97			
TIME TO FAILURE, MIN		t_f	37			
UNCONFINED COMPRESSIVE STRENGTH, T/SQ FT		q_u	0.7			
UNDRAINED SHEAR STRENGTH, T/SQ FT		s_u	0.3			
SENSITIVITY RATIO		S_t				
INITIAL SPECIMEN DIAMETER, IN		D_o	5.1			
INITIAL SPECIMEN HEIGHT, IN.		H_o	11.0			

CLASSIFICATION CLAY (CH)

LL 57 | PL 18 | PI 39 | G_s

REMARKS

PROJECT WHITE OAK BAYOU

AREA

BORING NO. 65T-168 | SAMPLE NO. X-3338

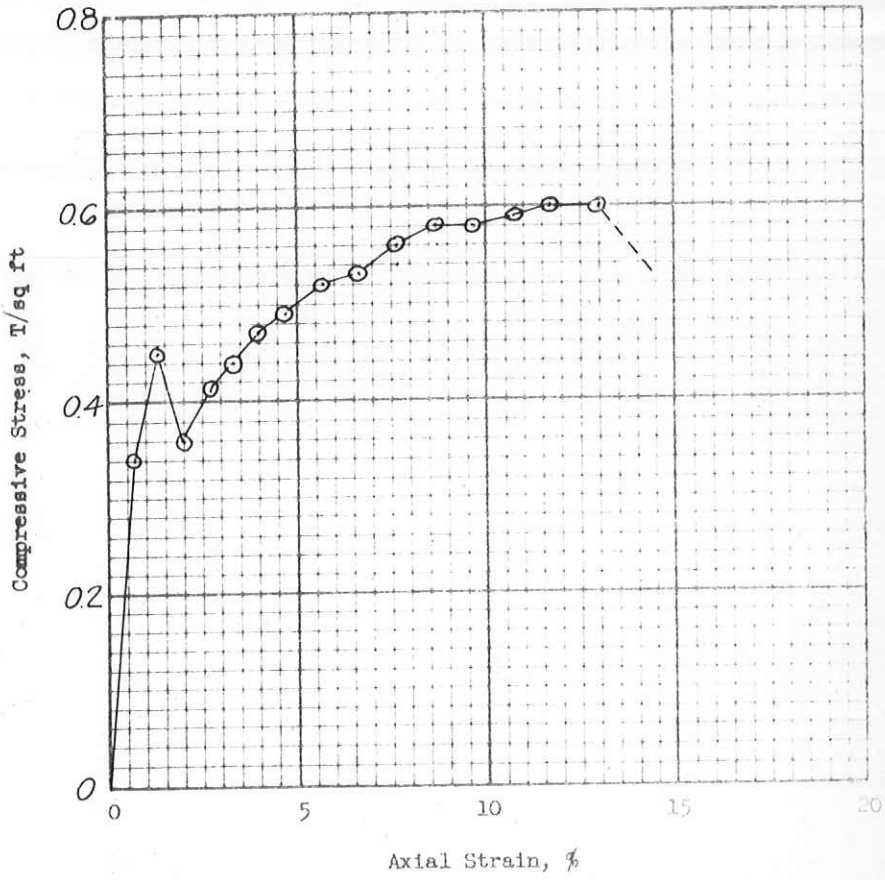
DEPTH EL 12.0-14.0 | DATE JAN 67

UNCONFINED COMPRESSION TEST REPORT

ENG FORM 1 JUN 65 **3659** (EM 1110-2-1906) (TRANSLUCENT) GPO : 1966 OF—214-946 PLATE XI-2

Plate No. 1

Failure Sketches



☐ Controlled stress

☑ Controlled strain
Rate, 0.2 %/min

Test No.						
Type of specimen	Undisturbed					
Initial	Water content	w_o	22.4 %	%	%	%
	Void ratio	e_o				
	Saturation	S_o	%	%	%	%
	Dry density, lb/cu ft	γ_d	103			
Time to failure, min		t_f	67			
Unconfined compressive strength, T/sq ft		q_u	0.6			
Undrained shear strength, T/sq ft		s_u	0.3			
Sensitivity ratio		S_t				
Initial specimen diameter, in.		D_o	5.0			
Initial specimen height, in.		H_o	9.0			

Classification CLAY (CL)

LL 42 | PL 13 | PI 29 | G_s

Remarks

Project WHITE OAK BAYOU

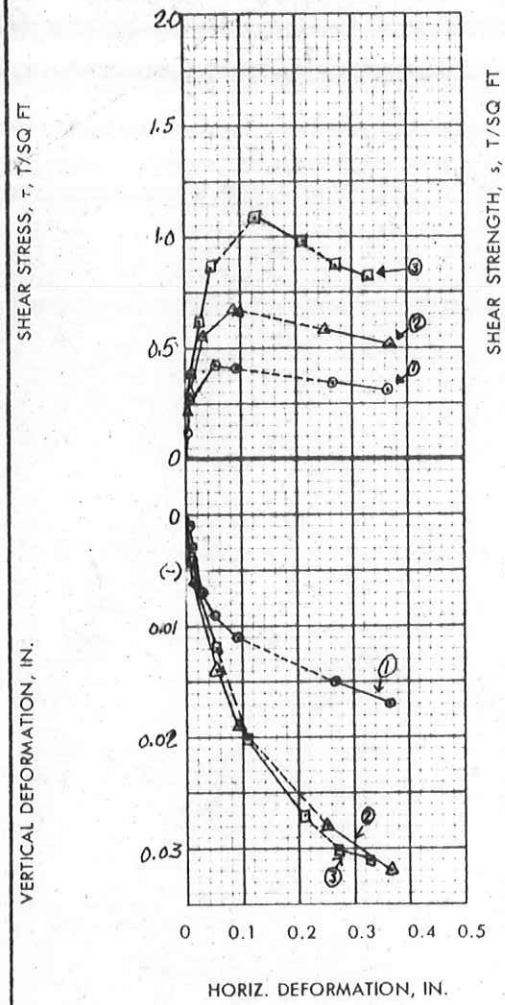
Area

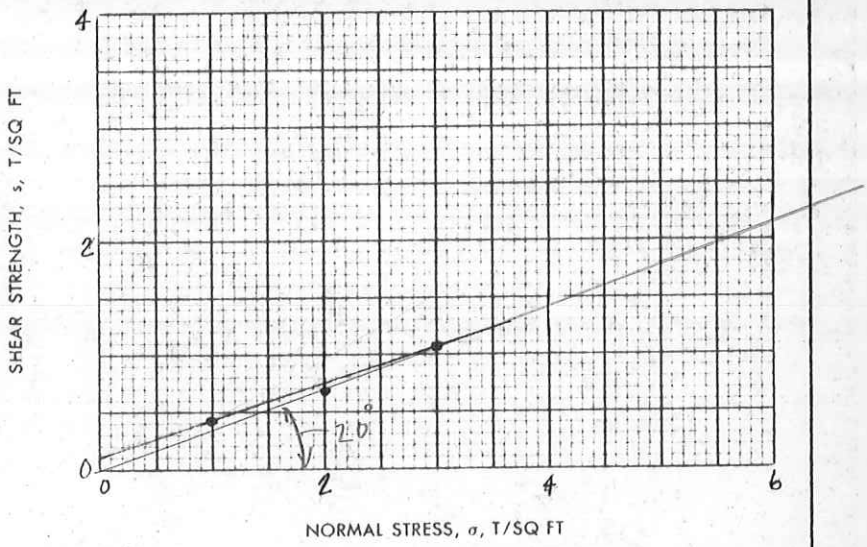
Boring No. 6ST-169 | Sample No. X-3339

~~El~~ Depth 14.0-16.0 | Date JAN 67

UNCONFINED COMPRESSION TEST REPORT

ENG FORM 1 JUN 68 3659





TEST NO.			①	②	③	
INITIAL	WATER CONTENT	w_o	28.7%	28.5%	29.3%	%
	VOID RATIO	e_o				
	SATURATION	S_o	%	%	%	%
	DRY DENSITY, LB/CU FT	γ_d	96	94	95	
VOID RATIO AFTER CONSOLIDATION		e_c				
TIME FOR 50 PERCENT CONSOLIDATION, MIN		t_{50}				
FINAL	WATER CONTENT	w_f	29.5%	28.0%	25.4%	%
	VOID RATIO	e_f				
	SATURATION	S_f	%	%	%	%
NORMAL STRESS, T/SQ FT		σ	1.0	2.0	3.0	
MAXIMUM SHEAR STRESS, T/SQ FT		τ_{max}	0.43	0.67	1.08	
ACTUAL TIME TO FAILURE, MIN		t_f	275	375	1900	
RATE OF STRAIN, IN./MIN			0.0002	0.0002	0.0001	
ULTIMATE SHEAR STRESS, T/SQ FT		τ_{ult}				

SHEAR STRENGTH PARAMETERS

ϕ' = 18.0°

TAN ϕ' = .325

c' = 0.1 T/SQ FT

☐ CONTROLLED STRESS

☑ CONTROLLED STRAIN

TYPE OF SPECIMEN Undisturbed 3.0 IN. SQUARE 0.5 IN. THICK

CLASSIFICATION CLAY (CH)

LL 62 PL 18 PI 44 G

REMARKS

PROJECT WHITE OAK BAYOU

AREA

BORING NO. 65T-169 SAMPLE NO. X-3337

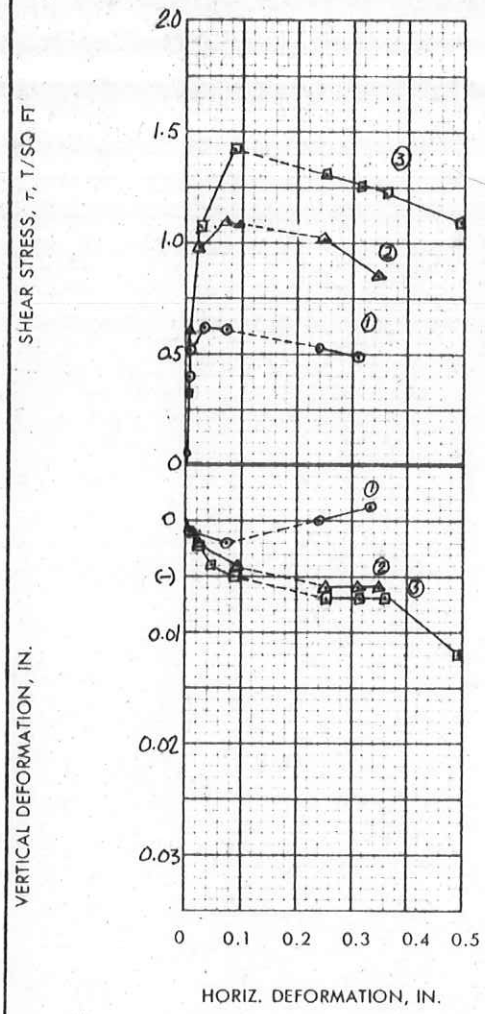
DEPTH EL 10.0-12.0 DATE JAN 67

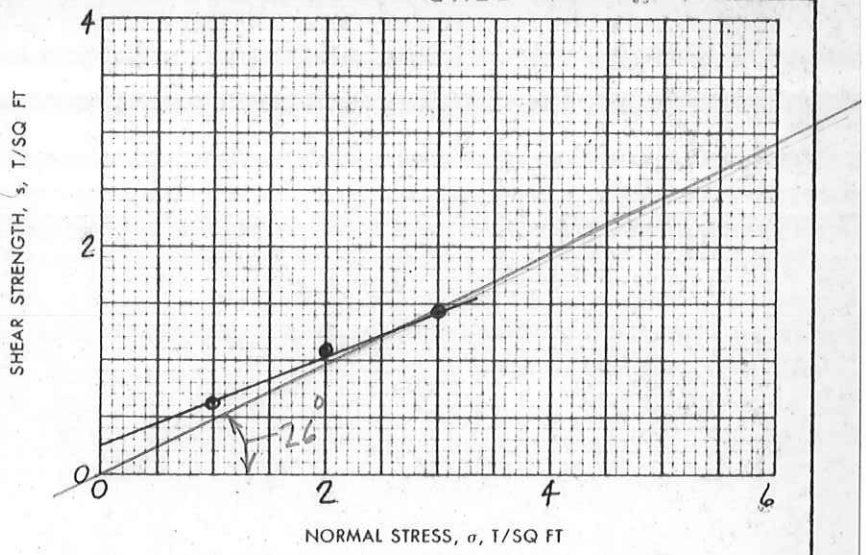
DIRECT SHEAR TEST REPORT

ENG FORM 1 JUN 65 2092 (EM 1110-2-1906) PREVIOUS EDITIONS ARE OBSOLETE (TRANSLUCENT) GPO : 1966 OF—214-945

PLATE IX-3

Plate No. 5





TEST NO.			①	②	③	
INITIAL	WATER CONTENT	w_o	25.3%	24.0%	26.3%	%
	VOID RATIO	e_o				
	SATURATION	S_o	%	%	%	%
	DRY DENSITY, LB/CU FT	γ_d	101	104	100	
VOID RATIO AFTER CONSOLIDATION		e_c				
TIME FOR 50 PERCENT CONSOLIDATION, MIN		t_{50}				
FINAL	WATER CONTENT	w_f	32.0%	27.0%	28.5%	%
	VOID RATIO	e_f				
	SATURATION	S_f	%	%	%	%
NORMAL STRESS, T/SQ FT		σ	1.0	2.0	3.0	
MAXIMUM SHEAR STRESS, T/SQ FT		τ_{max}	0.63	1.09	1.41	
ACTUAL TIME TO FAILURE, MIN		t_f	230	445	410	
RATE OF STRAIN, IN./MIN			0.0002	0.0002	0.0002	
ULTIMATE SHEAR STRESS, T/SQ FT		τ_{ult}				

SHEAR STRENGTH PARAMETERS

ϕ' = 21.3°

TAN ϕ' = .390

c' = 0.2 T/SQ FT

☐ CONTROLLED STRESS

☑ CONTROLLED STRAIN

TYPE OF SPECIMEN Undisturbed 3.0 IN. SQUARE 0.5 IN. THICK

CLASSIFICATION CLAY (CH)

LL 57 PL 20 PI 37 G_s

REMARKS

PROJECT WHITE OAK BAYOU

AREA

BORING NO. 6ST-169 SAMPLE NO. X-3352

DEPTH ~~EL~~ 50.0-52.0 DATE JAN 67

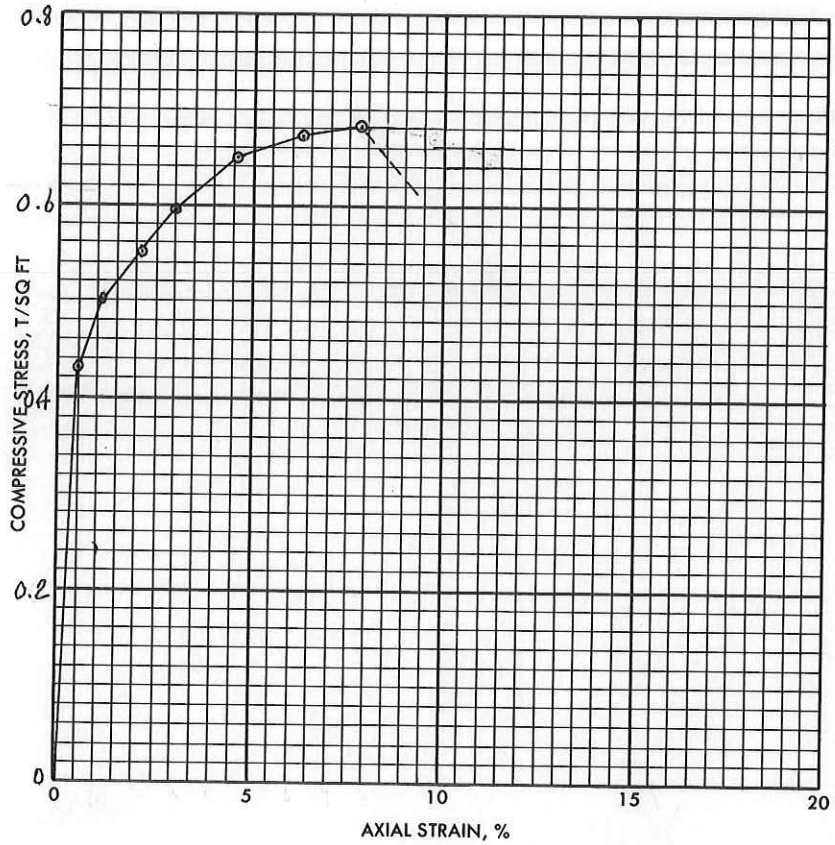
DIRECT SHEAR TEST REPORT

ENG FORM 1 JUN 65 2092 (EM 1110-2-1906) PREVIOUS EDITIONS ARE OBSOLETE (TRANSLUCENT) GPO : 1966 OF—214-945

PLATE IX-3

Plate No 6

FAILURE SKETCHES



☐ CONTROLLED STRESS

☑ CONTROLLED STRAIN
Rate 0.2 % min

TEST NO.						
TYPE OF SPECIMEN Undisturbed						
INITIAL	WATER CONTENT	w_o	27.1 %	%	%	%
	VOID RATIO	e_o				
	SATURATION	S_o	%	%	%	%
	DRY DENSITY, LB/CU FT	γ_d	97			
TIME TO FAILURE, MIN		t_f	37			
UNCONFINED COMPRESSIVE STRENGTH, T/SQ FT		q_u	0.7			
UNDRAINED SHEAR STRENGTH, T/SQ FT		s_u	0.3			
SENSITIVITY RATIO		S_t				
INITIAL SPECIMEN DIAMETER, IN		D_o	5.1			
INITIAL SPECIMEN HEIGHT, IN.		H_o	11.0			

CLASSIFICATION CLAY (CH)

LL 57 | PL 18 | PI 39 | G_s

REMARKS

PROJECT WHITE OAK BAYOU

AREA

BORING NO. 65T-169 | SAMPLE NO. X-3338

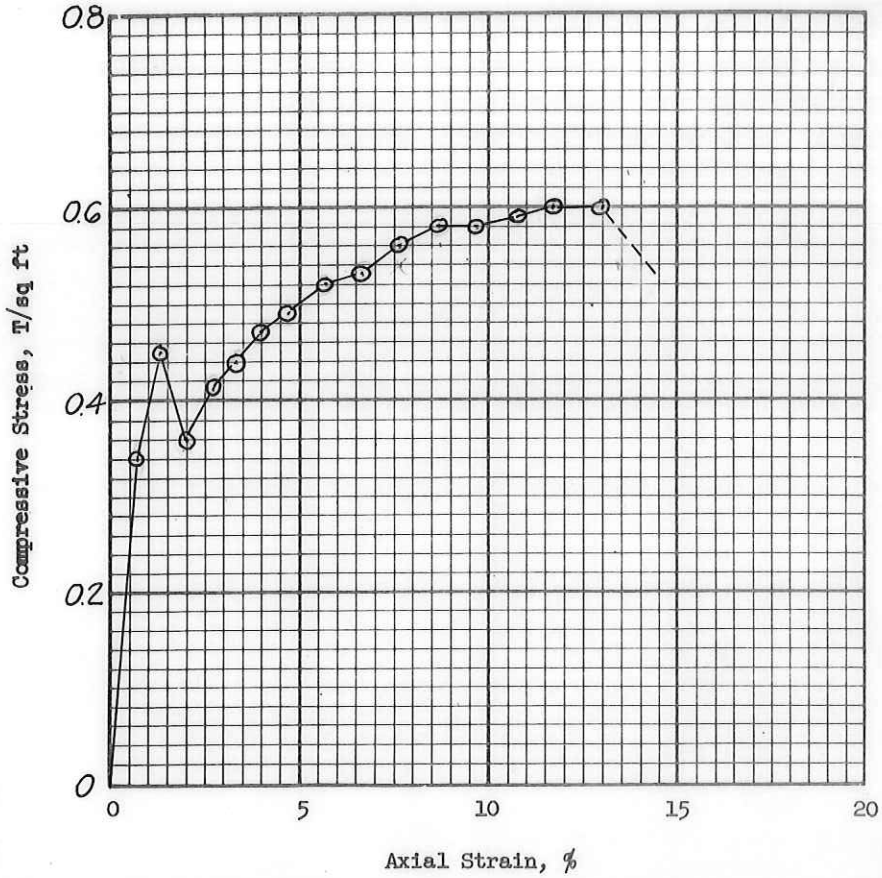
DEPTH EL 12.0-14.0 | DATE JAN 67

UNCONFINED COMPRESSION TEST REPORT

ENG FORM 1 JUN 65 **3659** *(EM 1110-2-1906)* *(TRANSLUCENT)* GPO : 1966 OF—214-946 PLATE XI-2

Plate No. 1

Failure Sketches



☐ Controlled stress

☑ Controlled strain
Rate, 0.2 %/min

Test No.						
Type of specimen Undisturbed						
Initial	Water content	w_o	22.4 %	%	%	%
	Void ratio	e_o				
	Saturation	S_o	%	%	%	%
	Dry density, lb/cu ft	γ_d	103			
Time to failure, min		t_f	67			
Unconfined compressive strength, T/sq ft		q_u	0.6			
Undrained shear strength, T/sq ft		s_u	0.3			
Sensitivity ratio		S_t				
Initial specimen diameter, in.		D_o	5.0			
Initial specimen height, in.		H_o	9.0			

Classification CLAY (CL)

LL 42 | PL 13 | PI 29 | G_s

Remarks

Project WHITE OAK BAYOU

Area

Boring No. 6ST-169 | Sample No. X-3339

Depth ~~El~~ 14.0-16.0 | Date JAN 67

UNCONFINED COMPRESSION TEST REPORT

ENG FORM 1 JUN 65 3659

PLATE XI-2

Plate No. 2

BUFFALO BAYOU, TEXAS
WHITE OAK BAYOU CHANNEL RECTIFICATION
SUMMARY OF DIRECT SHEAR TEST DATA

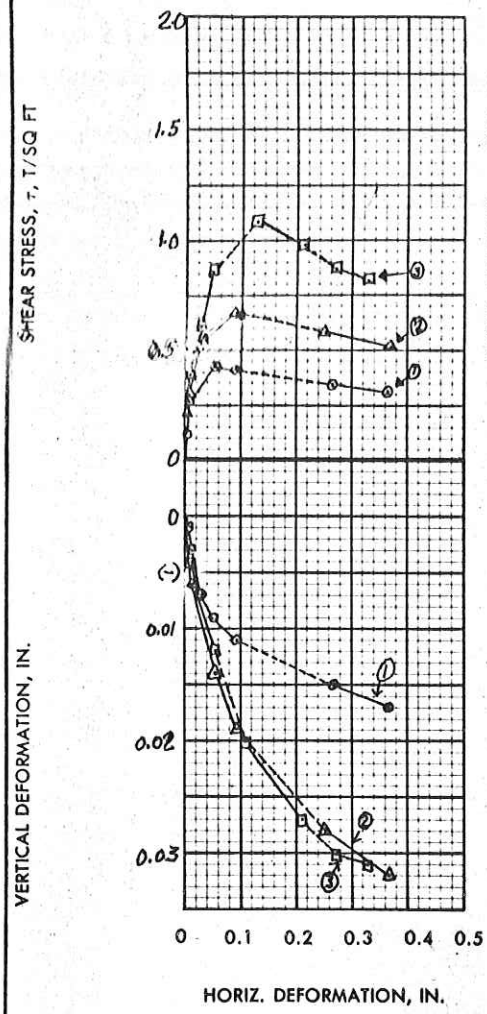
TABLE 2

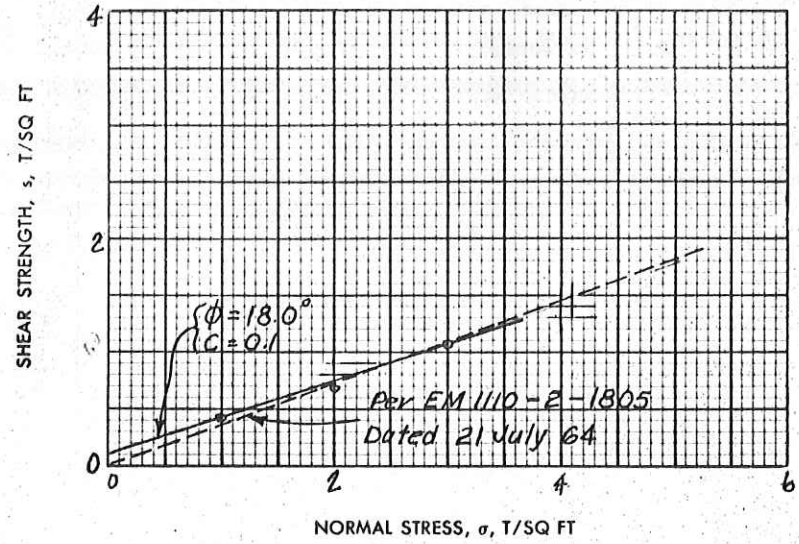
Boring Number	Depth, feet	Type of test	Density Data MC %	Density Data UDW Lbs/cu ft	Shear Data maximum Ø	Shear Data maximum C	Atterberg Limits LL	Atterberg Limits PL	Bar L.S.	Gradation Gr	Gradation Sa	Gradation Fines	Classification
6ST-27	22.0-24.0	S	16	110	31.5	0.0	32	15	7	0	25	75	Rust-tan clay (CL),v/stiff
6ST-28	10.0-12.0	S	21	103	24.5	0.0	34	13	11	0	20	80	Rust-red clay (CL), soft
6ST-29	32.0-33.0	S	23	101	26.0	0.0	62	22	20	0	0	100	Red clay (CH), v/stiff
6ST-31	14.0-16.0	S	3	109	34.2	0.0	NP	NP	2	0	60	40	Gray silty sand (SM)
6ST-31	37.5-39.0	S	25	100	35.7	0.0	35	15	-	0	5	95	Rust clay (CL),stiff
6ST-113	29.0-30.5	S	-	101	35.0	0.0	-	-	-	0	90	10	Tan silty sand (SM-SP)
	32.0-34.0												
6ST-117	6.0-8.0	S	21	106	26.0	0.0	48	19	-	2	16	82	Tan sandy clay (CL),v/stiff
6ST-117	14.0-16.0	S	19	108	35.0	0.0	39	13	-	0	21	79	Red sandy clay (CL), hard
6ST-117	24.0-26.0	S	21	104	32.6	0.0	-	-	3.0	0	11	89	Red clayey silt (CL-ML), hard
6ST-123	0.0-2.0	S	15	109	28.5	0.0	45	18	-	0	21	79	Gray sandy clay (CL), hard
6ST-123	42.0-43.5	S	24	100	27.5	0.0	57	23	-	0	0	100	Red clay (CH), very stiff
6ST-154	20.0-22.0	S	23	100	34.6	0.0	-	-	0.0	8	19	73	Red sandy silt (ML)
6ST-156	30.0-32.0	S	17	106	30.0	0.0	33	19	-	0	0	100	Red clay (CL), very stiff
6ST-157	39.0-40.0	S	32	89	25.2	0.0	68	27	-	0	0	100	Brown clay (CH), hard
6ST-159	10.0-12.0	S	12	113	28.0	0.0	27	13	-	0	30	70	Tan sandy clay (CL), hard
6ST-169	10.0-12.0	S	29	95	19.8	0.0	62	18	-	0	1	99	Brown clay (CH), stiff
6ST-169	50.0-52.0	S	25	102	25.0	0.0	57	20	-	0	2	98	Red clay (CH), hard
6ST-171	26.0-28.0	S	22	105	28.1	0.0	53	18	-	0	1	99	Red clay (CH), very stiff

BUFFALO BAYOU, TEXAS
WHITE OAK BAYOU CHANNEL RECTIFICATION
SUMMARY OF UNCONFINED COMPRESSION TEST DATA
MOUTH TO 56+50

TABLE 3

Boring Number	Depth, feet	Density Data MC %	Density Data UDW Lb/cu ft	LL	PL	Bar L.S.	Gradation Gr	Gradation Sa	Gradation Fines	% Strain @ Max stress	Max strain Lbs/sq ft	Classification
6ST-28	32.0-34.0	22	103	49	-	18	0	22	78	3.5	4239	Red sandy clay,v/stiff (CL)
6ST-30	28.0-30.0	22	105	53	-	19	0	0	100	4.9	5606	Red clay, hard (CH)
6ST-169	12.0-14.0	27	97	57	-18	+8	0	1	99	8.0	1360	Red clay, med. (CH)
6ST-169	14.0-16.0	22	103	42	-13	+3	1	12	88	11.7	1200	Red clay, med. (CL)
6ST-170	20.0-22.0	21	104	52	-15	+5	22	14	64	2.0	800	Red clay, gravelly (CH)
6ST-170	22.0-24.0	22	102	47	-14	-	20	21	59	9.3	1200	Red clay, gravelly (CL)





TEST NO.			①	②	③	
INITIAL	WATER CONTENT	w_o	28.7%	28.5%	29.3%	%
	VOID RATIO	e_o				
	SATURATION	S_o	%	%	%	%
	DRY DENSITY, LB/CU FT	γ_d	96	94	95	
VOID RATIO AFTER CONSOLIDATION		e_c				
TIME FOR 50 PERCENT CONSOLIDATION, MIN		t_{50}				
FINAL	WATER CONTENT	w_f	29.5%	28.0%	25.4%	%
	VOID RATIO	e_f				
	SATURATION	S_f	%	%	%	%
NORMAL STRESS, T/SQ FT		σ	1.0	2.0	3.0	
MAXIMUM SHEAR STRESS, T/SQ FT		τ_{max}	0.43	0.67	1.08	
ACTUAL TIME TO FAILURE, MIN		t_f	275	375	1500	
RATE OF STRAIN, IN./MIN			0.0002	0.0002	0.0002	
ULTIMATE SHEAR STRESS, T/SQ FT		τ_{ult}				

SHEAR STRENGTH PARAMETERS

ϕ' = 19.8°

TAN ϕ' = .360

c' = 0.0 T/SQ FT

☐ CONTROLLED STRESS

☑ CONTROLLED STRAIN

TYPE OF SPECIMEN Undisturbed — 3.0 IN. SQUARE — 0.5 IN. THICK

CLASSIFICATION CLAY (CH) Stiff.

LL 62 | PL 18 | PI 44 | G_s

REMARKS

PROJECT WHITE OAK BAYOU

AREA

BORING NO. 6ST-169 | SAMPLE NO. X-3337

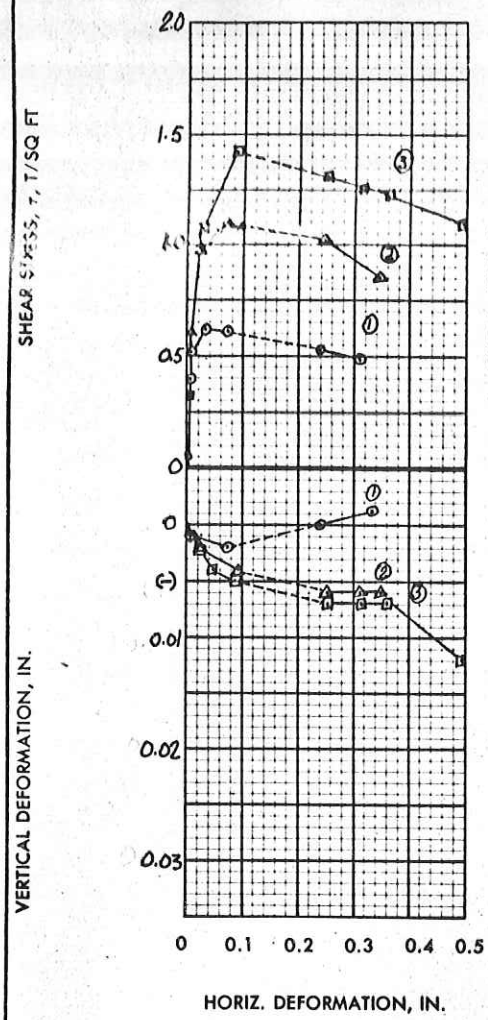
DEPTH EL 10.0-12.0 | DATE JAN 67

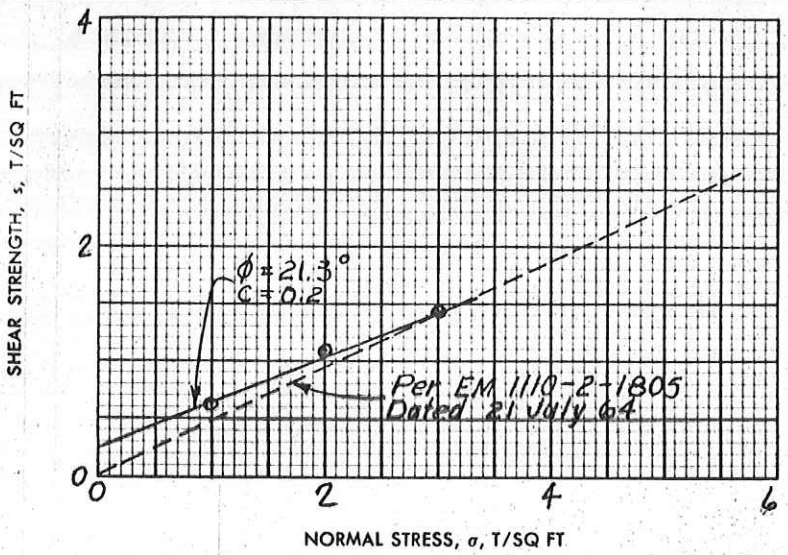
DIRECT SHEAR TEST REPORT

ENG FORM 1 JUN 65 **2092** (EM 1110-2-1906) PREVIOUS EDITIONS ARE OBSOLETE (TRANSLUCENT) GPO : 1966 OF—214-945

5D

PLATE 32





TEST NO.			①	②	③	
INITIAL	WATER CONTENT	w_o	25.3%	24.0%	26.3%	%
	VOID RATIO	e_o				
	SATURATION	S_o	%	%	%	%
	DRY DENSITY, LB/CU FT	γ_d	101	104	100	
VOID RATIO AFTER CONSOLIDATION		e_c				
TIME FOR 50 PERCENT CONSOLIDATION, MIN		t_{50}				
FINAL	WATER CONTENT	w_f	32.0%	27.0%	28.5%	%
	VOID RATIO	e_f				
	SATURATION	S_f	%	%	%	%
NORMAL STRESS, T/SQ FT		$\bar{\sigma}$	1.0	2.0	3.0	
MAXIMUM SHEAR STRESS, T/SQ FT		τ_{max}	0.63	1.09	1.41	
ACTUAL TIME TO FAILURE, MIN		t_f	230	445	410	
RATE OF STRAIN, IN./MIN			0.0002	0.0002	0.0002	
ULTIMATE SHEAR STRESS, T/SQ FT		τ_{ult}				

SHEAR STRENGTH PARAMETERS

ϕ' = 25.0°

TAN ϕ' = .446

c' = 0.0 T/SQ FT

☐ CONTROLLED STRESS

☑ CONTROLLED STRAIN

TYPE OF SPECIMEN Undisturbed — 3.0 IN. SQUARE — 0.5 IN. THICK

CLASSIFICATION CLAY (CH) Hard

LL	PL	PI		G_s
57	20	37		

REMARKS

PROJECT WHITE OAK BAYOU

AREA

BORING NO. GST-169 — SAMPLE NO. X-3352

DEPTH ~~EL~~ 50.0-52.0 — DATE JAN 67

DIRECT SHEAR TEST REPORT

ENG FORM 1 JUN 65 **2092** (EM 1110-2-1906) PREVIOUS EDITIONS ARE OBSOLETE (TRANSLUCENT) GPO : 1966 OF—214-945