

36			9		127	26		CLAY, BROWN, W/SOME SAND, STIFF
37			9					
38			10		129	24	57	CLAY, BROWN, W/SOME CALCS., STIFF
39			11	0-	37	130	23	
40	15	18						
41			12	0-	47	130	23	CLAY, BROWN, STIFF
42			13	0-	46	129	24	
43			14	0-	49	129	23	52
44			15	0-	50	129	22	
45	14	16						
46			16	0-	30	130	20	CLAY, SL. SANDY, BROWN, GRAY, STIFF
47			17	0-	45	134	17	
48			18	0-	37	135	16	29
49			19	0-	35	135	15	-BECOMES SANDY
50	17	19						
51			20				22	
52			20					
53			21				12	SAND, BROWN, DENSE
54			22				12	
55	38	41						
56								SAND, DRILLED OUT
57								DRILLERS NOTE: STONE LAYER @ 57'
58								
59								
60	50/0.75	50/1.25						
61								
62								
63								
64								
65	27	27						
66								
67								
68								
69								
70	29	27						
71								
72								
73								
74								
75	5	4						

DRILLER- MIKE BAHM

LOGGER- R. CURSON
TITLE-

BFAST

PROB (CONTD)

1737

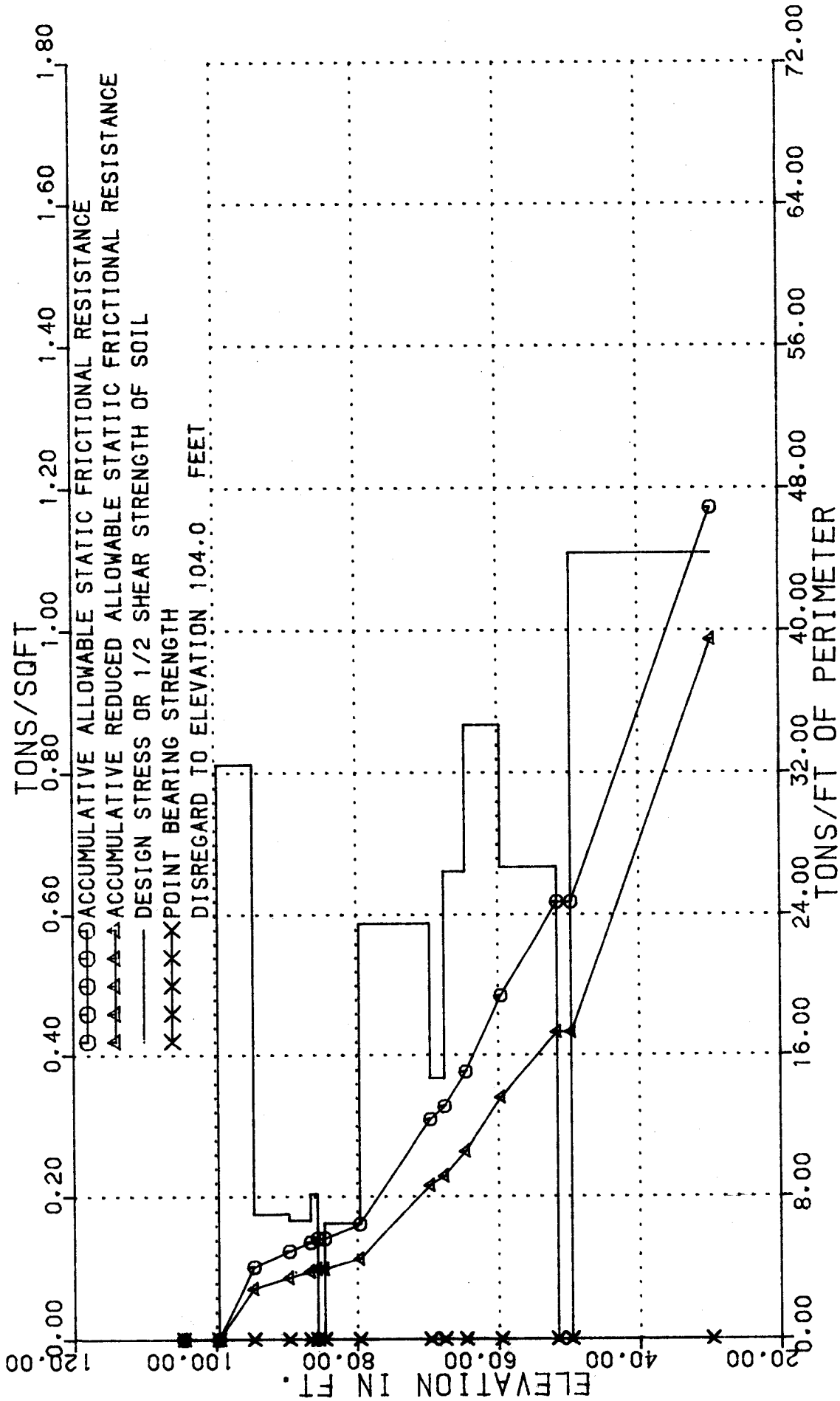
(NOTE: NO SOIL IS DISREGARDED FOR STRENGTH ANALYSIS)

SOIL STRENGTH ANALYSIS RESULTS
 DISREGARD TO ELEVATION IS 104.0 FEET

HOLE NUMBER 1

STRATA NUMBER	ELEVATION -FEET-		DESIGN STRESS OF SOIL TONS/SQFT PER STRAT	ALLOWABLE STATIC FRICTIONAL RESISTANCE (DS) TONS PER FT OF PERIMETER		REDUCED ALLOWABLE STATIC FRICTIONAL RESISTANCE			BEAR FACTOR	POINT BEARING STRENGTH SNC TONS/SQFT	TAT TO PEN RAT
	FROM	TO		PER STRAT	PER	ACCUM-ULATIVE	SR	PER STRATUM			
1	104.6	99.6	0.00	0.00	0.00	0.7	0.00	0.00	4.29	0.00	0.0
2	99.6	94.6	0.81	4.06	4.06	0.7	2.84	2.84	4.29	0.00	2.0
3	94.6	89.6	0.17	0.87	4.93	0.7	0.61	3.45	4.29	0.00	0.0
4	89.6	86.6	0.17	0.50	5.43	0.7	0.35	3.80	3.62	0.00	0.0
5	86.6	85.6	0.20	0.20	5.64	0.7	0.14	3.95	3.62	0.00	0.0
6	85.6	84.6	0.00	0.00	5.64	0.7	0.00	3.95	4.29	0.00	0.0
7	84.6	79.6	0.16	0.81	6.45	0.7	0.57	4.51	4.29	0.00	0.0
8	79.6	69.6	0.59	5.87	12.32	0.7	4.11	8.63	4.29	0.00	0.0
9	69.6	67.6	0.37	0.73	13.06	0.7	0.51	9.14	3.62	0.00	0.0
10	67.6	64.6	0.66	1.98	15.04	0.7	1.39	10.53	2.57	0.00	0.0
11	64.6	59.6	0.87	4.34	19.38	0.7	3.04	13.56	2.57	0.00	1.3
12	59.6	51.6	0.67	5.33	24.71	0.7	3.73	17.30	3.62	0.00	1.2
13	51.6	49.6	0.00	0.00	24.71	0.7	0.00	17.30	4.29	0.00	0.0
14	49.6	29.6	1.11	22.18	46.89	1.0	22.18	39.48	4.29	0.00	0.0

FOUNDING MATERIAL PROPERTIES



COUNTY	HARRIS	STRUCTURE	WILLOW FORK OF BUFFALO BAYOU	THD DIST	2
HIGHWAY NO	SH99	HOLE NO	1	DATE	1/10/88
CONTROL	3510-05-001	STATION	1391+31.20	BY	JPG
TPE		LOCATION	11.0' RT		

DRILLING LOG

COUNTY HARRIS
 HIGHWAY NO SH99
 CONTROL 3510-05-001
 IPE

STRUCTURE WILLOW FORK OF BUFFALO BAYOU
 HOLE NO 1
 STATION 1391+31.20
 LOCATION 11.0' RT

TMD DIST 2
 DATE 1/10/88
 GRD. ELEV. 104.6
 GRD. WATER ELEV. 104.6

ELEV FT.	LOG	TMD PEN. TEST NO. OF BLOWS		DESCRIPTION OF MATERIAL	METHOD OF CORING
		1ST 6"	2ND 6"		
104.6 0				SAND. NO RECOVERY	0
99.6		15 (6.0")	13 (6.0")	CLAY. SANDY. GR. TN. STIFF	
94.5 10		6 (6.0")	8 (6.0")	SAND. LT. GR. LOOSE	10
89.6		6 (6.0")	4 (6.0")	CLAY. GR. TN. SOFT	
86.6				CLAY. W/ SAND LAYER. GR. TN. SOFT	
84.6 20		11 (6.0")	7 (6.0")	SAND. WB. NO RECOVERY	20
79.6		16 (6.0")	12 (6.0")	SAND. DRILLED OUT. WB	
30		44 (6.0")	22 (6.0")		30
69.6		12 (6.0")	10 (6.0")	CLAY. BRN. W/ SOME SAND. STIFF	
67.6				CLAY. BRN. W/ SOME CALCS. STIFF	
64.6 40		15 (6.0")	18 (6.0")	CLAY. BRN. STIFF	40
59.6		14 (6.0")	16 (6.0")	CLAY. SL. SANDY. BRN. GR. STIF	
50		17 (6.0")	19 (6.0")		50
51.6				SAND. BRN. DENSE	
49.6		38 (6.0")	41 (6.0")	SAND. DRILLED OUT	
60		50 (0.7")	50 (1.2")		60
		27 (6.0")	27 (6.0")		
70		29 (6.0")	27 (6.0")		70
		5 (6.0")	4 (6.0")		
*REMARKS: NO GWE MEASURED					

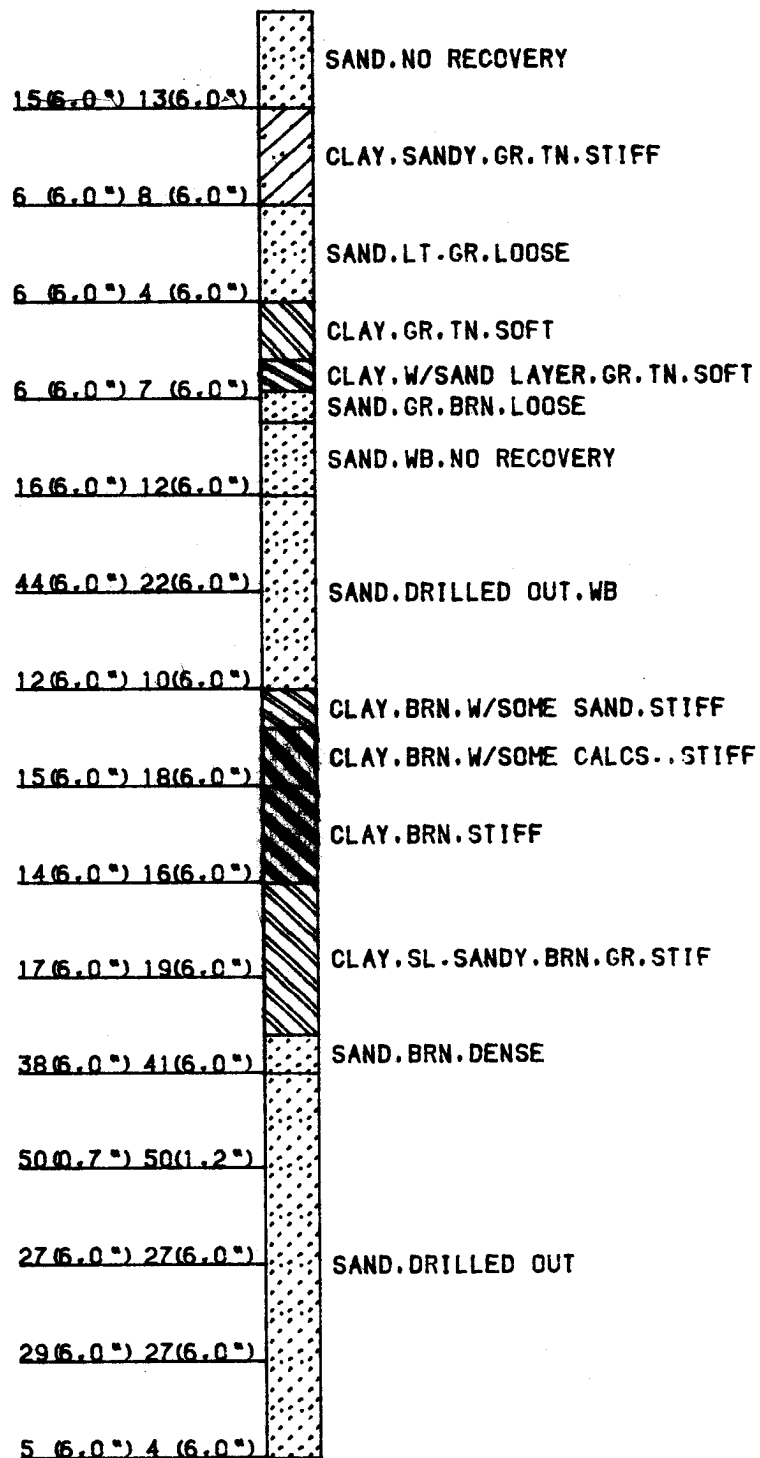
DRILLER MIKE BAHM

LOGGER R. CURSON

TITLE

TEST HOLE NO. 1

GROUND ELEV. 104.6



BFAST

PROB (CONTD)
 1737 (NOTE: NO SOIL IS DISREGARDED FOR STRENGTH ANALYSIS)

DRILLING REPORT

COUNTY-	HARRIS	STRUCTURE-	WILLOW FORK OF BUFFALO BAYOU
HIGHWAY NO.-	SH99	HOLE NO.-	2
CONTROL-	3510-05-001	STATION-	1393+46.20
PROJECT NO.-		OFFSET-	16.4' RT
DATE-	1/10/88	CODED BY-	JPG
GRD. ELEV.-	105.1	GRD. WATER ELEV.-	105.1
DISTRICT-	2		

D E F P T T . H	PEN 1ST 6IN	PEN 2ND 6IN	S A M N P O L . E	TAT LAT- ULT PSI	WET DEN PCF	MOI %	LL %	PI %	DESCRIPTION OF MATERIAL AND REMARKS
0									CLAY,SL.SANDY,DARK BROWN, SOFT
1			1			7			
2			1						
3			1						
4			1						
5	3	3							
6			2			14	25		
7			2						
8			2						SAND,LT.GRAY,SL.COMPACT
9			3			5			
10	11	13							
11			4			16			
12			4						
13			5			18			
14			6			14			
15	20	17							
16									SAND,NO RECOVERY
17									
18									
19									
20	17	16							
21									
22									
23									
24									
25	6	7							
26									
27									
28									
29									
30	50/1.25	50/3.75							
31									
32									
33									
34									
35	14	21							

36
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 38
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 40 16 15
 41 7 27
 42 7
 43 7
 44 8 0- 47 129 22 67
 45 12 16
 46 9 22
 47 9
 48 10 0- 50 137 16 38
 49 11 0- 42 131 17
 50 20 24
 51 12 19 40
 52 12
 53 12
 54 13 18
 55 19 23
 56
 57
 58
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 60 37 41
 61
 62
 63
 64
 65 48 52
 66
 67
 68
 69
 70 50/3.00 50/2.00
 71
 72
 73
 74
 75 50/6.00 50/3.00

CLAY,BROWN,STIFF

 CLAY,SILTY,GRAY,TAN,STIFF

 CLAY,SILTY,BROWN,STIFF

 CLAY,BROWN,W/SAND LAYER
 SAND,DRILLED OUT

DRILLER- MIKE BAHM

LOGGER- R. CURSON
 TITLE-

PROB (CONTD)

1737

(NOTE: NO SOIL IS DISREGARDED FOR STRENGTH ANALYSIS)

SOIL STRENGTH ANALYSIS RESULTS

HOLE NUMBER 2

STRAT NUM.	ELEVATION -FEET-		STRAT THICK NESS FEET	CEN- TROID DEPTH FEET	UNIF. SOIL CLASS	PEN TEST BLOWS/ FOOT	TEST CONST	SOIL WET			VARIANCE TAT	
	FROM	TO						COHES LBS/ SQFT	DENS LBS/ CUFT	INT. FRIC ANG.	PEAK	AVG
1	105	97	8.0	4.0	CL	6.0	60					
2	97	90	7.0	11.5	OTHE	24.0	80					
3	90	65	25.0	27.5	OTHE	71.6	80					
4	65	58	7.0	43.5	CH	29.5	50	3406	129	0.0		
5	58	55	3.0	48.5	CL			3305	134	0.0		
6	55	52	3.0	51.5	CL	44.0	60					
7	52	50	2.0	54.0	CL							
8	50	30	20.0	65.0	OTHE	115.0	80					

PROB (CONTD)

1737

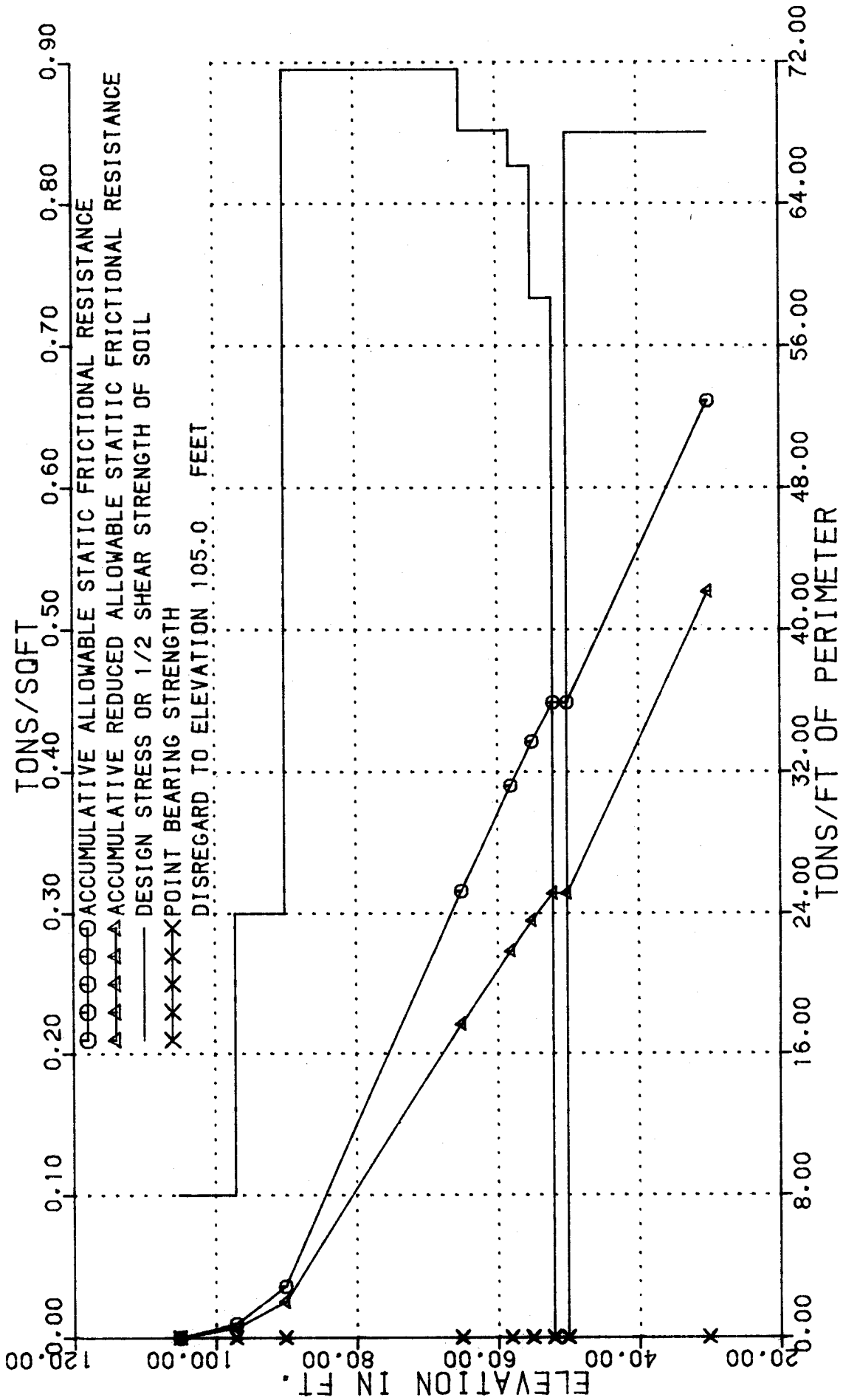
(NOTE: NO SOIL IS DISREGARDED FOR STRENGTH ANALYSIS)

SOIL STRENGTH ANALYSIS RESULTS
 DISREGARD TO ELEVATION IS 105.0 FEET

HOLE NUMBER 2

STRATA NUMBER	ELEVATION -FEET-		DESIGN STRESS TONS/SQFT PER STRAT	ALLOWABLE STATIC FRICTIONAL RESISTANCE (DS) TONS PER FT OF PERIMETER PER ACCUM-		SR	REDUCED ALLOWABLE STATIC FRICTIONAL RESISTANCE PER ACCUM-		BEAR FACTOR NC	POINT BEARING STRENGTH SNC TONS/SQFT	TAT TO PEN RAT
	FROM	TO		STRATUM	ULATIVE		STRATUM	ULATIVE			
1	105.1	97.1	0.10	0.80	0.79	0.7	0.56	0.55	3.62	0.00	0.0
2	97.1	90.1	0.30	2.10	2.89	0.7	1.47	2.02	4.29	0.00	0.0
3	90.1	65.1	0.89	22.37	25.26	0.7	15.66	17.69	4.29	0.00	0.0
4	65.1	58.1	0.85	5.96	31.22	0.7	4.17	21.86	2.57	0.00	1.4
5	58.1	55.1	0.83	2.48	33.70	0.7	1.74	23.59	3.62	0.00	0.0
6	55.1	52.1	0.73	2.20	35.90	0.7	1.54	25.13	3.62	0.00	0.0
7	52.1	50.1	0.00	0.00	35.90	0.7	0.00	25.13	3.62	0.00	0.0
8	50.1	30.1	0.85	17.00	52.90	1.0	17.00	42.13	4.29	0.00	0.0

FOUNDING MATERIAL PROPERTIES



COUNTY	HARRIS	STRUCTURE	WILLOW FORK OF BUFFALO BAYOU	THD DIST	2
HIGHWAY NO	SH99	HOLE NO	2	DATE	1/10/88
CONTROL	3510-05-001	STATION	1393+46.20	BY	JPG
IPE		LOCATION	16.4' RT		

DRILLING LOG

COUNTY HARRIS
 HIGHWAY NO SH99
 CONTROL 3510-05-001
 IPE

STRUCTURE WILLOW FORK OF BUFFALO BAYOU
 HOLE NO 2
 STATION 1393+46.20
 LOCATION 16.4' RT

THD DIST 2
 DATE 1/10/88
 GRD. ELEV. 105.1
 GRD. WATER ELEV. 105.1

ELEV FT.	LOG	THD PEN. TEST NO. OF BLOWS		DESCRIPTION OF MATERIAL	METHOD OF CORING
		1ST 6"	2ND 6"		
105.1	0			CLAY, SL. SANDY, DK. BRN. SOFT	0
		3 (6.0")	3 (6.0")		
97.1	10	11 (6.0")	13 (6.0")	SAND, LT. GR. SL. COMPACT	10
90.1		20 (6.0")	17 (6.0")	SAND, DRILLED OUT	
20		17 (6.0")	16 (6.0")		20
		6 (6.0")	7 (6.0")		
30		50 (1.2")	50 (3.7")		30
		14 (6.0")	21 (6.0")		
65.1	40	16 (6.0")	15 (6.0")	CLAY, BROWN, STIFF	40
		12 (6.0")	16 (6.0")		
58.1				CLAY, SILTY, GR. TAN, STIFF	
55.1	50	20 (6.0")	24 (6.0")	CLAY, SILTY, BRN. STIFF	50
52.1				CLAY, BRN. W/SAND LAYER	
50.1		19 (6.0")	23 (6.0")	SAND, DRILLED OUT	
60		37 (6.0")	41 (6.0")		60
		48 (6.0")	52 (6.0")		
70		50 (3.0")	50 (2.0")		70
		50 (6.0")	50 (3.0")		
*REMARKS: NO GWE MEASURED					

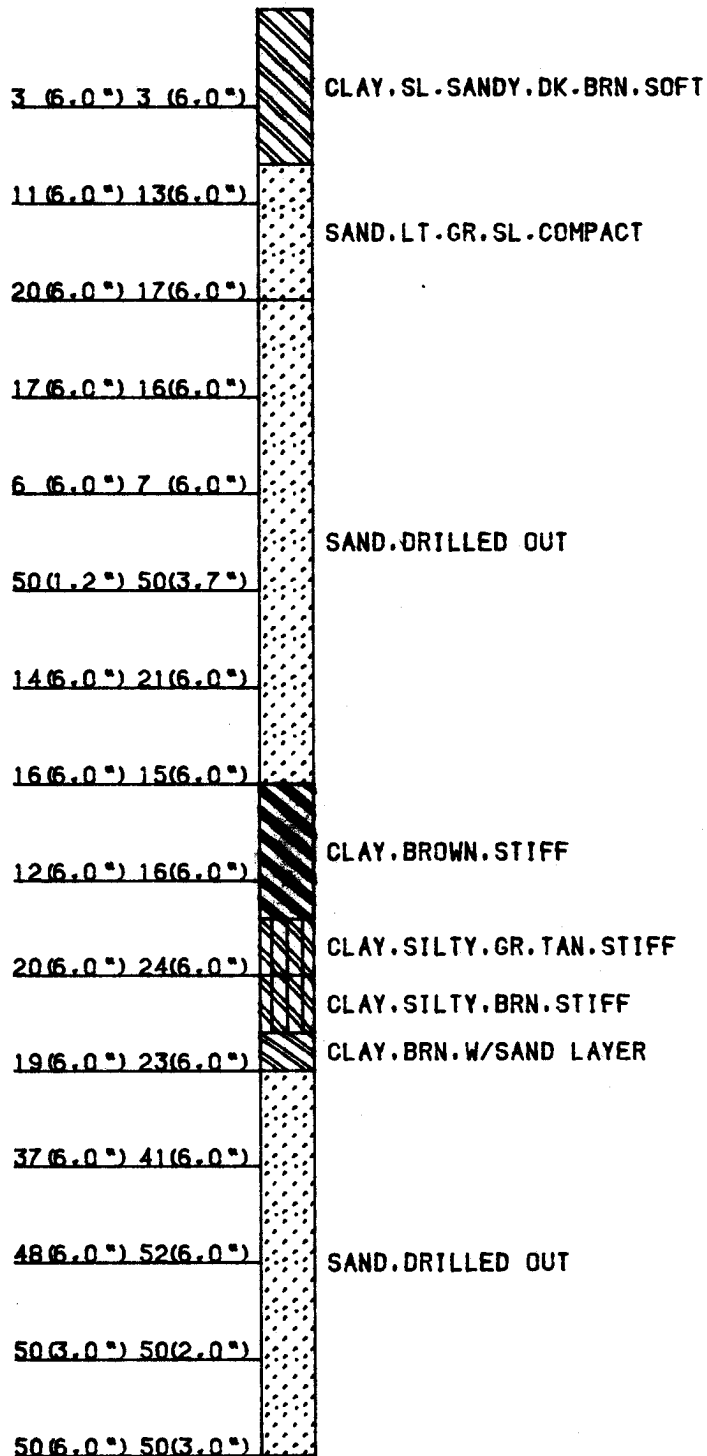
DRILLER MIKE BAHM

LOGGER R. CURSON

TITLE

TEST HOLE NO. 2

GROUND ELEV. 105.1



PROB (CONTD)

1737

(NOTE: NO SOIL IS DISREGARDED FOR STRENGTH ANALYSIS)

DRILLING REPORT

COUNTY-	HARRIS	STRUCTURE-	WILLOW FORK OF BUFFALO BAYOU
HIGHWAY NO.-	SH99	HOLE NO.-	3
CONTROL-	3510-05-001	STATION-	1396+29.00
PROJECT NO.-		OFFSET-	0.1' RT
DATE-	1/10/88	CODED BY-	JPG
GRD. ELEV.-	106.3	GRD. WATER ELEV.-	106.3
DISTRICT-	2		

D E F P T T . H	PEN 1ST 6IN	PEN 2ND 6IN	S A M N P O L . E	TAT LAT- ULT PSI	WET DEN PCF	MOI %	LL %	PI %	DESCRIPTION OF MATERIAL AND REMARKS
0									SAND-CLAY MIXTURE, TAN, BROWN
1			1			11	20		
2			1						
3			1						
4			1						
5	11	13							
6			2			13			
7			2						CLAY, BROWN, W/SAND POCKETS, STIFF
8			3	0-	31	140	13		
9			4	0-	31	136	11	32	
10	13	13							
11			5			11			
12			5						
13			6			15			SAND, GRAY, SL. COMPACT
14			7			16			
15	15	15							
16									SAND, NO RECOVERY
17									
18									
19									
20	38	16							
21									
22									
23									
24									
25	36	20							
26									
27									
28									
29									
30	16	13							
31									
32									
33									
34									
35	15	10							

36			8		22		CLAY, SILTY, BROWN
37			8				SAND, BRN, W/SANDSTN LAYER, SL. COMPACT
38			9		18	28	
39			10		20		
40	14	17					
41			11	0-	38 125 28		CLAY, BROWN, W/CALCS. NODS., STIFF
42			12	0-	27 127 26		
43			13	0-	51 127 22		CLAY, BROWN, STIFF
44			14	0-	52 131 21	53	
45	15	21					
46			15	0-	51 137 16		CLAY, SL. SANDY, TAN, BROWN, STIFF
47			16	0-	52 137 16		
48			17	0-	51 136 16		
49			18	0-	44 136 16	23	
50	50/2.00	50/2.25					
51							SAND, DRILLED OUT
52							
53							
54							
55	50/5.75	46/6.25					
56							
57							
58							
59							
60	28	32					
61							
62							
63							
64							
65	30	31					
66							
67							
68							
69							
70	33	37					
71							
72							
73							
74							
75	50/6.00	50/4.50					

DRILLER- MIKE BAHM

LOGGER- R. CURSON
TITLE-

PROB (CONTD)

1737 (NOTE: NO SOIL IS DISREGARDED FOR STRENGTH ANALYSIS)

SOIL STRENGTH ANALYSIS RESULTS

HOLE NUMBER 3

STRAT NUM.	ELEVATION -FEET-		STRAT THICK NESS FEET	CEN- TROID DEPTH FEET	UNIF. SOIL CLASS	PEN TEST BLOWS/ FOOT	TEST CONST	SOIL WET			VARIANCE TAT			
	FROM	TO						COHES LBS/ SQFT	DENS LBS/ CUFT	INT. FRIC ANG.	PEAK	AVG	RATIO	
1	106	99	7.0	3.5	OTHE	24.0	80							
2	99	93	6.0	10.0	CL	26.0	60	2257	138	0.0				
3	93	91	2.0	14.0	OTHE									
4	91	71	20.0	25.0	OTHE	42.3	80							
5	71	69	2.0	36.0	CL	25.0	60							
6	69	66	3.0	38.5	OTHE									
7	66	64	2.0	41.0	CL	31.0	60	2758	125	0.0				
8	64	61	3.0	43.5	CH			3125	128	0.0	8.4	5.6	3.3	
9	61	56	5.0	47.5	CL	36.0	60	3560	136	0.0	2.8	1.4	4.0	
10	56	31	25.0	62.5	OTHE	113.9	80							

PROB (CONTD)
 1737

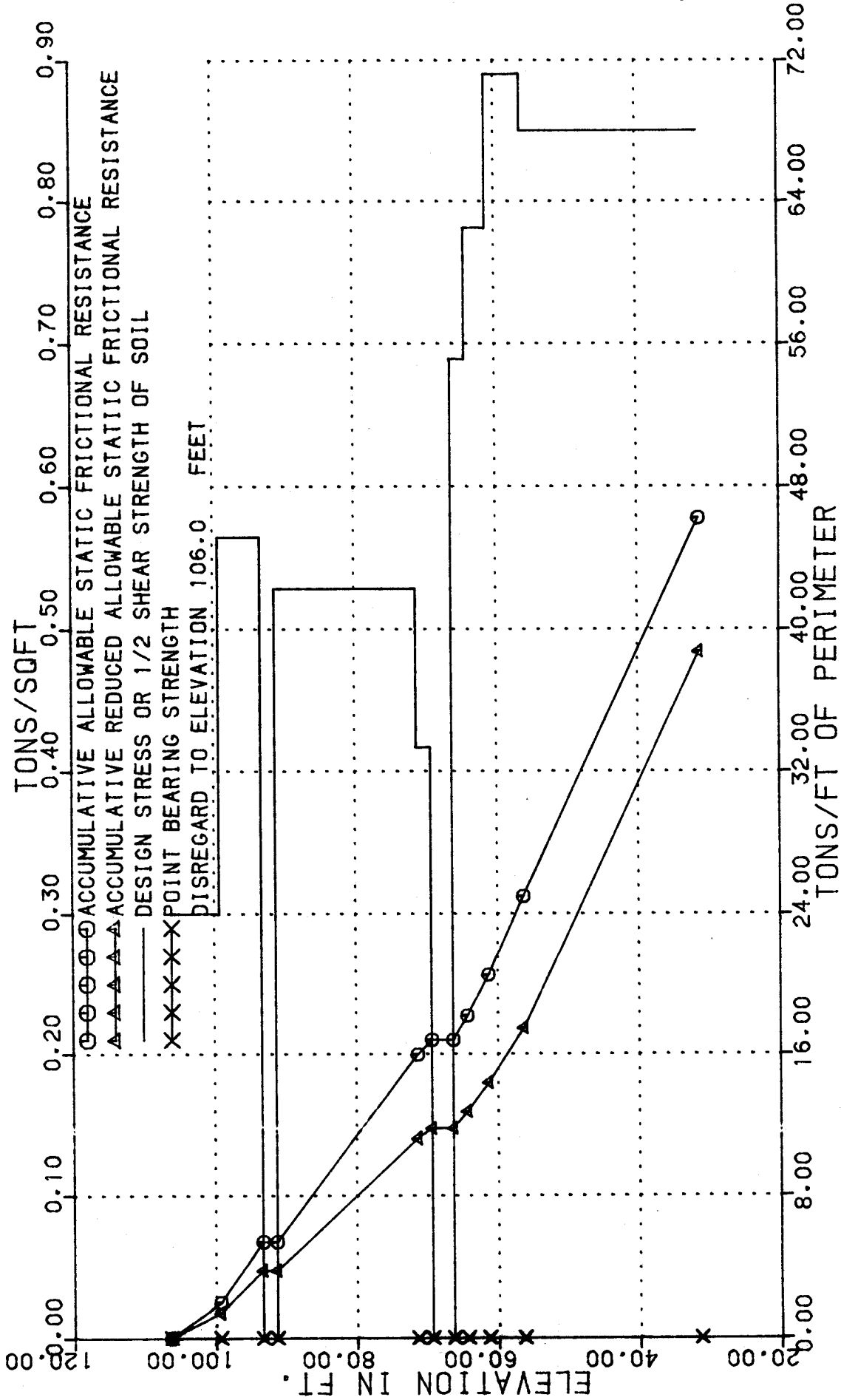
(NOTE: NO SOIL IS DISREGARDED FOR STRENGTH ANALYSIS)

SOIL STRENGTH ANALYSIS RESULTS
 DISREGARD TO ELEVATION IS 106.0 FEET

HOLE NUMBER 3

STRATA NUMBER	ELEVATION -FEET-		DESIGN STRESS OF SOIL TONS/SQFT PER STRAT	ALLOWABLE STATIC FRICTIONAL RESISTANCE (DS) TONS PER FT OF PERIMETER		SR	REDUCED ALLOWABLE STATIC FRICTIONAL RESISTANCE PER STRATUM		BEAR FACTOR NC	POINT BEARING STRENGTH SNC TONS/SQFT	TAT TO PEN RAT
	FROM	TO		PER STRATUM	ACCUM-ULATIVE		PER STRATUM	ACCUM-ULATIVE			
7 1	106.3	99.3	0.30	2.10	2.01	0.7	1.47	1.41	4.29	0.00	0.0
6 2	99.3	93.3	0.56	3.39	5.40	0.7	2.37	3.78	3.62	0.00	1.3
2 3	93.3	91.3	0.00 0.38	0.00 0.76	5.40 6.16	0.7	0.00	3.78	4.29	0.00	0.0
20 4	91.3	71.3	0.53	10.56	15.96 16.72	0.7	7.39	11.17	4.29	0.00	0.0
2 5	71.3	69.3	0.42	0.83	16.79 17.55	0.7	0.58	11.75	3.62	0.00	0.0
3 6	69.3	66.3	0.00 0.39	0.00 1.71	16.79 18.72	0.7	0.00	11.75	4.29	0.00	0.0
2 7	66.3	64.3	0.69	1.38	18.17 20.10	0.7	0.97	12.72	3.62	0.00	1.3
8	64.3	61.3	0.78	2.34	20.51 22.44	0.7	1.64	14.36	2.57	0.00	0.0
9	61.3	56.3	0.89	4.45	24.97 26.89	0.7	3.12	17.48	3.62	0.00	1.5
10	56.3	31.3	0.85	21.25	46.22 48.14	1.0	21.25	38.73	4.29	0.00	0.0

FOUNDING MATERIAL PROPERTIES



COUNTY	HARRIS	STRUCTURE	WILLOW FORK OF BUFFALO BAYOU	THD DIST	2
HIGHWAY NO	SH99	HOLE NO	3	DATE	1/10/88
CONTROL	3510-05-001	STATION	1396+29.00	BY	JPG
IPE		LOCATION	0.1' RT		

DRILLING LOG

COUNTY HARRIS
 HIGHWAY NO SH99
 CONTROL 3510-05-001
 TPE

STRUCTURE WILLOW FORK OF BUFFALO BAYOU
 HOLE NO 3
 STATION 1396+29.00
 LOCATION 0.1' RT

TWD DIST 2
 DATE 1/10/88
 GRD. ELEV. 106.3
 GRD-WATER ELEV. 106.3

ELEV FT.	LOG	TWD PEN. TEST NO. OF BLOWS		DESCRIPTION OF MATERIAL	METHOD OF CORING
		1ST 6"	2ND 6"		
106.3	0			SAND-CLAY MIX. TN. BRN	0
		11 (6.0")	13 (6.0")		
99.3				CLAY. BRN. W/SAND POCKETS. STIFF	10
10		13 (6.0")	13 (6.0")		
93.3				SAND. GR. SL. COMPACT	
91.3		15 (6.0")	15 (6.0")	SAND. DRILLED OUT	
20		38 (6.0")	16 (6.0")		20
		36 (6.0")	20 (6.0")		
30		16 (6.0")	13 (6.0")		30
71.3		15 (6.0")	10 (6.0")	CLAY. SILTY. BRN	
69.3				SAND. BRN. W/SANDSTONE LAYER	
66.3	40	14 (6.0")	17 (6.0")	CLAY. BRN. W/CALCS. NODS. STIFF	40
64.3				CLAY. BRN. STIFF	
61.3		15 (6.0")	21 (6.0")	CLAY. SL. SANDY. BRN. TAN. STIFF	
56.3	50	50 (2.0")	50 (2.2")	SAND. DRILLED OUT	50
		50 (5.7")	46 (6.2")		
60		28 (6.0")	32 (6.0")		60
		30 (6.0")	31 (6.0")		
70		33 (6.0")	37 (6.0")		70
		50 (6.0")	50 (4.5")		
*REMARKS: NO GWE MEASURED					

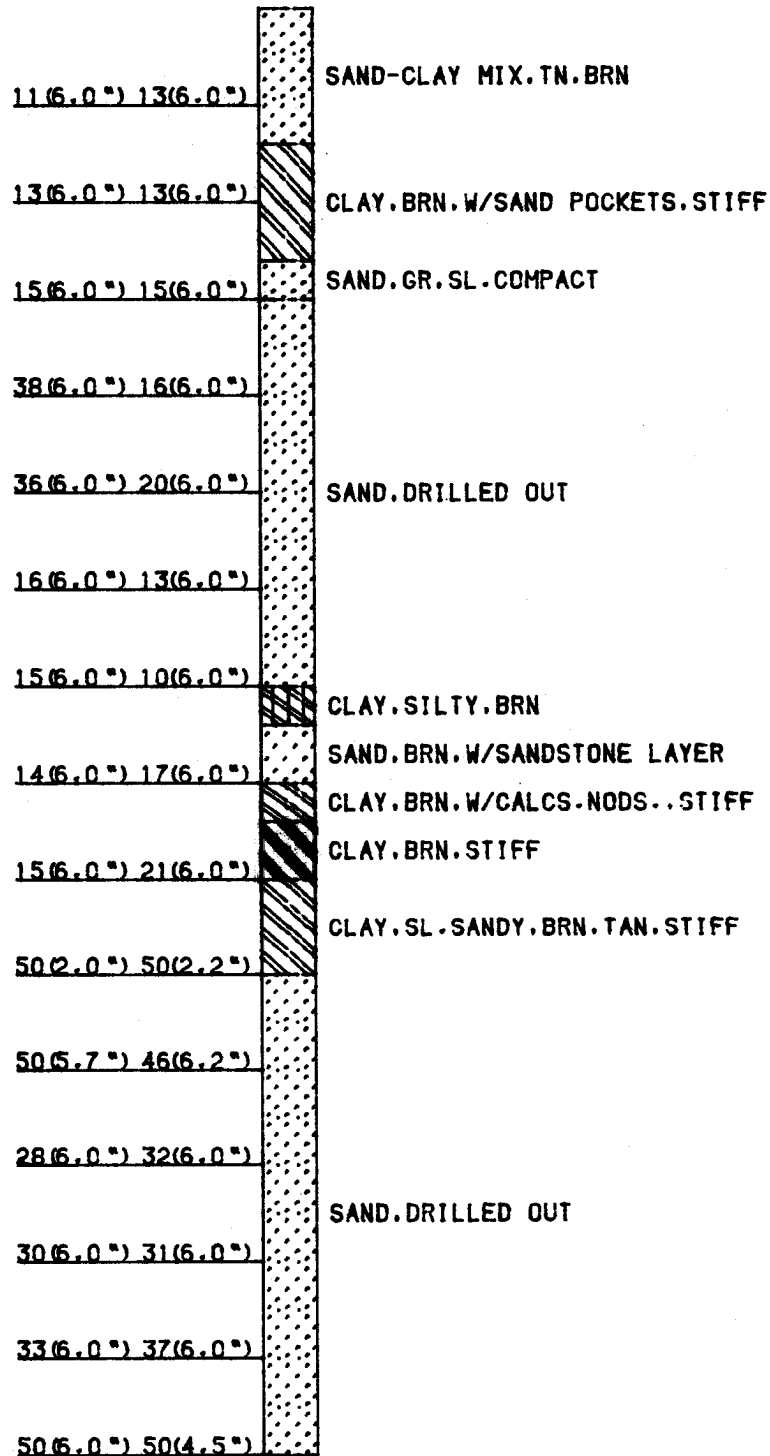
DRILLER MIKE BAHM

LOGGER R. CURSON

TITLE

TEST HOLE NO. 3

GROUND ELEV. 106.3



36
 37
 38
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 40 11 12
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 45 16 17
 46 12 24
 47 12
 48 13 21 58
 49 14 19
 50 38/6.00 62/5.00
 51 15 19
 52 15
 53 16 0- 15 139 13 26
 54 17 0- 33 136 14
 55 50/3.50 50/2.50
 56
 57
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 60 22 35
 61
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 65 20 26
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 67
 68
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 70 6 5
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 74
 75 18 56
 76
 77
 78
 79
 80 50/2.50 50/6.00

CLAY, BROWN, STIFF

CLAY, BROWN, W/SOME CALCS., STIFF

CLAY, SL. SANDY, BROWN, W/CALCS., STIFF

SAND, DRILLED OUT

DRILLER- MIKE BAHM

LOGGER- R. CURSON
TITLE-

PROB (CONTD)

1737

(NOTE: NO SOIL IS DISREGARDED FOR STRENGTH ANALYSIS)

SOIL STRENGTH ANALYSIS RESULTS

HOLE NUMBER 4

STRAT NUM.	ELEVATION -FEET-		STRAT THICK NESS FEET	CEN- TROID DEPTH FEET	UNIF. SOIL CLASS	PEN TEST BLOWS/ FOOT	SOIL WET TEST CONST	COHES LBS/ SQFT	DENS LBS/ CUFT	INT. FRIC ANG.	VARIANCE TAT ----- PEAK AVG RATIO	
	FROM	TO									PEAK	AVG
1	108	98	10.0	5.0	OTHE	13.0	80	1195	139	0.0		
2	98	91	7.0	13.5	SC	19.0	70	1174	139	0.0		
3	91	88	3.0	18.5	OTHE							
4	88	65	23.0	31.5	OTHE	17.8	80					
5	65	61	4.0	45.0	CH	33.0	50					
6	61	58	3.0	48.5	CH							
7	58	53	5.0	52.5	CL	109.1	60	1753	137	0.0		
8	53	33	20.0	65.0	OTHE	78.5	80					

BFAST

PROB (CONTD)

1737

(NOTE: NO SOIL IS DISREGARDED FOR STRENGTH ANALYSIS)

SOIL STRENGTH ANALYSIS RESULTS
 DISREGARD TO ELEVATION IS 107.0 FEET

HOLE NUMBER 4

STRATA NUMBER	ELEVATION -FEET-		DESIGN STRESS OF SOIL TONS/SQFT PER STRAT	ALLOWABLE STATIC FRICTIONAL RESISTANCE (DS) TONS PER FT OF PERIMETER PER ACCUM-		SR	REDUCED ALLOWABLE STATIC FRICTIONAL RESISTANCE ----- PER ACCUM-		BEAR FACTOR NC	POINT BEARING STRENGTH SNC TONS/SQFT	TAT TO PEN RAT
	FROM	TO		STRATUM	ULATIVE		STRATUM	ULATIVE			
1	107.7	97.7	0.30	2.99	2.78	0.7	2.09	1.95	4.29	0.00	1.8
2	97.7	90.7	0.29	2.05	4.83	0.7	1.44	3.38	4.29	0.00	1.1
3	90.7	87.7	0.00	0.00	4.83	0.7	0.00	3.38	4.29	0.00	0.0
4	87.7	64.7	0.22	5.12	9.95	0.7	3.58	6.97	4.29	0.00	0.0
5	64.7	60.7	0.66	2.64	12.59	0.7	1.85	8.81	2.57	0.00	0.0
6	60.7	57.7	0.00	0.00	12.59	0.7	0.00	8.81	2.57	0.00	0.0
7	57.7	52.7	0.44	2.19	14.78	1.0	2.19	11.01	3.62	0.00	0.5
8	52.7	32.7	0.98	19.62	34.41	0.7	13.74	24.74	4.29	0.00	0.0

DRILLING LOG

COUNTY HARRIS
 HIGHWAY NO SH99
 CONTROL 3510-05-001
 TPE

STRUCTURE WILLOW FORK OF BUFFALO BAYOU
 HOLE NO 4
 STATION 1400+59.70
 LOCATION 112.8' LT

TWD DIST 2
 DATE 1/10/88
 GRD. ELEV. 107.7
 GRD. WATER ELEV. 107.7

ELEV FT.	LOG	TWD PEN. TEST NO. OF BLOWS		DESCRIPTION OF MATERIAL	METHOD OF CORING
		1ST 6"	2ND 6"		
107.7	0			SAND, W/SOME CLAY, GREY, LOOSE	0
		7 (6.0")	6 (6.0")		
97.7	10	7 (6.0")	8 (6.0")	SAND-CLAY MIX, GR. BRN	10
		7 (6.0")	16 (6.0")		
90.7	20			SAND, LT. GREY, LOOSE	20
87.7		6 (6.0")	6 (6.0")	SAND, DRILLED OUT	
	30	8 (6.0")	8 (6.0")		
		12 (6.0")	12 (6.0")		
	40	7 (6.0")	7 (6.0")		
		11 (6.0")	12 (6.0")		
64.7	50	16 (6.0")	17 (6.0")	CLAY, BRN, STIFF	
60.7		38 (6.0")	62 (5.0")	CLAY, BRN, W/SOME CALCS., STIFF	50
57.7	60			CLAY, SL. SANDY, BRN, W/CALCS., STIFF	
52.7		50 (3.5")	50 (2.5")	SAND, DRILLED OUT	
	70	22 (6.0")	35 (6.0")		60
		20 (6.0")	26 (6.0")		
		6 (6.0")	5 (6.0")		70
		18 (6.0")	56 (6.0")		
*REMARKS: NO GWT MEASURED 30.0 - 57.0 - 59.0 - 60.0					

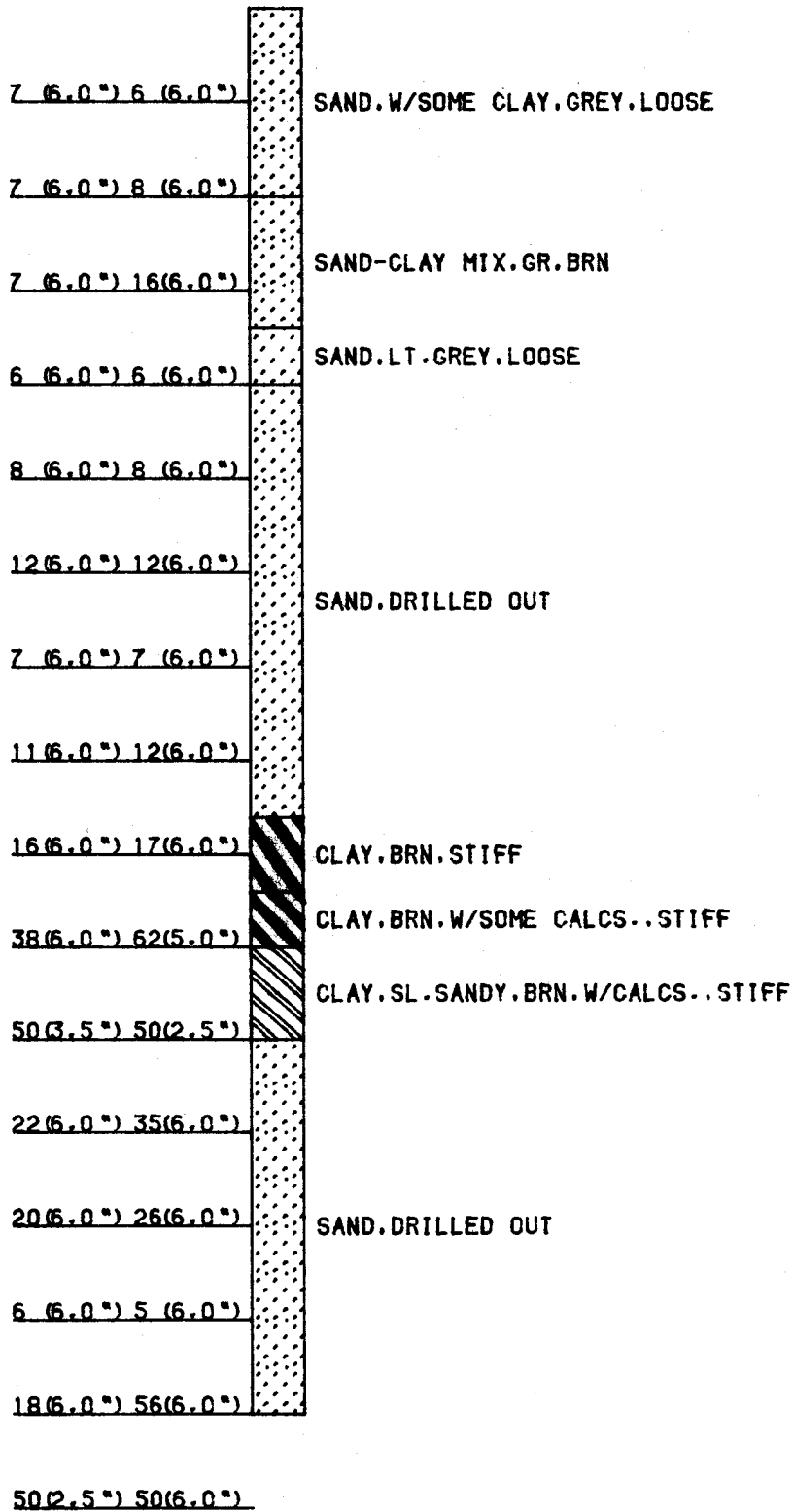
DRILLER MIKE BAHM

LOGGER R. CURSON

TITLE

TEST HOLE NO. 4

GROUND ELEV. 107.7



January 11, 1989

MEMORANDUM TO: Mr. Martin Brown, P.E.

FROM: *For* Michael K. Ho, P.E. *JKH*

SUBJECT: Soil Test Reports
CSJ: 3510-04-001
3510-05-001
SH 99 - 0.4 Mi S. of FM 1093 to
0.1 Mi S. of IH 10
Ft. Bend/Harris Co.

Attached for your use and further handling are three soil test reports (two copies each) for the subject project. Two of the reports are for the test holes at Cinco Blvd. and the other test hole is located at the Willow Fork of Buffalo Bayou.

These three test hole reports are the final reports for this project. Test hole drilling for this project is now complete.

if you have any further questions, please contact John P. Gianotti at Ext. 617.

JPG:en
Attachments

36			18		117	26	
37			19	0-	15	113	23 32
38			20				25
39			21				22
40	12	15					
41			22	0-	51	134	20 43
42			23	0-	51	133	19
43			24	0-	49	133	18
44			25	0-	49	135	18
45	21	25					
46			26				20
47			27				18
48			28	0-	51	133	23
49			29				22 43
50	17	23					
51			30			134	16
52			30				
53			31			131	16 26
54			32				15
55	50/3.00	50/1.50					
56							
57							
58							
59							
60	47/6.00	53/5.25					
61							
62							
63							
64							
65	24	38					
66							
67							
68							
69							
70	47/6.00	53/3.00					
71							
72							
73							
74							
75	50/2.00	50/2.75					

CLAY, SILTY, BROWN, GRAY, STIFF



-W/SOME CALCS @ 41'

CLAY, SILTY, BROWN, W/CALCS, STIFF

SAND, CLAYEY, BROWN, DENSE

-W/CALCS NODS @ 53'
-W/CALCS @ 54'

SAND, DRILLED OUT

DRILLER- MIKE BAHM

LOGGER- R. CURSON
TITLE-

PROB (CONTD)

1812

(NOTE: NO SOIL IS DISREGARDED FOR STRENGTH ANALYSIS)

SOIL STRENGTH ANALYSIS RESULTS

HOLE NUMBER 5

STRAT NUM.	ELEVATION -FEET-		STRAT THICK NESS FEET	CEN- TROID DEPTH FEET	UNIF. SOIL CLASS	PEN TEST BLOWS/ FOOT	TEST CONST	SOIL WET		INT. FRIC ANG.	VARIANCE TAT		
	FROM	TO						COHES LBS/ SQFT	DENS LBS/ CUFT		PEAK	AVG	RATIO
1	108	98	10.0	5.0	OTHE	12.0	80	1087	137	0.0	2.3	1.0	5.1
2	98	93	5.0	12.5	SC	13.0	70	1394	137	0.0	0.4	0.2	3.4
3	93	85	8.0	19.0	CH	13.0	50	1572	124	0.0	2.1	1.4	3.5
4	85	83	2.0	24.0	OTHE			792	122	0.0			
5	83	73	10.0	30.0	OTHE	20.0	80						
6	73	63	10.0	40.0	CL	23.5	60	3084	130	0.0	14.0	5.6	4.5
7	63	58	5.0	47.5	CL	46.0	60	3694	133	0.0			
8	58	53	5.0	52.5	SC	40.0	70						
9	53	43	10.0	60.0	OTHE	186.7	80						
10	43	33	10.0	70.0	OTHE	97.7	80						

PROB (CONTD)

1812

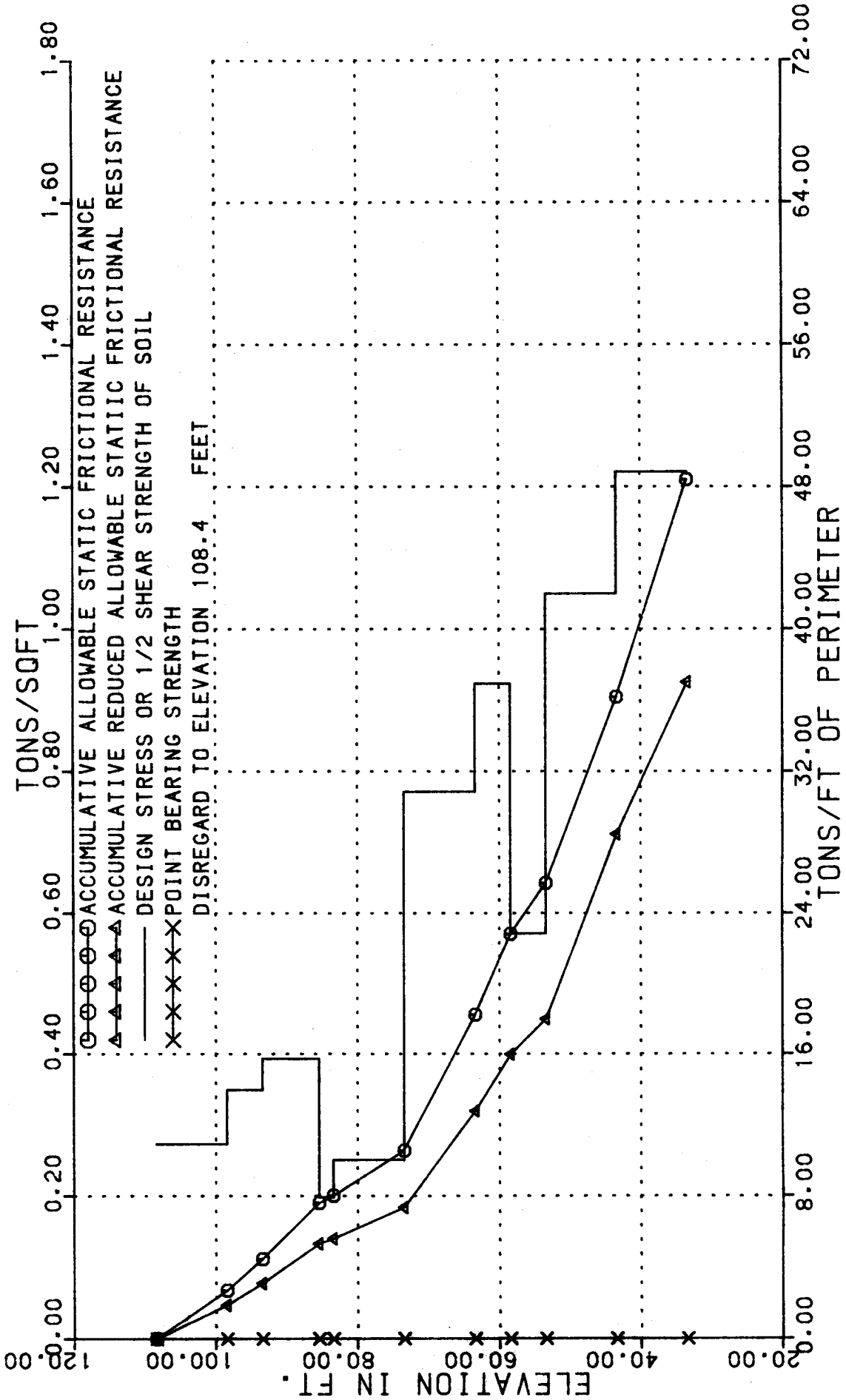
(NOTE: NO SOIL IS DISREGARDED FOR STRENGTH ANALYSIS)

SOIL STRENGTH ANALYSIS RESULTS
 DISREGARD TO ELEVATION IS 108.4 FEET

HOLE NUMBER 5

STRATA NUMBER	ELEVATION -FEET-		DESIGN STRESS OF SOIL TONS/SQFT PER STRAT	ALLOWABLE STATIC FRICTIONAL RESISTANCE (DS) TONS PER FT OF PERIMETER PER ACCUM-		SR	REDUCED ALLOWABLE STATIC FRICTIONAL RESISTANCE PER ACCUM-		BEAR FACTOR NC	POINT BEARING STRENGTH SNC TONS/SQFT	TAT TO PEN RAT
	FROM	TO		PER	ACCUM-		PER	ACCUM-			
1	108.4	98.4	0.27	2.72	2.72	0.7	1.90	1.90	4.29	0.00	1.8
2	98.4	93.4	0.35	1.74	4.46	0.7	1.22	3.12	4.29	0.00	1.9
3	93.4	85.4	0.39	3.14	7.61	0.7	2.20	5.32	2.57	0.00	1.5
4	85.4	83.4	0.20	0.40	8.00	0.7	0.28	5.60	4.29	0.00	0.0
5	83.4	73.4	0.25	2.50	10.50	0.7	1.75	7.35	4.29	0.00	0.0
6	73.4	63.4	0.77	7.71	18.21	0.7	5.40	12.75	3.62	0.00	2.0
7	63.4	58.4	0.92	4.62	22.83	0.7	3.23	15.98	3.62	0.00	1.2
8	58.4	53.4	0.57	2.86	25.69	0.7	2.00	17.98	4.29	0.00	0.0
9	53.4	43.4	1.05	10.50	36.18	1.0	10.50	28.48	4.29	0.00	0.0
10	43.4	33.4	1.22	12.21	48.39	0.7	8.55	37.02	4.29	0.00	0.0

FOUNDING MATERIAL PROPERTIES



COUNTY	FT. BEND	STRUCTURE SH99	BUFFALO BAYOU	THD DIST	12
HIGHWAY NO	SH99	HOLE NO	5	DATE	1/9/89
CONTROL	3510-05-001	STATION	1398+60.80	BY	JPG
IPE		LOCATION	110.40' RT		

DRILLING LOG

COUNTY FT. BEND
 HIGHWAY NO SH99
 CONTROL 3510-05-001
 IPE

STRUCTURE SH99 ■ BUFFALO BAYOU
 HOLE NO 5
 STATION 1398+60.80
 LOCATION 110.40' RT

THD DIST 12
 DATE 1/9/89
 GRD. ELEV. 108.4
 GRD-WATER ELEV. 108.4

ELEV FT.	LOG	THD PEN. TEST NO. OF BLOWS		DESCRIPTION OF MATERIAL	METHOD OF CORING
		1ST 6"	2ND 6"		
108.4	0			SAND, W/SM CLAY, BRN. GR. LOOSE	0
		7 (6.0")	5 (6.0")		
98.4	10	7 (6.0")	6 (6.0")	CLAY, SANDY, GR. TN. SOFT	10
93.4		4 (6.0")	5 (6.0")	CLAY, SL. SANDY, BRN. GR. W/CALCS. SOFT	
	20	9 (6.0")	8 (6.0")		20
85.4		12 (6.0")	13 (6.0")	SAND, LY. GR. SL. COMPACT	
83.4				SAND, DRILLED OUT	
	30	7 (6.0")	8 (6.0")		30
73.4		12 (6.0")	8 (6.0")	CLAY, SILTY, BRN. GR. W/SM CALCS. STIFF	
	40	12 (6.0")	15 (6.0")		40
63.4		21 (6.0")	25 (6.0")	CLAY, SILTY, BRN. W/CALCS. STIFF	
58.4	50	17 (6.0")	23 (6.0")	SAND, CLAYEY, BRN. W/CALCS NODS.	50
53.4		50 (3.0")	50 (1.5")	SAND, DRILLED OUT	
	60	47 (6.0")	53 (5.2")		60
43.4		24 (6.0")	38 (6.0")	SAND, DRILLED OUT	
	70	47 (6.0")	53 (3.0")		70
		50 (2.0")	50 (2.7")		
*REMARKS: NO GWE MEASURED					

DRILLER MIKE BAHM

LOGGER R. CURSON

TITLE

TEST HOLE NO. 5

GROUND ELEV. 108.4

