

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	4.50 +		Clay, w/roots, Hard, Yellowish brown	C H	24.6											
2	2 - 4	4.50 +		Clay, w/roots, Hard, Yellowish brown	C H	19.6											
3	4 - 6	1.25		Clay, w/ferrous stains, Stiff, Yellowish brown	C H	29.0	94.7	122.2	54.0	22.0	100.0	99.9	98.8	98.4	97.8		1.05
4	6 - 8	1.00		Clay, w/ferrous stains & sand seams, Stiff, Gray & yellowish brown	C H	24.8											
5	8 - 10	1.75		Silty Clay, w/sand seams, Stiff, Gray	C L	23.4											
6	10 - 12	1.50		Silty Clay, w/sand pockets & sand seams, Stiff, Gray	C L	27.3	98.2	125.1	36.0	18.0	100.0	99.9	98.5	96.9	96.2		1.28
7	12 - 14	0.50		Silty Clay, w/sand pockets & organic material, Medium stiff, Gray	C L	35.2											
8	14 - 16	0.50		Clay, w/organic material, Medium Stiff, Dark Gray	C H	50.2	66.1	99.2	92.0	30.0	100.0	99.9	99.2	99.1	99.0		
9	16 - 18	0.50		Clay, w/organic material, Medium Stiff, Dark Gray	C H	53.7											
10	18-19.5		14	Clayey Sand, Medium dense, Gray	S C						100.0	100.0	94.2	45.7	33.5		
11	21-22.5		87	Sand, w/gravel & silt, Very dense, Gray	S P						91.8	87.8	58.4	6.7	4.3		
12	26-28	4.50		Clay, w/sand seams, Hard, Olive gray	C H	18.2											
13	28-30	4.50 +		Clay, w/calcareous nodules & sand seams, slickensided, Hard, Yellowish brown	C H	19.0											
14	30-32	3.75		Clay, w/calc nod fer stains & sand seams, slickensided, Very stiff, Yellowish brown	C H	18.1	111.9	132.1	56.0	23.0	100.0	99.9	99.0	98.6	98.4		
15	32-34	4.00		Clay, w/calc nod & fer stains, slickensided, Very stiff, Yellowish brown	C H	18.9											
16	34-36	4.50 +		Clay, w/calc nod & fer stains, slickensided, Hard, Yellowish brown [Swd]	C H	20.9	106		59	17							q = 3,940 psf
17	36-38	3.50		Clay, w/calc nod & fer stains, slickensided, Very stiff, Yellowish brown [Swd]	C H	24.4	100		69	19							φ = 25° c = .27 tsf
18	38-40	4.50 +		Clay, w/calc nod & fer stains & sand seams, slickensided, Hard, Yellowish brown	C H	18.5											
19	40-42	3.75		Silty Clay, w/ferrous stains & sand seams, Very stiff, Yellowish brown & gray	C L	17.5											
20	42-44	4.00		Silty Clay, w/ferrous stains & sand seams, Very stiff, Yellowish brown & gray [Swd]	C L	17.5	114		32	13							

S # : Sample Number, P P : Pocket Penetrometer Reading, U S C : Unified Soil Classification, M c : Moisture Content

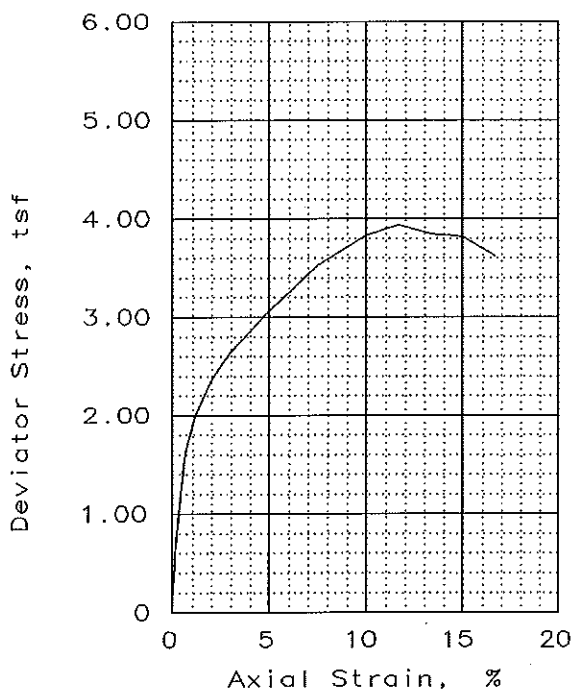
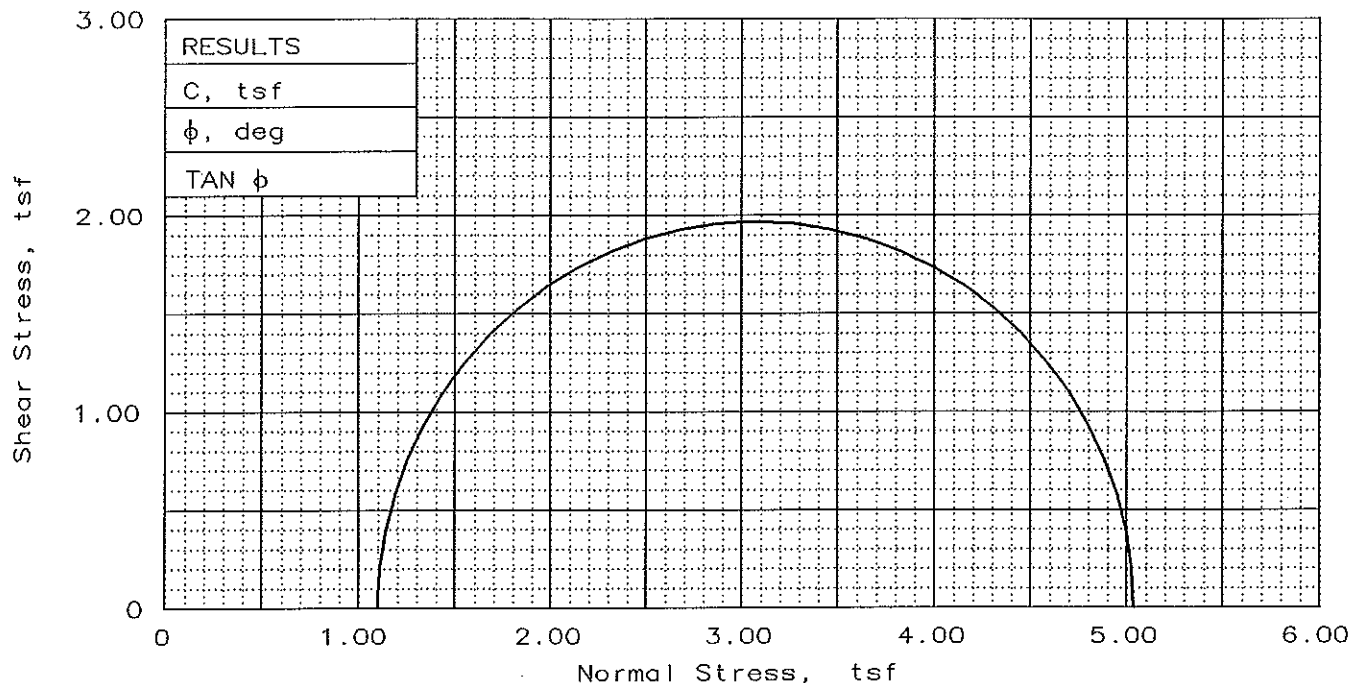
q u : Uncogined Compressive Strength, W O H : Weight of hammer, W O P : Weight of Pipe

SUMMARY OF LABORATORY TEST RESULTS

Boring No. 97-33

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					Torvane Shear Strength (tsf)	q u (tsf)
											#4	#10	#40	#100	#200		
21	44-46	3.75		Silty Clay, w/silt & red clay layer, Very stiff, Reddish brown	C L	22.4	104.7	128.1	33.0	17.0	100.0	100.0	99.7	99.2	98.1		2.23
22	46-48	4.50 +		Clay, w/ferrous stains, slickensided, Hard, Red & Gray	C H	23.8											
23A	48-48.3	2.75		Clay, w/clay Stone, Very stiff, Gray & yellowish brown	C H	29.1											
23	48.3-50	2.75		Clay, Very stiff, Gray & yellowish brown	C H	39.6											
24	50-52	2.75		Clay, w/calc nod & fer stains, slickensided, Very stiff, Yellowish brown [SWO7]	C H ✓	29.6	92		84	25							φ = 17.5 C = .55
25	52-54	2.75		Clay, w/calc nod & fer stains, slickensided, Very stiff, Yellowish brown	C H	30.8											
26	54-56	3.75		Clay, w/calc nod & fer stains, slickensided, Very stiff, Brown & gray	C H	28.3											
27	56-58	3.75		Clay, w/calc nod & fer stains, slickensided, Very stiff, Brown & gray	C H	32.3											
28	58-60	3.75		Clay, w/calc nod & fer stains, slickensided, Very stiff, Reddish brown	C H	24.3	100.9	125.5	54.0	23.0	99.6	98.9	98.5	98.0	97.8		2.38
29	60-62	2.25		Silty Clay, w/silt seams, Very stiff, Brown	C L	25.1											
30	62-64	1.75		Silty Clay, w/silt seams, Stiff, Brown [SWO]	C L ✓	25.4	99		38	17							
31	64-66	2.25		Clay, w/ferrous stains, slickensided, Very stiff, Brown	C H	28.8											
32	66-68	2.25		Clay, w/ferrous stains & silt seams, slickensided, Very stiff, Brown	C H	31.0	92.7	121.5	66.0	26.0							
33	68-70	1.75		Silty Clay, Stiff, Brown	C L	23.2	102.5	126.2	32.0	17.0							

S # : Sample Number, P P : Pocket Penetrometer Reading, U S C : Unified Soil Classification, M c : Moisture Content
q u : Uncogined Compressive Strength, W O H : Weight of hammer, W O P : Weight of Pipe



SAMPLE NO.		1
INITIAL	WATER CONTENT, %	20.4
	DRY DENSITY, pcf	106.6
	SATURATION, %	94.7
	VOID RATIO	0.581
	DIAMETER, in	2.77
	HEIGHT, in	6.00
AT TEST	WATER CONTENT, %	20.4
	DRY DENSITY, pcf	106.6
	SATURATION, %	94.7
	VOID RATIO	0.581
	DIAMETER, in	2.77
	HEIGHT, in	6.00
BACK PRESSURE, tsf		0.00
CELL PRESSURE, tsf		1.10
FAILURE STRESS, tsf		3.94
PORE PRESSURE, tsf		
STRAIN RATE, %/min.		0.366
ULTIMATE STRESS, tsf		
PORE PRESSURE, tsf		
σ_1 FAILURE, tsf		5.04
σ_3 FAILURE, tsf		1.1

TYPE OF TEST:

Unconsolidated undrained

SAMPLE TYPE: Undisturbed

DESCRIPTION: Fat Clay (CH)

LL= 59 PL= 17 PI= 42.0

SPECIFIC GRAVITY= 2.70

REMARKS: Specific Gravity Est.

CLIENT: US Army Corps of Engineers

Galveston District

PROJECT: Neches River Saltwater Barrier

SAMPLE LOCATION: Boring: 97-33, Fld No. 16

34.0-36.0, Lab No. 97/1087

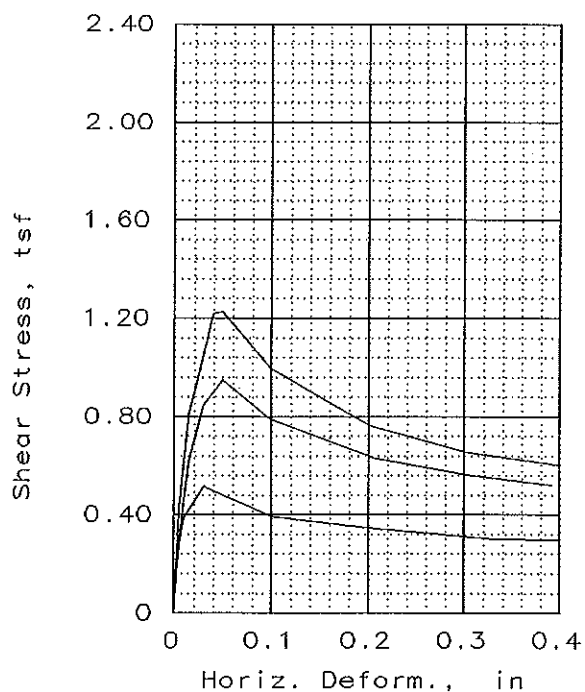
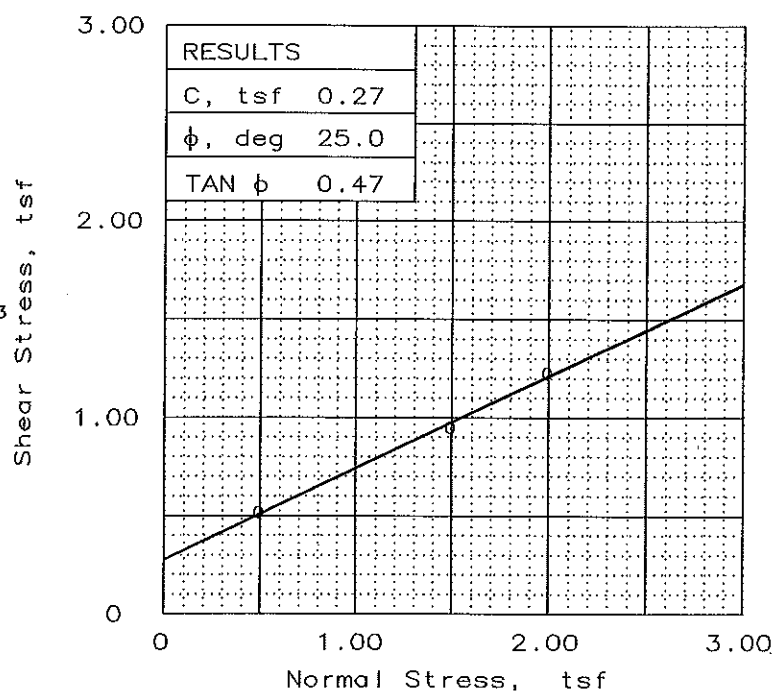
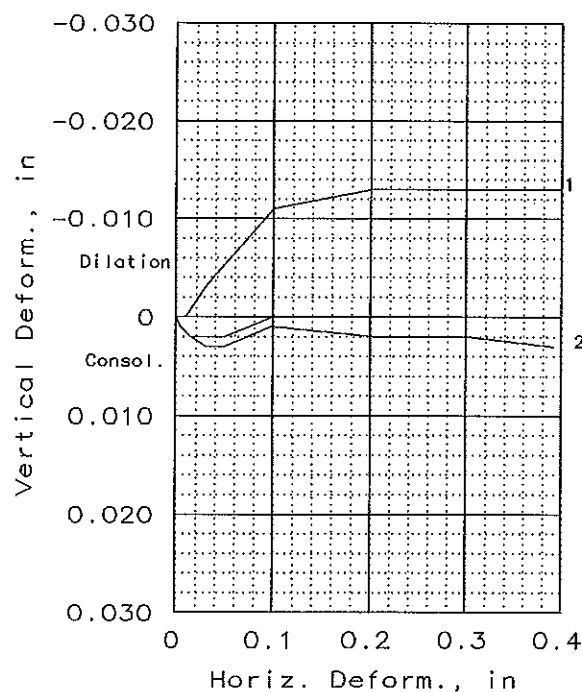
PROJ. NO.: 16858

DATE: October 1997

TRIAXIAL COMPRESSION TEST

CORPS OF ENGINEERS - SOUTHWESTERN

FIG. NO.



SAMPLE NO.		1	2	3
INITIAL	WATER CONTENT, %	26.8	24.0	25.9
	DRY DENSITY, pcf	97.7	100.1	97.0
	SATURATION, %	99.8	94.6	94.8
	VOID RATIO	0.725	0.685	0.737
	DIAMETER, in	2.51	2.51	2.51
	HEIGHT, in	1.00	1.00	1.00
AT TEST	WATER CONTENT, %	26.3	23.7	25.7
	DRY DENSITY, pcf	98.8	102.6	99.8
	SATURATION, %	100.5	99.6	100.6
	VOID RATIO	0.706	0.642	0.689
	DIAMETER, in	2.51	2.51	2.51
	HEIGHT, in	0.99	0.98	0.97
NORMAL STRESS, tsf		0.50	1.50	2.00
MAX. SHEAR, tsf		0.52	0.95	1.23
STRAIN RATE, %/min.		0.004	0.004	0.004
ULT. SHEAR, tsf		0.30	0.52	0.60

SAMPLE DATA

SAMPLE TYPE: Undisturbed
DESCRIPTION: Fat Clay (CH)

LL= 69 PL= 19 PI= 50.0
SPECIFIC GRAVITY= 2.70
REMARKS: Specific Gravity Est.

CLIENT: US Army Corps of Engineers
Galveston District
PROJECT: Neches River Saltwater Barrier

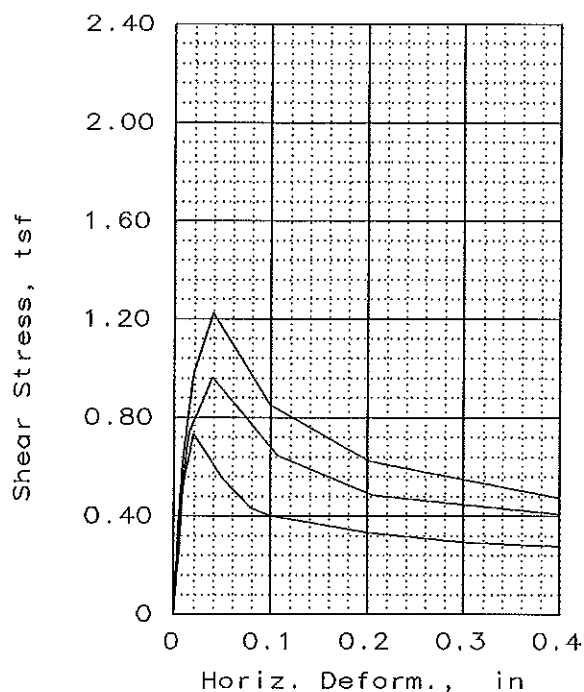
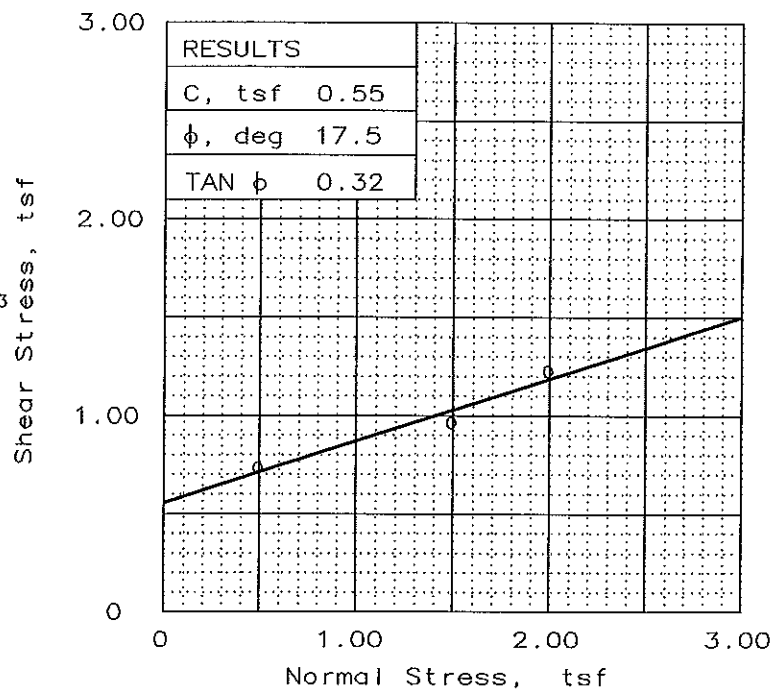
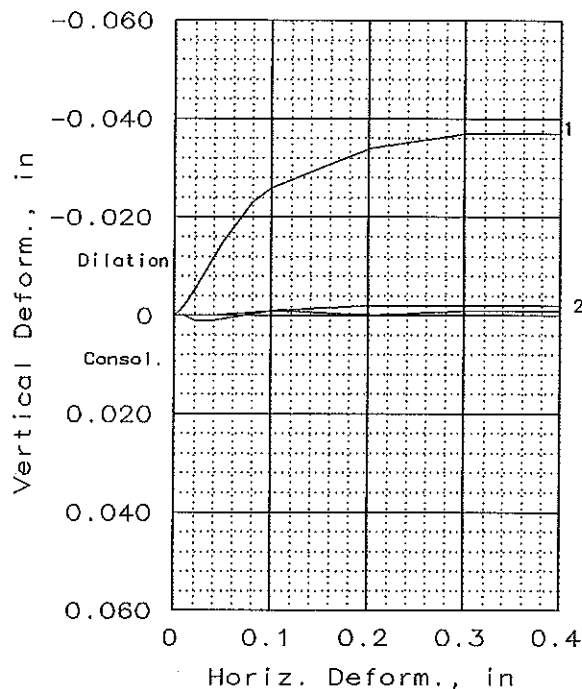
SAMPLE LOCATION: Boring: 97-33, Fld No. 17
36.0-38.0, Lab No. 97/1088

PROJ. NO.: 16858 DATE: October 1997

DIRECT SHEAR TEST

CORPS OF ENGINEERS - SOUTHWESTERN

FIG. NO.



SAMPLE NO.		1	2	3
INITIAL	WATER CONTENT, %	31.7	33.2	31.8
	DRY DENSITY, pcf	90.8	87.6	90.7
	SATURATION, %	100.0	96.9	100.1
	VOID RATIO	0.857	0.925	0.858
	DIAMETER, in	2.51	2.51	2.51
	HEIGHT, in	1.00	1.00	1.00
AT TEST	WATER CONTENT, %	31.2	32.7	30.2
	DRY DENSITY, pcf	91.3	89.5	92.8
	SATURATION, %	99.7	100.0	99.7
	VOID RATIO	0.845	0.882	0.817
	DIAMETER, in	2.51	2.51	2.51
	HEIGHT, in	0.99	0.98	0.98
NORMAL STRESS, tsf		0.50	1.50	2.00
MAX. SHEAR, tsf		0.73	0.96	1.23
STRAIN RATE, %/min.		0.004	0.004	0.004
ULT. SHEAR, tsf		0.28	0.41	0.47

SAMPLE DATA

SAMPLE TYPE: Undisturbed
DESCRIPTION: Fat Clay (CH)

LL= 84 PL= 25 PI= 59.0
SPECIFIC GRAVITY= 2.70
REMARKS: Specific Gravity Est.

CLIENT: US Army Corps of Engineers
Galveston District
PROJECT: Neches River Saltwater Barrier

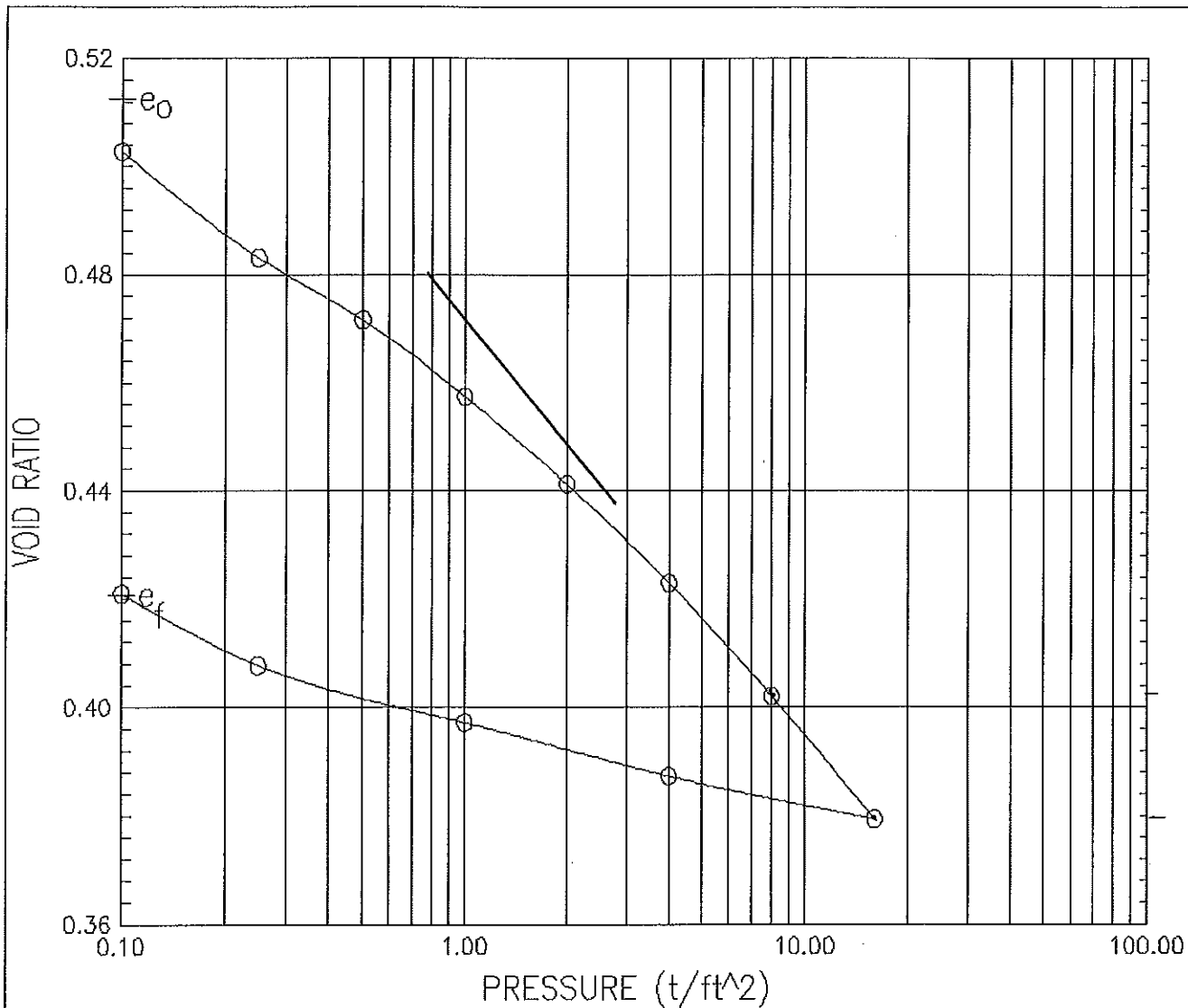
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50.0-52.0, Lab No. 97/1090

PROJ. NO.: 16858 DATE: October 1997

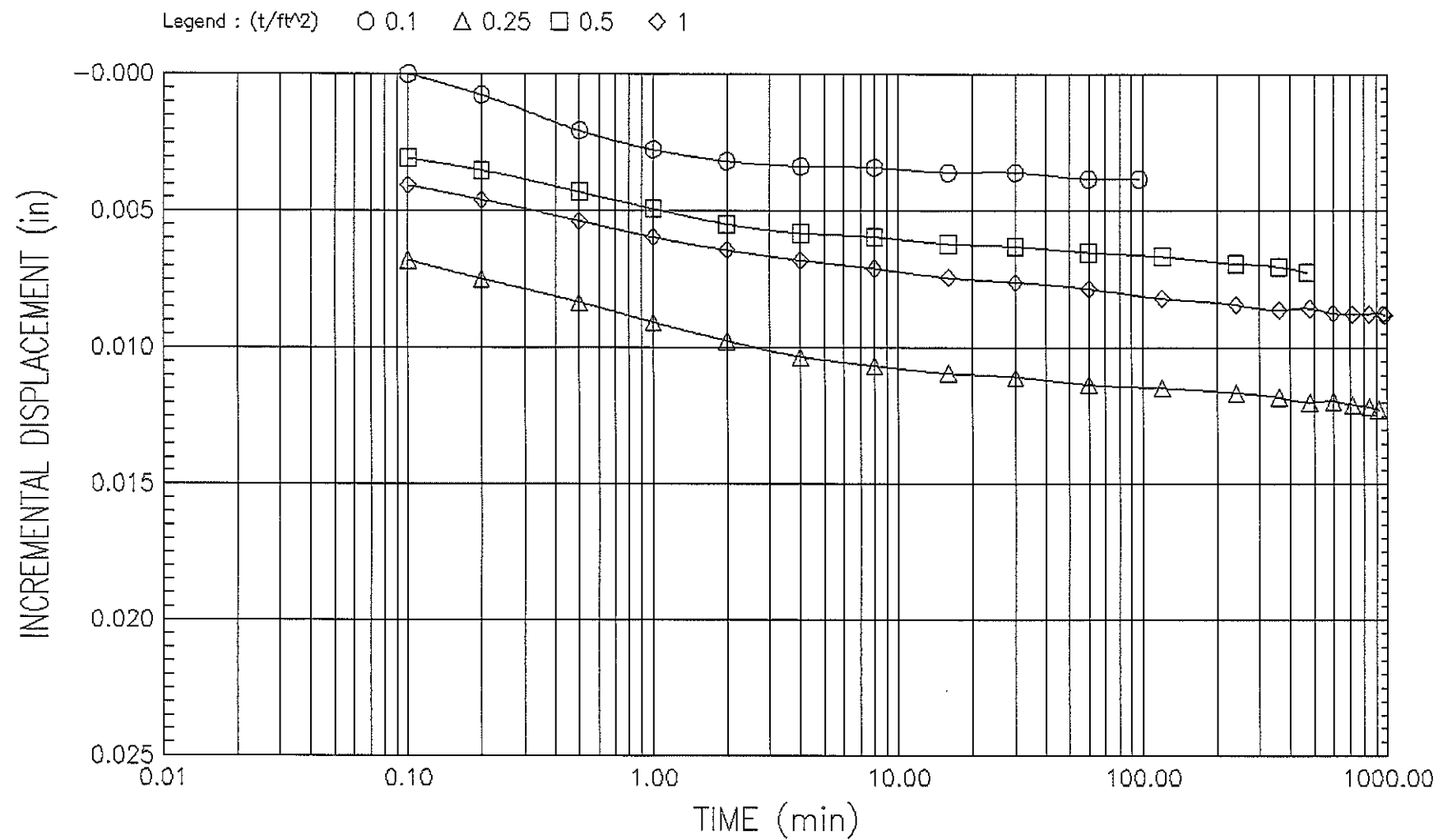
DIRECT SHEAR TEST

CORPS OF ENGINEERS - SOUTHWESTERN

FIG. NO.



			BEFORE TEST	AFTER TEST		
OVERBURDEN PRESSURE (t/ft ²)			WATER CONTENT (%)	18.653	15.573	
PRECONSOL. PRESSURE (t/ft ²)			DRY DENSITY (lb/ft ³)	111.425	118.620	
COMPRESSION INDEX		.08	.08	SATURATION (%)	98.226	99.883
TYPE SPECIMEN				VOID RATIO	0.513	0.421
DIA. (in)		2.505	HT. (in)	0.946	BACK PRESSURE (t/ft ²)	
CLASSIFICATION SANDY LEAN CLAY (CL)						
LL 32.0		PL 13.0		PI 19.0		PROJECT NECHES RIVER SALTWATER
GS 2.700		D ₁₀		Data File: B:1089.CNV		
REMARKS				BORING NO. 97-33		SAMPLE NO. 97/1089
				DEPTH 42.0-44.0		DATE 15SEPT97
				Army Corp of Engineers CONSOLIDATION TEST REPORT		



PROJECT NECHES RIVER SALTWATER

Data File: B:1089.CNV

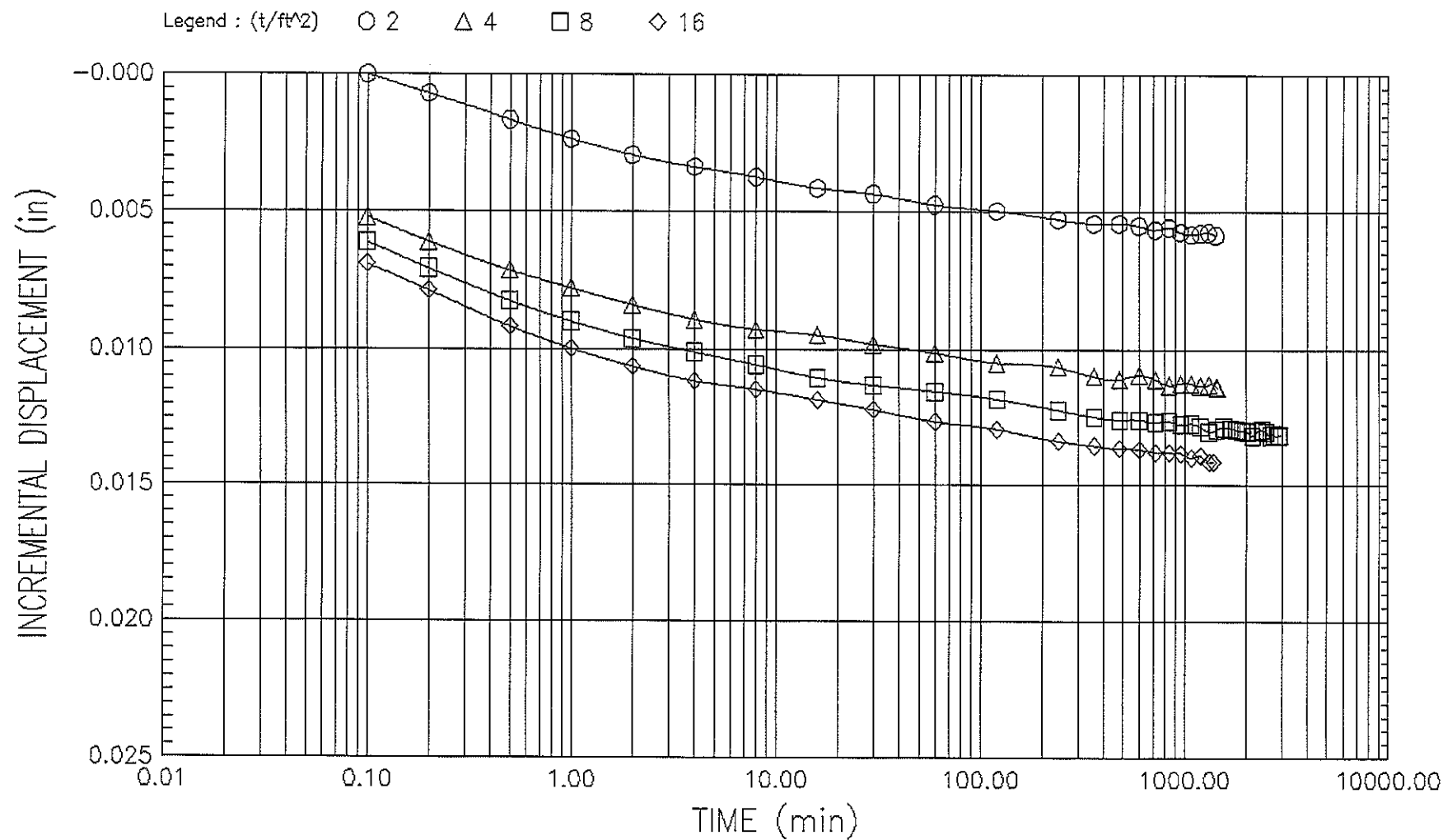
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SAMPLE NO. 97/1089

DEPTH 42.0-44.0

DATE 15SEPT97

Army Corp of Engineers
CONSOLIDATION TEST
TIME CURVES



PROJECT NECHES RIVER SALTWATER

Data File: B:1089.CNV

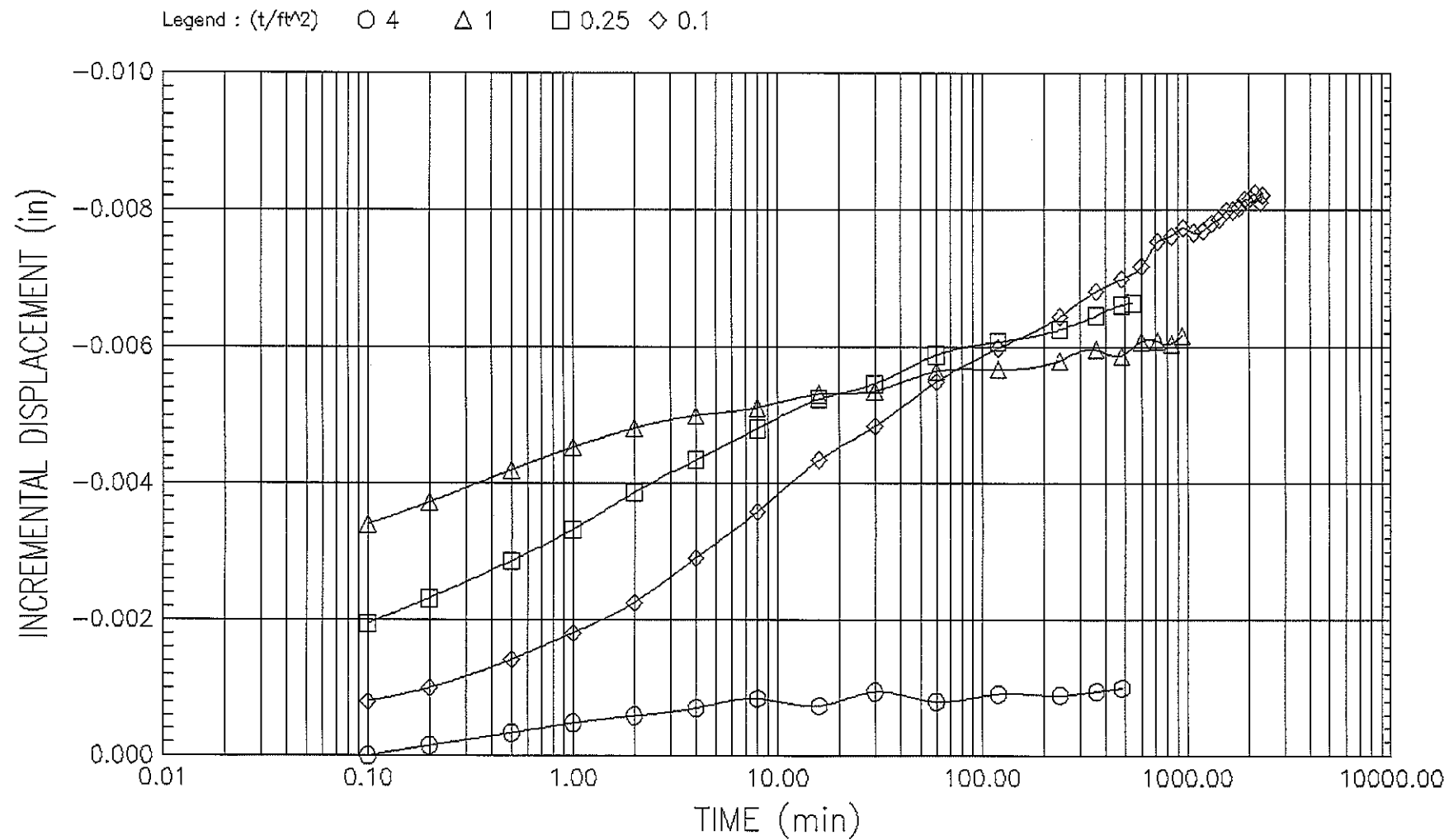
BORING 97-33

SAMPLE NO. 97/1089

DEPTH 42.0-44.0

DATE 15SEPT97

Army Corp of Engineers
CONSOLIDATION TEST
TIME CURVES



PROJECT NECHES RIVER SALTWATER

Data File: B:1089.CNV

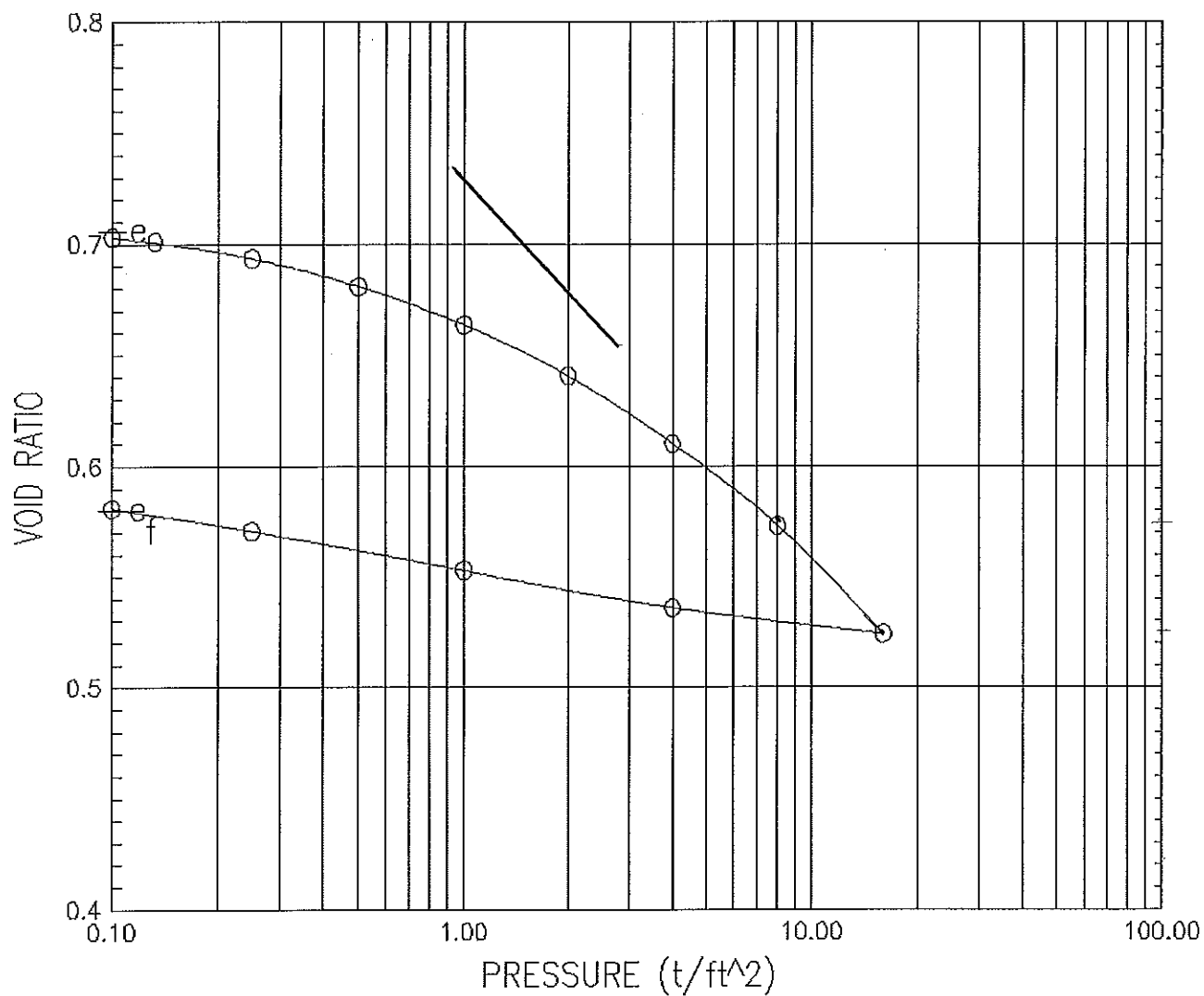
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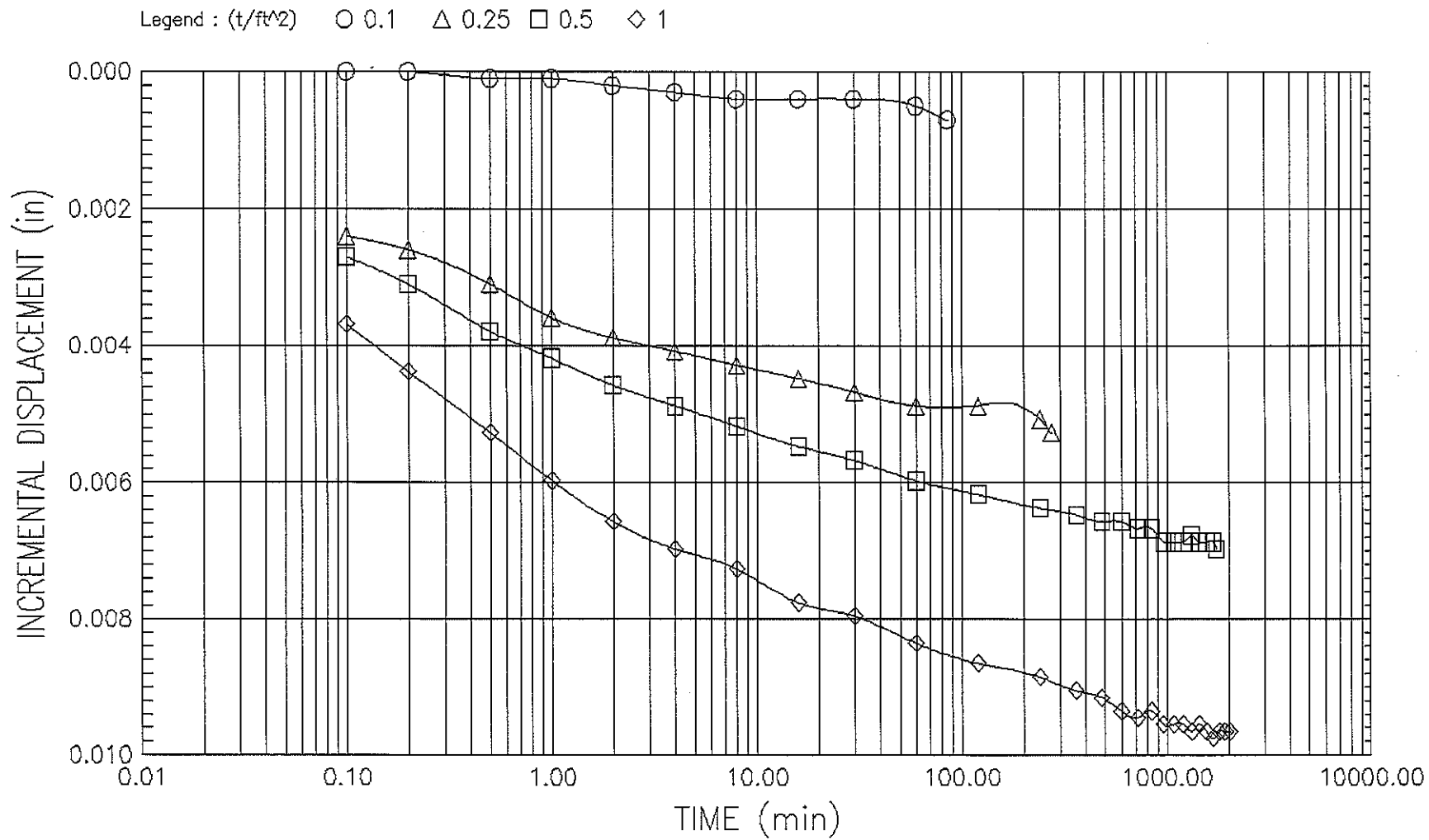
DEPTH 42.0-44.0

DATE 15SEPT97

Army Corp of Engineers
CONSOLIDATION TEST
TIME CURVES



			BEFORE TEST	AFTER TEST	
OVERBURDEN PRESSURE (t/ft ²)			WATER CONTENT (%)	25.289	21.653
PRECONSOL. PRESSURE (t/ft ²)			DRY DENSITY (lb/ft ³)	98.766	106.611
COMPRESSION INDEX		.06 .06	SATURATION (%)	96.631	100.618
TYPE SPECIMEN			VOID RATIO	0.707	0.581
DIA. (in) 2.505		HT. (in) 0.947	BACK PRESSURE (t/ft ²)		
CLASSIFICATION LEAN CLAY (CL)					
LL 38.0		PL 17.0	PI 21.0	PROJECT NECHES RIVER SALTWATER	
GS 2.700		D ₁₀		Data File: B:1091.CNV	
REMARKS			BORING NO. 97-33		SAMPLE NO. 97/1091
			DEPTH 62.0-64.0		DATE 17SEPT97
			Army Corp of Engineers CONSOLIDATION TEST REPORT		



PROJECT NECHES RIVER SALTWATER

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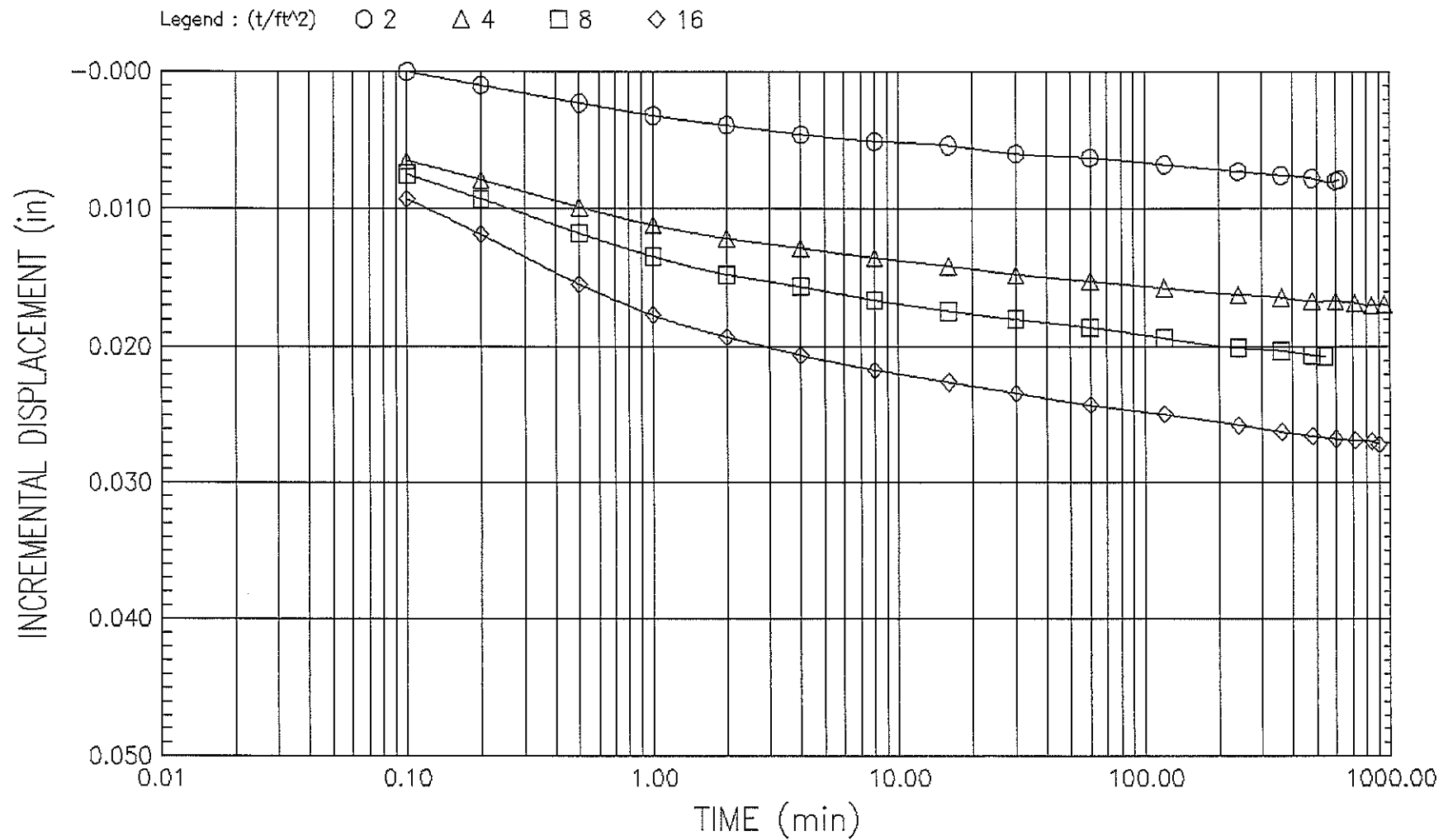
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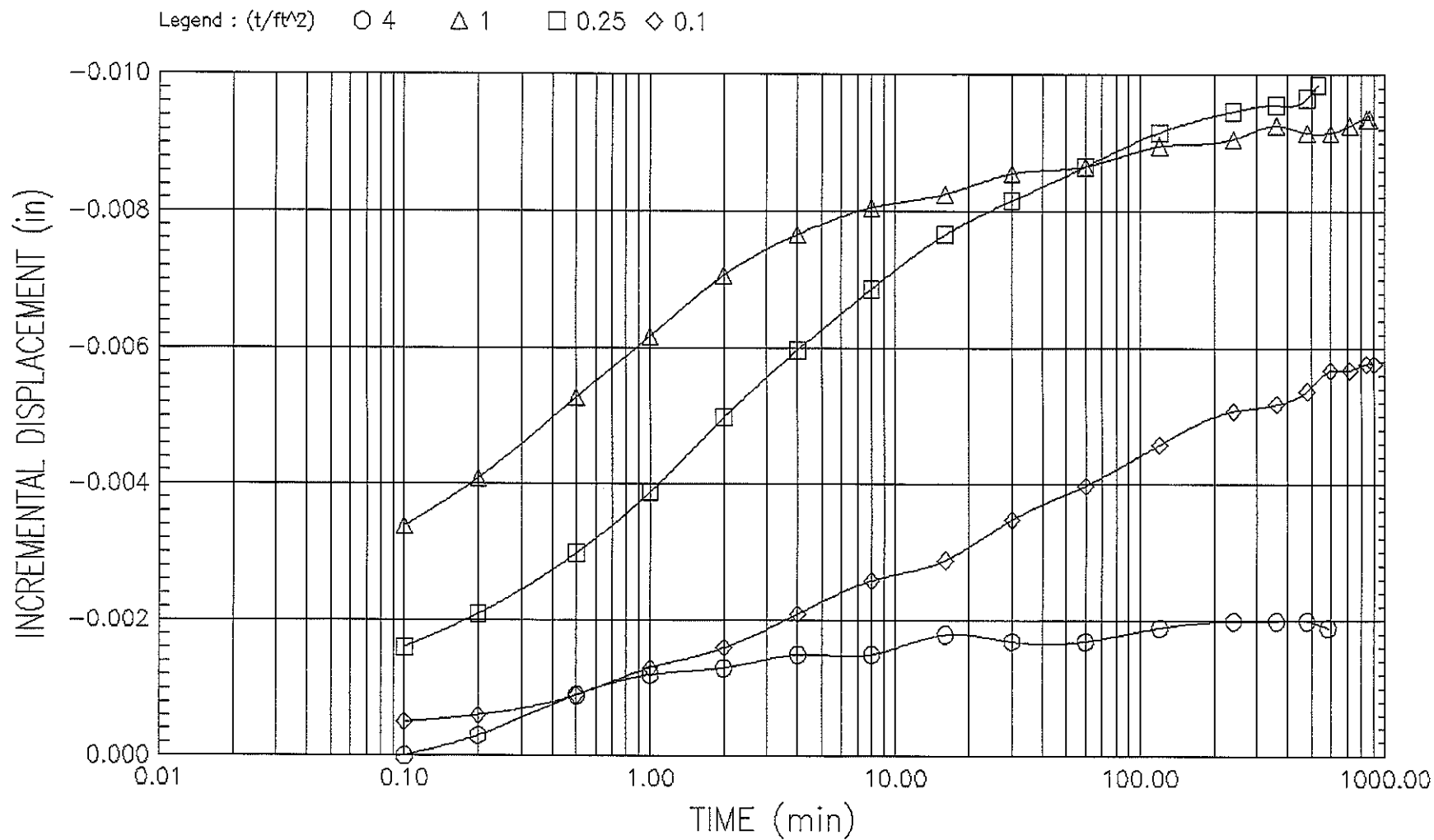
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Army Corp of Engineers
CONSOLIDATION TEST
TIME CURVES



PROJECT	NECHES RIVER SALTWATER		
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BORING	97-33	SAMPLE NO.	97/1091
DEPTH	62.0-64.0	DATE	17SEPT97

Army Corp of Engineers
CONSOLIDATION TEST
TIME CURVES



PROJECT NECHES RIVER SALTWATER

Data File: B:1091.CNV

BORING 97-33

SAMPLE NO. 97/1091

DEPTH 62.0-64.0

DATE 17SEPT97

Army Corp of Engineers

CONSOLIDATION TEST

TIME CURVES