BORING NUMBER	SAMPLE NUMBER/ TYPE	SAMPLE DEPTH (Feet)	VISUAL CLASSIFICATION	U S C	MOISTURE CONTENT (%)	UNIT DRY WEIGHT (pcf)	UNIT WET WEIGHT (pcf)	SPECIFIC GRAVITY OF SOLIDS	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	BAR LINEAR SHRINKAGE (%)	ABBREVIATED MECHANICAL ANALYSIS	COMPLETE MECHANICAL ANALYSIS	HYDROMETER ANALYSIS	STANDARD COMPACTION TEST	MODIFIED COMPACTION TEST	UNDRAINED SHEAR STRENGTH (ksf)*	TORVANE SHEAR (ksf)	SOIL SALINITY (Parts per Thousand)
87-155	1Q	0-1	Stiff dark gray clay, with roots and shell fragments	CH	26														
	2J	2.5-3	Soft tan and brown clay, with sand seams and sand pockets	CH	31														
	3Q	5-6	Firm brown clay, with sand seams and calcareous nodules	CH	35	93			53	20		86					0.80		
	4Q	7-8	Soft red clay, with sand seams and partings	CH	31														
	5J	8.5-9	Firm red clay, with calcareous nodules	CH	26														
	6Q	11-12	Firm red clay, with sand partings and silt stones	CH	37	88			57	23		90					0.53		
	7Q	13-14	Soft brown and gray clay, with silt partings and organic matter	CH	47	77			61	18		89					0.27		
	8Q	15-16	(D.C.) Gy Cl, Sh Frag, Sd Poc, So																
	9Q	17-18	(D.C.) "																
	10Q	19-20	Very soft olive gray silty clay, with silt seams and large shells	CL	37	86			41	15		61					0.18		
	11J	21.5-22	Red sand, with free water	SP															
	12J	24.5-25	Red silty fine sand, with clay pockets	SM								39							
	13Q	27-28	Firm red clay, with ferrous nodules	CH	41														
	14Q	29-30	Stiff brown and gray clay, slickensided, with calcareous nodules and silt pockets	CH	40	82			87	26		99					0.57	1.20	
	15Q	31-32	Firm, red clay, with calcareous nodules	CH	36														
	16Q	33-34	Soft red clay	CH	39														
	17Q	35-36	Stiff red clay, slickensided, with calcareous nodules	CH	34	90			70	21		99					0.83	1.50	
	18Q	37-38	Stiff red clay	CH	32														
	19Q	39-40	Stiff gray and red clay, with ferrous nodules	CH	26														
	20Q	41-42	Very soft gray and tan silty clay, with sand pockets & ferrous nodules & calcareous nodules	CL	30														
	21Q	43-44	Firm gray and brown silty clay, with ferrous nodules	CL	26	98			37	20									
	22Q	45-46	Stiff gray and tan silty clay, with ferrous nodules	CL	27														
			CONTINUED																

* Based on Unconfined Compression Test

SUMMARY OF TEST RESULTS
DELIVERY ORDER NO. 0023
SNAKE ISLAND DISPOSAL AREA
TEXAS CITY, TEXAS

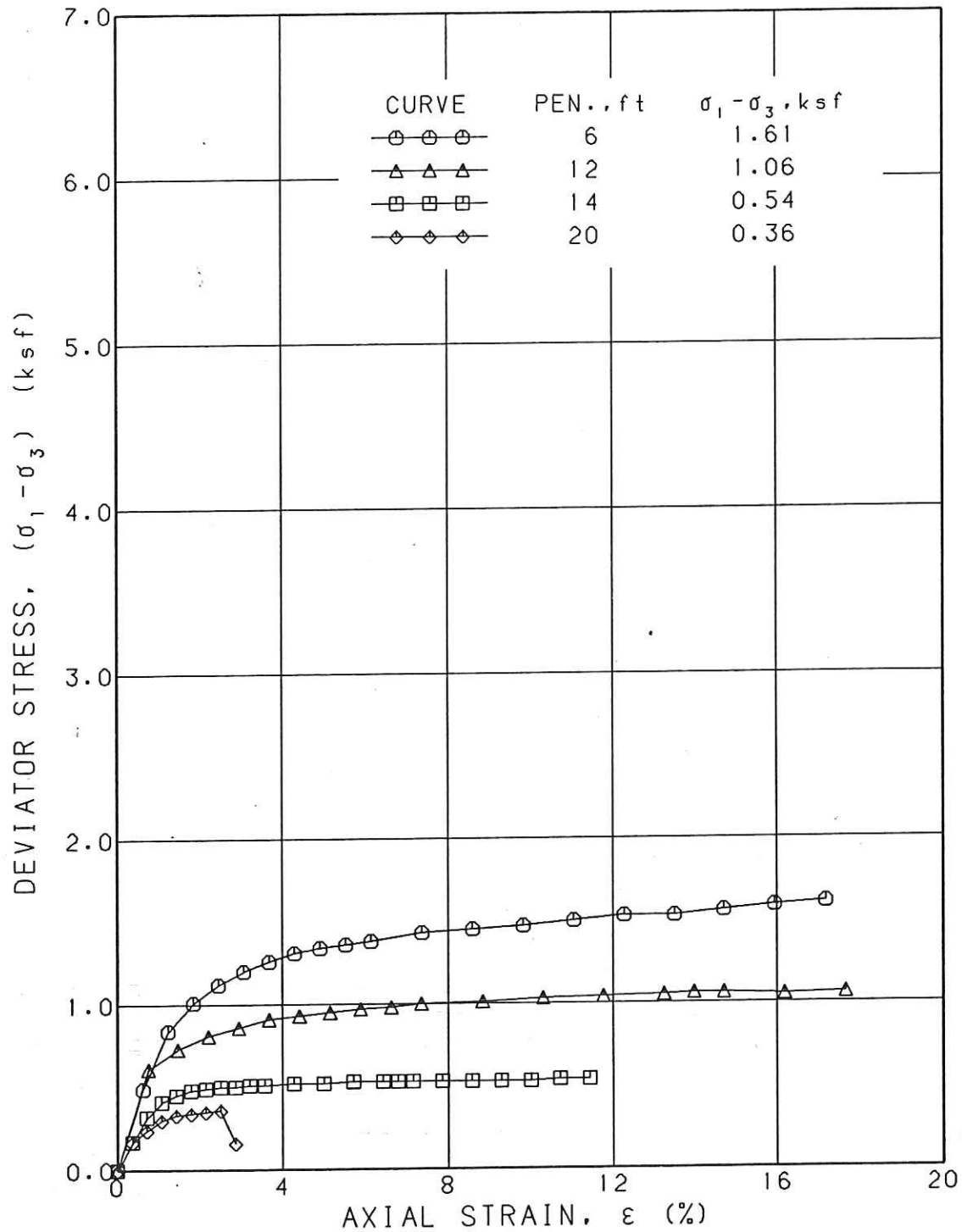
BORING NUMBER	SAMPLE NUMBER/ TYPE	SAMPLE DEPTH (Feet)	VISUAL CLASSIFICATION	U S C	MOISTURE CONTENT (%)	UNIT DRY WEIGHT (pcf)	UNIT WET WEIGHT (pcf)	SPECIFIC GRAVITY OF SOLIDS	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	BAR LINEAR SHRINKAGE (%)	ABBREVIATED MECHANICAL ANALYSIS	COMPLETE MECHANICAL ANALYSIS	HYDROMETER ANALYSIS	STANDARD COMPACTION TEST	MODIFIED COMPACTION TEST	UNDRAINED SHEAR STRENGTH (ksf)*	TORVANE SHEAR (ksf)	SOIL SALINITY (Parts per Thousand)
87-155	23Q	47-48	Brown silty clay, with clay seams & calcareous nodules	CL	32	92			40	22		100					0.52		
	24Q	49-50	Gray & tan silty clay, with ferrous nodules to 49.5'; 49.5'-50' - very soft gray and tan clay, petroleum odor	CL	33														

* Based on Unconfined Compression Test

SUMMARY OF TEST RESULTS
DELIVERY ORDER NO. 0023
SNAKE ISLAND DISPOSAL AREA
TEXAS CITY, TEXAS

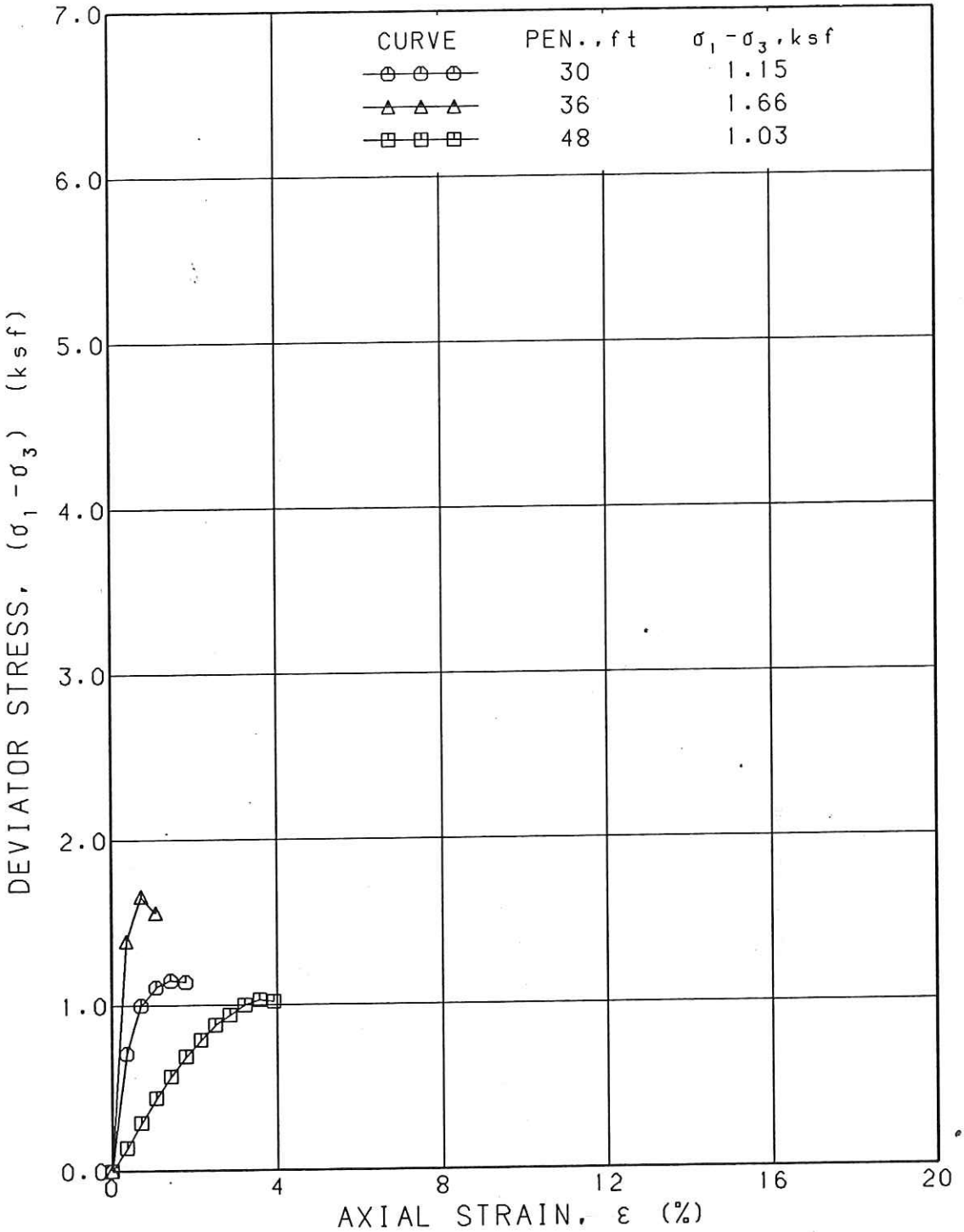
Boring Number	Sample Number	Depth, ft	Weight of Dry Soil gms (Total Sample)	Percent Finer 0.375	#4	#10	#40	#200
87-153	7	20	79.08	100	97	93	91	56
87-153	9	25	94.60					100
87-153	11	32	74.19			100	99	99
87-153	17	44	93.86				100	99
87-154	2	4	78.40				100	95
87-154	8	18	96.55	100	90	80	73	52
87-154	10	22	98.07				100	22
87-154	12	27	96.81				100	99
87-154	15	33	77.63			100	99	96
87-154	18	39	61.76				100	99
87-154	25	60	82.57				100	85
87-155	3	6	45.18	100	99	99	98	86
87-155	6	12	50.46			100	99	90
87-155	7	14	87.94				100	89
87-155	10	20	98.24				100	61
87-155	12	25	125.46				100	39
87-155	14	30	56.87				100	99
87-155	17	36	60.43				100	99
87-155	23	48	89.51					100
87-156	3	6	80.00				100	93
87-156	9	20	81.41	100	94	92	89	66
87-156	11	25	93.30				100	23
87-156	13	32	57.81				100	96
87-156	16	38	59.26				100	97

RESULTS OF ABBREVIATED SIEVE ANALYSES



STRESS-STRAIN CURVES
UNCOFINED COMPRESSION TEST
BORING 87-155

McCLELLAND ENGINEERS



STRESS-STRAIN CURVES
UNCOFINED COMPRESSION TEST
BORING 87-155

McCLELLAND ENGINEERS

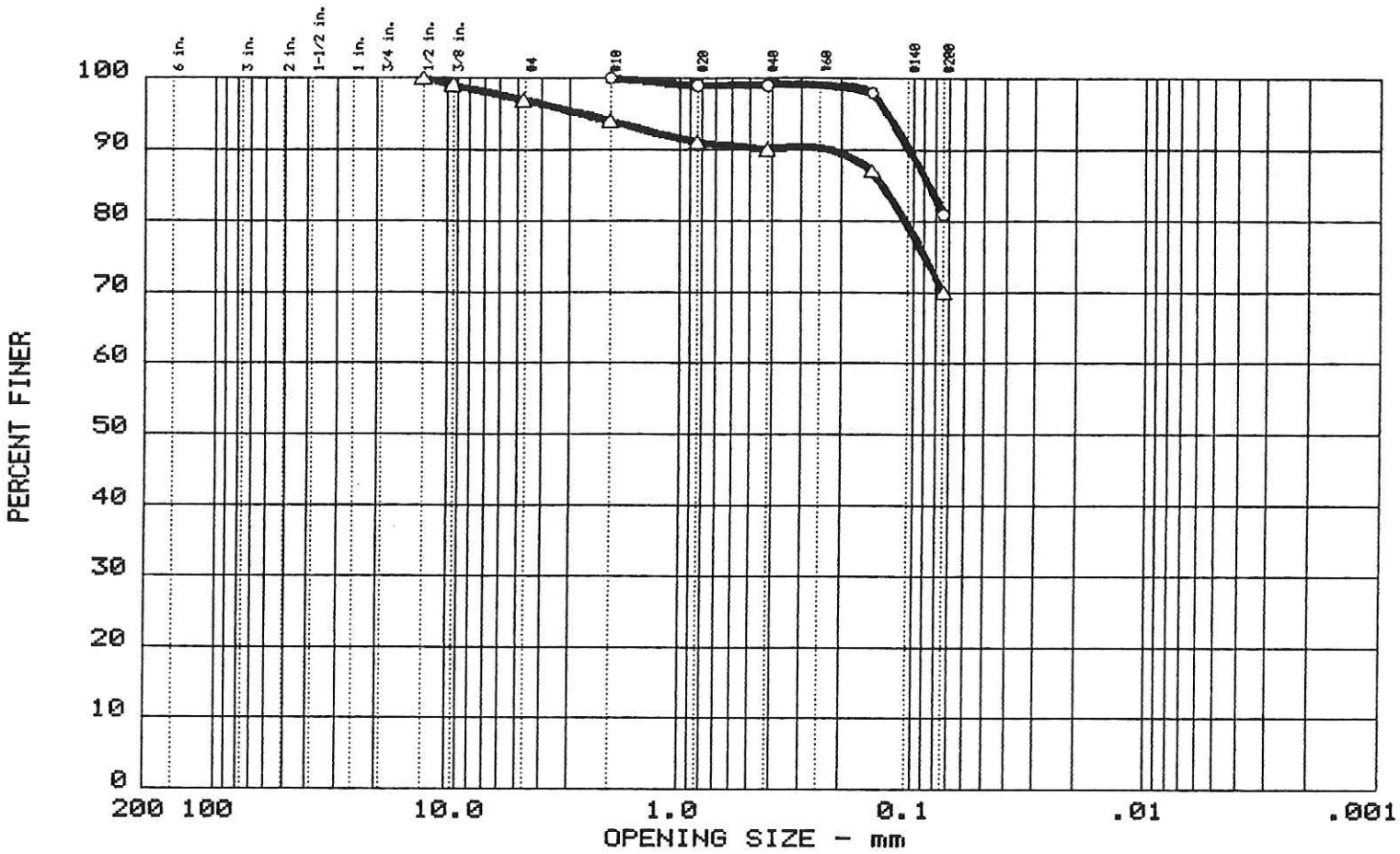
TABLE 1

RESULTS OF TESTS OF DISTURBED AND UNDISTURBED SOIL SAMPLES

SWDED-GL REPORT NO. 14604 TEXAS CITY CHANNEL - SNAKE ISLAND DISPOSAL AREA

BORING	NO.	SWD NO.	FLD NO.	DEPTH, FT	GR	SA	FI	LL	PL	PI	LS	WC, %	PCF	MAJOR TESTS	DESCRIPTION OF MATERIAL
87	154	87/7192	CTN-6	13.0 - 14.0	11	31	58	35	16	19		48.4	74	TRIAX-R	CL - SANDY LEAN CLAY, GRAY, VERY MOIST, SOFT TO MEDIUM HARDNESS, LAYERED IN TOP 0.3', SOME SHELLS (SEAM AT 13.3').
87	154	87/7193	CTN-7	15.0 - 16.0	0	16	84	33	15	18		42.2	79	T-Q(1PT), CONSOL	CL - LEAN CLAY WITH SAND, GRAY, VERY MOIST, VERY SOFT.
87	155	87/7194	CTN-8	15.0 - 16.0	0	19	81	31	16	15		40.2	80	T-Q(1PT), CONSOL	CL - LEAN CLAY WITH SAND, GRAY, VERY MOIST, SOFT.
87	155	87/7195	CTN-9	17.0 - 18.0	3	27	70	26	17	9		35.4	85	TRIAX-R	CL - SANDY LEAN CLAY, GRAY, VERY MOIST, SOFT, A FEW SCATTERED SHELLS.
87	156	87/7196	CTN-7	15.0 - 16.0	34	33	33	28	17	11		31.8	88	T-Q(1PT)	GC - CLAYEY GRAVEL WITH SAND, GRAY, VERY MOIST, SOFT, SOME SHELLS IN BOTTOM 0.2'.
87	156	87/7197	CTN-8	17.0 - 18.0	9	34	57	32	15	17		37.4	84	TRIAX-R	CL - SANDY LEAN CLAY, GRAY, VERY MOIST, SOFT, SOME SHELLS.
87	183	87/7198	CTN-5	10.0 - 11.0	0	12	88	26	16	10		41.2	78	T-Q(1PT), CONSOL	CL - LEAN CLAY, GRAY, MOIST, VERY SOFT.

GRAIN SIZE DISTRIBUTION TEST REPORT



	%+3"	% GRAVEL	% SAND	% SILT	% CLAY
○	0.0	0.0	19.0	81.0	
△	0.0	3.0	27.0	70.0	

	USCS Classification	% COLLOIDS	LL	PI	D_{60}	D_{30}	D_{10}	C_c	C_u
○	CL		31	15					
△	CL		26	9					

MATERIAL DESCRIPTION	TYPE OF TEST
○ LEAN CLAY WITH SAND (CL) △ SANDY LEAN CLAY (CL)	ASTM D 422-63(72) Mechanical analysis

Project No.: SWDED-GL NO. 14604
Project: TEXAS CITY - SNAKE ISLAND DISP. AREA
○ Location: 87-155,C-8,15.0-16.0, SWD NO. 87/7194
△ Location: 87-155,C-9,17.0-18.0, SWD NO. 87/7195

Date: FEBRUARY 1988

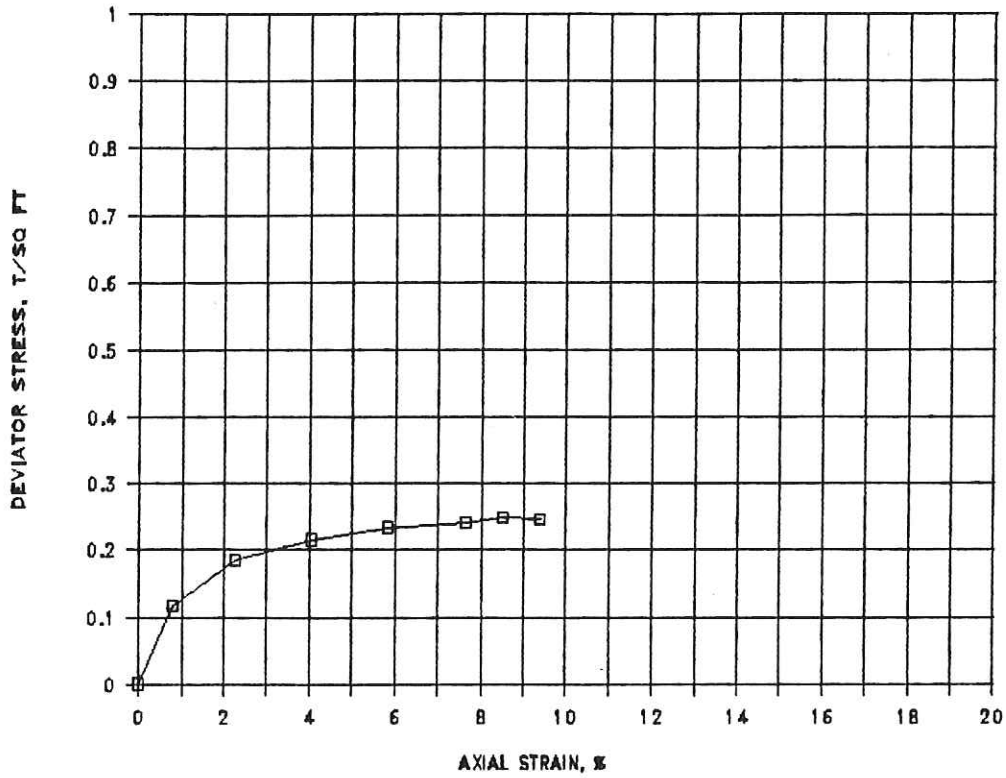
Remarks:

GRAIN SIZE DISTRIBUTION TEST REPORT

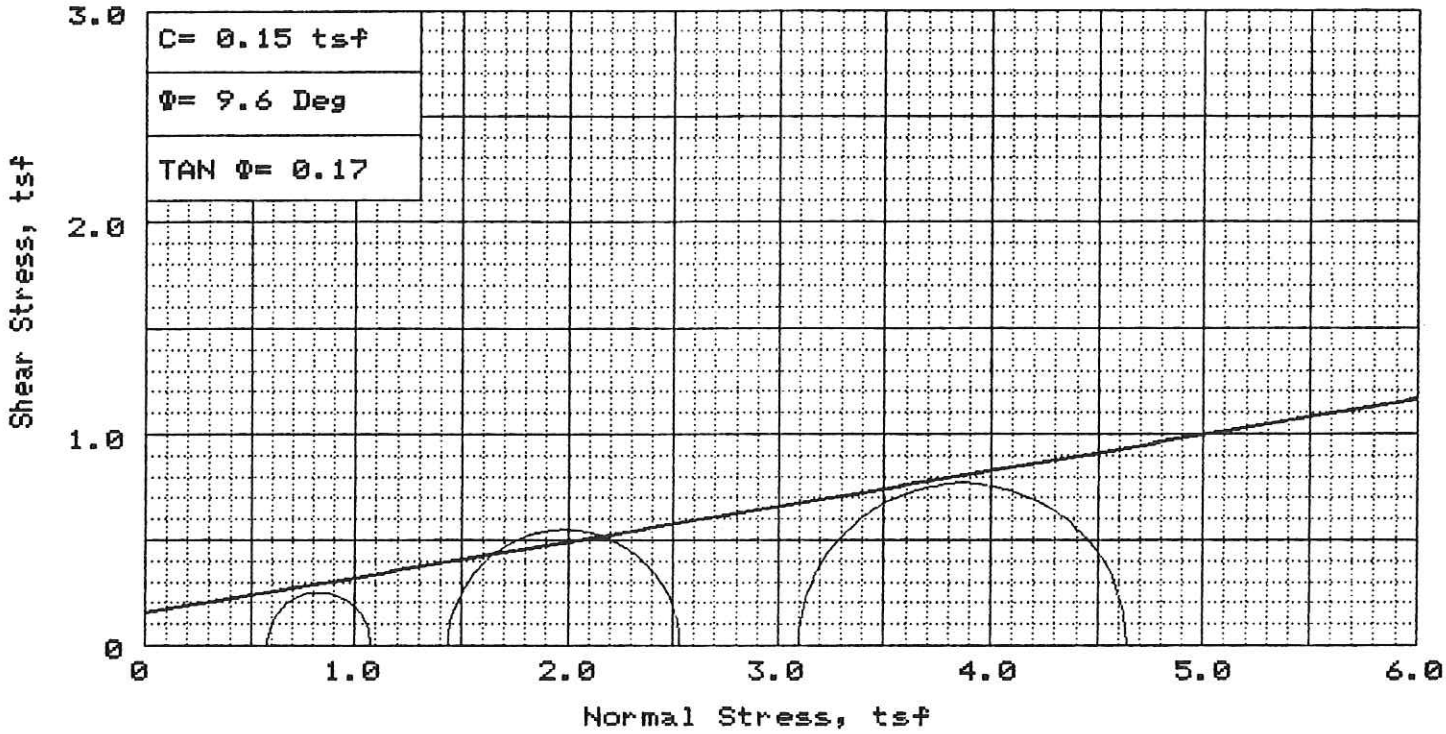
CORPS OF ENGINEERS - SOUTHWESTERN

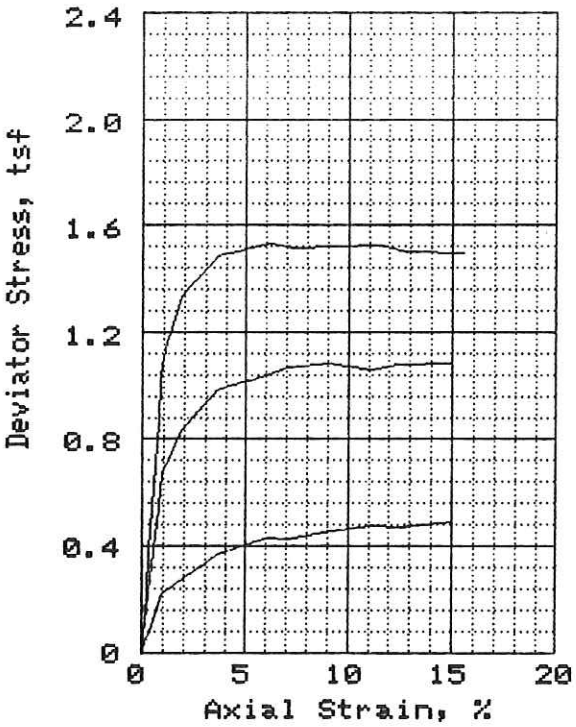
Plate No. 7

ONE POINT TRIAX-Q COMPRESSION TEST



TEST NO.	1
TYPE OF SPECIMEN	UNDIST.
CONTROLLED STRESS TEST	
WATER CONTENT, %	39.0
VOID RATIO	1.031
SATURATION, %	100
DRY DENSITY, LB/CU FT	81
TIME TO FAILURE, MIN	11
MINOR PRINCIPAL STRESS, T/SQ FT	1.0
MAXIMUM DEVIATOR STRESS, T/SQ FT	0.25
INITIAL DIAMETER, IN.	2.8
INITIAL HEIGHT, IN.	6.7
LL	31
PL	16
PI	15
SPECIFIC GRAVITY	2.65
CLASSIFICATION:	LEAN CLAY W/ SAND (CL)
SWDED-GL-REPORT NO.	14604
PROJECT:	TEXAS CITY - SNAKE ISLAND DISP. AREA
BORING NO.	87-155
SAMPLE NO.	87/7194
DEPTH	15.0-16.0
DATE	FEBRUARY 1988
LABORATORY	SWD





SAMPLE NO.		1	2	3
INITIAL	WATER CONTENT, %	31.3	39.7	35.2
	DRY DENSITY, pcf	87.0	81.4	85.5
	SATURATION, %	91.0	100.8	98.6
	VOID RATIO	0.92	1.06	0.96
	DIAMETER, in.	1.38	1.42	1.39
	HEIGHT, in.	2.93	2.99	2.95
TEST	WATER CONTENT, %	34.0	28.9	28.0
	DRY DENSITY, pcf	87.4	94.3	95.5
	SATURATION, %	100.0	100.0	100.0
	VOID RATIO	0.91	0.77	0.75
	DIAMETER, in.	1.37	1.32	1.34
	HEIGHT, in.	2.92	2.95	2.81
BACK PRESSURE, tsf		5.26	4.54	4.97
CELL PRESSURE, tsf		5.83	5.98	8.06
MAX. DEV. STRESS, tsf		0.49	1.08	1.53
PORE PRESSURE, tsf		5.26	4.54	4.97
TIME TO FAILURE, min.		360	360	360
ULT. DEV. STRESS, tsf		0.49	1.08	1.49
PORE PRESSURE, tsf		5.26	4.54	4.97
σ_1 FAILURE, tsf		1.07	2.53	4.64
σ_3 FAILURE, tsf		0.58	1.44	3.10

TYPE OF SAMPLE: UNDISTURBED
DESCRIPTION: SANDY LEAN CLAY (CL)

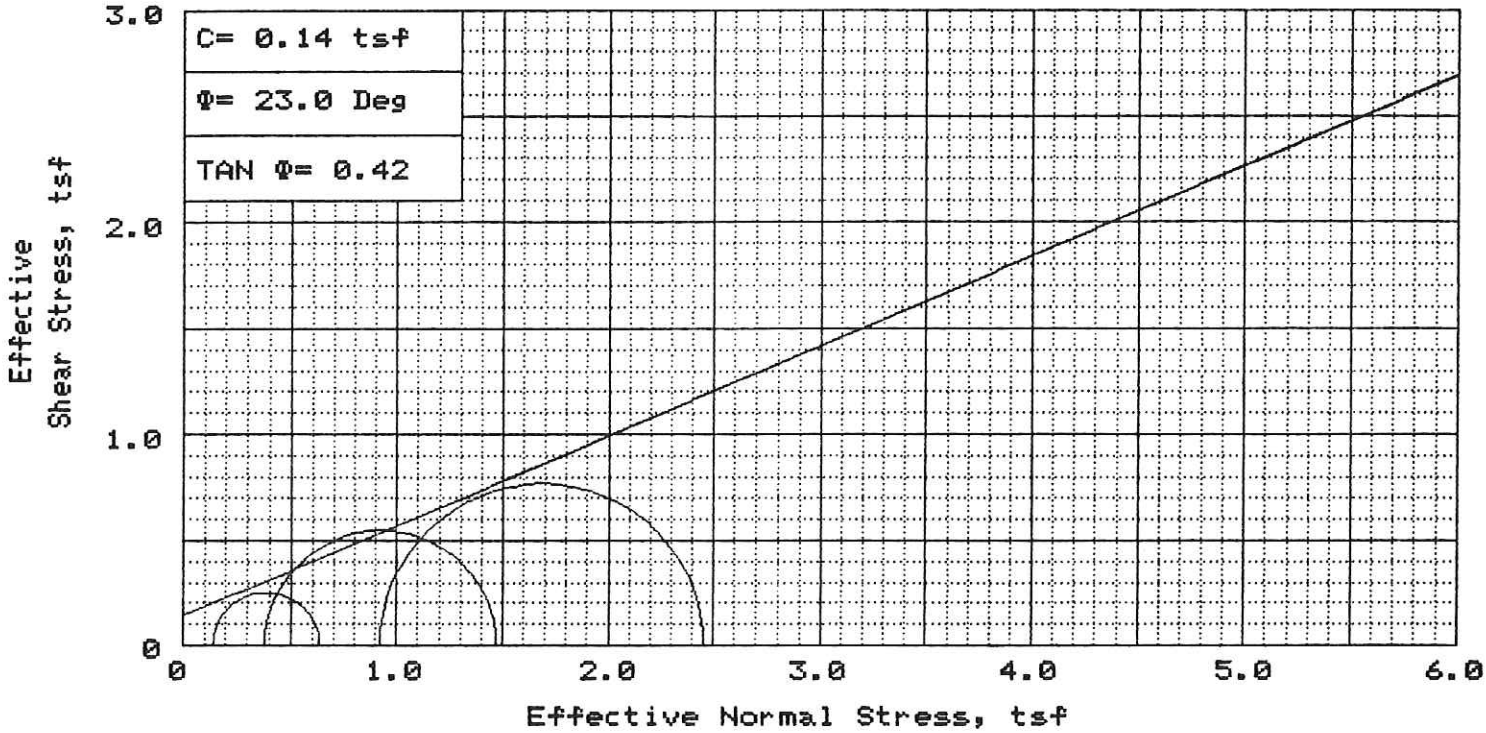
LL=26 PL=17 PI=9.0 GS=2.68

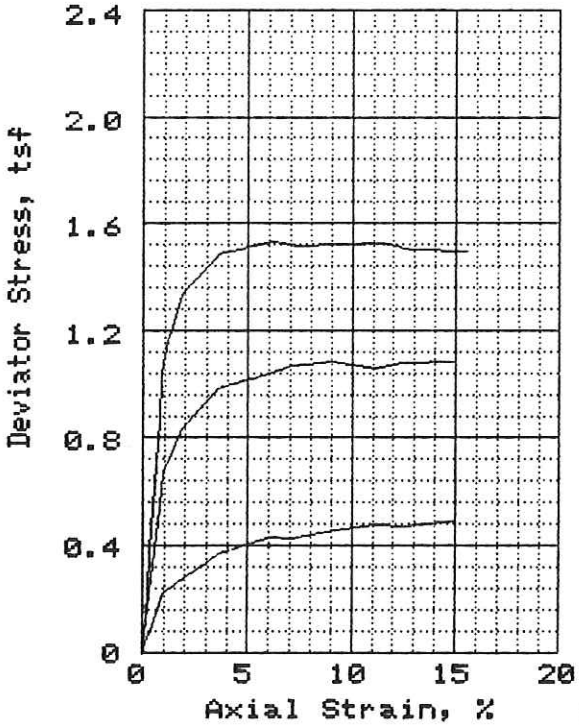
REMARKS:

CLIENT: US ARMY CORPS OF ENGINEERS
SWDED-GL NO. 14604
PROJECT: TEXAS CITY CHANNEL
GALVESTON DISTRICT
SAMPLE LOCATION: 87-155, CTN-9, 17.0-18.0
SWD NO. 87/7195
TYPE OF TEST: Consolidated undrained
DATE: 2-10-1988

TRIAXIAL COMPRESSION TEST

CORPS OF ENGINEERS - SOUTHWESTERN





	SAMPLE NO.	1	2	3
INITIAL	WATER CONTENT, %	31.3	39.7	35.2
	DRY DENSITY, pcf	87.0	81.4	85.5
	SATURATION, %	91.0	100.8	98.6
	VOID RATIO	0.92	1.06	0.96
	DIAMETER, in.	1.38	1.42	1.39
	HEIGHT, in.	2.93	2.99	2.95
TEST	WATER CONTENT, %	34.0	28.9	28.0
	DRY DENSITY, pcf	87.4	94.3	95.5
	SATURATION, %	100.0	100.0	100.0
	VOID RATIO	0.91	0.77	0.75
	DIAMETER, in.	1.37	1.32	1.34
	HEIGHT, in.	2.92	2.95	2.81
	BACK PRESSURE, tsf	5.26	4.54	4.97
	CELL PRESSURE, tsf	5.83	5.98	8.06
	MAX. DEV. STRESS, tsf	0.49	1.08	1.53
	PORE PRESSURE, tsf	5.70	5.59	7.14
	TIME TO FAILURE, min.	360	360	360
	ULT. DEV. STRESS, tsf	0.49	1.08	1.49
	PORE PRESSURE, tsf	5.70	5.59	7.25
	$\bar{\sigma}_1$ FAILURE, tsf	0.63	1.47	2.46
	$\bar{\sigma}_3$ FAILURE, tsf	0.14	0.38	0.92

TYPE OF SAMPLE: UNDISTURBED
DESCRIPTION: SANDY LEAN CLAY (CL)

LL=26 PL=17 PI=9.0 GS=2.68

REMARKS:

CLIENT: US ARMY CORPS OF ENGINEERS
SWDED-GL NO. 14604
PROJECT: TEXAS CITY CHANNEL
GALVESTON DISTRICT
SAMPLE LOCATION: 87-155, CTN-9, 17.0-18.0
SWD NO. 87/7195
TYPE OF TEST: Consolidated undrained w/pore p
DATE: 2-10-1988

TRIAXIAL COMPRESSION TEST

CORPS OF ENGINEERS - SOUTHWESTERN

CONSOLIDATION TEST RESULTS SWDED-GL 14604

Type of Specimen: UNDISTURBED		Before Test:		After Test:	
Diam(in): 2.22	Ht(in): 0.696	Water Content, wo:	38.7	wf:	26.0
Overburden Pressure, po:		Void Ratio, eo	1.039	ef:	0.684
Preconsol. Pressure, pc:		Saturation, So:	98.7	Sf:	100.8
Compression Index, Cc:		Dry Density, lb/ft3:	81.0		
Class.: LEAN CLAY W/SAND (CL)		k20 at eo = x 10- cm/sec			
LL 31	Gs 2.65	Project: TEXAS CITY			
PL 16	D10	SNAKE ISLAND DISP. AREA			
Remarks:		Area: CTN-8			
		Boring No. 87-155		Smpl # 87/7194	
		Depth: 15.0-16.0		Date: FEB 1988	

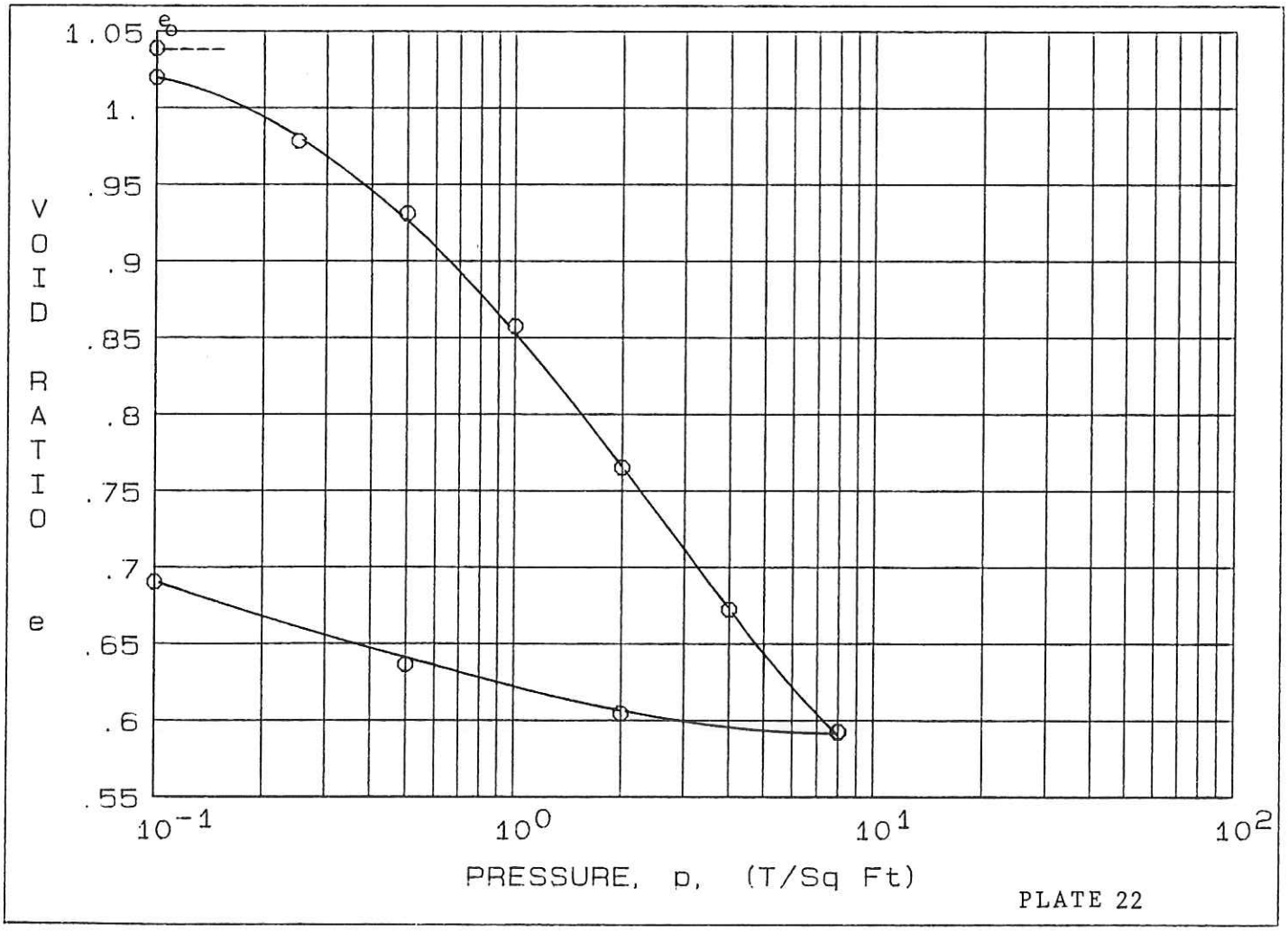
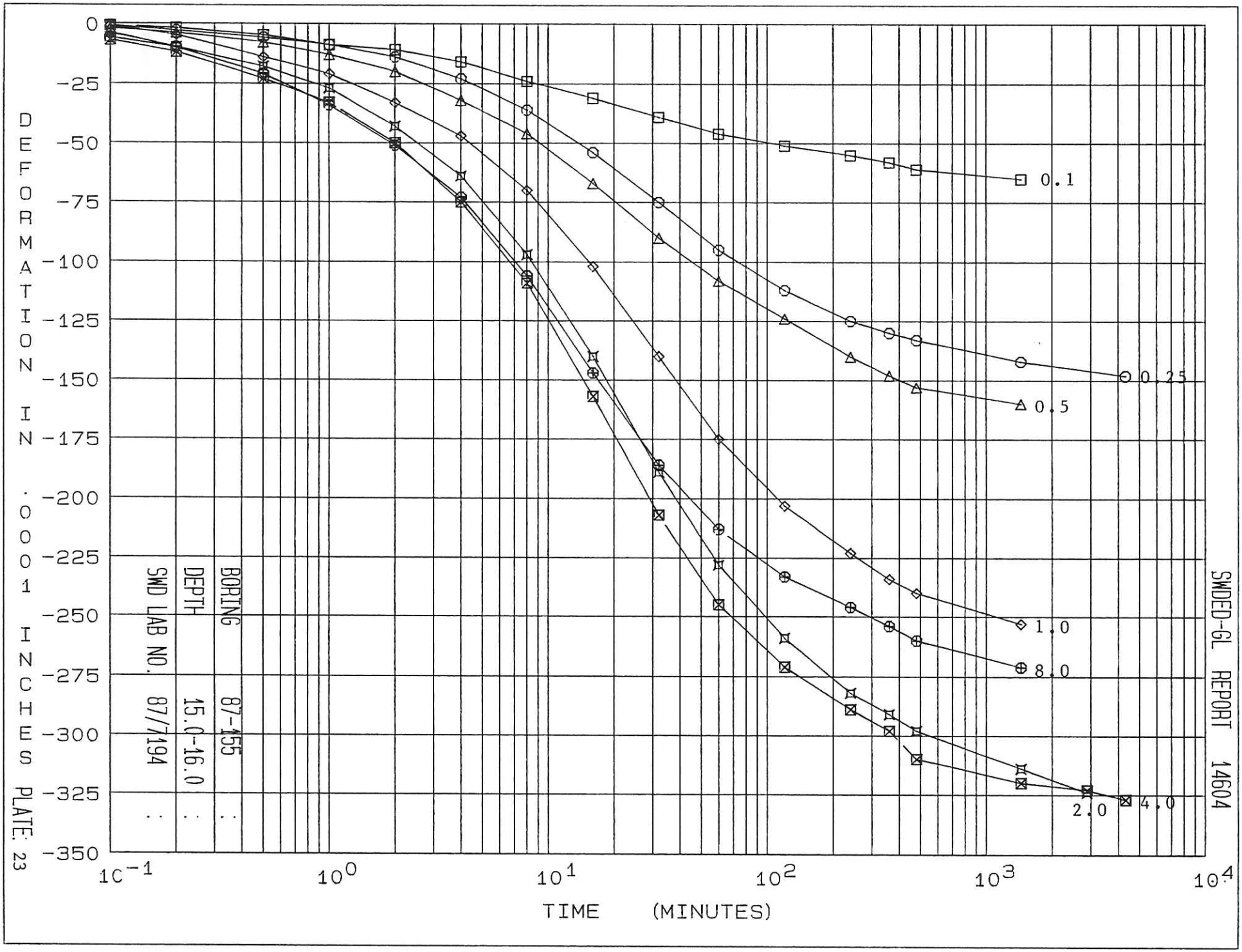
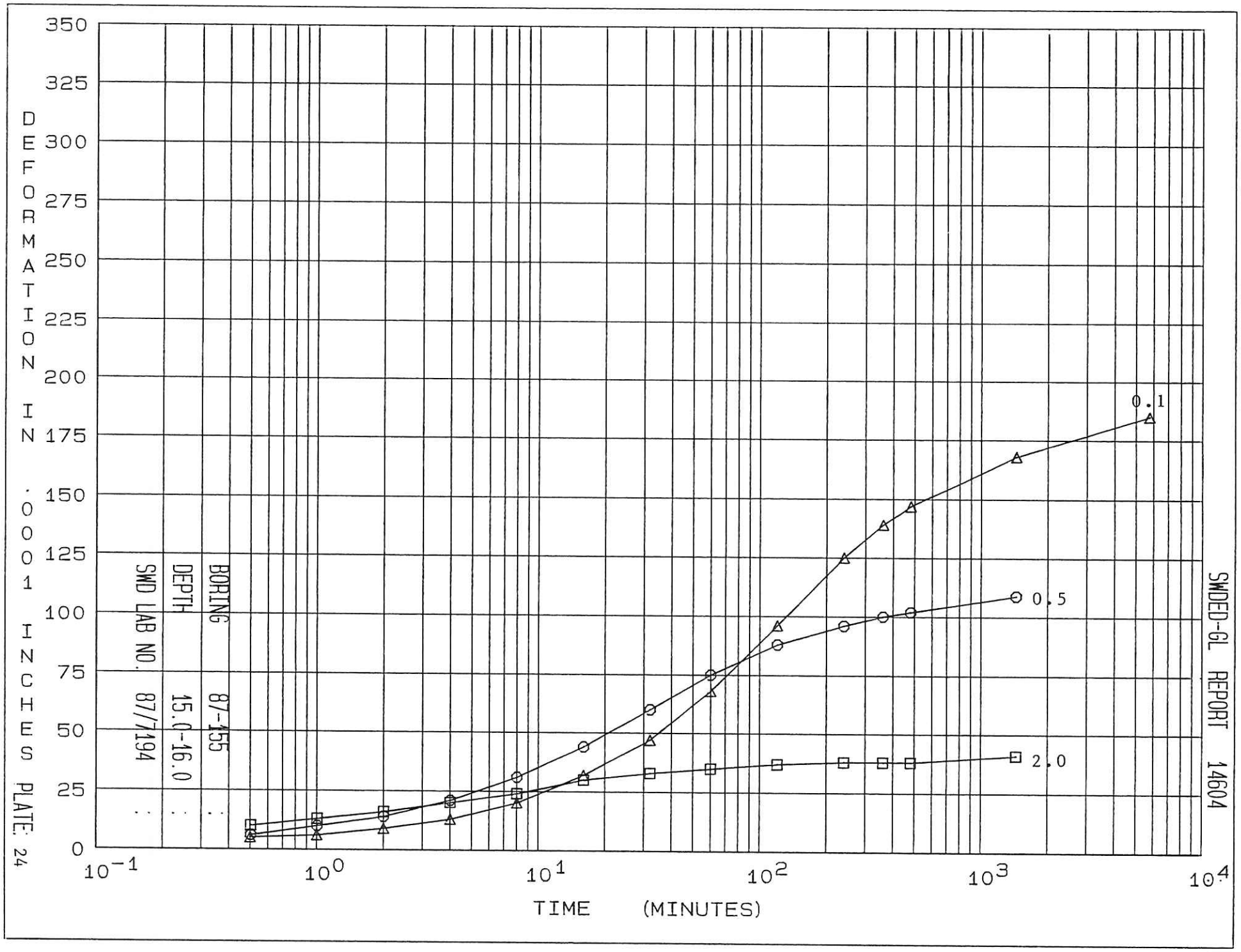
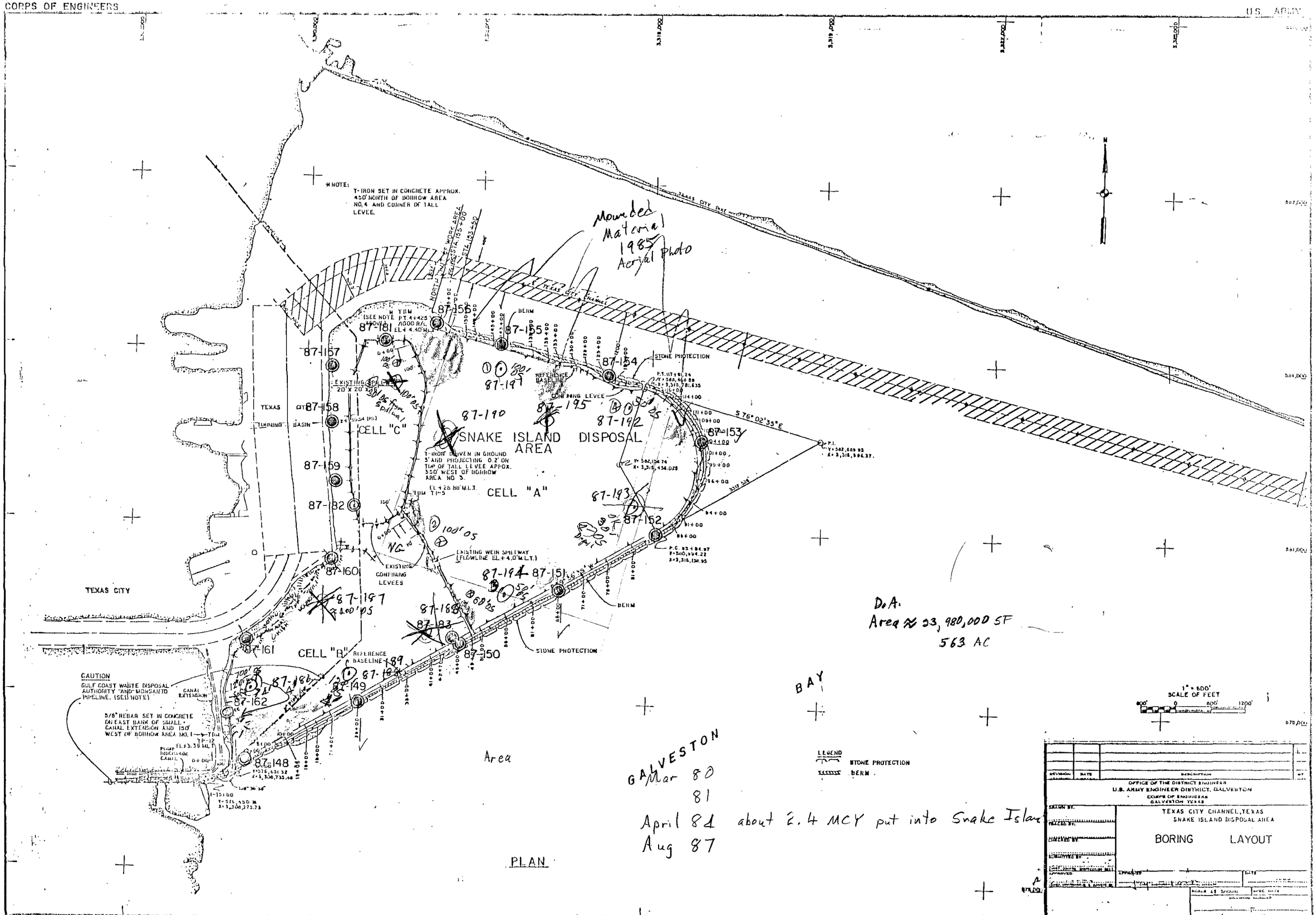


PLATE 22


DEFORMATION IN .0001 INCHES
0
-25
-50
-75
-100
-125
-150
-175
-200
-225
-250
-275
-300
-325
-350
10^{-1}
10^{0}
10^{1}
10^{2}
10^{3}
10^{4}
TIME (MINUTES)
0.1
0.25
0.5
1.0
8.0
2.0
4.0
BORING 87-155
DEPTH 15.0-16.0
SWD LAB NO. 87/7194
PLATE 23
SWDED-GL REPORT 14604


DEFORMATION IN .0001 INCHES
350
325
300
275
250
225
200
175
150
125
100
75
50
25
0
10^{-1}
10^{0}
10^{1}
10^{2}
10^{3}
10^{4}
TIME (MINUTES)
0.1
0.5
2.0
BORING 87-155
DEPTH 15.0-16.0
SWD LAB NO. 87/7194
PLATE 24
SWDED-GL REPORT 14604

CORPS OF ENGINEERS

U.S. ARMY