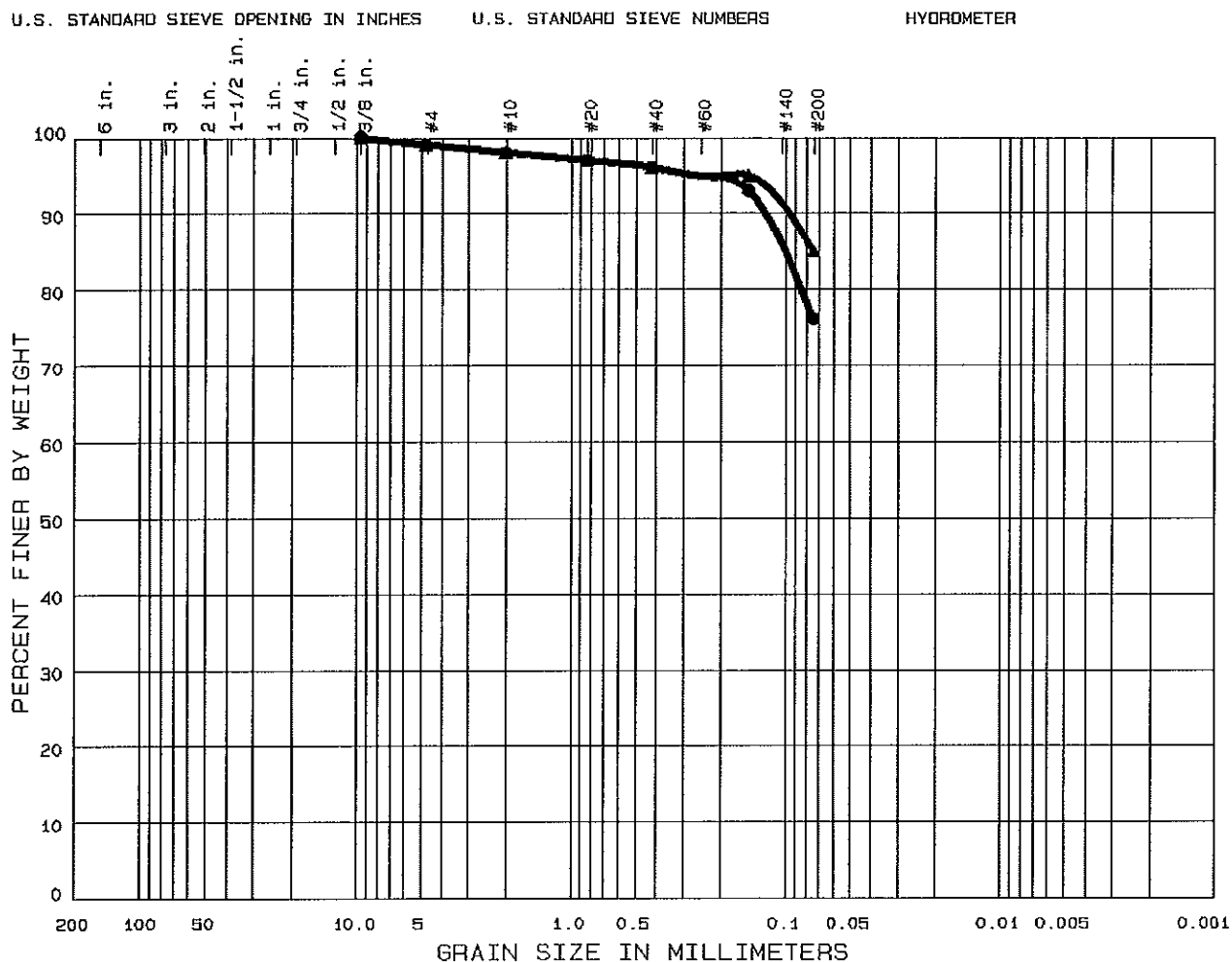


DEPARTMENT OF THE ARMY, SOUTHWESTERN DIVISION LABORATORY
CORPS OF ENGINEERS, 4815 CASS STREET, DALLAS, TX 75235

W.O. No.

Req. No.

Contract No.



% COBBLES	% GRAVEL	% SAND	% SILT OR CLAY
0.0	1.0	23.0	76.0
0.0	1.0	14.0	85.0

Sample No.	Elev or Depth	Nat W%	LL	PL	PI	C _c	C _u
91/2521	4.0-6.0	19.5	57	14	43		
91/2522	22.0-24.0	21.3	37	13	24		

CLASSIFICATION

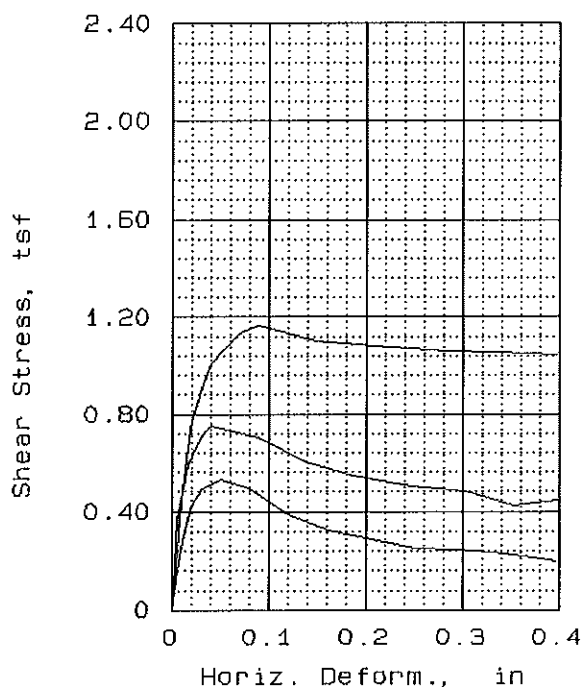
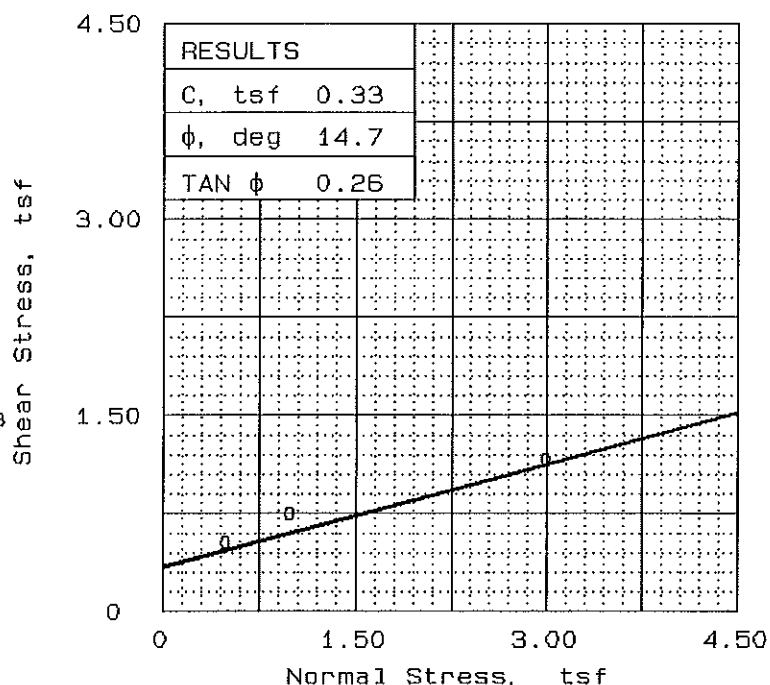
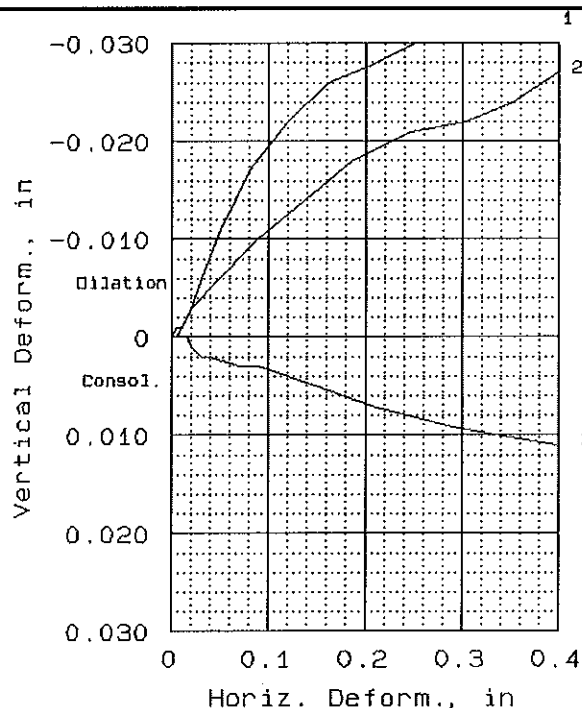
● FAT CLAY WITH SAND (CH)

▲ LEAN CLAY WITH SAND (CL)

Remarks:

Project BRAYS BAYOU
FLOOD DAMAGE REDUCTION PROJECT
Lab No. SWDED-GL RPT NO. 15363
Area
Boring No. 91-82 Date AUGUST 1991

GRADATION CURVES



SAMPLE NO.		1	2	3
INITIAL	WATER CONTENT, %	18.7	18.8	19.6
	DRY DENSITY, pcf	105.9	107.2	106.6
	SATURATION, %	85.3	88.9	91.1
	VOID RATIO	0.591	0.572	0.581
	SIDE LENGTH, in	3.00	3.00	3.00
	HEIGHT, in	1.00	1.00	1.00
AT TEST	WATER CONTENT, %	22.5	22.8	20.6
	DRY DENSITY, pcf	105.4	108.3	108.7
	SATURATION, %	101.2	110.4	100.7
	VOID RATIO	0.599	0.556	0.551
	SIDE LENGTH, in	3.39	3.39	3.39
	HEIGHT, in	1.01	0.99	0.98
NORMAL STRESS, tsf		0.50	1.00	3.00
MAX. SHEAR, tsf		0.53	0.75	1.17
STRAIN RATE, %/min.		0.002	0.002	0.002
ULT. SHEAR, tsf				

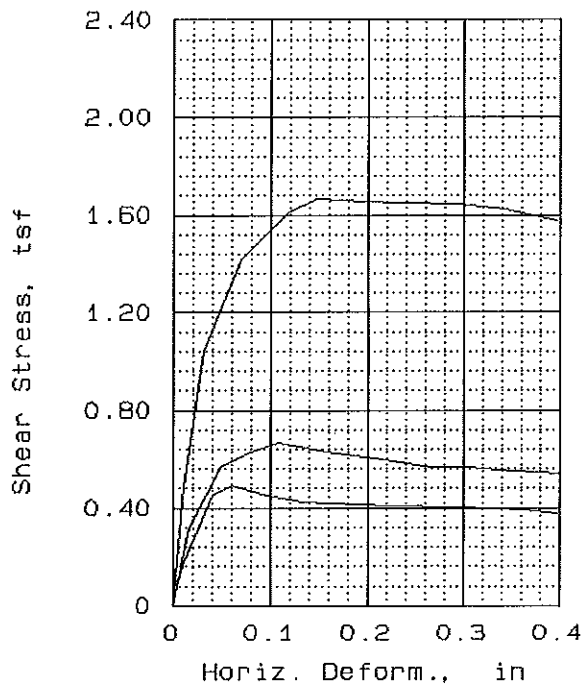
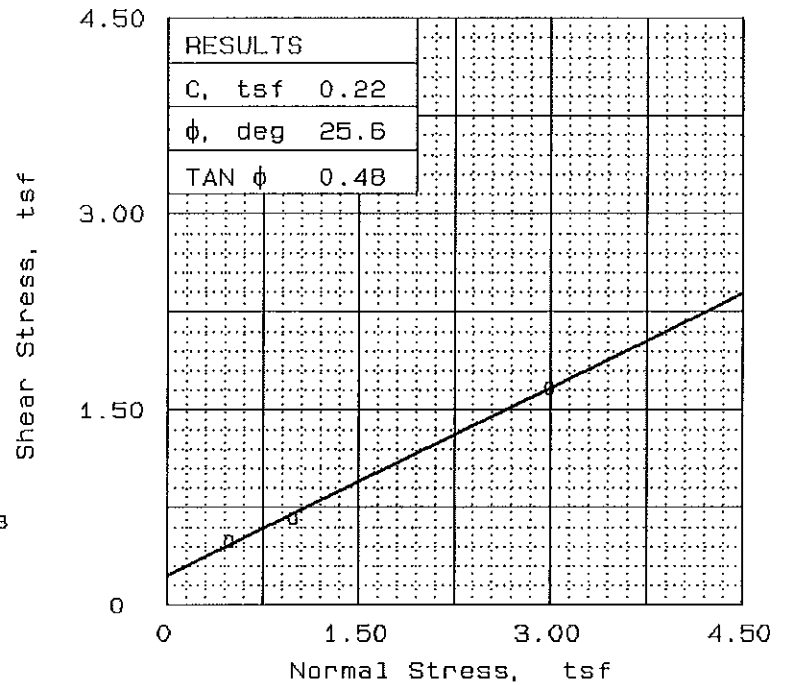
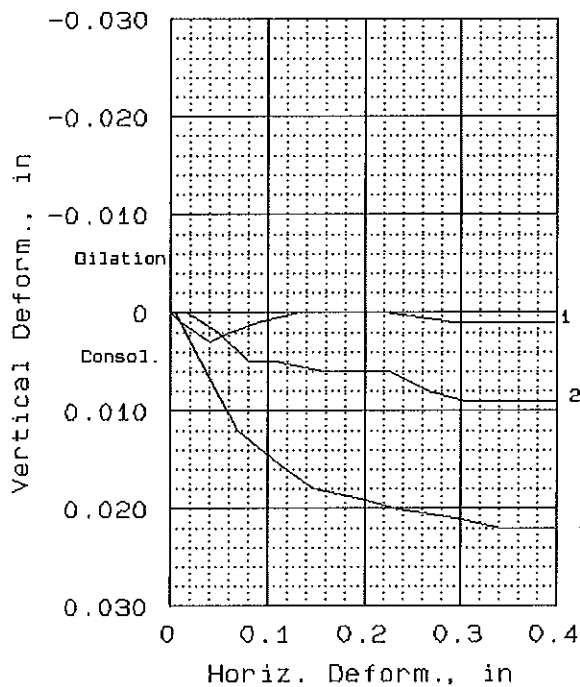
SAMPLE DATA
 SAMPLE TYPE: UNDISTURBED
 DESCRIPTION: FAT CLAY WITH
 SAND (CH)
 LL= 57 PL= 14 PI= 43
 SPECIFIC GRAVITY= 2.70
 REMARKS: SPECIFIC GRAVITY
 ESTIMATED

CLIENT: US ARMY CORPS OF ENGINEERS
 GALVESTON DISTRICT
 PROJECT: BRAYS BAYOU FLOOD DAMAGE
 REDUCTION PROJECT, HOUSTON, TX.
 SAMPLE LOCATION: BORING: 91-82, CTN-3
 5.1'-6.0', SWD LAB NO. 91/2521
 PROJ. NO.: 15363 DATE: JULY 1991

DIRECT SHEAR TEST

CORPS OF ENGINEERS - SOUTHWESTERN

FIG. NO.



SAMPLE NO.		1	2	3
INITIAL	WATER CONTENT, %	20.8	20.1	19.4
	DRY DENSITY, pcf	107.6	108.1	110.3
	SATURATION, %	98.9	97.2	99.2
	VOID RATIO	0.567	0.559	0.528
	SIDE LENGTH, in	3.00	3.00	3.00
	HEIGHT, in	1.00	1.00	1.00
AT TEST	WATER CONTENT, %	20.6	20.0	17.9
	DRY DENSITY, pcf	108.7	110.1	114.3
	SATURATION, %	101.1	101.9	101.9
	VOID RATIO	0.551	0.531	0.475
	SIDE LENGTH, in	3.39	3.39	3.39
	HEIGHT, in	0.99	0.98	0.97
NORMAL STRESS, tsf		0.50	1.00	3.00
MAX. SHEAR, tsf		0.49	0.67	1.67
STRAIN RATE, %/min.		0.002	0.002	0.002
ULT. SHEAR, tsf				

SAMPLE DATA
 SAMPLE TYPE: UNDISTURBED
 DESCRIPTION: LEAN CLAY WITH
 SAND (CL)
 LL= 37 PL= 13 PI= 24.0
 SPECIFIC GRAVITY= 2.70
 REMARKS: SPECIFIC GRAVITY
 ESTIMATED.

CLIENT: US ARMY CORPS OF ENGINEERS
 GALVESTON DISTRICT
 PROJECT: BRAYS BAYOU FLOOD DAMAGE
 REDUCTION PROJECT, HOUSTON, TX.
 SAMPLE LOCATION: BORING: 91-82, CTN-12,
 23.3'-24.0', SWD LAB NO. 91/2522
 PROJ. NO.: 15363 DATE: AUGUST 1991

DIRECT SHEAR TEST

CORPS OF ENGINEERS - SOUTHWESTERN

FIG. NO.

TABLE 1

RESULTS OF TESTS OF DISTURBED AND UNDISTURBED SOIL SAMPLES

SWDED-GL REPORT NO. 15363 BRAYS BAYOU - FLOOD DAMAGE REDUCTION PROJECT

BORING	NO.	SWD NO.	FLD NO.	DEPTH, FT	GR	SA	FI	LL	PL	PI	LS	WC, %	PCF	MAJOR TESTS	DESCRIPTION OF MATERIAL
91	77	91/2518	CTN-5	8.0 - 10.0	2	17	81	67	16	51		18.0	110	DS	CH - FAT CLAY WITH SAND, GRAYISH BROWN MOTTLED WITH BROWNISH GRAY AND GRAY, MOIST, HARD(>4.0), NON-CALCAREOUS, IRON-OXIDE DEPOSITS, CALCAREOUS POCKETS, CALCAREOUS NODULES TO 1/2" IN BOTTOM 2".
91	79	91/2519	CTN-3	4.0 - 6.0	3	15	82	60	13	47		20.2	106	DS	CH - FAT CLAY WITH SAND, LIGHT GRAYISH BROWN MOTTLED WITH YELLOW AND GRAY, MOIST, VERY STIFF(2.0-2.5), NON-CALCAREOUS, IRON-OXIDE DEPOSITS, CALCAREOUS NODULES THROUGHOUT.
91	79	91/2520	CTN-10	18.0 - 20.0	0	24	76	35	12	23		18.3	110	DS	CL - LEAN CLAY WITH SAND, REDDISH YELLOW, MOIST, VERY STIFF(2.25), NON-CALCAREOUS, POCKETS OF GRAY VERY FINE SILTY SAND.
91	82	91/2521	CTN-3	4.0 - 6.0	1	23	76	57	14	43		19.5	107	DS	CH - FAT CLAY WITH SAND, LIGHT GRAYISH BROWN MOTTLED WITH GRAY, MOIST, VERY STIFF(3.25), NON-CALCAREOUS, IRON-OXIDE DEPOSITS, CALCAREOUS NODULES AND GRAVELS TO 1".
91	82	91/2522	CTN-12	22.0 - 24.0	1	14	85	37	13	24		21.3	106	DS	CL - LEAN CLAY WITH SAND, LIGHT BROWN AND LIGHT GRAY, MOIST, VERY STIFF(2.25), NON-CALCAREOUS, A FEW GRAVELS, CALCAREOUS NODULES THROUGHOUT.
91	84	91/2523	CTN-8	14.0 - 16.0	0	17	83	39	13	26		25.3	98	DS	CL - LEAN CLAY WITH SAND, YELLOW AND GRAY, MOIST, SOFT(0.5), NON-CALCAREOUS, CALCAREOUS NODULES, SEAMS AND POCKETS THROUGHOUT, VERY SANDY IN TOP 1".
91	87	91/2524	CTN-3	4.0 - 6.0	1	10	89	95	22	73		39.1	80	DS	CH - FAT CLAY, GRAY, MOIST, STIFF(1.5), NON-CALCAREOUS, IRON-OXIDE DEPOSITS, CALCAREOUS NODULES.
91	87	91/2525	CTN-8	14.0 - 16.0	1	16	83	64	20	44		28.2	96	DS	CH - FAT CLAY WITH SAND, LIGHT GRAY AND BROWN AND OLIVE SPOTS, MOIST, VERY STIFF(2.25), NON-CALCAREOUS CALCAREOUS NODULES TO 1 1/2", IRON-OXIDE DEPOSITS, INDURATED THROUGHOUT.