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AVILES ENGINEERING CORP.
GEOTECHNICAL ENGINEERS

PROJECT: CHANNEL TO VICTORIA BORING 93-378

DATE FEBRUARY 17, 1994 TYPE 3" CORE LOCATION SEE PLAN

PROJECT NO. 139-94

DEPTH IN FEET	SYMBOL	CORES	DESCRIPTION	BLOWS/FOOT	M.C. %	U.D.W. PCF	-200 MESH	LIQUID LIMIT	PLASTIC LIMIT
			Elevation: -						
0			Very soft dark gray Clayey Silt (wet) (ML) w/shell We ordered a Torvane if the values are so high so		13				
4			Firm light gray Sandy Clay (CL) w/calcareous nodules & sand seams Stiff is our nomenclature		22		79	25	16
					24				
8					24	104	55	32	20
12			Medium dense light gray Sand (SP)	18			12		
16				23					
20				21			19		
24									
28				28					
32				27			10		
36				29					
40			Bottom @ 36' Weather: Cloudy, Windy, 75 F Driller: Randy Gearen Logger: Dempsey Gearen						

COMPRESSIVE STRENGTH, TSF

○ POCKET PENETROMETER
△ CONFINED COMPRESSION
● UNCONFINED COMPRESSION
□ TORVANE

0.5 1 1.5 2

BORING DRILLED TO - FEET WITHOUT DRILLING FLUID

WATER ENCOUNTERED AT - FEET WHILE DRILLING

WATER LEVEL AT _____ FEET AFTER _____ HOURS

DRILLED BY RG CHECKED BY QL LOGGED BY DG

KEY TO SYMBOLS

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Symbol	Description
Strata symbols	
	High plasticity clay
	Low plasticity clay
	Poorly graded sand
Misc. Symbols	
	Water table during drilling
	Water table at boring completion
□	Torvane reading
●	Unconfined compression
△	Confined compression reading

Symbol	Description
○	Penetrometer reading
Soil Samplers	
	Shelby Tube Sampler
	Standard penetration test
	Undisturbed thin wall Shelby tube

Notes:

1. Exploratory borings were drilled on FEBRUARY 17, 1994 using a 4-inch diameter continuous flight power auger.
2. No free water was encountered at the time of drilling or when re-checked the following day.
3. Boring locations were taped from existing features and elevations extrapolated from the final design schematic plan.
4. These logs are subject to the limitations, conclusions, and recommendations in this report.
5. Results of tests conducted on samples recovered are reported on the logs.

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SYMBOLS AND TERMS USED ON BORING LOGS

MAJOR DIVISIONS			GRAPH SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL GRADED GRAVELS, GRAVEL SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY GRADED GRAVELS, GRAVEL SAND MIXTURES, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL SAND SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL SAND CLAY MIXTURES
	SAND AND SANDY SOILS	CLEAN SAND (LITTLE OR NO FINES)		SW	WELL GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	MORE THAN 50% OF COARSE FRACTION PASSING NO. 4 SIEVE	SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND SILT MIXTURES
				SC	CLAYEY SANDS, SAND CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS
UNCLASSIFIED FILL MATERIALS					ARTIFICIALLY DEPOSITED EARTH AND/OR OTHER UNCLASSIFIED MATERIALS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

SOIL CLASSIFICATION CHART

SAMPLE TYPES

INDICATES DEPTH OF UNDISTURBED SAMPLE

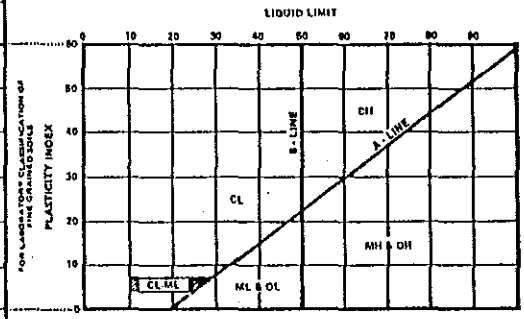
INDICATES DEPTH OF STANDARD PENETRATION TEST

INDICATES DEPTH OF DISTURBED OR AUGER SAMPLE

INDICATES DEPTH OF SAMPLING ATTEMPT WITH NO RECOVERY

KEY TO SAMPLES

(SHOWN IN SAMPLES COLUMN)



PLASTICITY CHART

UNIFIED SOIL CLASSIFICATION SYSTEM

RELATIVE DENSITY OF COHESIONLESS SOILS

COARSE GRAINED SOILS (major portion retained on No. 200 sieve): Includes (1) clean gravels and sands, and (2) silty or clayey gravels and sands. Conditions rated according to standard penetration test (SPT) as performed in the field.

Descriptive Term	Blows Per Foot*
Very Loose	0 - 4
Loose	5 - 10
Medium Dense	11 - 30
Dense	31 - 50
Very Dense	over 50

*140 pound weight having a free fall of 30 inches.

CONSISTENCY OF COHESIVE SOILS

FINE GRAINED SOILS (major portion passing No. 200 sieve): Includes (1) inorganic and organic silts and clays, (2) gravelly, sandy, or silty clays, and (3) clayey silts. Consistency is rated according to shearing strength as indicated by penetrometer readings or by unconfined compression tests.

Descriptive Term	Unconfined Compressive Strength Ton/Sq. Ft.
Very Soft	Less than 0.25
Soft	0.25 to 0.50
Firm	0.50 to 1.00
Stiff	1.00 to 2.00
Very Stiff	2.00 to 4.00
Hard	4.00 and higher

NOTE: Slickensided and fissured clays may have lower unconfined compressive strengths than shown above, because of weakness or cracks in the soil. The consistency ratings of such soils are based on penetrometer readings.

TERMS CHARACTERIZING SOIL STRUCTURE

Slickensided	— having inclined planes of weakness that are slick and glossy in appearance.
Fissured	— containing shrinkage cracks, frequently filled with fine sand or silt; usually more or less vertical.
Laminated	— composed of thin layers of varying color and texture.
Interbedded	— composed of alternate layers of different soil types.
Calcareous	— containing appreciable quantities of calcium carbonate.
Well graded	— having wide range in grain sizes and substantial amounts of all intermediate particle sizes.
Poorly graded	— predominantly of one grain size, or having a range of sizes with some intermediate size missing.

TABLE 2

SUMMARY OF LABORATORY TEST RESULTS

$\gamma_d = 37$

$\gamma_s = 86$

PROJECT: AEC 139-94 **BORING NO. 93-378**

γ_s 87

S #	Depth (Feet)	PP (tsf)	SPT Blows per Foot	Visual Classification	MC (%)	UDW (pcf)	LL (%)	PL (%)	Mechanical Analysis % Passing					Torvane (tsf)	QU (tsf)
									#4	#10	#40	#100	#200		
1	0 - 2			Dark gray clayey silt (Wet) (ML) w/shell	131										
2	2 - 4			Light gray sandy clay (CL) w/calcareous nodules	22	105	25	16	99.8	99.3	99.0	96.0	78.6		
3	4 - 6	1.50		Light gray sandy clay (CL) w/calcareous nodules	22										
4	6 - 8	1.00		Light gray sandy clay (CL) w/sand seams	24	104	32	20	100	100	99.9	95.9	55.2		.59
5	8 - 10	1.50		Light gray sandy clay (CL) w/sand seams											
6	10 - 11.5		18	Light gray sand (SP)					99.8	99.8	99.6	68.6	12.1		
7	15 - 16.5		23	Light gray sand (SP)											
8	20 - 21.5		21	Light gray sand (SP)					99.7	99.4	99.2	66.5	19.3		
9	25 - 26.5		28	Light gray sand (SP)											
10	30 - 31.5		27	Light gray sand (SP)					100	99.6	99.3	38.1	9.8		
11	34.5 - 36		29	Light gray sand (SP)											

S#: Sample Number; PP: Pocket Penetrometer Reading; MC: Moisture Content; QU: Unconfined Compressive Strength

2.31 X 104 =

1.22 X 104

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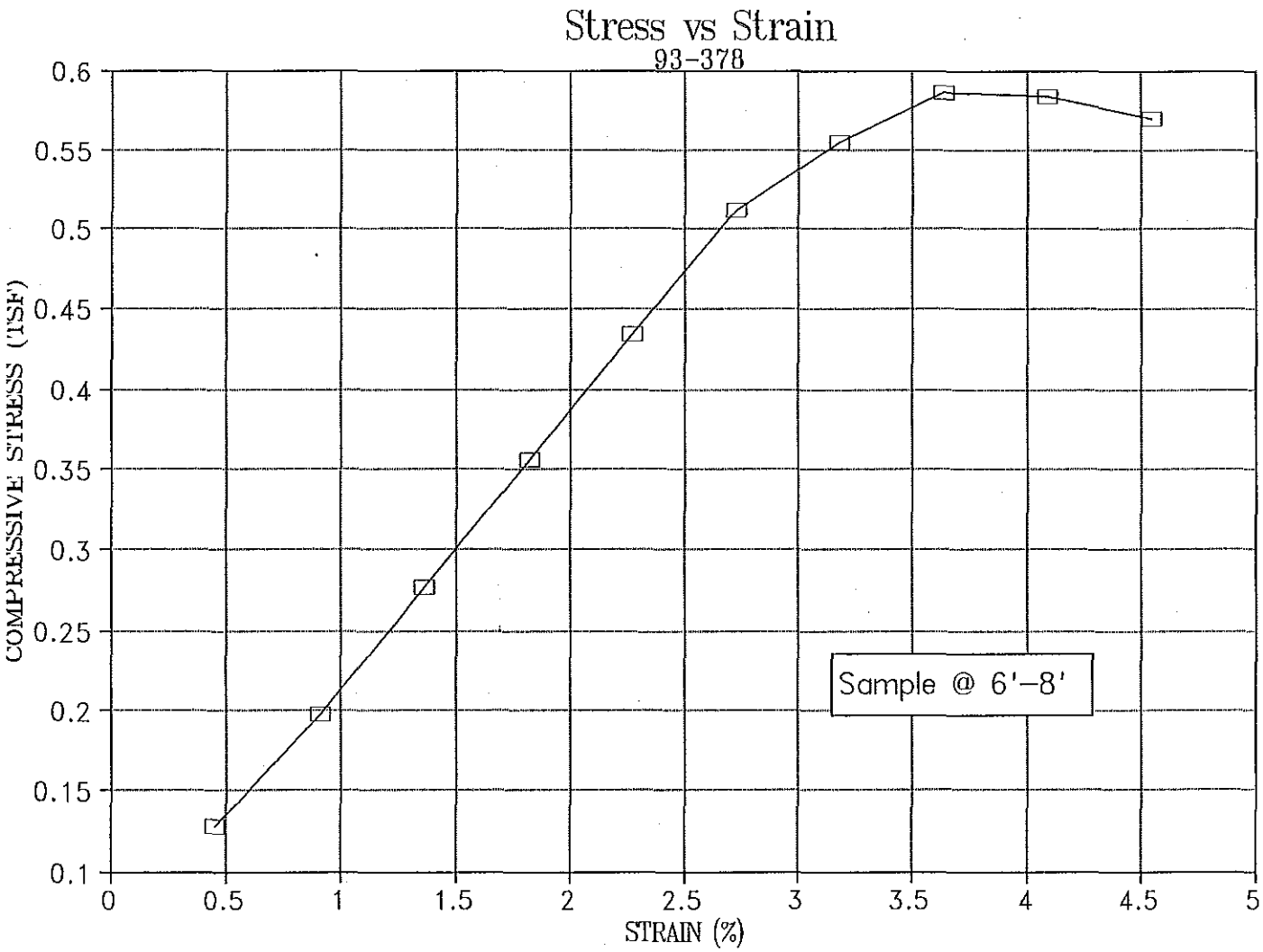

FIGURE 2

CORPS OF ENGINEERS

U. S. ARMY

CHANNEL TO VICTORIA

THIS PORTION OF DISPOSAL AREA IS NOT AVAILABLE AT THIS TIME

DISPOSAL AREA NO. 122

GULF INTRACOASTAL WATERWAY

DISPOSAL AREA NO. 121A

EXISTING SPILLWAY

EXISTING LEVEE

EXISTING ABANDONED LEVEE

DISPOSAL AREA NO. 121

SECTION NO. 1

SECTION NO. 2

STA. 735+000

STA. 730+000

STA. 724+000

BAY

ANTONIO

SHOALWATER

GRASSIS

LOCATION OF PROJECT

GULF OF MEXICO

VICTORIA

PALACIOS

PORT LAVACA

PORT O'CONNOR

CORPUS CHRISTI

PORT ARANSAS

LOCATION MAP

SCALE OF MILES

Scale: 1" = 500'

Grids Shown are Lambert Projection, South-Central Zone. Soundings are in Feet and refer to Mean Low Tide, C. of E. datum.

LEGEND

LOCATION OF BORINGS

BEACONS LOCATED AT APPROXIMATE LOCATIONS

LIMITS OF DISPOSAL AREAS SHOWN THUS

BRONZE MONUMENT (STD. C. OF E. UNLESS NOTED)

EXISTING LEVEES SHOWN THUS

EXISTING ABANDONED LEVEES

TIDE GAGE

TABLE OF BORING LOCATIONS & DEPTHS

BORING NUMBER	STATION	DEPTH
93-377	726+600	-45 MLT
93-378	725+900	-45 MLT
93-379	725+100	-45 MLT
93-380	724+400	-45 MLT

REVISION	DATE	DESCRIPTION	BY

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

DRAWN BY: L.A.A.

DESIGNED BY:

CHECKED BY:

SUBMITTED BY:

APPROVED:

GULF INTRACOASTAL WATERWAY, TEXAS

PROPOSED MOORING FACILITIES
CHANNEL TO VICTORIA
LOCATION PLAN & BORING LAYOUT

APPROVED: CHIEF, ENGINEERING DIVISION

DATE:

(* AS REQUIRED BY ENGINEER CIRCULAR NO. 110-1-76)

SCALE:

SPEC. DATE:

DRAWING NUMBER

SHEET 1 of 2

FILE NO.