



DEPTH, FT	WATER LEVEL SYMBOL	SAMPLES	BLOWS PER FOOT	LOCATION: See Plate 1 COORDINATES: 735795 (North) 3609284 (East) SURFACE EL.: 5.71'	ELEVATION, FT	CLASSIFICATION						SHEAR STRENGTH						
						UNIT DRY WT. PCF	PASSING NO. 200 SIEVE, %	WATER CONTENT, %	ORGANIC CONTENT, %	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX (PI)	KIPS PER SQ FT					
				STRATUM DESCRIPTION								0.5	1.0	1.5	2.0	2.5		
				FILL: CLAY, stiff to very stiff, brown, with organic material - very soft to firm below 4' - with many roots and organic material at 4' - with sand pockets and organic material, 6' to 9'														
			13	SILTY SAND, loose to medium dense, dark gray, with clay pockets and shell fragments	-5.3		26											
			8	SANDY CLAY, soft, gray, with fine sand pockets - with many fine sand pockets at 24' - very soft, 24' to 25' - with shell fragments below 26' - with sand pockets at 29' - firm at 39' - with sand pockets at 48'	-10.3			69										
								31	27	19	8							
								48										
								78										
								81										
								73										
								41										

NOTES:

1. Depth-to-water not measured during drilling.
2. Terms and symbols defined on Plate A-41.
3. Boring coordinates based on NAD 27, Texas State Plane coordinate datum. Elevations based on NGVD 29.
4. * Triaxial samples at 85 ft and 130 ft failed at low strain.

DATE: December 12, 2003
 TOTAL DEPTH: 150'
 CAVED DEPTH: Not Applicable
 DRY AUGER: Not Applicable
 WET ROTARY: 0' to 150'
 BACKFILL: Cement-Bentonite Grout
 LOGGER: G. Lindsey

LOG OF BORING NO. B-19
 LNG PROCESS AREA, MARINE AREA, AND PERIMETER DIKES
 EXXONMOBIL DEVELOPMENT COMPANY
 GOLDEN PASS, SABINE, TEXAS

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Date: _____
Drawn By: _____
Date: _____
Checked By: _____

DEPTH, FT	WATER LEVEL SYMBOL	SAMPLES	BLOWS PER FOOT	LOCATION: See Plate 1 COORDINATES: 735795 (North) 3609284 (East) SURFACE EL.: 5.71'	ELEVATION, FT	CLASSIFICATION						SHEAR STRENGTH						
						UNIT DRY WT, PCF	PASSING NO. 200 SIEVE, %	WATER CONTENT, %	ORGANIC CONTENT, %	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX (PI)	KIPS PER SQ FT					
STRATUM DESCRIPTION																		
70				- with a few silt seams at 59' - stiff below 59' - light gray, with many shell fragments below 63' - firm from 63' to 65' - light brown, with sand seams and calcareous nodules below 69'	-67.3	105	23		31	15	16							
80				CLAY, firm to stiff, brown and gray, with sand pockets and seams - with sand partings and organic material at 79' - with sand pockets at 84' - gray, with sand partings and shell fragments at 88' - with silty sand pockets and organic material below 94'	-90.3		30	45										3.0
90				SANDY CLAY, very stiff, brown and gray		100	25											
100					-99.3	110	20											
110				CLAY, very stiff, brown and gray, with many sand pockets - with silt partings below 119'			21											

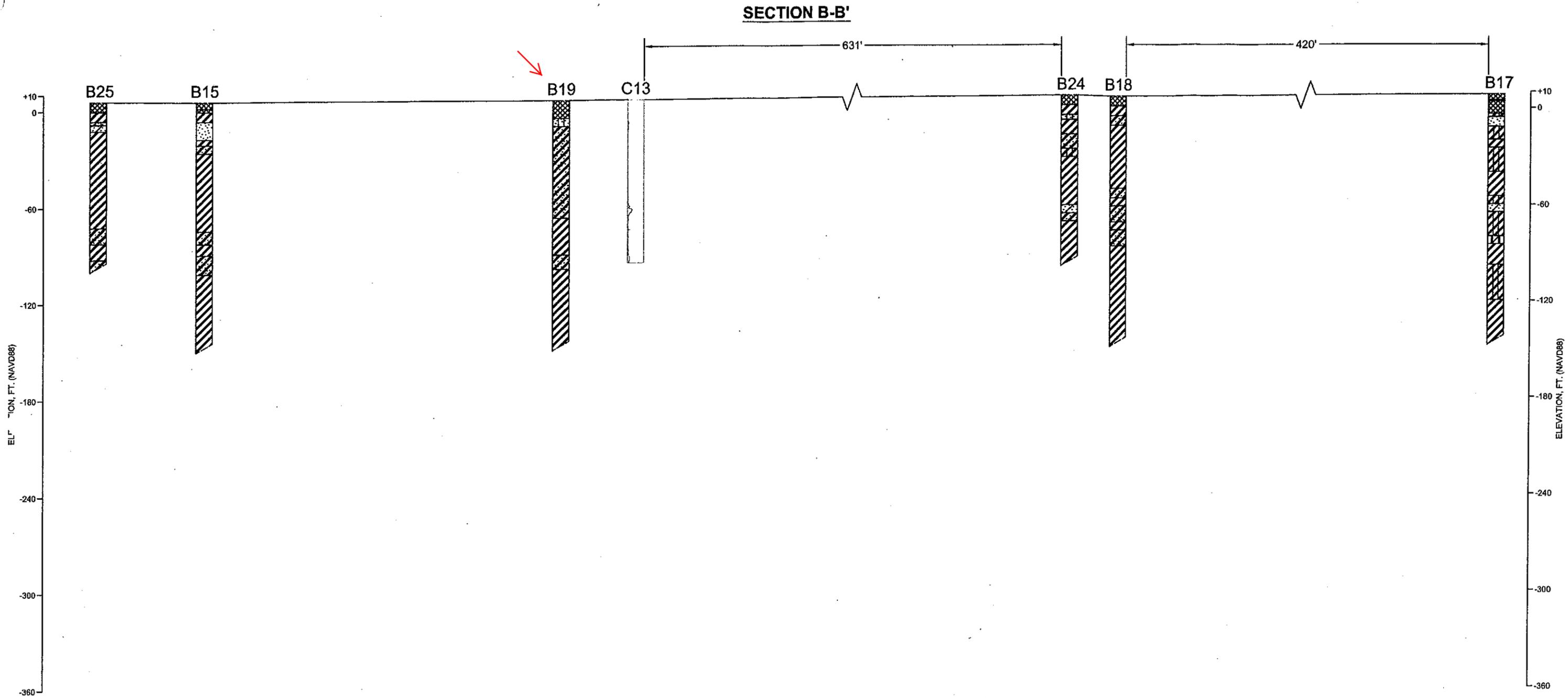
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NOTES:

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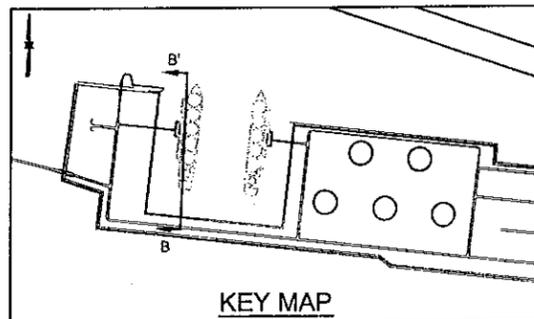
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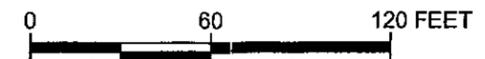


LEGEND			
	CLAY		SILTY CLAY
	CLAYEY SAND		SILTY SAND
	SANDY CLAY		CLAYEY SILT
	SAND		EXTENDED WATER LEVEL
	SANDY SILT		WATER LEVEL FIRST ENCOUNTERED
	SILTY SAND		

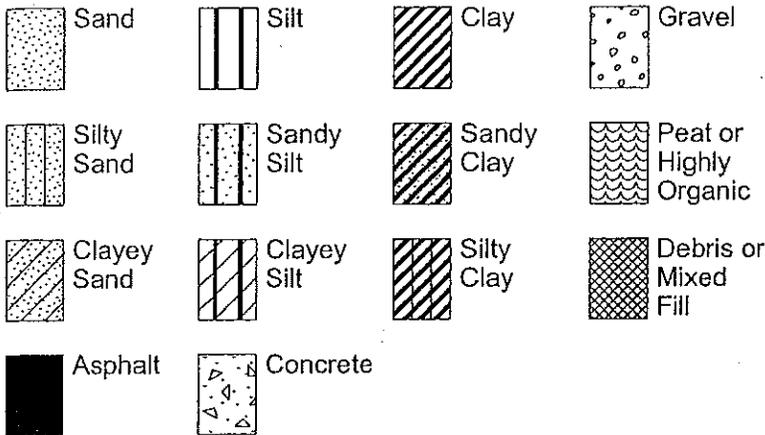
NOTE:
 1. PCPT PROFILES PRESENTED ABOVE DISPLAY CONE TIP RESISTANCE. SEE REPORT TEXT FOR ADDITIONAL INFORMATION REGARDING PCPTs.
 2. DATA CONCERNING SUBSURFACE CONDITIONS HAVE BEEN OBTAINED AT BORING AND PCPT LOCATION ONLY. ACTUAL CONDITIONS AT LOCATIONS BETWEEN BORINGS AND PCPTs MAY DIFFER FROM THE GENERALIZED PROFILE SHOWN ABOVE.



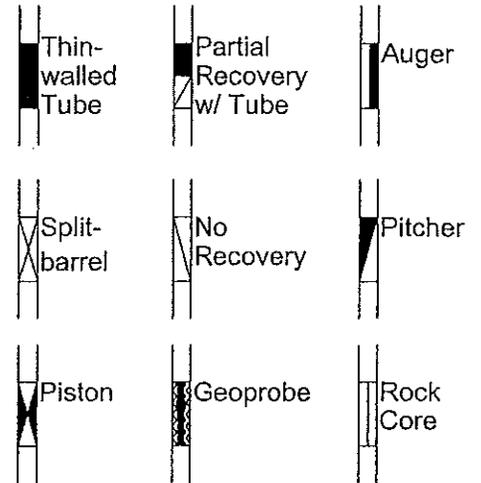
SUBSURFACE STRATIGRAPHY - SECTION B-B'



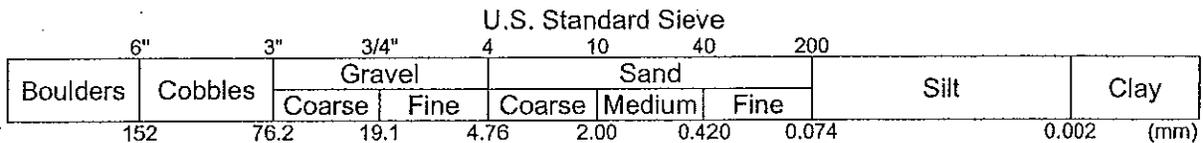
SOIL TYPES



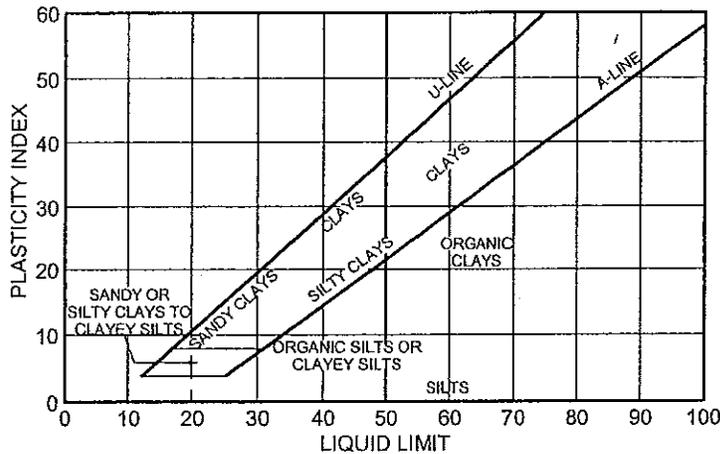
SAMPLER TYPES



SOIL GRAIN SIZE



PLASTICITY CHART



SOIL STRUCTURE

- Slickensided Having planes of weakness that appear slick and glossy.
- Fissured Containing shrinkage or relief cracks, often filled with fine sand or silt; usually more or less vertical.
- Pocket Inclusion of material of different texture that is smaller than the diameter of the sample.
- Parting Inclusion less than 1/8 inch thick extending through the sample.
- Seam Inclusion 1/8 inch to 3 inches thick extending through the sample.
- Layer Inclusion greater than 3 inches thick extending through the sample.
- Laminated Soil sample composed of alternating partings or seams of different soil type.
- Interlayered Soil sample composed of alternating layers of different soil type.
- Intermixed Soil sample composed of pockets of different soil type and layered or laminated structure is not evident.
- Calcareous Having appreciable quantities of carbonate.
- Carbonate Having more than 50% carbonate content.

TERMS AND SYMBOLS USED ON BORING LOGS
SOIL CLASSIFICATION (1 of 2)

STANDARD PENETRATION TEST (SPT)

A 2-in.-OD, 1-3/8-ID split spoon sampler is driven 1.5 ft into undisturbed soil with a 140-pound hammer free falling 30 in. After the sampler is seated 6 in. into undisturbed soil, the number of blows required to drive the sampler the last 12 in. is the Standard Penetration Resistance or "N" value, which is recorded as blows per foot as described below.

SPLIT-BARREL SAMPLER DRIVING RECORD

Blows Per Foot	Description
25	25 blows drove sampler 12 inches, after initial 6 inches of seating.
50/7"	50 blows drove sampler 7 inches, after initial 6 inches of seating.
Ref/3"	50 blows drove sampler 3 inches during initial 6-inch seating interval.
WOH	Weight of Hammer drove sampler 12 inches, without driving spoon.
WOR	Weight of Rod drove sampler 12 inches, without attaching hammer.

NOTE: To avoid damage to sampling tools, driving is limited to 50 blows during or after seating interval.

DENSITY OF GRANULAR SOILS

Descriptive Term	*Relative Density, %	**Blows Per Foot (SPT)
Very Loose	< 15	0 to 4
Loose	15 to 35	5 to 10
Medium Dense	35 to 65	11 to 30
Dense	65 to 85	31 to 50
Very Dense	> 85	> 50

*Estimated from sampler driving record.

**Requires correction for depth, groundwater level, and grain size.

STRENGTH OF COHESIVE SOILS

Term	Undrained Shear Strength, ksf	Blows Per Foot (SPT) (approximate)
Very Soft	< 0.25	0 to 2
Soft	0.25 to 0.50	2 to 4
Firm	0.50 to 1.00	4 to 8
Stiff	1.00 to 2.00	8 to 16
Very Stiff	2.00 to 4.00	16 to 32
Hard	> 4.00	> 32

SHEAR STRENGTH TEST METHOD

U - Unconfined Q = Unconsolidated - Undrained Triaxial

P = Pocket Penetrometer T = Torvane V = Miniature Vane F = Field Vane

HAND PENETROMETER CORRECTION

Our experience has shown that the hand penetrometer generally overestimates the in-situ undrained shear strength of over consolidated Pleistocene Gulf Coast clays. These strengths are partially controlled by the presence of macroscopic soil defects such as slickensides, which generally do not influence smaller scale tests like the hand penetrometer. Based on our experience, we have adjusted these field estimates of the undrained shear strength of natural, overconsolidated Pleistocene Gulf Coast soils by multiplying the measured penetrometer reading by a factor of 0.6. These adjusted strength estimates are recorded in the "Shear Strength" column on the boring logs. Except as described in the text, we have not adjusted estimates of the undrained shear strength for projects located outside of the Pleistocene Gulf Coast formations.

Information on each boring log is a compilation of subsurface conditions and soil or rock classifications obtained from the field as well as from laboratory testing of samples. Strata have been interpreted by commonly accepted procedures. The stratum lines on the logs may be transitional and approximate in nature. Water level measurements refer only to those observed at the time and places indicated, and can vary with time, geologic condition, or construction activity.