

# LOG OF BORING B-14

STARVATION COVE MARSH RESTORATION (TUBE EXTENSION)  
GALVESTON, TEXAS

TYPE OF BORING: AIR BOAT MOUNTED RIG

PSI Project No.: 286-271

| DEPTH, FT. | SOIL TYPE | USCS SYMBOL | SAMPLES | COORDINATE (X) OR EASTING: 3266248.56<br>COORDINATE (Y) OR NORTHING: 13654446.32<br>APPROXIMATE SURFACE ELEVATION: -1 feet<br>LATITUDE: 29° 13' 54.90 N<br>LONGITUDE: 94° 55' 48.00 W | N-BLOWS/FT. | % PASSING<br>No. 200 SIEVE | LIQUID<br>LIMIT | PLASTIC<br>LIMIT | PLASTICITY<br>INDEX | MOISTURE<br>CONTENT (%) | SHEAR STRENGTH<br>(tons/square foot) |     |     |     |     |  | UNIT WEIGHT<br>(pcf) |  |
|------------|-----------|-------------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------------|-----------------|------------------|---------------------|-------------------------|--------------------------------------|-----|-----|-----|-----|--|----------------------|--|
|            |           |             |         |                                                                                                                                                                                       |             |                            |                 |                  | ○ HP ● UC △ TV ▲ UU |                         |                                      |     |     |     |     |  |                      |  |
|            |           |             |         | LL                                                                                                                                                                                    |             |                            | PL              | PI               | 0.0                 |                         | 0.5                                  | 1.0 | 1.5 | 2.0 | 2.5 |  |                      |  |
|            |           | SC          | ×       | CLAYEY SAND (SC), VERY LOOSE, BROWN                                                                                                                                                   | WOH         | 30                         |                 |                  |                     | 23                      |                                      |     |     |     |     |  |                      |  |
|            |           |             | ×       |                                                                                                                                                                                       | WOH         |                            |                 |                  |                     | 26                      |                                      |     |     |     |     |  |                      |  |
| 5          |           |             | ×       |                                                                                                                                                                                       | WOH         | 13                         |                 |                  |                     | 26                      |                                      |     |     |     |     |  |                      |  |
|            |           |             |         |                                                                                                                                                                                       |             |                            |                 |                  |                     |                         |                                      |     |     |     |     |  |                      |  |
|            |           |             |         |                                                                                                                                                                                       |             |                            |                 |                  |                     |                         |                                      |     |     |     |     |  |                      |  |
| 10         |           |             |         |                                                                                                                                                                                       |             |                            |                 |                  |                     |                         |                                      |     |     |     |     |  |                      |  |
|            |           |             |         |                                                                                                                                                                                       |             |                            |                 |                  |                     |                         |                                      |     |     |     |     |  |                      |  |
|            |           |             |         |                                                                                                                                                                                       |             |                            |                 |                  |                     |                         |                                      |     |     |     |     |  |                      |  |
| 15         |           |             |         |                                                                                                                                                                                       |             |                            |                 |                  |                     |                         |                                      |     |     |     |     |  |                      |  |
|            |           |             |         |                                                                                                                                                                                       |             |                            |                 |                  |                     |                         |                                      |     |     |     |     |  |                      |  |
|            |           |             |         |                                                                                                                                                                                       |             |                            |                 |                  |                     |                         |                                      |     |     |     |     |  |                      |  |
| 20         |           |             |         |                                                                                                                                                                                       |             |                            |                 |                  |                     |                         |                                      |     |     |     |     |  |                      |  |
|            |           |             |         |                                                                                                                                                                                       |             |                            |                 |                  |                     |                         |                                      |     |     |     |     |  |                      |  |
|            |           |             |         |                                                                                                                                                                                       |             |                            |                 |                  |                     |                         |                                      |     |     |     |     |  |                      |  |
| 25         |           |             |         |                                                                                                                                                                                       |             |                            |                 |                  |                     |                         |                                      |     |     |     |     |  |                      |  |
|            |           |             |         |                                                                                                                                                                                       |             |                            |                 |                  |                     |                         |                                      |     |     |     |     |  |                      |  |
|            |           |             |         |                                                                                                                                                                                       |             |                            |                 |                  |                     |                         |                                      |     |     |     |     |  |                      |  |
| 30         |           |             |         |                                                                                                                                                                                       |             |                            |                 |                  |                     |                         |                                      |     |     |     |     |  |                      |  |
|            |           |             |         |                                                                                                                                                                                       |             |                            |                 |                  |                     |                         |                                      |     |     |     |     |  |                      |  |
|            |           |             |         |                                                                                                                                                                                       |             |                            |                 |                  |                     |                         |                                      |     |     |     |     |  |                      |  |
| 35         |           |             |         |                                                                                                                                                                                       |             |                            |                 |                  |                     |                         |                                      |     |     |     |     |  |                      |  |
|            |           |             |         |                                                                                                                                                                                       |             |                            |                 |                  |                     |                         |                                      |     |     |     |     |  |                      |  |
|            |           |             |         |                                                                                                                                                                                       |             |                            |                 |                  |                     |                         |                                      |     |     |     |     |  |                      |  |
| 40         |           |             |         |                                                                                                                                                                                       |             |                            |                 |                  |                     |                         |                                      |     |     |     |     |  |                      |  |
|            |           |             |         |                                                                                                                                                                                       |             |                            |                 |                  |                     |                         |                                      |     |     |     |     |  |                      |  |
|            |           |             |         |                                                                                                                                                                                       |             |                            |                 |                  |                     |                         |                                      |     |     |     |     |  |                      |  |
| 45         |           |             |         |                                                                                                                                                                                       |             |                            |                 |                  |                     |                         |                                      |     |     |     |     |  |                      |  |
|            |           |             |         |                                                                                                                                                                                       |             |                            |                 |                  |                     |                         |                                      |     |     |     |     |  |                      |  |
|            |           |             |         |                                                                                                                                                                                       |             |                            |                 |                  |                     |                         |                                      |     |     |     |     |  |                      |  |
| 50         |           |             |         |                                                                                                                                                                                       |             |                            |                 |                  |                     |                         |                                      |     |     |     |     |  |                      |  |

DEPTH OF BORING: 5 FEET

DATE DRILLED: 3/25/10

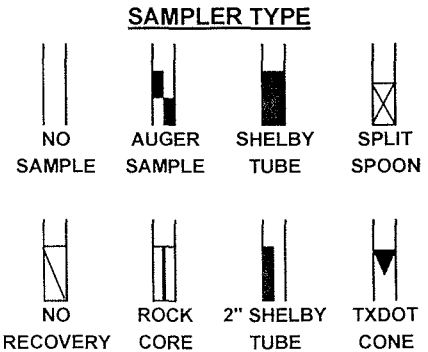
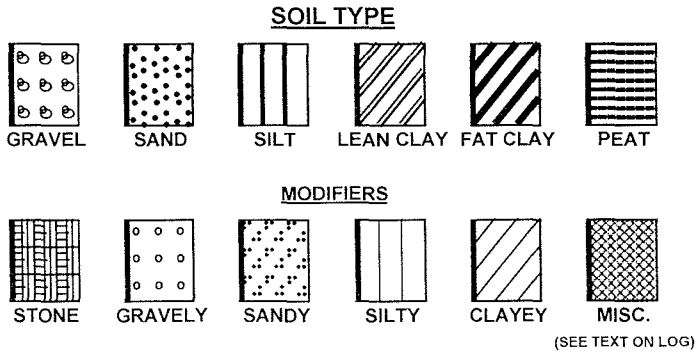
NOTES:

GROUND WATER DURING DRILLING (FT): 1 FT ABOVE MUDLINE

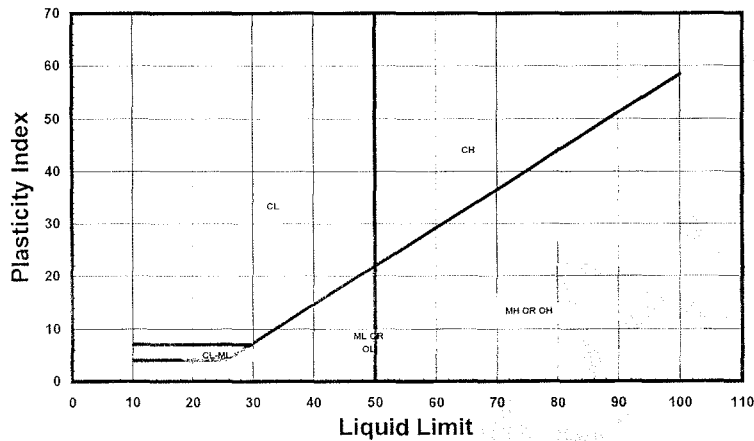
GROUND WATER

DELAYED GROUND WATER (FT):

## KEY TO TERMS AND SYMBOLS USED ON LOGS



### UNIFIED SOIL CLASSIFICATION SYSTEM - ASTM D 2487



### CONSISTENCY OF COHESIVE SOILS

| CONSISTENCY | SHEAR STRENGTH<br>IN TONS/FT <sup>2</sup> |
|-------------|-------------------------------------------|
| VERY SOFT   | 0 TO 0.125                                |
| SOFT        | 0.125 TO 0.25                             |
| FIRM        | 0.25 TO 0.5                               |
| STIFF       | 0.5 TO 1.0                                |
| VERY STIFF  | 1.0 TO 2.0                                |
| HARD        | > 2.0 OR 2.0+                             |

### RELATIVE DENSITY - GRANULAR SOILS

| CONSISTENCY  | N-VALUE (BLOWS/FOOT) |
|--------------|----------------------|
| VERY LOOSE   | 0 TO 4               |
| LOOSE        | 5 TO 9               |
| MEDIUM DENSE | 10 TO 29             |
| DENSE        | 30 TO 50             |
| VERY DENSE   | > 50 OR 50+          |

### DEGREE OF PLASTICITY OF COHESIVE SOILS

| DEGREE OF PLASTICITY | PLASTICITY INDEX | SWELL POTENTIAL |
|----------------------|------------------|-----------------|
| NONE OR SLIGHT       | 0 TO 4           | NONE            |
| LOW                  | 4 TO 20          | LOW             |
| MEDIUM               | 20 TO 30         | MEDIUM          |
| HIGH                 | 30 TO 40         | HIGH            |
| VERY HIGH            | > 40             | VERY HIGH       |

### MOISTURE CONDITION COHESIVE SOILS

| DESCRIPTION                              | CONDITION |
|------------------------------------------|-----------|
| Absence of moisture, dusty, dry to touch | DRY       |
| Damp but no visible water                | MOIST     |
| Visible free water                       | WET       |

### CONSISTENCY OF COHESIVE SOILS AFTER TERZAGHI (1948)

| CONSISTENCY | N-VALUE (BLOWS/FOOT) |
|-------------|----------------------|
| VERY SOFT   | < 2                  |
| SOFT        | 2 TO 4               |
| FIRM        | 4 TO 8               |
| STIFF       | 8 TO 15              |
| VERY STIFF  | 15 TO 30             |
| HARD        | > 30                 |

### ABBREVIATIONS

HP - HAND PENETROMETER      UC - UNCONFINED COMPRESSION TEST  
 TV - TORVANE                      UU - UNCONSOLIDATED UNDRAINED TRIAXIAL  
 MV - MINIATURE VANE            CU - CONSOLIDATED UNDRAINED

NOTE: PLOT INDICATES SHEAR STRENGTH AS OBTAINED BY ABOVE TESTS

 FINAL GROUND WATER LEVEL  
 INITIAL GROUND WATER LEVEL

### CLASSIFICATION OF GRANULAR SOILS

| U.S. STANDARD SIEVE SIZE(S) |         |        |      |        |        |       |              |
|-----------------------------|---------|--------|------|--------|--------|-------|--------------|
| 6"                          | 3"      | 3/4"   | 4    | 10     | 40     | 200   |              |
| BOULDERS                    | COBBLES | GRAVEL |      | SAND   |        |       | SILT OR CLAY |
|                             |         | COARSE | FINE | COARSE | MEDIUM | FINE  |              |
| 152                         | 76.2    | 19.1   | 4.76 | 2.0    | 0.42   | 0.075 | 0.002        |
| GRAIN SIZE IN MM            |         |        |      |        |        |       |              |



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# SUBSURFACE DIAGRAM

PROJECT NAME: STARVATION COVE MARSH RESTORATION (TUBE EXTENSION)

PROJECT NUMBER: 286-271

PROJECT LOCATION: GALVESTON, TEXAS

