

## U.S. ARMY CORPS OF ENGINEERS

| DEPTH, FEET                                                                     | SAMPLE NO. | PEN./TORVANE | SPT.-BLOW COUNT | BORING NO. <u>99-3</u> DATE: BEGIN <u>4-29-99</u> PAGE <u>1/2</u>      |               |             |                        |                                                                              |
|---------------------------------------------------------------------------------|------------|--------------|-----------------|------------------------------------------------------------------------|---------------|-------------|------------------------|------------------------------------------------------------------------------|
|                                                                                 |            |              |                 | JOB NO. <u>1140114808</u> COMPLETE <u>4-29-99</u> Thin Walled Tube     |               |             |                        |                                                                              |
| PROJECT <u>Neches River Saltwater Barrier</u>                                   |            |              |                 | <input checked="" type="checkbox"/> 3" <input type="checkbox"/> 6"     |               |             |                        |                                                                              |
| LOCATION <u>N = 876314.41, E = 3543167.21</u>                                   |            |              |                 | ELEVATION OF HOLE <u>-0.5</u>                                          |               |             |                        |                                                                              |
| MANUFACTURER'S DESIGNATION OF DRILL RIG <u>DNR75 w/ Barge &amp; Track Buggy</u> |            |              |                 | GROUNDWATER: DEPTH <u>*</u> ft., ELEV. <u></u> ft., at end of Drilling |               |             |                        |                                                                              |
| WEATHER <u>Sunny &amp; Hot</u>                                                  |            |              |                 | DRILLER <u>Danby Garen</u> LOGGER <u>Tracy McGowan</u>                 |               |             |                        |                                                                              |
|                                                                                 |            |              |                 | COLOR                                                                  | MATERIAL TYPE | CONSISTENCY | SECONDARY CONSTITUENTS | STRUCTURAL FEATURES AND COMMENTS                                             |
| 0                                                                               | J 1        | 0.00         |                 | Gray                                                                   | Clay          | V. soft     |                        | 2' of standing water<br>- w/ decayed wood & roots                            |
|                                                                                 | J 2        | 0.00         |                 | Gray                                                                   | Clay          | V. soft     |                        | - sample bulge on extruder<br>- w/ decayed wood & roots                      |
| 5                                                                               | J 3        | 0.00         |                 | Gray                                                                   | Clay          | V. soft     |                        | - w/ decayed wood & roots                                                    |
|                                                                                 | J 4        | 0.00         |                 | olive Gray                                                             | Clay          | V. soft     | silt                   | - w/ roots & decayed wood<br>- 2' of standing water<br>- w/ roots & silt sms |
|                                                                                 | J 5        | 0.50         |                 | olive Gray                                                             | Clay          | M. stiff    | silt                   | - disturbed sample due to roots                                              |
| 10                                                                              | J 6        | 1.50         |                 | olive Gray                                                             | Clay          | stiff       | silt                   | - w/ roots & silt sms                                                        |
|                                                                                 | X 7        | 8            |                 | Gray                                                                   | Sand          | M. Dense    | silt                   |                                                                              |
| 15                                                                              |            |              |                 |                                                                        |               |             |                        |                                                                              |
|                                                                                 | X 8        | 9            |                 | Gray                                                                   | Sand          | M. Dense    |                        | - w/ pea gravel                                                              |
|                                                                                 |            | 12           |                 |                                                                        |               |             |                        | - w/ calc nod & fer stains, SLKS                                             |
| 20                                                                              | J 9        | 2.25         |                 | Yellowish Brown & Gray                                                 | Clay          | V. stiff    |                        |                                                                              |
|                                                                                 | J 10       | 0.75         |                 | Gray & Yellowish                                                       | Clay          | M. stiff    | silt                   | - w/ fer stains                                                              |
|                                                                                 | J 11       | 2.25         |                 | Yellowish Gray                                                         | Clay          | V. stiff    | silt                   | - w/ fer stains                                                              |
| 25                                                                              | J 12       | 2.25         |                 | Yellowish Gray                                                         | Clay          | V. stiff    | silt                   | - w/ fer stains & sams                                                       |
|                                                                                 | J 13       | 3.50         |                 | Yellowish Gray & Green                                                 | Clay          | V. stiff    | silt                   | - w/ fer stains & sams                                                       |
|                                                                                 | J 14       | 3.50         |                 | Yellowish Gray & Green                                                 | Clay          | V. stiff    | silt                   | - w/ fer stains & sams                                                       |
| 30                                                                              | J 15       | 3.25         |                 | Yellowish Brown & Gray                                                 | Clay          | V. stiff    |                        | - w/ fer stains, SLKS                                                        |
|                                                                                 | J 16       | 3.50         |                 | Yellowish Brown & Gray                                                 | Clay          | V. stiff    |                        | - w/ fer stains, silt sms, SLKS                                              |
| 35                                                                              | J 17       | 4.25         |                 | Yellowish Brown & Gray                                                 | Clay          | Hard        | silt                   | - w/ fer stains & silt sms                                                   |

(5)

## U.S. ARMY CORPS OF ENGINEERS

| DEPTH, FEET | SAMPLE NO. | PEN./TORVANE<br>SPT. - BLOW COUNT | BORING NO. <u>99-3</u> DATE: BEGIN <u>4-28-99</u> PAGE <u>2 / 2</u><br>JOB NO. <u>1140114803</u> COMPLETE <u>4-28-99</u> Thin Walled Tube<br>PROJECT <u>Hetcha River salt water Barrier</u> <input checked="" type="checkbox"/> 3" <input type="checkbox"/> 6"<br>LOCATION <u>N = 876314.41, E = 3543167.21</u><br>ELEVATION OF HOLE _____<br>MANUFACTURER'S DESIGNATION OF DRILL RIG <u>DNR75 w/ Barge &amp; Truck Bore</u><br>GROUNDWATER: DEPTH <u>4</u> ft.; ELEV. _____ ft., at end of Drilling<br>WEATHER <u>Sunny &amp; Hot</u><br>DRILLER <u>Campsey Green</u> LOGGER <u>Fay Mostamand</u> |               |             |                        |                                     |
|-------------|------------|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-------------|------------------------|-------------------------------------|
|             |            |                                   | COLOR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | MATERIAL TYPE | CONSISTENCY | SECONDARY CONSTITUENTS | STRUCTURAL FEATURES AND COMMENTS    |
| -35-        | 18         | 2.75                              | Yellowish Brown & Gray                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Clay          | V. stiff    | Silt                   | - w/ Fer stains & s.s. sms          |
|             | 19         | 3.00                              | Yellowish Brown & Gray                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Clay          | V. stiff    | Silt                   | - w/ Fer stains & s.s. sms          |
| -40-        | 20         | 1.75                              | Red & Gray                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Clay          | Stiff       | Silt                   | - w/ Fer stains & silty sand sms    |
|             | 21         | 3.25                              | Red & Gray                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Clay          | V. stiff    |                        | - w/ silt parting, Fer stains, SLKS |
| -45-        | 22         | 3.00                              | Yellowish Brown & Gray                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Clay          | V. stiff    |                        | - w/ Fer stains, SLKS               |
|             | 23         | 3.00                              | Brown & Gray                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Clay          | V. stiff    |                        | - w/ Fer stains, SLKS               |
|             | 24         | 3.00                              | Brown & Gray                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Clay          | V. stiff    |                        | - w/ Fer stains, SLKS               |
| -50-        | 25         | 3.25                              | Reddish Brown & Gray                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Clay          | V. stiff    |                        | - w/ calc nod & Fer stains, SLKS    |
|             | 26         | 3.25                              | Reddish Brown & Gray                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Clay          | V. stiff    |                        | - w/ calc nod & Fer stains, SLKS    |
| -55-        | 27         | 3.50                              | Reddish Brown                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Clay          | V. stiff    |                        | - w/ Fer stains, SLKS               |
|             | 28         | 3.25                              | Reddish Brown                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Clay          | V. stiff    |                        | - w/ Fer stains, SLKS               |
|             | 29         | 3.25                              | Reddish Brown                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Clay          | V. stiff    |                        | - w/ Fer stains, SLKS               |
| -60-        |            |                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |               |             |                        | Si Jar sample                       |
| -65-        |            |                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |               |             |                        |                                     |
| -70-        |            |                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |               |             |                        |                                     |

Contract No. DACW64-98-D-0002 Delivery Order No. 0010

Boring No. 99-3

| S # | Depth<br>(ft) | P P<br>(tsf) | SPT<br>Blows<br>per<br>Foot | Visual<br>Classification                                                | U S C | Mc<br>(%) | Dry<br>Unit<br>Wt<br>(pcf) | Wet<br>Unit<br>Wt<br>(pcf) | L L<br>(%) | P L<br>(%) | Mechanical Analysis<br>% Passing |      |      |      |      | Specific<br>Gravity | q u<br>(tsf) |
|-----|---------------|--------------|-----------------------------|-------------------------------------------------------------------------|-------|-----------|----------------------------|----------------------------|------------|------------|----------------------------------|------|------|------|------|---------------------|--------------|
|     |               |              |                             |                                                                         |       |           |                            |                            |            |            | #4                               | #10  | #40  | #100 | #200 |                     |              |
| 1   | 0 - 2         | 0.00         |                             | Clay,w/decayed wood & roots,Very soft, Gray                             | C H   | 109.7     |                            |                            |            |            |                                  |      |      |      |      |                     |              |
| 2   | 2 - 4         | 0.00         |                             | Clay,w/decayed wood & roots,Very soft, Gray                             | C H   | 111.2     |                            |                            |            |            |                                  |      |      |      |      |                     |              |
| 3   | 4 - 6         | 0.00         |                             | Clay,w/decayed wood & roots,Very soft, Gray                             | C H   | 105.2     |                            |                            |            |            |                                  |      |      |      |      |                     |              |
| 4   | 6 - 8         | 0.00         |                             | Silty Clay,w/decayed wood & roots,Very soft,Olive gray                  | C L   | 93.7      |                            |                            |            |            |                                  |      |      |      |      |                     |              |
| 5   | 8 - 10        | 0.50         |                             | Silty Clay,w/roots & silt seams,Medium stiff, Olive gray                | C L   | 34.4      |                            |                            | 46.0       | 19.0       |                                  |      |      |      |      |                     |              |
| 6   | 10 - 12       | 1.50         |                             | Silty Clay,w/roots & silt seams,Stiff,Olive gray                        | C L   | 41.7      | 78.7                       | 111.5                      | 48.0       | 20.0       |                                  |      |      |      |      |                     | 1.07         |
| 7   | 12-13.5       |              | 19                          | Silty Sand,Medium dense,Gray                                            | S M   |           |                            |                            |            |            |                                  |      |      |      |      |                     |              |
| 8   | 17-18.5       |              | 21                          | Sand,w/pea gravel,Medium dense,Gray                                     | S P   |           |                            |                            |            |            | 100.0                            | 99.8 | 74.7 | 1.7  | 1.2  |                     |              |
| 9   | 18.5-20       | 2.25         |                             | Clay,w/calc nod & fer stains,slks,Very stiff, Yellowish brown & gray    | C H   | 30.8      |                            |                            |            |            |                                  |      |      |      |      |                     |              |
| 10  | 20-22         | 0.75         |                             | Silty Clay,w/fer stains,Medium stiff,Gray & Yellowish gray              | C L   | 18.5      |                            |                            |            |            |                                  |      |      |      |      |                     |              |
| 11  | 22-24         | 2.25         |                             | Silty Clay,w/fer stains,Very stiff, Yellowish gray                      | C L   | 18.0      | 112.0                      | 132.2                      | 34.0       | 18.0       |                                  |      |      |      |      |                     |              |
| 12  | 24-26         | 2.25         |                             | Silty Clay,w/fer stains & sand seams,Very stiff, Yellowish gray         | C L   | 15.5      |                            |                            |            |            |                                  |      |      |      |      |                     |              |
| 13  | 26-28         | 3.50         |                             | Silty Clay,w/fer stains & sand seams,Very stiff, Yellowish gray         | C L   | 15.3      |                            |                            |            |            |                                  |      |      |      |      |                     |              |
| 14  | 28-30         | 3.50         |                             | Silty Clay,w/fer stains & sand seams,Very stiff, Yellowish gray         | C L   | 21.0      |                            |                            |            |            |                                  |      |      |      |      |                     |              |
| 15  | 30-32         | 3.25         |                             | Clay,w/fer stains,slks,Very stiff, Yellowish brown & gray               | C H   | 19.3      | 106.0                      | 126.5                      | 60.0       | 23.0       |                                  |      |      |      |      |                     |              |
| 16  | 32-34         | 3.50         |                             | Clay,w/fer stains & silt seams,slks,Very stiff, Yellowish brown & gray  | C H   | 25.4      |                            |                            |            |            |                                  |      |      |      |      |                     |              |
| 17  | 34-36         | 4.25         |                             | Silty Clay,w/fer stains & silt seams,Hard, Yellowish brown & gray       | C L   | 20.8      |                            |                            |            |            |                                  |      |      |      |      |                     |              |
| 18  | 36-38         | 2.75         |                             | Silty Clay,w/fer stains & sand seams,Very stiff, Yellowish brown & gray | C L   | 22.4      |                            |                            |            |            |                                  |      |      |      |      |                     |              |
| 19  | 38-40         | 3.00         |                             | Silty Clay,w/fer stains & sand seams,Very stiff, Yellowish brown & gray | C L   | 18.0      |                            |                            |            |            |                                  |      |      |      |      |                     |              |
| 20  | 40-42         | 1.75         |                             | Silty Clay,w/fer stains & sand seams,Stiff, Yellowish brown & gray      | C L   | 23.5      |                            |                            |            |            |                                  |      |      |      |      |                     |              |

S # : Sample Number, P P : Pocket Penetrometer Reading, U S C : Unified Soil Classification, M c : Moisture Content  
q u : Unconfined Compressive Strength, W O H : Weight of hammer, W O P : Weight of Pipe

Project: Neches River Saltwater Barrier

## SUMMARY OF LABORATORY TEST RESULTS

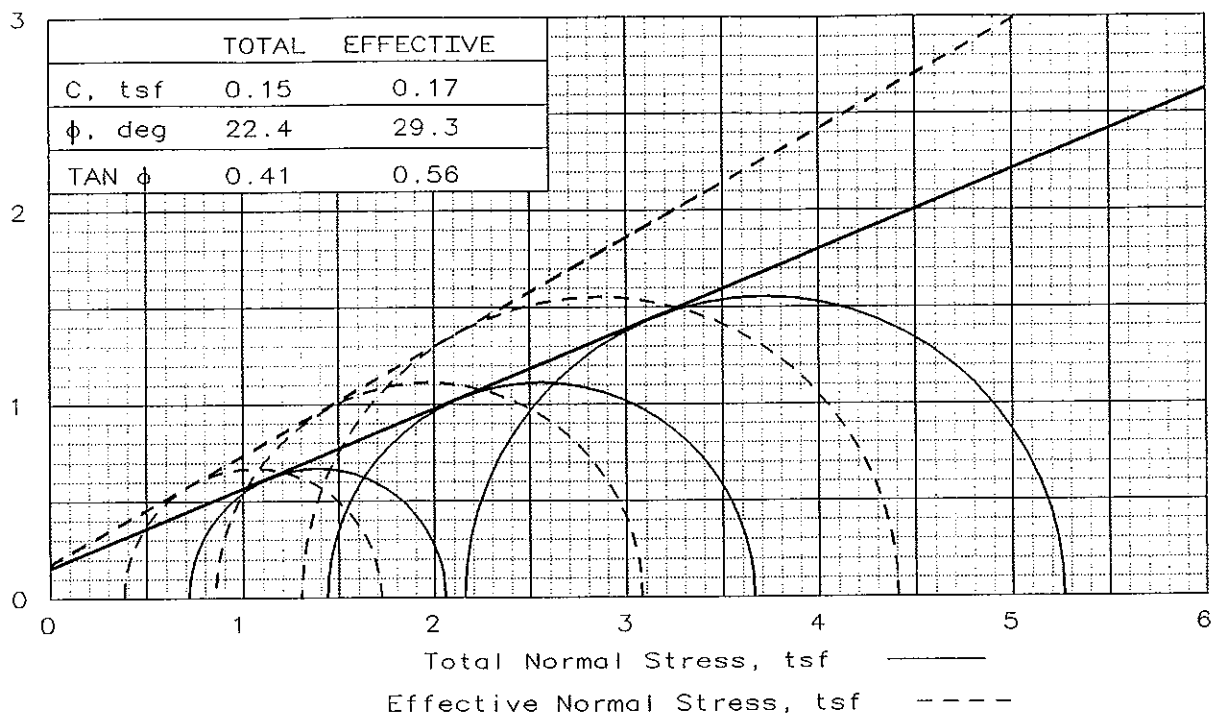
Contract No. DACW64-98-D-0002 Delivery Order No. 0010

Boring No. 99-3

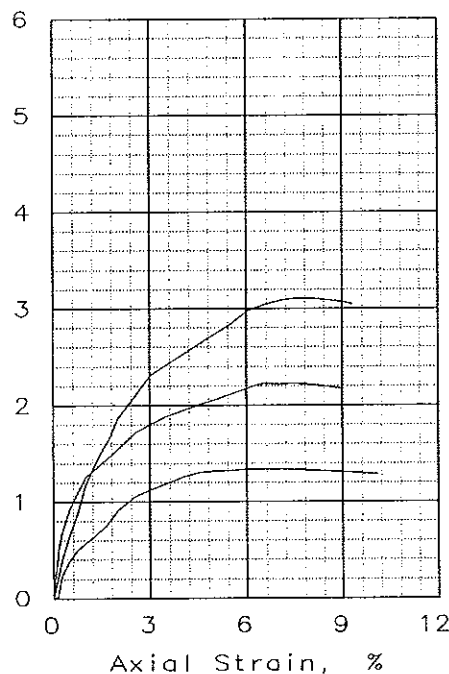
[illegible]

S #: Sample Number, P P : Pocket Penetrometer Reading, U S C : Unified Soil Classification, M c : Moisture Content  
q u : Unconfined Compressive Strength, W O H : Weight of hammer, W O P : Weight of Pipe

Shear Stress, tsf



Deviator Stress, tsf



| SAMPLE NO.:                   |                  | 1     | 2     | 3     |
|-------------------------------|------------------|-------|-------|-------|
| INITIAL                       | WATER CONTENT, % | 17.8  | 18.2  | 18.0  |
|                               | DRY DENSITY, pcf | 112.2 | 112.0 | 111.8 |
|                               | SATURATION, %    | 97.0  | 99.1  | 97.1  |
|                               | VOID RATIO       | 0.491 | 0.493 | 0.496 |
|                               | DIAMETER, in     | 2.00  | 2.00  | 2.00  |
|                               | HEIGHT, in       | 4.00  | 4.00  | 4.00  |
| AT TEST                       | WATER CONTENT, % | 16.5  | 16.4  | 16.5  |
|                               | DRY DENSITY, pcf | 115.9 | 116.0 | 115.8 |
|                               | SATURATION, %    | 99.6  | 99.5  | 99.2  |
|                               | VOID RATIO       | 0.443 | 0.442 | 0.445 |
|                               | DIAMETER, in     | 1.97  | 1.96  | 1.97  |
|                               | HEIGHT, in       | 3.97  | 3.99  | 3.98  |
| Strain rate, %/min            |                  | 0.01  | 0.01  | 0.01  |
| BACK PRESSURE, tsf            |                  | 3.82  | 3.82  | 3.82  |
| CELL PRESSURE, tsf            |                  | 4.54  | 5.26  | 5.98  |
| FAIL. STRESS, tsf             |                  | 1.34  | 2.22  | 3.11  |
| TOTAL PORE PR., tsf           |                  | 4.15  | 4.40  | 4.67  |
| ULT. STRESS, tsf              |                  |       |       |       |
| TOTAL PORE PR., tsf           |                  |       |       |       |
| $\bar{\sigma}_1$ FAILURE, tsf |                  | 1.72  | 3.08  | 4.41  |
| $\bar{\sigma}_3$ FAILURE, tsf |                  | 0.38  | 0.86  | 1.30  |

**TYPE OF TEST:**

CU with Pore Pressures

**SAMPLE TYPE:** Undisturbed

**DESCRIPTION:** Silty Clay, w/fer stains, Very stiff, Yish gray

LL= 34      PL= 18      PI= 16

ASSUMED SPECIFIC GRAVITY= 2.68

**REMARKS:** Assumed specific gravity

**CLIENT:** U.S army Corps of Engineers

Galveston district Office

**PROJECT:** Neches River Saltwater Barrier

**SAMPLE LOCATION:** Boring No. 99-3

Sample No. 11      Depth: 22-24 ft

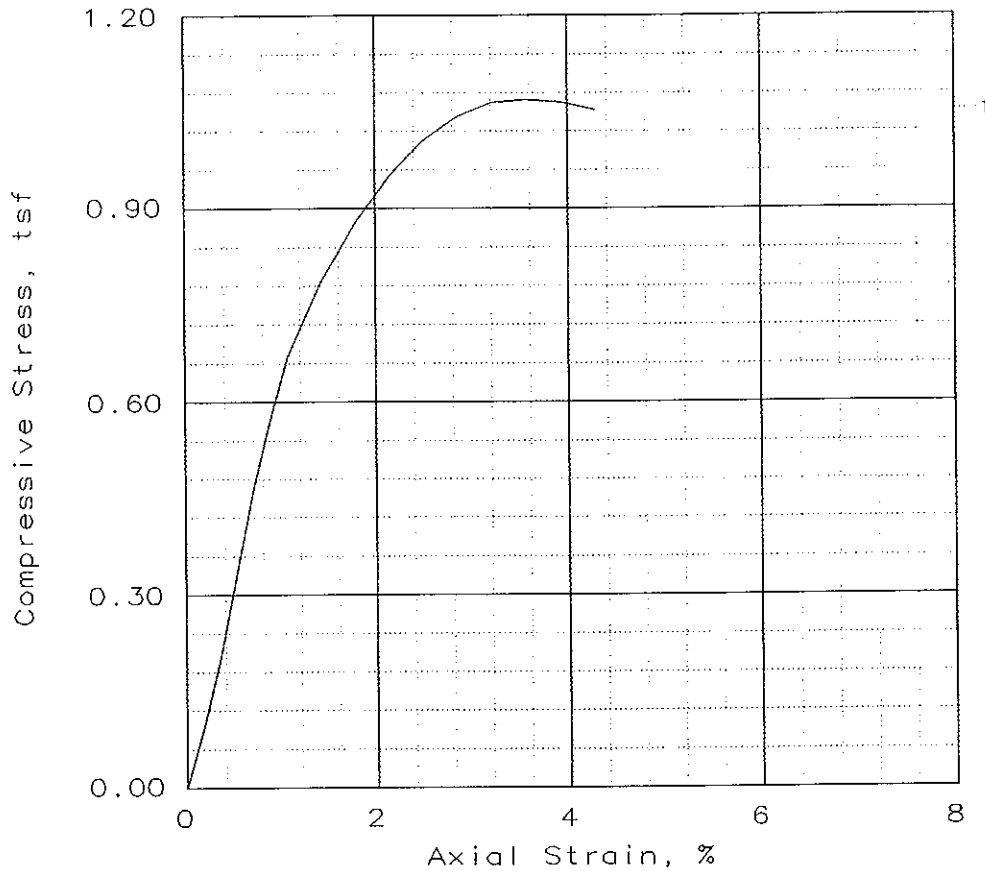
**PROJ. NO.:** 1140114810      **DATE:** 6-05-99

TRIAXIAL SHEAR TEST REPORT

**GEOTEST ENGINEERING, INC.**

Fig. No.: \_\_\_\_\_

# UNCONFINED COMPRESSION TEST



|                               |        |  |  |  |
|-------------------------------|--------|--|--|--|
| SAMPLE NO.:                   | 1      |  |  |  |
| Unconfined strength, tsf      | 1.07   |  |  |  |
| Undrained shear strength, tsf | 0.53   |  |  |  |
| Failure strain, %             | 3.6    |  |  |  |
| Strain rate, %/min            | 1.07   |  |  |  |
| Water content, %              | 41.7   |  |  |  |
| Wet density, pcf              | 111.5  |  |  |  |
| Dry density, pcf              | 78.7   |  |  |  |
| Saturation, %                 | 99.2   |  |  |  |
| Void ratio                    | 1.1256 |  |  |  |
| Specimen diameter, in         | 2.83   |  |  |  |
| Specimen height, in           | 5.60   |  |  |  |
| Height/diameter ratio         | 1.98   |  |  |  |

Description: Silty Clay, w/roots & silt sms, Stiff, Olive gray

LL = 48    PL = 20    PI = 28    ASS. GS = 2.68    Type: Undisturbed

Project No.: 1140114810

Date: 6-3-99

Remarks:

Assumed Specific gravity

Client: U.S Army Corps of Engineers

Galveston office District

Project: Neches River Saltwater Barrier

Location: Boring No. 99-3

Sample No. 6    Depth: 10-12 ft

UNCONFINED COMPRESSION TEST

GEOTEST ENGINEERING, INC.

Fig. No.: \_\_\_\_\_

# SUMMARY OF LABORATORY TEST RESULTS

Project: Neches river Saltwater barrier  
Contract No. DACW64-98-D-0002

| Boring No. | S# | Visual Classification                              | U S C | Mechanical Analysis |        |       |       |       |       |       |       |       |       |       |      |      |      |      |      |      |      |
|------------|----|----------------------------------------------------|-------|---------------------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|------|------|------|------|------|
|            |    |                                                    |       | % Passing           |        |       |       |       |       |       |       |       |       |       |      |      |      |      |      |      |      |
|            |    |                                                    |       | #2                  | #1 1/2 | #1    | #1/2  | #3/4  | #3/8  | #4    | #8    | #10   | #16   | #20   | #30  | #40  | #50  | #70  | #100 | #140 | #200 |
| 99-1       | 5  | Sandy Silt,w/decayed wood & sand,very loose,gray   | ML    | 100.0               | 100.0  | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 99.9 | 99.8 | 99.6 | 98.2 | 87.4 | 68.3 | 50.3 |
| 99-1       | 8  | Sand,w/decayed wood & silt,loose, gray             | SP-SM | 100.0               | 100.0  | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 99.8  | 95.6  | 82.3  | 54.9 | 27.1 | 14.4 | 10.4 | 9.1  | 8.3  | 7.6  |
| 99-2       | 9  | Sand,w/decayed wood,medium dense,gray              | SP    | 100.0               | 100.0  | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 99.6  | 98.2  | 94.7 | 80.1 | 38.6 | 7.6  | 4.3  | 3.7  | 3.3  |
| 99-3       | 8  | Sand,w/pea gravel,medium dense,gray                | SP    | 100.0               | 100.0  | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 99.9  | 99.8  | 98.9  | 96.6  | 90.3 | 74.7 | 43.5 | 5.5  | 1.7  | 1.3  | 1.2  |
| 99-4       | 8  | Silty Sand,w/roots,loose,gray                      | SM    | 100.0               | 100.0  | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 99.9  | 99.3  | 97.4  | 89.7 | 69.7 | 46.7 | 33.0 | 27.8 | 23.7 |      |
| 99-5       | 7  | Sand,medium dense,gray                             | SP    | 100.0               | 100.0  | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 99.5  | 97.3  | 88.3  | 63.6 | 28.4 | 6.7  | 4.5  | 4.0  | 3.7  |      |
| 99-5       | 8  | Sand,w/pea gravel,medium dense,gray                | SP    | 100.0               | 100.0  | 100.0 | 100.0 | 100.0 | 99.6  | 98.9  | 98.4  | 98.1  | 95.7  | 87.7  | 66.6 | 37.6 | 16.1 | 5.6  | 3.7  | 3.3  | 3.1  |
| 99-6       | 11 | Sand,w/decayed wood & pea gravel,medium dense gray | SP    | 100.0               | 100.0  | 100.0 | 100.0 | 100.0 | 100.0 | 99.5  | 98.0  | 97.1  | 91.3  | 83.2  | 69.8 | 53.8 | 31.6 | 10.3 | 6.4  | 5.1  | 3.9  |
| 99-7       | 5  | Sand,w/silt,loose,gray                             | SP-SM | 100.0               | 100.0  | 100.0 | 100.0 | 100.0 | 100.0 | 99.8  | 98.6  | 98.1  | 95.4  | 87.4  | 69.6 | 46.5 | 28.1 | 13.8 | 7.8  | 6.3  | 5.7  |
| 99-7       | 7  | Sand,w/silt & pea gravel, medium dense, gray       | SP-SM | 100.0               | 100.0  | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 98.7  | 92.3  | 73.1 | 44.9 | 23.0 | 9.9  | 6.3  | 5.6  | 5.2  |
| 99-8       | 5  | Sand,w/pea gravel, loose, gray                     | SP    | 100.0               | 100.0  | 100.0 | 100.0 | 100.0 | 100.0 | 99.7  | 98.8  | 98.1  | 93.0  | 79.7  | 53.1 | 28.1 | 18.1 | 10.6 | 6.3  | 5.4  | 4.9  |
| 99-8       | 7  | Sand, w/decayed wood & gravel,medium dense, gray   | SP-SM | 100.0               | 100.0  | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 99.8  | 98.5  | 91.2  | 77.4  | 54.4 | 32.2 | 17.8 | 10.2 | 8.1  | 7.1  | 6.5  |
| 99-8       | 15 | Clayey Silt,w/sand,medium dense,yellowish gray     | ML    | 100.0               | 100.0  | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 99.9 | 99.9 | 99.8 | 99.5 | 93.3 | 82.2 | 64.6 |
| 99-10      | 6  | Sand,loose,gray                                    | SP-SM | 100.0               | 100.0  | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 98.2  | 92.6  | 78.6 | 50.2 | 27.4 | 14.1 | 8.4  | 6.5  | 5.4  |
| 99-10      | 8  | Sand,w/silt,clay pockets,medium dense,gray         | SP-SM | 100.0               | 100.0  | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 98.1  | 91.3  | 71.5 | 42.1 | 20.2 | 10.9 | 9.0  | 8.0  | 7.2  |
| 99-10      | 13 | Silt,medium dense,yelllowish brown & gray          | ML    | 100.0               | 100.0  | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 99.9 | 99.9 | 99.9 | 99.9 | 99.9 | 99.8 | 98.7 |
| 99-11      | 6  | Sity Sand,medium dense,gray                        | SM    | 100.0               | 100.0  | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 99.9 | 99.3 | 96.4 | 76.6 | 32.5 | 18.7 | 14.3 |

S#: Sample Number, U S C: Unified Soil Classification