

Project : Channel enlargement channel to Victoria, Victoria, Texas

# SUMMARY OF LABORATORY TEST RESULTS

Boring No

91-2

Contract No. DACW64 91-D-0001 Delivery Order No. 0009

| S # | Depth (ft) | P.P. (tsf) | SPT Blows per Foot | Visual Classification                                                                   | U.S.C. | M.C. (%) | Dry Unit Wt (pcf) | Wet Unit Wt (pcf) | LL (%) | PL (%) | Mechanical Analysis % Passing |      |      |      |      | Torvane Shear Strength (tsf) | qu (tsf) |
|-----|------------|------------|--------------------|-----------------------------------------------------------------------------------------|--------|----------|-------------------|-------------------|--------|--------|-------------------------------|------|------|------|------|------------------------------|----------|
|     |            |            |                    |                                                                                         |        |          |                   |                   |        |        | #4                            | #10  | #40  | #100 | #200 |                              |          |
| 1   | 0-2        | 1.50       |                    | Dark gray, Clay, Still, w/roots                                                         | CH     | 35.8     |                   |                   |        |        |                               |      |      |      |      |                              |          |
| 2   | 2-4        | 2.50       |                    | Dark gray, Clay, Very stiff, w/calcareous nodules                                       | CH     | 27.4     | 93.6              | 119.2             | 90     | 32     |                               |      |      |      |      |                              |          |
| 3   | 4-6        | 4.5+       |                    | Dark gray, Clay, Hard, w/calcareous nodules                                             | CH     | 26.2     |                   |                   |        |        |                               |      |      |      |      |                              |          |
| 4   | 6-8        | 4.5+       |                    | Dark gray, Clay, Hard, w/calcareous nodules                                             | CH     | 27.4     |                   |                   |        |        |                               |      |      |      |      |                              |          |
| 5   | 8-10       | 4.5+       |                    | Dark gray, Clay, Hard, w/calcareous nodules                                             | CH     | 30.8     |                   |                   |        |        |                               |      |      |      |      |                              |          |
| 6   | 10-12      | 1.5+       |                    | Dark gray, Clay, Hard, w/calcareous nodules and slickensides                            | CH     | 32.4     |                   |                   |        |        |                               |      |      |      |      |                              |          |
| 7   | 12-14      | 3.25       |                    | Dark gray, Clay, Very stiff, w/calcareous nodules and slickensides                      | CH     | 31.7     |                   |                   |        |        |                               |      |      |      |      |                              |          |
| 8   | 14-16      | 3.25       |                    | Dark gray, Clay, Very stiff, w/calcareous nodules and slickensides                      | CH     | 31.2     | 89.1              | 115.9             | 85     | 30     | 99.5                          | 97.8 | 94.7 |      | 93.4 |                              |          |
| 9   | 16-18      | 3.00       |                    | Dark olive, Clay, Very stiff, w/calcareous nodules and slickensides                     | CH     | 33.6     |                   |                   |        |        |                               |      |      |      |      |                              |          |
| 10  | 18-20      | 3.25       |                    | Olive brown, Clay, Very stiff, w/calcareous nodules, Blocky structures and slickensides | CH     | 31.4     |                   |                   |        |        |                               |      |      |      |      |                              |          |
| 11  | 20-22      | 2.25       |                    | Olive yellow, Clay, Very stiff, w/calcareous nodules and slickensides                   | CH     | 31.3     | 69.4              | 117.4             |        |        |                               |      |      |      |      |                              |          |
| 12  | 22-24      | 1.75       |                    | Olive yellow, Clay, Still, w/calcareous nodules and slickensides                        | CH     | 29.4     | 97.0              | 119.0             | 62     | 22     | 98.9                          | 98.4 | 97.7 |      | 94.7 |                              |          |
| 13  | 24-26      |            |                    | Olive yellow, clay, Very stiff, w/calcareous nodules and Blocky structures              | CH     | 31.5     |                   |                   |        |        |                               |      |      |      |      |                              |          |
| 14  | 26.5-28    |            |                    | Gray, Gravel, Medium dense, w/sand                                                      | SP     |          |                   |                   |        |        | 9.9                           | 3.7  | 2.3  |      | 2.1  |                              |          |
| 15  | 30.5-32    |            |                    | Gray, Gravel, Dense, Silty w/gravel                                                     | SM     |          |                   |                   |        |        |                               |      |      |      |      |                              |          |
| 16  | 33.5-35    |            |                    | Gray, Gravel, Dense, Silty w/gravel                                                     | SM     |          |                   |                   |        |        |                               |      |      |      |      |                              |          |
|     | 35-40      |            |                    |                                                                                         |        |          |                   |                   |        |        |                               |      |      |      |      |                              |          |
|     |            |            |                    |                                                                                         |        |          |                   |                   |        |        | 93.5                          | 91.4 | 87.0 |      | 16.3 |                              |          |

Number, P.P. : Pocket Penetrometer  
and Compressive Strength, W.O.H. : Weight of pipe

Classification, M.C. : Moisture Content  
of pipe

1996 15:26

713-266-2977

GEOTEEST

PAGE 03

### SUMMARY OF LABORATORY TEST RESULTS

98-2

Contract No. DACW64-91-D-0001 Delivery Order No. 0009

[illegible]

S.N. : Sample Number, P.P. : Pocket Penetrometer Reading, U.S.C. : Unified Soil Classification, M.C. : Moisture Content  
q<sub>u</sub> : Unconfined Compressive Strength, W.O.H. : Weight of hammer, W.O.P. : Weight of pile

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JOB NO. 14G459

DATE 4/18/91

PROJECT CHANNEL ENLARGEMENT, CHANNEL TO VICTORIA, TEXAS

BORING NO. 91-2

SAMPLE NO. 8

DEPTH 14-16 ft

SPECIMEN NO. 1

## CLASSIFICATION

Dark gray, clay, very stiff, w/calcareous nodules, slickensided

|                            |            |                  |               |
|----------------------------|------------|------------------|---------------|
| Tare No.                   | P-12       | Height           | 5.595 in.     |
| Tare plus Wet Specimen     | 1122.85 gm | Average Diameter | 2.810 in.     |
| Tare plus Dry Specimen     | 866.02 gm  | Initial Area     | 6.202 sq in.  |
| Water Weight               | 256.83 gm  | Volume           | 34.698 cu in. |
| Tare Weight                | 42.63 gm   | Volume of Solids | cu in.        |
| Wet Specimen               | 1080.22 gm | Void Ratio       |               |
| Dry Specimen               | 823.39 gm  | Saturation       | %             |
| Water Content              | 31.19 %    | Dry Density      | 90.4 lb/cu ft |
| Specific Gravity of Solids |            |                  |               |
| LL = 85                    | PL = 20    | PI = 55          |               |

Proving Ring No. 10170

Proving Ring Constant, K = .766 lbs/div.

| Flipped<br>e<br>in. | Dial<br>Reading<br>0.001" | Cumulative<br>Change<br>in. | Proving Ring<br>Dial Reading | Axial<br>Load<br>lb | Axial<br>Strain | Area<br>Corr.<br>sq in. | Compr.<br>Stress<br>tsf |
|---------------------|---------------------------|-----------------------------|------------------------------|---------------------|-----------------|-------------------------|-------------------------|
| .0                  | 0.                        | .000                        | .0                           | .0                  | .000            | 6.20                    | .000                    |
| .3                  | 10.                       | .010                        | 73.0                         | 55.9                | .002            | 6.21                    | .648                    |
| .6                  | 20.                       | .020                        | 100.0                        | 76.6                | .004            | 6.22                    | .886                    |
| .6                  | 30.                       | .030                        | 98.0                         | 75.1                | .005            | 6.24                    | .867                    |

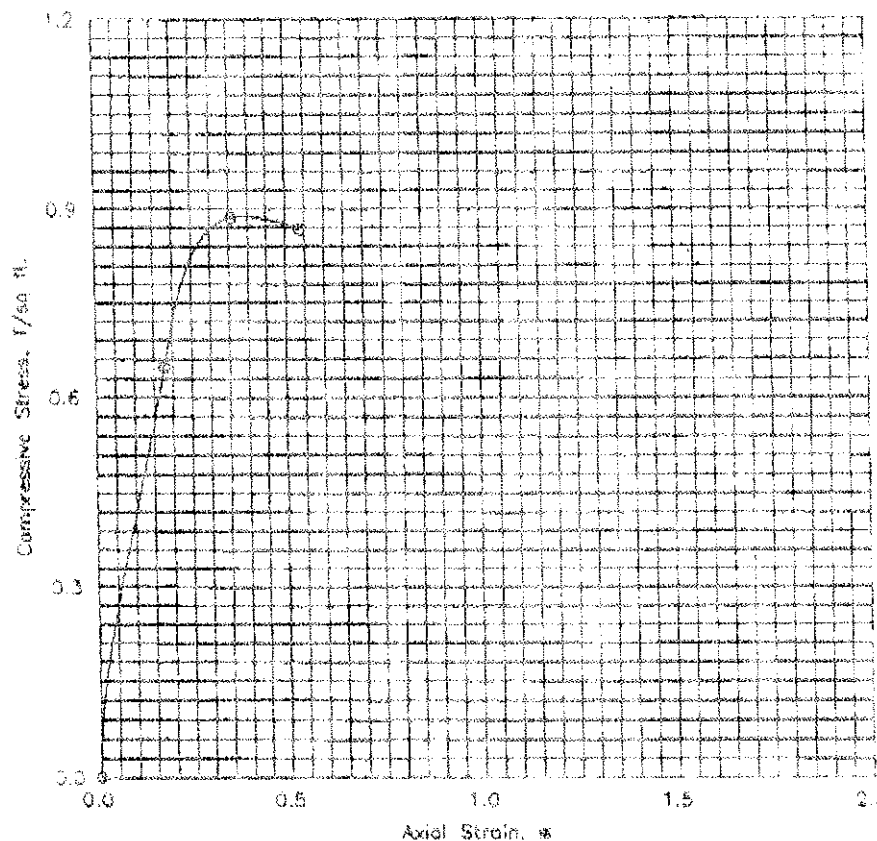
EM 1110-2-1906

Appendix XI

30 Nov 70

Feb No. 140459

## Failure Sketches



- ☐ Controlled stress
- ☒ Controlled strain

|                                                                                |                       |                                                   |        |              |    |
|--------------------------------------------------------------------------------|-----------------------|---------------------------------------------------|--------|--------------|----|
| Test No.                                                                       |                       | 1                                                 |        |              |    |
| Type of Specimen                                                               |                       | Undisturbed                                       |        |              |    |
| Initial                                                                        | Water content         | $w_c$                                             | 31.2 % |              |    |
|                                                                                | Void ratio            | $e_c$                                             |        |              |    |
|                                                                                | Saturation            | $S_c$                                             |        |              |    |
|                                                                                | Dry density, lb/cu ft | $\gamma_s$                                        | 90.4   |              |    |
| Time to failure, min                                                           |                       | $t_f$                                             | 55     |              |    |
| Unconfined compressive strength, T/sq ft                                       |                       | $q_u$                                             | 1.89   |              |    |
| Undrained shear strength, T/sq ft                                              |                       | $S_u$                                             | 1.44   |              |    |
| Sensitivity ratio                                                              |                       | $S_r$                                             |        |              |    |
| Initial specimen diameter, in.                                                 |                       | $D_c$                                             | 2.810  |              |    |
| Initial specimen height, in.                                                   |                       | $H_c$                                             | 5.593  |              |    |
| Classification: Dark gray clay, very stiff, w/calcareous nodules, slickensided |                       |                                                   |        |              |    |
| LL                                                                             | 65                    | PL                                                | 30     | PI           | 55 |
|                                                                                |                       |                                                   |        | $O_L$        |    |
| Remarks                                                                        |                       | Project: CHANNEL ENLARGEMENT, CHANNEL TO VICTORIA |        |              |    |
|                                                                                |                       | Area: Victoria, Texas                             |        |              |    |
|                                                                                |                       | Boring No. 91-2                                   |        | Sample No. 2 |    |
|                                                                                |                       | Depth 14-16 ft                                    |        | Date 4/15/91 |    |
|                                                                                |                       | UNCONFINED COMPRESSION TEST REPORT                |        |              |    |

ENG FORM 3659  
1 JUN 85

Geotest Engineering, Inc.

PLATE XI-2

PLATE

JOB NO. 14G459

DATE 4/15/91

PROJECT CHANNEL ENLARGEMENT, CHANNEL TO VICTORIA, TEXAS

BORING NO. 91-2

SAMPLE NO. 12

DEPTH 22-24 ft

SPECIMEN NO. 1

## CLASSIFICATION

Olive yellow, clay, stiff, w/calcareous nodules, slickensides

|                            |            |                  |               |
|----------------------------|------------|------------------|---------------|
| Tare No.                   | P-29       | Height           | 5.595 in.     |
| Tare plus Wet Specimen     | 1142.11 gm | Average Diameter | 2.800 in.     |
| Tare plus Dry Specimen     | 892.58 gm  | Initial Area     | 6.158 sq in.  |
| Water Weight               | 249.53 gm  | Volume           | 34.451 cu in. |
| Tare Weight                | 42.93 gm   | Volume of Solids | cu in.        |
| Wet Specimen               | 1099.18 gm | Void Ratio       |               |
| Dry Specimen               | 849.65 gm  | Saturation       | %             |
| Water Content              | 29.37 %    | Dry Density      | 94.0 lb/cu ft |
| Specific Gravity of Solids |            |                  |               |
| LL = 62                    | PL = 22    | PI = 40          |               |

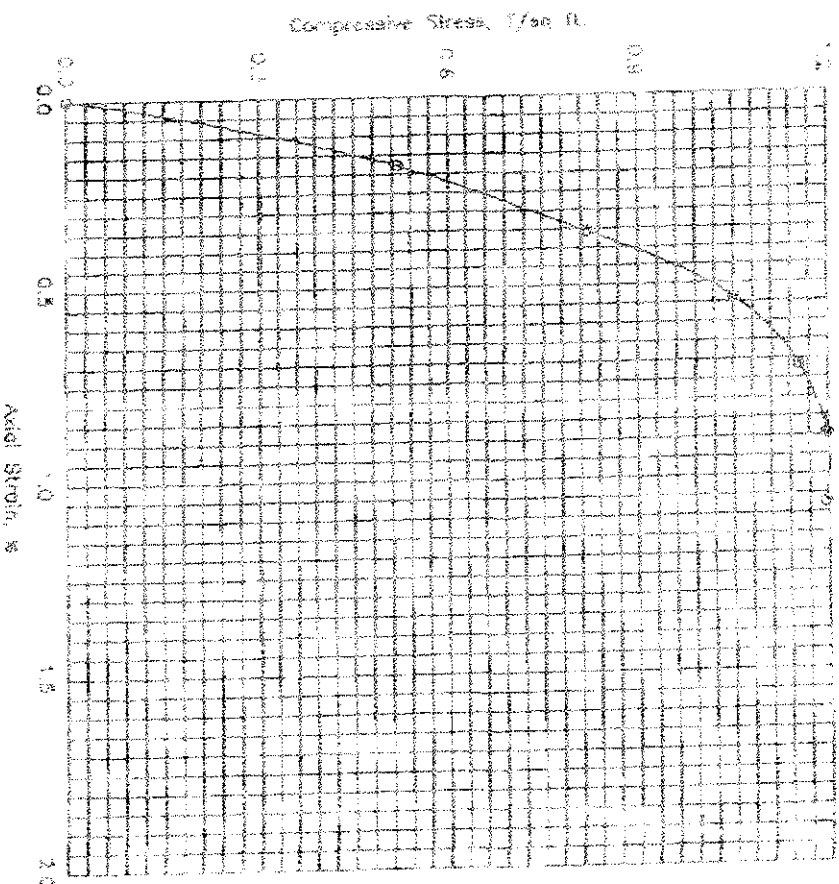
Proving Ring No. 10170

Proving Ring Constant, K = .766 lbs/div.

| Elapsed<br>Time<br>min. | Dial<br>Reading<br>0.001" | Cumulative<br>Change<br>in. | Proving Ring<br>Dial Reading | Axial<br>Load<br>lb | Axial<br>Strain | Area<br>Corr.<br>sq in. | Compr.<br>Stress<br>tsf |
|-------------------------|---------------------------|-----------------------------|------------------------------|---------------------|-----------------|-------------------------|-------------------------|
| .0                      | 0.                        | .000                        | .0                           | .0                  | .000            | 6.16                    | .000                    |
| .4                      | 10.                       | .010                        | 58.0                         | 44.4                | .002            | 6.17                    | .519                    |
| .6                      | 20.                       | .020                        | 92.0                         | 70.5                | .004            | 6.18                    | .821                    |
| .9                      | 30.                       | .030                        | 118.0                        | 90.4                | .005            | 6.19                    | 1.051                   |
| 1.0                     | 40.                       | .040                        | 130.0                        | 99.6                | .007            | 6.20                    | 1.156                   |
| 1.2                     | 50.                       | .050                        | 135.0                        | 103.4               | .009            | 6.21                    | 1.198                   |
| 1.3                     | 60.                       | .060                        | 135.0                        | 103.4               | .011            | 6.22                    | 1.196                   |

Job No. 140450

Soil Sample


 EN 1110-2, 1968  
 Appendix XI  
 30 Nov 70

☐ Controlled stress  
☒ Controlled strain

|                                          |                                          |
|------------------------------------------|------------------------------------------|
| Test No.                                 | 1                                        |
| Type of Specimen                         | Undisturbed                              |
| Water content                            | 28.4 %                                   |
| Void ratio                               | 0.8                                      |
| Saturation                               | 88 %                                     |
| Dry density, lb/cu ft                    | 94.0                                     |
| Time to failure, min                     | 1.20                                     |
| Unconfined compressive strength, T/so ft | 1.20                                     |
| Undrained shear strength, T/so ft        | 0.60                                     |
| Sensitivity ratio                        | 1.0                                      |
| Initial specimen diameter, in.           | 2.800                                    |
| Initial specimen height, in.             | 5.885                                    |
| Classification                           | OLIVE YELLOW-GRAY SILTY M/CLAYEY SILT    |
| Mo                                       | 22                                       |
| P <sub>u</sub>                           | 22                                       |
| PI                                       | 40                                       |
| G <sub>s</sub>                           | 2.65                                     |
| Project                                  | CHANNEL ENLARGEMENT, CHANNEL TO VICTORIA |
| Area                                     | Victoria, Texas                          |
| Boring No.                               | 81-2                                     |
| Depth                                    | 22-24 ft                                 |
| Sample No.                               | 12                                       |
| Date                                     | 4/5/80                                   |
| UNCONFINED COMPRESSION TEST REPORT       |                                          |

 ENG FORM 3655  
 1 JUN 68

Geotest Engineering, Inc.

PLATE XI-2

CLATE

## U.S. ARMY CORPS OF ENGINEERS

BKM

| DEPTH, FEET                                              | SAMPLE NO. | PEN./TORVANE | SPT.-BLOW COUNT | BORING NO. <u>91-2</u> DATE: BEGIN <u>3-20-91</u> PAGE <u>2</u> / <u>2</u> |               |             |                        |                                  |
|----------------------------------------------------------|------------|--------------|-----------------|----------------------------------------------------------------------------|---------------|-------------|------------------------|----------------------------------|
|                                                          |            |              |                 | JOB NO. <u>146446</u> COMPLETE <u>3-20-91</u> Thin Walled Tube             |               |             |                        |                                  |
| PROJECT <u>VICTORIA CHANNEL</u>                          |            |              |                 | <input checked="" type="checkbox"/> 3" <input type="checkbox"/> 6"         |               |             |                        |                                  |
| LOCATION <u>VICTORIA CHANNEL</u>                         |            |              |                 | ELEVATION OF HOLE _____                                                    |               |             |                        |                                  |
| MANUFACTURER'S DESIGNATION OF DRILL RIG <u>741111-96</u> |            |              |                 | GROUNDWATER: DEPTH _____ ft., ELEV. _____ ft., at end of Drilling          |               |             |                        |                                  |
| WEATHER <u>WINDY, WAFW</u>                               |            |              |                 | DRILLER <u>W. De Foe</u> LOGGER <u>L. Berg</u>                             |               |             |                        |                                  |
|                                                          |            |              |                 | COLOR                                                                      | MATERIAL TYPE | CONSISTENCY | SECONDARY CONSTITUENTS | STRUCTURAL FEATURES AND COMMENTS |
| 35                                                       |            |              |                 |                                                                            |               |             |                        |                                  |
| 40                                                       |            |              |                 | Gray                                                                       | Sand          | Very Dense  | Gravel                 |                                  |
| 45                                                       |            |              |                 | Gray                                                                       | Sand          | Very Dense  | Gravel                 | (Large Gravel Blocked Catcher)   |
| 50                                                       |            |              |                 | Gray                                                                       | Sand          | Very Dense  | Gravel                 |                                  |
| 55                                                       |            |              |                 |                                                                            |               |             |                        |                                  |
| 60                                                       |            |              |                 |                                                                            |               |             |                        |                                  |
| 65                                                       |            |              |                 |                                                                            |               |             |                        |                                  |
| 70                                                       |            |              |                 |                                                                            |               |             |                        |                                  |

Bottom of 91-2  
(50')