# U.S. ARMY CORPS OF ENGINEERS

BORING NO. 95-127 DATE: BEGIN 6-2-95 PAGE 1 / 1
JOB NO. 946799-15 COMPLETE 6-2-95 Thin Walled Tube
PROJECT Channel To Victoria ■ 3" □ 6"
LOCATION Disposal Area NO. 3
ELEVATION OF HOLE
MANUFACTURER'S DESIGNATION OF DRILL RIG Ardco K4X4, C-1000, Marsh Buggy
GROUNDWATER: DEPTH 0 ft., ELEV. ____ ft., at end of Drilling
WEATHER Sunny & Hot
DRILLER Scott Gregurek LOGGER Iraj Mostamand

| DEPTH, FEET | SAMPLE | SAMPLE NO. | PEN./TORVANE SPT.-BLOW COUNT | COLOR | MATERIAL TYPE | CONSIS-TENCY | SECONDARY CONSTITUENTS | STRUCTURAL FEATURES AND COMMENTS |
|---|---|---|---|---|---|---|---|---|
| 0 | | 1 | 1.75 | Dk gray | clay | stiff | | -w/roots |
| | | 2 | 4.5+ | Dk gray | clay | Hard | | -w/sasms |
| 5 | | 3 | 4.5+ | Yellowish gray | clay | Hard | | -w/calc nod & sasms |
| | | 4 | 4.5+ | Yellowish gray | clay | Hard | | -w/calc nod & Fest, SLS |
| | | 5 | 4.5+ | Yellowish gray | clay | Hard | | -w/calc nod & Fest, SLS |
| 10 | | 6 | 4.5+ | Yellowish gray | clay | Hard | | -w/calc nod & Fest, SLS |
| | | 7 | 4.5+ | Yellowish gray | clay | Hard | | -w/calc nod & Fest, SLS |
| 15 | | 8 | 4.5+ | Yellowish gray | clay | Hard | | -w/calc nod & Fest |
| | | 9 | 4.5+ | Yellowish gray | clay | Hard | | -w/calc nod & Fest |
| | | 10 | 4.5+ | Yellowish gray | clay | Hard | Sandy | -w/calc nod & Fest |
| 20 | | 11 | 4.5+ | Yellowish gray | clay | Hard | Sandy | -w/calc nod & Fest |
| | | 12 | 4.5+ | Yellowish gray | clay | Hard | Sandy | -w/calc nod & Fest |
| 25 | J | 13 | | light Brown | Sand | Dense | Silty | |
| | X | 14 | 8 13 21 | light Brown | Sand | Dense | | |
| | | | | | | | | J: Jar sample |
| 30 | | | | | | | | |
| 35 | | | | | | | | |

# GEOTEST ENGINEERING, INC.

Project: Channel to Victoria
Seadrift, Texas
Contract No. DACW64-94-D-0015 Delivery Order No. 0018

**SUMMARY OF LABORATORY TEST RESULTS**

Boring No. 95-127

| S # | Depth (ft) | P P (tsf) | SPT Blows per Foot | Visual Classification | U S C | Mc (%) | Dry Unit Wt (pcf) | Wet Unit Wt (pcf) | L L (%) | PL (%) | Mechanical Analysis % Passing #4 | #10 | #40 | #100 | #200 | Torvane Shear Strength (tsf) | q u (tsf) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 - 2 | 1.75 | | Clay,w/roots,Stiff,Dark gray | CH | 29.2 | | | | | | | | | | | |
| 2 | 2 - 4 | 4.5+ | | Clay,w/sand seams,Hard,Dark gray | CH | 20.8 | 102.8 | 124.2 | 78.0 | 30.0 | | | | | | | |
| 3 | 4 - 6 | 4.5+ | | Clay,w/calcareous nodules & sand seams, Hard,Yellowish gray | CH | 22.0 | | | | | | | | | | | |
| 4 | 6 - 8 | 4.5+ | | Clay,w/calcareous nodules & ferrous stains, slickensided,Hard,Yellowish gray | CH | 17.5 | 111.7 | 131.2 | 69.0 | 25.0 | 100.0 | 99.9 | 96.8 | 92.1 | 90.9 | | |
| 5 | 8 - 10 | 4.5+ | | Clay,w/calcareous nodules & ferrous stains, slickensided,Hard,Yellowish gray | CH | 20.0 | | | | | | | | | | | |
| 6 | 10 - 12 | 4.5+ | | Clay,w/calcareous nodules & ferrous stains, slickensided,Hard,Yellowish gray | CH | 25.3 | | | | | | | | | | | |
| 7 | 12 - 14 | 4.5+ | | Clay,w/calcareous nodules & ferrous stains, slickensided,Hard,Yellowish gray | CH | 24.8 | 100.8 | 125.8 | 74.0 | 28.0 | | | | | | | |
| 8 | 14 - 16 | 4.5+ | | Clay,w/calcareous nodules & ferrous stains, Hard,Yellowish gray | CH | 22.2 | | | | | | | | | | | |
| 9 | 16 - 18 | 4.5+ | | Clay,w/calcareous nodules & ferrous stains & sand seams,Hard,Yellowish gray | CH | 17.3 | 114.5 | 134.3 | 57.0 | 24.0 | 99.4 | 98.3 | 97.1 | 92.9 | 90.8 | | 4.54 |
| 10 | 18 - 20 | 4.5+ | | Sandy Clay,w/calcareous nodules & ferrous stains,Hard,Yellowish gray | CL | 15.6 | | | | | | | | | | | |
| 11 | 20 - 22 | 4.5+ | | Sandy Clay,w/calcareous nodules & ferrous stains,Hard,Yellowish gray | CL | 16.7 | | | | | | | | | | | |
| 12 | 22 - 24 | 4.5+ | | Sandy Clay,w/calcareous nodules & ferrous stains,Hard,Yellowish gray | CL | 14.8 | 112.8 | 129.5 | 35.0 | 17.0 | 99.5 | 99.1 | 98.4 | 80.9 | 56.0 | | 4.16 |
| 13 | 24-26 | | | Silty Sand,Dense,Light brown | SM | | | | | | | | | | | | |
| 14 | 26-27.5 | | 34 | Sand,Dense,Light brown | SM | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | | |

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

JOB NO. 94G799-18 DATE 6/22/95

PROJECT Channel to Victoria

AREA Seadrift, Texas

BORING NO. 95-127 SAMPLE NO. 9 DEPTH 16-18 ft

SPECIMEN NO. 1

CLASSIFICATION
Clay,w/calc nod & fe st,Hard,Yellowish gray

| | | | |
|---|---|---|---|
| Tare No. | W-27 | Height | 5.595 in. |
| Tare plus Wet Specimen | 423.42 gm | Average Diameter | 2.830 in. |
| Tare plus Dry Specimen | 367.21 gm | Initial Area | 6.290 sq in. |
| Water Weight | 56.21 gm | Volume | 35.194 cu in. |
| Tare Weight | 42.63 gm | Volume of Solids | cu in. |
| Wet Specimen | 1241.10 gm | Void Ratio | |
| Dry Specimen | 1057.90 gm | Saturation | % |
| Water Content | 17.32 % | Dry Density | 114.5 lb/cu ft |
| Specific Gravity of Solids | | | |

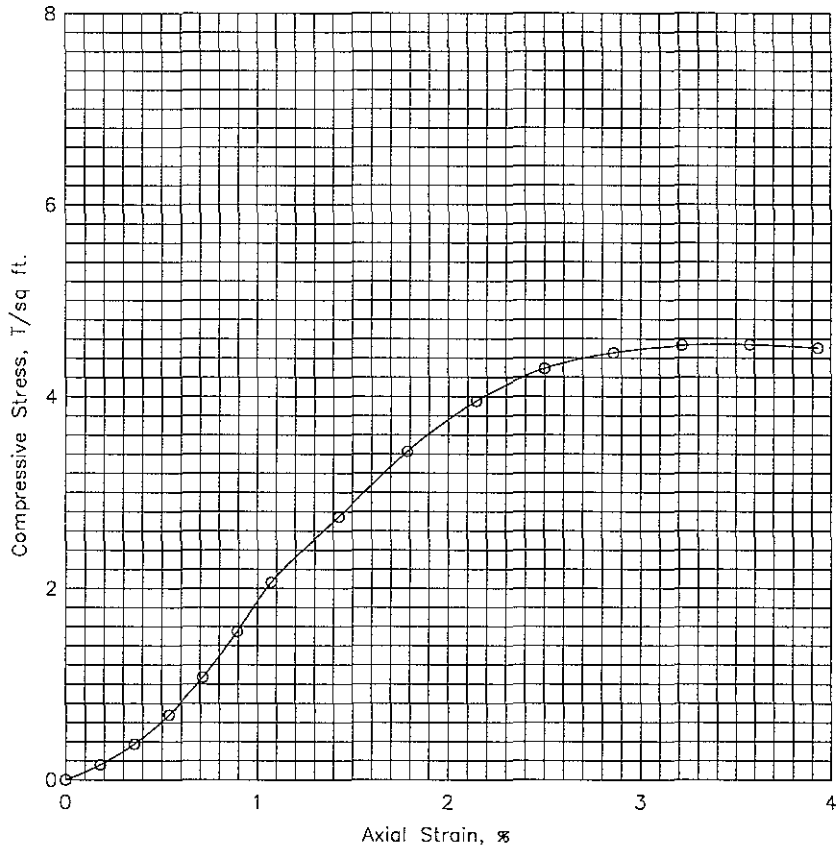
LL = 57 PL = 24 PI = 33

Proving Ring No. 10170
Proving Ring Constant, K = .766 lbs/div.

| Elapsed Time min. | Dial Reading 0.001" | Cumulative Change in. | Proving Ring Dial Reading | Axial Load lb | Axial Strain | Area Corr. sq in. | Compr. Stress tsf |
|---|---|---|---|---|---|---|---|
| .0 | 0. | .000 | .0 | .0 | .000 | 6.29 | .000 |
| .2 | 10. | .010 | 18.0 | 13.8 | .002 | 6.30 | .158 |
| .4 | 20. | .020 | 43.0 | 32.9 | .004 | 6.31 | .376 |
| .5 | 30. | .030 | 78.0 | 59.7 | .005 | 6.32 | .680 |
| .7 | 40. | .040 | 123.0 | 94.2 | .007 | 6.34 | 1.071 |
| .9 | 50. | .050 | 178.0 | 136.3 | .009 | 6.35 | 1.547 |
| 1.0 | 60. | .060 | 238.0 | 182.3 | .011 | 6.36 | 2.064 |
| 1.4 | 80. | .080 | 318.0 | 243.6 | .014 | 6.38 | 2.748 |
| 1.7 | 100. | .100 | 398.0 | 304.9 | .018 | 6.40 | 3.427 |
| 2.0 | 120. | .120 | 461.0 | 353.1 | .021 | 6.43 | 3.955 |
| 2.3 | 140. | .140 | 502.0 | 384.5 | .025 | 6.45 | 4.291 |
| 2.7 | 160. | .160 | 523.0 | 400.6 | .029 | 6.48 | 4.455 |
| 3.0 | 180. | .180 | 534.0 | 409.0 | .032 | 6.50 | 4.531 |
| 3.3 | 200. | .200 | 537.0 | 411.3 | .036 | 6.52 | 4.540 |
| 3.7 | 220. | .220 | 535.0 | 409.8 | .039 | 6.55 | 4.506 |

Job No. 94G799-18

Failure Sketches




☐ Controlled stress
☒ Controlled strain

| | | | | | | |
|---|---|---|---|---|---|---|
| Test No. | | | 1 | | | |
| Type of Specimen | | | Undisturbed | | | |
| Initial | Water content | $w_0$ | 17.3 % | % | % | % |
| | Void ratio | $e_0$ | | | | |
| | Saturation | $S_0$ | % | % | % | % |
| | Dry density, lb/cu ft | $\gamma_d$ | 114.5 | | | |
| Time to failure, min | | $t_f$ | 3.32 | | | |
| Unconfined compressive strength, T/sq ft | | $q_u$ | 4.54 | | | |
| Undrained shear strength, T/sq ft | | $S_u$ | 2.27 | | | |
| Sensitivity ratio | | $S_t$ | | | | |
| Initial specimen diameter, in. | | $D_0$ | 2.830 | | | |
| Initial specimen height, in. | | $H_0$ | 5.595 | | | |

Classification Clay,w/calc nod & fe st,Hard,Yellowish gray

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| LL | 57 | PL | 24 | PI | 33 | $G_s$ | |

Remarks

Project Channel to Victoria

Area Seadrift, Texas

Boring No. 95-127 | Sample No. 9

Depth El 16-18 ft | Date 6/22/95

UNCONFINED COMPRESSION TEST REPORT

ENG FORM 1 JUN 65 3659

PLATE XI-2

*Geotest Engineering, Inc.*

PLATE

JOB NO. 94G799-18 DATE 6/22/95

PROJECT Channel to Victoria

AREA Seadrift, Texas

BORING NO. 95-127 SAMPLE NO. 12 DEPTH 16-18 ft

SPECIMEN NO. 1

CLASSIFICATION
Sandy Clay,w/calc nod & fe st,Hard,Yellowish gray

| | | | |
|---|---|---|---|
| Tare No. | IB-10 | Height | 5.595 in. |
| Tare plus Wet Specimen | 303.35 gm | Average Diameter | 2.830 in. |
| Tare plus Dry Specimen | 269.94 gm | Initial Area | 6.290 sq in. |
| Water Weight | 33.41 gm | Volume | 35.194 cu in. |
| Tare Weight | 43.66 gm | Volume of Solids | cu in. |
| Wet Specimen | 1196.19 gm | Void Ratio | |
| Dry Specimen | 1042.30 gm | Saturation | % |
| Water Content | 14.76 % | Dry Density | 112.8 lb/cu ft |
| Specific Gravity of Solids | | | |

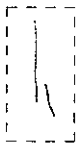
LL = 35 PL = 17 PI = 18

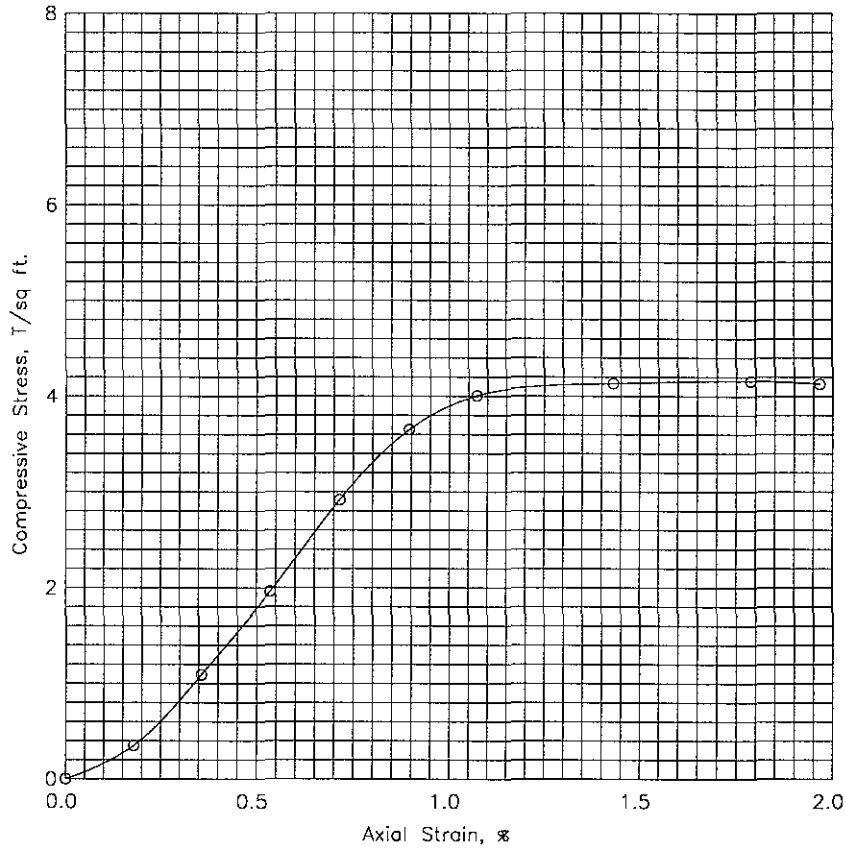
Proving Ring No. 10170
Proving Ring Constant, K = .766 lbs/div.

| Elapsed Time min. | Dial Reading 0.001" | Cumulative Change in. | Proving Ring Dial Reading | Axial Load lb | Axial Strain | Area Corr. sq in. | Compr. Stress tsf |
|---|---|---|---|---|---|---|---|
| .0 | 0. | .000 | .0 | .0 | .000 | 6.29 | .000 |
| .2 | 10. | .010 | 40.0 | 30.6 | .002 | 6.30 | .350 |
| .4 | 20. | .020 | 125.0 | 95.8 | .004 | 6.31 | 1.092 |
| .6 | 30. | .030 | 225.0 | 172.3 | .005 | 6.32 | 1.962 |
| .8 | 40. | .040 | 335.0 | 256.6 | .007 | 6.34 | 2.916 |
| .9 | 50. | .050 | 420.0 | 321.7 | .009 | 6.35 | 3.650 |
| 1.1 | 60. | .060 | 462.0 | 353.9 | .011 | 6.36 | 4.007 |
| 1.5 | 80. | .080 | 478.0 | 366.1 | .014 | 6.38 | 4.131 |
| 1.8 | 100. | .100 | 483.0 | 370.0 | .018 | 6.40 | 4.159 |
| 2.0 | 110. | .110 | 480.0 | 367.7 | .020 | 6.42 | 4.126 |

Job No. 94G799-18

Failure Sketches






☐ Controlled stress
☒ Controlled strain

| | | | | | | |
|---|---|---|---|---|---|---|
| Test No. | | | 1 | | | |
| Type of Specimen | | | Undisturbed | | | |
| Initial | Water content | $w_0$ | 14.8 % | % | % | % |
| | Void ratio | $e_0$ | | | | |
| | Saturation | $S_0$ | % | % | % | % |
| | Dry density, lb/cu ft | $\gamma_d$ | 112.8 | | | |
| Time to failure, min | | $t_f$ | 1.77 | | | |
| Unconfined compressive strength, T/sq ft | | $q_u$ | 4.16 | | | |
| Undrained shear strength, T/sq ft | | $S_u$ | 2.08 | | | |
| Sensitivity ratio | | $S_t$ | | | | |
| Initial specimen diameter, in. | | $D_0$ | 2.830 | | | |
| Initial specimen height, in. | | $H_0$ | 5.595 | | | |

Classification Sandy Clay,w/calc nod & fe st,Hard,Yellowish gray

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| LL | 35 | PL | 17 | PI | 18 | $G_s$ | |

Remarks

Project Channel to Victoria

Area Seadrift, Texas

Boring No. 95-127 | Sample No. 12

Depth El 16-18 ft | Date 6/22/95

UNCONFINED COMPRESSION TEST REPORT

ENG FORM 1 JUN 65 3659

PLATE XI-2

*Geotest Engineering, Inc.*

PLATE