

## BORING LOG NO. B-13

CLIENT: **United States Army Corps of Engineers  
Galveston, Texas**

PROJECT: **Contract W912HY-09-D-0021  
Addicks and Barker Dams, TO-14**

BORING LOCATION: **N: 13840677.187  
E: 3028826.764**

SITE: **Addicks and Barker Reservoirs  
Houston, Texas**

| Graphic Log                                 | DESCRIPTION  | DEPTH, FEET | SAMPLES     |      |              |               |                                |              | TESTS               |                  |                 |                  |                  |                     |                           |                   |
|---|--|-------------|-------------|------|--------------|---------------|--------------------------------|--------------|---------------------|------------------|-----------------|------------------|------------------|---------------------|---------------------------|-------------------|
|   |  |             | USCS SYMBOL | TYPE | RECOVERY, IN | SPT, BLOWS/FT | CALIBRATED HAND PENETROM., TSF | TORVANE, TSF | MOISTURE CONTENT, % | DRY DENSITY, PCF | LIQUID LIMIT, % | PLASTIC LIMIT, % | PLASTICITY INDEX | MINUS #200 SIEVE, % | COMPRESSIVE STRENGTH, TSF | FAILURE STRAIN, % |
| <b>Approx. Surface Elevation: 92.7 feet</b> |  |             |             |      |              |               |                                |              |                     |                  |                 |                  |                  |                     |                           |                   |
|   | <b>SILTY SAND</b><br>gray, medium dense, low plasticity, fine-grained, uniform, dry, with clay seams   | 90.7        | 2.0         | SM   | SS           | 4             | 19                             |              |                     | 6                |                 |                  |                  |                     |                           |                   |
|   | <b>SANDY FAT CLAY</b><br>light gray and tan, very stiff, high plasticity, dry  | 86.7        | 6.0         | CH   | ST           | 10            |                                | 4.5          |                     | 16               | 111             | 61               | 18               | 43                  | 69                        |                   |
|   | <b>LEAN CLAY w/ SAND</b><br>light gray, tan, and reddish brown, stiff to very stiff, medium plasticity, dry<br>- with sand pockets 6 to 8 feet<br>- with ferrous stains 8 to 10 feet | 82.7        | 10.0        | CL   | ST           | 7             |                                | 4.5          |                     | 12               | 123             | 39               | 15               | 24                  | 71                        |                   |
|   | <b>LEAN CLAY</b><br>light gray, tan, and reddish brown, stiff to very stiff, medium plasticity, dry  | 79.2        | 13.5        | CL   | ST           | 14            |                                | 2.0          |                     | 18               |                 | 47               | 19               | 28                  | 87                        |                   |
|   | <b>SILTY SAND</b><br>gray and tan, dense to very dense, non-plastic, fine-grained, uniform, moist  | 70.7        | 22.0        | SM   | SS           | 12            | 41                             |              |                     | 6                |                 |                  |                  |                     | 13                        |                   |
|   | <b>LEAN CLAY w/ SAND</b><br>reddish brown and light gray, soft to very stiff, medium plasticity, moist with calcareous nodules<br>- with ferrous stains 22 to 26 feet                |             |             | CL   | ST           | 19            |                                | 3.0          |                     | 33               |                 |                  |                  |                     |                           |                   |
|   |  |             |             | CL   | ST           | 5             |                                | 4.5          |                     |                  |                 |                  |                  |                     |                           |                   |
| <b>Continued Next Page</b>                  |  |             |             |      |              |               |                                |              |                     |                  |                 |                  |                  |                     |                           |                   |

STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES. IN SITU, THE TRANSITION BETWEEN STRATA MAY BE MORE GRADUAL.

REMARKS: **Dry augered to 18 feet; wet rotary thereafter.**

**WATER LEVEL OBSERVATIONS**

|                  |     |   |
|------------------|-----|---|
| ▽ <b>15.5 ft</b> | DCI | ▽ |
| ▽                |     | ▽ |

FREE WATER WAS NOT OBSERVED DURING DRY DRILLING OPERATIONS



**DATE DRILLED**

7/3/2012

**PROJECT NUMBER**

92125125

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**EXHIBIT A-39**

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| <div style="border: 1px solid black; width: 20px; height: 20px; background: repeating-linear-gradient(45deg, transparent, transparent 2px, black 2px, black 4px);"></div> | <b>Approx. Surface Elevation: 92.7 feet</b>  |                      |                  |                  |                    |               |                                |              |                     |                  |                 |                  |                  |                     |                           |                   |                         |
|   | <b>LEAN CLAY w/ SAND</b><br>reddish brown and light gray,<br>soft to very stiff, medium<br>plasticity, moist with calcareous<br>nodules<br>- with sand seams below 28 feet | 27<br>28<br>29<br>30 | ST<br><br><br>ST | 11<br><br><br>12 | 4.5<br><br><br>0.5 | 18            |                                |              |                     |                  |                 |                  |                  |                     |                           |                   |                         |
|   | 62.7 - with sand seams below 28 feet<br>Boring terminated at 30 feet.  | 30.0                 |                  |                  |                    |               |                                |              |                     |                  |                 |                  |                  |                     |                           |                   |                         |

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|--|-----|---|
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| ▽  |     | ▽ |
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|----------------------------|
| DATE DRILLED<br>7/3/2012   |
| PROJECT NUMBER<br>92125125 |

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| EXHIBIT A-39 |