

Geotechnical Investigation Data Report

Caminada Headlands Back Barrier Marsh
Creation (BA-171) Project
Lafourche Parish, Louisiana

for

Louisiana Coastal Protection and Restoration Authority

March 1, 2016



GEOENGINEERS 
Earth Science + Technology

Geotechnical Investigation Data Report

Caminada Headlands Back Barrier Marsh Creation
(BA-171) Project
Lafourche Parish, Louisiana

for
State of Louisiana
Coastal Protection and Restoration Authority

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11955 Lakeland Park Boulevard, Suite 100
Baton Rouge, Louisiana 70809
225.293.2460

**Geotechnical Investigation Data Report
Caminada Headlands Back Barrier Marsh
Creation (BA-171) Project
Lafourche Parish, Louisiana**

File No. 16715-012-04

March 1, 2016

Prepared for:

Louisiana Coastal Protection and Restoration Authority
450 Laurel Street
Suite 1200, Chase Tower North
Baton Rouge, Louisiana 70801

Attention: Renée Bennett
Project Manager

Prepared by:

GeoEngineers, Inc.
11955 Lakeland Park Boulevard, Suite 100
Baton Rouge, Louisiana 70809
225.293.2460

Josh M. Pruett, PE
Geotechnical Engineer

David Eley, PE
Principal

JMP:DSE:lb



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INTRODUCTION

This report provides geotechnical data for the Caminada Headlands Back Barrier Marsh Creation (BA-171) Project and has been prepared in accordance with the scope of services presented in the State of Louisiana Coastal Protection and Restoration Authority (CPRA) BA-171 Scope of Services for Geotechnical Investigation request dated April 2015 for soil borings and our proposal dated April 13, 2015. On October 7, 2015 GeoEngineers met with CPRA to discuss project alignment and we were instructed of the new alignment of the marsh creation containment dike to keep an area of open water in Bay Champagne and to limit the longitudinal extent of this project phase. In order to better characterize the soil deposits in the revised containment alignment and obtain soil information in the gap closure areas, additional field work and analyses were requested by CPRA. GeoEngineers received authorization to proceed for additional field work and analyses (GeoEngineers proposal dated November 2, 2015) from CPRA on November 4, 2015. Our services for this project were originally authorized under CPRA Purchase Order No. 2000096949 dated May 7, 2015 and were revised to include the new budget for additional work under the same purchase order.

This data report contains a site plan with boring locations, laboratory test results, interpreted geotechnical subsurface profiles (boring logs) and Cone Penetration Test (CPT) results. All elevations described in this report, including figures and appendices, are referenced to the North American Vertical Datum of 1988 (NAVD 88), Geoid 12A. A separate geotechnical data report produced by Eustis Engineering Services, L.L.C. (Eustis), dated July 2, 2015, provides soil information for the Caminada Headlands Back Barrier Marsh Creation Project borrow area and is included in Appendix A. The project location is shown on the vicinity map (Figure 1). Relevant site features are shown on the site plan (Figure 2).

PROJECT DESCRIPTION

The Caminada Headlands Back Barrier Marsh Creation (BA-171) Project is located near the Gulf of Mexico east of LA-3090 in Lafourche Parish, Louisiana. The project will create and nourish approximately 430 acres of marsh by hydraulically dredging soil from a borrow area located approximately 1.6 miles south of the project area.

Eight soil borings (B-1 through B-8) and 27 CPT soundings (C-1 through C-27) were completed for the project within the marsh creation and containment dike area. As previously mentioned, soil investigation within the borrow area was performed by Eustis. The Eustis geotechnical data report is included in Appendix A of this report. Based on information provided by CPRA, three LOOP pipelines run from north to south between the Borings B-6 and B-7. As shown in Figure 2, there are also two 12-inch Plains pipelines and one 20-inch Chevron pipeline that run from northeast to southwest parallel to the Gulf of Mexico shoreline within the proposed marsh creation area.

The project vicinity and field exploration locations are shown on Figures 1 and 2. A subsurface profile of the project area is presented on Figures 3A and 3B. Appendix B contains individual CPT sounding logs. Appendix C has individual soil boring logs with detailed descriptions of soil encountered.

FIELD EXPLORATION

CPT Exploration

Field exploration for the CPT phase of the project was conducted from December 2 through December 4, 2015 and from December 8 through December 10, 2015. Exploration consisted of 27 CPT soundings. A survey of our exploration locations, including mudline elevation and coordinates, was completed by Lonnie G. Harper & Associates, Inc. (LGH) in December 2015. Prior to our field exploration, a hazard survey was completed by LGH using a magnetometer and/or a gradiometer to clear a 50-foot radius around each CPT exploration location.

CPT soundings were proposed to be completed to a depth of 30 to 40 feet below mudline but refusal in sand or silt layers limited the exploration depths in most locations as shown in Table 1. All CPT locations were located in open water, with water depths ranging from approximately 0.8 foot to 5.0 feet.

CPT soundings were conducted using GeoProbe direct-push equipment and Geotech AB cones, rods, and data collection software. The push unit was mounted to a single-engine airboat. CPT soundings were conducted in general accordance with applicable standards, including pushing a 1.4-inch diameter piezo-cone with pore pressure ring and sensor into the subgrade at approximately 2 centimeters per second (cm/s) and collecting tip pressure, side friction pressure, and pore pressure at one second intervals for the entire depth of each sounding. A summary of CPT sounding locations, including completion depth, is shown in Table 1.

TABLE 1. CPT SOUNDING LOCATION SUMMARY

CPT No.	Completion Depth Below Mudline (feet)	Mudline Elevation (feet)	Latitude	Longitude
C-1	8.7*	-0.7	N29° 06' 21.4"	W90° 11' 14.3"
C-2	6.1*	-0.9	N29° 06' 24.4"	W90° 11' 16.2"
C-3	17.6*	-0.9	N29° 06' 29.9"	W90° 11' 14.5"
C-4	30.3	-0.8	N29° 06' 32.1"	W90° 11' 09.3"
C-5	16.4*	-1.2	N29° 06' 32.8"	W90° 11' 02.8"
C-6	16.0*	-0.6	N29° 06' 36.2"	W90° 10' 56.4"
C-7	9.1*	-4.8	N29° 06' 40.5"	W90° 10' 56.6"
C-8	30.2	-2.1	N29° 06' 48.5"	W90° 10' 55.8"
C-9	10.9*	-2.3	N29° 06' 52.0"	W90° 10' 51.3"
C-10	12.0*	-2.3	N29° 06' 55.8"	W90° 10' 46.4"
C-11	11.2*	-2.2	N29° 06' 59.9"	W90° 10' 47.4"
C-12	11.2*	-2.1	N29° 07' 01.2"	W90° 10' 40.5"
C-13	10.8*	-2.1	N29° 07' 04.1"	W90° 10' 34.5"

CPT No.	Completion Depth Below Mudline (feet)	Mudline Elevation (feet)	Latitude	Longitude
C-14	10.0*	-2.3	N29° 07' 06.3"	W90° 10' 31.6"
C-15	11.0*	-2.3	N29° 07' 08.3"	W90° 10' 28.8"
C-16	14.6*	-1.6	N29° 07' 11.2"	W90° 10' 24.1"
C-17	15.9*	-1.5	N29° 07' 12.3"	W90° 10' 18.5"
C-18	15.7*	-2.0	N29° 07' 10.7"	W90° 10' 11.8"
C-19	13.9*	-1.1	N29° 07' 16.8"	W90° 10' 03.2"
C-20	30.3	-1.7	N29° 07' 25.7"	W90° 09' 49.5"
C-21	13.3*	-2.3	N29° 07' 28.3"	W90° 09' 51.2"
C-22	13.6*	-2.7	N29° 07' 31.6"	W90° 09' 40.4"
C-23	16.2*	-1.3	N29° 07' 42.1"	W90° 09' 22.8"
C-24	30.2	-3.6	N29° 07' 56.4"	W90° 09' 02.6"
C-25	35.0	-2.1	N29° 07' 58.8"	W90° 08' 57.7"
C-26	30.2	-1.8	N29° 07' 42.1"	W90° 09' 11.1"
C-27	33.6	-0.4	N29° 07' 55.5"	W90° 08' 51.7"

Note:

* CPT probe met refusal in sand/silt layer; test was stopped before reaching proposed completion depth.

Data was collected and stored by GeoEngineers' field representative at the time of field work, then transferred to GeoEngineers' office in Baton Rouge for processing after completion of field activities. Logs of the CPT soundings can be found in Appendix B.

Soil Boring Exploration

A magnetometer survey was performed by Morris P. Hebert, Inc. at the proposed boring locations prior to our field investigation to reduce the potential for damaging any existing pipelines. All boring locations were approved by CPRA prior to drilling.

Soil conditions were evaluated in the project area from May 19 to May 22, 2015 by advancing six soil borings to a depth of 30 feet each below the mudline and two soil borings to a depth of 80 feet each below the mudline with a marsh buggy-mounted drill rig using the wet rotary method. All borings were sampled continuously (i.e., two-foot pushes at two-foot intervals) in the upper soil profile to a depth of 20 feet below the mudline and thereafter at 5-foot centers to boring completion depths. A field representative from GeoEngineers managed the drilling on a full-time basis, examined and classified the soils encountered, prepared and packaged the samples for transportation to our laboratory, and prepared a detailed log of each borehole. The approximate soil boring locations are shown on Figure 2.

Borehole sampling was conducted in general accordance with applicable ASTM specifications. High-quality, undisturbed cohesive, semi-cohesive soil (clayey silt, clayey sand) and granular soil (silty

sand, silt) specimens suitable for laboratory strength testing were obtained using a 30-inch-long, 3-inch outside diameter (O.D.), thin-walled steel Shelby tube sampler in general accordance with ASTM D1587. The sampler was hydraulically pushed into the ground a distance not exceeding 24 inches per specimen using an Osterberg piston sampler.

For cohesionless soils, and in cases where we were unable to collect samples using the Shelby tube method, sampling was generally performed using the Standard Penetration Test (SPT) Method in general accordance with ASTM D1586. The SPT method requires advancing a 24-inch long, 2-inch O.D. split-barrel sampling spoon 18 inches by repeatedly dropping a 140 pound hammer 30 inches and counting the blows required to advance the spoon in 6-inch increments. The blows required to advance the spoon the final twelve (12) inches are recorded as the standard penetration resistance. There were instances during the field exploration where no soil sample was recovered by either method.

Immediately upon recovery, each sample was classified in the field by our representative based on soil exposed on either end of the Shelby tube or after opening the split spoon sampler. Shelby tubes were then sealed and stored in a vertical position, bottom down, during transportation to the laboratory to minimize sample disturbance. Split spoon samples were removed from the spoon and sealed in an air-tight plastic bag and labeled for transportation to the laboratory. Detailed boring logs are attached in Appendix C. A summary of boring locations, including completion depth, is shown in Table 2.

TABLE 2. BORING LOCATION SUMMARY

Boring No.	Completion Depth Below Mudline (feet)	Latitude	Longitude	Mudline Elevation (feet)
1	30	N29° 06' 38.0"	W90° 11' 01.2"	+0.1
2	80	N29° 06' 58.2"	W90° 10' 46.7"	-2.6
3	30	N29° 07' 12.0"	W90° 10' 33.5"	-2.2
4	30	N29° 07' 09.9"	W90° 10' 01.4"	-1.5
5	30	N29° 07' 24.9"	W90° 09' 49.7"	-2.0
6	30	N29° 07' 42.3"	W90° 09' 09.4"	-2.3
7	80	N29° 07' 58.4"	W90° 08' 46.6"	-1.0
8	30	N29° 08' 30.3"	W90° 08' 09.7"	-0.7

Laboratory testing was performed on selected soil samples to determine the classification, strength, and compressibility characteristics of the soil, and the results are presented in Appendix D.

CPT SOUNDING RESULTS

CPT sounding information was processed using Dataforensic's RapidCPT add-in to the soil data presentation software gINT. Soil stratigraphy was identified using Robertson and Campanella's non-

normalized soil behavior type (SBT) charts. CPTs were completed close to soil borings at four locations across the site for calibration purposes. In general, the CPTs completed at the site appear to match the soil borings and provided a good representation using the q_t and B_q correlation. However, the four easternmost CPT soundings do not provide a good material type match in mixed soils (clay and sand or silt mixes) based on the q_t data. CPT SBT correlations sometimes struggle to correctly identify soil type. In a 2010 paper titled *Soil behaviour type from the CPT: an update*, P.K. Robertson stated, "...CPT-based SBT may not always agree with traditional USCS-based soil types based on samples and that the biggest difference is likely to occur in the mixed soils region (i.e., sand-mixtures & silt-mixtures)".

Shear strengths were computed using the N_{kt} correlation presented in "Use of in situ tests for foundation design on clay" from *Proceedings of the ASCE Specialty Conference In Situ '86: Use of In Situ Tests in Geotechnical Engineering* by Aas, Lacasse, Lunne, and Höeg. For the purposes of this project, GeoEngineers back-calculated a N_{kt} value of 18, using shear strengths from borings B-1, B-2, B-5 and B-6. The shear strength correlation is listed below:

$$Su = (q_t - \sigma_{vo})/N_{kt}$$

Where Su = estimated shear strength of the soil;
 q_t = raw tip pressure from CPT sounding results;
 σ_{vo} = total in-situ overburden pressure at the depth of interest; and
 N_{kt} = Empirical correlation factor ≈ 18 for this project.

Shear strength with depth charts will be provided in the Geotechnical Engineering Report at a later date.

SITE CONDITIONS

Based on observations during our field exploration, the marsh creation area is predominantly open water with a few channels across the site. The depth of water measured during field exploration varied from 0.8 foot to 5.0 feet at the CPT locations. The mudline elevation from -0.4 foot to -4.8 feet. Chevron, Plains, and LOOP pipeline companies were concerned that some of the boring and CPT locations were close to their pipelines. The representatives from these pipeline companies went out with the Morris P. Hebert, Inc. and LGH survey crews prior to the magnetometer survey and offset the locations away from their lines. The geotechnical exploration locations were cleared for our services; however, we do not know if subsurface obstructions other than those identified by CPRA and during our One Call request are located outside of the cleared areas. Overhead utilities on site were not noted by GeoEngineers at the time of our services.

VARIATIONS

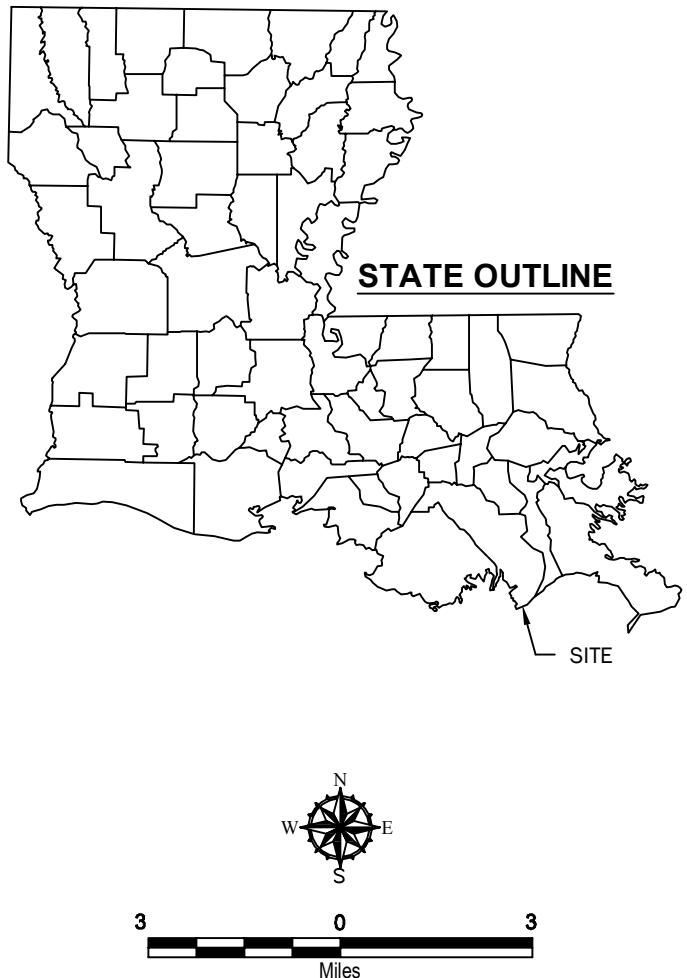
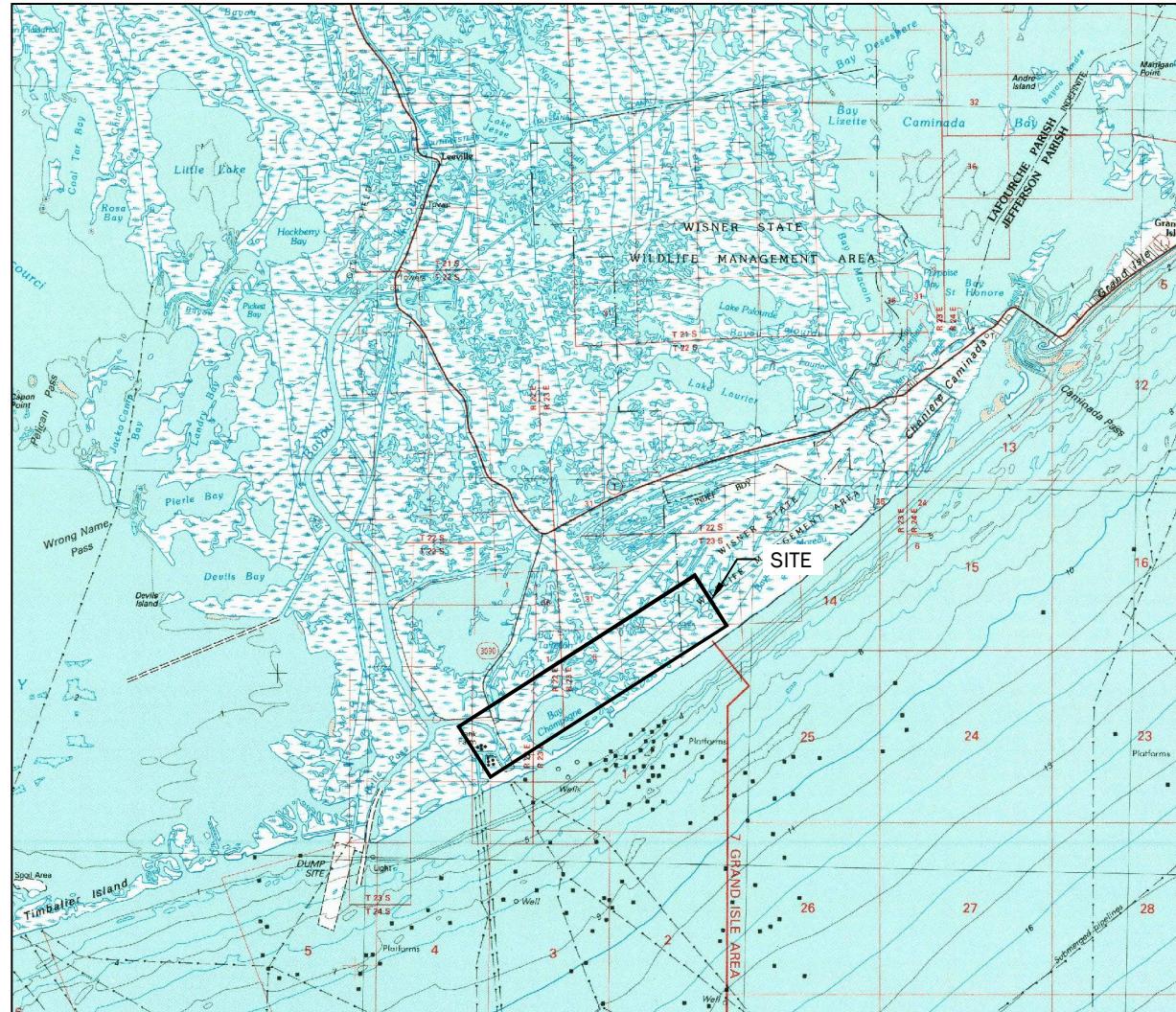
Interpretations of soil conditions, as described in the soil boring and CPT sounding logs are based on field and laboratory data presented in this report. Variations in soil conditions are likely to exist between the exploration locations and seasonal variation in water conditions will occur. Tidal influence should be expected in the marsh area and should be considered in the project design and construction.

LIMITATIONS

The information presented in this report is based on field explorations completed for this study and judgements made by GeoEngineers. This report is specific to this site and should not be used other than for the design of the Caminada Headlands Back Barrier Marsh Creation (BA-171) project in Lafourche Parish, Louisiana. We have provided the requested information for the geotechnical investigation data report in this document. A detailed engineering report and other project related information will be provided separately.

Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted practices in the field of geotechnical engineering in this area at the time this report was prepared. No warranty or other conditions expressed or implied should be understood.

Please refer to Appendix F titled “Report Limitations and Guidelines for Use” for additional information pertaining to use of this report.



VICINITY MAP

Caminada Headlands Back-barrier
Marsh Creation (BA-171) Project
Port Fourchon, Louisiana



Figure 1

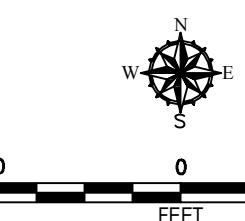
Notes:

1. The locations of all features shown are approximate.
 2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Reference: Topographic map was taken from USGS, 100K Templates, Quad: Terrebonne Bay, Dated 1983

**Notes:**

1. Aerial was taken from Google Earth Pro., Licensed to GeoEngineers Inc., © Google Inc., Imagery Dated 1/25/2015
2. Soil boring locations were provided by CPRA, Marsh Creation Boring Layout, State Project # BA-171, dated 11/2014. Original borings may have been moved in the field as needed to accommodate our drilling equipment. Boring coordinates were taken with a field handheld GPS at the time of drilling.
3. Previous boring information was taken from GeoEngineers Geotechnical Data Collection Reports, Caminada Headland Beach and Dune Restoration Project (BA-45), Dated 9-8-2010
4. Boring performed by PSI as recorded in their Geotechnical Data Investigation Report for the Barataria Basin Shoreline Restoration, Dated 4-3-2007
5. Pipeline Locations were taken from CPRA, Caminada Headlands Back Barrier Marsh Creation (BA-171), Marsh Creation Area Utility Locations, Dated May 2015
6. The locations of all features shown are approximate.
7. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.



AS-DRILLED SOIL BORING DETAILS		
BORING #	LATITUDE	LONGITUDE
B-1	N29° 06' 38.0"	W90° 11' 01.2"
B-2	N29° 06' 58.2"	W90° 10' 46.7"
B-3	N29° 07' 12.0"	W90° 10' 33.5"
B-4	N29° 07' 09.9"	W90° 10' 01.4"
B-5	N29° 07' 24.9"	W90° 09' 49.7"
B-6	N29° 07' 42.3"	W90° 09' 09.4"
B-7	N29° 07' 58.4"	W90° 08' 46.6"
B-8	N29° 08' 30.3"	W90° 08' 09.7"

PREVIOUS GEOENGINEERS SOIL BORING DETAILS		
BORING #	LATITUDE	LONGITUDE
B-5 (OLD)	N29° 06' 30.4"	W90° 10' 50.7"
B-6 (OLD)	N29° 06' 56.0"	W90° 10' 14.6"
B-7 (OLD)	N29° 07' 17.2"	W90° 09' 38.5"
B-8 (OLD)	N29° 07' 40.6"	W90° 09' 00.0"
B-9 (OLD)	N29° 08' 02.9"	W90° 08' 23.9"

PSI SOIL BORING DETAILS		
BORING #	LATITUDE	LONGITUDE
PB-3 (OLD)	N29° 06' 37.0"	W90° 10' 40.9"

CPT DETAILS		
SOUNDING #	LATITUDE	LONGITUDE
C-1	N29° 06' 21.4"	W90° 11' 14.3"
C-2	N29° 06' 24.4"	W90° 11' 16.2"
C-3	N29° 06' 29.9"	W90° 11' 14.5"
C-4	N29° 06' 32.1"	W90° 11' 09.3"
C-5	N29° 06' 32.8"	W90° 11' 02.8"
C-6	N29° 06' 36.2"	W90° 10' 56.4"
C-7	N29° 06' 40.5"	W90° 10' 56.6"
C-8	N29° 06' 48.5"	W90° 10' 55.8"
C-9	N29° 06' 52.0"	W90° 10' 51.3"
C-10	N29° 06' 55.8"	W90° 10' 46.4"
C-11	N29° 06' 59.9"	W90° 10' 47.4"
C-12	N29° 07' 01.2"	W90° 10' 40.5"
C-13	N29° 07' 04.1"	W90° 10' 34.5"
C-14	N29° 07' 06.3"	W90° 10' 31.6"
C-15	N29° 07' 08.3"	W90° 10' 28.8"
C-16	N29° 07' 11.2"	W90° 10' 24.1"
C-17	N29° 07' 12.3"	W90° 10' 18.5"
C-18	N29° 07' 10.7"	W90° 10' 11.8"
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C-24	N29° 07' 56.4"	W90° 09' 02.6"
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C-26	N29° 07' 42.1"	W90° 09' 11.1"
C-27	N29° 07' 55.5"	W90° 08' 51.7"

Legend

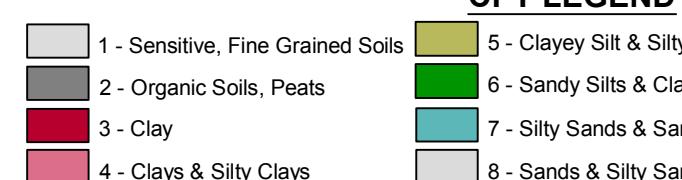
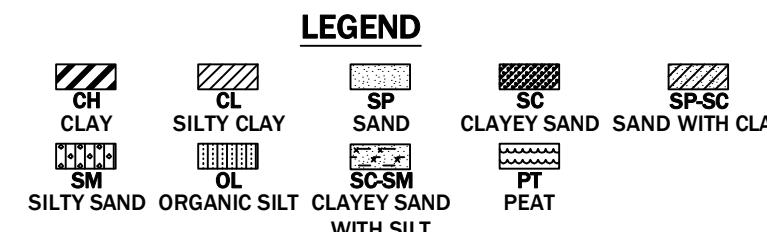
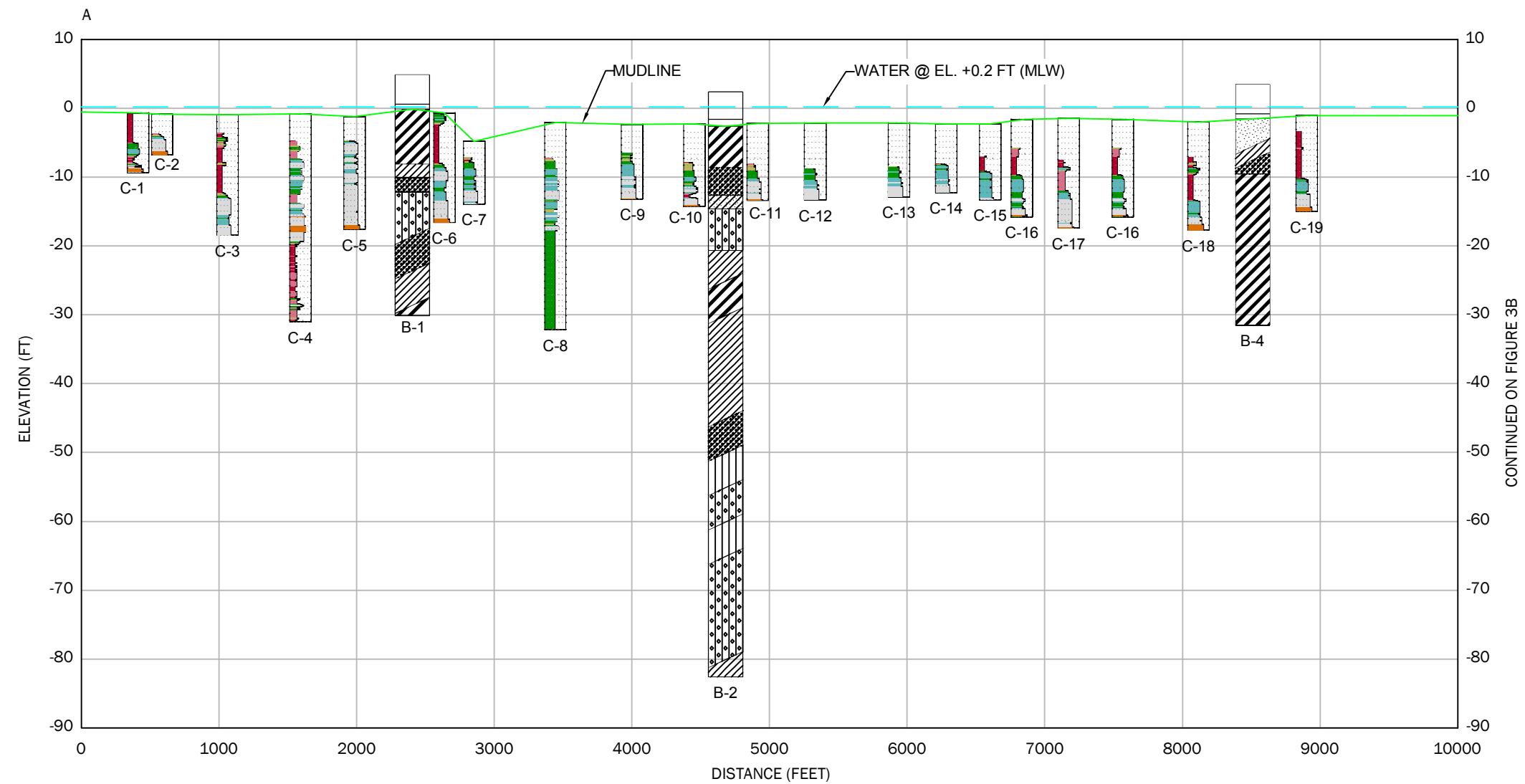
- B-1 Borehole Location
 - C-1 CPT Location
 - B-1 (OLD) Previous GeoEngineers Borehole Location (Note 3)
 - PB-3 (OLD) PSI Borehole Location (Note 4)
- ↔ Cross Section
— Powerlines
— Pipeline Routes
▨ Proposed Marsh Creation Area
▨ Proposed Containment Dikes

SITE PLAN

Caminada Headlands Back-Barrier Marsh Creation (BA-171) Project
Port Fourchon, Louisiana

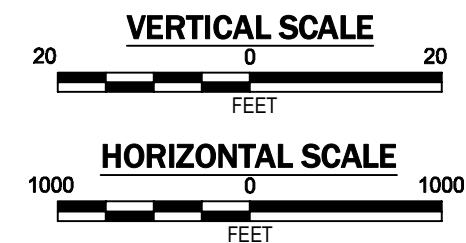
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Figure 2

**Notes:**

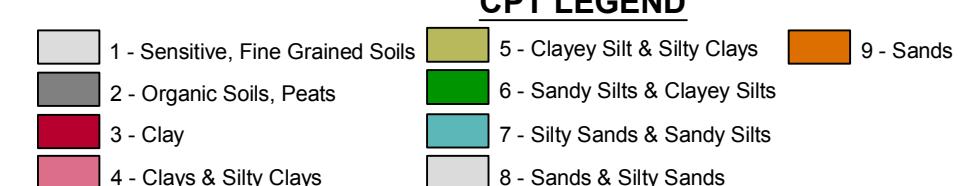
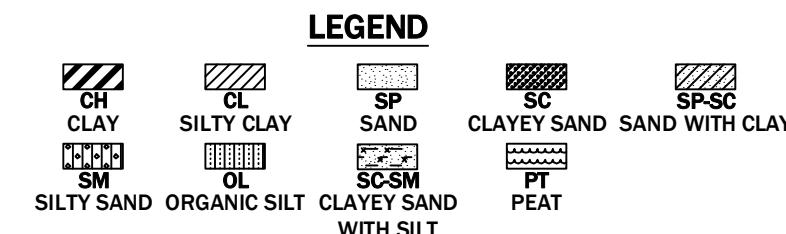
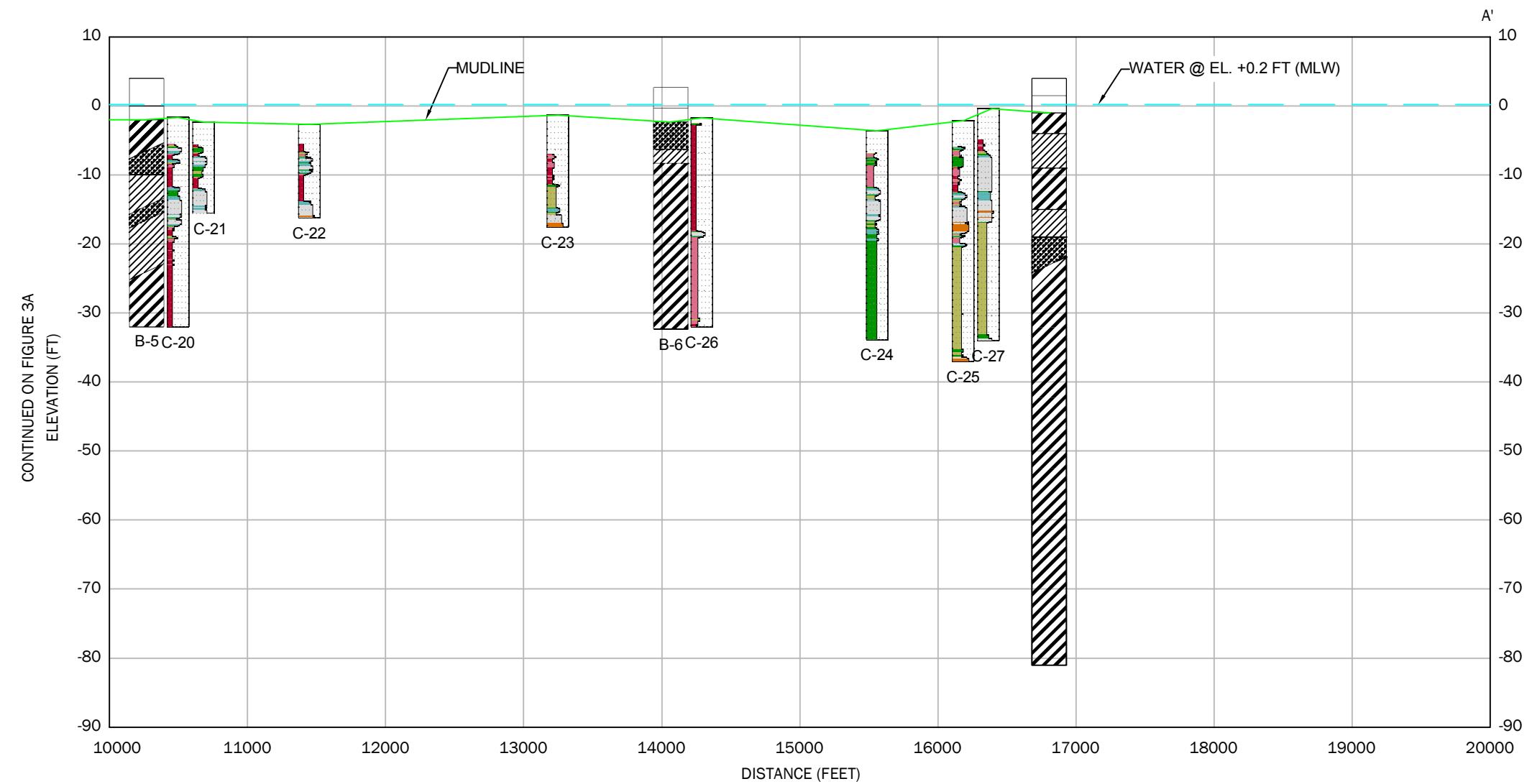
- The locations of all features shown are approximate.
- This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document.
- GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
- Mudline shown in this drawing is interpolation between surveyed points at each exploration location.

Reference:
 1. Boring mudline elevations were provided by CPRA, Dated: June 2015
 2. Previous boring information was taken from GeoEngineers, Caminada Headland Beach and Dune Restoration Project (BA-45), Dated 9-8-2010

**SUBSURFACE PROFILE A-A'**

Caminada Headlands Back-Barrier
Marsh Creation (BA-171) Project
Port Fourchon, Louisiana

**Figure 3A**

**Notes:**

- The locations of all features shown are approximate.
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Reference:

- Boring mudline elevations were provided by CPRA, Dated: June 2015
- Previous boring information was taken from GeoEngineers, Caminada Headland Beach and Dune Restoration Project (BA-45), Dated 9-8-2010

**SUBSURFACE PROFILE A-A'**

Caminada Headlands Back-Barrier
Marsh Creation (BA-171) Project
Port Fourchon, Louisiana

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Figure 3B

APPENDIX A
Eustis Project No. 22729, dated July 2, 2015

Eustis Engineering Services, L.L.C.

www.eustiseng.com



2 July 2015

State of Louisiana
Coastal Protection and Restoration Authority
Post Office Box 44027
Baton Rouge, Louisiana 70804

Attention Ms. Amanda Taylor, E.I.

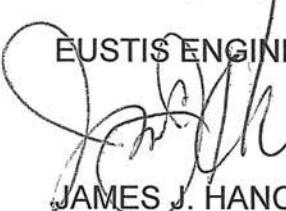
Ladies and Gentlemen:

Geotechnical Exploration
State of Louisiana
Caminada Headlands Back Barrier
Marsh Creation Project (BA-171)
Offshore Work
Lafourche Parish, Louisiana
Contract No. 2503-13-14
Task No. 1, Amendment No. 1
Eustis Engineering Project No. 22729

Transmitted are two copies (one bound and one unbound) of our engineering report covering a geotechnical exploration for the subject project. Electronic copies are also being provided to you and Ms. Renee S. Bennett.

Thank you for asking us to perform these services.

Yours very truly,


EUSTIS ENGINEERING SERVICES, L.L.C.

JAMES J. HANCE, P.E.



R. S. Middleton:nfr/alm

GEOTECHNICAL EXPLORATION
STATE OF LOUISIANA
COASTAL PROTECTION AND RESTORATION AUTHORITY
CAMINADA HEADLANDS BACK BARRIER
MARSH CREATION PROJECT (BA-171)
OFFSHORE WORK
LAFOURCHE PARISH, LOUISIANA
CONTRACT NO. 2503-13-14
TASK NO. 1, AMENDMENT NO. 1
EUSTIS ENGINEERING PROJECT NO. 22729

FOR
STATE OF LOUISIANA
COASTAL PROTECTION AND RESTORATION AUTHORITY
LAFOURCHE PARISH, LOUISIANA

By
Eustis Engineering Services, L.L.C.
Metairie, Louisiana

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GEOTECHNICAL EXPLORATION
STATE OF LOUISIANA
COASTAL PROTECTION AND RESTORATION AUTHORITY
CAMINADA HEADLANDS BACK BARRIER
MARSH CREATION PROJECT (BA-171)
OFFSHORE WORK
LAFOURCHE PARISH, LOUISIANA
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INTRODUCTION

1. This report contains the results of a geotechnical exploration performed for the offshore work associated with Caminada Headlands Back Barrier Marsh Creation Project (BA-171). Our professional services were performed in general accordance with Eustis Engineering Services, L.L.C.'s revised proposal dated 24 June 2015. Our original proposal date 24 April 2015 included scopes for onshore and offshore work. After not being able to come to a landowner access agreement for the onshore work, Eustis Engineering Services received a letter dated 9 April 2015 by Mr. Jerry Carroll, P.E., of the State of Louisiana, Coastal Protection and Restoration Authority (CPRA) that terminated our onshore scope of work for the BA-171 project.

The reduced scope of work was presented in the "Scope of Services for Geotechnical Investigation and Engineering Services (Off-Shore Work)" document dated 15 April 2015, provided by CPRA. The offshore scope of work was approved by the revised notice to proceed (NTP) dated 30 April 2015.

SCOPE OF SERVICES

2. The exploration included the performance of vibracore borings to determine subsurface conditions and stratification, and to obtain samples of the various substrata. Soil mechanics laboratory tests, performed on samples obtained from the vibracore borings, were used to evaluate the physical properties of the subsoils. This report includes individual vibracore boring logs, a summary of laboratory test data, and a discussion of the subsoil conditions, including subsurface profiles. Our scope of work also includes slope stability recommendations for the borrow area.
3. The scope of our services does not include an environmental assessment or an investigation for the presence or absence of wetlands and hazardous or toxic materials in the soil; surface water; ground water; or air on, below, or adjacent to the subject property. Furthermore, the scope does not include the investigation or detection of biological pollutants at the site. The term "biological pollutants" includes but is not limited to, molds, fungi, spores, bacteria, viruses, and the byproducts of any such biological organisms.

FIELD EXPLORATION

4. Prior to performing the vibracore borings, CPRA provided the results to Eustis Engineering and Ocean Surveys, Inc. (OSI) of the magnetometer survey performed at each vibracore location. The results of the survey were provided to ensure no pipelines or obstructions were in the area of the vibracore locations. A total of 15 vibracore borings were completed at ten locations by OSI, a highly qualified member firm of the Eustis Engineering design team for our CPRA IDIQ contract, between 10 and 12 February 2015. OSI's report, dated 25 February 2015 documenting their vibracore sampling services, is included as Appendix I in this report. The vibracore borings were attempted to a penetration depth of 30 feet below the mudline. If recovery was less than 25 feet, a second attempt was made to acquire a longer

vibracore boring. At the locations where two vibracore borings were performed, we selected the vibracore with the deepest recovery to be tested in our laboratory. Refer to Attachment 2 of OSI's report for detailed recovery depths and commentary. A total of ten vibracore logs are presented in Appendix II. The samples retrieved at the five alternate vibracore locations were used as a composite bulk sample to represent the borrow source. The bulk sample was used to conduct additional laboratory tests which include a settling column test and self-weight consolidation tests. A representative of Eustis Engineering collected a water sample from the site to be used to conduct the settling column test and the self-weight consolidation tests. A site vicinity map is included as Figure 1, and the approximate vibracore locations are shown on Figure 2.

5. Upon completion of the OSI's field operations, the vibracore borings were transferred to a Eustis Engineering representative for transport to our laboratory for testing. Detailed descriptive logs of the vibracores are shown in both tabular and graphical form in Appendix II. GPS coordinates were obtained by OSI at the vibracore locations using a handheld device. These coordinates are shown in terms of latitude and longitude on the logs in Appendix II.
6. The results of a bathymetric survey of the borrow area were furnished by CPRA for our use. Mudline elevations (NAVD 88) and water depths taken at the vibracore locations during the bathymetric survey are shown on the individual logs in Appendix II.
7. OSI's vibratory coring was accomplished using a pneumatic vibratory corer onboard a 33-ft by 55-ft lift boat. During the coring operation, precision DGPS positioning and OSI navigation systems were used to guide the vessel to the coring locations. Details of the field operations conducted by OSI are contained in their report (see Appendix I).

LABORATORY TESTS

8. Soil mechanics laboratory tests, consisting of natural water content, Atterberg limits determinations, and the test establishing the percent passing a No. 200 sieve were performed on samples obtained from the vibracore borings. The results of the tests are tabulated on the boring logs in Appendix II. In addition, grain size analyses including hydrometer testing were performed on selected samples retained from the borings to determine their particle distribution curves. The results of these tests are shown graphically on separate sheets following the boring logs in Appendix II.
9. Settling Column. To evaluate the material from the proposed borrow area, we performed one column settling test on a bulk composite sample. The results are presented in Appendix III. The test was performed in an 8-in. diameter by 8-ft high column. Ports were located at the 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, and 6.0-ft heights within the column. Samples were tested to determine the total suspended solids (TSS) in the slurry at 1, 2, 4, 6, and 12 hours and at 1, 2, 4, 7, 11, and 15 days. In addition, a particle size distribution curve was obtained for the composite sample used for the settling column test. A plot of the TSS concentration for the eight ports sampled at various times is also provided in Appendix III.
10. Self-Weight Consolidation. We performed self-weight consolidation testing on the bulk material that was used for the settling column test to further define the borrow material's self-weight consolidation properties. These properties include compression ratios and coefficients of vertical consolidation. The tests were performed as specified in the U.S. Army Corps of Engineer's Engineering Manual EM 1110-2-5207. The results of this testing are provided in Appendix IV.

AVAILABLE SUBSURFACE DATA

11. CPRA furnished Eustis Engineering a report prepared by Geo Engineers, Inc. entitled "Geotechnical Data Collection Report, Caminada Headland Beach and Dune Restoration Project (BA-45), Lafourche and Jefferson Parishes, Louisiana" dated 8 September 2010. This report included boring logs, laboratory test results, and soil and geologic profiles in the vicinity of the BA-171 project. The borings included in this report are onshore adjacent to the proposed borrow source. Review of the report and geology indicates several of the borings would aid in the evaluation of the borrow source side slopes. The boring logs used in our evaluation of the soil stratigraphy are included as Appendix V. The locations of the pertinent borings are shown on Figure 2.

DESCRIPTION OF SUBSOIL CONDITIONS

Stratigraphy

12. Reference to the vibracore logs reveals the subsoils at the boring locations to be predominantly clay soils. The soils in the proposed borrow area are primarily very soft to soft clay and silty clay underlain by medium stiff to stiff clay and silty clay. Interbedded layers of loose sand, silty sand, clayey silt, and sandy silt exist throughout the vibracore borings. The vibracore borings were terminated to depths of 21.4 to 31.1 feet below the mudline (approximately el -56.5 to el -61.5 NAVD 88). A subsoil profile including approximate water depths is included as Figure 3.

Depths

13. Standing water was encountered at all boring locations. The water depths measured at the time of our field exploration generally ranged between 30.1 and 32.7 feet. The water depth will vary with stages in the Gulf of Mexico, climatic

conditions, tidal fluctuations, and other factors. The water level and site conditions should be investigated by those persons responsible for construction immediately prior to beginning work.

DESIGN SOIL PARAMETERS

14. We have selected design parameters for the project site using the vibracore data collected by the Eustis Engineering team and the furnished data from the Geo Engineers report dated 8 September 2010. Design parameters developed for the proposed borrow source are shown on Figure 4.
15. Due to limited shear strength data (i.e., no shear tests results below el -30), trend lines approximating an undrained shear strength (or cohesion c) to effective vertical stress or P_o ratio (c/P_o) of 0.25 were used to develop an appropriate undrained shear strength design line for the evaluation of the borrow source slope under the assumption that the cohesive soils are normally consolidated. This ratio has been used as an approximate guide for evaluating undrained shear strength data with depth in southern Louisiana and it is, in our opinion, an appropriate relationship to aid in evaluating subsurface conditions at the project site. The undrained shear strengths we selected for design fall on the trend line of a c/P_o ratio of 0.25 which is approximately the strength expected of normally consolidated clays and is considered to be a conservative assumption for these analyses.

ENGINEERING ANALYSES

Furnished Information

16. The proposed project will create 430 acres of marsh within the Caminada Headlands Back Barrier Marsh Creation Project area (BA-171). The marsh will be created and nourished by hydraulically dredging material from the borrow source

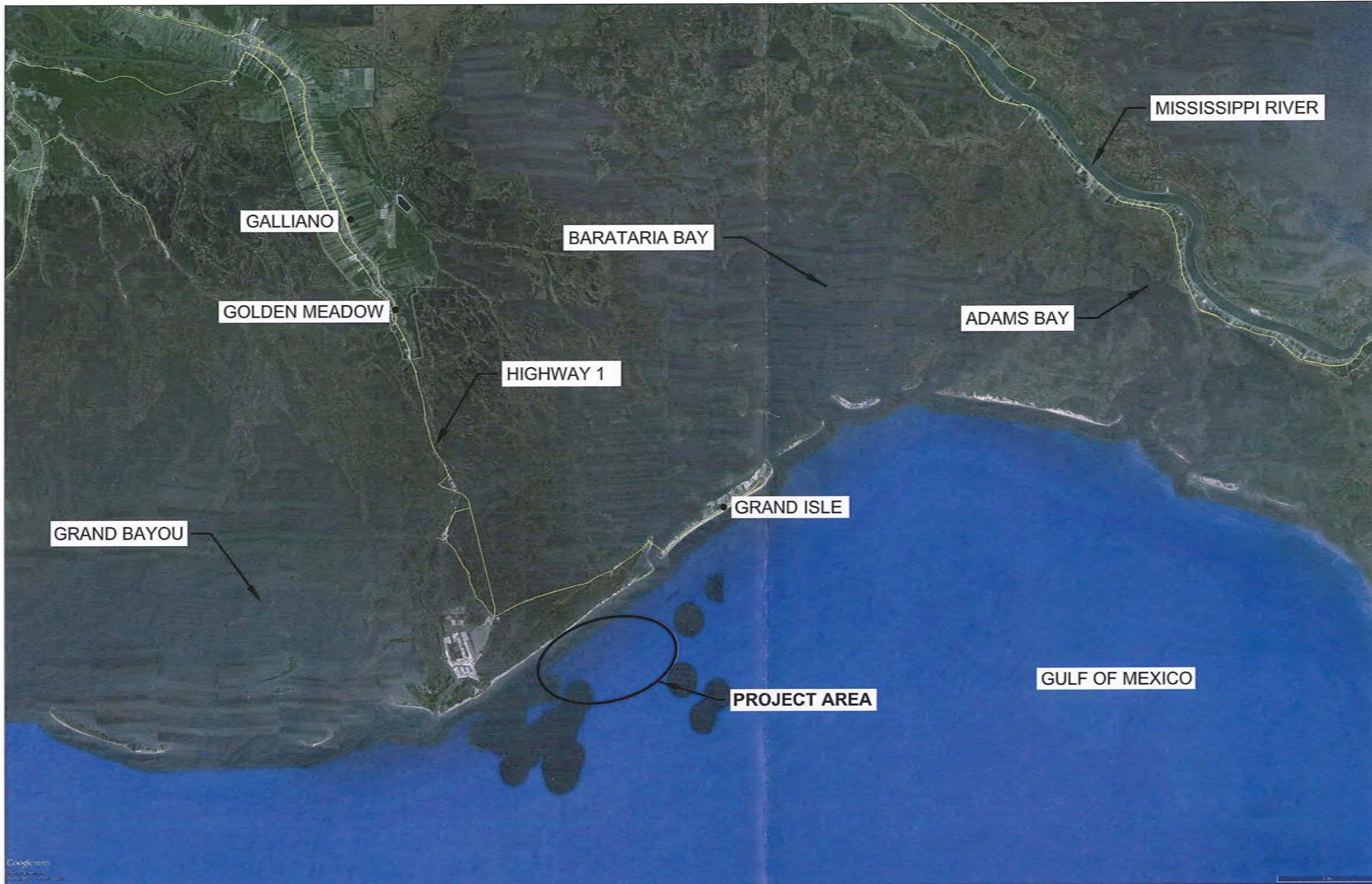
and pumping it to the designated fill site. The fill areas will be formed by constructing earthen containment dikes around the boundaries of the marsh creation area. We understand the borrow area will be dredged 15 to 20 feet below the mudline.

Stability Analyses

17. Design Methodology and Assumptions. Stability analyses of the earthen containment levees were performed using the Geo-Slope International, Ltd.'s SLOPE/W, Version 7.17, slope stability program. This program generally utilizes circular and non-circular slip surfaces to define the soil failure planes. These surfaces are divided into vertical slices and the factor of safety is computed by summing forces, summing moments, or both. Interslice forces are considered for these analyses. A minimum required factor of safety equal to approximately 1.3 was assumed. Factors of safety presented in this report are based on Spencer's method which assumes horizontal interslice forces.
18. We considered water at el 0 at the location of the borrow source. Extreme low or high water levels due to a storm event were not evaluated. However, considering the mudline in the proposed borrow area is approximately el -31, deviations from our water level assumption will still result in a submerged slope, and the stability results would be unaffected.
19. Results. Borrow source side slopes of 2 horizontal on 1 vertical (2H:1V) or more gently sloping are required to maintain a minimum factor of safety of 1.3 for 15-ft and 20-ft dredge depths under low water conditions of el 0. The results of borrow source stability analyses considering side slopes of 2H:1V and 3H:1V for 15-ft and 20-ft dredge depths are shown on Figure 5. The stability analysis calculations are included in Appendix VI.

LIMITATIONS

20. This report has been prepared in accordance with generally accepted geotechnical engineering practice for the exclusive use of CPRA and their geotechnical consultant for the onshore work for specific application to the subject site. In the event of any changes in the nature or location of the proposed borrow area, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and the conclusions of this report are modified and verified in writing. Should these data be used by anyone other than CPRA and their geotechnical consultant for the onshore work, they should contact Eustis Engineering for interpretation of data and to secure other information pertinent to this project.
21. The subsurface profile contained in this report is based on data obtained from the vibracore borings performed for the current exploration. The individual logs of the vibracore borings are considered representative of subsurface conditions at their respective locations on the dates completed. No warranty is given that the vibracore logs are representative of subsurface conditions at other locations or times. The nature and extent of variations in subsurface conditions between and away from the vibracore boring locations may not become evident until construction. If such variations then appear, it will be necessary to reevaluate the interpreted subsurface conditions contained in this report.
22. Recommendations and conclusions contained in this report are to some degree subjective and should be used only for design purposes. This report should not be included in the contract plans and specifications. However, the results of the vibracore borings and laboratory tests contained in Appendix II of this report may be included in the plans and specifications.



30,000 0 30,000

SCALE: 1" = 30,000'



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SITE VICINITY MAP

STATE OF LOUISIANA
COASTAL PROTECTION AND RESTORATION AUTHORITY
CAMILADA HEADLANDS BACK BARRIER
MARSH CREATION PROJECT (BA-171)
LAFOURCHE PARISH, LOUISIANA

DRAWN BY: J.L.S.

PLOT DATE: 1 JULY 15

CADD FILE:
FINAL SITE VICINITY.DGN

CHECKED BY: R.S.M.

JOB NO.: 22729

FIGURE 1



● DENOTES LOCATIONS OF UNDISTURBED SOIL BORINGS PERFORMED BY GEOENGINEERS, INC.
BETWEEN 13 AND 16 JULY 2010

● DENOTES LOCATIONS OF VIBRACORE BORINGS PERFORMED BY OCEAN SURVEYS, INC.
BETWEEN 10 AND 12 FEBRUARY 2015

NOT TO SCALE



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BORING AND VIBRACORE LOCATION PLAN

STATE OF LOUISIANA
COASTAL PROTECTION AND RESTORATION AUTHORITY
CAMILADA HEADLANDS BACK BARRIER
MARSH CREATION PROJECT (BA-171)
LAFOURCHE PARISH, LOUISIANA

DRAWN BY: J.L.S.

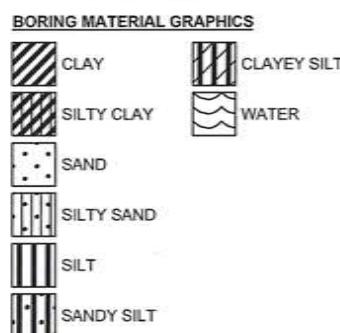
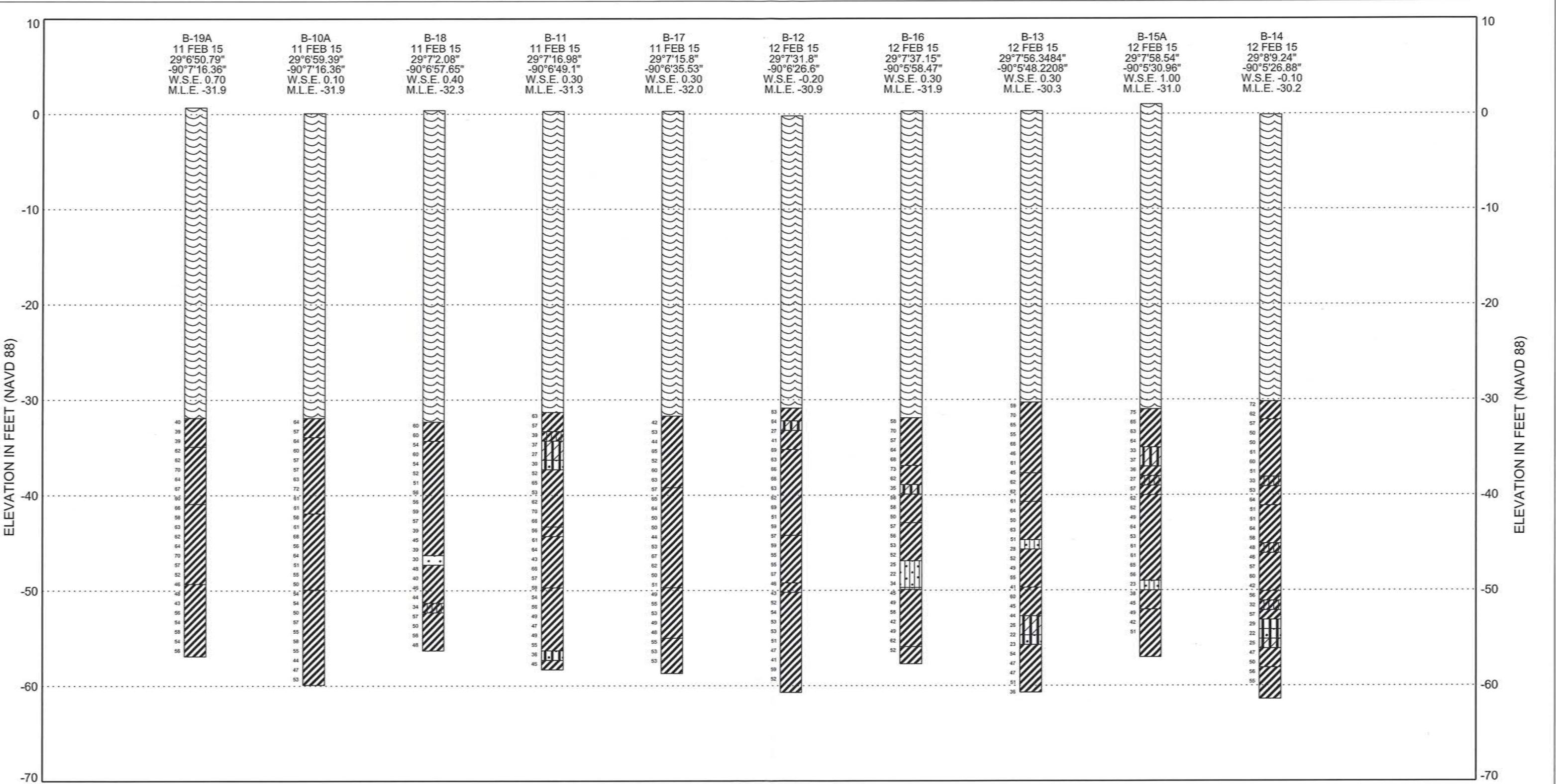
PLOT DATE: 2 JULY 15

CADD FILE:
LOCATION PLAN.DGN

CHECKED BY: R.S.M.

JOB NO.: 22729

FIGURE 2



LEGEND:

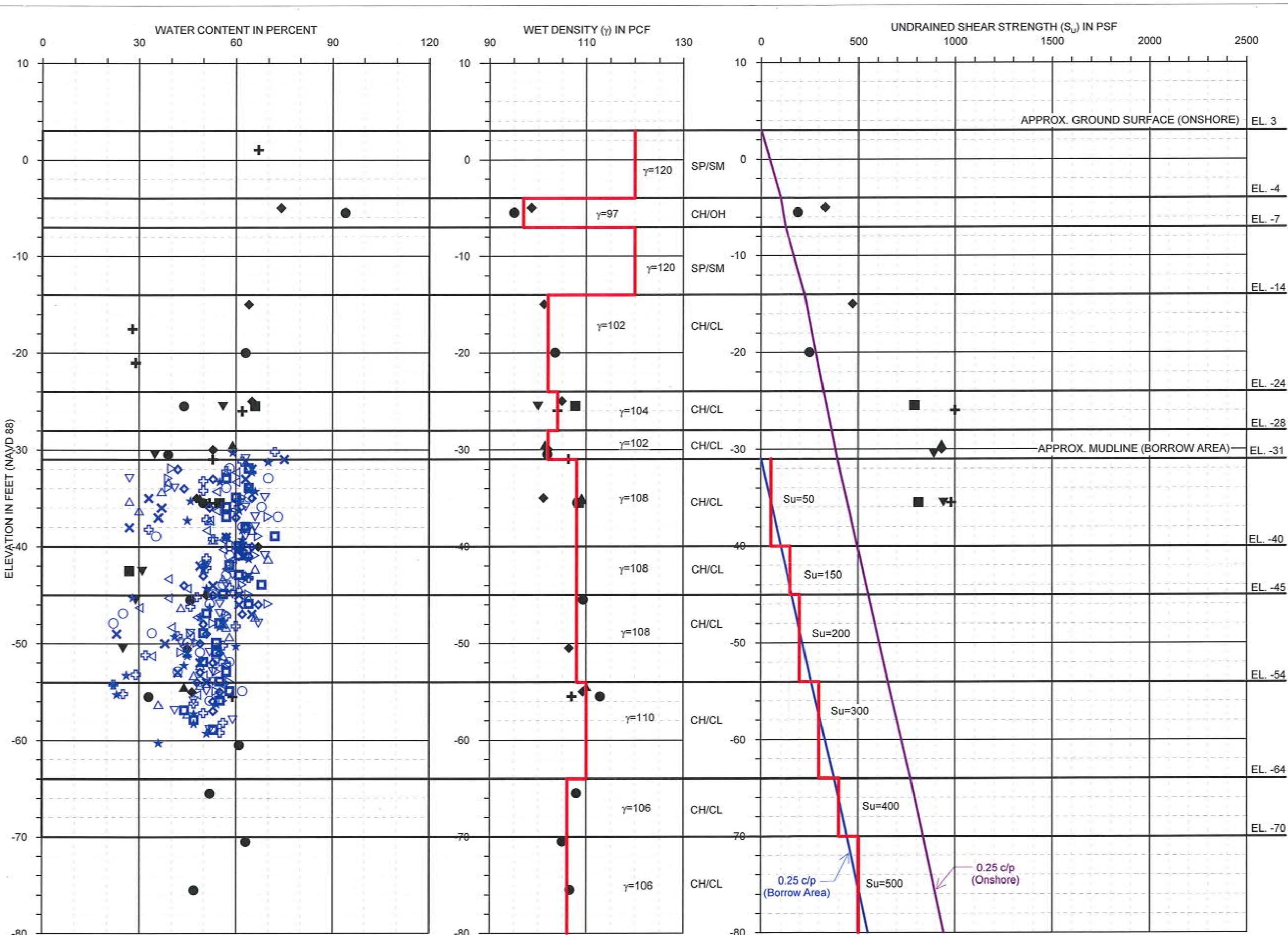
W.S.E. = WATER SURFACE ELEVATION
M.L.E. = MUDLINE ELEVATION

NOTE:
NUMBERS TO THE LEFT OF THE BORING LOGS REPRESENT WATER CONTENT IN PERCENT.

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SUBSOIL PROFILE
STATE OF LOUISIANA
COASTAL PROTECTION AND RESTORATION AUTHORITY
CAMILADA HEADLANDS BACK BARRIER
MARSH CREATION PROJECT (BA-171)
LAFOURCHE PARISH, LOUISIANA

DRAWN BY: J.L.S.	PLOT DATE: 2 JULY 15	CADD FILE: PROFILE.DGN
CHECKED BY: R.S.M.	JOB NO.: 22729	FIGURE 3



LEGEND

- B-10A (Vibracore)
- △ B-11 (Vibracore)
- ▽ B-12 (Vibracore)
- ★ B-13 (Vibracore)
- ⊕ B-14 (Vibracore)
- B-15A (Vibracore)
- B-16 (Vibracore)
- ◊ B-17 (Vibracore)
- ▽ B-18 (Vibracore)
- ▽ B-19A (Vibracore)
- ◆ B-8 (GeoEngineers 2010)
- B-9 (GeoEngineers 2010)
- ⊕ B-10 (GeoEngineers 2010)
- ⊕ B-11 (GeoEngineers 2010)
- ▽ B-12 (GeoEngineers 2010)
- ▽ B-13 (GeoEngineers 2010)
- Design Line
- 0.25 c/p (Borrow Area)
- 0.25 c/p (Onshore)

NOTES:

- THESE SOIL PARAMETERS CANNOT FULLY ANTICIPATE ALL PARAMETERS WHICH MAY INFLUENCE SELECTION OF DESIGN VALUES FOR SPECIFIC ANALYSES. FOR THIS REASON, THE USER SHOULD ASSESS THE APPLICABILITY OF THESE VALUES IN ANY DESIGN ANALYSES OR CONTACT EUSTIS ENGINEERING FOR CONSULTATION.
- SHEAR STRENGTH DATA PLOTTED ON THIS FIGURE REPRESENT THE RESULTS OF THE UNCONFINED COMPRESSION TESTING PERFORMED BY GEOENGINEERS.



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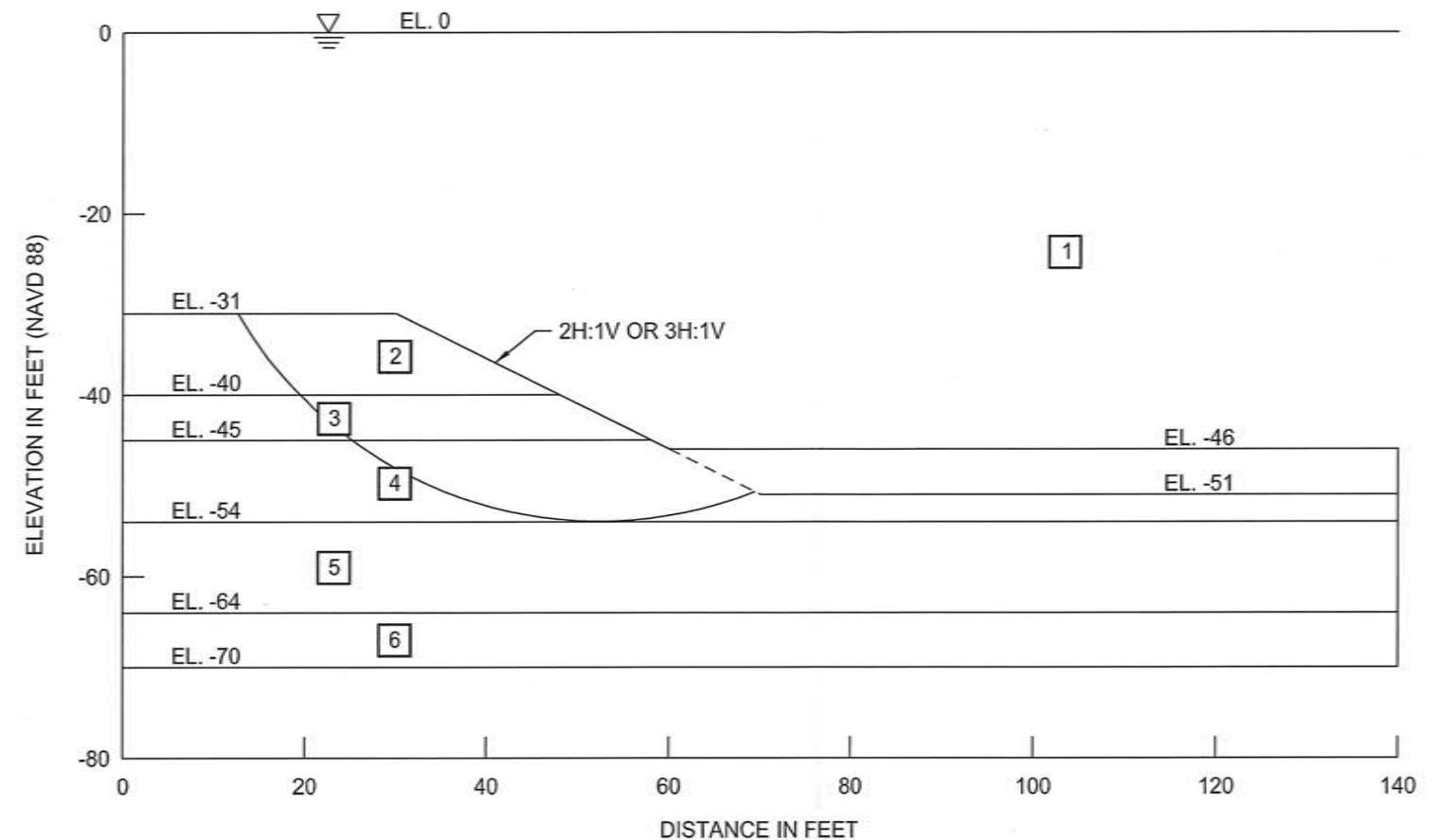
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SOIL PARAMETERS
BORROW AREA (OFFSHORE)

STATE OF LOUISIANA
COASTAL PROTECTION AND RESTORATION AUTHORITY
CAMILADA HEADLANDS BACK BARRIER
MARSH CREATION PROJECT (BA-171)
LAFOURCHE PARISH, LOUISIANA

DRAWN BY: R.S.M. FILE: SOIL PARAMETERS.GRF
24 JUNE 2015

CHECKED BY: J.J.H. JOB NO.: 22729
FIGURE 4



SOIL NO.	DESCRIPTION	FRICTION ANGLE IN DEGREES	UNIT WEIGHT IN PCF	COHESION IN PSF	
				AVG.	BASE
1	WATER	0	62.4	0	0
2	CLAY	0	108	50	50
3	CLAY	0	108	150	150
4	CLAY	0	108	200	200
5	CLAY	0	110	300	300
6	CLAY	0	106	400	400

DREDGE DEPTH IN FEET	BORROW SLOPE	TYPE OF SEARCH	FACTOR OF SAFETY	FILE NAME
15 FT	2H:1V	ENTRY AND EXIT	1.51	BORROWSLOPE 2H:1V_15FT DREDGE.GSZ
	3H:1V	ENTRY AND EXIT	1.77	BORROWSLOPE 3H:1V_15FT DREDGE.GSZ
20 FT	2H:1V	ENTRY AND EXIT	1.31*	BORROWSLOPE 2H:1V_20FT DREDGE.GSZ
	3H:1V	ENTRY AND EXIT	1.64	BORROWSLOPE 3H:1V_20FT DREDGE.GSZ

* SLIP SURFACE SHOWN REPRESENTS THE CRITICAL CASE OF A 20-FT DREDGE DEPTH WITH A 2H:1V SLOPE

NOTES:

1. SLOPE STABILITY ANALYSES PERFORMED BY SLOPE/W SOFTWARE, VERSION 7.17.
2. REFER TO APPENDIX VI FOR STABILITY ANALYSIS CALCULATIONS.



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SLOPE STABILITY ANALYSIS
BORROW SOURCE

STATE OF LOUISIANA
COASTAL PROTECTION AND RESTORATION AUTHORITY
CAMILANDA HEADLANDS BACK BARRIER
MARSH CREATION PROJECT (BA-171)
LAFOURCHE PARISH, LOUISIANA

DRAWN BY: J.L.S.

PLOT DATE: 2 JULY 15

CADD FILE:
STABILITY.DGN

CHECKED BY: R.S.M.

JOB NO.: 22729

FIGURE 5

APPENDIX I

OCEAN SURVEYS, INC.'S REPORT DATED 25 FEBRUARY 2015



MARINE AND FRESHWATER
SURVEY SERVICES

OCEAN SURVEYS, INC.

129 MILL ROCK ROAD EAST
OLD SAYBROOK, CT 06475

TEL. (860) 388-4631 FAX (860) 388-5879
www.oceansurveys.com

February 25, 2015

Eustis Engineering
3011 28th Street
Metairie, Louisiana 70002
Attn: James Hance

SUBJECT: OPERATIONS REPORT (OSI REPORT #15ES002)
VIBRATORY CORE SEDIMENT SAMPLING SERVICES FOR
BA-171 CAMINADA HEADLAND BACK BARRIER MARSH
CREATION PROJECT, GULF OF MEXICO, LOUISIANA

Dear Mr. Hance,

Ocean Surveys, Inc. (OSI) is pleased to submit this operations report documenting geotechnical sampling investigations performed during the period 9-14 February 2015. These investigations were performed in a designated offshore borrow area as part of the State of Louisiana's Coastal Protection and Restoration Authority's (CPRA) Caminada Headland Back Barrier Marsh Creation Project in the Gulf of Mexico, offshore Louisiana, (BA-171). OSI completed the tasks documented herein working as a subcontractor to Eustis Engineering Services, LLC (Eustis) under Eustis's contract with CPRA (Contract No. 4400005884 [formerly 2503-13-14]). Figure 1 illustrates the location of the proposed offshore borrow area and geotechnical sample locations.

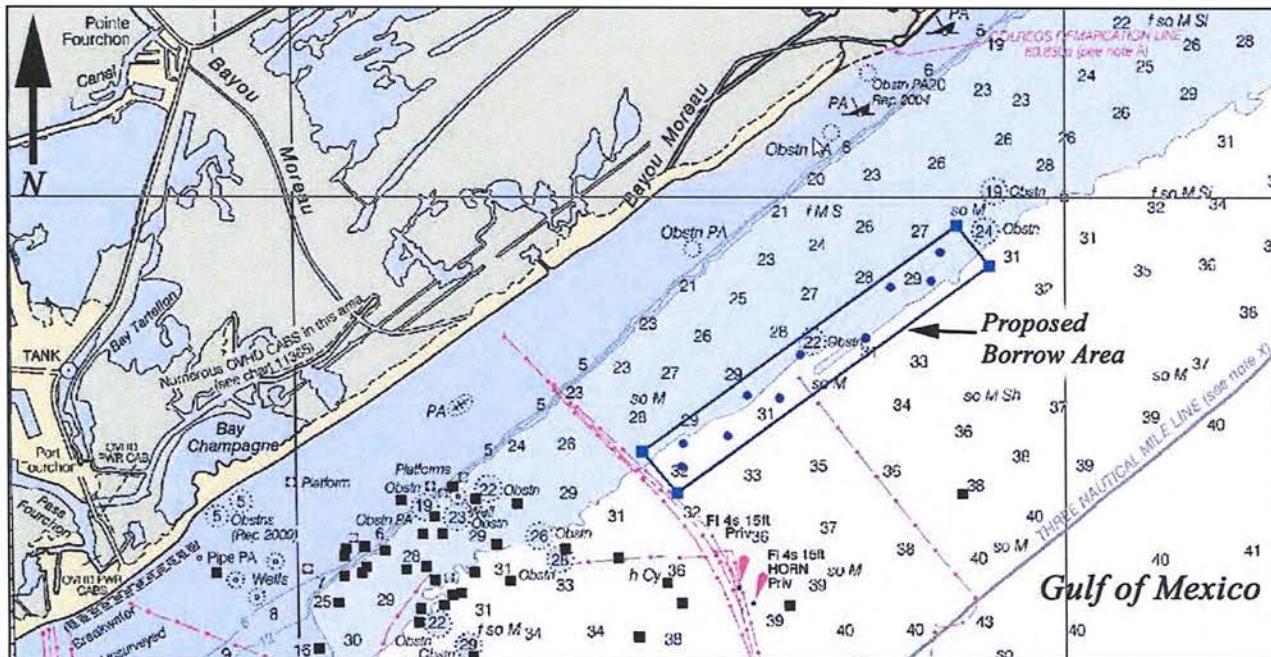


Figure 1. Location map of core locations (blue circles) within the proposed borrow area (positions approximate). NOAA Chart 11358, 56th Ed in background.

Summary of Pre-sampling Activities

Prior to mobilization, OSI prepared a site specific health and safety plan (HASP) for acquiring vibratory cores in the offshore borrow area and an oil spill response plan for the vessel. The HASP assigned responsibilities, recommended operating procedures and included an activity hazard analysis for potential hazards that might arise during the over water operation. The oil spill response plan included best management practices for avoiding spills and spill response and containment procedures.

In addition to completing the HASP and oil spill response plan, OSI participated in several conference calls with the CPRA project team to coordinate pre-sampling clearance surveys (performed by another CPRA contractor) and finalize core location placement in the borrow area. Proposed core stations were located a safe buffer distance away from existing pipelines and significant magnetic anomalies detected (by others) in the site. Prior to the start of field operations, the project manager at CPRA (Ms. Amanda Taylor) provided OSI an EXCEL file (BA-171VCs Coordinates.xls) which included final coordinate listings for the ten proposed sample station locations (designated B10-B19). CPRA later revised the location of B16 based on information attained during the pre-sampling clearance survey. All coordinates were referenced to the project horizontal reference, which is the LA State Plane Coordinate System, South Zone (1702), NAD 83 in US Survey Feet.

Summary of Geotechnical Investigation

Field operations were conducted from *Sal Duhe Elevator*, a self-propelled Class 95 liftboat owned and operated by Elevating Boats, LLC (EBI) in Houma, LA. The liftboat, with a 33 ft by 55 ft deck, is equipped with two 10-ton cranes with 60-foot booms. To acquire the cores, the OSI crew installed a pneumatic vibratory corer onboard the vessel. Figure 2 provides a photograph of the liftboat and shows the vibratory corer utilized during the investigation.

Coring was accomplished by an OSI scientific and technical crew consisting of a geologist/project manager, senior vibratory core operator and coring assistant. The OSI crew was supported by a two-man EBI liftboat crew (captain and mate). The following instruments were installed onboard the vessel to complete the investigation (see Attachment 1 for operating procedures):

- *Trimble SPS Differential Global Positioning System*
- *HYPACK Navigation and Data Logging Software*
- *OSI Model 1500 Pneumatic Vibratory Corer equipped with a 31.5' long 4" ID core barrel*

A navigation check was performed at the beginning and end of the field program to ensure the positioning system was functioning properly and delivering the horizontal position accuracy required for the project. Before departure to the project site, a project safety meeting was held onboard the liftboat. Discussions included potential hazards that exist from the vessel and equipment configuration, as well as the planned operations. The liftboat remained on site throughout the course of the investigation.





Figure 2. (upper) EBI liftboat utilized during the investigation. (lower) OSI vibratory corer deployed via crane and tended by OSI crew from the deck of the liftboat.

During coring operations, precision DGPS positioning and OSI navigation systems were used to guide the vessel to the coring locations. Once on station the vessel was jacked-up into position to begin coring operations. Depth measurements at each coring station were measured by lead line at the time the core was attempted. Core samples were acquired with an OSI Model 1500 pneumatic vibratory corer equipped with a 31.5-foot long 4" ID core barrel. The core barrel was fitted with a check valve, cutter head, core catcher and a 3.5" Lexan liner in which a continuous sediment core was recovered.

The crane was used to lower the coring rig over the side of the vessel and to the bottom. All cores were attempted to a penetration depth of 30 feet below the bottom or to refusal. Once the coring attempt was complete, the rig was recovered and lifted back onboard the boat. The core lexan liner was then extracted from the core barrel, capped, and labelled for orientation. If recovery was less than 25 feet a second core attempt was made on station to acquire a longer core. A second core was acquired at Station 14 because the first attempt penetrated too far into the bottom and sediment was recovered in the check valve. No cores were discarded.

A total of fifteen cores were completed at ten sample stations. All completed cores were cut in approximate five-foot sections and stored until the vessel returned to Houma, where the cores were transferred to a Eustis representative for transport to the laboratory. A detailed Vibratory Coring Log is provided in Attachment 2 and Attachment 3 includes a plan view project drawing which provides an overview of core station locations within the borrow area. The project drawing was constructed in ACAD 2004 format and is presented as a digital submittal along with this report in PDF format.

The following table provides a chronology of the field investigation, including vessel mobilization/demobilization.

Chronology of Field Investigation

Task	Dates	Description
Vessel mobilization	2/9/2015	OSI crew arrives in Houma, LA, mobilize <i>Sal Duhe Elevator</i> liftboat. Conduct safety meeting and departs dock to begin transit to site. Jack up for night in Houma Navigation Canal.
Transit to site and begin coring operations	2/10/2015	Transit to site B19, begin coring operations.
Continue coring operations	2/11/15	Complete cores B19a, B10, B10a, B18, B18a, B11, and B17.
Complete coring operations	2/12/15	Complete cores B12, B13, B14, B14a, B15, B15a, and B16.
Return Transit	2/13/15	Transit to EBI yard Houma, LA.
Vessel demobilization	2/14/15	Transfer cores to Eustis representative, demobilize liftboat.



We appreciate the opportunity to support Eustis and CPRA on this project and look forward to continuing this working relationship in the future. If you have any questions regarding any aspect of this sampling investigation, or if we can be of service in any other capacity, please do not hesitate to call.

Sincerely,

OCEAN SURVEYS, INC.



John D. Sullivan
Manager Geophysical Surveys

JDS/lf
Attachment

Attachment 1 – Equipment Operations and Procedures
Attachment 2 – Vibratory Core Summary Table
Attachment 3 – Project Drawing



ATTACHMENT 1

EQUIPMENT OPERATIONS AND PROCEDURES

- Trimble Differential Global Positioning System
- HYPACK Navigation and Data Logging System
- OSI Model 1500 Pneumatic Vibratory Corer



Trimble SPS361 Modular GPS Heading Receiver

A Trimble SPS361 modular global satellite positioning system (GPS) heading receiver provides reliable, high-precision positioning and navigation for a wide variety of operations and environments. A feature of this system is its integration of a standard 12-channel GPS receiver with a U.S. Coast Guard beacon receiver “all in one” package. Both antennas are combined in a single housing and the receiver electronics are similarly contained within one topside control box. This system also includes a second GPS antenna used to calculate heading. The complete system includes the topside control unit, 2 GPS volute antennae and cable, RS232 output and input data cables, and a 12-volt DC power cable. The proprietary MSK beacon receiver used in the system has been designed to provide enhanced signal reception at large distances from the reference station and under inclement weather conditions. The low noise MSK receiver is also an automatic, dual-channel system providing seamless switching between multiple beacons when necessary. The SPS361 outputs one position per second to the HYPACK navigation computer. The manufacturer reports sub-meter accuracy of the system under suitable operating conditions.

HYPACK Navigation Software

Survey vessel trackline control and position fixes were obtained by utilizing a PC-based navigation system utilizing HYPACK software interfaced with the GPS positioning system. The navigation system consists of a Pentium notebook computer with a customized version of HYPACK software and a color, external VGA monitor for the helmsman. Geodetic coordinate information from the DGPS positioning system was updated regularly and input to the navigation computer which processes the geodetic position data into State Plane Coordinates used to guide the survey vessel to the desired sampling location. Digitized shoreline and the locations of existing structures, buoys, and control points can also be displayed on the monitor in relation to the vessel position. The navigation system using HYPACK software thus provides an accurate visual representation of survey vessel location in real time, combined with highly efficient data-logging capability and post-survey data processing and plotting routines.

OSI Model 1500 Vibratory Corer

An OSI Model 1500 vibratory corer was used to obtain continuous core samples of unconsolidated sediments within the sampling area. The vibracore rig used for this study utilized a standard 4-inch diameter steel core barrel, a clear Lexan liner, a cutter head or shoe, a core catcher, and a pneumatically driven vibratory head attached to the upper end of the core barrel. The vibracore unit requires an air compressor to power the piston inside the head of the corer, which is the driving force of the system. A large stable platform is necessary to lay down the vibracore rig when not in use and provide support for the large crane and hydraulic winch required to operate the rig.



Once securely on station, the entire coring rig is lowered over the side or stern of the coring vessel via the crane, winch, and connecting cable. The rig is lowered down through the water column to the bottom. Once in contact with the bottom, the vibratory head is activated and the winch cable is slackened. The pneumatically powered vibratory head drives the core barrel into the underlying sediments while inducing only minor deformation in the sedimentary structures. The pneumatic head achieves its vibratory motion by means of a reciprocating air-driven piston, powered by means of a flexible hose connected to a large-capacity air compressor located onboard the coring vessel.

Following penetration of the core barrel to the desired depth, the entire rig is lifted back onboard the vessel. Once on deck, the liner containing the core is removed, cut into manageable sections, the ends capped and sealed, and the core sections marked for orientation, identification, and post-survey analysis. Only the accessible part of the core (top and bottom open ends) is examined to provide the initial sediment description prior to splitting and sampling.



ATTACHMENT 2

VIBRATORY CORE SUMMARY TABLE



CAMINADA HEADLANDS BACK BARRIER MARSH CREATION PROJECT (BA-171)
Vibratory Core Summary Table

Sample Station	Easting ¹	Northing ¹	Latitude	Longitude	Date	Julian Date	Time UTC	Time Local	Water Depth ²	Pen.	Recovery	Core Sections	Comments
B19	3667821	225378	29 06 50.74	90 07 17.35	2/10/15	41	23:10	17:10	32.8	28.0	22.3	5	Start 18:06, Stop 18:10. No refusal - Roding - Retry
B19a	3667819	225383	29 06 50.79	90 07 17.38	2/11/15	42	13:15	7:15	32.6	30.0	25.7	5	Start 07:26, Stop 07:30. No refusal - Roding
B10	3667901	226249	29 06 59.35	90 07 16.34	2/11/15	42	15:15	9:15	31.7	30.0	23.8	5	Start 09:36, Stop 09:41. No refusal - Retry
B10a	3667900	226253	29 06 59.39	90 07 16.36	2/11/15	42	17:15	11:15	32.0	30.5	28.4	5	Start 11:21, Stop 11:24. No refusal, increase rate of pen.
B18	3669557	226542	29 07 02.08	90 06 57.65	2/11/15	42	18:50	12:50	32.7	30.0	24.7	5	Start 13:06, Stop 13:10. No refusal - Retry
B18a	3669556	226537	29 07 02.03	90 06 57.66	2/11/15	42	20:15	14:15	32.7	31.0	21.4	4	Start 14:09, Stop 14:14. No refusal - Retry
B11	3670299	228055	29 07 16.98	90 06 49.10	2/11/15	42	21:30	15:30	31.6	30.0	27.3	5	Start 15:55, Stop 15:59. No refusal, decrease pen. rate
B17	3671504	227949	29 07 15.80	90 06 35.53	2/11/15	42	23:15	17:15	32.3	31.0	27.0	5	Start 17:24, Stop 17:27. No refusal
B12	3672279	229573	29 07 31.80	90 06 26.60	2/12/15	43	13:20	7:20	30.7	31.0	29.6	6	Start 07:46, Stop 07:50, No refusal, wood in A BTM from deck
B13	3675656	232089	29 07 56.35	90 05 48.22	2/12/15	43	15:15	9:15	30.6	32.0	31.0	6	Start 09:34, Stop 09:42. No refusal, no material in chk valve
B14	3677532	233412	29 08 09.24	90 05 26.91	2/12/15	43	17:15	11:15	30.1	30.5	31.1	6	Start 11:31, Stop 11:38, No refusal, fine sed in chk valve, retry
B14a	3677536	233414	29 08 09.26	90 05 26.87	2/12/15	43	18:41	12:41	30.6	27.0	27.9	5	Start 12:05, Stop 12:10. No refusal, Start 14:41, Stop 14:46. No refusal - Retry
B15	3677183	232323	29 07 58.50	90 05 30.98	2/12/15	43	20:15	14:15	31.4	28.0	25.0	5	Start 16:26, Stop 16:34. No refusal
B15a	3677184	232327	29 07 58.54	90 05 30.96	2/12/15	43	22:30	16:30	32.0	30.0	26.0	5	Start 18:02, Stop 18:09, No refusal

Notes:

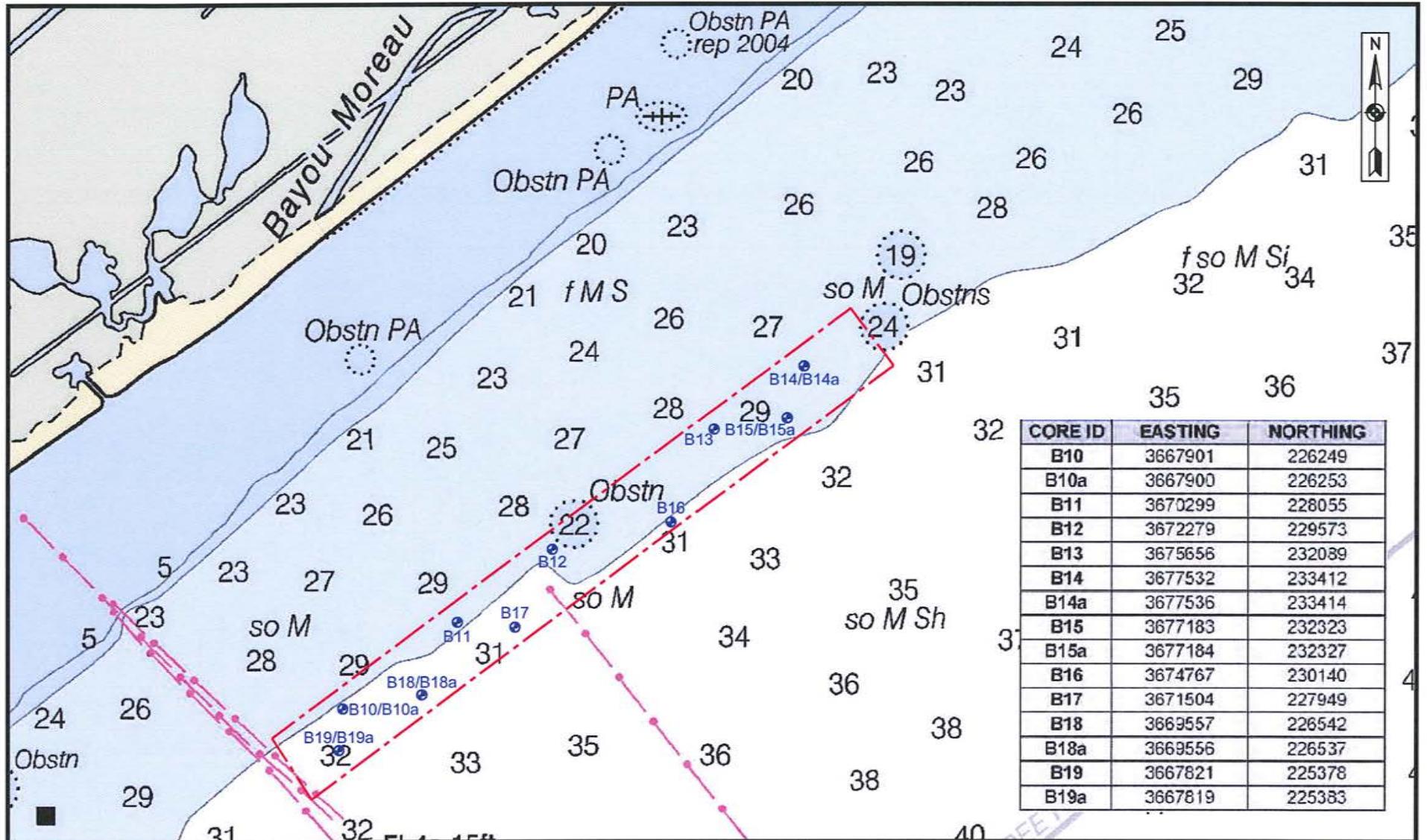
¹ Coordinates are in feet referenced to the Louisiana South State Plane Coordinate System (LA-1702), NAD83, US Survey Feet.

² Water depths are in feet.



ATTACHMENT 3

PROJECT DRAWING



OCEAN SURVEYS, INC.

OLD SAYBROOK, CONNECTICUT



(860) 388-4631

www.oceansurveys.com

Caminada Headland Back Barrier Marsh Creation Project
Gulf of Mexico, Offshore Louisiana (BA-171)
2015 Vibratory Core Locations

APPENDIX II
VIBRACORE LOGS



**LEGEND AND NOTES FOR
LOG OF BORING AND TEST RESULTS**

PP Pocket penetrometer: Resistance in tons per square foot

SPT Standard Penetration Test: Number of blows of a 140-lb hammer dropped 30 inches required to drive 2-in. O.D., 1.4-in. I.D. sampler a distance of 1 foot into the soil after first seating it 6 inches

SPLR Type of Sampling Shelby SPT Auger Vibracore No sample

SYMBOL	Clay	Silt	Sand	Peat/Humus	Shells	Stone/Gravel

Predominant type shown heavy; Modifying type shown light

USC Unified Soil Classification

DENSITY Unit weight in pounds per cubic foot

SHEAR TESTS

TYPE

UC	Unconfined compression shear
OB	Unconsolidated undrained triaxial compression shear on one specimen confined at the approximate overburden pressure
UU	Unconsolidated undrained triaxial compression shear
CU	Consolidated undrained triaxial compression shear
DS	Direct shear

ϕ Angle of internal friction in degrees

c Cohesion in pounds per square foot

ATTERBERG LIMITS

LL	Liquid Limit
PL	Plastic Limit
PI	Plasticity Index

OTHER TESTS

CON	Consolidation
PD	Particle size distribution (sieve and/or hydrometer)
k	Coefficient of permeability in centimeters per second
SP	Swelling pressure in pounds per square foot

Other laboratory test results reported on separate figures

GENERAL NOTES

- (1) If a ground water depth is shown on the boring log, these observations were made at the time of drilling and were measured below the existing ground surface. These observations are shown on the boring logs. However, ground water levels may vary due to seasonal fluctuations and other factors. If important to construction, the depth to ground water should be determined by those persons responsible for construction immediately prior to beginning work.
- (2) While the individual logs of borings are considered to be representative of subsurface conditions at their respective locations on the dates shown, it is not warranted that they are representative of subsurface conditions at other locations and times.



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State of Louisiana
Caminada Headlands Back Barrier
Marsh Creation Project (BA-171)
Lafourche Parish, Louisiana
Project No: 22729

Date: 02/11/2015

LOG OF BORING AND TEST RESULTS

B-10A

Latitude: 29.11650
Longitude: -90.12121

Water Depth: See Text
Total Depth: 60.0 ft

Scale in Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth in Feet	Water Content Percent	Density		Shear Tests			Atterberg Limits				Other Tests
										Dry	Wet	Type	ϕ	C	LL	PL	PI		
0					32' Water		NS	0											
5																			
10																			
15																			
20																			
25																			
30																			
35					Very soft to soft clay w/silty clay pockets, trace of silt pockets, trace of organic matter, & trace of shell fragments Soft gray clay w/silt lenses & trace of silty clay w/trace of silt lenses	CH	E-1 E-2 E-3 E-4 E-5 E-6 E-7 E-8 D-1 D-2 D-3 D-4 D-5 C-1 C-2 C-3 C-4 C-5	32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49	64 57 64 60 57 57 63 72 61 61 58 61 68 56 64 51 55 50				61	21	40				
40																			
45					Medium stiff gray clay w/trace of silt pockets & trace of silty sand layers w/trace of sandy silt pockets & lenses, & trace of shell fragments w/silt lenses & sandy silt lenses & layers	CH												-#200 = 99.9%, PD	
50																			

NOTES: Mudline @ el -31.9



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State of Louisiana
 Caminada Headlands Back Barrier
 Marsh Creation Project (BA-171)
 Lafourche Parish, Louisiana
 Project No: 22729

Date: 02/11/2015

LOG OF BORING AND TEST RESULTS

B-10A

Latitude: 29.11650

Longitude: -90.12121

Water Depth: See Text

Total Depth: 60.0 ft

Scale in Feet	PP	SPT	S P L R	Symbol	Visual Classification	USC	Sample Number	Depth in Feet	Water Content Percent	Density		Shear Tests			Atterberg Limits				Other Tests
										Dry	Wet	Type	ϕ	C	LL	PL	PI		
50					Stiff gray clay w/silt lenses, trace of sandy silt lenses, & trace of shell fragments w/silt lenses & layers, & trace of shell fragments	CH	B-1 B-2 B-3 B-4 B-5 A-1 A-2 A-3 A-4 A-5	50 51 52 53 54 55 56 57 58 59	54 54 50 57 55 58 55 44 47 53					52	22	30			
55															75	24	51		
60															88	31	57		
65																			
70																			
75																			
80																			
85																			
90																			
95																			
100																			

NOTES: Mudline @ el -31.9



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State of Louisiana
 Caminada Headlands Back Barrier
 Marsh Creation Project (BA-171)
 Lafourche Parish, Louisiana
 Project No: 22729

Date: 02/11/2015

LOG OF BORING AND TEST RESULTS

B-11

Latitude: 29.12138

Longitude: -90.11364

Water Depth: See Text

Total Depth: 58.6 ft

Scale in Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth in Feet	Water Content Percent	Density		Shear Tests			Atterberg Limits			Other Tests
										Dry	Wet	Type	ϕ	C	LL	PL	PI	
0					31.6' Water		NS	0										
5																		
10																		
15																		
20																		
25																		
30																		
35					Soft gray clay w/trace of silt lenses	CH	E-1	31.6	63									
					Very soft gray silty clay w/silt layers & trace of organic matter	CL	E-2	32.6	57									
					Loose gray clayey silt w/trace of clay lenses & sandy silt pockets	ML	E-3	33.6	39									
					Loose gray sandy silt w/silty clay layers	ML	E-4	34.6	37									
					Soft gray clay w/silt pockets & lenses, trace of silty sand pockets, & trace of sandy silt lenses	CH	E-5	35.6	27									
							E-6	36.6	30									
							E-7	37.6	52									
							D-1	38.6	65									
							D-2	39.6	53									
							D-3	40.6	62									
							D-4	41.6	70									
							D-5	42.6	66									
							C-1	43.6	56									
							C-2	44.6	61									
							C-3	45.6	64									
							C-4	46.6	43									
							C-5	47.6	66									
							B-1	48.6	57									
							B-2	49.6	58									
45					Stiff gray clay w/trace of silt lenses & trace of silty sand lenses	CH												
					Medium stiff gray clay w/trace of silt pockets & lenses & trace of silty sand pockets	CH												
50																		

NOTES: Mudline @ el -31.3



EUSTIS ENGINEERING

State of Louisiana
 Caminada Headlands Back Barrier
 Marsh Creation Project (BA-171)
 Lafourche Parish, Louisiana
 Project No: 22729

LOG OF BORING AND TEST RESULTS

B-11

Latitude: 29.12138
 Longitude: -90.11364

Water Depth: See Text
 Total Depth: 58.6 ft

Date: 02/11/2015

Scale in Feet	PP	SPT	S P L R	Symbol	Visual Classification	USC	Sample Number	Depth in Feet	Water Content Percent	Density		Shear Tests			Atterberg Limits			Other Tests
										Dry	Wet	Type	ϕ	C	LL	PL	PI	
50					w/silty sand pockets & lenses & trace of shell fragments	CH	B-3	50.6	54						64	22	42	
					Medium stiff gray clay w/silty sand pockets & lenses & trace of shell fragments w/trace of silt pockets & lenses, & trace of shell fragments w/silt lenses		B-4	51.6	56									
					Loose gray sandy silt w/clay layers	ML	B-5	52.6	49									
					Stiff gray clay w/silt lenses	CH	A-1	53.6	47									
							A-2	54.6	49									
							A-3	55.6	55									
							A-4	56.6	36									
							A-5	57.6	45									
55																		
60																		
65																		
70																		
75																		
80																		
85																		
90																		
95																		
100																		

NOTES: Mudline @ el -31.3



EUSTIS ENGINEERING

State of Louisiana
Caminada Headlands Back Barrier
Marsh Creation Project (BA-171)
Lafourche Parish, Louisiana
Project No: 22729

LOG OF BORING AND TEST RESULTS

B-12

Latitude: 29.12550
Longitude: -90.10739

Water Depth: See Text
Total Depth: 60.5 ft

Date: 02/12/2015

Scale in Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth in Feet	Water Content Percent	Density		Shear Tests			Atterberg Limits			Other Tests
										Dry	Wet	Type	φ	C	LL	PL	PI	
0					30.7' Water		NS	0										
5																		
10																		
15																		
20																		
25																		
30					Soft gray clay w/silt pockets & lenses	CH	F-1	30.7	63						77	26	51	-#200 = 95.4%, PD
32					Loose gray clayey silt w/trace of sand pockets & shell fragments	ML	F-2	31.7	64						NP	NP	NP	
33					Very soft to soft gray clay w/silt pockets & layers, & trace of shell fragments	CH	F-3	32.7	27									
34					Medium stiff to stiff gray clay w/trace of silt pockets & lenses	CH	F-4	33.7	41						87	28	59	
35					w/sandy silt pockets & lenses, & trace of shell fragments		E-1	34.7	69									
36							E-2	35.7	63									
37							E-3	36.7	66									
38							E-4	37.7	66									
39							E-5	38.7	63									
40							D-1	39.7	62									
41							D-2	40.7	69									
42							D-3	41.7	51									
43							D-4	42.7	59						86	25	61	
44							D-5	43.7	57									
45							C-1	44.7	59									
46							C-2	45.7	55									
47							C-3	46.7	55									
48							C-4	47.7	67									
49							C-5	48.7	46						62	21	41	
50					Soft gray clay w/silt pockets & lenses, shell	CH												

NOTES: Mudline @ el -30.9



EUSTIS ENGINEERING

State of Louisiana
 Caminada Headlands Back Barrier
 Marsh Creation Project (BA-171)
 Lafourche Parish, Louisiana
 Project No: 22729

LOG OF BORING AND TEST RESULTS

B-12

Latitude: 29.12550
 Longitude: -90.10739

Water Depth: See Text
 Total Depth: 60.5 ft

Date: 02/12/2015

Scale in Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth in Feet	Water Content Percent	Density		Shear Tests			Atterberg Limits				Other Tests
										Dry	Wet	Type	ϕ	C	LL	PL	PI		
50					fragments, & silty sand pockets Medium stiff to stiff gray clay w/silt lenses, layers, & pockets	CH	B-1 B-2 B-3 B-4 B-5 A-1 A-2 A-3 A-4 A-5	49.7 50.7 51.7 52.7 53.7 54.7 55.7 56.7 57.7 58.7	43 52 54 53 53 51 47 41 59 52					82	26	56			
55					w/silt lenses, concretions, sand, & organic matter										68	24	44		-#200 = 99.7%, PD
60																			
65																			
70																			
75																			
80																			
85																			
90																			
95																			
100																			

NOTES: Mudline @ el -30.9



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State of Louisiana
 Caminada Headlands Back Barrier
 Marsh Creation Project (BA-171)
 Lafourche Parish, Louisiana
 Project No: 22729

Date: 02/12/2015

LOG OF BORING AND TEST RESULTS

B-13

Latitude: 29.13232

Longitude: -90.09673

Water Depth: See Text

Total Depth: 61.0 ft

EUSTIS GINT LIBRARY090314 GLB EE STANDARD BORING LOG 22729 GPJ EE STANDARD DATATEMPLATE.GDT 6/11/15

Scale in Feet	PP	SPT	S P L R	Symbol	Visual Classification	USC	Sample Number	Depth in Feet	Water Content Percent	Density		Shear Tests			Atterberg Limits			Other Tests
										Dry	Wet	Type	ϕ	C	LL	PL	PI	
0					30.6' Water		NS	0										
5																		
10																		
15																		
20																		
25																		
30					Soft gray clay w/silt lenses & layers, & trace of organic matter	CH	F-1 F-2 F-3 F-4 F-5 E-1 E-2 E-3 E-4 E-5	30.6 31.6 32.6 33.6 34.6 35.6 36.6 37.6 38.6 39.6	59 70 65 55 66 46 61 45 62 62					72	24	48		
35					Medium stiff gray clay w/trace of silt pockets & lenses	CH	E-4 E-5 D-1 D-2 D-3 D-4 D-5	38.6 39.6 40.6 41.6 42.6 43.6 44.6	62 62 61 64 50 63 51					76	24	52	-#200 = 99.2%, PD	
40					Stiff to very stiff gray clay w/trace of silt pockets, lenses & layers, & trace of decayed wood	CH	C-1 C-2 C-3 C-4 C-5	45.6 46.6 47.6 48.6 49.6	28 52 49 55 41					90	28	62		
45					Loose gray silty sand w/trace of shell fragments & clay pockets Medium stiff to stiff gray clay w/trace of sandy silt lenses & layers	SM CH								NP	NP	NP	-#20 = 21.2%, PD	
50															86	26	60	

NOTES: Mudline @ el -30.3



EUSTIS ENGINEERING

State of Louisiana
Caminada Headlands Back Barrier
Marsh Creation Project (BA-171)
Lafourche Parish, Louisiana
Project No: 22729

LOG OF BORING AND TEST RESULTS

B-13

Latitude: 29.13232

Longitude: -90.09673

Water Depth: See Text

Total Depth: 61.0 ft

Date: 02/12/2015

Scale in Feet	PP	SPT	S P L R	Symbol	Visual Classification	USC	Sample Number	Depth in Feet	Water Content Percent	Density		Shear Tests			Atterberg Limits				Other Tests
										Dry	Wet	Type	ϕ	C	LL	PL	PI		
50					Stiff gray clay w/silt pockets, lenses, & layers	CH	B-1	50.6	60										
					Loose gray clayey silt w/trace of shell fragments	ML	B-2	51.6	45										
					Loose gray sandy silt w/shell fragments & clay pockets	ML	B-3	52.6	44										
					Medium, stiff to stiff gray clay w/silt lenses, layers, & pockets	CH	B-4	53.6	26										
							B-5	54.6	22										
							B-6	55.6	23										
							A-1	56.6	54										
							A-2	57.6	47										
							A-3	58.6	47										
							A-4	59.6	51										
							A-5	60.6	36										
55																			
60																			
65																			
70																			
75																			
80																			
85																			
90																			
95																			
100																			

NOTES: Mudline @ el -30.3



EUSTIS ENGINEERING

State of Louisiana
 Caminada Headlands Back Barrier
 Marsh Creation Project (BA-171)
 Lafourche Parish, Louisiana
 Project No: 22729

LOG OF BORING AND TEST RESULTS

B-14

Latitude: 29.13590
 Longitude: -90.09080

Water Depth: See Text
 Total Depth: 61.3 ft

Date: 02/12/2015

Scale in Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth in Feet	Water Content Percent	Density		Shear Tests			Atterberg Limits			Other Tests
										Dry	Wet	Type	ϕ	C	LL	PL	PI	
0					30.1' Water		NS	0										
5																		
10																		
15																		
20																		
25																		
30					Very soft gray clay w/trace of silt pockets & lenses, & organic matter	CH	F-1	30.1	72						90	29	61	
31					Soft gray clay w/trace of silt pockets, lenses, & layers, & silty clay layers	CH	F-2	31.1	62						39	20	19	
32							F-3	32.1	57									
33							F-4	33.1	50									
34							F-5	34.1	50									
35							E-1	35.1	61									
36							E-2	36.1	60									
37							E-3	37.1	51									
38							E-4	38.1	33									
39							E-5	39.1	53									
40					Very soft gray silty clay w/fine sand & trace of clay layers	CL	D-1	40.1	64						31	18	13	
41					Soft gray clay w/silt lenses & layers, & silty clay lenses	CH	D-2	41.1	51						39	20	19	
42					Medium stiff gray clay w/trace of silt lenses	CH	D-3	42.1	51						79	25	54	
43							D-4	43.1	64									
44							D-5	44.1	58									
45					Soft gray silty clay w/few clay layers	CL	C-1	45.1	48						43	22	21	
46					Medium stiff to stiff gray clay w/sandy silt lenses & layers, trace of silt pockets & lenses, & trace of shell fragments	CH	C-2	46.1	46									
47							C-3	47.1	57									
48							C-4	48.1	60									
49							C-5	49.1	42									

NOTES: Mudline @ el -30.2



EUSTIS ENGINEERING

State of Louisiana
 Caminada Headlands Back Barrier
 Marsh Creation Project (BA-171)
 Lafourche Parish, Louisiana
 Project No: 22729

LOG OF BORING AND TEST RESULTS

B-14

Latitude: 29.13590
 Longitude: -90.09080

Water Depth: See Text
 Total Depth: 61.3 ft

Date: 02/12/2015

Scale in Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth in Feet	Water Content Percent	Density		Shear Tests			Atterberg Limits				Other Tests
										Dry	Wet	Type	ϕ	C	LL	PL	PI		
50					Soft gray clay w/sandy silt lenses & layers, & trace of shell fragments	CH	B-1	50.1	56						43	21	22		-#200 = 76.8%, PD
					Soft gray silty clay w/few clay layers, sandy silt lenses & pockets, & trace of shell fragments	CL	B-2	51.1	32						NP	NP	NP		
					Stiff gray clay w/trace of silt lenses & trace of shell fragments	CH	B-3	52.1	57						NP	NP	NP		-#200 = 86.7%, PD
					Loose gray silt w/few silty clay layers & trace of shell fragments	ML	B-4	53.1	29						NP	NP	NP		
					Loose gray sandy silt w/few clay	ML	B-5	54.1	22										
					Loose gray clayey silt w/trace of clay pockets	CH	A-1	55.1	25										
					Soft to medium stiff gray clay w/silt lenses & layers	CH	A-2	56.1	47										
					Stiff gray clay w/trace of organic matter & trace of silt lenses & pockets	CH	A-3	57.1	50										
							A-4	58.1	56										
							A-5	59.1	55						94	29	65		
60																			
65																			
70																			
75																			
80																			
85																			
90																			
95																			
100																			

NOTES: Mudline @ el -30.2



EUSTIS ENGINEERING

State of Louisiana
Caminada Headlands Back Barrier
Marsh Creation Project (BA-171)
Lafourche Parish, Louisiana
Project No: 22729

LOG OF BORING AND TEST RESULTS

B-15A

Latitude: 29.13293
Longitude: -90.09193

Water Depth: See Text
Total Depth: 58.0 ft

Date: 02/12/2015

Scale in Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth in Feet	Water Content Percent	Density		Shear Tests			Atterberg Limits				Other Tests
										Dry	Wet	Type	ϕ	C	LL	PL	PI		
0					32' Water		NS	0											
5																			
10																			
15																			
20																			
25																			
30																			
35					Soft gray clay w/trace of silt lenses, trace of organic matter, & trace of shell fragments	CH	E-1	32	75						77	25	52		
							E-2	33	65										
							E-3	34	63										
							E-4	35	64										
							D-1	36	33										
							D-2	37	37										
							D-3	38	36										
							D-4	39	27										
							D-5	40	57										
							C-1	41	62										
							C-2	42	62										
							C-3	43	49										
							C-4	44	64										
							C-5	45	53										
							B-1	46	61										
							B-2	47	61										
							B-3	48	65										
							B-4	49	56										
50																			

NOTES: Mudline @ el -32



EUSTIS ENGINEERING

State of Louisiana
 Caminada Headlands Back Barrier
 Marsh Creation Project (BA-171)
 Lafourche Parish, Louisiana
 Project No: 22729

LOG OF BORING AND TEST RESULTS

B-15A

Latitude: 29.13293
 Longitude: -90.09193

Water Depth: See Text
 Total Depth: 58.0 ft

Date: 02/12/2015

Scale in Feet	PP	SPT	S P L R	Symbol	Visual Classification	USC	Sample Number	Depth in Feet	Water Content Percent	Density		Shear Tests			Atterberg Limits				Other Tests
										Dry	Wet	Type	ϕ	C	LL	PL	PI		
50					Loose gray silty sand w/clay layers & trace of shell fragments.	SM	B-5	50	23										
					Soft gray clay w/silt pockets, lenses, & layers, trace of concretions, & trace of organic matter	CH	A-1	51	38										
					Medium stiff gray clay w/silty clay layers, organic matter, & trace of silt lenses	CH	A-2	52	45										
							A-3	53	49										
							A-4	54	42										
							A-5	55	51										
55																			
60																			
65																			
70																			
75																			
80																			
85																			
90																			
95																			
100																			

NOTES: Mudline @ el -32



EUSTIS ENGINEERING

**State of Louisiana
Caminada Headlands Back Barrier
Marsh Creation Project (BA-171)
Lafourche Parish, Louisiana
Project No: 22729**

LOG OF BORING AND TEST RESULTS

B-16

Latitude: 29.12699
Longitude: -90.09958

Water Depth: See Text
Total Depth: 58.0 ft

NOTES: Mudline @ el 31.9



EUSTIS ENGINEERING

State of Louisiana
 Caminada Headlands Back Barrier
 Marsh Creation Project (BA-171)
 Lafourche Parish, Louisiana
 Project No: 22729

LOG OF BORING AND TEST RESULTS

B-16

Latitude: 29.12699
 Longitude: -90.09958

Water Depth: See Text
 Total Depth: 58.0 ft

Date: 02/12/2015

Scale in Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth in Feet	Water Content Percent	Density		Shear Tests			Atterberg Limits				Other Tests
										Dry	Wet	Type	ϕ	C	LL	PL	PI		
50					Loose gray silty sand w/clay layers & trace of shell fragments	SM	B-4	50.2	45						63	22	41		
					Stiff gray clay w/silt pockets, lenses, & layers, & trace of shell fragments	CH	B-5	51.2	49										
					Medium stiff gray clay w/silt lenses	CH	A-1	52.2	58										
							A-2	53.2	42										
							A-3	54.2	49										
							A-4	55.2	62										
							A-5	56.2	52										
55																			
60																			
65																			
70																			
75																			
80																			
85																			
90																			
95																			
100																			

NOTES: Mudline @ el 31.9



EUSTIS ENGINEERING

State of Louisiana
 Caminada Headlands Back Barrier
 Marsh Creation Project (BA-171)
 Lafourche Parish, Louisiana
 Project No: 22729

Date: 02/11/2015

LOG OF BORING AND TEST RESULTS

B-17

Latitude: 29.12106
 Longitude: -90.10987

Water Depth: See Text
 Total Depth: 59.0 ft

Scale in Feet	PP	SPT	S P L R	Symbol	Visual Classification	USC	Sample Number	Depth in Feet	Water Content Percent	Density		Shear Tests			Atterberg Limits			
										Dry	Wet	Type	φ	C	LL	PL	PI	
0					32.3' Water		NS	0										
5																		
10																		
15																		
20																		
25																		
30																		
35					Soft gray clay w/silt pockets, lenses, & layers, & trace of organic matter	CH	E-1	32.3	42						57	19	38	
40							E-2	33.3	53						72	27	45	
45					Medium stiff gray clay w/trace of silt lenses & pockets w/silty sand lenses & pockets, & shell fragments w/trace of silt pockets & lenses, & trace of organic matter	CH	E-3	34.3	44						92	23	69	-#200 = 92.8%, PD
50							E-4	35.3	65						83	25	58	
							E-5	36.3	52									
							E-6	37.3	60									
							D-1	38.3	63									
							D-2	39.3	57									
							D-3	40.3	65									
							D-4	41.3	64									
							D-5	42.3	50									
							C-1	43.3	50									
							C-2	44.3	44									
							C-3	45.3	53									
							C-4	46.3	67									
							C-5	47.3	62									
							B-1	48.3	50									
							B-2	49.3	51									

NOTES: Water @ el 32



EUSTIS ENGINEERING

State of Louisiana
 Caminada Headlands Back Barrier
 Marsh Creation Project (BA-171)
 Lafourche Parish, Louisiana
 Project No: 22729

LOG OF BORING AND TEST RESULTS

B-17

Latitude: 29.12106
 Longitude: -90.10987

Water Depth: See Text
 Total Depth: 59.0 ft

Date: 02/11/2015

Scale in Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth in Feet	Water Content Percent	Density		Shear Tests			Atterberg Limits				Other Tests
										Dry	Wet	Type	ϕ	C	LL	PL	PI		
50					Medium stiff gray clay w/trace of silt pockets & lenses & trace of organic matter w/silt lenses & layers	CH	B-3 B-4 B-5 A-1 A-2 A-3 A-4 A-5	50.3 51.3 52.3 53.3 54.3 55.3 56.3 57.3	49 55 53 49 48 55 53 53					77	17	60			
55					Stiff gray clay w/silt lenses & layers, & trace of decayed wood	CH									62	18	44		
60															74	21	53		
65																			
70																			
75																			
80																			
85																			
90																			
95																			
100																			

NOTES: Water @ el 32



EUSTIS ENGINEERING

**State of Louisiana
Caminada Headlands Back Barrier
Marsh Creation Project (BA-171)
Lafourche Parish, Louisiana
Project No: 22729**

LOG OF BORING AND TEST RESULTS

B-18

Latitude: 29.11724
Longitude: -90.11601

Date: 02/11/2015

Water Depth: See Text
Total Depth: 56.7 ft

NOTES



EUSTIS ENGINEERING

State of Louisiana
 Caminada Headlands Back Barrier
 Marsh Creation Project (BA-171)
 Lafourche Parish, Louisiana
 Project No: 22729

LOG OF BORING AND TEST RESULTS

B-18

Latitude: 29.11724
 Longitude: -90.11601

Water Depth: See Text
 Total Depth: 56.7 ft

Date: 02/11/2015

Scale in Feet	PP	SPT	SPLR	Symbol	Visual Classification	USC	Sample Number	Depth in Feet	Water Content Percent	Density		Shear Tests			Atterberg Limits				Other Tests
										Dry	Wet	Type	ϕ	C	LL	PL	PI		
50					Medium stiff gray clay w/silt lenses & layers, & trace of shell fragments	CH	B-4	49.7	46						59	23	36		
					Medium stiff gray silty clay w/silt layers & trace of sand & mica	CL	B-5	50.7	44						44	22	22		
					Medium stiff gray clay w/silty clay layers, silt pockets & lenses, & trace of organic matter	CH	A-1	51.7	34										
							A-2	52.7	57										
							A-3	53.7	50										
							A-4	54.7	56										
							A-5	55.7	48										
55																			
60																			
65																			
70																			
75																			
80																			
85																			
90																			
95																			
100																			

NOTES:



EUSTIS ENGINEERING

State of Louisiana
Caminada Headlands Back Barrier
Marsh Creation Project (BA-171)
Lafourche Parish, Louisiana
Project No: 22729

LOG OF BORING AND TEST RESULTS

B-19A

Latitude: 29.11411
Longitude: -90.12121

Water Depth: See Text
Total Depth: 57.6 ft

Scale in Feet	PP	SPT	S P L R	Symbol	Visual Classification	USC	Sample Number	Depth in Feet	Water Content Percent	Density		Shear Tests			Atterberg Limits				Other Tests
										Dry	Wet	Type	φ	C	LL	PL	PI		
0					32.6' Water		NS	0											
5																			
10																			
15																			
20																			
25																			
30																			
35					Soft gray silty clay w/sandy silt pockets & lenses & trace of organic matter	CH	E-1	32.6	40						45	18	27	#200 = 98.1%, PD	
36							E-2	33.6	39										
37							E-3	34.6	39										
38							E-4	35.6	62										
39					Soft gray clay w/silty clay layers w/silt lenses & layers	CH	E-5	36.6	62						72	22	50		
40							D-1	37.6	70										
41							D-2	38.6	64										
42							D-3	39.6	67										
43							D-4	40.6	60										
44							D-5	41.6	66										
45					Medium stiff gray clay w/trace of silt lenses & trace of silty sand pockets	CH	C-1	42.6	58						73	22	51		
46							C-2	43.6	63										
47							C-3	44.6	62										
48					w/trace of silt pockets & lenses		C-4	45.6	64										
49					w/silty sand pockets, lenses, & layers		C-5	46.6	70										
50							B-1	47.6	57										
							B-2	48.6	52										
							B-3	49.6	46										

NOTES: Mudline @ el -31.9



EUSTIS ENGINEERING

State of Louisiana
 Caminada Headlands Back Barrier
 Marsh Creation Project (BA-171)
 Lafourche Parish, Louisiana
 Project No: 22729

LOG OF BORING AND TEST RESULTS

B-19A

Latitude: 29.11411
 Longitude: -90.12121

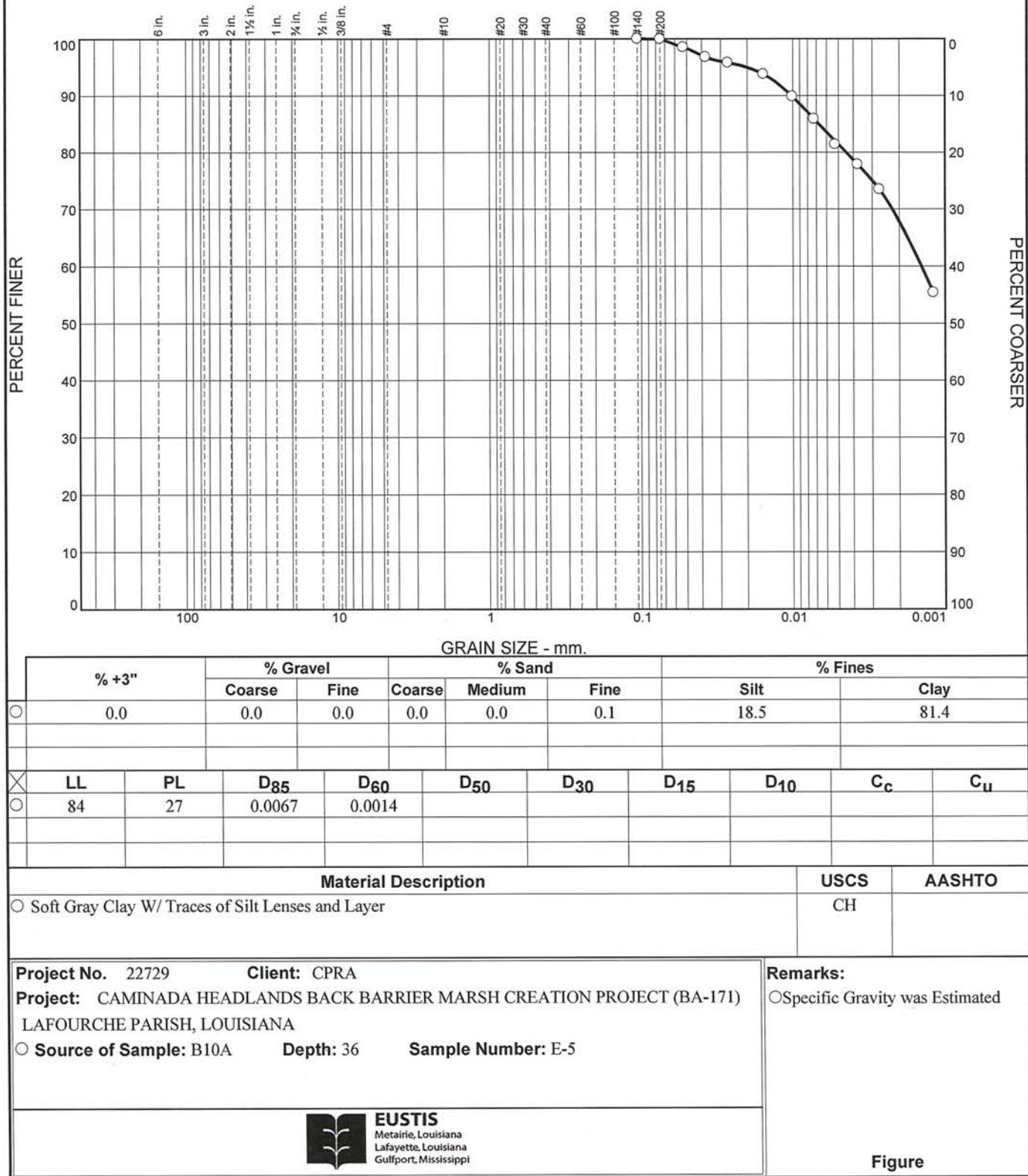
Water Depth: See Text
 Total Depth: 57.6 ft

Date: 02/11/2015

Scale in Feet	PP	SPT	S P L R	Symbol	Visual Classification	USC	Sample Number	Depth in Feet	Water Content Percent	Density		Shear Tests			Atterberg Limits				Other Tests
										Dry	Wet	Type	ϕ	C	LL	PL	PI		
50					Medium stiff gray clay w/silty sand pockets, lenses, & layers w/silt lenses & layers	CH	B-4	50.6	48										
55					w/silt pockets & lenses		B-5	51.6	43										
56					w/silty clay lenses & trace of silt lenses & layers		A-1	52.6	56										
57							A-2	53.6	54										
58							A-3	54.6	58										
59							A-4	55.6	54										
60							A-5	56.6	56										
65																			
70																			
75																			
80																			
85																			
90																			
95																			
100																			

NOTES: Mudline @ el -31.9

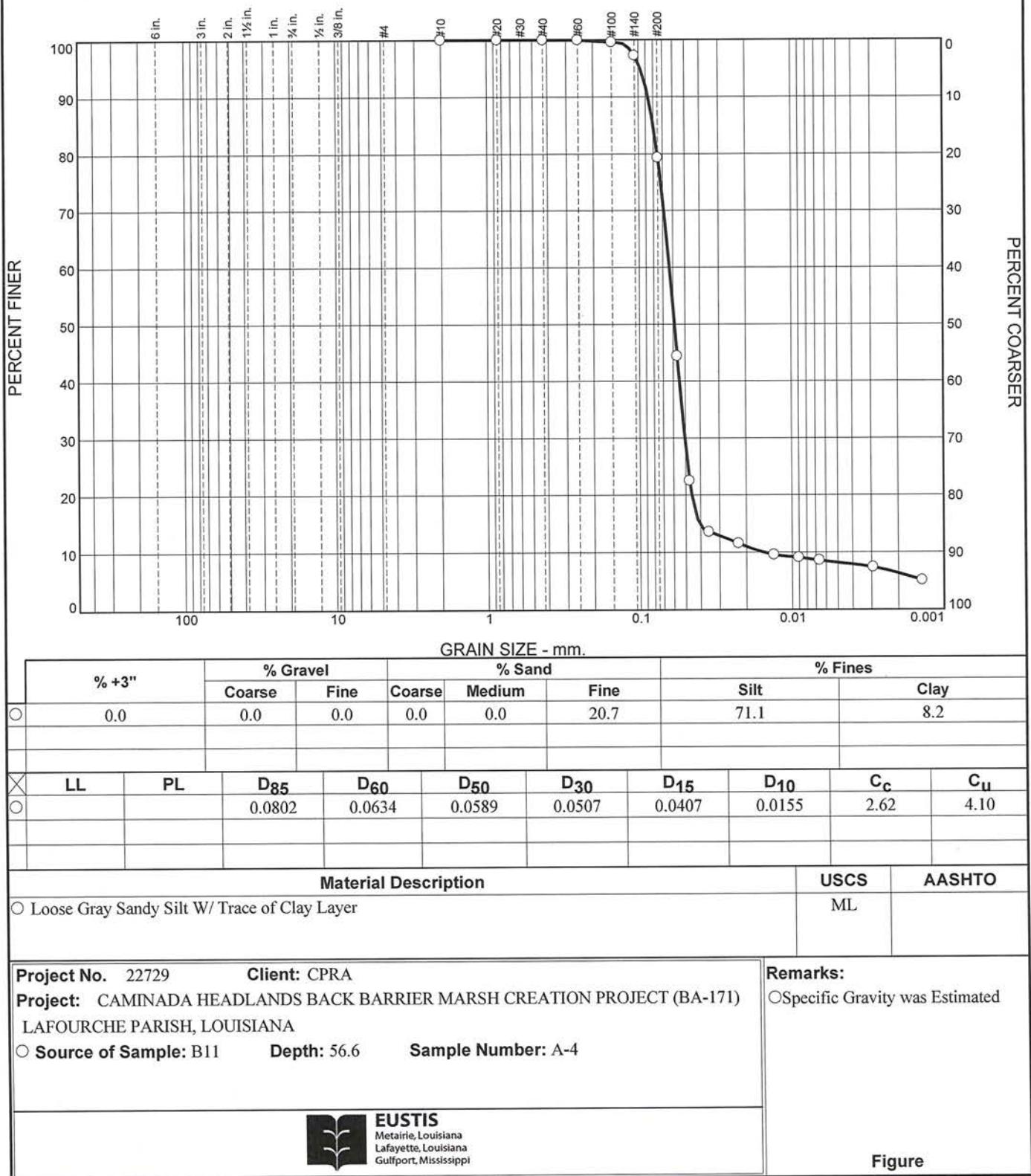
Particle Size Distribution Report



Tested By: AS

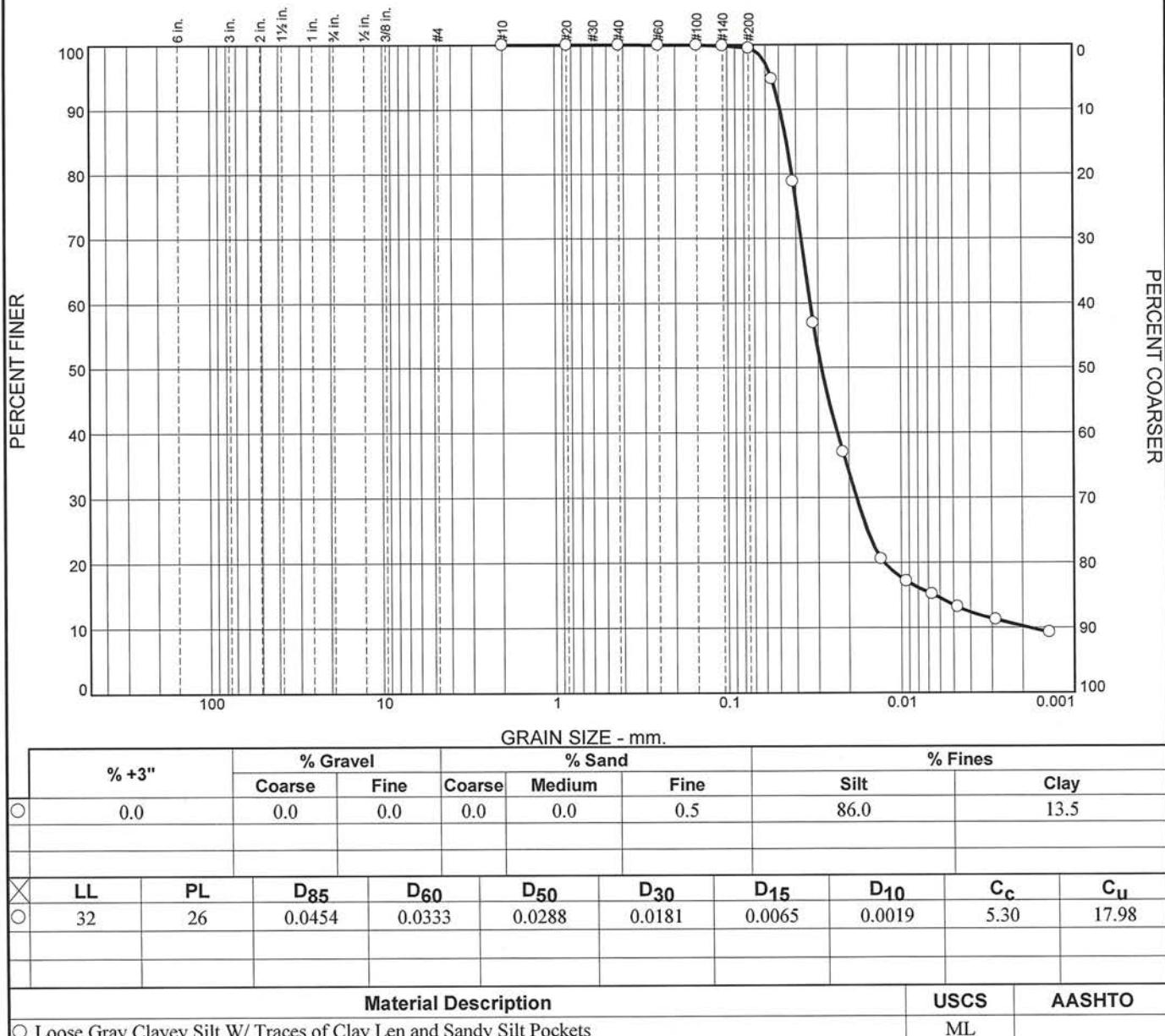
Checked By: CD

Particle Size Distribution Report



Tested By: AS _____ Checked By: CD _____

Particle Size Distribution Report



Project No. 22729 **Client:** CPRA

Project: CAMINADA HEADLANDS BACK BARRIER MARSH CREATION PROJECT (BA-171)
LAFOURCHE PARISH, LOUISIANA

Source of Sample: B11 **Depth:** 35.6 **Sample Number:** E-5

Remarks:

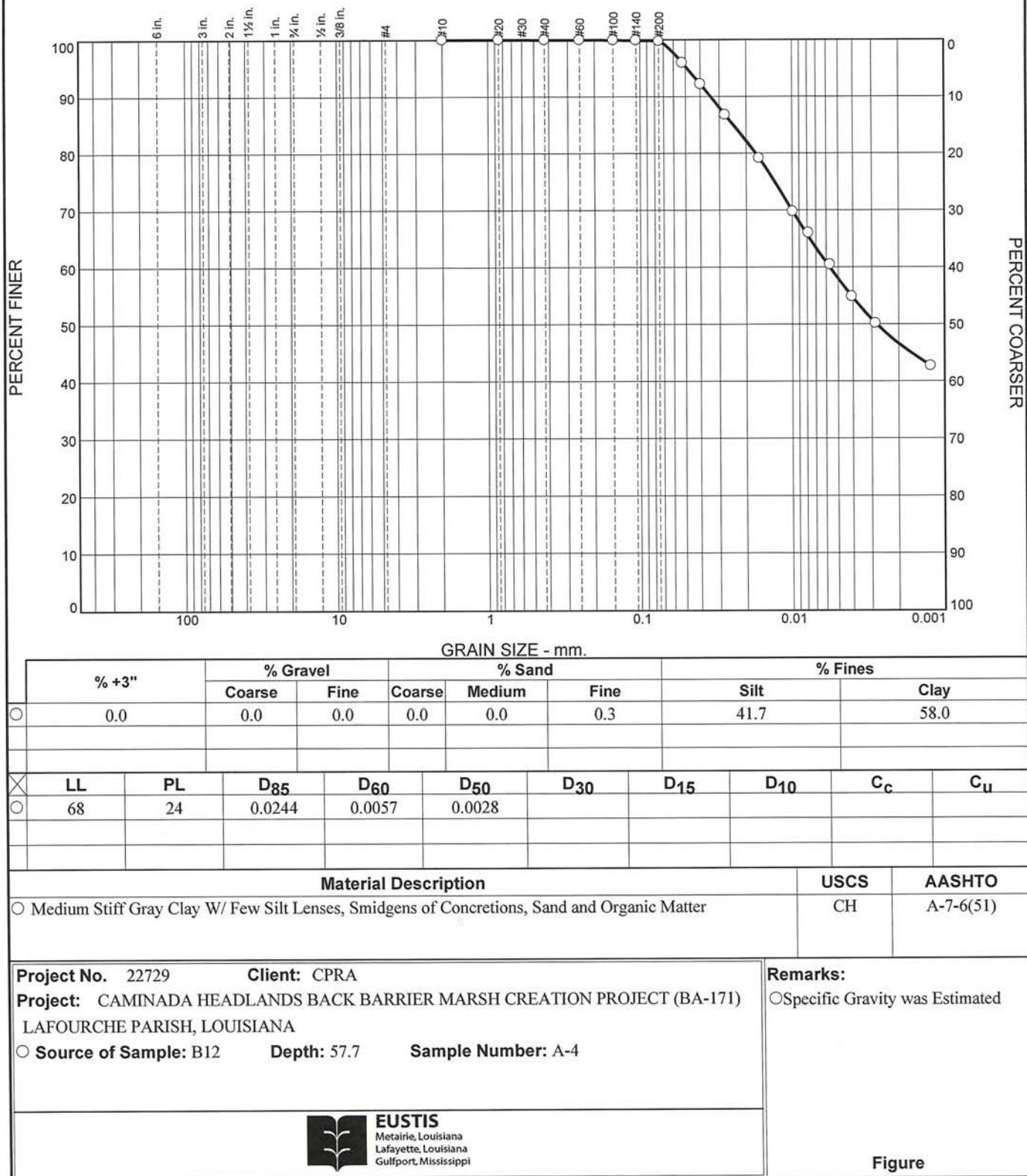
Specific Gravity was Estimated



Figure

Tested By: AS _____ Checked By: CD _____

Particle Size Distribution Report

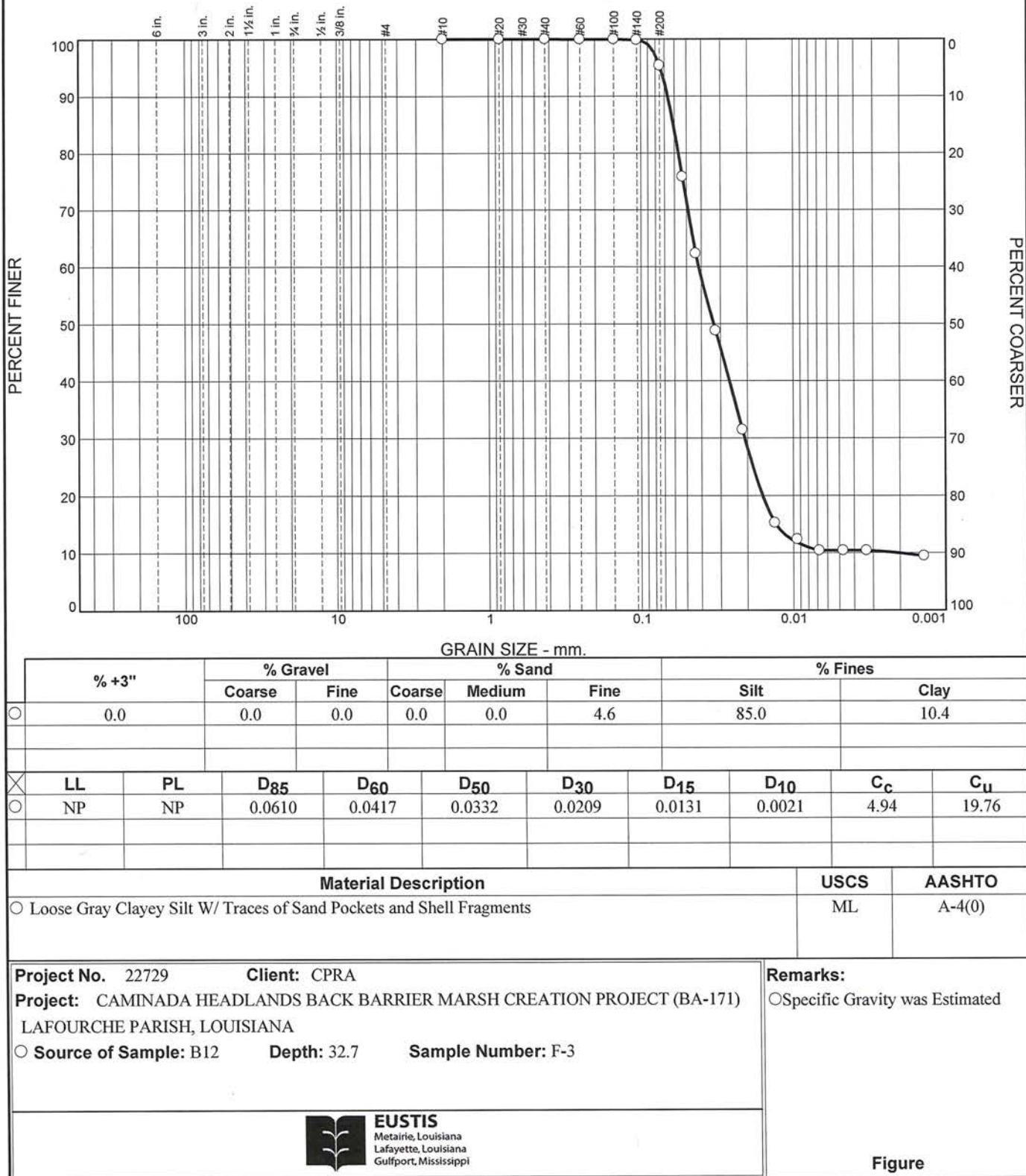


Figure

Tested By: JL & KE

Checked By: CD

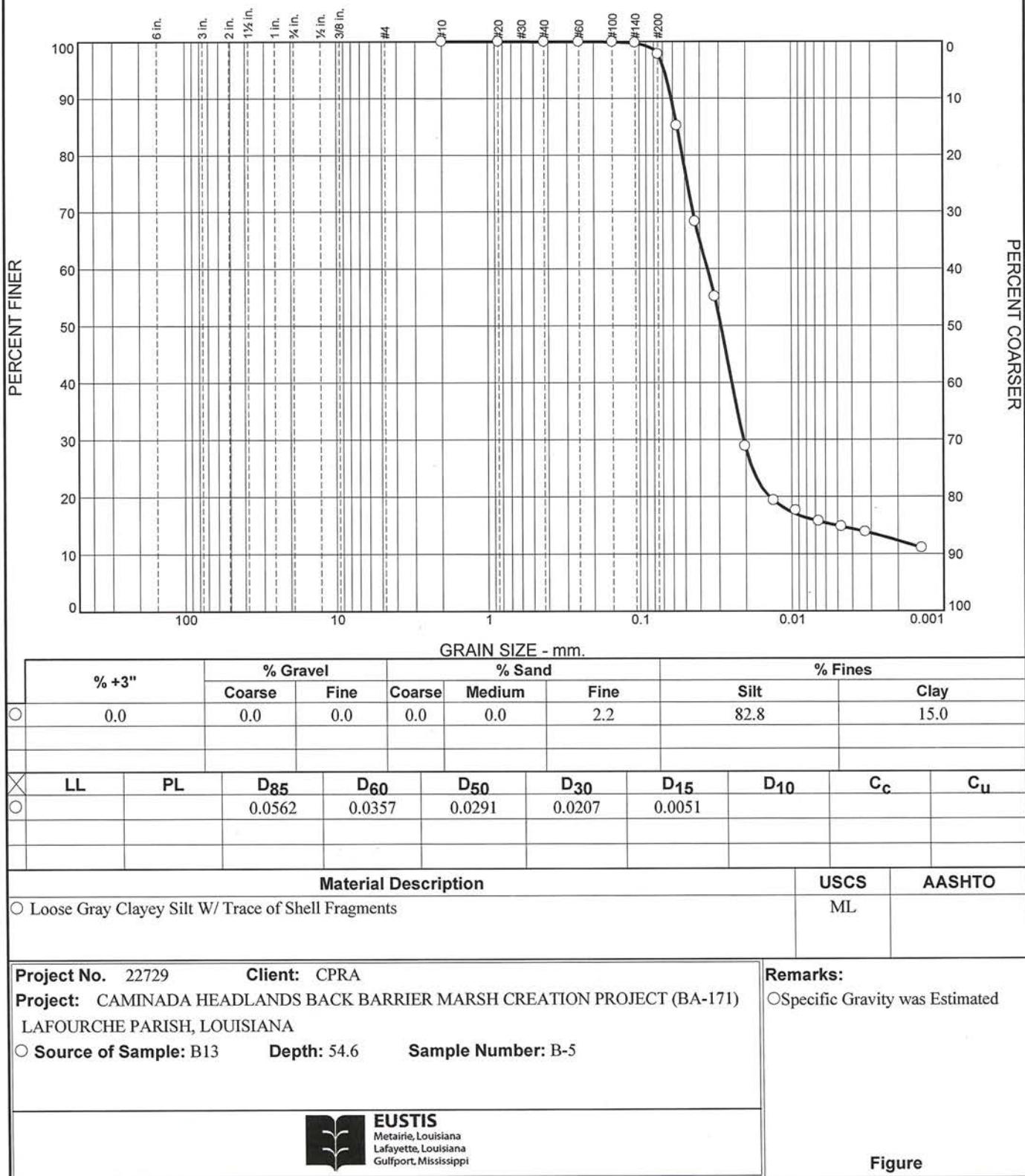
Particle Size Distribution Report



Tested By: JL & KE

Checked By: CD

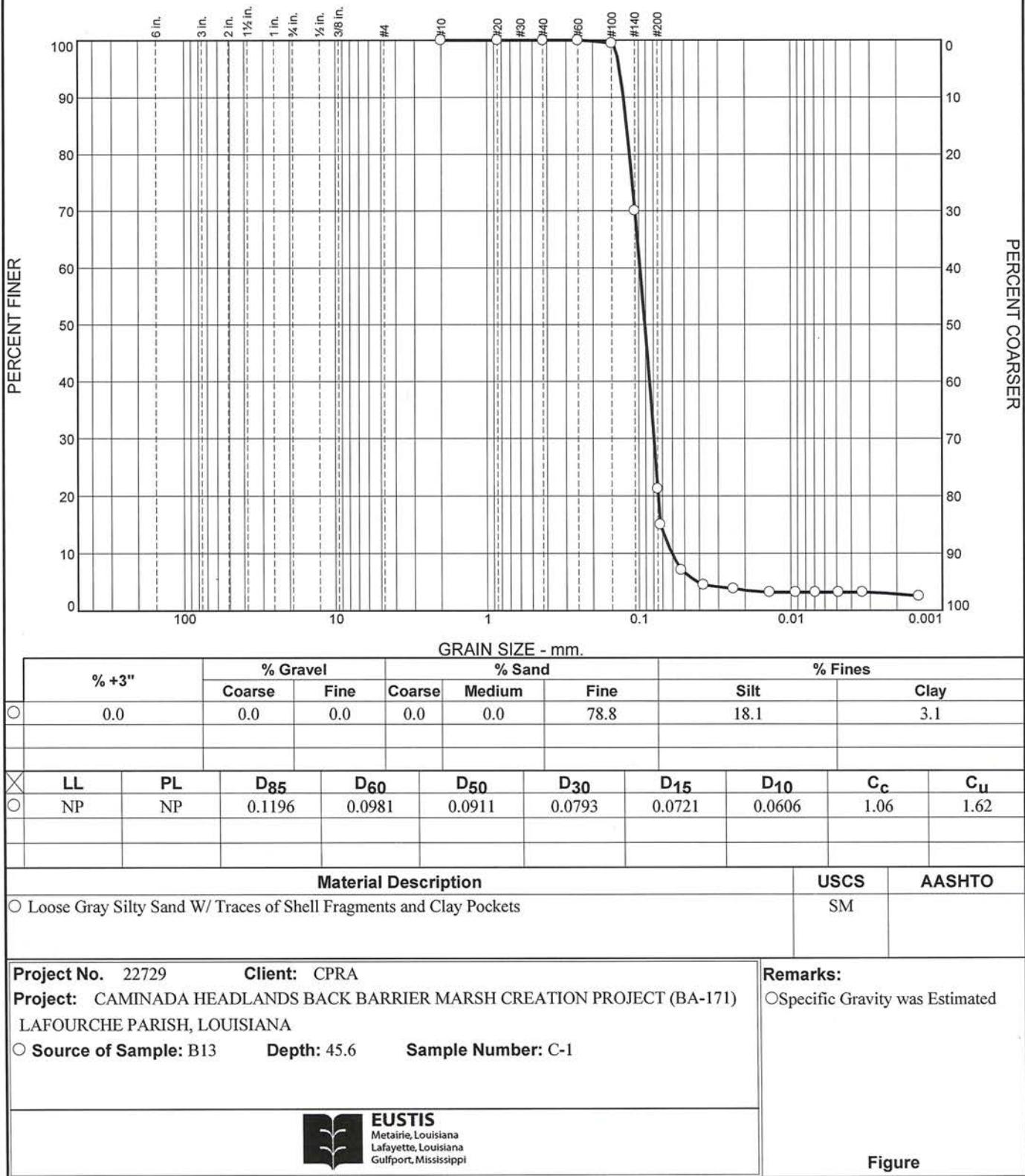
Particle Size Distribution Report



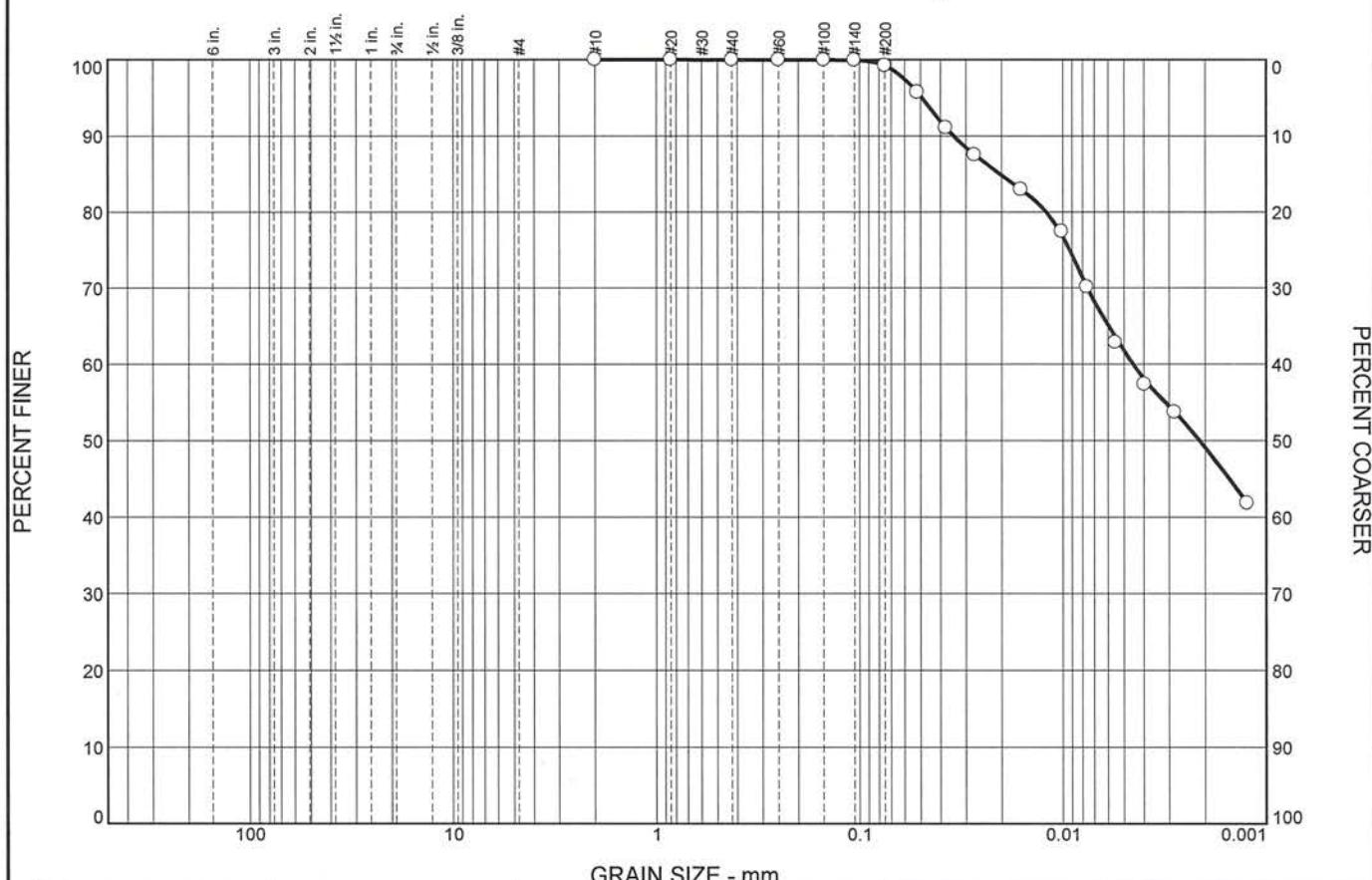
Tested By: JL & KE

Checked By: CD

Particle Size Distribution Report



Particle Size Distribution Report



GRAIN SIZE - mm.									
% +3"		% Gravel		% Sand			% Fines		
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay	
○	0.0	0.0	0.0	0.0	0.0	0.8	37.4	61.8	
○	76	24	0.0205	0.0045	0.0021				

Material Description

USGS | ASHTO

○ Soft Gray Clay W/ Silt Layer, Trace of Organic Matter

830

Project No. 22729 Client: CPRA

Project No.: 22129 Client: CRRA
Project: CAMINADA HEADLANDS BACK BARRIER MARSH CREATION PROJECT (BA-171)
LAFOURCHE PARISH, LOUISIANA

Source of Sample: B13 Depth: 35.6 Sample Number: E-1

Remarks:

Remarks.

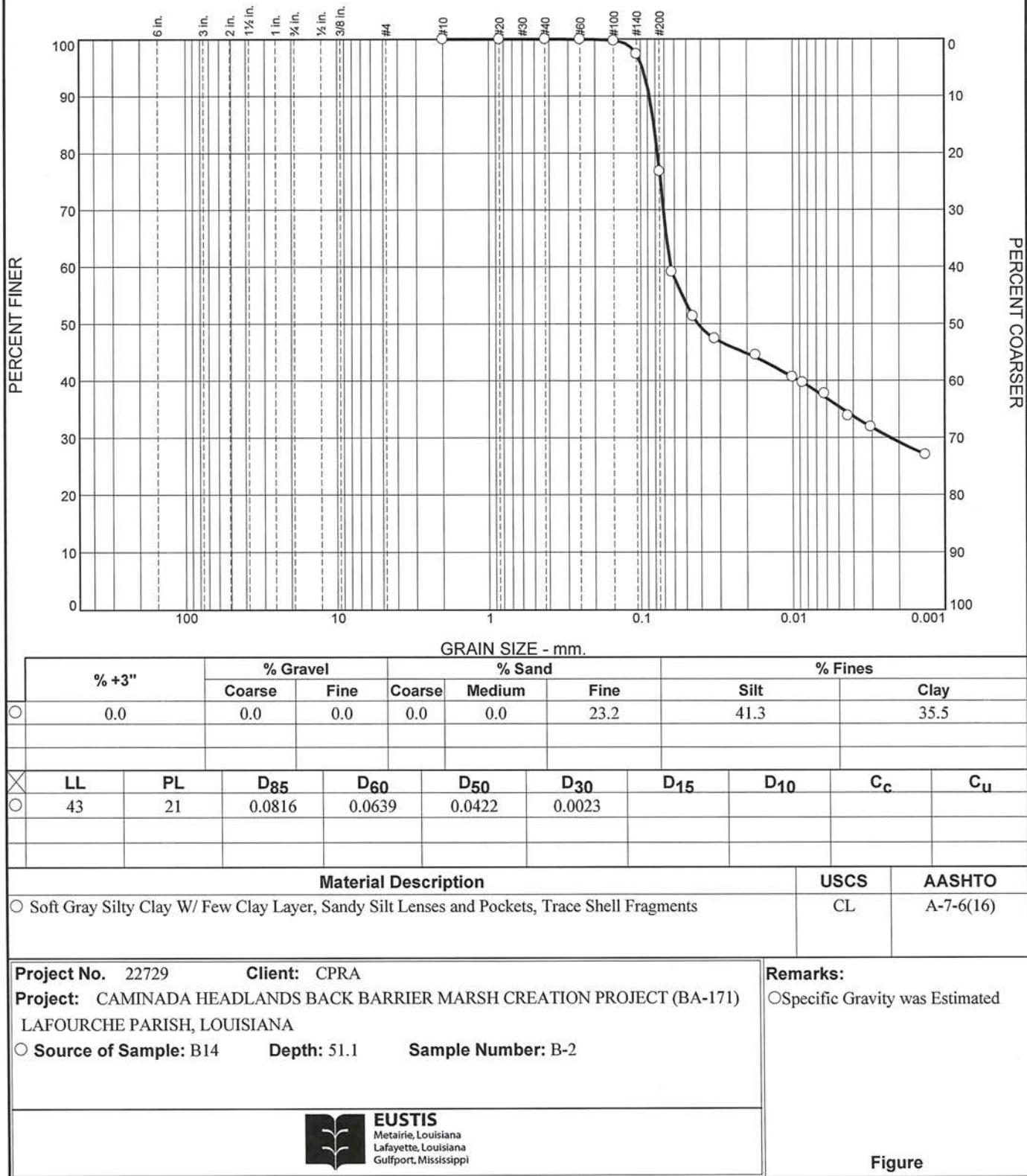


Figure

Tested By: JL & KE

Checked By: CD

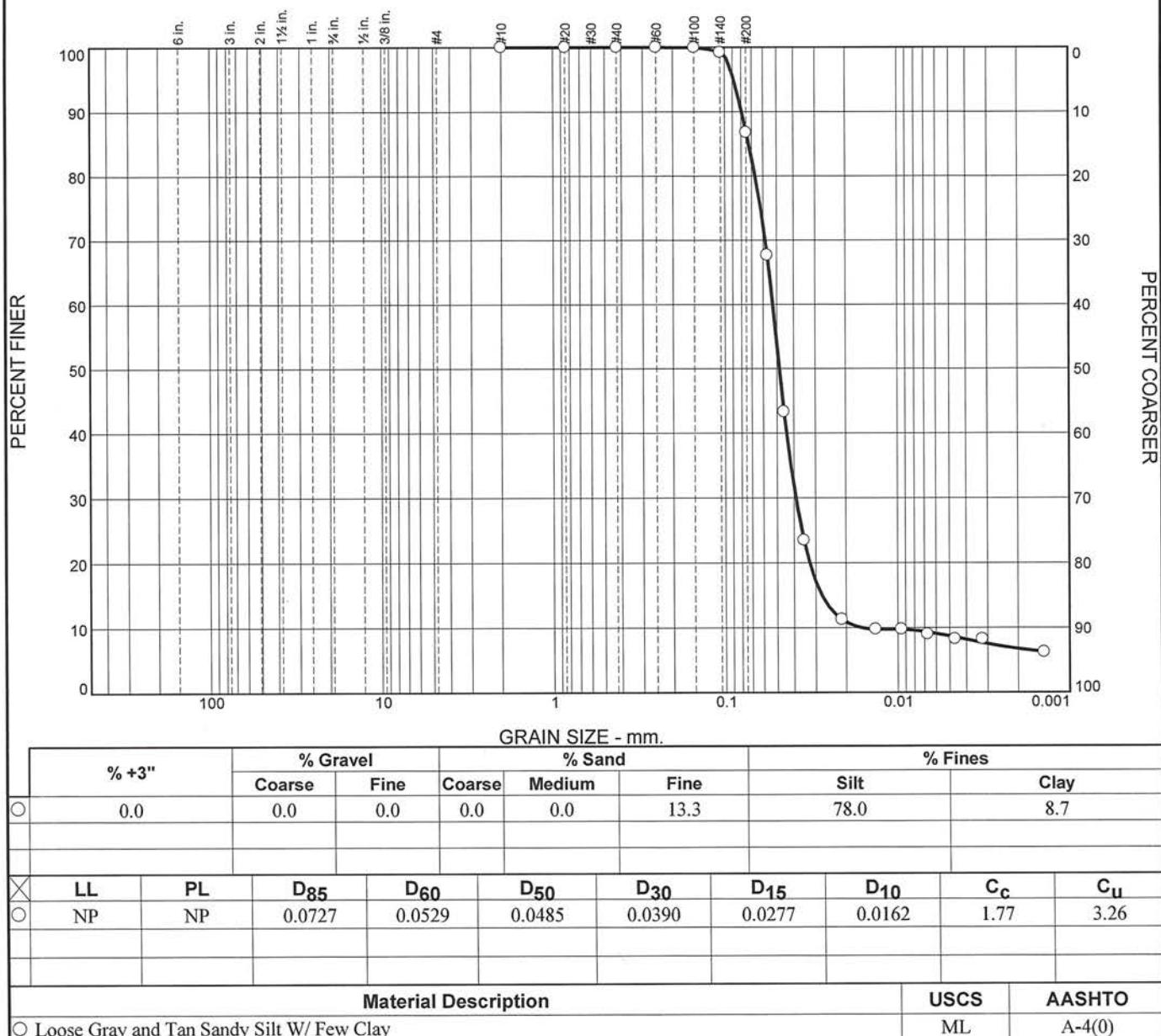
Particle Size Distribution Report



Tested By: JL & KE

Checked By: CD

Particle Size Distribution Report



Project No. 22729 Client: CPRA

Project: CAMINADA HEADLANDS BACK BARRIER MARSH CREATION PROJECT (BA-171)
LAFOURCHE PARISH, LOUISIANA

Source of Sample: B14 Depth: 54.1 Sample Number: B-5

Remarks:

Specific Gravity was Estimated

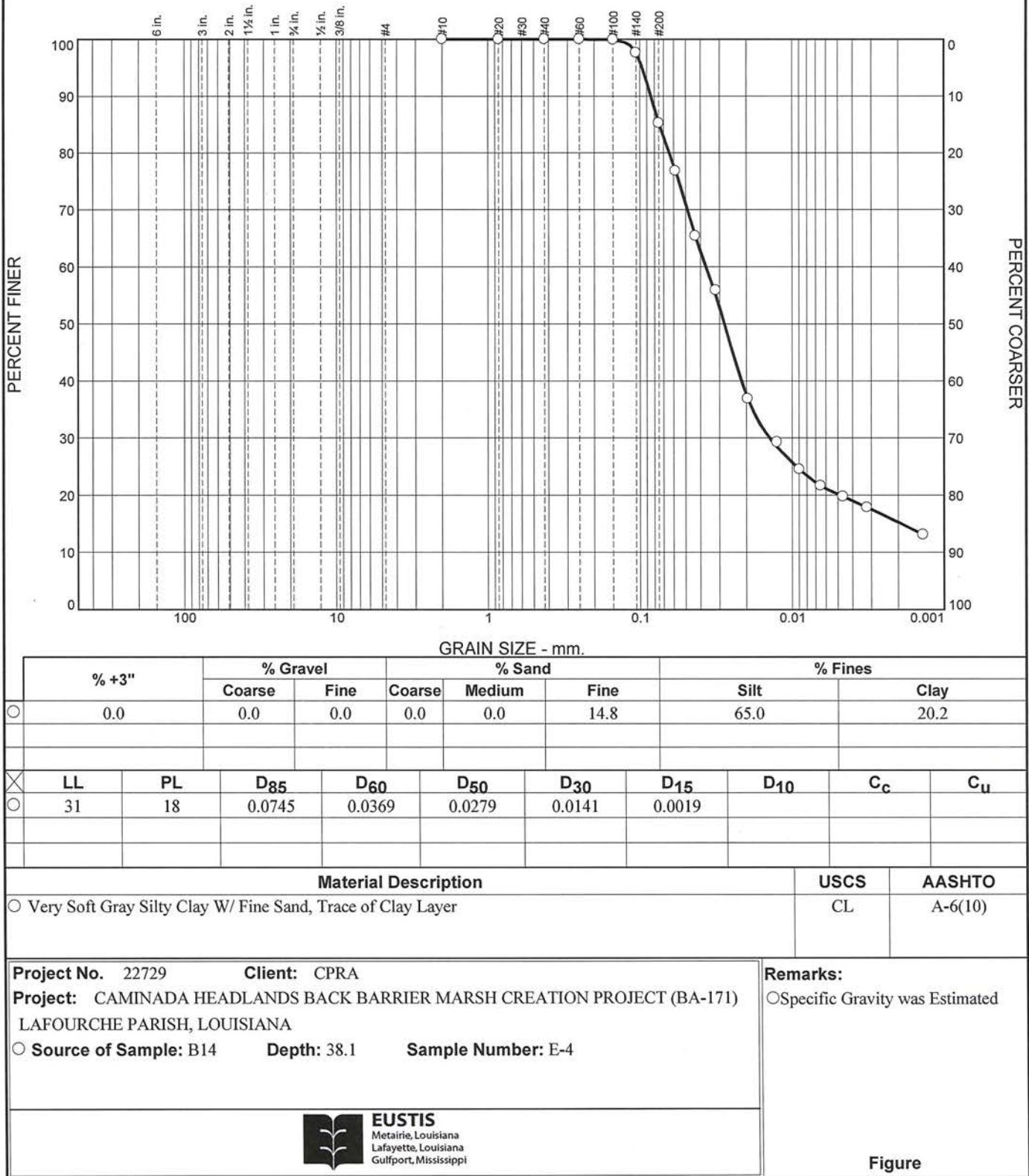


Figure

Tested By: JL & KE

Checked By: CD

Particle Size Distribution Report

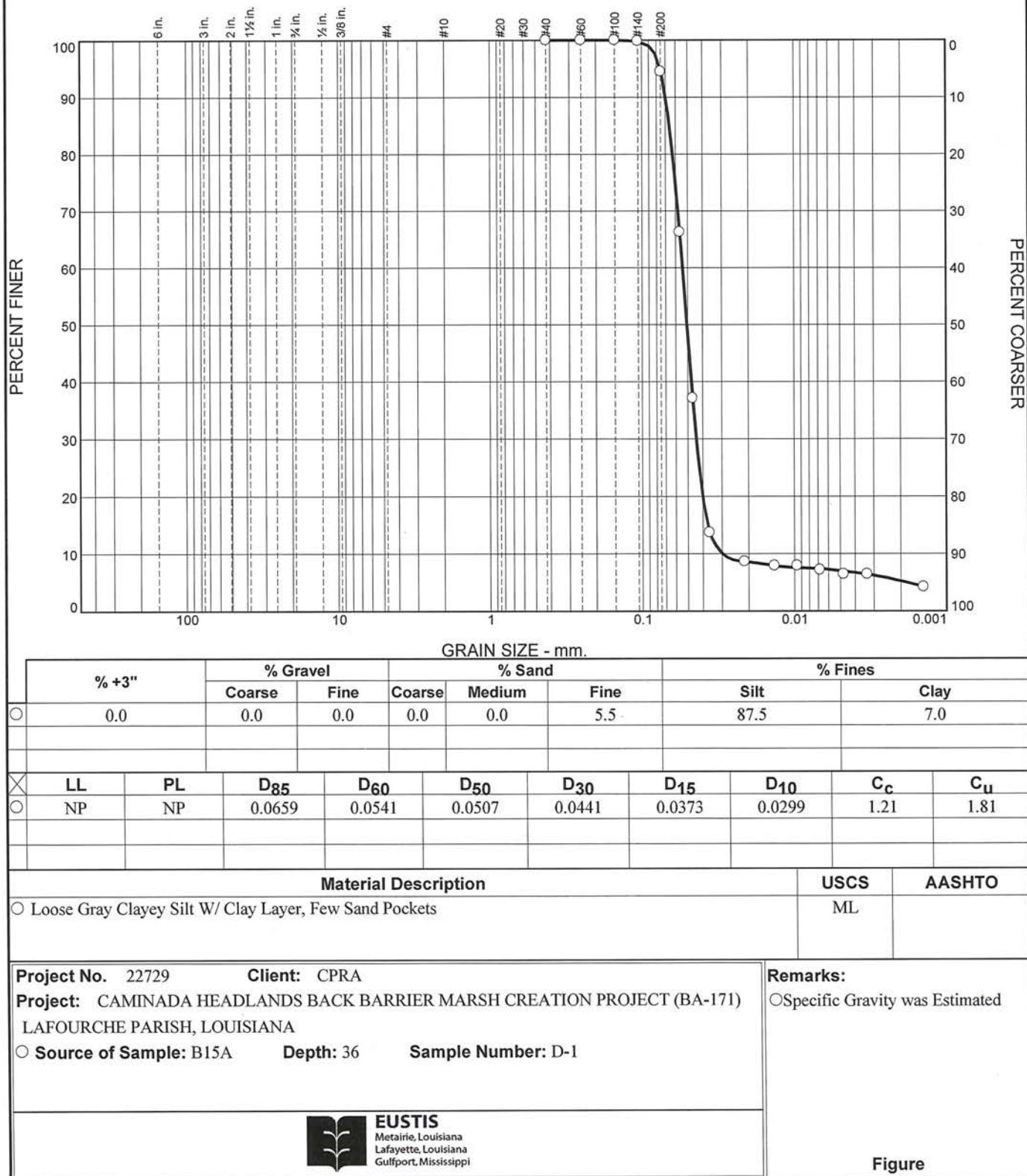


Figure

Tested By: JL & KE

Checked By: CD

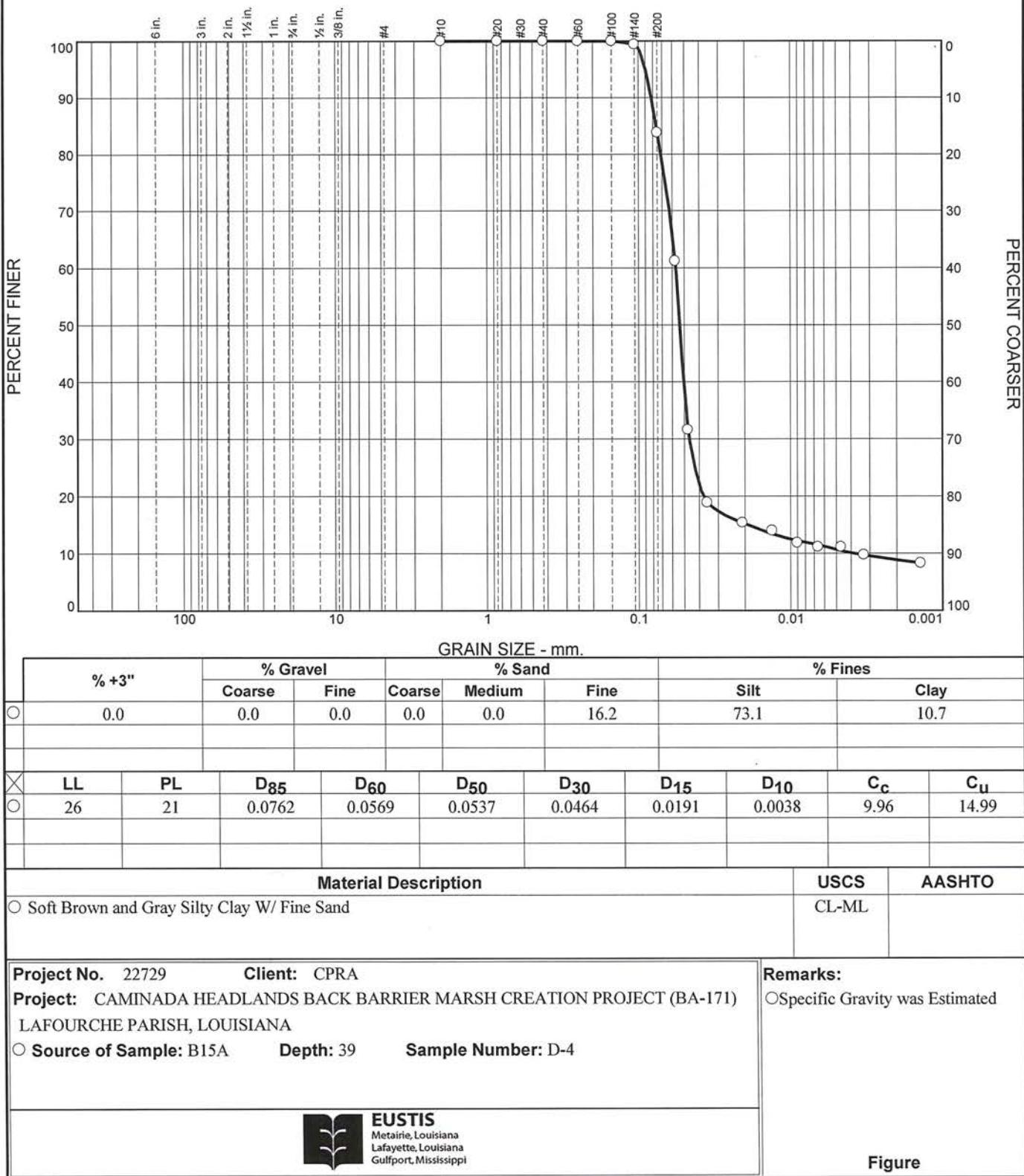
Particle Size Distribution Report



Tested By: JL & KE

Checked By: CD

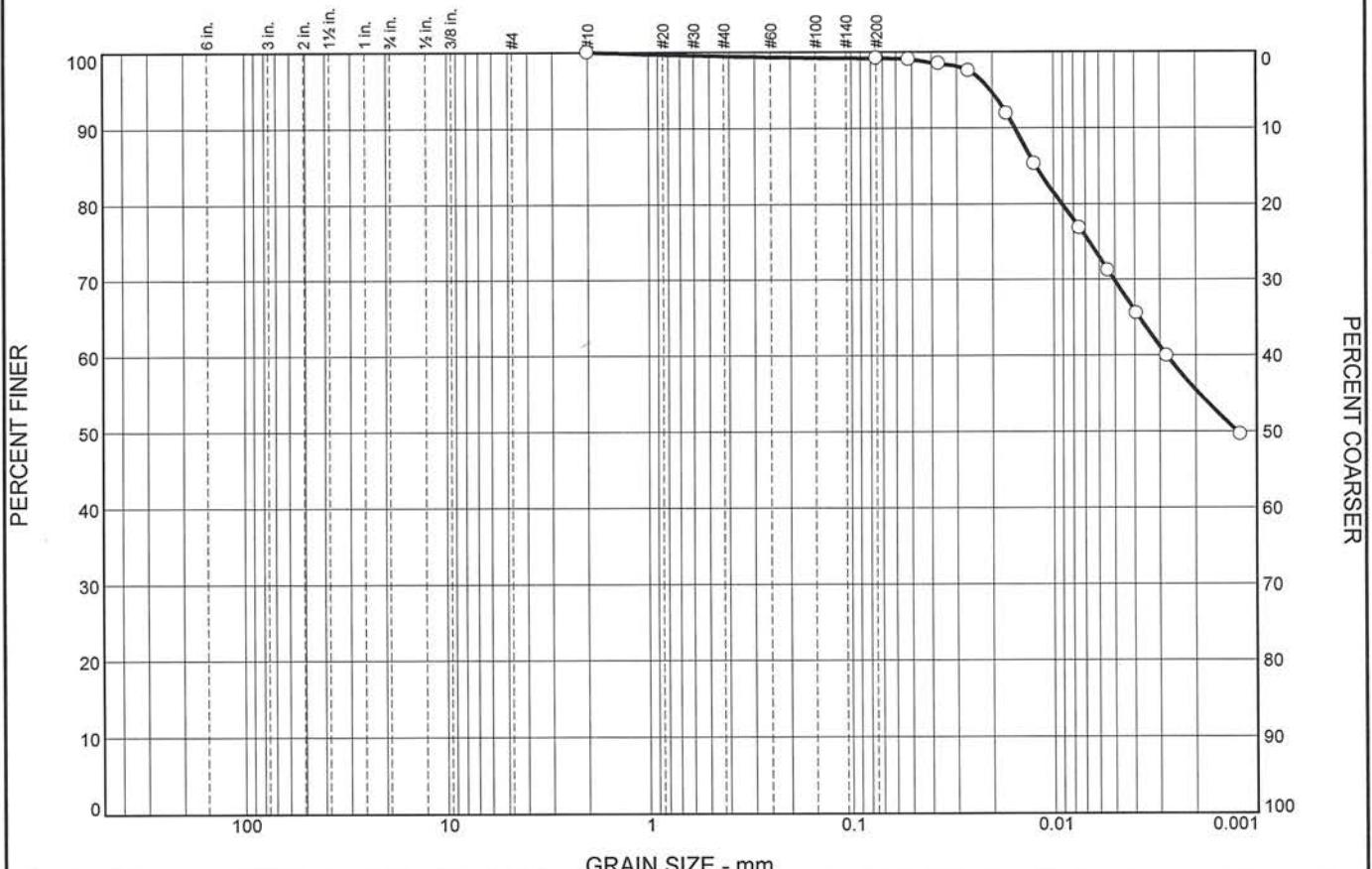
Particle Size Distribution Report



Tested By: JL & KE

Checked By: CD

Particle Size Distribution Report



Material Description

USCS | AASHTO

CH

Project No. 22729

Client: CPRA

Project: CAMINADA HEADLANDS BACK BARRIER MARSH CREATION PROJECT (BA-171)
LAFOURCHE PARISH, LOUISIANA

Source of Sample: B16 Depth: 44.2 Sample Number: C-3

Remarks:

○ Specific Gravity was Estimated



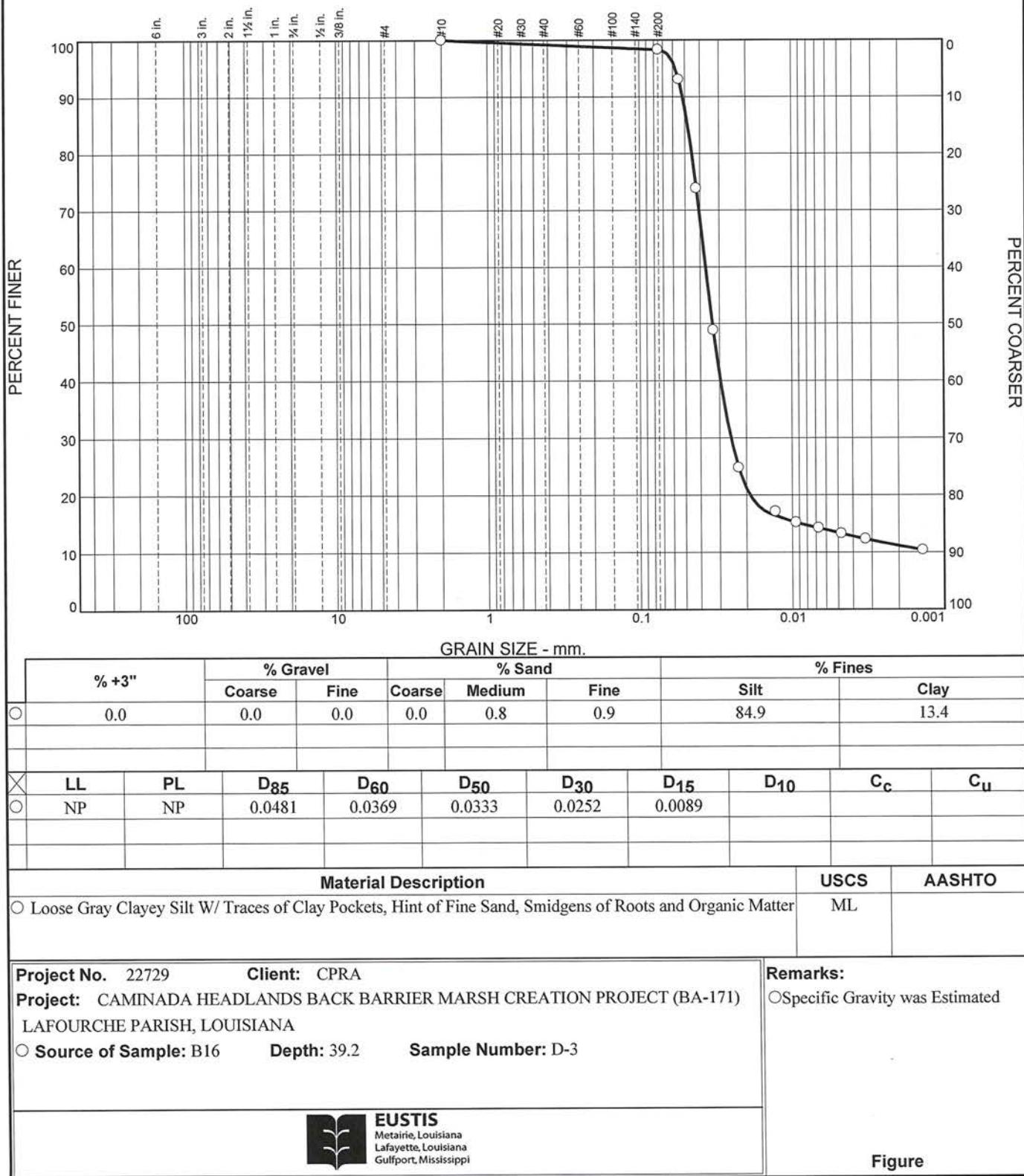
EUSTIS
Metairie, Louisiana
Lafayette, Louisiana
Gulfport, Mississippi

Figure

Tested By: JL & SM

Checked By: CD

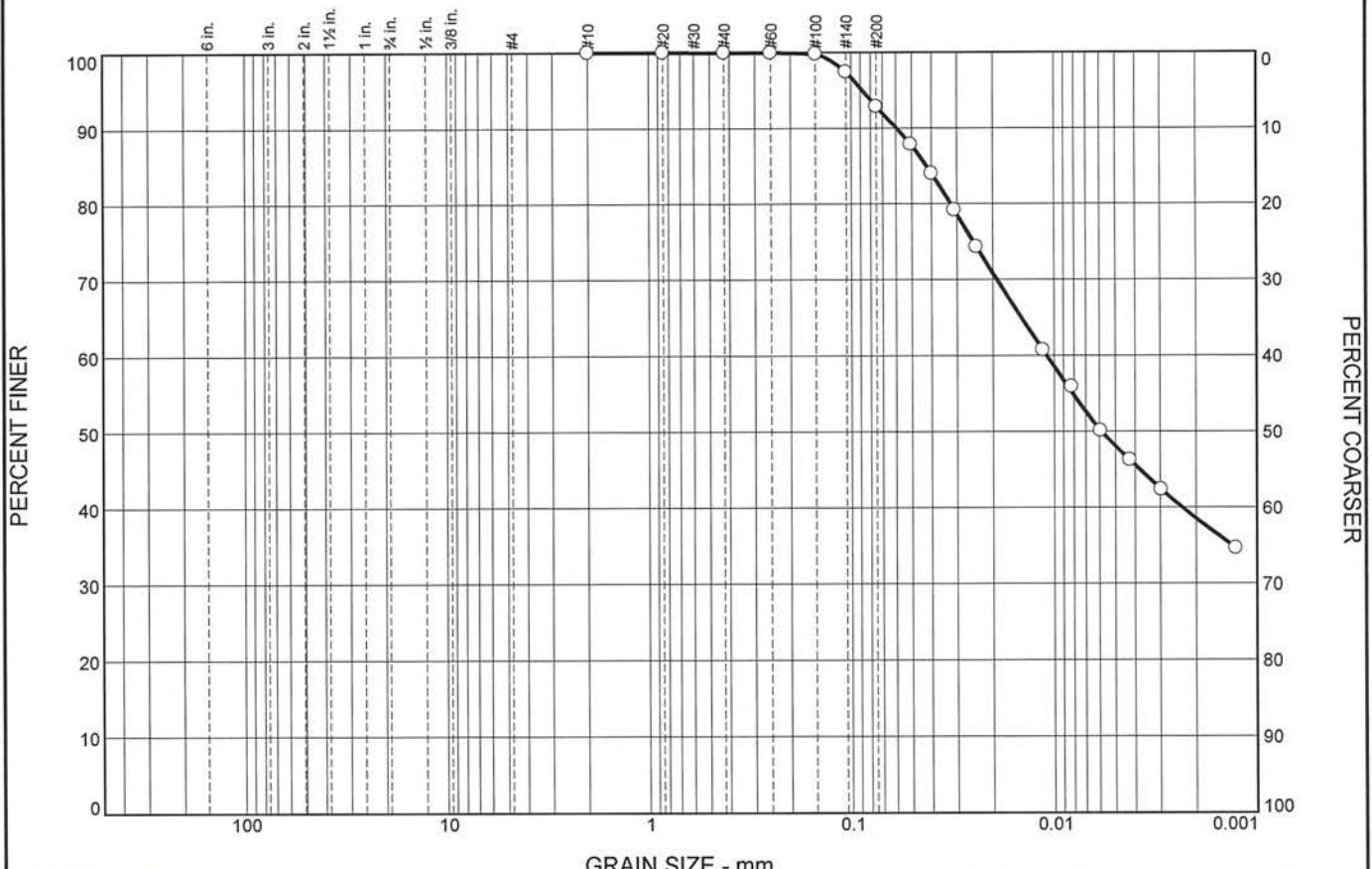
Particle Size Distribution Report



Tested By: JL & SM

Checked By: CD

Particle Size Distribution Report



Material Description

USGS | AASHTO

Medium Stiff Gray Clay W/ Some Sandy Silt Lenses and Pockets

CH

Project No. 22729 Client: CPRA

Project: CAMINADA HEADLANDS BACK BARRIER MARSH CREATION PROJECT (BA-171)
LAFOURCHE PARISH, LOUISIANA

○ Source of Sample: B17 Depth: 42.3 Sample Number: D-5

Remarks:

○ Specific Gravity was Estimated



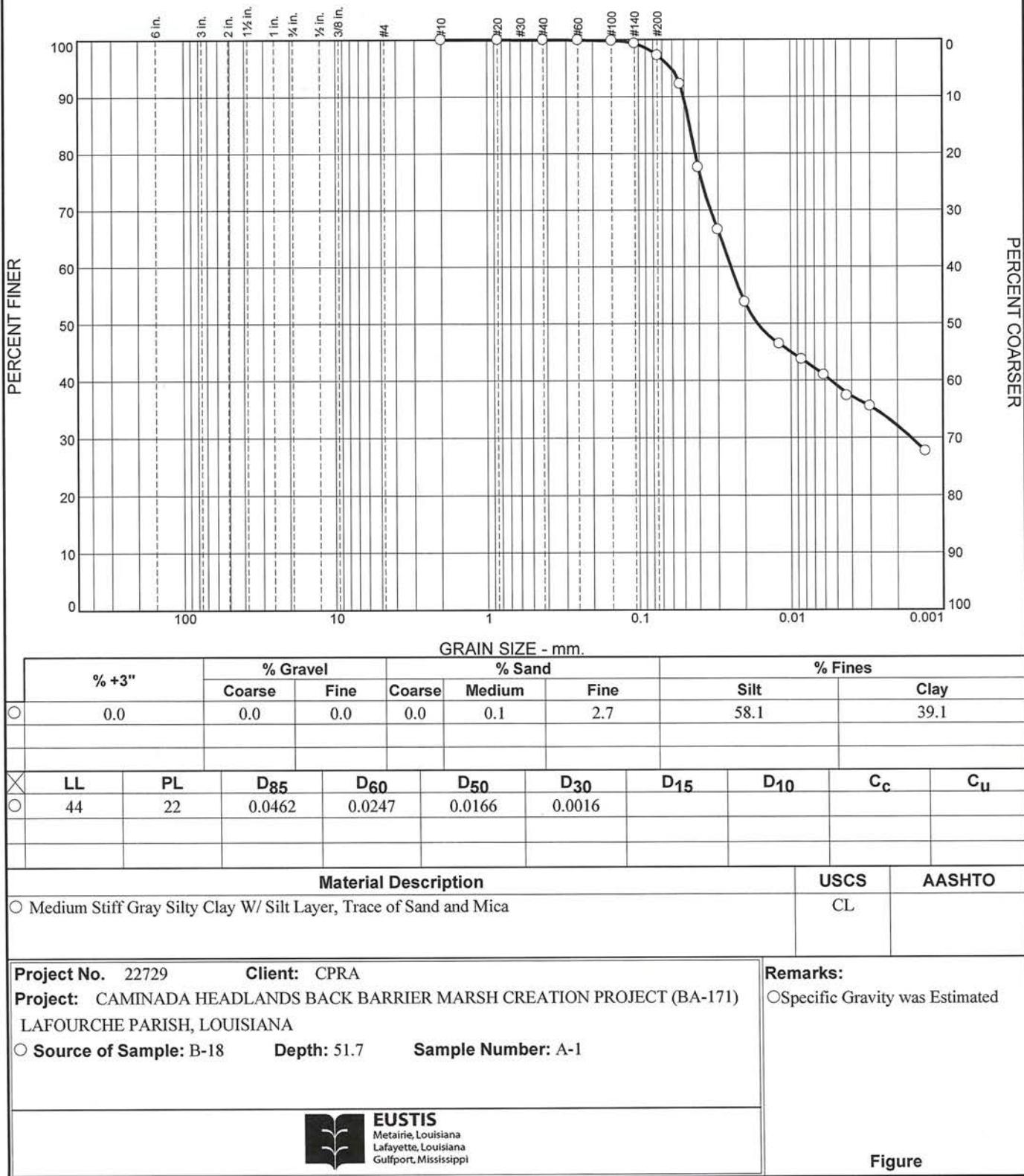
EUSTIS
Metairie, Louisiana
Lafayette, Louisiana
Gulfport, Mississippi

Figure

Tested By: JL

Checked By: CD

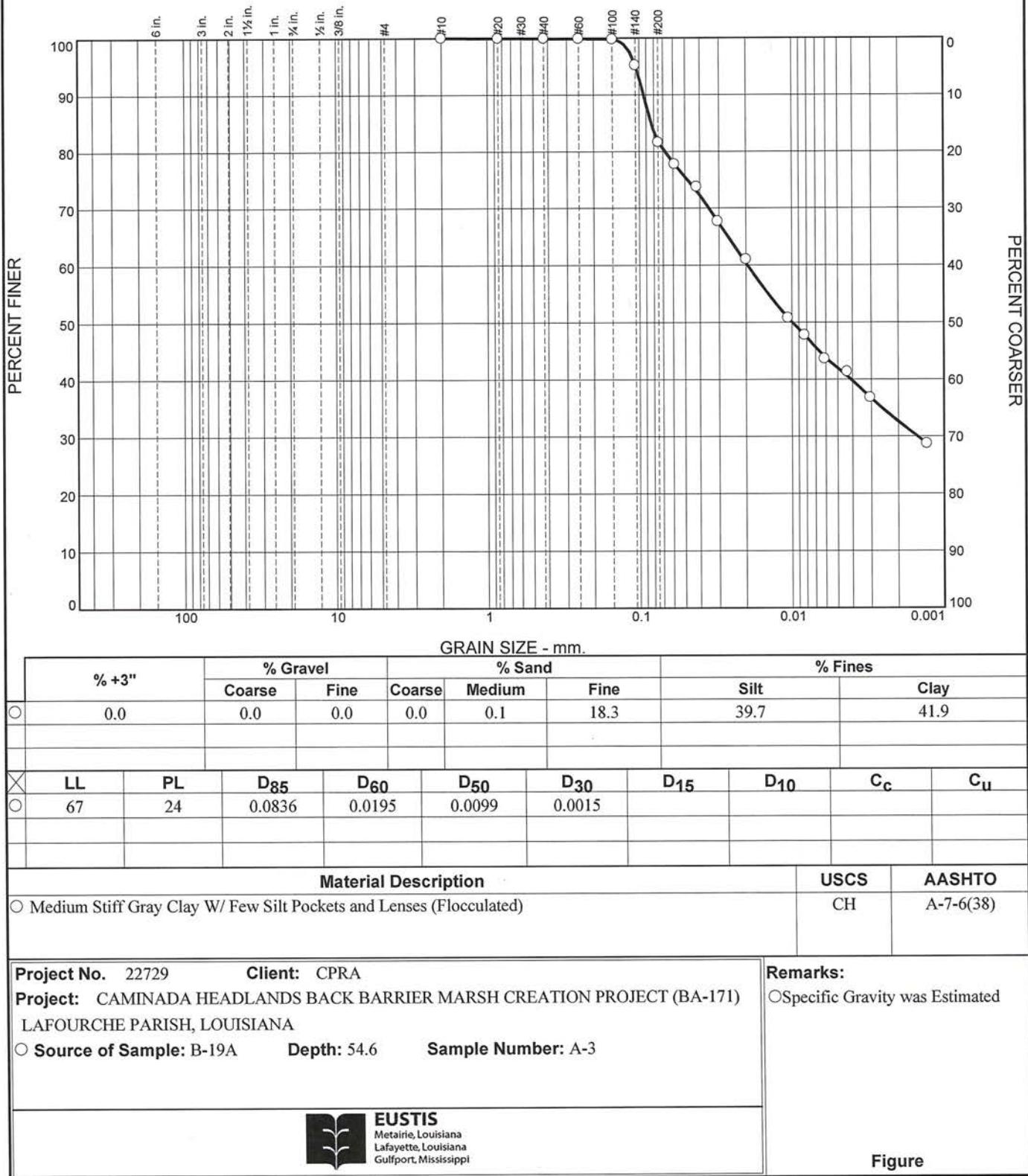
Particle Size Distribution Report



Tested By: JL

Checked By: CD

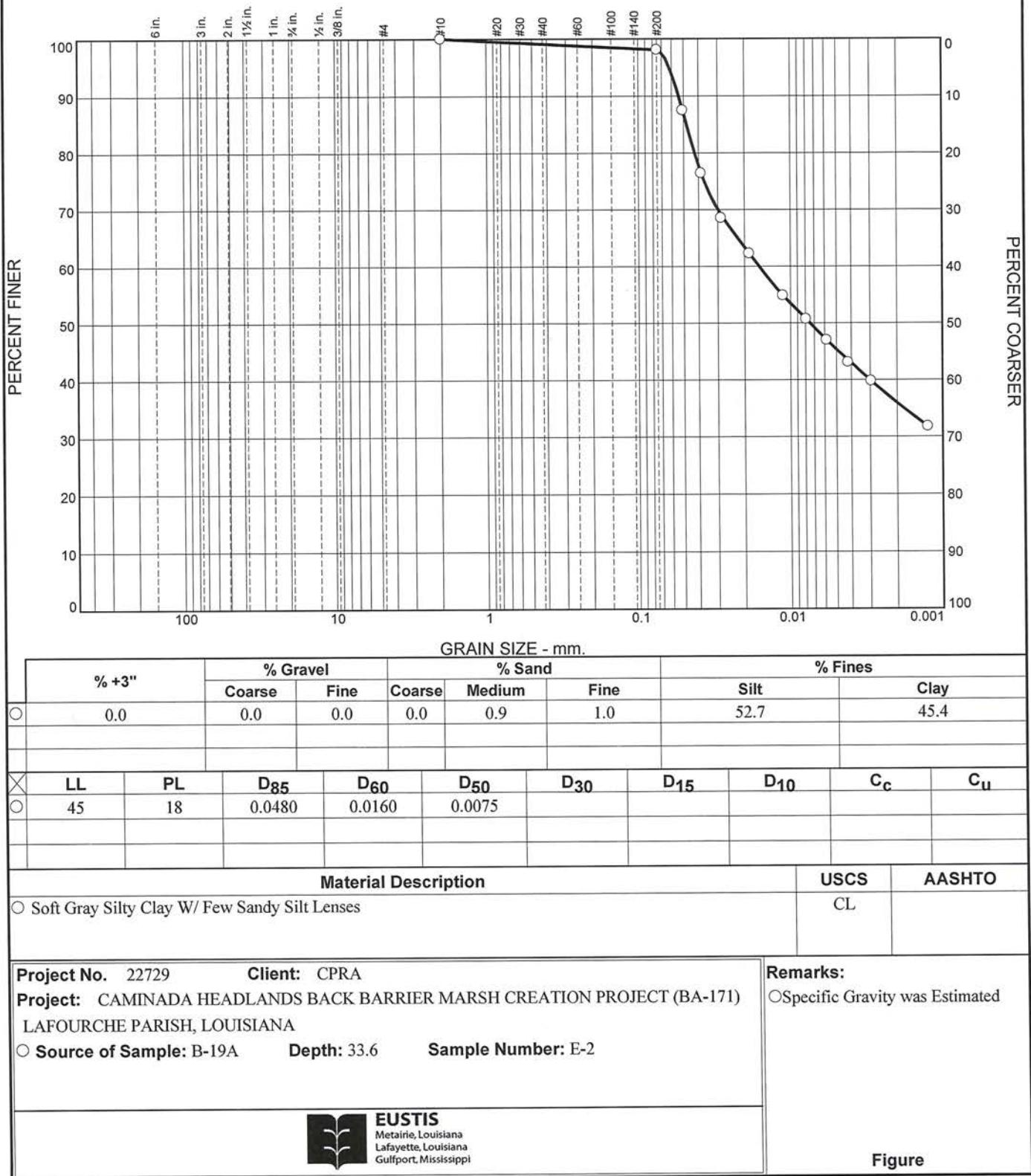
Particle Size Distribution Report



Tested By: CD NAM

Checked By: CD

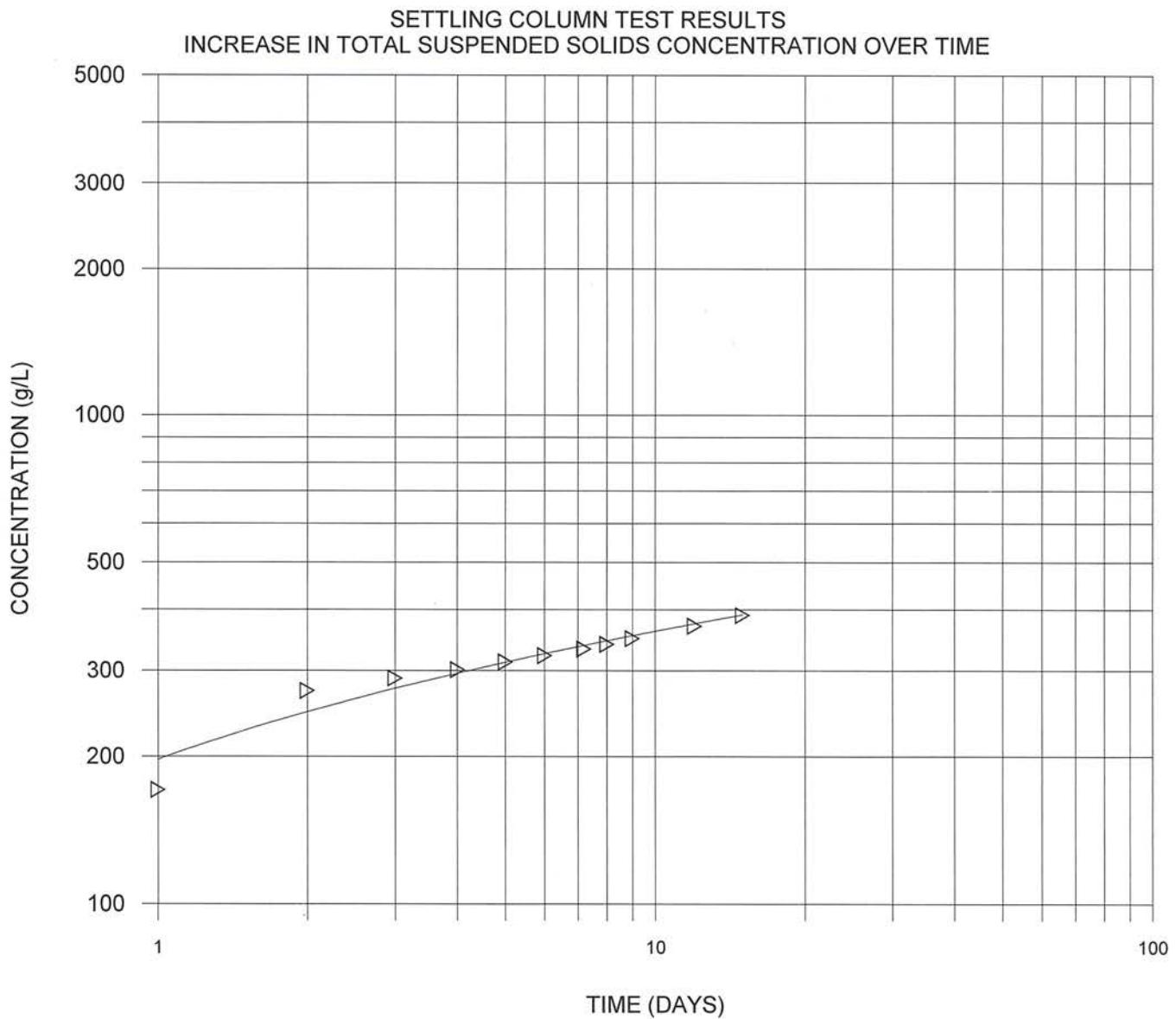
Particle Size Distribution Report



Tested By: JL & SM

Checked By: CD

APPENDIX III
SETTLING COLUMN TEST RESULTS

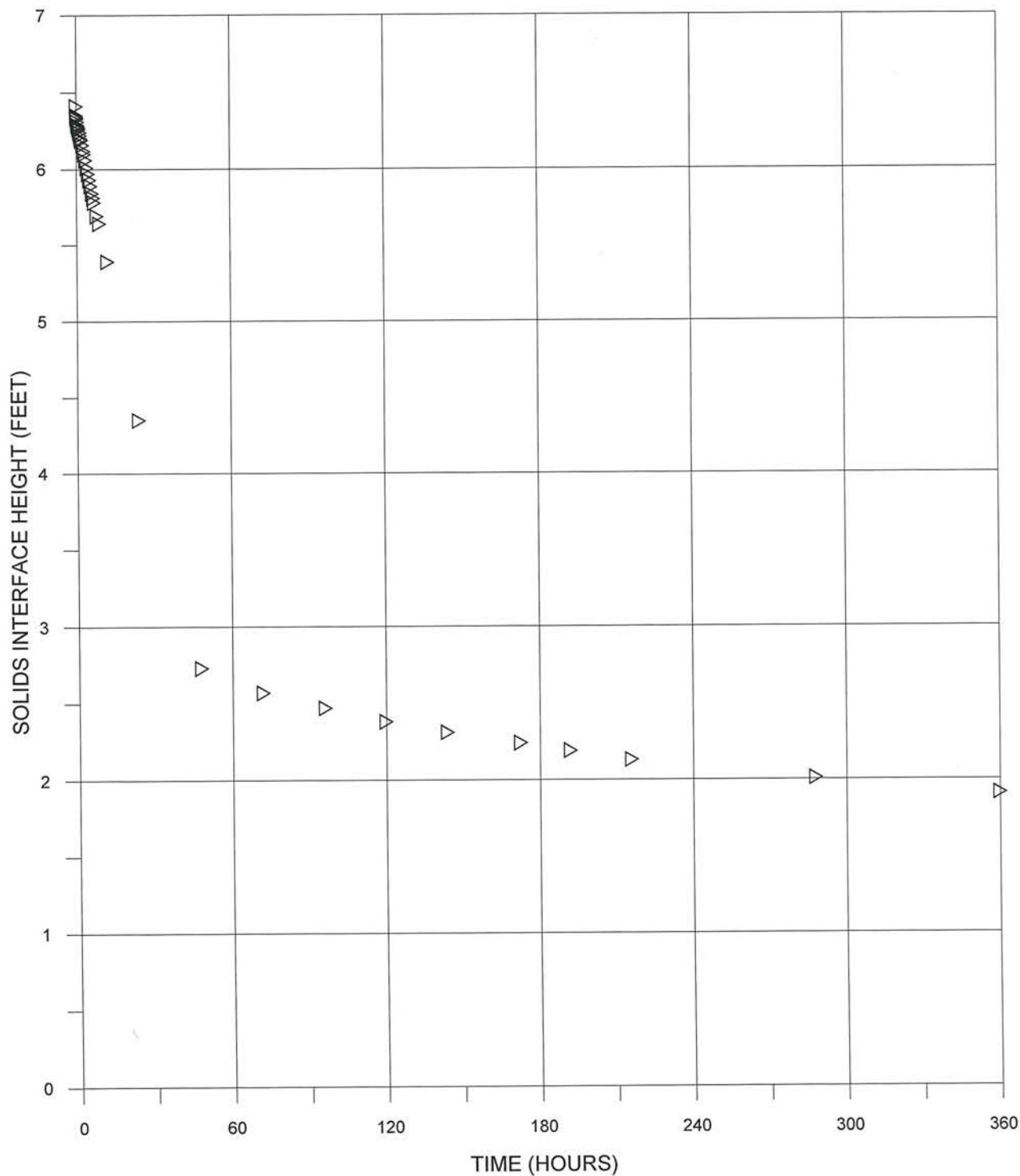


NOTES:

- 1) THE SETTLING COLUMN TEST WAS PERFORMED ON A COMPOSITE SAMPLE OBTAINED FROM THE PROPOSED BORROW SOURCE.
- 2) THE INITIAL SUSPENDED SOLIDS CONCENTRATION WAS 115.9 GRAMS PER LITER. THIS MEASUREMENT WAS MADE AT A TIME OF ZERO DAYS.
- 3) IN ACCORDANCE WITH CHAPTER 3 OF THE USACE ENGINEERING MANUAL EM 1110-2-5207, THE CONCENTRATIONS FOR VARIOUS INTERFACE HEIGHTS WERE CALCULATED USING EQUATION 3-11, $C_t = (C_0 H_i) / H_t$, WHERE C_t IS THE SLURRY CONCENTRATION AT TIME t , C_0 IS THE INITIAL SLURRY CONCENTRATION, H_i IS THE INITIAL SLURRY HEIGHT, AND H_t IS THE HEIGHT OF THE INTERFACE AT TIME t .

 EUSTIS ENGINEERING SERVICES, L.L.C. WWW.EUSTISENG.COM LAFAYETTE • BATON ROUGE • NEW ORLEANS • GULFPORT		
SETTLING COLUMN TEST RESULTS CONCENTRATION WITH TIME		
STATE OF LOUISIANA COASTAL PROTECTION AND RESTORATION AUTHORITY CAMINADA HEADLANDS BACK BARRIER MARSH CREATION PROJECT (BA-171) LAFOURCHE PARISH, LOUISIANA		
DRAWN BY: R.S.M.	29 JUNE 2015	FILE: CONCENTRATION WITH TIME.GRF
CHECKED BY: J.J.H.	JOB NO.: 22729	APPENDIX III

**SETTLING COLUMN TEST RESULTS
ZONE SETTLING CURVE**



NOTE:

1) THE SETTLING COLUMN TEST WAS PERFORMED ON A COMPOSITE SAMPLE OBTAINED FROM THE PROPOSED BORROW SOURCE.



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**SETTLING COLUMN TEST RESULTS
ZONE SETTLING CURVE**

STATE OF LOUISIANA
COASTAL PROTECTION AND RESTORATION AUTHORITY
CAMINADA HEADLANDS BACK BARRIER MARSH
CREATION PROJECT (BA-171)
LAFOURCHE PARISH, LOUISIANA

DRAWN BY: R.S.M.

29 JUNE 2015

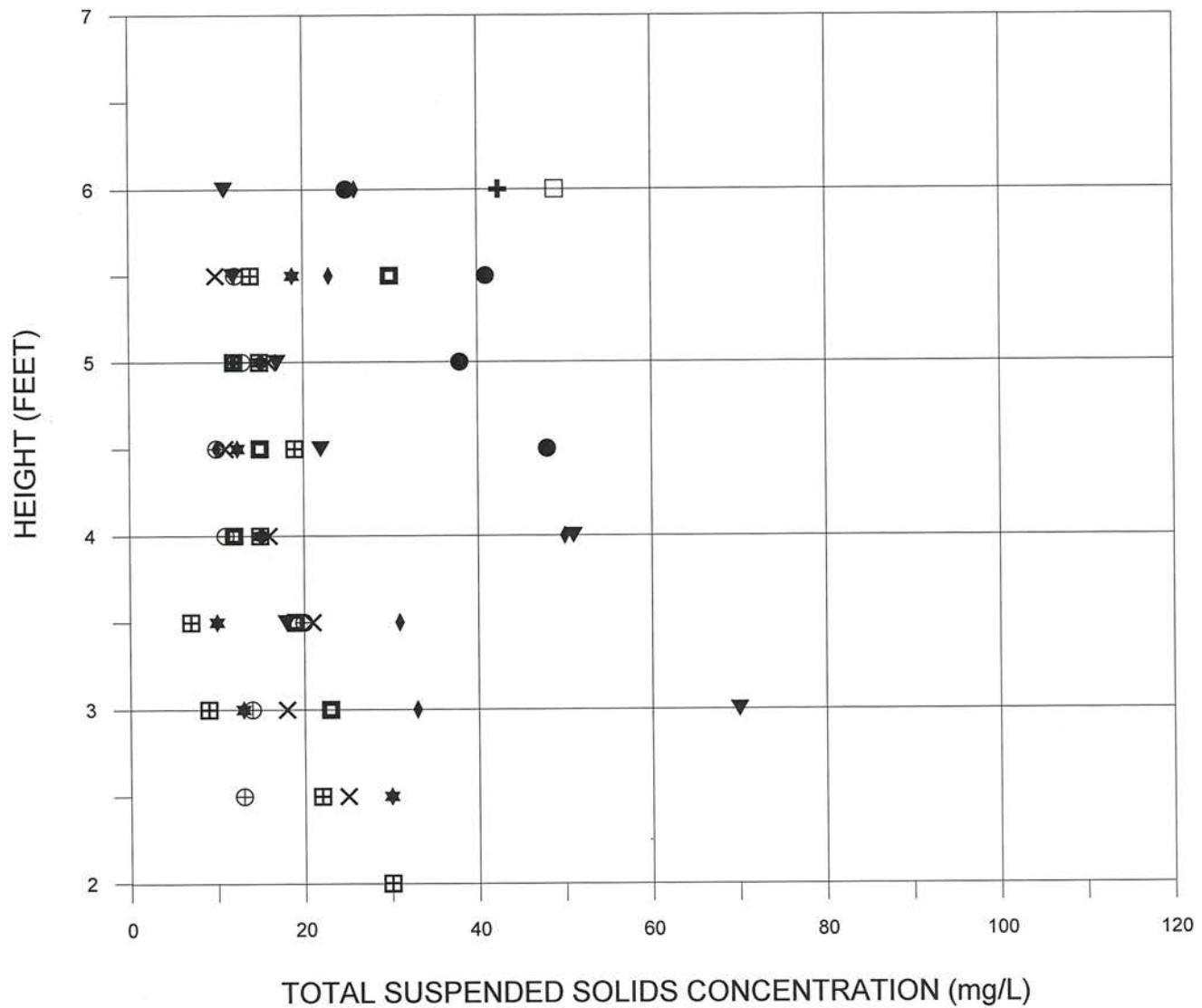
FILE: ZONE SETTLING CURVE.GRF

CHECKED BY: J.J.H.

JOB NO.: 22729

APPENDIX III

**SETTLING COLUMN TEST RESULTS
TOTAL SUSPENDED SOLIDS CONCENTRATION**



NOTES:

- 1) TOTAL SUSPENDED SOLIDS CONCENTRATIONS WERE DETERMINED FROM A SETTLING COLUMN TEST. THE TEST WAS PERFORMED ON A COMPOSITE SAMPLE OBTAINED FROM THE PROPOSED BORROW SOURCE.
- 2) PORTS WERE SAMPLED AT THE FOLLOWING HEIGHTS WITHIN THE 8-FT HIGH COLUMN: 2.5, 3.0, 3.5, 4.0, 4.5, 5.5, AND 6.0 FEET.

 EUSTIS ENGINEERING SERVICES, L.L.C. WWW.EUSTISENG.COM			
LAFAYETTE • BATON ROUGE • NEW ORLEANS • GULFPORT			
<hr/> SETTLING COLUMN TEST RESULTS TOTAL SUSPENDED SOLIDS CONCENTRATION <hr/>			
STATE OF LOUISIANA			
COASTAL PROTECTION AND RESTORATION AUTHORITY			
CAMINADA HEADLANDS BACK BARRIER MARSH			
CREATION PROJECT (BA-171)			
LAFOURCHE PARISH, LOUISIANA			
DRAWN BY: R.S.M.	29 JUNE 2015	FILE: TSS PLOT.GRF	
CHECKED BY: J.J.H.	JOB NO.: 22729		APPENDIX III

SETTLING COLUMN DATA SHEET

Project ID: BA-171

Date: 5/13/2015

Eustis Engineering Project No. 22729

Initial

Conc: 115.9

Analyst: Ryan Rodrigue

Salinity: ND ppt

Specific Gravity: 2.693

Date	Time	Elapsed Time (min)	Surface Water Height	Solids Interface Height	Sample Number	Ports Sampled/Analysis	Type of
5/13/2015	7:15		6.41	6.41		1' - 6' (1' intervals)	
			6.41	6.37		after	
5/13/2015	7:20	5	6.37	6.35			
5/13/2015	7:30	10	6.37	6.34			
5/13/2015	7:40	15	6.37	6.33			
5/13/2015	7:50	25	6.37	6.31			
5/13/2015	8:00	35	6.37	6.29			
5/13/2015	8:10	45	6.37	6.28			
5/13/2015	8:20	55	6.37	6.27			
5/13/2015	8:30	65	6.37	6.26			
5/13/2015	8:40	75	6.37	6.24			
5/13/2015	8:50	85	6.37	6.24			
5/13/2015	9:00	95	6.37	6.22			
5/13/2015	9:10	105	6.37	6.2			
5/13/2015	9:20	115	6.37	6.19			
5/13/2015	9:50	145	6.37	6.16			
5/13/2015	10:20	175	6.37	6.12			
5/13/2015	10:30	185	6.37	6.1			
5/13/2015	11:00	215	6.37	6.06			
5/13/2015	11:30	245	6.37	6.01			
5/13/2015	12:00	275	6.37	5.97			
5/13/2015	12:30	305	6.37	5.93			
5/13/2015	13:00	335	6.37	5.89			
5/13/2015	13:30	365	6.37	5.84			
5/13/2015	14:00	395	6.37	5.81			
5/13/2015	14:15	410	6.37	5.78 #1	6'	TSS & Turbidity	
5/13/2015			6.35	5.76		After Sampling	
5/13/2015	15:00	470	6.35	5.69			
5/13/2015	16:00	530	6.35	5.64			
5/13/2015	19:15	720	6.35	5.39 #2	6'	TSS & Turbidity	
5/13/2015			6.33	5.38		After Sampling	
5/14/2015	7:15	1440	6.33	4.35 #3 4 5 6	6', 5.5', 5', 4.5'	TSS & Turbidity	
5/14/2015	7:15	1440	6.26	4.35		After Sampling	
5/15/2015	7:15	2880	6.26	2.73 # 7-13	6', 5.5', 5', 4.5', 4', 3.5', 3'		
5/15/2015	7:15	2880	6.15	2.73		After Sampling	
5/16/2015	7:15	4320	6.14	2.57 # 14-20	6', 5.5', 5', 4.5', 4', 3.5', 3'		
5/16/2015	7:15	4320	6.04	2.57		After Sampling	
5/17/2015	7:26	5771	6.04	2.47 # 21-26	5.5', 5', 4.5', 4', 3.5', 3'		
5/17/2015	7:26	5771	5.95	2.47		After Sampling	
5/18/2015	7:15	7200	5.94	2.38			
5/19/2015	7:15	8640	5.94	2.31 # 27-33	5.5', 5', 4.5', 4', 3.5', 3', 2.5'		
5/19/2015	7:15	10350	5.94	2.31		After Sampling	
5/20/2015	11:45	10350	5.83	2.24			
5/21/2015	7:15	11520	5.83	2.19			
5/22/2015	7:15	12960	5.83	2.13 # 34-40	5.5', 5', 4.5', 4', 3.5', 3', 2.5'		
5/22/2015	7:15	12960	5.73	2.13		After Sampling	
5/25/2015	7:15	17280	5.73	2.01 # 41-47	5.5', 5', 4.5', 4', 3.5', 3', 2.5'		
5/25/2015	7:15	17280	5.63	2.01		After Sampling	
5/28/2015	7:15	21600	5.63	1.91 # 48-55	5.5', 5', 4.5', 4', 3.5', 3', 2.5', 2'		
5/28/2015	7:15	21600	5.51	1.91		After Sampling	

TOTAL SUSPENDED SOLIDS REPORT SHEET

Project ID: BA-171 (Eustis Engineering Project No. 22729)

Analyst: R. Rodrigue

Sample ID and Ports Sampled	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10
	6' Port	6' Port	6' Port	5.5' Port	5' Port	4.5' Port	6' Port	5.5' Port	5' Port	4.5' Port
TSS in mg/L	49	47	25	41	38	48	11	12	17	22
Turbidity (NTU)	14.6	27.7	1.4	1.3	1.2	6.1	1.5	3.6	1.2	1.2

Sample ID and Ports Sampled	#11	#12	#13	#14	#15	#16	#17	#18	#19	#20
	4' Port	3.5' Port	3' Port	6' Port	5.5' Port	5' Port	4.5' Port	4' Port	3.5' Port	3' Port
TSS in mg/L	51	18	70	26	23	12	10	50	31	33
Turbidity (NTU)	1.3	1.3	1.1	1.0	1.5	0.9	1.1	1.0	1.4	1.1

Sample ID and Ports Sampled	#21	#22	#23	#24	#25	#26	#27	#28	#29	#30
	5.5' Port	5' Port	4.5' Port	4' Port	3.5' Port	3' Port	5.5' Port	5' Port	4.5' Port	4' Port
TSS in mg/L	30	12	15	12	19	23	12.2	13	10	11
Turbidity (NTU)	1.7	1.1	1.5	1.5	1.6	1.5	1.9	2.9	2.1	3.5

Sample ID and Ports Sampled	#31	#32	#33	#34	#35	#36	#37	#38	#39	#40
	3.5' Port	3' Port	2.5' Port	5.5' Port	5' Port	4.5' Port	4' Port	3.5' Port	3' Port	2.5' Port
TSS in mg/L	20	14	13	18.8	15	12.4	15	10	13	30
Turbidity (NTU)	5.8	2.2	8.2	1.9	1.7	1.2	1.2	1.3	1.1	1.0

Sample ID and Ports Sampled	#41	#42	#43	#44	#45	#46	#47	#48	#49	#50
	5.5' Port	5' Port	4.5' Port	4' Port	3.5' Port	3' Port	2.5' Port	5.5' Port	5' Port	4.5' Port
TSS in mg/L	10	16	11	16	21	18	25	14	15	19
Turbidity (NTU)	1.8	1.5	0.8	0.7	0.7	0.7	1.9	1.8	2.5	1.8

Sample ID and Ports Sampled	#51	#52	#53	#54	#55					
	4' Port	3.5' Port	3' Port	2.5' Port	2' Port					
TSS in mg/L	15	7	9	22	30					
Turbidity (NTU)	2.3	2.2	2.2	3.9	2.4					

SUMMARY OF SETTLING COLUMN TEST RESULTS

TOTAL SUSPENDED SOLIDS CONCENTRATION
COASTAL PROTECTION AND RESTORATION AUTHORITY
CAMINADA HEADLANDS BACK BARRIER MARSH CREATION PROJECT (BA-171)
LAFOURCHE PARISH, LOUISIANA
EUSTIS ENGINEERING PROJECT NO. 22729

Port Height in feet	TSS Concentration in mg/L									
	Time of Port Sampling in hours									
	7	12	24	48	72	96	144	216	288	360
2	BI	BI	BI	BI	BI	BI	BI	BI	BI	30
2.5	BI	BI	BI	BI	BI	BI	13	30	25	22
3	BI	BI	BI	70	33	23	14	13	18	9
3.5	BI	BI	BI	18	31	19	20	10	21	7
4	BI	BI	BI	51	50	12	11	15	16	15
4.5	BI	BI	24	22	10	15	10	12	11	19
5	BI	BI	38	17	12	12	13	15	16	15
5.5	BI	BI	41	12	23	30	12	19	10	14
6	49	28	25	11	26	--	--	--	--	--

Initial Concentration = 49 mg/L (i.e. concentration of first sample taken at the highest port)

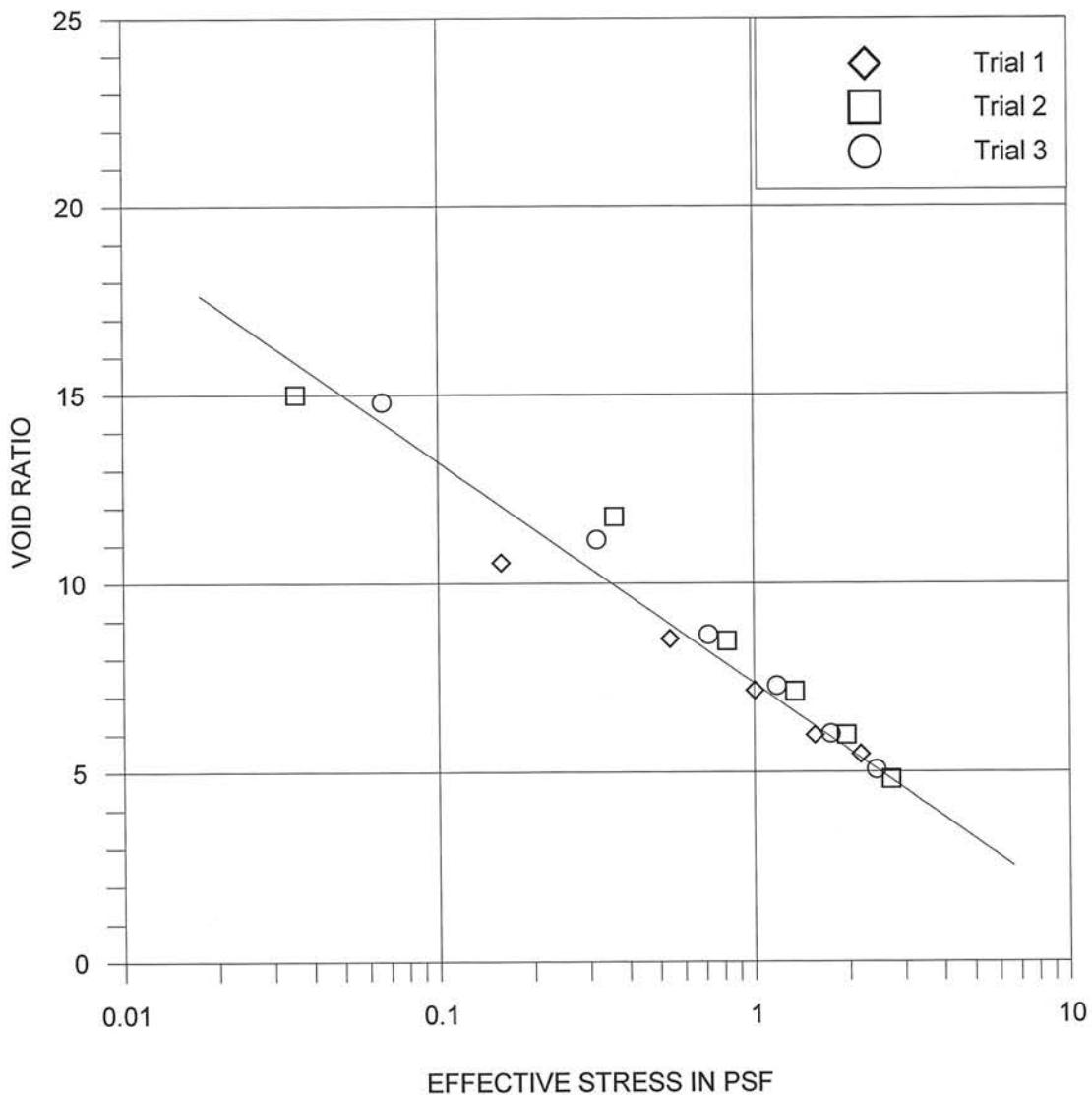
Port Height in feet	Percent of Initial TSS Concentration									
	Time of Port Sampling in hours									
	7	12	24	48	72	96	144	216	288	360
2	BI	BI	BI	BI	BI	BI	BI	BI	BI	61
2.5	BI	BI	BI	BI	BI	BI	BI	61	51	45
3	BI	BI	BI	BI	67	47	29	27	37	18
3.5	BI	BI	BI	37	63	39	41	20	43	14
4	BI	BI	BI	104	102	24	22	31	33	31
4.5	BI	BI	49	45	20	31	20	25	22	39
5	BI	BI	78	35	24	24	27	31	33	31
5.5	BI	BI	84	24	47	61	25	38	20	29
6	100	57	51	22	53	--	--	--	--	--

BI = Port is Below Interface, and no sample was collected at the time of interval.

-- = Sample not collected nor tested at this time of interval.

APPENDIX IV
SELF-WEIGHT CONSOLIDATION TEST RESULTS

**SELF-WEIGHT CONSOLIDATION TEST RESULTS
VOID RATIO VS. EFFECTIVE STRESS
SAMPLE SC-1
TRIALS 1 THROUGH 3**



Fit Results

Fit 3: Log

$$\text{Equation Y} = -2.547790057 * \ln(X) + 7.348446487$$

Number of data points used = 17

Average $\ln(X)$ = -0.566995

Average Y = 8.79303

Residual sum of squares = 36.3181

Regression sum of squares = 219.634

Coef of determination, R-squared = 0.858106

Residual mean square, sigma-hat-sq'd = 2.4212



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**SELF-WEIGHT CONSOLIDATION TEST RESULTS
VOID RATIO VS. EFFECTIVE STRESS
SAMPLE SC-1**

STATE OF LOUISIANA
COASTAL PROTECTION AND RESTORATION AUTHORITY
CAMILADA HEADLANDS BACK BARRIER MARSH
CREATION PROJECT (BA-171)
LAFOURCHE PARISH, LOUISIANA

DRAWN BY: J.F.M.

23 JUNE 2015

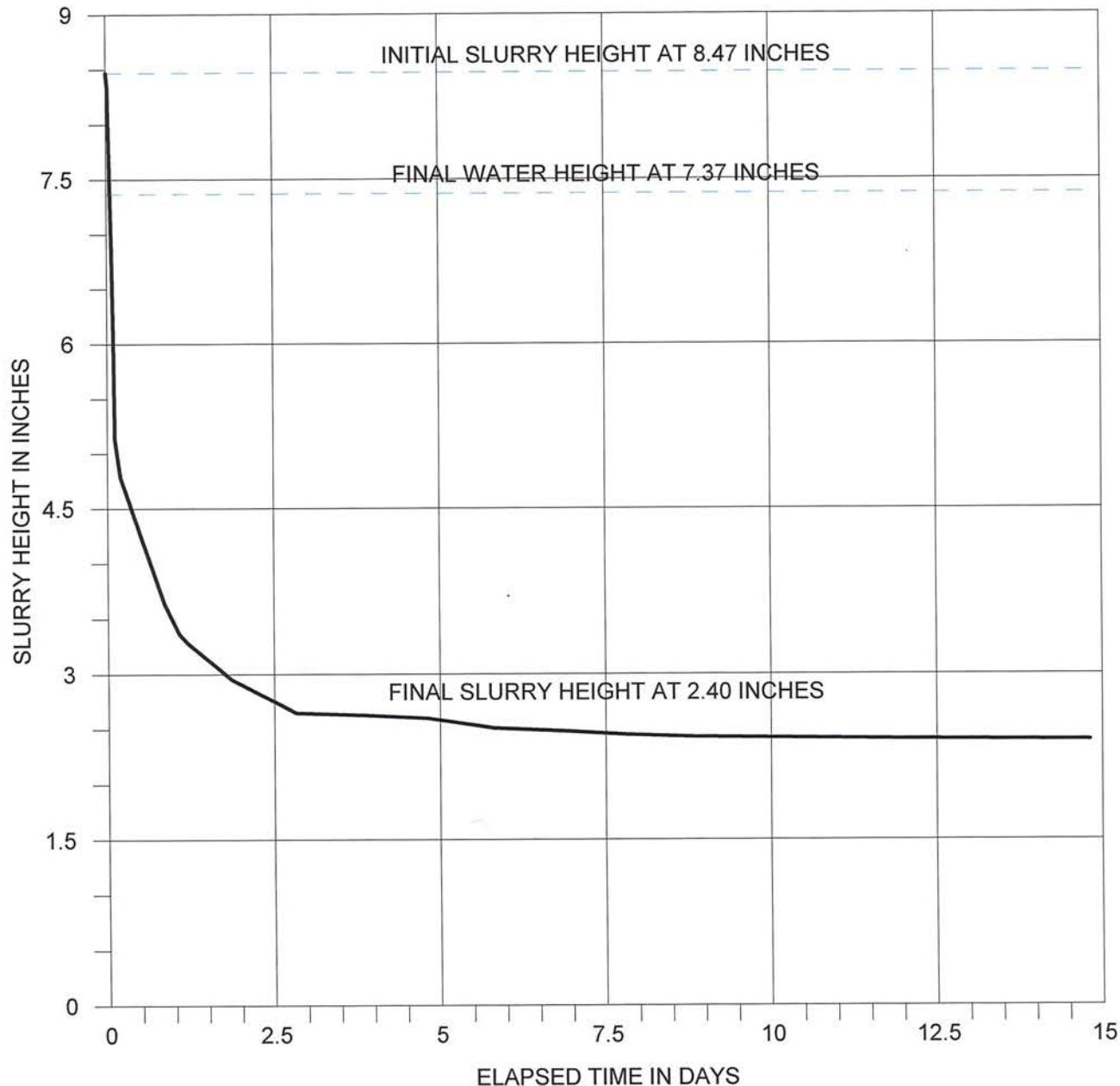
FILE: E_VS_EF_ST.GRF

CHECKED BY: K.R.D.

JOB NO.: 22739

APPENDIX IV

SELF-WEIGHT CONSOLIDATION TEST RESULTS
SLURRY HEIGHT VS. ELAPSED TIME
SAMPLE NO. SC-1
TRIAL 1



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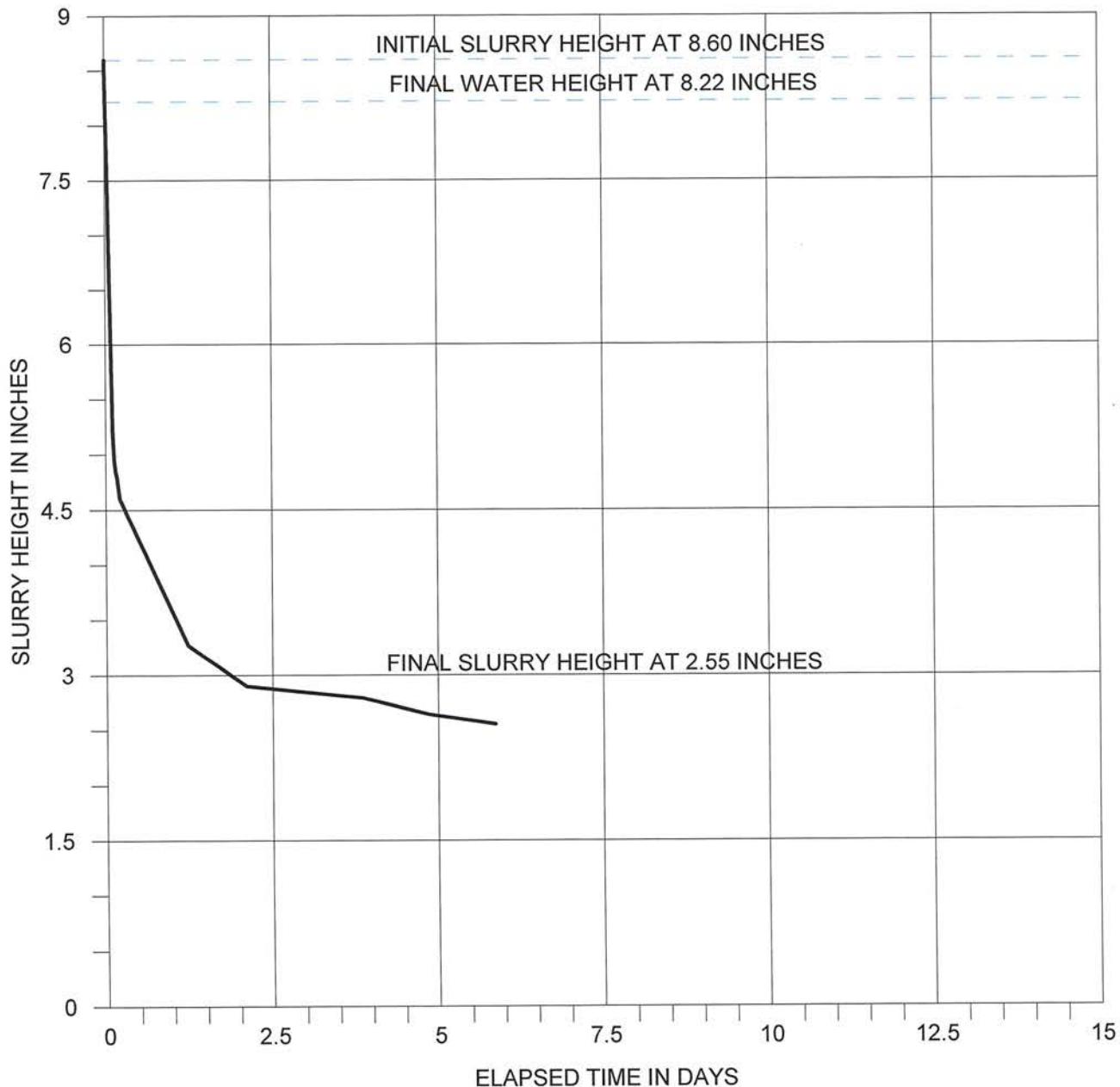
SELF-WEIGHT CONSOLIDATION TEST RESULTS
SLURRY HEIGHT VS. ELAPSED TIME
SAMPLE SC-1, TRIAL 1

STATE OF LOUISIANA
COASTAL PROTECTION AND RESTORATION AUTHORITY
CAMINADA HEADLANDS BACK BARRIER MARSH
CREATION PROJECT (BA-171)
LAFOURCHE PARISH, LOUISIANA

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SELF-WEIGHT CONSOLIDATION TEST RESULTS
SLURRY HEIGHT VS. ELAPSED TIME
SAMPLE NO. SC-1
TRIAL 2



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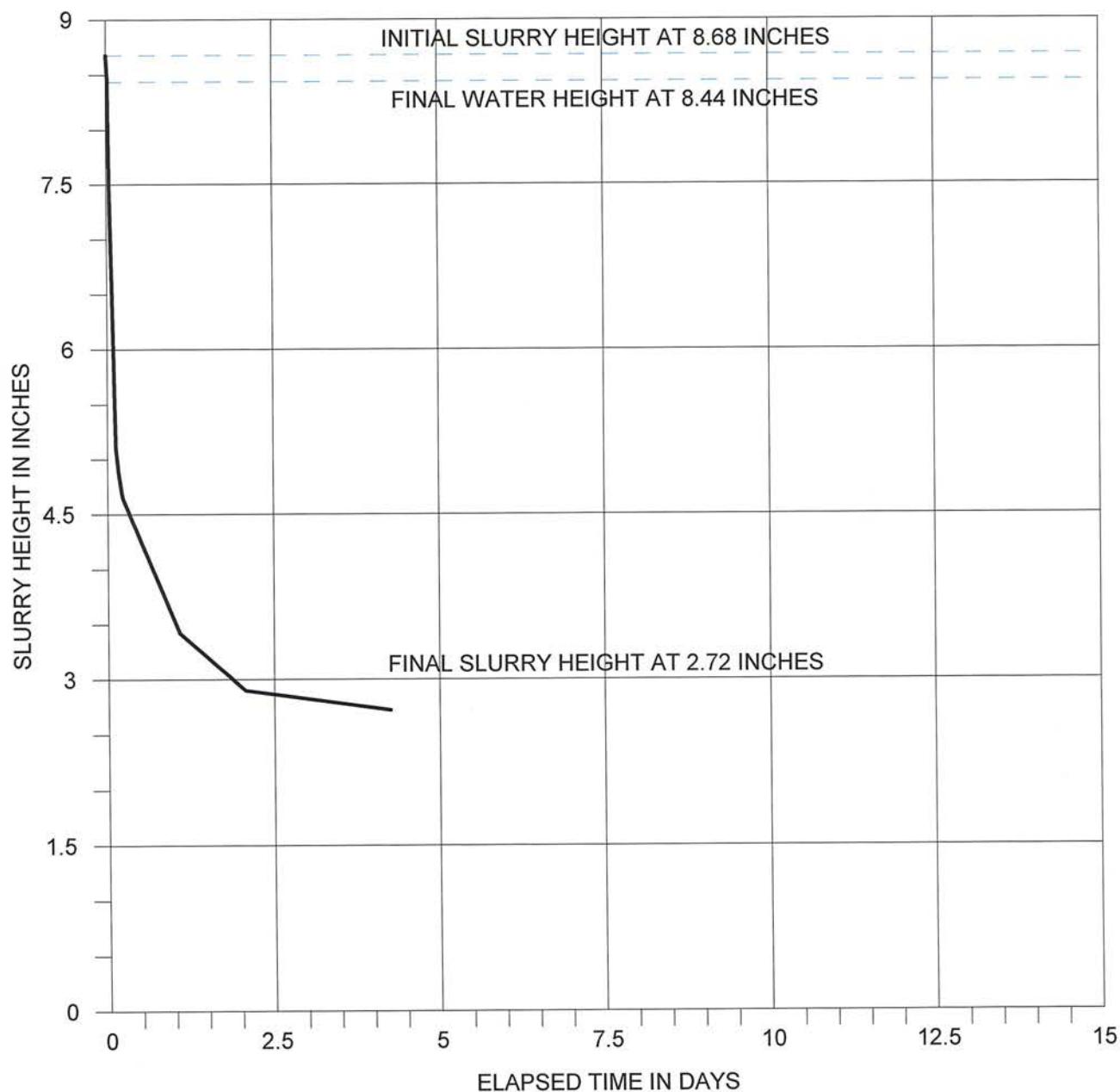
SELF-WEIGHT CONSOLIDATION TEST RESULTS
SLURRY HEIGHT VS. ELAPSED TIME
SAMPLE SC-1, TRIAL 2

STATE OF LOUISIANA
COASTAL PROTECTION AND RESTORATION AUTHORITY
CAMILADA HEADLANDS BACK BARRIER MARSH
CREATION PROJECT (BA-171)
LAFOURCHE PARISH, LOUISIANA

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SELF-WEIGHT CONSOLIDATION TEST RESULTS
SLURRY HEIGHT VS. ELAPSED TIME
SAMPLE NO. SC-1
TRIAL 3



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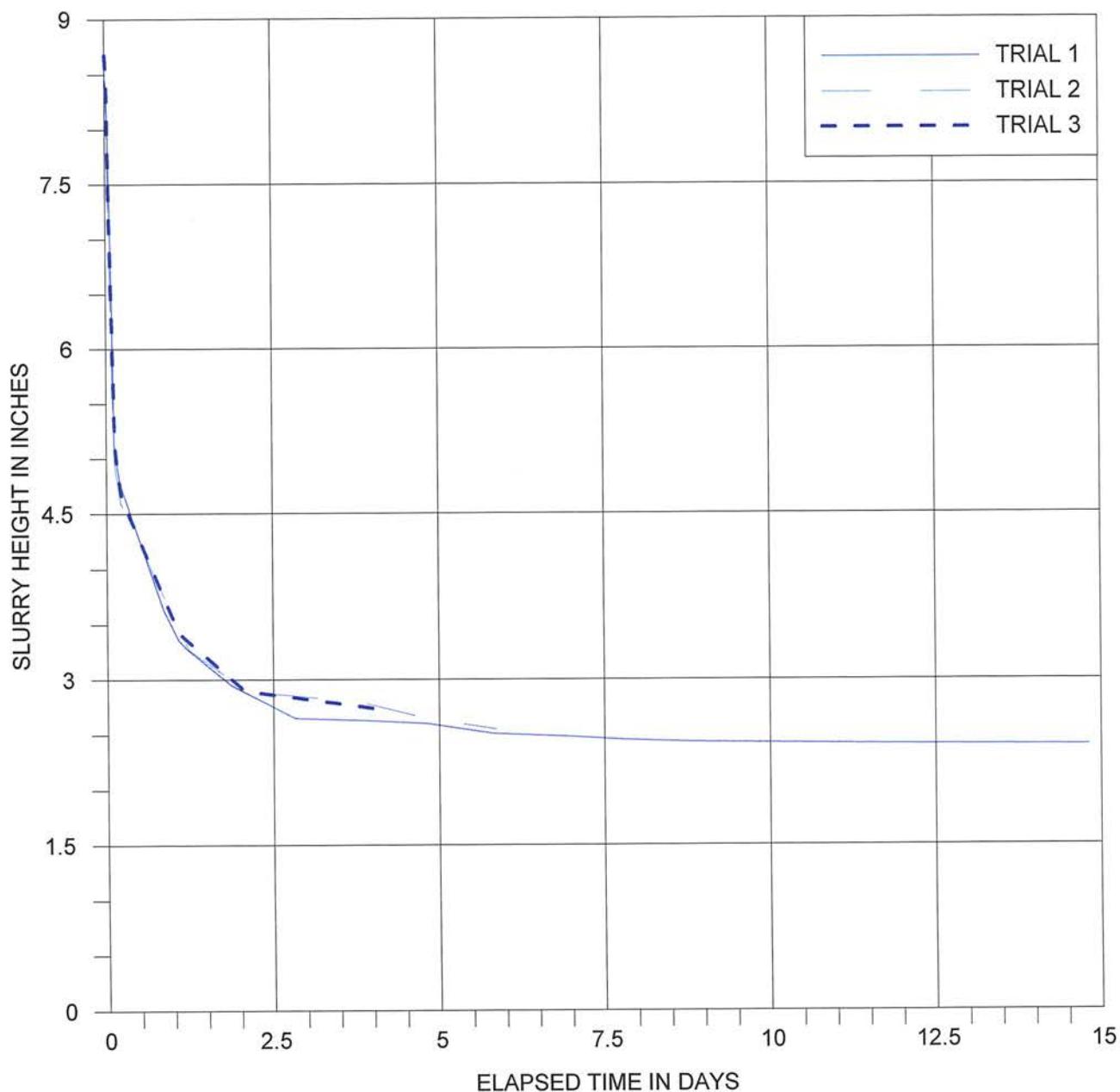
SELF-WEIGHT CONSOLIDATION TEST RESULTS
SLURRY HEIGHT VS. ELAPSED TIME
SAMPLE SC-1, TRIAL 3

STATE OF LOUISIANA
COASTAL PROTECTION AND RESTORATION AUTHORITY
CAMILADA HEADLANDS BACK BARRIER MARSH
CREATION PROJECT (BA-171)
LAFOURCHE PARISH, LOUISIANA

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SELF-WEIGHT CONSOLIDATION TEST RESULTS
SLURRY HEIGHT VS. ELAPSED TIME
SAMPLE NO. SC-1
TRIALS 1 THROUGH 3



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SELF-WEIGHT CONSOLIDATION TEST RESULTS
SLURRY HEIGHT VS. ELAPSED TIME
SAMPLE SC-1, TRIALS 1 THROUGH 3

STATE OF LOUISIANA
COASTAL PROTECTION AND RESTORATION AUTHORITY
CAMILNADA HEADLANDS BACK BARRIER MARSH
CREATION PROJECT (BA-171)
LAFOURCHE PARISH, LOUISIANA

DRAWN BY: J.F.M. 24 JUNE 2015 FILE: S_VS_T_3.GRF

CHECKED BY: K.R.D. JOB NO.: 22729 APPENDIX IV

LOUISIANA, STATE OF
COASTAL PROTECTION AND RESTORATION AUTHORITY
CAMINADA HEADLANDS BACK BARRIER MARSH CREATION PROJECT (BA-171)
LAFOURCHE PARISH, LOUISIANA
EUSTIS ENGINEERING PROJECT NO. 22729

SELF-WEIGHT CONSOLIDATION TEST RESULTS
SAMPLE NO. SC-1
TRIAL NO. 1

INDEX TEST RESULTS

SPECIFIC GRAVITY	SALINITY (PPT)	SAND CONTENT (%)			FINES CONTENT (%)			ORGANIC CONTENT (%)	NATURAL WATER CONTENT (%)
		COARSE	MEDIUM	FINE	SILT	CLAY	< 0.0012 mm		
2.693	N/D	0.0	0.1	4.7	34.5	60.7	42.8	4.108	41.93

SELF-WEIGHT CONSOLIDATION TEST RESULTS

START DATE AND TIME	END DATE AND TIME	TOTAL ELAPSED TIME D:H:M	INITIAL SLURRY CONCENTRATION (G/L)	INITIAL SLURRY HEIGHT (IN.)	FINAL SOIL HEIGHT (IN.)	FINAL WATER DEPTH (IN.)	WATER TEMPERATURE (°C)			DENSITY OF WATER BASED ON FINAL TEMPERATURE (PCF)
							LOWER LIMIT	UPPER LIMIT	FINAL	
5/13/2015 11:15	5/28/2015 08:00	14:20:45	115.9	8.47	2.40	4.97	22.8	23.8	22.8	62.28

STRATUM NO.	DEPTH TO TOP OF STRATUM BELOW MUDLINE (IN.)	DEPTH TO BOTTOM OF STRATUM BELOW MUDLINE (IN.)	SAMPLE VOLUME (CU. IN.) V_T	WEIGHT OF SOLIDS (GRAMS) W_s	WEIGHT OF WATER (GRAMS) W_w	MOISTURE CONTENT (%) w	TOTAL UNIT WEIGHT (PCF) γ_T	EFFECTIVE UNIT WEIGHT (PCF) γ'	DRY UNIT WEIGHT (PCF) γ_D	VOLUME OF SOLIDS (CU. IN.) V_s	VOLUME OF WATER (CU. IN.) V_w	VOLUME OF AIR (CU. IN.) V_A	VOLUME OF voids (CU. IN.) V_v	VOID RATIO e	POROSITY (%) n	DEGREE OF SATURATION (%) S	EFFECTIVE STRESS AT MID STRATUM (PSF) σ'
1	0	0.42	12.07	44.81	180.23	402.21	71.03	8.75	14.14	1.02	10.74	0.00	11.02	10.55	91.34	100.00	0.16
2	0.42	0.91	13.99	64.60	204.06	315.88	73.18	10.90	17.60	1.47	12.48	0.04	12.52	8.53	89.51	99.71	0.54
3	0.91	1.41	14.06	75.92	197.82	260.56	74.17	11.89	20.57	1.72	12.10	0.24	12.34	7.15	87.74	98.09	1.01
4	1.41	1.91	14.07	88.77	195.50	220.23	76.97	14.70	24.04	2.02	11.96	0.09	12.05	5.98	85.67	99.22	1.55
5	1.91	2.40	14.05	95.56	189.36	198.16	77.24	14.96	25.91	2.17	11.58	0.30	11.88	5.47	84.55	97.48	2.17

LOUISIANA, STATE OF
COASTAL PROTECTION AND RESTORATION AUTHORITY
CAMINADA HEADLANDS BACK BARRIER MARSH CREATION PROJECT (BA-171)
LAFOURCHE PARISH, LOUISIANA
EUSTIS ENGINEERING PROJECT NO. 22729

SELF-WEIGHT CONSOLIDATION TEST RESULTS
SAMPLE NO. SC-1
TRIAL NO. 2

INDEX TEST RESULTS

SPECIFIC GRAVITY	SALINITY (PPT)	SAND CONTENT (%)			FINES CONTENT (%)			ORGANIC CONTENT (%)	NATURAL WATER CONTENT (%)
		COARSE	MEDIUM	FINE	SILT	CLAY	< 0.0012 mm		
2.693	N/D	0.0	0.1	4.7	34.5	60.7	42.8	4.108	41.93

SELF-WEIGHT CONSOLIDATION TEST RESULTS

START DATE AND TIME	END DATE AND TIME	TOTAL ELAPSED TIME D:H:M	INITIAL SLURRY CONCENTRATION (G/L)	INITIAL SLURRY HEIGHT (IN.)	FINAL SOIL HEIGHT (IN.)	FINAL WATER DEPTH (IN.)	WATER TEMPERATURE (°C)			DENSITY OF WATER BASED ON FINAL TEMPERATURE (PCF)
							LOWER LIMIT	UPPER LIMIT	FINAL	
5/29/2015 10:38	6/4/2015 07:30	5:20:52	115.9	8.60	2.55	5.67	22.2	23.4	23.2	62.27

STRATUM NO.	DEPTH TO TOP OF STRATUM BELOW MUDLINE (IN.)	DEPTH TO BOTTOM OF STRATUM BELOW MUDLINE (IN.)	SAMPLE VOLUME (CU. IN.) V_T	WEIGHT OF SOLIDS (GRAMS) W_s	WEIGHT OF WATER (GRAMS) W_w	MOISTURE CONTENT (%) ω	TOTAL UNIT WEIGHT (PCF) γ_T	EFFECTIVE UNIT WEIGHT (PCF) γ'	DRY UNIT WEIGHT (PCF) γ_D	VOLUME OF SOLIDS (CU. IN.) V_s	VOLUME OF WATER (CU. IN.) V_w	VOLUME OF AIR (CU. IN.) V_A	VOLUME OF voids (CU. IN.) V_v	VOID RATIO e	POROSITY (%) n	DEGREE OF SATURATION (%) S	EFFECTIVE STRESS AT MID STRATUM (PSF) σ'
1	0	0.06	1.82	5.01	27.91	557.00	68.86	6.59	10.48	0.11	1.75	0.00	1.71	15.00	93.75	100.00	0.02
2	0.06	0.56	13.97	48.17	209.20	434.30	70.18	7.91	13.13	1.09	12.80	0.08	12.88	11.77	92.17	99.39	0.20
3	0.56	1.06	13.99	65.01	204.54	314.63	73.42	11.15	17.71	1.48	12.51	0.00	12.51	8.47	89.47	100.00	0.59
4	1.06	1.55	14.06	76.14	200.47	263.29	74.94	12.67	20.63	1.73	12.26	0.07	12.33	7.13	87.70	99.46	1.08
5	1.56	2.05	14.07	88.73	195.98	220.87	77.09	14.82	24.03	2.02	11.99	0.06	12.05	5.98	85.67	99.47	1.65
	2.05	2.55	106.58	106.58	189.88	178.16	80.37	18.10	28.89	2.42	11.62	0.02	11.63	4.80	82.77	99.87	2.33

LOUISIANA, STATE OF
COASTAL PROTECTION AND RESTORATION AUTHORITY
CAMINADA HEADLANDS BACK BARRIER MARSH CREATION PROJECT (BA-171)
LAFOURCHE PARISH, LOUISIANA
EUSTIS ENGINEERING PROJECT NO. 22729

SELF-WEIGHT CONSOLIDATION TEST RESULTS
SAMPLE NO. SC-1
TRIAL NO. 3

INDEX TEST RESULTS

SPECIFIC GRAVITY	SALINITY (PPT)	SAND CONTENT (%)			FINES CONTENT (%)			ORGANIC CONTENT (%)	NATURAL WATER CONTENT (%)
		COARSE	MEDIUM	FINE	SILT	CLAY	< 0.0012 mm		
2.693	N/D	0.0	0.1	4.7	34.5	60.7	42.8	4.108	41.93

SELF-WEIGHT CONSOLIDATION TEST RESULTS

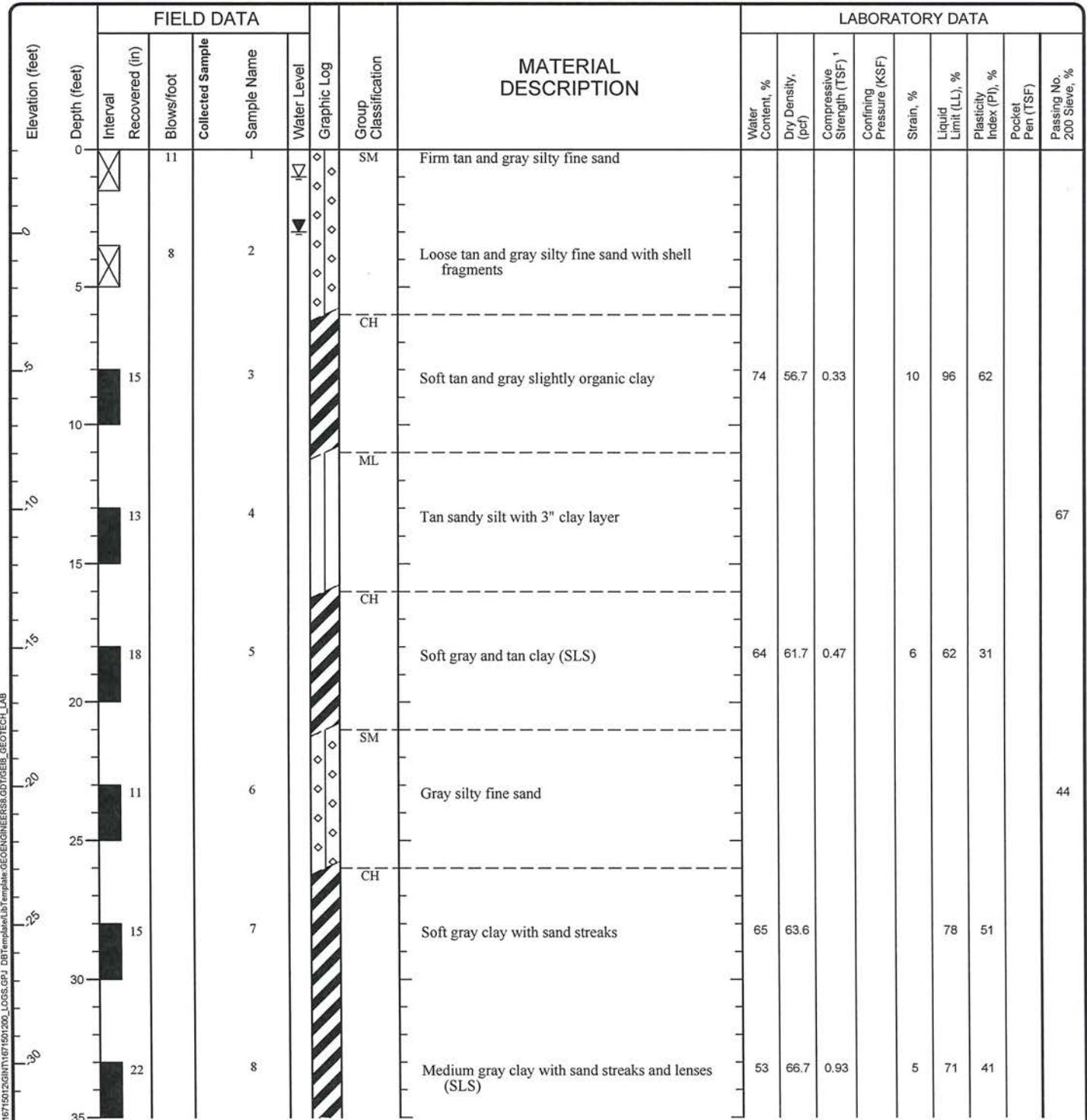
START DATE AND TIME	END DATE AND TIME	TOTAL ELAPSED TIME D:H:M	INITIAL SLURRY CONCENTRATION (G/L)	INITIAL SLURRY HEIGHT (IN.)	FINAL SOIL HEIGHT (IN.)	FINAL WATER DEPTH (IN.)	WATER TEMPERATURE (°C)			DENSITY OF WATER BASED ON FINAL TEMPERATURE (PCF)
							LOWER LIMIT	UPPER LIMIT	FINAL	
6/5/2015 10:05	6/9/2015 16:24	4:6:19	115.9	8.68	2.72	5.72	23.5	23.8	23.5	62.27

STRATUM NO.	DEPTH TO TOP OF STRATUM BELOW MUMLINE (IN.)	DEPTH TO BOTTOM OF STRATUM BELOW MUMLINE (IN.)	SAMPLE VOLUME (CU. IN.) V_T	WEIGHT OF SOLIDS (GRAMS) W_s	WEIGHT OF WATER (GRAMS) W_w	MOISTURE CONTENT (%) w	TOTAL UNIT WEIGHT (PCF) γ_t	EFFECTIVE UNIT WEIGHT (PCF) γ'	DRY UNIT WEIGHT (PCF) γ_d	VOLUME OF SOLIDS (CU. IN.) V_s	VOLUME OF WATER (CU. IN.) V_w	VOLUME OF AIR (CU. IN.) V_A	VOLUME OF voids (CU. IN.) V_v	VOID RATIO e	POROSITY (%) n	DEGREE OF SATURATION (%) S	EFFECTIVE STRESS AT MID STRATUM (PSF) σ'
1	0	0.24	6.76	18.84	103.54	549.57	68.94	6.67	10.61	0.43	6.33	0.00	6.33	14.80	93.67	100.00	0.07
2	0.24	0.73	13.97	50.81	210.46	414.21	71.24	8.98	13.85	1.15	12.88	0.00	12.88	11.15	92.16	100.00	0.32
3	0.73	1.23	13.99	63.86	202.94	317.79	72.67	10.41	17.39	1.45	12.42	0.12	12.54	8.64	89.63	99.05	0.72
4	1.23	1.73	14.06	74.75	200.65	268.43	74.62	12.35	20.25	1.70	12.28	0.09	12.36	7.28	87.92	99.30	1.18
5	1.73	2.22	14.07	88.38	197.30	223.24	77.36	15.09	23.93	2.01	12.07	0.00	12.07	6.01	85.80	100.00	1.75
6	2.23	2.72	14.05	102.80	193.23	187.97	80.25	17.98	27.87	2.34	11.82	0.00	11.82	5.06	84.13	100.00	2.44

APPENDIX V

SELECTED BORING LOGS FROM
GEOENGINEERS' REPORT DATED 8 SEPTEMBER 2010

Drilled	Start 7/13/2010	End 7/13/2010	Total Depth (ft)	60	Logged By DAS Checked By JMP	Driller GeoEngineers, Inc.	Drilling Method	Rotary Wash
Surface Elevation (ft) Vertical Datum			3.1		Hammer Data	Safety Hammer/Cathead 140 (lbs) / 30 (in) Drop		ARDCO ATV
Latitude Longitude			N29° 07' 40.3" W90° 09' 00.2"		System Datum	Geographic NAVD88		Groundwater Date Measured
Notes: See Figure A-1 for explanation of symbols. Cement-bentonite grout backfill top 25 feet.						Depth to Water (ft)		Elevation (ft)
						7/13/2010		1.0 2.1



¹An Asterisk indicates a remold was used for strength testing.

Log of Boring B-8

Baton Rouge, Louisiana: Date 8/27/10 Path:P:\161\16715012\GILM\1671501200_Logs.gpr DBTemplate\Logs\Logs.gpr	Project: Caminada Headland Beach and Dune (BA-45)
	Project Location: LaFourche & Jefferson Parishes, Louisiana
	Project Number: 16715-012-00

¹An Asterisk indicates a remold was used for strength testing.

Log of Boring B-8 (continued)

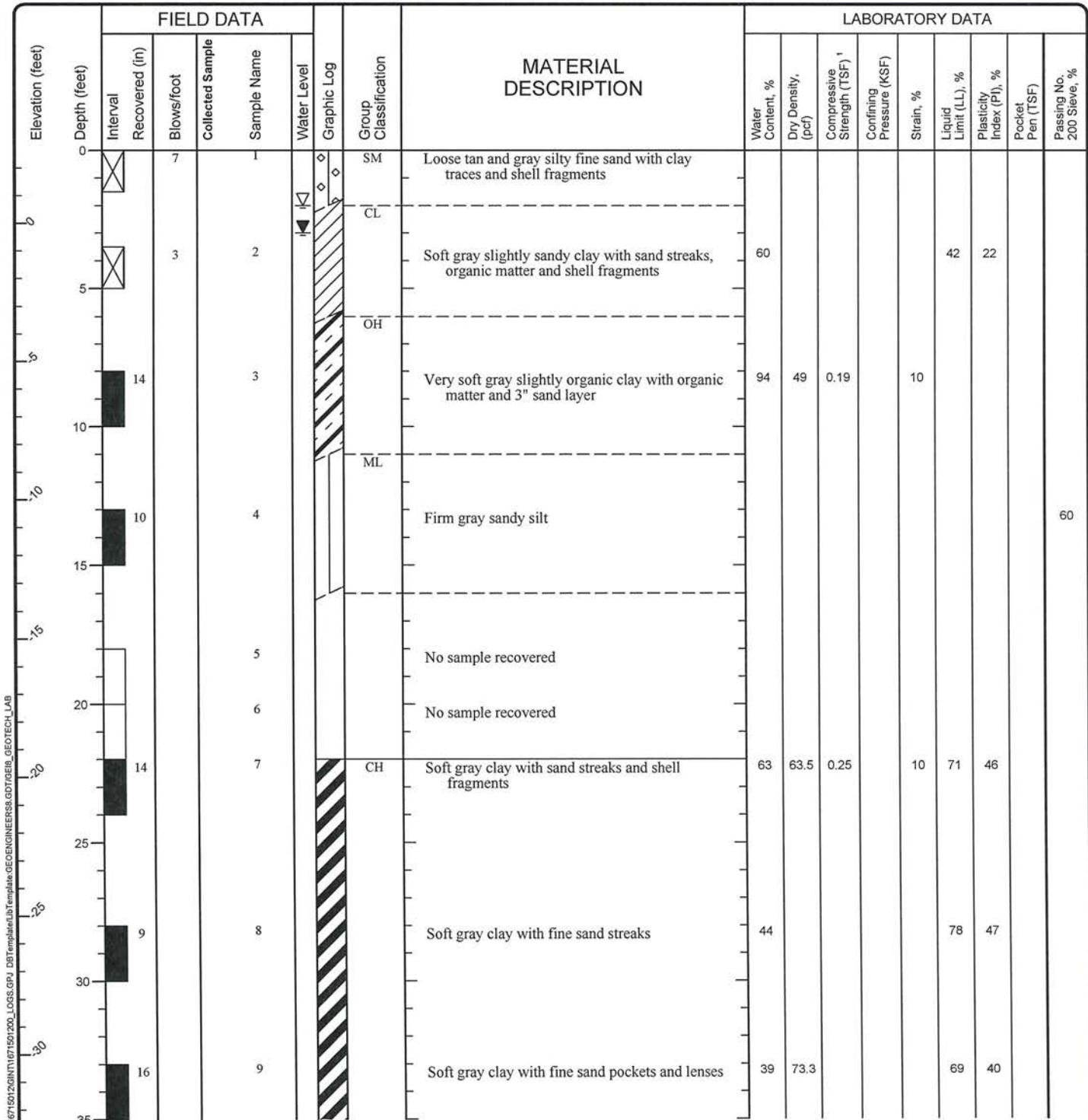


Project: Caminada Headland Beach and Dune (BA-45)
Project Location: LaFourche & Jefferson Parishes, Louisiana
Project Number: 16715-012-00

Figure A-8
Sheet 2 of 2

Drilled	Start 7/14/2010	End 7/14/2010	Total Depth (ft)	100	Logged By DAS Checked By JMP	Driller GeoEngineers, Inc.	Drilling Method ARDCO ATV	Rotary Wash
Surface Elevation (ft) Vertical Datum			2.6		Hammer Data	Safety Hammer/Cathead 140 (lbs) / 30 (in) Drop	Drilling Equipment	
Latitude	N29° 08' 02.7"		System Datum	Geographic NAVD88		Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
Longitude	W90° 08' 24.1"					7/14/2010	2.0	0.6

Notes: See Figure A-1 for explanation of symbols.
Cement-bentonite grout backfill top 25 feet.

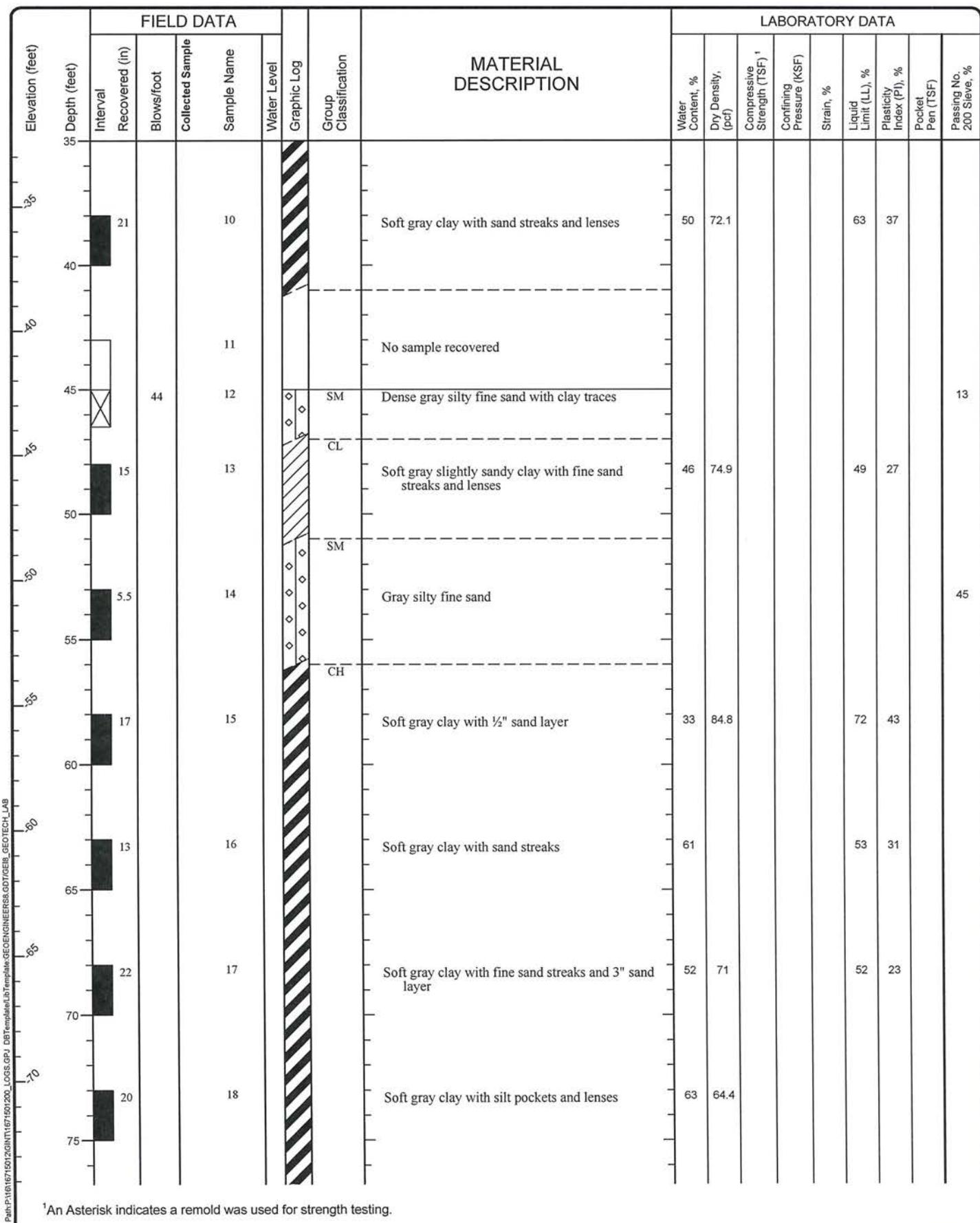


¹An Asterisk indicates a remold was used for strength testing.

Log of Boring B-9



Project: Caminada Headland Beach and Dune (BA-45)
Project Location: LaFourche & Jefferson Parishes, Louisiana
Project Number: 16715-012-00



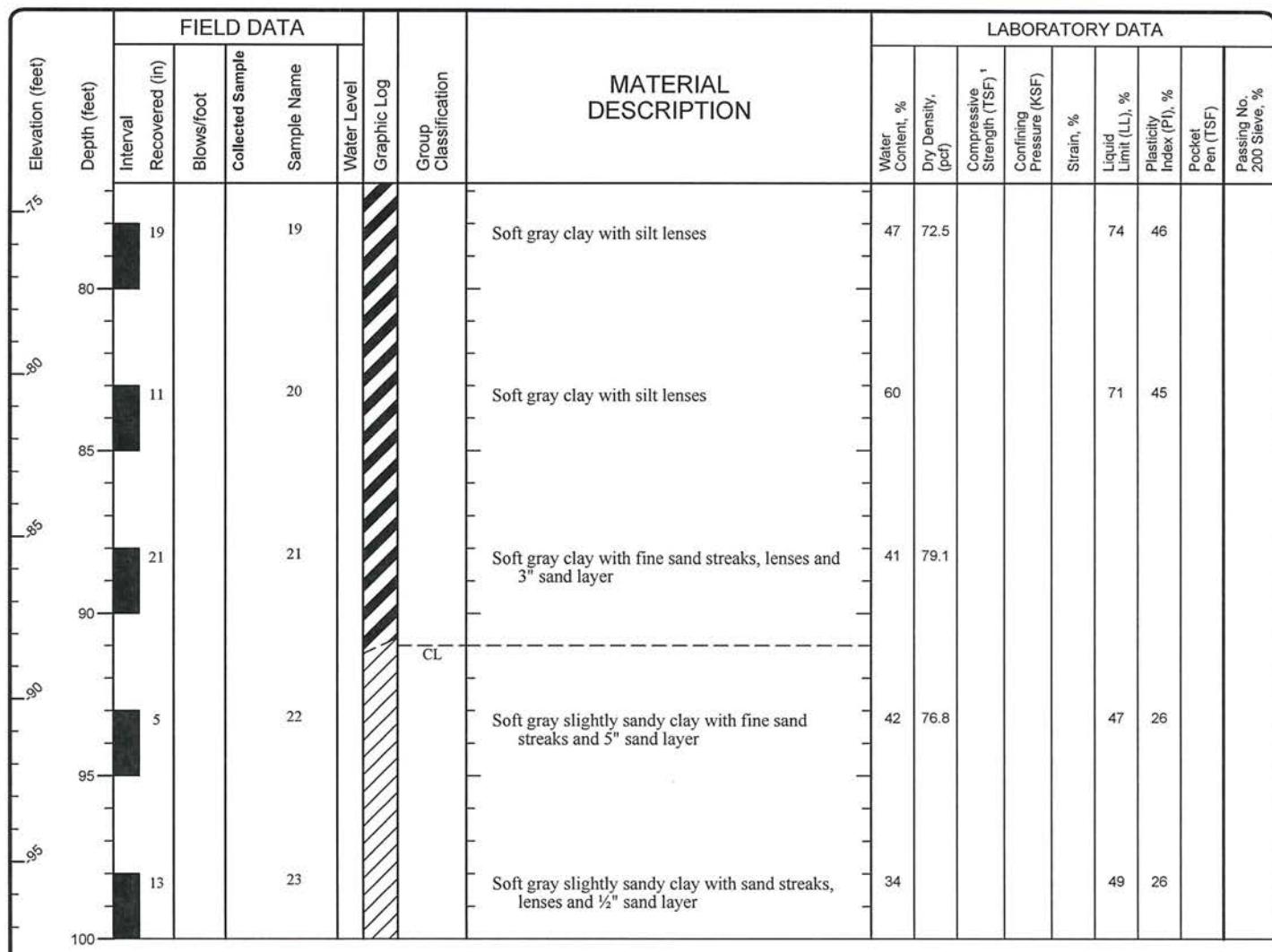
¹An Asterisk indicates a remold was used for strength testing.

Log of Boring B-9 (continued)



Project: Caminada Headland Beach and Dune (BA-45)
Project Location: LaFourche & Jefferson Parishes, Louisiana
Project Number: 16715-012-00

Figure A-9
Sheet 2 of 3



¹An Asterisk indicates a remold was used for strength testing.

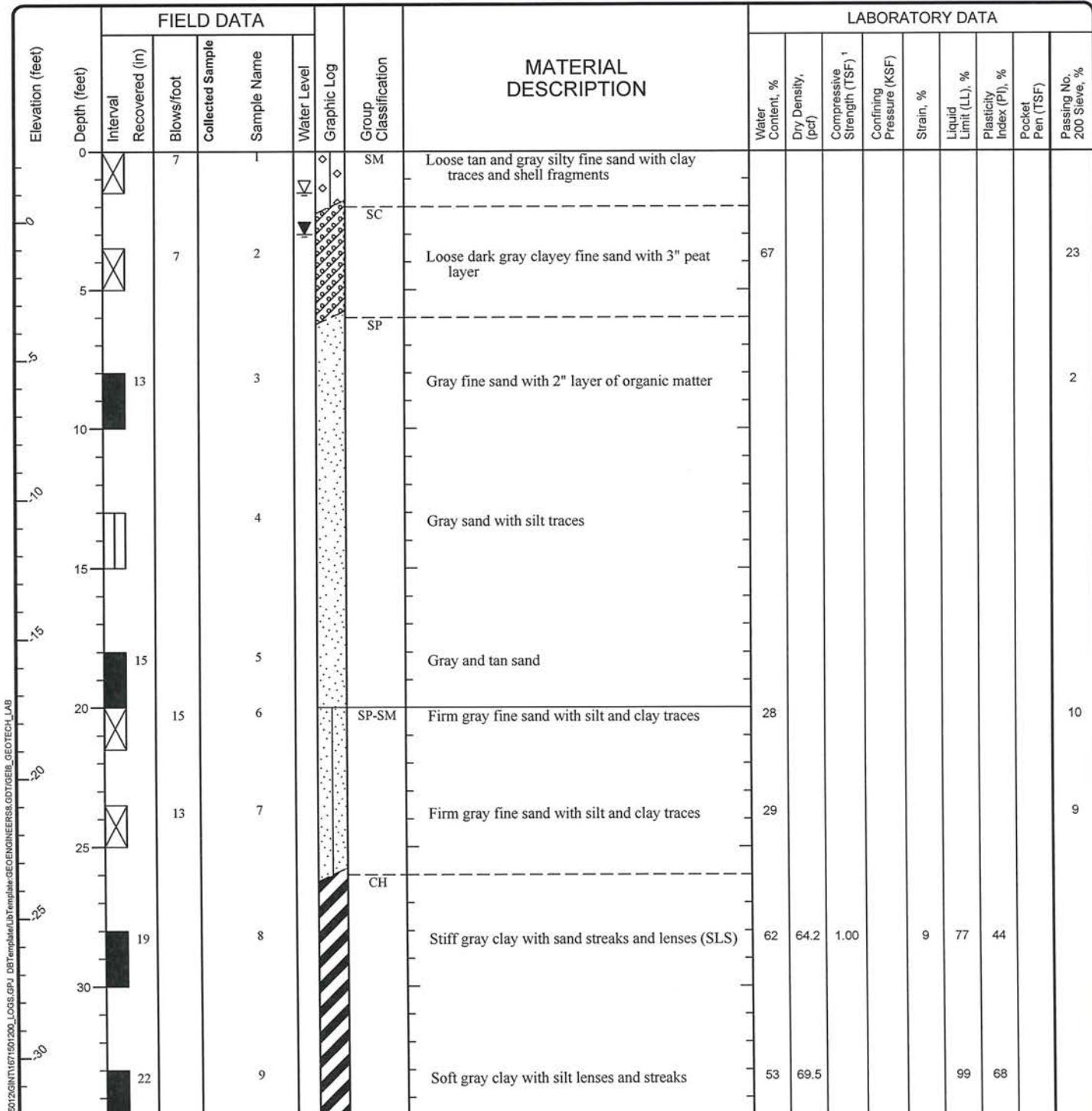
Log of Boring B-9 (continued)



Project: Caminada Headland Beach and Dune (BA-45)
Project Location: LaFourche & Jefferson Parishes, Louisiana
Project Number: 16715-012-00

Figure A-9
Sheet 3 of 3

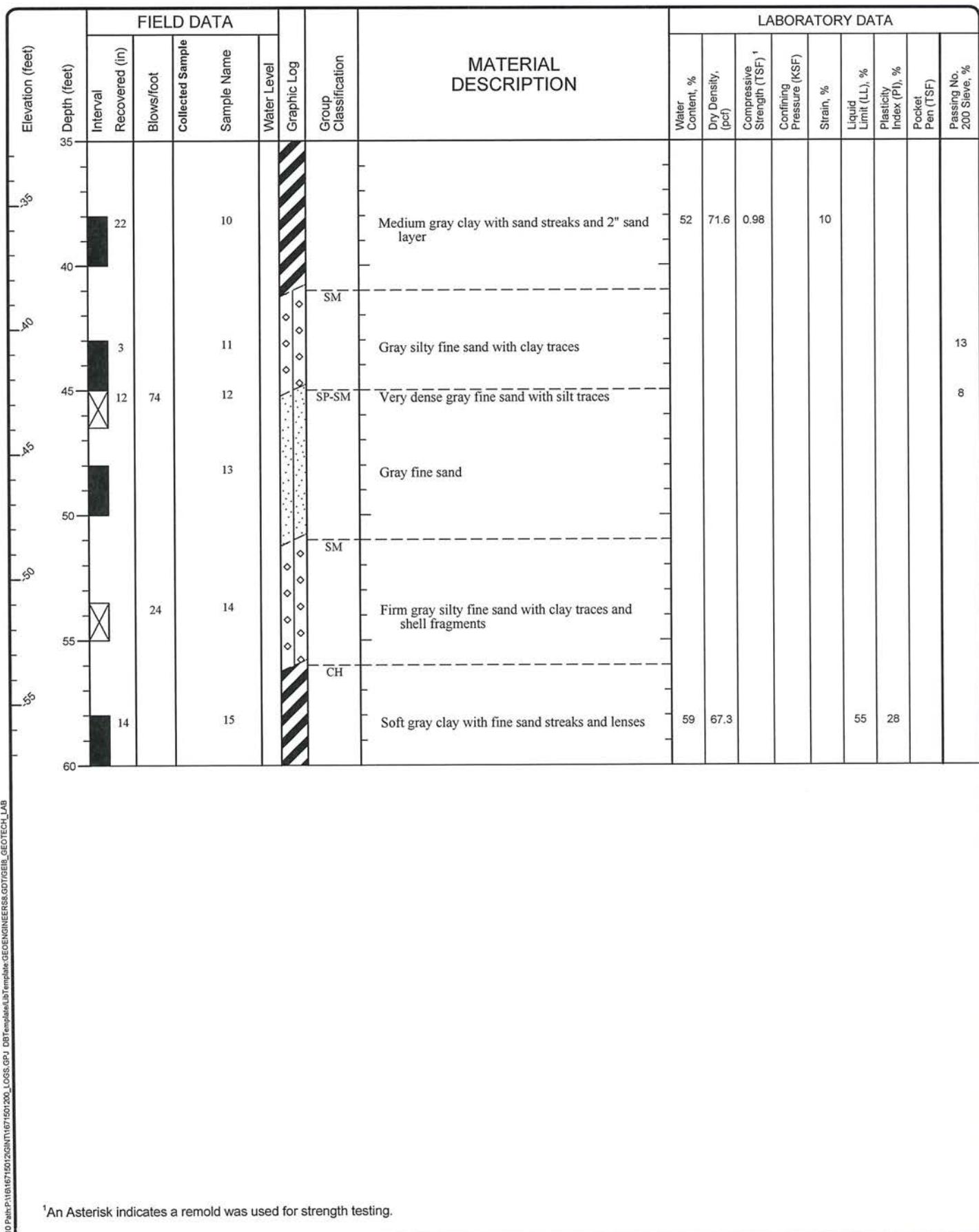
Drilled	Start 7/14/2010	End 7/15/2010	Total Depth (ft)	60	Logged By DAS Checked By JMP	Driller GeoEngineers, Inc.	Drilling Method ARDCO ATV	Rotary Wash
Surface Elevation (ft) Vertical Datum			2.6		Hammer Data	Safety Hammer/Cathead 140 (lbs) / 30 (in) Drop		
Latitude Longitude			N29° 08' 26.8" W90° 07' 46.5"		System Datum	Geographic NAVD88		
Notes: See Figure A-1 for explanation of symbols. Cement-bentonite grout backfill top 25 feet.					Groundwater Date Measured 7/14/2010	Depth to Water (ft) 1.5	Elevation (ft) 1.1	



¹An Asterisk indicates a remold was used for strength testing.

Log of Boring B-10

GEOENGINEERS	Project: Caminada Headland Beach and Dune (BA-45) Project Location: LaFourche & Jefferson Parishes, Louisiana Project Number: 16715-012-00	Figure A-10 Sheet 1 of 2
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¹An Asterisk indicates a remold was used for strength testing.

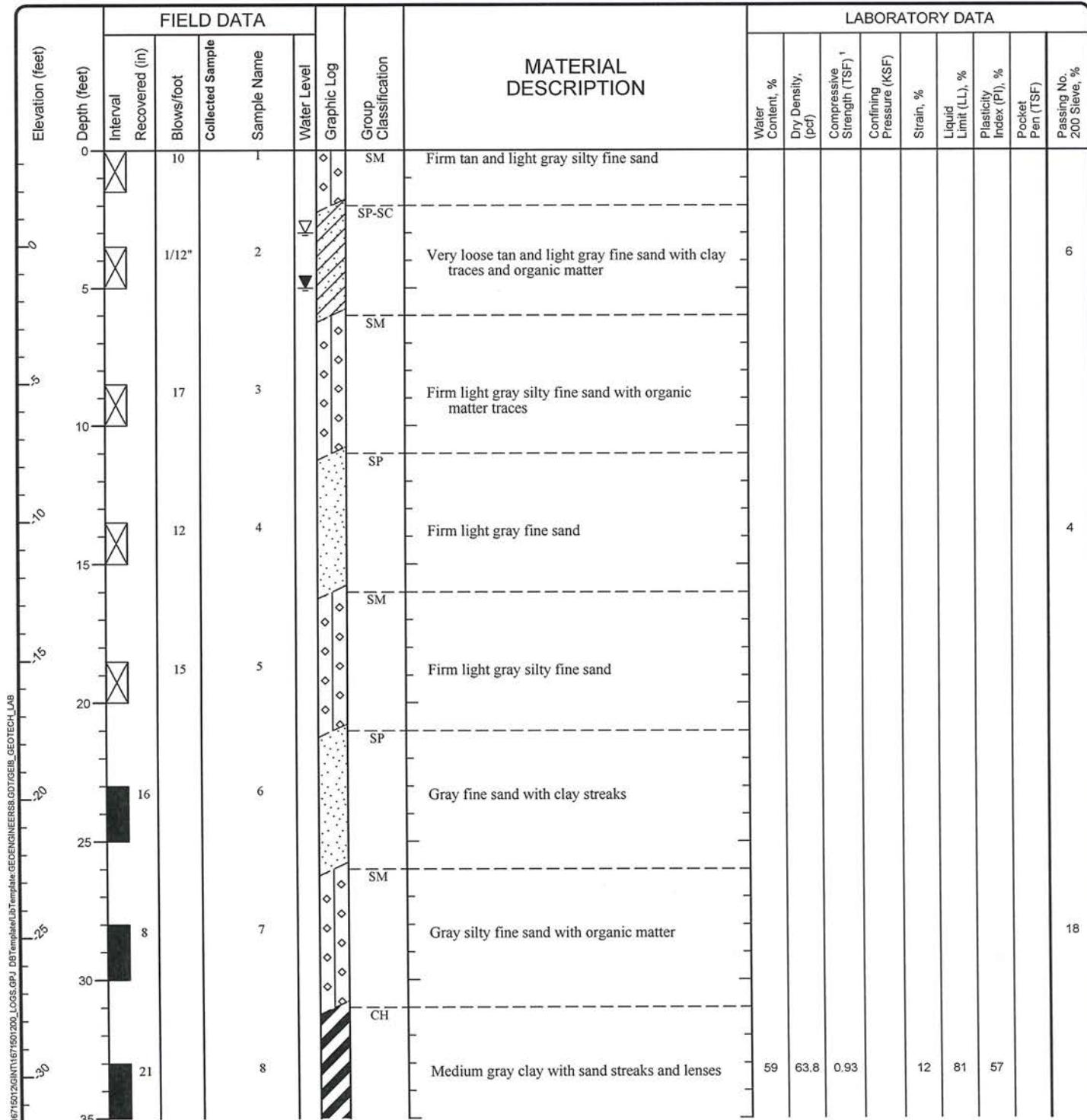
Log of Boring B-10 (continued)



Project: Caminada Headland Beach and Dune (BA-45)
Project Location: LaFourche & Jefferson Parishes, Louisiana
Project Number: 16715-012-00

Figure A-10
Sheet 2 of 2

Start Drilled	End 7/15/2010	Total Depth (ft)	60	Logged By Checked By	DAS JMP	Driller	GeoEngineers, Inc.	Drilling Method	Rotary Wash
Surface Elevation (ft) Vertical Datum			3.5	Hammer Data		Safety Hammer/Cathead 140 (lbs) / 30 (in) Drop		Drilling Equipment	ARDCO ATV
Latitude Longitude			N29° 08' 48.2" W90° 07' 09.4"	System Datum		Geographic NAVD88		Groundwater Date Measured	Depth to Water (ft)
Notes: See Figure A-1 for explanation of symbols. Cement-bentonite grout backfill top 25 feet.								7/15/2010	3.0
									0.5



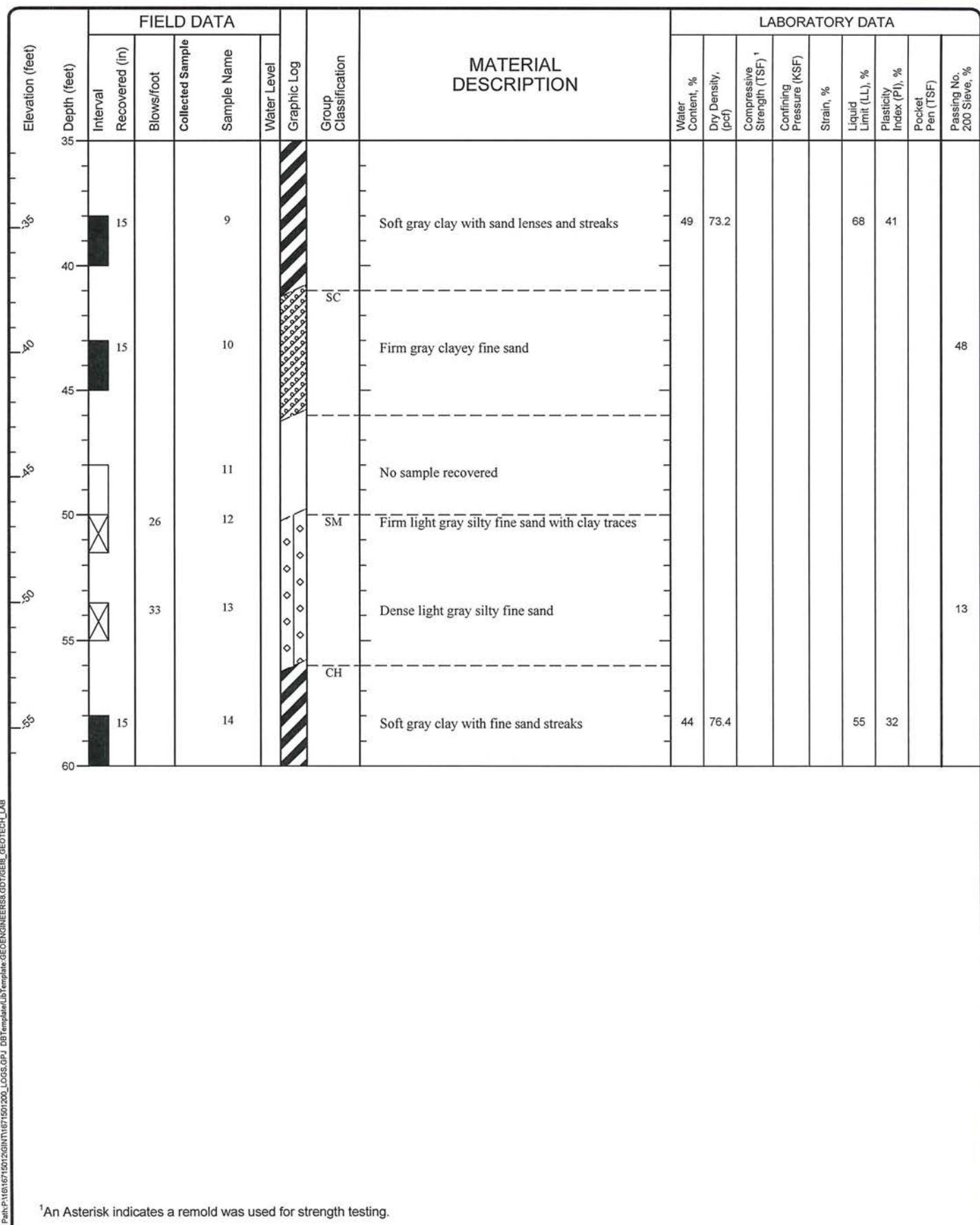
¹An Asterisk indicates a remold was used for strength testing.

Log of Boring B-11



Project: Caminada Headland Beach and Dune (BA-45)
Project Location: LaFourche & Jefferson Parishes, Louisiana
Project Number: 16715-012-00

Figure A-11
Sheet 1 of 2



¹An Asterisk indicates a remold was used for strength testing.

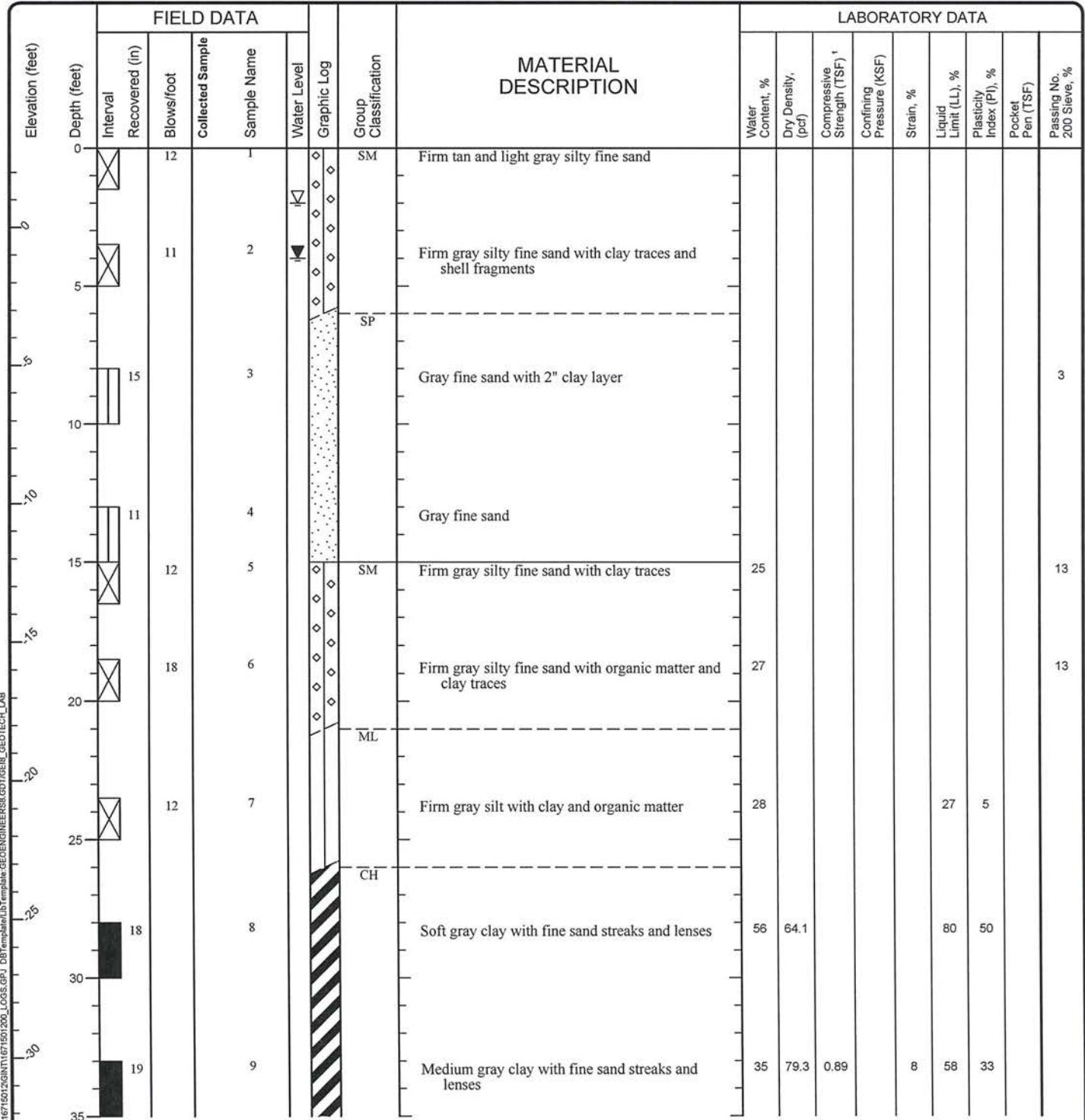
Log of Boring B-11 (continued)



Project: Caminada Headland Beach and Dune (BA-45)
Project Location: LaFourche & Jefferson Parishes, Louisiana
Project Number: 16715-012-00

Figure A-11
Sheet 2 of 2

Drilled	Start 7/15/2010	End 7/15/2010	Total Depth (ft)	60	Logged By DAS Checked By JMP	Driller GeoEngineers, Inc.	Drilling Method	Rotary Wash
Surface Elevation (ft) Vertical Datum			2.9		Hammer Data	Safety Hammer/Cathead 140 (lbs) / 30 (in) Drop	Drilling Equipment	ARDCO ATV
Latitude N29° 09' 13.9" Longitude W90° 06' 34.3"			System Datum		Geographic NAVD88	Groundwater Date Measured 7/15/2010	Depth to Water (ft) 2.0	Elevation (ft) 0.9
Notes: See Figure A-1 for explanation of symbols. Cement-bentonite grout backfill top 25 feet.								

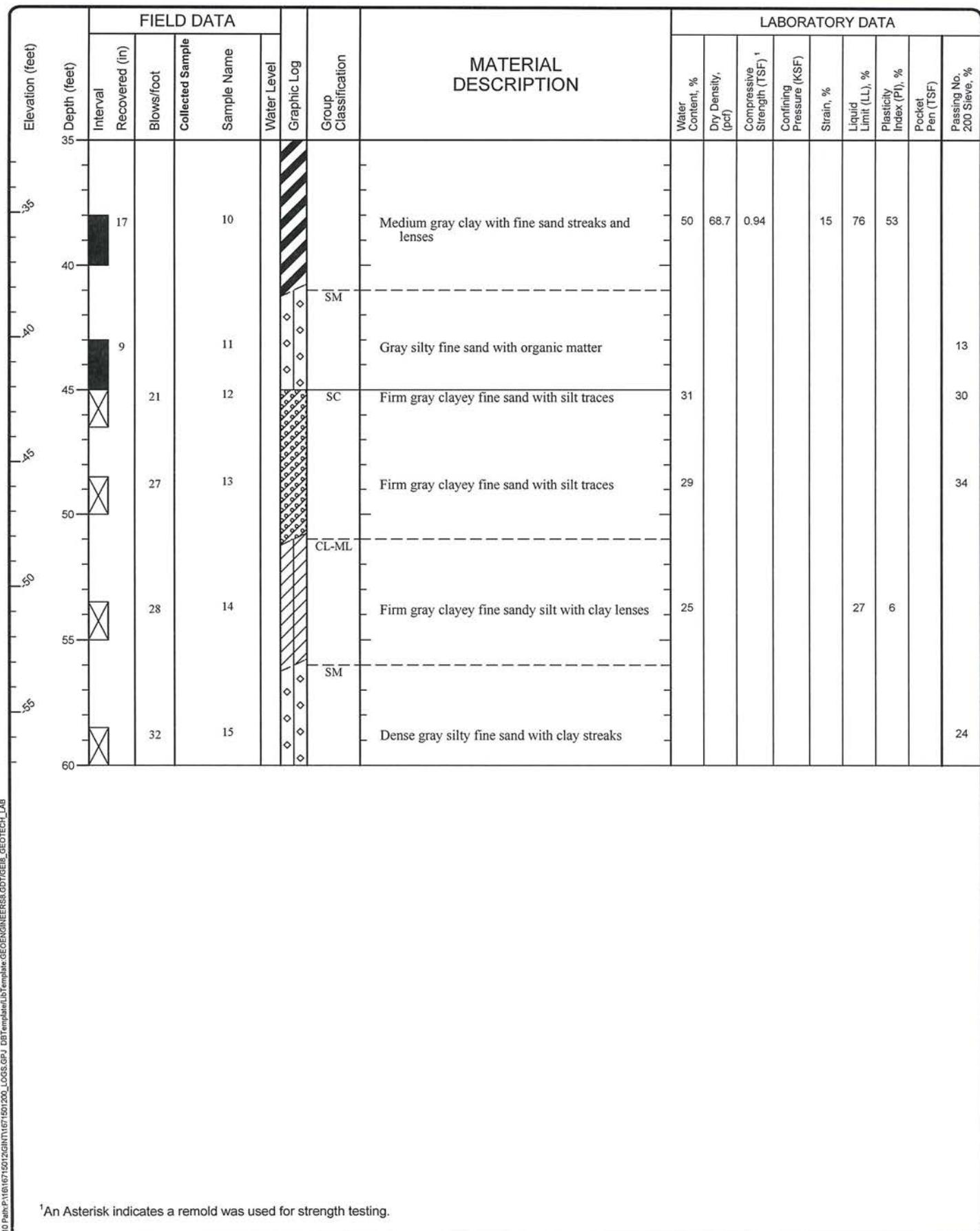


¹An Asterisk indicates a remold was used for strength testing.

Log of Boring B-12



Project: Caminada Headland Beach and Dune (BA-45)
Project Location: LaFourche & Jefferson Parishes, Louisiana
Project Number: 16715-012-00



¹An Asterisk indicates a remold was used for strength testing.

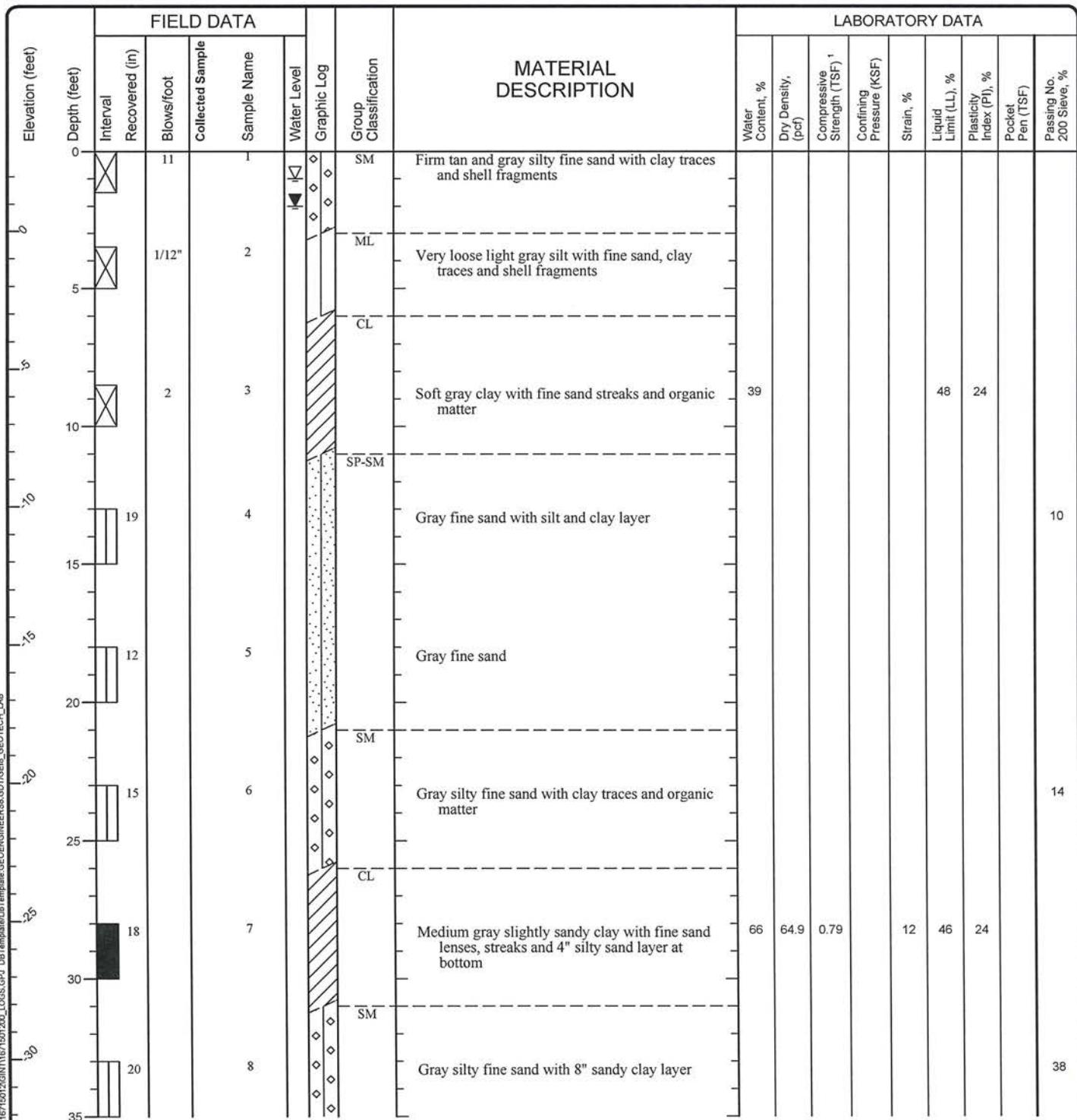
Log of Boring B-12 (continued)



Project: Caminada Headland Beach and Dune (BA-45)
 Project Location: LaFourche & Jefferson Parishes, Louisiana
 Project Number: 16715-012-00

Figure A-12
 Sheet 2 of 2

Drilled	Start 7/16/2010	End 7/16/2010	Total Depth (ft)	60	Logged By DAS Checked By JMP	Driller GeoEngineers, Inc.	Drilling Method ARDCO ATV	Rotary Wash
Surface Elevation (ft) Vertical Datum			2.9		Hammer Data	Safety Hammer/Cathead 140 (lbs) / 30 (in) Drop	Drilling Equipment	
Latitude N29° 09' 36.3" Longitude W90° 05' 59.5"			System Datum		Geographic NAVD88	Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
Notes: See Figure A-1 for explanation of symbols. Cement-bentonite grout backfill top 25 feet.						7/16/2010	1.0	1.9

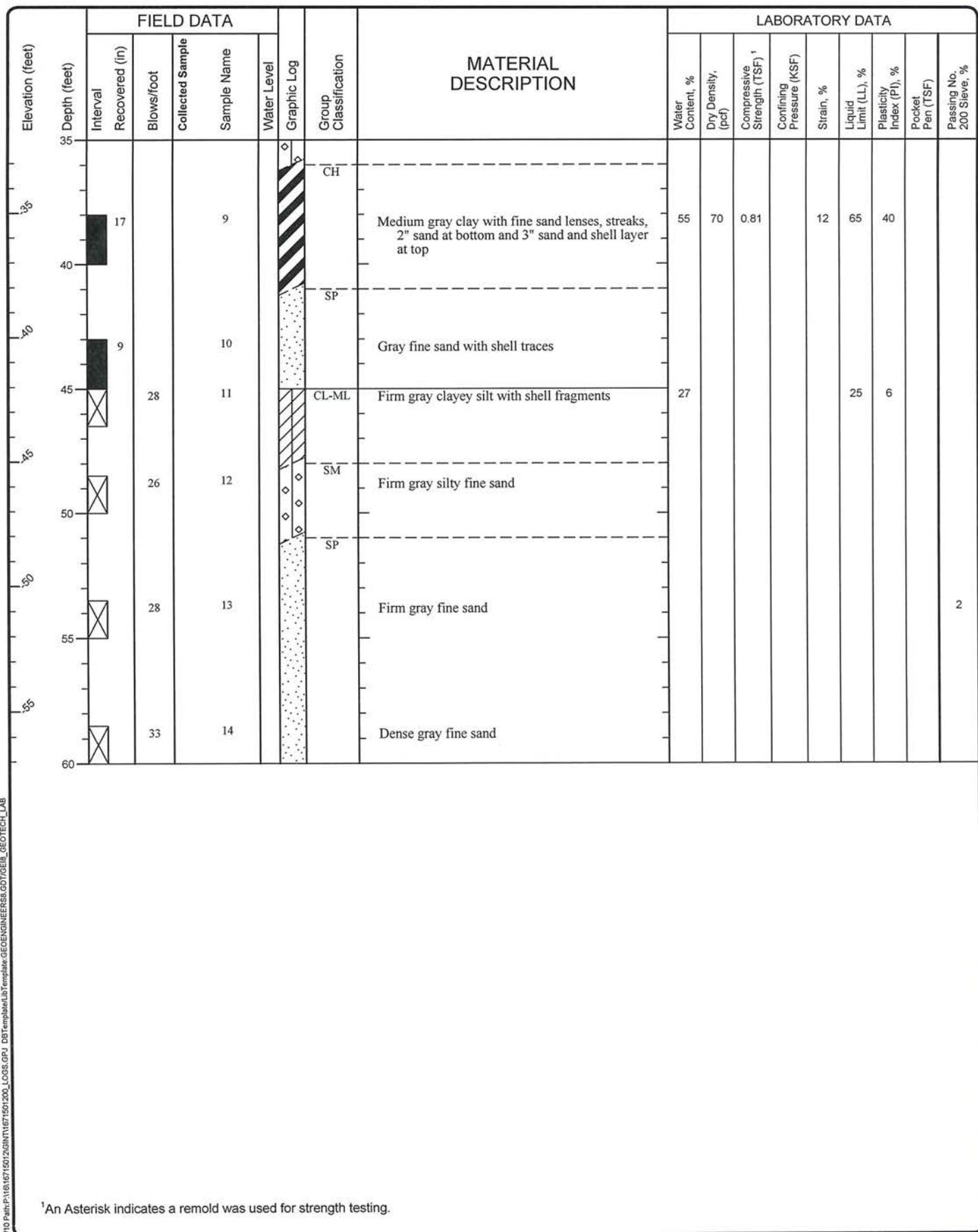


¹An Asterisk indicates a remold was used for strength testing.

Log of Boring B-13



Project: Caminada Headland Beach and Dune (BA-45)
Project Location: LaFourche & Jefferson Parishes, Louisiana
Project Number: 16715-012-00



¹An Asterisk indicates a remold was used for strength testing.

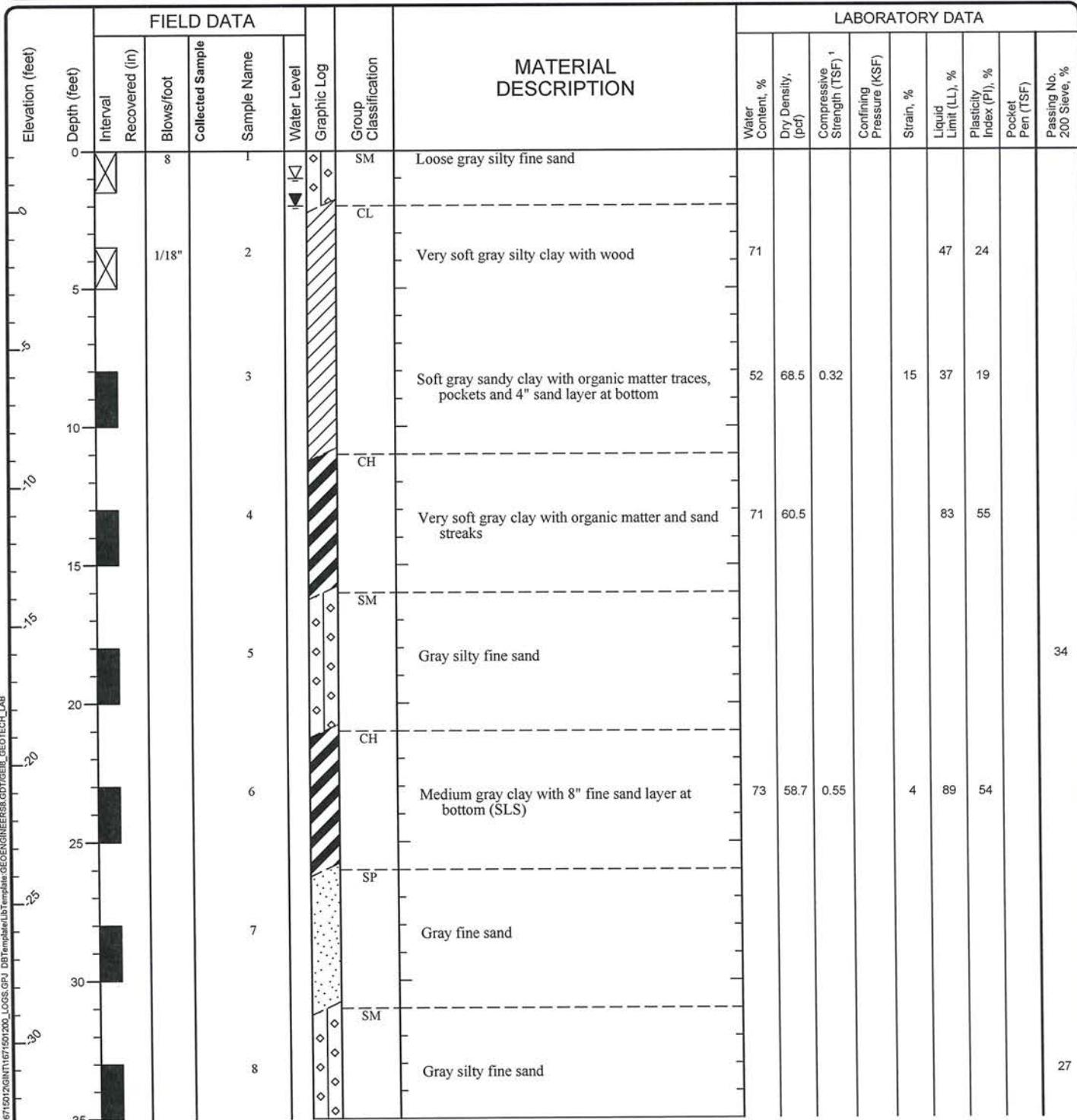
Log of Boring B-13 (continued)



Project: Caminada Headland Beach and Dune (BA-45)
Project Location: LaFourche & Jefferson Parishes, Louisiana
Project Number: 16715-012-00

Figure A-13
Sheet 2 of 2

Drilled	Start 7/16/2010	End 7/17/2010	Total Depth (ft)	60	Logged By DAS Checked By JMP	Driller GeoEngineers, Inc.	Drilling Method ARDCO ATV	Rotary Wash
Surface Elevation (ft) Vertical Datum			2.2		Hammer Data	Safety Hammer/Cathead 140 (lbs) / 30 (in) Drop		Drilling Equipment
Latitude Longitude			N29° 10' 00.2" W90° 05' 28.3"		System Datum	Geographic NAVD88		Groundwater
Notes: See Figure A-1 for explanation of symbols. Cement-bentonite grout backfill top 25 feet.					Date Measured 7/16/2010	Depth to Water (ft) 1.0	Elevation (ft) 1.2	

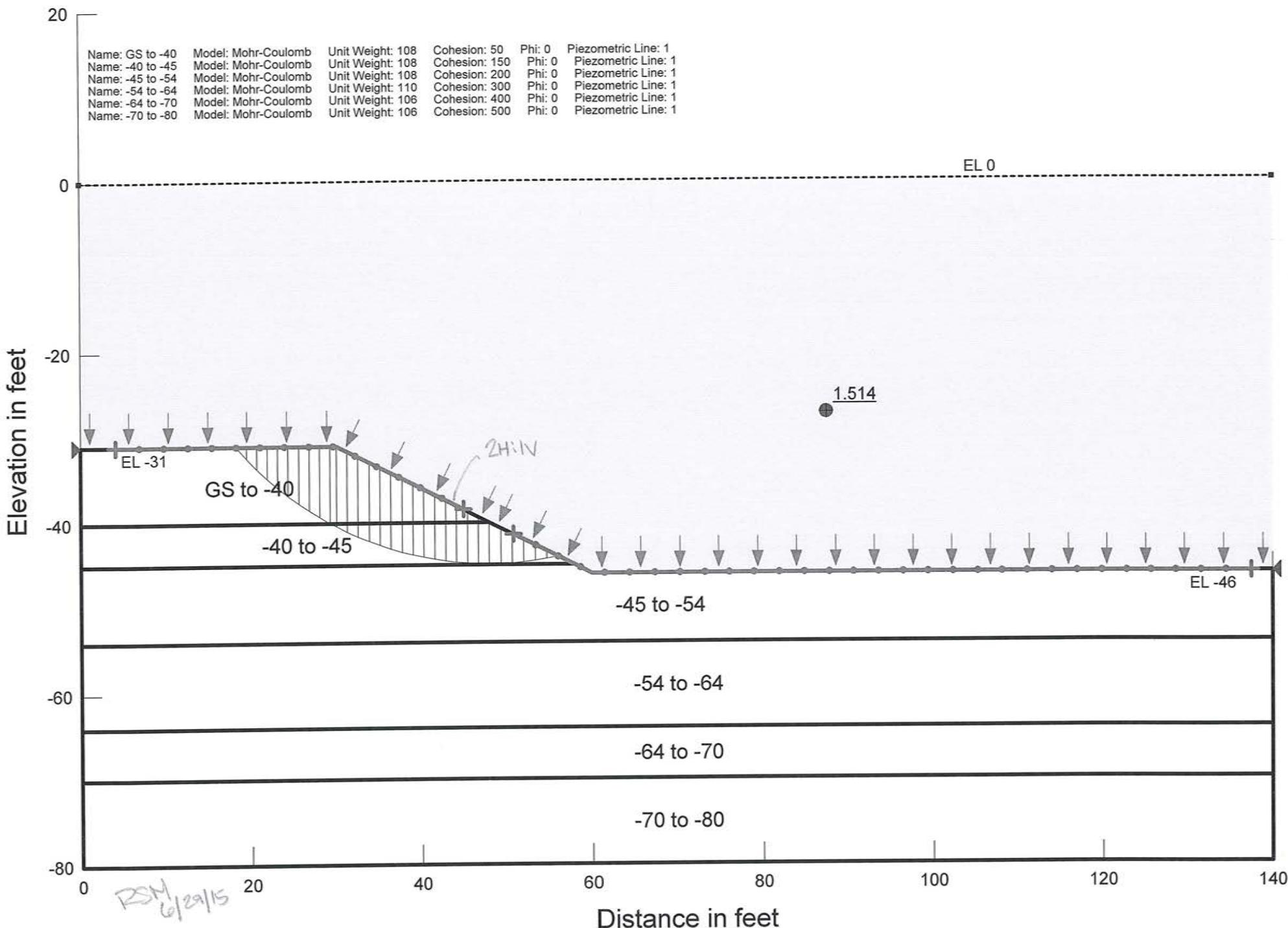


¹An Asterisk indicates a remold was used for strength testing.

Log of Boring B-14

GEOENGINEERS	Project: Caminada Headland Beach and Dune (BA-45) Project Location: LaFourche & Jefferson Parishes, Louisiana Project Number: 16715-012-00	Figure A-14 Sheet 1 of 2
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APPENDIX VI
BORROW SLOPE STABILITY CALCULATIONS



Directory: U:\Projects\22729\Analyses-Engineering\Borrow Stability\
 File Name: BorrowSlope 2H1V_15ft Dredge.gsz

Entry Exit

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File Information

Created By: [Rebecca Middleton](#)

Revision Number: 5

Last Edited By: [Rebecca Middleton](#)

Date: [6/29/2015](#)

Time: [11:27:16 AM](#)

File Name: [BorrowSlope 2H1V_15ft Dredge.gsz](#)

Directory: [U:\Projects\22729\Analyses-Engineering\Borrow Stability\](#)

Last Solved Date: [6/29/2015](#)

Last Solved Time: [11:27:38 AM](#)

Project Settings

Length(L) Units: [feet](#)

Time(t) Units: [Seconds](#)

Force(F) Units: [lbf](#)

Pressure(p) Units: [psf](#)

Strength Units: [psf](#)

Unit Weight of Water: [62.4 pcf](#)

View: [2D](#)

Analysis Settings

Entry Exit

Kind: [SLOPE/W](#)

Method: [Spencer](#)

Settings

Apply Phreatic Correction: [No](#)

PWP Conditions Source: [Piezometric Line](#)

Use Staged Rapid Drawdown: [No](#)

Slip Surface

Direction of movement: [Left to Right](#)

Use Passive Mode: [No](#)

Slip Surface Option: [Entry and Exit](#)

Critical slip surfaces saved: [1](#)

Optimize Critical Slip Surface Location: [No](#)

Tension Crack

Tension Crack Option: [\(none\)](#)

FOS Distribution

FOS Calculation Option: [Constant](#)

Advanced

Number of Slices: 30
Optimization Tolerance: 0.01
Minimum Slip Surface Depth: 0.1 ft
Optimization Maximum Iterations: 2000
Optimization Convergence Tolerance: 1e-007
Starting Optimization Points: 8
Ending Optimization Points: 16
Complete Passes per Insertion: 1
Driving Side Maximum Convex Angle: 5 °
Resisting Side Maximum Convex Angle: 1 °

Materials

GS to -40

Model: Mohr-Coulomb
Unit Weight: 108 pcf
Cohesion: 50 psf
Phi: 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

-40 to -45

Model: Mohr-Coulomb
Unit Weight: 108 pcf
Cohesion: 150 psf
Phi: 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

-45 to -54

Model: Mohr-Coulomb
Unit Weight: 108 pcf
Cohesion: 200 psf
Phi: 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

-54 to -64

Model: Mohr-Coulomb
Unit Weight: 110 pcf
Cohesion: 300 psf
Phi: 0 °

Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

-64 to -70

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion: 400 psf
Phi: 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

-70 to -80

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion: 500 psf
Phi: 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Projection: Range
Left-Zone Left Coordinate: (4.10506, -31) ft
Left-Zone Right Coordinate: (44.99165, -38.49583) ft
Left-Zone Increment: 15
Right Projection: Range
Right-Zone Left Coordinate: (50.83489, -41.41744) ft
Right-Zone Right Coordinate: (137.52588, -46) ft
Right-Zone Increment: 30
Radius Increments: 40

Slip Surface Limits

Left Coordinate: (0, -31) ft
Right Coordinate: (140, -46) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X (ft)	Y (ft)
	0	0
	140	0

Regions

	Material	Points	Area (ft ²)
Region 1	GS to -40	1,2,14,4	351
Region 2	-40 to -45	5,15,14,4	265
Region 3	-45 to -54	6,5,15,3,16,10	1179
Region 4	-54 to -64	7,6,10,11	1400
Region 5	-64 to -70	8,12,11,7	840
Region 6	-70 to -80	9,13,12,8	1400

Points

	X (ft)	Y (ft)
Point 1	0	-31
Point 2	30	-31
Point 3	60	-46
Point 4	0	-40
Point 5	0	-45
Point 6	0	-54
Point 7	0	-64
Point 8	0	-70
Point 9	0	-80
Point 10	140	-54
Point 11	140	-64
Point 12	140	-70
Point 13	140	-80
Point 14	48	-40
Point 15	58	-45

Point 16	140	-46
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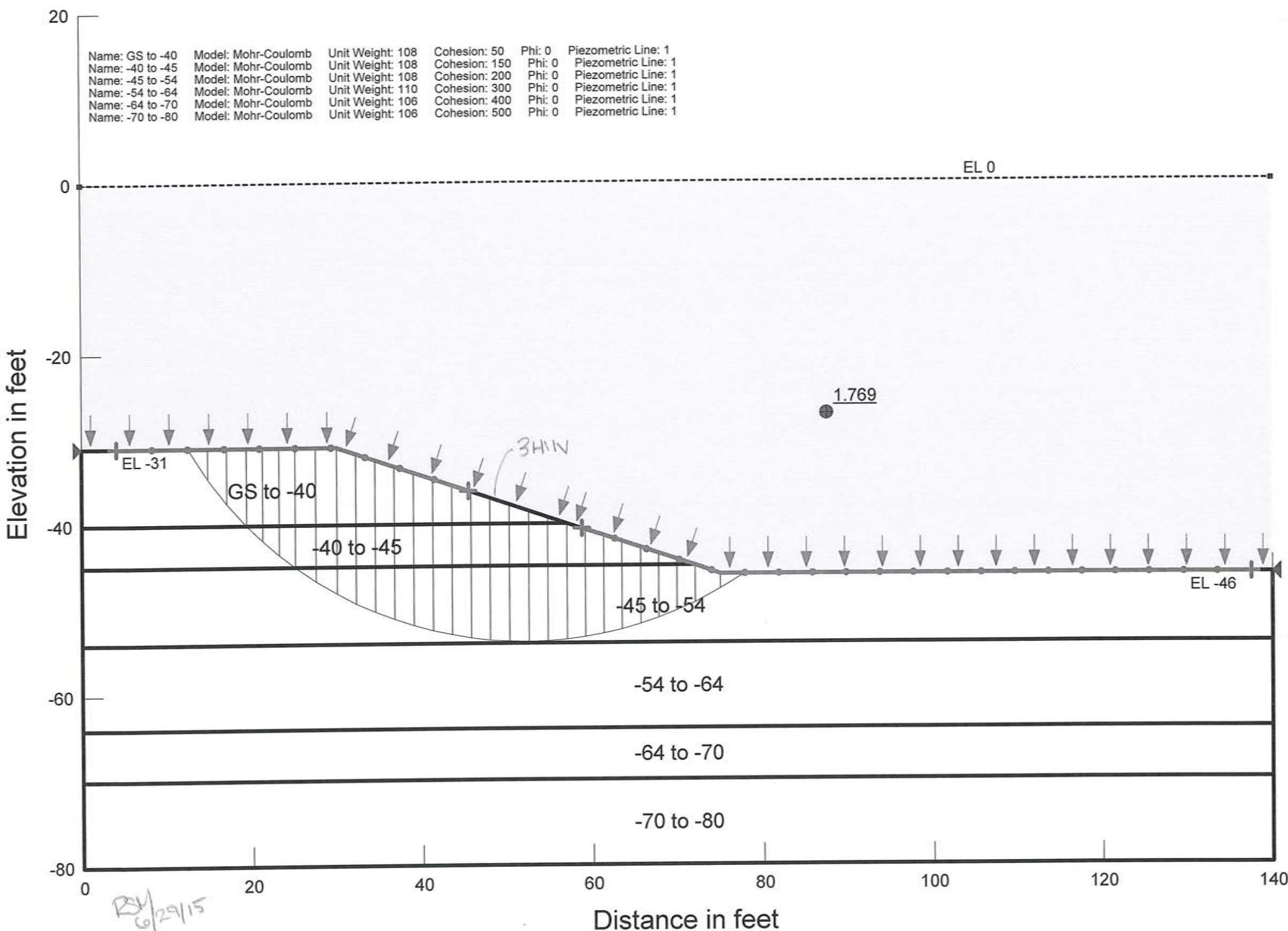
Critical Slip Surfaces

	Slip Surface	FOS	Center (ft)	Radius (ft)	Entry (ft)	Exit (ft)
1	6453	1.514	(48.097, -5.951)	38.909	(18.3238, -31)	(56.0686, -44.0343)

Slices of Slip Surface: 6453

	Slip Surface	X (ft)	Y (ft)	PWP (psf)	Base Normal Stress (psf)	Frictional Strength (psf)	Cohesive Strength (psf)
1	6453	18.93174	-31.688925	1977.4082	1941.4929	0	50
2	6453	20.14768	-33.005915	2059.5453	2087.6305	0	50
3	6453	21.36362	-34.209145	2134.6673	2221.2345	0	50
4	6453	22.57956	-35.312675	2203.5281	2343.8169	0	50
5	6453	23.7955	-36.32742	2266.806	2456.7019	0	50
6	6453	25.01144	-37.262055	2325.1396	2560.7912	0	50
7	6453	26.22738	-38.12358	2378.8893	2656.8662	0	50
8	6453	27.44332	-38.91774	2428.4616	2745.5659	0	50
9	6453	28.65926	-39.649315	2474.1401	2827.4157	0	50
10	6453	29.633615	-40.19753	2508.2746	2854.4672	0	150
11	6453	30.642855	-40.717795	2540.7989	2914.2066	0	150
12	6453	31.92857	-41.33428	2579.2577	2957.728	0	150
13	6453	33.214285	-41.89421	2614.1696	2994.9625	0	150
14	6453	34.5	-42.4002	2645.7833	3026.178	0	150
15	6453	35.785715	-42.85447	2674.0998	3051.6345	0	150
16	6453	37.07143	-43.25891	2699.3704	3071.5687	0	150
17	6453	38.357145	-43.61513	2721.5971	3086.2036	0	150

18	6453	39.642855	- 43.924485	2740.9085	3095.6027	0	150
19	6453	40.92857	- 44.188115	2757.3327	3100.0404	0	150
20	6453	42.214285	-44.40697	2770.9565	3099.4795	0	150
21	6453	43.5	- 44.581805	2781.929	3094.1817	0	150
22	6453	44.785715	- 44.713215	2790.0716	3084.0896	0	150
23	6453	46.07143	- 44.801645	2795.6597	3069.3769	0	150
24	6453	47.357145	- 44.847385	2798.4824	3049.9702	0	150
25	6453	48.672385	-44.84966	2798.603	3025.2335	0	150
26	6453	50.01716	-44.80648	2795.9412	2995.0624	0	150
27	6453	51.361935	- 44.716615	2790.2924	2959.8321	0	150
28	6453	52.70671	-44.57974	2781.7732	2919.555	0	150
29	6453	54.051485	- 44.395355	2770.2618	2874.097	0	150
30	6453	55.39626	- 44.162765	2755.7721	2823.4813	0	150



Entry Exit

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File Information

Created By: [Rebecca Middleton](#)

Revision Number: [4](#)

Last Edited By: [Rebecca Middleton](#)

Date: [6/29/2015](#)

Time: [11:24:53 AM](#)

File Name: [BorrowSlope 3H1V_15ft Dredge.gsz](#)

Directory: [U:\Projects\22729\Analyses-Engineering\Borrow Stability\](#)

Last Solved Date: [6/29/2015](#)

Last Solved Time: [11:25:04 AM](#)

Project Settings

Length(L) Units: [feet](#)

Time(t) Units: [Seconds](#)

Force(F) Units: [lbf](#)

Pressure(p) Units: [psf](#)

Strength Units: [psf](#)

Unit Weight of Water: [62.4 pcf](#)

View: [2D](#)

Analysis Settings

Entry Exit

Kind: [SLOPE/W](#)

Method: [Spencer](#)

Settings

Apply Phreatic Correction: [No](#)

PWP Conditions Source: [Piezometric Line](#)

Use Staged Rapid Drawdown: [No](#)

Slip Surface

Direction of movement: [Left to Right](#)

Use Passive Mode: [No](#)

Slip Surface Option: [Entry and Exit](#)

Critical slip surfaces saved: [1](#)

Optimize Critical Slip Surface Location: [No](#)

Tension Crack

Tension Crack Option: [\(none\)](#)

FOS Distribution

FOS Calculation Option: [Constant](#)

Advanced

Number of Slices: 30
Optimization Tolerance: 0.01
Minimum Slip Surface Depth: 0.1 ft
Optimization Maximum Iterations: 2000
Optimization Convergence Tolerance: 1e-007
Starting Optimization Points: 8
Ending Optimization Points: 16
Complete Passes per Insertion: 1
Driving Side Maximum Convex Angle: 5 °
Resisting Side Maximum Convex Angle: 1 °

Materials

GS to -40

Model: Mohr-Coulomb
Unit Weight: 108 pcf
Cohesion: 50 psf
Phi: 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

-40 to -45

Model: Mohr-Coulomb
Unit Weight: 108 pcf
Cohesion: 150 psf
Phi: 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

-45 to -54

Model: Mohr-Coulomb
Unit Weight: 108 pcf
Cohesion: 200 psf
Phi: 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

-54 to -64

Model: Mohr-Coulomb
Unit Weight: 110 pcf
Cohesion: 300 psf
Phi: 0 °

Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

-64 to -70

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion: 400 psf
Phi: 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

-70 to -80

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion: 500 psf
Phi: 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Projection: Range
Left-Zone Left Coordinate: (4.10506, -31) ft
Left-Zone Right Coordinate: (45.4255, -36.14183) ft
Left-Zone Increment: 10
Right Projection: Range
Right-Zone Left Coordinate: (58.8086, -40.60287) ft
Right-Zone Right Coordinate: (137.52588, -46) ft
Right-Zone Increment: 20
Radius Increments: 40

Slip Surface Limits

Left Coordinate: (0, -31) ft
Right Coordinate: (140, -46) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X (ft)	Y (ft)
	0	0
	140	0

Regions

	Material	Points	Area (ft ²)
Region 1	GS to -40	1,2,14,4	391.5
Region 2	-40 to -45	5,15,14,4	322.5
Region 3	-45 to -54	6,5,15,3,16,10	1193.5
Region 4	-54 to -64	7,6,10,11	1400
Region 5	-64 to -70	8,12,11,7	840
Region 6	-70 to -80	9,13,12,8	1400

Points

	X (ft)	Y (ft)
Point 1	0	-31
Point 2	30	-31
Point 3	75	-46
Point 4	0	-40
Point 5	0	-45
Point 6	0	-54
Point 7	0	-64
Point 8	0	-70
Point 9	0	-80
Point 10	140	-54
Point 11	140	-64
Point 12	140	-70
Point 13	140	-80
Point 14	57	-40
Point 15	72	-45

Point 16	140	-46
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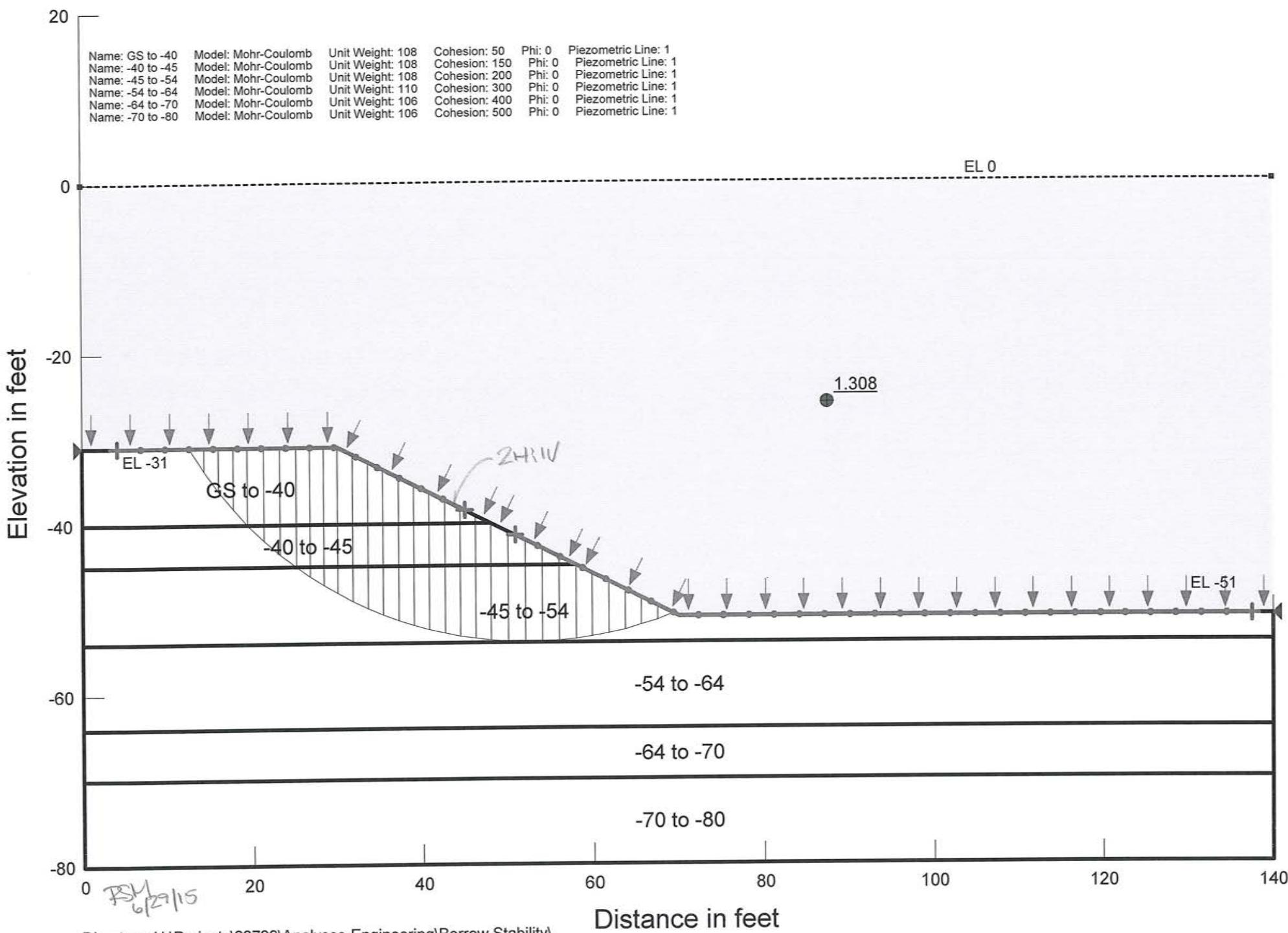
Critical Slip Surfaces

	Slip Surface	FOS	Center (ft)	Radius (ft)	Entry (ft)	Exit (ft)
1	1950	1.769	(52.197, -7.972)	45.861	(12.536, -31)	(77.8311, -46)

Slices of Slip Surface: 1950

	Slip Surface	X (ft)	Y (ft)	PWP (psf)	Base Normal Stress (psf)	Frictional Strength (psf)	Cohesive Strength (psf)
1	1950	13.675365	-32.769835	2044.8483	2035.584	0	50
2	1950	15.95403	-36.012265	2247.1557	2394.1303	0	50
3	1950	18.232695	-38.74243	2417.5185	2696.081	0	50
4	1950	20.333015	-40.929095	2553.9751	2885.0189	0	150
5	1950	22.25499	-42.687035	2663.6534	3085.6237	0	150
6	1950	24.176965	-44.25794	2761.6942	3265.011	0	150
7	1950	26.353465	-45.82975	2859.787	3426.2678	0	200
8	1950	28.78449	-47.3816	2956.5946	3606.5348	0	200
9	1950	31.125	-48.685945	3037.9916	3751.5941	0	200
10	1950	33.375	-49.774715	3105.9603	3845.9263	0	200
11	1950	35.625	-50.71738	3164.7623	3923.9307	0	200
12	1950	37.875	-51.52347	3215.0703	3986.7293	0	200
13	1950	40.125	-52.200475	3257.2969	4035.2836	0	200
14	1950	42.375	-52.754265	3291.8482	4070.2364	0	200
15	1950	44.625	-53.18938	3319.0346	4092.1815	0	200
16	1950	46.875	-53.509235	3338.9661	4101.5101	0	200

17	1950	49.125	-53.71625	3351.8738	4098.5035	0	200
18	1950	51.375	-53.811955	3357.8612	4083.3893	0	200
19	1950	53.625	-53.79706	3356.947	4056.2962	0	200
20	1950	55.875	-53.67145	3349.0809	4017.2314	0	200
21	1950	58.07143	-53.442475	3334.8036	3967.6174	0	200
22	1950	60.214285	-53.113755	3314.2926	3907.9357	0	200
23	1950	62.35714	-52.679965	3287.24	3836.9563	0	200
24	1950	64.5	-52.138005	3253.3943	3754.418	0	200
25	1950	66.64286	-51.483825	3212.5853	3659.9539	0	200
26	1950	68.785715	-50.71225	3164.4424	3552.9826	0	200
27	1950	70.92857	-49.81677	3108.5774	3432.9715	0	200
28	1950	73.5	-48.549655	3029.5411	3268.5988	0	200
29	1950	76.415525	-46.88108	2925.3869	3065.6707	0	200



Directory: U:\Projects\22729\Analyses-Engineering\Borrow Stability\
 File Name: BorrowSlope 2H1V_20ft Dredge.gsz

PSM
6/29/15

Entry Exit

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File Information

Created By: [Rebecca Middleton](#)

Revision Number: 6

Last Edited By: [Rebecca Middleton](#)

Date: [6/29/2015](#)

Time: [11:52:50 AM](#)

File Name: [BorrowSlope 2H1V_20ft Dredge.gsz](#)

Directory: [U:\Projects\22729\Analyses-Engineering\Borrow Stability\](#)

Last Solved Date: [6/29/2015](#)

Last Solved Time: [11:53:12 AM](#)

Project Settings

Length(L) Units: [feet](#)

Time(t) Units: [Seconds](#)

Force(F) Units: [lbf](#)

Pressure(p) Units: [psf](#)

Strength Units: [psf](#)

Unit Weight of Water: [62.4 pcf](#)

View: [2D](#)

Analysis Settings

Entry Exit

Kind: [SLOPE/W](#)

Method: [Spencer](#)

Settings

Apply Phreatic Correction: [No](#)

PWP Conditions Source: [Piezometric Line](#)

Use Staged Rapid Drawdown: [No](#)

Slip Surface

Direction of movement: [Left to Right](#)

Use Passive Mode: [No](#)

Slip Surface Option: [Entry and Exit](#)

Critical slip surfaces saved: [1](#)

Optimize Critical Slip Surface Location: [No](#)

Tension Crack

Tension Crack Option: [\(none\)](#)

FOS Distribution

FOS Calculation Option: [Constant](#)

Advanced

Number of Slices: 30
Optimization Tolerance: 0.01
Minimum Slip Surface Depth: 0.1 ft
Optimization Maximum Iterations: 2000
Optimization Convergence Tolerance: 1e-007
Starting Optimization Points: 8
Ending Optimization Points: 16
Complete Passes per Insertion: 1
Driving Side Maximum Convex Angle: 5 °
Resisting Side Maximum Convex Angle: 1 °

Materials

GS to -40

Model: Mohr-Coulomb
Unit Weight: 108 pcf
Cohesion: 50 psf
Phi: 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

-40 to -45

Model: Mohr-Coulomb
Unit Weight: 108 pcf
Cohesion: 150 psf
Phi: 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

-45 to -54

Model: Mohr-Coulomb
Unit Weight: 108 pcf
Cohesion: 200 psf
Phi: 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

-54 to -64

Model: Mohr-Coulomb
Unit Weight: 110 pcf
Cohesion: 300 psf
Phi: 0 °

Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

-64 to -70

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion: 400 psf
Phi: 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

-70 to -80

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion: 500 psf
Phi: 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Projection: Range
Left-Zone Left Coordinate: (4.10506, -31) ft
Left-Zone Right Coordinate: (44.99165, -38.49583) ft
Left-Zone Increment: 15
Right Projection: Range
Right-Zone Left Coordinate: (50.83489, -41.41744) ft
Right-Zone Right Coordinate: (137.53844, -51) ft
Right-Zone Increment: 30
Radius Increments: 40

Slip Surface Limits

Left Coordinate: (0, -31) ft
Right Coordinate: (140, -51) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X (ft)	Y (ft)
	0	0
	140	0

Regions

	Material	Points	Area (ft ²)
Region 1	GS to -40	1,2,14,4	351
Region 2	-40 to -45	5,15,14,4	265
Region 3	-45 to -54	6,5,15,3,16,10	804
Region 4	-54 to -64	7,6,10,11	1400
Region 5	-64 to -70	8,12,11,7	840
Region 6	-70 to -80	9,13,12,8	1400

Points

	X (ft)	Y (ft)
Point 1	0	-31
Point 2	30	-31
Point 3	70	-51
Point 4	0	-40
Point 5	0	-45
Point 6	0	-54
Point 7	0	-64
Point 8	0	-70
Point 9	0	-80
Point 10	140	-54
Point 11	140	-64
Point 12	140	-70
Point 13	140	-80
Point 14	48	-40
Point 15	58	-45

Point 16	140	-51
----------	-----	-----

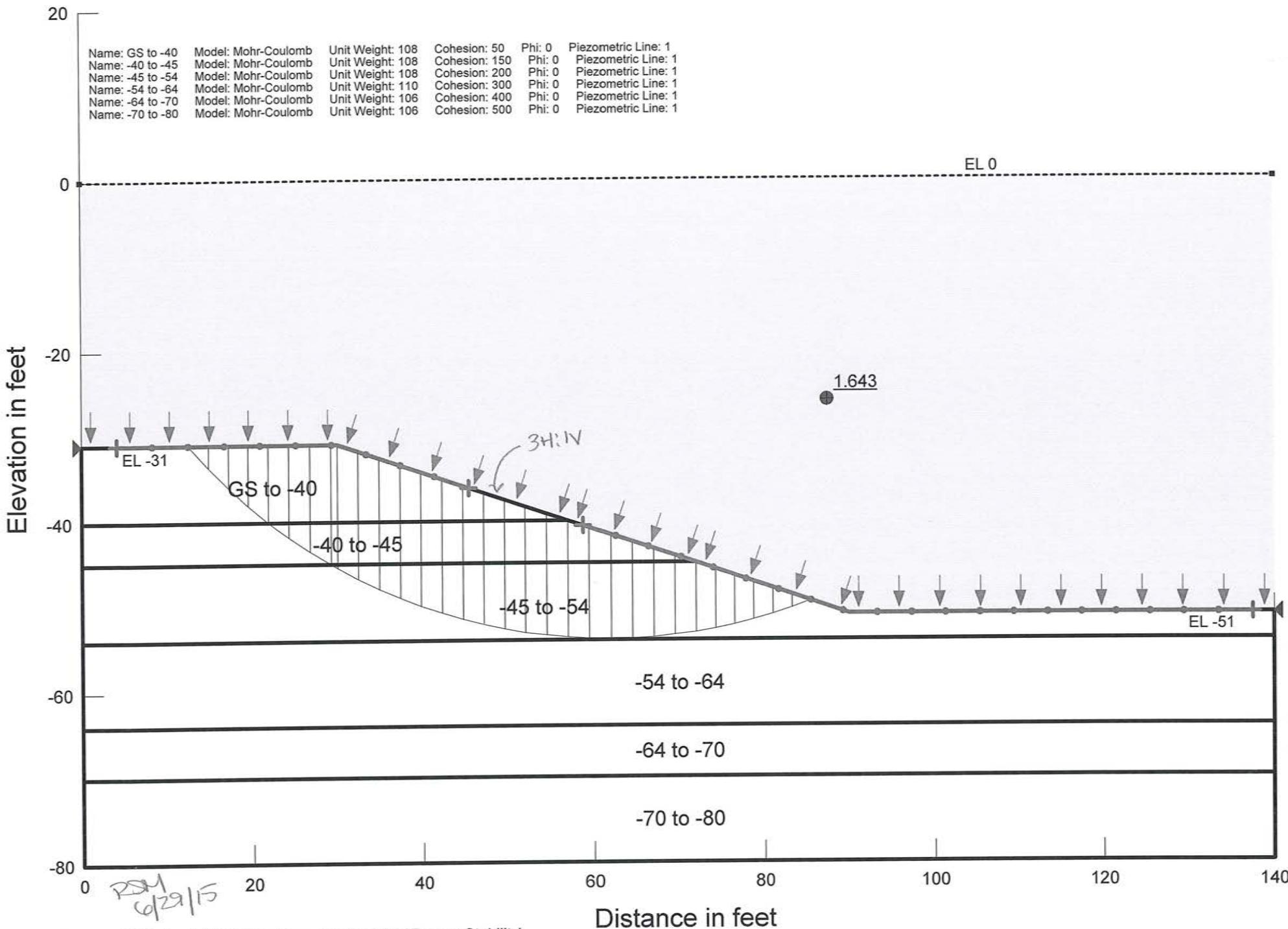
Critical Slip Surfaces

	Slip Surface	FOS	Center (ft)	Radius (ft)	Entry (ft)	Exit (ft)
1	4122	1.308	(52.438, -7.95)	45.994	(12.6363, -31)	(69.402, -50.701)

Slices of Slip Surface: 4122

	Slip Surface	X (ft)	Y (ft)	PWP (psf)	Base Normal Stress (psf)	Frictional Strength (psf)	Cohesive Strength (psf)
1	4122	13.487885	-32.358905	2019.2068	1965.612	0	50
2	4122	15.191095	-34.894985	2177.4464	2248.1662	0	50
3	4122	16.8943	-37.11017	2315.6929	2494.8544	0	50
4	4122	18.597505	-39.07409	2438.2159	2713.5759	0	50
5	4122	20.404985	-40.928455	2553.9438	2848.6008	0	150
6	4122	22.31674	-42.685785	2663.6052	3052.4363	0	150
7	4122	24.228495	-44.25733	2761.6776	3234.8791	0	150
8	4122	25.986975	-45.56439	2843.2121	3360.9056	0	200
9	4122	27.592185	-46.64413	2910.5856	3489.0542	0	200
10	4122	29.197395	-47.62956	2972.0986	3606.3621	0	200
11	4122	30.9	-48.576755	3031.1791	3716.4021	0	200
12	4122	32.7	-49.48159	3087.6664	3784.9818	0	200
13	4122	34.5	-50.29059	3138.1147	3842.7147	0	200
14	4122	36.3	-51.00917	3182.9738	3890.2146	0	200
15	4122	38.1	-51.641805	3222.4332	3928.1307	0	200
16	4122	39.9	-52.192185	3256.8096	3956.8011	0	200
17	4122	41.7	-52.66336	3286.1849	3976.6656	0	200

18	4122	43.5	- 53.057815	3310.8028	3988.0806	0	200
19	4122	45.3	- 53.377545	3330.7484	3991.2013	0	200
20	4122	47.1	- 53.624125	3346.1737	3986.2624	0	200
21	4122	49	-53.80427	3357.3792	3972.3037	0	200
22	4122	51	-53.91052	3364.005	3948.4692	0	200
23	4122	53	-53.92957	3365.1976	3915.1564	0	200
24	4122	55	- 53.861525	3360.9703	3872.3746	0	200
25	4122	57	-53.706	3351.2312	3820.1558	0	200
26	4122	58.950165	-53.47035	3336.5405	3760.1521	0	200
27	4122	60.8505	-53.15759	3317.0405	3692.7859	0	200
28	4122	62.750835	-52.7621	3292.3421	3616.5456	0	200
29	4122	64.651165	- 52.281655	3262.3877	3531.2686	0	200
30	4122	66.5515	-51.71345	3226.9018	3436.6464	0	200
31	4122	68.451835	-51.05401	3185.7505	3332.4027	0	200



Directory: U:\Projects\22729\Analyses-Engineering\Borrow Stability
 File Name: BorrowSlope 3H1V_20ft Dredge.gsz

Entry Exit

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File Information

Created By: [Rebecca Middleton](#)

Revision Number: 5

Last Edited By: [Rebecca Middleton](#)

Date: [6/29/2015](#)

Time: [11:51:06 AM](#)

File Name: [BorrowSlope 3H1V_20ft Dredge.gsz](#)

Directory: [U:\Projects\22729\Analyses-Engineering\Borrow Stability\](#)

Last Solved Date: [6/29/2015](#)

Last Solved Time: [11:51:18 AM](#)

Project Settings

Length(L) Units: [feet](#)

Time(t) Units: [Seconds](#)

Force(F) Units: [lbf](#)

Pressure(p) Units: [psf](#)

Strength Units: [psf](#)

Unit Weight of Water: [62.4 pcf](#)

View: [2D](#)

Analysis Settings

Entry Exit

Kind: [SLOPE/W](#)

Method: [Spencer](#)

Settings

Apply Phreatic Correction: [No](#)

PWP Conditions Source: [Piezometric Line](#)

Use Staged Rapid Drawdown: [No](#)

Slip Surface

Direction of movement: [Left to Right](#)

Use Passive Mode: [No](#)

Slip Surface Option: [Entry and Exit](#)

Critical slip surfaces saved: [1](#)

Optimize Critical Slip Surface Location: [No](#)

Tension Crack

Tension Crack Option: [\(none\)](#)

FOS Distribution

FOS Calculation Option: [Constant](#)

Advanced

Number of Slices: 30
Optimization Tolerance: 0.01
Minimum Slip Surface Depth: 0.1 ft
Optimization Maximum Iterations: 2000
Optimization Convergence Tolerance: 1e-007
Starting Optimization Points: 8
Ending Optimization Points: 16
Complete Passes per Insertion: 1
Driving Side Maximum Convex Angle: 5 °
Resisting Side Maximum Convex Angle: 1 °

Materials

GS to -40

Model: Mohr-Coulomb
Unit Weight: 108 pcf
Cohesion: 50 psf
Phi: 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

-40 to -45

Model: Mohr-Coulomb
Unit Weight: 108 pcf
Cohesion: 150 psf
Phi: 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

-45 to -54

Model: Mohr-Coulomb
Unit Weight: 108 pcf
Cohesion: 200 psf
Phi: 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

-54 to -64

Model: Mohr-Coulomb
Unit Weight: 110 pcf
Cohesion: 300 psf
Phi: 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

-64 to -70

Model: Mohr-Coulomb

Unit Weight: 106 pcf

Cohesion: 400 psf

Phi: 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

-70 to -80

Model: Mohr-Coulomb

Unit Weight: 106 pcf

Cohesion: 500 psf

Phi: 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

Slip Surface Entry and Exit

Left Projection: Range

Left-Zone Left Coordinate: (4.10506, -31) ft

Left-Zone Right Coordinate: (45.4255, -36.14183) ft

Left-Zone Increment: 10

Right Projection: Range

Right-Zone Left Coordinate: (58.8086, -40.60287) ft

Right-Zone Right Coordinate: (137.55038, -51) ft

Right-Zone Increment: 20

Radius Increments: 40

Slip Surface Limits

Left Coordinate: (0, -31) ft

Right Coordinate: (140, -51) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X (ft)	Y (ft)
	0	0
	140	0

Regions

	Material	Points	Area (ft ²)
Region 1	GS to -40	1,2,14,4	391.5
Region 2	-40 to -45	5,15,14,4	322.5
Region 3	-45 to -54	6,5,15,3,16,10	906
Region 4	-54 to -64	7,6,10,11	1400
Region 5	-64 to -70	8,12,11,7	840
Region 6	-70 to -80	9,13,12,8	1400

Points

	X (ft)	Y (ft)
Point 1	0	-31
Point 2	30	-31
Point 3	90	-51
Point 4	0	-40
Point 5	0	-45
Point 6	0	-54
Point 7	0	-64
Point 8	0	-70
Point 9	0	-80
Point 10	140	-54
Point 11	140	-64
Point 12	140	-70
Point 13	140	-80
Point 14	57	-40
Point 15	72	-45

Point 16	140	-51
----------	-----	-----

Critical Slip Surfaces

	Slip Surface	FOS	Center (ft)	Radius (ft)	Entry (ft)	Exit (ft)
1	2026	1.643	(62.051, 11.118)	65.005	(12.536, -31)	(85.5142, -49.5047)

Slices of Slip Surface: 2026

	Slip Surface	X (ft)	Y (ft)	PWP (psf)	Base Normal Stress (psf)	Frictional Strength (psf)	Cohesive Strength (psf)
1	2026	13.70574	-32.302385	2015.6808	2003.3132	0	50
2	2026	16.04516	-34.777295	2170.1	2273.1362	0	50
3	2026	18.384585	-37.01107	2309.497	2517.2036	0	50
4	2026	20.72401	-39.03616	2435.8438	2738.914	0	50
5	2026	23.118445	-40.91635	2553.167	2901.2667	0	150
6	2026	25.567895	-42.6635	2662.1939	3097.5197	0	150
7	2026	28.017345	-44.24715	2761.0303	3275.8759	0	150
8	2026	29.621035	-45.21815	2821.6202	3368.655	0	200
9	2026	31.227275	-46.097465	2876.4649	3461.9227	0	200
10	2026	33.68182	-47.35407	2954.8971	3569.4453	0	200
11	2026	36.136365	-48.48313	3025.3418	3662.8851	0	200
12	2026	38.59091	-49.49178	3088.2979	3743.0851	0	200
13	2026	41.045455	-50.38596	3144.0964	3810.7373	0	200
14	2026	43.5	-51.17062	3193.0558	3866.3631	0	200
15	2026	45.954545	-51.849855	3235.44	3910.4423	0	200
16	2026	48.40909	-52.42705	3271.4604	3943.4066	0	200
17	2026	50.863635	-52.90497	3301.2727	3965.5084	0	200
18	2026	53.31818	-53.285825	3325.0222	3977.019	0	200
19	2026	55.772725	-53.57134	3342.8383	3978.1791	0	200

20	2026	58.25	- 53.763675	3354.8484	3968.9157	0	200
21	2026	60.75	- 53.861925	3360.9665	3949.1686	0	200
22	2026	63.25	-53.86388	3361.1073	3918.9322	0	200
23	2026	65.75	-53.76955	3355.2324	3878.3032	0	200
24	2026	68.25	- 53.578515	3343.2864	3827.1899	0	200
25	2026	70.75	-53.28991	3325.2864	3765.5686	0	200
26	2026	73.12618	- 52.926325	3302.6161	3697.3148	0	200
27	2026	75.378545	-52.49562	3275.7187	3623.3534	0	200
28	2026	77.63091	- 51.981605	3243.6554	3540.3788	0	200
29	2026	79.88327	- 51.382215	3206.2361	3448.2685	0	200
30	2026	82.135635	-50.69496	3163.3479	3346.6876	0	200
31	2026	84.388	-49.91688	3114.8281	3235.322	0	200

APPENDIX B
Logs of CPT Soundings

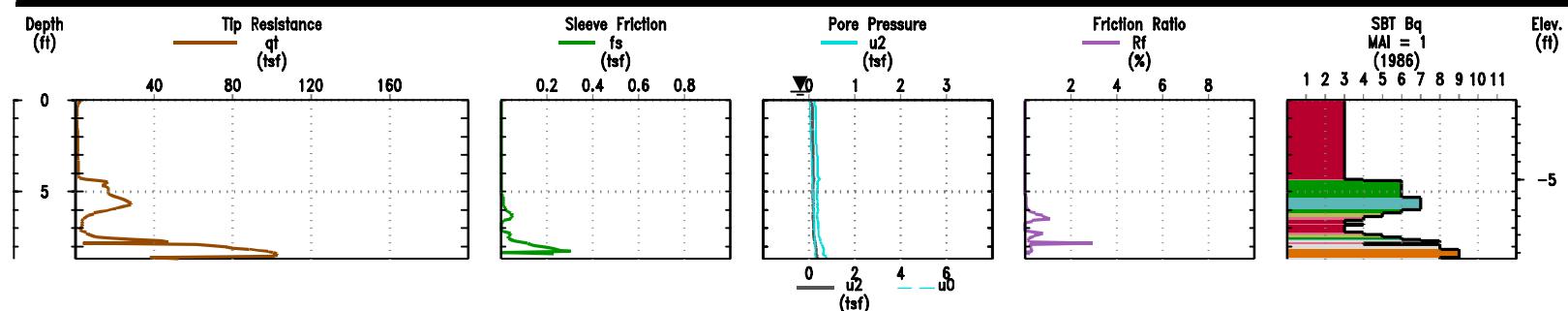
Caminada Headland Back-Barrier Marsh Creation Project (BA-171)
LaFourche Parish (Louisiana)

C-01

Project #: 16715-012-04
Date: Dec. 3, 2015

Latitude: N29° 06' 21.44"
Longitude: W90° 11' 14.31"

Elevation: -0.65
Filename: C-01.cpt



LOG OF CPT SOUNDING
C-1

Caminada Headlands Back-Barrier
Marsh Creation (BA-171) Project
Port Fourchon, Louisiana

GEOENGINEERS

Figure B-1

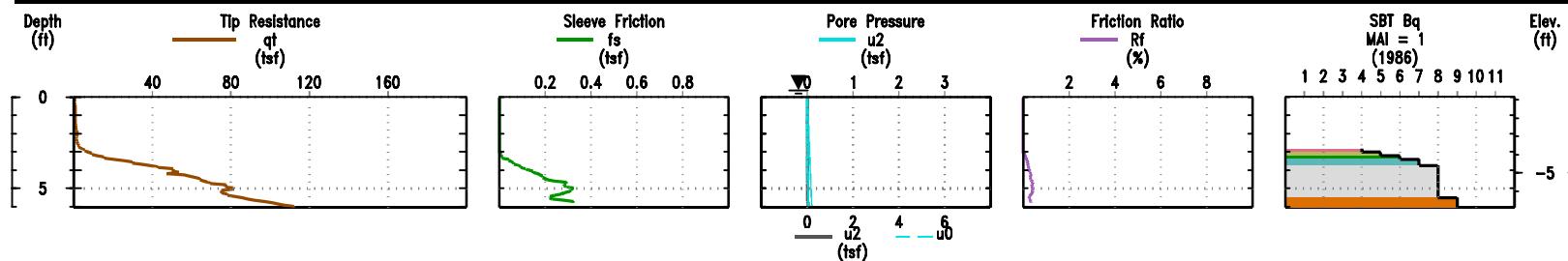
Caminada Headland Back-Barrier Marsh Creation Project (BA-171)
LaFourche Parish (Louisiana)

C-02

Project #: 16715-012-04
Date: Dec. 10, 2015

Latitude: N29° 06' 24.40"
Longitude: W90° 11' 16.16"

Elevation: -0.85
Filename: C-02b.cpt



LOG OF CPT SOUNDING
C-2

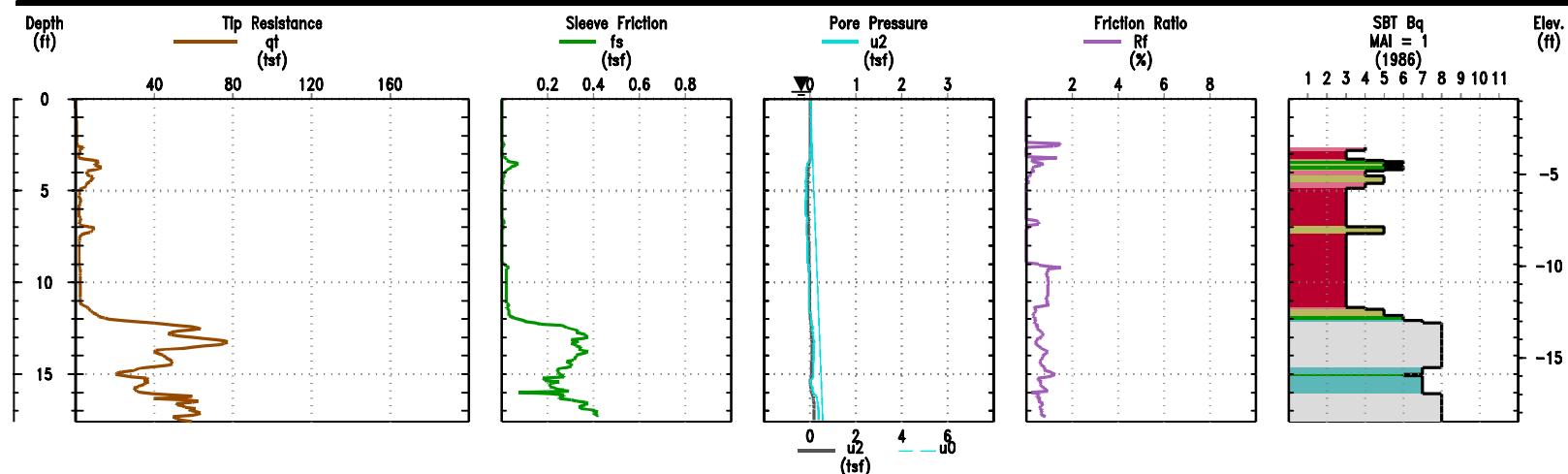
Caminada Headlands Back-Barrier
Marsh Creation (BA-171) Project
Port Fourchon, Louisiana

GEOENGINEERS

Figure B-2

Caminada Headland Back-Barrier Marsh Creation Project (BA-171)
LaFourche Parish (Louisiana)Project #: 16715-012-04
Date: Dec. 2, 2015Latitude: N29° 06' 29.93"
Longitude: W90° 11' 14.48"

C-03

Elevation: -0.89
Filename: C-03b.cpt

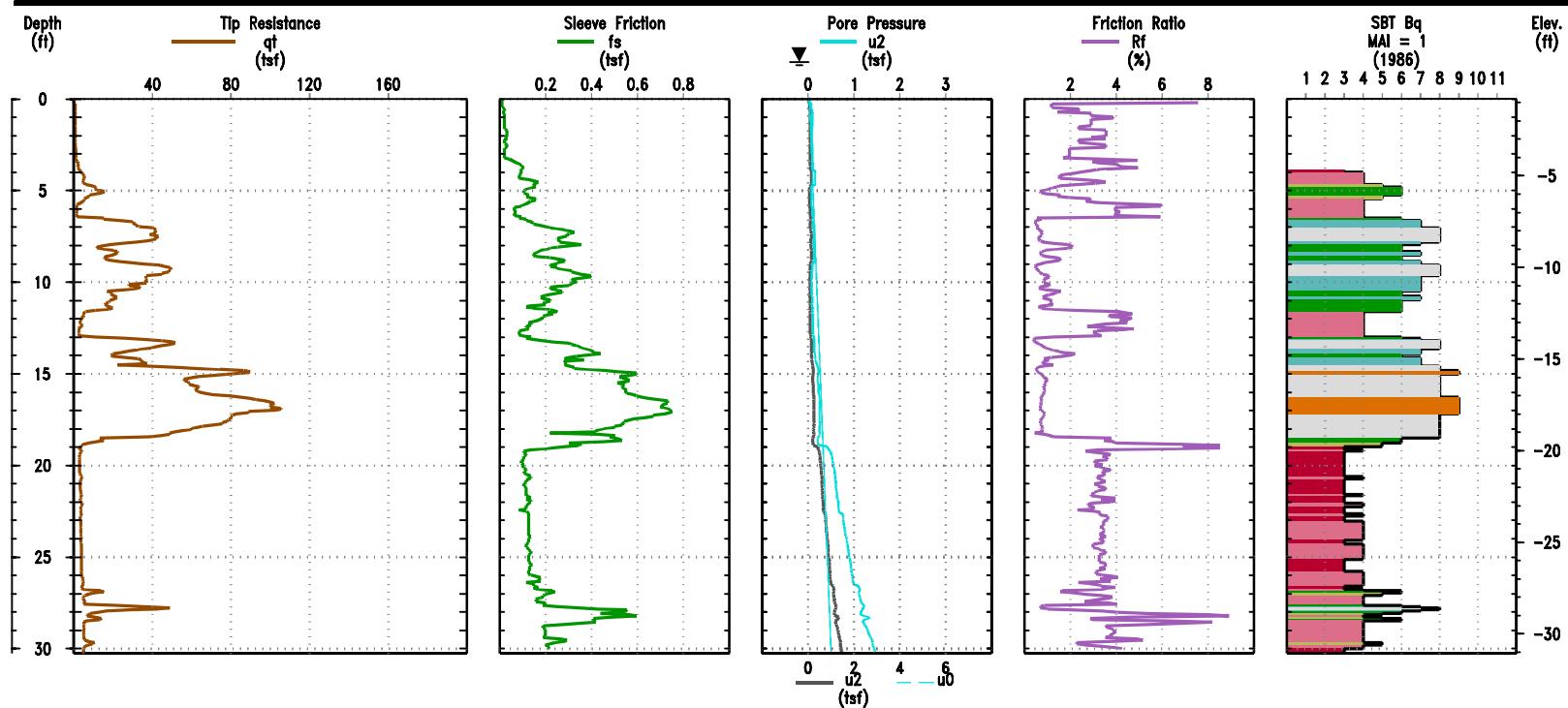
Caminada Headland Back-Barrier Marsh Creation Project (BA-171)
LaFourche Parish (Louisiana)

C-4

Project #: 16715-012-04
Date: Dec. 2, 2015

Latitude: N29° 06' 32.10"
Longitude: W90° 11' 09.26"

Elevation: -0.81
Filename: C-4.cpt



LOG OF CPT SOUNDING
C-4

Caminada Headlands Back-Barrier
Marsh Creation (BA-171) Project
Port Fourchon, Louisiana

GEOENGINEERS

Figure B-4

Caminada Headland Back-Barrier Marsh Creation Project (BA-171)
LaFourche Parish (Louisiana)Project #: 16715-012-04
Date: Dec. 3, 2015Latitude: N29° 06' 32.79"
Longitude: W90° 11' 02.81"Elevation: -1.17
Filename: C-5b.cpt

C-5

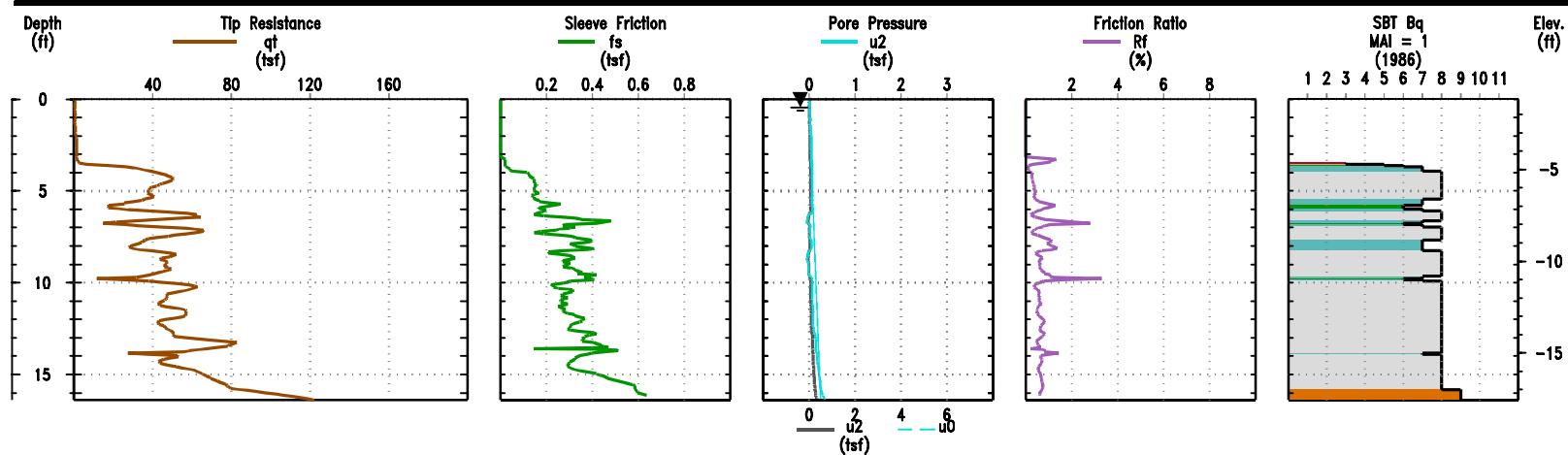
LOG OF CPT SOUNDING
C-5Caminada Headlands Back-Barrier
Marsh Creation (BA-171) Project
Port Fourchon, Louisiana**GEOENGINEERS**

Figure B-5

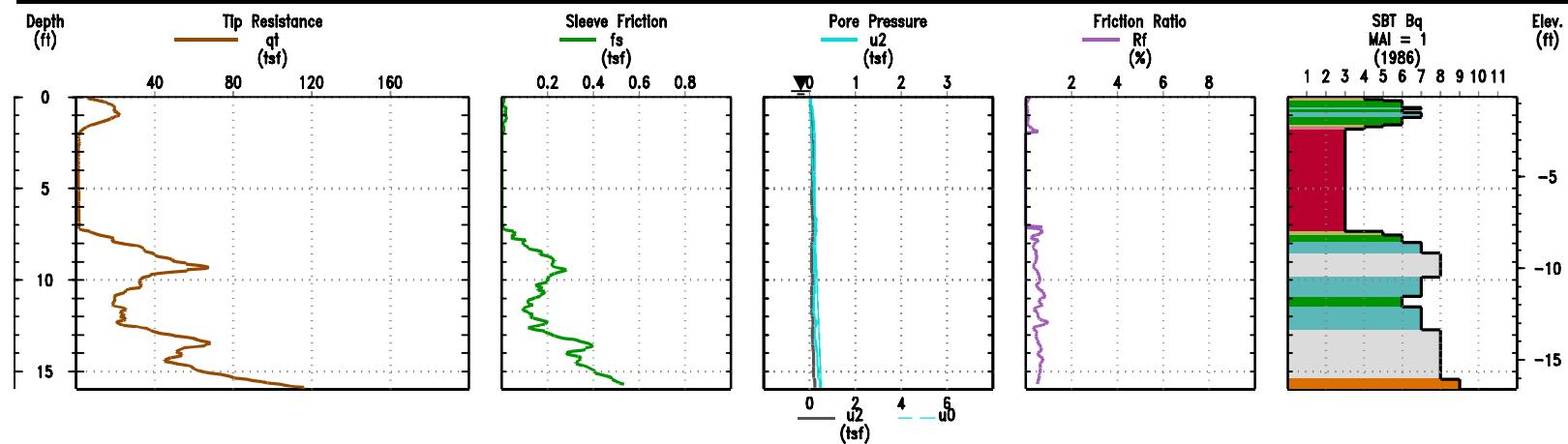
Caminada Headland Back-Barrier Marsh Creation Project (BA-171)
LaFourche Parish (Louisiana)

C-06

Project #: 16715-012-04
Date: Dec. 4, 2015

Latitude: N29° 06' 36.24"
Longitude: W90° 10' 56.40"

Elevation: -0.64
Filename: C-06b.cpt



LOG OF CPT SOUNDING
C-6

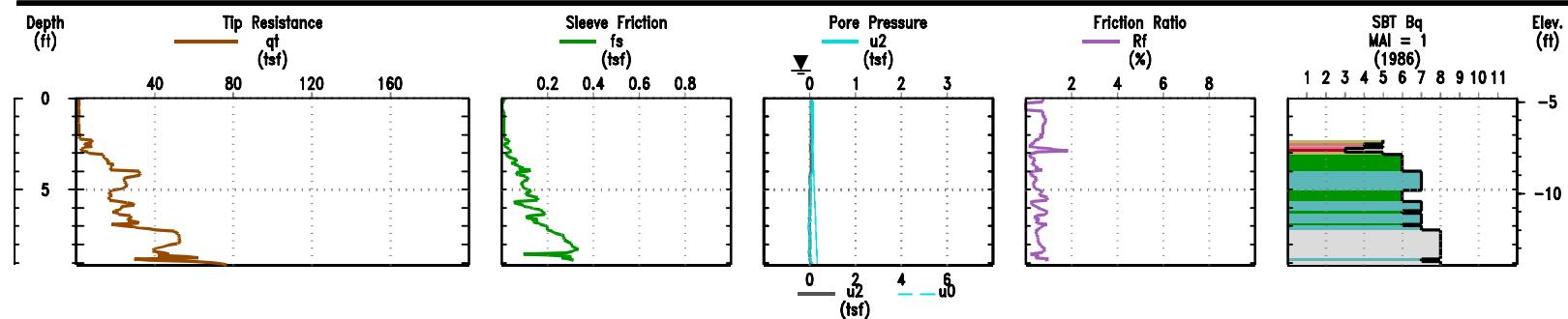
Caminada Headlands Back-Barrier
Marsh Creation (BA-171) Project
Port Fourchon, Louisiana

GEOENGINEERS

Figure B-6

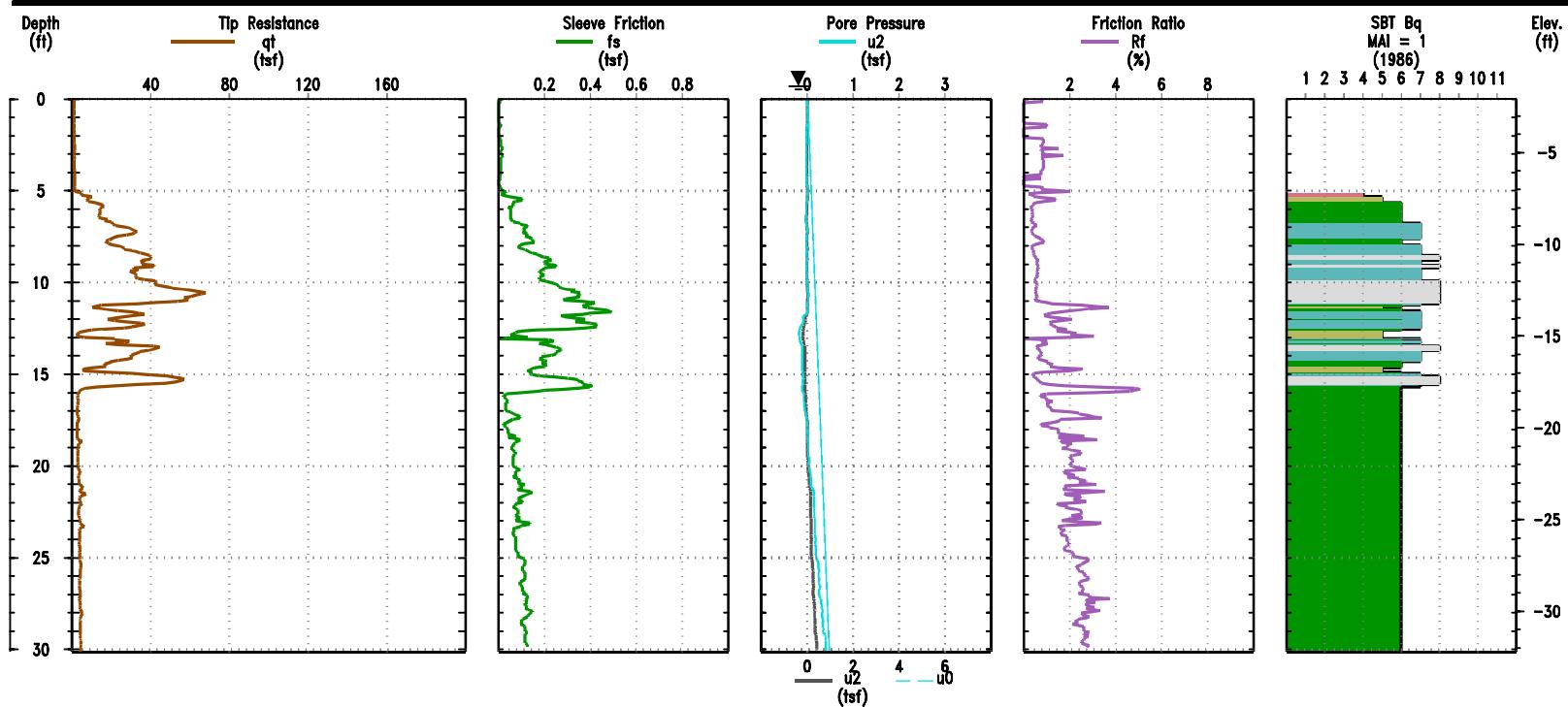
Caminada Headland Back-Barrier Marsh Creation Project (BA-171)
LaFourche Parish (Louisiana)Project #: 16715-012-04
Date: Dec. 4, 2015Latitude: N29° 06' 40.50"
Longitude: W90° 10' 56.59"Elevation: -4.79
Filename: C-07b.cpt

C-07



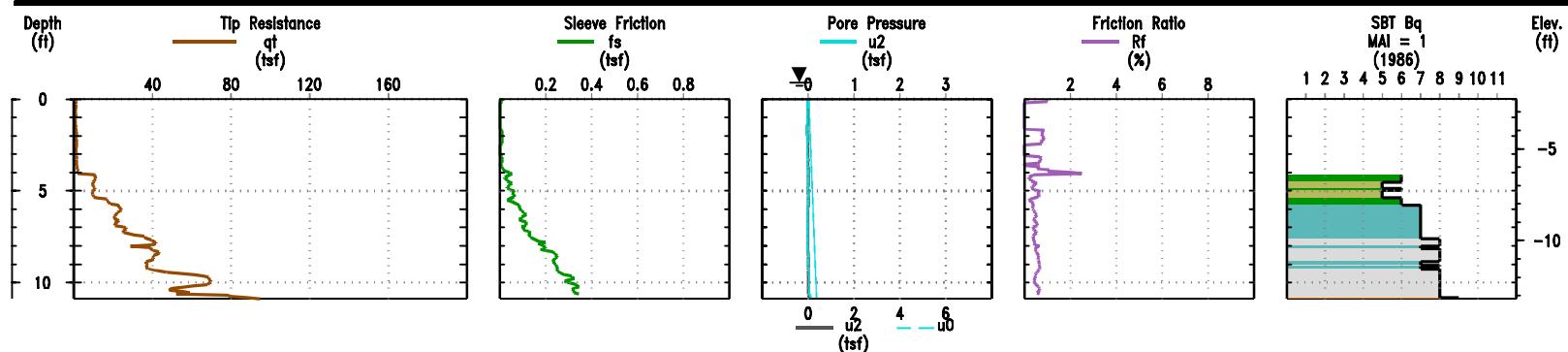
Caminada Headland Back-Barrier Marsh Creation Project (BA-171)
LaFourche Parish (Louisiana)Project #: 16715-012-04
Date: Dec. 4, 2015Latitude: N29° 06' 48.47"
Longitude: W90° 10' 55.78"

C-08

Elevation: -2.08
Filename: C-08.cpt

Caminada Headland Back-Barrier Marsh Creation Project (BA-171)
LaFourche Parish (Louisiana)Project #: 16715-012-04
Date: Dec. 4, 2015Latitude: N29° 06' 51.99"
Longitude: W90° 10' 51.34"

C-09

Elevation: -2.29
Filename: C-9b.cpt

Caminada Headland Back-Barrier Marsh Creation Project (BA-171)
LaFourche Parish (Louisiana)Project #: 16715-012-04
Date: Dec. 8, 2015Latitude: N29° 06' 55.78"
Longitude: W90° 10' 46.35"Elevation: -2.28
Filename: C-10b.cpt

C-10

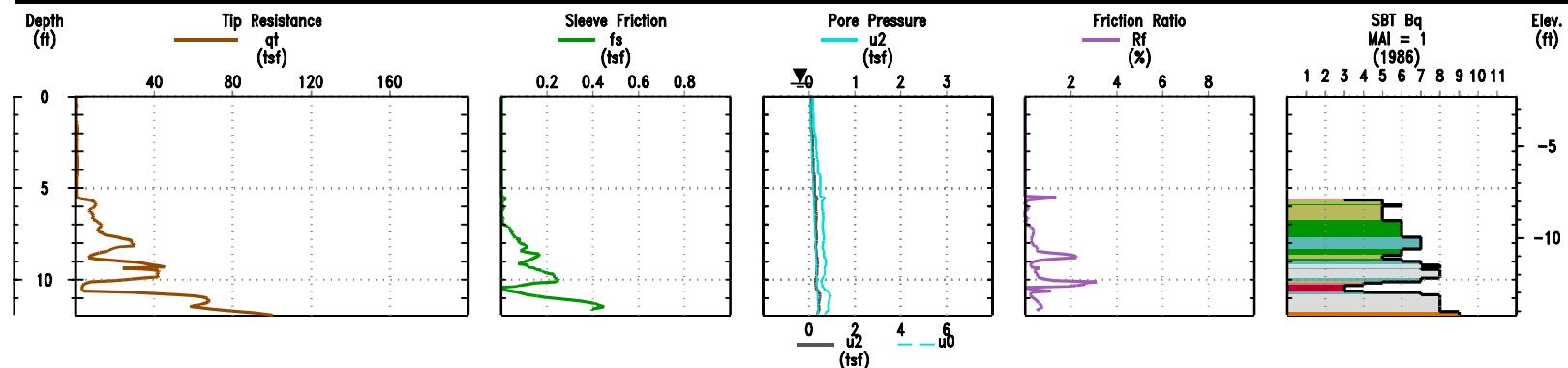
LOG OF CPT SOUNDING
C-10Caminada Headlands Back-Barrier
Marsh Creation (BA-171) Project
Port Fourchon, Louisiana**GEOENGINEERS**

Figure B-10

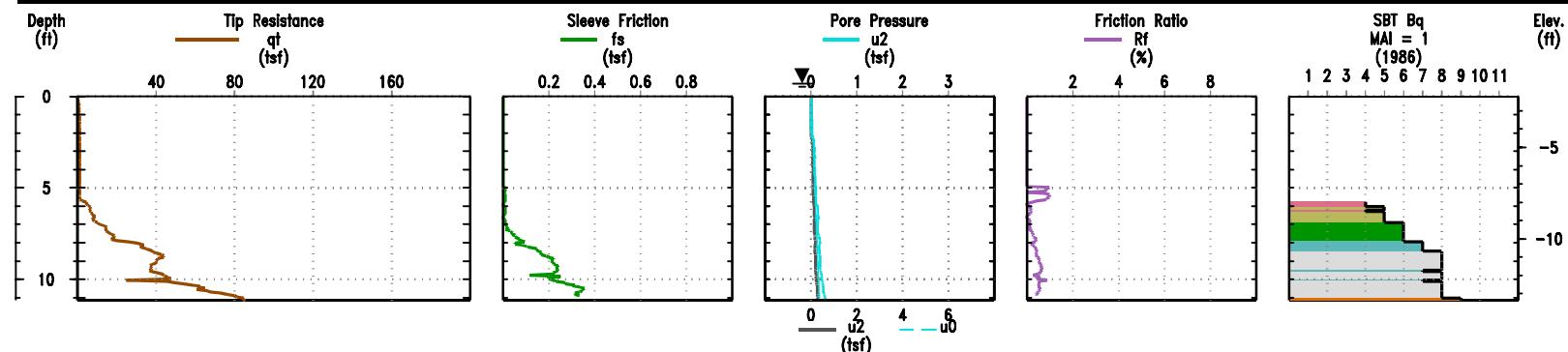
Caminada Headland Back-Barrier Marsh Creation Project (BA-171)
LaFourche Parish (Louisiana)

C-11

Project #: 16715-012-04
Date: Dec. 8, 2015

Latitude: N29° 06' 59.93"
Longitude: W90° 10' 47.35"

Elevation: -2.21
Filename: C-11b.cpt



LOG OF CPT SOUNDING
C-11

Caminada Headlands Back-Barrier
Marsh Creation (BA-171) Project
Port Fourchon, Louisiana

GEOENGINEERS

Figure B-11

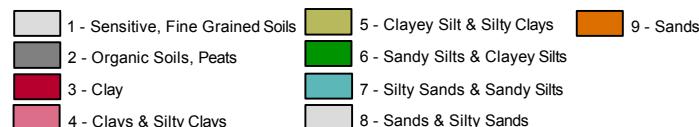
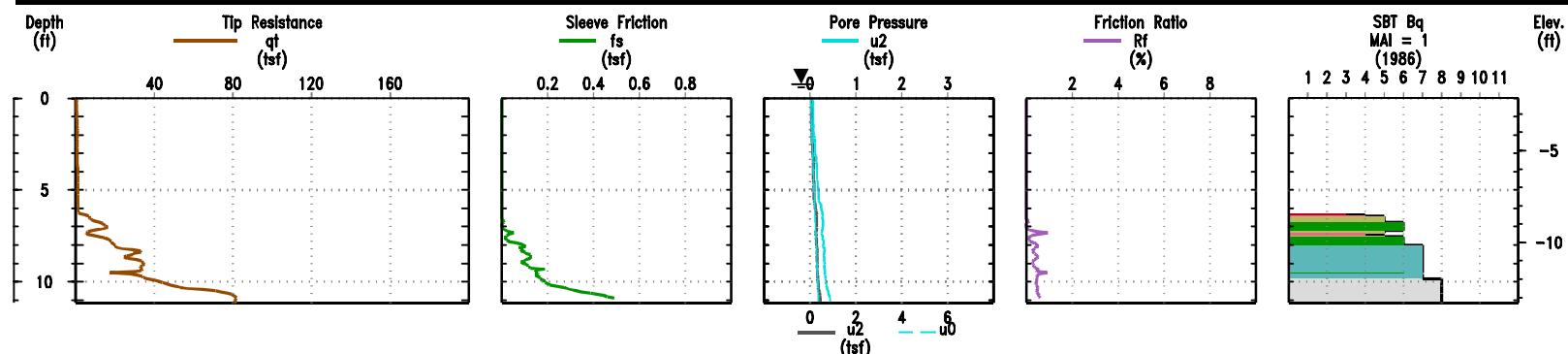
Caminada Headland Back-Barrier Marsh Creation Project (BA-171)
LaFourche Parish (Louisiana)

C-12

Project #: 16715-012-04
Date: Dec. 8, 2015

Latitude: N29° 07' 01.15"
Longitude: W90° 10' 40.48"

Elevation: -2.14
Filename: C-12.cpt



LOG OF CPT SOUNDING
C-12

Caminada Headlands Back-Barrier
Marsh Creation (BA-171) Project
Port Fourchon, Louisiana

GEOENGINEERS

Figure B-12

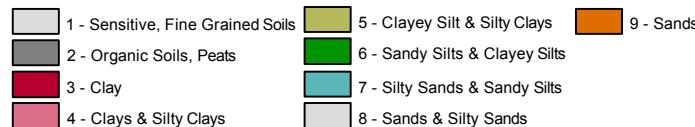
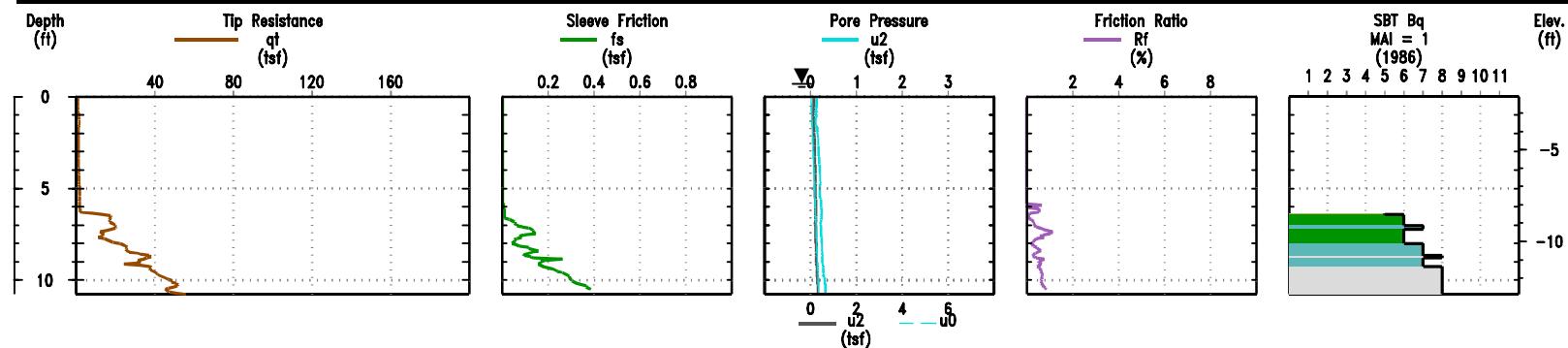
Caminada Headland Back-Barrier Marsh Creation Project (BA-171)
LaFourche Parish (Louisiana)

C-13

Project #: 16715-012-04
Date: Dec. 9, 2015

Latitude: N29° 07' 04.07"
Longitude: W90° 10' 34.51"

Elevation: -2.11
Filename: C-13.cpt



LOG OF CPT SOUNDING
C-13

Caminada Headlands Back-Barrier
Marsh Creation (BA-171) Project
Port Fourchon, Louisiana

GEOENGINEERS

Figure B-13

Caminada Headland Back-Barrier Marsh Creation Project (BA-171)
LaFourche Parish (Louisiana)Project #: 16715-012-04
Date: Dec. 9, 2015Latitude: N29° 07' 06.29"
Longitude: W90° 10' 31.58"Elevation: -2.27
Filename: C-14.cpt

C-14

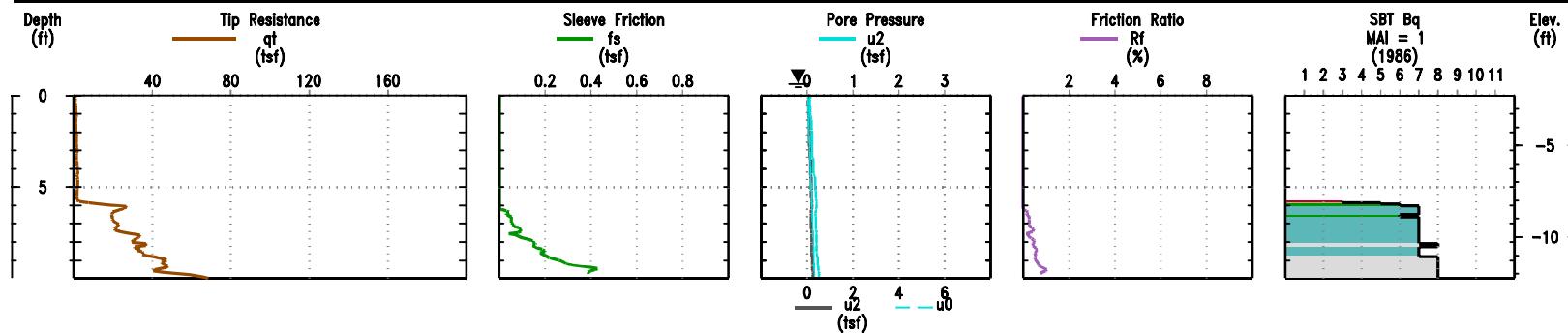
LOG OF CPT SOUNDING
C-14Caminada Headlands Back-Barrier
Marsh Creation (BA-171) Project
Port Fourchon, Louisiana**GEOENGINEERS**

Figure B-14

Caminada Headland Back-Barrier Marsh Creation Project (BA-171)
LaFourche Parish (Louisiana)Project #: 16715-012-04
Date: Dec. 9, 2015Latitude: N29° 07' 08.30"
Longitude: W90° 10' 28.80"Elevation: -2.25
Filename: C-15b.cpt

C-15

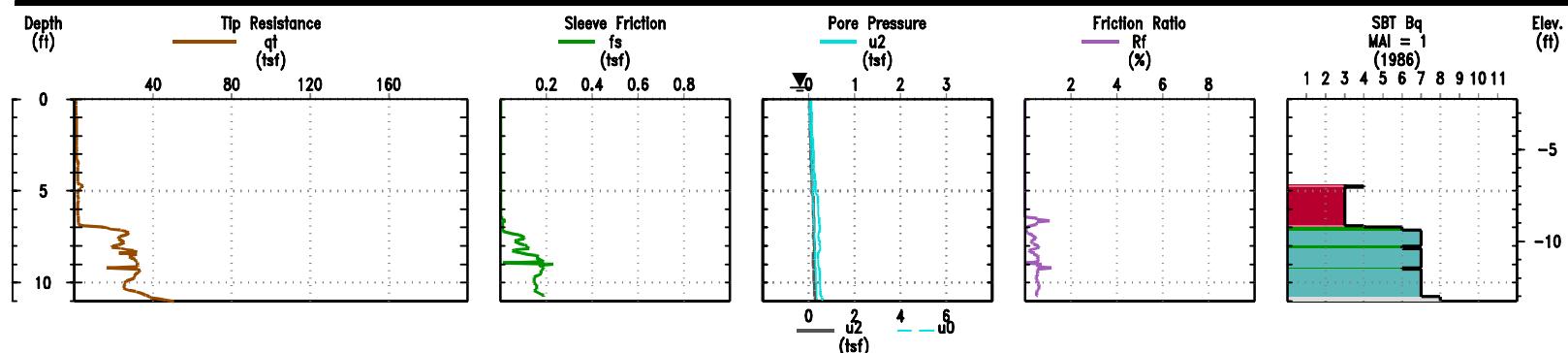
LOG OF CPT SOUNDING
C-15Caminada Headlands Back-Barrier
Marsh Creation (BA-171) Project
Port Fourchon, Louisiana**GEOENGINEERS**

Figure B-15

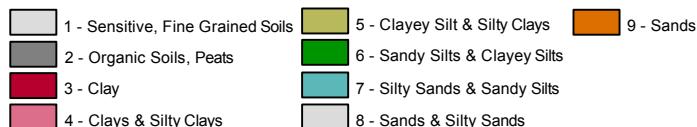
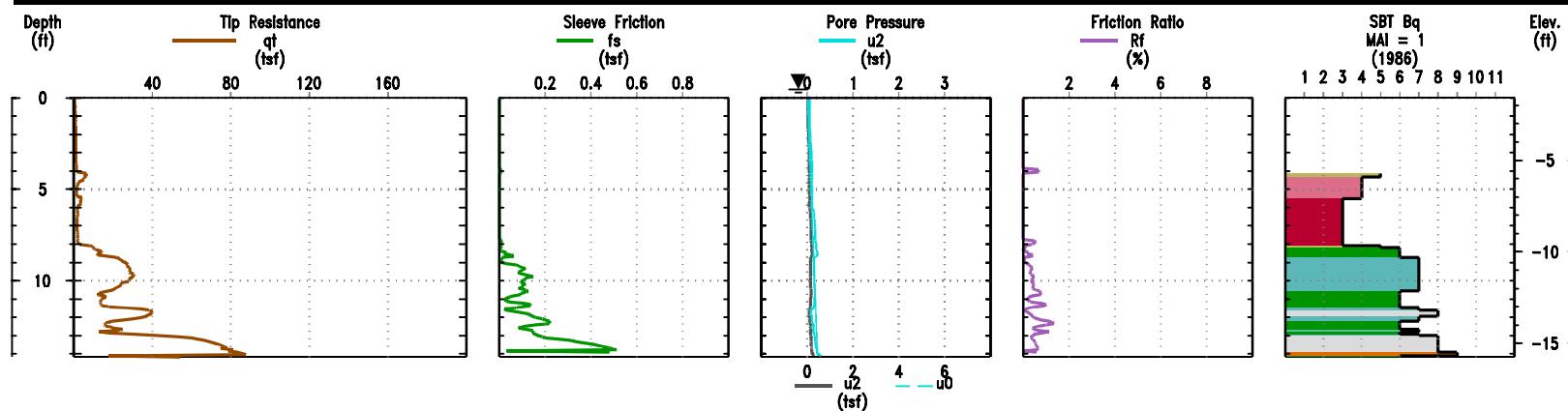
Caminada Headland Back-Barrier Marsh Creation Project (BA-171)
LaFourche Parish (Louisiana)

Project #: 16715-012-04
Date: Dec. 9, 2015

Latitude: N29 07' 11.21"
Longitude: W90 10' 24.10"

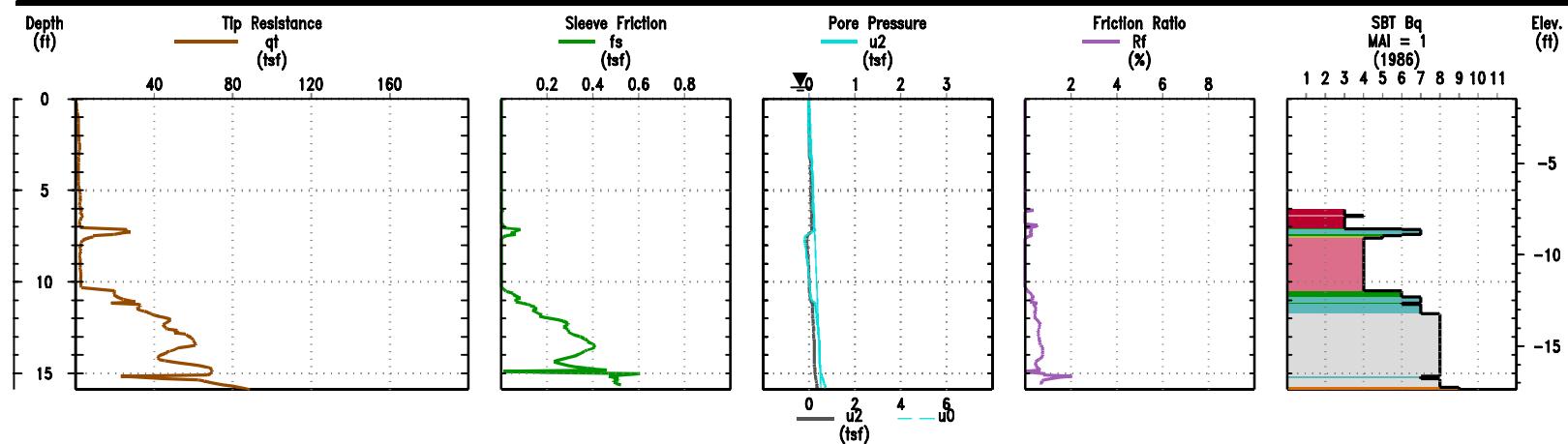
Elevation: -1.58
Filename: C-16b.cpt

C-16b



Caminada Headland Back-Barrier Marsh Creation Project (BA-171)
LaFourche Parish (Louisiana)Project #: 16715-012-04
Date: Dec. 9, 2015Latitude: N29° 07' 12.30"
Longitude: W90° 10' 18.54"Elevation: -1.48
Filename: C-17b.cpt

C-17



Caminada Headland Back-Barrier Marsh Creation Project (BA-171)
LaFourche Parish (Louisiana)Project #: 16715-012-04
Date: Dec. 9, 2015Latitude: N29 07' 10.71"
Longitude: W90 10' 11.82"Elevation: -1.98
Filename: C-18b.cpt

C-18

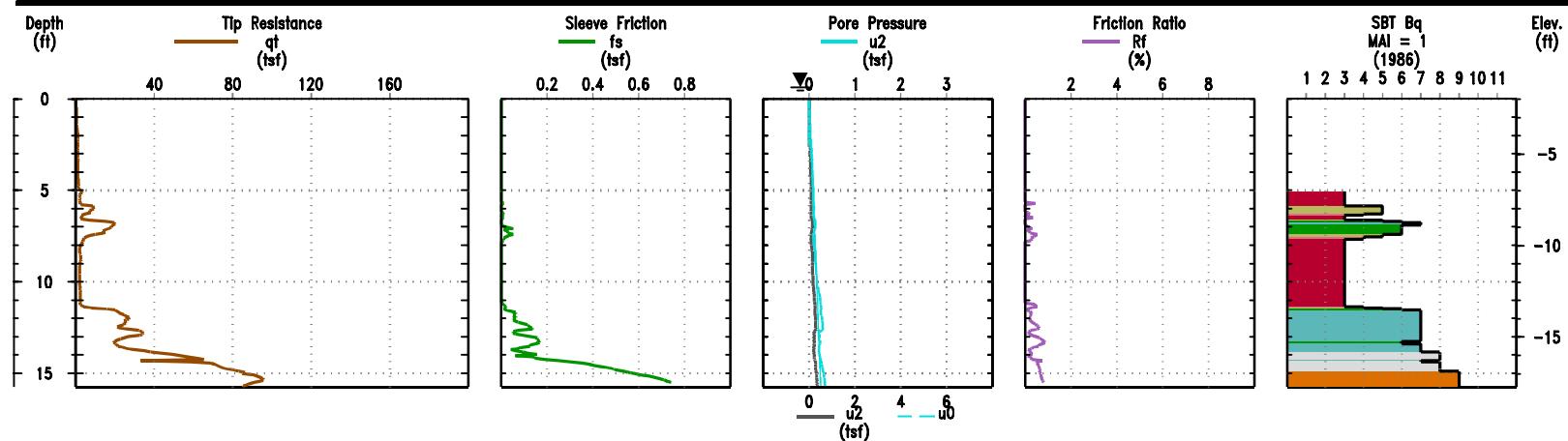
LOG OF CPT SOUNDING
C-18Caminada Headlands Back-Barrier
Marsh Creation (BA-171) Project
Port Fourchon, Louisiana**GEOENGINEERS**

Figure B-18

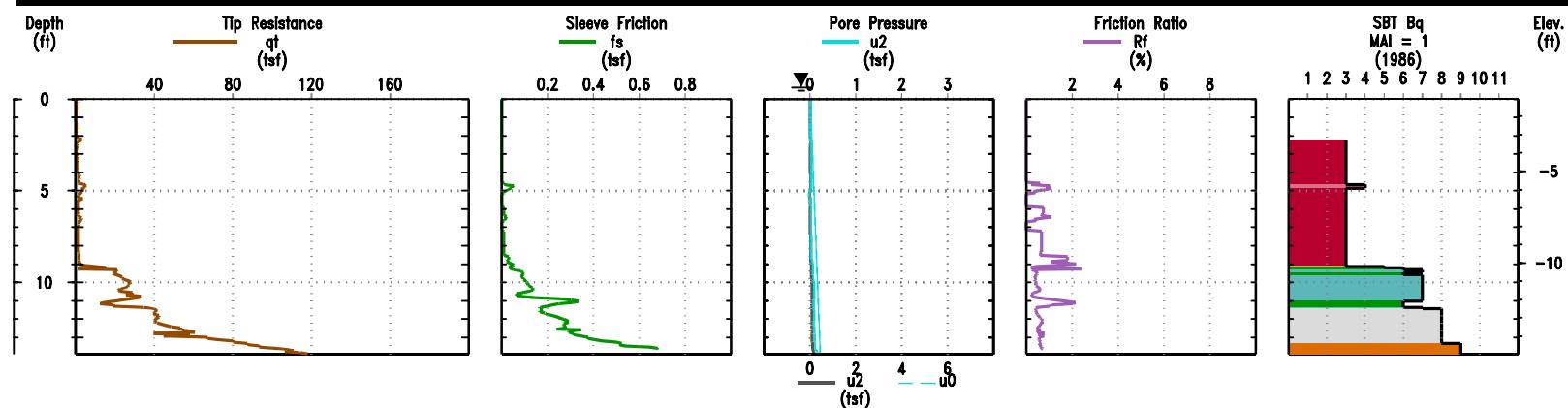
Caminada Headland Back-Barrier Marsh Creation Project (BA-171)
LaFourche Parish (Louisiana)

Project #: 16715-012-04
Date: Dec. 4, 2015

Latitude: N29 07' 16.77"
Longitude: W90 10' 03.19"

Elevation: -1.06
Filename: C-19.cpt

C-19



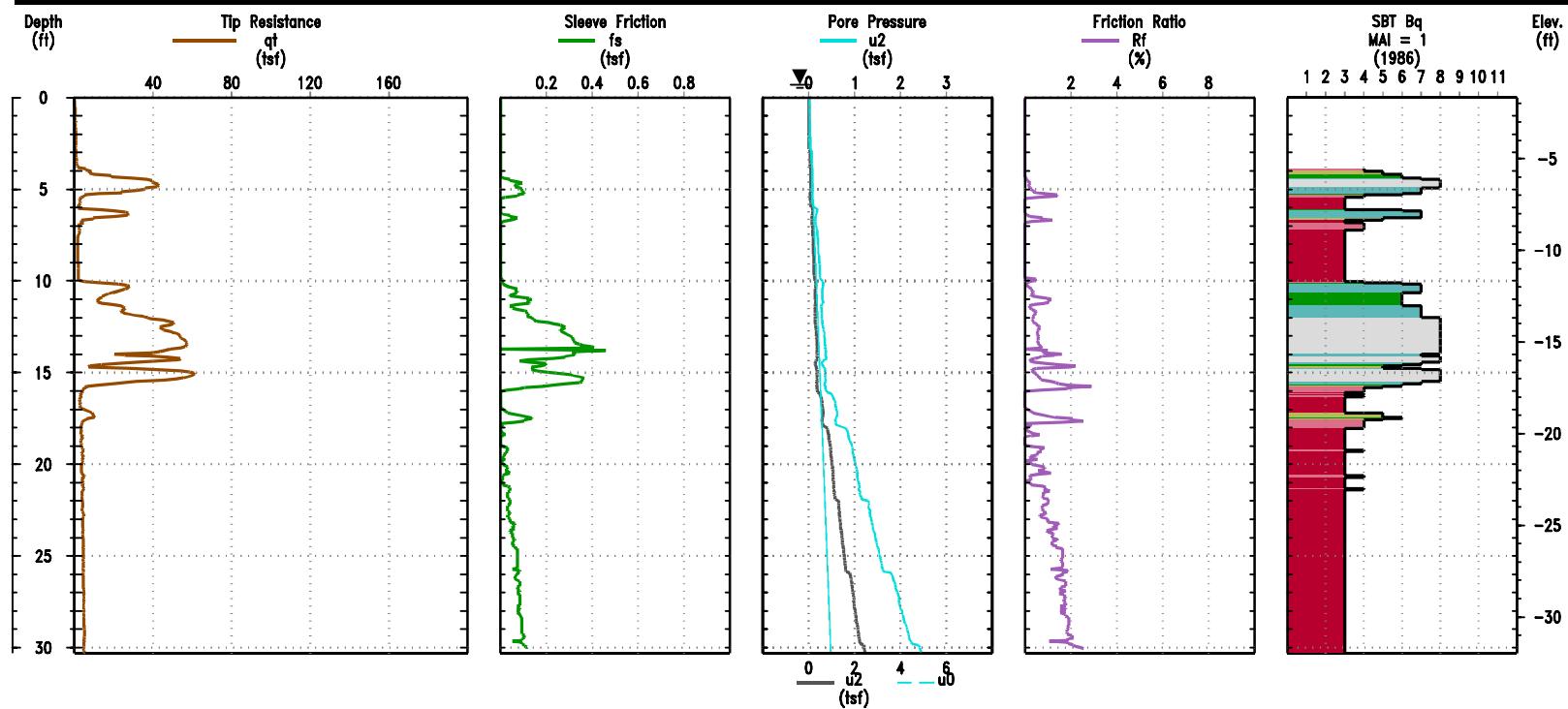
Caminada Headland Back-Barrier Marsh Creation Project (BA-171)
LaFourche Parish (Louisiana)

C-20

Project #: 16715-012-04
Date: Dec. 9, 2015

Latitude: N29° 07' 25.71"
Longitude: W90° 09' 49.48"

Elevation: -1.67
Filename: C-20.cpt



LOG OF CPT SOUNDING
C-20

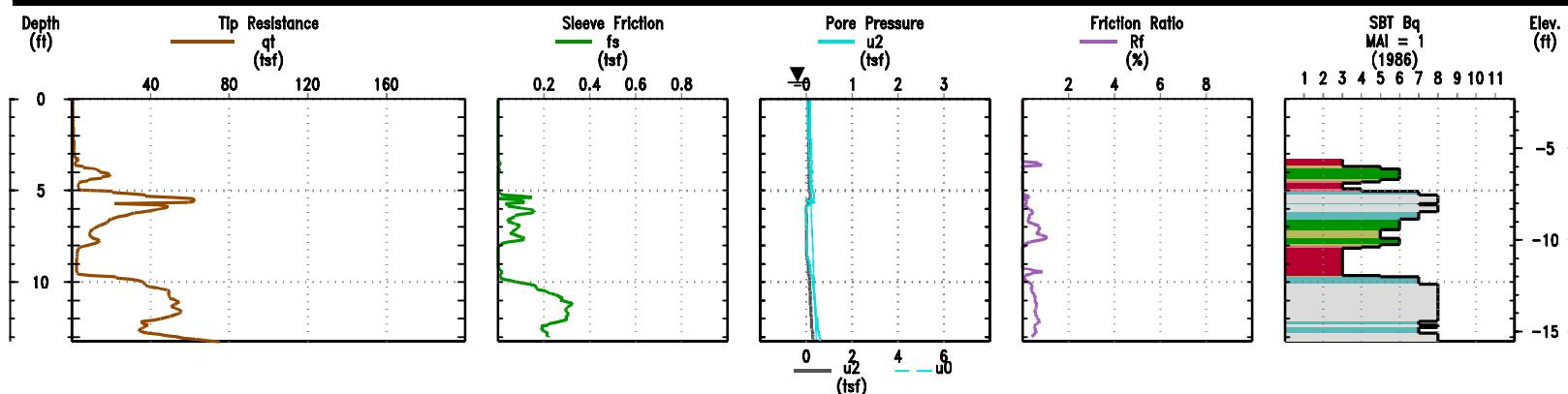
Caminada Headlands Back-Barrier
Marsh Creation (BA-171) Project
Port Fourchon, Louisiana

GEOENGINEERS

Figure B-20

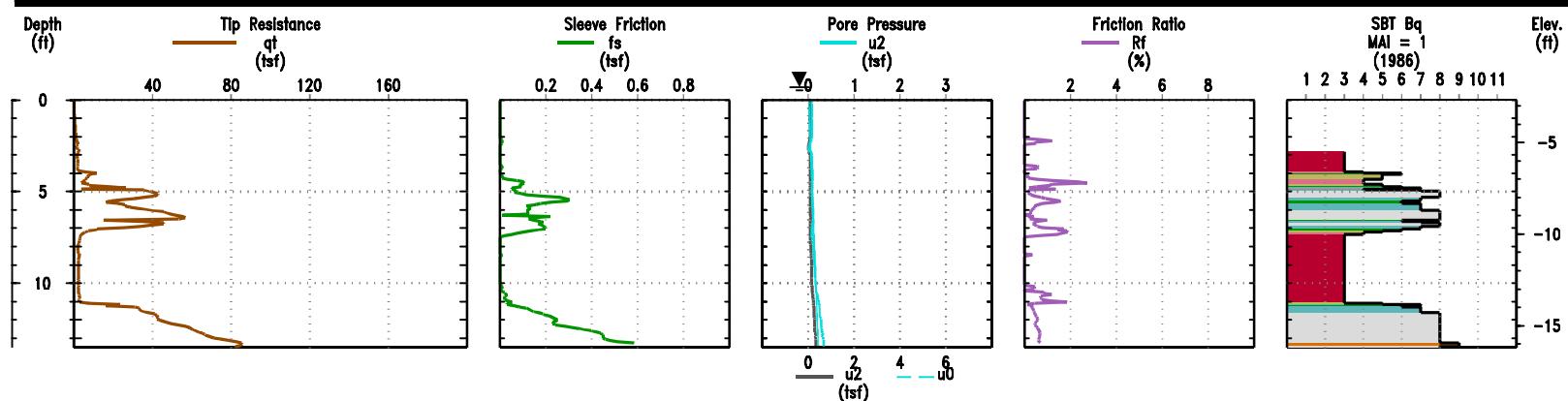
Caminada Headland Back-Barrier Marsh Creation Project (BA-171)
LaFourche Parish (Louisiana)Project #: 16715-012-04
Date: Dec. 9, 2015Latitude: N29° 07' 28.31"
Longitude: W90° 09' 51.21"Elevation: -2.3
Filename: C-21.cpt

C-21



Caminada Headland Back-Barrier Marsh Creation Project (BA-171)
LaFourche Parish (Louisiana)Project #: 16715-012-04
Date: Dec. 10, 2015Latitude: N29° 07' 31.64"
Longitude: W90° 09' 40.35"Elevation: -2.68
Filename: C-22.cpt

C-22



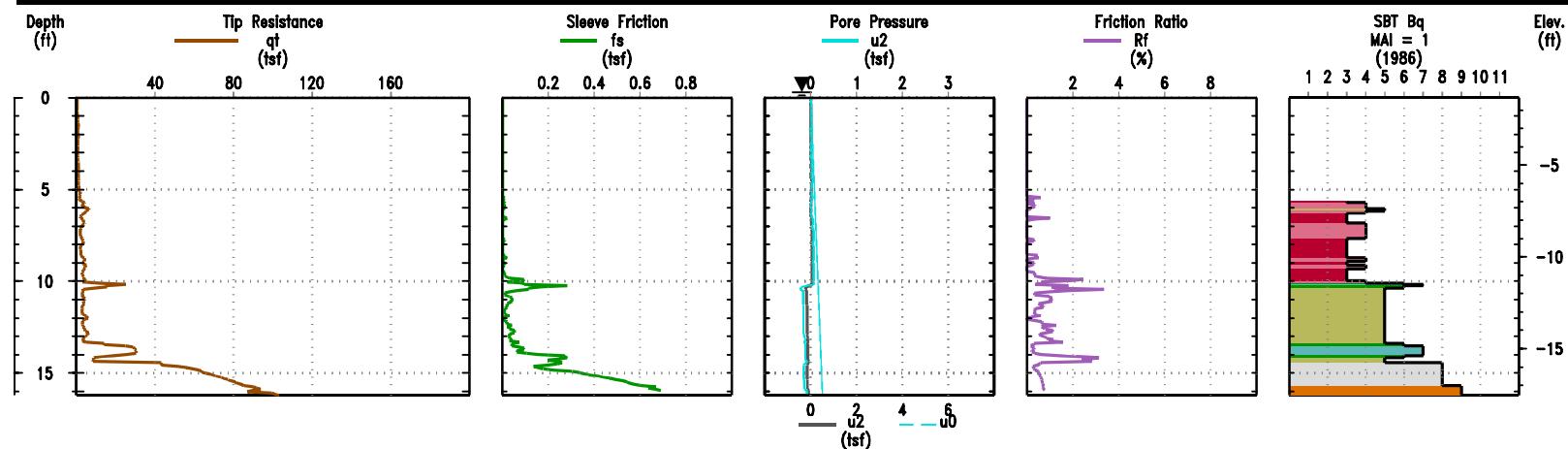
Caminada Headland Back-Barrier Marsh Creation Project (BA-171)
LaFourche Parish (Louisiana)

C-23

Project #: 16715-012-04
Date: Dec. 10, 2015

Latitude: N29° 07' 42.07"
Longitude: W90° 09' 22.80"

Elevation: -1.33
Filename: C-23.cpt



LOG OF CPT SOUNDING
C-23

Caminada Headlands Back-Barrier
Marsh Creation (BA-171) Project
Port Fourchon, Louisiana

GEOENGINEERS

Figure B-23

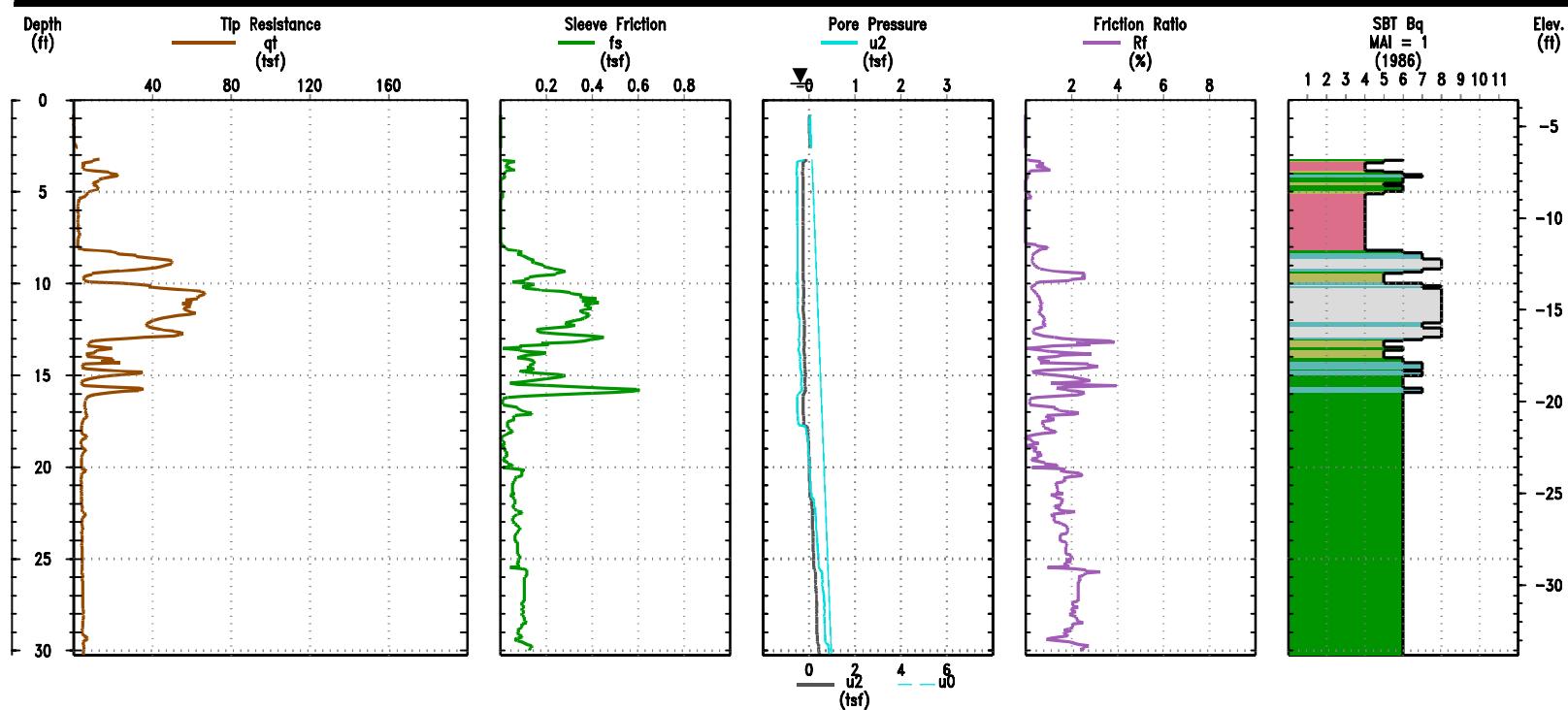
Caminada Headland Back-Barrier Marsh Creation Project (BA-171)
LaFourche Parish (Louisiana)

C-24

Project #: 16715-012-04
Date: Dec. 10, 2015

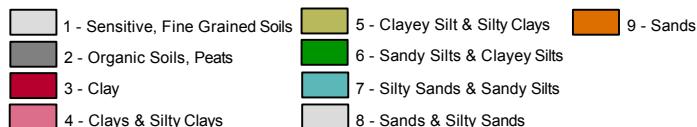
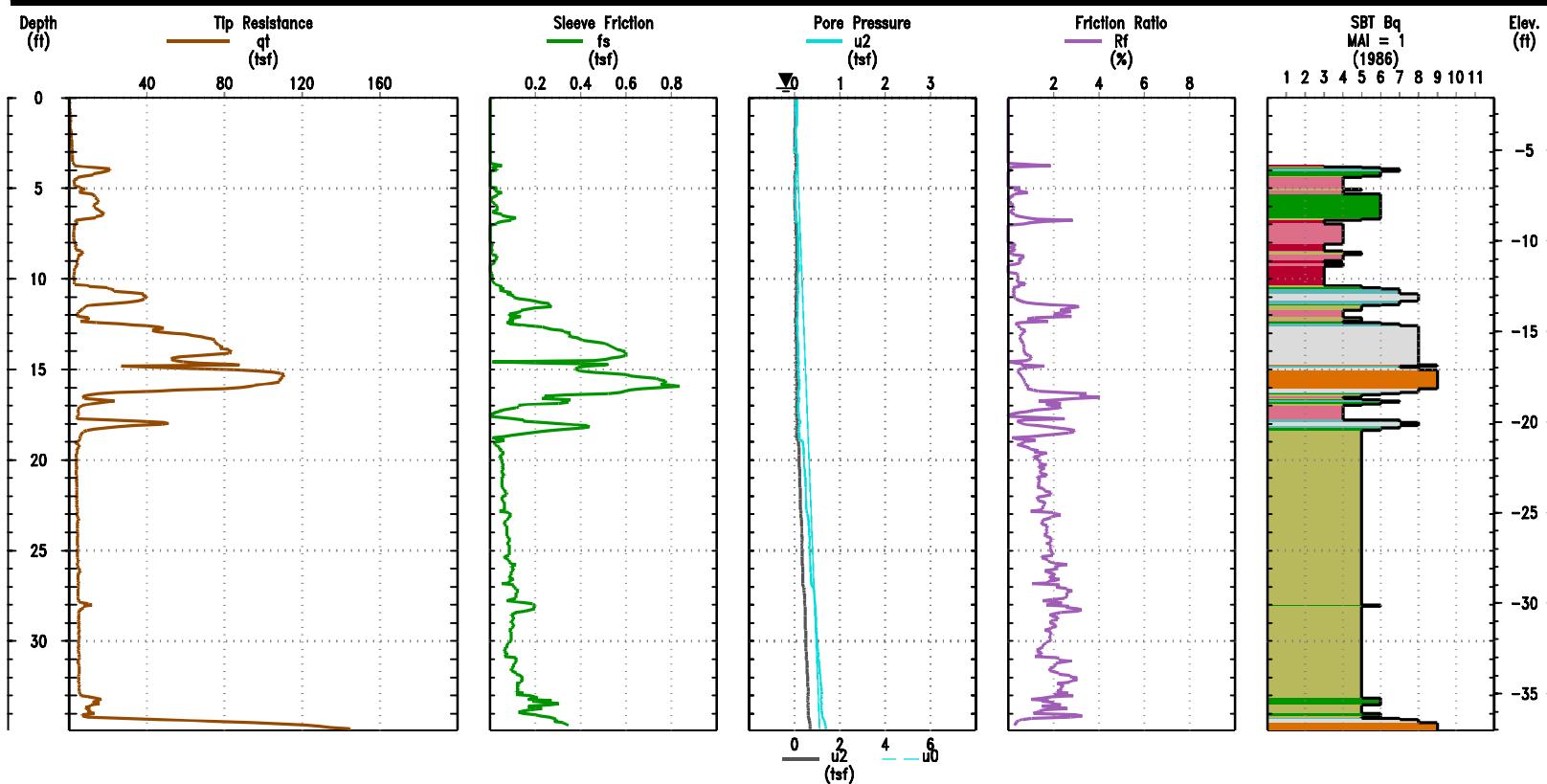
Latitude: N29° 07' 56.37"
Longitude: W90° 09' 02.58"

Elevation: -3.57
Filename: C-24.cpt



Caminada Headland Back-Barrier Marsh Creation Project (BA-171)
LaFourche Parish (Louisiana)Project #: 16715-012-04
Date: Dec. 10, 2015Latitude: N29° 07' 58.77"
Longitude: W90° 08' 57.73"Elevation: -2.1
Filename: C-25.cpt

C-25



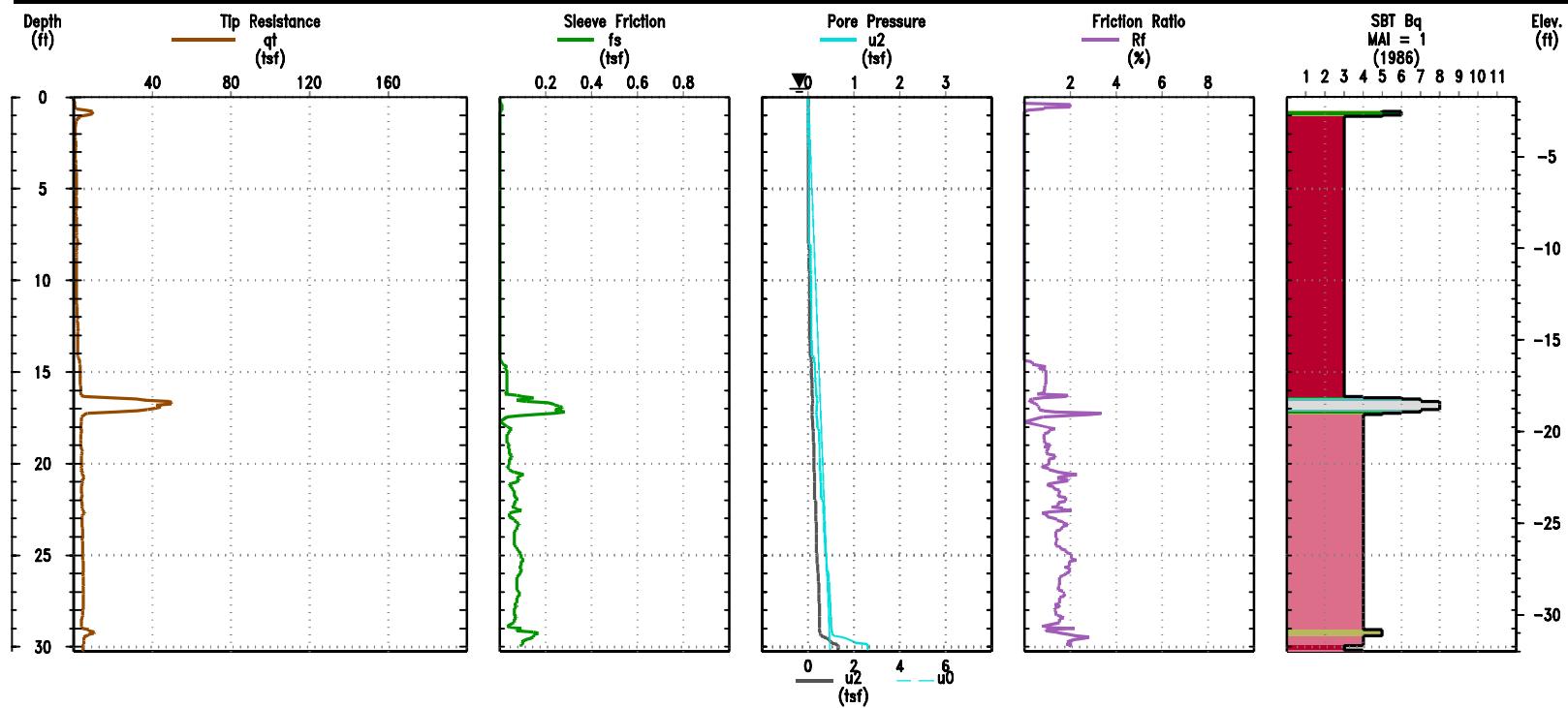
Caminada Headland Back-Barrier Marsh Creation Project (BA-171)
LaFourche Parish (Louisiana)

C-26

Project #: 16715-012-04
Date: Dec. 10, 2015

Latitude: N29° 07' 42.14"
Longitude: W90° 09' 11.05"

Elevation: -1.75
Filename: C-26.cpt



1 - Sensitive, Fine Grained Soils	5 - Clayey Silt & Silty Clays	9 - Sands
2 - Organic Soils, Peats	6 - Sandy Silts & Clayey Silts	
3 - Clay	7 - Silty Sands & Sandy Silts	
4 - Clays & Silty Clays	8 - Sands & Silty Sands	

LOG OF CPT SOUNDING
C-26

Caminada Headlands Back-Barrier
Marsh Creation (BA-171) Project
Port Fourchon, Louisiana

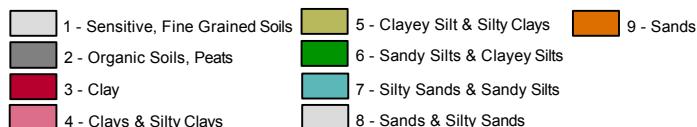
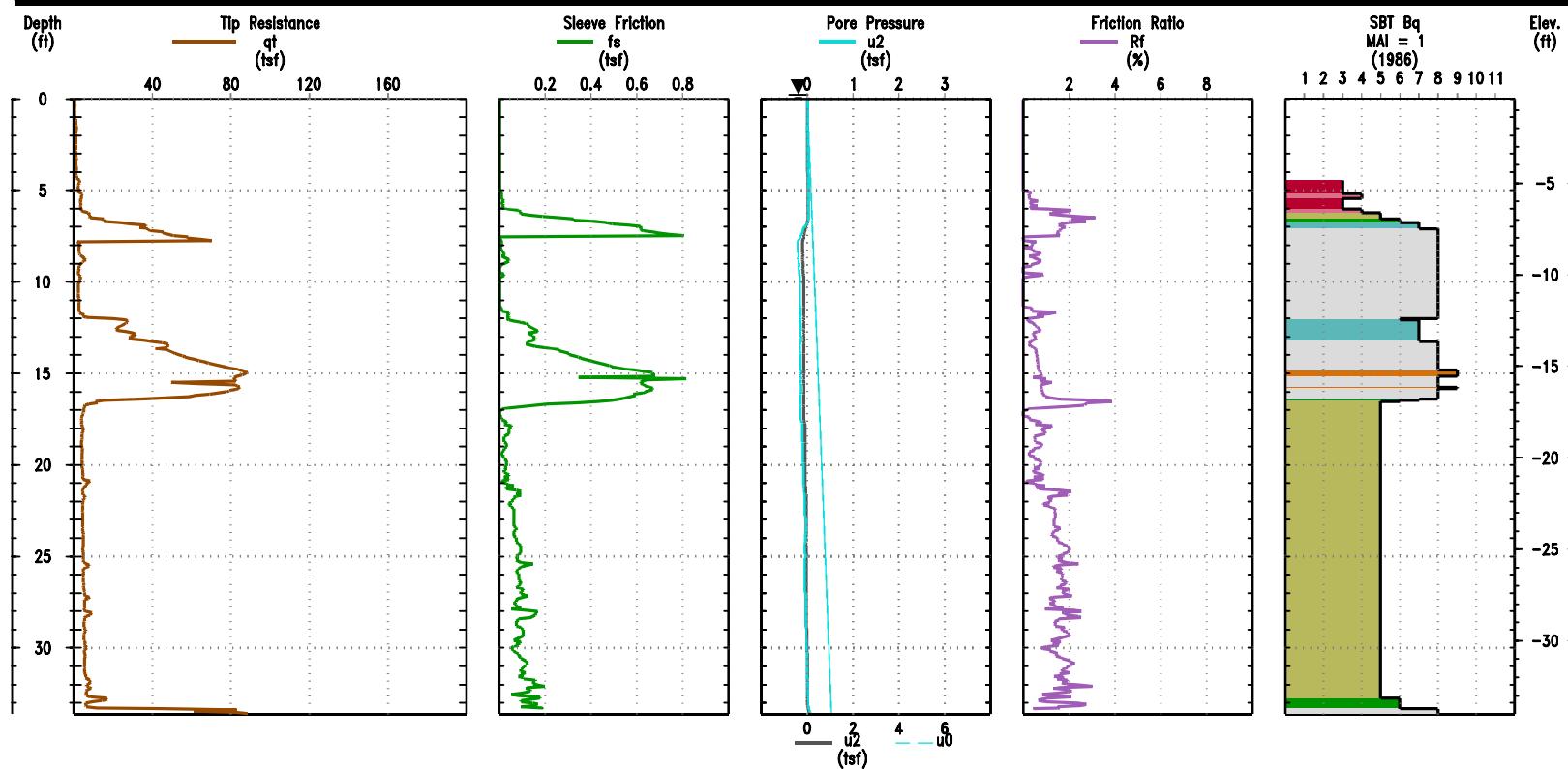
GEOENGINEERS

Figure B-26

Caminada Headland Back-Barrier Marsh Creation Project (BA-171)
LaFourche Parish (Louisiana)Project #: 16715-012-04
Date: Dec. 10, 2015

Cone Penetration Test

C-27

Latitude: N29° 07' 55.54"
Longitude: W90° 08' 51.72"Elevation: -0.39
Filename: C-27b.cpt

APPENDIX C
Logs of Soil Borings

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS	TYPICAL DESCRIPTIONS
			GRAPH	LETTER
COARSE GRAINED SOILS MORE THAN 50% RETAINED ON NO. 200 SIEVE	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)		GW WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GP POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES
	SAND AND SANDY SOILS	CLEAN SANDS (LITTLE OR NO FINES)		GM SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GC CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
		CLEAN SANDS (LITTLE OR NO FINES)		SW WELL-GRADED SANDS, GRAVELLY SANDS
	MORE THAN 50% OF COARSE FRACTION PASSING NO. 4 SIEVE	SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SP POORLY-GRADED SANDS, GRAVELLY SAND
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM SILTY SANDS, SAND - SILT MIXTURES
FINE GRAINED SOILS MORE THAN 50% PASSING NO. 200 SIEVE	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50		SC CLAYEY SANDS, SAND - CLAY MIXTURES
		SILTS AND CLAYS LIQUID LIMIT LESS THAN 50		ML INORGANIC SILTS, ROCK FLOUR, CLAYEY SILTS WITH SLIGHT PLASTICITY
		SILTS AND CLAYS LIQUID LIMIT LESS THAN 50		CL INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
		SILTS AND CLAYS LIQUID LIMIT LESS THAN 50		OL ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
		SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50		MH INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS SILTY SOILS
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50		CH INORGANIC CLAYS OF HIGH PLASTICITY
		HIGHLY ORGANIC SOILS		OH ORGANIC CLAYS AND SILTS OF MEDIUM TO HIGH PLASTICITY
		HIGHLY ORGANIC SOILS		PT PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: Multiple symbols are used to indicate borderline or dual soil classifications

Sampler Symbol Descriptions

-
- Standard Penetration Test (SPT)**
-
- Shelby tube**
-
- Piston**
-
- Direct-Push**
-
- Bulk or grab**

Blowcount is recorded for driven samplers as the number of blows required to advance sampler 12 inches (or distance noted). See exploration log for hammer weight and drop.

A "P" indicates sampler pushed using the weight of the drill rig.

ADDITIONAL MATERIAL SYMBOLS

SYMBOLS	TYPICAL DESCRIPTIONS
GRAPH	LETTER
	CC Cement Concrete
	AC Asphalt Concrete
	CR Crushed Rock/ Quarry Spalls
	TS Topsoil/ Forest Duff/Sod

Measured groundwater level in exploration, well, or piezometer

Groundwater observed at time of exploration

Perched water observed at time of exploration

Graphic Log Contact

Distinct contact between soil strata or geologic units

Approximate location of soil strata change within a geologic soil unit

Material Description Contact

Distinct contact between soil strata or geologic units

Approximate location of soil strata change within a geologic soil unit

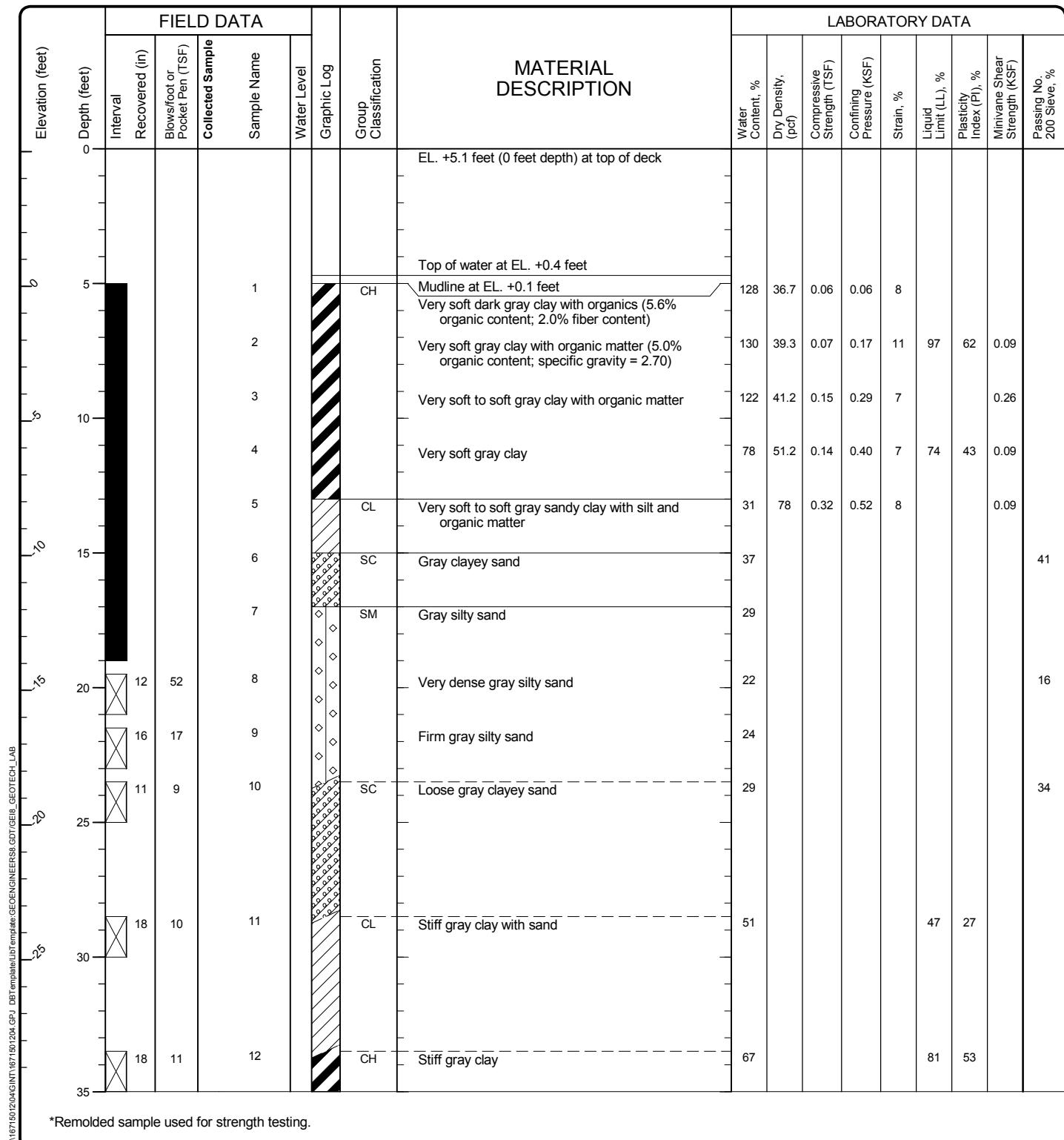
Laboratory / Field Tests

- %F
Percent fines
- AL
Atterberg limits
- CA
Chemical analysis
- CP
Laboratory compaction test
- CS
Consolidation test
- DS
Direct shear
- HA
Hydrometer analysis
- MC
Moisture content
- MD
Moisture content and dry density
- OC
Organic content
- PM
Permeability or hydraulic conductivity
- PP
Pocket penetrometer
- SA
Sieve analysis
- TX
Triaxial compression
- UC
Unconfined compression
- VS
Vane shear

NOTE: The reader must refer to the discussion in the report text and the logs of explorations for a proper understanding of subsurface conditions. Descriptions on the logs apply only at the specific exploration locations and at the time the explorations were made; they are not warranted to be representative of subsurface conditions at other locations or times.

KEY TO EXPLORATION LOGS

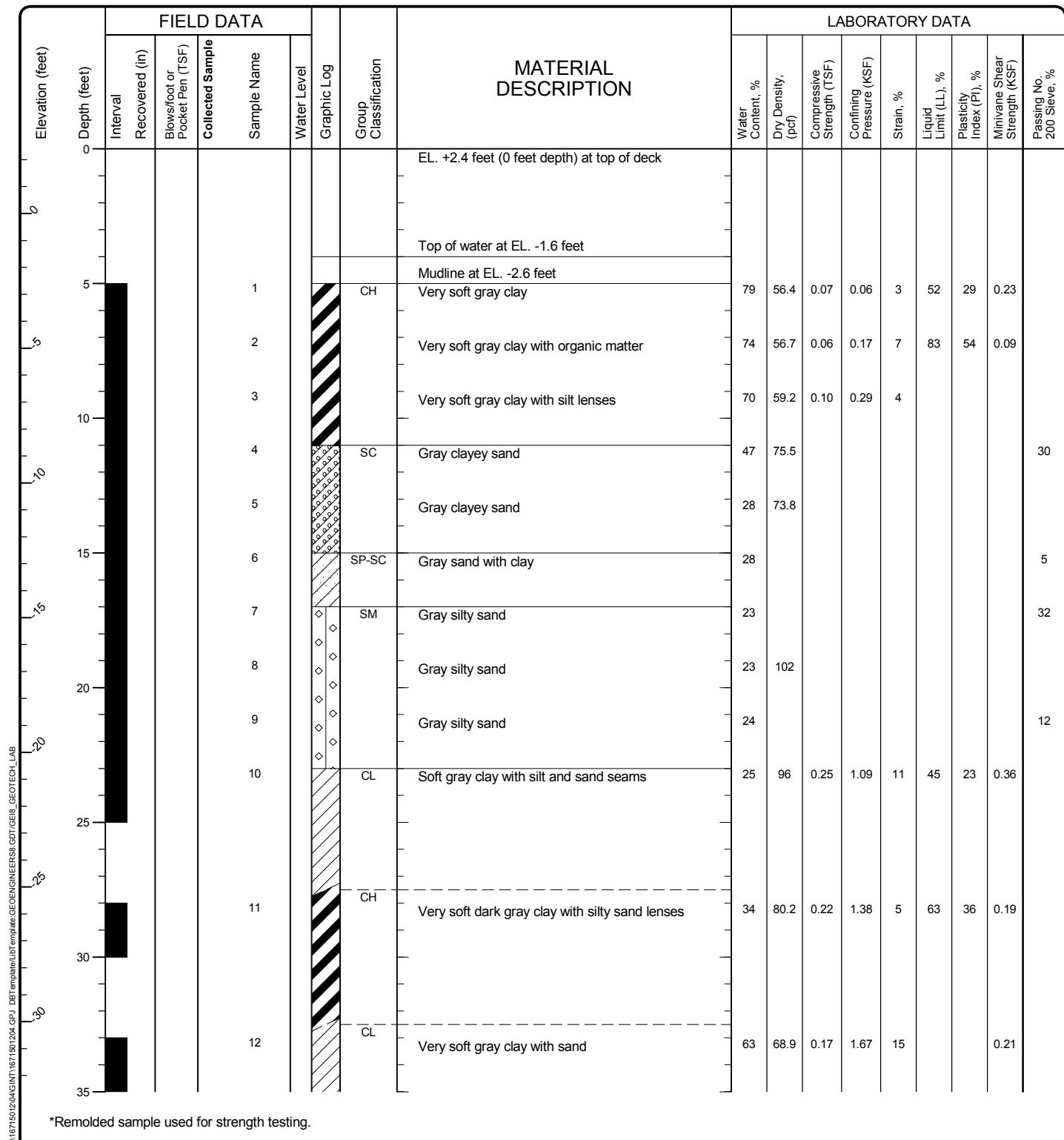
Drilled	Start 5/19/2015	End 5/19/2015	Total Depth (ft) 35	Logged By Checked By ZST VT	Driller	Specialized Environmental Resources, LLC	Drilling Method	Wet Rotary
Deck Elevation (ft) Vertical Datum		5.1		Hammer Data	Safety Hammer/Cathead 140 (lbs) / 30 (in) Drop	Drilling Equipment	Marsh Buggy Drill Rig with Support Airboat	
Latitude N29° 06' 38.0" Longitude W90° 11' 01.2"		System Datum		Geographic NAD83 (feet)/NAVD88 Geoid 12A	Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)	
Notes: See Figure B-1 for explanation of symbols.								



Log of Boring B-1

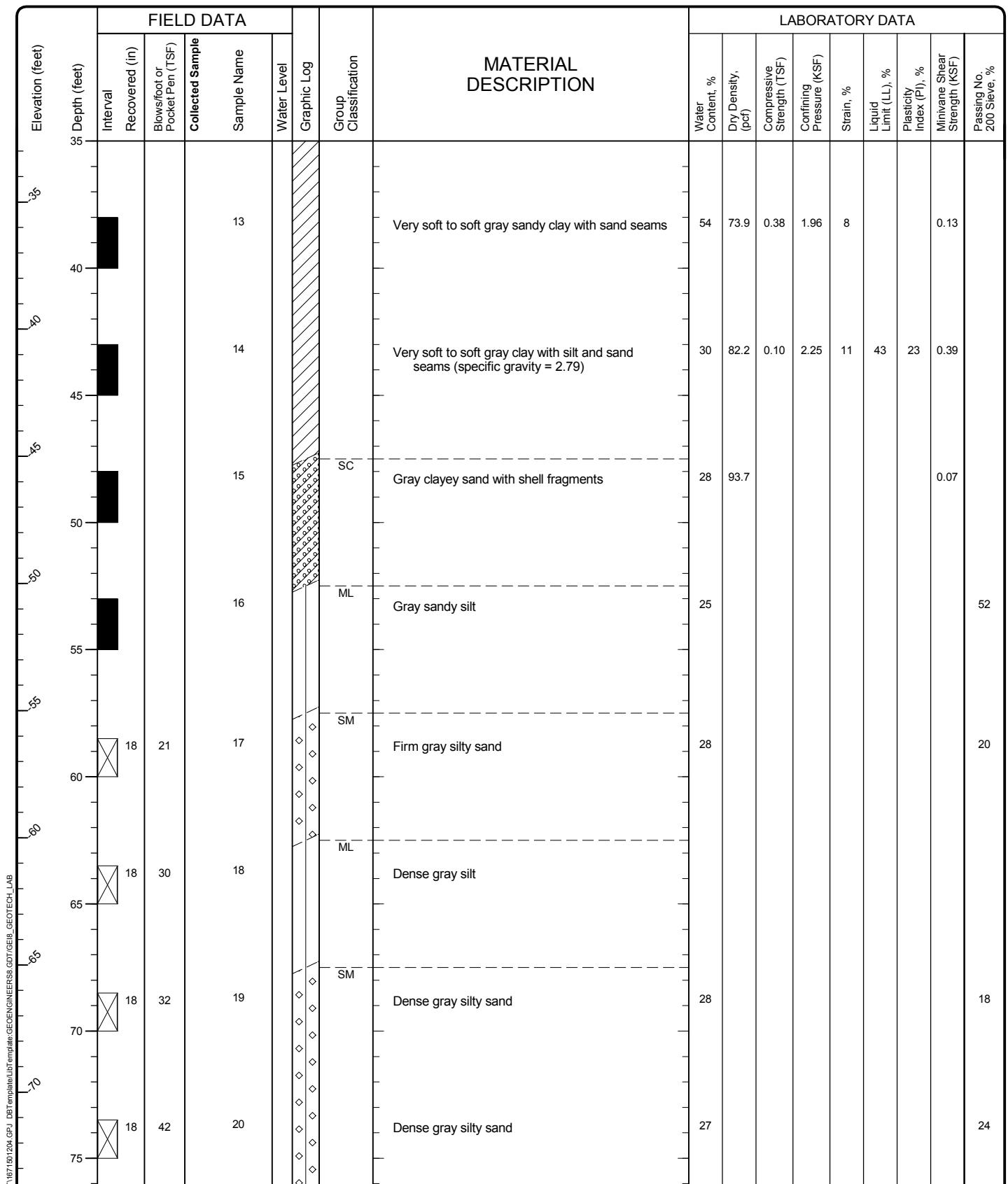
	Project:	Caminada Headlands Back Barrier Marsh Creation (BA-171)
	Project Location:	Port Fourchon, Louisiana
	Project Number:	16715-012-04

Drilled	Start 5/22/2015	End 5/22/2015	Total Depth (ft)	85	Logged By TCJ Checked By VT	Driller	Specialized Environmental Resources, LLC	Drilling Method	Wet Rotary
Deck Elevation (ft) Vertical Datum	2.4			Hammer Data	Safety Hammer/Cathead 140 (lbs) / 30 (in) Drop	Drilling Equipment	Marsh Buggy Drill Rig with Support Airboat		
Latitude Longitude	N29° 06' 58.2" W90° 10' 46.7"			System Datum	Geographic NAD83 (feet)/NAVD88 Geoid 12A	Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)	
Notes: See Figure B-1 for explanation of symbols.									



Log of Boring B-2

	Project:	Caminada Headlands Back Barrier Marsh Creation (BA-171)
	Project Location:	Port Fourchon, Louisiana
	Project Number:	16715-012-04



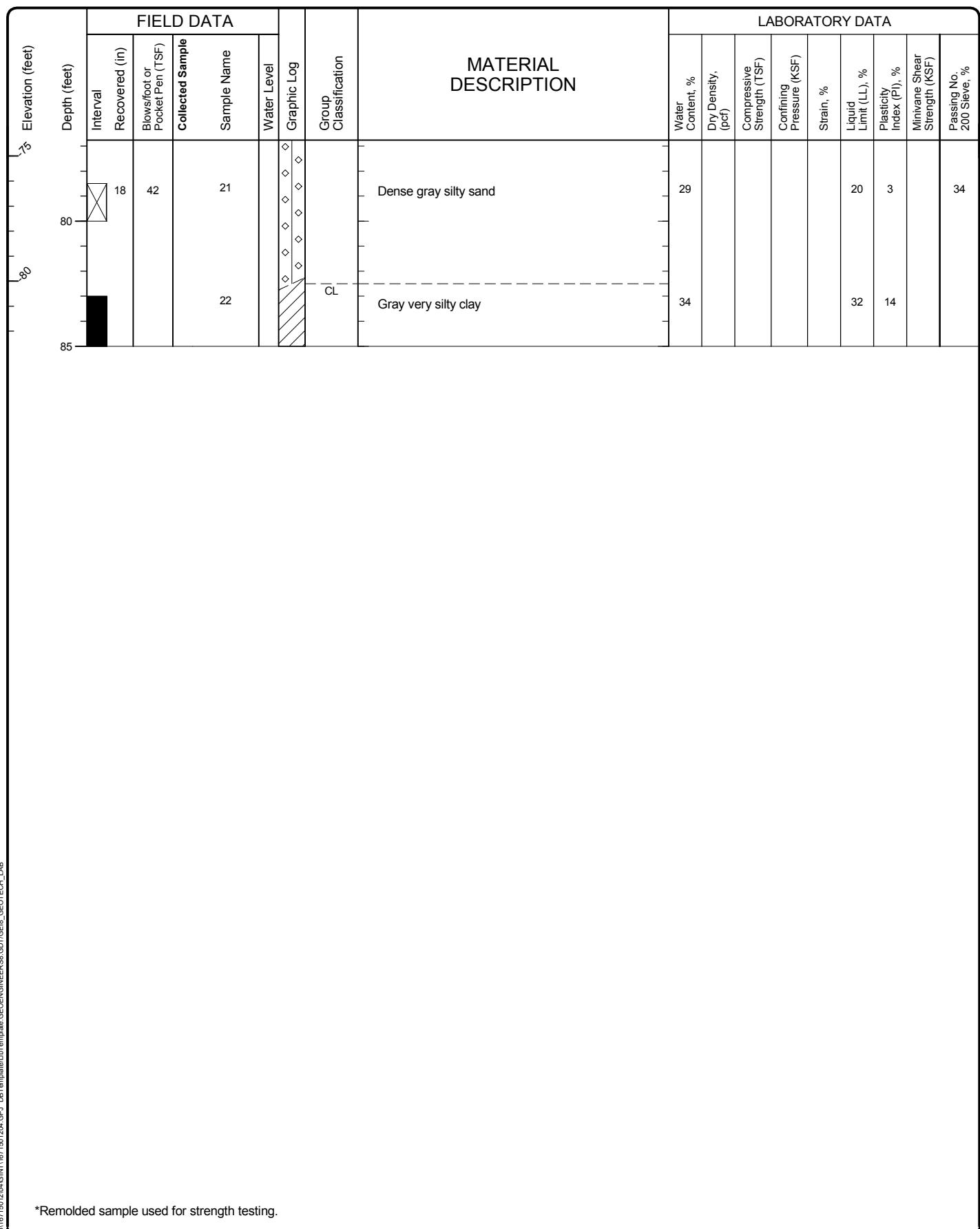
*Remolded sample used for strength testing.

Log of Boring B-2 (continued)



Project: Caminada Headlands Back Barrier Marsh Creation (BA-171)
Project Location: Port Fourchon, Louisiana
Project Number: 16715-012-04

Figure C-3
Sheet 2 of 3



*Remolded sample used for strength testing.

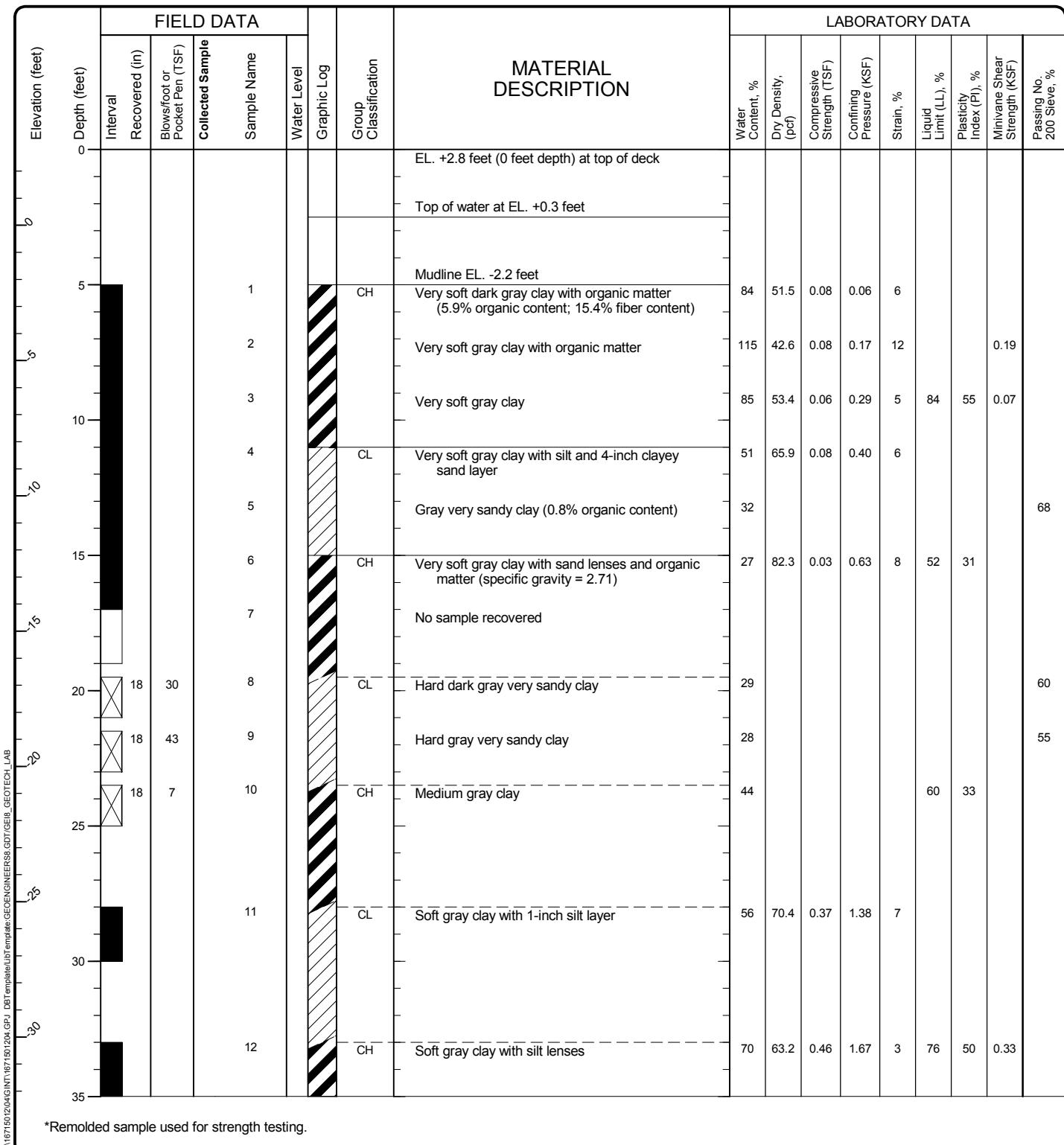
Log of Boring B-2 (continued)



Project: Caminada Headlands Back Barrier Marsh Creation (BA-171)
Project Location: Port Fourchon, Louisiana
Project Number: 16715-012-04

Figure C-3
Sheet 3 of 3

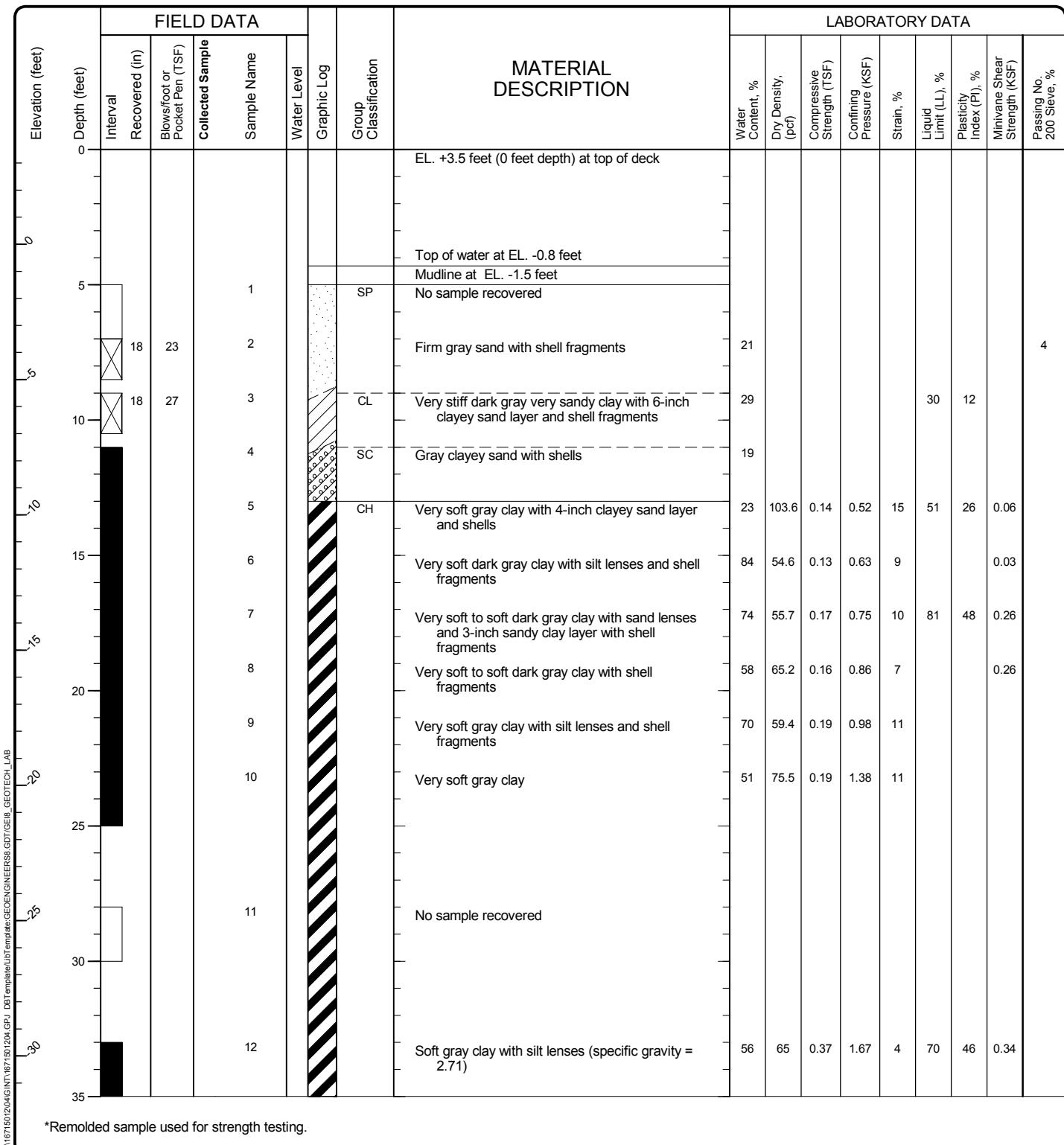
Drilled	Start 5/20/2015	End 5/20/2015	Total Depth (ft) 35	Logged By Checked By ZST VT	Driller	Specialized Environmental Resources, LLC	Drilling Method	Wet Rotary
Deck Elevation (ft) Vertical Datum		2.8		Hammer Data	Safety Hammer/Cathead 140 (lbs) / 30 (in) Drop	Drilling Equipment	Marsh Buggy Drill Rig with Support Airboat	
Latitude N29° 07' 12.0" Longitude W90° 10' 33.5"		System Datum		Geographic NAD83 (feet)/NAVD88 Geoid 12A	Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)	
Notes: See Figure B-1 for explanation of symbols.								



Log of Boring B-3

	Project: Caminada Headlands Back Barrier Marsh Creation (BA-171)
	Project Location: Port Fourchon, Louisiana
	Project Number: 16715-012-04

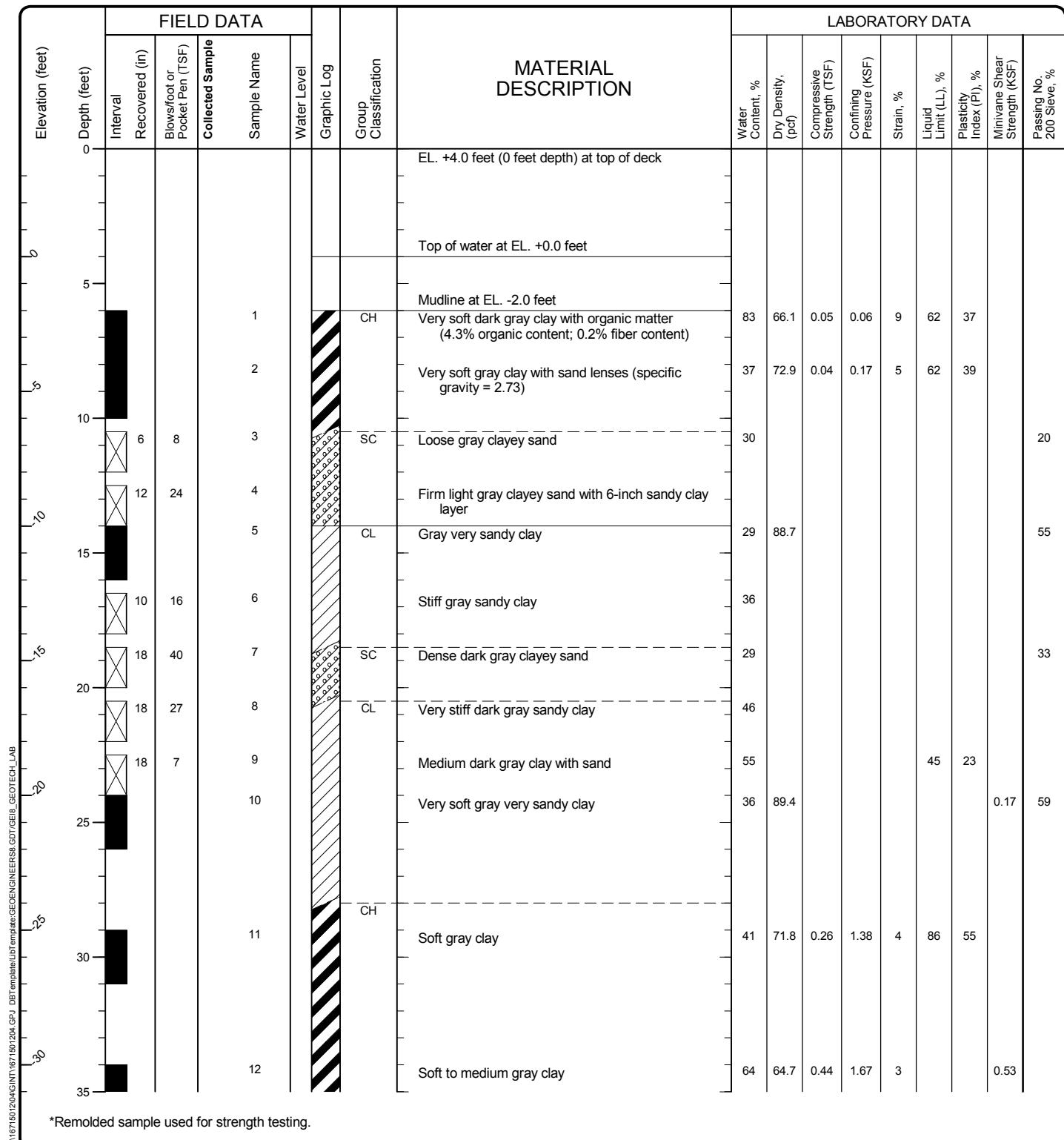
Drilled	Start 5/19/2015	End 5/19/2015	Total Depth (ft) 35	Logged By Checked By ZST VT	Driller	Specialized Environmental Resources, LLC	Drilling Method	Wet Rotary
Deck Elevation (ft) Vertical Datum		3.5		Hammer Data	Safety Hammer/Cathead 140 (lbs) / 30 (in) Drop	Drilling Equipment	Marsh Buggy Drill Rig with Support Airboat	
Latitude N29° 07' 09.9" Longitude W90° 10' 01.4"		System Datum		Geographic NAD83 (feet)/NAVD88 Geoid 12A	Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)	
Notes: See Figure B-1 for explanation of symbols.								



Log of Boring B-4

	Project:	Caminada Headlands Back Barrier Marsh Creation (BA-171)		
	Project Location:	Port Fourchon, Louisiana		
	Project Number:	16715-012-04		

Drilled	Start 5/20/2015	End 5/20/2015	Total Depth (ft)	36	Logged By Checked By	ZST VT	Driller	Specialized Environmental Resources, LLC	Drilling Method	Wet Rotary
Deck Elevation (ft) Vertical Datum	4.0			Hammer Data	Safety Hammer/Cathead 140 (lbs) / 30 (in) Drop			Drilling Equipment	Marsh Buggy Drill Rig with Support Airboat	
Latitude Longitude	N29° 07' 24.9" W90° 09' 49.7"			System Datum	Geographic NAD83 (feet)/NAVD88 Geoid 12A			Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
Notes: See Figure B-1 for explanation of symbols.										



Log of Boring B-5

	Project:	Caminada Headlands Back Barrier Marsh Creation (BA-171)
	Project Location:	Port Fourchon, Louisiana
	Project Number:	16715-012-04

Elevation (feet)	FIELD DATA					LABORATORY DATA							MATERIAL DESCRIPTION			Water Content, %			Dry Density, (pcf)			Compressive Strength (TSF)			Confining Pressure (KSF)			Strain, %			Liquid Limit (LL), %			Plasticity Index (PI), %			Minimum Shear Strength (KSF)			Passing No. 200 Sieve, %		
	Interval Recovered (in)	Bios/foot or Pocket Pen (TSF)	Collected Sample	Sample Name	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION																																		
35																																										

*Remolded sample used for strength testing.

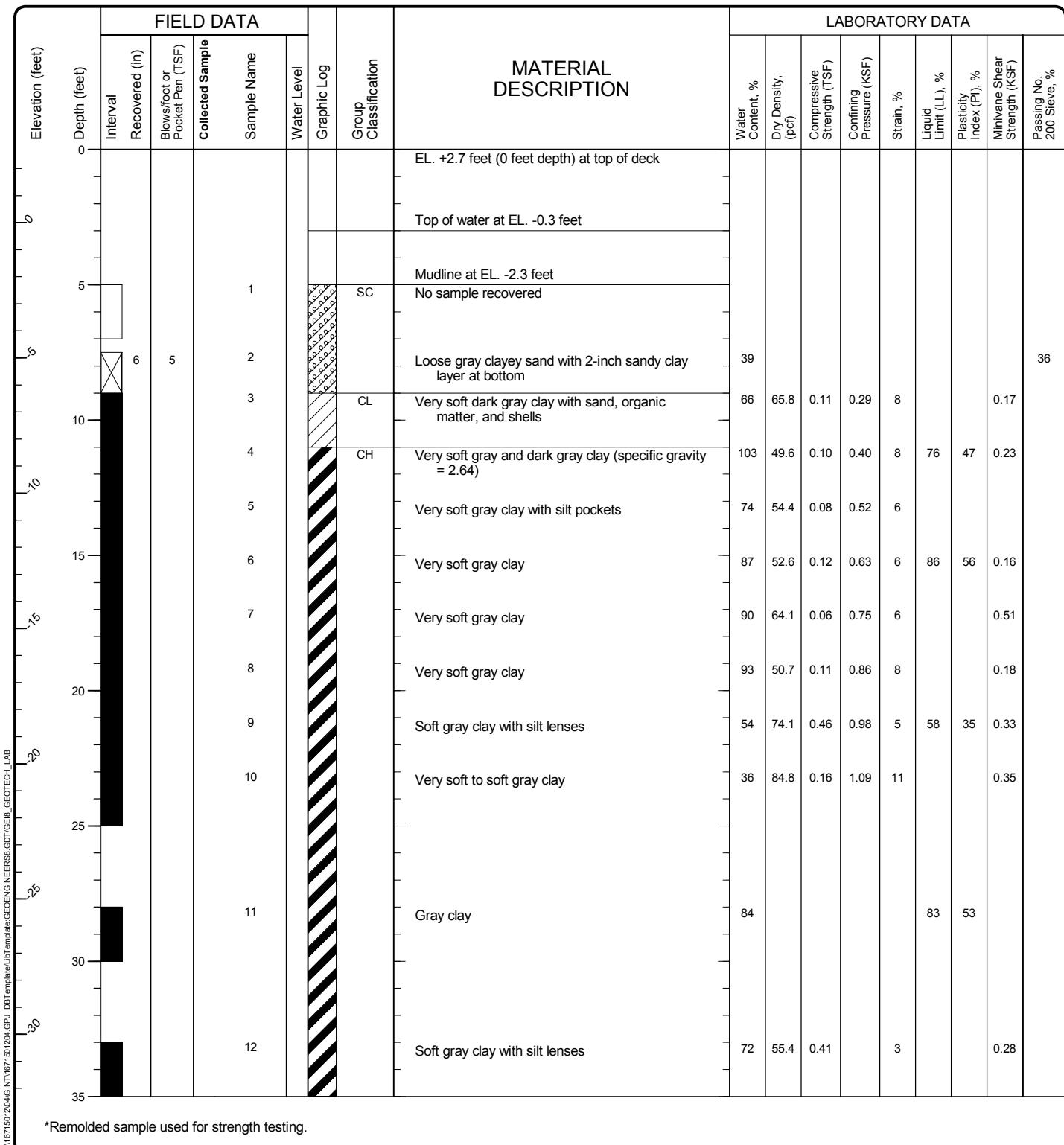
Log of Boring B-5 (continued)



Project: Caminada Headlands Back Barrier Marsh Creation (BA-171)
 Project Location: Port Fourchon, Louisiana
 Project Number: 16715-012-04

Figure C-6
 Sheet 2 of 2

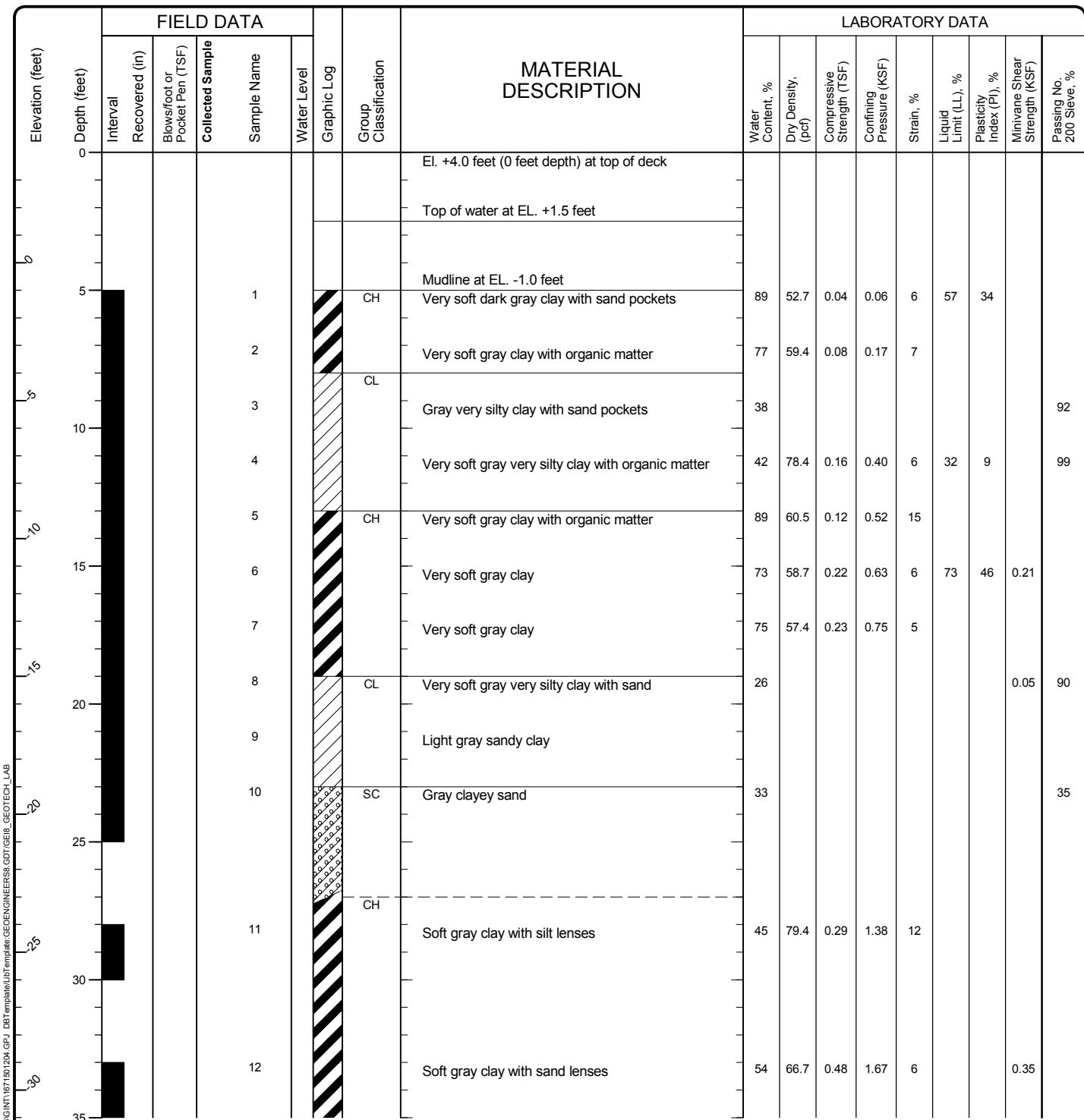
Drilled	Start 5/20/2015	End 5/20/2015	Total Depth (ft)	35	Logged By Checked By	ZST VT	Driller	Specialized Environmental Resources, LLC	Drilling Method	Wet Rotary
Deck Elevation (ft) Vertical Datum	2.7			Hammer Data	Safety Hammer/Cathead 140 (lbs) / 30 (in) Drop			Drilling Equipment	Marsh Buggy Drill Rig with Support Airboat	
Latitude Longitude	N29° 07' 42.3" W90° 09' 09.4"			System Datum	Geographic NAD83 (feet)/NAVD88 Geoid 12A			Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
Notes: See Figure B-1 for explanation of symbols.										



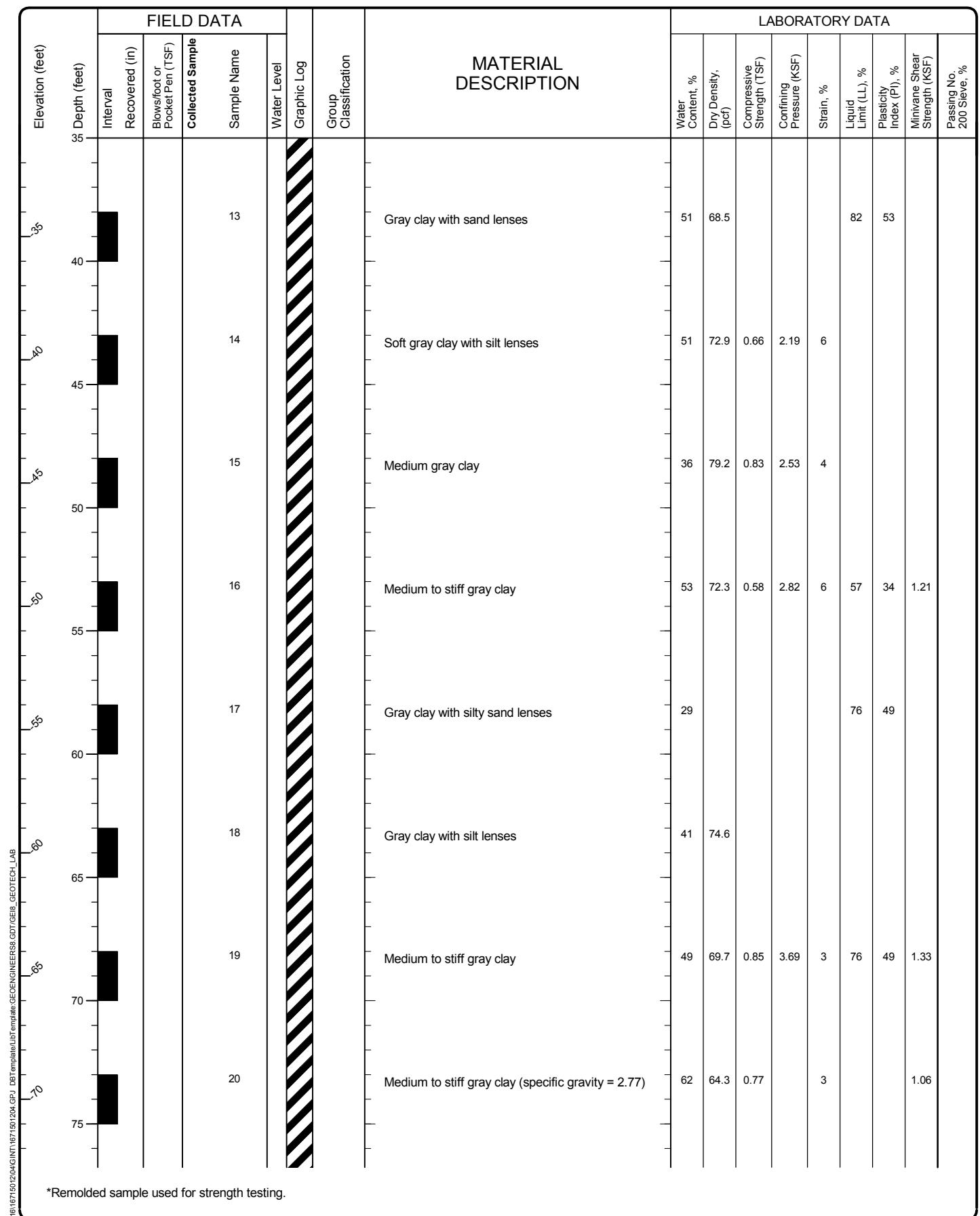
Log of Boring B-6

Baton Rouge: Date: 1/12/16 Path:P:\16\167150\1204\GPJ DBT template.ltb\template\GEOENGINEERS.GDT\GEB_GEO_TECH_LAB	Project: Caminada Headlands Back Barrier Marsh Creation (BA-171)
	Project Location: Port Fourchon, Louisiana
	Project Number: 16715-012-04

Drilled	Start 5/21/2015	End 5/21/2015	Total Depth (ft)	85	Logged By Checked By	ZST VT	Driller	Specialized Environmental Resources, LLC	Drilling Method	Wet Rotary
Deck Elevation (ft) Vertical Datum	4.0			Hammer Data	Safety Hammer/Cathead 140 (lbs) / 30 (in) Drop			Drilling Equipment	Marsh Buggy Drill Rig with Support Airboat	
Latitude Longitude	N29° 07' 58.4" W90° 08' 46.6"			System Datum	Geographic NAD83 (feet)/NAVD88 Geoid 12A			Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
Notes: See Figure B-1 for explanation of symbols.										



Log of Boring B-7



*Remolded sample used for strength testing.

Log of Boring B-7 (continued)



Project: Caminada Headlands Back Barrier Marsh Creation (BA-171)
 Project Location: Port Fourchon, Louisiana
 Project Number: 16715-012-04

Elevation (feet)	Depth (feet)	FIELD DATA				MATERIAL DESCRIPTION				LABORATORY DATA						
		Interval Recovered (in)	Blovs/foot or Pocket Pen (TSF)	Collected Sample	Sample Name	Water Level	Graphic Log	Group Classification	Water Content, %	Dry Density, (pcf)	Compressive Strength (TSF)	Confining Pressure (KSF)	Strain, %	Liquid Limit (LL), %	Plasticity Index (PI), %	Minimum Shear Strength (KSF)
83	80	21						Medium gray clay	58	66.3	0.99		4			
80	85	22						Stiff gray clay	57	68.5	1.23		3			

*Remolded sample used for strength testing.

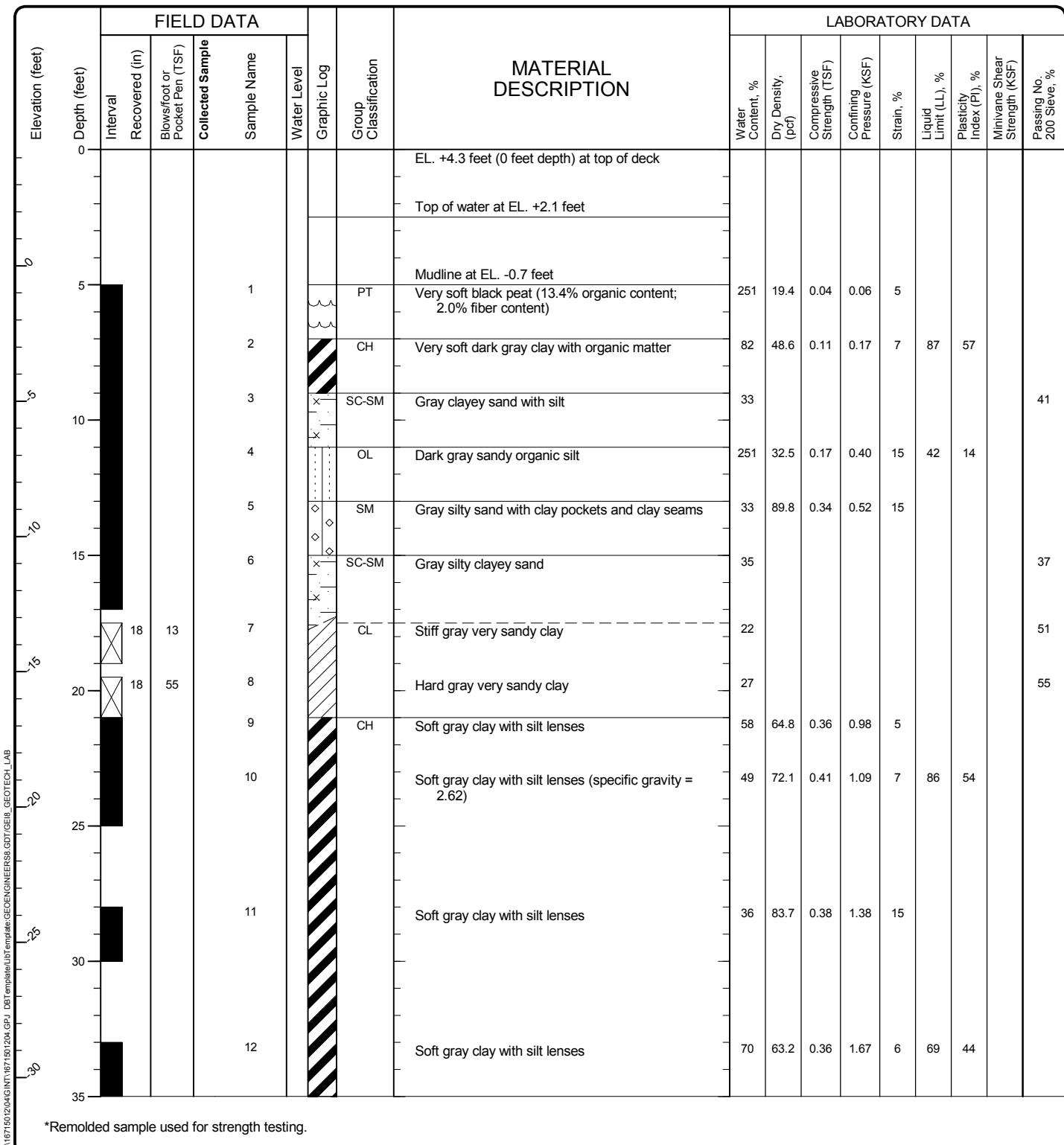
Log of Boring B-7 (continued)



Project: Caminada Headlands Back Barrier Marsh Creation (BA-171)
 Project Location: Port Fourchon, Louisiana
 Project Number: 16715-012-04

Figure C-8
 Sheet 3 of 3

Drilled	Start 5/21/2015	End 5/21/2015	Total Depth (ft)	35	Logged By Checked By	ZST VT	Driller	Specialized Environmental Resources, LLC	Drilling Method	Wet Rotary
Deck Elevation (ft) Vertical Datum			4.3		Hammer Data	Safety Hammer/Cathead 140 (lbs) / 30 (in) Drop		Drilling Equipment	Marsh Buggy Drill Rig with Support Airboat	
Latitude N29° 08' 30.3" Longitude W90° 08' 09.7"			System Datum		Geographic NAD83 (feet)/NAVD88 Geoid 12A		Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)	
Notes: See Figure B-1 for explanation of symbols.										

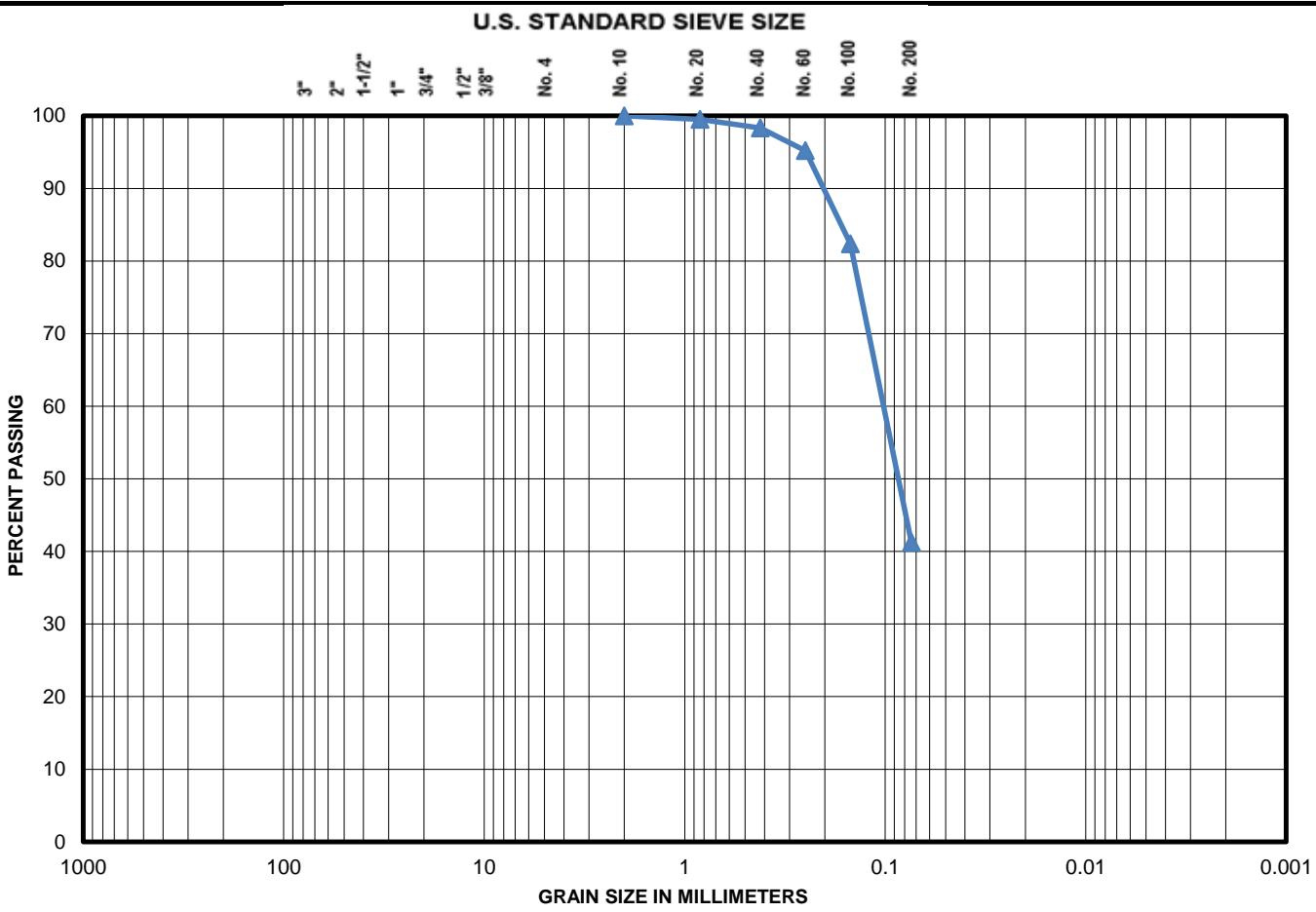


Log of Boring B-8

Baton Rouge: Date: 1/12/16 Path:P:\16\167150\204\GPR DBT Template\lib\template\GEOENGINEERS.GDT\GEO_TECH_LAB	Project: Caminada Headlands Back Barrier Marsh Creation (BA-171)
	Project Location: Port Fourchon, Louisiana
	Project Number: 16715-012-04

APPENDIX D

Laboratory Testing Results



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
Coarse Gravel %	0.0		Medium Sand %		1.7		
Fine Gravel %	0.0		Fine Sand %		57.1		
Coarse Sand %	0.0		Fines (Silt & Clay) %		41.2		
USC Classification	SC		C _u	na	C _c	na	
Description (D 2488)	Clayey sand						

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	100.0
1 1/2"	#N/A	No. 20	99.5
1"	#N/A	No. 40	98.3
3/4"	#N/A	No. 60	95.2
1/2"	#N/A	No. 100	82.4
3/8"	#N/A	No. 200	41.2

Project	LADNR/CPRA - Caminada Headlands Back Barrier Ma	Date Tested	6/5/2015
Project No.	16715-012-04	Tested By	SLC
Boring No.	B-1	Checked By	SLC
Source/Depth (feet)	10 - 12	Sieve Type	Dry Sieve

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

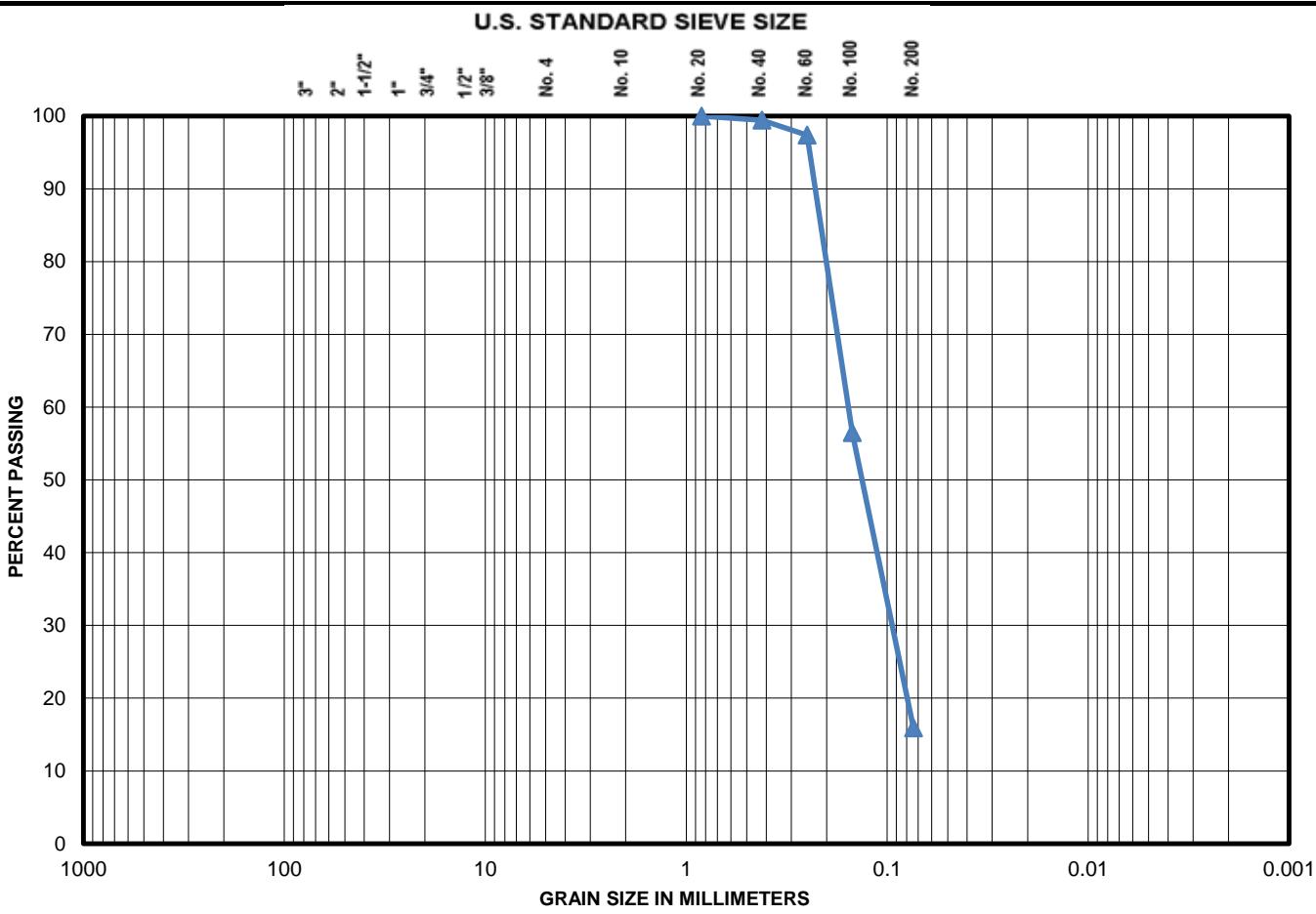


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ASTM D 6913 SOIL PARTICLE-SIZE GRADATION SIEVE ANALYSIS

LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)

16715-012-04



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
Coarse Gravel %	0.0		Medium Sand %		0.6		
Fine Gravel %	0.0		Fine Sand %		83.5		
Coarse Sand %	0.0		Fines (Silt & Clay) %		15.9		
USC Classification	SM		C _u	na	C _c	na	
Description (D 2488)	Silty sand						

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	100.0
1"	#N/A	No. 40	99.4
3/4"	#N/A	No. 60	97.4
1/2"	#N/A	No. 100	56.5
3/8"	#N/A	No. 200	15.9

Project	LADNR/CPRA - Caminada Headlands Back Barrier Ma	Date Tested	6/19/2015
Project No.	16715-012-04	Tested By	SLC
Boring No.	B-1	Checked By	SLC
Source/Depth (feet)	14.5 - 16	Sieve Type	Dry Sieve

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

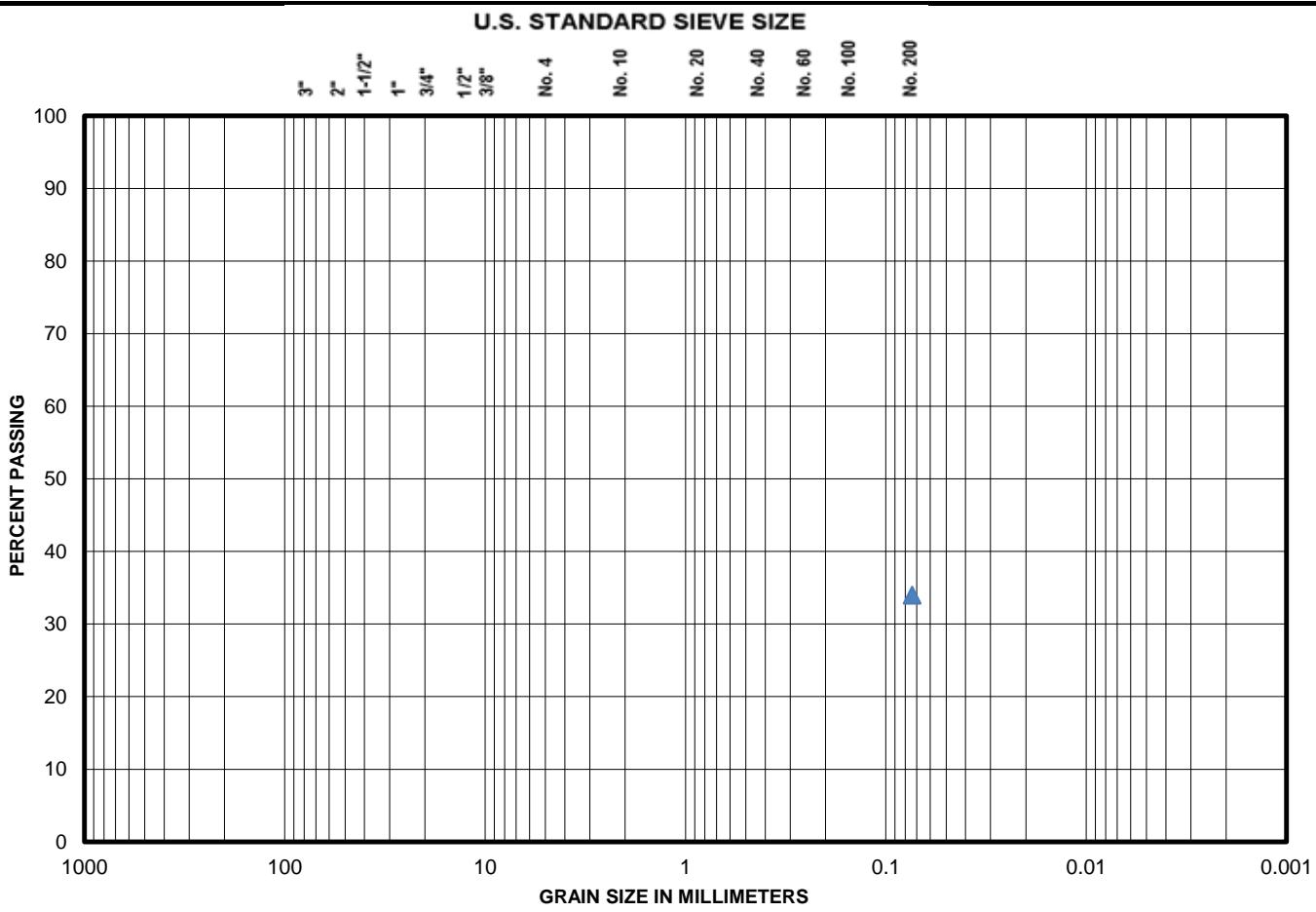


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ASTM D 6913 SOIL PARTICLE-SIZE GRADATION SIEVE ANALYSIS

LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)

16715-012-04



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	66.0	Fines (Silt & Clay) %	34.0
--------	------	-----------------------	------

USC Classification	SC	C _u	na	C _c	na
Description (D 2488)	Clayey sand				

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	#N/A
3/4"	#N/A	No. 60	#N/A
1/2"	#N/A	No. 100	#N/A
3/8"	#N/A	No. 200	34.0

Project	LADNR/CPRA - Caminada Headlands Back Barrier Ma	Date Tested	6/5/2015
Project No.	16715-012-04	Tested By	TCJ
Boring No.	B-1	Checked By	SLC
Source/Depth (feet)	18.5 - 20	Sieve Type	200 Wash

Method B was used for the 200 Wash

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

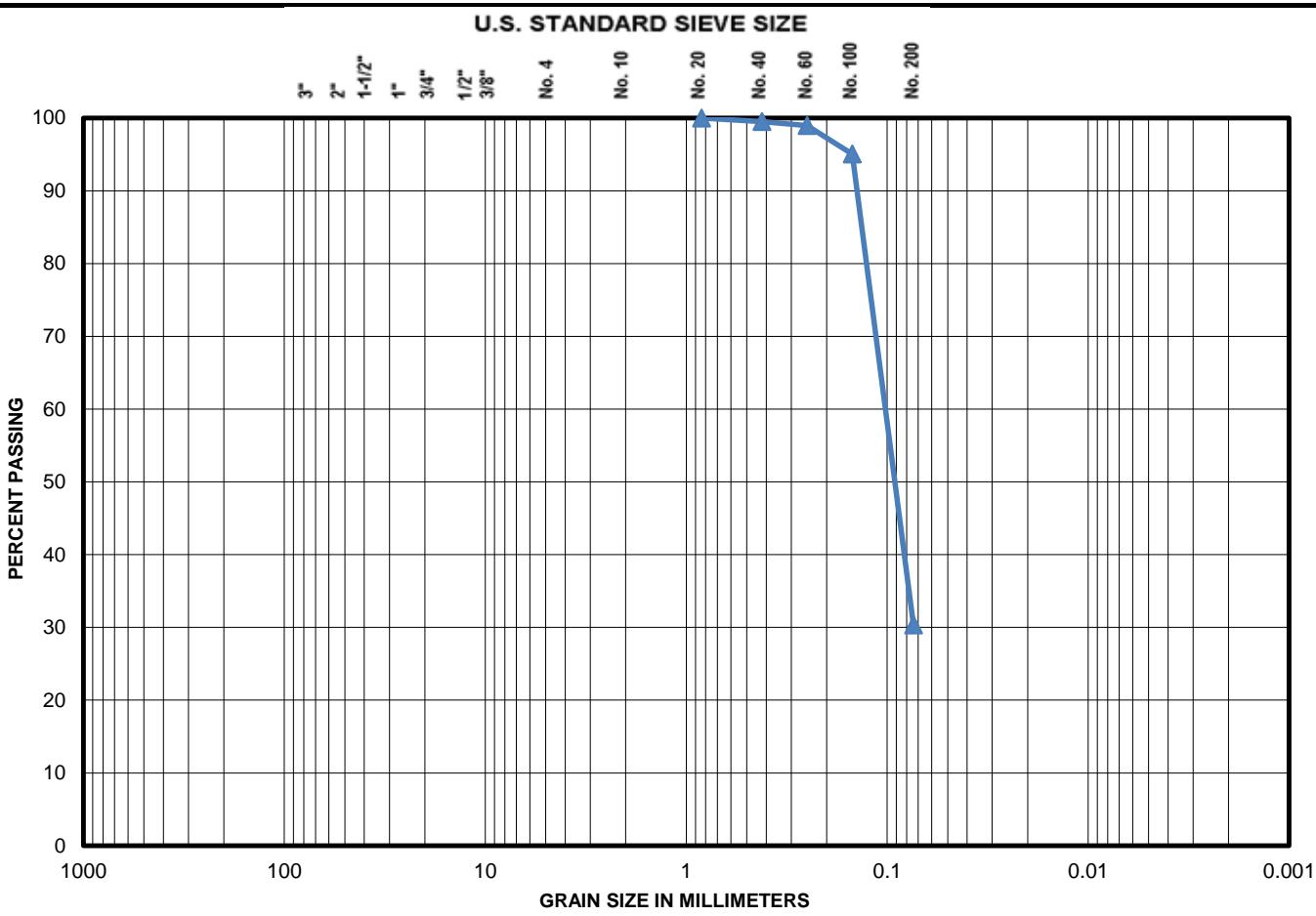


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ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)

16715-012-04



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
Coarse Gravel %	0.0		Medium Sand %		0.5		
Fine Gravel %	0.0		Fine Sand %		69.2		
Coarse Sand %	0.0		Fines (Silt & Clay) %		30.3		
USC Classification	SC		C _u	na	C _c	na	
Description (D 2488)	Clayey sand						

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	100.0
1"	#N/A	No. 40	99.5
3/4"	#N/A	No. 60	98.9
1/2"	#N/A	No. 100	95.0
3/8"	#N/A	No. 200	30.3

Project	LADNR/CPRA - Caminada Headlands Back Barrier Ma	Date Tested	6/5/2015
Project No.	16715-012-04	Tested By	SLC
Boring No.	B-2	Checked By	SLC
Source/Depth (feet)	6 - 8	Sieve Type	Dry Sieve

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

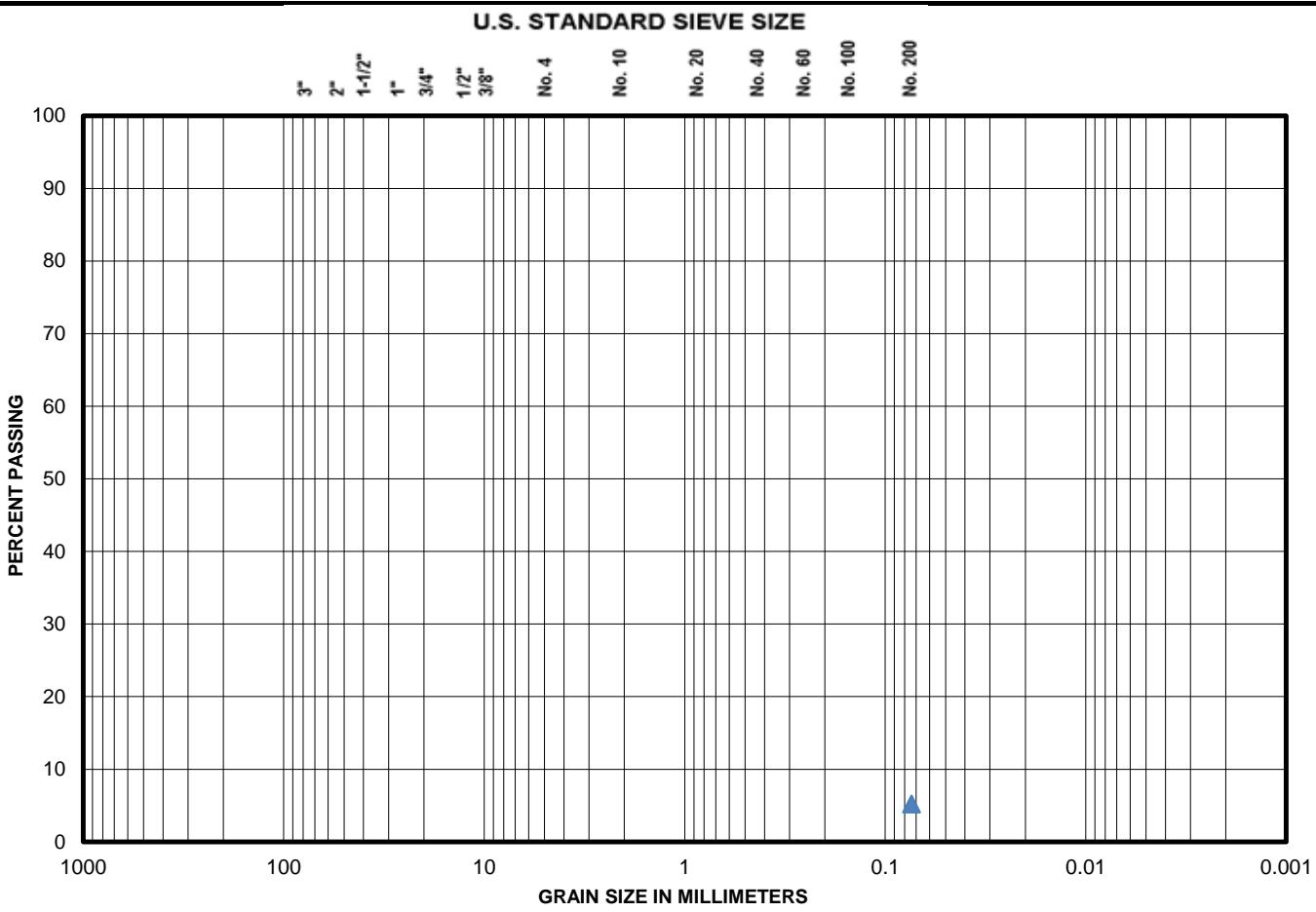


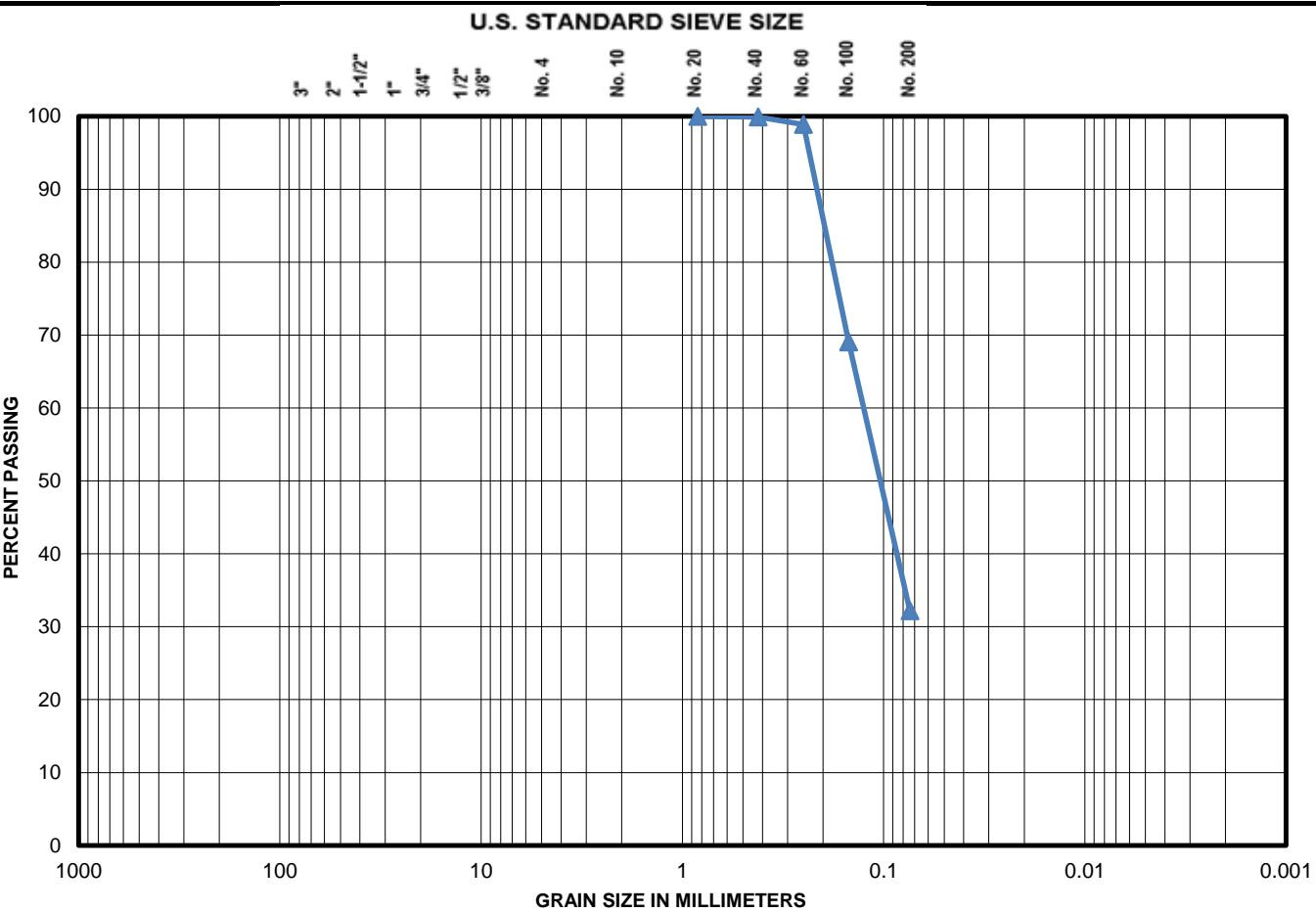
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ASTM D 6913 SOIL PARTICLE-SIZE GRADATION SIEVE ANALYSIS

LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)

16715-012-04





COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
Coarse Gravel %	0.0		Medium Sand %		0.1		
Fine Gravel %	0.0		Fine Sand %		67.7		
Coarse Sand %	0.0		Fines (Silt & Clay) %		32.2		
USC Classification	SM		C _u	na	C _c	na	
Description (D 2488)	Silty sand						

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	100.0
1"	#N/A	No. 40	99.9
3/4"	#N/A	No. 60	98.9
1/2"	#N/A	No. 100	69.0
3/8"	#N/A	No. 200	32.2

Project	LADNR/CPRA - Caminada Headlands Back Barrier Ma	Date Tested	6/19/2015
Project No.	16715-012-04	Tested By	SLC
Boring No.	B-2	Checked By	SLC
Source/Depth (feet)	12 - 14	Sieve Type	Dry Sieve

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

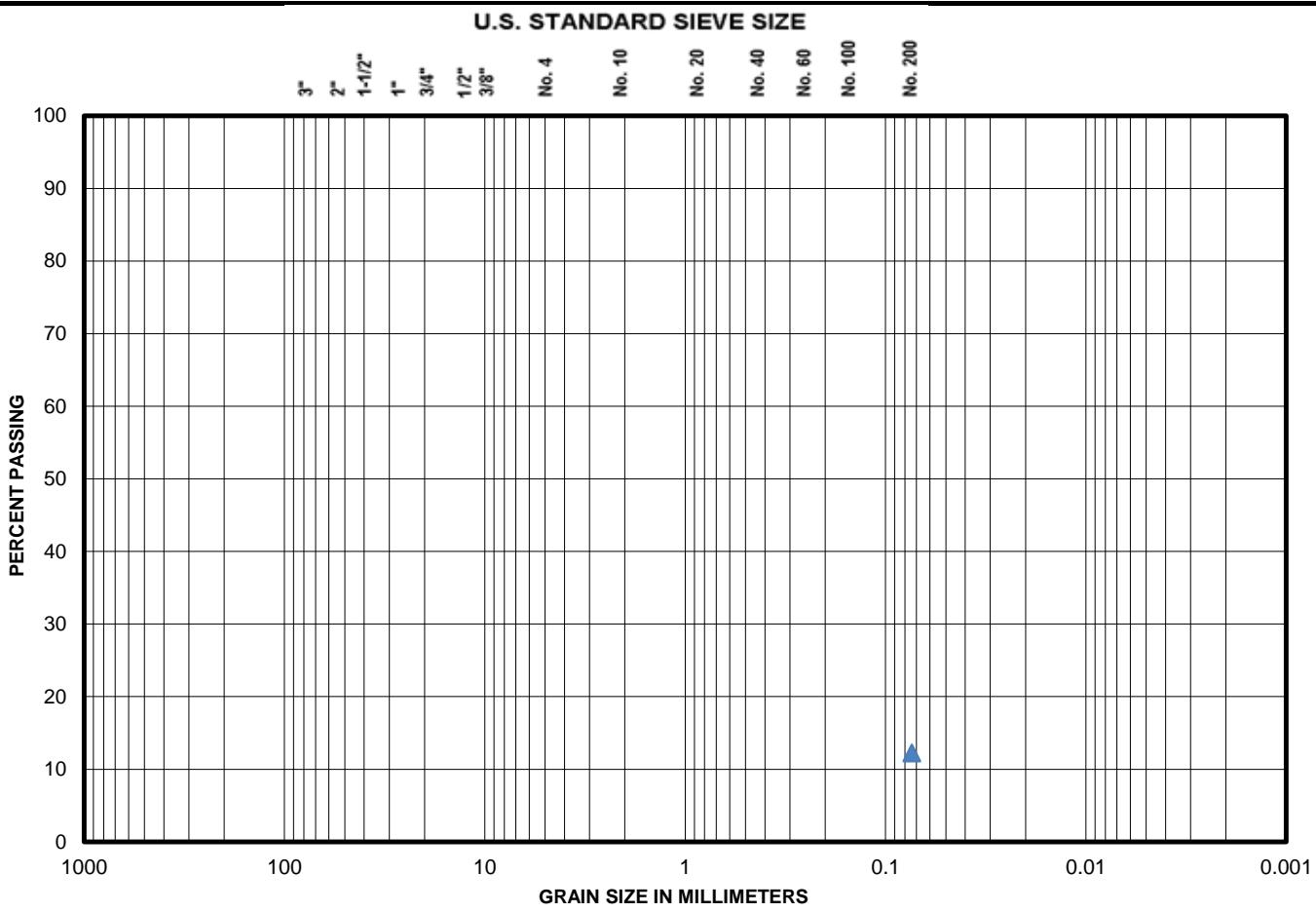


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ASTM D 6913 SOIL PARTICLE-SIZE GRADATION SIEVE ANALYSIS

LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)

16715-012-04



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	87.8	Fines (Silt & Clay) %	12.2
--------	------	-----------------------	------

USC Classification	SM	C _u	na	C _c	na
Description (D 2488)	Silty sand				

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	#N/A
3/4"	#N/A	No. 60	#N/A
1/2"	#N/A	No. 100	#N/A
3/8"	#N/A	No. 200	12.2

Project	LADNR/CPRA - Caminada Headlands Back Barrier Ma	Date Tested	6/19/2015
Project No.	16715-012-04	Tested By	SLC
Boring No.	B-2	Checked By	SLC
Source/Depth (feet)	16 - 18	Sieve Type	200 Wash

Method B was used for the 200 Wash

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

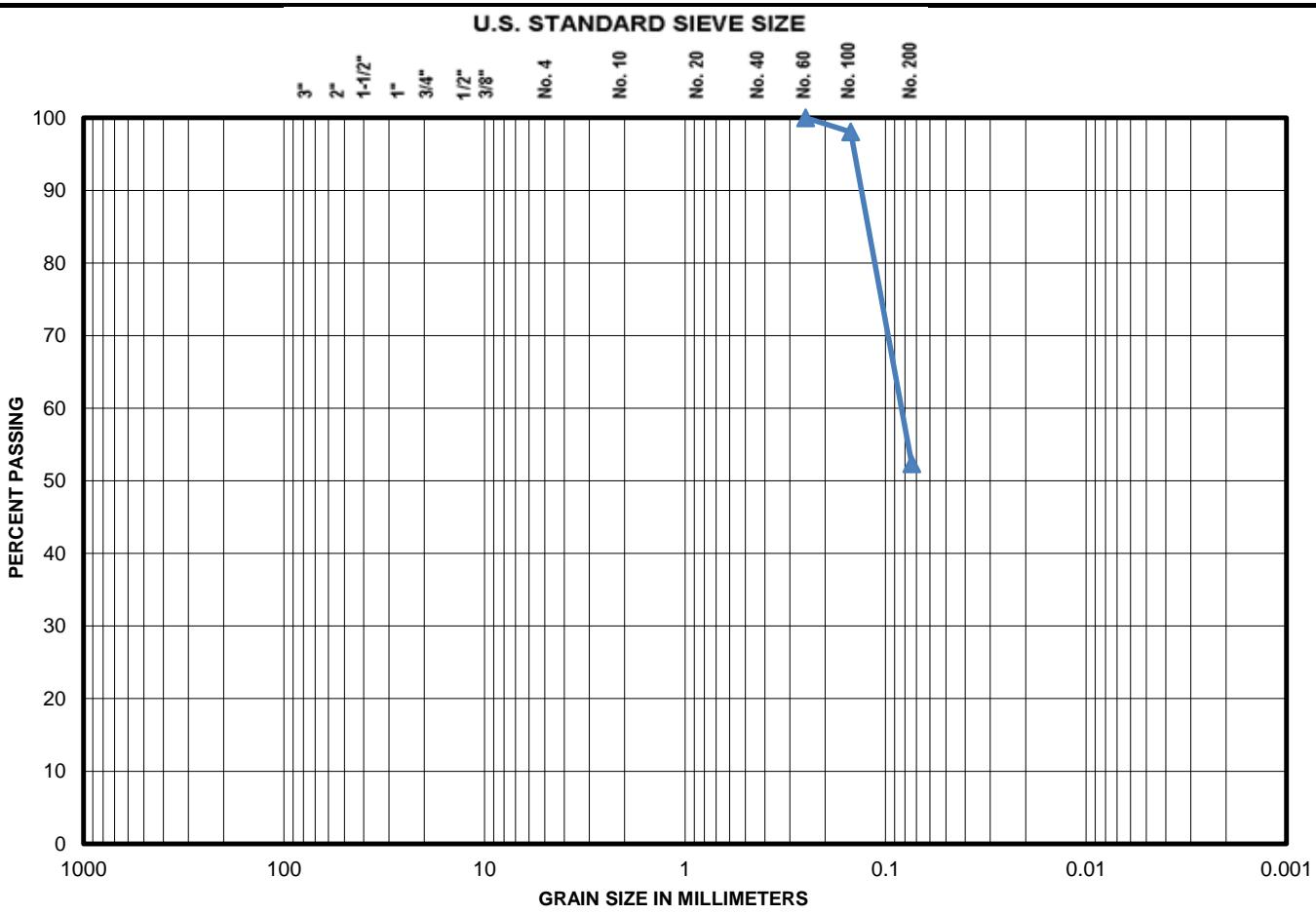


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ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)

16715-012-04



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
Coarse Gravel %	0.0		Medium Sand %		0.0		
Fine Gravel %	0.0		Fine Sand %		47.7		
Coarse Sand %	0.0		Fines (Silt & Clay) %		52.3		
USC Classification	ML		C _u	na	C _c	na	
Description (D 2488)	Gray sandy silt (ML)						

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	#N/A
3/4"	#N/A	No. 60	100.0
1/2"	#N/A	No. 100	98.1
3/8"	#N/A	No. 200	52.3

Project	LADNR/CPRA - Caminada Headlands Back Barrier Ma	Date Tested	6/8/2015
Project No.	16715-012-04	Tested By	SLC
Boring No.	B-2	Checked By	SLC
Source/Depth (feet)	48 - 50	Sieve Type	Dry Sieve

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

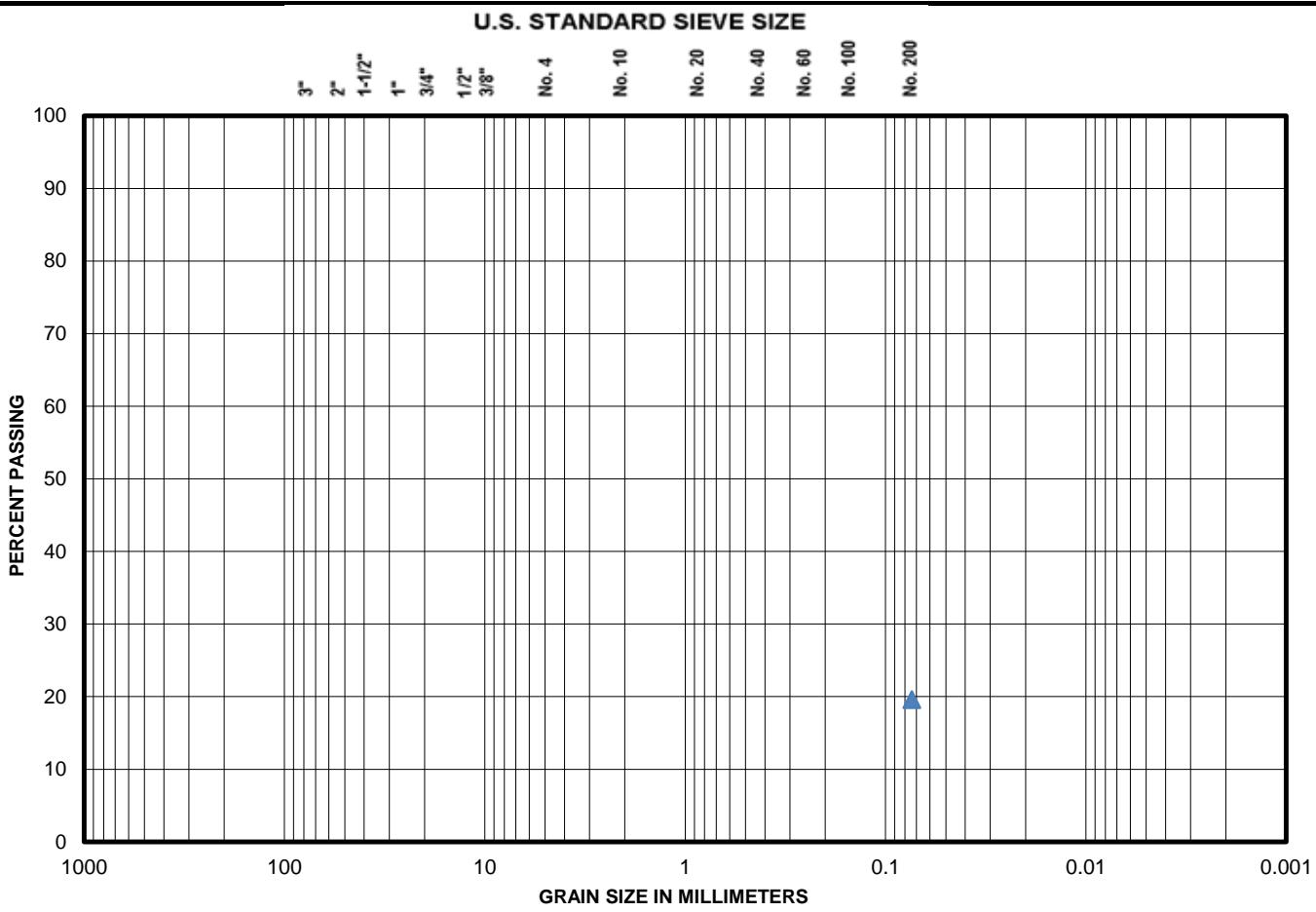


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ASTM D 6913 SOIL PARTICLE-SIZE GRADATION SIEVE ANALYSIS

LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)

16715-012-04



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	80.4	Fines (Silt & Clay) %	19.6
--------	------	-----------------------	------

USC Classification	SM	C _u	na	C _c	na
Description (D 2488)	Silty sand				

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	#N/A
3/4"	#N/A	No. 60	#N/A
1/2"	#N/A	No. 100	#N/A
3/8"	#N/A	No. 200	19.6

Project	LADNR/CPRA - Caminada Headlands Back Barrier Ma	Date Tested	6/5/2015
Project No.	16715-012-04	Tested By	TCJ
Boring No.	B-2	Checked By	SLC
Source/Depth (feet)	53.5 - 55	Sieve Type	200 Wash

Method B was used for the 200 Wash

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

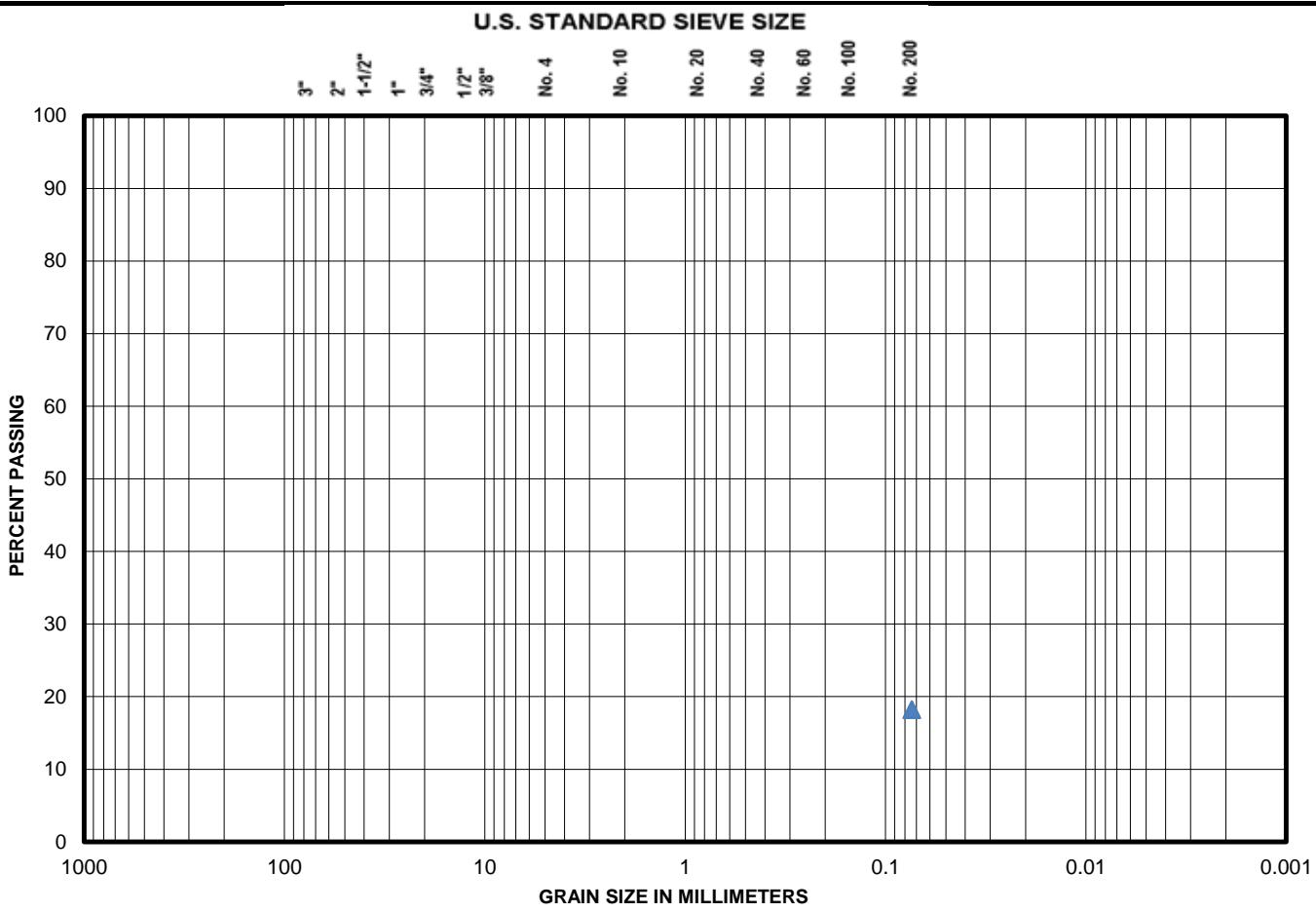


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ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)

16715-012-04



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	81.8	Fines (Silt & Clay) %	18.2
--------	------	-----------------------	------

USC Classification	SM	C _u	na	C _c	na
Description (D 2488)	Silty sand				

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	#N/A
3/4"	#N/A	No. 60	#N/A
1/2"	#N/A	No. 100	#N/A
3/8"	#N/A	No. 200	18.2

Project	LADNR/CPRA - Caminada Headlands Back Barrier Ma	Date Tested	6/5/2015
Project No.	16715-012-04	Tested By	TCJ
Boring No.	B-2	Checked By	SLC
Source/Depth (feet)	63.5 - 65	Sieve Type	200 Wash

Method B was used for the 200 Wash

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

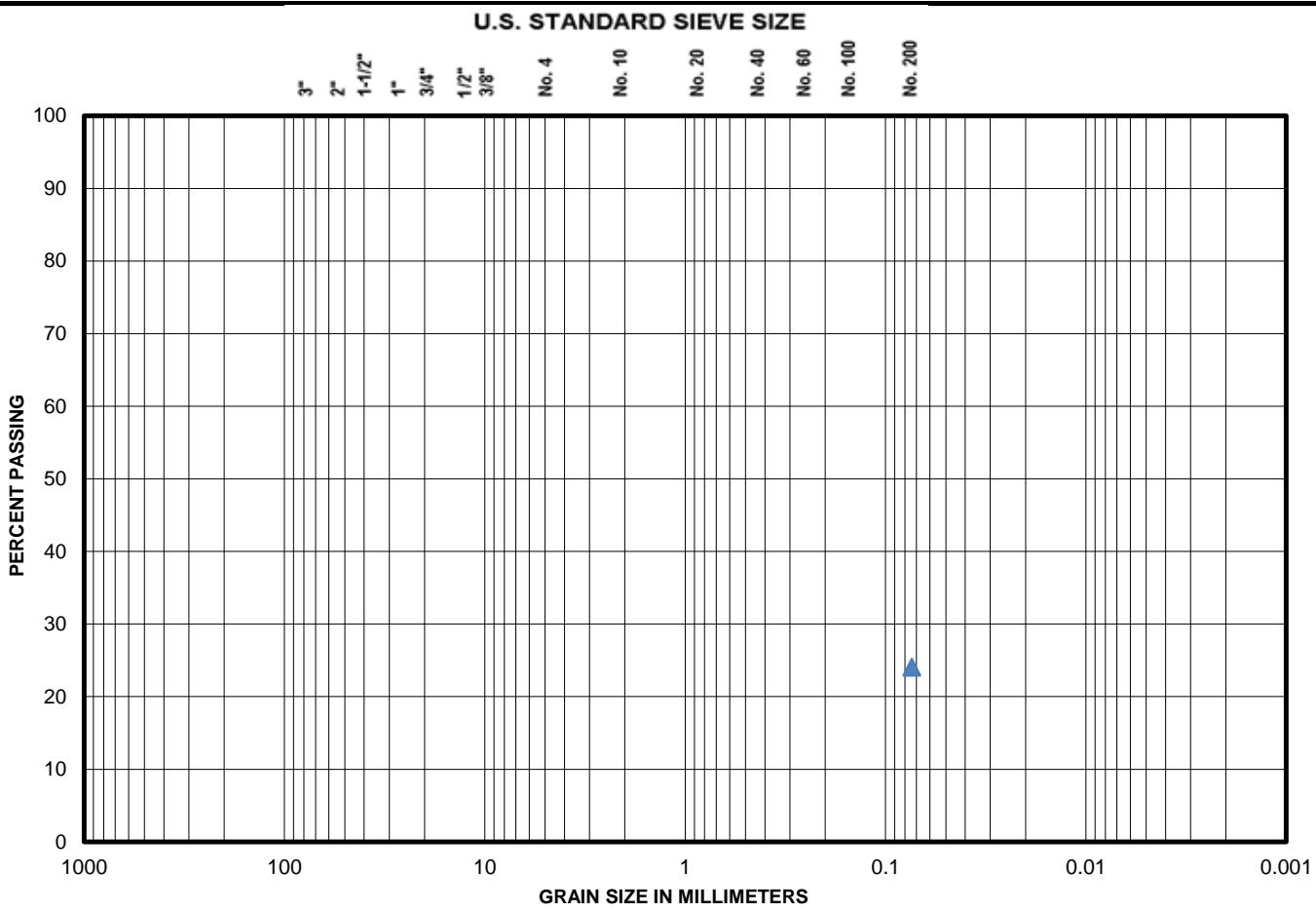


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ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)

16715-012-04



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	76.0	Fines (Silt & Clay) %	24.0
--------	------	-----------------------	------

USC Classification	SM	C _u	na	C _c	na
Description (D 2488)	Silty sand				

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	#N/A
3/4"	#N/A	No. 60	#N/A
1/2"	#N/A	No. 100	#N/A
3/8"	#N/A	No. 200	24.0

Project	LADNR/CPRA - Caminada Headlands Back Barrier Ma	Date Tested	6/5/2015
Project No.	16715-012-04	Tested By	TCJ
Boring No.	B-2	Checked By	SLC
Source/Depth (feet)	68.5 - 70	Sieve Type	200 Wash

Method B was used for the 200 Wash

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

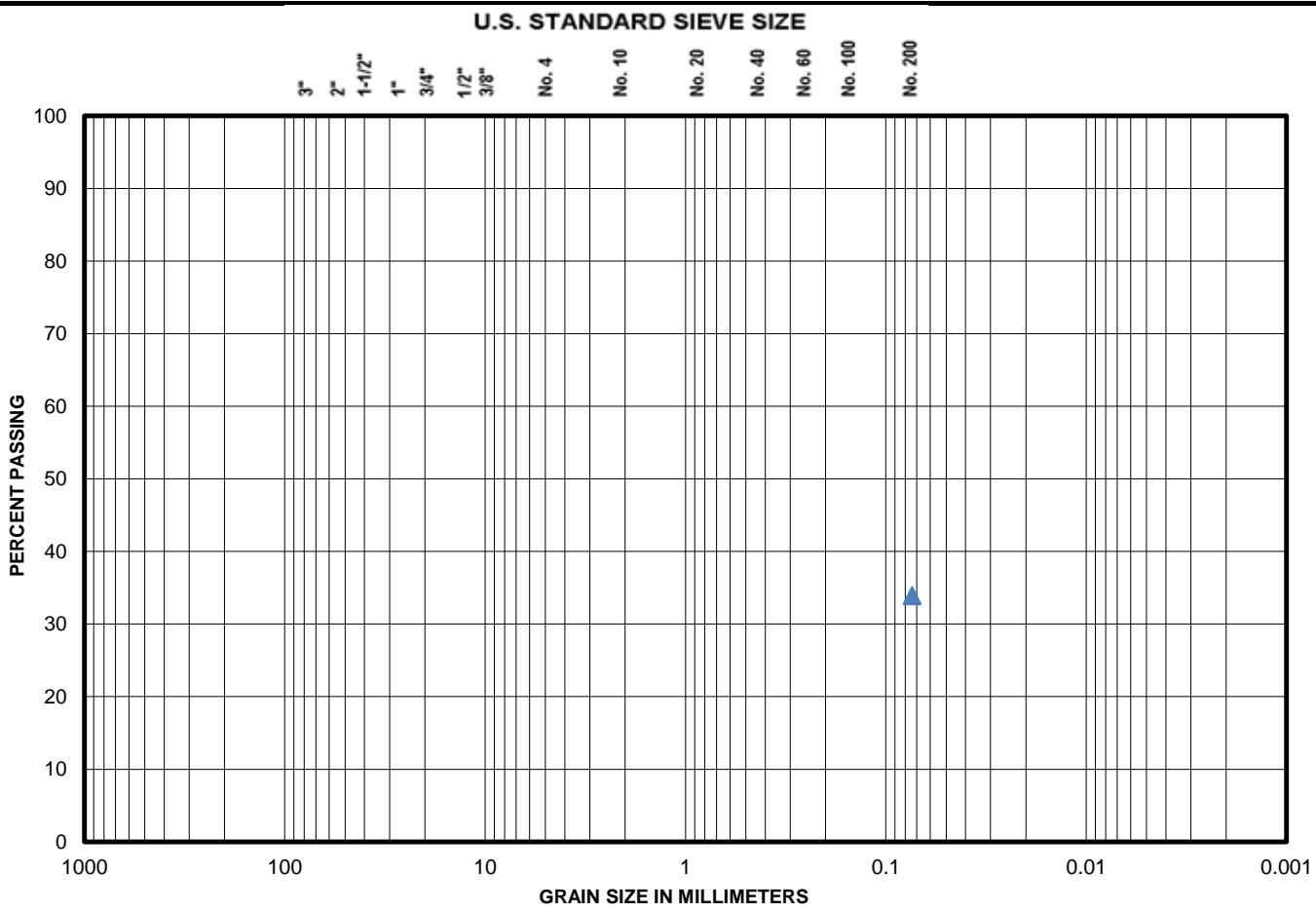


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ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)

16715-012-04



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	66.1	Fines (Silt & Clay) %	33.9
--------	------	-----------------------	------

USC Classification	SM	C _u	na	C _c	na
Description (D 2488)	Silty sand				

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	#N/A
3/4"	#N/A	No. 60	#N/A
1/2"	#N/A	No. 100	#N/A
3/8"	#N/A	No. 200	33.9

Project	LADNR/CPRA - Caminada Headlands Back Barrier Ma	Date Tested	6/5/2015
Project No.	16715-012-04	Tested By	TCJ
Boring No.	B-2	Checked By	SLC
Source/Depth (feet)	73.5 - 75	Sieve Type	200 Wash

Method B was used for the 200 Wash

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

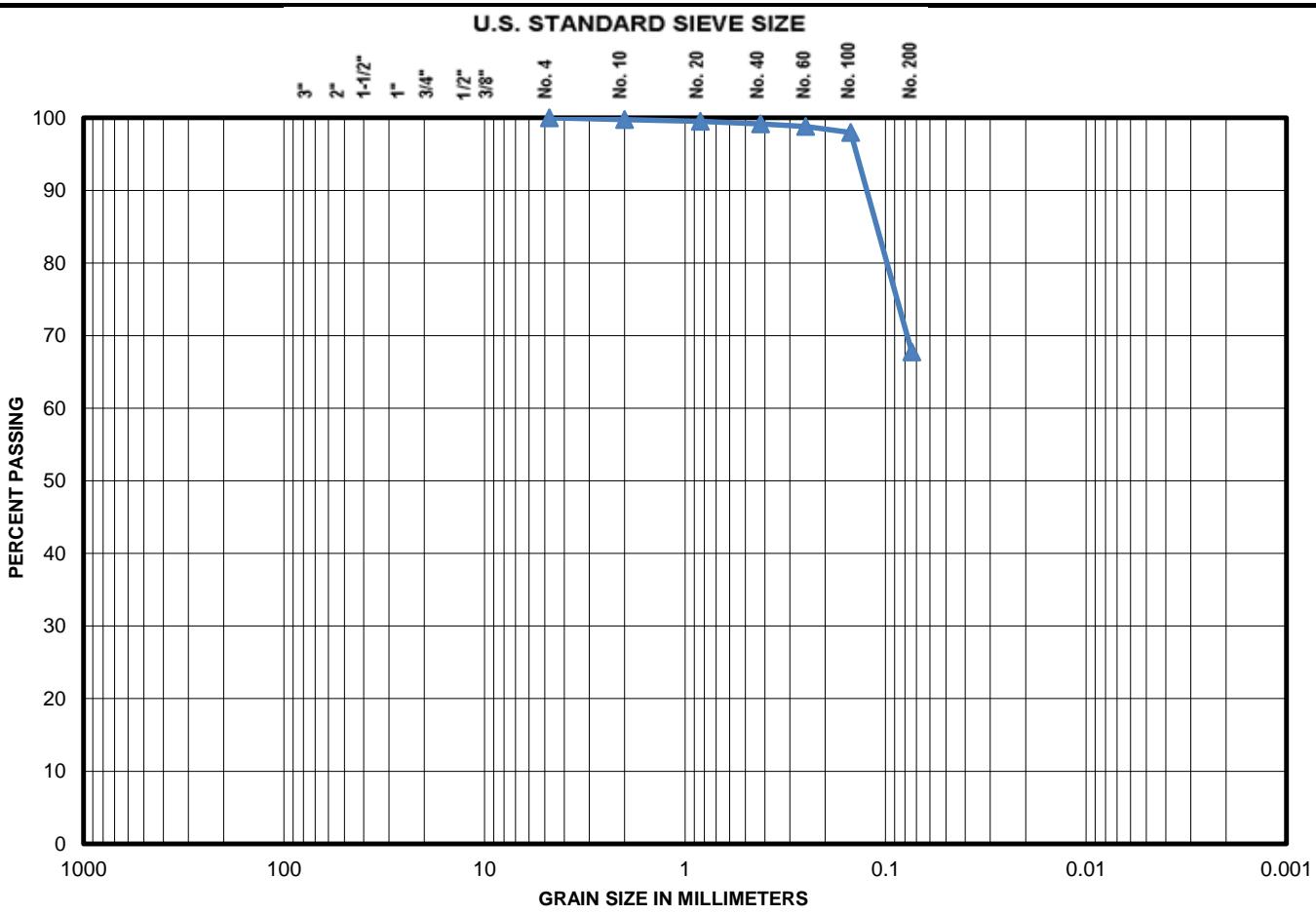


11955 Lakeland Park Blvd. Suite 100 Baton Rouge, La 70809

ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)

16715-012-04



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
Coarse Gravel %	0.0		Medium Sand %		0.6		
Fine Gravel %	0.0		Fine Sand %		31.4		
Coarse Sand %	0.2		Fines (Silt & Clay) %		67.7		
USC Classification	CL		C _U	na	C _C	na	
Description (D 2488)	Gray very sandy clay (CL)						

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	100.0
2"	#N/A	No. 10	99.8
1 1/2"	#N/A	No. 20	99.5
1"	#N/A	No. 40	99.2
3/4"	#N/A	No. 60	98.8
1/2"	#N/A	No. 100	98.0
3/8"	#N/A	No. 200	67.7

Project	LADNR/CPRA - Caminada Headlands Back Barrier Ma	Date Tested	6/17/2015
Project No.	16715-012-04	Tested By	CLP
Boring No.	B-3	Checked By	SLC
Source/Depth (feet)	8 - 10	Sieve Type	Dry Sieve

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

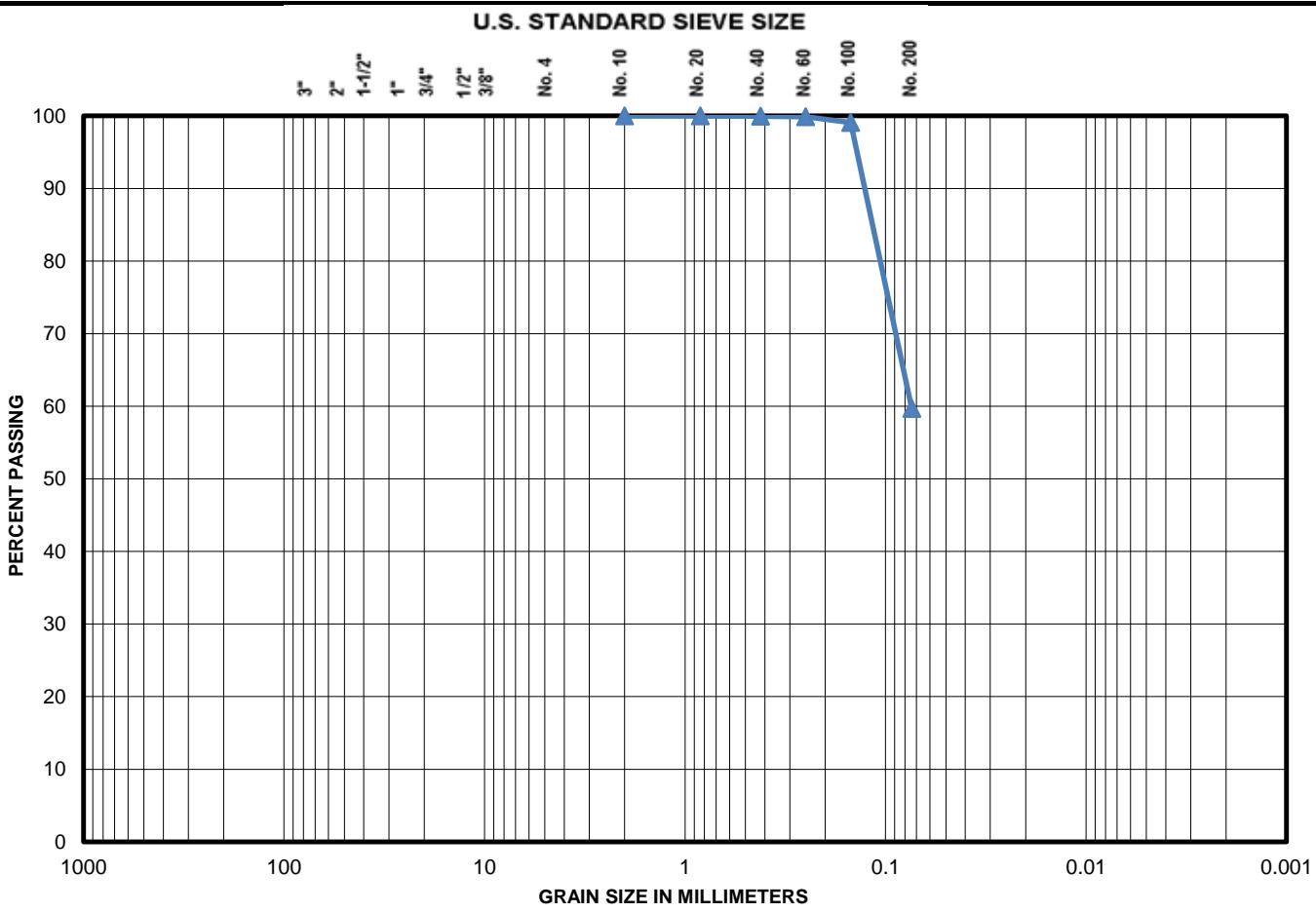


11955 Lakeland Park Blvd. Suite 100 Baton Rouge, La 70809

ASTM D 6913 SOIL PARTICLE-SIZE GRADATION SIEVE ANALYSIS

LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)

16715-012-04



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
Coarse Gravel %	0.0		Medium Sand %		0.0		
Fine Gravel %	0.0		Fine Sand %		40.3		
Coarse Sand %	0.0		Fines (Silt & Clay) %		59.7		
USC Classification	CL		C _u	na	C _c	na	
Description (D 2488)	Dark gray very sandy clay (CL)						

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	100.0
1 1/2"	#N/A	No. 20	100.0
1"	#N/A	No. 40	100.0
3/4"	#N/A	No. 60	99.9
1/2"	#N/A	No. 100	99.1
3/8"	#N/A	No. 200	59.7

Project	LADNR/CPRA - Caminada Headlands Back Barrier Ma	Date Tested	6/17/2015
Project No.	16715-012-04	Tested By	CLP
Boring No.	B-3	Checked By	SLC
Source/Depth (feet)	14.5 - 16	Sieve Type	Dry Sieve

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

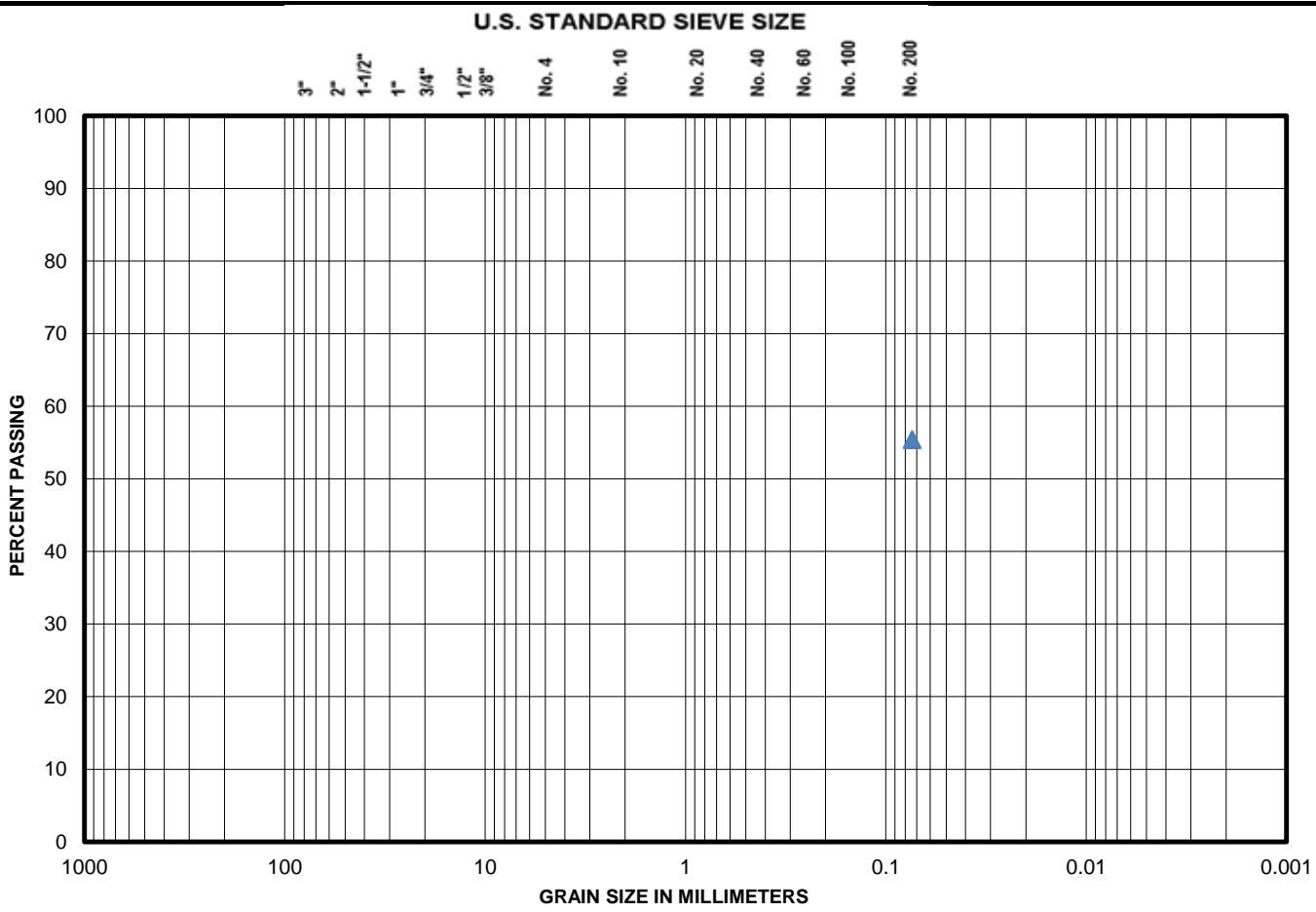


11955 Lakeland Park Blvd. Suite 100 Baton Rouge, La 70809

ASTM D 6913 SOIL PARTICLE-SIZE GRADATION SIEVE ANALYSIS

LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)

16715-012-04



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
Coarse Gravel %	0.0		Medium Sand %		0.0		
Fine Gravel %	0.0		Fine Sand %		44.6		
Coarse Sand %	0.0		Fines (Silt & Clay) %		55.4		
USC Classification	CL		C _U	na	C _C	na	
Description (D 2488)	Gray very sandy clay						

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	#N/A
3/4"	#N/A	No. 60	#N/A
1/2"	#N/A	No. 100	#N/A
3/8"	#N/A	No. 200	55.4

Project	LADNR/CPRA - Caminada Headlands Back Barrier Ma	Date Tested	6/15/2015
Project No.	16715-012-04	Tested By	KTK
Boring No.	B-3	Checked By	SLC
Source/Depth (feet)	16.5 - 18	Sieve Type	200 Wash

Method B was used for the 200 Wash

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

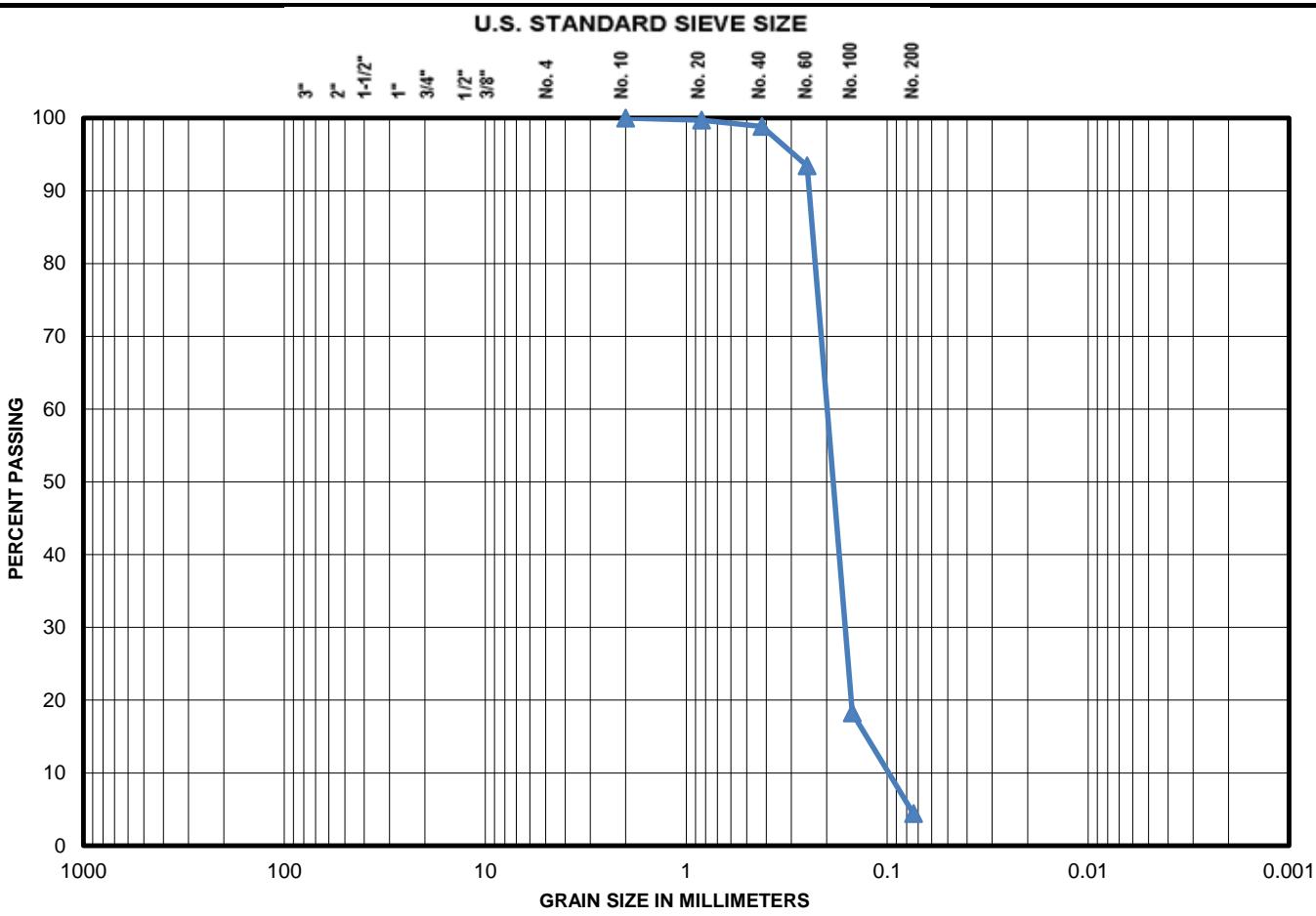


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ASTM D 6913 SOIL PARTICLE-SIZE GRADATION SIEVE ANALYSIS

LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)

16715-012-04



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
Coarse Gravel %	0.0		Medium Sand %		1.2		
Fine Gravel %	0.0		Fine Sand %		94.4		
Coarse Sand %	0.0		Fines (Silt & Clay) %		4.4		
USC Classification	SP		C _u	na	C _c	na	
Description (D 2488)	Sand						

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	100.0
1 1/2"	#N/A	No. 20	99.7
1"	#N/A	No. 40	98.8
3/4"	#N/A	No. 60	93.4
1/2"	#N/A	No. 100	18.2
3/8"	#N/A	No. 200	4.4

Project	LADNR/CPRA - Caminada Headlands Back Barrier Ma	Date Tested	6/10/2015
Project No.	16715-012-04	Tested By	BG
Boring No.	B-4	Checked By	SLC
Source/Depth (feet)	2 - 4	Sieve Type	Dry Sieve

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

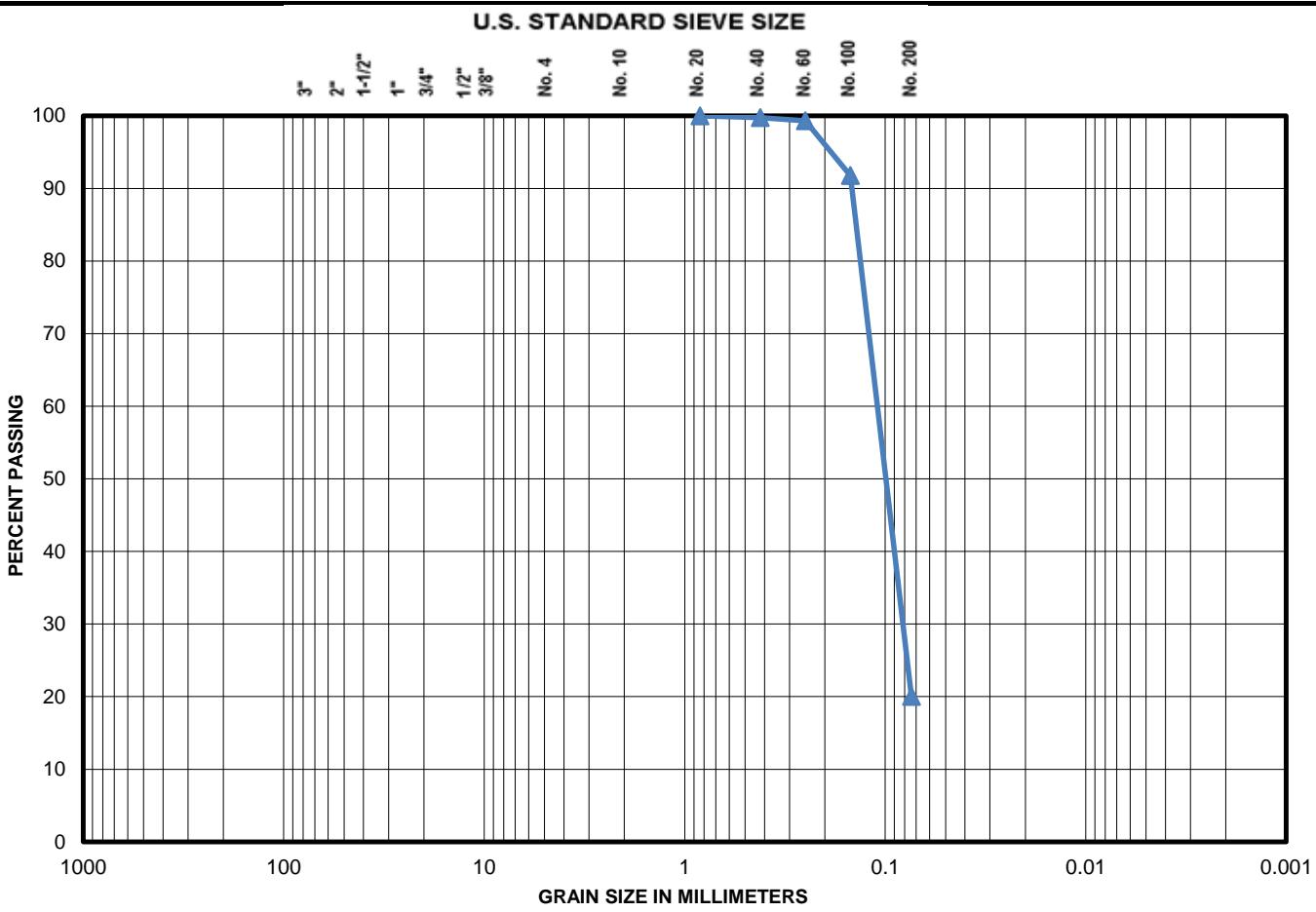


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ASTM D 6913 SOIL PARTICLE-SIZE GRADATION SIEVE ANALYSIS

LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)

16715-012-04



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
Coarse Gravel %	0.0		Medium Sand %		0.3		
Fine Gravel %	0.0		Fine Sand %		79.7		
Coarse Sand %	0.0		Fines (Silt & Clay) %		20.0		
USC Classification	SC		C _u	na	C _c	na	
Description (D 2488)	Clayey sand						

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	100.0
1"	#N/A	No. 40	99.7
3/4"	#N/A	No. 60	99.3
1/2"	#N/A	No. 100	91.7
3/8"	#N/A	No. 200	20.0

Project	LADNR/CPRA - Caminada Headlands Back Barrier Ma	Date Tested	6/11/2015
Project No.	16715-012-04	Tested By	BG
Boring No.	B-5	Checked By	SLC
Source/Depth (feet)	4.5 - 6	Sieve Type	Dry Sieve

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

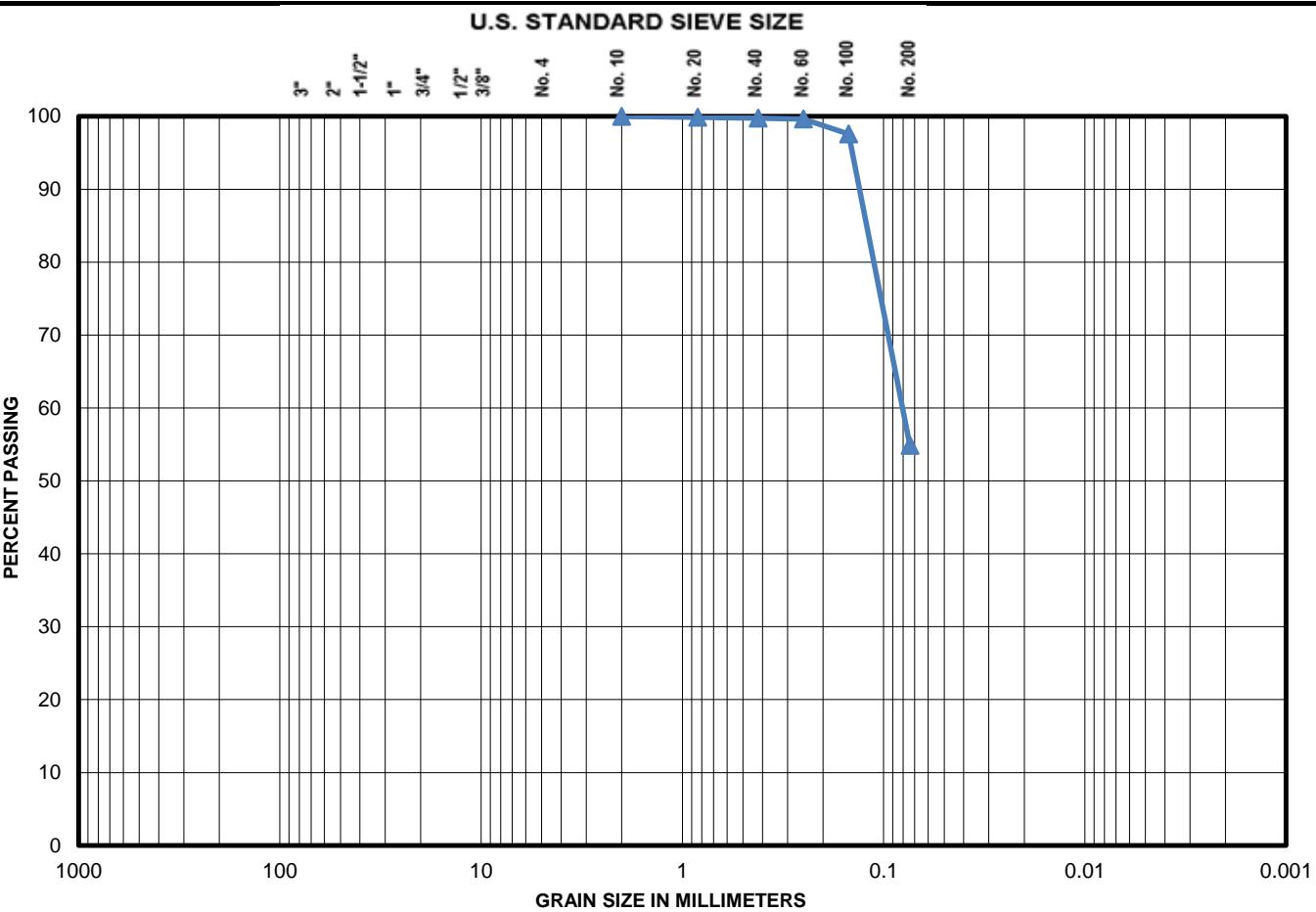


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ASTM D 6913 SOIL PARTICLE-SIZE GRADATION SIEVE ANALYSIS

LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)

16715-012-04



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
Coarse Gravel %	0.0		Medium Sand %		0.2		
Fine Gravel %	0.0		Fine Sand %		44.9		
Coarse Sand %	0.0		Fines (Silt & Clay) %		54.9		
USC Classification	CL		C _u	na	C _c	na	
Description (D 2488)	Gray sandy clay (CL)						

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	100.0
1 1/2"	#N/A	No. 20	99.9
1"	#N/A	No. 40	99.8
3/4"	#N/A	No. 60	99.6
1/2"	#N/A	No. 100	97.6
3/8"	#N/A	No. 200	54.9

Project	LADNR/CPRA - Caminada Headlands Back Barrier Ma	Date Tested	6/11/2015
Project No.	16715-012-04	Tested By	BG
Boring No.	B-5	Checked By	SLC
Source/Depth (feet)	8 - 10	Sieve Type	Dry Sieve

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

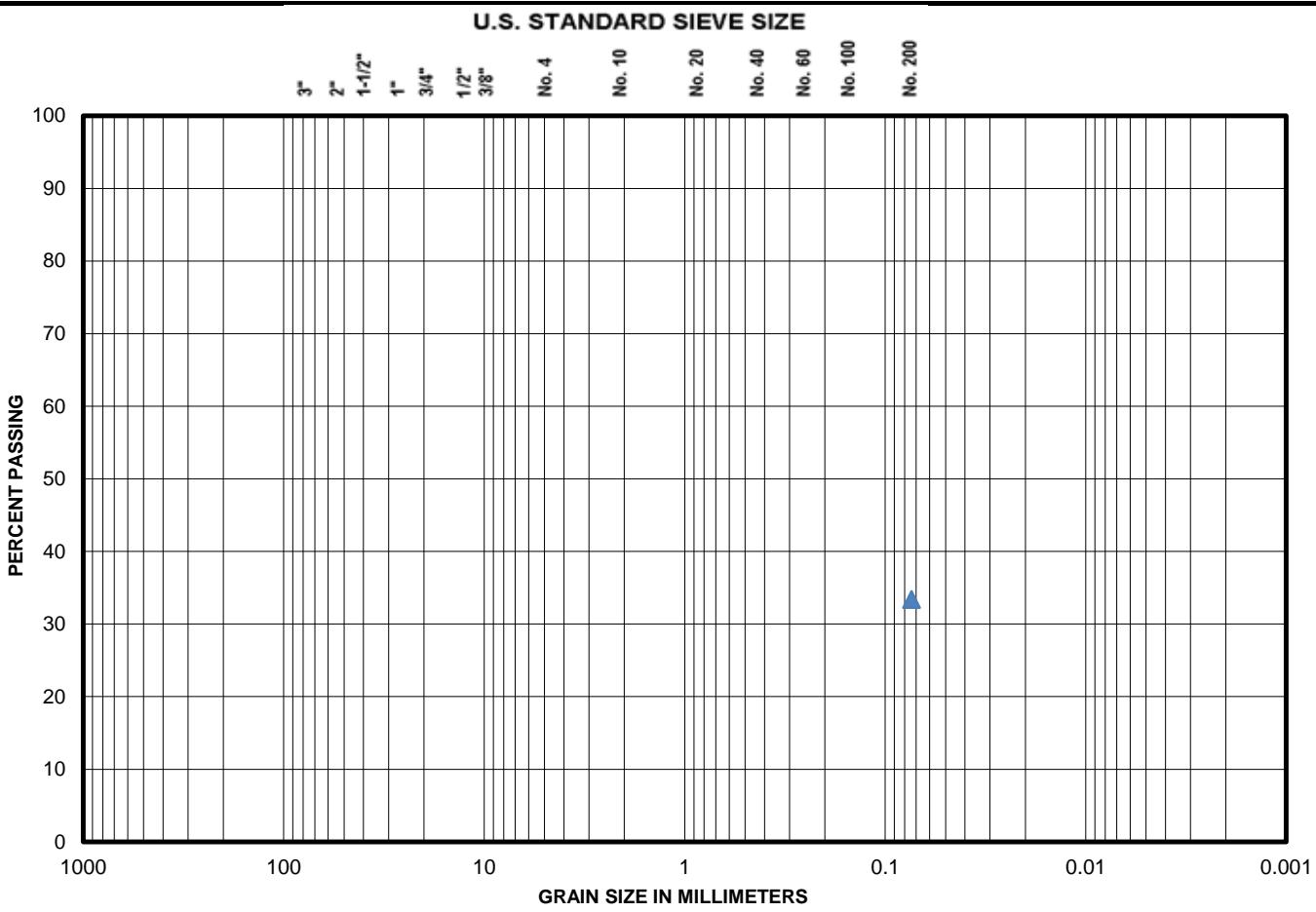


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ASTM D 6913 SOIL PARTICLE-SIZE GRADATION SIEVE ANALYSIS

LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)

16715-012-04



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	66.6	Fines (Silt & Clay) %	33.4
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USC Classification	SC	C _u	na	C _c	na
Description (D 2488)	Clayey sand				

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	#N/A
3/4"	#N/A	No. 60	#N/A
1/2"	#N/A	No. 100	#N/A
3/8"	#N/A	No. 200	33.4

Project	LADNR/CPRA - Caminada Headlands Back Barrier Ma	Date Tested	6/11/2015
Project No.	16715-012-04	Tested By	KTK
Boring No.	B-5	Checked By	SLC
Source/Depth (feet)	12.5 - 14	Sieve Type	200 Wash

Method B was used for the 200 Wash

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

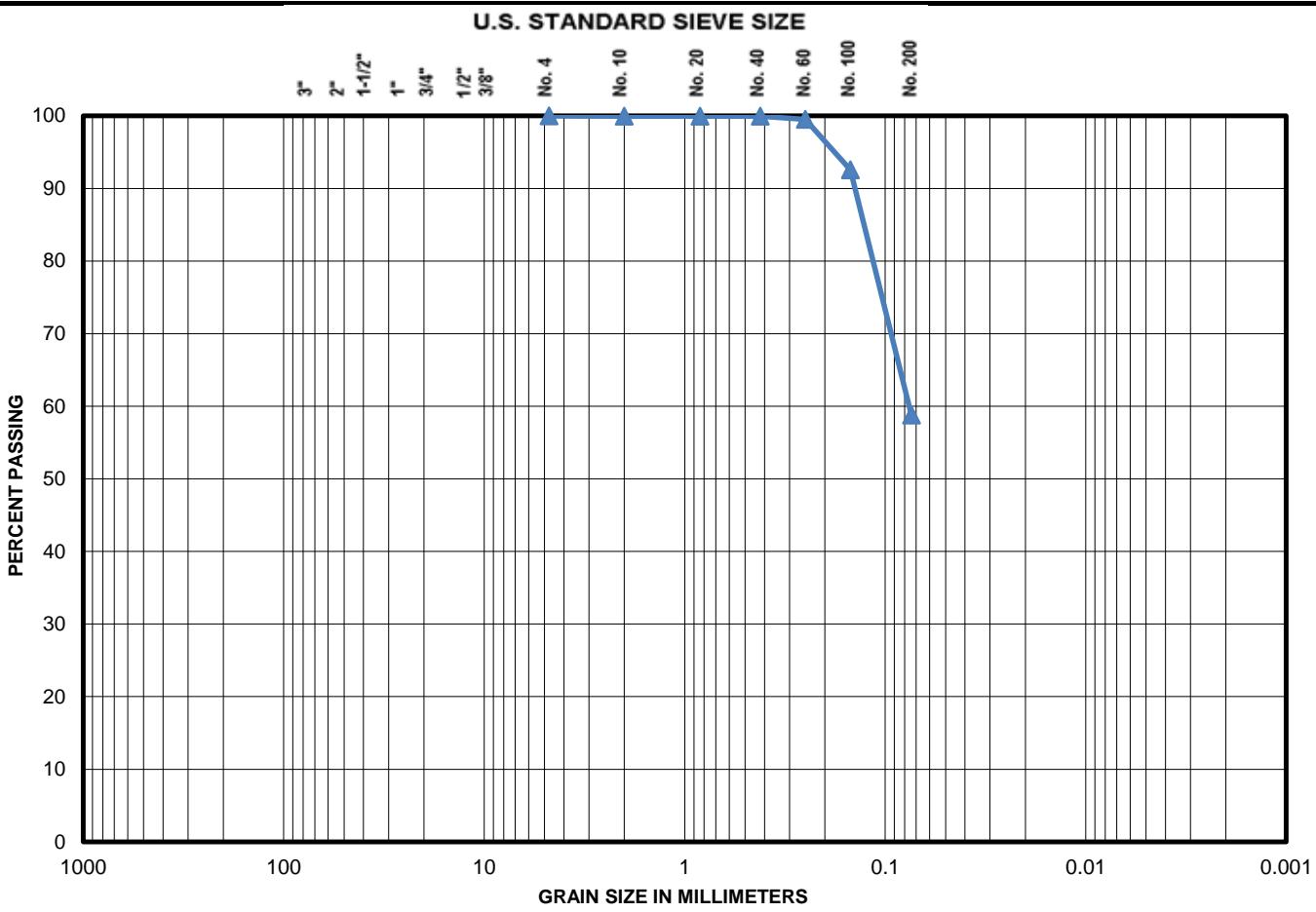


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ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)

16715-012-04



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	41.2	Fines (Silt & Clay) %	58.8
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USC Classification	CL	C _u	na	C _c	na
Description (D 2488)	Gray sandy clay (CL)				

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	100.0
2"	#N/A	No. 10	100.0
1 1/2"	#N/A	No. 20	100.0
1"	#N/A	No. 40	100.0
3/4"	#N/A	No. 60	99.5
1/2"	#N/A	No. 100	92.5
3/8"	#N/A	No. 200	58.8

Project	LADNR/CPRA - Caminada Headlands Back Barrier Ma	Date Tested	6/11/2015
Project No.	16715-012-04	Tested By	BG
Boring No.	B-5	Checked By	SLC
Source/Depth (feet)	18 - 20	Sieve Type	Dry Sieve

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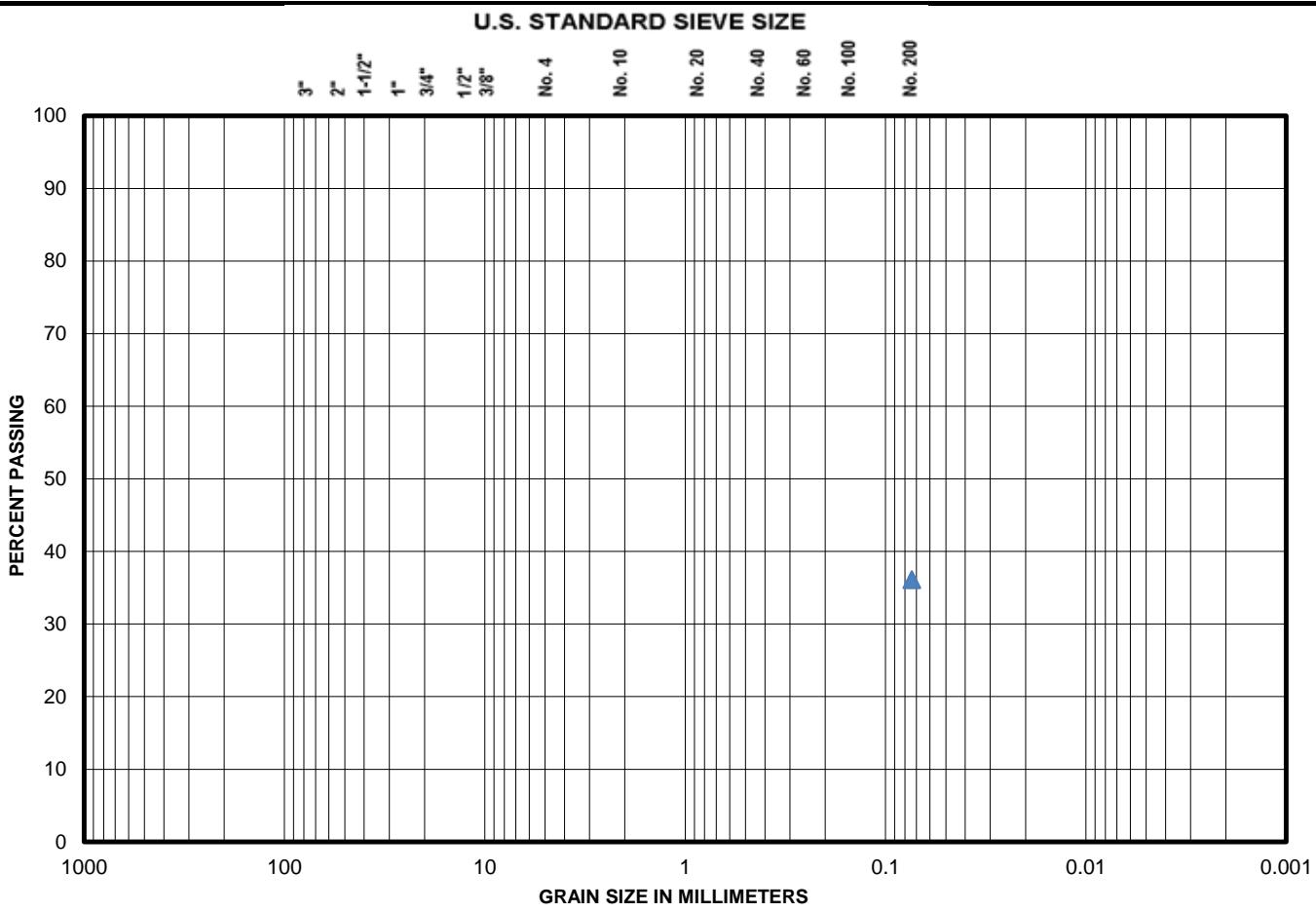


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ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)

16715-012-04



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	63.9	Fines (Silt & Clay) %	36.1
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USC Classification	SC	C _u	na	C _c	na
Description (D 2488)	Clayey sand				

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	#N/A
3/4"	#N/A	No. 60	#N/A
1/2"	#N/A	No. 100	#N/A
3/8"	#N/A	No. 200	36.1

Project	LADNR/CPRA - Caminada Headlands Back Barrier Ma	Date Tested	6/11/2015
Project No.	16715-012-04	Tested By	KTK
Boring No.	B-6	Checked By	SLC
Source/Depth (feet)	2 - 4	Sieve Type	200 Wash

Method B was used for the 200 Wash

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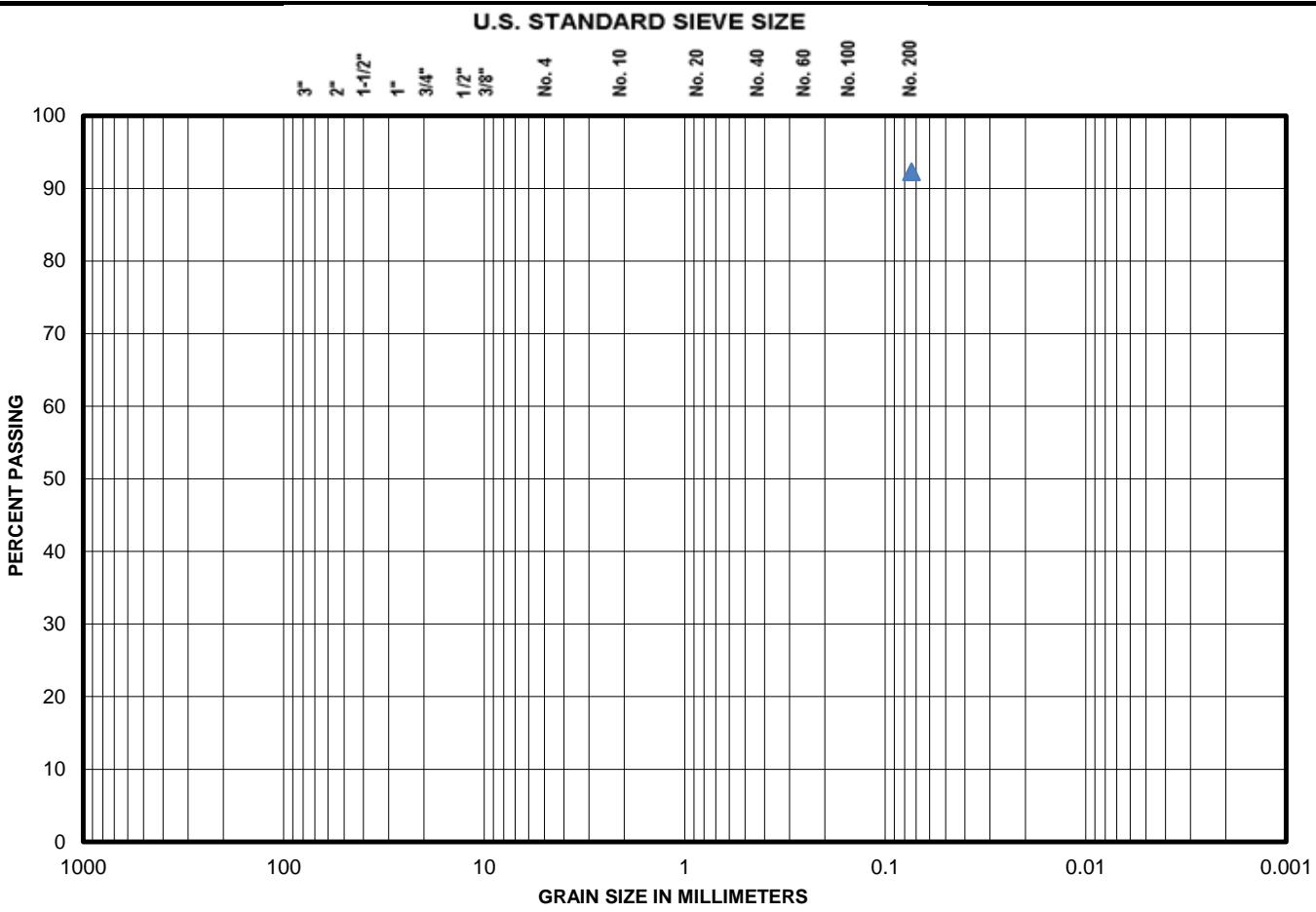


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ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)

16715-012-04



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	7.7	Fines (Silt & Clay) %	92.3
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USC Classification	CH	C _u	na	C _c	na
Description (D 2488)	Gray clay with sand pockets (CH)				

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	#N/A
3/4"	#N/A	No. 60	#N/A
1/2"	#N/A	No. 100	#N/A
3/8"	#N/A	No. 200	92.3

Project	LADNR/CPRA - Caminada Headlands Back Barrier Ma	Date Tested	6/11/2015
Project No.	16715-012-04	Tested By	KTK
Boring No.	B-7	Checked By	SLC
Source/Depth (feet)	4 - 6	Sieve Type	200 Wash

Method B was used for the 200 Wash

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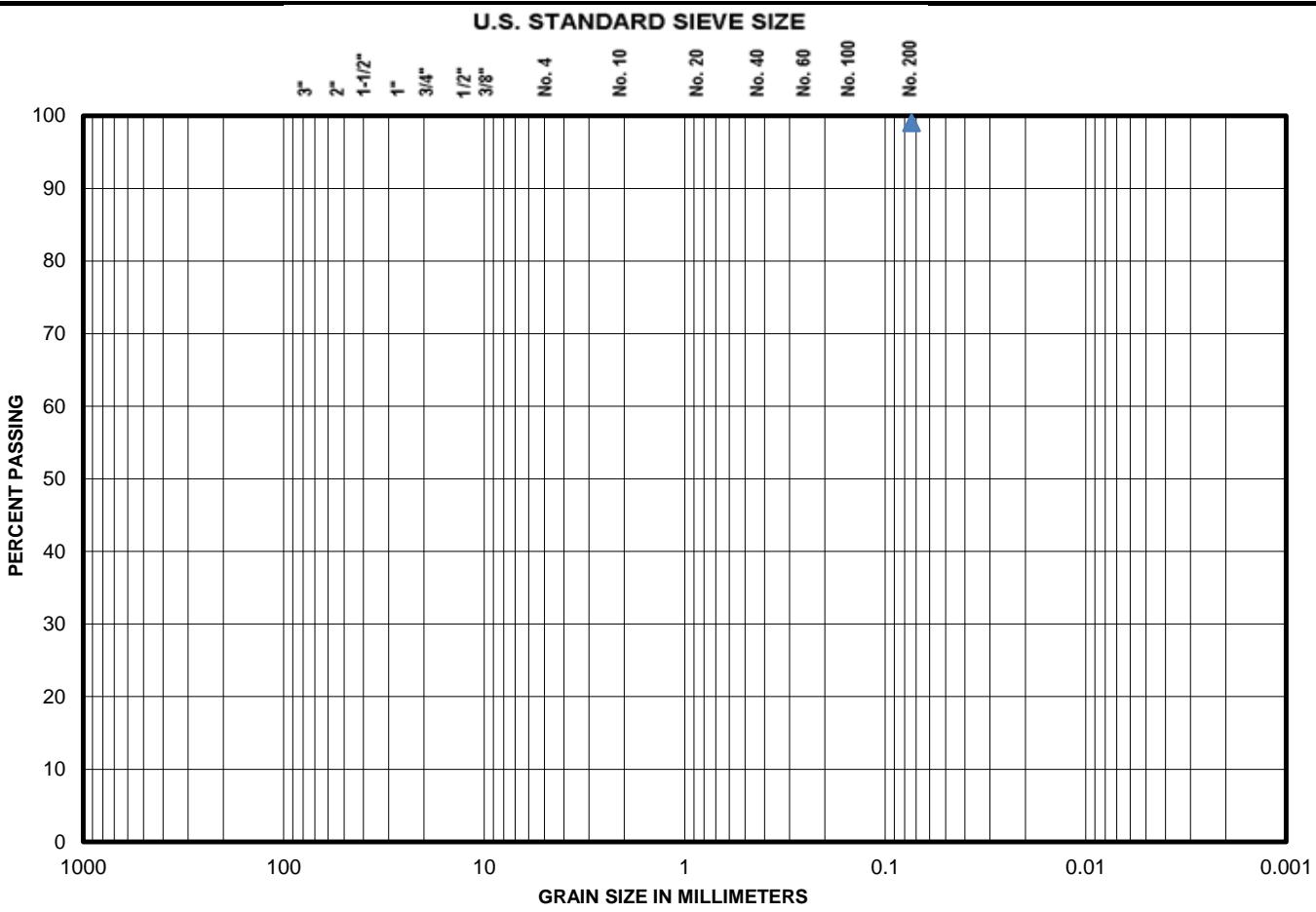


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ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)

16715-012-04



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	1.0	Fines (Silt & Clay) %	99.0
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USC Classification	CL	C _u	na	C _c	na
Description (D 2488)	Very soft gray very silty clay with clay layers and organic matter (CL)				

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	#N/A
3/4"	#N/A	No. 60	#N/A
1/2"	#N/A	No. 100	#N/A
3/8"	#N/A	No. 200	99.0

Project	LADNR/CPRA - Caminada Headlands Back Barrier Ma	Date Tested	6/23/2015
Project No.	16715-012-04	Tested By	TRC
Boring No.	B-7	Checked By	SLC
Source/Depth (feet)	6 - 8	Sieve Type	200 Wash

Method B was used for the 200 Wash

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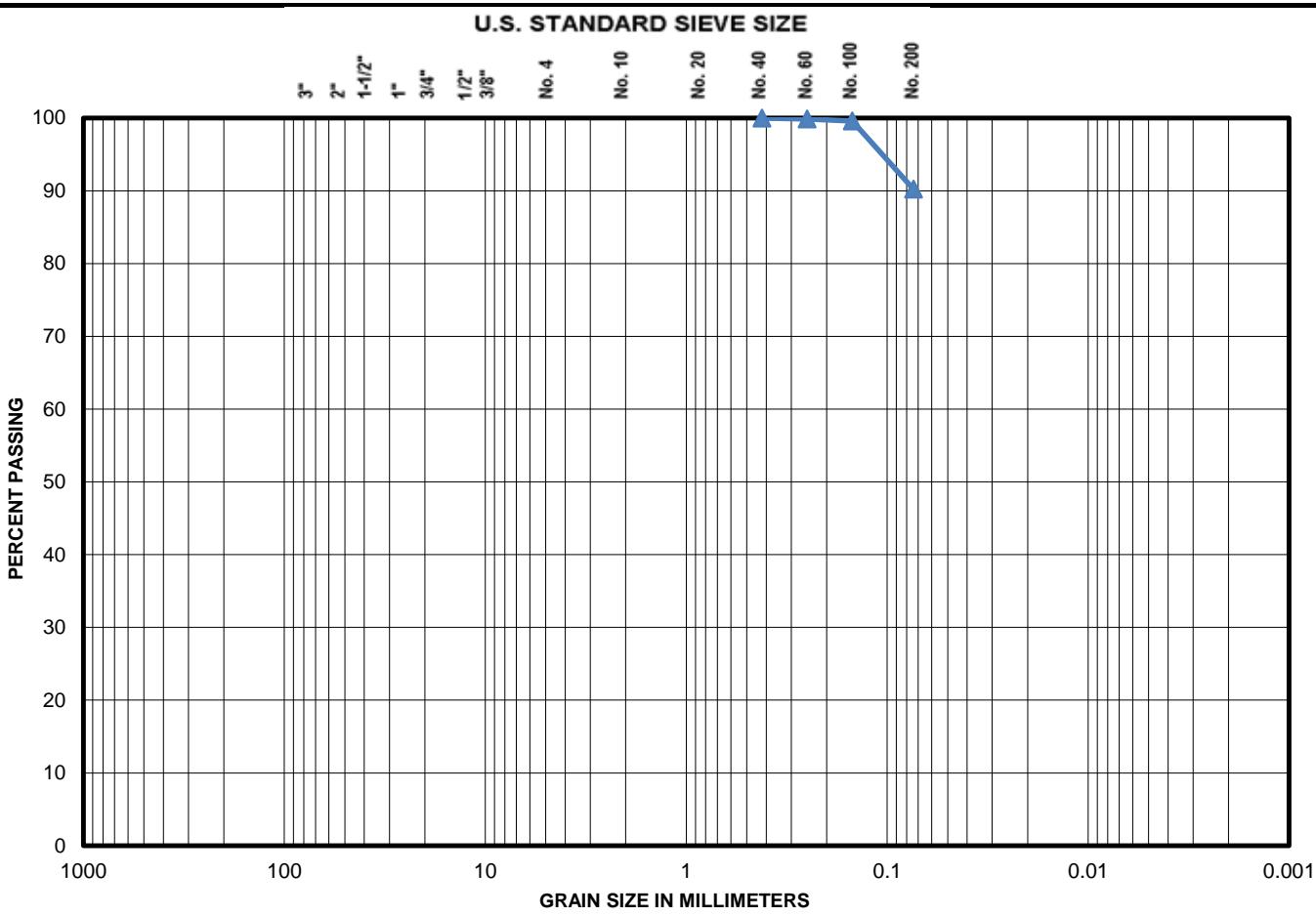


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ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)

16715-012-04



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
Coarse Gravel %		0.0	Medium Sand %		0.0		
Fine Gravel %		0.0	Fine Sand %		9.8		
Coarse Sand %		0.0	Fines (Silt & Clay) %		90.2		
USC Classification		CL	C _u	na	C _c	na	
Description (D 2488)	Gray very silty clay (CL)						

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	100.0
3/4"	#N/A	No. 60	99.9
1/2"	#N/A	No. 100	99.6
3/8"	#N/A	No. 200	90.2

Project	LADNR/CPRA - Caminada Headlands Back Barrier Ma	Date Tested	6/12/2015
Project No.	16715-012-04	Tested By	KTK
Boring No.	B-7	Checked By	SLC
Source/Depth (feet)	14 - 16	Sieve Type	Dry Sieve

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

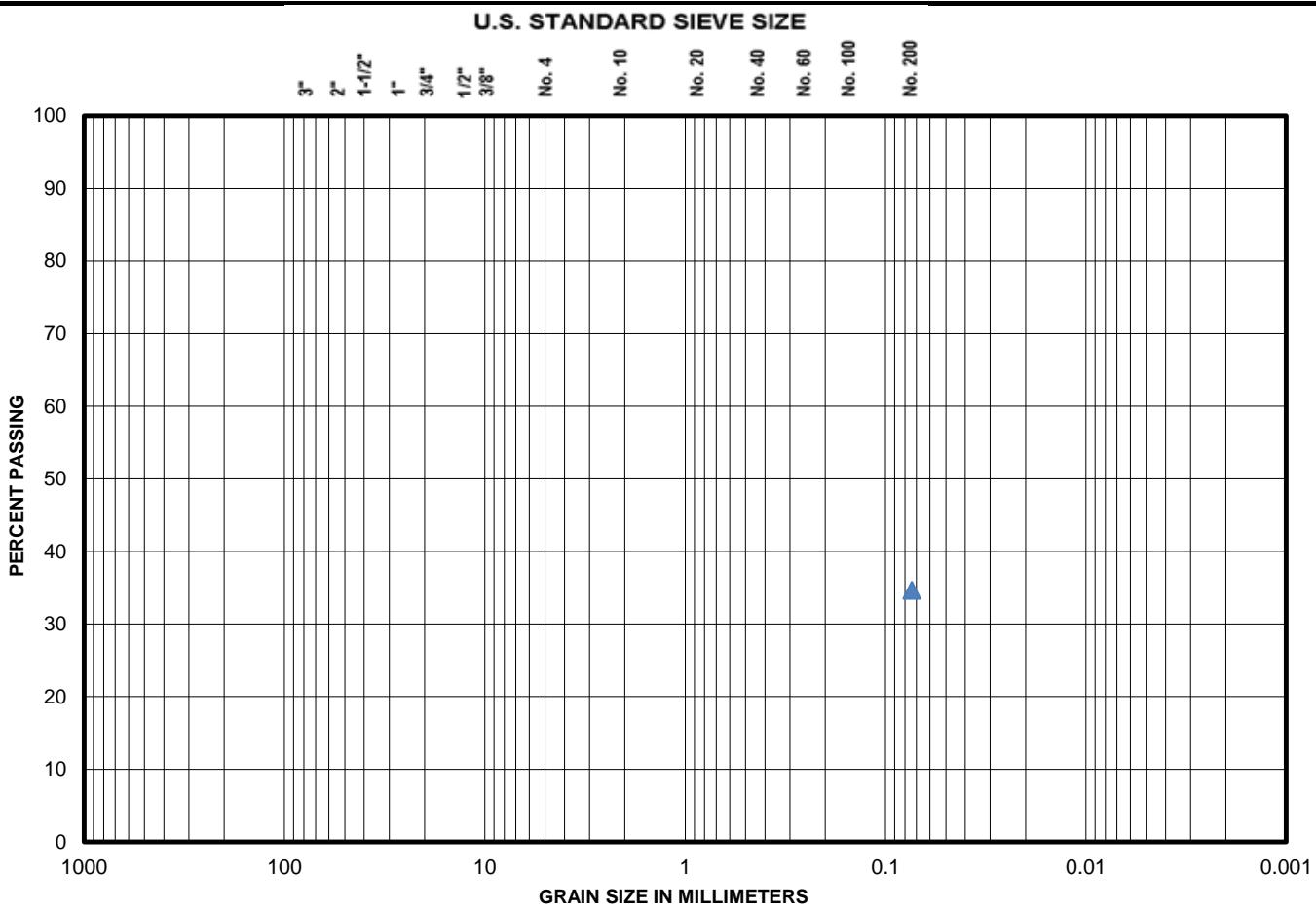


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ASTM D 6913 SOIL PARTICLE-SIZE GRADATION SIEVE ANALYSIS

LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)

16715-012-04



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	65.4	Fines (Silt & Clay) %	34.6
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USC Classification	SC	C _u	na	C _c	na
Description (D 2488)	Clayey sand				

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	#N/A
3/4"	#N/A	No. 60	#N/A
1/2"	#N/A	No. 100	#N/A
3/8"	#N/A	No. 200	34.6

Project	LADNR/CPRA - Caminada Headlands Back Barrier Ma	Date Tested	6/11/2015
Project No.	16715-012-04	Tested By	KTK
Boring No.	B-7	Checked By	SLC
Source/Depth (feet)	18 - 20	Sieve Type	200 Wash

Method B was used for the 200 Wash

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

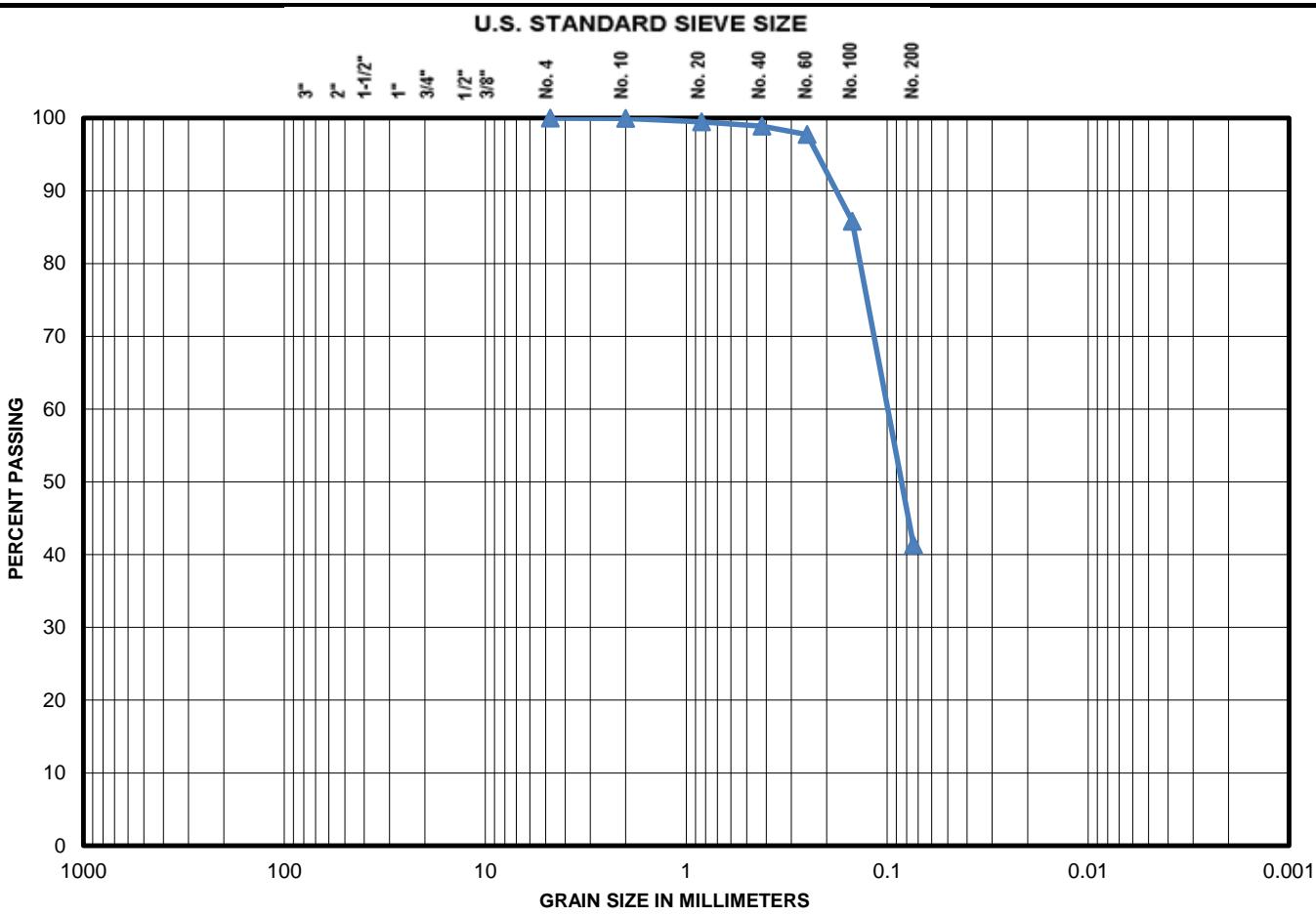


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ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)

16715-012-04



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
Coarse Gravel %	0.0		Medium Sand %		1.1		
Fine Gravel %	0.0		Fine Sand %		57.5		
Coarse Sand %	0.1		Fines (Silt & Clay) %		41.3		
USC Classification	SC		C _u	na	C _c	na	
Description (D 2488)	Clayey sand						

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	100.0
2"	#N/A	No. 10	99.9
1 1/2"	#N/A	No. 20	99.5
1"	#N/A	No. 40	98.9
3/4"	#N/A	No. 60	97.7
1/2"	#N/A	No. 100	85.8
3/8"	#N/A	No. 200	41.3

Project	LADNR/CPRA - Caminada Headlands Back Barrier Ma	Date Tested	6/17/2015
Project No.	16715-012-04	Tested By	CLP
Boring No.	B-8	Checked By	SLC
Source/Depth (feet)	4 - 6	Sieve Type	Dry Sieve

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

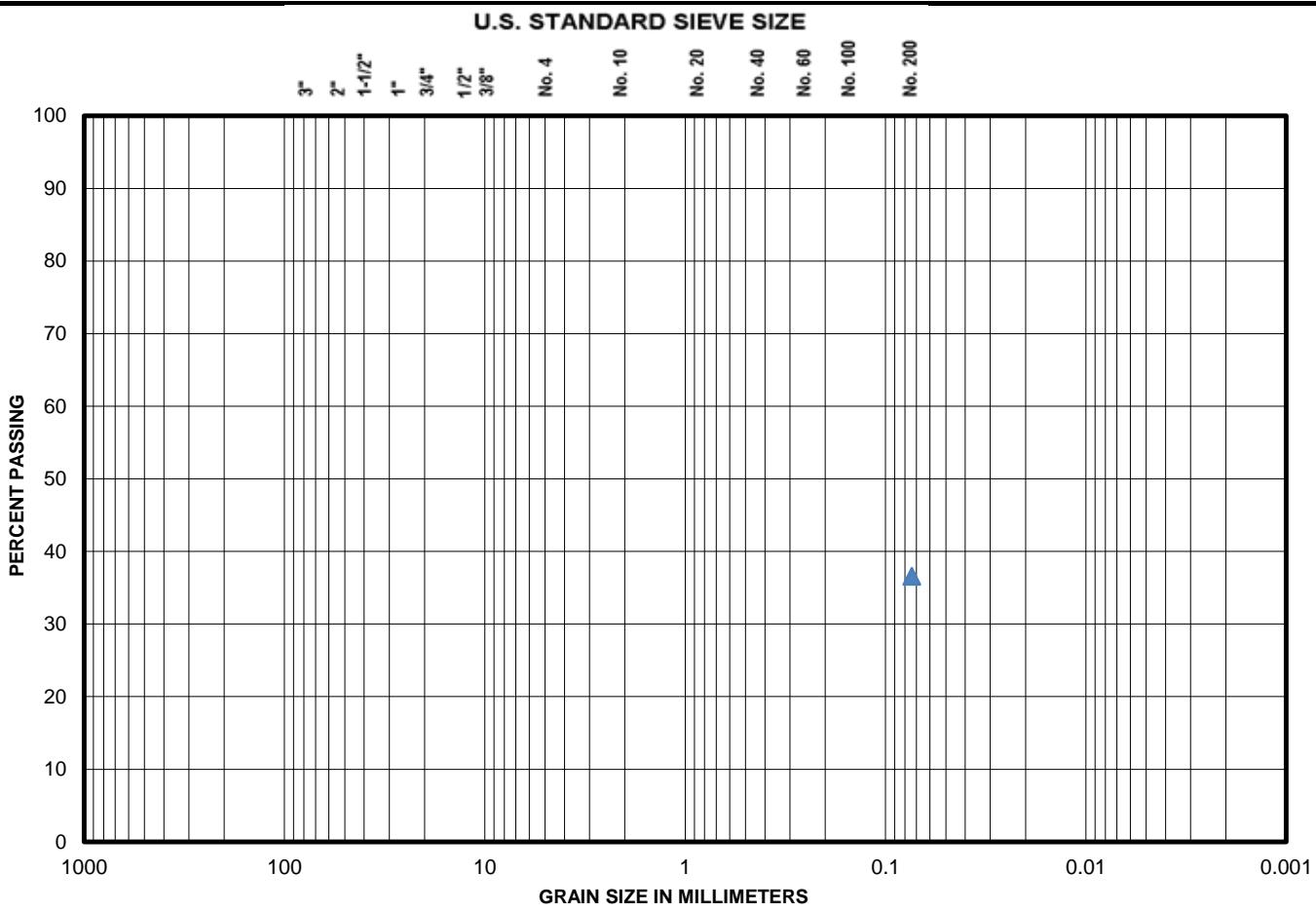


11955 Lakeland Park Blvd. Suite 100 Baton Rouge, La 70809

ASTM D 6913 SOIL PARTICLE-SIZE GRADATION SIEVE ANALYSIS

LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)

16715-012-04



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	63.4	Fines (Silt & Clay) %	36.6
--------	------	-----------------------	------

USC Classification	SC-SM	C _u	na	C _c	na
Description (D 2488)	Silty, clayey sand				

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	#N/A
3/4"	#N/A	No. 60	#N/A
1/2"	#N/A	No. 100	#N/A
3/8"	#N/A	No. 200	36.6

Project	LADNR/CPRA - Caminada Headlands Back Barrier Ma	Date Tested	6/12/2015
Project No.	16715-012-04	Tested By	KTK
Boring No.	B-8	Checked By	SLC
Source/Depth (feet)	10 - 12	Sieve Type	200 Wash

Method B was used for the 200 Wash

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

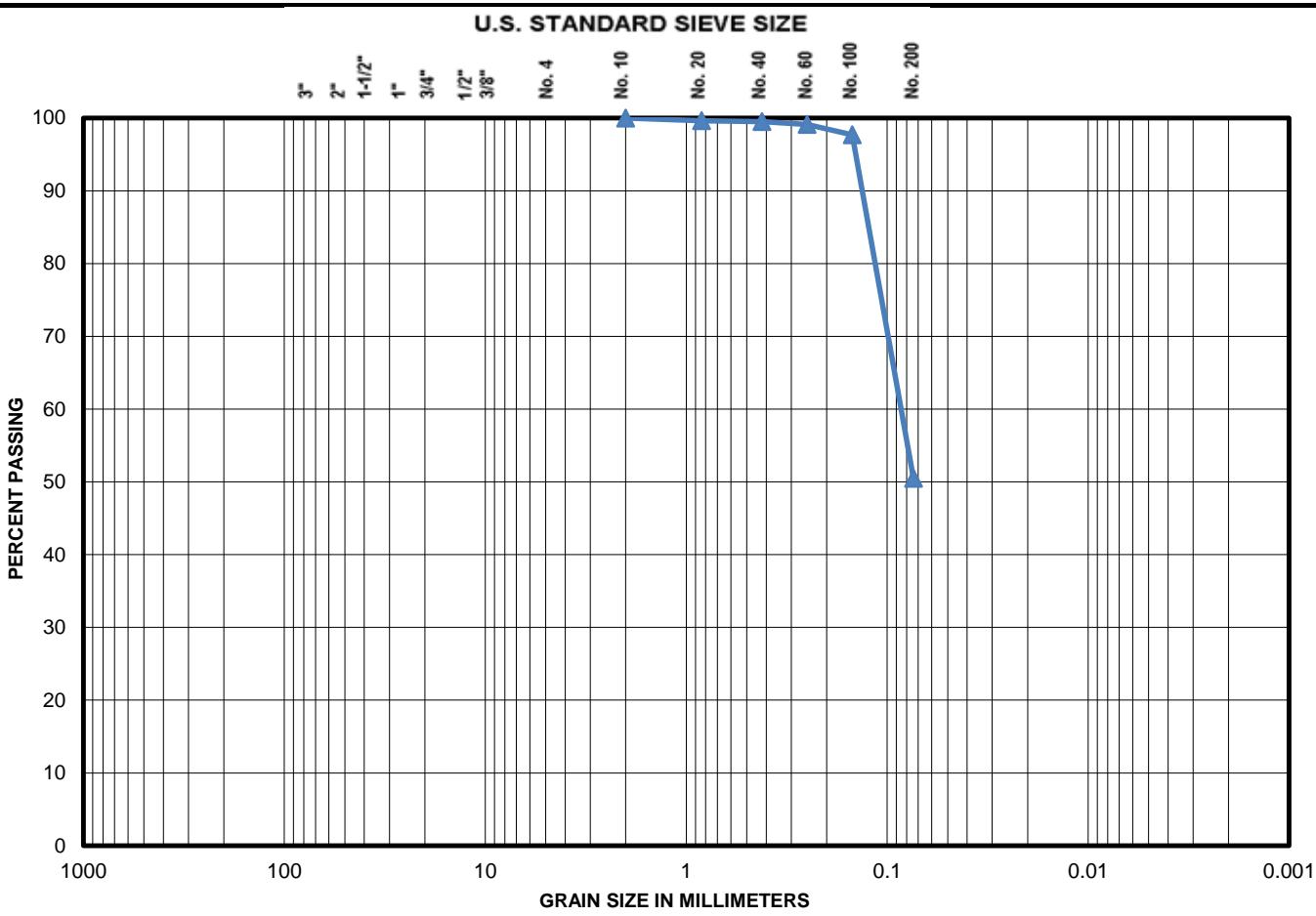


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ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)

16715-012-04



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
Coarse Gravel %	0.0		Medium Sand %		0.5		
Fine Gravel %	0.0		Fine Sand %		49.0		
Coarse Sand %	0.0		Fines (Silt & Clay) %		50.5		
USC Classification	CL		C _u	na	C _c	na	
Description (D 2488)	Gray very sandy clay (CL)						

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	100.0
1 1/2"	#N/A	No. 20	99.6
1"	#N/A	No. 40	99.5
3/4"	#N/A	No. 60	99.1
1/2"	#N/A	No. 100	97.7
3/8"	#N/A	No. 200	50.5

Project	LADNR/CPRA - Caminada Headlands Back Barrier Ma	Date Tested	6/17/2015
Project No.	16715-012-04	Tested By	CLP
Boring No.	B-8	Checked By	SLC
Source/Depth (feet)	12.5 - 14	Sieve Type	Dry Sieve

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.

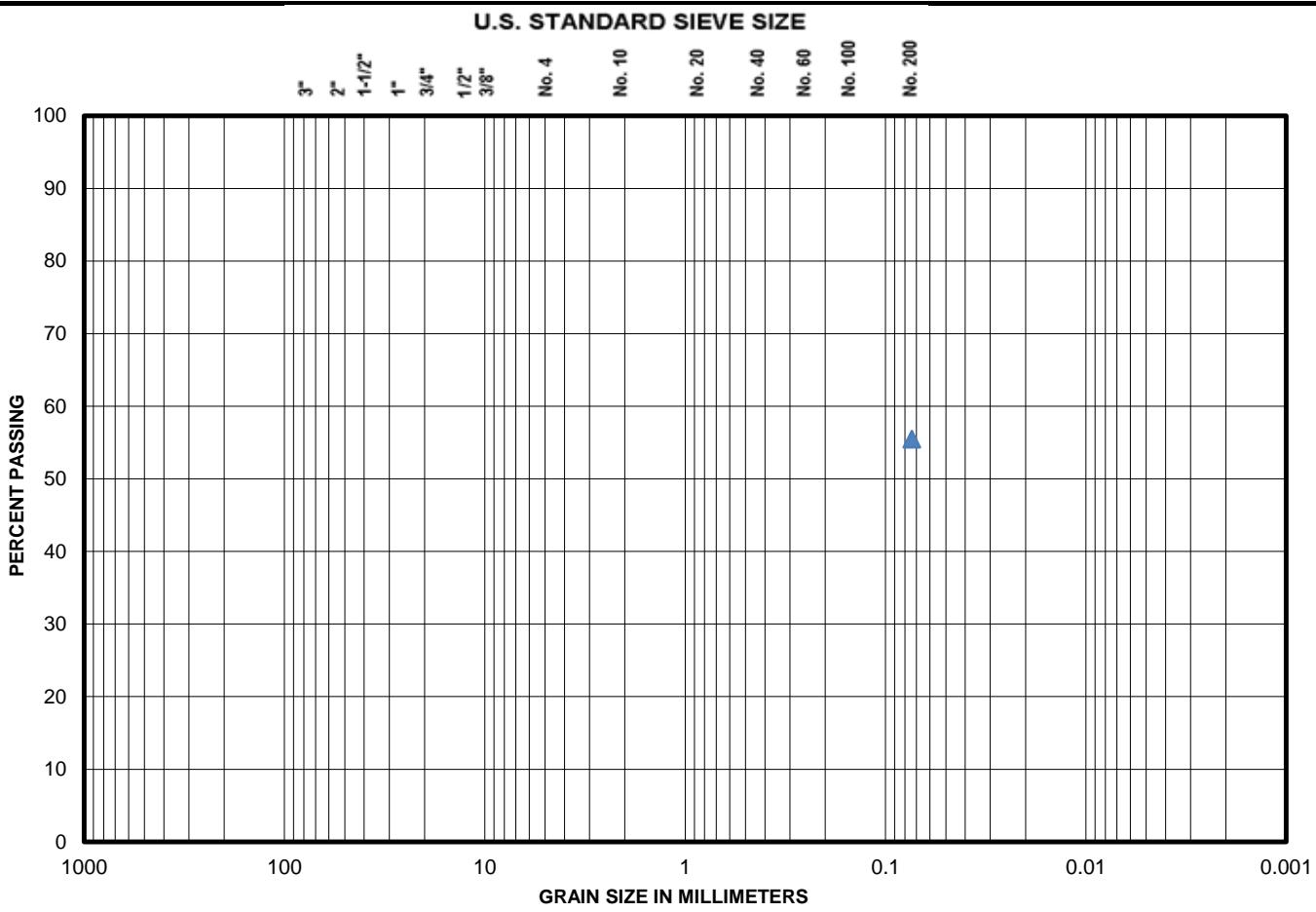


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ASTM D 6913 SOIL PARTICLE-SIZE GRADATION SIEVE ANALYSIS

LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)

16715-012-04



COBBLES	GRAVEL		SAND			FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

Sand %	44.6	Fines (Silt & Clay) %	55.4
--------	------	-----------------------	------

USC Classification	CL	C _u	na	C _c	na
Description (D 2488)	Gray sandy clay (CL)				

Individual Sieve Data - % Passing			
3"	#N/A	No. 4	#N/A
2"	#N/A	No. 10	#N/A
1 1/2"	#N/A	No. 20	#N/A
1"	#N/A	No. 40	#N/A
3/4"	#N/A	No. 60	#N/A
1/2"	#N/A	No. 100	#N/A
3/8"	#N/A	No. 200	55.4

Project	LADNR/CPRA - Caminada Headlands Back Barrier Ma	Date Tested	6/15/2015
Project No.	16715-012-04	Tested By	KTK
Boring No.	B-8	Checked By	SLC
Source/Depth (feet)	14 - 15.5	Sieve Type	200 Wash

Method B was used for the 200 Wash

NOTE: Test was performed in general accordance with the referenced test method. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations or generated by separate operations or processes. This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc.



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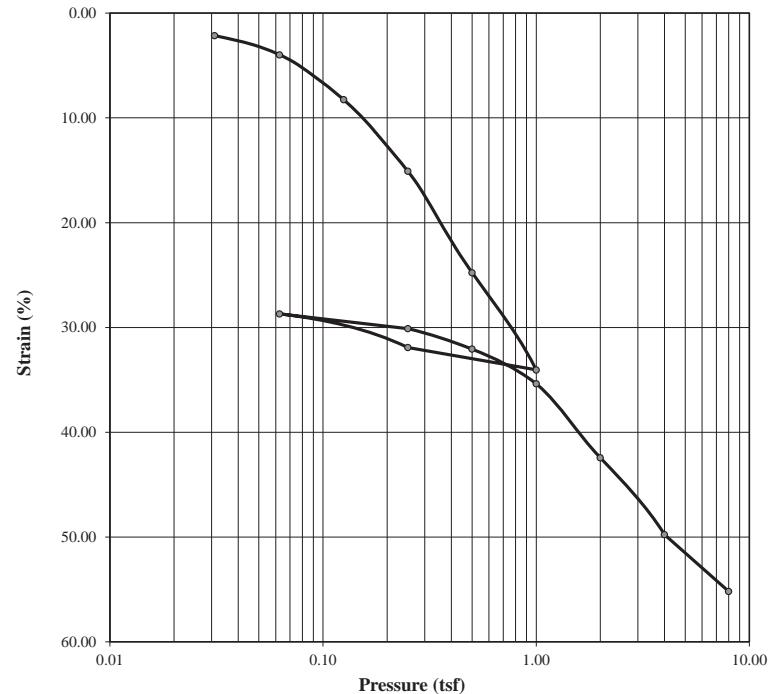
ASTM D 1140 ANALYSIS OF SOIL FINER THAN No. 200 SIEVE

LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)

16715-012-04



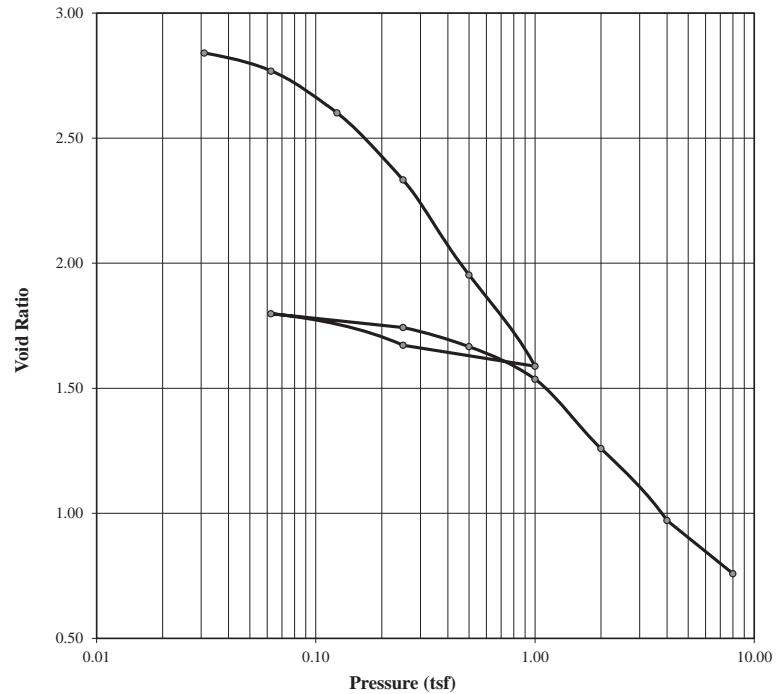
Consolidation Test
Test Results



	Before	After	Liquid Limits:	97	Test Date:	03 June 2015
Moisture (%):	104.77	42.34	Plastic Limits:	35		
Dry Density (pcf):	42.83	84.37	Plasticity Index (%):	62		
Saturation (%):	96.41	114.64				
Void Ratio:	2.9304	0.7610	Specific Gravity:	2.698	Measured	
Sample Description:	Clay (CH)					
Project Number:	16715-012-04	Depth: 2 - 4 feet				
Sample Number:		Boring Number: B-1	Remarks:			
Project:	BA-171 Caminada Headlands Back-Barrier Marsh Creation Project					
Client:	Louisiana Coastal Protection and Restoration Authority (CPRA)					
Location:	LaFourche Parish, Louisiana					



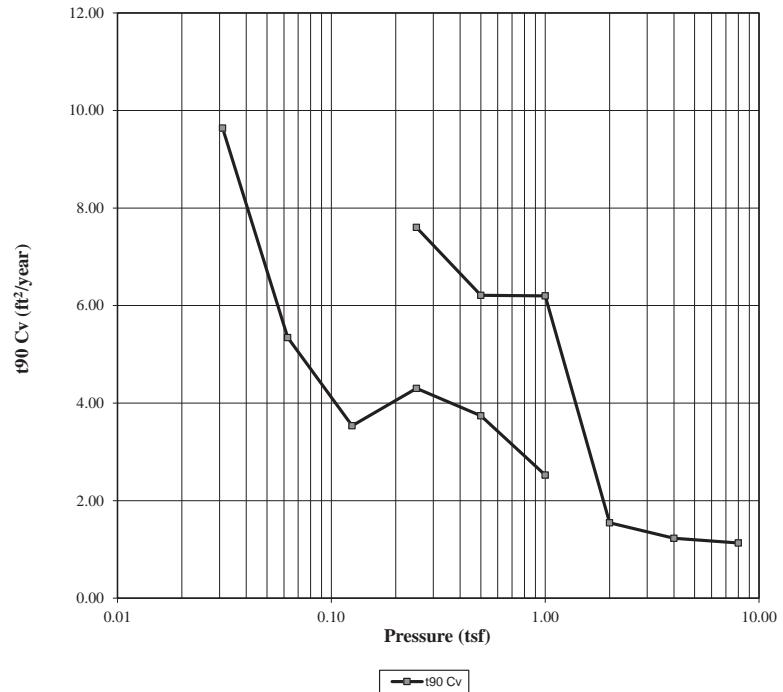
Consolidation Test
Test Results



	Before	After	Liquid Limits:	97	Test Date:	03 June 2015
Moisture (%):	104.77	42.34	Plastic Limits:	35		
Dry Density (pcf):	42.83	84.37	Plasticity Index (%):	62		
Saturation (%):	96.41	114.64				
Void Ratio:	2.9304	0.7610	Specific Gravity:	2.698	Measured	
Sample Description:	Clay (CH)					
Project Number:	16715-012-04	Depth: 2 - 4 feet				
Sample Number:		Boring Number: B-1	Remarks:			
Project:	BA-171 Caminada Headlands Back-Barrier Marsh Creation Project					
Client:	Louisiana Coastal Protection and Restoration Authority (CPRA)					
Location:	LaFourche Parish, Louisiana					



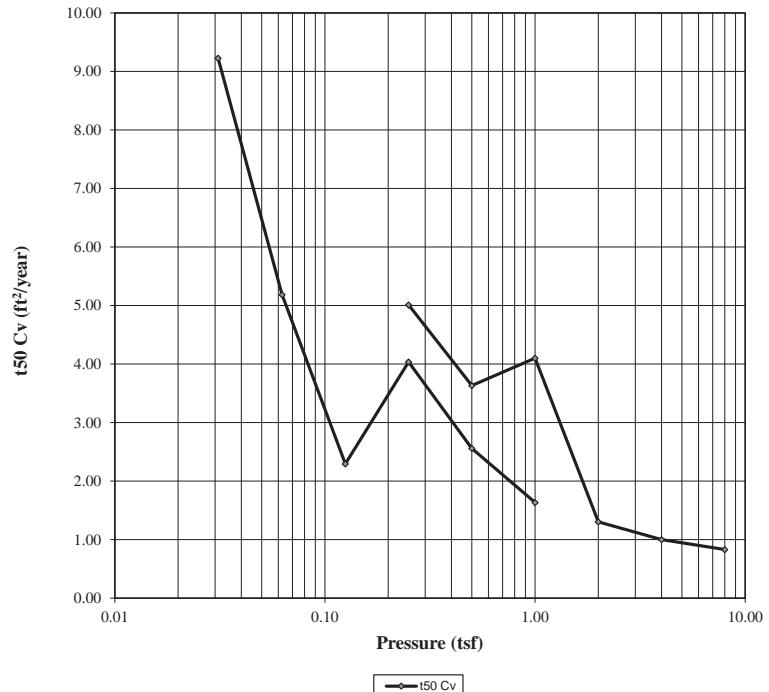
Consolidation Test
Test Results



	Before	After	Liquid Limits:	97	Test Date:	03 June 2015
Moisture (%):	104.77	42.34	Plastic Limits:	35		
Dry Density (pcf):	42.83	84.37	Plasticity Index (%):	62		
Saturation (%):	96.41	114.64				
Void Ratio:	2.9304	0.7610	Specific Gravity:	2.698	Measured	
Soil Description:	Clay (CH)					
Project Number:	16715-012-04	Depth: 2 - 4 feet	Remarks:			
Sample Number:		Boring Number: B-1				
Project:	BA-171 Caminada Headlands Back-Barrier Marsh Creation Project					
Client:	Louisiana Coastal Protection and Restoration Authority (CPRA)					
Location:	LaFourche Parish, Louisiana					



Consolidation Test
Test Results



	Before	After	Liquid Limits:	97	Test Date:	03 June 2015
Moisture (%):	104.77	42.34	Plastic Limits:	35		
Dry Density (pcf):	42.83	84.37	Plasticity Index (%):	62		
Saturation (%):	96.41	114.64				
Void Ratio:	2.9304	0.7610	Specific Gravity:	2.698	Measured	
Soil Description:	Clay (CH)					
Project Number:	16715-012-04	Depth: 2 - 4 feet	Remarks:			
Sample Number:		Boring Number: B-1				
Project:	BA-171 Caminada Headlands Back-Barrier Marsh Creation Project					
Client:	Louisiana Coastal Protection and Restoration Authority (CPRA)					
Location:	LaFourche Parish, Louisiana					



**Consolidation Test Results
Summary**

Project: BA-171 Caminada Headlands Back-Barrier Marsh Creation Project
Location: LaFourche Parish, Louisiana
Job Number:

Project Number: 16715-012-04

Sample Number:
Boring Number: B-1
Depth: 2 - 4 feet
Sample Type: Undisturbed

Sample Description:
Clay (CH)
Remarks:

Test Number:
Test Date: 03 June 2015

Index	Load Sequence (tsf)	Cummulative Change in Height (in)	Specimen Height (in)	Height of Void (in)	Vertical Strain (%)	Void Ratio	t90 Fitting Time (min)	t50 Fitting Time (min)	t90 Cv (ft ² /year)	t50 Cv (ft ² /year)
0	0.000	0.0000	0.7450	0.5552	0.00	2.9251	0.000	0.000	0.000	0.000
1	0.031	0.0161	0.7289	0.5391	2.16	2.8403	42.641	10.351	9.641	9.227
2	0.063	0.0298	0.7152	0.5254	4.00	2.7681	74.104	17.738	5.341	5.184
3	0.125	0.0615	0.6835	0.4937	8.26	2.6011	102.293	36.616	3.534	2.294
4	0.250	0.1124	0.6326	0.4428	15.09	2.3329	72.009	17.816	4.300	4.038
5	0.500	0.1846	0.5604	0.3706	24.78	1.9525	65.001	22.056	3.739	2.560
6	1.000	0.2537	0.4913	0.3015	34.05	1.5885	73.951	26.547	2.526	1.634
7	0.250	0.2378	0.5072	0.3174	31.92	1.6722	0.000	0.000	0.000	0.000
8	0.063	0.2139	0.5311	0.3413	28.71	1.7981	0.000	0.000	0.000	0.000
9	0.250	0.2244	0.5206	0.3308	30.12	1.7428	27.588	9.722	7.602	5.011
10	0.500	0.2389	0.5061	0.3163	32.07	1.6664	31.921	12.669	6.209	3.634
11	1.000	0.2636	0.4814	0.2916	35.38	1.5363	28.924	10.161	6.200	4.100
12	2.000	0.3162	0.4288	0.2390	42.44	1.2592	92.136	25.375	1.544	1.303
13	4.000	0.3708	0.3742	0.1844	49.77	0.9715	88.332	25.191	1.227	0.999
14	8.000	0.4112	0.3338	0.1440	55.19	0.7587	76.193	24.102	1.132	0.831

Predicted value indicated with *



**Consolidation Test
Consolidation Specimen Information**

Project: BA-171 Caminada Headlands Back-Barrier Marsh Creation Project **Project Number:** 16715-012-04
Location: LaFourche Parish, Louisiana
Job Number:

Test Date: 03 June 2015

Sample Number:
Boring Number: B-1
Depth: 2 - 4 feet
Sample Type: Undisturbed

Sample Description:
Clay (CH)
Remarks:

Test Number:
Liquid Limit: 97.0000 **Initial Void Ratio:** 2.9304 **Initial Height (in):** 0.7450
Plastic Limit: 35.0000 **Plasticity Index (%):** 62.0000 **Initial Diameter (in):** 2.5000
Specific Gravity: 2.6980 **Weight of Ring (g):** 234.3800
Measured

Parameters	Initial Specimen	Final Specimen
Moist Weight + Container (g)	148.31	70.43
Dry Soil + Container (g)	83.98	55.22
Weight of Container (g)	22.58	19.30
Moisture Content (%)	104.77	42.34
Void Ratio	2.9304	0.7610
Saturation (%)	96.41	114.64
Dry Density (pcf)	42.83	84.37

Consolidation Test Results (Sequence 1) Load 0.031 tsf	Consolidation Test Results (Sequence 1) Load 0.031 tsf
---	---

Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project Project Number: 16715-012-04

Location: LaFourche Parish, Louisiana

Job Number:

Sample Number:
Boring Number: B-1
Depth: 2 - 4 feet
Sample Type: Undisturbed

Test Date: 03 June 2015

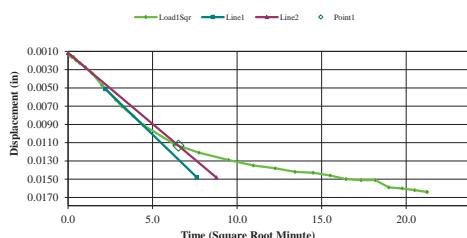
Test Number:

Soil Description:
Clay (CH)
Remarks:

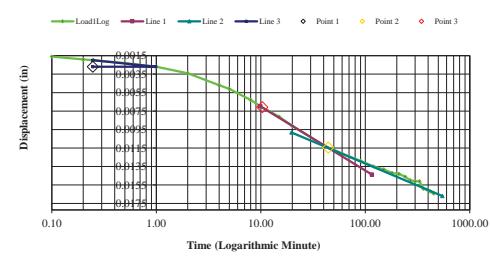
Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.0003	0.0000	0.0000	2.9304
1	00:00:01	0.0015	0.0012	0.1611	2.9241
2	00:00:02	0.0015	0.0012	0.1611	2.9241
3	00:00:03	0.0016	0.0013	0.1745	2.9236
4	00:00:04	0.0016	0.0013	0.1745	2.9236
5	00:00:05	0.0016	0.0013	0.1745	2.9236
6	00:00:06	0.0016	0.0013	0.1745	2.9236
7	00:00:12	0.0019	0.0016	0.2148	2.9220
8	00:00:15	0.0020	0.0017	0.2282	2.9215
9	00:00:30	0.0023	0.0020	0.2685	2.9199
10	00:01:00	0.0027	0.0024	0.3221	2.9178
11	00:02:00	0.0034	0.0031	0.4161	2.9141
12	00:04:00	0.0047	0.0044	0.5906	2.9072
13	00:05:00	0.0051	0.0048	0.6443	2.9051
14	00:08:00	0.0063	0.0060	0.8054	2.8988
15	00:10:00	0.0070	0.0067	0.8993	2.8951
16	00:15:00	0.0081	0.0078	1.0470	2.8893
17	00:20:00	0.0091	0.0088	1.1812	2.8840
18	00:40:00	0.0112	0.0109	1.4631	2.8729
19	01:00:03	0.0121	0.0118	1.5833	2.8682
20	01:30:08	0.0129	0.0126	1.6913	2.8640
21	02:00:10	0.0135	0.0132	1.7718	2.8608
22	02:30:10	0.0138	0.0135	1.8121	2.8592
23	03:00:13	0.0142	0.0139	1.8653	2.8571
24	03:30:18	0.0143	0.0140	1.8792	2.8566
25	04:00:20	0.0146	0.0143	1.9195	2.8550
26	04:30:20	0.0150	0.0147	1.9732	2.8529
27	05:00:22	0.0151	0.0148	1.9866	2.8524
28	05:30:21	0.0151	0.0148	1.9866	2.8524
29	06:00:20	0.0159	0.0156	2.0940	2.8481
30	06:30:21	0.0160	0.0157	2.1074	2.8476
31	07:00:20	0.0162	0.0159	2.1342	2.8465
32	07:30:19	0.0164	0.0161	2.1611	2.8455
33	07:31:03	0.0164	0.0161	2.1611	2.8455

Consolidation Test Results
(Sequence 1) Load 0.031 tsf

Consolidation Graph (Squareroot Time)



Consolidation Graph (Logarithmic Time)



Page 1 of 1

Consolidation Test Results (Sequence 2) Load 0.063 tsf	Consolidation Test Results (Sequence 2) Load 0.063 tsf
---	---

Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project Project Number: 16715-012-04

Location: LaFourche Parish, Louisiana

Job Number:

Sample Number:
Boring Number: B-1
Depth: 2 - 4 feet
Sample Type: Undisturbed

Test Date: 03 June 2015

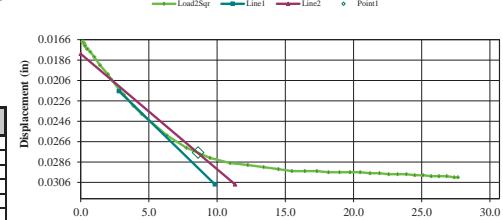
Test Number:

Soil Description:
Clay (CH)
Remarks:

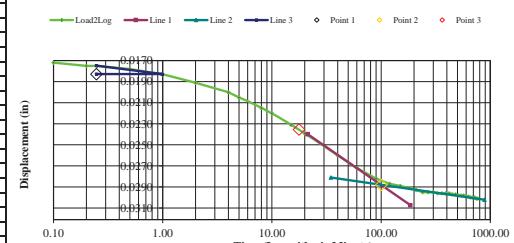
Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.0164	0.0161	2.1611	2.8455
1	00:00:01	0.0168	0.0165	2.2148	2.8434
2	00:00:02	0.0168	0.0165	2.2148	2.8434
3	00:00:03	0.0169	0.0166	2.2282	2.8429
4	00:00:04	0.0170	0.0167	2.2416	2.8423
5	00:00:05	0.0171	0.0168	2.2550	2.8418
6	00:00:06	0.0172	0.0169	2.2685	2.8413
7	00:00:12	0.0175	0.0172	2.3087	2.8397
8	00:00:15	0.0175	0.0172	2.3087	2.8397
9	00:00:30	0.0178	0.0175	2.3490	2.8381
10	00:01:00	0.0183	0.0180	2.4161	2.8355
11	00:02:00	0.0191	0.0188	2.5235	2.8312
12	00:04:00	0.0200	0.0197	2.6443	2.8265
13	00:05:00	0.0205	0.0202	2.7114	2.8239
14	00:08:00	0.0215	0.0212	2.8456	2.8186
15	00:10:00	0.0220	0.0217	2.9128	2.8160
16	00:15:00	0.0231	0.0228	3.0604	2.8101
17	00:20:00	0.0239	0.0236	3.1678	2.8059
18	00:40:00	0.0260	0.0257	3.4497	2.7948
19	01:00:00	0.0272	0.0269	3.6107	2.7885
20	01:29:59	0.0282	0.0279	3.7450	2.7832
21	01:59:59	0.0287	0.0284	3.8121	2.7806
22	02:29:59	0.0289	0.0286	3.8389	2.7795
23	02:59:58	0.0291	0.0288	3.8658	2.7785
24	03:29:57	0.0293	0.0290	3.8926	2.7774
25	03:59:58	0.0295	0.0292	3.9195	2.7764
26	04:29:57	0.0295	0.0292	3.9195	2.7764
27	04:59:56	0.0295	0.0292	3.9195	2.7764
28	05:29:57	0.0296	0.0293	3.9329	2.7759
29	05:59:56	0.0296	0.0293	3.9329	2.7759
30	06:29:55	0.0296	0.0293	3.9329	2.7759
31	06:59:56	0.0296	0.0293	3.9329	2.7759
32	07:29:55	0.0297	0.0294	3.9463	2.7753
33	07:59:54	0.0297	0.0294	3.9463	2.7753
34	08:29:54	0.0298	0.0295	3.9597	2.7748
35	08:59:54	0.0298	0.0295	3.9597	2.7748

Consolidation Test Results
(Sequence 2) Load 0.063 tsf

Consolidation Graph (Squareroot Time)



Consolidation Graph (Logarithmic Time)



Page 1 of 2

Consolidation Test Results (Sequence 3) Load 0.125 tsf			Consolidation Test Results (Sequence 3) Load 0.125 tsf		
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Project: BA-171 Caminada Headlands Back-Barrier Marsh Creation Project Project Number: 16715-012-04

Location: LaFourche Parish, Louisiana

Job Number:

Sample Number:
Boring Number: B-1
Depth: 2 - 4 feet
Sample Type: Undisturbed

Soil Description:
Clay (CH)

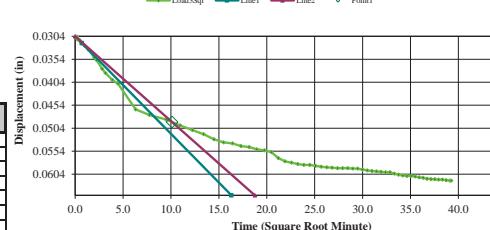
Test Date: 03 June 2015

Test Number:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.0301	0.0298	4.0000	2.7732
1	00:00:01	0.0306	0.0303	4.0671	2.7706
2	00:00:02	0.0305	0.0302	4.0537	2.7711
3	00:00:03	0.0309	0.0306	4.1074	2.7690
4	00:00:04	0.0310	0.0307	4.1208	2.7685
5	00:00:05	0.0311	0.0308	4.1342	2.7679
6	00:00:06	0.0311	0.0308	4.1342	2.7679
7	00:00:12	0.0312	0.0309	4.1477	2.7674
8	00:00:15	0.0314	0.0311	4.1745	2.7664
9	00:00:30	0.0319	0.0316	4.2416	2.7637
10	00:01:00	0.0325	0.0322	4.3221	2.7606
11	00:02:00	0.0334	0.0331	4.4430	2.7558
12	00:04:00	0.0350	0.0347	4.6577	2.7474
13	00:05:00	0.0356	0.0353	4.7383	2.7442
14	00:08:00	0.0375	0.0372	4.9933	2.7342
15	00:10:00	0.0384	0.0381	5.1141	2.7294
16	00:14:59	0.0399	0.0396	5.3154	2.7215
17	00:19:59	0.0407	0.0404	5.4228	2.7173
18	00:39:59	0.0463	0.0460	6.1745	2.6877
19	01:00:00	0.0475	0.0472	6.3356	2.6814
20	01:29:59	0.0485	0.0482	6.4698	2.6761
21	01:59:58	0.0498	0.0495	6.6443	2.6693
22	02:29:58	0.0508	0.0505	6.7785	2.6640
23	02:59:58	0.0517	0.0514	6.8993	2.6593
24	03:29:57	0.0528	0.0525	7.0470	2.6535
25	03:59:57	0.0535	0.0532	7.1409	2.6498
26	04:29:57	0.0537	0.0534	7.1678	2.6487
27	04:59:57	0.0543	0.0540	7.2483	2.6455
28	05:29:56	0.0545	0.0542	7.2752	2.6445
29	05:59:56	0.0550	0.0547	7.3423	2.6419
30	06:29:57	0.0552	0.0549	7.3691	2.6408
31	06:59:56	0.0556	0.0553	7.4228	2.6387
32	07:29:55	0.0569	0.0566	7.5973	2.6318
33	07:59:56	0.0576	0.0573	7.6913	2.6281
34	08:29:56	0.0579	0.0576	7.7315	2.6266
35	08:59:55	0.0582	0.0579	7.7718	2.6250

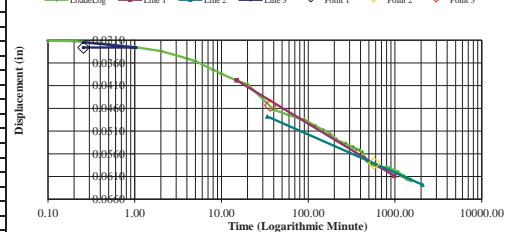
Consolidation Graph (SquareRoot Time)

LoadSqr Line1 Line2 Point1 Point2 Point3



Consolidation Graph (Logarithmic Time)

LoadLog Line1 Line2 Line3 Point1 Point2 Point3



Page 1 of 2

Consolidation Test Results (Sequence 4) Load 0.250 tsf			Consolidation Test Results (Sequence 4) Load 0.250 tsf		
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Project: BA-171 Caminada Headlands Back-Barrier Marsh Creation Project Project Number: 16715-012-04

Location: LaFourche Parish, Louisiana

Job Number:

Sample Number:
Boring Number: B-1
Depth: 2 - 4 feet
Sample Type: Undisturbed

Soil Description:
Clay (CH)

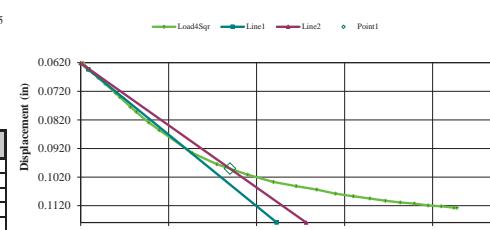
Test Date: 03 June 2015

Test Number:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.0618	0.0615	8.2550	2.5606
1	00:00:01	0.0621	0.0618	8.2953	2.5644
2	00:00:02	0.0629	0.0626	8.4027	2.5602
3	00:00:03	0.0632	0.0629	8.4430	2.5586
4	00:00:04	0.0633	0.0630	8.4564	2.5581
5	00:00:05	0.0635	0.0632	8.4832	2.5564
6	00:00:06	0.0637	0.0634	8.5101	2.5560
7	00:00:12	0.0644	0.0641	8.6040	2.5523
8	00:00:15	0.0647	0.0644	8.6443	2.5507
9	00:00:30	0.0657	0.0654	8.7785	2.5584
10	00:01:00	0.0673	0.0670	8.9933	2.5770
11	00:02:00	0.0695	0.0692	9.2886	2.5654
12	00:04:00	0.0727	0.0724	9.7181	2.5485
13	00:05:00	0.0741	0.0738	9.9060	2.5411
14	00:08:00	0.0775	0.0772	10.3624	2.5231
15	00:10:00	0.0792	0.0789	10.5906	2.5142
16	00:15:00	0.0829	0.0826	11.0872	2.4947
17	00:20:00	0.0856	0.0853	11.4497	2.4804
18	00:40:00	0.0935	0.0932	12.5101	2.4387
19	01:00:00	0.0975	0.0972	13.0470	2.4176
20	01:29:59	0.1012	0.1009	13.5436	2.3981
21	01:59:59	0.1037	0.1034	13.8792	2.3849
22	02:29:59	0.1052	0.1049	14.0805	2.3770
23	02:59:58	0.1064	0.1061	14.2416	2.3707
24	03:29:57	0.1078	0.1075	14.4295	2.3633
25	03:59:58	0.1087	0.1084	14.5503	2.3585
26	04:29:57	0.1095	0.1092	14.6577	2.3543
27	04:59:56	0.1103	0.1100	14.7651	2.3501
28	05:29:56	0.1109	0.1106	14.8456	2.3469
29	05:59:56	0.1113	0.1110	14.8993	2.3448
30	06:29:56	0.1119	0.1116	14.9799	2.3417
31	06:59:55	0.1122	0.1119	15.0201	2.3401
32	07:29:55	0.1127	0.1124	15.0872	2.3374
33	07:36:56	0.1127	0.1124	15.0872	2.3374

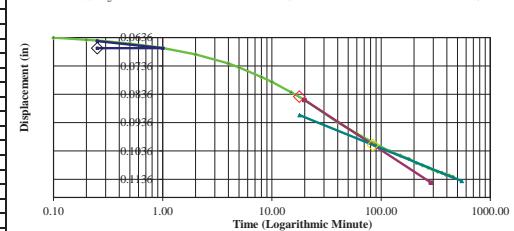
Consolidation Graph (SquareRoot Time)

LoadSqr Line1 Line2 Point1 Point2 Point3



Consolidation Graph (Logarithmic Time)

LoadLog Line1 Line2 Line3 Point1 Point2 Point3



Page 1 of 1

Consolidation Test Results (Sequence 5) Load 0.500 tsf	Consolidation Test Results (Sequence 5) Load 0.500 tsf
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Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project Project Number: 16715-012-04

Location: LaFourche Parish, Louisiana

Job Number:

Sample Number:
Boring Number: B-1
Depth: 2 - 4 feet
Sample Type: Undisturbed

Soil Description:
Clay (CH)
Remarks:

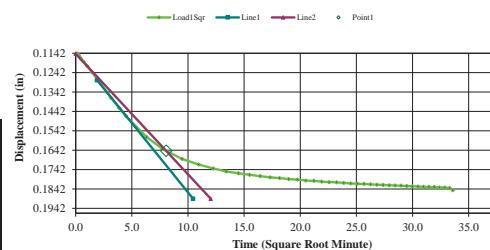
Test Date: 03 June 2015

Test Number:

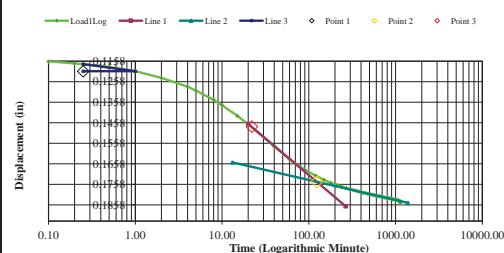
Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.1127	0.1124	15.0872	2.3374
1	00:00:01	0.1143	0.1140	15.3020	2.3290
2	00:00:02	0.1146	0.1143	15.3423	2.3274
3	00:00:03	0.1150	0.1147	15.3960	2.3253
4	00:00:04	0.1153	0.1150	15.4362	2.3237
5	00:00:05	0.1157	0.1154	15.4899	2.3216
6	00:00:06	0.1159	0.1156	15.5168	2.3206
7	00:00:12	0.1168	0.1165	15.6376	2.3158
8	00:00:15	0.1173	0.1170	15.7047	2.3132
9	00:00:30	0.1186	0.1183	15.8792	2.3063
10	00:01:00	0.1207	0.1204	16.1611	2.2952
11	00:02:00	0.1239	0.1236	16.5906	2.2784
12	00:04:00	0.1282	0.1279	17.1678	2.2557
13	00:05:00	0.1301	0.1298	17.4228	2.2456
14	00:08:00	0.1346	0.1343	18.0268	2.2219
15	00:10:00	0.1372	0.1369	18.3758	2.2082
16	00:15:00	0.1424	0.1421	19.0738	2.1808
17	00:20:00	0.1465	0.1462	19.6342	2.1591
18	00:40:00	0.1574	0.1571	21.0872	2.1016
19	00:59:59	0.1636	0.1633	21.9195	2.0689
20	01:29:59	0.1687	0.1684	22.6040	2.0420
21	01:59:59	0.1716	0.1713	22.9933	2.0267
22	02:29:59	0.1736	0.1733	23.2617	2.0161
23	02:59:58	0.1752	0.1749	23.4765	2.0077
24	03:29:58	0.1761	0.1758	23.5973	2.0030
25	03:59:59	0.1769	0.1766	23.7047	1.9987
26	04:29:58	0.1776	0.1773	23.7987	1.9950
27	04:59:57	0.1782	0.1779	23.8792	1.9919
28	05:29:58	0.1786	0.1783	23.9329	1.9898
29	05:59:58	0.1791	0.1788	24.0000	1.9871
30	06:29:57	0.1794	0.1791	24.0403	1.9855
31	06:59:57	0.1799	0.1796	24.1074	1.9829
32	07:29:57	0.1800	0.1797	24.1208	1.9824
33	07:59:57	0.1804	0.1801	24.1745	1.9803
34	08:29:56	0.1807	0.1804	24.2148	1.9787
35	08:59:56	0.1808	0.1805	24.2282	1.9782

Consolidation Test Results
(Sequence 5) Load 0.500 tsf

Consolidation Graph (Squareroot Time)



Consolidation Graph (Logarithmic Time)



Page 1 of 2

Consolidation Test Results (Sequence 6) Load 1.000 tsf	Consolidation Test Results (Sequence 6) Load 1.000 tsf
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Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project Project Number: 16715-012-04

Location: LaFourche Parish, Louisiana

Job Number:

Sample Number:
Boring Number: B-1
Depth: 2 - 4 feet
Sample Type: Undisturbed

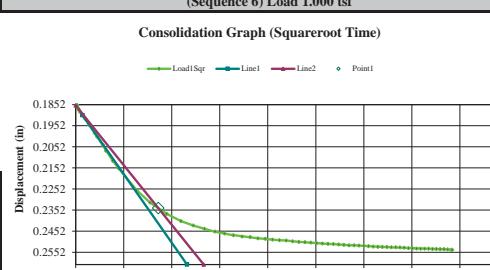
Soil Description:
Clay (CH)
Remarks:

Test Date: 03 June 2015

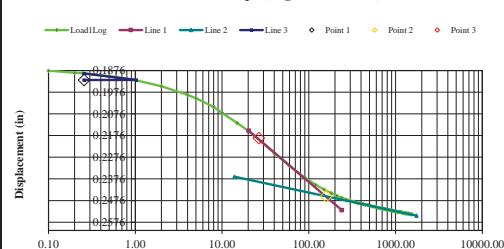
Test Number:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.1849	0.1846	24.7785	1.9265
1	00:00:01	0.1854	0.1851	24.8456	1.9339
2	00:00:02	0.1856	0.1853	24.8725	1.9258
3	00:00:03	0.1868	0.1865	25.0336	1.9465
4	00:00:04	0.1872	0.1869	25.0872	1.9444
5	00:00:05	0.1873	0.1870	25.1007	1.9439
6	00:00:06	0.1877	0.1874	25.1544	1.9418
7	00:00:12	0.1886	0.1883	25.2752	1.9370
8	00:00:15	0.1888	0.1885	25.3020	1.9360
9	00:00:30	0.1902	0.1899	25.4899	1.9286
10	00:01:00	0.1920	0.1917	25.7315	1.9191
11	00:02:00	0.1948	0.1945	26.1074	1.9043
12	00:04:00	0.1988	0.1985	26.6443	1.8832
13	00:05:00	0.2004	0.2001	26.8591	1.8748
14	00:08:00	0.2044	0.2041	27.3960	1.8537
15	00:10:00	0.2071	0.2068	27.7584	1.8394
16	00:15:00	0.2118	0.2115	28.3893	1.8146
17	00:20:00	0.2154	0.2151	28.8725	1.7956
18	00:40:01	0.2257	0.2254	30.2550	1.7413
19	01:00:01	0.2316	0.2313	31.0470	1.7102
20	01:30:00	0.2370	0.2367	31.7718	1.6817
21	01:59:59	0.2404	0.2401	32.2282	1.6637
22	02:29:58	0.2425	0.2422	32.5101	1.6526
23	02:59:57	0.2441	0.2438	32.7248	1.6442
24	03:29:58	0.2454	0.2451	32.8993	1.6373
25	03:59:58	0.2463	0.2460	33.0201	1.6326
26	04:29:58	0.2471	0.2468	33.1275	1.6284
27	04:59:58	0.2477	0.2474	33.2080	1.6252
28	05:29:57	0.2480	0.2477	33.2483	1.6236
29	05:59:57	0.2486	0.2483	33.3289	1.6205
30	06:29:57	0.2488	0.2485	33.3557	1.6194
31	06:59:57	0.2492	0.2489	33.4094	1.6173
32	07:29:57	0.2495	0.2492	33.4497	1.6157
33	07:59:56	0.2496	0.2493	33.4631	1.6152
34	08:29:56	0.2500	0.2497	33.5168	1.6131
35	08:59:57	0.2503	0.2500	33.5570	1.6115

Consolidation Graph (Squareroot Time)



Consolidation Graph (Logarithmic Time)



Page 1 of 2

Consolidation Test Results (Sequence 7) Rebound 0.250 tsf	Consolidation Test Results (Sequence 7) Rebound 0.250 tsf
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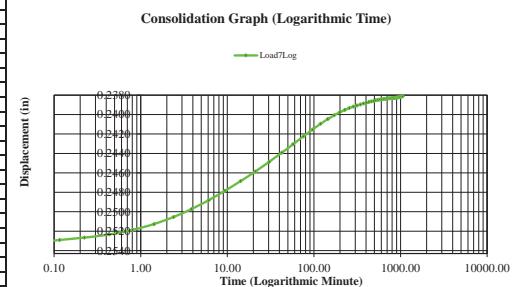
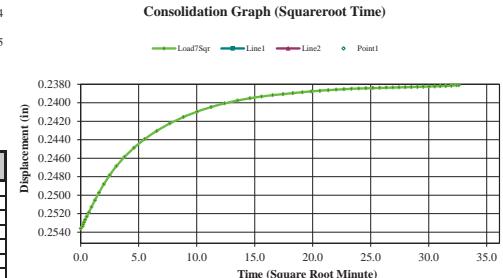
Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project
Location: LaFourche Parish, Louisiana
Job Number:

Project Number: 16715-012-04
Test Date: 03 June 2015
Test Number:

Sample Number:
Boring Number: B-1
Depth: 2 - 4 feet
Sample Type: Undisturbed

Soil Description:
Clay (CH)
Remarks:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.2540	0.2537	34.0537	1.5920
1	00:00:00	0.2536	0.2533	34.0000	1.5941
2	00:00:01	0.2536	0.2533	34.0000	1.5941
3	00:00:02	0.2536	0.2533	34.0000	1.5941
4	00:00:03	0.2529	0.2526	33.9060	1.5978
5	00:00:04	0.2528	0.2525	33.8926	1.5983
6	00:00:06	0.2528	0.2525	33.8926	1.5983
7	00:00:12	0.2526	0.2523	33.8658	1.5994
8	00:00:15	0.2524	0.2521	33.8389	1.6004
9	00:00:30	0.2519	0.2516	33.7718	1.6031
10	00:01:00	0.2511	0.2508	33.6644	1.6073
11	00:01:59	0.2499	0.2496	33.5034	1.6136
12	00:03:59	0.2484	0.2481	33.3020	1.6215
13	00:04:59	0.2479	0.2476	33.2349	1.6242
14	00:07:59	0.2464	0.2461	33.0356	1.6321
15	00:09:59	0.2457	0.2454	32.9396	1.6358
16	00:14:59	0.2446	0.2443	32.7919	1.6416
17	00:20:00	0.2437	0.2434	32.6711	1.6463
18	00:40:00	0.2417	0.2414	32.4027	1.6569
19	01:00:00	0.2409	0.2406	32.2053	1.6611
20	01:29:59	0.2403	0.2400	32.2148	1.6643
21	01:59:58	0.2400	0.2397	32.1745	1.6658
22	02:29:58	0.2397	0.2394	32.1342	1.6674
23	02:59:58	0.2394	0.2391	32.0940	1.6690
24	03:29:58	0.2392	0.2389	32.0671	1.6701
25	03:59:58	0.2392	0.2389	32.0671	1.6701
26	04:29:56	0.2391	0.2388	32.0537	1.6706
27	04:59:56	0.2391	0.2388	32.0537	1.6706
28	05:29:57	0.2390	0.2387	32.0403	1.6711
29	05:59:56	0.2389	0.2386	32.0268	1.6716
30	06:29:55	0.2388	0.2385	32.0134	1.6722
31	06:59:54	0.2387	0.2384	32.0000	1.6727
32	07:29:55	0.2386	0.2383	31.9866	1.6732
33	07:59:55	0.2385	0.2382	31.9732	1.6738
34	08:29:54	0.2385	0.2382	31.9732	1.6738
35	08:59:53	0.2384	0.2381	31.9597	1.6743



Page 1 of 2

Consolidation Test Results (Sequence 8) Rebound 0.063 tsf	Consolidation Test Results (Sequence 8) Rebound 0.063 tsf
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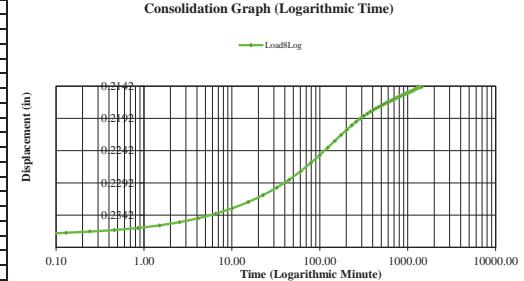
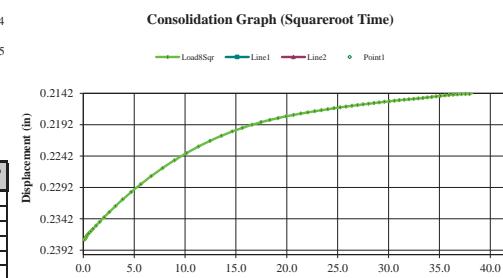
Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project
Location: LaFourche Parish, Louisiana

Project Number: 16715-012-04
Test Date: 03 June 2015
Test Number:

Sample Number:
Boring Number: B-1
Depth: 2 - 4 feet
Sample Type: Undisturbed

Soil Description:
Clay (CH)
Remarks:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.2381	0.2378	31.9195	1.6759
1	00:00:01	0.2375	0.2372	31.8389	1.6790
2	00:00:02	0.2375	0.2372	31.8389	1.6790
3	00:00:03	0.2375	0.2372	31.8389	1.6790
4	00:00:04	0.2369	0.2366	31.7584	1.6822
5	00:00:05	0.2368	0.2365	31.7450	1.6827
6	00:00:06	0.2368	0.2365	31.7450	1.6827
7	00:00:12	0.2367	0.2364	31.7315	1.6832
8	00:00:15	0.2366	0.2363	31.7181	1.6838
9	00:00:30	0.2361	0.2358	31.6510	1.6864
10	00:01:00	0.2358	0.2355	31.6107	1.6880
11	00:02:00	0.2351	0.2348	31.5168	1.6917
12	00:04:00	0.2340	0.2337	31.3691	1.6975
13	00:05:00	0.2336	0.2333	31.3154	1.6996
14	00:08:00	0.2326	0.2323	31.1812	1.7049
15	00:10:00	0.2319	0.2316	31.0872	1.7086
16	00:15:00	0.2306	0.2303	30.9128	1.7154
17	00:20:00	0.2296	0.2293	30.7785	1.7207
18	00:40:00	0.2269	0.2266	30.4161	1.7349
19	01:00:00	0.2249	0.2246	30.1476	1.7455
20	01:30:00	0.2232	0.2229	29.9195	1.7545
21	02:00:00	0.2221	0.2218	29.7718	1.7603
22	02:29:59	0.2211	0.2208	29.6376	1.7655
23	02:59:58	0.2203	0.2200	29.5302	1.7698
24	03:29:59	0.2198	0.2195	29.4631	1.7724
25	03:59:59	0.2192	0.2189	29.3826	1.7756
26	04:29:59	0.2190	0.2187	29.3557	1.7766
27	04:59:58	0.2185	0.2182	29.2886	1.7793
28	05:29:58	0.2183	0.2180	29.2617	1.7803
29	05:59:58	0.2181	0.2178	29.2349	1.7814
30	06:29:58	0.2177	0.2174	29.1812	1.7835
31	06:59:58	0.2176	0.2173	29.1678	1.7840
32	07:29:57	0.2175	0.2172	29.1544	1.7845
33	07:59:57	0.2172	0.2169	29.1141	1.7861
34	08:29:58	0.2170	0.2167	29.0872	1.7872
35	08:59:58	0.2168	0.2165	29.0604	1.7882



Page 1 of 2

Consolidation Test Results (Sequence 9) Load 0.250 tsf	Consolidation Test Results (Sequence 9) Load 0.250 tsf
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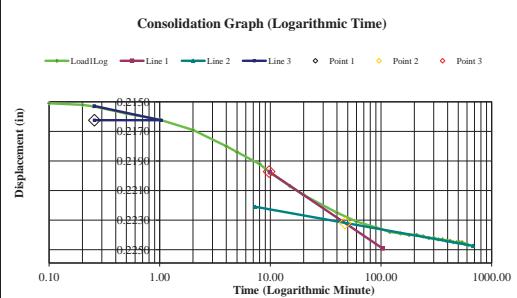
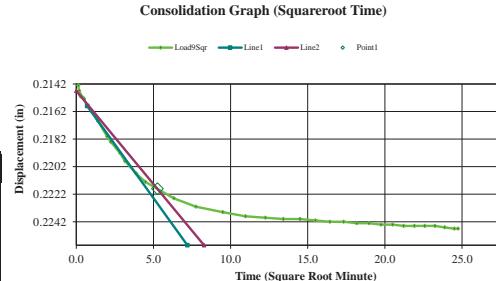
Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project Project Number: 16715-012-04
 Location: Lafourche Parish, Louisiana
 Job Number:

Sample Number:
 Boring Number: B-1
 Depth: 2 - 4 feet
 Sample Type: Undisturbed

Soil Description:
 Clay (CH)
 Remarks:

Test Date: 03 June 2015
 Test Number:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.2142	0.2139	28.7114	1.8020
1	00:00:01	0.2143	0.2140	28.7248	1.8014
2	00:00:02	0.2147	0.2144	28.7785	1.7993
3	00:00:03	0.2149	0.2146	28.8054	1.7983
4	00:00:04	0.2150	0.2147	28.8188	1.7977
5	00:00:05	0.2151	0.2148	28.8322	1.7972
6	00:00:06	0.2151	0.2148	28.8322	1.7972
7	00:00:12	0.2152	0.2149	28.8456	1.7967
8	00:00:15	0.2153	0.2150	28.8591	1.7961
9	00:00:30	0.2158	0.2155	28.9262	1.7935
10	00:01:00	0.2162	0.2159	28.9799	1.7914
11	00:02:00	0.2169	0.2166	29.0738	1.7877
12	00:04:00	0.2180	0.2177	29.2215	1.7819
13	00:05:00	0.2184	0.2181	29.2752	1.7798
14	00:08:00	0.2192	0.2189	29.3826	1.7756
15	00:10:00	0.2198	0.2195	29.4631	1.7724
16	00:15:00	0.2207	0.2204	29.5839	1.7677
17	00:20:00	0.2213	0.2210	29.6644	1.7645
18	00:40:01	0.2225	0.2222	29.8255	1.7582
19	01:00:01	0.2231	0.2228	29.9060	1.7550
20	01:30:01	0.2235	0.2232	29.9597	1.7529
21	02:00:00	0.2238	0.2235	30.0000	1.7513
22	02:29:59	0.2239	0.2236	30.0134	1.7508
23	03:00:00	0.2240	0.2237	30.0268	1.7502
24	03:30:00	0.2240	0.2237	30.0268	1.7502
25	03:59:59	0.2241	0.2238	30.0403	1.7497
26	04:29:58	0.2242	0.2239	30.0537	1.7492
27	04:59:59	0.2242	0.2239	30.0537	1.7492
28	05:29:59	0.2243	0.2240	30.0671	1.7487
29	05:59:58	0.2243	0.2240	30.0671	1.7487
30	06:29:58	0.2244	0.2241	30.0805	1.7481
31	06:59:58	0.2244	0.2241	30.0805	1.7481
32	07:29:58	0.2245	0.2242	30.0940	1.7476
33	07:59:57	0.2245	0.2242	30.0940	1.7476
34	08:29:57	0.2245	0.2242	30.0940	1.7476
35	08:59:57	0.2245	0.2242	30.0940	1.7476



Page 1 of 2

Consolidation Test Results (Sequence 10) Load 0.500 tsf	Consolidation Test Results (Sequence 10) Load 0.500 tsf
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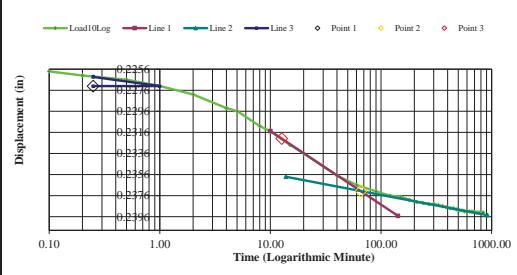
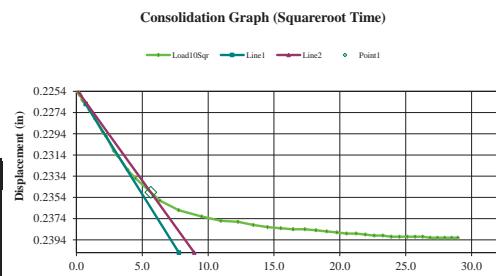
Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project Project Number: 16715-012-04
 Location: Lafourche Parish, Louisiana
 Job Number:

Sample Number:
 Boring Number: B-1
 Depth: 2 - 4 feet
 Sample Type: Undisturbed

Soil Description:
 Clay (CH)
 Remarks:

Test Date: 03 June 2015
 Test Number:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.2247	0.2244	30.1208	1.7466
1	00:00:01	0.2255	0.2252	30.2282	1.7423
2	00:00:02	0.2256	0.2253	30.2416	1.7418
3	00:00:03	0.2256	0.2253	30.2416	1.7418
4	00:00:04	0.2257	0.2254	30.2550	1.7413
5	00:00:05	0.2258	0.2255	30.2685	1.7408
6	00:00:06	0.2258	0.2255	30.2685	1.7408
7	00:00:12	0.2262	0.2259	30.3221	1.7386
8	00:00:15	0.2263	0.2260	30.3356	1.7381
9	00:00:30	0.2266	0.2263	30.3758	1.7365
10	00:01:00	0.2272	0.2269	30.4564	1.7334
11	00:02:00	0.2280	0.2277	30.5638	1.7291
12	00:04:00	0.2293	0.2290	30.7383	1.7223
13	00:05:01	0.2296	0.2293	30.7785	1.7207
14	00:08:01	0.2310	0.2307	30.9664	1.7133
15	00:10:01	0.2315	0.2312	31.0336	1.7107
16	00:15:02	0.2328	0.2325	31.2080	1.7038
17	00:20:03	0.2336	0.2333	31.3154	1.6996
18	00:40:06	0.2357	0.2354	31.5973	1.6885
19	01:00:09	0.2366	0.2363	31.7181	1.6838
20	01:30:10	0.2372	0.2369	31.7987	1.6806
21	02:00:12	0.2376	0.2373	31.8523	1.6785
22	02:30:17	0.2377	0.2374	31.8658	1.6780
23	03:00:21	0.2380	0.2377	31.9060	1.6764
24	03:30:20	0.2382	0.2379	31.9329	1.6753
25	04:00:25	0.2383	0.2380	31.9463	1.6748
26	04:30:30	0.2384	0.2381	31.9597	1.6743
27	05:00:31	0.2384	0.2381	31.9597	1.6743
28	05:30:33	0.2385	0.2382	31.9732	1.6738
29	06:00:38	0.2386	0.2383	31.9866	1.6732
30	06:30:42	0.2387	0.2384	32.0000	1.6727
31	07:00:41	0.2388	0.2385	32.0134	1.6722
32	07:30:46	0.2388	0.2385	32.0134	1.6722
33	08:00:51	0.2389	0.2386	32.0268	1.6716
34	08:30:51	0.2390	0.2387	32.0403	1.6711
35	09:00:55	0.2390	0.2387	32.0403	1.6711



Page 1 of 2

Consolidation Test Results (Sequence 11) Load 1.000 tsf					
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Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project Project Number: 16715-012-04
 Location: Lafourche Parish, Louisiana
 Job Number:

Sample Number:
 Boring Number: B-1
 Depth: 2 - 4 feet
 Sample Type: Undisturbed

Soil Description:
 Clay (CH)
 Remarks:

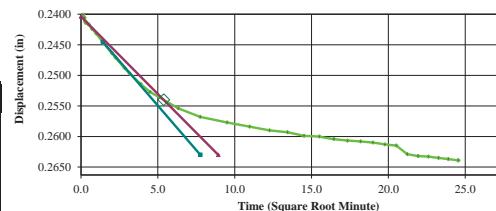
Test Date: 03 June 2015
 Test Number:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.2392	0.2389	32.0671	1.6701
1	00:00:01	0.2401	0.2398	32.1879	1.6653
2	00:00:02	0.2405	0.2402	32.2416	1.6632
3	00:00:03	0.2406	0.2403	32.2550	1.6627
4	00:00:04	0.2411	0.2408	32.3221	1.6600
5	00:00:05	0.2414	0.2411	32.3624	1.6585
6	00:00:06	0.2413	0.2410	32.3490	1.6590
7	00:00:12	0.2416	0.2413	32.3893	1.6574
8	00:00:15	0.2417	0.2414	32.4027	1.6569
9	00:00:30	0.2424	0.2421	32.4966	1.6532
10	00:01:00	0.2432	0.2429	32.6040	1.6490
11	00:02:00	0.2446	0.2443	32.7919	1.6416
12	00:04:01	0.2464	0.2461	33.0356	1.6321
13	00:05:01	0.2471	0.2468	33.1275	1.6284
14	00:08:01	0.2488	0.2485	33.3557	1.6194
15	00:10:02	0.2497	0.2494	33.4765	1.6147
16	00:15:02	0.2514	0.2511	33.7047	1.6057
17	00:20:03	0.2527	0.2524	33.8792	1.5988
18	00:40:06	0.2554	0.2551	34.2416	1.5846
19	01:00:08	0.2568	0.2565	34.4295	1.5772
20	01:30:08	0.2577	0.2574	34.5503	1.5725
21	02:00:12	0.2584	0.2581	34.6443	1.5688
22	02:30:17	0.2590	0.2587	34.7248	1.5656
23	03:00:18	0.2593	0.2590	34.7651	1.5640
24	03:30:21	0.2599	0.2596	34.8456	1.5608
25	04:00:25	0.2600	0.2597	34.8591	1.5603
26	04:30:30	0.2604	0.2601	34.9128	1.5582
27	05:00:29	0.2607	0.2604	34.9530	1.5566
28	05:30:32	0.2608	0.2605	34.9664	1.5561
29	06:00:37	0.2610	0.2607	34.9933	1.5550
30	06:30:42	0.2613	0.2610	35.0336	1.5535
31	07:00:42	0.2615	0.2612	35.0604	1.5524
32	07:30:44	0.2629	0.2626	35.2483	1.5450
33	08:00:49	0.2632	0.2629	35.2886	1.5434
34	08:30:53	0.2633	0.2630	35.3020	1.5429
35	09:00:55	0.2635	0.2632	35.3289	1.5419

Consolidation Test Results (Sequence 11) Load 1.000 tsf					
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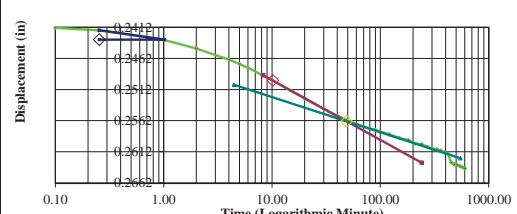
Consolidation Graph (SquareRoot Time)

Load11Sqr Line1 Line2 Point1



Consolidation Graph (Logarithmic Time)

Load11Log Line 1 Line 2 Line 3 Point 1 Point 2 Point 3



Page 1 of 2

Consolidation Test Results (Sequence 12) Load 2.000 tsf					
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Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project Project Number: 16715-012-04
 Location: Lafourche Parish, Louisiana
 Job Number:

Sample Number:
 Boring Number: B-1
 Depth: 2 - 4 feet
 Sample Type: Undisturbed

Soil Description:
 Clay (CH)
 Remarks:

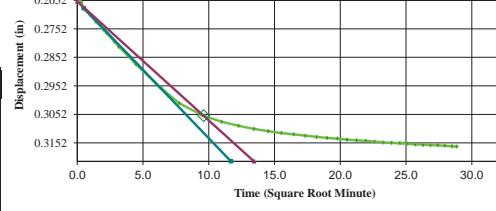
Test Date: 03 June 2015
 Test Number:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.2639	0.2636	35.3825	1.5397
1	00:00:01	0.2654	0.2651	35.5839	1.5318
2	00:00:02	0.2656	0.2653	35.6107	1.5308
3	00:00:03	0.2659	0.2656	35.6510	1.5292
4	00:00:04	0.2662	0.2659	35.6913	1.5276
5	00:00:05	0.2660	0.2657	35.6644	1.5287
6	00:00:06	0.2668	0.2665	35.7718	1.5244
7	00:00:12	0.2678	0.2675	35.9060	1.5192
8	00:00:15	0.2680	0.2677	35.9329	1.5181
9	00:00:30	0.2690	0.2687	36.0671	1.5128
10	00:01:00	0.2704	0.2701	36.2550	1.5055
11	00:02:00	0.2727	0.2724	36.5638	1.4933
12	00:04:01	0.2755	0.2752	36.9396	1.4785
13	00:05:01	0.2767	0.2764	37.1007	1.4722
14	00:08:01	0.2798	0.2795	37.5168	1.4559
15	00:10:02	0.2815	0.2812	37.7450	1.4469
16	00:15:03	0.2848	0.2845	38.1879	1.4295
17	00:20:03	0.2877	0.2874	38.5772	1.4142
18	00:40:06	0.2958	0.2955	39.6644	1.3714
19	01:00:06	0.3013	0.3010	40.4027	1.3424
20	01:30:08	0.3055	0.3052	40.9664	1.3203
21	02:00:13	0.3078	0.3075	41.2752	1.3081
22	02:30:15	0.3092	0.3089	41.4631	1.3008
23	03:00:15	0.3103	0.3100	41.6107	1.2950
24	03:30:20	0.3111	0.3108	41.7181	1.2907
25	04:00:23	0.3117	0.3114	41.7987	1.2876
26	04:30:23	0.3122	0.3119	41.8658	1.2849
27	05:00:26	0.3127	0.3124	41.9329	1.2823
28	05:30:31	0.3131	0.3128	41.9866	1.2802
29	06:00:32	0.3135	0.3132	42.0403	1.2781
30	06:30:33	0.3137	0.3134	42.0671	1.2770
31	07:00:38	0.3141	0.3138	42.1208	1.2749
32	07:30:41	0.3143	0.3140	42.1477	1.2738
33	08:00:40	0.3145	0.3142	42.1745	1.2728
34	08:30:45	0.3148	0.3145	42.2148	1.2712
35	09:00:49	0.3151	0.3148	42.2550	1.2696

Consolidation Test Results (Sequence 12) Load 2.000 tsf					
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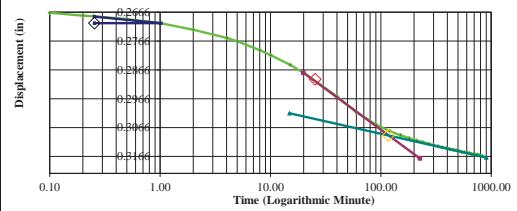
Consolidation Graph (SquareRoot Time)

Load12Sqr Line1 Line2 Point1



Consolidation Graph (Logarithmic Time)

Load12Log Line 1 Line 2 Line 3 Point 1 Point 2 Point 3



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Consolidation Test Results (Sequence 13) Load 4.000 tsf				Consolidation Test Results (Sequence 13) Load 4.000 tsf			
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Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project Project Number: 16715-012-04

Location: Lafourche Parish, Louisiana

Job Number:

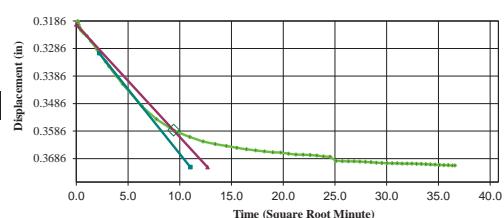
Sample Number:
Boring Number: B-1
Depth: 2 - 4 feet
Sample Type: Undisturbed

Soil Description:
Clay (CH)
Remarks:

Test Date: 03 June 2015
Test Number:

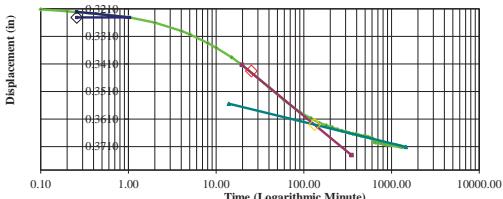
Consolidation Graph (Squareroot Time)

Load13Sqr Line1 Line2 Point1



Consolidation Graph (Logarithmic Time)

Load13Log Line 1 Line 2 Line 3 Point 1 Point 2 Point 3



Page 1 of 2

Consolidation Test Results (Sequence 14) Load 8.000 tsf				Consolidation Test Results (Sequence 14) Load 8.000 tsf			
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Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project Project Number: 16715-012-04

Location: Lafourche Parish, Louisiana

Job Number:

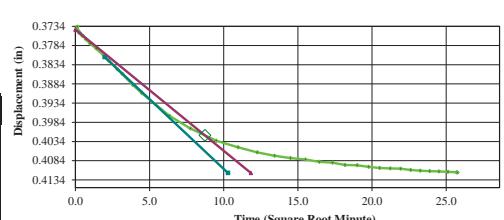
Sample Number:
Boring Number: B-1
Depth: 2 - 4 feet
Sample Type: Undisturbed

Soil Description:
Clay (CH)
Remarks:

Test Date: 03 June 2015

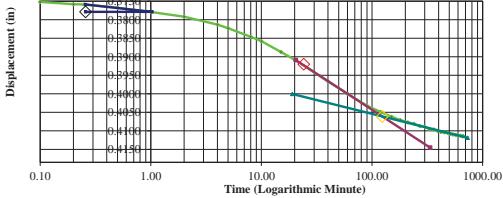
Consolidation Graph (Squareroot Time)

Load14Sqr Line1 Line2 Point1



Consolidation Graph (Logarithmic Time)

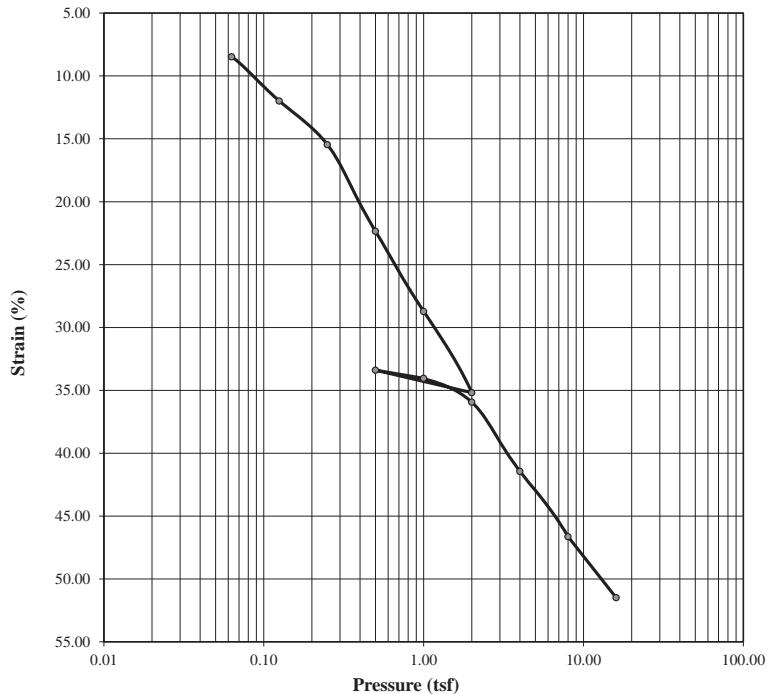
Load14Log Line 1 Line 2 Line 3 Point 1 Point 2 Point 3



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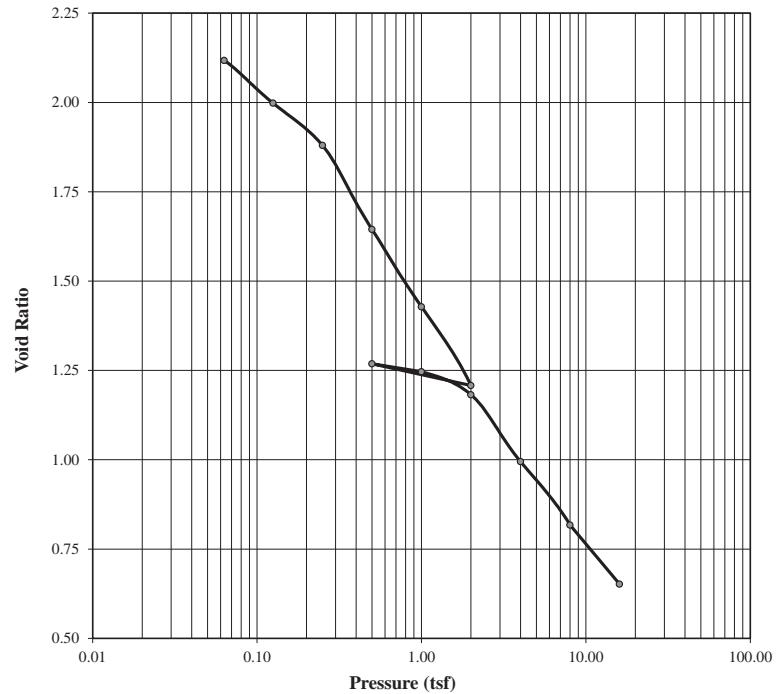
Consolidation Test
Test Results



Moisture (%):	Before	After	Liquid Limits:	52	Test Date:	03 June 2015
Dry Density (pcf):	49.58	108.18	Plastic Limits:	21		
Saturation (%):	109.02	134.91	Plasticity Index (%):	31		
Void Ratio:	2.4072	0.6527	Specific Gravity:	2.710	Measured	
Sample Description:	Clay with sand lenses (CH)					
Project Number:	16715-012-04	Depth:	10 - 12 feet	Remarks:		
Sample Number:	Boring Number: B-3					
Project:	BA-171 Caminada Headlands Back-Barrier Marsh Creation Project					
Client:	Louisiana Coastal Protection and Restoration Authority (CPRA)					
Location:	LaFourche Parish, Louisiana					



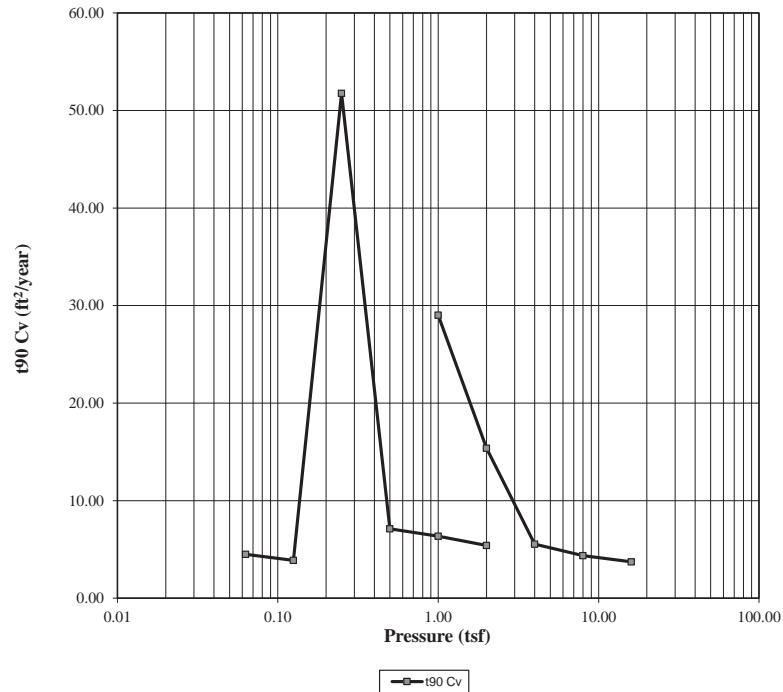
Consolidation Test
Test Results



Moisture (%):	Before	After	Liquid Limits:	52	Test Date:	03 June 2015
Dry Density (pcf):	49.58	108.18	Plastic Limits:	21		
Saturation (%):	109.02	134.91	Plasticity Index (%):	31		
Void Ratio:	2.4072	0.6527	Specific Gravity:	2.710	Measured	
Soil Description:	Clay with sand lenses (CH)					
Project Number:	16715-012-04	Depth:	10 - 12 feet	Remarks:		
Sample Number:	Boring Number: B-3					
Project:	BA-171 Caminada Headlands Back-Barrier Marsh Creation Project					
Client:	Louisiana Coastal Protection and Restoration Authority (CPRA)					
Location:	LaFourche Parish, Louisiana					



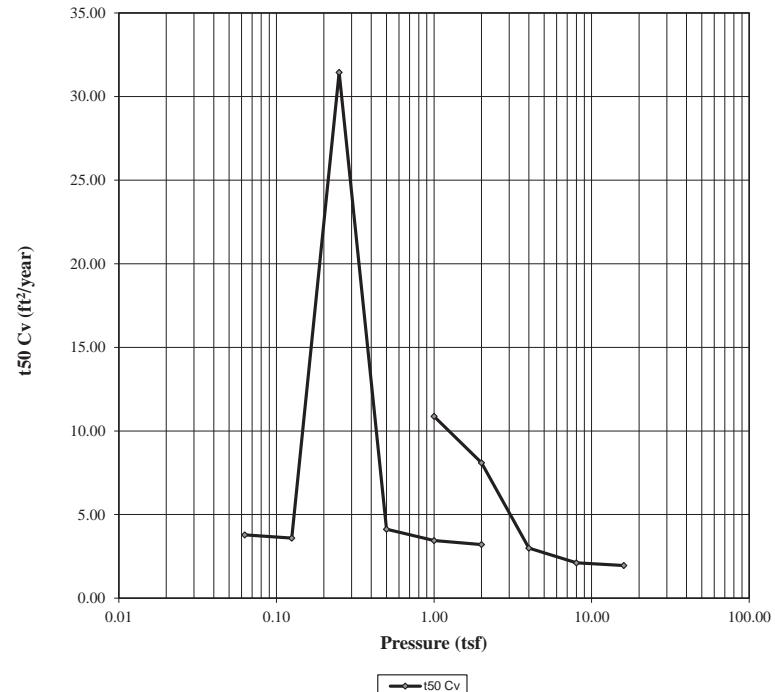
Consolidation Test
Test Results



	Before	After	Liquid Limits:	52	Test Date:	03 June 2015				
Moisture (%):	97.05	28.07	Plastic Limits:	21						
Dry Density (pcf):	49.58	108.18	Plasticity Index (%):	31						
Saturation (%):	109.02	134.91								
Void Ratio:	2.4072	0.6527	Specific Gravity:	2.710	Measured					
Soil Description:	Clay with sand lenses (CH)									
Project Number:	16715-012-04	Depth: 10 - 12 feet	Remarks: Boring Number: B-3							
Sample Number:										
Project:	BA-171 Caminada Headlands Back-Barrier Marsh Creation Project									
Client:	Louisiana Coastal Protection and Restoration Authority (CPRA)									
Location:	LaFourche Parish, Louisiana									



Consolidation Test
Test Results



	Before	After	Liquid Limits:	52	Test Date:	03 June 2015
Moisture (%):	97.05	28.07	Plastic Limits:	21		
Dry Density (pcf):	49.58	108.18	Plasticity Index (%):	31		
Saturation (%):	109.02	134.91				
Void Ratio:	2.4072	0.6527	Specific Gravity:	2.710	Measured	
Soil Description:	Clay with sand lenses (CH)					
Project Number:	16715-012-04					
Sample Number:	Boring Number: B-3					
Project:	BA-171 Caminada Headlands Back-Barrier Marsh Creation Project					
Client:	Louisiana Coastal Protection and Restoration Authority (CPRA)					
Location:	LaFourche Parish, Louisiana					



Consolidation Test Results Summary

Project: BA-171 Caminada Headlands Back-Barrier Marsh Creation Project
Location: LaFourche Parish, Louisiana
Job Number:

Project Number: 16715-012-04

Sample Number:
Boring Number: B-3
Depth: 10 - 12 feet
Sample Type: Undisturbed

Sample Description:
Clay with sand lenses (CH)

Remarks:

Test Number:
Test Date: 03 June 2015

Index	Load Sequence (tsf)	Cummulative Change in Height (in)	Specimen Height (in)	Height of Void (in)	Vertical Strain (%)	Void Ratio	t90 Fitting Time (min)	t50 Fitting Time (min)	t90 Cv (ft2/year)	t50 Cv (ft2/year)
0	0.000	0.0000	0.7360	0.5199	0.00	2.4063	0.000	0.000	0.000	0.000
1	0.063	0.0624	0.6736	0.4575	8.48	2.1175	77.949	21.536	4.504	3.787
2	0.125	0.0882	0.6478	0.4317	11.98	1.9981	83.817	21.021	3.874	3.589
3	0.250	0.1138	0.6222	0.4061	15.46	1.8796	5.788	2.213	51.754	31.444
4	0.500	0.1645	0.5715	0.3554	22.35	1.6450	35.567	14.225	7.106	4.127
5	1.000	0.2114	0.5246	0.3085	28.72	1.4279	33.495	14.336	6.358	3.451
6	2.000	0.2590	0.4770	0.2609	35.19	1.2076	32.547	12.764	5.410	3.204
7	0.500	0.2458	0.4902	0.2741	33.40	1.2687	0.000	0.000	0.000	0.000
8	1.000	0.2506	0.4854	0.2693	34.05	1.2465	6.285	3.896	29.009	10.871
9	2.000	0.2645	0.4715	0.2554	35.94	1.1821	11.197	4.937	15.363	8.095
10	4.000	0.3050	0.4310	0.2149	41.44	0.9947	25.944	11.157	5.541	2.993
11	8.000	0.3433	0.3927	0.1766	46.64	0.8175	27.355	13.087	4.362	2.118
12	16.000	0.3790	0.3570	0.1409	51.49	0.6522	26.479	11.736	3.725	1.952

Predicted value indicated with *



Consolidation Test Consolidation Specimen Information

Project: BA-171 Caminada Headlands Back-Barrier Marsh Creation Project **Project Number:** 16715-012-04
Location: LaFourche Parish, Louisiana
Job Number:

Test Date: 03 June 2015

Sample Number:
Boring Number: B-3
Depth: 10 - 12 feet
Sample Type: Undisturbed

Sample Description:

Clay with sand lenses (CH)

Remarks:

Test Number:		Initial Void Ratio:	2.4072	Initial Height (in):	0.7360
Liquid Limit:	52.0000	Plasticity Index (%):	31.0000	Initial Diameter (in):	2.4980
Plastic Limit:	21.0000	Weight of Ring (g):	219.3200		
Specific Gravity:	2.7100				
	Measured				

Parameters	Initial Specimen	Final Specimen
Moist Weight + Container (g)	84.89	89.78
Dry Soil + Container (g)	49.74	76.10
Weight of Container (g)	13.52	27.37
Moisture Content (%)	97.05	28.07
Void Ratio	2.4072	0.6527
Saturation (%)	109.02	134.91
Dry Density (pcf)	49.58	108.18

Consolidation Test Results (Sequence 1) Load 0.063 tsf	Consolidation Test Results (Sequence 1) Load 0.063 tsf
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Project: BA-171 Caminada Headlands Back-Barrier Marsh Creation Project Project Number: 16715-012-04

Location: LaFourche Parish, Louisiana

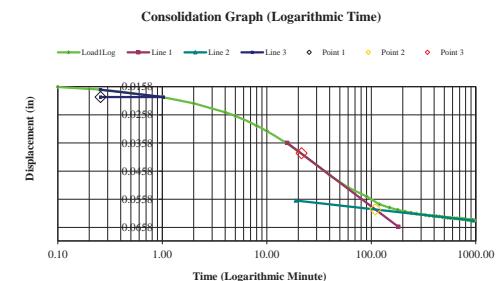
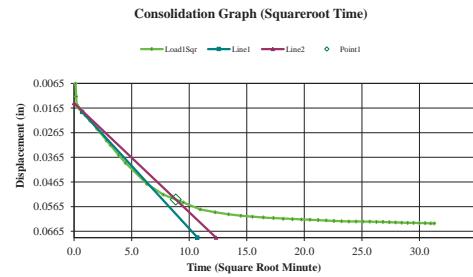
Job Number:

Sample Number:
Boring Number: B-3 Soil Description:
Depth: 10 - 12 feet Remarks:
Sample Type: Undisturbed

Test Date: 03 June 2015

Test Number:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.0009	0.0000	0.0000	2.4072
1	00:00:01	0.0066	0.0057	0.7745	2.3808
2	00:00:02	0.0118	0.0109	1.4810	2.3567
3	00:00:03	0.0151	0.0142	1.9293	2.3414
4	00:00:04	0.0154	0.0145	1.9701	2.3400
5	00:00:05	0.0157	0.0148	2.0109	2.3386
6	00:00:06	0.0159	0.0150	2.0380	2.3377
7	00:00:12	0.0166	0.0157	2.1332	2.3345
8	00:00:15	0.0168	0.0159	2.1603	2.3336
9	00:00:30	0.0181	0.0172	2.3370	2.3275
10	00:01:00	0.0195	0.0186	2.5272	2.3211
11	00:02:00	0.0217	0.0208	2.8261	2.3109
12	00:04:00	0.0249	0.0240	3.2600	2.2961
13	00:05:00	0.0262	0.0253	3.4375	2.2900
14	00:08:00	0.0297	0.0288	3.9130	2.2738
15	00:10:00	0.0315	0.0306	4.1576	2.2655
16	00:15:00	0.0356	0.0347	4.7147	2.2465
17	00:20:00	0.0388	0.0379	5.1495	2.2317
18	00:40:03	0.0473	0.0464	6.3043	2.1924
19	01:00:03	0.0516	0.0507	6.8886	2.1725
20	01:30:02	0.0548	0.0539	7.3234	2.1576
21	02:00:01	0.0576	0.0567	7.7038	2.1447
22	02:30:02	0.0588	0.0579	7.8666	2.1391
23	03:00:01	0.0596	0.0587	7.9755	2.1354
24	03:30:00	0.0602	0.0593	8.0571	2.1326
25	04:00:00	0.0606	0.0597	8.1114	2.1308
26	04:30:00	0.0609	0.0600	8.1522	2.1294
27	04:59:59	0.0611	0.0602	8.1793	2.1285
28	05:29:59	0.0614	0.0605	8.2201	2.1271
29	05:59:59	0.0616	0.0607	8.2473	2.1262
30	06:29:58	0.0617	0.0608	8.2609	2.1257
31	06:59:58	0.0618	0.0609	8.2745	2.1252
32	07:29:58	0.0619	0.0610	8.2880	2.1248
33	07:59:57	0.0621	0.0612	8.3152	2.1238
34	08:29:56	0.0623	0.0614	8.3424	2.1229
35	08:59:57	0.0624	0.0615	8.3560	2.1225
36	09:29:56	0.0625	0.0616	8.3699	2.1220
37	09:59:55	0.0625	0.0616	8.3696	2.1220
38	10:29:56	0.0626	0.0617	8.3832	2.1215



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Consolidation Test Results (Sequence 2) Load 0.125 tsf	Consolidation Test Results (Sequence 2) Load 0.125 tsf
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Project: BA-171 Caminada Headlands Back-Barrier Marsh Creation Project Project Number: 16715-012-04

Location: LaFourche Parish, Louisiana

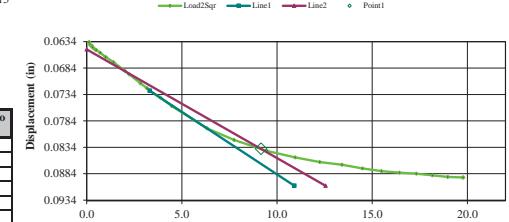
Job Number:

Sample Number:
Boring Number: B-3 Soil Description:
Depth: 10 - 12 feet Remarks:
Sample Type: Undisturbed

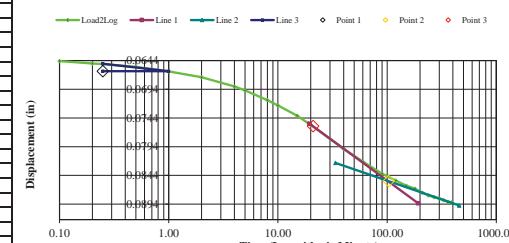
Test Date: 03 June 2015
Test Number:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.0633	0.0624	8.4783	2.1183
1	00:00:01	0.0635	0.0626	8.5054	2.1174
2	00:00:02	0.0640	0.0631	8.5734	2.1150
3	00:00:03	0.0641	0.0632	8.5870	2.1146
4	00:00:04	0.0642	0.0633	8.6005	2.1141
5	00:00:05	0.0643	0.0634	8.6141	2.1137
6	00:00:06	0.0645	0.0636	8.6413	2.1127
7	00:00:12	0.0649	0.0640	8.6957	2.1109
8	00:00:15	0.0650	0.0641	8.7092	2.1104
9	00:00:30	0.0655	0.0646	8.7772	2.1081
10	00:01:00	0.0663	0.0654	8.8859	2.1044
11	00:02:00	0.0673	0.0664	9.0217	2.0998
12	00:04:00	0.0689	0.0680	9.2391	2.0924
13	00:05:00	0.0696	0.0687	9.3342	2.0891
14	00:08:00	0.0713	0.0704	9.5652	2.0813
15	00:10:00	0.0722	0.0713	9.6875	2.0771
16	00:15:00	0.0740	0.0731	9.9321	2.0688
17	00:20:00	0.0756	0.0747	10.1495	2.0613
18	00:40:00	0.0798	0.0789	10.7201	2.0419
19	01:00:00	0.0820	0.0811	11.0190	2.0317
20	01:29:59	0.0841	0.0832	11.3043	2.0220
21	01:59:58	0.0853	0.0844	11.4674	2.0164
22	02:29:59	0.0862	0.0853	11.5897	2.0123
23	02:59:59	0.0867	0.0858	11.6576	2.0100
24	03:29:58	0.0874	0.0865	11.7527	2.0067
25	03:59:57	0.0879	0.0870	11.8207	2.0044
26	04:29:58	0.0882	0.0873	11.8614	2.0030
27	04:59:57	0.0884	0.0875	11.8886	2.0021
28	05:29:56	0.0887	0.0878	11.9293	2.0007
29	05:59:57	0.0890	0.0881	11.9701	1.9993
30	06:29:57	0.0891	0.0882	11.9837	1.9989
31	06:31:40	0.0891	0.0882	11.9837	1.9989

Consolidation Graph (Squareroot Time)



Consolidation Graph (Logarithmic Time)



Page 1 of 1

Consolidation Test Results (Sequence 3) Load 0.250 tsf			Consolidation Test Results (Sequence 3) Load 0.250 tsf		
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Project: BA-171 Caminada Headlands Back-Barrier Marsh Creation Project Project Number: 16715-012-04

Location: LaFourche Parish, Louisiana

Job Number:

Sample Number:
Boring Number: B-3
Depth: 10 - 12 feet
Sample Type: Undisturbed

Soil Description:

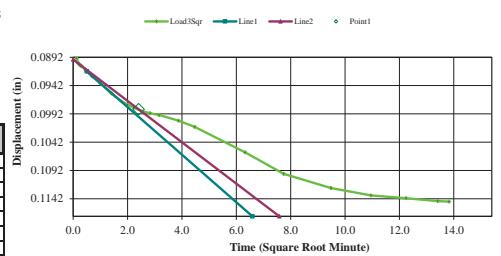
Clay with sand lenses (CH)

Test Date: 03 June 2015

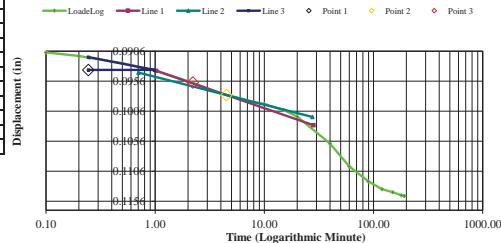
Test Number:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.0891	0.0882	11.9837	1.9989
1	00:00:01	0.0894	0.0885	12.0245	1.9975
2	00:00:02	0.0902	0.0893	12.1332	1.9938
3	00:00:03	0.0905	0.0896	12.1739	1.9924
4	00:00:04	0.0906	0.0897	12.1875	1.9919
5	00:00:05	0.0907	0.0898	12.2011	1.9914
6	00:00:06	0.0908	0.0899	12.2147	1.9910
7	00:00:12	0.0914	0.0905	12.2962	1.9882
8	00:00:15	0.0917	0.0908	12.3370	1.9868
9	00:00:30	0.0926	0.0917	12.4592	1.9827
10	00:01:00	0.0938	0.0929	12.6223	1.9771
11	00:02:00	0.0956	0.0947	12.8668	1.9688
12	00:04:00	0.0976	0.0967	13.1386	1.9595
13	00:05:00	0.0981	0.0972	13.2065	1.9572
14	00:08:00	0.0991	0.0982	13.3424	1.9526
15	00:10:00	0.0994	0.0985	13.3832	1.9512
16	00:15:00	0.1004	0.0995	13.5190	1.9465
17	00:20:00	0.1015	0.1006	13.6685	1.9415
18	00:39:59	0.1060	0.1051	14.2799	1.9206
19	00:59:59	0.1098	0.1089	14.7962	1.9030
20	01:29:59	0.1123	0.1114	15.1359	1.8915
21	01:59:59	0.1136	0.1127	15.3125	1.8854
22	02:29:58	0.1141	0.1132	15.3804	1.8831
23	02:59:58	0.1146	0.1137	15.4484	1.8808
24	03:11:09	0.1147	0.1138	15.4620	1.8803

Consolidation Graph (SquareRoot Time)



Consolidation Graph (Logarithmic Time)



Consolidation Test Results (Sequence 4) Load 0.500 tsf			Consolidation Test Results (Sequence 4) Load 0.500 tsf		
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Project: BA-171 Caminada Headlands Back-Barrier Marsh Creation Project Project Number: 16715-012-04

Location: LaFourche Parish, Louisiana

Job Number:

Sample Number:
Boring Number: B-3
Depth: 10 - 12 feet
Sample Type: Undisturbed

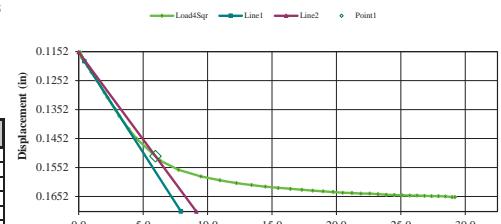
Soil Description:
Clay with sand lenses (CH)

Test Date: 03 June 2015

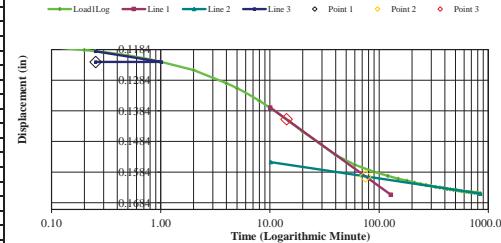
Test Number:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.1147	0.1138	15.4620	1.8803
1	00:00:00	0.1150	0.1141	15.5027	1.8790
2	00:00:01	0.1154	0.1145	15.5571	1.8771
3	00:00:02	0.1164	0.1155	15.6929	1.8725
4	00:00:03	0.1169	0.1160	15.7609	1.8702
5	00:00:04	0.1172	0.1163	15.8016	1.8688
6	00:00:05	0.1175	0.1166	15.8424	1.8674
7	00:00:12	0.1185	0.1176	15.9783	1.8628
8	00:00:15	0.1189	0.1180	16.0326	1.8609
9	00:00:30	0.1203	0.1194	16.2228	1.8544
10	00:00:59	0.1223	0.1214	16.4946	1.8452
11	00:02:00	0.1251	0.1242	16.8750	1.8322
12	00:04:00	0.1294	0.1285	17.4592	1.8123
13	00:05:00	0.1310	0.1301	17.6766	1.8049
14	00:08:00	0.1351	0.1342	18.2337	1.7859
15	00:10:00	0.1374	0.1365	18.5462	1.7753
16	00:15:00	0.1418	0.1409	19.1440	1.7549
17	00:20:00	0.1452	0.1443	19.6060	1.7392
18	00:40:00	0.1528	0.1519	20.6386	1.7040
19	00:59:59	0.1560	0.1551	21.0734	1.6892
20	01:29:58	0.1583	0.1574	21.3859	1.6785
21	01:59:59	0.1596	0.1587	21.5625	1.6725
22	02:29:59	0.1606	0.1597	21.6984	1.6679
23	02:59:58	0.1612	0.1603	21.7799	1.6651
24	03:29:58	0.1618	0.1609	21.8614	1.6623
25	03:59:58	0.1623	0.1614	21.9293	1.6600
26	04:29:58	0.1626	0.1617	21.9701	1.6586
27	04:59:57	0.1629	0.1620	22.0109	1.6572
28	05:29:57	0.1632	0.1623	22.0516	1.6558
29	05:59:58	0.1634	0.1625	22.0788	1.6549
30	06:29:57	0.1636	0.1627	22.1060	1.6540
31	06:59:56	0.1639	0.1630	22.1467	1.6526
32	07:29:57	0.1640	0.1631	22.1603	1.6521
33	07:59:57	0.1642	0.1633	22.1875	1.6512
34	08:29:56	0.1642	0.1633	22.1875	1.6512
35	08:59:56	0.1644	0.1635	22.2147	1.6503

Consolidation Graph (SquareRoot Time)



Consolidation Graph (Logarithmic Time)



Consolidation Test Results (Sequence 5) Load 1.000 tsf	Consolidation Test Results (Sequence 5) Load 1.000 tsf
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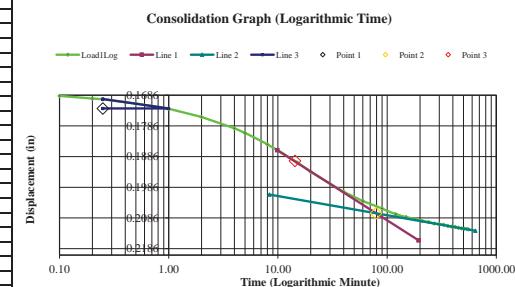
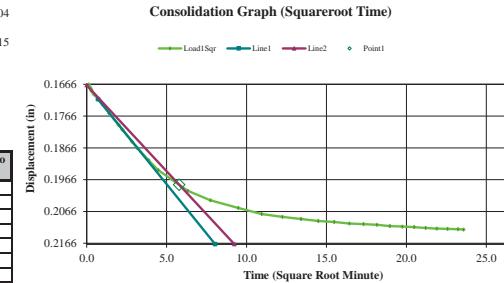
Project: BA-171 Caminada Headlands Back-Barrier Marsh Creation Project
Location: LaFourche Parish, Louisiana
Job Number:

Project Number: 16715-012-04
Test Date: 03 June 2015
Test Number:

Sample Number:
Boring Number: B-3
Depth: 10 - 12 feet
Sample Type: Undisturbed

Soil Description:
Clay with sand lenses (CH)
Remarks:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.1654	0.1645	22.3505	1.6456
1	00:00:01	0.1667	0.1658	22.5272	1.6396
2	00:00:02	0.1674	0.1665	22.6223	1.6364
3	00:00:03	0.1678	0.1669	22.6766	1.6345
4	00:00:04	0.1681	0.1672	22.7174	1.6331
5	00:00:05	0.1684	0.1675	22.7582	1.6318
6	00:00:06	0.1688	0.1679	22.8125	1.6299
7	00:00:12	0.1697	0.1688	22.9348	1.6257
8	00:00:15	0.1699	0.1690	22.9620	1.6248
9	00:00:30	0.1713	0.1704	23.1522	1.6183
10	00:01:00	0.1730	0.1721	23.3832	1.6105
11	00:02:00	0.1757	0.1748	23.7500	1.5980
12	00:04:00	0.1794	0.1785	24.2527	1.5808
13	00:05:00	0.1809	0.1800	24.4565	1.5739
14	00:08:00	0.1846	0.1837	24.9592	1.5568
15	00:10:00	0.1866	0.1857	25.2310	1.5475
16	00:15:00	0.1905	0.1896	25.7609	1.5294
17	00:20:00	0.1936	0.1927	26.1821	1.5151
18	00:40:00	0.2001	0.1992	27.0652	1.4850
19	00:59:59	0.2031	0.2022	27.4728	1.4711
20	01:29:59	0.2055	0.2046	27.7989	1.4600
21	01:59:59	0.2074	0.2065	28.0571	1.4512
22	02:29:59	0.2083	0.2074	28.1793	1.4470
23	02:59:58	0.2090	0.2081	28.2745	1.4438
24	03:29:57	0.2096	0.2087	28.3560	1.4410
25	03:59:58	0.2099	0.2090	28.3967	1.4396
26	04:29:57	0.2104	0.2095	28.4647	1.4373
27	04:59:56	0.2106	0.2097	28.4918	1.4364
28	05:29:56	0.2108	0.2099	28.5190	1.4355
29	05:59:56	0.2112	0.2103	28.5734	1.4336
30	06:29:55	0.2114	0.2105	28.6005	1.4327
31	06:59:55	0.2115	0.2106	28.6141	1.4322
32	07:29:55	0.2118	0.2109	28.6549	1.4308
33	07:59:55	0.2120	0.2111	28.6821	1.4299
34	08:29:54	0.2121	0.2112	28.6957	1.4295
35	08:59:54	0.2122	0.2113	28.7092	1.4290



Page 1 of 2

Consolidation Test Results (Sequence 6) Load 2.000 tsf	Consolidation Test Results (Sequence 6) Load 2.000 tsf
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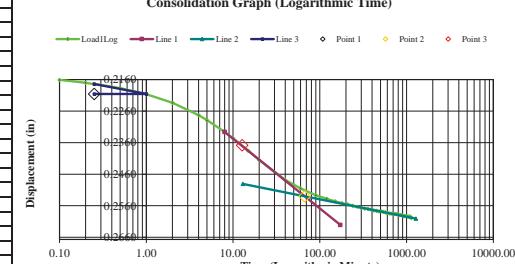
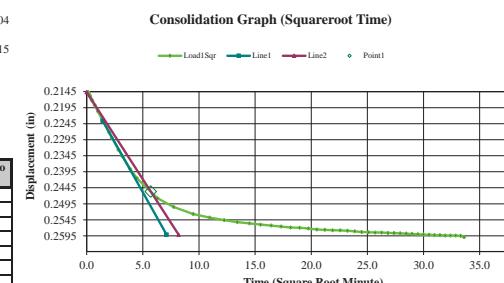
Project: BA-171 Caminada Headlands Back-Barrier Marsh Creation Project
Location: LaFourche Parish, Louisiana
Job Number:

Project Number: 16715-012-04
Test Date: 03 June 2015
Test Number:

Sample Number:
Boring Number: B-3
Depth: 10 - 12 feet
Sample Type: Undisturbed

Soil Description:
Clay with sand lenses (CH)
Remarks:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.2123	0.2114	28.7228	1.4285
1	00:00:01	0.2146	0.2137	29.0553	1.4179
2	00:00:02	0.2151	0.2142	29.1033	1.4156
3	00:00:03	0.2154	0.2145	29.1440	1.4142
4	00:00:04	0.2156	0.2147	29.1712	1.4132
5	00:00:05	0.2159	0.2150	29.2120	1.4119
6	00:00:06	0.2161	0.2152	29.2391	1.4109
7	00:00:12	0.2170	0.2161	29.3614	1.4068
8	00:00:15	0.2174	0.2165	29.4158	1.4049
9	00:00:30	0.2187	0.2178	29.5924	1.3989
10	00:01:01	0.2207	0.2198	29.8641	1.3896
11	00:02:01	0.2234	0.2225	30.2310	1.3771
12	00:04:01	0.2273	0.2264	30.7609	1.3591
13	00:05:01	0.2289	0.2280	30.9783	1.3517
14	00:08:01	0.2327	0.2318	31.4946	1.3341
15	00:10:01	0.2346	0.2337	31.7527	1.3253
16	00:15:01	0.2386	0.2377	32.2962	1.3068
17	00:20:01	0.2415	0.2406	32.6902	1.2934
18	00:40:00	0.2478	0.2469	33.5462	1.2642
19	01:00:00	0.2505	0.2496	33.9130	1.2517
20	01:29:59	0.2527	0.2518	34.2120	1.2415
21	02:00:00	0.2538	0.2529	34.3614	1.2364
22	02:29:59	0.2546	0.2537	34.4701	1.2327
23	02:59:58	0.2552	0.2543	34.5516	1.2299
24	03:29:59	0.2556	0.2547	34.6060	1.2281
25	03:59:59	0.2560	0.2551	34.6603	1.2262
26	04:29:58	0.2563	0.2554	34.7011	1.2248
27	04:59:58	0.2566	0.2557	34.7418	1.2234
28	05:29:58	0.2569	0.2560	34.7826	1.2221
29	05:59:58	0.2570	0.2561	34.7962	1.2216
30	06:29:57	0.2572	0.2563	34.8234	1.2207
31	06:59:57	0.2575	0.2566	34.8641	1.2193
32	07:29:58	0.2576	0.2567	34.8777	1.2188
33	07:59:57	0.2578	0.2569	34.9049	1.2179
34	08:29:56	0.2578	0.2569	34.9049	1.2179
35	08:59:57	0.2579	0.2570	34.9185	1.2174



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Consolidation Test Results (Sequence 7) Rebound 0.500 tsf	Consolidation Test Results (Sequence 7) Rebound 0.500 tsf
--	--

Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project
Location: LaFourche Parish, Louisiana
Job Number:

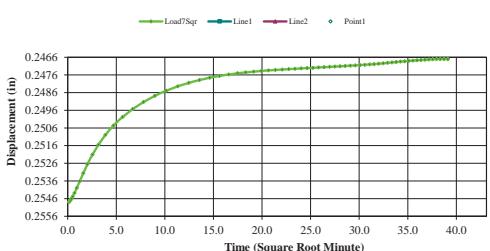
Project Number: 16715-012-04
Test Date: 03 June 2015
Test Number:

Sample Number:
Boring Number: B-3
Depth: 10 - 12 feet
Sample Type: Undisturbed

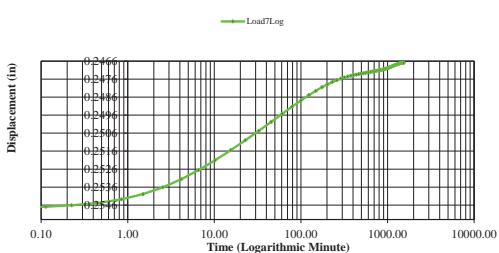
Soil Description:
Clay with sand lenses (CH)
Remarks:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.2599	0.2590	35.1902	1.2082
1	00:00:01	0.2548	0.2539	34.4973	1.2318
2	00:00:01	0.2548	0.2539	34.4973	1.2318
3	00:00:02	0.2548	0.2539	34.4973	1.2318
4	00:00:03	0.2547	0.2538	34.4837	1.2322
5	00:00:04	0.2547	0.2538	34.4837	1.2322
6	00:00:05	0.2547	0.2538	34.4837	1.2322
7	00:00:11	0.2546	0.2537	34.4701	1.2327
8	00:00:14	0.2546	0.2537	34.4701	1.2327
9	00:00:29	0.2545	0.2536	34.4565	1.2332
10	00:00:59	0.2540	0.2531	34.3886	1.2355
11	00:02:00	0.2535	0.2526	34.3206	1.2378
12	00:03:59	0.2525	0.2516	34.1848	1.2424
13	00:05:00	0.2522	0.2513	34.1440	1.2438
14	00:08:00	0.2513	0.2504	34.0217	1.2480
15	00:10:00	0.2508	0.2499	33.9538	1.2503
16	00:15:00	0.2501	0.2492	33.8587	1.2535
17	00:20:00	0.2497	0.2488	33.8043	1.2554
18	00:40:00	0.2488	0.2479	33.6821	1.2596
19	01:00:00	0.2484	0.2478	33.6277	1.2614
20	01:30:00	0.2482	0.2473	33.6005	1.2633
21	01:59:59	0.2481	0.2472	33.5870	1.2628
22	02:29:58	0.2479	0.2470	33.5598	1.2637
23	02:59:57	0.2478	0.2469	33.5462	1.2642
24	03:29:57	0.2476	0.2467	33.5190	1.2651
25	03:59:58	0.2475	0.2466	33.5054	1.2656
26	04:29:58	0.2475	0.2466	33.5054	1.2656
27	04:59:57	0.2474	0.2465	33.4918	1.2660
28	05:29:56	0.2474	0.2465	33.4918	1.2660
29	05:59:56	0.2474	0.2465	33.4918	1.2660
30	06:29:57	0.2474	0.2465	33.4918	1.2660
31	06:59:57	0.2473	0.2464	33.4783	1.2665
32	07:29:56	0.2473	0.2464	33.4783	1.2665
33	07:59:55	0.2473	0.2464	33.4783	1.2665
34	08:29:56	0.2473	0.2464	33.4783	1.2665
35	08:59:56	0.2473	0.2464	33.4783	1.2665

Consolidation Graph (SquareRoot Time)



Consolidation Graph (Logarithmic Time)



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Consolidation Test Results (Sequence 8) Load 1.000 tsf	Consolidation Test Results (Sequence 8) Load 1.000 tsf
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Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project
Location: LaFourche Parish, Louisiana
Job Number:

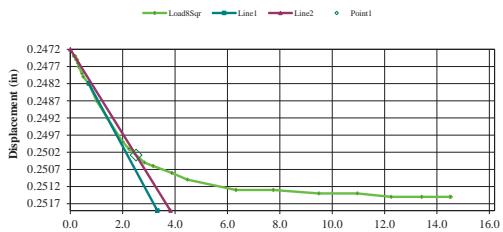
Project Number: 16715-012-04
Test Date: 03 June 2015
Test Number:

Sample Number:
Boring Number: B-3
Depth: 10 - 12 feet
Sample Type: Undisturbed

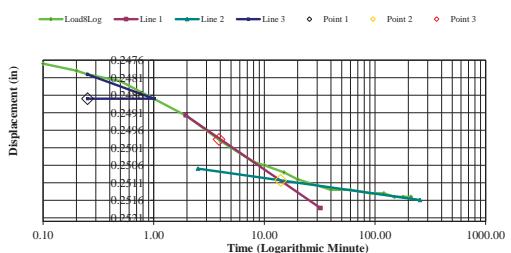
Soil Description:
Clay with sand lenses (CH)
Remarks:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.2467	0.2458	33.3967	1.2693
1	00:00:01	0.2474	0.2465	33.4918	1.2660
2	00:00:02	0.2474	0.2465	33.4918	1.2660
3	00:00:03	0.2475	0.2466	33.5054	1.2656
4	00:00:04	0.2475	0.2466	33.5054	1.2656
5	00:00:05	0.2476	0.2467	33.5190	1.2651
6	00:00:06	0.2477	0.2468	33.5326	1.2646
7	00:00:12	0.2479	0.2470	33.5598	1.2637
8	00:00:15	0.2480	0.2471	33.5734	1.2633
9	00:00:30	0.2482	0.2473	33.6005	1.2623
10	00:01:00	0.2487	0.2478	33.6685	1.2600
11	00:02:00	0.2492	0.2483	33.7364	1.2577
12	00:04:00	0.2499	0.2490	33.8315	1.2545
13	00:05:00	0.2501	0.2492	33.8587	1.2535
14	00:08:00	0.2505	0.2496	33.9130	1.2517
15	00:10:00	0.2506	0.2497	33.9266	1.2512
16	00:15:00	0.2508	0.2499	33.9538	1.2503
17	00:20:00	0.2510	0.2501	33.9810	1.2494
18	00:40:01	0.2513	0.2504	34.0217	1.2480
19	01:00:01	0.2513	0.2504	34.0217	1.2480
20	01:30:00	0.2514	0.2505	34.0353	1.2475
21	01:59:59	0.2514	0.2505	34.0353	1.2475
22	02:29:58	0.2515	0.2506	34.0489	1.2471
23	02:59:59	0.2515	0.2506	34.0489	1.2471
24	03:29:59	0.2515	0.2506	34.0489	1.2471
25	03:30:59	0.2515	0.2506	34.0489	1.2471

Consolidation Graph (SquareRoot Time)



Consolidation Graph (Logarithmic Time)



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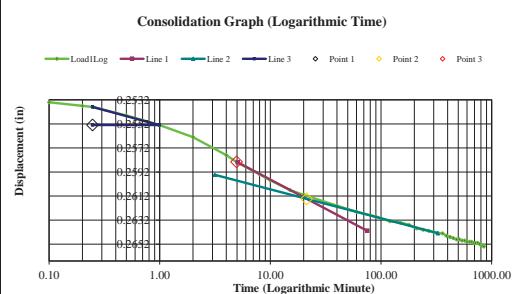
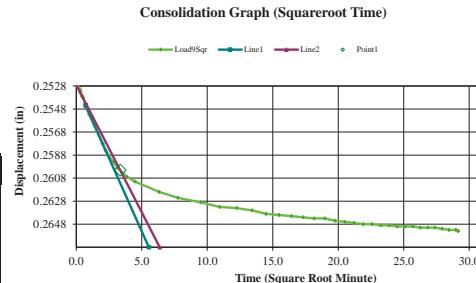
Consolidation Test Results (Sequence 9) Load 2,000 tsf	Consolidation Test Results (Sequence 9) Load 2,000 tsf
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Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project Project Number: 16715-012-04
 Location: Lafourche Parish, Louisiana
 Job Number:

Sample Number:
 Boring Number: B-3
 Depth: 10 - 12 feet
 Sample Type: Undisturbed

Soil Description:
 Clay with sand lenses (CH)
 Remarks:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.2515	0.2506	34.0489	1.2471
1	00:00:01	0.2529	0.2520	34.2391	1.2406
2	00:00:02	0.2530	0.2521	34.2527	1.2401
3	00:00:03	0.2531	0.2522	34.2663	1.2397
4	00:00:04	0.2531	0.2522	34.2663	1.2397
5	00:00:05	0.2532	0.2523	34.2799	1.2392
6	00:00:06	0.2534	0.2525	34.3071	1.2383
7	00:00:12	0.2537	0.2528	34.3478	1.2369
8	00:00:15	0.2538	0.2529	34.3614	1.2364
9	00:00:30	0.2545	0.2536	34.4563	1.2332
10	00:01:00	0.2553	0.2544	34.5652	1.2295
11	00:02:00	0.2563	0.2554	34.7011	1.2248
12	00:04:00	0.2578	0.2569	34.9049	1.2179
13	00:05:00	0.2584	0.2575	34.9864	1.2151
14	00:08:00	0.2594	0.2585	35.1223	1.2105
15	00:10:00	0.2599	0.2590	35.1902	1.2082
16	00:15:00	0.2607	0.2598	35.2989	1.2045
17	00:20:00	0.2611	0.2602	35.3533	1.2026
18	00:39:59	0.2620	0.2611	35.4755	1.1984
19	00:59:59	0.2625	0.2616	35.5435	1.1961
20	01:29:58	0.2629	0.2620	35.5978	1.1943
21	01:59:59	0.2633	0.2624	35.6522	1.1924
22	02:29:59	0.2634	0.2625	35.6658	1.1920
23	02:59:58	0.2636	0.2627	35.6929	1.1910
24	03:29:57	0.2639	0.2630	35.7337	1.1897
25	03:59:57	0.2640	0.2631	35.7473	1.1892
26	04:29:57	0.2641	0.2632	35.7609	1.1887
27	04:59:57	0.2642	0.2633	35.7745	1.1883
28	05:29:55	0.2643	0.2634	35.7880	1.1878
29	05:59:55	0.2643	0.2634	35.7880	1.1878
30	06:29:55	0.2645	0.2636	35.8152	1.1869
31	06:59:55	0.2646	0.2637	35.8288	1.1864
32	07:29:54	0.2647	0.2638	35.8424	1.1860
33	07:59:53	0.2648	0.2639	35.8560	1.1855
34	08:29:54	0.2648	0.2639	35.8560	1.1855
35	08:59:54	0.2649	0.2640	35.8696	1.1850



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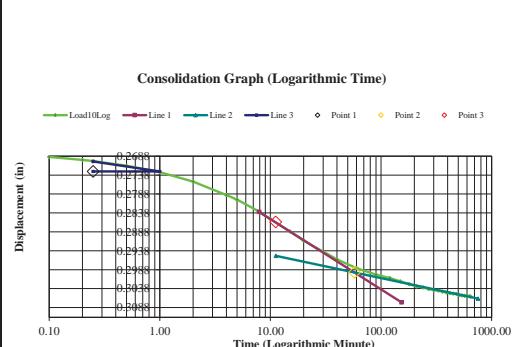
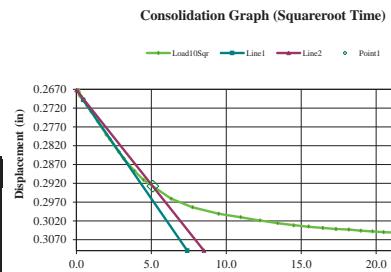
Consolidation Test Results (Sequence 10) Load 4,000 tsf	Consolidation Test Results (Sequence 10) Load 4,000 tsf
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Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project Project Number: 16715-012-04
 Location: Lafourche Parish, Louisiana
 Job Number:

Sample Number:
 Boring Number: B-3
 Depth: 10 - 12 feet
 Sample Type: Undisturbed

Soil Description:
 Clay with sand lenses (CH)
 Remarks:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.2654	0.2645	35.9375	1.1827
1	00:00:01	0.2672	0.2663	36.1821	1.1744
2	00:00:02	0.2679	0.2670	36.2772	1.1711
3	00:00:03	0.2685	0.2676	36.3587	1.1684
4	00:00:04	0.2688	0.2679	36.3995	1.1670
5	00:00:05	0.2689	0.2680	36.4130	1.1665
6	00:00:06	0.2690	0.2681	36.4266	1.1660
7	00:00:12	0.2698	0.2689	36.5353	1.1623
8	00:00:15	0.2701	0.2692	36.5761	1.1610
9	00:00:30	0.2713	0.2704	36.7391	1.1554
10	00:01:00	0.2730	0.2721	36.9701	1.1475
11	00:02:00	0.2755	0.2746	37.3098	1.1360
12	00:04:00	0.2791	0.2782	37.7989	1.1193
13	00:05:00	0.2803	0.2794	37.9620	1.1137
14	00:08:00	0.2836	0.2827	38.4103	1.0985
15	00:10:00	0.2854	0.2845	38.6549	1.0901
16	00:15:00	0.2887	0.2878	39.1033	1.0748
17	00:19:59	0.2911	0.2902	39.4293	1.0637
18	00:59:59	0.2961	0.2952	40.1087	1.0406
19	01:00:00	0.2984	0.2975	40.4212	1.0299
20	01:30:00	0.3001	0.2992	40.6522	1.0221
21	02:00:00	0.3010	0.3001	40.7745	1.0179
22	02:29:59	0.3019	0.3010	40.8967	1.0137
23	02:59:58	0.3026	0.3017	40.9918	1.0105
24	03:29:59	0.3032	0.3023	41.0734	1.0077
25	03:59:59	0.3035	0.3026	41.1141	1.0063
26	04:29:59	0.3039	0.3030	41.1685	1.0045
27	04:59:58	0.3042	0.3033	41.2092	1.0031
28	05:29:57	0.3043	0.3034	41.2228	1.0026
29	05:59:58	0.3046	0.3037	41.2636	1.0012
30	06:29:58	0.3048	0.3039	41.2908	1.0003
31	06:59:57	0.3050	0.3041	41.3179	0.9994
32	07:29:56	0.3051	0.3042	41.3315	0.9989
33	07:59:56	0.3052	0.3043	41.3451	0.9985
34	08:29:57	0.3055	0.3046	41.3859	0.9971
35	08:59:57	0.3056	0.3047	41.3995	0.9966



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Consolidation Test Results (Sequence 11) Load 8.000 tsf			
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Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project Project Number: 16715-012-04

Location: Lafourche Parish, Louisiana

Job Number:

Sample Number: Soil Description:
Boring Number: B-3 Clay with sand lenses (CH)
Depth: 10 - 12 feet Remarks:
Sample Type: Undisturbed

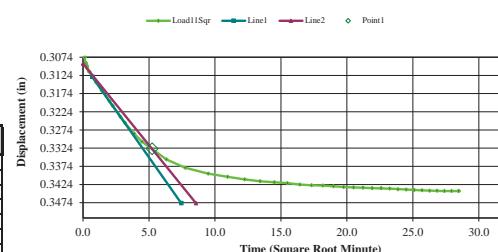
Test Date: 03 June 2015

Test Number:

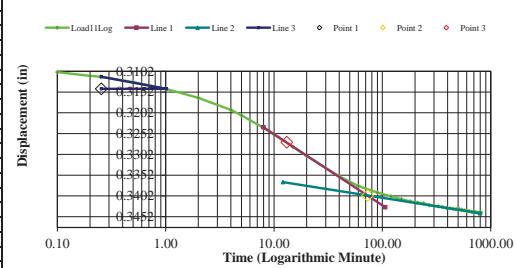
Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.3059	0.3050	41.4402	0.9952
1	00:00:01	0.3075	0.3066	41.6576	0.9878
2	00:00:02	0.3089	0.3080	41.8478	0.9813
3	00:00:03	0.3091	0.3082	41.8750	0.9804
4	00:00:04	0.3096	0.3087	41.9429	0.9781
5	00:00:05	0.3099	0.3090	41.9837	0.9767
6	00:00:06	0.3104	0.3095	42.0516	0.9744
7	00:00:12	0.3113	0.3104	42.1739	0.9702
8	00:00:15	0.3115	0.3106	42.2011	0.9693
9	00:00:30	0.3128	0.3119	42.3777	0.9633
10	00:01:00	0.3144	0.3135	42.5951	0.9559
11	00:02:00	0.3166	0.3157	42.8940	0.9457
12	00:04:00	0.3195	0.3186	43.2880	0.9323
13	00:05:00	0.3208	0.3199	43.4647	0.9262
14	00:08:00	0.3238	0.3229	43.8723	0.9124
15	00:10:00	0.3254	0.3245	44.0897	0.9050
16	00:15:00	0.3284	0.3275	44.4973	0.8911
17	00:20:00	0.3306	0.3297	44.7962	0.8809
18	00:40:00	0.3355	0.3346	45.4620	0.8582
19	01:00:00	0.3378	0.3369	45.7745	0.8475
20	01:29:59	0.3394	0.3385	45.9918	0.8401
21	01:59:58	0.3403	0.3394	46.1141	0.8360
22	02:29:58	0.3410	0.3401	46.2092	0.8327
23	02:59:59	0.3415	0.3406	46.2772	0.8304
24	03:29:58	0.3418	0.3409	46.3179	0.8290
25	03:59:58	0.3420	0.3411	46.3451	0.8281
26	04:29:56	0.3424	0.3415	46.3995	0.8263
27	04:59:56	0.3426	0.3417	46.4266	0.8253
28	05:29:57	0.3427	0.3418	46.4402	0.8249
29	05:59:56	0.3429	0.3420	46.4674	0.8239
30	06:29:56	0.3431	0.3422	46.4946	0.8230
31	06:59:55	0.3432	0.3423	46.5082	0.8226
32	07:29:55	0.3433	0.3424	46.5217	0.8221
33	07:59:55	0.3434	0.3425	46.5353	0.8216
34	08:29:54	0.3434	0.3425	46.5353	0.8216
35	08:59:53	0.3435	0.3426	46.5489	0.8212

Consolidation Test Results
(Sequence 11) Load 8.000 tsf

Consolidation Graph (SquareRoot Time)



Consolidation Graph (Logarithmic Time)



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Consolidation Test Results (Sequence 12) Load 16.000 tsf			
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Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project Project Number: 16715-012-04

Location: Lafourche Parish, Louisiana

Job Number:

Sample Number: Soil Description:
Boring Number: B-3 Clay with sand lenses (CH)
Depth: 10 - 12 feet Remarks:
Sample Type: Undisturbed

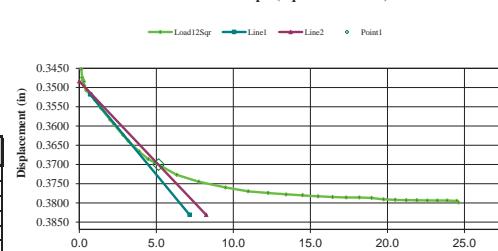
Test Date: 03 June 2015

Test Number:

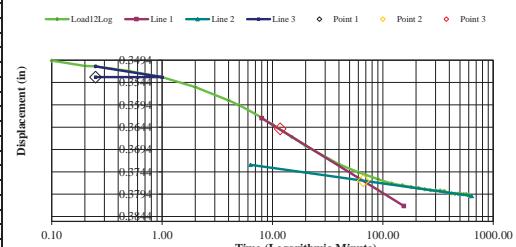
Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.3442	0.3433	46.6440	0.8179
1	00:00:01	0.3452	0.3443	46.7799	0.8133
2	00:00:02	0.3474	0.3465	47.0788	0.8031
3	00:00:03	0.3479	0.3470	47.1467	0.8008
4	00:00:04	0.3482	0.3473	47.1875	0.7994
5	00:00:05	0.3485	0.3476	47.2283	0.7980
6	00:00:06	0.3495	0.3486	47.3641	0.7934
7	00:00:12	0.3507	0.3498	47.5272	0.7878
8	00:00:15	0.3508	0.3499	47.5408	0.7874
9	00:00:30	0.3518	0.3509	47.6766	0.7827
10	00:01:00	0.3532	0.3523	47.8668	0.7763
11	00:02:00	0.3554	0.3545	48.1658	0.7661
12	00:04:00	0.3584	0.3575	48.5734	0.7522
13	00:05:00	0.3595	0.3586	48.7228	0.7471
14	00:08:00	0.3623	0.3614	49.1033	0.7341
15	00:10:00	0.3638	0.3629	49.3071	0.7272
16	00:15:00	0.3666	0.3657	49.6875	0.7142
17	00:20:00	0.3686	0.3677	49.9592	0.7050
18	00:40:01	0.3727	0.3718	50.5163	0.6860
19	01:00:01	0.3745	0.3736	50.7609	0.6777
20	01:30:01	0.3760	0.3751	50.9647	0.6707
21	02:00:00	0.3770	0.3761	51.1005	0.6661
22	02:29:59	0.3774	0.3765	51.1549	0.6642
23	03:00:00	0.3778	0.3769	51.2092	0.6624
24	03:30:00	0.3780	0.3771	51.2364	0.6615
25	03:59:59	0.3783	0.3774	51.2772	0.6601
26	04:29:59	0.3785	0.3776	51.3043	0.6591
27	04:59:59	0.3786	0.3777	51.3179	0.6587
28	05:29:59	0.3786	0.3777	51.3179	0.6587
29	05:59:58	0.3787	0.3778	51.3315	0.6582
30	06:29:58	0.3791	0.3782	51.3859	0.6564
31	06:59:59	0.3792	0.3783	51.3995	0.6559
32	07:29:58	0.3793	0.3784	51.4130	0.6554
33	07:59:57	0.3793	0.3784	51.4130	0.6554
34	08:29:58	0.3794	0.3785	51.4266	0.6550
35	08:59:58	0.3794	0.3785	51.4266	0.6550

Consolidation Test Results
(Sequence 12) Load 16.000 tsf

Consolidation Graph (SquareRoot Time)



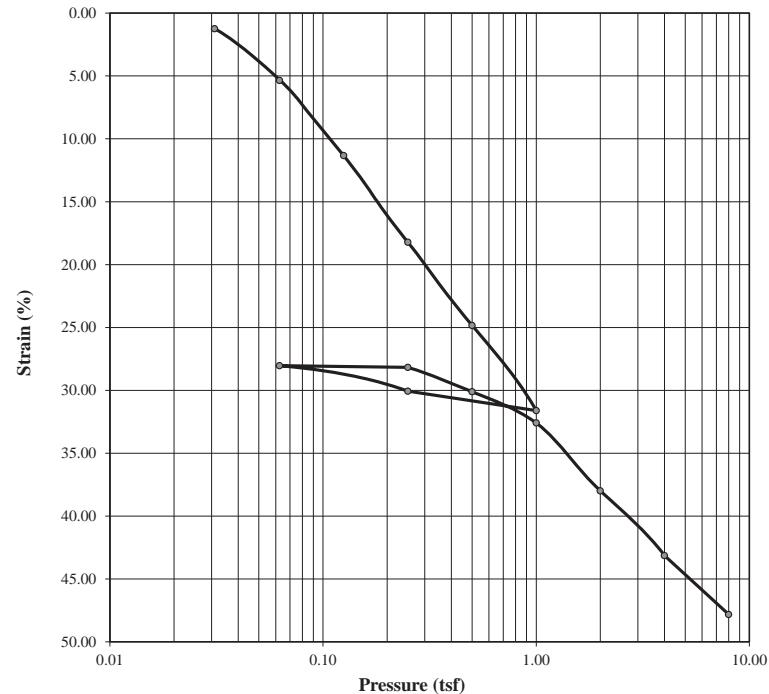
Consolidation Graph (Logarithmic Time)



Page 1 of 2



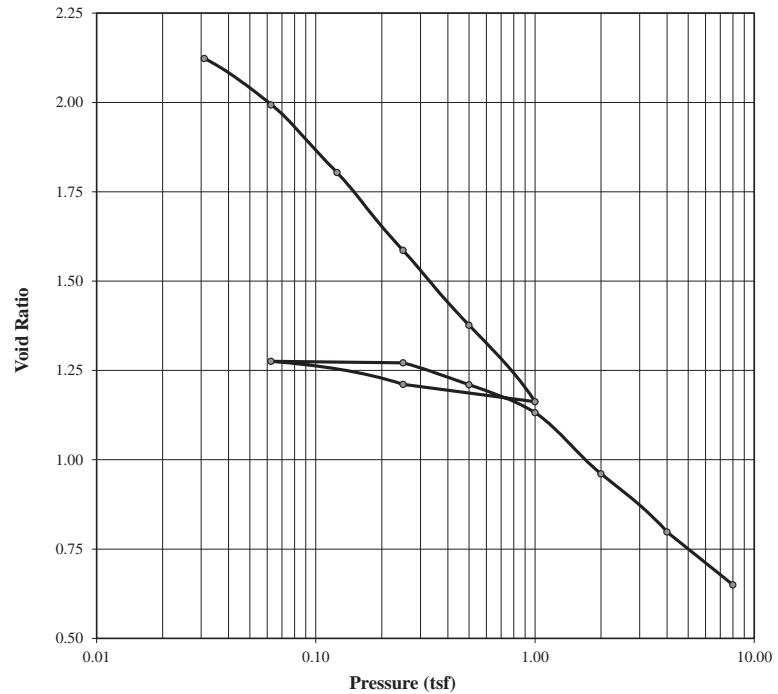
Consolidation Test
Test Results



	Before	After	Liquid Limits:	62	Test Date:	03 June 2015
Moisture (%):	81.10	33.42	Plastic Limits:	23		
Dry Density (pcf):	53.86	93.86	Plasticity Index (%):	39		
Saturation (%):	102.26	111.69				
Void Ratio:	2.1621	0.6499	Specific Gravity:	2.733	Measured	
Sample Description:	Clay (CH)					
Project Number:	16715-012-04	Depth: 2 - 4 feet				
Sample Number:		Boring Number: B-5	Remarks:			
Project:	BA-171 Caminada Headlands Back-Barrier Marsh Creation Project					
Client:	Louisiana Coastal Protection and Restoration Authority (CPRA)					
Location:	LaFourche Parish, Louisiana					



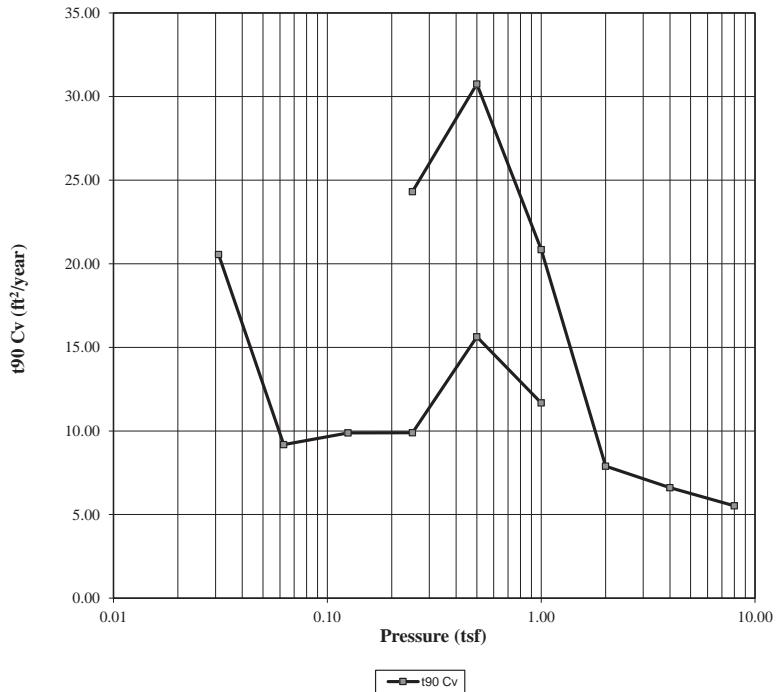
Consolidation Test
Test Results



	Before	After	Liquid Limits:	62	Test Date:	03 June 2015
Moisture (%):	81.10	33.42	Plastic Limits:	23		
Dry Density (pcf):	53.86	93.86	Plasticity Index (%):	39		
Saturation (%):	102.26	111.69				
Void Ratio:	2.1621	0.6499	Specific Gravity:	2.733	Measured	
Sample Description:	Clay (CH)					
Project Number:	16715-012-04	Depth: 2 - 4 feet				
Sample Number:		Boring Number: B-5	Remarks:			
Project:	BA-171 Caminada Headlands Back-Barrier Marsh Creation Project					
Client:	Louisiana Coastal Protection and Restoration Authority (CPRA)					
Location:	LaFourche Parish, Louisiana					



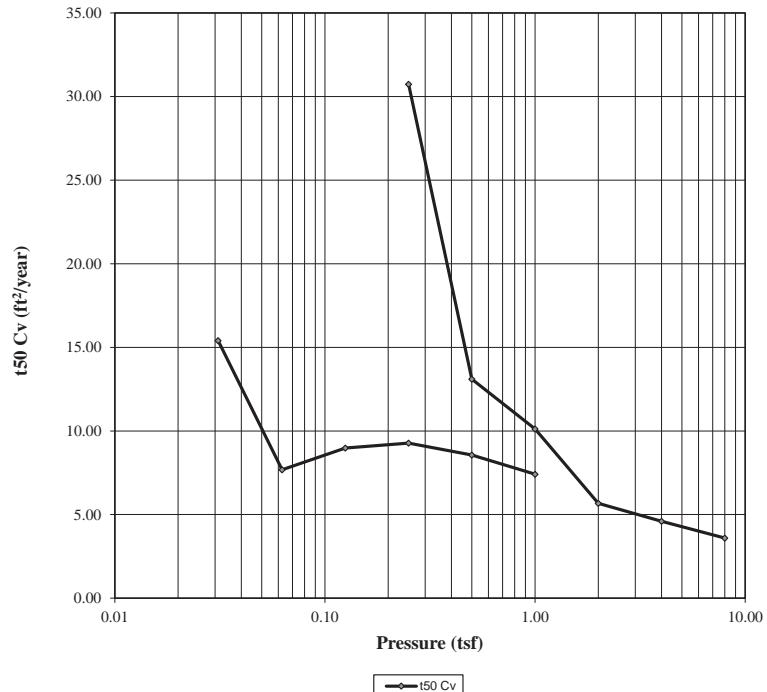
**Consolidation Test
Test Results**



	Before	After	Liquid Limits:	62	Test Date:	03 June 2015
Moisture (%):	81.10	33.42	Plastic Limits:	23		
Dry Density (pcf):	53.86	93.86	Plasticity Index (%):	39		
Saturation (%):	102.26	111.69				
Void Ratio:	2.1621	0.6499	Specific Gravity:	2.733	Measured	
Soil Description:	Clay (CH)					
Project Number:	16715-012-04	Depth: 2 - 4 feet	Remarks:			
Sample Number:		Boring Number: B-5				
Project:	BA-171 Caminada Headlands Back-Barrier Marsh Creation Project					
Client:	Louisiana Coastal Protection and Restoration Authority (CPRA)					
Location:	LaFourche Parish, Louisiana					



**Consolidation Test
Test Results**



	Before	After	Liquid Limits:	62	Test Date:	03 June 2015
Moisture (%):	81.10	33.42	Plastic Limits:	23		
Dry Density (pcf):	53.86	93.86	Plasticity Index (%):	39		
Saturation (%):	102.26	111.69				
Void Ratio:	2.1621	0.6499	Specific Gravity:	2.733	Measured	
Soil Description:	Clay (CH)					
Project Number:	16715-012-04	Depth: 2 - 4 feet	Remarks:			
Sample Number:		Boring Number: B-5				
Project:	BA-171 Caminada Headlands Back-Barrier Marsh Creation Project					
Client:	Louisiana Coastal Protection and Restoration Authority (CPRA)					
Location:	LaFourche Parish, Louisiana					

Consolidation Test Results Summary

Project: BA-171 Caminada Headlands Back-Barrier Marsh Creation Project
Location: LaFourche Parish, Louisiana
Job Number:

Project Number: 16715-012-04

Sample Number:
Boring Number: B-5
Depth: 2 - 4 feet
Sample Type: Undisturbed

Sample Description:
 Clay (CH)
Remarks:

Test Number:
Test Date: 03 June 2015

Index	Load Sequence (tsf)	Cummulative Change in Height (in)	Specimen Height (in)	Height of Void (in)	Vertical Strain (%)	Void Ratio	t90 Fitting Time (min)	t50 Fitting Time (min)	t90 Cv (ft2/year)	t50 Cv (ft2/year)
0	0.000	0.0000	0.7350	0.5025	0.00	2.1619	0.000	0.000	0.000	0.000
1	0.031	0.0091	0.7259	0.4934	1.24	2.1228	19.838	6.149	20.554	15.404
2	0.063	0.0393	0.6957	0.4632	5.35	1.9929	40.789	11.331	9.182	7.678
3	0.125	0.0833	0.6517	0.4192	11.33	1.8036	33.246	8.502	9.885	8.980
4	0.250	0.1339	0.6011	0.3686	18.22	1.5859	28.255	7.005	9.895	9.272
5	0.500	0.1826	0.5524	0.3199	24.84	1.3764	15.111	6.408	15.626	8.560
6	1.000	0.2323	0.5027	0.2702	31.61	1.1626	16.749	6.127	11.675	7.414
7	0.250	0.2210	0.5140	0.2815	30.07	1.2112	0.000	0.000	0.000	0.000
8	0.063	0.2061	0.5289	0.2964	28.04	1.2753	0.000	0.000	0.000	0.000
9	0.250	0.2071	0.5279	0.2954	28.18	1.2710	8.872	1.630	24.306	30.739
10	0.500	0.2213	0.5137	0.2812	30.11	1.2099	6.640	3.621	30.751	13.101
11	1.000	0.2395	0.4955	0.2630	32.59	1.1316	9.116	4.361	20.842	10.120
12	2.000	0.2792	0.4558	0.2233	37.99	0.9608	20.358	6.583	7.897	5.674
13	4.000	0.3171	0.4179	0.1854	43.14	0.7978	20.445	6.833	6.610	4.594
14	8.000	0.3515	0.3835	0.1510	47.82	0.6498	20.602	7.355	5.524	3.595

Predicted value indicated with *

Consolidation Test Consolidation Specimen Information

Project: BA-171 Caminada Headlands Back-Barrier Marsh Creation Project **Project Number:** 16715-012-04
Location: LaFourche Parish, Louisiana
Job Number:

Test Date: 03 June 2015

Sample Number:
Boring Number: B-5
Depth: 2 - 4 feet
Sample Type: Undisturbed

Sample Description:
 Clay (CH)
Remarks:

Test Number:
Liquid Limit: 62.0000 **Initial Void Ratio:** 2.1621 **Initial Height (in):** 0.7350
Plastic Limit: 23.0000 **Plasticity Index (%):** 39.0000 **Initial Diameter (in):** 2.5020
Specific Gravity: 2.7330 **Weight of Ring (g):** 106.6300
Measured

Parameters	Initial Specimen	Final Specimen
Moist Weight + Container (g)	112.72	83.82
Dry Soil + Container (g)	72.34	68.47
Weight of Container (g)	22.55	22.54
Moisture Content (%)	81.10	33.42
Void Ratio	2.1621	0.6499
Saturation (%)	102.26	111.69
Dry Density (pcf)	53.86	93.86

Consolidation Test Results (Sequence 1) Load 0.031 tsf	Consolidation Test Results (Sequence 1) Load 0.031 tsf
---	---

Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project Project Number: 16715-012-04

Location: LaFourche Parish, Louisiana

Job Number:

Sample Number:
Boring Number: B-5
Depth: 2 - 4 feet
Sample Type: Undisturbed

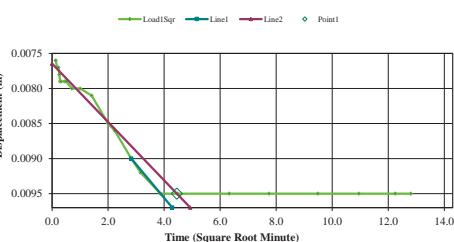
Test Date: 03 June 2015

Test Number:

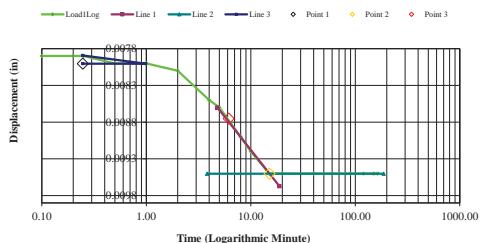
Soil Description:
Clay (CH)
Remarks:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.0004	0.0000	0.0000	2.1621
1	00:00:01	0.0076	0.0072	0.0796	2.1311
2	00:00:02	0.0077	0.0073	0.0932	2.1307
3	00:00:03	0.0077	0.0073	0.0932	2.1307
4	00:00:04	0.0078	0.0074	1.0068	2.1302
5	00:00:05	0.0079	0.0075	1.0204	2.1298
6	00:00:06	0.0079	0.0075	1.0204	2.1298
7	00:00:12	0.0079	0.0075	1.0204	2.1298
8	00:00:15	0.0079	0.0075	1.0204	2.1298
9	00:00:30	0.0080	0.0076	1.0340	2.1294
10	00:01:00	0.0080	0.0076	1.0340	2.1294
11	00:02:00	0.0081	0.0077	1.0476	2.1289
12	00:04:00	0.0085	0.0081	1.1026	2.1272
13	00:05:00	0.0086	0.0082	1.1156	2.1268
14	00:08:00	0.0090	0.0086	1.1707	2.1251
15	00:10:00	0.0092	0.0088	1.1973	2.1242
16	00:15:00	0.0095	0.0091	1.2381	2.1229
17	00:20:00	0.0095	0.0091	1.2381	2.1229
18	00:39:59	0.0095	0.0091	1.2381	2.1229
19	00:59:59	0.0095	0.0091	1.2381	2.1229
20	01:29:59	0.0095	0.0091	1.2381	2.1229
21	01:59:59	0.0095	0.0091	1.2381	2.1229
22	02:29:58	0.0095	0.0091	1.2381	2.1229
23	02:44:00	0.0095	0.0091	1.2381	2.1229

Consolidation Graph (Squareroot Time)



Consolidation Graph (Logarithmic Time)



Page 1 of 1

Consolidation Test Results (Sequence 2) Load 0.063 tsf	Consolidation Test Results (Sequence 2) Load 0.063 tsf
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Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project Project Number: 16715-012-04

Location: LaFourche Parish, Louisiana

Job Number:

Sample Number:
Boring Number: B-5
Depth: 2 - 4 feet
Sample Type: Undisturbed

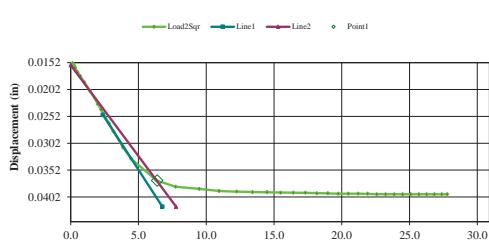
Test Date: 03 June 2015

Test Number:

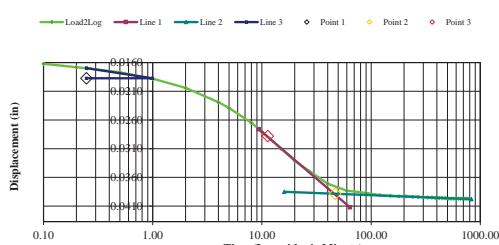
Soil Description:
Clay (CH)
Remarks:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.0095	0.0091	1.2381	2.1229
1	00:00:01	0.0153	0.0149	2.0272	2.0980
2	00:00:02	0.0155	0.0151	2.0544	2.0971
3	00:00:03	0.0157	0.0153	2.0816	2.0962
4	00:00:04	0.0158	0.0154	2.0952	2.0958
5	00:00:05	0.0159	0.0155	2.1088	2.0954
6	00:00:06	0.0162	0.0158	2.1497	2.0941
7	00:00:12	0.0168	0.0164	2.2313	2.0915
8	00:00:15	0.0170	0.0166	2.2585	2.0907
9	00:00:30	0.0177	0.0173	2.3537	2.0876
10	00:01:00	0.0188	0.0184	2.5034	2.0829
11	00:02:00	0.0204	0.0200	2.7211	2.0760
12	00:04:00	0.0229	0.0225	3.0612	2.0653
13	00:05:00	0.0239	0.0235	3.1973	2.0610
14	00:08:00	0.0265	0.0261	3.5510	2.0498
15	00:10:00	0.0280	0.0276	3.7551	2.0433
16	00:15:00	0.0310	0.0306	4.1633	2.0304
17	00:20:00	0.0331	0.0327	4.4490	2.0214
18	00:40:00	0.0371	0.0367	4.9932	2.0042
19	01:00:00	0.0383	0.0379	5.1565	1.9990
20	01:29:59	0.0387	0.0383	5.2109	1.9973
21	01:59:59	0.0391	0.0387	5.2653	1.9956
22	02:29:59	0.0392	0.0388	5.2789	1.9951
23	02:59:58	0.0393	0.0389	5.2925	1.9947
24	03:29:57	0.0393	0.0389	5.2925	1.9947
25	03:59:58	0.0394	0.0390	5.3061	1.9943
26	04:29:57	0.0394	0.0390	5.3061	1.9943
27	04:59:56	0.0394	0.0390	5.3061	1.9943
28	05:29:57	0.0395	0.0391	5.3197	1.9939
29	05:59:56	0.0395	0.0391	5.3197	1.9939
30	06:29:55	0.0396	0.0392	5.3333	1.9934
31	06:59:55	0.0396	0.0392	5.3333	1.9934
32	07:29:55	0.0396	0.0392	5.3333	1.9934
33	07:59:54	0.0396	0.0392	5.3333	1.9934
34	08:29:54	0.0397	0.0393	5.3469	1.9930
35	08:59:54	0.0397	0.0393	5.3469	1.9930

Consolidation Graph (Squareroot Time)



Consolidation Graph (Logarithmic Time)



Page 1 of 2

Consolidation Test Results (Sequence 3) Load 0.125 tsf	Consolidation Test Results (Sequence 3) Load 0.125 tsf
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Project: BA-171 Caminada Headlands Back-Barrier Marsh Creation Project Project Number: 16715-012-04

Location: LaFourche Parish, Louisiana

Job Number:

Sample Number:
Boring Number: B-5
Depth: 2 - 4 feet
Sample Type: Undisturbed

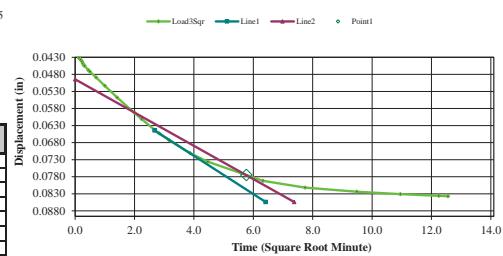
Soil Description:
Clay (CH)
Remarks:

Test Date: 03 June 2015

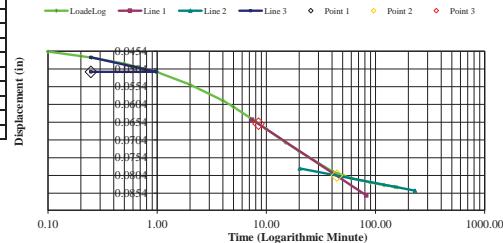
Test Number:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.0397	0.0393	5.3469	1.9930
1	00:00:01	0.0432	0.0428	5.8231	1.9779
2	00:00:02	0.0437	0.0433	5.8912	1.9758
3	00:00:03	0.0442	0.0438	5.9592	1.9736
4	00:00:04	0.0448	0.0444	6.0408	1.9711
5	00:00:05	0.0453	0.0449	6.1088	1.9689
6	00:00:06	0.0455	0.0451	6.1361	1.9680
7	00:00:12	0.0468	0.0464	6.3129	1.9624
8	00:00:15	0.0472	0.0468	6.3673	1.9607
9	00:00:30	0.0489	0.0485	6.5986	1.9534
10	00:01:00	0.0513	0.0509	6.9252	1.9431
11	00:02:00	0.0548	0.0544	7.4014	1.9280
12	00:04:00	0.0593	0.0589	8.0136	1.9087
13	00:05:00	0.0611	0.0607	8.2585	1.9009
14	00:08:00	0.0653	0.0649	8.8299	1.8829
15	00:10:00	0.0673	0.0669	9.1020	1.8743
16	00:15:00	0.0711	0.0707	9.6190	1.8579
17	00:20:00	0.0736	0.0732	9.9592	1.8472
18	00:40:00	0.0792	0.0788	10.7211	1.8231
19	01:00:00	0.0812	0.0808	10.9932	1.8145
20	01:30:00	0.0824	0.0820	11.1565	1.8093
21	01:59:59	0.0831	0.0827	11.2517	1.8063
22	02:29:59	0.0836	0.0832	11.3197	1.8041
23	02:57:45	0.0837	0.0833	11.3533	1.8037

Consolidation Graph (Squareroot Time)



Consolidation Graph (Logarithmic Time)



Page 1 of 1

Consolidation Test Results (Sequence 4) Load 0.250 tsf	Consolidation Test Results (Sequence 4) Load 0.250 tsf
---	---

Project: BA-171 Caminada Headlands Back-Barrier Marsh Creation Project Project Number: 16715-012-04

Location: LaFourche Parish, Louisiana

Job Number:

Sample Number:
Boring Number: B-5
Depth: 2 - 4 feet
Sample Type: Undisturbed

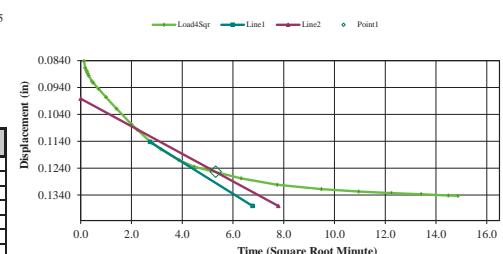
Soil Description:
Clay (CH)
Remarks:

Test Date: 03 June 2015

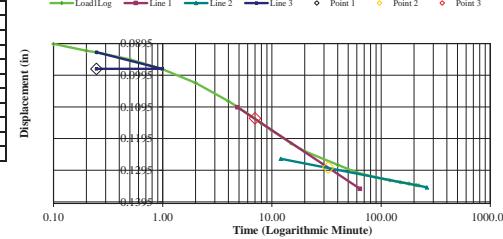
Test Number:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.0837	0.0833	11.3333	1.8037
1	00:00:01	0.0842	0.0838	11.4014	1.8015
2	00:00:02	0.0867	0.0863	11.7415	1.7908
3	00:00:03	0.0876	0.0872	11.8639	1.7869
4	00:00:04	0.0883	0.0879	11.9592	1.7839
5	00:00:05	0.0889	0.0885	12.0408	1.7813
6	00:00:06	0.0896	0.0892	12.1361	1.7783
7	00:00:12	0.0917	0.0913	12.4218	1.7693
8	00:00:15	0.0923	0.0919	12.5034	1.7667
9	00:00:30	0.0945	0.0941	12.8027	1.7572
10	00:01:00	0.0976	0.0972	13.2245	1.7439
11	00:02:00	0.1019	0.1015	13.8095	1.7254
12	00:04:00	0.1077	0.1073	14.5986	1.7004
13	00:05:00	0.1098	0.1094	14.8844	1.6914
14	00:08:00	0.1147	0.1143	15.5510	1.6703
15	00:10:00	0.1170	0.1166	15.8639	1.6604
16	00:15:00	0.1210	0.1206	16.4082	1.6432
17	00:20:00	0.1235	0.1231	16.7483	1.6325
18	00:39:59	0.1278	0.1274	17.3333	1.6140
19	00:59:58	0.1302	0.1298	17.6599	1.6037
20	01:29:59	0.1318	0.1314	17.8775	1.5968
21	01:59:59	0.1327	0.1323	18.0000	1.5929
22	02:29:58	0.1333	0.1329	18.0816	1.5903
23	02:59:58	0.1337	0.1333	18.1361	1.5886
24	03:29:58	0.1342	0.1338	18.2041	1.5864
25	03:40:59	0.1343	0.1339	18.2177	1.5860

Consolidation Graph (Squareroot Time)



Consolidation Graph (Logarithmic Time)



Page 1 of 1

Consolidation Test Results (Sequence 5) Load 0.500 tsf

Project: BA-171 Caminada Headlands Back-Barrier Marsh Creation Project Project Number: 16715-012-04

Location: LaFourche Parish, Louisiana

Job Number:

Sample Number:
Boring Number: B-5
Depth: 2 - 4 feet
Sample Type: Undisturbed

Soil Description:
Clay (CH)
Remarks:

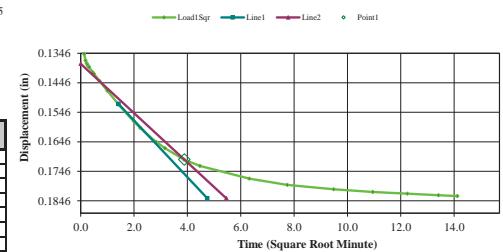
Test Date: 03 June 2015

Test Number:

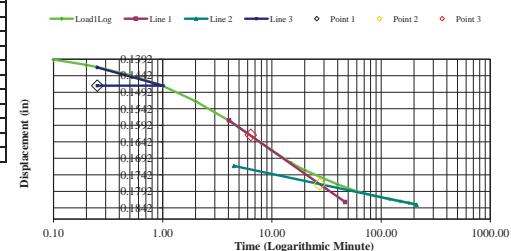
Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.1343	0.1339	18.2177	1.5860
1	00:00:01	0.1348	0.1344	18.2857	1.5839
2	00:00:02	0.1370	0.1366	18.5850	1.5744
3	00:00:03	0.1380	0.1376	18.7211	1.5701
4	00:00:04	0.1385	0.1381	18.7891	1.5679
5	00:00:05	0.1390	0.1386	18.8571	1.5658
6	00:00:06	0.1393	0.1389	18.8980	1.5645
7	00:00:12	0.1410	0.1406	19.1293	1.5572
8	00:00:15	0.1416	0.1412	19.2109	1.5546
9	00:00:30	0.1440	0.1436	19.5374	1.5443
10	00:01:00	0.1473	0.1469	19.9864	1.5301
11	00:02:00	0.1519	0.1515	20.6122	1.5103
12	00:04:00	0.1577	0.1573	21.4014	1.4853
13	00:05:00	0.1599	0.1595	21.7007	1.4759
14	00:08:00	0.1646	0.1642	22.3401	1.4557
15	00:10:00	0.1668	0.1664	22.6395	1.4462
16	00:15:00	0.1706	0.1702	23.1565	1.4298
17	00:20:00	0.1728	0.1724	23.4558	1.4204
18	00:39:59	0.1771	0.1767	24.0408	1.4019
19	00:59:59	0.1792	0.1788	24.3365	1.3928
20	01:29:59	0.1807	0.1803	24.5306	1.3864
21	02:00:00	0.1816	0.1812	24.6531	1.3825
22	02:29:59	0.1822	0.1818	24.7547	1.3799
23	02:59:58	0.1827	0.1823	24.8027	1.3778
24	03:19:20	0.1830	0.1826	24.8435	1.3765

Consolidation Test Results (Sequence 5) Load 0.500 tsf

Consolidation Graph (Squareroot Time)



Consolidation Graph (Logarithmic Time)



Page 1 of 1

Consolidation Test Results (Sequence 6) Load 1.000 tsf

Consolidation Test Results (Sequence 6) Load 1.000 tsf

Project: BA-171 Caminada Headlands Back-Barrier Marsh Creation Project Project Number: 16715-012-04

Location: LaFourche Parish, Louisiana

Job Number:

Sample Number:
Boring Number: B-5
Depth: 2 - 4 feet
Sample Type: Undisturbed

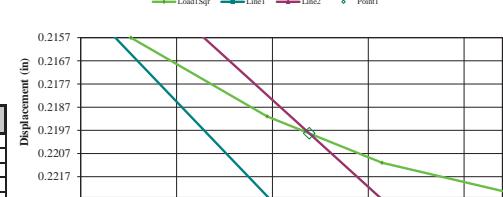
Soil Description:
Clay (CH)
Remarks:

Test Date: 03 June 2015

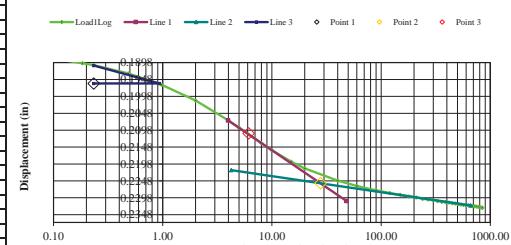
Test Number:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.1830	0.1826	24.8435	1.3765
1	00:00:00	0.1849	0.1845	25.1020	1.3683
2	00:00:01	0.1863	0.1859	25.2925	1.3623
3	00:00:02	0.1870	0.1866	25.3878	1.3593
4	00:00:03	0.1876	0.1872	25.4694	1.3567
5	00:00:04	0.1880	0.1876	25.5238	1.3550
6	00:00:05	0.1884	0.1880	25.5782	1.3533
7	00:00:11	0.1900	0.1896	25.7959	1.3464
8	00:00:14	0.1906	0.1902	25.8775	1.3438
9	00:00:29	0.1930	0.1926	26.2041	1.3335
10	00:00:59	0.1964	0.1960	26.6667	1.3189
11	00:02:00	0.2010	0.2006	27.2925	1.2991
12	00:04:00	0.2069	0.2065	28.0952	1.2737
13	00:05:00	0.2090	0.2086	28.3809	1.2646
14	00:08:00	0.2136	0.2132	29.0068	1.2449
15	00:10:00	0.2157	0.2153	29.2925	1.2358
16	00:15:00	0.2191	0.2187	29.7551	1.2212
17	00:20:00	0.2211	0.2207	30.0272	1.2126
18	00:39:59	0.2247	0.2243	30.5170	1.1971
19	00:59:59	0.2263	0.2259	30.7347	1.1902
20	01:29:58	0.2276	0.2272	30.9116	1.1846
21	01:59:59	0.2284	0.2280	31.0204	1.1812
22	02:29:59	0.2289	0.2285	31.0884	1.1790
23	02:59:58	0.2294	0.2290	31.1565	1.1769
24	03:29:58	0.2297	0.2293	31.1973	1.1756
25	03:59:58	0.2301	0.2297	31.2517	1.1739
26	04:29:58	0.2303	0.2299	31.2789	1.1730
27	04:59:57	0.2305	0.2301	31.3061	1.1721
28	05:29:57	0.2308	0.2304	31.3469	1.1709
29	05:59:57	0.2310	0.2306	31.3741	1.1700
30	06:29:57	0.2311	0.2307	31.3878	1.1696
31	06:59:56	0.2312	0.2308	31.4014	1.1691
32	07:29:57	0.2314	0.2310	31.4286	1.1683
33	07:59:56	0.2315	0.2311	31.4422	1.1678
34	08:29:55	0.2317	0.2313	31.4694	1.1670
35	08:59:56	0.2318	0.2314	31.4830	1.1666

Consolidation Graph (Squareroot Time)



Consolidation Graph (Logarithmic Time)



Page 1 of 2

Consolidation Test Results (Sequence 7) Rebound 0.250 tsf	Consolidation Test Results (Sequence 7) Rebound 0.250 tsf
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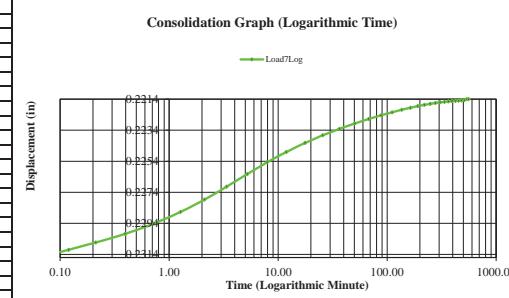
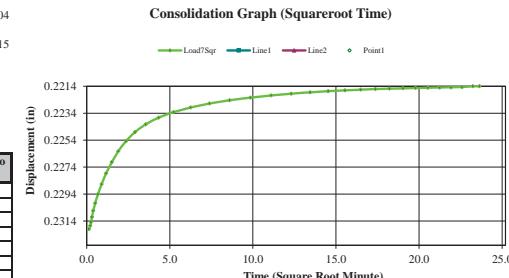
Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project
Location: Lafourche Parish, Louisiana
Job Number:

Project Number: 16715-012-04
Test Date: 03 June 2015
Test Number:

Sample Number:
Boring Number: B-5
Depth: 2 - 4 feet
Sample Type: Undisturbed

Soil Description:
Clay (CH)
Remarks:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.2327	0.2323	31.6054	1.1627
1	00:00:01	0.2320	0.2316	31.5102	1.1657
2	00:00:02	0.2319	0.2315	31.4966	1.1661
3	00:00:03	0.2318	0.2314	31.4830	1.1666
4	00:00:04	0.2318	0.2314	31.4830	1.1666
5	00:00:05	0.2312	0.2308	31.4014	1.1691
6	00:00:06	0.2306	0.2302	31.3197	1.1717
7	00:00:12	0.2301	0.2297	31.2517	1.1739
8	00:00:15	0.2298	0.2294	31.2109	1.1752
9	00:00:30	0.2290	0.2286	31.1020	1.1786
10	00:01:00	0.2279	0.2275	30.9524	1.1833
11	00:02:00	0.2266	0.2262	30.7755	1.1889
12	00:04:00	0.2252	0.2248	30.5850	1.1949
13	00:05:00	0.2248	0.2244	30.5306	1.1967
14	00:08:00	0.2240	0.2236	30.4218	1.2001
15	00:10:00	0.2237	0.2233	30.3809	1.2014
16	00:15:00	0.2232	0.2228	30.3129	1.2036
17	00:20:00	0.2230	0.2226	30.2857	1.2044
18	00:40:00	0.2225	0.2221	30.2177	1.2066
19	00:49:59	0.2223	0.2219	30.1905	1.2074
20	01:29:58	0.2222	0.2218	30.1769	1.2079
21	01:59:59	0.2220	0.2216	30.1497	1.2087
22	02:29:58	0.2219	0.2215	30.1361	1.2091
23	02:59:57	0.2218	0.2214	30.1224	1.2096
24	03:29:57	0.2217	0.2213	30.1088	1.2100
25	03:59:57	0.2217	0.2213	30.1088	1.2100
26	04:29:57	0.2216	0.2212	30.0952	1.2104
27	04:59:56	0.2216	0.2212	30.0952	1.2104
28	05:29:56	0.2216	0.2212	30.0952	1.2104
29	05:59:56	0.2215	0.2211	30.0816	1.2109
30	06:29:55	0.2215	0.2211	30.0816	1.2109
31	06:59:54	0.2215	0.2211	30.0816	1.2109
32	07:29:55	0.2215	0.2211	30.0816	1.2109
33	07:59:54	0.2215	0.2211	30.0816	1.2109
34	08:29:53	0.2215	0.2211	30.0816	1.2109
35	08:59:53	0.2214	0.2210	30.0680	1.2113



Page 1 of 2

Consolidation Test Results (Sequence 8) Rebound 0.063 tsf	Consolidation Test Results (Sequence 8) Rebound 0.063 tsf
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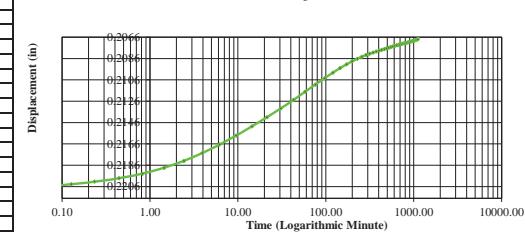
Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project
Location: Lafourche Parish, Louisiana

Project Number: 16715-012-04
Test Date: 03 June 2015
Test Number:

Sample Number:
Boring Number: B-5
Depth: 2 - 4 feet
Sample Type: Undisturbed

Soil Description:
Clay (CH)
Remarks:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.2214	0.2210	30.0680	1.2113
1	00:00:01	0.2209	0.2205	30.0000	1.2134
2	00:00:02	0.2208	0.2204	29.9864	1.2139
3	00:00:03	0.2208	0.2204	29.9864	1.2139
4	00:00:04	0.2205	0.2201	29.9456	1.2152
5	00:00:05	0.2204	0.2200	29.9320	1.2156
6	00:00:06	0.2203	0.2199	29.9184	1.2160
7	00:00:12	0.2200	0.2196	29.8776	1.2173
8	00:00:15	0.2199	0.2195	29.8639	1.2178
9	00:00:30	0.2193	0.2189	29.7823	1.2203
10	00:01:00	0.2186	0.2182	29.6871	1.2233
11	00:02:00	0.2176	0.2172	29.5510	1.2276
12	00:04:00	0.2163	0.2159	29.3741	1.2332
13	00:05:00	0.2158	0.2154	29.3061	1.2354
14	00:08:00	0.2146	0.2142	29.1429	1.2406
15	00:10:00	0.2140	0.2136	29.0612	1.2431
16	00:15:00	0.2129	0.2125	28.9116	1.2479
17	00:20:00	0.2122	0.2118	28.8163	1.2509
18	00:39:59	0.2107	0.2103	28.6122	1.2573
19	00:59:59	0.2100	0.2096	28.5170	1.2603
20	01:29:58	0.2095	0.2091	28.4490	1.2625
21	01:59:59	0.2090	0.2086	28.3809	1.2646
22	02:29:59	0.2088	0.2084	28.3537	1.2655
23	02:59:58	0.2087	0.2083	28.3401	1.2659
24	03:29:58	0.2085	0.2081	28.3129	1.2668
25	03:59:58	0.2083	0.2079	28.2857	1.2677
26	04:29:58	0.2082	0.2078	28.2721	1.2681
27	04:59:57	0.2080	0.2076	28.2449	1.2689
28	05:29:57	0.2080	0.2076	28.2449	1.2689
29	05:59:57	0.2079	0.2075	28.2313	1.2694
30	06:29:56	0.2079	0.2075	28.2313	1.2694
31	06:59:56	0.2078	0.2074	28.2177	1.2698
32	07:29:57	0.2077	0.2073	28.2041	1.2702
33	07:59:56	0.2077	0.2073	28.2041	1.2702
34	08:29:55	0.2076	0.2072	28.1905	1.2707
35	08:59:56	0.2075	0.2071	28.1769	1.2711



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Consolidation Test Results (Sequence 9) Load 0.250 tsf	Consolidation Test Results (Sequence 9) Load 0.250 tsf
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Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project Project Number: 16715-012-04

Location: Lafourche Parish, Louisiana

Job Number:

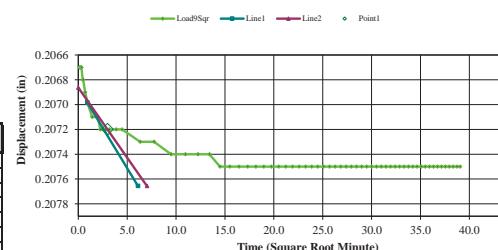
Sample Number: Soil Description:
Boring Number: B-5 Clay (CH)
Depth: 2 - 4 feet Remarks:
Sample Type: Undisturbed

Test Date: 03 June 2015

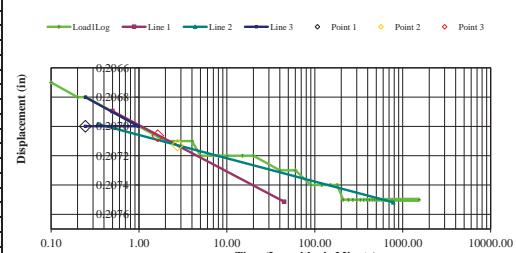
Test Number:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.2065	0.2061	28.0408	1.2754
1	00:00:01	0.2067	0.2063	28.0680	1.2745
2	00:00:02	0.2067	0.2063	28.0680	1.2745
3	00:00:03	0.2067	0.2063	28.0680	1.2745
4	00:00:04	0.2067	0.2063	28.0680	1.2745
5	00:00:05	0.2067	0.2063	28.0680	1.2745
6	00:00:06	0.2067	0.2063	28.0680	1.2745
7	00:00:12	0.2068	0.2064	28.0816	1.2741
8	00:00:15	0.2068	0.2064	28.0816	1.2741
9	00:00:30	0.2069	0.2065	28.0952	1.2737
10	00:01:00	0.2070	0.2066	28.1088	1.2732
11	00:02:00	0.2071	0.2067	28.1224	1.2728
12	00:04:00	0.2071	0.2067	28.1224	1.2728
13	00:05:00	0.2072	0.2068	28.1361	1.2724
14	00:08:01	0.2072	0.2068	28.1361	1.2724
15	00:10:01	0.2072	0.2068	28.1361	1.2724
16	00:15:01	0.2072	0.2068	28.1361	1.2724
17	00:20:01	0.2072	0.2068	28.1361	1.2724
18	00:40:01	0.2073	0.2069	28.1497	1.2720
19	01:00:01	0.2073	0.2069	28.1497	1.2720
20	01:30:01	0.2074	0.2070	28.1633	1.2715
21	02:00:00	0.2074	0.2070	28.1633	1.2715
22	02:29:58	0.2074	0.2070	28.1633	1.2715
23	02:59:58	0.2074	0.2070	28.1633	1.2715
24	03:29:58	0.2075	0.2071	28.1769	1.2711
25	03:59:59	0.2075	0.2071	28.1769	1.2711
26	04:29:59	0.2075	0.2071	28.1769	1.2711
27	04:59:58	0.2075	0.2071	28.1769	1.2711
28	05:29:57	0.2075	0.2071	28.1769	1.2711
29	05:59:57	0.2075	0.2071	28.1769	1.2711
30	06:29:58	0.2075	0.2071	28.1769	1.2711
31	06:59:58	0.2075	0.2071	28.1769	1.2711
32	07:29:57	0.2075	0.2071	28.1769	1.2711
33	07:59:56	0.2075	0.2071	28.1769	1.2711
34	08:29:57	0.2075	0.2071	28.1769	1.2711
35	08:59:57	0.2075	0.2071	28.1769	1.2711

Consolidation Graph (SquareRoot Time)



Consolidation Graph (Logarithmic Time)



Page 1 of 2

Consolidation Test Results (Sequence 10) Load 0.500 tsf	Consolidation Test Results (Sequence 10) Load 0.500 tsf
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Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project Project Number: 16715-012-04

Location: Lafourche Parish, Louisiana

Job Number:

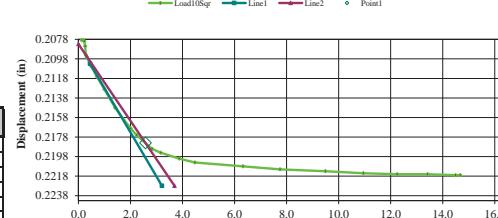
Sample Number: Soil Description:
Boring Number: B-5 Clay (CH)
Depth: 2 - 4 feet Remarks:
Sample Type: Undisturbed

Test Date: 03 June 2015

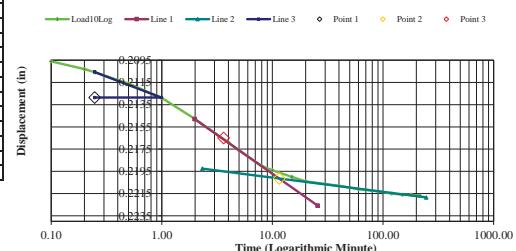
Test Number:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.2075	0.2071	28.1769	1.2711
1	00:00:01	0.2079	0.2075	28.2313	1.2694
2	00:00:02	0.2079	0.2075	28.2313	1.2694
3	00:00:03	0.2080	0.2076	28.2449	1.2689
4	00:00:04	0.2085	0.2081	28.3129	1.2668
5	00:00:05	0.2094	0.2090	28.4354	1.2629
6	00:00:06	0.2096	0.2092	28.4626	1.2621
7	00:00:12	0.2103	0.2099	28.5578	1.2591
8	00:00:15	0.2106	0.2102	28.5986	1.2578
9	00:00:30	0.2116	0.2112	28.7347	1.2535
10	00:01:00	0.2129	0.2125	28.9116	1.2479
11	00:02:00	0.2148	0.2144	29.1701	1.2397
12	00:04:00	0.2169	0.2165	29.4558	1.2307
13	00:04:59	0.2176	0.2172	29.5510	1.2276
14	00:07:59	0.2190	0.2186	29.7415	1.2216
15	00:09:59	0.2194	0.2190	29.7959	1.2199
16	00:14:59	0.2200	0.2196	29.8776	1.2173
17	00:20:00	0.2204	0.2200	29.9320	1.2156
18	00:40:00	0.2208	0.2204	29.9864	1.2139
19	01:00:00	0.2211	0.2207	30.0272	1.2126
20	01:30:00	0.2213	0.2209	30.0544	1.2117
21	01:59:58	0.2215	0.2211	30.0816	1.2109
22	02:29:58	0.2216	0.2212	30.0952	1.2104
23	02:59:58	0.2216	0.2212	30.0952	1.2104
24	03:29:58	0.2217	0.2213	30.1088	1.2100
25	03:55:09	0.2217	0.2213	30.1088	1.2100

Consolidation Graph (SquareRoot Time)



Consolidation Graph (Logarithmic Time)



Page 1 of 1

Consolidation Test Results (Sequence 11) Load 1.000 tsf	Consolidation Test Results (Sequence 11) Load 1.000 tsf
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Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project Project Number: 16715-012-04

Location: Lafourche Parish, Louisiana

Job Number:

Sample Number:
Boring Number: B-5
Depth: 2 - 4 feet
Sample Type: Undisturbed

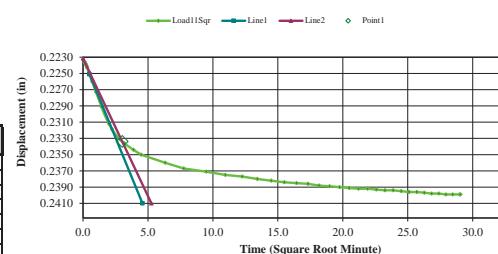
Soil Description:
Clay (CH)
Remarks:

Test Date: 03 June 2015

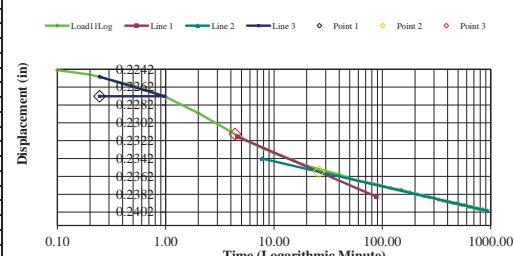
Test Number:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.2217	0.2213	30.1088	1.2100
1	00:00:01	0.2236	0.2232	30.3673	1.2018
2	00:00:02	0.2238	0.2234	30.3946	1.2010
3	00:00:03	0.2239	0.2235	30.4082	1.2005
4	00:00:04	0.2240	0.2236	30.4218	1.2001
5	00:00:05	0.2242	0.2238	30.4490	1.1993
6	00:00:06	0.2243	0.2239	30.4626	1.1988
7	00:00:12	0.2248	0.2244	30.5306	1.1967
8	00:00:15	0.2251	0.2247	30.5714	1.1954
9	00:00:30	0.2260	0.2256	30.6939	1.1915
10	00:01:00	0.2273	0.2269	30.8707	1.1859
11	00:02:00	0.2291	0.2287	31.1156	1.1782
12	00:04:00	0.2312	0.2308	31.4014	1.1691
13	00:05:00	0.2319	0.2315	31.4966	1.1661
14	00:08:00	0.2331	0.2327	31.6599	1.1610
15	00:10:00	0.2336	0.2332	31.7279	1.1588
16	00:15:00	0.2344	0.2340	31.8367	1.1554
17	00:20:00	0.2350	0.2346	31.9184	1.1528
18	00:39:59	0.2360	0.2356	32.0544	1.1485
19	00:59:58	0.2367	0.2363	32.1497	1.1455
20	01:29:58	0.2371	0.2367	32.2041	1.1438
21	01:59:58	0.2375	0.2371	32.2585	1.1420
22	02:29:58	0.2377	0.2373	32.2857	1.1412
23	02:59:57	0.2380	0.2376	32.3265	1.1399
24	03:29:56	0.2382	0.2378	32.3537	1.1390
25	03:59:57	0.2384	0.2380	32.3810	1.1382
26	04:29:57	0.2385	0.2381	32.3946	1.1377
27	04:59:56	0.2386	0.2382	32.4082	1.1373
28	05:29:55	0.2388	0.2384	32.4354	1.1364
29	05:59:55	0.2389	0.2385	32.4490	1.1360
30	06:29:55	0.2390	0.2386	32.4626	1.1356
31	06:59:55	0.2391	0.2387	32.4762	1.1351
32	07:29:54	0.2392	0.2388	32.4898	1.1347
33	07:59:53	0.2392	0.2388	32.4898	1.1347
34	08:29:53	0.2393	0.2389	32.5034	1.1343
35	08:59:53	0.2394	0.2390	32.5170	1.1339

Consolidation Graph (SquareRoot Time)



Consolidation Graph (Logarithmic Time)



Page 1 of 2

Consolidation Test Results (Sequence 12) Load 2.000 tsf	Consolidation Test Results (Sequence 12) Load 2.000 tsf
---	---

Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project Project Number: 16715-012-04

Location: Lafourche Parish, Louisiana

Job Number:

Sample Number:
Boring Number: B-5
Depth: 2 - 4 feet
Sample Type: Undisturbed

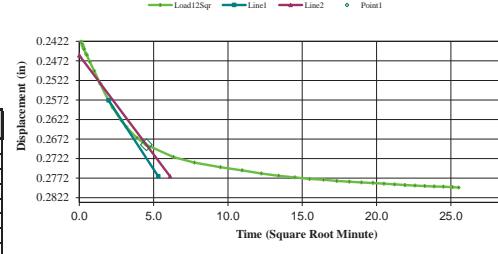
Soil Description:
Clay (CH)
Remarks:

Test Date: 03 June 2015

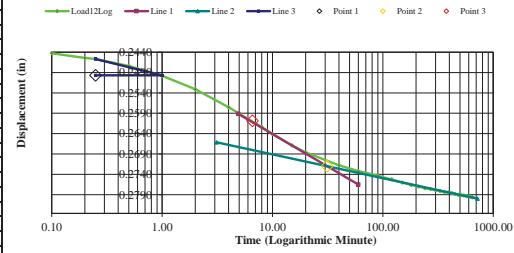
Test Number:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.2399	0.2395	32.5850	1.1317
1	00:00:01	0.2423	0.2419	32.9116	1.1214
2	00:00:02	0.2428	0.2424	32.9796	1.1192
3	00:00:03	0.2432	0.2428	33.0340	1.1175
4	00:00:04	0.2436	0.2432	33.0884	1.1158
5	00:00:05	0.2440	0.2436	33.1429	1.1141
6	00:00:06	0.2442	0.2438	33.1701	1.1132
7	00:00:12	0.2454	0.2450	33.3333	1.1080
8	00:00:15	0.2457	0.2453	33.3741	1.1068
9	00:00:30	0.2474	0.2470	33.6054	1.0994
10	00:01:00	0.2498	0.2494	33.9370	1.0891
11	00:02:00	0.2531	0.2527	34.3810	1.0749
12	00:04:00	0.2575	0.2571	34.9796	1.0560
13	00:05:00	0.2591	0.2587	35.1973	1.0491
14	00:08:00	0.2624	0.2620	35.6463	1.0349
15	00:10:00	0.2641	0.2637	35.8775	1.0276
16	00:15:00	0.2669	0.2665	36.2585	1.0155
17	00:20:00	0.2686	0.2682	36.4898	1.0082
18	00:59:59	0.2718	0.2714	36.9252	0.9945
19	01:00:00	0.2732	0.2728	37.1156	0.9884
20	01:30:00	0.2744	0.2740	37.2789	0.9833
21	02:00:00	0.2752	0.2748	37.3877	0.9798
22	02:29:59	0.2760	0.2756	37.4966	0.9764
23	02:59:58	0.2766	0.2762	37.5782	0.9738
24	03:29:59	0.2770	0.2766	37.6326	0.9721
25	03:59:59	0.2774	0.2770	37.6871	0.9704
26	04:29:59	0.2776	0.2772	37.7143	0.9695
27	04:59:58	0.2779	0.2775	37.7551	0.9682
28	05:29:57	0.2781	0.2777	37.7823	0.9674
29	05:59:58	0.2783	0.2779	37.8095	0.9665
30	06:29:58	0.2784	0.2780	37.8231	0.9661
31	06:59:58	0.2786	0.2782	37.8503	0.9652
32	07:29:57	0.2788	0.2784	37.8775	0.9644
33	07:59:56	0.2790	0.2786	37.9048	0.9635
34	08:29:57	0.2791	0.2787	37.9184	0.9631
35	08:59:57	0.2792	0.2788	37.9320	0.9626

Consolidation Graph (SquareRoot Time)



Consolidation Graph (Logarithmic Time)



Page 1 of 2

Consolidation Test Results (Sequence 13) Load 4,000 tsf	Consolidation Test Results (Sequence 13) Load 4,000 tsf
---	---

Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project Project Number: 16715-012-04
 Location: Lafourche Parish, Louisiana
 Job Number:

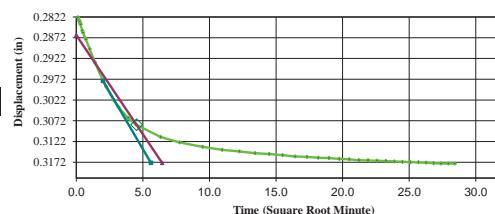
Sample Number:
 Boring Number: B-5
 Depth: 2 - 4 feet
 Sample Type: Undisturbed

Soil Description:
 Clay (CH)
 Remarks:

Test Date: 03 June 2015
 Test Number:

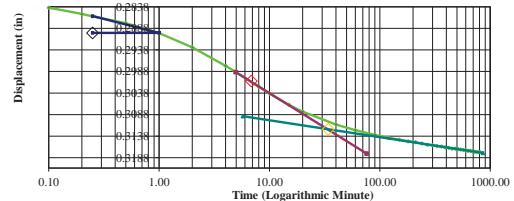
Consolidation Graph (SquareRoot Time)

Load13Sqr Line1 Line2 Point1



Consolidation Graph (Logarithmic Time)

Load13Log Line 1 Line 2 Line 3 Point 1 Point 2 Point 3



Page 1 of 2

Consolidation Test Results (Sequence 14) Load 8,000 tsf	Consolidation Test Results (Sequence 14) Load 8,000 tsf
---	---

Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project Project Number: 16715-012-04
 Location: Lafourche Parish, Louisiana
 Job Number:

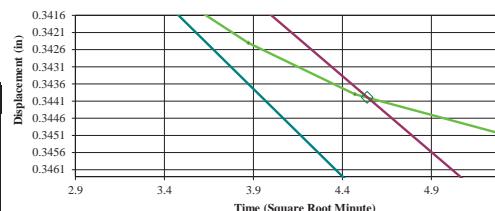
Sample Number:
 Boring Number: B-5
 Depth: 2 - 4 feet
 Sample Type: Undisturbed

Soil Description:
 Clay (CH)
 Remarks:

Test Date: 03 June 2015
 Test Number:

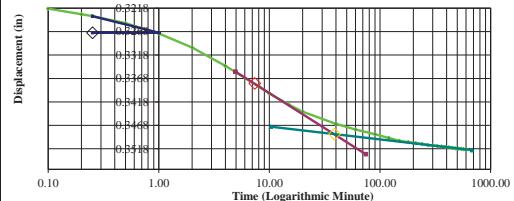
Consolidation Graph (SquareRoot Time)

Load14Sqr Line1 Line2 Point1



Consolidation Graph (Logarithmic Time)

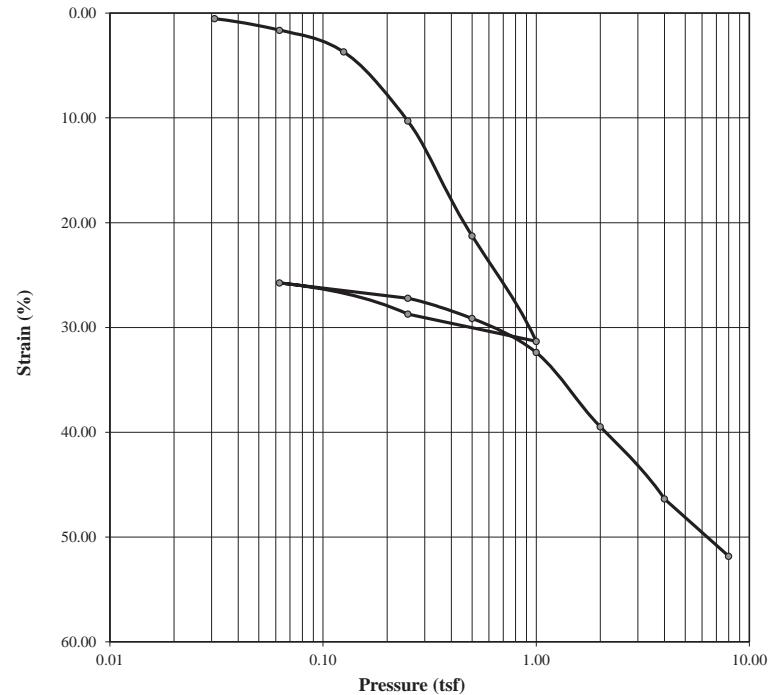
Load14Log Line 1 Line 2 Line 3 Point 1 Point 2 Point 3



Page 1 of 2



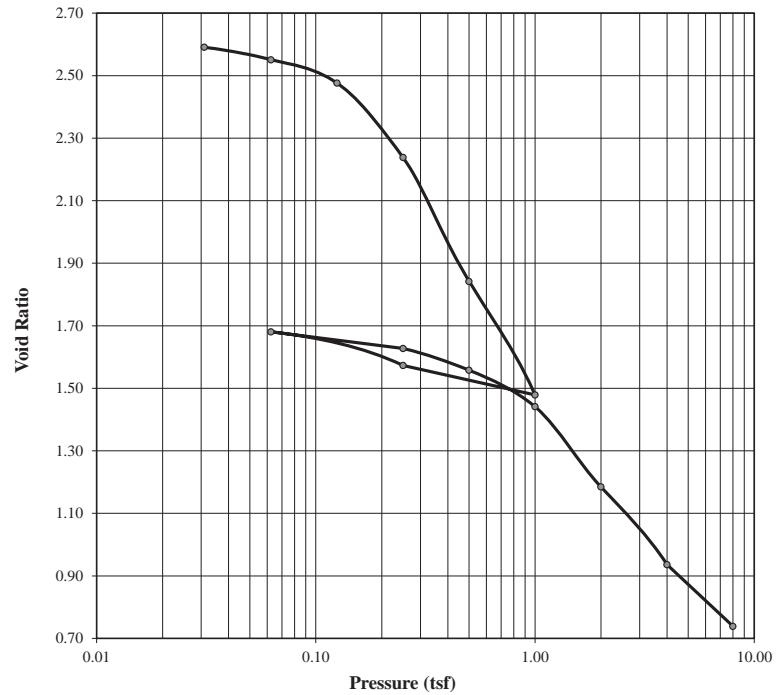
Consolidation Test
Test Results



	Before	After	Liquid Limits:	76	Test Date:	10 June 2015
Moisture (%):	100.03	42.18	Plastic Limits:	29		
Dry Density (pcf):	45.52	90.42	Plasticity Index (%):	47		
Saturation (%):	100.82	135.55				
Void Ratio:	2.6179	0.7426	Specific Gravity:	2.637	Measured	
Sample Description:	Clay (CH)					
Project Number:	16715-012-04	Depth: 6 - 8 feet				
Sample Number:		Boring Number: B-6	Remarks:			
Project:	BA-171 Caminada Headlands Back-Barrier Marsh Creation Project					
Client:	Louisiana Coastal Protection and Restoration Authority (CPRA)					
Location:	LaFourche Parish, Louisiana					



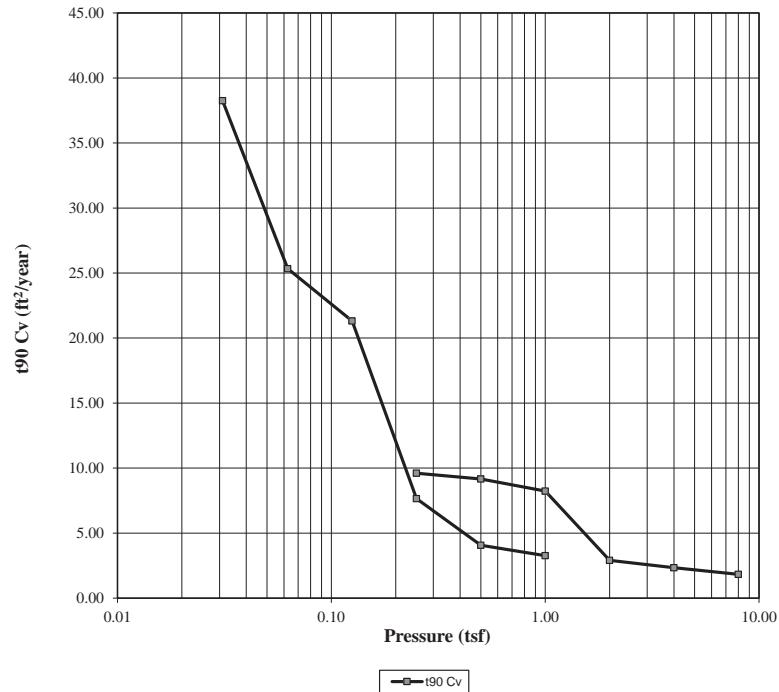
Consolidation Test
Test Results



	Before	After	Liquid Limits:	76	Test Date:	10 June 2015
Moisture (%):	100.03	42.18	Plastic Limits:	29		
Dry Density (pcf):	45.52	90.42	Plasticity Index (%):	47		
Saturation (%):	100.82	135.55				
Void Ratio:	2.6179	0.7426	Specific Gravity:	2.637	Measured	
Sample Description:	Clay (CH)					
Project Number:	16715-012-04	Depth: 6 - 8 feet				
Sample Number:		Boring Number: B-6	Remarks:			
Project:	BA-171 Caminada Headlands Back-Barrier Marsh Creation Project					
Client:	Louisiana Coastal Protection and Restoration Authority (CPRA)					
Location:	LaFourche Parish, Louisiana					



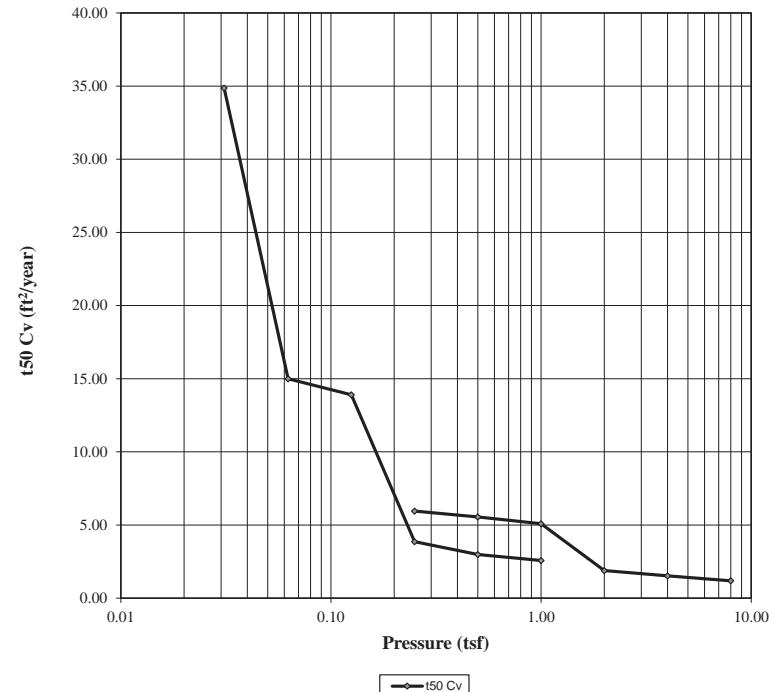
Consolidation Test
Test Results



$t_{90} Cv$ (ft²/year)



Consolidation Test
Test Results



$t_{50} Cv$ (ft²/year)

	Before	After	Liquid Limits:	76	Test Date:	10 June 2015
Moisture (%):	100.03	42.18	Plastic Limits:	29		
Dry Density (pcf):	45.52	90.42	Plasticity Index (%):	47		
Saturation (%):	100.82	135.55				
Void Ratio:	2.6179	0.7426	Specific Gravity:	2.637	Measured	
Soil Description:	Clay (CH)					
Project Number:	16715-012-04	Depth: 6 - 8 feet				
Sample Number:		Boring Number: B-6	Remarks:			
Project:	BA-171 Caminada Headlands Back-Barrier Marsh Creation Project					
Client:	Louisiana Coastal Protection and Restoration Authority (CPRA)					
Location:	LaFourche Parish, Louisiana					

	Before	After	Liquid Limits:	76	Test Date:	10 June 2015
Moisture (%):	100.03	42.18	Plastic Limits:	29		
Dry Density (pcf):	45.52	90.42	Plasticity Index (%):	47		
Saturation (%):	100.82	135.55				
Void Ratio:	2.6179	0.7426	Specific Gravity:	2.637	Measured	
Soil Description:	Clay (CH)					
Project Number:	16715-012-04	Depth: 6 - 8 feet				
Sample Number:		Boring Number: B-6	Remarks:			
Project:	BA-171 Caminada Headlands Back-Barrier Marsh Creation Project					
Client:	Louisiana Coastal Protection and Restoration Authority (CPRA)					
Location:	LaFourche Parish, Louisiana					



Consolidation Test Results Summary

Project: BA-171 Caminada Headlands Back-Barrier Marsh Creation Project
Location: LaFourche Parish, Louisiana
Job Number:

Project Number: 16715-012-04

Sample Number:
Boring Number: B-6
Depth: 6 - 8 feet
Sample Type: Undisturbed

Sample Description:
Clay (CH)
Remarks:

Test Number:
Test Date: 10 June 2015

Index	Load Sequence (tsf)	Cummulative Change in Height (in)	Specimen Height (in)	Height of Void (in)	Vertical Strain (%)	Void Ratio	t90 Fitting Time (min)	t50 Fitting Time (min)	t90 Cv (ft ² /year)	t50 Cv (ft ² /year)
0	0.000	0.0000	0.7360	0.5321	0.00	2.6100	0.000	0.000	0.000	0.000
1	0.031	0.0039	0.7321	0.5282	0.53	2.5909	10.842	2.763	38.252	34.872
2	0.063	0.0121	0.7239	0.5200	1.64	2.5506	16.008	6.280	25.331	15.001
3	0.125	0.0273	0.7087	0.5048	3.71	2.4761	18.234	6.498	21.315	13.895
4	0.250	0.0758	0.6602	0.4563	10.30	2.2382	44.105	20.265	7.647	3.866
5	0.500	0.1566	0.5794	0.3755	21.28	1.8419	63.796	20.216	4.072	2.985
6	1.000	0.2306	0.5054	0.3015	31.33	1.4789	60.470	17.834	3.269	2.575
7	0.250	0.2114	0.5246	0.3207	28.72	1.5731	0.000	0.000	0.000	0.000
8	0.063	0.1895	0.5465	0.3426	25.75	1.6805	0.000	0.000	0.000	0.000
9	0.250	0.2003	0.5357	0.3318	27.21	1.6275	23.115	8.667	9.607	5.952
10	0.500	0.2145	0.5215	0.3176	29.14	1.5579	22.954	8.812	9.168	5.548
11	1.000	0.2383	0.4977	0.2938	32.38	1.4412	23.283	8.745	8.232	5.092
12	2.000	0.2906	0.4454	0.2415	39.48	1.1846	52.694	18.855	2.913	1.891
13	4.000	0.3413	0.3947	0.1908	46.37	0.9360	51.482	18.350	2.342	1.526
14	8.000	0.3815	0.3545	0.1506	51.83	0.7388	53.093	19.056	1.832	1.185

Predicted value indicated with *



Consolidation Test Consolidation Specimen Information

Project: BA-171 Caminada Headlands Back-Barrier Marsh Creation Project **Project Number:** 16715-012-04
Location: LaFourche Parish, Louisiana
Job Number:

Test Date: 10 June 2015

Sample Number:
Boring Number: B-6
Depth: 6 - 8 feet
Sample Type: Undisturbed

Sample Description:
Clay (CH)
Remarks:

Test Number:
Liquid Limit: 76.0000 **Initial Void Ratio:** 2.6179 **Initial Height (in):** 0.7360
Plastic Limit: 29.0000 **Plasticity Index (%):** 47.0000 **Initial Diameter (in):** 2.5020
Specific Gravity: 2.6370 **Weight of Ring (g):** 219.3300
Measured

Parameters	Initial Specimen	Final Specimen
Moist Weight + Container (g)	95.38	79.66
Dry Soil + Container (g)	61.33	62.72
Weight of Container (g)	27.29	22.56
Moisture Content (%)	100.03	42.18
Void Ratio	2.6179	0.7426
Saturation (%)	100.82	135.55
Dry Density (pcf)	45.52	90.42

Consolidation Test Results (Sequence 1) Load 0.031 tsf	Consolidation Test Results (Sequence 1) Load 0.031 tsf
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Project: BA-171 Caminada Headlands Back-Barrier Marsh Creation Project Project Number: 16715-012-04

Location: LaFourche Parish, Louisiana

Job Number:

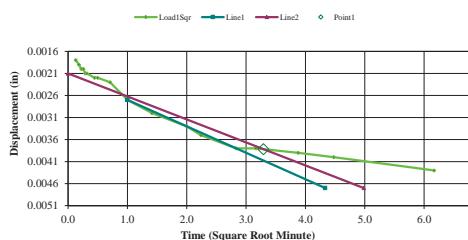
Sample Number:
Boring Number: B-6 Soil Description: Clay (CH)
Depth: 6 - 8 feet Remarks:
Sample Type: Undisturbed

Test Date: 10 June 2015

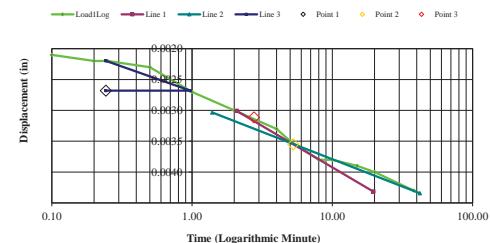
Test Number:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.0004	0.0000	0.0000	2.6179
1	00:00:01	0.0018	0.0014	0.1902	2.6110
2	00:00:02	0.0009	0.0015	0.2038	2.6105
3	00:00:03	0.0020	0.0016	0.2174	2.6100
4	00:00:04	0.0020	0.0016	0.2174	2.6100
5	00:00:05	0.0021	0.0017	0.2310	2.6095
6	00:00:06	0.0021	0.0017	0.2310	2.6095
7	00:00:12	0.0022	0.0018	0.2446	2.6090
8	00:00:15	0.0022	0.0018	0.2446	2.6090
9	00:00:30	0.0023	0.0019	0.2582	2.6085
10	00:01:00	0.0027	0.0023	0.3125	2.6066
11	00:02:00	0.0030	0.0026	0.3533	2.6051
12	00:04:00	0.0033	0.0029	0.3940	2.6036
13	00:05:01	0.0035	0.0031	0.4212	2.6026
14	00:08:01	0.0038	0.0034	0.4620	2.6012
15	00:10:01	0.0038	0.0034	0.4620	2.6012
16	00:15:02	0.0039	0.0035	0.4755	2.6007
17	00:20:03	0.0040	0.0036	0.4891	2.6002
18	00:38:04	0.0043	0.0039	0.5299	2.5987

Consolidation Graph (SquareRoot Time)



Consolidation Graph (Logarithmic Time)



Page 1 of 1

Consolidation Test Results (Sequence 2) Load 0.063 tsf	Consolidation Test Results (Sequence 2) Load 0.063 tsf
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Project: BA-171 Caminada Headlands Back-Barrier Marsh Creation Project Project Number: 16715-012-04

Location: LaFourche Parish, Louisiana

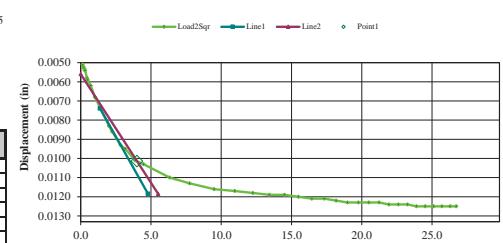
Job Number:

Sample Number:
Boring Number: B-6 Soil Description: Clay (CH)
Depth: 6 - 8 feet Remarks:
Sample Type: Undisturbed

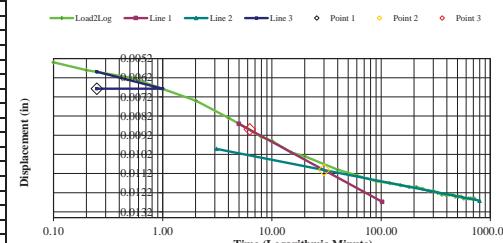
Test Date: 10 June 2015
Test Number:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.0043	0.0039	0.5299	2.5987
1	00:00:01	0.0051	0.0047	0.6386	2.5948
2	00:00:02	0.0052	0.0048	0.6522	2.5943
3	00:00:03	0.0053	0.0049	0.6658	2.5938
4	00:00:04	0.0053	0.0049	0.6658	2.5938
5	00:00:05	0.0054	0.0050	0.6793	2.5933
6	00:00:06	0.0054	0.0050	0.6793	2.5933
7	00:00:12	0.0058	0.0054	0.7337	2.5913
8	00:00:15	0.0059	0.0055	0.7473	2.5908
9	00:00:31	0.0062	0.0058	0.7880	2.5894
10	00:01:01	0.0068	0.0064	0.8696	2.5864
11	00:02:01	0.0074	0.0070	0.9511	2.5835
12	00:04:01	0.0083	0.0079	1.0734	2.5790
13	00:05:01	0.0086	0.0082	1.1141	2.5776
14	00:08:02	0.0093	0.0089	1.2092	2.5741
15	00:10:02	0.0095	0.0091	1.2364	2.5731
16	00:15:03	0.0101	0.0097	1.3179	2.5702
17	00:20:03	0.0103	0.0099	1.3451	2.5692
18	00:40:03	0.0110	0.0106	1.4402	2.5658
19	01:00:03	0.0113	0.0109	1.4810	2.5643
20	01:30:07	0.0116	0.0112	1.5217	2.5628
21	02:00:12	0.0117	0.0113	1.5353	2.5623
22	02:30:11	0.0118	0.0114	1.5489	2.5618
23	03:00:14	0.0119	0.0115	1.5625	2.5613
24	03:30:18	0.0119	0.0115	1.5625	2.5613
25	04:00:20	0.0120	0.0116	1.5761	2.5609
26	04:30:21	0.0121	0.0117	1.5897	2.5604
27	05:00:26	0.0121	0.0117	1.5897	2.5604
28	05:30:29	0.0122	0.0118	1.6033	2.5599
29	06:00:29	0.0123	0.0119	1.6168	2.5594
30	06:30:32	0.0123	0.0119	1.6168	2.5594
31	07:00:37	0.0123	0.0119	1.6168	2.5594
32	07:30:38	0.0123	0.0119	1.6168	2.5594
33	08:00:39	0.0124	0.0120	1.6304	2.5589
34	08:30:44	0.0124	0.0120	1.6304	2.5589
35	09:00:47	0.0124	0.0120	1.6304	2.5589

Consolidation Graph (SquareRoot Time)



Consolidation Graph (Logarithmic Time)



Page 1 of 2

Consolidation Test Results (Sequence 3) Load 0.125 tsf	Consolidation Test Results (Sequence 3) Load 0.125 tsf
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Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project Project Number: 16715-012-04

Location: LaFourche Parish, Louisiana

Job Number:

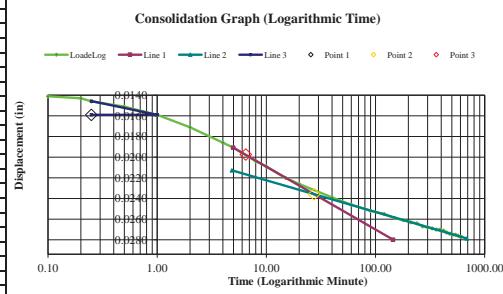
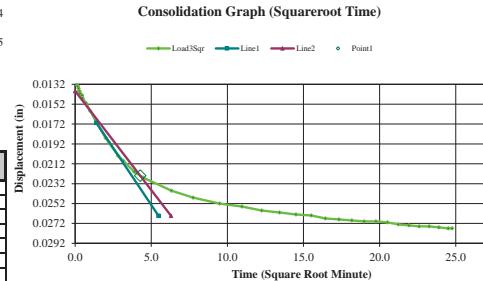
Sample Number:
Boring Number: B-6
Depth: 6 - 8 feet
Sample Type: Undisturbed

Soil Description:
Clay (CH)

Test Date: 10 June 2015

Test Number:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.0125	0.0121	1.6440	2.5584
1	00:00:01	0.0133	0.0129	1.7527	2.5545
2	00:00:02	0.0134	0.0130	1.7663	2.5540
3	00:00:03	0.0136	0.0132	1.7935	2.5530
4	00:00:04	0.0139	0.0135	1.8342	2.5515
5	00:00:05	0.0139	0.0135	1.8342	2.5515
6	00:00:06	0.0141	0.0137	1.8614	2.5505
7	00:00:12	0.0143	0.0139	1.8886	2.5495
8	00:00:15	0.0146	0.0142	1.9293	2.5481
9	00:00:30	0.0151	0.0147	1.9973	2.5456
10	00:01:00	0.0159	0.0155	2.1060	2.5417
11	00:02:00	0.0171	0.0167	2.2690	2.5358
12	00:04:01	0.0186	0.0182	2.4728	2.5284
13	00:05:01	0.0191	0.0187	2.5408	2.5260
14	00:08:01	0.0204	0.0200	2.7174	2.5196
15	00:10:01	0.0209	0.0205	2.7853	2.5171
16	00:15:02	0.0220	0.0216	2.9348	2.5117
17	00:20:03	0.0226	0.0222	3.0163	2.5087
18	00:40:03	0.0239	0.0235	3.1929	2.5024
19	01:00:02	0.0246	0.0242	3.2880	2.4989
20	01:30:06	0.0252	0.0248	3.3696	2.4960
21	02:00:11	0.0255	0.0251	3.4103	2.4945
22	02:30:12	0.0259	0.0255	3.4647	2.4925
23	03:00:13	0.0261	0.0257	3.4918	2.4915
24	03:30:17	0.0263	0.0259	3.5190	2.4906
25	04:00:21	0.0264	0.0260	3.5326	2.4901
26	04:30:20	0.0267	0.0263	3.5734	2.4886
27	05:00:23	0.0268	0.0264	3.5870	2.4881
28	05:30:28	0.0269	0.0265	3.6005	2.4876
29	06:00:30	0.0270	0.0266	3.6141	2.4871
30	06:30:30	0.0270	0.0266	3.6141	2.4871
31	07:00:34	0.0271	0.0267	3.6277	2.4866
32	07:30:38	0.0273	0.0269	3.6549	2.4856
33	08:00:38	0.0274	0.0270	3.6685	2.4852
34	08:30:41	0.0275	0.0271	3.6821	2.4847
35	09:00:45	0.0275	0.0271	3.6821	2.4847



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Consolidation Test Results (Sequence 4) Load 0.250 tsf	Consolidation Test Results (Sequence 4) Load 0.250 tsf
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Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project Project Number: 16715-012-04

Location: LaFourche Parish, Louisiana

Job Number:

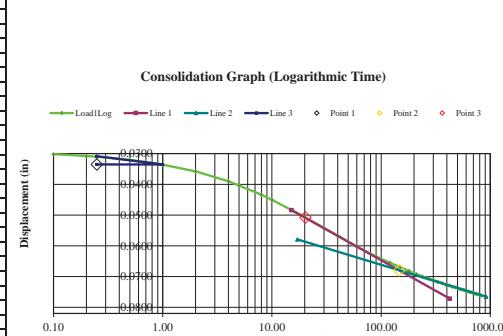
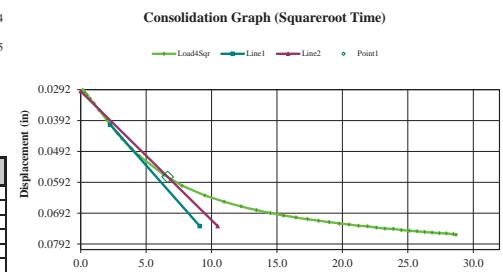
Sample Number:
Boring Number: B-6
Depth: 6 - 8 feet
Sample Type: Undisturbed

Soil Description:
Clay (CH)

Test Date: 10 June 2015

Test Number:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.0277	0.0273	3.7092	2.4837
1	00:00:01	0.0284	0.0290	3.9402	2.4753
2	00:00:02	0.0295	0.0291	3.9538	2.4748
3	00:00:03	0.0298	0.0294	3.9946	2.4734
4	00:00:04	0.0299	0.0295	4.0082	2.4729
5	00:00:05	0.0301	0.0297	4.0353	2.4719
6	00:00:06	0.0302	0.0298	4.0489	2.4714
7	00:00:12	0.0308	0.0304	4.1304	2.4684
8	00:00:15	0.0310	0.0306	4.1576	2.4675
9	00:00:30	0.0321	0.0317	4.3071	2.4620
10	00:01:00	0.0336	0.0332	4.5109	2.4547
11	00:02:00	0.0358	0.0354	4.8098	2.4439
12	00:04:00	0.0390	0.0386	5.2446	2.4281
13	00:05:00	0.0404	0.0400	5.4348	2.4212
14	00:08:01	0.0434	0.0430	5.8424	2.4065
15	00:10:01	0.0451	0.0447	6.0734	2.3981
16	00:15:02	0.0483	0.0479	6.5082	2.3824
17	00:20:03	0.0507	0.0503	6.8342	2.3706
18	00:40:06	0.0567	0.0563	7.6495	2.3411
19	01:00:07	0.0603	0.0599	8.1386	2.3234
20	01:30:07	0.0635	0.0631	8.5734	2.3077
21	02:00:11	0.0655	0.0651	8.8451	2.2979
22	02:30:15	0.0670	0.0666	9.0489	2.2905
23	03:00:16	0.0682	0.0678	9.2120	2.2846
24	03:30:17	0.0692	0.0688	9.3478	2.2797
25	04:00:22	0.0700	0.0696	9.4565	2.2757
26	04:30:25	0.0706	0.0702	9.5380	2.2728
27	05:00:24	0.0711	0.0707	9.6060	2.2703
28	05:30:28	0.0717	0.0713	9.6875	2.2674
29	06:00:33	0.0721	0.0717	9.7418	2.2654
30	06:30:33	0.0726	0.0722	9.8098	2.2630
31	07:00:35	0.0729	0.0725	9.8505	2.2615
32	07:30:40	0.0733	0.0729	9.9049	2.2595
33	08:00:42	0.0735	0.0731	9.9321	2.2585
34	08:30:42	0.0739	0.0735	9.9864	2.2566
35	09:00:47	0.0742	0.0738	10.0272	2.2551



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Consolidation Test Results (Sequence 5) Load 0.500 tsf	Consolidation Test Results (Sequence 5) Load 0.500 tsf
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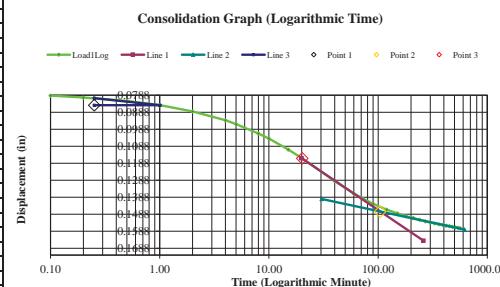
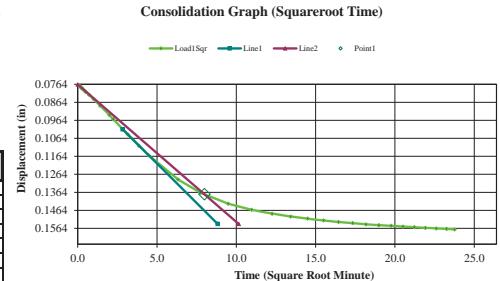
Project: BA-171 Caminada Headlands Back-Barrier Marsh Creation Project
 Location: LaFourche Parish, Louisiana
 Job Number:

Project Number: 16715-012-04
 Test Date: 10 June 2015
 Test Number:

Sample Number:
 Boring Number: B-6
 Depth: 6 - 8 feet
 Sample Type: Undisturbed

Soil Description:
 Clay (CH)
 Remarks:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.0762	0.0758	10.2989	2.2453
1	00:00:01	0.0774	0.0770	10.4620	2.2394
2	00:00:02	0.0780	0.0776	10.5435	2.2364
3	00:00:03	0.0782	0.0778	10.5707	2.2354
4	00:00:04	0.0786	0.0782	10.6250	2.2335
5	00:00:05	0.0788	0.0784	10.6522	2.2325
6	00:00:06	0.0790	0.0786	10.6793	2.2315
7	00:00:12	0.0802	0.0798	10.8424	2.2256
8	00:00:15	0.0806	0.0802	10.8967	2.2236
9	00:00:30	0.0822	0.0818	11.1141	2.2158
10	00:01:00	0.0846	0.0842	11.4402	2.2040
11	00:02:00	0.0883	0.0879	11.9429	2.1858
12	00:04:00	0.0935	0.0931	12.6495	2.1602
13	00:05:01	0.0958	0.0954	12.9620	2.1489
14	00:08:01	0.1013	0.1009	13.7092	2.1219
15	00:10:01	0.1043	0.1039	14.1168	2.1071
16	00:15:02	0.1107	0.1103	14.9864	2.0757
17	00:20:03	0.1158	0.1154	15.6793	2.0506
18	00:40:06	0.1293	0.1289	17.5136	1.9843
19	01:00:07	0.1367	0.1363	18.5190	1.9439
20	01:30:06	0.1427	0.1423	19.3342	1.9184
21	02:00:11	0.1461	0.1457	19.7962	1.9017
22	02:30:15	0.1483	0.1479	20.0951	1.8909
23	03:00:16	0.1499	0.1495	20.3125	1.8830
24	03:30:16	0.1510	0.1506	20.4620	1.8776
25	04:00:19	0.1520	0.1516	20.5978	1.8727
26	04:30:23	0.1529	0.1525	20.7201	1.8682
27	05:00:24	0.1535	0.1531	20.8016	1.8653
28	05:30:24	0.1542	0.1538	20.8967	1.8619
29	06:00:28	0.1547	0.1543	20.9647	1.8594
30	06:30:33	0.1550	0.1546	21.0054	1.8579
31	07:00:34	0.1555	0.1551	21.0734	1.8555
32	07:30:33	0.1558	0.1554	21.1141	1.8540
33	08:00:38	0.1562	0.1558	21.1685	1.8520
34	08:30:43	0.1565	0.1561	21.2092	1.8505
35	09:00:44	0.1567	0.1563	21.2364	1.8496



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Consolidation Test Results (Sequence 6) Load 1.000 tsf	Consolidation Test Results (Sequence 6) Load 1.000 tsf
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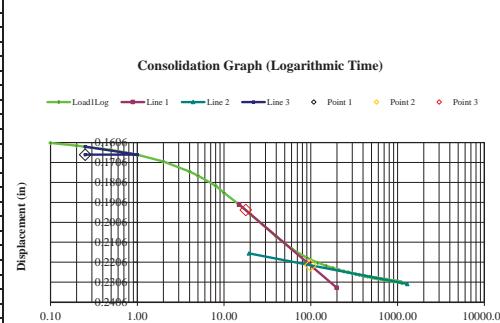
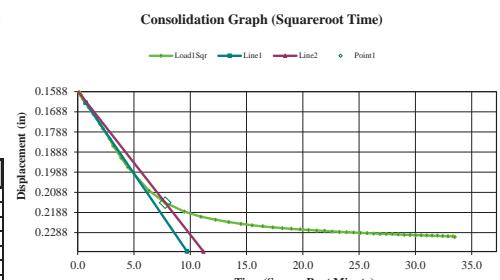
Project: BA-171 Caminada Headlands Back-Barrier Marsh Creation Project
 Location: LaFourche Parish, Louisiana
 Job Number:

Project Number: 16715-012-04
 Test Date: 10 June 2015
 Test Number:

Sample Number:
 Boring Number: B-6
 Depth: 6 - 8 feet
 Sample Type: Undisturbed

Soil Description:
 Clay (CH)
 Remarks:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.1570	0.1566	21.2772	1.8481
1	00:00:01	0.1590	0.1586	21.5489	1.8383
2	00:00:02	0.1596	0.1592	21.6304	1.8353
3	00:00:03	0.1598	0.1594	21.6576	1.8343
4	00:00:04	0.1604	0.1600	21.7391	1.8314
5	00:00:05	0.1606	0.1602	21.7663	1.8304
6	00:00:06	0.1608	0.1604	21.7935	1.8294
7	00:00:12	0.1621	0.1617	21.9701	1.8230
8	00:00:15	0.1627	0.1623	22.0516	1.8201
9	00:00:30	0.1643	0.1639	22.2690	1.8122
10	00:01:00	0.1667	0.1663	22.5951	1.8004
11	00:02:00	0.1701	0.1697	23.0571	1.7837
12	00:04:00	0.1751	0.1747	23.7364	1.7591
13	00:05:00	0.1772	0.1768	24.0217	1.7488
14	00:08:00	0.1822	0.1818	24.7011	1.7242
15	00:10:00	0.1858	0.1854	25.1902	1.7065
16	00:15:01	0.1918	0.1914	26.0054	1.6770
17	00:20:01	0.1964	0.1960	26.6304	1.6544
18	00:40:03	0.2079	0.2075	28.1929	1.5979
19	01:00:05	0.2139	0.2135	29.0082	1.5684
20	01:30:07	0.2184	0.2180	29.6196	1.5463
21	02:00:10	0.2209	0.2205	29.9592	1.5340
22	02:30:12	0.2224	0.2220	30.1630	1.5266
23	03:00:15	0.2236	0.2232	30.3261	1.5207
24	03:30:18	0.2245	0.2241	30.4484	1.5163
25	04:00:20	0.2252	0.2248	30.5435	1.5128
26	04:30:23	0.2256	0.2252	30.5978	1.5109
27	05:00:26	0.2262	0.2258	30.6793	1.5079
28	05:30:28	0.2266	0.2262	30.7337	1.5060
29	06:00:31	0.2269	0.2265	30.7745	1.5045
30	06:30:33	0.2272	0.2268	30.8152	1.5030
31	07:00:36	0.2275	0.2271	30.8560	1.5015
32	07:30:39	0.2278	0.2274	30.8967	1.5001
33	08:00:41	0.2279	0.2275	30.9103	1.4996
34	08:30:44	0.2283	0.2279	30.9647	1.4976
35	09:00:46	0.2285	0.2281	30.9918	1.4966



Page 1 of 2

Consolidation Test Results (Sequence 7) Rebound 0.250 tsf			Consolidation Test Results (Sequence 7) Rebound 0.250 tsf		
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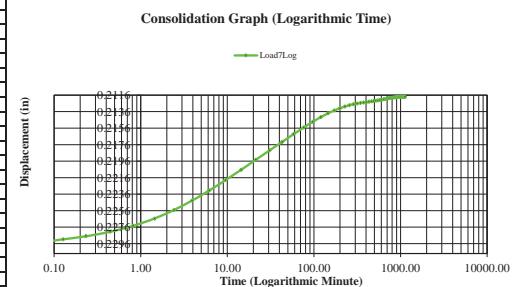
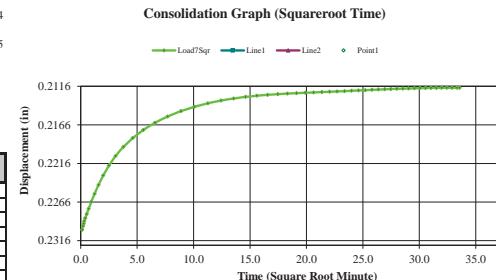
Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project
Location: LaFourche Parish, Louisiana
Job Number:

Project Number: 16715-012-04
Test Date: 10 June 2015
Test Number:

Sample Number:
Boring Number: B-6
Depth: 6 - 8 feet
Sample Type: Undisturbed

Soil Description:
Clay (CH)
Remarks:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.2310	0.2306	31.3315	1.4843
1	00:00:01	0.2302	0.2298	31.2228	1.4883
2	00:00:02	0.2302	0.2298	31.2228	1.4883
3	00:00:03	0.2295	0.2291	31.1277	1.4917
4	00:00:04	0.2293	0.2289	31.1005	1.4927
5	00:00:05	0.2292	0.2288	31.0870	1.4932
6	00:00:06	0.2290	0.2286	31.0598	1.4942
7	00:00:12	0.2284	0.2280	30.9783	1.4971
8	00:00:15	0.2282	0.2278	30.9511	1.4981
9	00:00:30	0.2273	0.2269	30.8288	1.5025
10	00:01:00	0.2262	0.2258	30.6793	1.5079
11	00:02:00	0.2246	0.2242	30.4620	1.5158
12	00:04:00	0.2224	0.2220	30.1630	1.5266
13	00:05:00	0.2216	0.2212	30.0543	1.5305
14	00:08:01	0.2198	0.2194	29.8098	1.5394
15	00:10:01	0.2190	0.2186	29.7011	1.5433
16	00:15:01	0.2175	0.2171	29.4973	1.5507
17	00:20:02	0.2166	0.2162	29.3750	1.5551
18	00:40:03	0.2148	0.2144	29.1304	1.5640
19	01:00:05	0.2141	0.2137	29.0383	1.5674
20	01:30:08	0.2135	0.2131	28.9538	1.5704
21	02:00:10	0.2133	0.2129	28.9266	1.5713
22	02:30:13	0.2131	0.2127	28.8995	1.5723
23	03:00:15	0.2129	0.2125	28.8723	1.5733
24	03:30:18	0.2127	0.2123	28.8451	1.5743
25	04:00:21	0.2127	0.2123	28.8451	1.5743
26	04:30:23	0.2126	0.2122	28.8315	1.5748
27	05:00:26	0.2126	0.2122	28.8315	1.5748
28	05:30:28	0.2125	0.2121	28.8179	1.5753
29	06:00:31	0.2125	0.2121	28.8179	1.5753
30	06:30:34	0.2124	0.2120	28.8043	1.5758
31	07:00:36	0.2124	0.2120	28.8043	1.5758
32	07:30:39	0.2124	0.2120	28.8043	1.5758
33	08:00:41	0.2123	0.2119	28.7908	1.5763
34	08:30:44	0.2123	0.2119	28.7908	1.5763
35	09:00:47	0.2123	0.2119	28.7908	1.5763



Consolidation Test Results (Sequence 8) Rebound 0.063 tsf			Consolidation Test Results (Sequence 8) Rebound 0.063 tsf		
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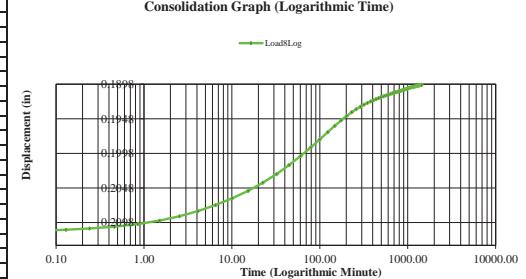
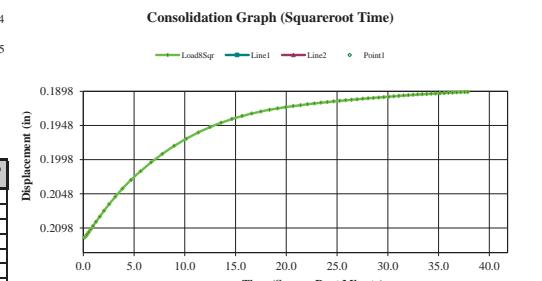
Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project
Location: LaFourche Parish, Louisiana
Job Number:

Project Number: 16715-012-04
Test Date: 10 June 2015
Test Number:

Sample Number:
Boring Number: B-6
Depth: 6 - 8 feet
Sample Type: Undisturbed

Soil Description:
Clay (CH)
Remarks:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.2118	0.2114	28.7228	1.5787
1	00:00:01	0.2112	0.2108	28.6413	1.5817
2	00:00:02	0.2111	0.2107	28.6277	1.5822
3	00:00:03	0.2110	0.2106	28.6141	1.5826
4	00:00:04	0.2110	0.2106	28.6141	1.5826
5	00:00:05	0.2109	0.2105	28.6005	1.5831
6	00:00:06	0.2109	0.2105	28.6005	1.5831
7	00:00:12	0.2106	0.2102	28.5598	1.5846
8	00:00:15	0.2104	0.2100	28.5326	1.5856
9	00:00:30	0.2101	0.2097	28.4918	1.5871
10	00:01:00	0.2094	0.2090	28.3967	1.5905
11	00:02:00	0.2086	0.2082	28.2880	1.5944
12	00:04:01	0.2072	0.2068	28.0978	1.6013
13	00:05:01	0.2068	0.2064	28.0435	1.6033
14	00:08:01	0.2054	0.2050	27.8533	1.6102
15	00:10:01	0.2047	0.2043	27.7582	1.6136
16	00:15:02	0.2033	0.2028	27.5543	1.6210
17	00:20:02	0.2022	0.2018	27.4185	1.6259
18	00:40:04	0.1991	0.1987	26.9973	1.6411
19	01:00:05	0.1974	0.1970	26.7663	1.6495
20	01:30:08	0.1958	0.1954	26.5489	1.6574
21	02:00:11	0.1949	0.1945	26.4266	1.6618
22	02:30:13	0.1942	0.1938	26.3315	1.6652
23	03:00:16	0.1938	0.1934	26.2772	1.6672
24	03:30:18	0.1934	0.1930	26.2228	1.6692
25	04:00:21	0.1931	0.1927	26.1821	1.6706
26	04:30:24	0.1927	0.1923	26.1277	1.6726
27	05:00:26	0.1926	0.1922	26.1141	1.6731
28	05:30:29	0.1924	0.1920	26.0870	1.6741
29	06:00:31	0.1923	0.1919	26.0734	1.6746
30	06:30:34	0.1920	0.1916	26.0326	1.6760
31	07:00:37	0.1919	0.1915	26.0190	1.6765
32	07:30:39	0.1918	0.1914	26.0054	1.6770
33	08:00:42	0.1917	0.1913	25.9918	1.6775
34	08:30:44	0.1916	0.1912	25.9783	1.6780
35	09:00:47	0.1915	0.1911	25.9647	1.6785



Consolidation Test Results (Sequence 9) Load 0.250 tsf	Consolidation Test Results (Sequence 9) Load 0.250 tsf
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Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project Project Number: 16715-012-04
 Location: Lafourche Parish, Louisiana
 Job Number:

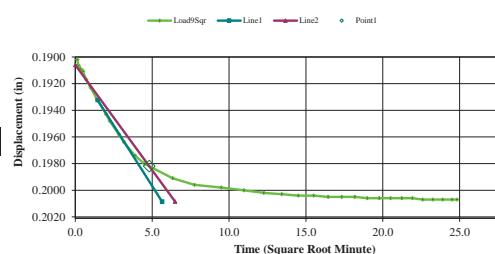
Sample Number:
 Boring Number: B-6
 Depth: 6 - 8 feet
 Sample Type: Undisturbed

Soil Description:
 Clay (CH)
 Remarks:

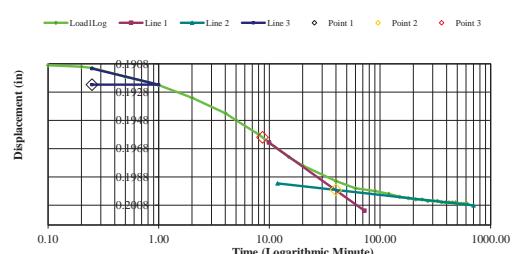
Test Date: 10 June 2015
 Test Number:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.1899	0.1895	25.7473	1.6864
1	00:00:01	0.1902	0.1898	25.7880	1.6849
2	00:00:02	0.1906	0.1902	25.8424	1.6829
3	00:00:03	0.1907	0.1903	25.8560	1.6824
4	00:00:04	0.1908	0.1904	25.8696	1.6819
5	00:00:05	0.1909	0.1905	25.8832	1.6815
6	00:00:06	0.1909	0.1905	25.8832	1.6815
7	00:00:12	0.1910	0.1906	25.8967	1.6810
8	00:00:15	0.1911	0.1907	25.9103	1.6805
9	00:00:30	0.1917	0.1913	25.9918	1.6775
10	00:01:00	0.1923	0.1919	26.0754	1.6746
11	00:02:00	0.1932	0.1928	26.1957	1.6701
12	00:04:01	0.1943	0.1939	26.3451	1.6647
13	00:05:01	0.1948	0.1944	26.4130	1.6623
14	00:08:01	0.1958	0.1954	26.5489	1.6574
15	00:10:01	0.1964	0.1960	26.6304	1.6544
16	00:15:02	0.1974	0.1970	26.7663	1.6495
17	00:20:02	0.1980	0.1976	26.8478	1.6466
18	00:40:04	0.1991	0.1987	26.9973	1.6411
19	01:00:06	0.1996	0.1992	27.0652	1.6387
20	01:30:08	0.1998	0.1994	27.0924	1.6377
21	02:00:11	0.2000	0.1996	27.1196	1.6367
22	02:30:13	0.2002	0.1998	27.1467	1.6357
23	03:00:16	0.2003	0.1999	27.1603	1.6352
24	03:30:18	0.2004	0.2000	27.1739	1.6348
25	04:00:21	0.2004	0.2000	27.1739	1.6348
26	04:30:24	0.2005	0.2001	27.1875	1.6343
27	05:00:26	0.2005	0.2001	27.1875	1.6343
28	05:30:29	0.2005	0.2001	27.1875	1.6343
29	06:00:31	0.2006	0.2002	27.2011	1.6338
30	06:30:34	0.2006	0.2002	27.2011	1.6338
31	07:00:36	0.2006	0.2002	27.2011	1.6338
32	07:30:39	0.2006	0.2002	27.2011	1.6338
33	08:00:41	0.2006	0.2002	27.2011	1.6338
34	08:30:44	0.2007	0.2003	27.2147	1.6333
35	09:00:46	0.2007	0.2003	27.2147	1.6333

Consolidation Graph (SquareRoot Time)



Consolidation Graph (Logarithmic Time)



Page 1 of 2

Consolidation Test Results (Sequence 10) Load 0.500 tsf	Consolidation Test Results (Sequence 10) Load 0.500 tsf
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Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project Project Number: 16715-012-04
 Location: Lafourche Parish, Louisiana

Job Number:

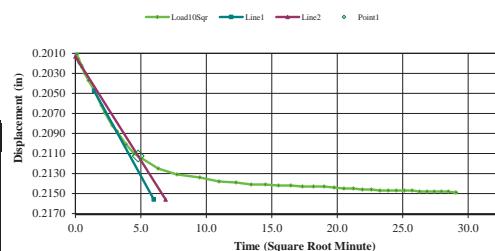
Sample Number:
 Boring Number: B-6
 Depth: 6 - 8 feet
 Sample Type: Undisturbed

Soil Description:
 Clay (CH)
 Remarks:

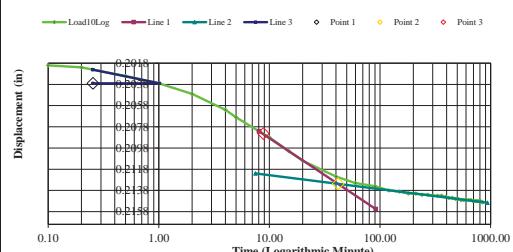
Test Date: 10 June 2015
 Test Number:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.2007	0.2003	27.2147	1.6333
1	00:00:01	0.2011	0.2007	27.2690	1.6313
2	00:00:02	0.2015	0.2011	27.3234	1.6293
3	00:00:03	0.2016	0.2012	27.3370	1.6289
4	00:00:04	0.2018	0.2014	27.3641	1.6279
5	00:00:05	0.2019	0.2015	27.3777	1.6274
6	00:00:06	0.2020	0.2016	27.3913	1.6269
7	00:00:12	0.2022	0.2018	27.4185	1.6259
8	00:00:15	0.2024	0.2020	27.4457	1.6249
9	00:00:30	0.2030	0.2026	27.5272	1.6220
10	00:01:00	0.2037	0.2033	27.6223	1.6185
11	00:02:00	0.2047	0.2043	27.7582	1.6136
12	00:04:00	0.2062	0.2058	27.9620	1.6062
13	00:05:00	0.2069	0.2065	28.0571	1.6028
14	00:08:01	0.2082	0.2078	28.2337	1.5964
15	00:10:01	0.2088	0.2084	28.3152	1.5935
16	00:15:01	0.2101	0.2097	28.4918	1.5871
17	00:20:02	0.2110	0.2106	28.6141	1.5826
18	00:40:03	0.2125	0.2121	28.8179	1.5753
19	01:00:05	0.2131	0.2127	28.8995	1.5723
20	01:30:08	0.2134	0.2130	28.9402	1.5709
21	02:00:10	0.2138	0.2134	28.9946	1.5689
22	02:30:13	0.2139	0.2135	29.0082	1.5684
23	03:00:15	0.2141	0.2137	29.0353	1.5674
24	03:30:18	0.2141	0.2137	29.0353	1.5674
25	04:00:20	0.2142	0.2138	29.0489	1.5669
26	04:30:23	0.2142	0.2138	29.0489	1.5669
27	05:00:26	0.2143	0.2139	29.0625	1.5664
28	05:30:28	0.2143	0.2139	29.0625	1.5664
29	06:00:31	0.2143	0.2139	29.0625	1.5664
30	06:30:33	0.2144	0.2140	29.0761	1.5659
31	07:00:36	0.2145	0.2141	29.0897	1.5654
32	07:30:39	0.2145	0.2141	29.0897	1.5654
33	08:00:41	0.2146	0.2142	29.1033	1.5650
34	08:30:44	0.2146	0.2142	29.1033	1.5650
35	09:00:47	0.2147	0.2143	29.1168	1.5645

Consolidation Graph (SquareRoot Time)



Consolidation Graph (Logarithmic Time)



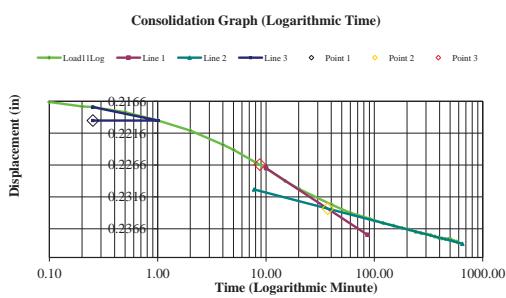
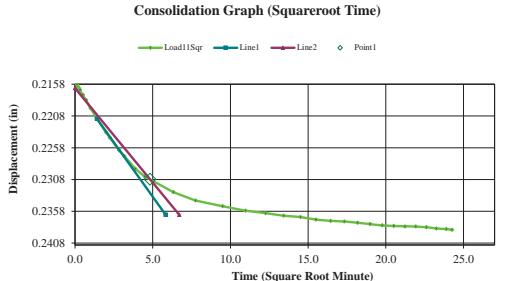
Page 1 of 2

Consolidation Test Results (Sequence 11) Load 1.000 tsf	Consolidation Test Results (Sequence 11) Load 1.000 tsf
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Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project Project Number: 16715-012-04
 Location: LaFourche Parish, Louisiana
 Job Number: Test Date: 10 June 2015
 Test Number:

Sample Number:
 Boring Number: B-6 Soil Description: Clay (CH)
 Depth: 6 - 8 feet Remarks:
 Sample Type: Undisturbed

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.2149	0.2145	29.1440	1.5635
1	00:00:01	0.2159	0.2155	29.2799	1.5586
2	00:00:02	0.2162	0.2158	29.3207	1.5571
3	00:00:03	0.2164	0.2160	29.3478	1.5561
4	00:00:04	0.2165	0.2161	29.3614	1.5556
5	00:00:05	0.2166	0.2162	29.3750	1.5551
6	00:00:06	0.2167	0.2163	29.3886	1.5546
7	00:00:12	0.2174	0.2170	29.4837	1.5512
8	00:00:15	0.2175	0.2171	29.4973	1.5507
9	00:00:30	0.2183	0.2179	29.6060	1.5468
10	00:01:00	0.2196	0.2192	29.7826	1.5404
11	00:02:00	0.2212	0.2208	30.0000	1.5325
12	00:04:00	0.2234	0.2230	30.2989	1.5217
13	00:05:00	0.2242	0.2238	30.4076	1.5178
14	00:08:01	0.2262	0.2258	30.6793	1.5079
15	00:10:01	0.2271	0.2267	30.8016	1.5035
16	00:15:01	0.2291	0.2287	31.0734	1.4937
17	00:20:02	0.2303	0.2299	31.2364	1.4878
18	00:40:03	0.2328	0.2324	31.5761	1.4755
19	01:00:05	0.2341	0.2337	31.7527	1.4691
20	01:30:08	0.2350	0.2346	31.8750	1.4647
21	02:00:10	0.2357	0.2353	31.9701	1.4612
22	02:30:13	0.2361	0.2357	32.0245	1.4593
23	03:00:15	0.2365	0.2361	32.0788	1.4573
24	03:30:18	0.2367	0.2363	32.1060	1.4563
25	04:00:21	0.2371	0.2367	32.1603	1.4544
26	04:30:23	0.2373	0.2369	32.1875	1.4534
27	05:00:26	0.2374	0.2370	32.2011	1.4529
28	05:30:28	0.2376	0.2372	32.2283	1.4519
29	06:00:31	0.2378	0.2374	32.2554	1.4509
30	06:30:33	0.2380	0.2376	32.2826	1.4499
31	07:00:36	0.2381	0.2377	32.2962	1.4494
32	07:30:38	0.2382	0.2378	32.3098	1.4489
33	08:00:41	0.2382	0.2378	32.3098	1.4489
34	08:30:44	0.2383	0.2379	32.3234	1.4485
35	09:00:46	0.2385	0.2381	32.3505	1.4475



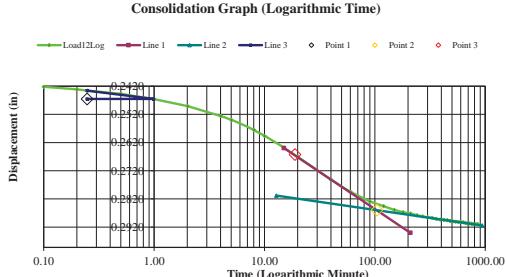
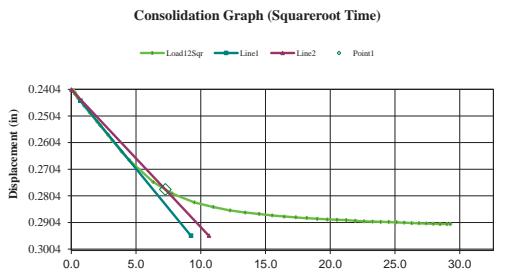
Page 1 of 2

Consolidation Test Results (Sequence 12) Load 2.000 tsf	Consolidation Test Results (Sequence 12) Load 2.000 tsf
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Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project Project Number: 16715-012-04
 Location: LaFourche Parish, Louisiana
 Job Number: Test Date: 10 June 2015
 Test Number:

Sample Number:
 Boring Number: B-6 Soil Description: Clay (CH)
 Depth: 6 - 8 feet Remarks:
 Sample Type: Undisturbed

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.2387	0.2383	32.3777	1.4465
1	00:00:01	0.2407	0.2403	32.6495	1.4367
2	00:00:02	0.2412	0.2408	32.7174	1.4342
3	00:00:03	0.2414	0.2410	32.7446	1.4332
4	00:00:04	0.2417	0.2413	32.7853	1.4317
5	00:00:05	0.2421	0.2417	32.8397	1.4298
6	00:00:06	0.2422	0.2418	32.8533	1.4293
7	00:00:12	0.2431	0.2427	32.9755	1.4249
8	00:00:15	0.2436	0.2432	33.0435	1.4224
9	00:00:30	0.2447	0.2443	33.1929	1.4170
10	00:01:00	0.2466	0.2462	33.4511	1.4077
11	00:02:01	0.2491	0.2487	33.7908	1.3954
12	00:04:01	0.2526	0.2522	34.2663	1.3782
13	00:05:01	0.2540	0.2536	34.4565	1.3713
14	00:08:01	0.2575	0.2571	34.9321	1.3541
15	00:10:01	0.2597	0.2593	35.2310	1.3433
16	00:15:02	0.2638	0.2634	35.7880	1.3231
17	00:20:02	0.2670	0.2666	36.2228	1.3074
18	00:40:04	0.2752	0.2748	37.3370	1.2671
19	01:00:06	0.2795	0.2791	37.9212	1.2459
20	01:30:08	0.2829	0.2825	38.3832	1.2292
21	02:00:11	0.2846	0.2842	38.6141	1.2209
22	02:30:13	0.2859	0.2855	38.7908	1.2145
23	03:00:16	0.2867	0.2863	38.8995	1.2105
24	03:30:19	0.2872	0.2868	38.9674	1.2081
25	04:00:21	0.2878	0.2874	39.0489	1.2051
26	04:30:24	0.2882	0.2878	39.1033	1.2032
27	05:00:26	0.2885	0.2881	39.1440	1.2017
28	05:30:29	0.2887	0.2883	39.1712	1.2007
29	06:00:32	0.2891	0.2887	39.2255	1.1987
30	06:30:34	0.2893	0.2889	39.2527	1.1978
31	07:00:37	0.2894	0.2890	39.2663	1.1973
32	07:30:39	0.2895	0.2891	39.2799	1.1968
33	08:00:42	0.2898	0.2894	39.3207	1.1953
34	08:30:45	0.2900	0.2896	39.3478	1.1943
35	09:00:47	0.2901	0.2897	39.3614	1.1938



Page 1 of 2

Consolidation Test Results (Sequence 13) Load 4,000 tsf	Consolidation Test Results (Sequence 13) Load 4,000 tsf
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Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project Project Number: 16715-012-04
 Location: Lafourche Parish, Louisiana
 Job Number:

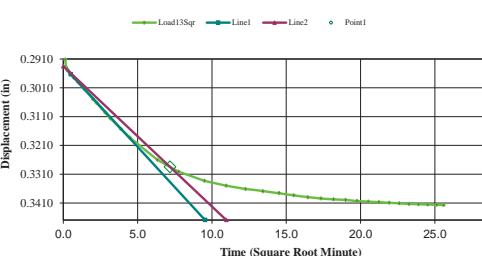
Sample Number:
 Boring Number: B-6
 Depth: 6 - 8 feet
 Sample Type: Undisturbed

Soil Description:
 Clay (CH)
Remarks:

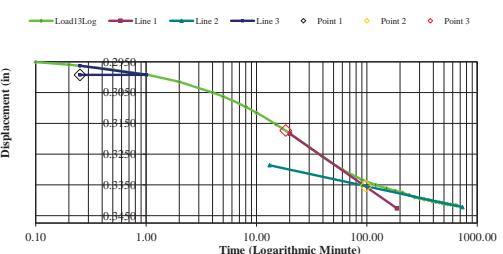
Test Date: 10 June 2015
 Test Number:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.2910	0.2906	39.4837	1.1894
1	00:00:01	0.2912	0.2908	39.5109	1.1884
2	00:00:02	0.2939	0.2935	39.8777	1.1751
3	00:00:03	0.2943	0.2939	39.9321	1.1732
4	00:00:04	0.2946	0.2942	39.9728	1.1717
5	00:00:05	0.2949	0.2945	40.0136	1.1702
6	00:00:06	0.2951	0.2947	40.0408	1.1692
7	00:00:12	0.2959	0.2955	40.1495	1.1653
8	00:00:15	0.2963	0.2959	40.2038	1.1634
9	00:00:30	0.2975	0.2971	40.3668	1.1575
10	00:01:00	0.2991	0.2987	40.5842	1.1496
11	00:02:00	0.3015	0.3011	40.9103	1.1378
12	00:04:00	0.3050	0.3046	41.3859	1.1206
13	00:05:00	0.3063	0.3059	41.5625	1.1142
14	00:08:01	0.3096	0.3092	42.0109	1.0980
15	00:10:01	0.3116	0.3112	42.2826	1.0881
16	00:15:01	0.3153	0.3149	42.7853	1.0700
17	00:20:02	0.3183	0.3179	43.1929	1.0552
18	00:40:03	0.3260	0.3256	44.2391	1.0174
19	01:00:05	0.3301	0.3297	44.7962	0.9972
20	01:30:08	0.3333	0.3329	45.2310	0.9815
21	02:00:10	0.3350	0.3346	45.4620	0.9731
22	02:30:13	0.3361	0.3357	45.6114	0.9677
23	03:00:15	0.3369	0.3365	45.7201	0.9638
24	03:30:18	0.3375	0.3371	45.8016	0.9608
25	04:00:21	0.3383	0.3379	45.9103	0.9569
26	04:30:23	0.3390	0.3386	46.0054	0.9535
27	05:00:26	0.3394	0.3390	46.0598	0.9515
28	05:30:28	0.3397	0.3393	46.1005	0.9500
29	06:00:31	0.3399	0.3395	46.1277	0.9490
30	06:30:33	0.3403	0.3399	46.1821	0.9471
31	07:00:36	0.3405	0.3401	46.2092	0.9461
32	07:30:39	0.3407	0.3403	46.2364	0.9451
33	08:00:41	0.3409	0.3405	46.2636	0.9441
34	08:30:44	0.3411	0.3407	46.2908	0.9431
35	09:00:47	0.3413	0.3409	46.3179	0.9421

Consolidation Graph (Squareroot Time)



Consolidation Graph (Logarithmic Time)



Consolidation Test Results (Sequence 14) Load 8,000 tsf	Consolidation Test Results (Sequence 14) Load 8,000 tsf
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Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project Project Number: 16715-012-04
 Location: Lafourche Parish, Louisiana

Job Number:

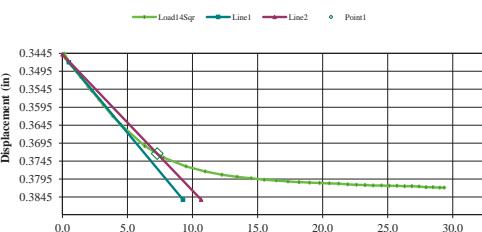
Sample Number:
 Boring Number: B-6
 Depth: 6 - 8 feet
 Sample Type: Undisturbed

Soil Description:
 Clay (CH)
Remarks:

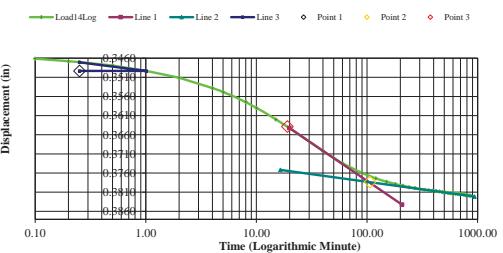
Test Date: 10 June 2015
 Test Number:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.3417	0.3413	46.3723	0.9402
1	00:00:01	0.3446	0.3442	46.7663	0.9259
2	00:00:02	0.3453	0.3449	46.8614	0.9225
3	00:00:03	0.3455	0.3451	46.8886	0.9215
4	00:00:04	0.3459	0.3455	46.9429	0.9195
5	00:00:05	0.3460	0.3456	46.9565	0.9190
6	00:00:06	0.3461	0.3457	46.9701	0.9186
7	00:00:12	0.3468	0.3464	47.0652	0.9151
8	00:00:15	0.3470	0.3466	47.0924	0.9141
9	00:00:30	0.3479	0.3475	47.2147	0.9097
10	00:01:00	0.3493	0.3489	47.4049	0.9028
11	00:02:00	0.3511	0.3507	47.6495	0.8940
12	00:04:00	0.3538	0.3534	48.0163	0.8807
13	00:05:01	0.3549	0.3545	48.1658	0.8753
14	00:08:01	0.3574	0.3570	48.5054	0.8630
15	00:10:01	0.3590	0.3586	48.7228	0.8551
16	00:15:01	0.3620	0.3616	49.1304	0.8404
17	00:20:02	0.3643	0.3639	49.4429	0.8291
18	00:40:04	0.3703	0.3699	50.2581	0.7996
19	01:00:05	0.3735	0.3731	50.6929	0.7839
20	01:30:08	0.3760	0.3756	51.0326	0.7716
21	02:00:10	0.3774	0.3770	51.2228	0.7647
22	02:30:13	0.3783	0.3779	51.3451	0.7603
23	03:00:16	0.3789	0.3785	51.4266	0.7573
24	03:30:18	0.3793	0.3789	51.4810	0.7554
25	04:00:21	0.3797	0.3793	51.5353	0.7534
26	04:30:23	0.3799	0.3795	51.5625	0.7524
27	05:00:26	0.3802	0.3798	51.6033	0.7509
28	05:30:29	0.3804	0.3800	51.6304	0.7499
29	06:00:31	0.3805	0.3801	51.6440	0.7495
30	06:30:34	0.3806	0.3802	51.6576	0.7490
31	07:00:36	0.3807	0.3803	51.6712	0.7485
32	07:30:39	0.3808	0.3804	51.6848	0.7480
33	08:00:42	0.3810	0.3806	51.7120	0.7470
34	08:30:44	0.3811	0.3807	51.7255	0.7465
35	09:00:47	0.3812	0.3808	51.7391	0.7460

Consolidation Graph (Squareroot Time)

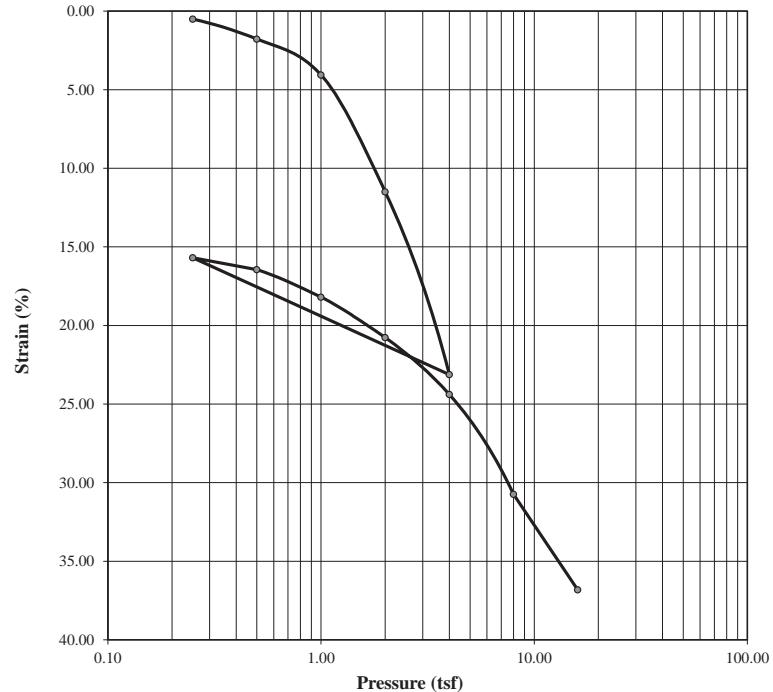


Consolidation Graph (Logarithmic Time)





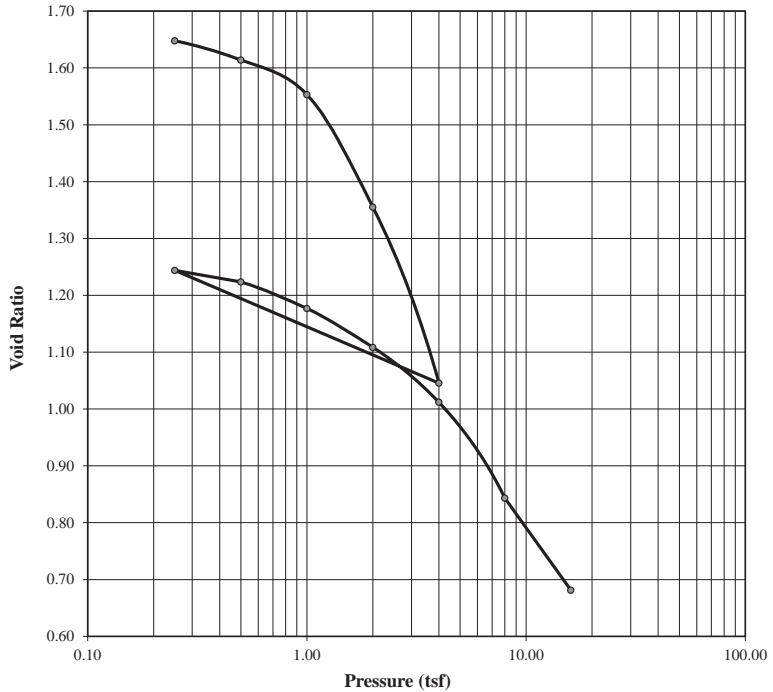
Consolidation Test
Test Results



	Before	After	Liquid Limits:	76	Test Date:	04 June 2015
Moisture (%):	59.06	33.13	Plastic Limits:	27		
Dry Density (pcf):	64.86	94.37	Plasticity Index (%):	49		
Saturation (%):	98.20	110.25				
Void Ratio:	1.6629	0.6824	Specific Gravity:	2.770	Measured	
Sample Description:	Clay (CH)					
Project Number:	16715-012-04	Depth: 63 - 65 feet				
Sample Number:		Boring Number: B-7	Remarks:			
Project:	BA-171 Caminada Headlands Back-Barrier Marsh Creation Project					
Client:	Louisiana Coastal Protection and Restoration Authority (CPRA)					
Location:	LaFourche Parish, Louisiana					



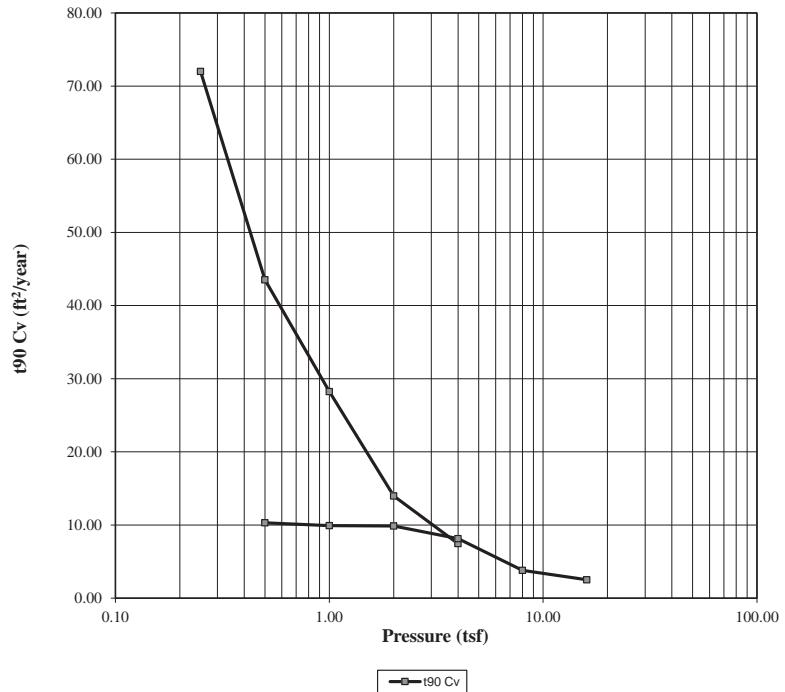
Consolidation Test
Test Results



	Before	After	Liquid Limits:	76	Test Date:	04 June 2015
Moisture (%):	59.06	33.13	Plastic Limits:	27		
Dry Density (pcf):	64.86	94.37	Plasticity Index (%):	49		
Saturation (%):	98.20	110.25				
Void Ratio:	1.6629	0.6824	Specific Gravity:	2.770	Measured	
Sample Description:	Clay (CH)					
Project Number:	16715-012-04	Depth: 63 - 65 feet				
Sample Number:		Boring Number: B-7	Remarks:			
Project:	BA-171 Caminada Headlands Back-Barrier Marsh Creation Project					
Client:	Louisiana Coastal Protection and Restoration Authority (CPRA)					
Location:	LaFourche Parish, Louisiana					



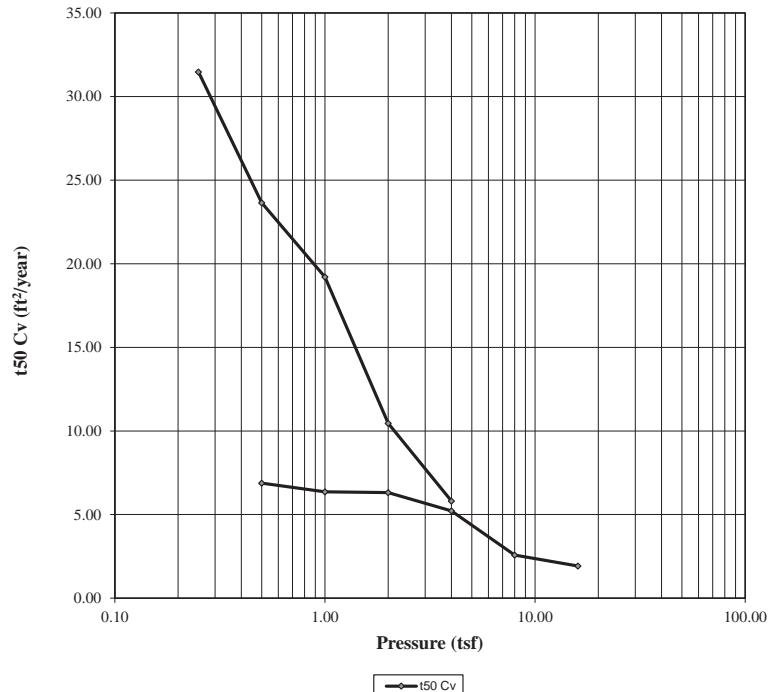
Consolidation Test
Test Results



	Before	After	Liquid Limits:	76	Test Date:	04 June 2015
Moisture (%):	59.06	33.13	Plastic Limits:	27		
Dry Density (pcf):	64.86	94.37	Plasticity Index (%):	49		
Saturation (%):	98.20	110.25				
Void Ratio:	1.6629	0.6824	Specific Gravity:	2.770	Measured	
Soil Description:	Clay (CH)					
Project Number:	16715-012-04	Depth: 63 - 65 feet	Remarks:			
Sample Number:		Boring Number: B-7				
Project:	BA-171 Caminada Headlands Back-Barrier Marsh Creation Project					
Client:	Louisiana Coastal Protection and Restoration Authority (CPRA)					
Location:	LaFourche Parish, Louisiana					



Consolidation Test
Test Results



	Before	After	Liquid Limits:	76	Test Date:	04 June 2015
Moisture (%):	59.06	33.13	Plastic Limits:	27		
Dry Density (pcf):	64.86	94.37	Plasticity Index (%):	49		
Saturation (%):	98.20	110.25				
Void Ratio:	1.6629	0.6824	Specific Gravity:	2.770	Measured	
Soil Description:	Clay (CH)					
Project Number:	16715-012-04	Depth: 63 - 65 feet	Remarks:			
Sample Number:		Boring Number: B-7				
Project:	BA-171 Caminada Headlands Back-Barrier Marsh Creation Project					
Client:	Louisiana Coastal Protection and Restoration Authority (CPRA)					
Location:	LaFourche Parish, Louisiana					



Consolidation Test Results Summary

Project: BA-171 Caminada Headlands Back-Barrier Marsh Creation Project
Location: LaFourche Parish, Louisiana
Job Number:

Project Number: 16715-012-04

Sample Number:
Boring Number: B-7
Depth: 63 - 65 feet
Sample Type: Undisturbed

Sample Description:
Clay (CH)
Remarks:

Test Number:
Test Date: 04 June 2015

Index	Load Sequence (tsf)	Cummulative Change in Height (in)	Specimen Height (in)	Height of Void (in)	Vertical Strain (%)	Void Ratio	t90 Fitting Time (min)	t50 Fitting Time (min)	t90 Cv (ft ² /year)	t50 Cv (ft ² /year)
0	0.000	0.0000	1.0000	0.6242	0.00	1.6612	0.000	0.000	0.000	0.000
1	0.250	0.0051	0.9949	0.6191	0.51	1.6477	10.636	5.654	72.012	31.473
2	0.500	0.0178	0.9822	0.6064	1.78	1.6139	17.151	7.334	43.526	23.645
3	1.000	0.0407	0.9593	0.5835	4.07	1.5529	25.226	8.613	28.229	19.207
4	2.000	0.1150	0.8850	0.5092	11.50	1.3552	43.420	13.466	13.958	10.455
5	4.000	0.2313	0.7687	0.3929	23.13	1.0457	61.345	18.291	7.454	5.807
6	0.250	0.1569	0.8431	0.4673	15.69	1.2437	0.000	0.000	0.000	0.000
7	0.500	0.1645	0.8355	0.4597	16.45	1.2235	52.441	18.243	10.300	6.879
8	1.000	0.1820	0.8180	0.4422	18.20	1.1769	52.267	18.898	9.906	6.365
9	2.000	0.2077	0.7923	0.4165	20.77	1.1085	49.300	17.862	9.853	6.318
10	4.000	0.2439	0.7561	0.3803	24.39	1.0122	54.352	19.689	8.139	5.220
11	8.000	0.3074	0.6926	0.3168	30.74	0.8432	97.546	33.477	3.805	2.576
12	16.000	0.3682	0.6318	0.2560	36.82	0.6814	122.700	37.334	2.517	1.922

Predicted value indicated with *



Consolidation Test Consolidation Specimen Information

Project: BA-171 Caminada Headlands Back-Barrier Marsh Creation Project **Project Number:** 16715-012-04
Location: LaFourche Parish, Louisiana
Job Number:

Test Date: 04 June 2015

Sample Number:
Boring Number: B-7
Depth: 63 - 65 feet
Sample Type: Undisturbed

Sample Description:
Clay (CH)
Remarks:

Test Number:
Liquid Limit: 76.0000 **Initial Void Ratio:** 1.6629 **Initial Height (in):** 1.0000
Plastic Limit: 27.0000 **Plasticity Index (%):** 49.0000 **Initial Diameter (in):** 2.5000
Specific Gravity: 2.7700 **Weight of Ring (g):** 109.9200
Measured

Parameters	Initial Specimen	Final Specimen
Moist Weight + Container (g)	116.22	126.31
Dry Soil + Container (g)	81.44	101.69
Weight of Container (g)	22.55	27.37
Moisture Content (%)	59.06	33.13
Void Ratio	1.6629	0.6824
Saturation (%)	98.20	110.25
Dry Density (pcf)	64.86	94.37

Consolidation Test Results (Sequence 1) Load 0.250 tsf	Consolidation Test Results (Sequence 1) Load 0.250 tsf
---	---

Project: BA-171 Caminada Headlands Back-Barrier Marsh Creation Project Project Number: 16715-012-04

Location: LaFourche Parish, Louisiana

Job Number:

Sample Number:
Boring Number: B-7 Soil Description: Clay (CH)
Depth: 63 - 65 feet Remarks:
Sample Type: Undisturbed

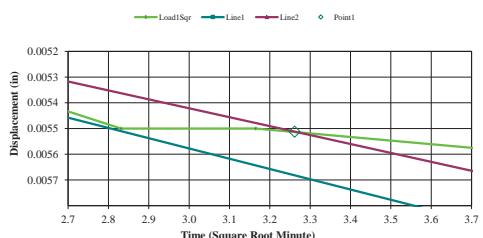
Test Date: 04 June 2015

Test Number:

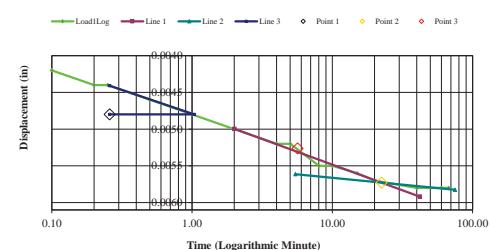
Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.0007	0.0000	0.0000	1.6629
1	00:00:01	0.0030	0.0023	0.2300	1.6568
2	00:00:02	0.0036	0.0029	0.2900	1.6552
3	00:00:03	0.0038	0.0031	0.3100	1.6546
4	00:00:04	0.0040	0.0033	0.3300	1.6541
5	00:00:05	0.0040	0.0033	0.3300	1.6541
6	00:00:06	0.0042	0.0035	0.3500	1.6536
7	00:00:12	0.0044	0.0037	0.3700	1.6530
8	00:00:15	0.0044	0.0037	0.3700	1.6530
9	00:00:30	0.0046	0.0039	0.3900	1.6525
10	00:01:00	0.0048	0.0041	0.4100	1.6520
11	00:02:00	0.0050	0.0043	0.4300	1.6514
12	00:04:01	0.0052	0.0045	0.4500	1.6509
13	00:05:01	0.0052	0.0045	0.4500	1.6509
14	00:08:01	0.0055	0.0048	0.4800	1.6501
15	00:10:01	0.0055	0.0048	0.4800	1.6501
16	00:15:02	0.0056	0.0049	0.4900	1.6498
17	00:20:02	0.0057	0.0050	0.5000	1.6496
18	00:40:04	0.0058	0.0051	0.5100	1.6493
19	01:00:06	0.0058	0.0051	0.5100	1.6493
20	01:07:30	0.0058	0.0051	0.5100	1.6493

Consolidation Test Results
(Sequence 1) Load 0.250 tsf

Consolidation Graph (Squareroot Time)



Consolidation Graph (Logarithmic Time)



Page 1 of 1

Consolidation Test Results (Sequence 2) Load 0.500 tsf	Consolidation Test Results (Sequence 2) Load 0.500 tsf
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Project: BA-171 Caminada Headlands Back-Barrier Marsh Creation Project Project Number: 16715-012-04

Location: LaFourche Parish, Louisiana

Job Number:

Sample Number:
Boring Number: B-7 Soil Description: Clay (CH)
Depth: 63 - 65 feet Remarks:
Sample Type: Undisturbed

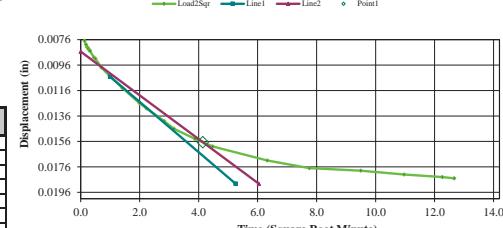
Test Date: 04 June 2015

Test Number:

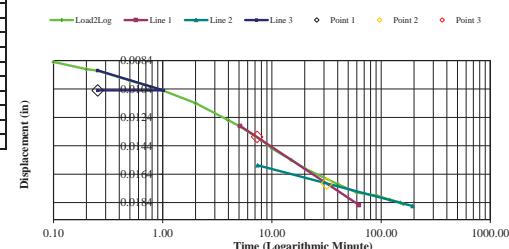
Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.0058	0.0051	0.5100	1.6493
1	00:00:01	0.0077	0.0070	0.7000	1.6442
2	00:00:02	0.0080	0.0073	0.7300	1.6434
3	00:00:03	0.0082	0.0075	0.7500	1.6429
4	00:00:04	0.0083	0.0076	0.7600	1.6426
5	00:00:05	0.0084	0.0077	0.7700	1.6424
6	00:00:06	0.0085	0.0078	0.7800	1.6421
7	00:00:12	0.0090	0.0083	0.8300	1.6408
8	00:00:15	0.0091	0.0084	0.8400	1.6405
9	00:00:30	0.0098	0.0091	0.9100	1.6386
10	00:01:00	0.0105	0.0098	0.9800	1.6368
11	00:02:00	0.0114	0.0107	1.0700	1.6344
12	00:04:00	0.0126	0.0119	1.1900	1.6312
13	00:05:00	0.0130	0.0123	1.2300	1.6301
14	00:08:01	0.0140	0.0133	1.3300	1.6275
15	00:10:01	0.0146	0.0139	1.3900	1.6259
16	00:15:02	0.0154	0.0147	1.4700	1.6237
17	00:20:02	0.0160	0.0153	1.5300	1.6221
18	00:40:05	0.0171	0.0164	1.6400	1.6192
19	01:00:08	0.0177	0.0170	1.7000	1.6176
20	01:30:12	0.0179	0.0172	1.7200	1.6171
21	02:00:16	0.0182	0.0175	1.7500	1.6163
22	02:30:20	0.0184	0.0177	1.7700	1.6157
23	02:40:25	0.0185	0.0178	1.7800	1.6155

Consolidation Test Results
(Sequence 2) Load 0.500 tsf

Consolidation Graph (Squareroot Time)



Consolidation Graph (Logarithmic Time)



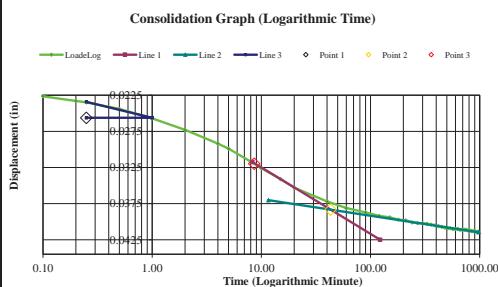
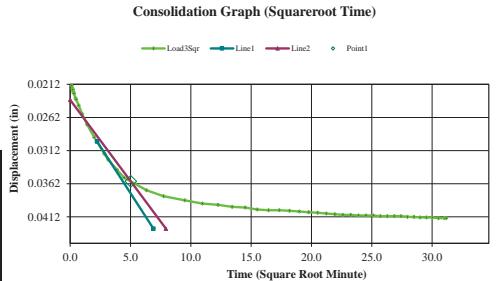
Page 1 of 1

Consolidation Test Results (Sequence 3) Load 1.000 tsf	Consolidation Test Results (Sequence 3) Load 1.000 tsf
---	---

Project: BA-171 Caminada Headlands Back-Barrier Marsh Creation Project Project Number: 16715-012-04
 Location: LaFourche Parish, Louisiana Test Date: 04 June 2015
 Job Number: Test Number:

Sample Number:
 Boring Number: B-7 Soil Description: Clay (CH)
 Depth: 63 - 65 feet Remarks:
 Sample Type: Undisturbed

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.0185	0.0178	1.7800	1.6155
1	00:00:01	0.0214	0.0207	2.0700	1.6078
2	00:00:02	0.0218	0.0211	2.1100	1.6067
3	00:00:03	0.0220	0.0213	2.1300	1.6062
4	00:00:04	0.0223	0.0216	2.1600	1.6054
5	00:00:05	0.0225	0.0218	2.1800	1.6048
6	00:00:06	0.0226	0.0219	2.1900	1.6046
7	00:00:12	0.0233	0.0226	2.2600	1.6027
8	00:00:15	0.0235	0.0228	2.2800	1.6022
9	00:00:30	0.0244	0.0237	2.3700	1.5998
10	00:01:00	0.0257	0.0250	2.5000	1.5963
11	00:02:00	0.0273	0.0266	2.6600	1.5920
12	00:04:00	0.0292	0.0285	2.8500	1.5870
13	00:05:01	0.0299	0.0292	2.9200	1.5851
14	00:08:01	0.0317	0.0310	3.1000	1.5803
15	00:10:01	0.0326	0.0319	3.1900	1.5779
16	00:15:02	0.0341	0.0334	3.3400	1.5739
17	00:20:03	0.0353	0.0346	3.4600	1.5707
18	00:40:05	0.0372	0.0365	3.6500	1.5657
19	01:00:08	0.0381	0.0374	3.7400	1.5633
20	01:30:12	0.0387	0.0380	3.8000	1.5617
21	02:00:17	0.0392	0.0385	3.8500	1.5604
22	02:30:21	0.0394	0.0387	3.8700	1.5598
23	03:00:25	0.0397	0.0390	3.9000	1.5590
24	03:30:29	0.0398	0.0391	3.9100	1.5588
25	04:00:33	0.0401	0.0394	3.9400	1.5580
26	04:30:37	0.0402	0.0395	3.9500	1.5577
27	05:00:41	0.0402	0.0395	3.9500	1.5577
28	05:30:45	0.0403	0.0396	3.9600	1.5574
29	06:00:49	0.0404	0.0397	3.9700	1.5572
30	06:30:53	0.0405	0.0398	3.9800	1.5569
31	07:00:57	0.0406	0.0399	3.9900	1.5566
32	07:31:01	0.0407	0.0400	4.0000	1.5564
33	08:01:05	0.0408	0.0401	4.0100	1.5561
34	08:31:09	0.0409	0.0402	4.0200	1.5558
35	09:01:13	0.0409	0.0402	4.0200	1.5558



Page 1 of 2

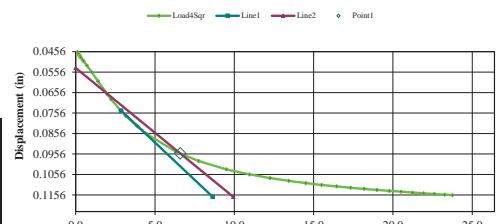
Consolidation Test Results (Sequence 4) Load 2.000 tsf	Consolidation Test Results (Sequence 4) Load 2.000 tsf
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Project: BA-171 Caminada Headlands Back-Barrier Marsh Creation Project Project Number: 16715-012-04
 Location: LaFourche Parish, Louisiana Test Date: 04 June 2015
 Job Number: Test Number:

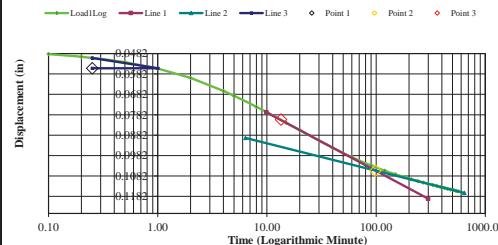
Sample Number:
 Boring Number: B-7 Soil Description: Clay (CH)
 Depth: 63 - 65 feet Remarks:
 Sample Type: Undisturbed

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.0414	0.0407	4.0700	1.5545
1	00:00:01	0.0458	0.0451	4.5100	1.5428
2	00:00:02	0.0467	0.0460	4.6000	1.5404
3	00:00:03	0.0474	0.0467	4.6700	1.5385
4	00:00:04	0.0477	0.0470	4.7000	1.5377
5	00:00:05	0.0481	0.0474	4.7400	1.5367
6	00:00:06	0.0484	0.0477	4.7700	1.5359
7	00:00:12	0.0498	0.0491	4.9100	1.5321
8	00:00:15	0.0503	0.0496	4.9600	1.5308
9	00:00:30	0.0524	0.0517	5.1700	1.5252
10	00:01:00	0.0555	0.0548	5.4800	1.5170
11	00:02:00	0.0601	0.0594	5.9400	1.5047
12	00:04:00	0.0665	0.0658	6.5800	1.4877
13	00:05:00	0.0689	0.0682	6.8200	1.4813
14	00:08:01	0.0743	0.0736	7.3600	1.4669
15	00:10:01	0.0770	0.0763	7.6300	1.4597
16	00:15:02	0.0821	0.0814	8.1400	1.4461
17	00:20:02	0.0858	0.0851	8.5100	1.4363
18	00:40:05	0.0945	0.0938	9.3800	1.4131
19	01:00:08	0.0990	0.0983	9.8300	1.4011
20	01:30:13	0.1031	0.1024	10.2400	1.3902
21	02:00:17	0.1056	0.1049	10.4900	1.3835
22	02:30:21	0.1074	0.1067	10.6700	1.3787
23	03:00:25	0.1087	0.1080	10.8000	1.3753
24	03:30:29	0.1098	0.1091	10.9100	1.3724
25	04:00:34	0.1107	0.1100	11.0000	1.3700
26	04:30:38	0.1114	0.1107	11.0700	1.3681
27	05:00:42	0.1121	0.1114	11.1400	1.3662
28	05:30:46	0.1126	0.1119	11.1900	1.3649
29	06:00:51	0.1131	0.1124	11.2400	1.3636
30	06:30:55	0.1137	0.1130	11.3000	1.3620
31	07:00:59	0.1140	0.1133	11.3300	1.3612
32	07:31:03	0.1145	0.1138	11.3800	1.3598
33	08:31:08	0.1148	0.1141	11.4100	1.3590
34	08:31:12	0.1151	0.1144	11.4400	1.3582
35	09:01:16	0.1155	0.1148	11.4800	1.3572

Consolidation Graph (Squareroot Time)



Consolidation Graph (Logarithmic Time)



Page 1 of 2

Consolidation Test Results (Sequence 5) Load 4,000 tsf	Consolidation Test Results (Sequence 5) Load 4,000 tsf
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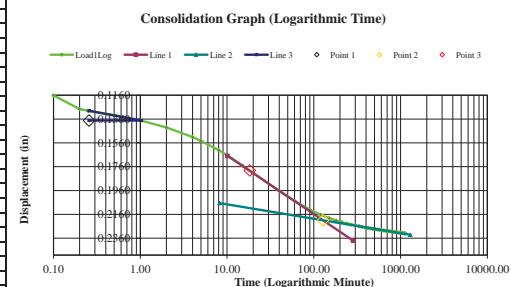
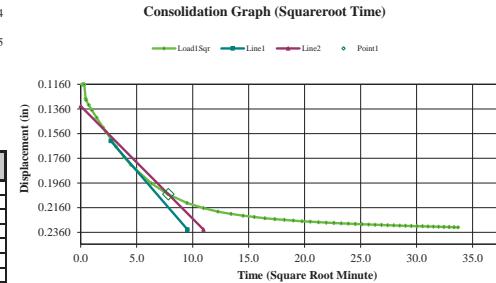
Project: BA-171 Caminada Headlands Back-Barrier Marsh Creation Project
Location: LaFourche Parish, Louisiana
Job Number:

Project Number: 16715-012-04
Test Date: 04 June 2015
Test Number:

Sample Number:
Boring Number: B-7
Depth: 63 - 65 feet
Sample Type: Undisturbed

Soil Description:
Clay (CH)
Remarks:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.1157	0.1150	11.5000	1.3566
1	00:00:01	0.1162	0.1155	11.5500	1.3553
2	00:00:02	0.1162	0.1155	11.5500	1.3553
3	00:00:03	0.1162	0.1155	11.5500	1.3553
4	00:00:04	0.1162	0.1155	11.5500	1.3553
5	00:00:05	0.1162	0.1155	11.5500	1.3553
6	00:00:06	0.1162	0.1155	11.5500	1.3553
7	00:00:12	0.1276	0.1269	12.6900	1.3250
8	00:00:15	0.1290	0.1283	12.8300	1.3212
9	00:00:30	0.1327	0.1320	13.2000	1.3114
10	00:01:00	0.1371	0.1364	13.6400	1.2997
11	00:02:00	0.1430	0.1423	14.2300	1.2839
12	00:04:00	0.1511	0.1504	15.0400	1.2624
13	00:05:00	0.1543	0.1536	15.3600	1.2539
14	00:08:01	0.1622	0.1615	16.1500	1.2328
15	00:10:01	0.1666	0.1659	16.5900	1.2211
16	00:15:02	0.1750	0.1743	17.4300	1.1987
17	00:20:02	0.1812	0.1805	18.0500	1.1822
18	00:40:05	0.1964	0.1957	19.5700	1.1418
19	01:00:08	0.2039	0.2042	20.4200	1.1191
20	01:30:12	0.2122	0.2115	21.1500	1.0997
21	02:00:16	0.2164	0.2157	21.5700	1.0885
22	02:30:20	0.2192	0.2185	21.8500	1.0810
23	03:00:24	0.2211	0.2204	22.0400	1.0760
24	03:30:28	0.2226	0.2219	22.1900	1.0720
25	04:00:32	0.2236	0.2229	22.2900	1.0693
26	04:30:36	0.2246	0.2239	22.3900	1.0667
27	05:00:40	0.2253	0.2246	22.4600	1.0648
28	05:30:44	0.2259	0.2252	22.5200	1.0632
29	06:00:48	0.2265	0.2258	22.5800	1.0616
30	06:30:52	0.2270	0.2263	22.6300	1.0603
31	07:00:56	0.2274	0.2267	22.6700	1.0592
32	07:31:00	0.2278	0.2271	22.7100	1.0581
33	08:01:04	0.2282	0.2275	22.7500	1.0571
34	08:31:08	0.2284	0.2277	22.7700	1.0565
35	09:01:12	0.2287	0.2280	22.8000	1.0557



Page 1 of 2

Consolidation Test Results (Sequence 6) Rebound 0.250 tsf	Consolidation Test Results (Sequence 6) Rebound 0.250 tsf
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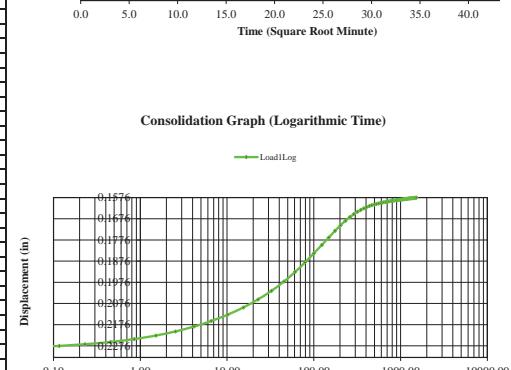
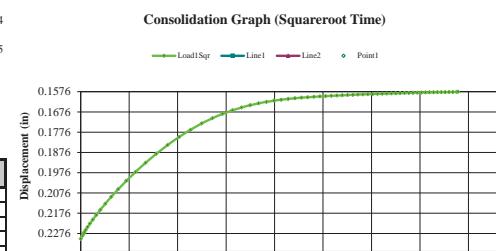
Project: BA-171 Caminada Headlands Back-Barrier Marsh Creation Project
Location: LaFourche Parish, Louisiana
Job Number:

Project Number: 16715-012-04
Test Date: 04 June 2015
Test Number:

Sample Number:
Boring Number: B-7
Depth: 63 - 65 feet
Sample Type: Undisturbed

Soil Description:
Clay (CH)
Remarks:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.2320	0.2313	23.1300	1.0470
1	00:00:00	0.2302	0.2295	22.9500	1.0517
2	00:00:01	0.2293	0.2286	22.8600	1.0541
3	00:00:02	0.2286	0.2279	22.7900	1.0560
4	00:00:03	0.2282	0.2275	22.7500	1.0571
5	00:00:04	0.2280	0.2273	22.7300	1.0576
6	00:00:05	0.2277	0.2270	22.7000	1.0584
7	00:00:12	0.2261	0.2254	22.5400	1.0627
8	00:00:15	0.2255	0.2248	22.4800	1.0643
9	00:00:30	0.2242	0.2235	22.3500	1.0677
10	00:01:00	0.2218	0.2211	22.1100	1.0741
11	00:02:00	0.2194	0.2187	21.8700	1.0805
12	00:04:00	0.2158	0.2151	21.5100	1.0901
13	00:05:00	0.2144	0.2137	21.3700	1.0938
14	00:08:00	0.2107	0.2100	21.0000	1.1037
15	00:10:01	0.2087	0.2080	20.8000	1.1090
16	00:15:01	0.2044	0.2037	20.3700	1.1204
17	00:20:02	0.2010	0.2003	20.0300	1.1295
18	00:40:05	0.1908	0.1901	19.0100	1.1567
19	01:00:07	0.1842	0.1835	18.3500	1.1742
20	01:30:11	0.1776	0.1769	17.6900	1.1918
21	02:00:15	0.1731	0.1724	17.2400	1.2038
22	02:30:19	0.1701	0.1694	16.9400	1.2118
23	03:00:23	0.1678	0.1671	16.7100	1.2179
24	03:30:27	0.1662	0.1655	16.5500	1.2222
25	04:00:31	0.1650	0.1643	16.4300	1.2254
26	04:30:35	0.1639	0.1632	16.3200	1.2283
27	05:00:40	0.1632	0.1625	16.2500	1.2302
28	05:30:44	0.1626	0.1619	16.1900	1.2318
29	06:00:47	0.1620	0.1613	16.1300	1.2334
30	06:30:52	0.1616	0.1609	16.0900	1.2344
31	07:00:55	0.1612	0.1605	16.0500	1.2355
32	07:30:59	0.1610	0.1603	16.0300	1.2360
33	08:31:04	0.1607	0.1600	16.0000	1.2368
34	08:31:07	0.1604	0.1597	15.9700	1.2376
35	09:01:12	0.1602	0.1595	15.9500	1.2381



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Consolidation Test Results (Sequence 7) Load 0.500 tsf			Consolidation Test Results (Sequence 7) Load 0.500 tsf		
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Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project Project Number: 16715-012-04

Location: LaFourche Parish, Louisiana

Job Number:

Sample Number:
Boring Number: B-7
Depth: 63 - 65 feet
Sample Type: Undisturbed

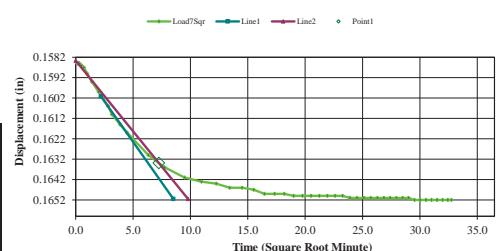
Soil Description:
Clay (CH)
Remarks:

Test Date: 04 June 2015

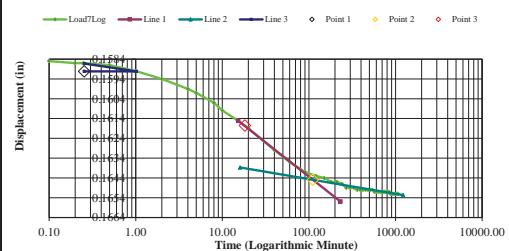
Test Number:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.1576	0.1569	15.6900	1.2451
1	00:00:01	0.1585	0.1578	15.7800	1.2427
2	00:00:02	0.1585	0.1578	15.7800	1.2427
3	00:00:03	0.1585	0.1578	15.7800	1.2427
4	00:00:04	0.1585	0.1578	15.7800	1.2427
5	00:00:05	0.1585	0.1578	15.7800	1.2427
6	00:00:06	0.1585	0.1578	15.7800	1.2427
7	00:00:12	0.1586	0.1579	15.7900	1.2424
8	00:00:15	0.1586	0.1579	15.7900	1.2424
9	00:00:30	0.1587	0.1580	15.8000	1.2421
10	00:01:00	0.1590	0.1583	15.8300	1.2413
11	00:02:00	0.1594	0.1587	15.8700	1.2403
12	00:04:00	0.1599	0.1592	15.9200	1.2389
13	00:05:00	0.1601	0.1594	15.9400	1.2384
14	00:08:01	0.1606	0.1599	15.9900	1.2371
15	00:10:01	0.1610	0.1603	16.0300	1.2360
16	00:15:02	0.1615	0.1608	16.0800	1.2347
17	00:20:03	0.1619	0.1612	16.1200	1.2336
18	00:40:06	0.1630	0.1623	16.2300	1.2307
19	01:00:08	0.1636	0.1629	16.2900	1.2291
20	01:30:13	0.1641	0.1634	16.3400	1.2278
21	02:00:17	0.1643	0.1636	16.3600	1.2272
22	02:30:21	0.1644	0.1637	16.3700	1.2270
23	03:00:25	0.1646	0.1639	16.3900	1.2264
24	03:30:30	0.1646	0.1639	16.3900	1.2264
25	04:00:34	0.1647	0.1640	16.4000	1.2262
26	04:30:38	0.1649	0.1642	16.4200	1.2256
27	05:00:42	0.1649	0.1642	16.4200	1.2256
28	05:30:46	0.1649	0.1642	16.4200	1.2256
29	06:00:50	0.1650	0.1643	16.4300	1.2254
30	06:30:54	0.1650	0.1643	16.4300	1.2254
31	07:00:58	0.1650	0.1643	16.4300	1.2254
32	07:31:02	0.1650	0.1643	16.4300	1.2254
33	08:01:06	0.1650	0.1643	16.4300	1.2254
34	08:31:10	0.1650	0.1643	16.4300	1.2254
35	09:01:14	0.1650	0.1643	16.4300	1.2254

Consolidation Graph (SquareRoot Time)



Consolidation Graph (Logarithmic Time)



Consolidation Test Results (Sequence 8) Load 1.000 tsf			Consolidation Test Results (Sequence 8) Load 1.000 tsf		
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Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project Project Number: 16715-012-04

Location: LaFourche Parish, Louisiana

Job Number:

Sample Number:
Boring Number: B-7
Depth: 63 - 65 feet
Sample Type: Undisturbed

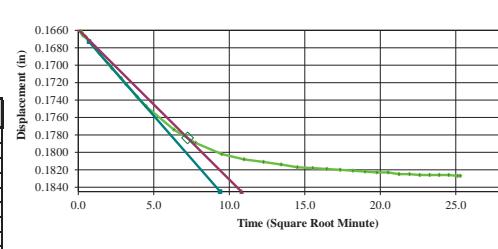
Soil Description:
Clay (CH)
Remarks:

Test Date: 04 June 2015

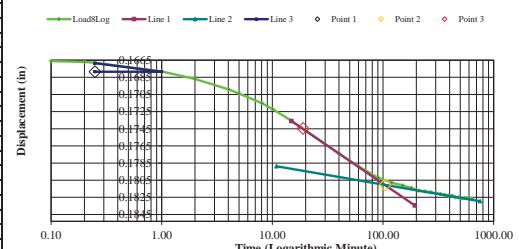
Test Number:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.1652	0.1645	16.4500	1.2248
1	00:00:01	0.1661	0.1654	16.5400	1.2224
2	00:00:02	0.1662	0.1655	16.5500	1.2222
3	00:00:03	0.1663	0.1656	16.5600	1.2219
4	00:00:04	0.1664	0.1657	16.5700	1.2216
5	00:00:05	0.1665	0.1658	16.5800	1.2214
6	00:00:06	0.1666	0.1659	16.5900	1.2211
7	00:00:12	0.1667	0.1660	16.6000	1.2208
8	00:00:15	0.1668	0.1661	16.6100	1.2206
9	00:00:30	0.1673	0.1666	16.6600	1.2192
10	00:01:00	0.1678	0.1671	16.7100	1.2179
11	00:02:00	0.1687	0.1680	16.8000	1.2155
12	00:04:01	0.1699	0.1692	16.9200	1.2123
13	00:05:01	0.1704	0.1697	16.9700	1.2110
14	00:08:01	0.1715	0.1708	17.0800	1.2081
15	00:10:01	0.1722	0.1715	17.1500	1.2062
16	00:15:02	0.1736	0.1729	17.2900	1.2025
17	00:20:03	0.1747	0.1740	17.4000	1.1995
18	00:40:05	0.1774	0.1767	17.6700	1.1923
19	01:00:08	0.1789	0.1782	17.8200	1.1884
20	01:30:12	0.1802	0.1795	17.9500	1.1849
21	02:00:16	0.1808	0.1801	18.0100	1.1833
22	02:30:21	0.1811	0.1804	18.0400	1.1825
23	03:00:25	0.1814	0.1807	18.0700	1.1817
24	03:30:29	0.1817	0.1810	18.1000	1.1809
25	04:00:33	0.1818	0.1811	18.1100	1.1806
26	04:30:38	0.1819	0.1812	18.1200	1.1804
27	05:00:42	0.1820	0.1813	18.1300	1.1801
28	05:30:46	0.1821	0.1814	18.1400	1.1798
29	06:00:50	0.1822	0.1815	18.1500	1.1796
30	06:30:55	0.1823	0.1816	18.1600	1.1793
31	07:00:59	0.1823	0.1816	18.1600	1.1793
32	07:31:03	0.1825	0.1818	18.1800	1.1788
33	08:01:08	0.1825	0.1818	18.1800	1.1788
34	08:31:12	0.1826	0.1819	18.1900	1.1785
35	09:01:16	0.1826	0.1819	18.1900	1.1785

Consolidation Graph (SquareRoot Time)



Consolidation Graph (Logarithmic Time)



Consolidation Test Results (Sequence 9) Load 2.000 tsf	Consolidation Test Results (Sequence 9) Load 2.000 tsf
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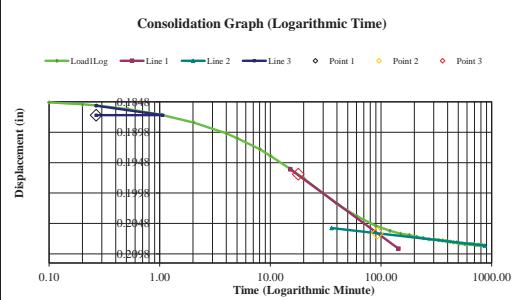
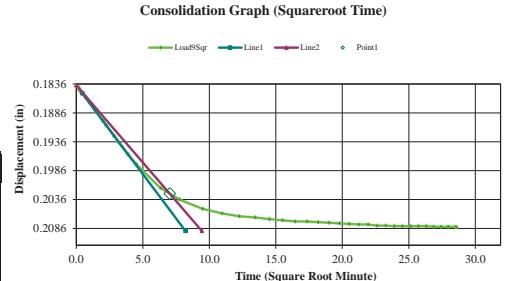
Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project Project Number: 16715-012-04
 Location: Lafourche Parish, Louisiana
 Job Number:

Sample Number:
 Boring Number: B-7
 Depth: 63 - 65 feet
 Sample Type: Undisturbed

Soil Description:
 Clay (CH)
 Remarks:

Test Date: 04 June 2015
 Test Number:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.1827	0.1820	18.2000	1.1782
1	00:00:01	0.1842	0.1835	18.3500	1.1742
2	00:00:02	0.1843	0.1836	18.3600	1.1740
3	00:00:03	0.1845	0.1838	18.3800	1.1734
4	00:00:04	0.1846	0.1839	18.3900	1.1732
5	00:00:05	0.1848	0.1841	18.4100	1.1726
6	00:00:06	0.1849	0.1842	18.4200	1.1724
7	00:00:12	0.1852	0.1845	18.4500	1.1716
8	00:00:16	0.1854	0.1847	18.4700	1.1710
9	00:00:31	0.1860	0.1853	18.5300	1.1694
10	00:01:01	0.1869	0.1862	18.6300	1.1670
11	00:02:01	0.1882	0.1875	18.7500	1.1636
12	00:04:01	0.1900	0.1893	18.9300	1.1588
13	00:05:01	0.1908	0.1901	19.0100	1.1567
14	00:08:02	0.1926	0.1919	19.1900	1.1519
15	00:10:02	0.1937	0.1930	19.3000	1.1489
16	00:15:03	0.1958	0.1951	19.5100	1.1433
17	00:20:03	0.1974	0.1967	19.6700	1.1391
18	00:40:06	0.2016	0.2009	20.0900	1.1279
19	01:00:09	0.2036	0.2029	20.2900	1.1226
20	01:30:13	0.2052	0.2045	20.4500	1.1183
21	02:00:18	0.2060	0.2053	20.5300	1.1162
22	02:30:22	0.2065	0.2058	20.5800	1.1149
23	03:00:26	0.2067	0.2060	20.6000	1.1143
24	03:30:30	0.2070	0.2063	20.6300	1.1135
25	04:00:35	0.2072	0.2065	20.6500	1.1130
26	04:30:39	0.2074	0.2067	20.6700	1.1125
27	05:00:43	0.2074	0.2067	20.6700	1.1125
28	05:30:47	0.2075	0.2068	20.6800	1.1122
29	06:00:52	0.2076	0.2069	20.6900	1.1119
30	06:30:56	0.2077	0.2070	20.7000	1.1117
31	07:01:00	0.2078	0.2071	20.7100	1.1114
32	07:31:05	0.2079	0.2072	20.7200	1.1111
33	08:01:09	0.2079	0.2072	20.7200	1.1111
34	08:31:13	0.2081	0.2074	20.7400	1.1106
35	09:01:17	0.2081	0.2074	20.7400	1.1106



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Consolidation Test Results (Sequence 10) Load 4.000 tsf	Consolidation Test Results (Sequence 10) Load 4.000 tsf
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Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project Project Number: 16715-012-04
 Location: Lafourche Parish, Louisiana

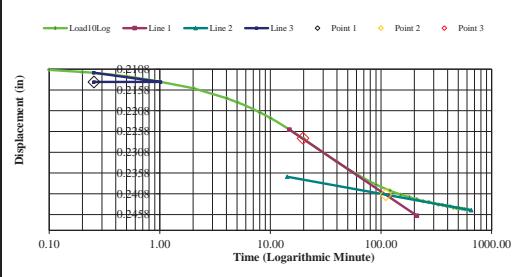
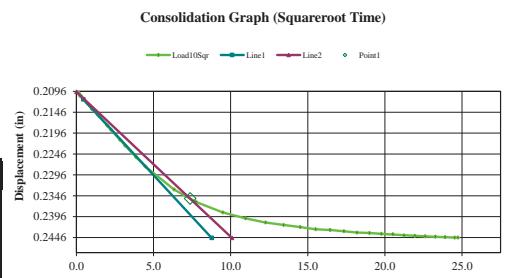
Job Number:

Sample Number:
 Boring Number: B-7
 Depth: 63 - 65 feet
 Sample Type: Undisturbed

Soil Description:
 Clay (CH)
 Remarks:

Test Date: 04 June 2015
 Test Number:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.2084	0.2077	20.7700	1.098
1	00:00:01	0.2099	0.2092	20.9200	1.058
2	00:00:02	0.2103	0.2096	20.9600	1.047
3	00:00:03	0.2106	0.2099	20.9900	1.039
4	00:00:04	0.2107	0.2100	21.0000	1.037
5	00:00:05	0.2108	0.2101	21.0100	1.034
6	00:00:06	0.2109	0.2102	21.0200	1.031
7	00:00:12	0.2115	0.2108	21.0800	1.0105
8	00:00:15	0.2117	0.2110	21.1000	1.010
9	00:00:30	0.2125	0.2118	21.1800	1.0089
10	00:01:00	0.2138	0.2131	21.3100	1.0054
11	00:02:01	0.2154	0.2147	21.4700	1.0012
12	00:04:01	0.2178	0.2171	21.7100	1.0848
13	00:05:01	0.2188	0.2181	21.8100	1.0821
14	00:08:01	0.2212	0.2205	22.0500	1.0757
15	00:10:02	0.2226	0.2219	22.1900	1.0720
16	00:15:02	0.2254	0.2247	22.4700	1.0645
17	00:20:03	0.2276	0.2269	22.6900	1.0587
18	00:40:05	0.2331	0.2324	23.2400	1.0440
19	01:00:08	0.2361	0.2354	23.5400	1.0360
20	01:30:12	0.2386	0.2379	23.7900	1.0294
21	02:00:16	0.2400	0.2393	23.9300	1.0256
22	02:30:20	0.2410	0.2403	24.0300	1.0230
23	03:00:24	0.2416	0.2409	24.0900	1.0214
24	03:30:28	0.2421	0.2414	24.1400	1.0201
25	04:00:32	0.2426	0.2419	24.1900	1.0187
26	04:30:36	0.2428	0.2421	24.2100	1.0182
27	05:00:40	0.2431	0.2424	24.2400	1.0174
28	05:30:44	0.2434	0.2427	24.2700	1.0166
29	06:00:48	0.2435	0.2428	24.2800	1.0163
30	06:30:52	0.2437	0.2430	24.3000	1.0158
31	07:00:56	0.2438	0.2431	24.3100	1.0155
32	07:31:00	0.2441	0.2434	24.3400	1.0147
33	08:01:04	0.2442	0.2435	24.3500	1.0145
34	08:31:08	0.2443	0.2436	24.3600	1.0142
35	09:01:12	0.2444	0.2437	24.3700	1.0139



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Consolidation Test Results (Sequence 11) Load 8.000 tsf				Consolidation Test Results (Sequence 11) Load 8.000 tsf			
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Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project Project Number: 16715-012-04

Location: Lafourche Parish, Louisiana

Job Number:

Sample Number:
Boring Number: B-7
Depth: 63 - 65 feet
Sample Type: Undisturbed

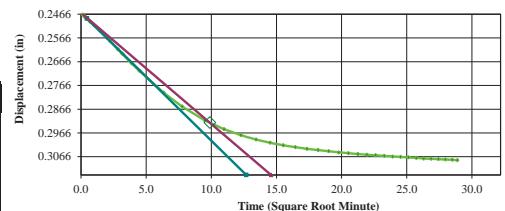
Soil Description:
Clay (CH)
Remarks:

Test Date: 04 June 2015

Test Number:

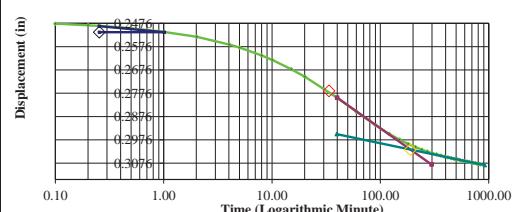
Consolidation Graph (SquareRoot Time)

Legend: Load11Sqr (Green Line), Line1 (Blue Line), Line2 (Red Line), Point1 (Green Diamond)



Consolidation Graph (Logarithmic Time)

Legend: Load11Log (Green Line), Line 1 (Red Line), Line 2 (Blue Line), Point 1 (Green Diamond), Point 2 (Yellow Diamond), Point 3 (Red Diamond)



Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.2446	0.2439	24.3900	1.0134
1	00:00:01	0.2468	0.2461	24.6100	1.0075
2	00:00:02	0.2471	0.2464	24.6400	1.0067
3	00:00:03	0.2474	0.2467	24.6700	1.0059
4	00:00:04	0.2475	0.2468	24.6800	1.0057
5	00:00:05	0.2476	0.2469	24.6900	1.0054
6	00:00:06	0.2478	0.2471	24.7100	1.0049
7	00:00:12	0.2484	0.2477	24.7700	1.0033
8	00:00:15	0.2487	0.2480	24.8000	1.0025
9	00:00:30	0.2498	0.2491	24.9100	0.9996
10	00:01:00	0.2513	0.2506	25.0600	0.9956
11	00:02:01	0.2534	0.2527	25.2700	0.9900
12	00:04:01	0.2567	0.2560	25.6000	0.9812
13	00:05:01	0.2580	0.2573	25.7300	0.9777
14	00:08:01	0.2614	0.2607	26.0700	0.9687
15	00:10:02	0.2633	0.2626	26.2600	0.9636
16	00:15:02	0.2673	0.2666	26.6600	0.9530
17	00:20:03	0.2705	0.2698	26.9800	0.9444
18	00:40:06	0.2796	0.2789	27.8900	0.9202
19	01:00:08	0.2855	0.2848	28.4800	0.9045
20	01:30:12	0.2913	0.2906	29.0600	0.8890
21	02:00:16	0.2950	0.2943	29.4300	0.8792
22	02:30:20	0.2975	0.2968	29.6800	0.8725
23	03:00:24	0.2994	0.2987	29.8700	0.8675
24	03:30:28	0.3007	0.3000	30.0000	0.8640
25	04:00:32	0.3018	0.3011	30.1100	0.8611
26	04:30:36	0.3026	0.3019	30.1900	0.8590
27	05:00:40	0.3033	0.3026	30.2600	0.8571
28	05:30:44	0.3038	0.3031	30.3100	0.8558
29	06:00:48	0.3043	0.3036	30.3600	0.8544
30	06:30:52	0.3048	0.3041	30.4100	0.8531
31	07:00:56	0.3051	0.3044	30.4400	0.8523
32	07:31:00	0.3055	0.3048	30.4800	0.8512
33	08:01:04	0.3058	0.3051	30.5100	0.8504
34	08:31:08	0.3060	0.3053	30.5300	0.8499
35	09:01:12	0.3063	0.3056	30.5600	0.8491

Page 1 of 2

Consolidation Test Results (Sequence 12) Load 16.000 tsf				Consolidation Test Results (Sequence 12) Load 16.000 tsf			
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Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project Project Number: 16715-012-04

Location: Lafourche Parish, Louisiana

Job Number:

Sample Number:
Boring Number: B-7
Depth: 63 - 65 feet
Sample Type: Undisturbed

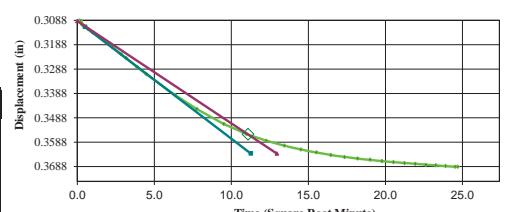
Soil Description:
Clay (CH)
Remarks:

Test Date: 04 June 2015

Test Number:

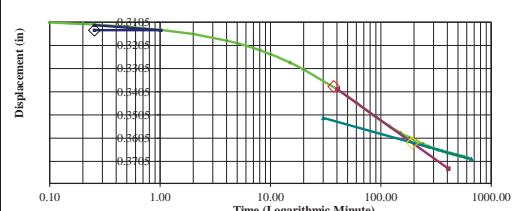
Consolidation Graph (SquareRoot Time)

Legend: Load12Sqr (Green Line), Line1 (Blue Line), Line2 (Red Line), Point1 (Green Diamond)



Consolidation Graph (Logarithmic Time)

Legend: Load12Log (Green Line), Line 1 (Red Line), Line 2 (Blue Line), Point 1 (Green Diamond), Point 2 (Yellow Diamond), Point 3 (Red Diamond)

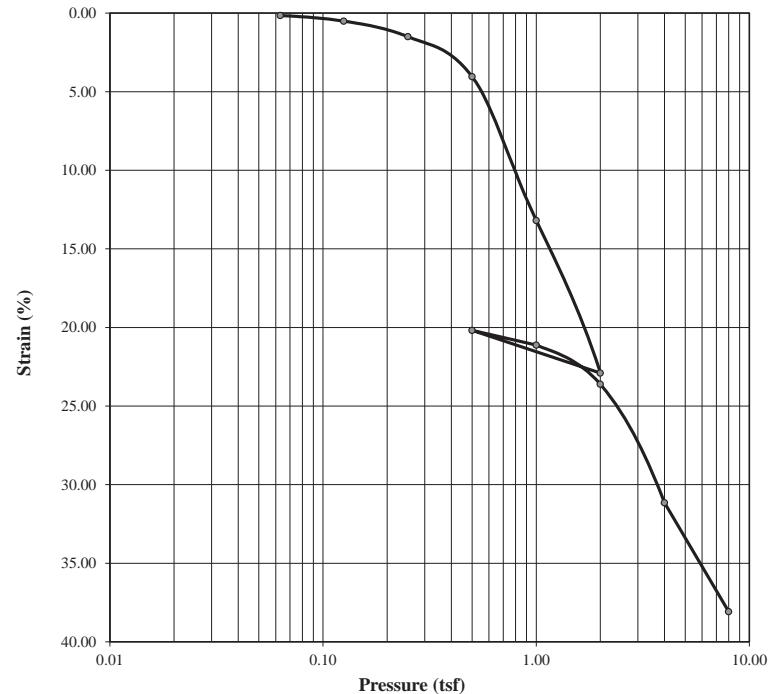


Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.3081	0.3074	30.7400	0.8443
1	00:00:01	0.3089	0.3082	30.8200	0.8422
2	00:00:02	0.3090	0.3083	30.8300	0.8419
3	00:00:03	0.3091	0.3084	30.8400	0.8416
4	00:00:04	0.3099	0.3092	30.9200	0.8395
5	00:00:05	0.3103	0.3096	30.9600	0.8384
6	00:00:06	0.3106	0.3099	30.9900	0.8377
7	00:00:12	0.3113	0.3106	31.0600	0.8358
8	00:00:15	0.3115	0.3108	31.0800	0.8353
9	00:00:30	0.3124	0.3117	31.1700	0.8329
10	00:01:00	0.3138	0.3131	31.3100	0.8291
11	00:02:00	0.3156	0.3149	31.4900	0.8243
12	00:04:01	0.3185	0.3178	31.7800	0.8166
13	00:05:01	0.3196	0.3189	31.8900	0.8137
14	00:08:01	0.3226	0.3219	32.1900	0.8057
15	00:10:01	0.3243	0.3236	32.3600	0.8012
16	00:15:02	0.3279	0.3272	32.7200	0.7916
17	00:20:03	0.3309	0.3302	33.0200	0.7836
18	00:40:06	0.3394	0.3387	33.8700	0.7610
19	01:00:08	0.3452	0.3445	34.4500	0.7455
20	01:30:13	0.3513	0.3506	35.0600	0.7293
21	02:00:17	0.3554	0.3547	35.4700	0.7184
22	02:30:21	0.3582	0.3575	35.7500	0.7109
23	03:00:25	0.3602	0.3595	35.9500	0.7056
24	03:30:30	0.3618	0.3611	36.1100	0.7013
25	04:00:34	0.3630	0.3623	36.2300	0.6981
26	04:30:38	0.3641	0.3634	36.3400	0.6952
27	05:00:42	0.3649	0.3642	36.4200	0.6931
28	05:30:46	0.3655	0.3648	36.4800	0.6915
29	06:00:51	0.3660	0.3653	36.5300	0.6901
30	06:30:55	0.3666	0.3659	36.5900	0.6885
31	07:00:59	0.3670	0.3663	36.6300	0.6875
32	07:31:03	0.3674	0.3667	36.6700	0.6864
33	08:01:07	0.3677	0.3670	36.7000	0.6856
34	08:31:12	0.3681	0.3674	36.7400	0.6845
35	09:01:16	0.3683	0.3676	36.7600	0.6840

Page 1 of 2



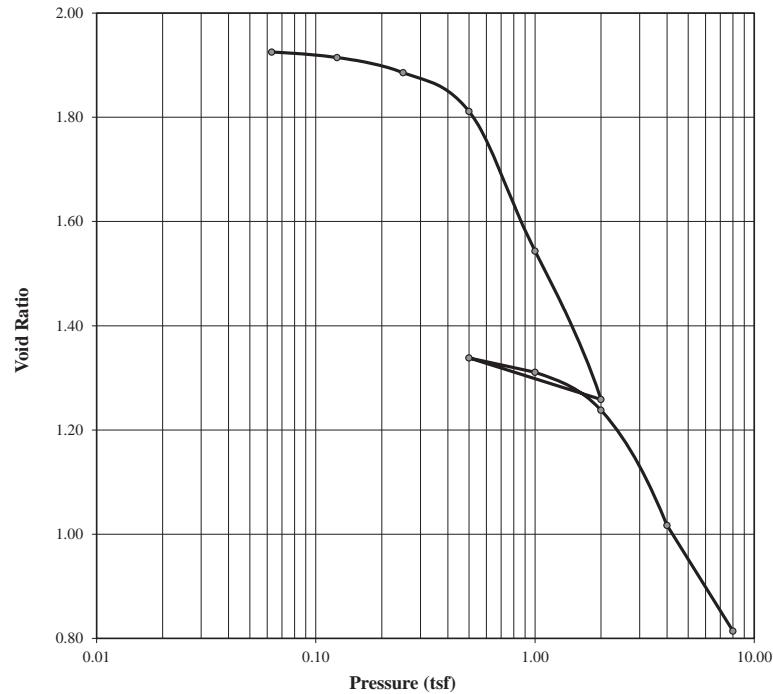
Consolidation Test
Test Results



	Before	After	Liquid Limits:	86	Test Date:	04 June 2015
Moisture (%):	73.63	38.96	Plastic Limits:	32		
Dry Density (pcf):	55.69	86.42	Plasticity Index (%):	54		
Saturation (%):	99.63	114.44				
Void Ratio:	1.9335	0.8164	Specific Gravity:	2.618	Measured	
Sample Description:	Clay (CH)					
Project Number:	16715-012-04	Depth: 18 - 20 feet				
Sample Number:		Boring Number: B-8	Remarks:			
Project:	BA-171 Caminada Headlands Back-Barrier Marsh Creation Project					
Client:	Louisiana Coastal Protection and Restoration Authority (CPRA)					
Location:	LaFourche Parish, Louisiana					



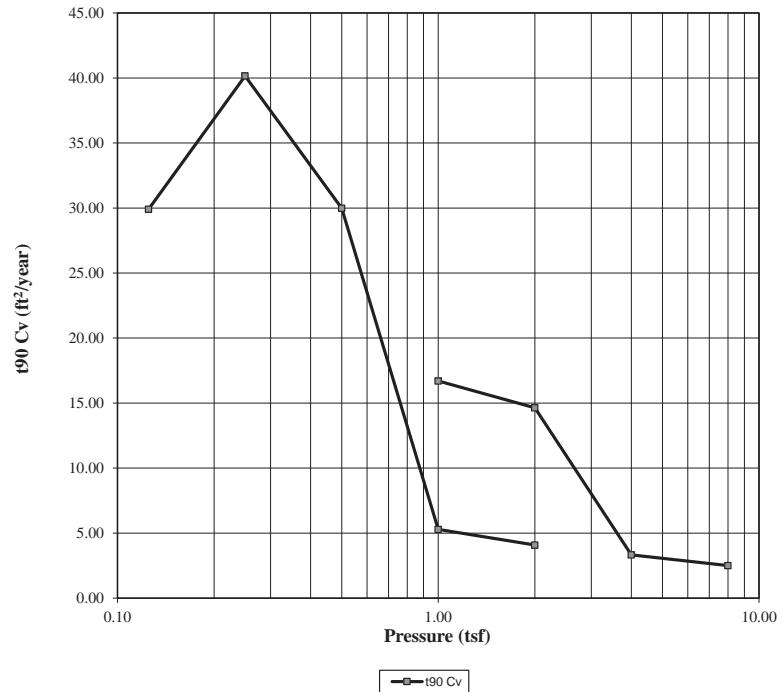
Consolidation Test
Test Results



	Before	After	Liquid Limits:	86	Test Date:	04 June 2015
Moisture (%):	73.63	38.96	Plastic Limits:	32		
Dry Density (pcf):	55.69	86.42	Plasticity Index (%):	54		
Saturation (%):	99.63	114.44				
Void Ratio:	1.9335	0.8164	Specific Gravity:	2.618	Measured	
Sample Description:	Clay (CH)					
Project Number:	16715-012-04	Depth: 18 - 20 feet				
Sample Number:		Boring Number: B-8	Remarks:			
Project:	BA-171 Caminada Headlands Back-Barrier Marsh Creation Project					
Client:	Louisiana Coastal Protection and Restoration Authority (CPRA)					
Location:	LaFourche Parish, Louisiana					



Consolidation Test
Test Results



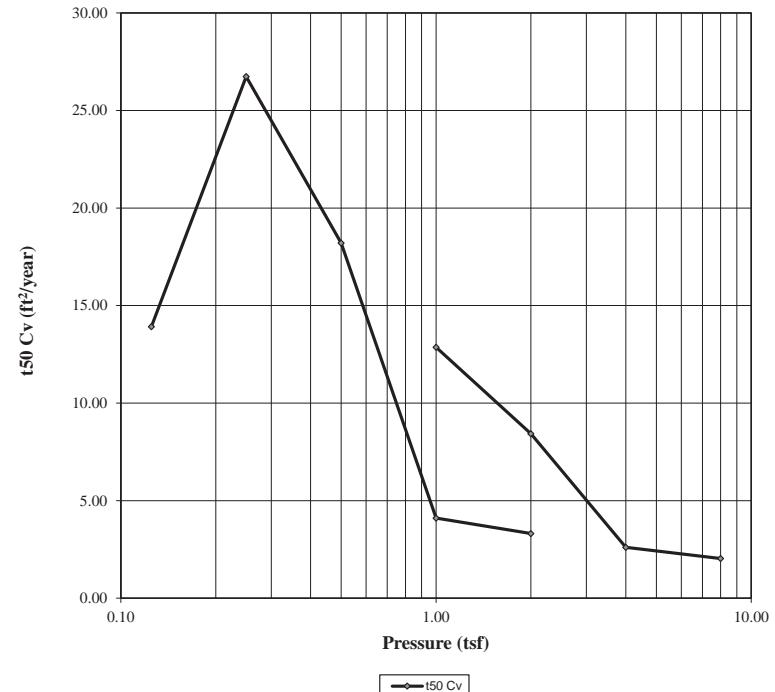
$t_{90} Cv$ (ft²/year)

■ $t_{90} Cv$

	Before	After	Liquid Limits:	86	Test Date:	04 June 2015
Moisture (%):	73.63	38.96	Plastic Limits:	32		
Dry Density (pcf):	55.69	86.42	Plasticity Index (%):	54		
Saturation (%):	99.63	114.44				
Void Ratio:	1.9335	0.8164	Specific Gravity:	2.618	Measured	
Soil Description:	Clay (CH)					
Project Number:	16715-012-04	Depth: 18 - 20 feet				
Sample Number:		Boring Number: B-8	Remarks:			
Project:	BA-171 Caminada Headlands Back-Barrier Marsh Creation Project					
Client:	Louisiana Coastal Protection and Restoration Authority (CPRA)					
Location:	LaFourche Parish, Louisiana					



Consolidation Test
Test Results



$t_{50} Cv$ (ft²/year)

■ $t_{50} Cv$

	Before	After	Liquid Limits:	86	Test Date:	04 June 2015
Moisture (%):	73.63	38.96	Plastic Limits:	32		
Dry Density (pcf):	55.69	86.42	Plasticity Index (%):	54		
Saturation (%):	99.63	114.44				
Void Ratio:	1.9335	0.8164	Specific Gravity:	2.618	Measured	
Soil Description:	Clay (CH)					
Project Number:	16715-012-04	Depth: 18 - 20 feet				
Sample Number:		Boring Number: B-8	Remarks:			
Project:	BA-171 Caminada Headlands Back-Barrier Marsh Creation Project					
Client:	Louisiana Coastal Protection and Restoration Authority (CPRA)					
Location:	LaFourche Parish, Louisiana					



Consolidation Test Results Summary

Project: BA-171 Caminada Headlands Back-Barrier Marsh Creation Project
Location: LaFourche Parish, Louisiana
Job Number:

Project Number: 16715-012-04

Sample Number:
Boring Number: B-8
Depth: 18 - 20 feet
Sample Type: Undisturbed

Sample Description:
Clay (CH)
Remarks:

Test Number:
Test Date: 04 June 2015

Index	Load Sequence (tsf)	Cummulative Change in Height (in)	Specimen Height (in)	Height of Void (in)	Vertical Strain (%)	Void Ratio	t90 Fitting Time (min)	t50 Fitting Time (min)	t90 Cv (ft ² /year)	t50 Cv (ft ² /year)
0	0.000	0.0000	1.0000	0.6587	0.00	1.9296	0.000	0.000	0.000	0.000
1	0.063	0.0015	0.9985	0.6572	0.15	1.9252	0.000	0.000	0.000	0.000
2	0.125	0.0051	0.9949	0.6536	0.51	1.9147	25.615	12.782	29.902	13.921
3	0.250	0.0150	0.9850	0.6437	1.50	1.8857	18.698	6.523	40.152	26.737
4	0.500	0.0404	0.9596	0.6183	4.04	1.8113	23.769	9.090	29.977	18.210
5	1.000	0.1319	0.8681	0.5268	13.19	1.5432	110.267	33.006	5.288	4.104
6	2.000	0.2290	0.7710	0.4297	22.90	1.2587	112.522	32.254	4.088	3.313
7	0.500	0.2019	0.7981	0.4568	20.19	1.3381	0.000	0.000	0.000	0.000
8	1.000	0.2112	0.7888	0.4475	21.12	1.3109	28.830	8.695	16.700	12.864
9	2.000	0.2361	0.7639	0.4226	23.61	1.2379	30.839	12.439	14.642	8.433
10	4.000	0.3115	0.6885	0.3472	31.15	1.0170	110.444	32.658	3.321	2.609
11	8.000	0.3808	0.6192	0.2779	38.08	0.8140	118.438	33.926	2.505	2.032

Predicted value indicated with *



Consolidation Test Consolidation Specimen Information

Project: BA-171 Caminada Headlands Back-Barrier Marsh Creation Project **Project Number:** 16715-012-04
Location: LaFourche Parish, Louisiana
Job Number:

Test Date: 04 June 2015

Sample Number:
Boring Number: B-8
Depth: 18 - 20 feet
Sample Type: Undisturbed

Sample Description:
Clay (CH)
Remarks:

Test Number:
Liquid Limit: 86.0000 **Initial Void Ratio:** 1.9335 **Initial Height (in):** 1.0000
Plastic Limit: 32.0000 **Plasticity Index (%):** 54.0000 **Initial Diameter (in):** 2.5000
Specific Gravity: 2.6180 **Weight of Ring (g):** 109.9600
Measured

Parameters	Initial Specimen	Final Specimen
Moist Weight + Container (g)	115.91	110.57
Dry Soil + Container (g)	76.35	84.71
Weight of Container (g)	22.62	18.33
Moisture Content (%)	73.63	38.96
Void Ratio	1.9335	0.8164
Saturation (%)	99.63	114.44
Dry Density (pcf)	55.69	86.42

Consolidation Test Results (Sequence 1) Load 0.063 tsf	Consolidation Test Results (Sequence 1) Load 0.063 tsf
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Project: BA-171 Caminada Headlands Back-Barrier Marsh Creation Project Project Number: 16715-012-04

Location: LaFourche Parish, Louisiana

Job Number:

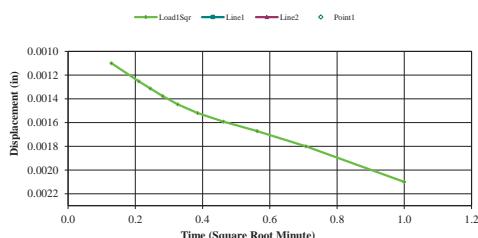
Sample Number:
Boring Number: B-8 Soil Description: Clay (CH)
Depth: 18 - 20 feet Remarks:
Sample Type: Undisturbed

Test Date: 04 June 2015

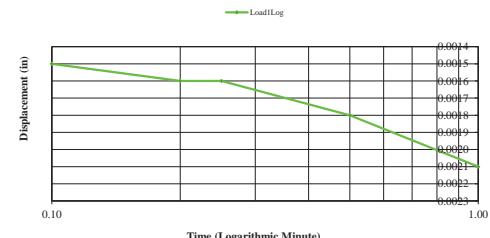
Test Number:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.0006	0.0000	0.0000	1.9335
1	00:00:01	0.0011	0.0005	0.0500	1.9321
2	00:00:02	0.0012	0.0006	0.0600	1.9318
3	00:00:03	0.0013	0.0007	0.0700	1.9315
4	00:00:04	0.0013	0.0007	0.0700	1.9315
5	00:00:05	0.0014	0.0008	0.0800	1.9312
6	00:00:06	0.0015	0.0009	0.0900	1.9309
7	00:00:12	0.0016	0.0010	0.1000	1.9306
8	00:00:15	0.0016	0.0010	0.1000	1.9306
9	00:00:30	0.0018	0.0012	0.1200	1.9300
10	00:01:00	0.0021	0.0015	0.1500	1.9291

Consolidation Graph (SquareRoot Time)



Consolidation Graph (Logarithmic Time)



Page 1 of 1

Consolidation Test Results (Sequence 2) Load 0.125 tsf	Consolidation Test Results (Sequence 2) Load 0.125 tsf
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Project: BA-171 Caminada Headlands Back-Barrier Marsh Creation Project Project Number: 16715-012-04

Location: LaFourche Parish, Louisiana

Job Number:

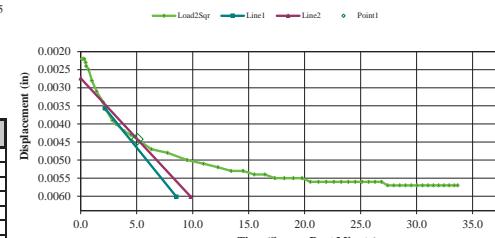
Sample Number:
Boring Number: B-8 Soil Description: Clay (CH)
Depth: 18 - 20 feet Remarks:
Sample Type: Undisturbed

Test Date: 04 June 2015

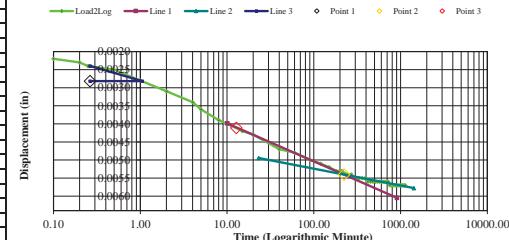
Test Number:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.0021	0.0015	0.1500	1.9291
1	00:00:02	0.0022	0.0016	0.1600	1.9288
2	00:00:02	0.0022	0.0016	0.1600	1.9288
3	00:00:03	0.0022	0.0016	0.1600	1.9288
4	00:00:04	0.0022	0.0016	0.1600	1.9288
5	00:00:05	0.0022	0.0016	0.1600	1.9288
6	00:00:06	0.0022	0.0016	0.1600	1.9288
7	00:00:12	0.0023	0.0017	0.1700	1.9286
8	00:00:15	0.0024	0.0018	0.1800	1.9283
9	00:00:30	0.0025	0.0019	0.1900	1.9280
10	00:01:00	0.0028	0.0022	0.2200	1.9271
11	00:02:01	0.0031	0.0025	0.2500	1.9262
12	00:04:01	0.0034	0.0028	0.2800	1.9253
13	00:05:01	0.0036	0.0030	0.3000	1.9247
14	00:08:01	0.0039	0.0033	0.3300	1.9239
15	00:10:02	0.0040	0.0034	0.3400	1.9236
16	00:15:02	0.0042	0.0036	0.3600	1.9230
17	00:20:03	0.0043	0.0037	0.3700	1.9227
18	00:40:05	0.0047	0.0041	0.4100	1.9215
19	01:00:08	0.0048	0.0042	0.4200	1.9212
20	01:30:12	0.0050	0.0044	0.4400	1.9206
21	02:00:16	0.0051	0.0045	0.4500	1.9203
22	02:30:21	0.0052	0.0046	0.4600	1.9200
23	03:00:25	0.0053	0.0047	0.4700	1.9198
24	03:30:29	0.0053	0.0047	0.4700	1.9198
25	04:00:33	0.0054	0.0048	0.4800	1.9195
26	04:30:37	0.0054	0.0048	0.4800	1.9195
27	05:00:42	0.0055	0.0049	0.4900	1.9192
28	05:30:46	0.0055	0.0049	0.4900	1.9192
29	06:00:50	0.0055	0.0049	0.4900	1.9192
30	06:30:53	0.0055	0.0049	0.4900	1.9192
31	07:00:57	0.0056	0.0050	0.5000	1.9189
32	07:31:02	0.0056	0.0050	0.5000	1.9189
33	08:31:05	0.0056	0.0050	0.5000	1.9189
34	08:31:10	0.0056	0.0050	0.5000	1.9189
35	09:01:13	0.0056	0.0050	0.5000	1.9189

Consolidation Graph (SquareRoot Time)



Consolidation Graph (Logarithmic Time)



Page 1 of 2

Consolidation Test Results (Sequence 3) Load 0.250 tsf	Consolidation Test Results (Sequence 3) Load 0.250 tsf
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Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project Project Number: 16715-012-04

Location: LaFourche Parish, Louisiana

Job Number:

Sample Number:
Boring Number: B-8
Depth: 18 - 20 feet
Sample Type: Undisturbed

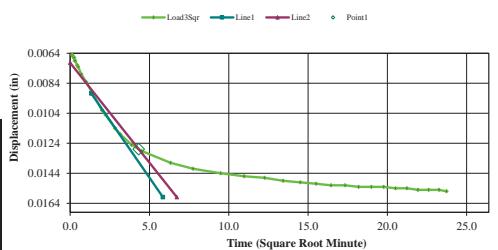
Test Date: 04 June 2015

Test Number:

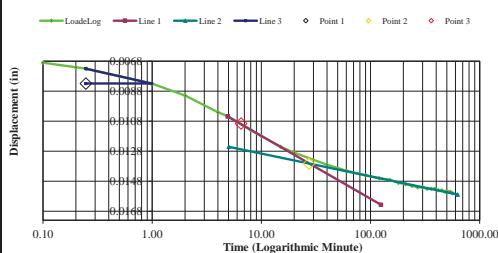
Soil Description:
Clay (CH)
Remarks:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.0057	0.0051	0.5100	1.9186
1	00:00:01	0.0065	0.0059	0.5900	1.9162
2	00:00:02	0.0066	0.0060	0.6000	1.9159
3	00:00:03	0.0067	0.0061	0.6100	1.9156
4	00:00:04	0.0067	0.0061	0.6100	1.9156
5	00:00:05	0.0069	0.0063	0.6300	1.9151
6	00:00:06	0.0069	0.0063	0.6300	1.9151
7	00:00:12	0.0072	0.0066	0.6600	1.9142
8	00:00:15	0.0073	0.0067	0.6700	1.9139
9	00:00:30	0.0078	0.0072	0.7200	1.9124
10	00:01:00	0.0083	0.0077	0.7700	1.9110
11	00:02:01	0.0091	0.0085	0.8500	1.9086
12	00:04:01	0.0102	0.0096	0.9600	1.9054
13	00:05:01	0.0105	0.0099	0.9900	1.9045
14	00:08:01	0.0114	0.0108	1.0800	1.9019
15	00:10:02	0.0118	0.0112	1.1200	1.9007
16	00:15:02	0.0125	0.0119	1.1900	1.8986
17	00:20:03	0.0129	0.0123	1.2300	1.8975
18	00:40:06	0.0137	0.0131	1.3100	1.8951
19	01:00:09	0.0141	0.0135	1.3500	1.8939
20	01:30:13	0.0144	0.0138	1.3800	1.8931
21	02:00:18	0.0146	0.0140	1.4000	1.8925
22	02:30:22	0.0147	0.0141	1.4100	1.8922
23	03:00:26	0.0149	0.0143	1.4300	1.8916
24	03:30:30	0.0150	0.0144	1.4400	1.8913
25	04:00:34	0.0151	0.0145	1.4500	1.8910
26	04:30:39	0.0152	0.0146	1.4600	1.8907
27	05:00:43	0.0152	0.0146	1.4600	1.8907
28	05:30:47	0.0153	0.0147	1.4700	1.8904
29	06:00:51	0.0153	0.0147	1.4700	1.8904
30	06:30:56	0.0153	0.0147	1.4700	1.8904
31	07:01:00	0.0154	0.0148	1.4800	1.8901
32	07:31:04	0.0154	0.0148	1.4800	1.8901
33	08:01:08	0.0155	0.0149	1.4900	1.8898
34	08:31:12	0.0155	0.0149	1.4900	1.8898
35	09:01:17	0.0155	0.0149	1.4900	1.8898

Consolidation Graph (SquareRoot Time)



Consolidation Graph (Logarithmic Time)



Page 1 of 2

Consolidation Test Results (Sequence 4) Load 0.500 tsf	Consolidation Test Results (Sequence 4) Load 0.500 tsf
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Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project Project Number: 16715-012-04

Location: LaFourche Parish, Louisiana

Job Number:

Sample Number:
Boring Number: B-8
Depth: 18 - 20 feet
Sample Type: Undisturbed

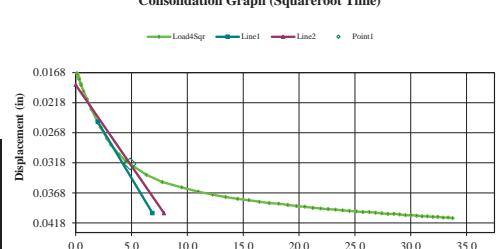
Test Date: 04 June 2015

Test Number:

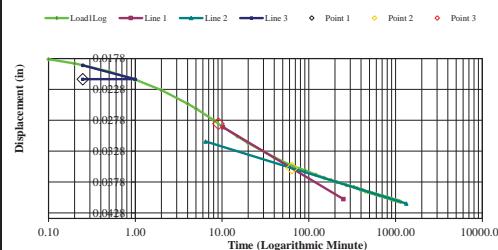
Soil Description:
Clay (CH)
Remarks:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.0156	0.0150	1.5000	1.8895
1	00:00:01	0.0169	0.0163	1.6300	1.8857
2	00:00:02	0.0172	0.0166	1.6600	1.8848
3	00:00:03	0.0175	0.0169	1.6900	1.8840
4	00:00:04	0.0176	0.0170	1.7000	1.8837
5	00:00:05	0.0178	0.0172	1.7200	1.8831
6	00:00:06	0.0179	0.0173	1.7300	1.8828
7	00:00:12	0.0186	0.0180	1.8000	1.8807
8	00:00:15	0.0189	0.0183	1.8300	1.8799
9	00:00:30	0.0199	0.0193	1.9300	1.8769
10	00:01:00	0.0212	0.0206	2.0600	1.8731
11	00:02:00	0.0229	0.0223	2.2300	1.8681
12	00:04:00	0.0251	0.0245	2.4500	1.8617
13	00:05:01	0.0259	0.0253	2.5300	1.8593
14	00:08:01	0.0278	0.0272	2.7200	1.8538
15	00:10:01	0.0288	0.0282	2.8200	1.8508
16	00:15:02	0.0304	0.0298	2.9800	1.8461
17	00:20:03	0.0315	0.0309	3.0900	1.8429
18	00:40:05	0.0338	0.0332	3.3200	1.8361
19	01:00:08	0.0350	0.0344	3.4400	1.8326
20	01:30:12	0.0359	0.0353	3.5300	1.8300
21	02:00:16	0.0366	0.0360	3.6000	1.8279
22	02:30:20	0.0371	0.0365	3.6500	1.8265
23	03:00:24	0.0375	0.0369	3.6900	1.8253
24	03:30:28	0.0378	0.0372	3.7200	1.8244
25	04:00:32	0.0380	0.0374	3.7400	1.8238
26	04:30:36	0.0383	0.0377	3.7700	1.8229
27	05:00:40	0.0385	0.0379	3.7900	1.8224
28	05:30:44	0.0386	0.0380	3.8000	1.8221
29	06:00:48	0.0388	0.0382	3.8200	1.8215
30	06:30:52	0.0390	0.0384	3.8400	1.8209
31	07:00:56	0.0391	0.0385	3.8500	1.8206
32	07:31:00	0.0393	0.0387	3.8700	1.8200
33	08:31:04	0.0394	0.0388	3.8800	1.8197
34	08:31:08	0.0395	0.0389	3.8900	1.8194
35	09:01:12	0.0396	0.0390	3.9000	1.8191

Consolidation Graph (SquareRoot Time)



Consolidation Graph (Logarithmic Time)



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Consolidation Test Results (Sequence 5) Load 1.000 tsf

Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project
Location: LaFourche Parish, Louisiana
Job Number:

Project Number: 16715-012-04
Test Date: 04 June 2015
Test Number:

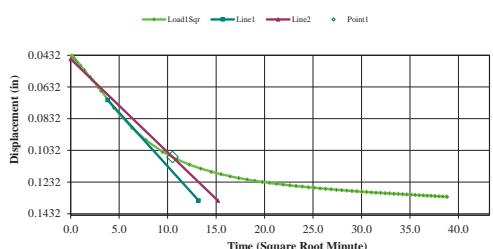
Sample Number:
Boring Number: B-8
Depth: 18 - 20 feet
Sample Type: Undisturbed

Soil Description:
Clay (CH)
Remarks:

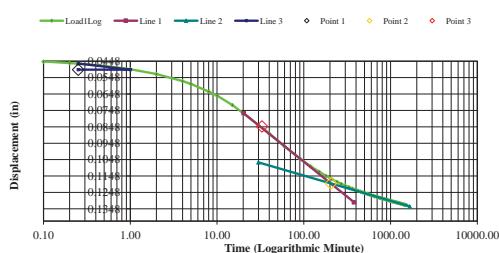
Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.0410	0.0404	4.0400	1.8150
1	00:00:01	0.0434	0.0428	4.2800	1.8080
2	00:00:02	0.0440	0.0434	4.3400	1.8062
3	00:00:03	0.0443	0.0437	4.3700	1.8053
4	00:00:04	0.0446	0.0440	4.4000	1.8045
5	00:00:05	0.0448	0.0442	4.4200	1.8039
6	00:00:06	0.0450	0.0444	4.4400	1.8033
7	00:00:12	0.0459	0.0453	4.5300	1.8007
8	00:00:15	0.0463	0.0457	4.5700	1.7995
9	00:00:30	0.0477	0.0471	4.7100	1.7954
10	00:01:00	0.0497	0.0491	4.9100	1.7895
11	00:02:00	0.0526	0.0520	5.2000	1.7810
12	00:04:00	0.0569	0.0563	5.6300	1.7684
13	00:05:00	0.0587	0.0581	5.8100	1.7631
14	00:08:01	0.0633	0.0627	6.2700	1.7496
15	00:10:01	0.0658	0.0652	6.5200	1.7423
16	00:15:02	0.0715	0.0709	7.0900	1.7256
17	00:20:02	0.0765	0.0759	7.5900	1.7109
18	00:40:05	0.0890	0.0884	8.8400	1.6742
19	01:00:08	0.0968	0.0962	9.6200	1.6513
20	01:30:12	0.1042	0.1036	10.3600	1.6296
21	02:00:16	0.1089	0.1083	10.8300	1.6158
22	02:30:20	0.1122	0.1116	11.1600	1.6062
23	03:00:24	0.1147	0.1141	11.4100	1.5988
24	03:30:28	0.1168	0.1162	11.6200	1.5927
25	04:00:32	0.1183	0.1177	11.7700	1.5883
26	04:30:36	0.1196	0.1190	11.9000	1.5845
27	05:00:40	0.1207	0.1201	12.0100	1.5812
28	05:30:44	0.1216	0.1210	12.1000	1.5786
29	06:00:48	0.1224	0.1218	12.1800	1.5762
30	06:30:52	0.1231	0.1225	12.2500	1.5742
31	07:00:56	0.1237	0.1231	12.3100	1.5724
32	07:31:00	0.1243	0.1237	12.3700	1.5707
33	08:01:04	0.1248	0.1242	12.4200	1.5692
34	08:31:08	0.1253	0.1247	12.4700	1.5677
35	09:01:12	0.1257	0.1251	12.5100	1.5666

Consolidation Test Results (Sequence 5) Load 1.000 tsf

Consolidation Graph (Squareroot Time)



Consolidation Graph (Logarithmic Time)



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Consolidation Test Results (Sequence 6) Load 2.000 tsf

Consolidation Test Results (Sequence 6) Load 2.000 tsf

Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project
Location: LaFourche Parish, Louisiana
Job Number:

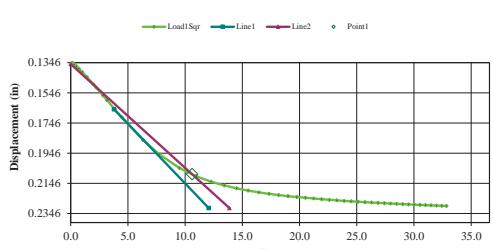
Project Number: 16715-012-04
Test Date: 04 June 2015
Test Number:

Sample Number:
Boring Number: B-8
Depth: 18 - 20 feet
Sample Type: Undisturbed

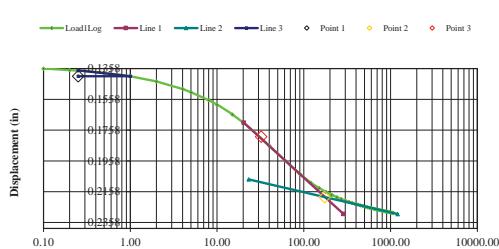
Soil Description:
Clay (CH)
Remarks:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.1325	0.1319	13.1900	1.5466
1	00:00:01	0.1347	0.1341	13.4100	1.5402
2	00:00:02	0.1350	0.1344	13.4400	1.5393
3	00:00:03	0.1353	0.1347	13.4700	1.5384
4	00:00:04	0.1355	0.1349	13.4900	1.5378
5	00:00:05	0.1357	0.1351	13.5100	1.5372
6	00:00:06	0.1359	0.1353	13.5300	1.5366
7	00:00:12	0.1368	0.1362	13.6200	1.5340
8	00:00:15	0.1371	0.1365	13.6500	1.5331
9	00:00:30	0.1386	0.1380	13.8000	1.5287
10	00:01:00	0.1408	0.1402	14.0200	1.5223
11	00:02:00	0.1441	0.1435	14.3500	1.5126
12	00:04:01	0.1491	0.1485	14.8500	1.4979
13	00:05:01	0.1512	0.1506	15.0600	1.4918
14	00:08:02	0.1564	0.1558	15.5800	1.4765
15	00:10:02	0.1594	0.1588	15.8800	1.4677
16	00:15:03	0.1657	0.1651	16.5100	1.4492
17	00:20:03	0.1709	0.1703	17.0300	1.4340
18	00:40:06	0.1859	0.1853	18.5300	1.3900
19	01:00:09	0.1954	0.1948	19.4800	1.3621
20	01:30:13	0.2044	0.2038	20.3800	1.3357
21	02:00:17	0.2099	0.2093	20.9300	1.3196
22	02:30:22	0.2135	0.2129	21.2900	1.3090
23	03:00:26	0.2160	0.2154	21.5400	1.3017
24	03:30:30	0.2179	0.2173	21.7300	1.2961
25	04:00:34	0.2194	0.2188	21.8800	1.2917
26	04:30:38	0.2206	0.2200	22.0000	1.2882
27	05:00:42	0.2216	0.2210	22.1000	1.2852
28	05:30:46	0.2224	0.2218	22.1800	1.2829
29	06:00:50	0.2231	0.2225	22.2500	1.2808
30	06:30:54	0.2237	0.2231	22.3100	1.2791
31	07:00:58	0.2242	0.2236	22.3600	1.2776
32	07:31:02	0.2247	0.2241	22.4100	1.2761
33	08:31:06	0.2251	0.2245	22.4500	1.2750
34	08:31:10	0.2256	0.2250	22.5000	1.2735
35	09:01:14	0.2259	0.2253	22.5300	1.2726

Consolidation Graph (Squareroot Time)



Consolidation Graph (Logarithmic Time)



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Consolidation Test Results (Sequence 7) Rebound 0.500 tsf	Consolidation Test Results (Sequence 7) Rebound 0.500 tsf
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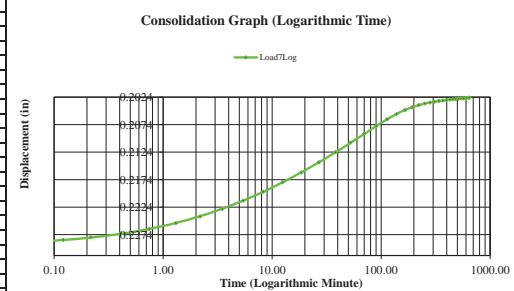
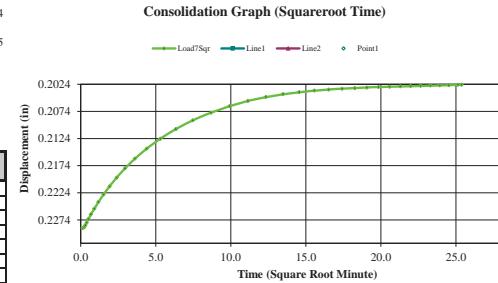
Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project
Location: LaFourche Parish, Louisiana
Job Number:

Project Number: 16715-012-04
Test Date: 04 June 2015
Test Number:

Sample Number:
Boring Number: B-8
Depth: 18 - 20 feet
Sample Type: Undisturbed

Soil Description:
Clay (CH)
Remarks:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.2296	0.2290	22.9000	1.2618
1	00:00:01	0.2289	0.2283	22.8300	1.2638
2	00:00:02	0.2288	0.2282	22.8200	1.2641
3	00:00:03	0.2288	0.2282	22.8200	1.2641
4	00:00:04	0.2287	0.2281	22.8100	1.2644
5	00:00:05	0.2287	0.2281	22.8100	1.2644
6	00:00:06	0.2286	0.2280	22.8000	1.2647
7	00:00:12	0.2276	0.2270	22.7000	1.2676
8	00:00:15	0.2266	0.2260	22.6000	1.2706
9	00:00:30	0.2257	0.2251	22.5100	1.2732
10	00:01:00	0.2246	0.2240	22.4000	1.2764
11	00:02:00	0.2230	0.2224	22.2400	1.2811
12	00:04:01	0.2206	0.2200	22.0000	1.2882
13	00:05:01	0.2197	0.2191	21.9100	1.2908
14	00:08:01	0.2174	0.2168	21.6800	1.2976
15	00:10:02	0.2162	0.2156	21.5600	1.3011
16	00:15:02	0.2138	0.2132	21.3200	1.3081
17	00:20:03	0.2121	0.2115	21.1500	1.3131
18	00:40:06	0.2082	0.2076	20.7600	1.3245
19	01:00:08	0.2064	0.2058	20.5800	1.3298
20	01:30:12	0.2051	0.2045	20.4500	1.3336
21	02:00:17	0.2044	0.2038	20.3800	1.3357
22	02:30:21	0.2040	0.2034	20.3400	1.3369
23	03:00:25	0.2038	0.2032	20.3200	1.3374
24	03:30:29	0.2036	0.2030	20.3000	1.3380
25	04:00:34	0.2034	0.2028	20.2800	1.3386
26	04:30:38	0.2033	0.2027	20.2700	1.3389
27	05:00:42	0.2032	0.2026	20.2600	1.3392
28	05:30:46	0.2031	0.2025	20.2500	1.3395
29	06:00:51	0.2030	0.2024	20.2400	1.3398
30	06:30:55	0.2029	0.2023	20.2300	1.3401
31	07:00:59	0.2028	0.2022	20.2200	1.3404
32	07:31:03	0.2028	0.2022	20.2200	1.3404
33	08:01:08	0.2027	0.2021	20.2100	1.3407
34	08:31:12	0.2027	0.2021	20.2100	1.3407
35	09:01:16	0.2026	0.2020	20.2000	1.3410



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Consolidation Test Results (Sequence 8) Load 1.000 tsf	Consolidation Test Results (Sequence 8) Load 1.000 tsf
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Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project
Location: LaFourche Parish, Louisiana
Job Number:

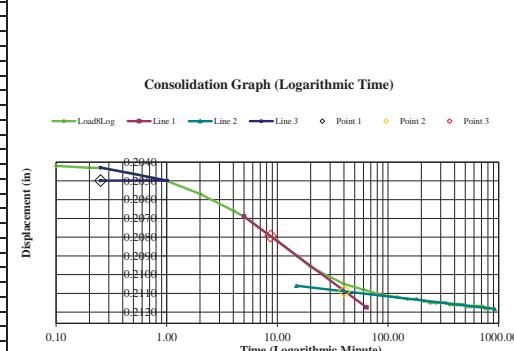
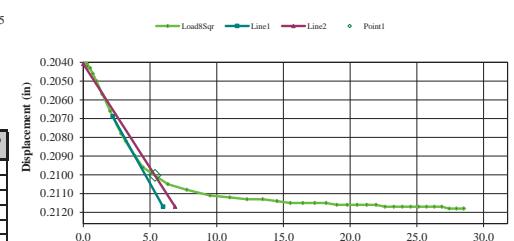
Project Number: 16715-012-04
Test Date: 04 June 2015
Test Number:

Sample Number:
Boring Number: B-8
Depth: 18 - 20 feet
Sample Type: Undisturbed

Soil Description:
Clay (CH)
Remarks:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.2025	0.2019	20.1900	1.3413
1	00:00:01	0.2041	0.2035	20.3500	1.3366
2	00:00:02	0.2041	0.2035	20.3500	1.3366
3	00:00:03	0.2041	0.2035	20.3500	1.3366
4	00:00:04	0.2041	0.2035	20.3500	1.3366
5	00:00:05	0.2041	0.2035	20.3500	1.3366
6	00:00:06	0.2042	0.2036	20.3600	1.3363
7	00:00:12	0.2043	0.2037	20.3700	1.3360
8	00:00:15	0.2043	0.2037	20.3700	1.3360
9	00:00:30	0.2046	0.2040	20.4000	1.3351
10	00:01:00	0.2050	0.2044	20.4400	1.3339
11	00:02:01	0.2057	0.2051	20.5100	1.3319
12	00:04:01	0.2066	0.2060	20.6000	1.3292
13	00:05:01	0.2069	0.2063	20.6300	1.3284
14	00:08:01	0.2078	0.2072	20.7200	1.3257
15	00:10:02	0.2082	0.2076	20.7600	1.3245
16	00:15:02	0.2090	0.2084	20.8400	1.3222
17	00:20:03	0.2096	0.2090	20.9000	1.3204
18	00:40:06	0.2105	0.2099	20.9900	1.3178
19	01:00:09	0.2108	0.2102	21.0200	1.3169
20	01:30:13	0.2111	0.2105	21.0500	1.3160
21	02:00:17	0.2112	0.2106	21.0600	1.3157
22	02:30:21	0.2113	0.2107	21.0700	1.3154
23	03:00:26	0.2113	0.2107	21.0700	1.3154
24	03:30:30	0.2114	0.2108	21.0800	1.3152
25	04:00:34	0.2115	0.2109	21.0900	1.3149
26	04:30:39	0.2115	0.2109	21.0900	1.3149
27	05:00:43	0.2115	0.2109	21.0900	1.3149
28	05:30:47	0.2115	0.2109	21.0900	1.3149
29	06:00:51	0.2116	0.2110	21.1000	1.3146
30	06:30:56	0.2116	0.2110	21.1000	1.3146
31	07:01:00	0.2116	0.2110	21.1000	1.3146
32	07:31:04	0.2116	0.2110	21.1000	1.3146
33	08:01:09	0.2116	0.2110	21.1000	1.3146
34	08:31:13	0.2117	0.2111	21.1100	1.3143
35	09:01:17	0.2117	0.2111	21.1100	1.3143

Consolidation Graph (SquareRoot Time)



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Consolidation Test Results (Sequence 9) Load 2,000 tsf	Consolidation Test Results (Sequence 9) Load 2,000 tsf
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Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project Project Number: 16715-012-04
 Location: Lafourche Parish, Louisiana
 Job Number:

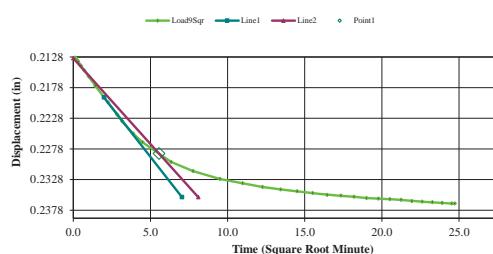
Sample Number:
 Boring Number: B-8
 Depth: 18 - 20 feet
 Sample Type: Undisturbed

Soil Description:
 Clay (CH)
 Remarks:

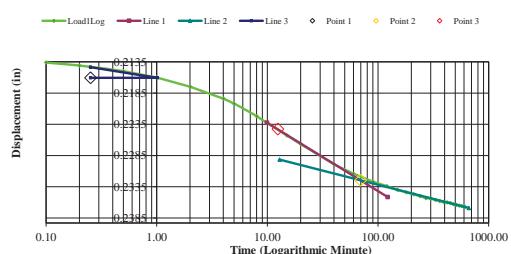
Test Date: 04 June 2015
 Test Number:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.2118	0.2112	21.1200	1.3140
1	00:00:01	0.2129	0.2123	21.2300	1.3108
2	00:00:02	0.2131	0.2125	21.2500	1.3102
3	00:00:03	0.2133	0.2127	21.2700	1.3096
4	00:00:04	0.2134	0.2128	21.2800	1.3093
5	00:00:05	0.2135	0.2129	21.2900	1.3090
6	00:00:06	0.2136	0.2130	21.3000	1.3087
7	00:00:12	0.2141	0.2135	21.3500	1.3072
8	00:00:15	0.2143	0.2137	21.3700	1.3066
9	00:00:30	0.2150	0.2144	21.4400	1.3046
10	00:01:00	0.2160	0.2154	21.5400	1.3017
11	00:02:01	0.2175	0.2169	21.6900	1.2973
12	00:04:01	0.2194	0.2188	21.8800	1.2917
13	00:05:01	0.2202	0.2196	21.9600	1.2893
14	00:08:01	0.2222	0.2216	22.1600	1.2835
15	00:10:02	0.2233	0.2227	22.2700	1.2802
16	00:15:02	0.2255	0.2247	22.4700	1.2744
17	00:20:03	0.2267	0.2261	22.6100	1.2703
18	00:40:06	0.2299	0.2293	22.9300	1.2609
19	01:00:08	0.2314	0.2308	23.0800	1.2565
20	01:30:12	0.2327	0.2321	23.2100	1.2527
21	02:00:16	0.2334	0.2328	23.2800	1.2506
22	02:30:20	0.2340	0.2334	23.3400	1.2489
23	03:00:24	0.2344	0.2338	23.3800	1.2477
24	03:30:28	0.2347	0.2341	23.4100	1.2468
25	04:00:32	0.2350	0.2344	23.4400	1.2459
26	04:30:36	0.2353	0.2347	23.4700	1.2450
27	05:00:40	0.2354	0.2348	23.4800	1.2447
28	05:30:44	0.2356	0.2350	23.5000	1.2442
29	06:00:48	0.2358	0.2352	23.5200	1.2436
30	06:30:52	0.2359	0.2353	23.5300	1.2433
31	07:00:56	0.2360	0.2354	23.5400	1.2430
32	07:31:00	0.2361	0.2355	23.5500	1.2427
33	08:01:04	0.2363	0.2357	23.5700	1.2421
34	08:31:08	0.2364	0.2358	23.5800	1.2418
35	09:01:12	0.2365	0.2359	23.5900	1.2415

Consolidation Graph (Squareroot Time)



Consolidation Graph (Logarithmic Time)



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Consolidation Test Results (Sequence 10) Load 4,000 tsf	Consolidation Test Results (Sequence 10) Load 4,000 tsf
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Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project Project Number: 16715-012-04
 Location: Lafourche Parish, Louisiana
 Job Number:

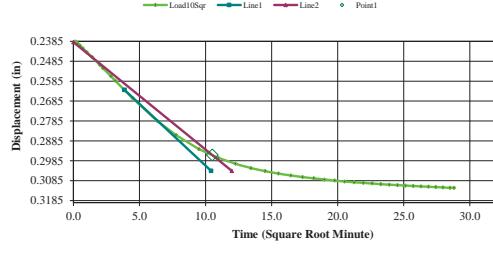
Sample Number:
 Boring Number: B-8
 Depth: 18 - 20 feet
 Sample Type: Undisturbed

Soil Description:
 Clay (CH)
 Remarks:

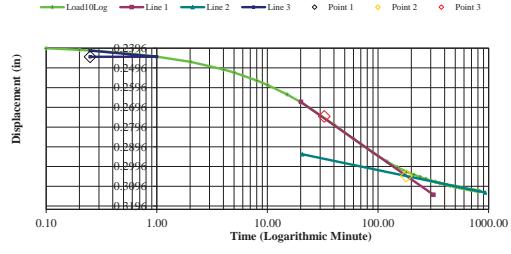
Test Date: 04 June 2015
 Test Number:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.2367	0.2361	23.6100	1.2409
1	00:00:01	0.2386	0.2380	23.8000	1.2354
2	00:00:02	0.2389	0.2383	23.8300	1.2345
3	00:00:03	0.2391	0.2385	23.8500	1.2339
4	00:00:04	0.2393	0.2387	23.8700	1.2333
5	00:00:05	0.2395	0.2389	23.8900	1.2327
6	00:00:06	0.2397	0.2391	23.9100	1.2321
7	00:00:12	0.2404	0.2398	23.9800	1.2301
8	00:00:15	0.2408	0.2402	24.0200	1.2289
9	00:00:30	0.2420	0.2414	24.1400	1.2254
10	00:01:00	0.2439	0.2433	24.3300	1.2198
11	00:02:01	0.2465	0.2459	24.5900	1.2122
12	00:04:01	0.2504	0.2498	24.9800	1.2007
13	00:05:01	0.2520	0.2514	25.1400	1.1961
14	00:08:01	0.2560	0.2554	25.5400	1.1843
15	00:10:01	0.2582	0.2576	25.7600	1.1779
16	00:15:02	0.2630	0.2624	26.2400	1.1638
17	00:20:03	0.2670	0.2664	26.6400	1.1520
18	00:40:06	0.2784	0.2778	27.7800	1.1186
19	01:00:08	0.2856	0.2850	28.5000	1.0975
20	01:30:12	0.2926	0.2920	29.2000	1.0769
21	02:00:16	0.2970	0.2964	29.6400	1.0640
22	02:30:20	0.3000	0.2994	29.9400	1.0552
23	03:00:24	0.3022	0.3016	30.1600	1.0488
24	03:30:28	0.3037	0.3031	30.3100	1.0444
25	04:00:32	0.3049	0.3043	30.4300	1.0409
26	04:30:36	0.3059	0.3053	30.5300	1.0379
27	05:00:40	0.3067	0.3061	30.6100	1.0356
28	05:30:44	0.3073	0.3067	30.6700	1.0338
29	06:00:48	0.3080	0.3074	30.7400	1.0318
30	06:30:52	0.3084	0.3078	30.7800	1.0306
31	07:00:56	0.3089	0.3083	30.8300	1.0291
32	07:31:00	0.3093	0.3087	30.8700	1.0280
33	08:01:04	0.3096	0.3090	30.9000	1.0271
34	08:31:08	0.3099	0.3093	30.9300	1.0262
35	09:01:12	0.3102	0.3096	30.9600	1.0253

Consolidation Graph (Squareroot Time)



Consolidation Graph (Logarithmic Time)



Page 1 of 2

Consolidation Test Results (Sequence 11) Load 8.000 tsf				Consolidation Test Results (Sequence 11) Load 8.000 tsf			
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Project: BA-171 Caminada Headlands Back-BARRIER Marsh Creation Project
Location: LaFourche Parish, Louisiana
Job Number:

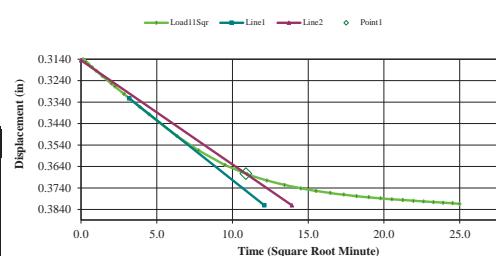
Project Number: 16715.012-04
Test Date: 04 June 2015
Test Number:

Sample Number:
Boring Number: B-8
Depth: 18 - 20 feet
Sample Type: Undisturbed

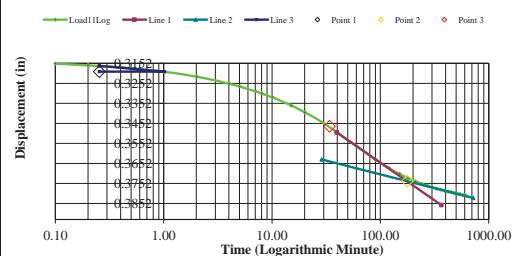
Soil Description:
Clay (CH)
Remarks:

Index	Time	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	0.3121	0.3115	31.1500	1.0197
1	00:00:01	0.3141	0.3135	31.3500	1.0139
2	00:00:02	0.3145	0.3139	31.3900	1.0127
3	00:00:03	0.3147	0.3141	31.4100	1.0121
4	00:00:04	0.3150	0.3144	31.4400	1.0112
5	00:00:05	0.3152	0.3146	31.4600	1.0107
6	00:00:06	0.3153	0.3147	31.4700	1.0104
7	00:00:12	0.3161	0.3155	31.5500	1.0080
8	00:00:15	0.3165	0.3159	31.5900	1.0068
9	00:00:30	0.3177	0.3171	31.7100	1.0033
10	00:01:00	0.3194	0.3188	31.8800	0.9983
11	00:02:01	0.3219	0.3213	32.1300	0.9910
12	00:04:01	0.3254	0.3248	32.4800	0.9807
13	00:05:01	0.3267	0.3261	32.6100	0.9769
14	00:08:01	0.3302	0.3296	32.9600	0.9666
15	00:10:02	0.3321	0.3315	33.1500	0.9611
16	00:15:02	0.3363	0.3357	33.5700	0.9488
17	00:20:03	0.3397	0.3391	33.9100	0.9388
18	00:40:06	0.3498	0.3492	34.9200	0.9091
19	01:00:09	0.3565	0.3559	35.5900	0.8895
20	01:30:13	0.3633	0.3627	36.2700	0.8695
21	02:00:17	0.3676	0.3670	36.7000	0.8569
22	02:30:21	0.3705	0.3699	36.9900	0.8484
23	03:00:26	0.3726	0.3720	37.2000	0.8423
24	03:30:30	0.3742	0.3736	37.3600	0.8376
25	04:00:34	0.3754	0.3748	37.4800	0.8341
26	04:30:38	0.3763	0.3757	37.5700	0.8314
27	05:00:42	0.3771	0.3765	37.6500	0.8291
28	05:30:47	0.3778	0.3772	37.7200	0.8270
29	06:00:51	0.3783	0.3777	37.7700	0.8255
30	06:30:55	0.3788	0.3782	37.8200	0.8241
31	07:00:59	0.3793	0.3787	37.8700	0.8226
32	07:31:03	0.3796	0.3790	37.9000	0.8217
33	08:01:08	0.3800	0.3794	37.9400	0.8206
34	08:31:12	0.3803	0.3797	37.9700	0.8197
35	09:01:16	0.3806	0.3800	38.0000	0.8188

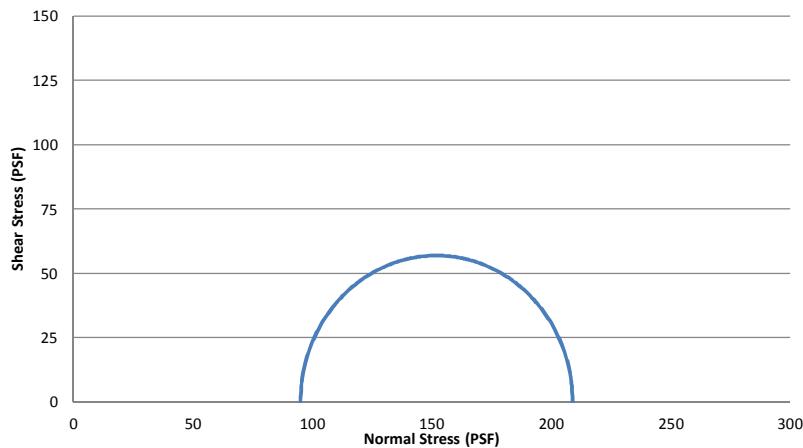
Consolidation Graph (Squareroot Time)



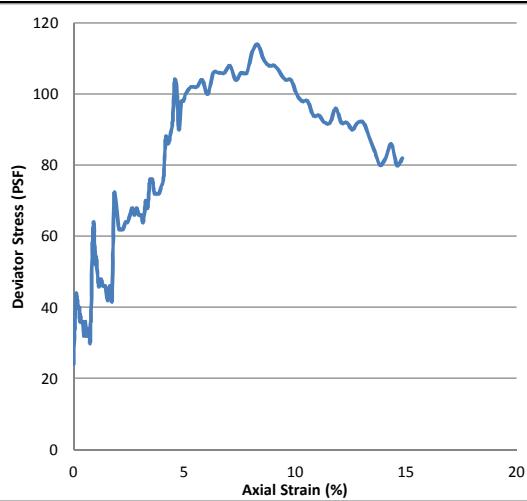
Consolidation Graph (Logarithmic Time)



Data Entry Sheet For Compression - 2010 Version



RESULTS	
C, PSF	57
Sample 1 Failure	Slump
Sample 2 Failure	
Sample 3 Failure	
Sample 4 Failure	

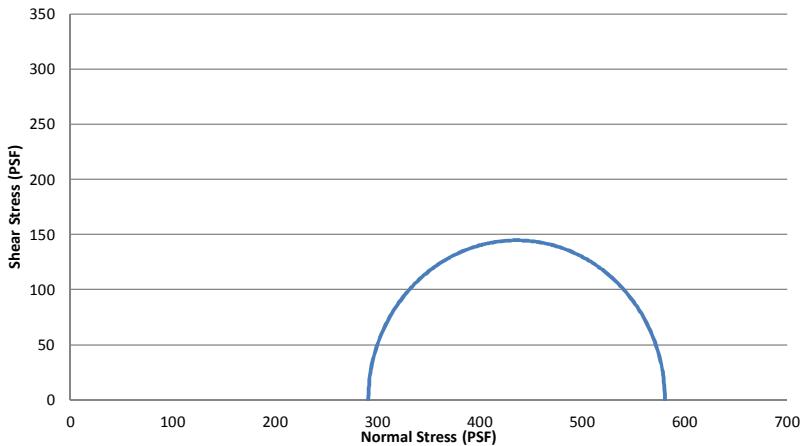


Specimen No.		1		
INITIAL	WATER CONTENT %	127.88		
	DRY DENSITY, PCF	36.66		
	WET DENSITY, PCF	83.53		
	SATURATION %	96.46		
	VOID RATIO	3.51		
AT TEST	WATER CONTENT %			
	DRY DENSITY, PCF			
	WET DENSITY, PCF			
	SATURATION %			
	VOID RATIO			

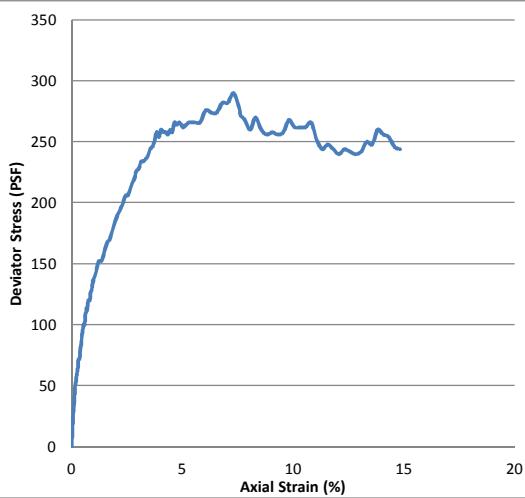
TEST TYPE:	UU			INITIAL HEIGHT, IN	5.93		
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	2.67		
				CELL PRESSURE, PSI	0.66		
ASSUMED SPECIFIC GRAVITY	2.65			MAXIMUM DEVIATOR STRESS, PSF ($\sigma_1 - \sigma_3$)	114.00		
REMARKS				STRAIN, %	8.32		
0				ULTIMATE DEVIATOR STRESS, PSF	82.00		
				σ_1 FAILURE, PSF	209.04		
				σ_3 FAILURE, PSF	95.04		

SAMPLE DESCRIPTION		Very soft dark gray clay with organics (CH)			
BORING NO.	B-1	SAMPLE NO.		TEST TYPE	UU
PROJECT NAME	LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)			DATED SAMPLED	5/22/2015
PROJECT NUMBER	16715-012-04		DEPTH FT.	0 - 2	
TESTED BY	TCJ//	CHECKED BY	SLC///		

Data Entry Sheet For Compression - 2010 Version



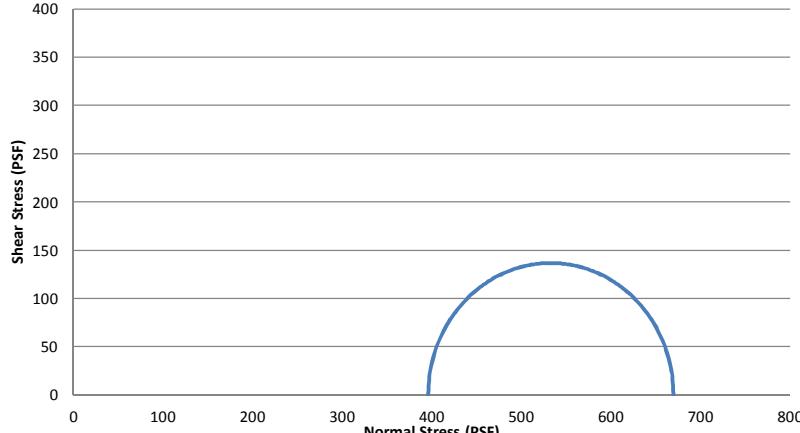
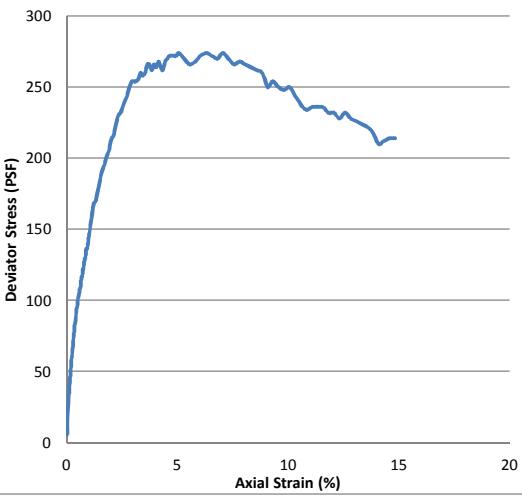
RESULTS	
C, PSF	145
Sample 1 Failure	Bulge
Sample 2 Failure	
Sample 3 Failure	
Sample 4 Failure	

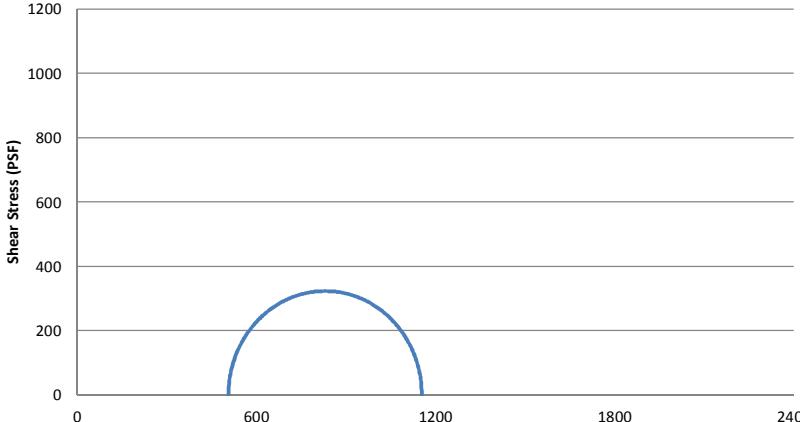
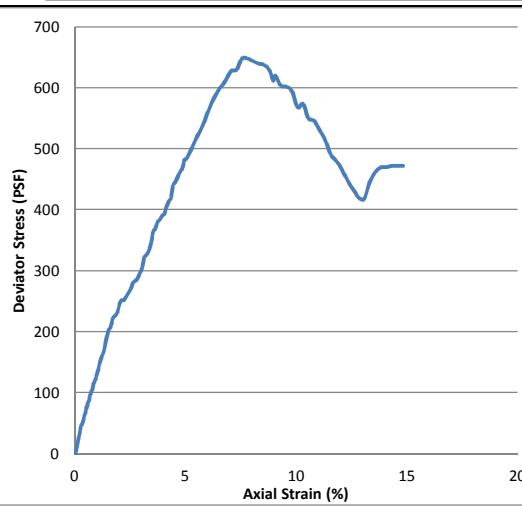


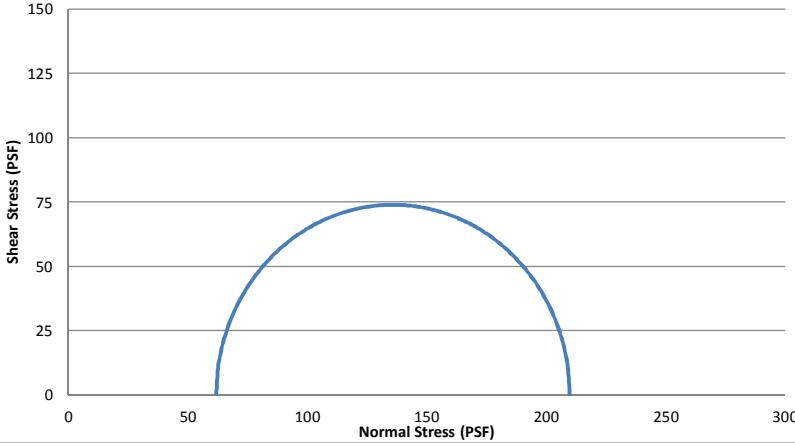
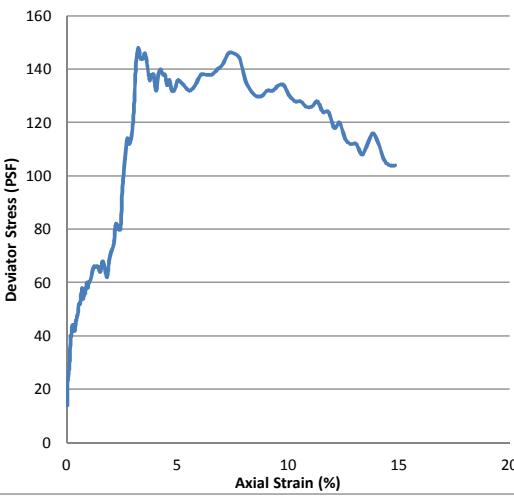
Specimen No.		1			
INITIAL	WATER CONTENT %	121.73			
	DRY DENSITY, PCF	41.21			
	WET DENSITY, PCF	91.38			
	SATURATION %	107.03			
	VOID RATIO	3.01			
AT TEST	WATER CONTENT %				
	DRY DENSITY, PCF				
	WET DENSITY, PCF				
	SATURATION %				
	VOID RATIO				

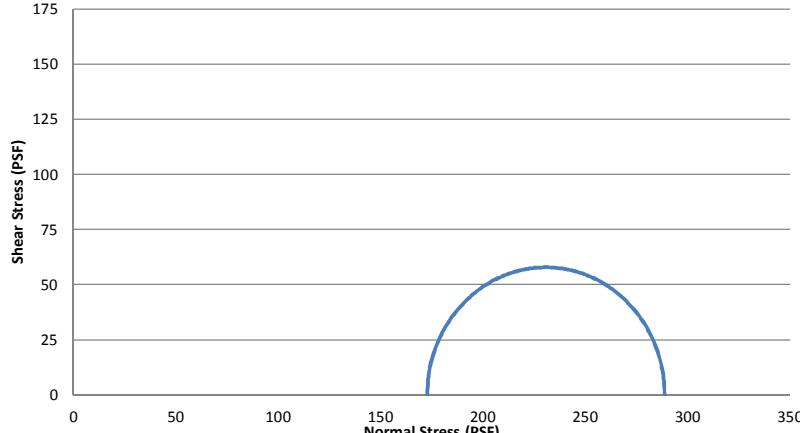
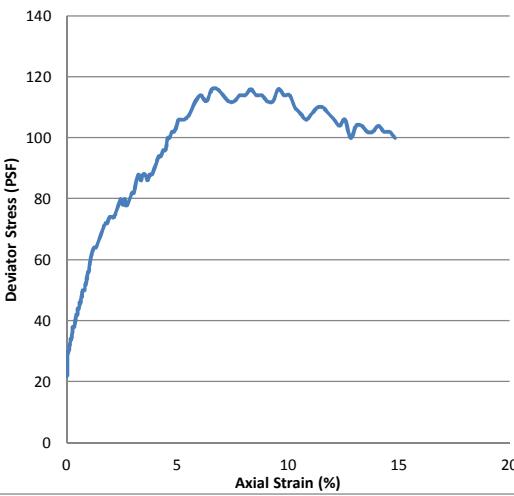
TEST TYPE:	UU			INITIAL HEIGHT, IN	5.93		
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	2.81		
				CELL PRESSURE, PSI	2.02		
ASSUMED SPECIFIC GRAVITY	2.65			MAXIMUM DEVIATOR STRESS, PSF ($\sigma_1 - \sigma_3$)	290.00		
REMARKS				STRAIN, %	7.31		
0				ULTIMATE DEVIATOR STRESS, PSF	244.00		
				σ_1 FAILURE, PSF	580.88		
				σ_3 FAILURE, PSF	290.88		

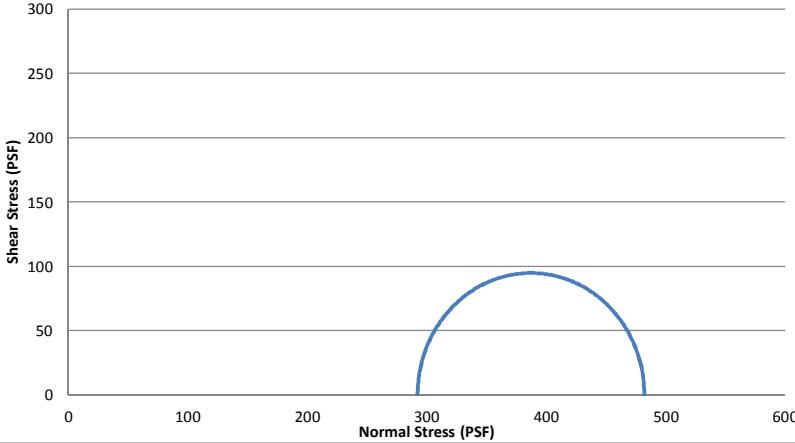
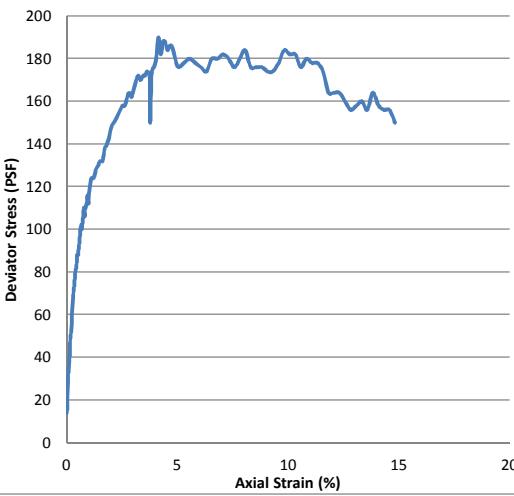
SAMPLE DESCRIPTION		Very soft gray clay with organic matter (CH)			
BORING NO.	B-1	SAMPLE NO.	0	TEST TYPE	UU
PROJECT NAME	LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)			DATED SAMPLED	5/22/2015
PROJECT NUMBER	16715-012-04	DEPTH FT.	4 - 6		
TESTED BY	TCJ//	CHECKED BY	SLC///		

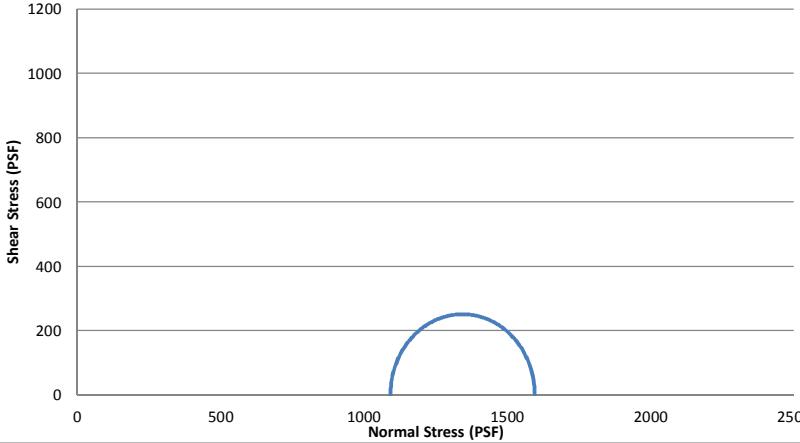
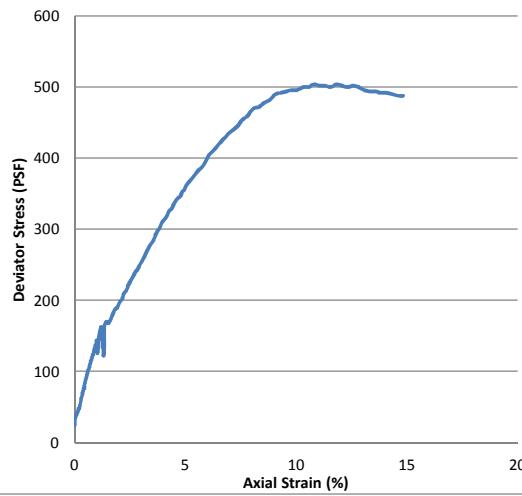
Data Entry Sheet For Compression - 2010 Version																													
		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2"></th> <th colspan="2" style="text-align: center;">RESULTS</th> </tr> </thead> <tbody> <tr> <td>C, PSF</td> <td style="text-align: center;">137</td> <td></td> <td></td> </tr> <tr> <td>Sample 1 Failure</td> <td style="text-align: center;">Bulge</td> <td></td> <td></td> </tr> <tr> <td>Sample 2 Failure</td> <td style="text-align: center;"></td> <td></td> <td></td> </tr> <tr> <td>Sample 3 Failure</td> <td style="text-align: center;"></td> <td></td> <td></td> </tr> <tr> <td>Sample 4 Failure</td> <td style="text-align: center;"></td> <td></td> <td></td> </tr> </tbody> </table>						RESULTS		C, PSF	137			Sample 1 Failure	Bulge			Sample 2 Failure				Sample 3 Failure				Sample 4 Failure			
		RESULTS																											
C, PSF	137																												
Sample 1 Failure	Bulge																												
Sample 2 Failure																													
Sample 3 Failure																													
Sample 4 Failure																													
Specimen No. INITIAL AT TEST		Specimen No. 1																											
		WATER CONTENT %	78.25																										
		DRY DENSITY, PCF	51.18																										
		WET DENSITY, PCF	91.22																										
		SATURATION %	92.88																										
		VOID RATIO	2.23																										
		WATER CONTENT %																											
		DRY DENSITY, PCF																											
		WET DENSITY, PCF																											
		SATURATION %																											
VOID RATIO																													
TEST TYPE:		UU		INITIAL HEIGHT, IN 5.82																									
ATTERBERG LIMIT		LL	PL	PI	INITIAL DIAMETER, IN 2.79																								
		74	31	43	CELL PRESSURE, PSI 2.75																								
ASSUMED SPECIFIC GRAVITY		2.65		MAXIMUM DEVIATOR STRESS, PSF ($\sigma_1 - \sigma_3$) 274.00																									
REMARKS				STRAIN, % 5.07																									
0				ULTIMATE DEVIATOR STRESS, PSF 214.00																									
				σ_1 FAILURE, PSF 670.00																									
				σ_3 FAILURE, PSF 396.00																									
SAMPLE DESCRIPTION		Very soft gray clay (CH)																											
BORING NO.	B-1		SAMPLE NO.	0	TEST TYPE UU																								
PROJECT NAME	LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)			DATED SAMPLED	5/22/2015																								
PROJECT NUMBER	16715-012-04		DEPTH FT.	6 - 8																									
TESTED BY	TCJ//		CHECKED BY	SLC//																									

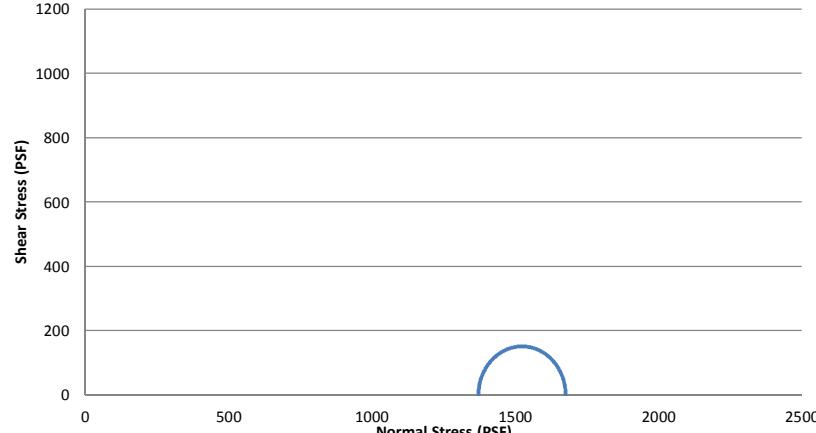
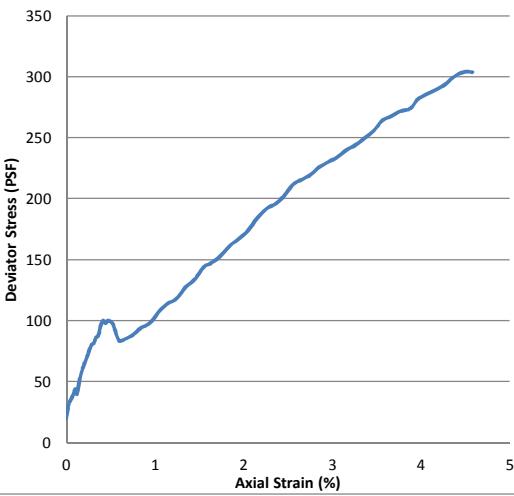
Data Entry Sheet For Compression - 2010 Version																	
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RESULTS																	
C, PSF	324																
Sample 1 Failure	Bulge																
Sample 2 Failure																	
Sample 3 Failure																	
Sample 4 Failure																	
		Specimen No. INITIAL AT TEST	1 WATER CONTENT % DRY DENSITY, PCF WET DENSITY, PCF SATURATION % VOID RATIO	 WATER CONTENT % DRY DENSITY, PCF WET DENSITY, PCF SATURATION % VOID RATIO													
TEST TYPE: ATTERBERG LIMIT	UU LL PL PI		INITIAL HEIGHT, IN INITIAL DIAMETER, IN CELL PRESSURE, PSI	5.93 2.92 3.52													
ASSUMED SPECIFIC GRAVITY	2.65		MAXIMUM DEVIATOR STRESS, PSF ($\sigma_1 - \sigma_3$)	648.00													
REMARKS	0		STRAIN, %	7.56													
ULTIMATE DEVIATOR STRESS, PSF		472.00															
σ_1 FAILURE, PSF		1154.88															
σ_3 FAILURE, PSF		506.88															
SAMPLE DESCRIPTION		Soft gray sandy clay with silt and organic matter (CL)															
BORING NO.	B-1		SAMPLE NO.	0	TEST TYPE	UU											
PROJECT NAME	LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)			DATED SAMPLED	5/22/2015												
PROJECT NUMBER	16715-012-04		DEPTH FT.	8 - 10													
TESTED BY	TCJ// 11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460		CHECKED BY	SLC// GEOENGINEERS													

Data Entry Sheet For Compression - 2010 Version																													
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		RESULTS																											
C, PSF	74																												
Sample 1 Failure	Bulge																												
Sample 2 Failure																													
Sample 3 Failure																													
Sample 4 Failure																													
Specimen No. INITIAL AT TEST		Specimen No. 1																											
		WATER CONTENT %	78.96																										
		DRY DENSITY, PCF	56.42																										
		WET DENSITY, PCF	100.98																										
		SATURATION %	108.30																										
		VOID RATIO	1.93																										
		WATER CONTENT %																											
		DRY DENSITY, PCF																											
		WET DENSITY, PCF																											
		SATURATION %																											
VOID RATIO																													
TEST TYPE:		UU		INITIAL HEIGHT, IN 5.93																									
ATTERBERG LIMIT		LL	PL	PI	INITIAL DIAMETER, IN 2.82																								
		52	23	29	CELL PRESSURE, PSI 0.43																								
ASSUMED SPECIFIC GRAVITY		2.65		MAXIMUM DEVIATOR STRESS, PSF ($\sigma_1 - \sigma_3$) 148.00																									
REMARKS 0		2.65		STRAIN, % 3.24																									
				ULTIMATE DEVIATOR STRESS, PSF 104.00																									
				σ_1 FAILURE, PSF 209.92																									
		σ_3 FAILURE, PSF 61.92																											
SAMPLE DESCRIPTION		Very soft gray clay (CH)																											
BORING NO.		SAMPLE NO.		TEST TYPE	UU																								
PROJECT NAME		LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)		DATED SAMPLED	5/22/2015																								
PROJECT NUMBER		16715-012-04		DEPTH FT.	0 - 2																								
TESTED BY		TCJ//		CHECKED BY	SLC//																								
11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460																													
																													

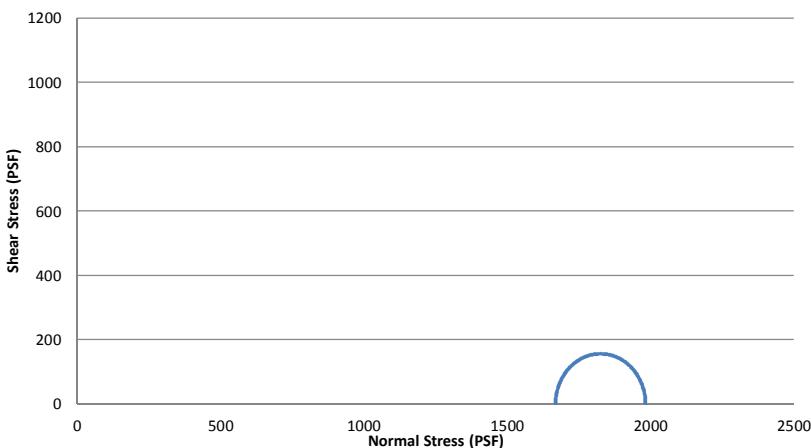
Data Entry Sheet For Compression - 2010 Version																																																																			
		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: left; padding: 2px;">RESULTS</th> </tr> </thead> <tbody> <tr> <td style="padding: 2px;">C, PSF</td> <td style="padding: 2px;">58</td> </tr> <tr> <td style="padding: 2px;">Sample 1 Failure</td> <td style="padding: 2px;">Bulge</td> </tr> <tr> <td style="padding: 2px;">Sample 2 Failure</td> <td style="padding: 2px;"></td> </tr> <tr> <td style="padding: 2px;">Sample 3 Failure</td> <td style="padding: 2px;"></td> </tr> <tr> <td style="padding: 2px;">Sample 4 Failure</td> <td style="padding: 2px;"></td> </tr> </tbody> </table>	RESULTS		C, PSF	58	Sample 1 Failure	Bulge	Sample 2 Failure		Sample 3 Failure		Sample 4 Failure																																																						
RESULTS																																																																			
C, PSF	58																																																																		
Sample 1 Failure	Bulge																																																																		
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<p>TEST TYPE:</p> <p>ATTERBERG LIMIT</p> <p>ASSUMED SPECIFIC GRAVITY</p> <p>REMARKS</p>	<p>UU</p> <p>LL PL PI 83 29 54</p> <p>2.65</p> <p>0</p>		<p>INITIAL HEIGHT, IN</p> <p>INITIAL DIAMETER, IN</p> <p>CELL PRESSURE, PSI</p> <p>MAXIMUM DEVIATOR STRESS, PSF ($\sigma_1 - \sigma_3$)</p> <p>STRAIN, %</p> <p>ULTIMATE DEVIATOR STRESS, PSF</p> <p>σ_1 FAILURE, PSF</p> <p>σ_3 FAILURE, PSF</p>	<p>5.83</p> <p>2.79</p> <p>1.20</p> <p>116.00</p> <p>6.57</p> <p>100.00</p> <p>288.80</p> <p>172.80</p>																																																															
<p>SAMPLE DESCRIPTION</p>		<p>Very soft gray clay with organic matter (CH)</p>																																																																	
BORING NO.	B-2		SAMPLE NO.	0	TEST TYPE	UU																																																													
PROJECT NAME	LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)			DATED SAMPLED	5/22/2015																																																														
PROJECT NUMBER	16715-012-04		DEPTH FT.	2 - 4																																																															
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		Specimen No. INITIAL AT TEST	1 WATER CONTENT % DRY DENSITY, PCF WET DENSITY, PCF SATURATION % VOID RATIO	69.51 59.19 100.34 102.63 1.79																									
		TEST TYPE: ATTERBERG LIMIT ASSUMED SPECIFIC GRAVITY REMARKS	UU LL PL PI 2.65	INITIAL HEIGHT, IN INITIAL DIAMETER, IN CELL PRESSURE, PSI MAXIMUM DEVIATOR STRESS, PSF ($\sigma_1 - \sigma_3$) STRAIN, %	5.81 2.78 2.03 190.00 4.15																								
		0	ULTIMATE DEVIATOR STRESS, PSF σ_1 FAILURE, PSF σ_3 FAILURE, PSF	150.00 482.32 292.32																									
SAMPLE DESCRIPTION		Very soft gray clay with silt lenses (CH)																											
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PROJECT NUMBER	16715-012-04			DEPTH FT.	4 - 6																								
TESTED BY	TCJ//			CHECKED BY	SLC//																								
11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460						GEOENGINEERS 																							

Data Entry Sheet For Compression - 2010 Version																																																												
		RESULTS <table border="1" style="margin-left: auto; margin-right: 0; border-collapse: collapse;"> <tr> <td>C, PSF</td> <td>252</td> </tr> <tr> <td>Sample 1 Failure</td> <td>Multiple Shear</td> </tr> <tr> <td>Sample 2 Failure</td> <td></td> </tr> <tr> <td>Sample 3 Failure</td> <td></td> </tr> <tr> <td>Sample 4 Failure</td> <td></td> </tr> </table>	C, PSF	252	Sample 1 Failure	Multiple Shear	Sample 2 Failure		Sample 3 Failure		Sample 4 Failure																																																	
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	SATURATION %																																																											
VOID RATIO																																																												
TEST TYPE:	UU		INITIAL HEIGHT, IN	5.84																																																								
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	2.75																																																							
	45	22	23	CELL PRESSURE, PSI	7.59																																																							
ASSUMED SPECIFIC GRAVITY	2.65		MAXIMUM DEVIATOR STRESS, PSF ($\sigma_1 - \sigma_3$)	504.00																																																								
REMARKS			STRAIN, %	10.82																																																								
0			ULTIMATE DEVIATOR STRESS, PSF	488.00																																																								
			σ_1 FAILURE, PSF	1596.96																																																								
			σ_3 FAILURE, PSF	1092.96																																																								
SAMPLE DESCRIPTION		Soft gray clay with silt and sand seams (CL)																																																										
BORING NO.	B-2		SAMPLE NO.	0	TEST TYPE																																																							
PROJECT NAME	LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)			DATED SAMPLED	5/21/2015																																																							
PROJECT NUMBER	16715-012-04		DEPTH FT.	18 - 20																																																								
TESTED BY	TCJ//		CHECKED BY	SLC//																																																								

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TEST TYPE: UU	INITIAL HEIGHT, IN 5.87																											
ATTERBERG LIMIT LL PL PI 63 27 36	INITIAL DIAMETER, IN 2.81																											
ASSUMED SPECIFIC GRAVITY 2.65	MAXIMUM DEVIATOR STRESS, PSF ($\sigma_1 - \sigma_3$) 304.00																											
REMARKS 0	STRAIN, % 4.48																											
	ULTIMATE DEVIATOR STRESS, PSF 304.00																											
	σ_1 FAILURE, PSF 1676.32																											
	σ_3 FAILURE, PSF 1372.32																											
SAMPLE DESCRIPTION		Very soft dark gray clay with silty sand lenses (CH)																										
BORING NO.	B-2	SAMPLE NO.	TEST TYPE	UU																								
PROJECT NAME	LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)		DATED SAMPLED	5/30/2015																								
PROJECT NUMBER	16715-012-04		DEPTH FT.	23 - 25																								
TESTED BY	TCJ//		CHECKED BY	SLC//																								

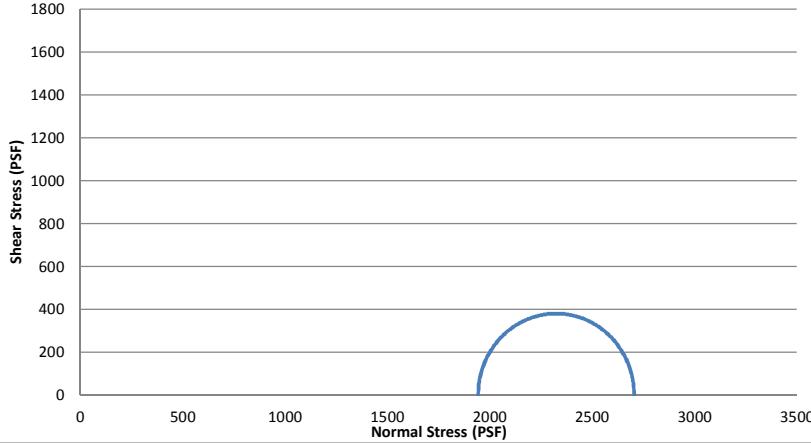
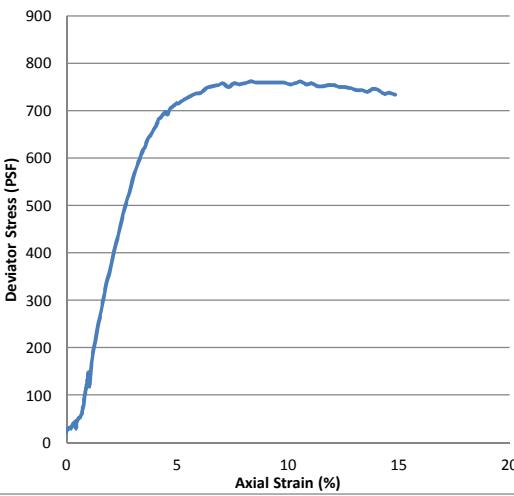
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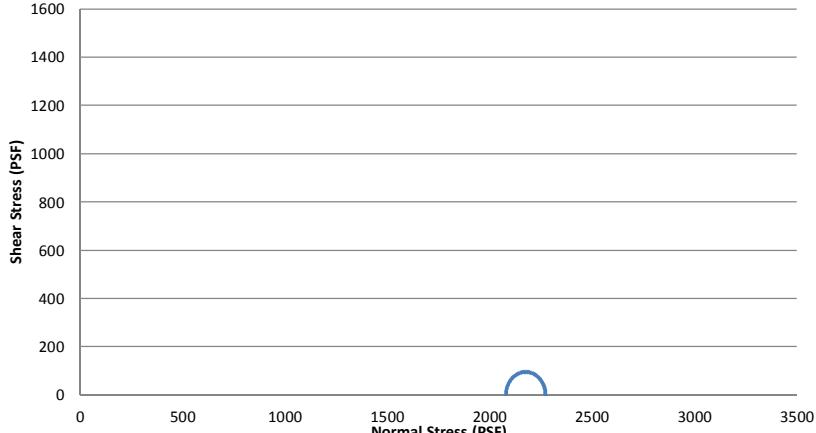
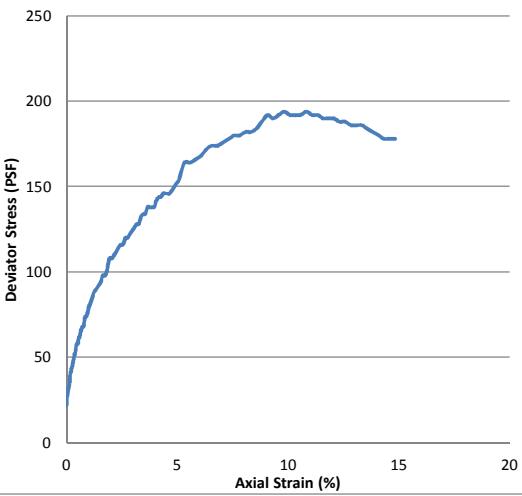


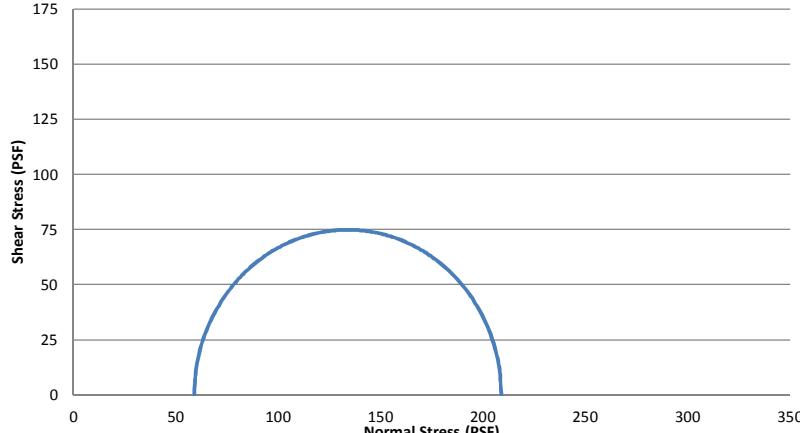
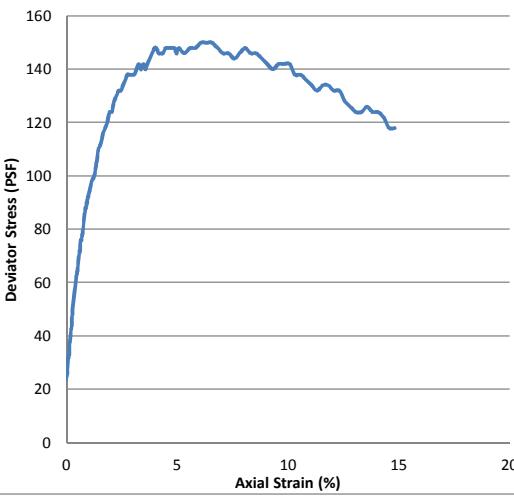
Specimen No.		1		
INITIAL	WATER CONTENT %	63.04		
	DRY DENSITY, PCF	68.85		
	WET DENSITY, PCF	112.26		
	SATURATION %	119.10		
	VOID RATIO	1.40		
AT TEST	WATER CONTENT %			
	DRY DENSITY, PCF			
	WET DENSITY, PCF			
	SATURATION %			
	VOID RATIO			

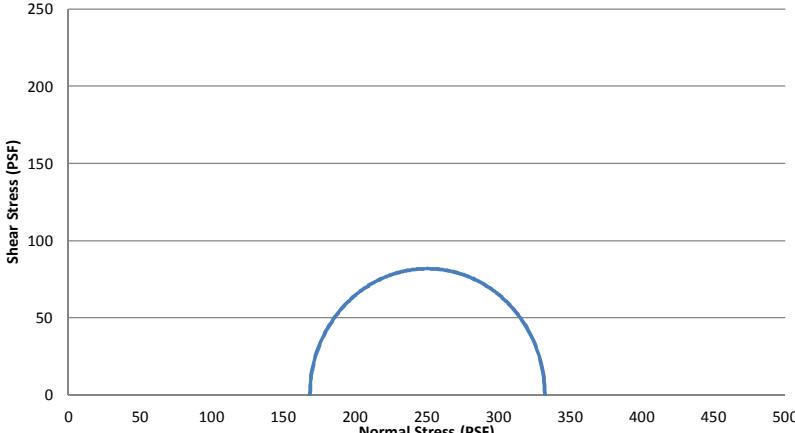
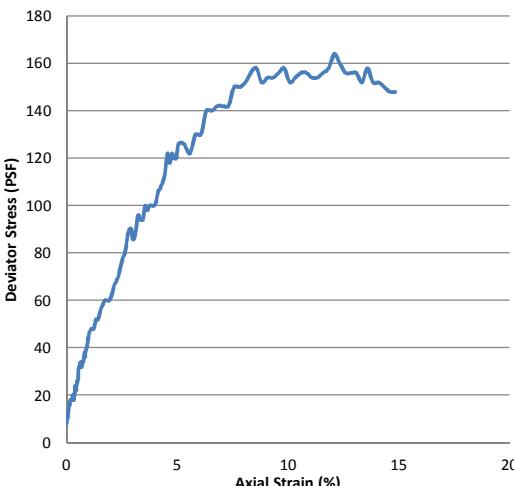
TEST TYPE:	UU			INITIAL HEIGHT, IN	5.92		
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	2.72		
				CELL PRESSURE, PSI	11.59		
ASSUMED SPECIFIC GRAVITY	2.65			MAXIMUM DEVIATOR STRESS, PSF ($\sigma_1 - \sigma_3$)	314.00		
REMARKS				STRAIN, %	4.38		
0				ULTIMATE DEVIATOR STRESS, PSF	264.00		
				σ_1 FAILURE, PSF	1982.96		
				σ_3 FAILURE, PSF	1668.96		

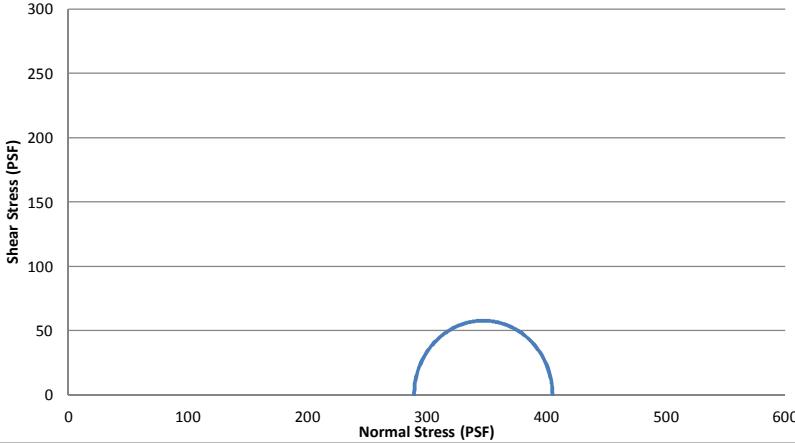
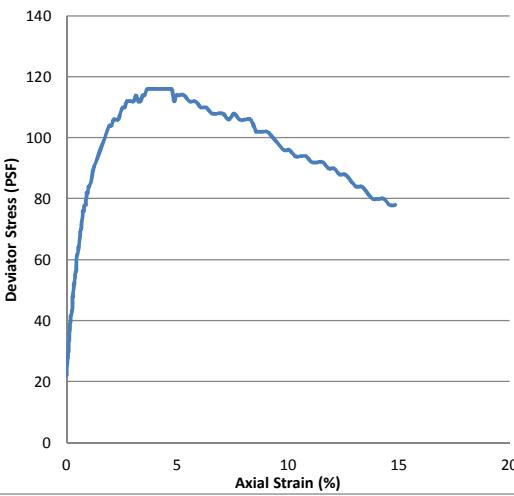
SAMPLE DESCRIPTION		Very soft gray clay with sand (CL)			
BORING NO.	B-2	SAMPLE NO.	0	TEST TYPE	UU
PROJECT NAME	LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)			DATED SAMPLED	5/30/2015
PROJECT NUMBER	16715-012-04		DEPTH FT.	28 - 30	
TESTED BY	TCJ//	CHECKED BY	SLC//		

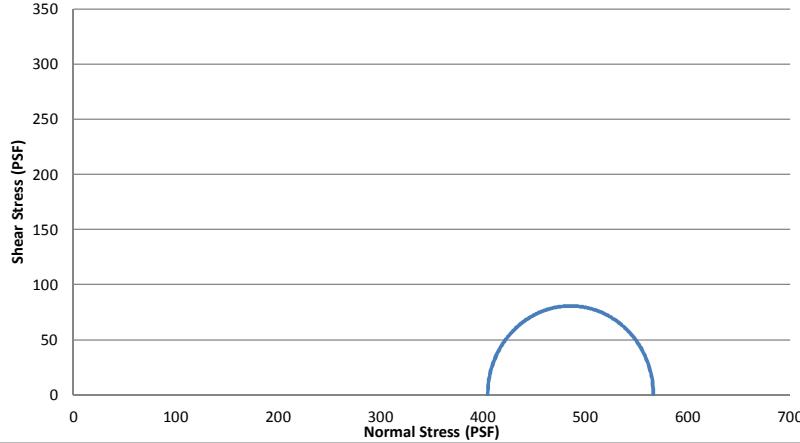
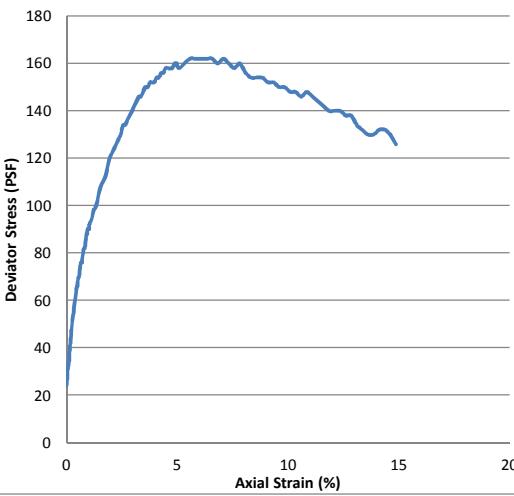
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VOID RATIO																												
TEST TYPE: ATTERBERG LIMIT ASSUMED SPECIFIC GRAVITY REMARKS	UU LL PL PI 2.65 0	INITIAL HEIGHT, IN INITIAL DIAMETER, IN CELL PRESSURE, PSI MAXIMUM DEVIATOR STRESS, PSF ($\sigma_1 - \sigma_3$) STRAIN, % ULTIMATE DEVIATOR STRESS, PSF σ_1 FAILURE, PSF σ_3 FAILURE, PSF	5.71 2.75 13.50 762.00 8.31 734.00 2706.00 1944.00																									
SAMPLE DESCRIPTION		Soft gray sandy clay with sand seams (CL)																										
BORING NO.	B-2	SAMPLE NO.	0	TEST TYPE	UU																							
PROJECT NAME	LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)			DATED SAMPLED	5/30/2015																							
PROJECT NUMBER	16715-012-04			DEPTH FT.	33 - 35																							
TESTED BY	TCJ//			CHECKED BY	SLC//																							

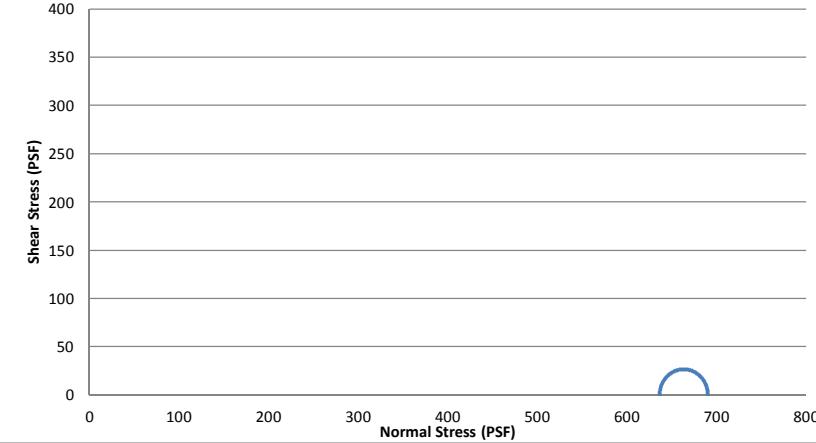
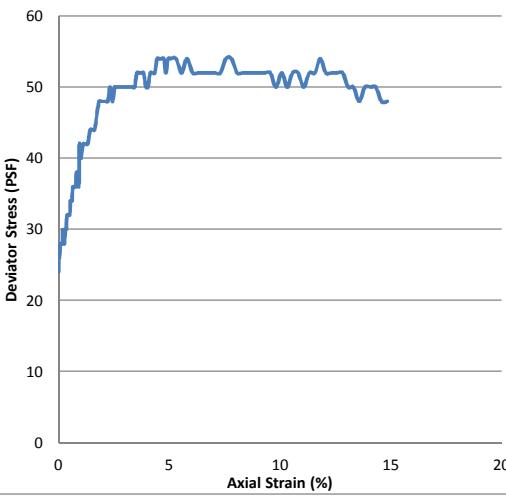
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VOID RATIO																																																															
TEST TYPE:		UU		INITIAL HEIGHT, IN	5.98																																																										
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	2.81																																																										
	43	20	23	CELL PRESSURE, PSI	14.44																																																										
ASSUMED SPECIFIC GRAVITY	2.65		MAXIMUM DEVIATOR STRESS, PSF ($\sigma_1 - \sigma_3$)	194.00																																																											
REMARKS			STRAIN, %	9.83																																																											
0			ULTIMATE DEVIATOR STRESS, PSF	178.00																																																											
			σ_1 FAILURE, PSF	2273.36																																																											
			σ_3 FAILURE, PSF	2079.36																																																											
SAMPLE DESCRIPTION		Very soft gray clay with silt and sand seams (CL)																																																													
BORING NO.	B-2		SAMPLE NO.	0	TEST TYPE	UU																																																									
PROJECT NAME	LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)			DATED SAMPLED	5/30/2015																																																										
PROJECT NUMBER	16715-012-04		DEPTH FT.	38 - 40																																																											
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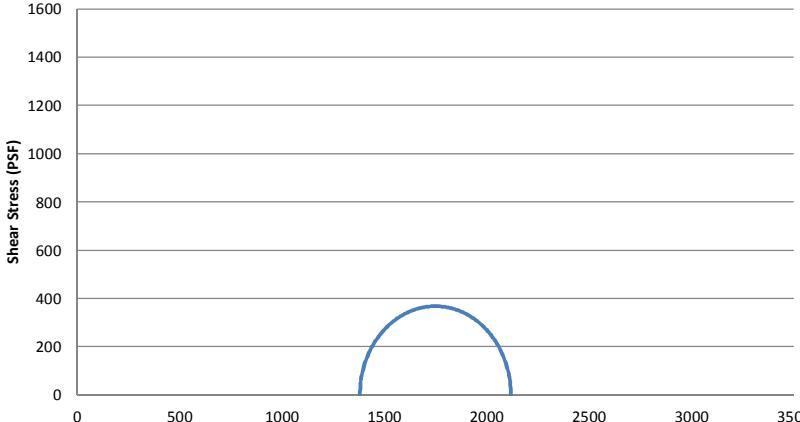
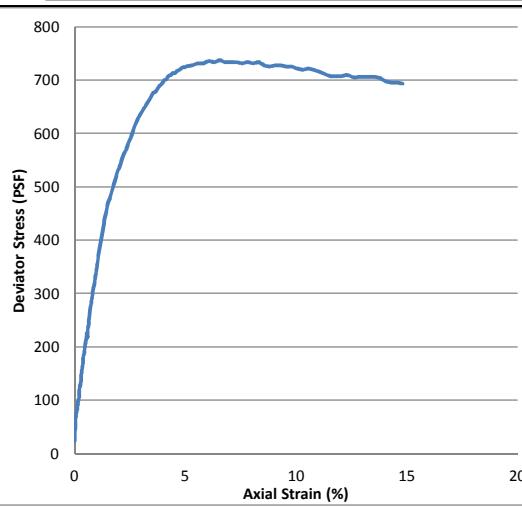
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		INITIAL Specimen No. WATER CONTENT % DRY DENSITY, PCF WET DENSITY, PCF SATURATION % VOID RATIO	1 83.53 51.53 94.58 100.15 2.21														
		AT TEST WATER CONTENT % DRY DENSITY, PCF WET DENSITY, PCF SATURATION % VOID RATIO															
TEST TYPE:	UU		INITIAL HEIGHT, IN	5.20													
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	2.77												
				CELL PRESSURE, PSI	0.41												
ASSUMED SPECIFIC GRAVITY	2.65		MAXIMUM DEVIATOR STRESS, PSF ($\sigma_1 - \sigma_3$)	150.00													
REMARKS			STRAIN, %	6.07													
0			ULTIMATE DEVIATOR STRESS, PSF	118.00													
			σ_1 FAILURE, PSF	209.04													
			σ_3 FAILURE, PSF	59.04													
SAMPLE DESCRIPTION		Very soft dark gray clay with organic matter (CH)															
BORING NO.	B-3		SAMPLE NO.	0	TEST TYPE	UU											
PROJECT NAME	LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)			DATED SAMPLED	5/30/2015												
PROJECT NUMBER	16715-012-04		DEPTH FT.	0 - 2													
TESTED BY	TRC//		CHECKED BY	SLC//													
						GEOENGINEERS 											

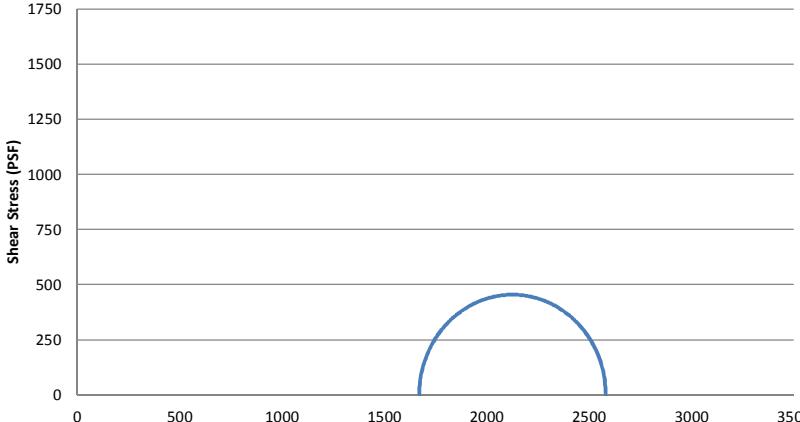
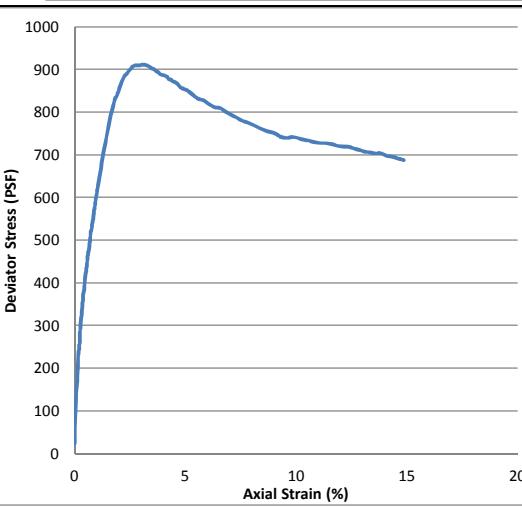
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TEST TYPE: UU	INITIAL HEIGHT, IN 4.88																											
ATTERBERG LIMIT LL PL PI	INITIAL DIAMETER, IN 2.80																											
ASSUMED SPECIFIC GRAVITY 2.65	MAXIMUM DEVIATOR STRESS, PSF ($\sigma_1 - \sigma_3$) 164.00																											
REMARKS 0	STRAIN, % 12.09 ULTIMATE DEVIATOR STRESS, PSF 148.00 σ_1 FAILURE, PSF 332.48 σ_3 FAILURE, PSF 168.48																											
SAMPLE DESCRIPTION Very soft gray clay with organic matter (CH)																												
BORING NO. B-3	SAMPLE NO. 0	TEST TYPE UU																										
PROJECT NAME LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)	DATED SAMPLED	5/30/2015																										
PROJECT NUMBER 16715-012-04	DEPTH FT. 2 - 4																											
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11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460																												
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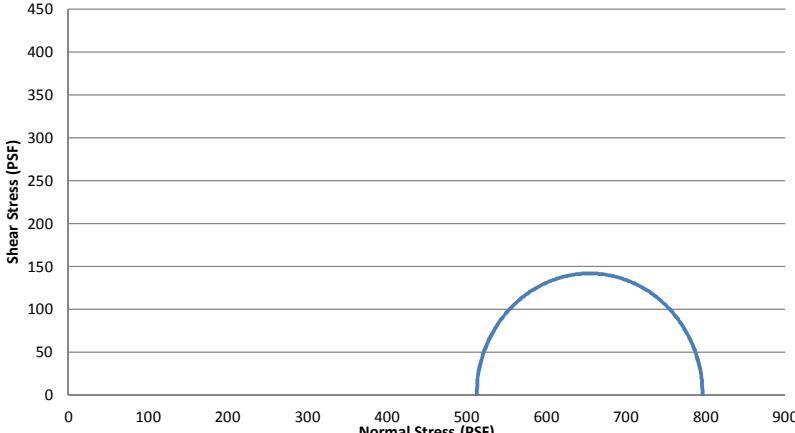
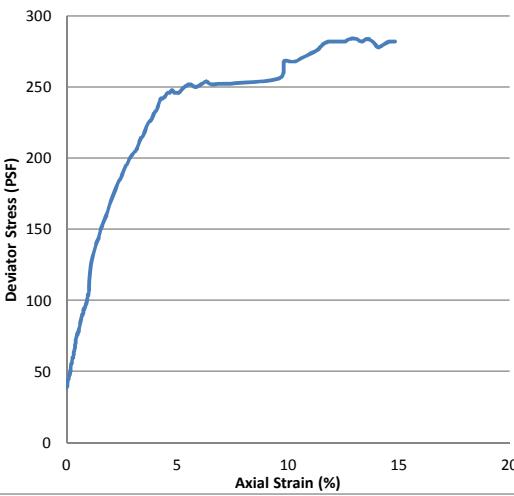
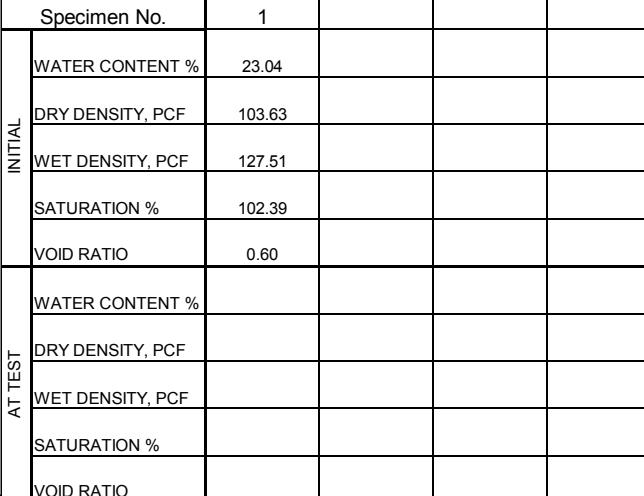
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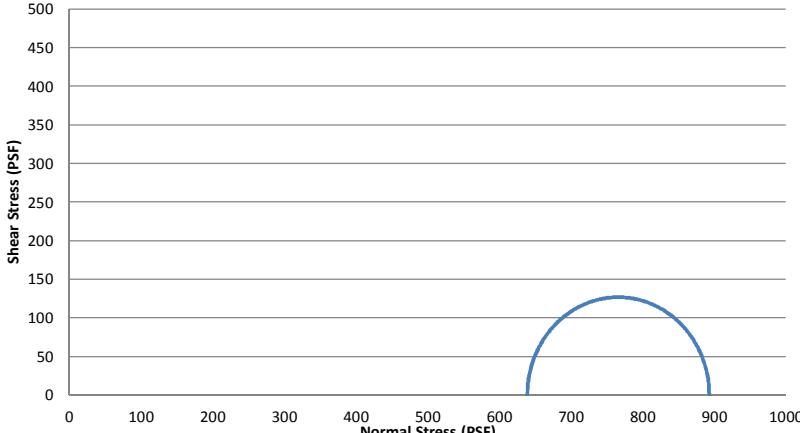
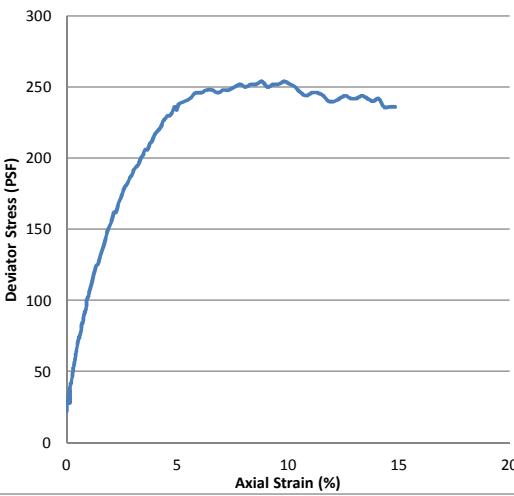
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			CELL PRESSURE, PSI	2.81																									
ASSUMED SPECIFIC GRAVITY	2.65		MAXIMUM DEVIATOR STRESS, PSF ($\sigma_1 - \sigma_3$)	162.00																									
REMARKS			STRAIN, %	5.58																									
0			ULTIMATE DEVIATOR STRESS, PSF	126.00																									
			σ_1 FAILURE, PSF	566.64																									
			σ_3 FAILURE, PSF	404.64																									
SAMPLE DESCRIPTION		Very soft gray clay with silt and 4" clayey sand layer (CL)																											
BORING NO.	B-3		SAMPLE NO.	0	TEST TYPE																								
PROJECT NAME	LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)			DATED SAMPLED	5/30/2015																								
PROJECT NUMBER	16715-012-04		DEPTH FT.	6 - 8																									
TESTED BY	TRC//		CHECKED BY	SLC//																									
11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460																													
																													

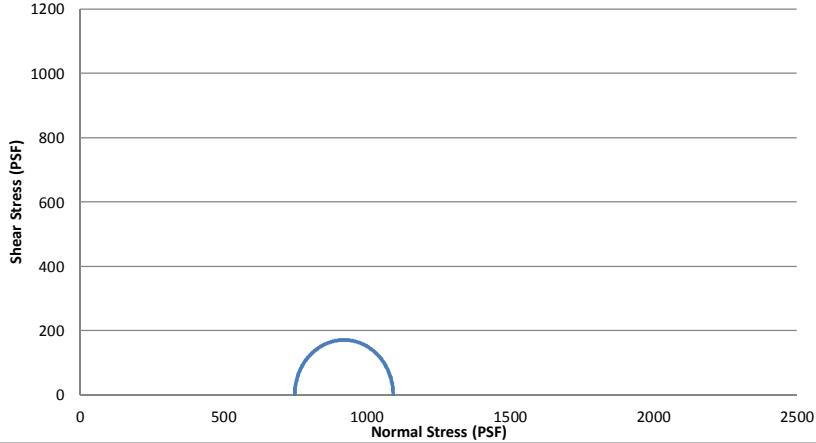
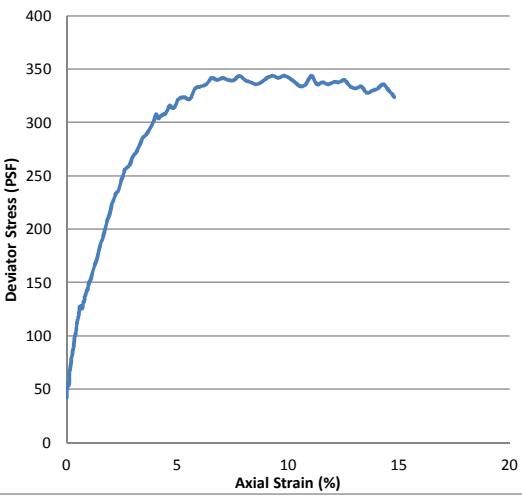
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 <p>Shear Stress (PSF)</p> <p>Normal Stress (PSF)</p>	 <p>Deviator Stress (PSF)</p> <p>Axial Strain (%)</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: left; padding: 2px;">RESULTS</th> </tr> </thead> <tbody> <tr> <td style="padding: 2px;">C, PSF</td> <td style="padding: 2px;">27</td> </tr> <tr> <td style="padding: 2px;">Sample 1 Failure</td> <td style="padding: 2px;">Multiple Shear</td> </tr> <tr> <td style="padding: 2px;">Sample 2 Failure</td> <td style="padding: 2px;"></td> </tr> <tr> <td style="padding: 2px;">Sample 3 Failure</td> <td style="padding: 2px;"></td> </tr> <tr> <td style="padding: 2px;">Sample 4 Failure</td> <td style="padding: 2px;"></td> </tr> </tbody> </table>	RESULTS		C, PSF	27	Sample 1 Failure	Multiple Shear	Sample 2 Failure		Sample 3 Failure		Sample 4 Failure																																													
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	WET DENSITY, PCF																																																									
	SATURATION %																																																									
	VOID RATIO																																																									
TEST TYPE:	UU		INITIAL HEIGHT, IN	4.82																																																						
ATTERBERG LIMIT	LL	PL	INITIAL DIAMETER, IN	2.69																																																						
	52	21	31	CELL PRESSURE, PSI	4.42																																																					
ASSUMED SPECIFIC GRAVITY	2.65		MAXIMUM DEVIATOR STRESS, PSF ($\sigma_1 - \sigma_3$)	54.00																																																						
REMARKS			STRAIN, %	4.45																																																						
0			ULTIMATE DEVIATOR STRESS, PSF	48.00																																																						
			σ_1 FAILURE, PSF	690.48																																																						
			σ_3 FAILURE, PSF	636.48																																																						
SAMPLE DESCRIPTION		Very soft gray clay with sand lenses and organic matter (CH)																																																								
BORING NO.	B-3		SAMPLE NO.	0	TEST TYPE																																																					
PROJECT NAME	LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)			DATED SAMPLED	5/30/2015																																																					
PROJECT NUMBER	16715-012-04		DEPTH FT.	10 - 12																																																						
TESTED BY	TRC//		CHECKED BY	SLC//																																																						

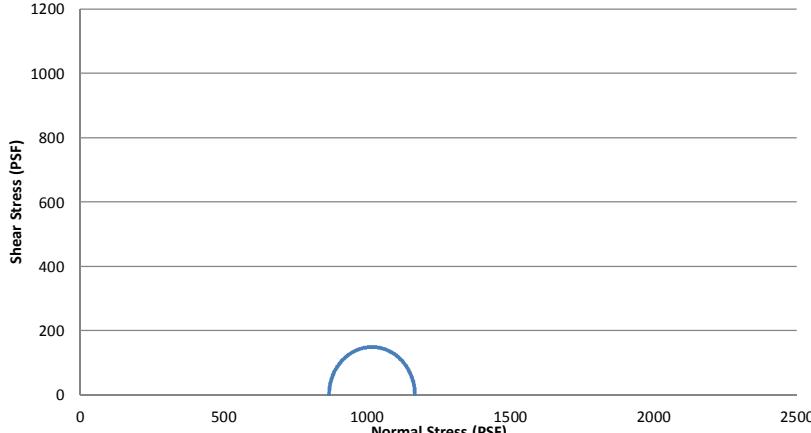
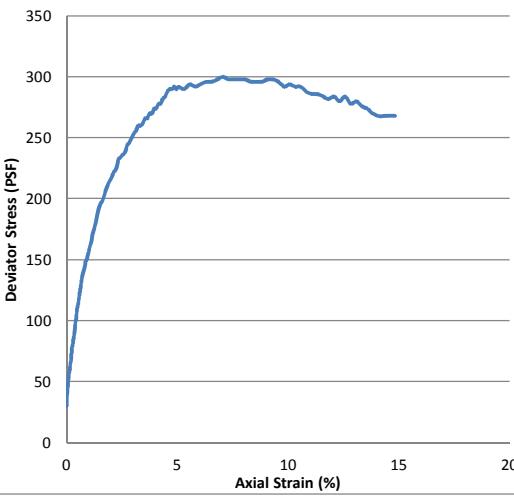
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				RESULTS <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>C, PSF</td> <td>369</td> </tr> <tr> <td>Sample 1 Failure</td> <td>Multiple Shear</td> </tr> <tr> <td>Sample 2 Failure</td> <td></td> </tr> <tr> <td>Sample 3 Failure</td> <td></td> </tr> <tr> <td>Sample 4 Failure</td> <td></td> </tr> </table>		C, PSF	369	Sample 1 Failure	Multiple Shear	Sample 2 Failure		Sample 3 Failure		Sample 4 Failure																																																
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Sample 1 Failure	Multiple Shear																																																													
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INITIAL	Specimen No.	1																																																												
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	SATURATION %																																																													
	VOID RATIO																																																													
TEST TYPE: UU	INITIAL HEIGHT, IN 4.44																																																													
ATTERBERG LIMIT LL PL PI	INITIAL DIAMETER, IN 2.79																																																													
ASSUMED SPECIFIC GRAVITY	MAXIMUM DEVIATOR STRESS, PSF ($\sigma_1 - \sigma_3$) 738.00																																																													
REMARKS 0	STRAIN, % 6.56 ULTIMATE DEVIATOR STRESS, PSF 694.00 σ_1 FAILURE, PSF 2118.96 σ_3 FAILURE, PSF 1380.96																																																													
SAMPLE DESCRIPTION		Soft gray clay with 1" silt layer (CL)																																																												
BORING NO.	B-3		SAMPLE NO.	0	TEST TYPE	UU																																																								
PROJECT NAME	LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)			DATED SAMPLED	5/30/2015																																																									
PROJECT NUMBER	16715-012-04		DEPTH FT.	23 - 25																																																										
TESTED BY	TRC//		CHECKED BY	SLC//																																																										

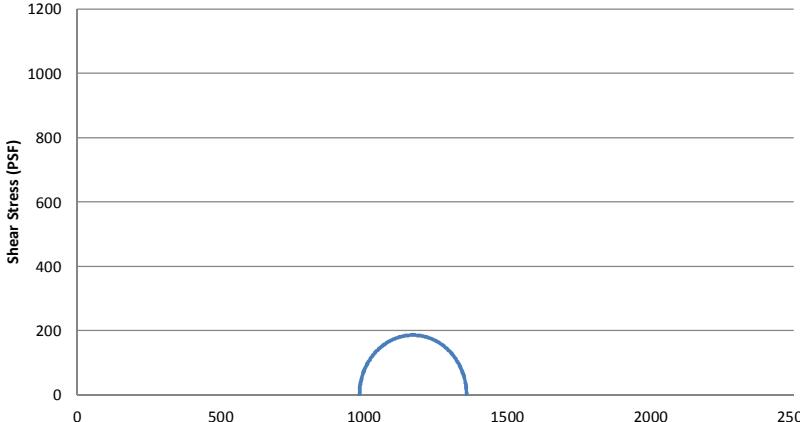
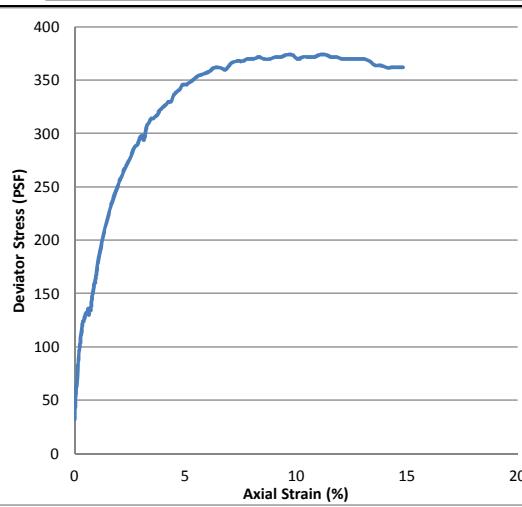
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				RESULTS <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>C, PSF</td> <td>456</td> </tr> <tr> <td>Sample 1 Failure</td> <td>Multiple Shear</td> </tr> <tr> <td>Sample 2 Failure</td> <td></td> </tr> <tr> <td>Sample 3 Failure</td> <td></td> </tr> <tr> <td>Sample 4 Failure</td> <td></td> </tr> </table>		C, PSF	456	Sample 1 Failure	Multiple Shear	Sample 2 Failure		Sample 3 Failure		Sample 4 Failure	
	C, PSF	456													
Sample 1 Failure	Multiple Shear														
Sample 2 Failure															
Sample 3 Failure															
Sample 4 Failure															
	Specimen No. 1														
	INITIAL	WATER CONTENT %	70.38												
	DRY DENSITY, PCF	63.24													
	WET DENSITY, PCF	107.76													
	SATURATION %	115.43													
	VOID RATIO	1.62													
	AT TEST	WATER CONTENT %													
	DRY DENSITY, PCF														
	WET DENSITY, PCF														
	SATURATION %														
VOID RATIO															
TEST TYPE:	UU		INITIAL HEIGHT, IN	5.77											
ATTERBERG LIMIT	LL	PL	INITIAL DIAMETER, IN	2.78											
	76	26	PI	CELL PRESSURE, PSI	11.60										
ASSUMED SPECIFIC GRAVITY	2.65		MAXIMUM DEVIATOR STRESS, PSF ($\sigma_1 - \sigma_3$)	912.00											
REMARKS			STRAIN, %	3.05											
0			ULTIMATE DEVIATOR STRESS, PSF	688.00											
			σ_1 FAILURE, PSF	2582.40											
			σ_3 FAILURE, PSF	1670.40											
SAMPLE DESCRIPTION		Soft gray clay with silt lenses (CH)													
BORING NO.	B-3		SAMPLE NO.	0	TEST TYPE										
PROJECT NAME	LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)			DATED SAMPLED	5/29/2015										
PROJECT NUMBER	16715-012-04		DEPTH FT.	28 - 30											
TESTED BY	TRC//		CHECKED BY	SLC//											

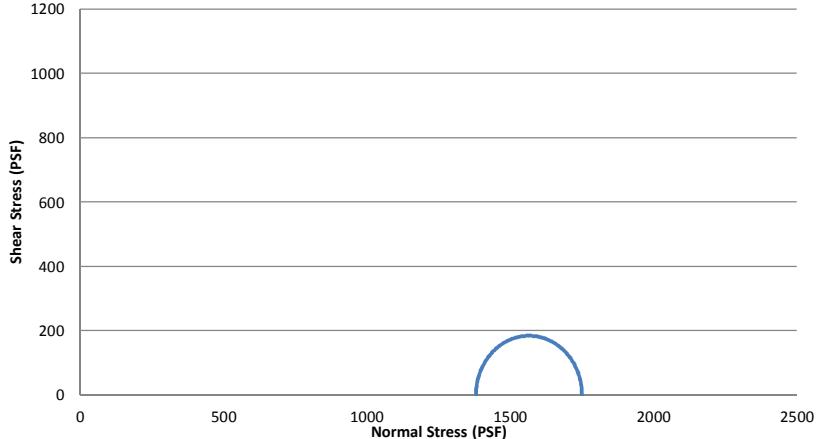
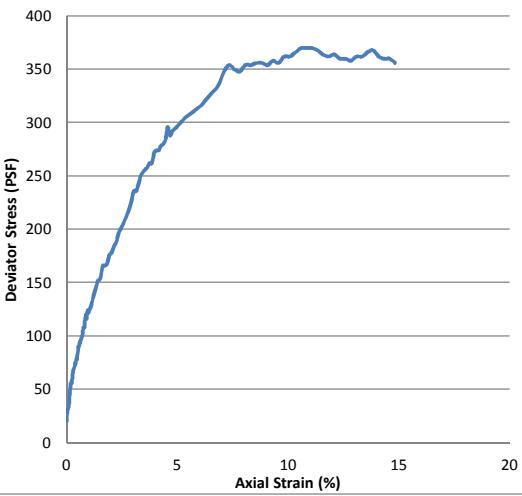
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Sample 1 Failure	Yield																												
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INITIAL 		Specimen No.		1																									
		WATER CONTENT %	23.04																										
		DRY DENSITY, PCF	103.63																										
		WET DENSITY, PCF	127.51																										
		SATURATION %	102.39																										
		VOID RATIO	0.60																										
		AT TEST 		WATER CONTENT %																									
				DRY DENSITY, PCF																									
				WET DENSITY, PCF																									
				SATURATION %																									
VOID RATIO																													
TEST TYPE: UU		INITIAL HEIGHT, IN	5.23																										
		ATTERBERG LIMIT		INITIAL DIAMETER, IN	2.74																								
				LL	PL	PI																							
		ASSUMED SPECIFIC GRAVITY		51	25	26	CELL PRESSURE, PSI	3.56																					
				2.65			MAXIMUM DEVIATOR STRESS, PSF ($\sigma_1 - \sigma_3$)	284.00																					
REMARKS 0		STRAIN, %	14.83																										
		ULTIMATE DEVIATOR STRESS, PSF	282.00																										
		σ_1 FAILURE, PSF	796.64																										
		σ_3 FAILURE, PSF	512.64																										
SAMPLE DESCRIPTION		Very soft gray clay with 4" clayey sand layer and shells (CH)																											
BORING NO.	B-4		SAMPLE NO.	0	TEST TYPE	UU																							
PROJECT NAME	LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)			DATED SAMPLED	5/29/2015																								
PROJECT NUMBER	16715-012-04		DEPTH FT.	8 - 10																									
TESTED BY	TRC//		CHECKED BY	SLC//																									
																													

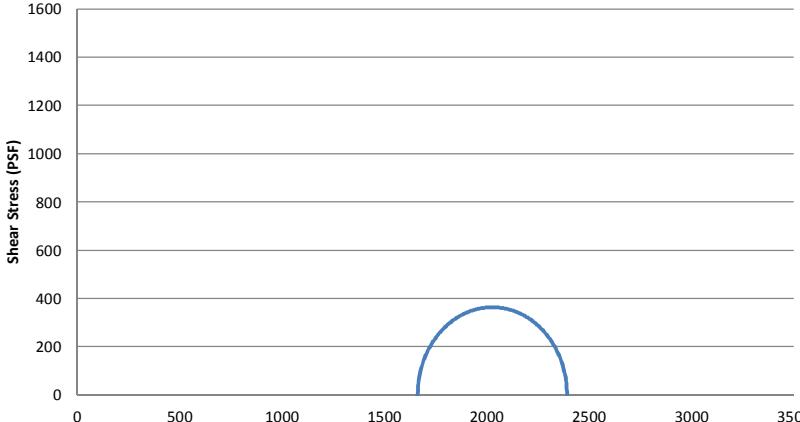
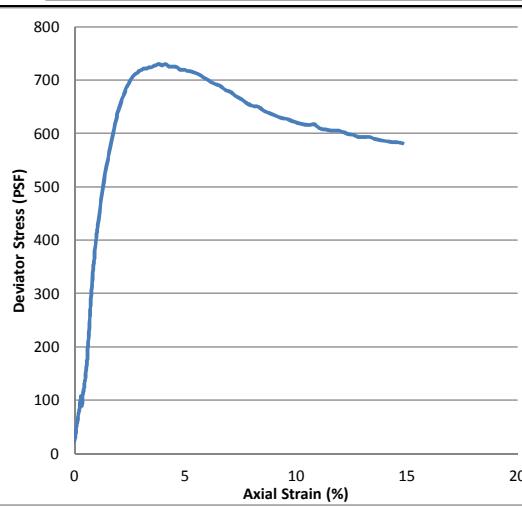
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RESULTS																	
C, PSF	127																
Sample 1 Failure	Multiple Shear																
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Sample 3 Failure																	
Sample 4 Failure																	
		Specimen No. INITIAL AT TEST	1 WATER CONTENT % DRY DENSITY, PCF WET DENSITY, PCF SATURATION % VOID RATIO	WATER CONTENT % DRY DENSITY, PCF WET DENSITY, PCF SATURATION % VOID RATIO													
TEST TYPE:		UU		INITIAL HEIGHT, IN	5.62												
ATTERBERG LIMIT		LL	PL	INITIAL DIAMETER, IN	2.77												
				CELL PRESSURE, PSI	4.44												
ASSUMED SPECIFIC GRAVITY		2.65		MAXIMUM DEVIATOR STRESS, PSF ($\sigma_1 - \sigma_3$)	254.00												
REMARKS				STRAIN, %	8.83												
0				ULTIMATE DEVIATOR STRESS, PSF	236.00												
				σ_1 FAILURE, PSF		893.36											
				σ_3 FAILURE, PSF		639.36											
SAMPLE DESCRIPTION		Very soft dark gray clay with silt lenses and shell fragments (CL)															
BORING NO.	B-4		SAMPLE NO.	0	TEST TYPE												
PROJECT NAME	LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)			DATED SAMPLED	5/30/2015												
PROJECT NUMBER	16715-012-04			DEPTH FT.	10 - 12												
TESTED BY	TRC//		CHECKED BY	SLC//													
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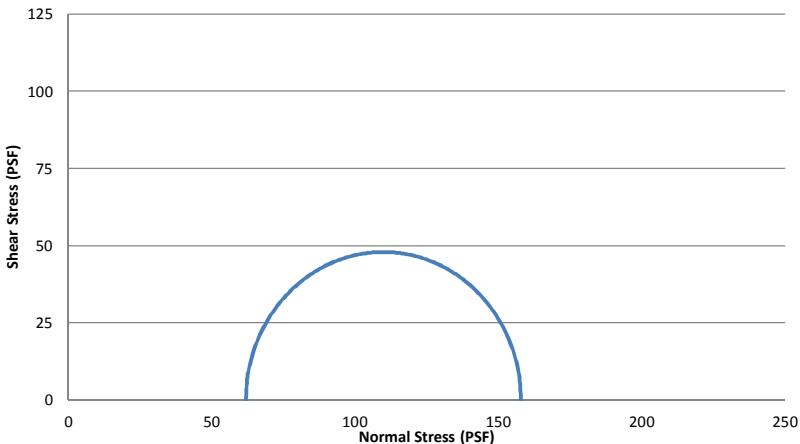
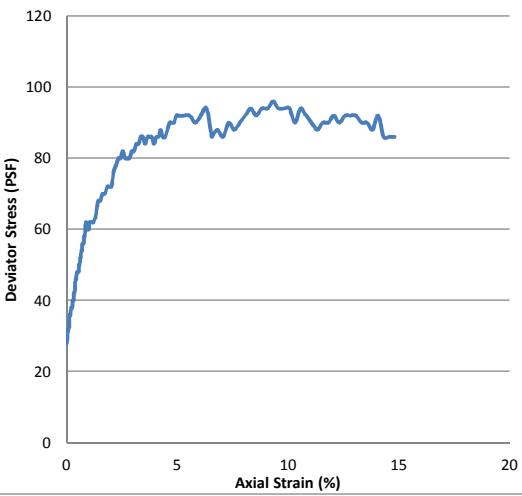
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		Specimen No.	1																																																																																					
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		VOID RATIO																																																																																						
TEST TYPE:	UU		INITIAL HEIGHT, IN	5.75																																																																																				
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	2.82																																																																																			
	81	33	48	CELL PRESSURE, PSI	5.20																																																																																			
ASSUMED SPECIFIC GRAVITY	2.65		MAXIMUM DEVIATOR STRESS, PSF ($\sigma_1 - \sigma_3$)	344.00																																																																																				
REMARKS			STRAIN, %	7.81																																																																																				
0			ULTIMATE DEVIATOR STRESS, PSF	324.00																																																																																				
			σ_1 FAILURE, PSF	1092.80																																																																																				
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SAMPLE DESCRIPTION		Very soft dark gray clay with sand lenses and 3" sandy clay layer with shell fragments (CH)																																																																																						
BORING NO.	B-4		SAMPLE NO.	0	TEST TYPE	UU																																																																																		
PROJECT NAME	LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)			DATED SAMPLED	5/30/2015																																																																																			
PROJECT NUMBER	16715-012-04		DEPTH FT.	12 - 14																																																																																				
TESTED BY	TRC//		CHECKED BY	SLC//																																																																																				

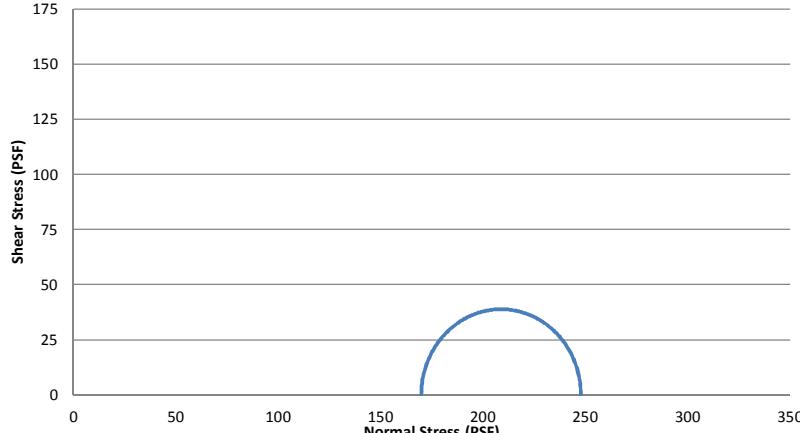
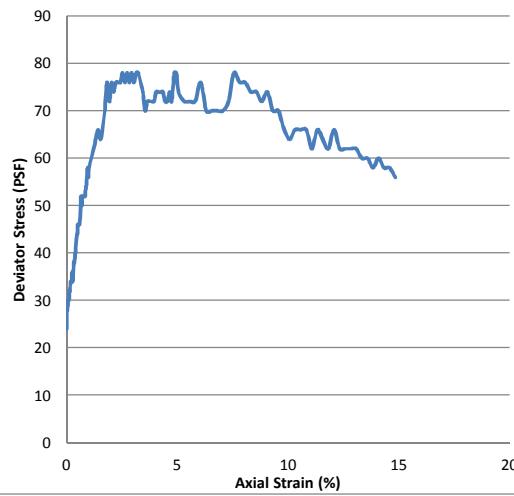
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TEST TYPE:	UU		INITIAL HEIGHT, IN	5.90																																																											
ATTERBERG LIMIT	LL	PL	INITIAL DIAMETER, IN	2.76																																																											
			CELL PRESSURE, PSI	6.03																																																											
ASSUMED SPECIFIC GRAVITY	2.65		MAXIMUM DEVIATOR STRESS, PSF ($\sigma_1 - \sigma_3$)	300.00																																																											
REMARKS			STRAIN, %	7.07																																																											
0			ULTIMATE DEVIATOR STRESS, PSF	268.00																																																											
			σ_1 FAILURE, PSF	1168.32																																																											
			σ_3 FAILURE, PSF	868.32																																																											
SAMPLE DESCRIPTION		Very soft dark gray clay with shell fragments (CL)																																																													
BORING NO.	B-4		SAMPLE NO.	TEST TYPE	UU																																																										
PROJECT NAME	LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)			DATED SAMPLED	5/30/2015																																																										
PROJECT NUMBER	16715-012-04		DEPTH FT.	14 - 16																																																											
TESTED BY	TRC//		CHECKED BY	SLC//																																																											

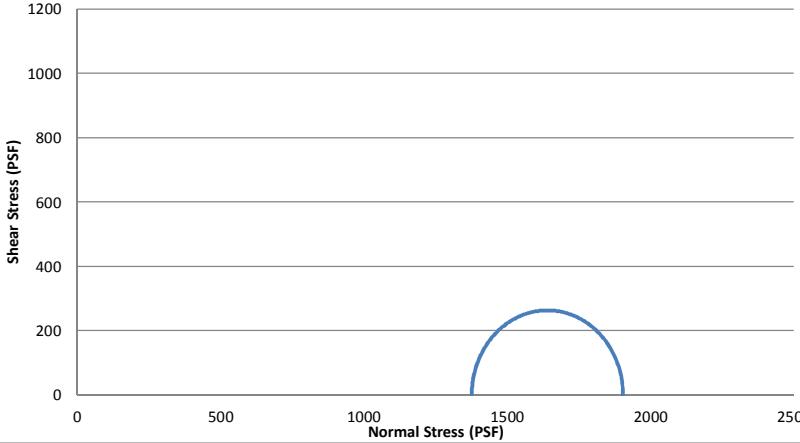
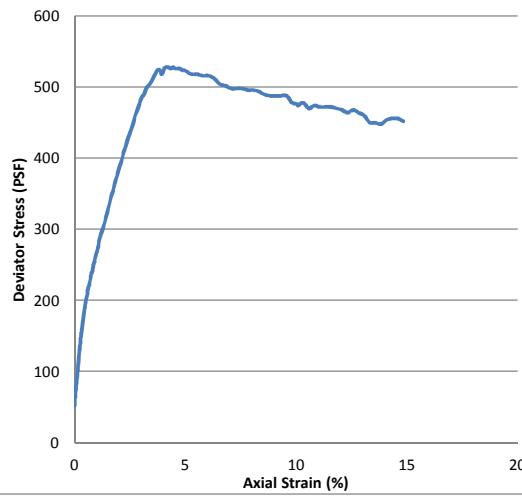
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				RESULTS <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>C, PSF</td> <td>187</td> </tr> <tr> <td>Sample 1 Failure</td> <td>Multiple Shear</td> </tr> <tr> <td>Sample 2 Failure</td> <td></td> </tr> <tr> <td>Sample 3 Failure</td> <td></td> </tr> <tr> <td>Sample 4 Failure</td> <td></td> </tr> </table>		C, PSF	187	Sample 1 Failure	Multiple Shear	Sample 2 Failure		Sample 3 Failure		Sample 4 Failure	
	C, PSF	187													
Sample 1 Failure	Multiple Shear														
Sample 2 Failure															
Sample 3 Failure															
Sample 4 Failure															
	Specimen No.	1													
	INITIAL	WATER CONTENT %	69.60												
	DRY DENSITY, PCF	59.35													
	WET DENSITY, PCF	100.66													
	SATURATION %	103.19													
	VOID RATIO	1.79													
	AT TEST														
	WATER CONTENT %														
	DRY DENSITY, PCF														
	WET DENSITY, PCF														
SATURATION %															
VOID RATIO															
TEST TYPE:	UU			INITIAL HEIGHT, IN	5.38										
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	2.79										
ASSUMED SPECIFIC GRAVITY	2.65			CELL PRESSURE, PSI	6.84										
REMARKS				MAXIMUM DEVIATOR STRESS, PSF ($\sigma_1 - \sigma_3$)	374.00										
0				STRAIN, %	9.58										
				ULTIMATE DEVIATOR STRESS, PSF	362.00										
				σ_1 FAILURE, PSF	1358.96										
				σ_3 FAILURE, PSF	984.96										
SAMPLE DESCRIPTION		Very soft gray clay with silt lenses and shell fragments (CH)													
BORING NO.	B-4		SAMPLE NO.	0	TEST TYPE	UU									
PROJECT NAME	LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)			DATED SAMPLED	5/30/2015										
PROJECT NUMBER	16715-012-04		DEPTH FT.	16 - 18											
TESTED BY	TRC//		CHECKED BY	SLC//											

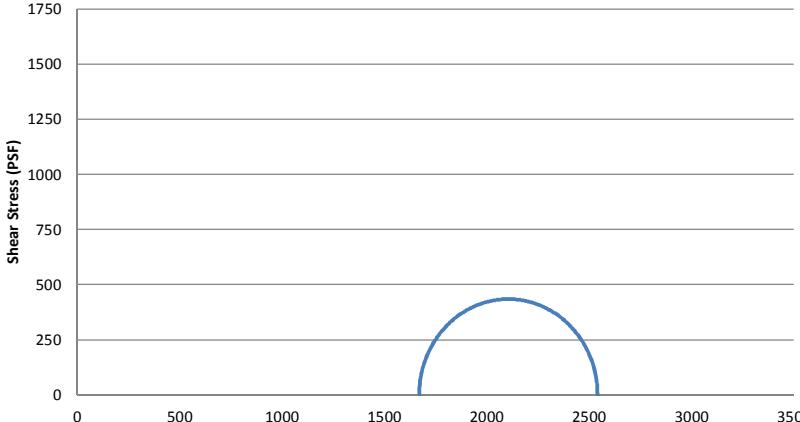
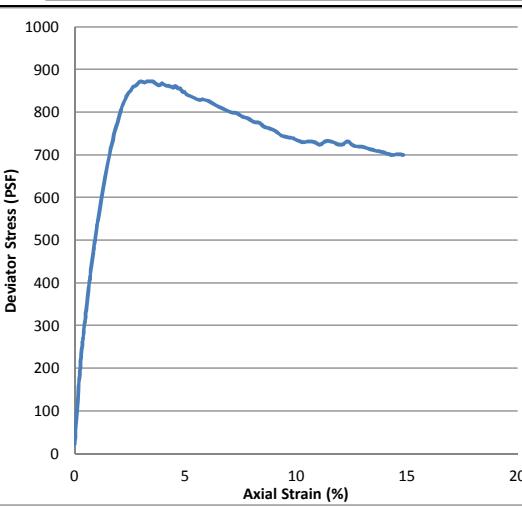
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border-collapse: collapse;"> <tr> <td style="width: 10%; text-align: right;">TEST TYPE:</td> <td style="width: 10%; text-align: center;">UU</td> <td style="width: 10%; text-align: center;">INITIAL HEIGHT, IN</td> <td style="width: 10%; text-align: center;">5.59</td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> </tr> <tr> <td rowspan="2" style="width: 10%; vertical-align: top; text-align: right;">ATTERBERG LIMIT</td> <td style="width: 10%; text-align: center;">LL</td> <td style="width: 10%; text-align: center;">PL</td> <td style="width: 10%; text-align: center;">PI</td> <td style="width: 10%; text-align: center;">INITIAL DIAMETER, IN</td> <td style="width: 10%; text-align: center;">2.76</td> </tr> <tr> <td></td> <td></td> <td></td> <td style="text-align: center;">CELL PRESSURE, PSI</td> <td style="text-align: center;">9.59</td> </tr> <tr> <td style="width: 10%; text-align: right;">ASSUMED SPECIFIC GRAVITY</td> <td colspan="3" style="width: 10%; text-align: center;">2.65</td> <td style="width: 10%; text-align: center;">MAXIMUM DEVIATOR STRESS, PSF ($\sigma_1 - \sigma_3$)</td> <td style="width: 10%; text-align: center;">370.00</td> </tr> <tr> <td style="width: 10%; text-align: right;">REMARKS</td> <td colspan="3"></td> <td style="width: 10%; text-align: center;">STRAIN, %</td> <td style="width: 10%; text-align: center;">10.59</td> </tr> <tr> <td rowspan="3" style="width: 10%; vertical-align: top; text-align: right;">0</td> <td colspan="3"></td> <td style="width: 10%; text-align: center;">ULTIMATE DEVIATOR STRESS, PSF</td> <td style="width: 10%; text-align: center;">356.00</td> </tr> <tr> <td colspan="3"></td> <td style="text-align: center;">σ_1 FAILURE, PSF</td> <td style="text-align: center;">1750.96</td> </tr> <tr> <td colspan="3"></td> <td style="text-align: center;">σ_3 FAILURE, PSF</td> <td style="text-align: center;">1380.96</td> </tr> <tr> <td colspan="2" style="width: 10%; text-align: right;">SAMPLE DESCRIPTION</td> <td colspan="4" style="width: 80%;">Very soft gray very clay (CH)</td> </tr> <tr> <td style="width: 10%; 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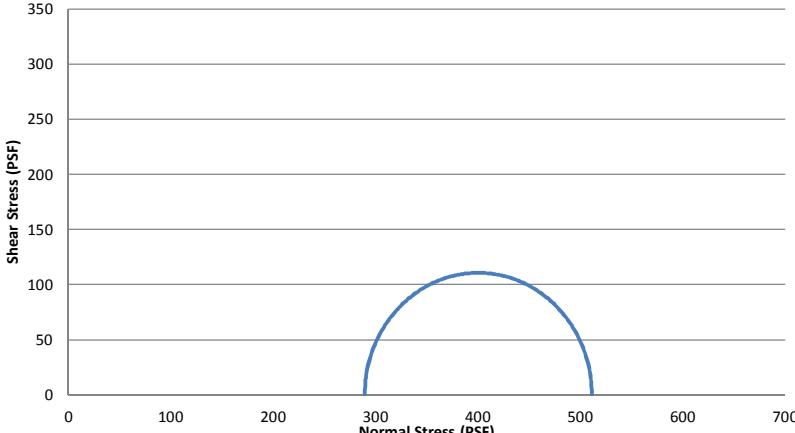
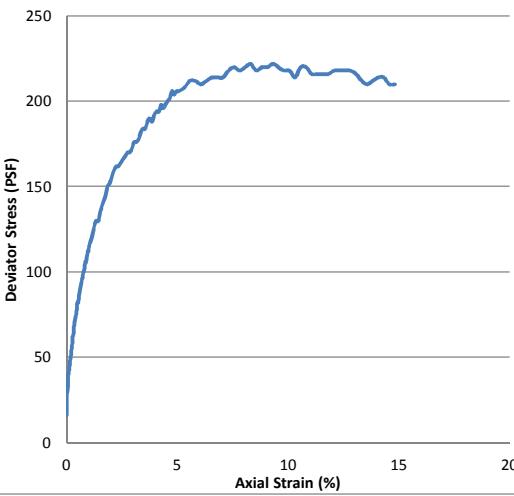
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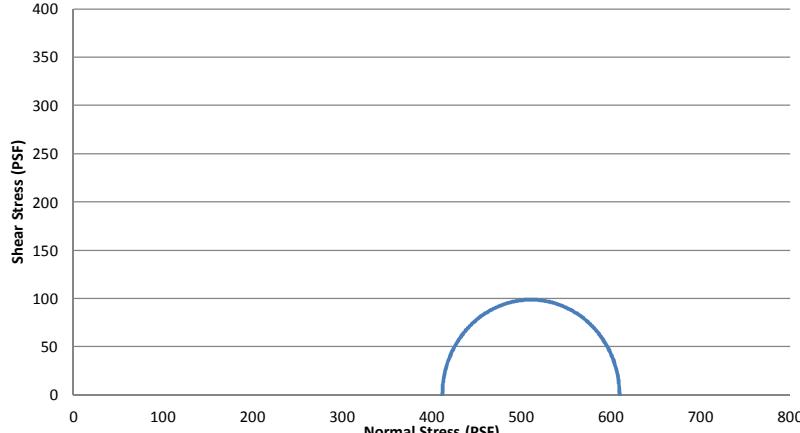
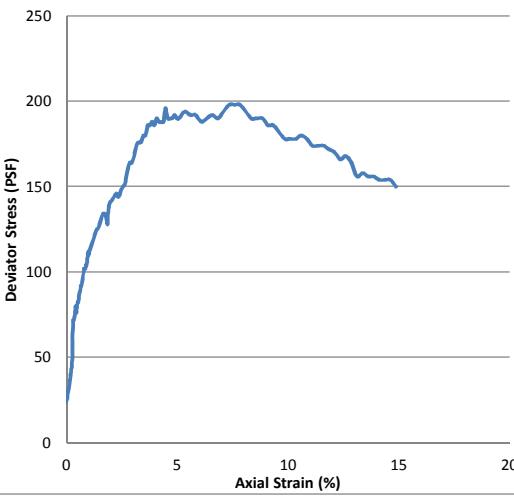
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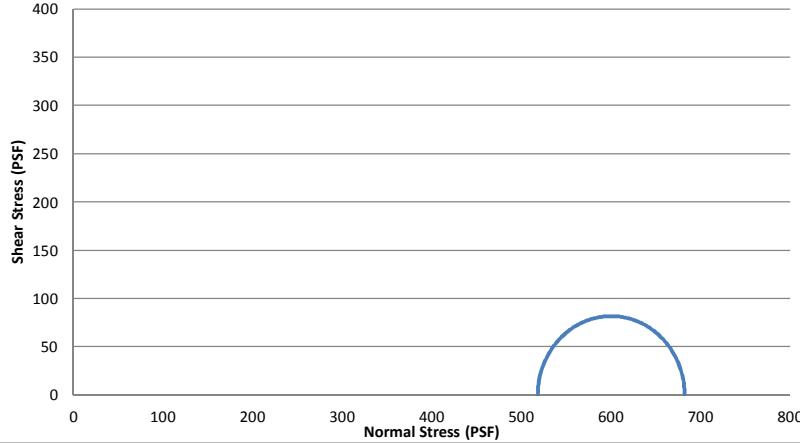
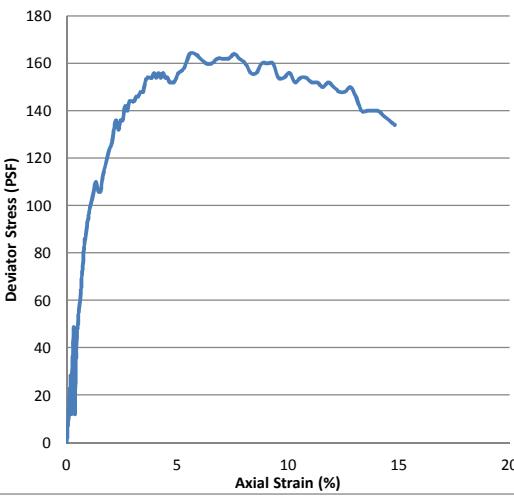
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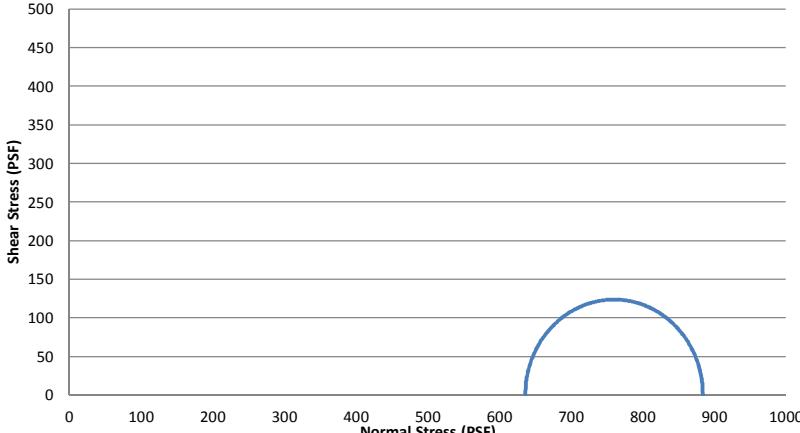
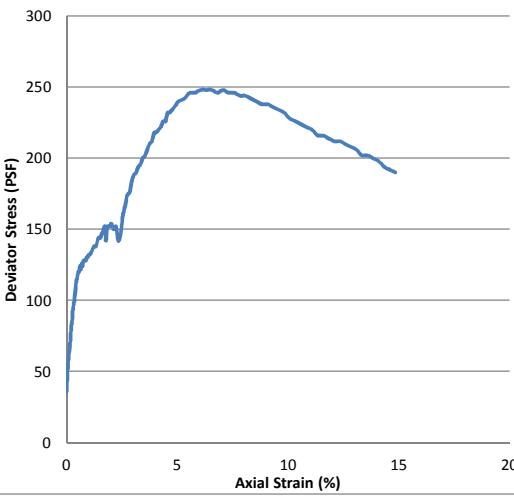
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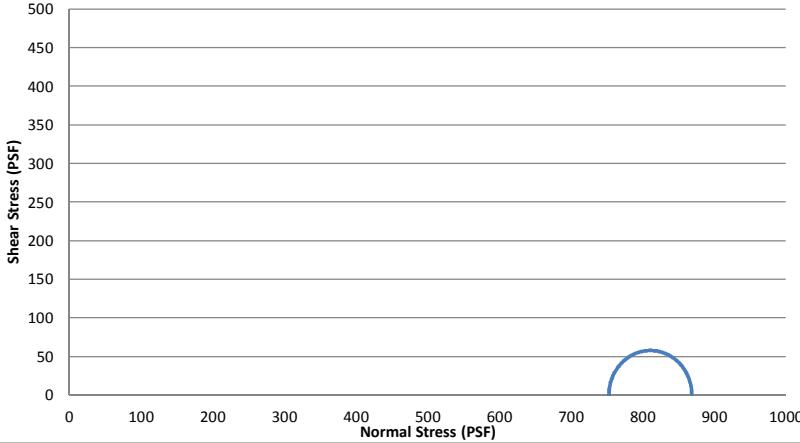
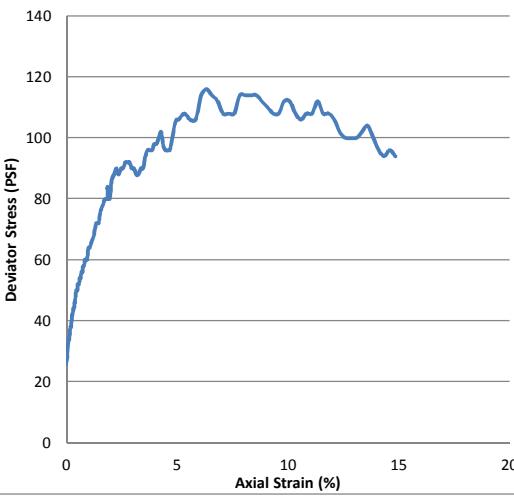
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Sample 1 Failure	Multiple Shear														
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	INITIAL	WATER CONTENT %	63.48												
	DRY DENSITY, PCF	64.69													
	WET DENSITY, PCF	105.76													
	SATURATION %	108.02													
	VOID RATIO	1.56													
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TEST TYPE:	UU		INITIAL HEIGHT, IN	5.11											
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	2.78										
				CELL PRESSURE, PSI	11.60										
ASSUMED SPECIFIC GRAVITY	2.65		MAXIMUM DEVIATOR STRESS, PSF ($\sigma_1 - \sigma_3$)	872.00											
REMARKS			STRAIN, %	2.95											
0			ULTIMATE DEVIATOR STRESS, PSF	700.00											
			σ_1 FAILURE, PSF	2542.40											
			σ_3 FAILURE, PSF	1670.40											
SAMPLE DESCRIPTION		Soft gray clay (CH)													
BORING NO.	B-5		SAMPLE NO.	0											
TEST TYPE	UU														
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PROJECT NUMBER	16715-012-04		DEPTH FT.	28 - 30											
TESTED BY	TRC//		CHECKED BY	SLC//											

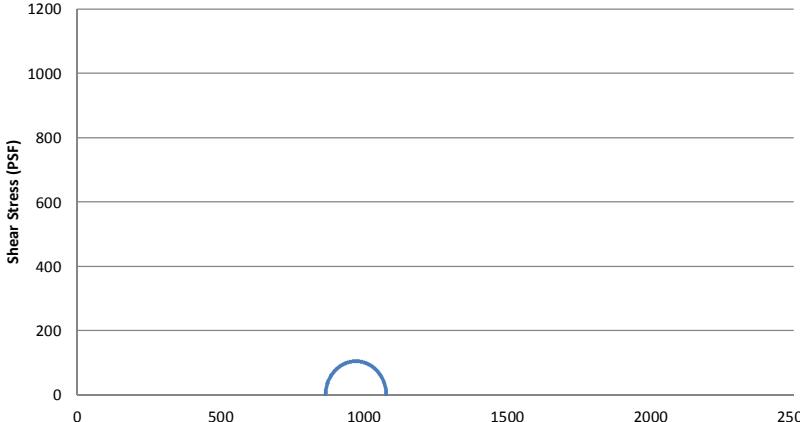
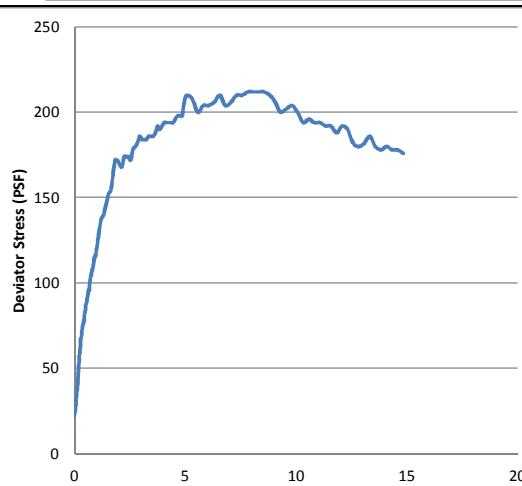
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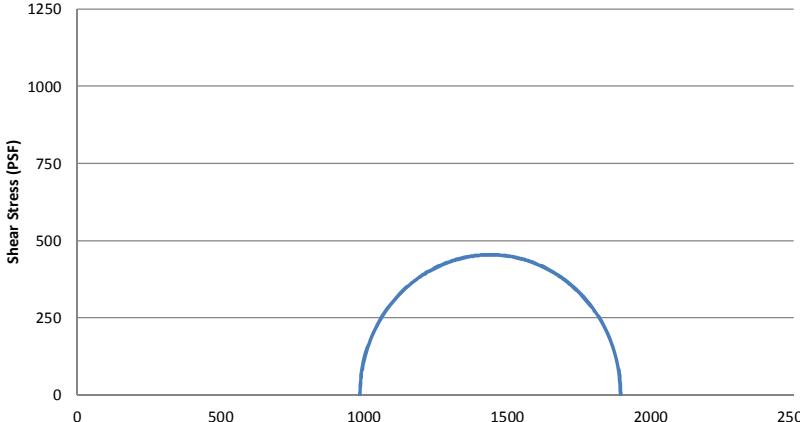
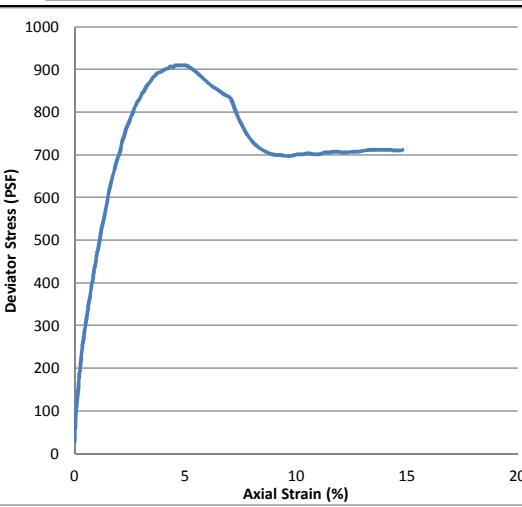
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		Specimen No. INITIAL AT TEST	1 WATER CONTENT % DRY DENSITY, PCF WET DENSITY, PCF SATURATION % VOID RATIO	102.98 49.61 100.70 116.88 2.33																									
		TEST TYPE: UU	INITIAL HEIGHT, IN INITIAL DIAMETER, IN	5.26 2.81																									
ATTERBERG LIMIT LL PL PI 76 29 47		CELL PRESSURE, PSI	2.86																										
ASSUMED SPECIFIC GRAVITY 2.65		MAXIMUM DEVIATOR STRESS, PSF ($\sigma_1 - \sigma_3$)	198.00																										
REMARKS 0		STRAIN, %	7.34																										
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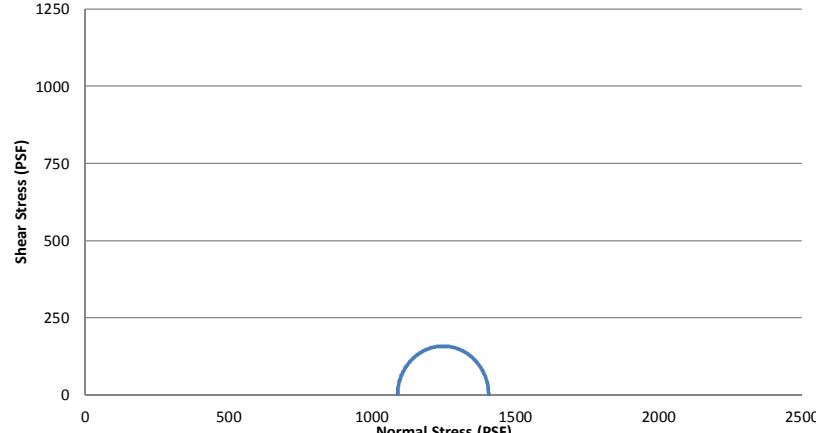
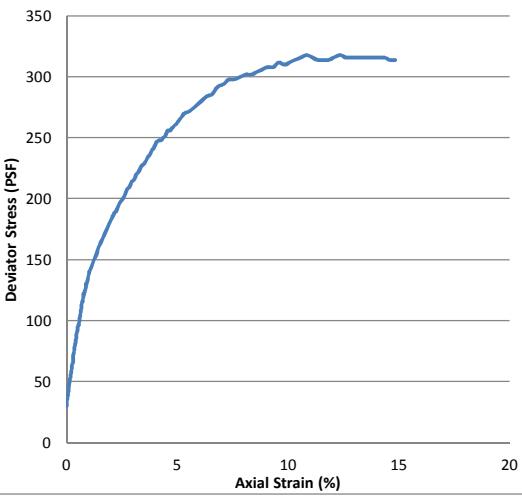
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		INITIAL Specimen No. WATER CONTENT % DRY DENSITY, PCF WET DENSITY, PCF SATURATION % VOID RATIO	1 73.85 54.38 94.53 95.82 2.04	AT TEST WATER CONTENT % DRY DENSITY, PCF WET DENSITY, PCF SATURATION % VOID RATIO																									
TEST TYPE:	UU		INITIAL HEIGHT, IN	5.80																									
ATTERBERG LIMIT	LL	PL	INITIAL DIAMETER, IN	2.79																									
			CELL PRESSURE, PSI	3.60																									
ASSUMED SPECIFIC GRAVITY	2.65		MAXIMUM DEVIATOR STRESS, PSF ($\sigma_1 - \sigma_3$)	164.00																									
REMARKS			STRAIN, %	5.56																									
0			ULTIMATE DEVIATOR STRESS, PSF	134.00																									
			σ_1 FAILURE, PSF	682.40																									
			σ_3 FAILURE, PSF	518.40																									
SAMPLE DESCRIPTION		Very soft gray clay with silt pockets (CH)																											
BORING NO.	B-6		SAMPLE NO.	TEST TYPE	UU																								
PROJECT NAME	LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)			DATED SAMPLED	5/30/2015																								
PROJECT NUMBER	16715-012-04		DEPTH FT.	8 - 10																									
TESTED BY	TRC//		CHECKED BY	SLC//																									

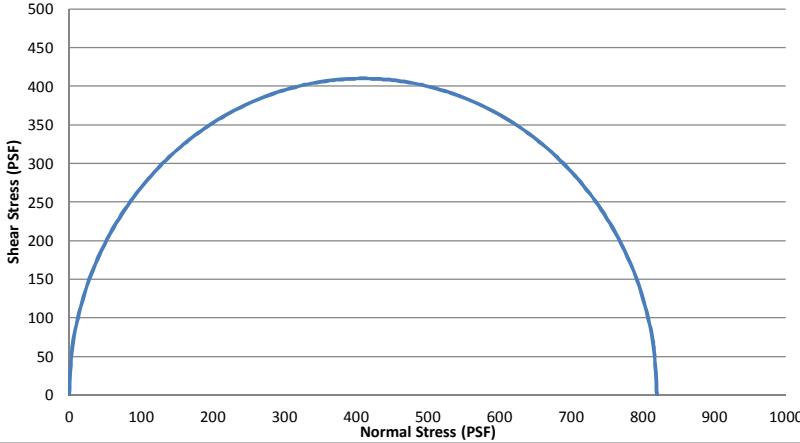
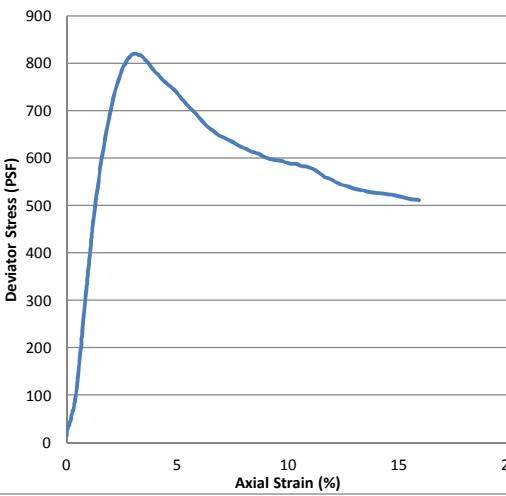
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		Specimen No. INITIAL AT TEST	1 WATER CONTENT % DRY DENSITY, PCF WET DENSITY, PCF SATURATION % VOID RATIO	WATER CONTENT % DRY DENSITY, PCF WET DENSITY, PCF SATURATION % VOID RATIO													
TEST TYPE:		UU		INITIAL HEIGHT, IN	5.49												
ATTERBERG LIMIT		LL	PL	INITIAL DIAMETER, IN	2.78												
		86	30	PI	CELL PRESSURE, PSI	4.42											
ASSUMED SPECIFIC GRAVITY		2.65		MAXIMUM DEVIATOR STRESS, PSF ($\sigma_1 - \sigma_3$)	248.00												
REMARKS				STRAIN, %	6.06												
0				ULTIMATE DEVIATOR STRESS, PSF	190.00												
				σ_1 FAILURE, PSF		884.48											
				σ_3 FAILURE, PSF		636.48											
SAMPLE DESCRIPTION		Very soft gray clay (CH)															
BORING NO.	B-6		SAMPLE NO.	0	TEST TYPE												
PROJECT NAME	LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)			DATED SAMPLED	5/29/2015												
PROJECT NUMBER	16715-012-04		DEPTH FT.	10 - 12													
TESTED BY	TRC//		CHECKED BY	SLC//													

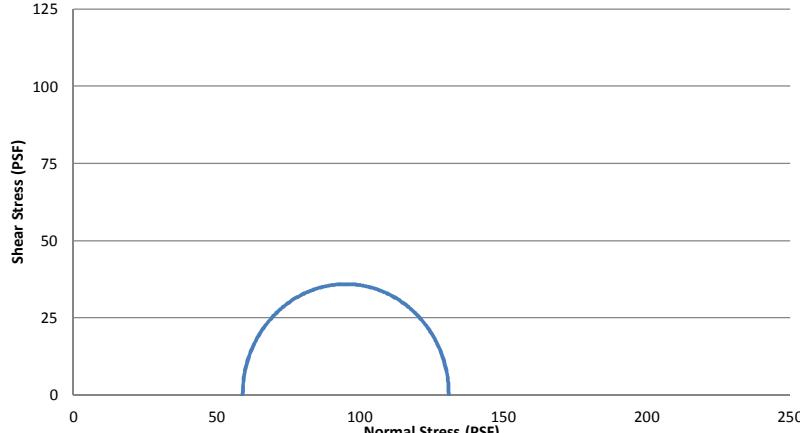
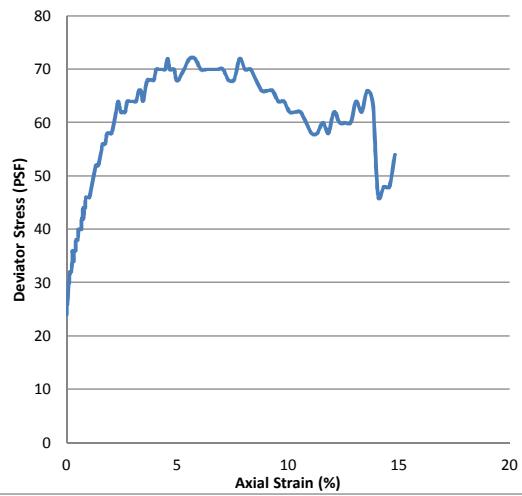
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 <p>Shear Stress (PSF)</p> <p>Normal Stress (PSF)</p>	 <p>Deviator Stress (PSF)</p> <p>Axial Strain (%)</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: left; padding: 2px;">RESULTS</th> </tr> </thead> <tbody> <tr> <td style="padding: 2px;">C, PSF</td> <td style="padding: 2px; text-align: right;">58</td> </tr> <tr> <td style="padding: 2px;">Sample 1 Failure</td> <td style="padding: 2px; text-align: right;">Multiple Shear</td> </tr> <tr> <td style="padding: 2px;">Sample 2 Failure</td> <td style="padding: 2px;"></td> </tr> <tr> <td style="padding: 2px;">Sample 3 Failure</td> <td style="padding: 2px;"></td> </tr> <tr> <td style="padding: 2px;">Sample 4 Failure</td> <td style="padding: 2px;"></td> </tr> </tbody> </table>				RESULTS		C, PSF	58	Sample 1 Failure	Multiple Shear	Sample 2 Failure		Sample 3 Failure		Sample 4 Failure																														
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SATURATION %																																														
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TEST TYPE:	UU		INITIAL HEIGHT, IN	5.28																																										
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	2.55																																									
				CELL PRESSURE, PSI	5.23																																									
ASSUMED SPECIFIC GRAVITY	2.65			MAXIMUM DEVIATOR STRESS, PSF ($\sigma_1 - \sigma_3$)	116.00																																									
REMARKS				STRAIN, %	6.32																																									
0				ULTIMATE DEVIATOR STRESS, PSF	94.00																																									
				σ_1 FAILURE, PSF	869.12																																									
				σ_3 FAILURE, PSF	753.12																																									
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BORING NO.	B-6		SAMPLE NO.	0	TEST TYPE	UU																																								
PROJECT NAME	LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)			DATED SAMPLED	5/30/2015																																									
PROJECT NUMBER	16715-012-04		DEPTH FT.	12 - 14																																										
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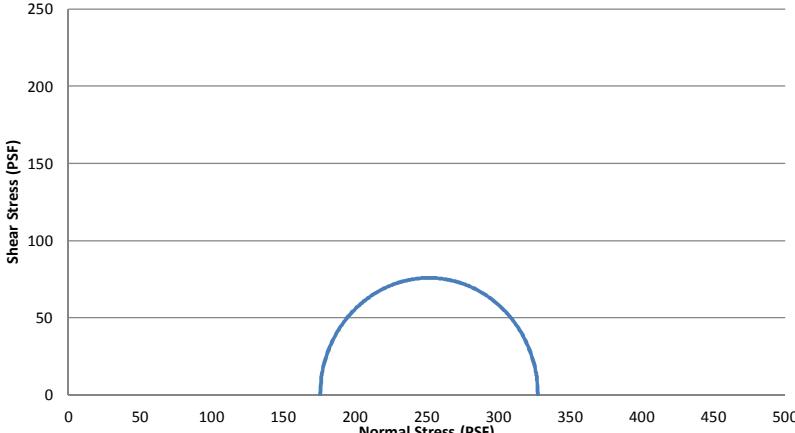
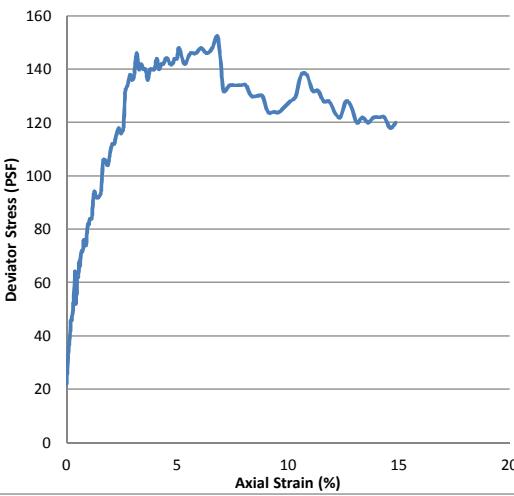
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TEST TYPE: UU ATTERBERG LIMIT: LL PL PI ASSUMED SPECIFIC GRAVITY: 2.65 REMARKS: 0	<table border="1" style="width: 100%; border-collapse: collapse;"> <tbody> <tr> <td style="width: 40%;">INITIAL HEIGHT, IN</td> <td style="width: 60%;">5.45</td> <td></td> <td></td> </tr> <tr> <td>INITIAL DIAMETER, IN</td> <td style="text-align: center;">2.78</td> <td></td> <td></td> </tr> <tr> <td>CELL PRESSURE, PSI</td> <td style="text-align: center;">6.02</td> <td></td> <td></td> </tr> <tr> <td>MAXIMUM DEVIATOR STRESS, PSF ($\sigma_1 - \sigma_3$)</td> <td style="text-align: center;">212.00</td> <td></td> <td></td> </tr> <tr> <td>STRAIN, %</td> <td style="text-align: center;">7.82</td> <td></td> <td></td> </tr> <tr> <td>ULTIMATE DEVIATOR STRESS, PSF</td> <td style="text-align: center;">176.00</td> <td></td> <td></td> </tr> <tr> <td>σ_1 FAILURE, PSF</td> <td style="text-align: center;">1078.88</td> <td></td> <td></td> </tr> <tr> <td>σ_3 FAILURE, PSF</td> <td style="text-align: center;">866.88</td> <td></td> <td></td> </tr> </tbody> </table>	INITIAL HEIGHT, IN	5.45			INITIAL DIAMETER, IN	2.78			CELL PRESSURE, PSI	6.02			MAXIMUM DEVIATOR STRESS, PSF ($\sigma_1 - \sigma_3$)	212.00			STRAIN, %	7.82			ULTIMATE DEVIATOR STRESS, PSF	176.00			σ_1 FAILURE, PSF	1078.88			σ_3 FAILURE, PSF	866.88																																	
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TEST TYPE: ATTERBERG LIMIT ASSUMED SPECIFIC GRAVITY REMARKS		<table border="1" style="width: 100%; border-collapse: collapse;"> <tbody> <tr> <td colspan="3" style="text-align: center;">UU</td> <td style="text-align: center;">INITIAL HEIGHT, IN</td> <td style="text-align: center;">5.90</td> <td></td> <td></td> </tr> <tr> <td rowspan="2" style="vertical-align: top; text-align: right;">LL</td> <td style="text-align: center;">PL</td> <td style="text-align: center;">PI</td> <td colspan="3" style="text-align: center;">INITIAL DIAMETER, IN</td> <td style="text-align: center;">2.76</td> </tr> <tr> <td style="text-align: center;">58</td> <td style="text-align: center;">23</td> <td style="text-align: center;">35</td> <td colspan="3" style="text-align: center;">CELL PRESSURE, PSI</td> <td style="text-align: center;">6.85</td> </tr> <tr> <td colspan="3" style="text-align: center;">2.65</td> <td colspan="3" style="text-align: center;">MAXIMUM DEVIATOR STRESS, PSF ($\sigma_1 - \sigma_3$)</td> <td style="text-align: center;">910.00</td> </tr> <tr> <td colspan="3"></td> <td colspan="3" style="text-align: center;">STRAIN, %</td> <td style="text-align: center;">4.55</td> </tr> <tr> <td colspan="3" rowspan="3" style="text-align: center;">0</td> <td colspan="3" style="text-align: center;">ULTIMATE DEVIATOR STRESS, PSF</td> <td style="text-align: center;">712.00</td> </tr> <tr> <td colspan="3" style="text-align: center;">σ_1 FAILURE, PSF</td> <td style="text-align: center;">1896.40</td> </tr> <tr> <td colspan="3" style="text-align: center;">σ_3 FAILURE, PSF</td> <td style="text-align: center;">986.40</td> </tr> </tbody> </table>				UU			INITIAL HEIGHT, IN	5.90			LL	PL	PI	INITIAL DIAMETER, IN			2.76	58	23	35	CELL PRESSURE, PSI			6.85	2.65			MAXIMUM DEVIATOR STRESS, PSF ($\sigma_1 - \sigma_3$)			910.00				STRAIN, %			4.55	0			ULTIMATE DEVIATOR STRESS, PSF			712.00	σ_1 FAILURE, PSF			1896.40	σ_3 FAILURE, PSF			986.40																				
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SAMPLE DESCRIPTION BORING NO. PROJECT NAME PROJECT NUMBER TESTED BY		Soft gray clay with silt lenses (CH) B-6 LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171) 16715-012-04 TRC// 0 TEST TYPE UU DATED SAMPLED 5/30/2015 DEPTH FT. 16 - 18 CHECKED BY SLC// 																																																																									

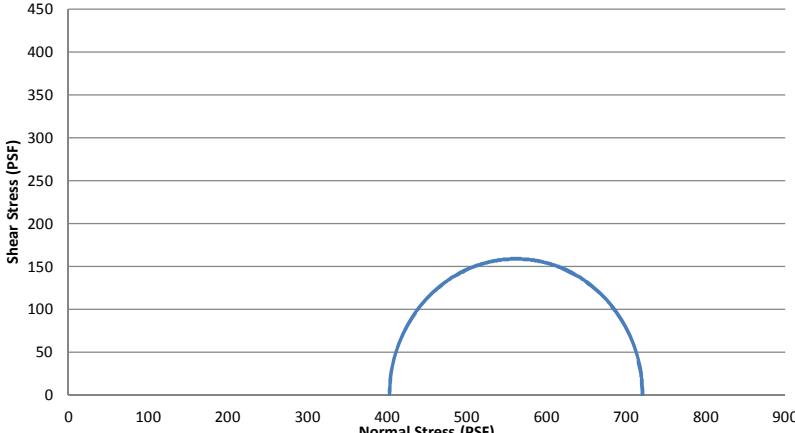
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TEST TYPE:	UU		INITIAL HEIGHT, IN	5.72																																																														
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	2.76																																																													
				CELL PRESSURE, PSI	7.57																																																													
ASSUMED SPECIFIC GRAVITY	2.65		MAXIMUM DEVIATOR STRESS, PSF ($\sigma_1 - \sigma_3$)	318.00																																																														
REMARKS			STRAIN, %	10.84																																																														
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			σ_1 FAILURE, PSF	1408.08																																																														
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SAMPLE DESCRIPTION		Very soft gray clay (CH)																																																																
BORING NO.	B-6		SAMPLE NO.	0	TEST TYPE	UU																																																												
PROJECT NAME	LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)			DATED SAMPLED	5/30/2015																																																													
PROJECT NUMBER	16715-012-04		DEPTH FT.	18 - 20																																																														
TESTED BY	TRC//		CHECKED BY	SLC//																																																														

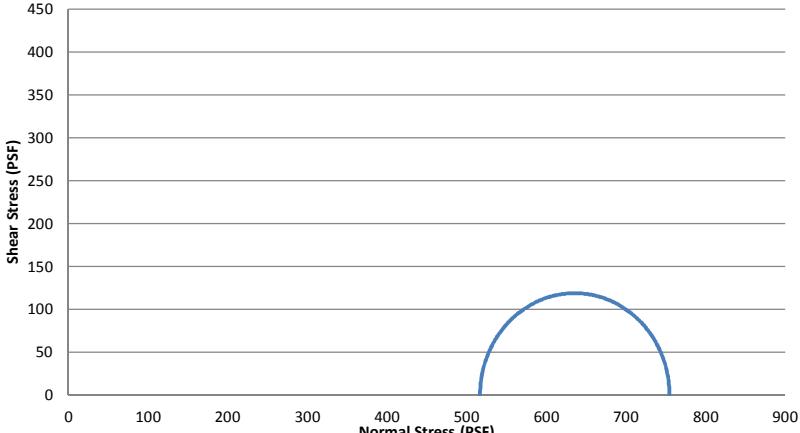
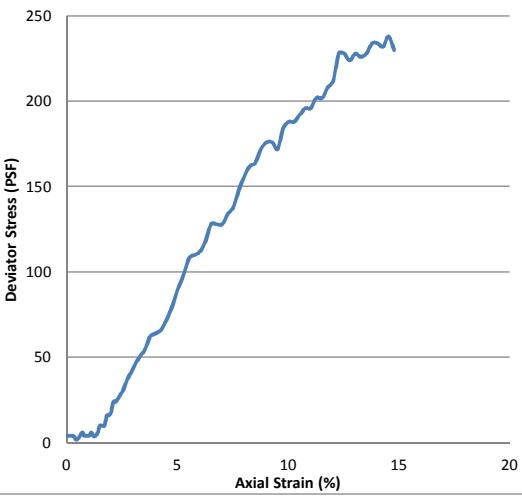
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DRY DENSITY, PCF																				
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SATURATION %																				
VOID RATIO																				
TEST TYPE:	UC			INITIAL HEIGHT, IN	5.76															
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	2.82															
				CELL PRESSURE, PSI	0.00															
ASSUMED SPECIFIC GRAVITY	2.65			MAXIMUM DEVIATOR STRESS, PSF ($\sigma_1 - \sigma_3$)	820.42															
REMARKS				STRAIN, %	3.05															
0				ULTIMATE DEVIATOR STRESS, PSF	515.39															
				σ_1 FAILURE, PSF	820.42															
				σ_3 FAILURE, PSF	0.00															
SAMPLE DESCRIPTION		Soft gray clay with silt lenses (CH)																		
BORING NO.	B-6		SAMPLE NO.	0	TEST TYPE	UC														
PROJECT NAME	LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)			DATED SAMPLED	5/30/2015															
PROJECT NUMBER	16715-012-04		DEPTH FT.	28 - 30																
TESTED BY	TRC//		CHECKED BY	SLC//																

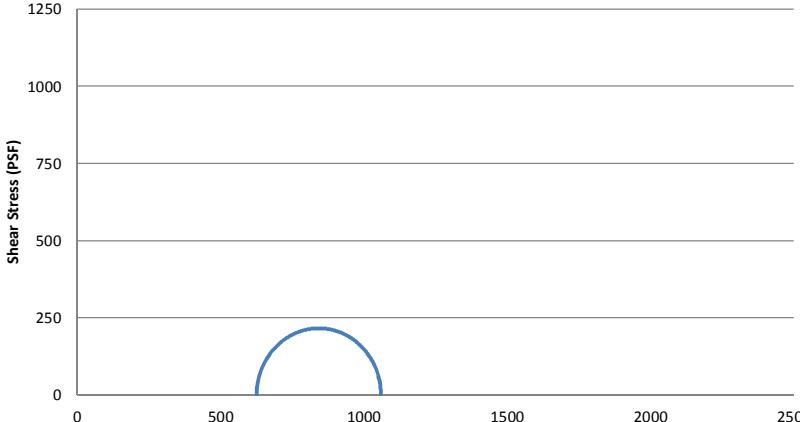
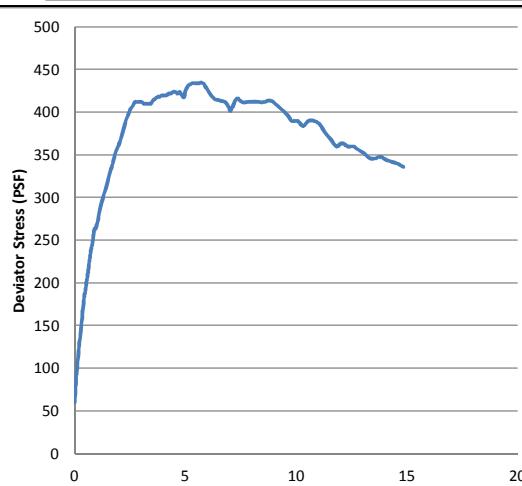
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TEST TYPE: UU	INITIAL HEIGHT, IN 5.27																											
ATTERBERG LIMIT LL PL PI 57 23 34	INITIAL DIAMETER, IN 2.77																											
ASSUMED SPECIFIC GRAVITY 2.65	MAXIMUM DEVIATOR STRESS, PSF ($\sigma_1 - \sigma_3$) 72.00																											
REMARKS 0	STRAIN, % 4.57																											
	ULTIMATE DEVIATOR STRESS, PSF 54.00																											
	σ_1 FAILURE, PSF 131.04																											
	σ_3 FAILURE, PSF 59.04																											
SAMPLE DESCRIPTION Very soft dark gray clay with sand pockets (CH)																												
BORING NO. B-7	SAMPLE NO. 0	TEST TYPE UU																										
PROJECT NAME LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)	DATED SAMPLED	5/30/2015																										
PROJECT NUMBER 16715-012-04	DEPTH FT. 0 - 2																											
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11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460																												
GEOENGINEERS 																												

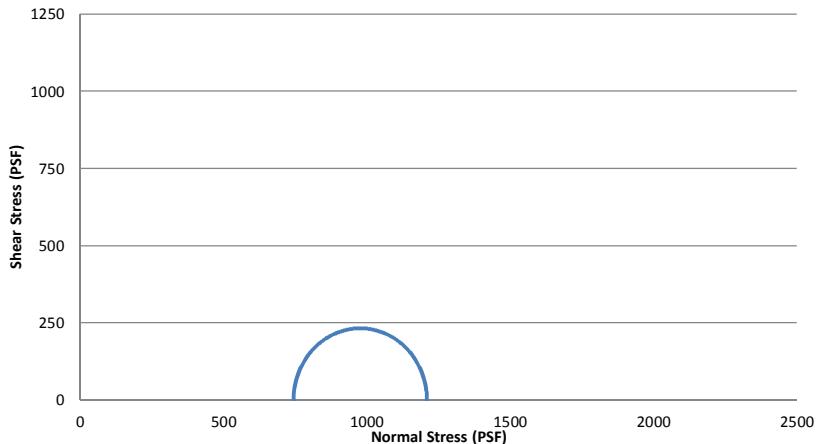
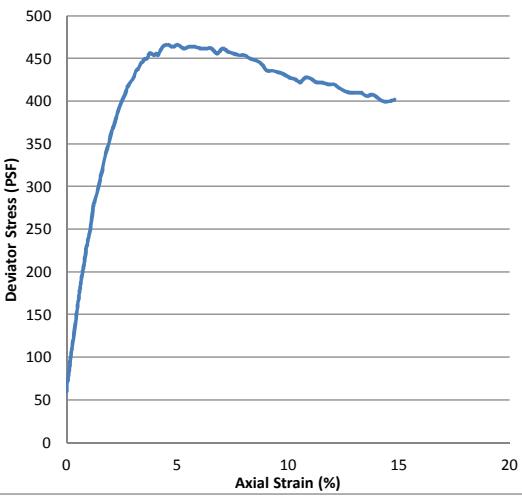
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SATURATION %																															
VOID RATIO																															
TEST TYPE:	UU			INITIAL HEIGHT, IN	5.53																										
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	2.75																										
				CELL PRESSURE, PSI	1.22																										
ASSUMED SPECIFIC GRAVITY	2.65			MAXIMUM DEVIATOR STRESS, PSF ($\sigma_1 - \sigma_3$)	152.00																										
REMARKS				STRAIN, %	6.84																										
0				ULTIMATE DEVIATOR STRESS, PSF	120.00																										
				σ_1 FAILURE, PSF	327.68																										
				σ_3 FAILURE, PSF	175.68																										
SAMPLE DESCRIPTION		Very soft gray clay with organic matter (CH)																													
BORING NO.	B-7		SAMPLE NO.	0	TEST TYPE	UU																									
PROJECT NAME	LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)			DATED SAMPLED	5/30/2015																										
PROJECT NUMBER	16715-012-04		DEPTH FT.	2 - 4																											
TESTED BY	TRC//		CHECKED BY	SLC//																											
<small>11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460</small>																															
																															

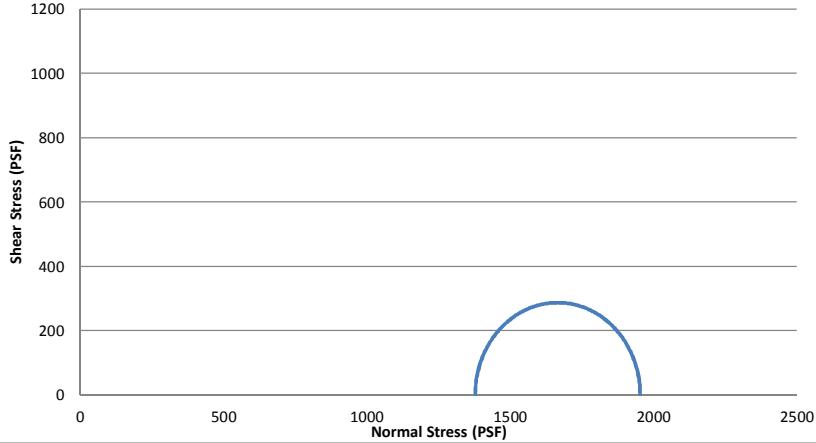
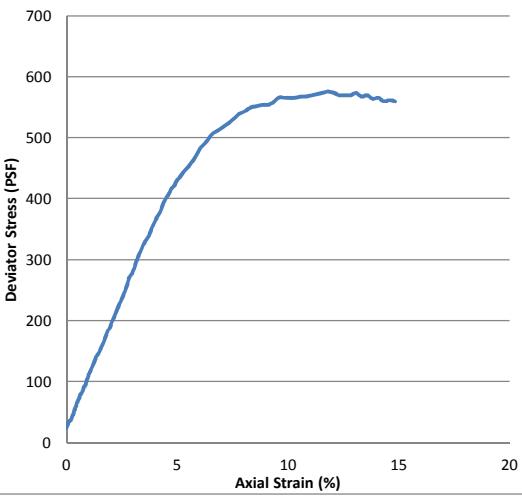
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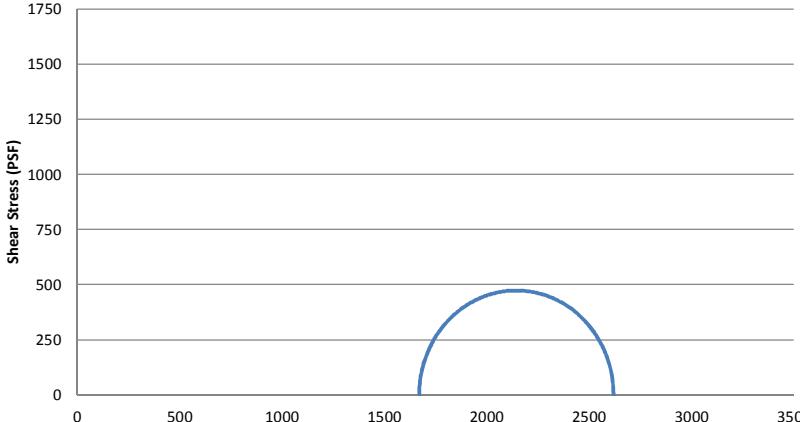
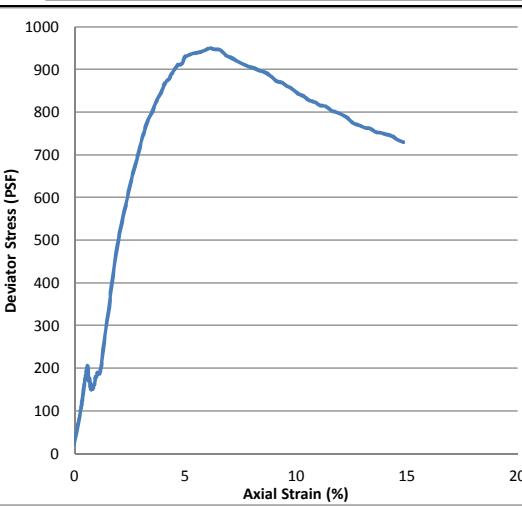
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VOID RATIO																											
TEST TYPE:	UU			INITIAL HEIGHT, IN	5.89																						
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	2.77																						
	32	23	9	CELL PRESSURE, PSI	2.80																						
ASSUMED SPECIFIC GRAVITY	2.65			MAXIMUM DEVIATOR STRESS, PSF ($\sigma_1 - \sigma_3$)	318.00																						
REMARKS				STRAIN, %	5.82																						
0				ULTIMATE DEVIATOR STRESS, PSF	284.00																						
				σ_1 FAILURE, PSF	721.20																						
				σ_3 FAILURE, PSF	403.20																						
SAMPLE DESCRIPTION		Very soft gray very silty clay with organic matter (CL)																									
BORING NO.	B-7		SAMPLE NO.	0	TEST TYPE																						
PROJECT NAME	LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)			DATED SAMPLED	5/30/2015																						
PROJECT NUMBER	16715-012-04		DEPTH FT.	6 - 8																							
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VOID RATIO																																													
TEST TYPE:	UU		INITIAL HEIGHT, IN	5.59																																									
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	2.79																																								
				CELL PRESSURE, PSI	3.59																																								
ASSUMED SPECIFIC GRAVITY	2.65		MAXIMUM DEVIATOR STRESS, PSF ($\sigma_1 - \sigma_3$)	238.00																																									
REMARKS			STRAIN, %	14.54																																									
0			ULTIMATE DEVIATOR STRESS, PSF	230.00																																									
			σ_1 FAILURE, PSF	754.96																																									
			σ_3 FAILURE, PSF	516.96																																									
SAMPLE DESCRIPTION		Very soft gray clay with organic matter (CH)																																											
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PROJECT NAME	LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)			DATED SAMPLED	5/30/2015																																								
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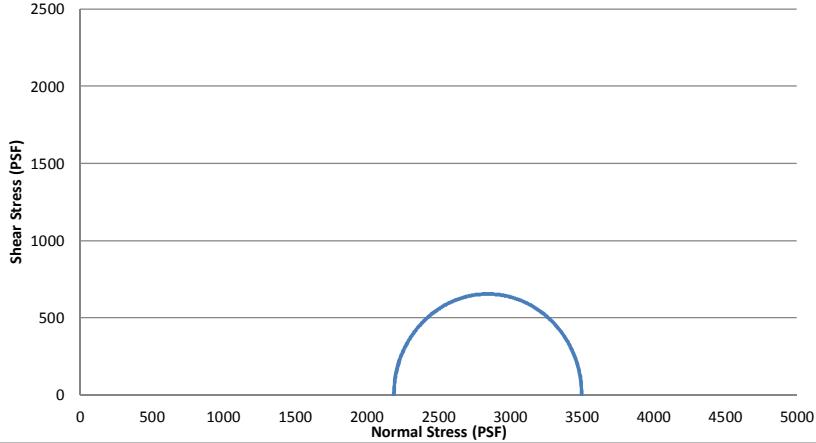
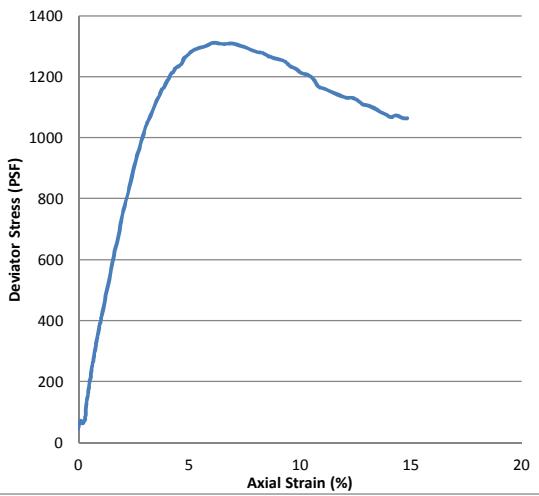
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<p>TEST TYPE: UU</p> <p>ATTERBERG LIMIT LL PL PI</p> <p>ASSUMED SPECIFIC GRAVITY 2.65</p> <p>REMARKS 0</p> <p>SAMPLE DESCRIPTION Very soft gray clay (CH)</p> <p>BORING NO. B-7</p> <p>PROJECT NAME LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)</p> <p>PROJECT NUMBER 16715-012-04</p> <p>TESTED BY JSA//</p>	<p>INITIAL HEIGHT, IN 5.91</p> <p>INITIAL DIAMETER, IN 2.78</p> <p>CELL PRESSURE, PSI 4.35</p> <p>MAXIMUM DEVIATOR STRESS, PSF ($\sigma_1 - \sigma_3$) 434.00</p> <p>STRAIN, % 5.30</p> <p>ULTIMATE DEVIATOR STRESS, PSF 336.00</p> <p>σ_1 FAILURE, PSF 1060.40</p> <p>σ_3 FAILURE, PSF 626.40</p> <p>TEST TYPE UU</p> <p>DATED SAMPLED 5/30/2015</p> <p>DEPTH FT. 10 - 12</p> <p>CHECKED BY SLC//</p>																											

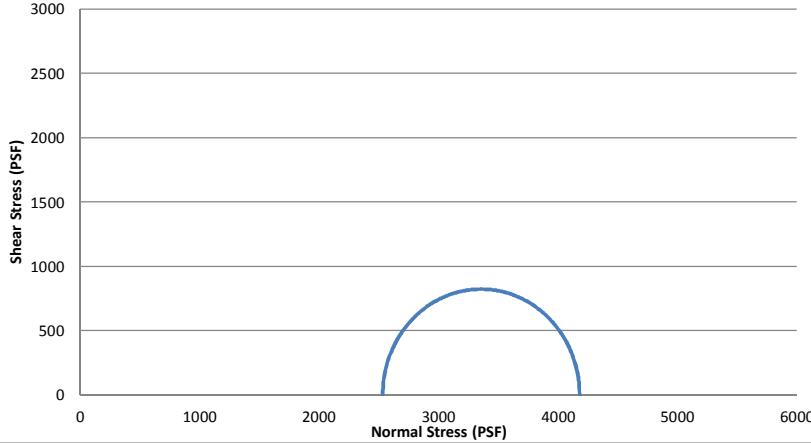
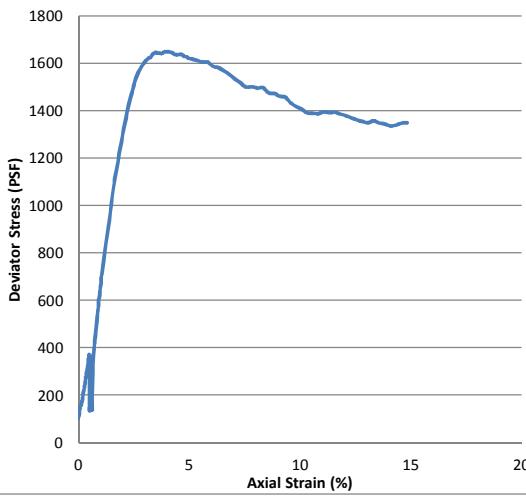
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		INITIAL Specimen No. WATER CONTENT % DRY DENSITY, PCF WET DENSITY, PCF SATURATION % VOID RATIO	1 75.26 57.38 100.56 105.90 1.88																										
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TEST TYPE:	UU		INITIAL HEIGHT, IN	5.93																									
ATTERBERG LIMIT	LL	PL	INITIAL DIAMETER, IN	2.81																									
			CELL PRESSURE, PSI	5.17																									
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PROJECT NUMBER	16715-012-04		DEPTH FT.	12 - 14																									
TESTED BY	JSA//		CHECKED BY	SLC//																									

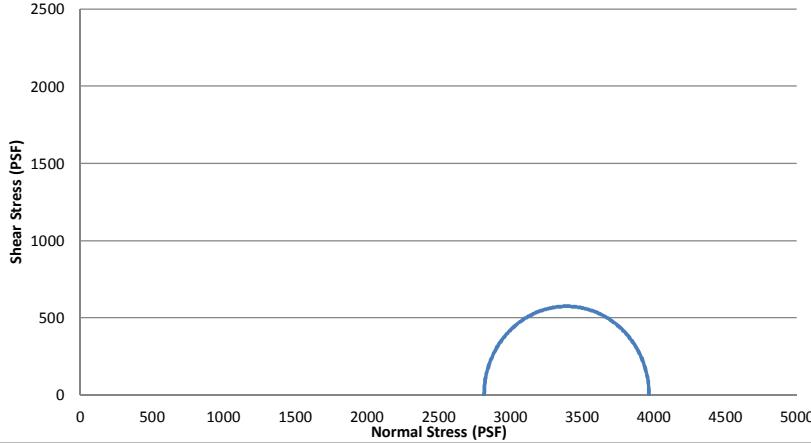
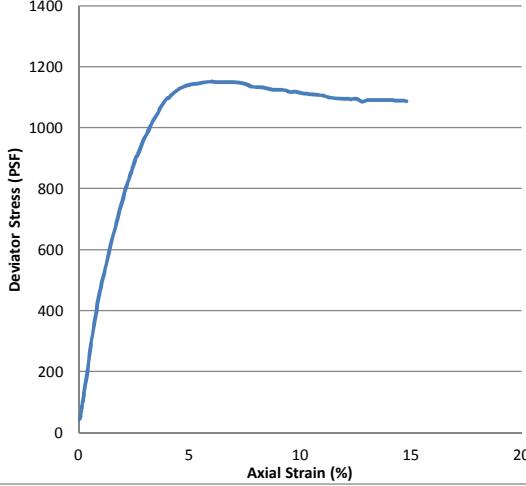
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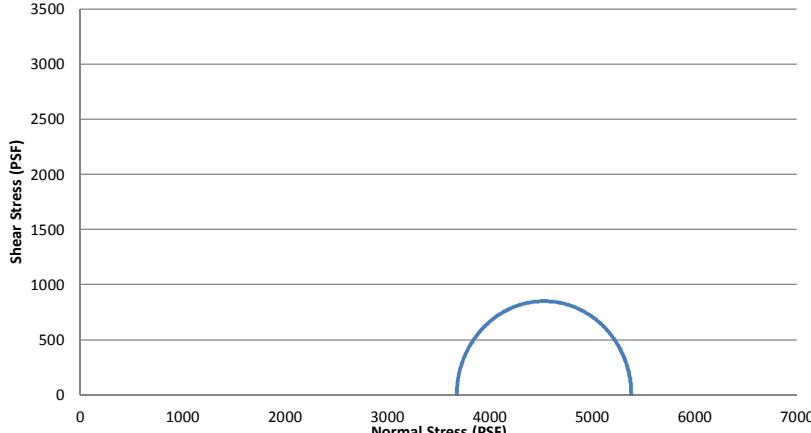
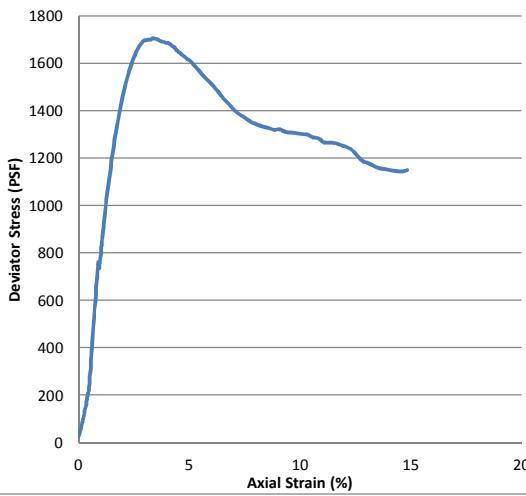
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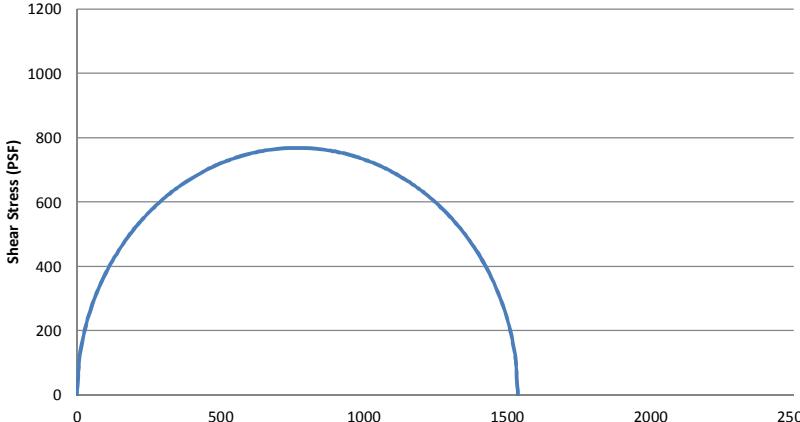
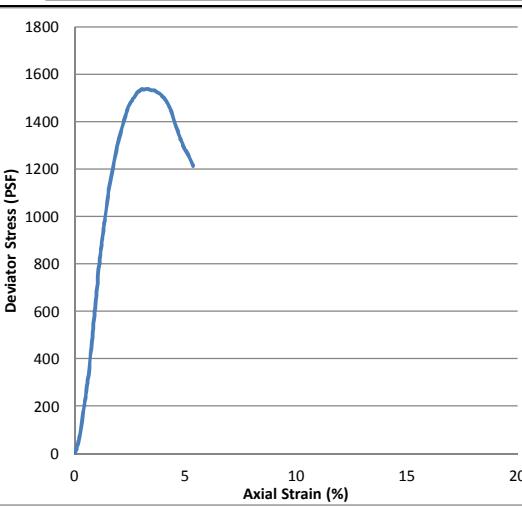
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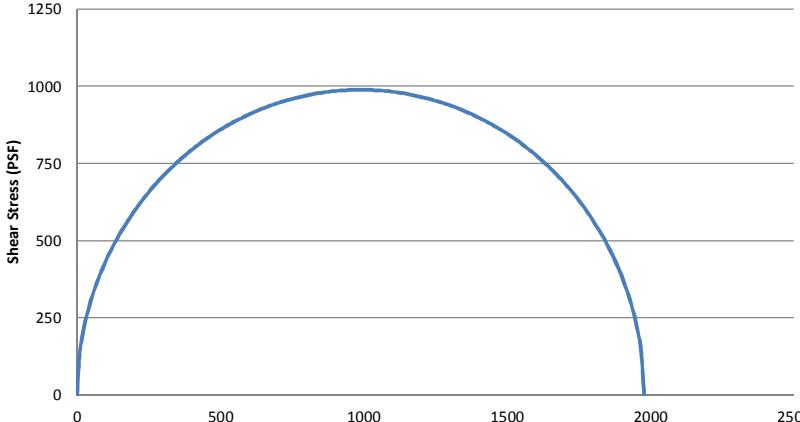
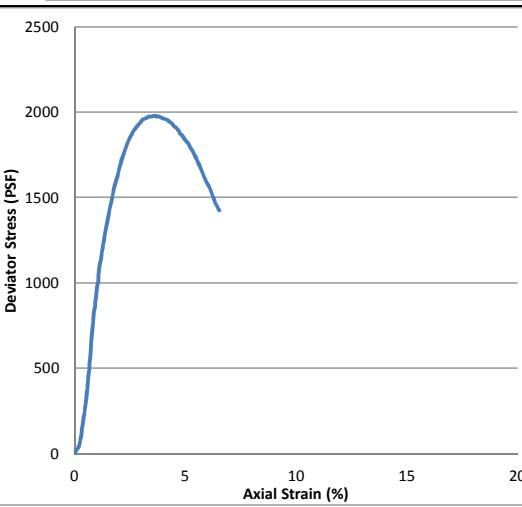
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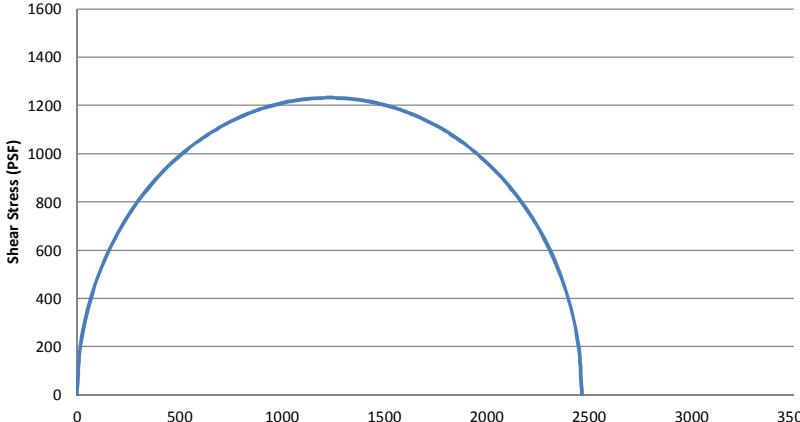
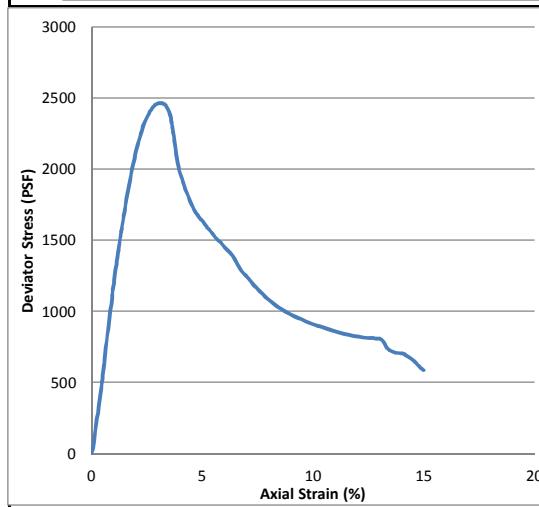
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PROJECT NAME	LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)			DATED SAMPLED	5/21/2015																						
PROJECT NUMBER	16715-012-04		DEPTH FT.	43 - 45																							
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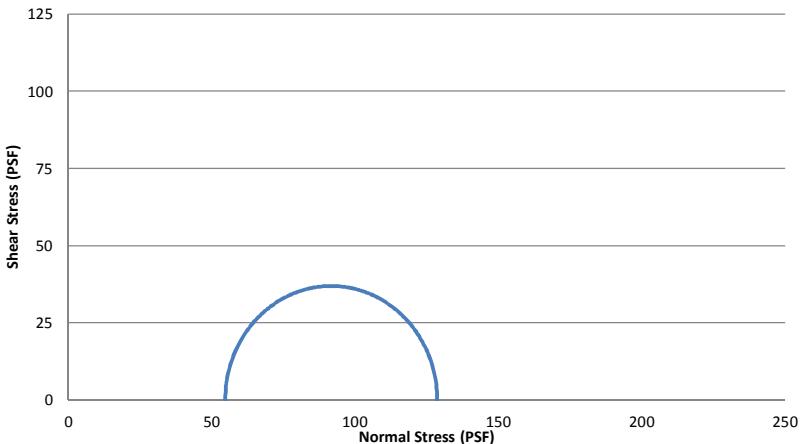
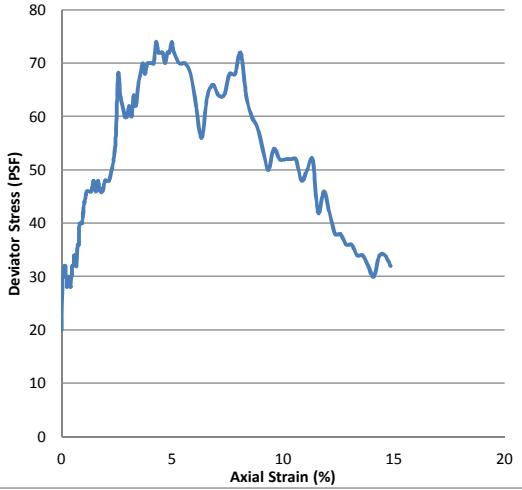
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BORING NO.	B-7		SAMPLE NO.	0	TEST TYPE																							
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PROJECT NUMBER	16715-012-04		DEPTH FT.	48 - 50																								
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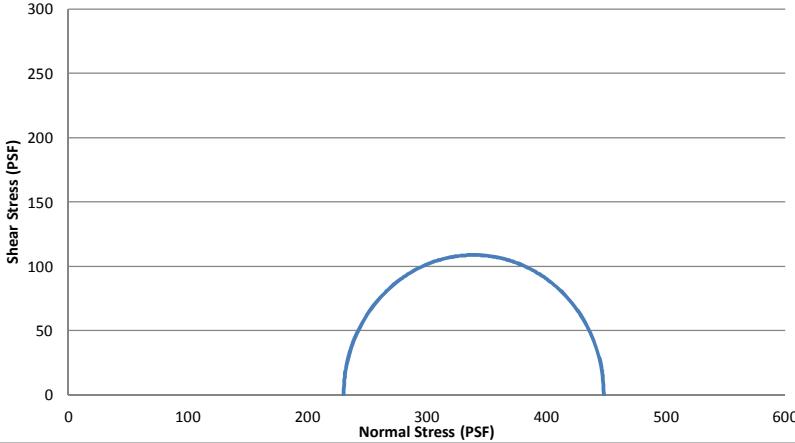
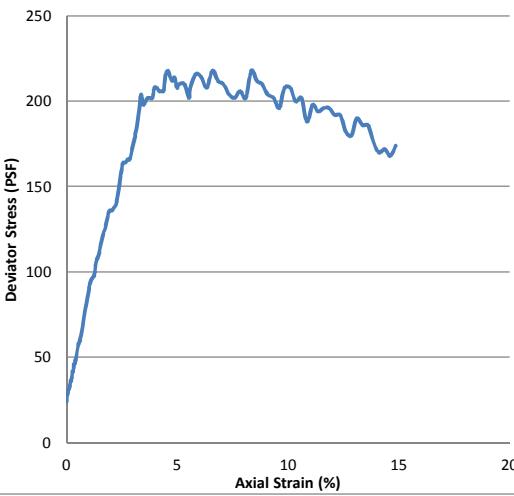
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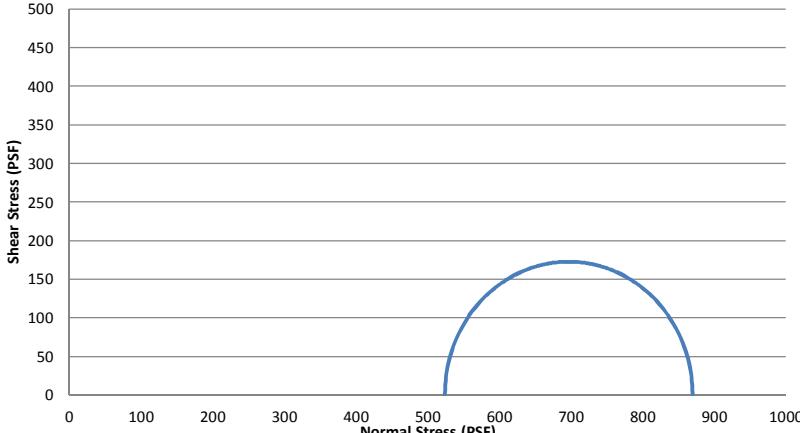
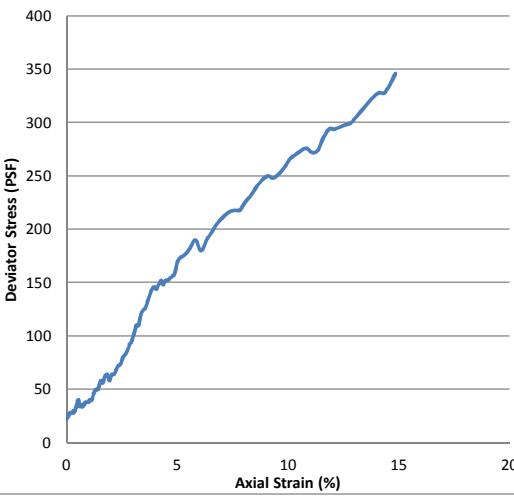
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ASSUMED SPECIFIC GRAVITY	2.65		MAXIMUM DEVIATOR STRESS, PSF ($\sigma_1 - \sigma_3$)	1538.00													
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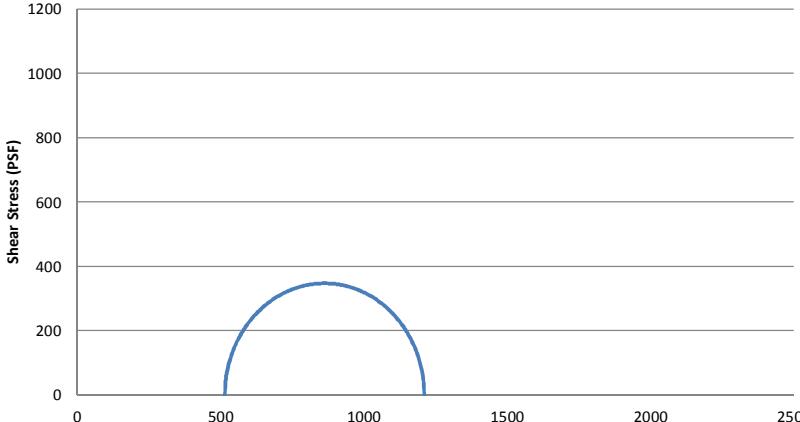
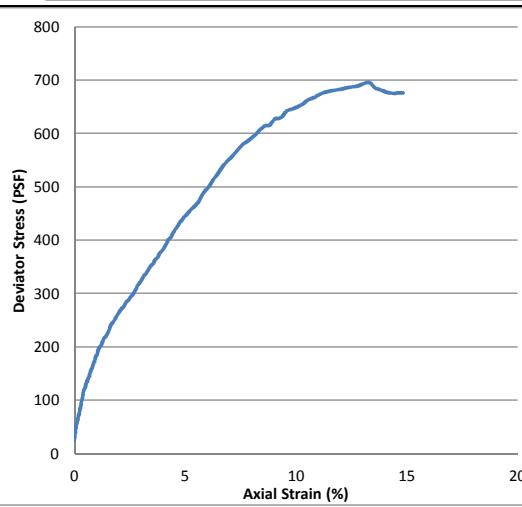
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Sample 2 Failure																												
Sample 3 Failure																												
Sample 4 Failure																												
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: left; padding: 2px;">Specimen No.</th> </tr> </thead> <tbody> <tr> <td>INITIAL</td> <td>1</td> </tr> <tr> <td>WATER CONTENT %</td> <td>56.56</td> </tr> <tr> <td>DRY DENSITY, PCF</td> <td>68.49</td> </tr> <tr> <td>WET DENSITY, PCF</td> <td>107.22</td> </tr> <tr> <td>SATURATION %</td> <td>105.88</td> </tr> <tr> <td>VOID RATIO</td> <td>1.42</td> </tr> </tbody> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: left; padding: 2px;">AT TEST</th> </tr> </thead> <tbody> <tr> <td>WATER CONTENT %</td> <td></td> </tr> <tr> <td>DRY DENSITY, PCF</td> <td></td> </tr> <tr> <td>WET DENSITY, PCF</td> <td></td> </tr> <tr> <td>SATURATION %</td> <td></td> </tr> <tr> <td>VOID RATIO</td> <td></td> </tr> </tbody> </table>	Specimen No.		INITIAL	1	WATER CONTENT %	56.56	DRY DENSITY, PCF	68.49	WET DENSITY, PCF	107.22	SATURATION %	105.88	VOID RATIO	1.42	AT TEST		WATER CONTENT %		DRY DENSITY, PCF		WET DENSITY, PCF		SATURATION %		VOID RATIO		
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<p>TEST TYPE:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="3" style="text-align: center; padding: 2px;">UC</td> </tr> </table>	UC			<p>INITIAL HEIGHT, IN</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">LL</td> <td style="width: 20%;">PL</td> <td style="width: 20%;">PI</td> <td style="width: 40%;">2.86</td> </tr> </table>	LL	PL	PI	2.86																				
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LL	PL	PI	2.86																									
<p>ATTERBERG LIMIT</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">LL</td> <td style="width: 20%;">PL</td> <td style="width: 20%;">PI</td> <td style="width: 40%;">0.00</td> </tr> </table>	LL	PL	PI	0.00																								
LL	PL	PI	0.00																									
<p>ASSUMED SPECIFIC GRAVITY</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">2.65</td> <td style="width: 20%;">MAXIMUM DEVIATOR STRESS, PSF ($\sigma_1 - \sigma_3$)</td> <td style="width: 60%;">2466.00</td> </tr> </table>	2.65	MAXIMUM DEVIATOR STRESS, PSF ($\sigma_1 - \sigma_3$)	2466.00																									
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<p>REMARKS</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">0</td> <td style="width: 20%;">STRAIN, %</td> <td style="width: 60%;">3.04</td> </tr> <tr> <td></td> <td>ULTIMATE DEVIATOR STRESS, PSF</td> <td>588.00</td> </tr> <tr> <td></td> <td>σ_1 FAILURE, PSF</td> <td>2466.00</td> </tr> <tr> <td></td> <td>σ_3 FAILURE, PSF</td> <td>0.00</td> </tr> </table>	0	STRAIN, %	3.04		ULTIMATE DEVIATOR STRESS, PSF	588.00		σ_1 FAILURE, PSF	2466.00		σ_3 FAILURE, PSF	0.00																
0	STRAIN, %	3.04																										
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	σ_1 FAILURE, PSF	2466.00																										
	σ_3 FAILURE, PSF	0.00																										
SAMPLE DESCRIPTION		Stiff gray clay (CH)																										
BORING NO.	B-7		SAMPLE NO.	0	TEST TYPE	UC																						
PROJECT NAME	LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)			DATED SAMPLED	5/21/2015																							
PROJECT NUMBER	16715-012-04		DEPTH FT.	78 - 80																								
TESTED BY	KA/SLC//		CHECKED BY	SLC//																								

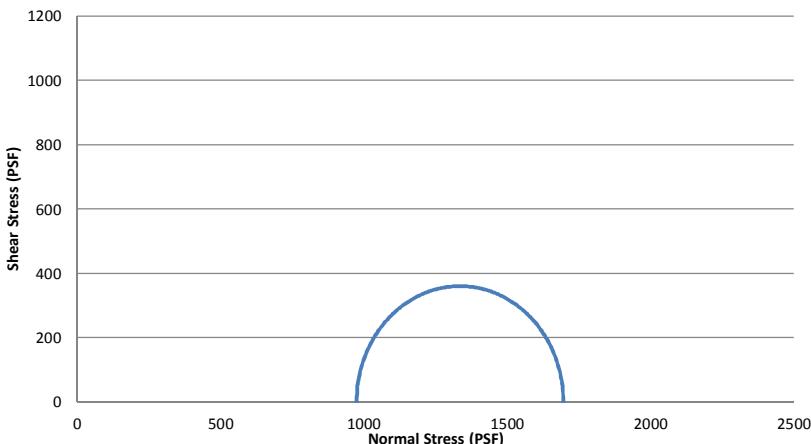
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<p>TEST TYPE:</p> <p>UU</p>	<p>INITIAL HEIGHT, IN</p> <p>5.95</p>																											
<p>ATTERBERG LIMIT</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">LL</td> <td style="width: 33%;">PL</td> <td style="width: 33%;">PI</td> </tr> </table>	LL	PL	PI	<p>INITIAL DIAMETER, IN</p> <p>2.97</p>																								
LL	PL	PI																										
<p>ASSUMED SPECIFIC GRAVITY</p> <p>2.65</p>	<p>MAXIMUM DEVIATOR STRESS, PSF ($\sigma_1 - \sigma_3$)</p> <p>74.00</p>																											
<p>REMARKS</p> <p>0</p>	<p>STRAIN, %</p> <p>4.27</p>																											
	<p>ULTIMATE DEVIATOR STRESS, PSF</p> <p>32.00</p>																											
	<p>σ_1 FAILURE, PSF</p> <p>128.72</p>																											
	<p>σ_3 FAILURE, PSF</p> <p>54.72</p>																											
SAMPLE DESCRIPTION		Very soft black peat (PT)																										
BORING NO.	B-8	SAMPLE NO.	0	TEST TYPE	UU																							
PROJECT NAME	LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)			DATED SAMPLED	5/21/2015																							
PROJECT NUMBER	16715-012-04			DEPTH FT.	0 - 2																							
TESTED BY	CLP//			CHECKED BY	SLC//																							

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Sample 1 Failure	Bulge																			
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Specimen No.																				
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AT TEST																				
WATER CONTENT %																				
DRY DENSITY, PCF																				
WET DENSITY, PCF																				
SATURATION %																				
VOID RATIO																				
TEST TYPE:	UU		INITIAL HEIGHT, IN	5.83																
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	2.72															
	87	30	57	CELL PRESSURE, PSI	1.60															
ASSUMED SPECIFIC GRAVITY	2.65		MAXIMUM DEVIATOR STRESS, PSF ($\sigma_1 - \sigma_3$)	218.00																
REMARKS			STRAIN, %	4.58																
0			ULTIMATE DEVIATOR STRESS, PSF	174.00																
			σ_1 FAILURE, PSF	448.40																
			σ_3 FAILURE, PSF	230.40																
SAMPLE DESCRIPTION		Very soft dark gray clay with organic matter (CH)																		
BORING NO.	B-8		SAMPLE NO.	0	TEST TYPE	UU														
PROJECT NAME	LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)			DATED SAMPLED	5/21/2015															
PROJECT NUMBER	16715-012-04		DEPTH FT.	2 - 4																
TESTED BY	JSA/CLP//		CHECKED BY	SLC//																

Data Entry Sheet For Compression - 2010 Version																													
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Sample 1 Failure	Yield																												
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		Specimen No. INITIAL AT TEST	1 WATER CONTENT % DRY DENSITY, PCF WET DENSITY, PCF SATURATION % VOID RATIO	251.22 32.48 114.07 162.63 4.09																									
		TEST TYPE: UU	INITIAL HEIGHT, IN INITIAL DIAMETER, IN	5.67 2.81																									
ATTERBERG LIMIT LL PL PI 42 28 14		CELL PRESSURE, PSI	3.64																										
ASSUMED SPECIFIC GRAVITY 2.65		MAXIMUM DEVIATOR STRESS, PSF ($\sigma_1 - \sigma_3$)	346.00																										
REMARKS 0		STRAIN, %	14.85																										
		ULTIMATE DEVIATOR STRESS, PSF	346.00																										
		σ_1 FAILURE, PSF	870.16																										
		σ_3 FAILURE, PSF	524.16																										
SAMPLE DESCRIPTION Dark gray sandy organic silt (OH)																													
BORING NO.	B-8		SAMPLE NO.	0	TEST TYPE	UU																							
PROJECT NAME	LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)			DATED SAMPLED	5/21/2015																								
PROJECT NUMBER	16715-012-04		DEPTH FT.	6 - 8																									
TESTED BY	JSA//		CHECKED BY	SLC//																									
11955 Lakeland Park Blvd Suite 100 Baton Rouge, LA 70809 (225)-293-2460																													
																													

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SATURATION %																																																															
VOID RATIO																																																															
TEST TYPE:	UU		INITIAL HEIGHT, IN	6.01																																																											
ATTERBERG LIMIT	LL	PL	INITIAL DIAMETER, IN	2.79																																																											
			CELL PRESSURE, PSI	3.58																																																											
ASSUMED SPECIFIC GRAVITY	2.65		MAXIMUM DEVIATOR STRESS, PSF ($\sigma_1 - \sigma_3$)	696.00																																																											
REMARKS			STRAIN, %	13.32																																																											
0			ULTIMATE DEVIATOR STRESS, PSF	676.00																																																											
			σ_1 FAILURE, PSF	1211.52																																																											
			σ_3 FAILURE, PSF	515.52																																																											
SAMPLE DESCRIPTION		Gray silty sand with clay pockets and clay seams (SM)																																																													
BORING NO.	B-8		SAMPLE NO.	0	TEST TYPE																																																										
PROJECT NAME	LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)			DATED SAMPLED	5/20/2015																																																										
PROJECT NUMBER	16715-012-04		DEPTH FT.	8 - 10																																																											
TESTED BY	KLA//		CHECKED BY	SLC//																																																											
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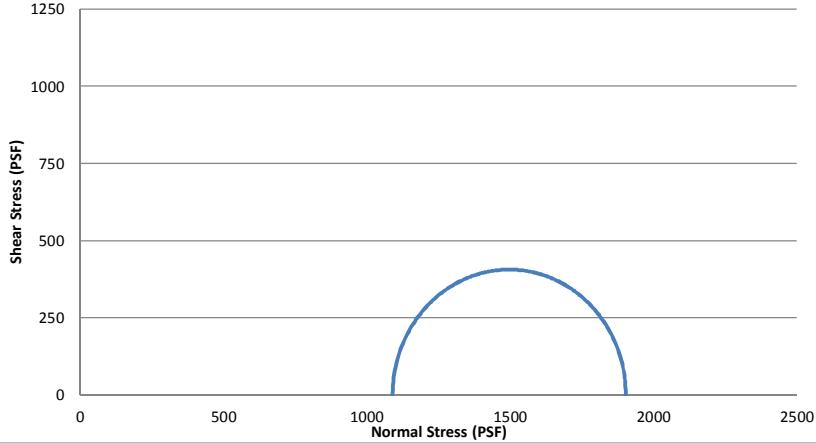
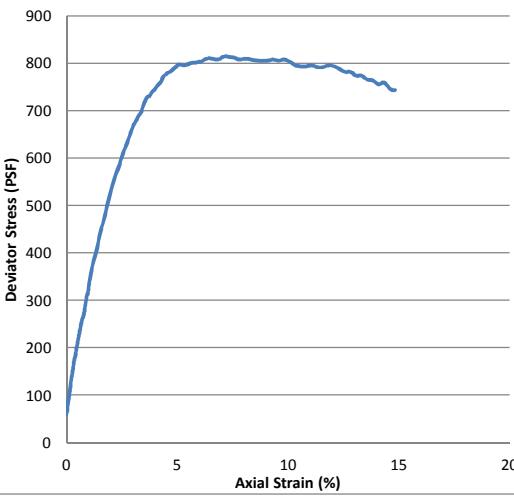
Data Entry Sheet For Compression - 2010 Version

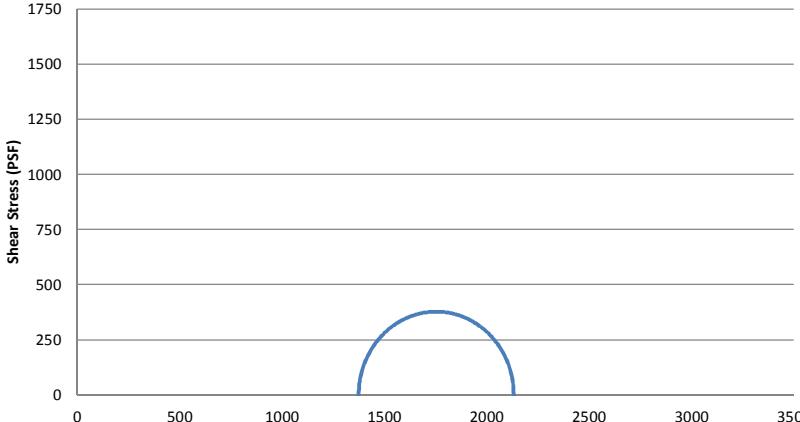
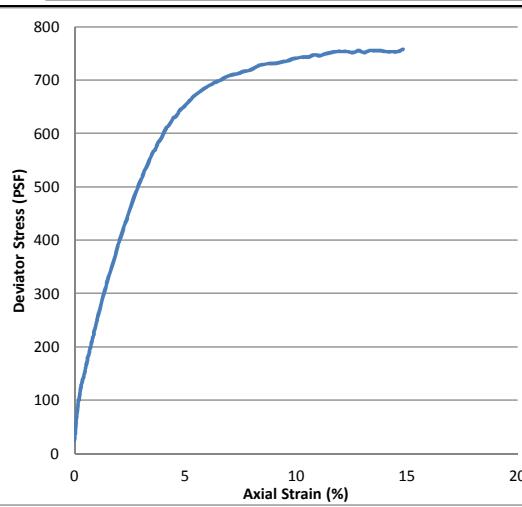


Specimen No.		1		
INITIAL	WATER CONTENT %	58.07		
	DRY DENSITY, PCF	64.79		
	WET DENSITY, PCF	102.42		
	SATURATION %	99.07		
	VOID RATIO	1.55		
AT TEST	WATER CONTENT %			
	DRY DENSITY, PCF			
	WET DENSITY, PCF			
	SATURATION %			
	VOID RATIO			

TEST TYPE:	UU			INITIAL HEIGHT, IN	5.89		
ATTERBERG LIMIT	LL	PL	PI	INITIAL DIAMETER, IN	2.80		
				CELL PRESSURE, PSI	6.77		
ASSUMED SPECIFIC GRAVITY	2.65			MAXIMUM DEVIATOR STRESS, PSF ($\sigma_1 - \sigma_3$)	722.00		
REMARKS				STRAIN, %	5.08		
0				ULTIMATE DEVIATOR STRESS, PSF	29640.00		
				σ_1 FAILURE, PSF	1696.88		
				σ_3 FAILURE, PSF	974.88		

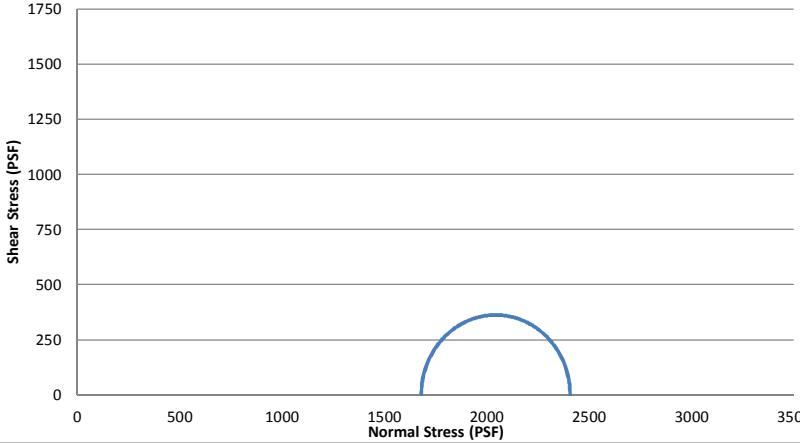
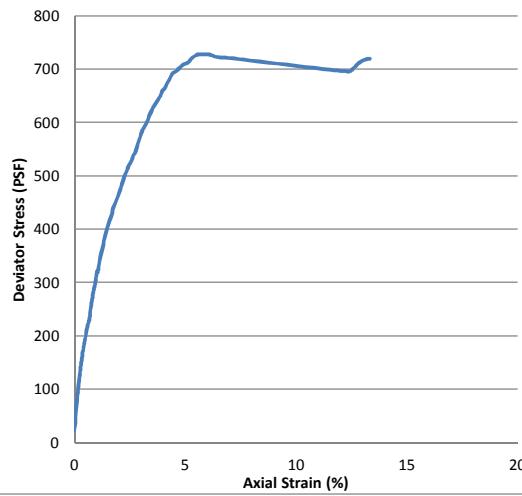
SAMPLE DESCRIPTION		Soft gray clay with silt lenses (CH)			
BORING NO.	B-8	SAMPLE NO.		TEST TYPE	UU
PROJECT NAME	LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)			DATED SAMPLED	5/21/2015
PROJECT NUMBER	16715-012-04	DEPTH FT.	16 - 18		
TESTED BY	JSA//	CHECKED BY	SLC///		

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LABORATORY DATA
Lab Miniature Vane Shear
ASTM D 4648

BORING NUMBER	DEPTH FEET		VANE READING	TORQUE (LB FOOT)	UNDRAINED SHEAR STRENGTH (PSF)	UNDRAINED SHEAR STRENGTH (KSF)
B-1	2.0	-	4.0	40	0.023899	90.14708669
B-1	4.0	-	6.0	115	0.06871	259.1728742
B-1	6.0	-	8.0	38	0.022704	85.63973235
B-1	8.0	-	10.0	38	0.022704	85.63973235

LABORATORY DATA
Lab Miniature Vane Shear
ASTM D 4648

BORING NUMBER	DEPTH FEET		VANE READING	TORQUE (LB FOOT)	UNDRAINED SHEAR STRENGTH (PSF)	UNDRAINED SHEAR STRENGTH (KSF)
B-2	0.0	-	2.0	101	0.060345	227.6213939
B-2	2.0	-	4.0	40	0.023899	90.14708669
B-2	18.0	-	20.0	160	0.095596	360.5883468
B-2	23.0	-	25.0	84	0.050188	189.308882
B-2	28.0	-	30.0	95	0.05676	214.0993309
B-2	33.0	-	35.0	56	0.033459	126.2059214
B-2	38.0	-	40.0	172	0.102766	387.6324728
B-2	43.0	-	45.0	31	0.018522	69.86399218

LABORATORY DATA
Lab Miniature Vane Shear
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BORING NUMBER	DEPTH		VANE READING	TORQUE (LB FOOT)	UNDRAINED SHEAR STRENGTH (PSF)	UNDRAINED SHEAR STRENGTH (KSF)
	FEET	FEET				
B-3	2.0	-	4.0	83	0.04959	187.0552049
B-3	4.0	-	6.0	32	0.019119	72.11766935
B-3	28.0	-	30.0	146	0.087231	329.0368664

LABORATORY DATA
Lab Miniature Vane Shear
ASTM D 4648

BORING NUMBER	DEPTH FEET		VANE READING	TORQUE (LB FOOT)	UNDRAINED SHEAR STRENGTH (PSF)	UNDRAINED SHEAR STRENGTH (KSF)
B-4	8.0	-	10.0	27	0.016132	60.84928351
B-4	10.0	-	12.0	15	0.008962	33.80515751
B-4	12.0	-	14.0	115	0.06871	259.1728742
B-4	14.0		16.0	115	0.06871	259.1728742
B-4	28.0		30.0	150	0.089621	338.0515751

LABORATORY DATA
Lab Miniature Vane Shear
ASTM D 4648

BORING NUMBER	DEPTH		VANE READING	TORQUE (LB FOOT)	UNDRAINED SHEAR	UNDRAINED SHEAR
	FEET				STRENGTH (PSF)	STRENGTH (KSF)
B-5	18.0	-	20.0	75	0.044811	169.0257875
B-5	28.0	-	30.0	235	0.140407	529.6141343

LABORATORY DATA
Lab Miniature Vane Shear
ASTM D 4648

BORING NUMBER	DEPTH FEET		VANE READING	TORQUE (LB FOOT)	UNDRAINED SHEAR STRENGTH (PSF)	UNDRAINED SHEAR STRENGTH (KSF)
B-6	4.0	-	6.0	74	0.044213	166.7721104
B-6	6.0	-	8.0	100	0.059748	225.3677167
B-6	10.0	-	12.0	73	0.043616	164.5184332
B-6	12.0	-	14.0	228	0.136224	513.8383941
B-6	14.0	-	16.0	80	0.047798	180.2941734
B-6	16.0	-	18.0	146	0.087231	329.0368664
B-6	18.0	-	20.0	155	0.092609	349.3199609
B-6	28.0	-	30.0	124	0.074087	279.4559687

LABORATORY DATA
Lab Miniature Vane Shear
ASTM D 4648

BORING NUMBER	DEPTH FEET		VANE READING	TORQUE (LB FOOT)	UNDRAINED SHEAR STRENGTH (PSF)	UNDRAINED SHEAR STRENGTH (KSF)
B-7	10.0	-	12.0	92	0.054968	207.3382994
B-7	14.0	-	16.0	20	0.01195	45.07354334
B-7	28.0	-	30.0	156	0.093206	351.5736381
B-7	48.0	-	50.0	535	0.319649	1205.717284
B-7	63.0	-	65.0	590	0.35251	1329.669529
B-7	68.0	-	70.0	470	0.280813	1059.228269

Laboratory Test Results

Project Name: LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)

Project ID: 16715-012-04

Technical Responsibility:

Title:

Date:

(Signature)
Lab Manager

229-14

BORING NUMBER	DEPTH (FT)	SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			COMPRESSION TEST				TEST TYPE	COMMENTS
	FROM - TO			WET	DRY	LL	PL	PI	TSF	STRAIN %	CONFINING PRESSURE (KSF)	TYPE FAILURE		
B-8	0.0 - 2.0	Very soft black peat (PT)	251	67.9	19.4				0.04	5	0.06	Bulge	MC,UU	13.4% Organic Matter Content, 2.0% Fiber Content
B-8	2.0 - 4.0	Very soft dark gray clay with organic matter (CH)	82	88.1	48.6	87	30	57	0.11	7	0.17	Bulge	MC,UU,AL	
B-8	4.0 - 6.0	Gray clayey sand with silt (SC-SM)	33										MC,Dry Sieve	58.6% sand / 41.3% fines
B-8	6.0 - 8.0	Dark gray sandy organic silt (OL)	251	114.1	32.5	42	28	14	0.17	15	0.40	Yield	MC,UU,AL	
B-8	8.0 - 10.0	Gray silty sand with clay pockets and clay seams (SM)	33	119.6	89.8				0.34	15	0.52	Yield	MC,UU	
B-8	10.0 - 12.0	Gray silty clayey sand (SC-SM)	35										MC,M200	63.4% sand / 36.6% fines
B-8	12.5 - 14.0	Gray very sandy clay (CL)	22										MC,Dry Sieve	49.5% sand / 50.5% fines
B-8	14.0 - 15.5	Gray very sandy clay (CL)	27										MC,M200	44.6% sand / 55.4% fines
B-8	16.0 - 18.0	Soft gray clay with silt lenses (CH)	58	102.4	64.8				0.36	5	0.98	Multiple Shear	MC,UU	
B-8	18.0 - 20.0	Soft gray clay with silt lenses (CH)	49	107.2	72.1	86	32	54	0.41	7	1.09	Multiple Shear	MC,UU,AL	Specific Gravity = 2.618
B-8	23.0 - 25.0	Soft gray clay with silt lenses (CH)	36	114.0	83.7				0.38	15	1.38	Yield	MC,UU	
B-8	28.0 - 30.0	Soft gray clay with silt lenses (CH)	70	107.7	63.2	69	25	44	0.36	6	1.67	Bulge	MC,UU,AL	

Laboratory Test Results

Project Name: LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)

Technical Responsibility:

Date:

Title:

Project ID: 16715-012-04

Cathy L Perl
LAB MANAGER

2-29-16

BORING NUMBER	DEPTH (FT)	SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			COMPRESSION TEST				TEST TYPE	COMMENTS
	FROM - TO			WET	DRY	LL	PL	PI	TSF	STRAIN %	CONFINING PRESSURE (KSF)	TYPE FAILURE		
B-1	0.0 - 2.0	Very soft dark gray clay with organics (CH)	128	83.5	36.7				0.06	8	0.06	Slump	MC,UU	5.6% Organic Matter Content, 2.0% Fiber Content
B-1	2.0 - 4.0	Very soft gray clay with organic matter (CH)	130	90.4	39.3	97	35	62	0.07	11	0.17	Bulge	MC,UU,AL	5.0% Organic Matter Content / Specific Gravity 2.698
B-1	4.0 - 6.0	Very soft gray clay with organic matter (CH)	122	91.4	41.2				0.15	7	0.29	Bulge	MC,UU	
B-1	6.0 - 8.0	Very soft gray clay (CH)	78	91.2	51.2	74	31	43	0.14	7	0.40	Bulge	MC,UU,AL	
B-1	8.0 - 10.0	Soft gray sandy clay with silt and organic matter (CL)	31	102.1	78.0				0.32	8	0.52	Bulge	MC,UU	
B-1	10.0 - 12.0	Gray clayey sand (SC)	37										MC,Dry Sieve	58.8% sand / 41.2% fines
B-1	12.0 - 14.0	Gray silty sand (SM)	29										MC	
B-1	14.5 - 16.0	Very dense gray silty sand (SM)	22										MC,Dry Sieve	84.1% sand / 15.9% fines
B-1	16.5 - 18.0	Firm gray silty sand (SM)	24										MC	
B-1	18.5 - 20.0	Loose gray clayey sand (SC)	29										MC,M200	66.0% sand / 34.0% fines
B-1	23.5 - 25.0	Gray clay with sand (CL)	51			47	20	27					MC,AL	
B-1	28.5 - 30.0	Gray clay (CH)	67			81	28	53					MC,AL	

Laboratory Test Results

Project Name: LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)

Technical Responsibility:

Date:

Project ID: 16715-012-04

Title: Cathy I. Perk
LAB MANAGER

2-29-16

BORING NUMBER	DEPTH (FT)	SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			COMPRESSION TEST				TEST TYPE	COMMENTS
	FROM - TO			WET	DRY	LL	PL	PI	TSF	STRAIN %	CONFINING PRESSURE (KSF)	TYPE FAILURE		
B-2	0.0 - 2.0	Very soft gray clay (CH)	79	101.0	56.4	52	23	29	0.07	3	0.06	Bulge	MC,UU,AL	
B-2	2.0 - 4.0	Very soft gray clay with organic matter (CH)	74	98.8	56.7	83	29	54	0.06	7	0.17	Bulge	MC,UU,AL	
B-2	4.0 - 6.0	Very soft gray clay with silt lenses (CH)	70	100.3	59.2				0.10	4	0.29	Bulge	MC,UU	
B-2	6.0 - 8.0	Gray clayey sand (SC)	47	110.6	75.5								MC,UC,Dry Sieve	Unit Weight, 69.7% sand / 30.3% fines
B-2	8.0 - 10.0	Gray clayey sand (SC)	28	94.7	73.8								MC,UC	Unit Weight
B-2	10.0 - 12.0	Gray sand with clay (SP-SC)	28										MC,M200	94.8% sand / 5.2% fines
B-2	12.0 - 14.0	Gray silty sand (SM)	23										MC,Dry Sieve	67.8% sand / 32.2% fines
B-2	14.0 - 16.0	Gray silty sand (SM)	23	125.7	102.0								UC	Unit Weight
B-2	16.0 - 18.0	Gray silty sand (SM)	24										MC,M200	87.8% sand / 12.2% fines
B-2	18.0 - 20.0	Soft gray clay with silt and sand seams (CL)	25	119.6	96.0	45	22	23	0.25	11	1.09	Multiple Shear	MC,UU,AL	
B-2	23.0 - 25.0	Very soft dark gray clay with silty sand lenses (CH)	34	107.4	80.2	63	27	36	0.22	5	1.38	Bulge	MC,UU,AL	
B-2	28.0 - 30.0	Very soft gray clay with sand (CL)	63	112.3	68.9				0.16	4	1.67	Yield	MC,UU	
B-2	33.0 - 35.0	Soft gray sandy clay with sand seams (CL)	54	113.6	73.9				0.38	8	1.96	Multiple Shear	MC,UU	
B-2	38.0 - 40.0	Very soft gray clay with silt and sand seams (CL)	30	107.0	82.2	43	20	23	0.10	11	2.25	Bulge	MC,UU,AL	Specific Gravity = 2.794
B-2	43.0 - 45.0	Gray clayey sand with shell fragments (SC)	28	120.0	93.7								MC,UC	Unit Weight
B-2	48.0 - 50.0	Gray sandy silt (ML)	25										MC,Dry Sieve	47.7% sand / 52.3% fines
B-2	53.5 - 55.0	Firm gray silty sand (SM)	28										MC,M200	80.4% sand / 19.6% fines
B-2	63.5 - 65.0	Dense gray silty sand (SM)	28										MC,M200	81.8% sand / 18.2% fines
B-2	68.5 - 70.0	Dense gray silty sand (SM)	27										MC,M200	76.0% sand / 24.0% fines
B-2	73.5 - 75.0	Dense gray silty sand (SM)	29			20	17	3					MC,AL,M200	66.1% sand / 33.9% fines
B-2	78.0 - 80.0	Gray very silty clay (CL)	34			32	18	14					MC,AL	

Laboratory Test Results

Project Name: LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)

Technical Responsibility:

Date:

Project ID: 16715-012-04

Title:

Cathy J. Park
LAB MANAGER

BORING NUMBER	DEPTH (FT)	SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			COMPRESSION TEST				TEST TYPE	COMMENTS
	FROM - TO			WET	DRY	LL	PL	PI	TSF	STRAIN %	CONFINING PRESSURE (KSF)	TYPE FAILURE		
B-3	0.0 - 2.0	Very soft dark gray clay with organic matter (CH)	84	94.6	51.5				0.08	6	0.06	Multiple Shear	MC,UU	5.9% Organic Matter Content, 15.4% Fiber Content
B-3	2.0 - 4.0	Very soft gray clay with organic matter (CH)	115	91.4	42.6				0.08	12	0.17	Bulge	MC,UU	
B-3	4.0 - 6.0	Very soft gray clay (CH)	85	98.8	53.4	84	29	55	0.06	5	0.29	Multiple Shear	MC,UU,AL	
B-3	6.0 - 8.0	Very soft gray clay with silt and 4" clayey sand layer (CL)	51	99.5	65.9				0.08	6	0.40	Multiple Shear	MC,UU	
B-3	8.0 - 10.0	Gray very sandy clay (CL)	32										MC,Dry Sieve	0.8% organic matter / 31.3% sand / 67.9% fines
B-3	10.0 - 12.0	Very soft gray clay with sand lenses and organic matter (CH)	27	104.6	82.3	52	21	31	0.03	8	0.63	Multiple Shear	MC,UU,AL	2.710 Specific Gravity
B-3	14.5 - 16.0	Dark gray very sandy clay (CL)	29										MC,Dry Sieve	40.3% sand / 59.7% fines
B-3	16.5 - 18.0	Gray very sandy clay (CL)	28										MC,M200	44.6% sand / 55.4% fines
B-3	18.5 - 20.0	Gray clay (CH)	44			60	27	33					MC,AL	
B-3	23.0 - 25.0	Soft gray clay with 1" silt layer (CL)	56	109.5	70.4				0.37	7	1.38	Multiple Shear	MC,UU	
B-3	28.0 - 30.0	Soft gray clay with silt lenses (CH)	70	107.8	63.2	76	26	50	0.46	3	1.67	Multiple Shear	MC,UU,AL	

Laboratory Test Results

Project Name: LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)

Project ID: 16715-012-04

Technical Responsibility:

Title:

Date:

Cathy J. Perin
LAB MANAGER

2.29.16

BORING NUMBER	DEPTH (FT) FROM - TO	SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			COMPRESSION TEST				TEST TYPE	COMMENTS
				WET	DRY	LL	PL	PI	TSF	STRAIN %	CONFINING PRESSURE (KSF)	TYPE FAILURE		
B-4	2.0 - 4.0	Firm gray sand with shell fragments (SP)	21										MC,Dry Sieve	95.6% sand / 4.4% fines
B-4	4.0 - 6.0	Dark gray very sandy clay with 6" clayey sand layer and shell fragments (CL)	29			30	18	12					MC,AL	
B-4	6.0 - 8.0	Gray clayey sand with shells (SC)	19										MC	Sample broke apart during trimming
B-4	8.0 - 10.0	Very soft gray clay with 4" clayey sand layer and shells (CH)	23	127.5	103.6	51	25	26	0.14	15	0.52	Yield	MC,UU,AL	
B-4	10.0 - 12.0	Very soft dark gray clay with silt lenses and shell fragments (CL)	84	100.7	54.6				0.13	9	0.63	Multiple Shear	MC,UU	
B-4	12.0 - 14.0	Very soft dark gray clay with sand lenses and 3" sandy clay layer with shell fragments (CH)	74	97.0	55.7	81	33	48	0.17	10	0.75	Multiple Shear	MC,UU,AL	
B-4	14.0 - 16.0	Very soft dark gray clay with shell fragments (CL)	58	103.2	65.2				0.16	7	0.86	Bulge	MC,UU	
B-4	16.0 - 18.0	Very soft gray clay with silt lenses and shell fragments (CH)	70	100.7	59.4				0.19	11	0.98	Multiple Shear	MC,UU	
B-4	18.0 - 20.0	Very soft gray clay (CH)	51	114.2	75.5				0.19	11	1.38	Multiple Shear	MC,UU	
B-4	28.0 - 30.0	Soft gray clay with silt lenses (CH)	56	101.4	65.0	70	24	46	0.37	4	1.67	Bulge	MC,UU,AL	Specific Gravity = 2.713

Laboratory Test Results

Project Name: LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)

Project ID: 16715-012-04

Technical Responsibility:

Title:

Date:

*Cathy L. Perkin
LAB MANAGER*

2.29.14

BORING NUMBER	DEPTH (FT) FROM - TO	SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			COMPRESSION TEST				TEST TYPE	COMMENTS
				WET	DRY	LL	PL	PI	TSF	STRAIN %	CONFINING PRESSURE (KSF)	TYPE FAILURE		
B-5	0.0 - 2.0	Very soft dark gray clay with organic matter (CH)	83	121.0	66.1	62	25	37	0.05	9	0.06	Bulge	MC,UU,AL	4.3% Organic Matter Content, 0.2% Fiber Content
B-5	2.0 - 4.0	Very soft gray clay with sand lenses (CH)	37	100.2	72.9	62	23	39	0.04	5	0.17	Bulge	MC,UU,AL	Specific Gravity = 2.733
B-5	4.5 - 6.0	Loose gray clayey sand (SC)	30										MC,Dry Sieve	80.0% sand / 20.0% fines
B-5	8.0 - 10.0	Gray very sandy clay (CL)	29	114.2	88.7								MC,UC,Dry Sieve	Unit Weight, 45.1% sand / 54.9% fines
B-5	10.5 - 12.0	Gray sandy clay (CL)	36										MC	
B-5	12.5 - 14.0	Dense dark gray clayey sand (SC)	29										MC,M200	66.6% sand / 33.4% fines
B-5	14.0 - 16.0	Dark gray sandy clay (CL)	46										MC	
B-5	16.0 - 18.0	Dark gray clay with sand (CL)	55			45	22	23					MC,AL	
B-5	18.0 - 20.0	Gray very sandy clay (CL)	36	121.4	89.4								MC,UC,Dry Sieve	Unit Weight, 41.2% sand / 58.8% fines
B-5	23.0 - 25.0	Soft gray clay (CH)	41	101.1	71.8	86	31	55	0.26	4	1.38	Multiple Shear	MC,UU,AL	
B-5	28.0 - 30.0	Soft gray clay (CH)	64	105.8	64.7				0.44	3	1.67	Multiple Shear	MC,UU	

Laboratory Test Results

Project Name: LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)

Technical Responsibility:

Date:

Cathy J. Pesh
LAB MANAGER

2.29.16

Project ID: 16715-012-04

Title:

BORING NUMBER	DEPTH (FT) FROM - TO	SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			COMPRESSION TEST				TEST TYPE	COMMENTS
				WET	DRY	LL	PL	PI	TSF	STRAIN %	CONFINING PRESSURE (KSF)	TYPE FAILURE		
B-6	2.5 - 4.0	Loose gray clayey sand with 2' sandy clay layer at bottom (SC)	39										MC,M200	63.9% sand / 36.1% fines
B-6	4.0 - 6.0	Very soft dark gray clay with sand, organic matter, and shells (CL)	66	109.0	65.8				0.11	8	0.29	Multiple Shear	UU	
B-6	6.0 - 8.0	Very soft gray and dark gray clay (CH)	103	100.7	49.6	76	29	47	0.10	8	0.40	Multiple Shear	UU,AL	Specific Gravity = 2.637
B-6	8.0 - 10.0	Very soft gray clay with silt pockets (CH)	74	94.5	54.4				0.08	6	0.52	Multiple Shear	UU	
B-6	10.0 - 12.0	Very soft gray clay (CH)	87	98.2	52.6	86	30	56	0.12	6	0.63	Multiple Shear	UU,AL	
B-6	12.0 - 14.0	Very soft gray clay (CH)	90	121.9	64.1				0.06	6	0.75	Multiple Shear	UU	
B-6	14.0 - 16.0	Very soft gray clay (CH)	93	97.9	50.7				0.11	8	0.86	Multiple Shear	UU	
B-6	16.0 - 18.0	Soft gray clay with silt lenses (CH)	54	114.2	74.1	58	23	35	0.46	5	0.98	Multiple Shear	MC,UU,AL	
B-6	18.0 - 20.0	Very soft gray clay (CH)	36	115.5	84.8				0.16	11	1.09	Multiple Shear	UU	
B-6	23.0 - 25.0	Gray clay (CH)	84			83	30	53					MC,AL	
B-6	28.0 - 30.0	Soft gray clay with silt lenses (CH)	72	95.3	55.4				0.41	3		Multiple Shear	UC	

Laboratory Test Results

Project Name: LADNR/CPRA - Caminada Headlands Back Barrier Marsh Creation (BA-171)

Technical Responsibility:

Date:

Project ID: 16715-012-04

Title: Cathy L. Pish
LAB MANAGER

2-29-16

BORING NUMBER	DEPTH (FT) FROM - TO	SOIL DESCRIPTION	MOISTURE %	UNIT WEIGHT (PCF)		ATTERBERG LIMITS			COMPRESSION TEST				TEST TYPE	COMMENTS
				WET	DRY	LL	PL	PI	TSF	STRAIN %	CONFINING PRESSURE (KSF)	TYPE FAILURE		
B-7	0.0 - 2.0	Very soft dark gray clay with sand pockets (CH)	89	99.6	52.7	57	23	34	0.04	6	0.06	Bulge	MC,UU,AL	
B-7	2.0 - 4.0	Very soft gray clay with organic matter (CH)	77	105.2	59.4				0.08	7	0.17	Multiple Shear	MC,UU	
B-7	4.0 - 6.0	Gray very silty clay with sand pockets (CL)	38										MC,M200	7.7% sand / 92.3% fines
B-7	6.0 - 8.0	Very soft gray very silty clay with organic matter (CL)	42	111.1	78.4	32	23	9	0.16	6	0.40	Bulge	MC,UU,AL, M200	1.0% sand / 99.0% fines
B-7	8.0 - 10.0	Very soft gray clay with organic matter (CH)	89	114.2	60.5				0.12	15	0.52	Yield	MC,UU	
B-7	10.0 - 12.0	Very soft gray clay (CH)	73	101.6	58.7	73	27	46	0.22	6	0.63	Bulge	MC,UU,AL	
B-7	12.0 - 14.0	Very soft gray clay (CH)	75	100.6	57.4				0.23	5	0.75	Bulge	MC,UU	
B-7	14.0 - 16.0	Gray very silty clay with sand (CL)	26										MC,Dry Sieve	9.8% sand / 90.2% fines
B-7	18.0 - 20.0	Gray clayey sand (SC)	33										MC,M200	65.4% sand / 34.6% fines
B-7	23.0 - 25.0	Soft gray clay with silt lenses (CH)	45	115.5	79.4				0.29	12	1.38	Bulge	MC,UU	
B-7	28.0 - 30.0	Soft gray clay with sand lenses (CH)	54	102.9	66.7				0.48	6	1.67	Bulge	MC,UU	
B-7	33.0 - 35.0	Gray clay with sand lenses (CH)	51	103.1	68.5	82	29	53					MC,UC,AL	Unit Weight
B-7	38.0 - 40.0	Medium gray clay with silt lenses (CH)	51	110.0	72.9				0.66	6	2.19	Bulge	MC,UU	
B-7	43.0 - 45.0	Medium gray clay (CH)	36	107.8	79.2				0.83	4	2.53	Bulge	MC,UU	
B-7	48.0 - 50.0	Medium gray clay (CH)	53	110.3	72.3	57	23	34	0.58	6	2.82	Bulge	MC,UU,AL	
B-7	53.0 - 55.0	Gray clay with silty sand lenses (CH)	29			76	27	49					MC,AL	
B-7	58.0 - 60.0	Gray clay with silt lenses (CH)	41	105.3	74.6								MC,UC	Unit Weight
B-7	63.0 - 65.0	Medium gray clay (CH)	49	104.0	69.7	76	27	49	0.85	3	3.69	Bulge	MC,UU,AL	Specific Gravity = 2.770
B-7	68.0 - 70.0	Medium gray clay (CH)	62	103.9	64.3				0.77	3		Vertical Shear	MC,UC	
B-7	73.0 - 75.0	Medium gray clay (CH)	58	104.5	66.3				0.99	4		Multiple Shear	MC,UC	
B-7	78.0 - 80.0	Stiff gray clay (CH)	57	107.2	68.5				1.23	3		Multiple Shear	MC,UC	

ORGANIC MATTER CONTENT OF SOIL BY MASS - T267							
Project:	BA-171 Caminada Headlands Back-Barrier Marsh Creation Project				Date Received:		Tested By: KTK
Project No.:	16715-012-04				Date Tested:	6/12/15	Checked By: SLC
Oven ID:	1104	Drying Temp:	110	Furnace ID.	1106	Furnace Temp:	445
Boring / Sample No.		B-5	B-1		B-8	B-3	
Depth (ft.)		0-2	0-2		0-2	0-2	
Crucible Number		4	15		5	6	
Crucible Wt. (g)		86.42	79.64		78.06	96.77	
Crucible + Dried Soil (g)		Oven 130.94	126.78		121.26	144.14	
Crucible + Furnace Dried Soil (g)		129.02	124.13		115.48	141.36	
Mass loss (g)		1.92	2.65		5.78	2.78	
Organic Matter Content (%)		4.31	5.62		13.38	5.87	
Entire sample used? Y/N							
Visual Soil Description (ASTM D2488 & T267)							
Notes:							

ORGANIC MATTER CONTENT OF SOIL BY MASS - T267							
Project:	BA-171 Caminada Headlands Back-Barrier Marsh Creation Project				Date Received:		Tested By: KTK
Project No.:	16715-012-04				Date Tested:	6/12/15	Checked By: SLC
Oven ID:	1104	Drying Temp:	110	Furnace ID.	1106	Furnace Temp:	445
Boring / Sample No.		B-1					
Depth (ft.)		2-4					
Crucible Number		2		3			
Crucible Wt. (g)		112.24		80.82			
Crucible + Dried Soil (g)	Oven	161.48		127.69			
Crucible + Furnace Dried Soil (g)		158.22		125.33			
Mass loss (g)		3.26		2.36			
Organic Matter Content (%)		6.62		5.04			
Entire sample used? Y/N							
Visual Soil Description (ASTM D2488 & T267)							
Notes:							

File No.	16715-012-04		Date	6/11/2015			
Project	Caminada Headlands		Tested By	KTK/KLA/SLC			
Location			Checked By				
Boring No.	B-6	B-8					
Depth	6-8	18-20					
Sample Description & Classification							
Pycnometer ID	1468	1469					
Thermometer ID	1498	1498					
Oven ID	1104	1104					
Scale ID	1335	1335					
Method (A or B)	B	B					
Wt. Pycnometer + Water	337.10	336.14					
Wt. Pycnometer + Water + Soil	359.32	357.33					
Temperature, °C	20.6	21.2					
Pan No.	519A	502A					
Wt. Pan + Dry Soil	49.35	48.31					
Wt. Pan	13.56	14.03					
Wt. Dry Soil	35.790	34.280	0.000	0.000			
Displaced Water	13.570	13.090	0.000	0.000			
Temperature Coefficient (κ)	0.99987	0.99974					
Specific Gravity @ 20° C	2.637	2.618	#DIV/0!	#DIV/0!			
Notes:							
NOTE: This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which the test was performed, and should not be interpreted as representative of samples obtained at other times or locations, or generated by other operations or processes. Test was performed in general accordance with the referenced test method. Any							
GEOENGINEERS 		Specific Gravity of Soil Solids (ASTM D 854)					
GeoEngineers, Inc. 11955 Lakeland Park blvd. Suite 100 Baton Rouge, La 70809							
Page ____ of ____							

APPENDIX E

Lonnie G. Harper & Associates, Inc. Survey Report



Lonnie G. Harper & Associates, Inc.

CIVIL ENGINEERING AND LAND SURVEYING CONSULTANTS

**2697 GRAND CHENIER HIGHWAY • GRAND CHENIER, LOUISIANA • 70643-0229 • PHONE: 337.538.2574 • FAX: 337.538.2596
2746 LOUISIANA HIGHWAY 384 • GRANDLAKE COMMUNITY BRANCH, BELL CITY, LA • 70630-5127 • 337.905.1079 • FAX: 337.905.1076**

Friday December 04, 2015

GeoEngineers, Inc.
Attn: Mr. Venu Tammineni, PE
11955 Lakeland Park Blvd
Baton Rouge, LA 70809

Re: BA-171 Caminada Headlands Back Barrier Marsh Creation
Bay Champagne, Port Fourchon, LA

In accordance with the proposal dated October 28th of 2015, Lonnie G. Harper & Associates, Inc. (LGH) completed all topographical and magnetometer surveys and staking of the Caminada Headlands Back Barrier Marsh Creation project site.

Survey Control

All surveys are referenced the North American Vertical Datum of 1988 (NAVD 88) and the North American Horizontal Datum of 1983 (NAD 83) (NSRS2007), Geoid03. LGH utilized Louisiana Department of Natural Resources (LDNR) control monument "TE23-SM-01" as the base station for all Real Time Kinematic (RTK) and magnetometer surveys performed under this task. The established position of the "TE23-SM-01" monument is given below.

TE23-SM-01
224,296.40
3,645,688.72
+7.61' NAVD88 (2.321 m)
Ellipsoid Height = -21.546 m
Geoid03 Height = -23.867 m

Topographic Survey and Staking

All cone penetration test (CPT) locations were provided in the form of geographical coordinates with an accuracy of .1 seconds of a degree. LGH used a Trimble RTK base station and receivers to collect all horizontal and vertical positions of the exploration locations based on the TBM position as described previously. LGH traveled to each of the exploration sites via airboat and obtained the horizontal and vertical positions at the mudline of each point. Each location was staked with a cane pole driven into the water bottom and then tagged with the corresponding point name. The horizontal and vertical positions of each point and mudline elevation at each location are displayed in the associated drawings accompanying this report.

Magnetometer Survey

LGH utilized a Geometrics Inc. G882 magnetometer mounted on the front of an airboat to perform the hazard survey at the exploration locations provided by GeoEngineers, Inc. A fifty foot radius



Lonnie G. Harper & Associates, Inc.

CIVIL ENGINEERING AND LAND SURVEYING CONSULTANTS

**2697 GRAND CHENIER HIGHWAY • GRAND CHENIER, LOUISIANA • 70643-0229 • PHONE: 337.538.2574 • FAX: 337.538.2596
2746 LOUISIANA HIGHWAY 384 • GRANDLAKE COMMUNITY BRANCH, BELL CITY, LA • 70630-5127 • 337.905.1079 • FAX: 337.905.1076**

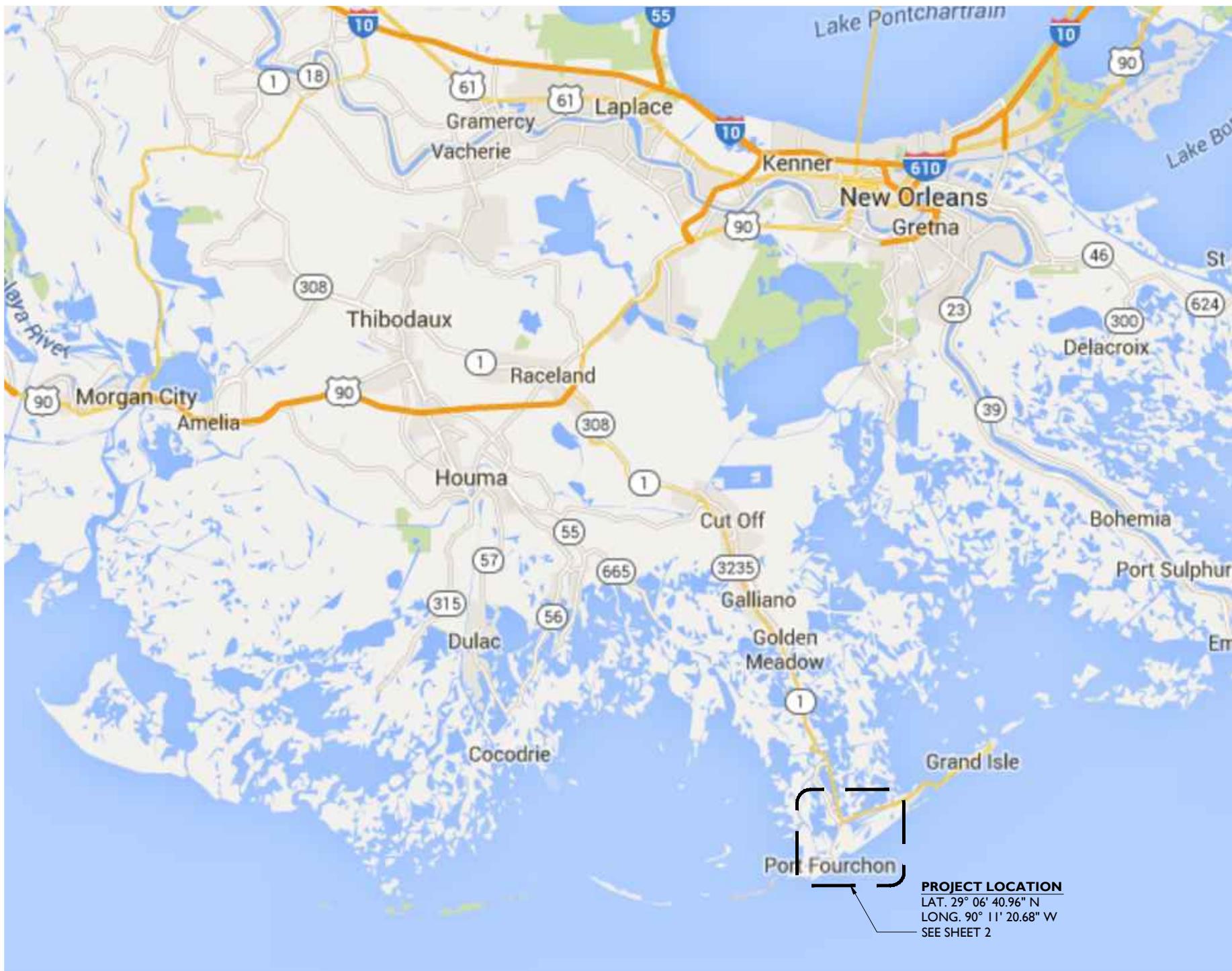
surrounding each point was investigated for any magnetic anomalies. After processing the collected data it was determined all points appear to be clear of any underground magnetic anomalies.

Should any questions arise pertaining the surveying methodology utilized in the data collection process, please do not hesitate to contact our office for further discussion. LGH would like to thank GeoEngineers, Inc. for the opportunity to be a part of this project and we look forward to working with your organization on future endeavors.

Sincerely,
Lonnie G. Harper & Associates, Inc.

Chris Wheat, PE

LAFOURCHE PARISH, LOUISIANA
 BA-171 CPT LOCATION STAKING &
 MAGNETOMETER SURVEY
 LGH PROJECT NO. 2015-90
 CLIENT: GEOENGINEERS, INC.



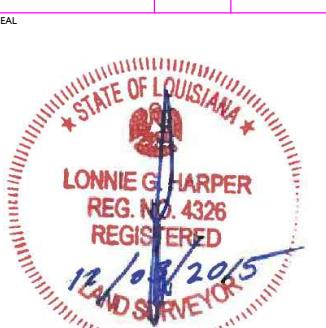
VICINITY MAP
 SCALE: 1" = 10,000'

SURVEY NOTES:

- THE PURPOSE OF THIS SURVEY IS TO STAKE THE CONE PENETRATION TEST (CPT) LOCATIONS FOR GEOENGINEERS, INC. AND CLEAR EACH LOCATION OF ANY MAGNETIC ANOMALIES USING A MAGNETOMETER AND/OR GRADIOMETER.
- GEOENGINEERS, INC. PROVIDED LATITUDE AND LONGITUDE COORDINATES OF EACH PLANNED CPT LOCATION. GEOGRAPHIC COORDINATES WERE TRANSFORMED TO LOUISIANA SOUTH ZONE (LZ-1702) STATE PLANE COORDINATES USING CORPSCON 6.0.1 COORDINATE TRANSFORMATION SOFTWARE.
- CPT POSITIONS WERE THEN OVERLAID WITH PIPELINE SURVEY DATA COLLECTED BY MORRIS P. HEBERT, INC. AND MINOR ADJUSTMENTS WERE MADE TO THE POSITIONS TO MAINTAIN A 75' BUFFER ON EITHER SIDE OF THE EXISTING PIPELINES.
- ALL CPT LOCATIONS WERE STAKED USING REAL TIME KINEMATIC (RTK) SURVEYING EQUIPMENT AND METHODOLOGIES.
- LGH UTILIZED A GEOMETRICS G-882 MARINE MAGNETOMETER WITH TRIMBLE SPS461 DIFFERENTIAL POSITIONING EQUIPMENT AND HYPACK® NAVIGATION SOFTWARE TO COMPLETE THE GEOPHYSICAL SURVEYS ASSOCIATED WITH THIS SCOPE. LGH CLEARED AN AREA HAVING A 50' RADIUS AROUND EACH CPT LOCATIONS TO INSURE NO INFRASTRUCTURE IMPACTS.
- Pipeline positions and depth of cover were verified and marked in field in areas in close proximity (50'-200') of each CPT location.
- CONTROL MONUMENT FOR ALL SURVEYS PERFORMED UNDER THIS CONTRACT WERE BASED ON LOUISIANA DEPARTMENT OF NATURAL RESOURCES MONUMENT "TE23-SM-01", HAVING A NAD 83 HORIZONTAL POSITION OF N: 224,296.40, E: 3,645,688.72 AND A NAVD88, GEOD03 ELEVATION OF +7.61 FEET.

LONNIE G. HARPER & ASSOCIATES, INC.
 CIVIL ENGINEERING AND LAND SURVEYING
 2746 HWY. NO. 384, BELL CITY, LOUISIANA 70630
 PHONE: (337) 905-1079 FAX: (337) 905-1076

VICINITY MAP
BA-171 CPT LOCATION STAKING & MAGNETOMETER SURVEY
 LAFOURCHE PARISH, LOUISIANA



LONNIE G. HARPER, P.L.S.
 LA LICENSE NO. 4326
 LONNIE G. HARPER & ASSOCIATES, INC.
 BELL CITY, LOUISIANA 70630

DRAWN BY	PROJECT NO.
C.L.W.	2015-90
DESIGNED BY	DATE
N/A	12/03/2015
APPROVED BY	SCALE
L.G.H.	1" = 10,000'
JOB NUMBER	Sheet
12/3194/2015	01 OF 03

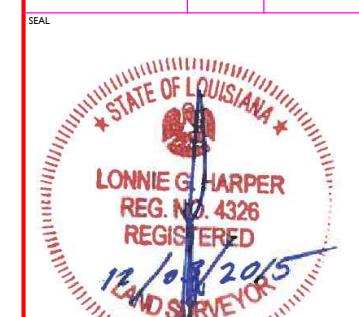


SITE PLAN

SCALE: 1" = 1,500'

SURVEY NOTE:

- I. PIPELINE LOCATIONS, SIZES, AND OWNER NAMES ARE BASED ON SURVEY PERFORMED BY MORRIS P. HEBERT, INC. LGH ONLY VERIFIED THE EXISTENCE OF PIPELINES ALONG THESE CORRIDORS.



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BELL CITY, LOUISIANA 70630

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DESIGNED BY N/A	DATE 12/03/2015
APPROVED BY L.G.H.	SCALE 1" = 1,500'
JOB NUMBER 12/3194/2015	SHEET 02 OF 03

BORING LOCATION	NORTHING	EASTING	LATITUDE	LONGITUDE	WATER BOTTOM ELEV. (FT)
CPT1	222201.54	3646832.55	29° 06' 21.4353"	90° 11' 14.3072"	-0.65
CPT2	222499.82	3646665.53	29° 06' 24.4045"	90° 11' 16.1562"	-0.85
CPT3	223059.28	3646808.36	29° 06' 29.9285"	90° 11' 14.4832"	-0.89
CPT4	223283.72	3647269.43	29° 06' 32.1045"	90° 11' 09.2607"	-0.81
CPT5	223358.21	3647841.35	29° 06' 32.7852"	90° 11' 02.8056"	-1.17
CPT6	223713.22	3648406.13	29° 06' 36.2433"	90° 10' 56.3992"	-0.64
CPT7	224142.84	3648384.97	29° 06' 40.4982"	90° 10' 56.5891"	-4.79
CPT8	224948.66	3648448.35	29° 06' 48.4687"	90° 10' 55.7834"	-2.08
CPT9	225308.34	3648838.9	29° 06' 51.9902"	90° 10' 51.3402"	-2.29
CPT10	225695.95	3649277.64	29° 06' 55.7835"	90° 10' 46.3504"	-2.28
CPT11	226113.86	3649184.89	29° 06' 59.9296"	90° 10' 47.3486"	-2.21
CPT12	226243.06	3649793.16	29° 07' 01.1479"	90° 10' 40.4769"	-2.14
CPT13	226543.24	3650319.27	29° 07' 04.0668"	90° 10' 34.5120"	-2.11
CPT14	226770.66	3650577.12	29° 07' 06.2922"	90° 10' 31.5793"	-2.27
CPT15	226976.44	3650821.37	29° 07' 08.3048"	90° 10' 28.8024"	-2.25
CPT16	227273.79	3651235.52	29° 07' 11.2068"	90° 10' 24.0998"	-1.58
CPT17	227388.98	3651727.72	29° 07' 12.2977"	90° 10' 18.5379"	-1.48
CPT18	227235.12	3652325.22	29° 07' 10.7146"	90° 10' 11.8198"	-1.98
CPT19	227854.54	3653084.87	29° 07' 16.7698"	90° 10' 03.1851"	-1.06
CPT20	228769.51	3654291.33	29° 07' 25.7054"	90° 09' 49.4789"	-1.67
CPT21	229030.6	3654134.93	29° 07' 28.3057"	90° 09' 51.2121"	-2.3
CPT22	229377.04	3655094.72	29° 07' 31.6380"	90° 09' 40.3518"	-2.68
CPT23	230446.74	3656640.5	29° 07' 42.0701"	90° 09' 22.8011"	-1.33
CPT24	231909.19	3658419.17	29° 07' 56.3655"	90° 09' 02.5779"	-3.57
CPT25	232156.91	3658846.31	29° 07' 58.7740"	90° 08' 57.7332"	-2.1
CPT26	230464.78	3657682.6	29° 07' 42.1426"	90° 09' 11.0502"	-1.75
CPT27	231836.15	3659383.35	29° 07' 55.5439"	90° 08' 51.7157"	-0.39

| FINAL CPT STAKED LOCATIONS

SCALE: N/A

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JOB NUMBER 12/3194/2015	SHEET 03 OF 03

GEOENGINEERS



APPENDIX F

Report Limitations and Guidelines for Use

APPENDIX F

REPORT LIMITATIONS AND GUIDELINES FOR USE¹

This appendix provides information to help you manage your risks with respect to the use of this report.

Geotechnical Services Are Performed for Specific Purposes, Persons and Projects

This report has been prepared for Louisiana Coastal Protection and Restoration Authority (CPRA) and their authorized agents and regulatory agencies. The information contained herein is not applicable to other sites.

GeoEngineers structures our services to meet the specific needs of our clients. No party other than CPRA, may rely on the product of our services unless we agree to such reliance in advance and in writing. This is to provide our firm with reasonable protection against open-ended liability claims by third parties with whom there would otherwise be no contractual limits to their actions. Within the limitations of scope, schedule and budget, our services have been executed in accordance with our Agreement with the Client and generally accepted geotechnical practices in this area at the time this report was prepared. Use of this report is not recommended for any purpose or project except the one originally contemplated.

A Geotechnical Engineering or Geologic Report is Based on a Unique Set of Project-Specific Factors

This report has been prepared for Caminada Headland Back Barrier Marsh Creation (BA-171) Project. GeoEngineers considered a number of unique, project-specific factors when establishing the scope of services for this project and report. Unless GeoEngineers specifically indicates otherwise, it is important not to rely on this report if it was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.
- For example, changes that can affect the applicability of this report include those that affect:
 - the function of the proposed structure;
 - elevation, configuration, location, orientation or weight of the proposed structure;
 - composition of the design team; or
 - project ownership.

¹ Developed based on material provided by ASFE, Professional Firms Practicing in the Geosciences; www.asfe.org.

If important changes are made after the date of this report, we recommend that GeoEngineers be given the opportunity to review our interpretations and recommendations. Based on that review, we can provide written modifications or confirmation, as appropriate.

Subsurface Conditions Can Change

This geotechnical or geologic report is based on conditions that existed at the time the study was performed. The findings and conclusions of this report may be affected by the passage of time, by man-made events such as construction on or adjacent to the site, or by natural events such as floods, earthquakes, slope instability or groundwater fluctuations. If more than a few months have passed since issuance of our report or work product, or if any of the described events may have occurred, please contact GeoEngineers before applying this report for its intended purpose so that we may evaluate whether changed conditions affect the continued reliability or applicability of our conclusions and recommendations.

Most Geotechnical and Geologic Findings Are Professional Opinions

Our interpretations of subsurface conditions are based on field observations from widely spaced sampling locations at the site. Site exploration identifies the specific subsurface conditions only at those points where subsurface tests are conducted or samples are taken. GeoEngineers reviewed field and laboratory data and then applied our professional judgment to render an informed opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ, sometimes significantly, from those indicated in this report. Our report, conclusions and interpretations should not be construed as a warranty of the subsurface conditions.

Geotechnical Engineering Report Recommendations Are Not Final

The construction recommendations included in this report are preliminary and should not be considered final. GeoEngineers' recommendations can be finalized only by observing actual subsurface conditions revealed during construction. GeoEngineers is unable to assume responsibility for the recommendations in this report without performing construction observation.

We recommend that you allow sufficient monitoring, testing and consultation during construction by GeoEngineers to confirm that the conditions encountered are consistent with those indicated by the explorations, to provide recommendations for design changes if the conditions revealed during the work differ from those anticipated, and to evaluate whether earthwork activities are completed in accordance with our recommendations. Retaining GeoEngineers for construction observation for this project is the most effective method of managing the risks associated with unanticipated conditions.

A Geotechnical Engineering or Geologic Report Could Be Subject to Misinterpretation

Misinterpretation of this report by members of the design team or by contractors can result in costly problems. GeoEngineers can help reduce the risks of misinterpretation by conferring with appropriate members of the design team after submitting the report, reviewing pertinent elements of the design team's plans and specifications, participating in pre-bid and preconstruction conferences, and providing construction observation.

Do Not Redraw the Exploration Logs

Geotechnical engineers and geologists prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. The logs included in a geotechnical engineering or geologic report should never be redrawn for inclusion in architectural or other design drawings. Photographic or electronic reproduction is acceptable, but separating logs from the report can create a risk of misinterpretation.

Give Contractors a Complete Report and Guidance

To help prevent costly problems associated with unanticipated subsurface conditions, we recommend giving contractors the complete geotechnical engineering or geologic report, but preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report's accuracy is limited. In addition, encourage them to confer with GeoEngineers and/or to conduct additional study to obtain the specific types of information they need or prefer.

Contractors Are Responsible for Site Safety on Their Own Construction Projects

Our geotechnical recommendations are not intended to direct the contractor's procedures, methods, schedule or management of the work site. The contractor is solely responsible for job site safety and for managing construction operations to minimize risks to on-site personnel and adjacent properties.

Read These Provisions Closely

It is important to recognize that the geoscience practices (geotechnical engineering, geology and environmental science) are less exact than other engineering and natural science disciplines. Without this understanding, there may be expectations that could lead to disappointments, claims and disputes. GeoEngineers includes these explanatory "limitations" provisions in our reports to help reduce such risks. Please confer with GeoEngineers if you need to know more how these "Report Limitations and Guidelines for Use" apply to your project or site.

Biological Pollutants

GeoEngineers' Scope of Work specifically excludes the investigation, detection, prevention or assessment of the presence of Biological Pollutants. Accordingly, this report does not include any interpretations, recommendations, findings or conclusions regarding the detecting, assessing, preventing or abating of Biological Pollutants, and no conclusions or inferences should be drawn regarding Biological Pollutants as they may relate to this project. The term "Biological Pollutants" includes, but is not limited to, molds, fungi, spores, bacteria and viruses, and/or any of their byproducts.

A Client that desires these specialized services is advised to obtain them from a consultant who offers services in this specialized field.

Have we delivered World Class Client Service?
Please let us know by visiting www.geoengineers.com/feedback.

