Professional Service Industries, Inc.
724 Central Avenue
Jefferson, Louisiana 70121
Phone: (504) 733-9411

September 17, 2020

Coastal Protection and Restoration Authority (CPRA)
150 Terrace Avenue
Baton Rouge, Louisiana 70802

Attn: Ms. Renee Bennett, P.M.P.
Email: Renee.S.Bennett@la.gov

Cc: Ms. Morgan Barranco
Email: Morgan.Barranco@LA.GOV

Re: **Geotechnical Engineering Services Data Report**
Long Point Bayou Marsh Creation Project (CS-0085)
Cameron Parish, LA
PSI Project No. 02541211-1

Dear Ms. Bennett:

Professional Service Industries, Inc. (PSI), an Intertek company, is pleased to submit our Geotechnical Data Report for the above-referenced project. This report presents the results of our field exploration and laboratory testing performed for the proposed construction. A final geotechnical report will be submitted once the engineering analyses are performed.

If you have any questions pertaining to this report, please contact our office at (504) 733-9411. PSI would be pleased to continue providing geotechnical and construction material testing services throughout the construction of the project, and we look forward to working with you and your organization on this and future projects.

Respectfully submitted,

PROFESSIONAL SERVICE INDUSTRIES, INC.

Prasoon Tiwari, P.E.(TX)
Geotechnical Department Manager

Nabil S. Mikhail, P.E., D.GE
Chief Engineer

GEOTECHNICAL ENGINEERING SERVICES DATA REPORT

LONG POINT BAYOU MARSH CREATION PROJECT (CS-0085)
CAMERON PARISH, LA

PSI PROJECT NO. 02541211-1

PREPARED FOR

COASTAL PROTECTION AND RESTORATION AUTHORITY (CPRA)
150 TERRACE AVENUE
BATON ROUGE, LA 70802

September 17, 2020

BY

PROFESSIONAL SERVICE INDUSTRIES, INC.
724 CENTRAL AVENUE
JEFFERSON, LOUISIANA 70121
PHONE: 504-733-9411

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PROJECT INFORMATION

PROJECT AUTHORIZATION

Professional Service Industries, Inc. (PSI), an Intertek company, has completed the field and laboratory portions of a geotechnical investigation for the proposed Long Point Bayou Marsh Creation Project (CS-0085) in Cameron Parish, Louisiana. Our scope of services is outlined in PSI Proposal 0286-298563 Rev 5, dated April 6, 2020. Our geotechnical services were authorized by Mr. Jerry Carroll, P.E., Lafayette Regional Operations Manager with CPRA, by issuing a Notice to Proceed as Task #2 dated April 6, 2020 under our existing Contract No. 4400015386. A final geotechnical report will be submitted once the engineering analyses are performed.

PROJECT DESCRIPTION

Project information was provided to PSI by Ms. Renee Bennett, P.M.P. with CPRA, by an email correspondence dated December 19, 2019. The project information was discussed in detail over a follow up call on January 3, 2020 and a revised scope of services was provided to PSI on January 3, 2020. The project information included scope of services for geotechnical investigation and engineering services for Long Point Bayou Marsh Creation Project (CS-0085) in Cameron Parish, Louisiana.

Based on provided information, PSI understands that approximately 392 acres of marsh will be created using borrow material from the Calcasieu Ship Channel. The fill site will be formed by constructing earthen dikes around the boundaries of the marsh creation area where needed. The marsh creation fill site will also be planted with wetland grasses to accelerate plant colonization, stabilize new sediments, and improve habitat. The borrow material for this project site is planned to be dredged from the Calcasieu Ship Channel area between Mile markers 5 and 17.

SITE LOCATION AND DESCRIPTION

The CS-0085 project area is located in CWPPRA Planning Region 4, Calcasieu/Sabine Basin, Cameron Parish, south of Hackberry, north of Sabine National Wildlife Refuge, east of Highway LA 27 and west of the Calcasieu Ship Channel. The water depth of approximately one (1) to three (3) feet was recorded at boring locations in the Marsh area during our field operations.

Table1: Centerline Coordinates of the CS-0085 Project Area

Geographic	
Latitude (DMS)	**Longitude (DMS)**
29* 55’19.6” N	93*21’38.54” W

The approximate site location is shown on the Site Vicinity Map included in the Appendix A, which is based on Appendix B, Proposed Soil Sampling Layout and Permit Drawings of CPRA Scoping document.

FIELD AND LABORATORY PROCEDURES

FIELD EXPLORATION

PERMIT ACCESS

Prior to mobilizing for the field work to survey the boring locations and conduct site reconnaissance, PSI coordinated and acquired documented access permission to conduct any work at the subject site. Special Use Permit for Sabine National Wildlife Refuge, Coastal Use Authorization from Office of Coastal Management and USACE's permit were secured prior to mobilizing to the project site. Additionally, notification to the coast guard was provided prior to mobilizing the barge mounted drill rig in the ship channel area.

SURVEY POSITIONING AND MAGNETOMETER SURVEY

Prior to mobilizing the drilling equipment to perform the soil borings/CPT's, Chustz surveying, LLC performed survey positioning and magnetometer survey at each boring/CPT location in the marsh area and borrow area, as per CPRA guidelines. The horizontal and vertical control for survey positioning was performed in accordance with secondary monument and data sheets presented in Appendix D of the attached Scope Document. The magnetometer survey at each boring/CPT location in the marsh and borrow area was performed to ensure there are no pipelines or obstructions in the area. The locations in the marsh area were staked in the field by the survey crew. Based on information obtained from the survey work, soil boring and CPT details are presented in the Table 2. The survey report is presented in Appendix A.

Table 2. Soil Boring and CPT Sounding details (Datum: NAVD88 GEOID12B)

Boring Location	Northing	Easting	Mudline Elevation (ft)	Water Surface Elevation (ft)	Project Area*
B-1	521980.25	2638800.9	0.2	2.3	Marsh
B-2	523622.39	2634883.9	0.64	2.4	Marsh
B-3	519709.77	2638822.9	0.36	2.4	Marsh
B-4	523168.5	2640982.6	0.14	2.4	Marsh
B-5	523526.97	2638396.7	-0.89	2.3	Marsh
B-6	502413.49	2643251.4	-43.54	1.4	Borrow
B-7	506467.17	2643634.3	-42.24	1.5	Borrow
B-8	514945.17	2644470.5	-38.90	1.5	Borrow
B-9	520923.85	2644779.5	-40.17	1.6	Borrow
B-10	525073.53	2645165.5	-40.60	1.6	Borrow
B-11	529408.86	2645624.2	-41.76	1.7	Borrow
B-12	536575.47	2646292.5	-40.49	1.7	Borrow
CPT 1	522619.72	2635614.8	-0.09	2.5	Marsh
CPT 2	521553.61	2637072.8	0.44	2.5	Marsh
CPT 3	521172	2638106.8	0.03	2.5	Marsh

CPT 4	520971.77	2639657.2	1.82	2.5	Marsh
CPT 5	522485.73	2640096.9	-0.11	2.5	Marsh
CPT 6	524712.54	2639962.3	0.02	2.4	Marsh
CPT 7	525528.58	2637537.9	-0.51	2.5	Marsh
CPT 8	522298.03	2637720.2	-0.16	2.4	Marsh
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CPT 10	523622.39	2634883.9	0.64	2.4	Marsh
CPT 11	519709.77	2638822.9	0.36	2.4	Marsh
CPT 12	525466.65	2638444.9	-0.72	2.3	Marsh

* A water depth of approximately 39 to 45 feet was recorded at boring locations in the Ship Channel area during our field operations.

SOIL BORINGS

Based on provided information and discussion with CPRA, soil borings and CPT soundings locations were finalized. Boring Location Plans for marsh area and borrow area are attached in the Appendix B.

A total of seventeen (17) soil borings and CPT soundings were performed for the Containment Dike and Marsh Creation area. As discussed with CPRA, the soil borings and CPT soundings were explored using an airboat mounted drilling equipment. All the borings and CPT soundings were performed between June 24 to June 30. Detailed description mentioned below:

- Five (5), 3-inch diameter borings to a depth of 30 feet below mudline sampled continuously. Three (3) of these borings (B-2, B-3 and B-4) were co-located next to CPTs (CPT-9, CPT-10 and CPT-11) for comparison. Drilling, and sampling were performed in accordance with applicable ASTM Standards and the furnished Scope of Services Document. The proposed soil borings were advanced with a 4-inch diameter rotary wash drilling method.

  Undisturbed samples of cohesive soils were obtained by using three-inch diameter thin-wall tube samplers (Shelby Tube) in general accordance with the procedures for “Thin-Walled Tube Geotechnical Sampling of Soils” (ASTM D1587). For cohesionless soils and semi-cohesive soils, Standard Penetration Test (SPT) was performed to obtain standard penetration values of the soil. The standard penetration value (N) is defined as the number of blows of a 140-pound hammer falling 30 inches that is required to advance the split-barrel sampler one (1) ft. into the soil. The number of blows is recorded for each of three (3) successive increments of six (6) inches penetration. The “N” value is obtained by adding the second and third incremental numbers. The results of the standard penetration test indicate the relative density of cohesionless soils and thereby provide a basis for estimating the relative strength of the soil profile components. Samples of granular soils were obtained utilizing a two (2) inch O.D. split-barrel sampler in general accordance with procedures for “Penetration Test and Split-Barrel Sampling of Soils” (ASTM D1586). The boreholes were grouted upon their completion per LDEQ and LA DOTD regulations.

- Twelve (12), Cone Penetration tests to the refusal depth varying from 10 feet to 15 feet.

Our CPT utilizes a 60° apex cone, 1.4-inch diameter, Type 2 electric cone penetrometer that meets ASTM D5778 specification. The soil information obtained from CPT soundings are presented in the Appendix B. The CPT was advanced to the shallow refusal depth due to the presence of the Pleistocene. Refusal prior to the depth specified occurs due to achieving maximum tip resistance, a high frictional resistance of the sleeve, or excessive tilt angle of the CPT probe. To prevent damage to the CPT, no attempt was made to advance beyond refusal depth. Due to low penetration depths for CPT soundings, a cut off value of 1.7 was used for overburden correction factors for estimating normalized soil behavior type. For cohesive soils, Shear strength (Su) was estimated using the total cone resistance (q_t) and cone factor (N_{kt}).

$$s_u = \frac{q_t - \sigma_v}{N_{kt}}$$

- N_{kt} =16, used for marsh area CPT's.

A total of seven (7) soil borings were performed for the borrow area. The borings were performed between May 26 to May 29. Detailed description mentioned below:

- Seven (7), bulk sample collection continuously to the maximum depth of the dredging in the Channel (approximately Elev. -45 MLLW in the center of channel). The bulk samples were collected utilizing 5-inch diameter and 5 feet long piston sampler.

GEOTECHNICAL LABORATORY TESTING

During the field work, the samples were identified according to boring number and depth and were transported to PSI's laboratory for classification and testing. A geotechnical laboratory testing program was developed after reviewing the field logs. The laboratory testing program was provided to CPRA for review and approval prior to testing. After approval, laboratory tests were performed in general accordance with applicable ASTM procedures and the furnished Scope Document. Laboratory testing of the obtained samples has been performed to evaluate the classification, strength and other engineering characteristics of the subsurface materials.

The Shelby tube samples were removed from the sampling tubes in the laboratory using a specially fabricated hydraulic piston-type extruder. The tube samples were extruded, classified and subjected to index and compressive strength tests. Additional estimates of shear strength were obtained through the use of a hand penetrometer (HP) and torvane (TV), respectively. The results of the laboratory tests are presented in the Boring Logs given in the Appendix B. A key to the terms and symbols used on the boring logs is also presented in Appendix B.

An overview of the scope of the laboratory testing phase for both the marsh area borings and borrow area borings are tabulated in Table 3 and Table 4 respectively below. A detailed discussion on laboratory test results is presented in subsequent sections of the data report.

Table 3. Laboratory Testing Summary for Marsh area borings

Test Method	ASTM Reference	No. of Tests performed
Moisture Content	(ASTM D2216)	74
Visual Classification	(ASTM D2488)	74
Organic Content	(ASTM D2974)	5
Atterberg limits	(ASTM D4318)	20
Percent Passing #200 sieve	(ASTM D1140)	19
Hydrometer Analysis	(ASTM D7928)	4
Specific Gravity	(ASTM D854)	5
Total Unit Weight Determination	(ASTM D2937)	11
Unconsolidated Undrained Triaxial Test	(ASTM D2850)	11
Consolidation Test	(ASTM D2435)	5

Table 4. Laboratory Testing Summary for Borrow area borings

Test Method	ASTM Reference	No. of Tests performed
Moisture Content	(ASTM D2216)	7
Visual Classification	(ASTM D2488)	7
Organic Content	(ASTM D2974)	7
Atterberg limits	(ASTM D4318)	7
Percent Passing #200 sieve	(ASTM D1140)	7
Hydrometer Analysis	(ASTM D7928)	7
Column Settling Test	USACE 1110-2-5027	2
Low Stress Consolidation Test	ASTM D2345 (mod.)	2

CLASSIFICATION AND INDEX TESTS

To determine the soil classification and geotechnical index properties, various classification and index tests were performed. The following classification and index tests for the marsh and borrow area were performed:

- Visual Classification (ASTM D2488)
- Moisture Content (ASTM D2216)
- Atterberg Limits (ASTM D4318)
- Percent Passing #200 sieve (ASTM D1140)
- Particle-Size Analysis and Hydrometer (ASTM D7928)
- Specific Gravity (ASTM D854)
- Organic Content (ASTM D2974)
- Total Unit Weight Determination (ASTM D2937)

1. Visual Classification
   Visual classification was performed based on ASTM D2488 and incorporated into the soil boring logs in Appendix B. It includes the description of soil color, consistency and type, and identification of variations (organics, layers, seams, etc.).

2. Moisture Content
   More than eighty (80) moisture content determinations (ASTM D2216) were performed in conjunction with the sample extrusion process and preparation of test specimens. Moisture content determinations were made for each extruded sample, and total densities were computed for each sample. Moisture content for each sample are included on the soil boring logs in Appendix B.

3. Atterberg Limits
   A total of twenty-seven (27) Atterberg limit determinations (ASTMD4318) were performed on selected samples to assist in soil classification and to enable correlation to pertinent clay behavior properties. The Atterberg limit data consist of measured liquid limit (LL) and plastic limit (PL) values from which the plasticity index (PI = LL - PL) is derived. The individual test data are included on the boring logs in Appendix B.

4. Percent Passing #200 sieve and Hydrometer Analysis
   A total of eleven (11) hydrometer particle size analysis tests (ASTM D7928) and 26 fines content determinations (ASTM D 1140) were performed on selected samples. The test results, in terms of percent fines (i.e., percent by dry weight finer than the U.S. No. 200 sieve size, 0.074 mm, or combined silt and clay fraction) are included on the soil boring logs in Appendix B. The hydrometer test results are included in Appendix C.

5. Specific Gravity
   A total of five (5) specific gravity tests based on ASTM D854 were performed on selected samples and results are included in Appendix C.

6. Organic Content
   A total of twelve (12) organic tests based on ASTM D2974 were performed on selected samples. The organic content results are included in Appendix C.

7. Total Unit Weight Determination
   Total unit weights of the tube samples were computed based on (ASTM D2937) sample volume and weight measurements taken after exclusion of any materials that appeared to have been disturbed during the sampling or extrusion process.

STRENGTH TESTS

To determine the strength characteristics of the marsh area soil deposits, various compression tests and index strength tests were performed. The following tests for the selected marsh area soil samples were performed:

1. Unconsolidated-Undrained Triaxial Compression Tests
   Unconsolidated-undrained (UU) triaxial compression tests (ASTM D2850) were performed on specimens trimmed from selected samples. Results of these strength tests are included on the soil boring logs in Appendix B. Individual UU test stress-strain curves are included in Appendix D.

2. Hand penetrometer and Torvane Index Strength Tests
   Hand-operated Torvane (TV) and hand penetrometer index strength tests were performed in conjunction with the sample extrusion process and are included in soil boring logs. These test results are considered to be index strengths in that the absolute value of the measured undrained shear strength is generally not considered adequately reliable for use in design. The test results, however, are useful in identifying soil strength variability and trends with respect to depth, material type, etc.

CONSOLIDATION TESTS

To determine the stress history, stress deformation, and time rate settlement characteristics of the marsh area soil deposits, consolidation tests were performed on selected clay samples from marsh area soil borings. A total of 5 tests were performed.

Additionally, to determine the settlement criteria for the dredged soil from the borrow area, settling column tests and low stress consolidation tests were performed. A total of 2 tests each were performed.

1. Consolidation Test (ASTM D2435)
   Incremental consolidation tests (ASTM D 2435) were included in the laboratory testing program to enable assessment of stress history and determination of stress history, stress deformation, and time rate settlement characteristics of the marsh clay deposits that will dictate post-construction settlement of the marsh creation area. One consolidation test for each marsh area boring was performed and a total of five (5) tests were conducted.

   During each load increment, the accumulation of vertical displacement with time is measured. In general, each load increment was sustained for a period of 12 to 36 hours. The vertical displacement versus time data was evaluated using the conventional log-time and square-root time curve fitting techniques to determine the end of primary consolidation (i.e., the point in time at which dissipation of load-induced excess pore water pressures in the sample had dissipated and drained creep ensued for each load increment). The individual test results, in terms of coefficient of consolidation versus effective vertical stress and void ratio versus effective vertical stress are presented in Appendix E.

2. Settling Column Test
   Two representative composite samples were prepared using samples obtained from the seven (7) sampling locations performed within the proposed borrow area. Laboratory settling tests were performed in a 20-cm diameter graduated plexi-glass settling columns.

   A water sample from the Calcasieu River Ship Channel area was collected to obtain the salinity of the dredging site water. Salinity test was performed by gravimetric method and was also further confirmed by a digital salinity meter. The salinity of dredging site water was calculated about 20 g/l. The composite test samples were mixed with synthesized water having a salinity, in terms of total dissolved solids, of 20 g/l. The initial solids content of the settling test samples was about 13 percent, with a corresponding initial total suspended solids concentration of about 150 g/l. The slurry was mixed with a hand-held stirrer to provide a homogeneous sample and remove any segregation of particles which may have occurred during placement of the slurry into the column.

A 7-foot settling column was prepared to run the tests on composite samples. The settling column tests simulate the sedimentation of a dredged material in a quiescent environment. This test provides information regarding two types of settling regimes which occur; zone settling, and compression settling. The settling tests consist of measuring the fall of the liquid-solid interface over time. These data are plotted in terms of height of the interface over time in Appendix E.

3. Low Stress Consolidation Test (Modified ASTM D2435)
One-dimensional incremental slurry consolidation tests were performed on two (2) composite samples prepared from the dredge borrow area. The change in specimen height with time under each load is monitored and evaluated to characterize the one-dimensional compressibility, consolidation and drained creep properties of the sediment. A comparison graph depicting the void ratio versus vertical effective stress relationships from both the settling column and self-weight consolidation tests are plotted and presented in the Appendix E.

   It should be noted that some differences were observed in the void ratio versus vertical effective stress relationship between the settling column and the slurry consolidation test as can be seen by the variance in void ratio for a similar vertical effective stress. This difference may be due in part to the difference in diameter of the testing equipment, which may lead to arching effects. Another possible reason for the observed discrepancy may be due in part to the salinity of the settling column. The addition of salt into the water may cause dispersion and or swelling of the clay particles, which would result in a change in void ratio.

DISCUSSION ON SUBSURFACE CONDITIONS

MARSH FILL AREA SUBSURFACE CONDITIONS

Based on the field observations, CPT soundings and results of the geotechnical laboratory testing, the soils were classified, and boring logs and CPT sounding plots were developed. A generalized subsurface profile is presented in Table 5.

Table 5: Generalized Soil Profile

Approximate Elevation Range (Datum: NAVD88 GEOID12B, feet)*	Consistency/Relative Density	Material Description
0 to - 8	Very Soft to Soft	Fat Clay (CH), Organic Clay (OH)
-8 to - 12	Very Soft to Stiff	Lean clay (CL), Fat Clay (CH)
-12 to - 22	Firm to Hard / Dense to Very Dense	Lean clay (CL), Sandy Lean clay (CL), Clayey Sand (SC), Poorly Graded Sand with Silt (SP-SM)
-22 to - 30	Very Stiff to Hard / Medium Dense to Very Dense	Sandy Lean clay (CL), Silty Sand (SM), Silty Clayey Sand (SC-SM), Poorly Graded Sand with Silt (SP-SM)

**Referenced from existing mudline elevation at the boring locations at the time of drilling activities.*

The above soil profile is of generalized nature to highlight the major subsurface stratification features and material characteristics of the marsh creation area. The boring logs and CPT sounding plots included in the Appendix A should be reviewed for specific information at individual locations. These records include soil descriptions, stratification, locations of the samples, and laboratory test data. The stratification shown on the boring logs represent the conditions only at the actual boring locations. Variations may occur and should be expected between and away from boring locations. The stratification represents the approximate boundary between subsurface materials and the actual transition may be more distinct or gradual.

TOP OF PLEISTOCENE

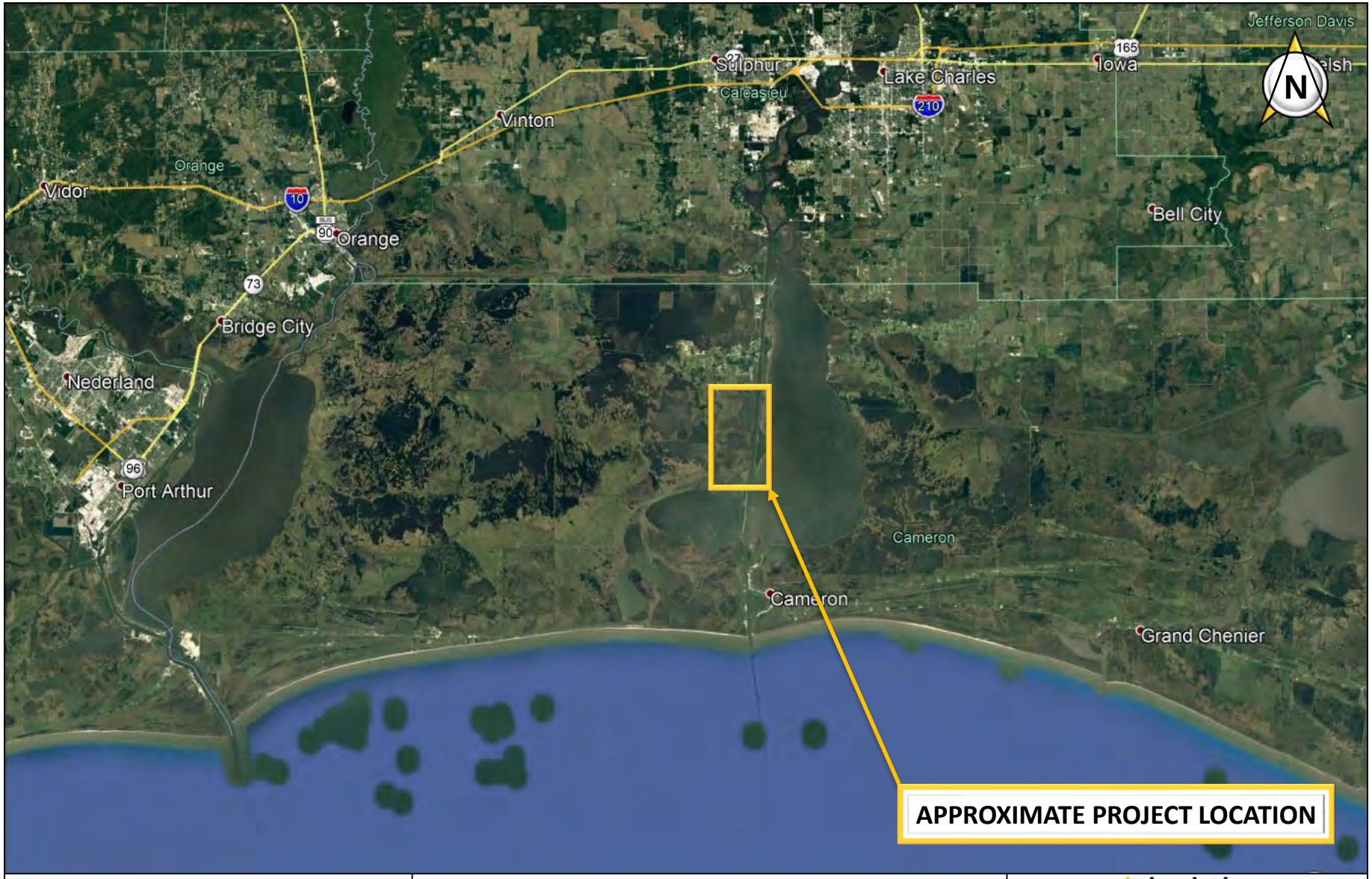
Based on information obtained from soil borings and CPT soundings, the top of Pleistocene may be established at about -10 to -15 feet elevation in the marsh creation area.

FUTURE DESIGN REPORT

Based on furnished data from field work and Laboratory test results, soil properties will be established for the design of the proposed project and will be included in the final report.

APPENDIX A

SITE VICINITY MAP
SURVEY REPORT



GEOTECHNICAL ENGINEERING SERVICES

Long Point Bayou Marsh Creation

Cameron, Louisiana

SITE VICINITY MAP

PSI PROJECT NO.: 02541211

GOOGLE EARTH IMAGERY DATE: 1/2018

intertek psi

Survey Report

Long Point Bayou Boring Sites Survey
Cameron Parish, Louisiana

Prepared for Intertek-PSI
724 Central Ave.
Jefferson, LA 70121

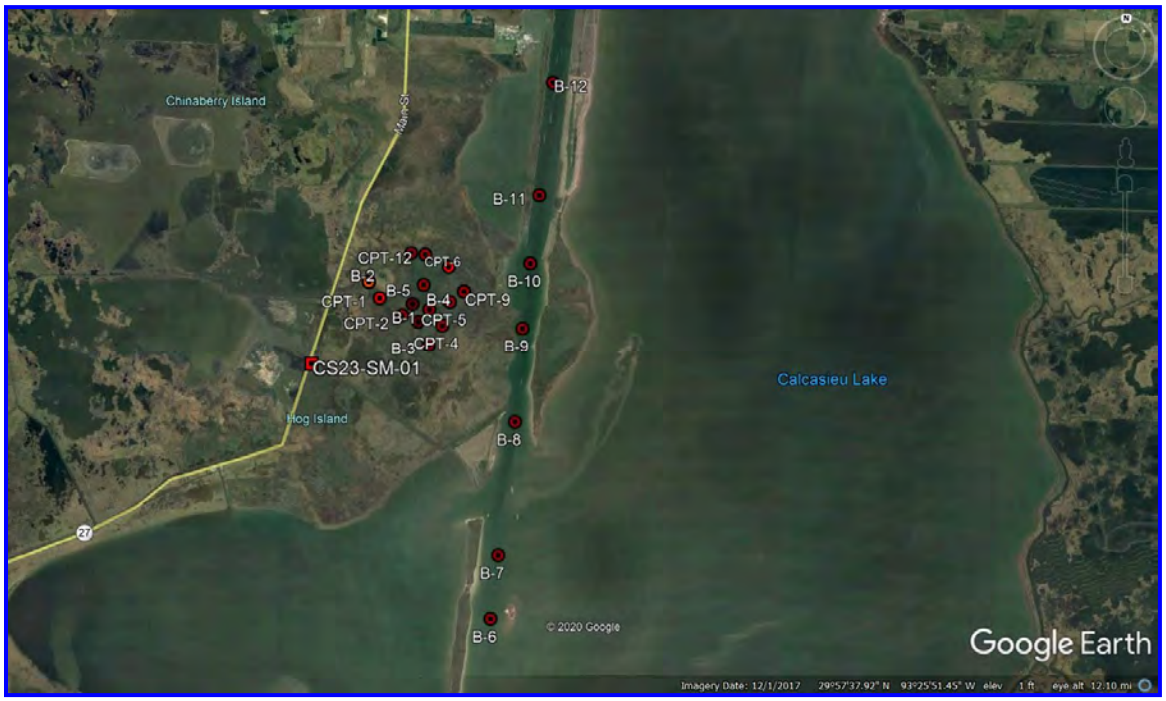
Chustz Surveying, LLC
211 Richy Street
New Roads, LA 70760
225-638-5949

May 2020

Section 1
General Project Description

In April of 2020, Chustz Surveying was tasked by Intertek-PSI to conduct location and magnetometer surveys at 21 boring sites in Cameron Parish. The surveys consisted of locating the sites utilizing RTK and multibeam hydrographic methods from the provided project benchmark (CS23-SM-01 “HOGG RESET”).

Vicinity Map



Section 2
Data Collection

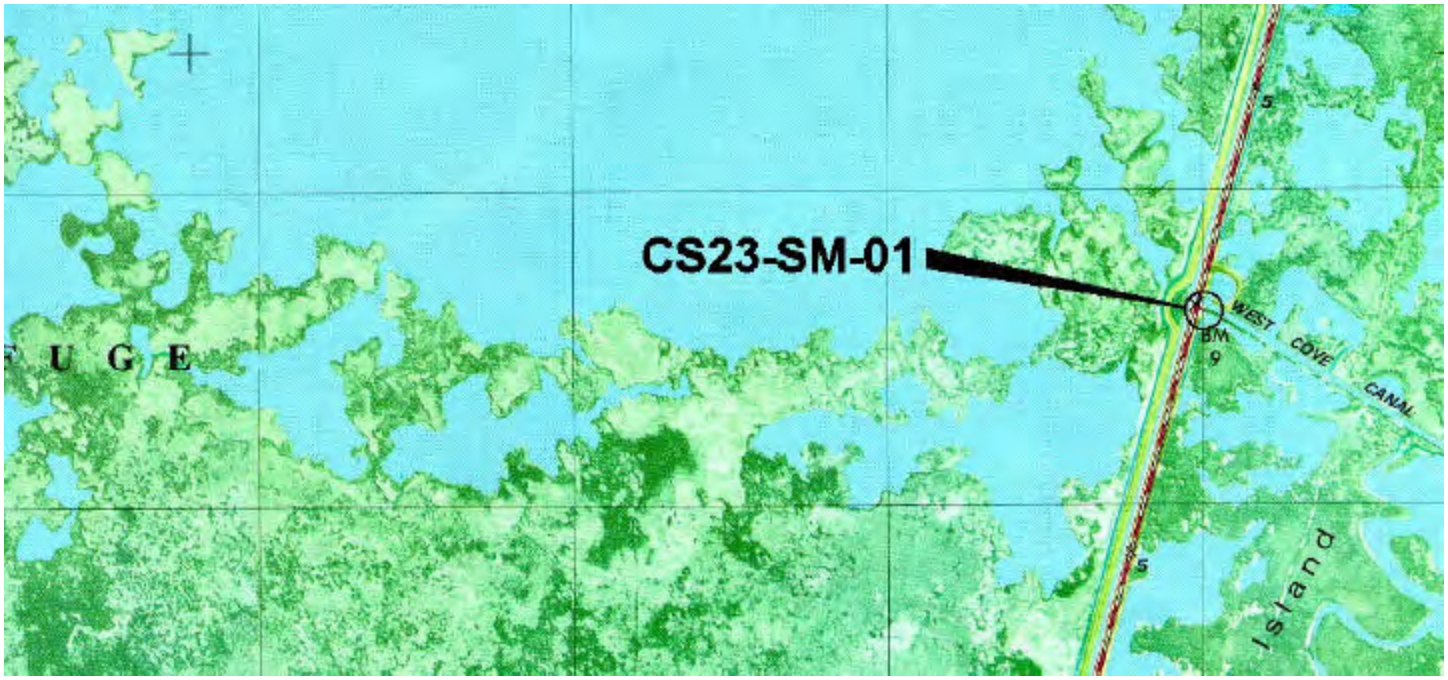
On April 27, 2020, Chustz Surveying deployed a three person crew to the site to begin the survey. Utilizing two Trimble R8 GPS receivers, the crew set the base up on CS23-SM-01 and set two iron rods on site to establish temporary control points for the survey. They then moved the base to one of the iron rods and made an RTK tie to the other to confirm the temporary control points. The crew then began locating the boring sites in the marsh area and drove pvc pipe with pink flagging into the ground at each location. The crew then established temporary gauges upstream and downstream of the sites for the hydrographic survey in the Calcasieu Ship Channel. The crew returned the next day with a fourth person and a Geometrics G882 cesium magnetometer. In Hypack, they set up a grid around each location to cover a 25 ft. radius. They then conducted the magnetometer surveys at each bore site in the marsh area. The crew returned on May 1, 2020, to conduct the required surveys in the Calcasieu Ship Channel. The gauges were read before and after the survey to ensure a quality data set. The survey was completed that day.

Section 3
Data Processing

The data was transferred to our office for initial processing once the surveys were complete. The RTK data files were loaded into Trimble Business Center where they were processed and checked for correct rod and instrument heights. All RTK ties were checked to ensure they were within the allowed accuracies. The hydrographic and magnetometer data was processed in Hypack utilizing prorated gauges for each location.

Section 6
Project Summary and Conclusion

The field effort was completed ahead of schedule on Friday, May 1, 2020, and all data was processed and deliverables were completed for Monday, May 11, 2020. No safety incidents occurred as part of this work effort.



VICINITY MAP Scale: 1" = 2000' Reproduced from USC&GS "BROWNS LAKE" Quadrangle

Station Name: CS23-SM-01

Monument Location: From St. Peters Catholic Church in the town of Hackberry, Louisiana, proceed south on La. Highway 27 for approximately 5.4 miles to a bridge crossing West Cove Canal at Hogg Island Gulley and the monument at left on east side of highway in a parking area.

Monument Description: 2" aluminum cap set on a 9/16" stainless steel rod driven to refusal and set in a 6" PVC sleeve filled with concrete.

Stamping: "HOGG RESET"

Date: October 2000

Monument Established By: John Chance Land Surveys, Inc

For: *Louisiana Department of Natural Resources, CRD*

Adjusted NAD 83 (1992) Geodetic Position
Lat. 29° 54' 33.164186" N
Long. 93° 23' 00.168705" W

Adjusted NAD 1983 Datum LSZ (1702) Feet
N= 518,286.36
E= 2,631,372.09

Adjusted NAVD88 Height
Elevation = 1.92 feet / 0.586m

Ellipsoid Height = -26.413m
Geoid99 Height = -26.999m

Note: Reset, Re-Surveyed and Re-Adjusted in February 2002

Long Point Bayou Survey Locations, Datum: NAVD88 GEOID12B

Site	Northing	Easting	Elevation	Water Surface	Depth
B-1	521980.25	2638800.90	0.20	2.3	2.1
B-5	523526.97	2638396.70	-0.89	2.3	3.2
B-6	502413.49	2643251.37	-43.54	1.4	44.9
B-7	506467.17	2643634.25	-42.24	1.5	43.7
B-8	514945.17	2644470.50	-38.90	1.5	40.4
B-9	520923.85	2644779.52	-40.17	1.6	41.8
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CPT 11	519709.77	2638822.85	0.36	2.4	2.0
CPT 12	525466.65	2638444.90	-0.72	2.3	3.0

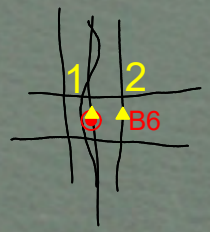
Long Point Bayou Magnetometer Findings

Ref. #	Easting	Northing	Gamma Mean	Gamma Max	Gamma Min	Amplitude	Type	Begin DBL	End DBL	Duration	Location Notes:
1	2643252.03	502419.11	46830.19	46836.48		6.3	M	70.62	-34.64	105.26	B6
2	2643279.87	502418.30	46842.90	46848.36		5.5	M	-7.83	65.00	72.83	B6
3	2638104.01	521197.77	46841.52	46841.50	46823.00	18.5	D	4363.25	4369.24	5.99	CPT3
4	2639675.73	520985.35	46833.44	46841.29		7.8	M	1965.20	1999.40	34.20	CPT4
5	2635635.94	522624.05	46837.84	46844.04		6.2	M	2923.55	2915.28	8.27	CPT1

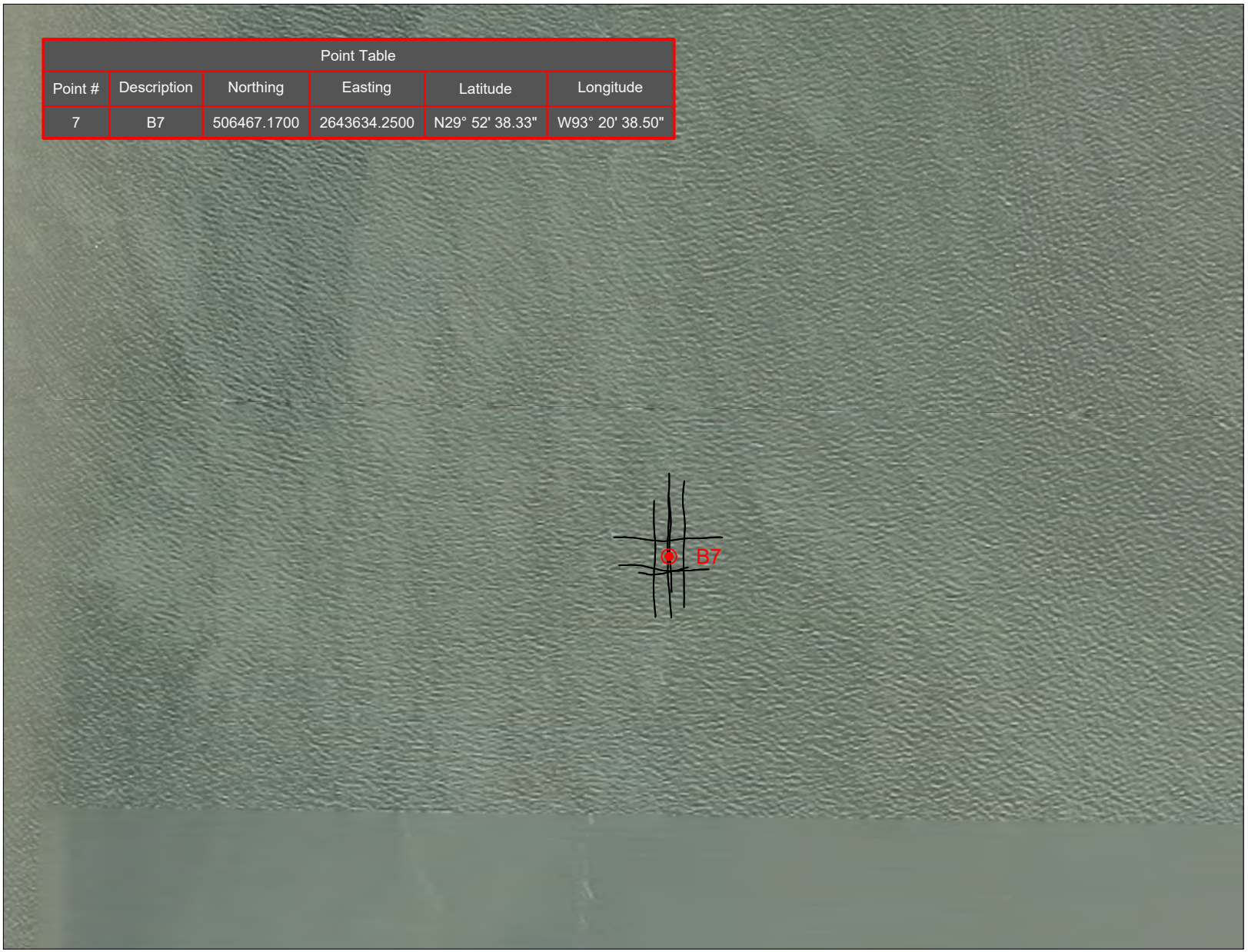
Point Table					
Point #	Description	Northing	Easting	Latitude	Longitude
1	B1	521980.8400	2638801.0400	N29° 55' 11.04"	W93° 21' 36.51"

Point Table					
Point #	Description	Northing	Easting	Latitude	Longitude
5	B5	523527.7100	2638396.2900	N29° 55' 26.28"	W93° 21' 41.42"

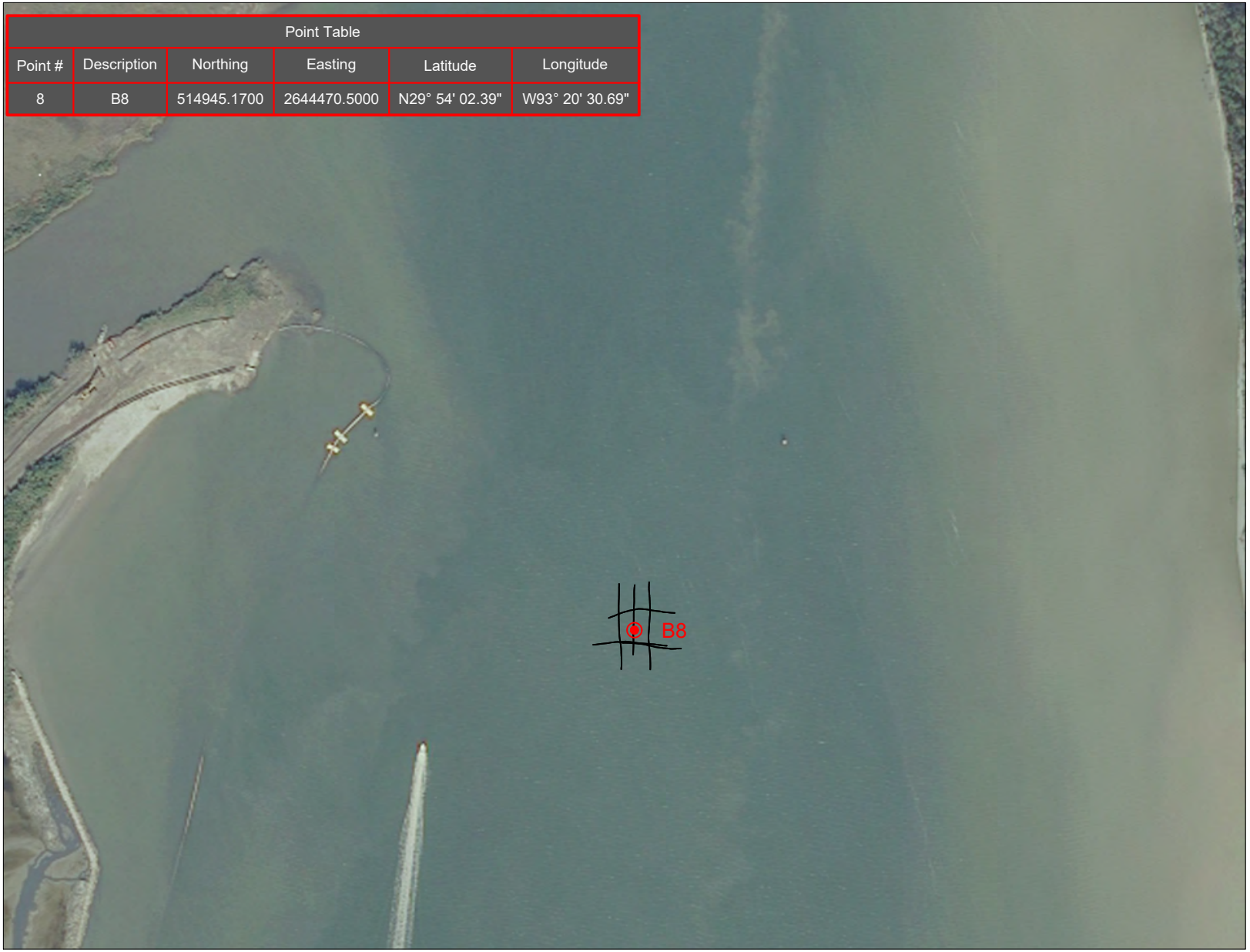
Point Table					
Point #	Description	Northing	Easting	Latitude	Longitude
6	B6	502413.4900	2643251.3700	N29° 51' 58.14"	W93° 20' 42.04"



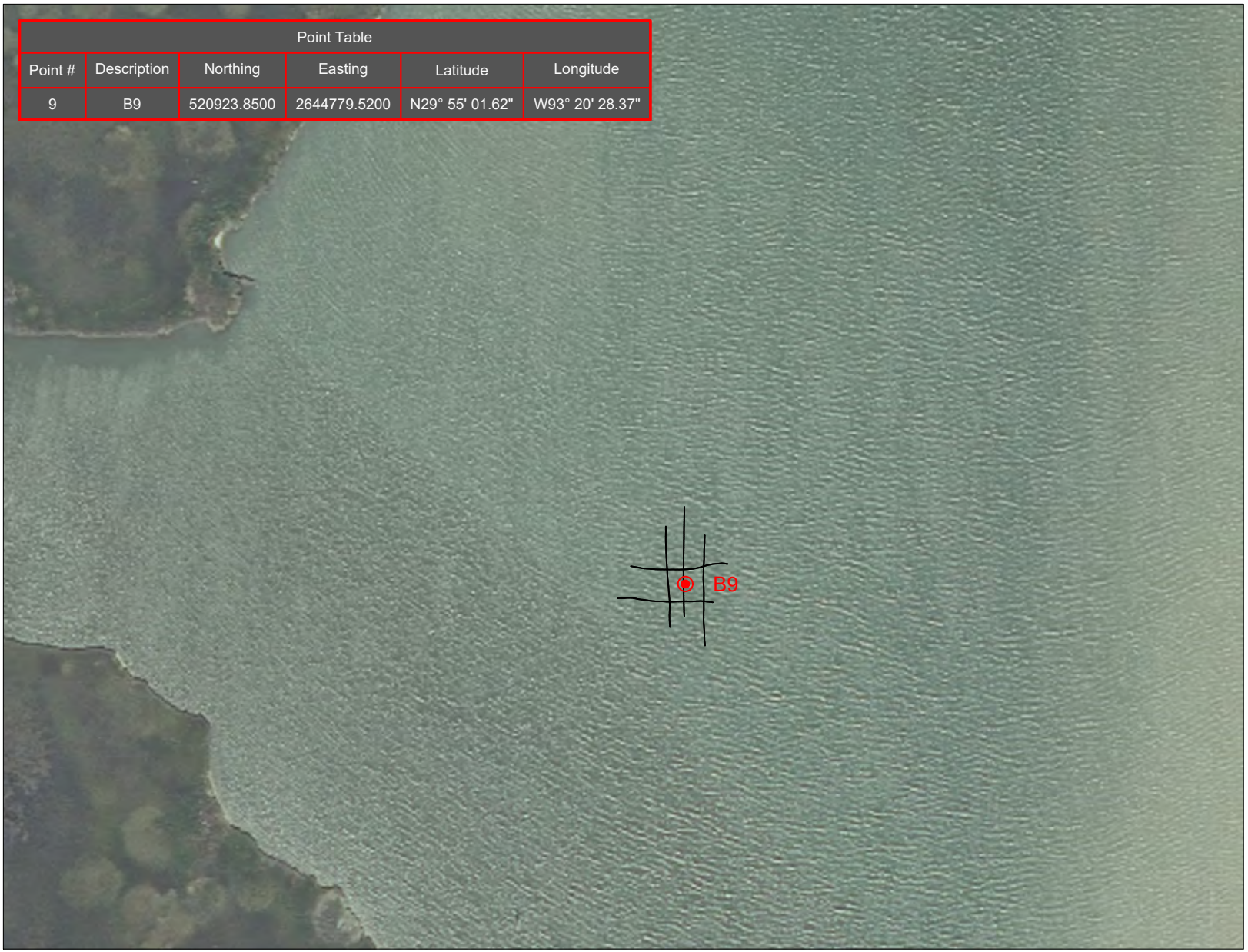
Point Table					
Point #	Description	Northing	Easting	Latitude	Longitude
7	B7	506467.1700	2643634.2500	N29° 52' 38.33"	W93° 20' 38.50"



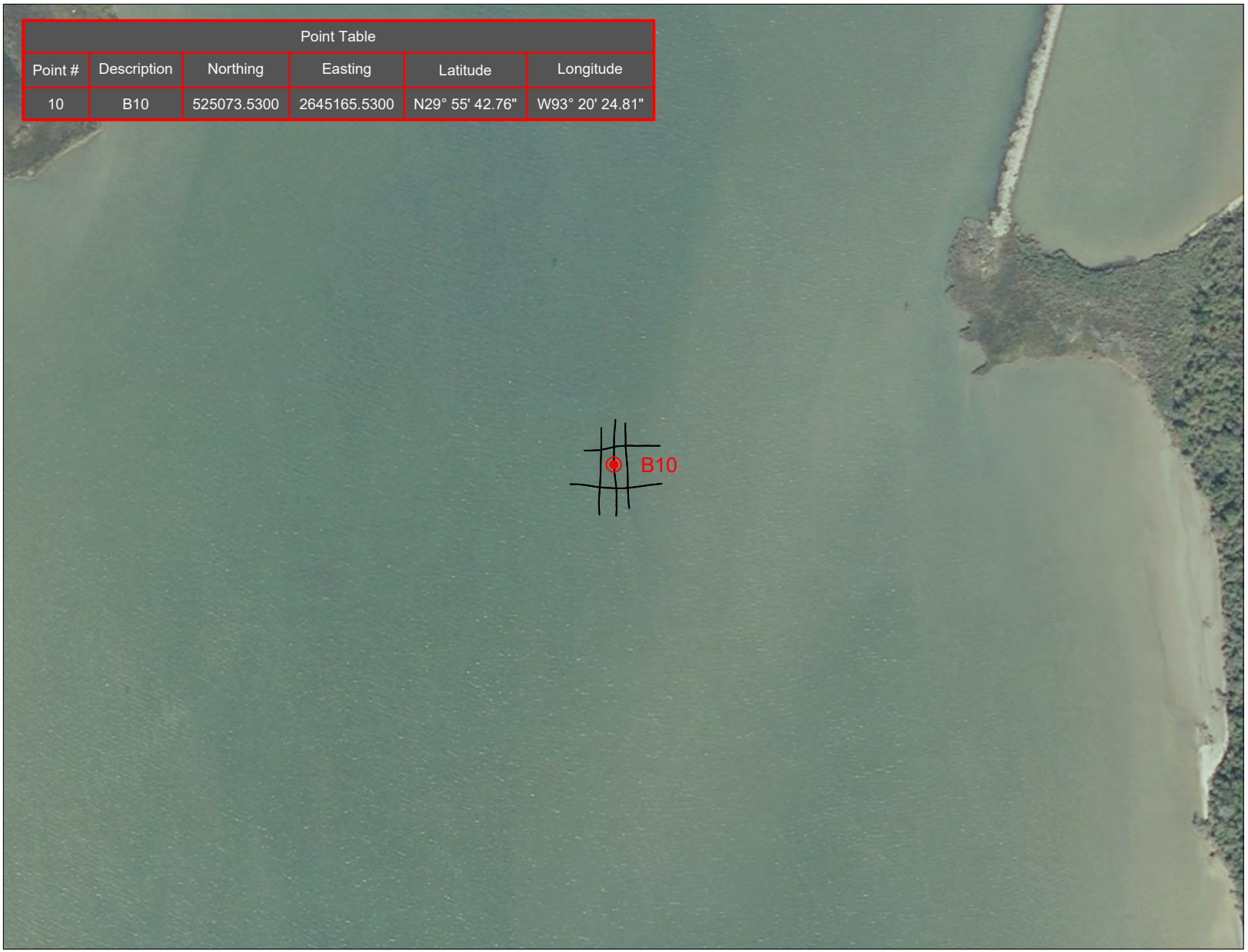
Point Table					
Point #	Description	Northing	Easting	Latitude	Longitude
8	B8	514945.1700	2644470.5000	N29° 54' 02.39"	W93° 20' 30.69"



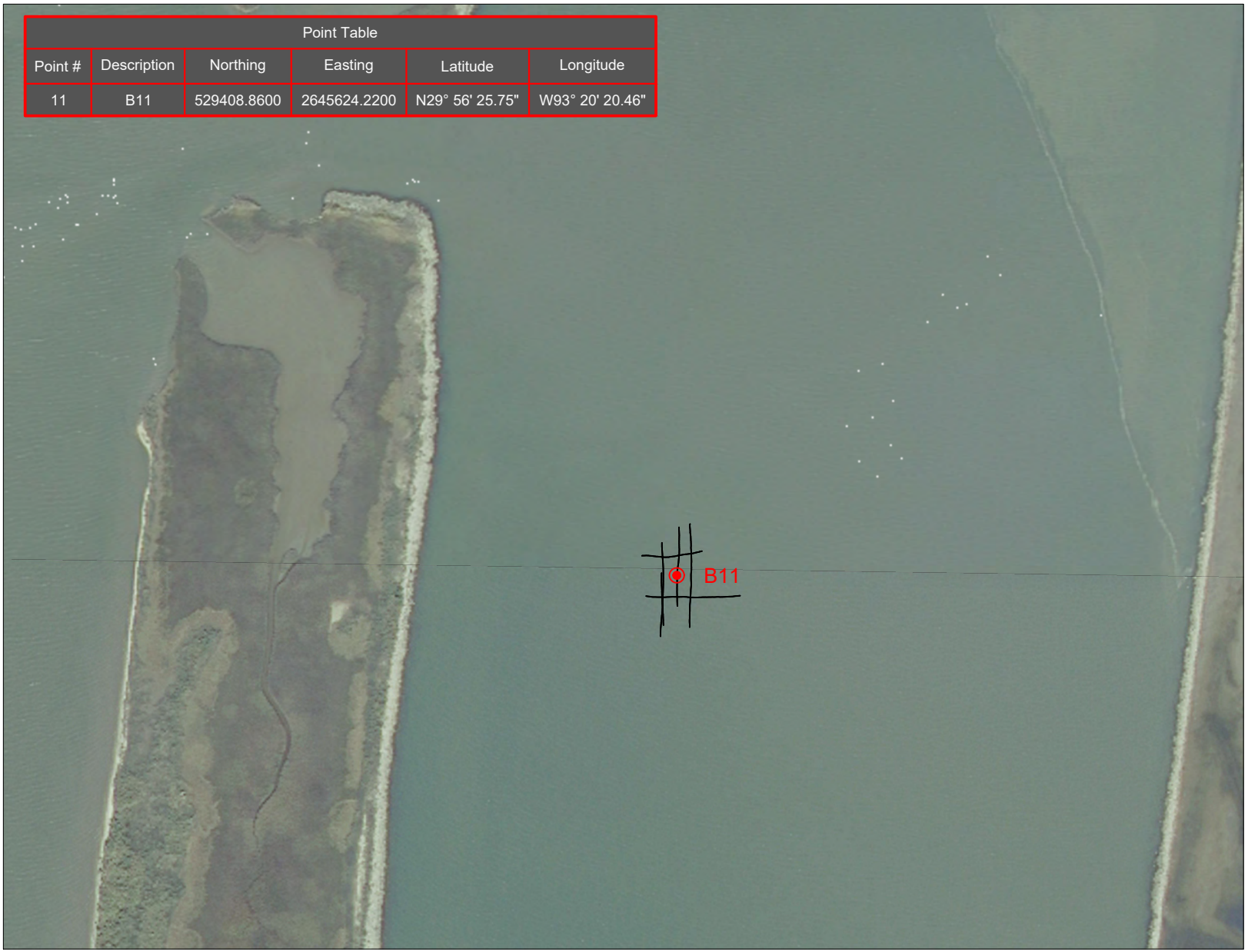
Point Table					
Point #	Description	Northing	Easting	Latitude	Longitude
9	B9	520923.8500	2644779.5200	N29° 55' 01.62"	W93° 20' 28.37"



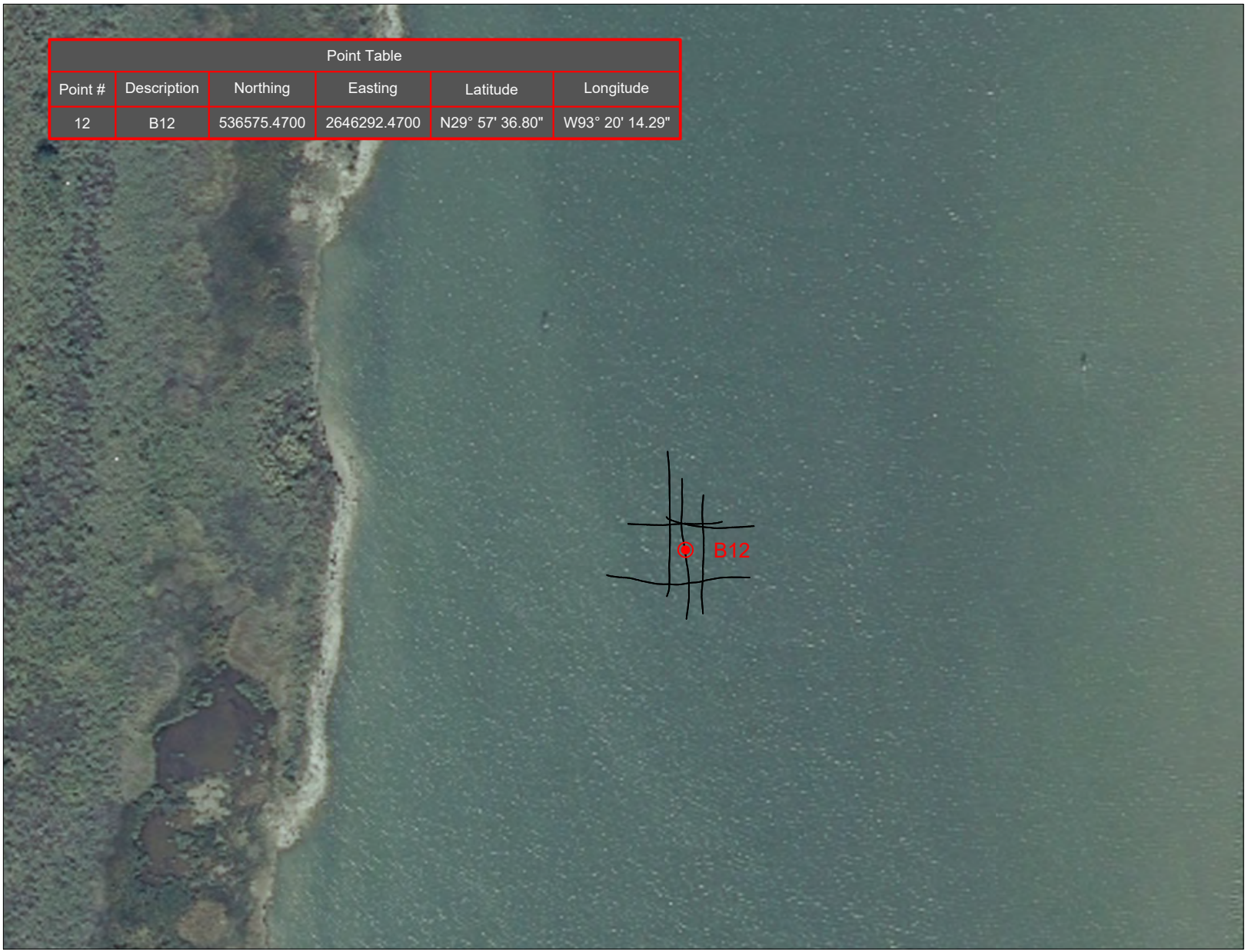
Point Table					
Point #	Description	Northing	Easting	Latitude	Longitude
10	B10	525073.5300	2645165.5300	N29° 55' 42.76"	W93° 20' 24.81"



Point Table					
Point #	Description	Northing	Easting	Latitude	Longitude
11	B11	529408.8600	2645624.2200	N29° 56' 25.75"	W93° 20' 20.46"

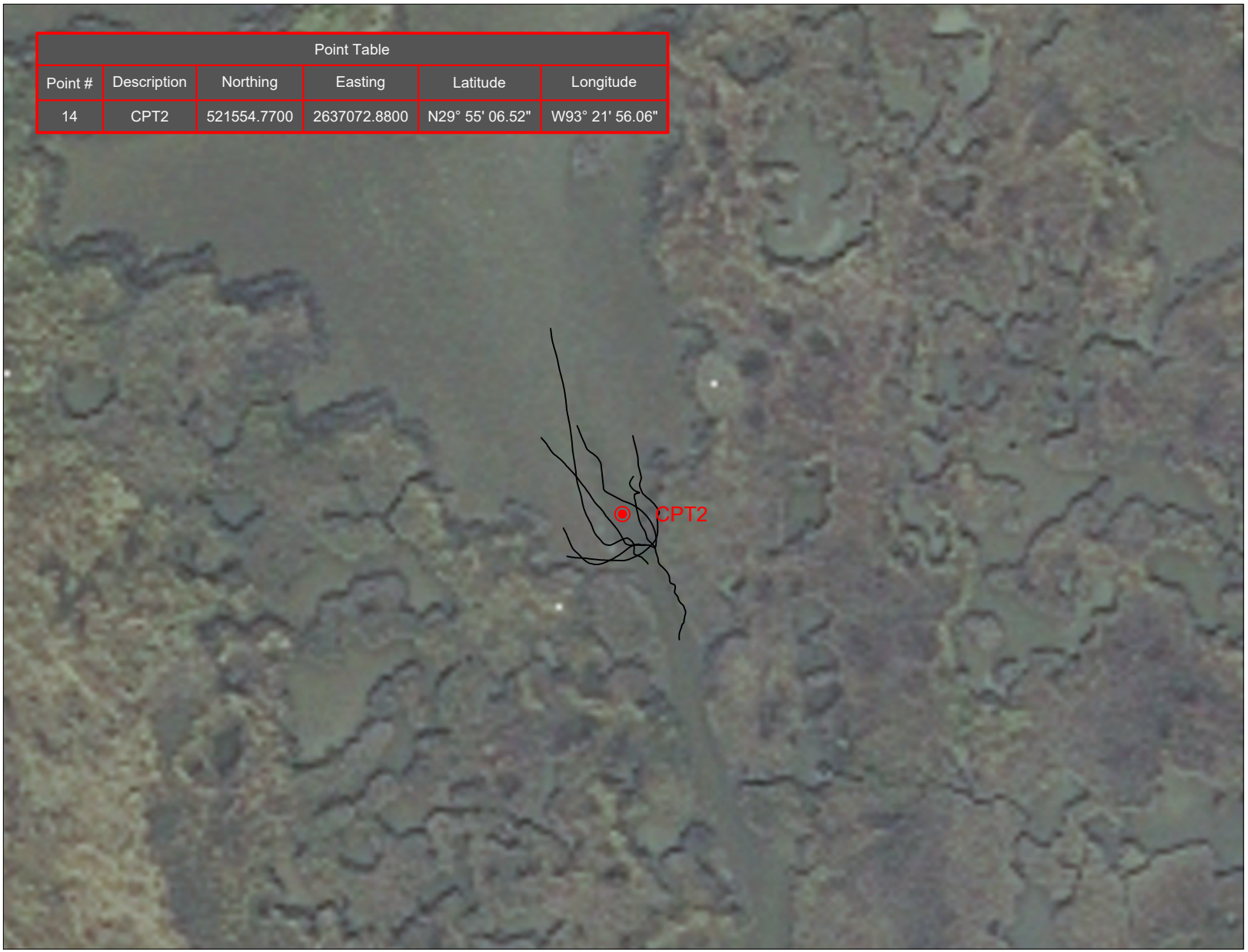


Point Table					
Point #	Description	Northing	Easting	Latitude	Longitude
12	B12	536575.4700	2646292.4700	N29° 57' 36.80"	W93° 20' 14.29"



Point Table					
Point #	Description	Northing	Easting	Latitude	Longitude
13	CPT1	522619.3100	2635613.2300	N29° 55' 16.80"	W93° 22' 12.86"

Point Table					
Point #	Description	Northing	Easting	Latitude	Longitude
14	CPT2	521554.7700	2637072.8800	N29° 55' 06.52"	W93° 21' 56.06"



Point Table					
Point #	Description	Northing	Easting	Latitude	Longitude
15	CPT3	521171.7600	2638106.4100	N29° 55' 02.91"	W93° 21' 44.24"

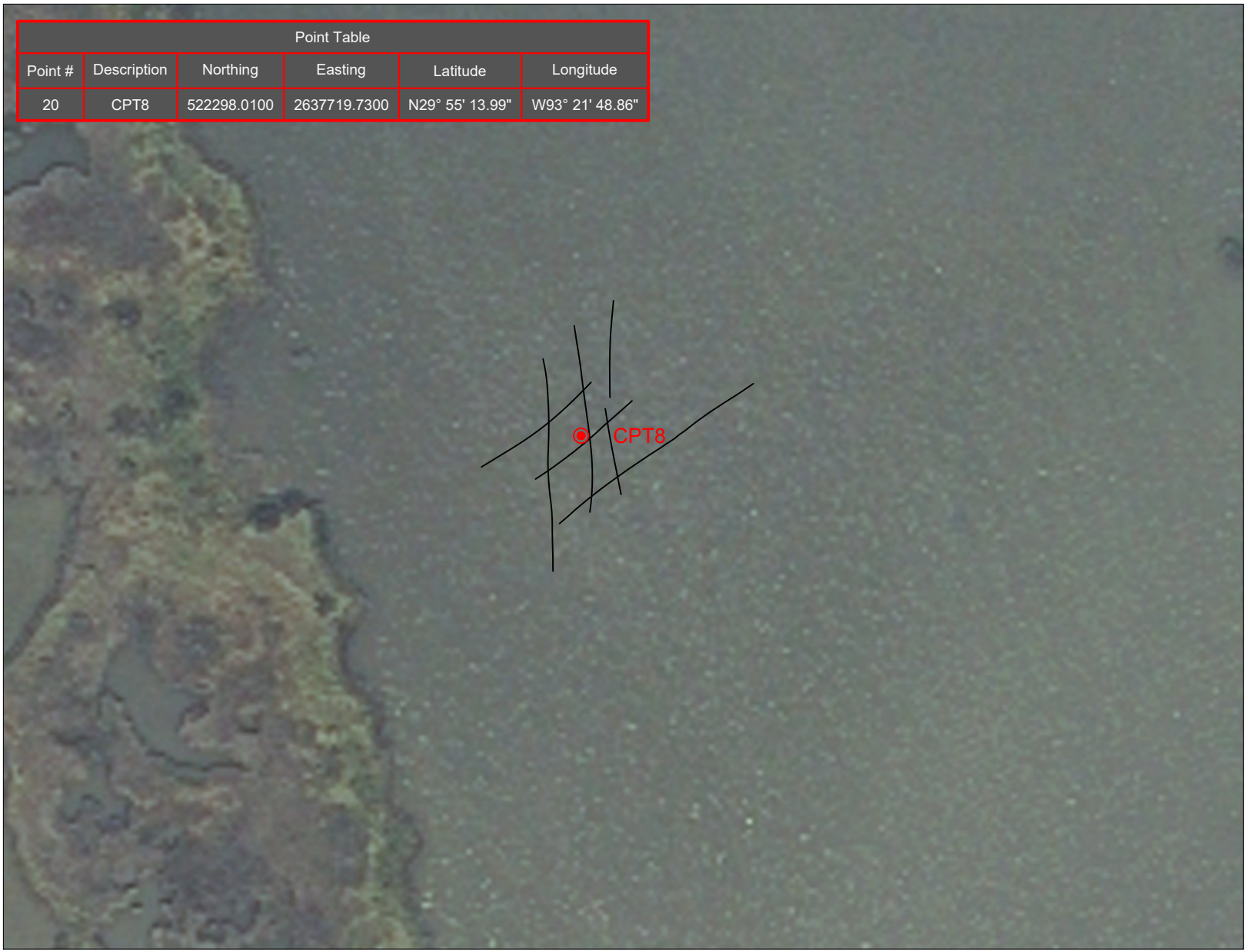
Point Table					
Point #	Description	Northing	Easting	Latitude	Longitude
16	CPT4	520971.5700	2639657.1400	N29° 55' 01.20"	W93° 21' 26.58"

Point Table					
Point #	Description	Northing	Easting	Latitude	Longitude
17	CPT5	522485.3100	2640097.5400	N29° 55' 16.26"	W93° 21' 21.88"

Point Table					
Point #	Description	Northing	Easting	Latitude	Longitude
18	CPT6	524713.4100	2639962.6300	N29° 55' 38.29"	W93° 21' 23.86"

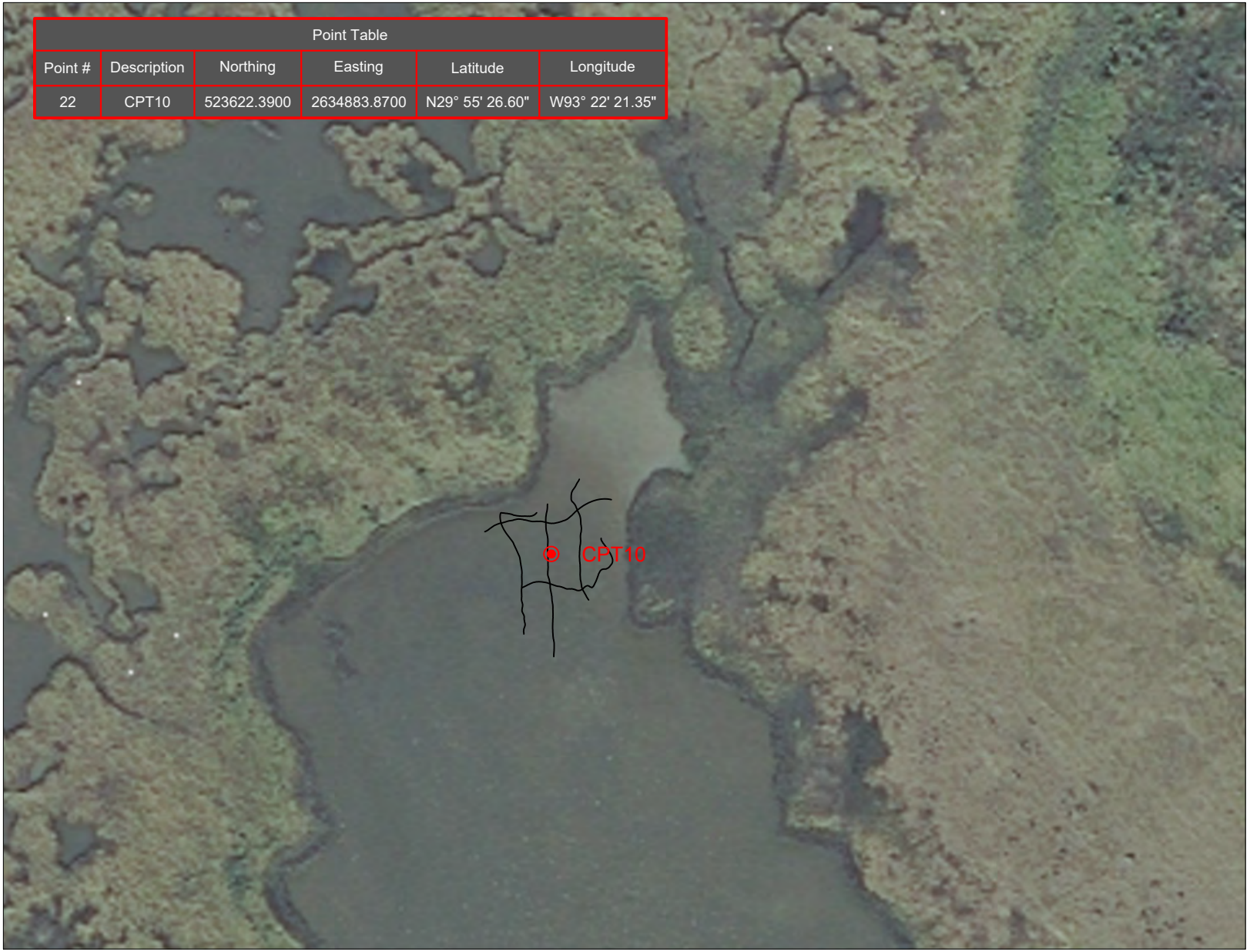

Point Table
Point # | Description | Northing | Easting | Latitude | Longitude
19 | CPT7 | 525528.2100 | 2637538.5000 | N29° 55' 45.93" | W93° 21' 51.57"
CPT7

Point Table					
Point #	Description	Northing	Easting	Latitude	Longitude
20	CPT8	522298.0100	2637719.7300	N29° 55' 13.99"	W93° 21' 48.86"



Point Table					
Point #	Description	Northing	Easting	Latitude	Longitude
21	CPT9	523169.8300	2640983.5200	N29° 55' 23.19"	W93° 21' 11.95"

Point Table					
Point #	Description	Northing	Easting	Latitude	Longitude
22	CPT10	523622.3900	2634883.8700	N29° 55' 26.60"	W93° 22' 21.35"

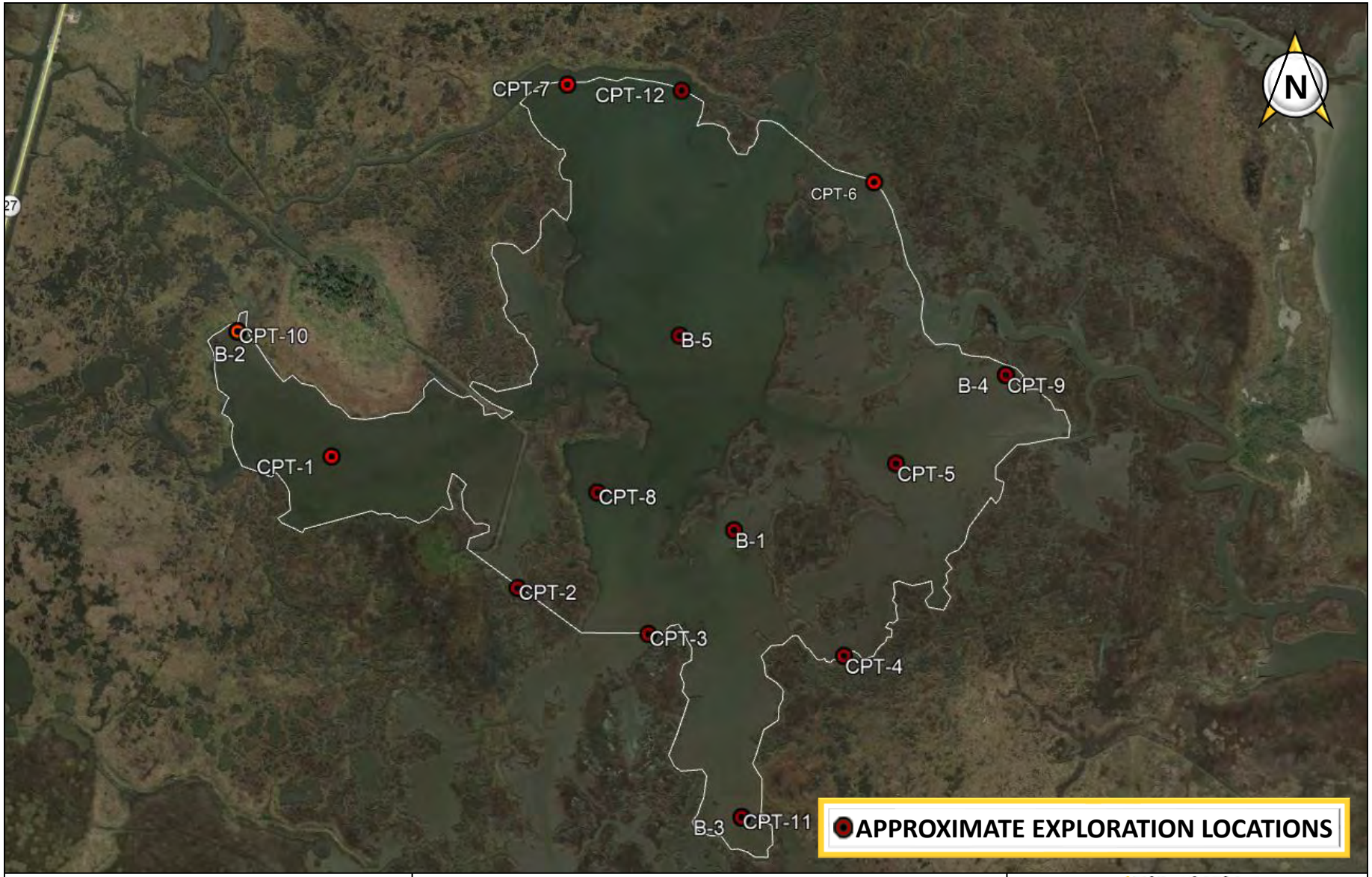


Point Table					
Point #	Description	Northing	Easting	Latitude	Longitude
23	CPT11	519709.2500	2638822.4600	N29° 54' 48.56"	W93° 21' 35.81"

Point Table					
Point #	Description	Northing	Easting	Latitude	Longitude
24	CPT12	525464.6400	2638445.5300	N29° 55' 45.46"	W93° 21' 41.25"

APPENDIX B

BORING LOCATION PLAN
BORING LOGS BORING LOGS AND CPT SOUNDING PLOTS
KEY TO TERMS AND SYMBOLS USED ON BORING LOGS



GEOTECHNICAL ENGINEERING SERVICES

Long Point Bayou Marsh Creation

Cameron, Louisiana

MARSH BORING LOCATION PLAN

PSI PROJECT NO.: 02541211

GOOGLE EARTH IMAGERY DATE: 1/2018

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GEOTECHNICAL ENGINEERING SERVICES

Long Point Bayou Marsh Creation

Cameron, Louisiana

CHANNEL BORING LOCATION PLAN

PSI PROJECT NO.: 02541211

GOOGLE EARTH IMAGERY DATE: 1/2018

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LOG OF BORING B-1

LONG POINT BAYOU MARSH CREATION
CAMERON PARISH, LOUISIANA

TYPE OF BORING: ROTARY WASH | LOCATION: MARSH AREA | PSI Project No.: 02541211

DEPTH, FT.	SOIL TYPE	USCS SYMBOL	SAMPLES	SOIL DESCRIPTION	N-BLOWS/FT.	MOISTURE CONTENT (%)	LIQUID LIMIT (LL)	PLASTIC LIMIT (PL)	PLASTICITY INDEX (PI)	% PASSING No. 200 SIEVE	SHEAR STRENGTH (tsf) HP	SHEAR STRENGTH (tsf) UC	SHEAR STRENGTH (tsf) TV	SHEAR STRENGTH (tsf) MV	SHEAR STRENGTH (tsf) UU	DRY UNIT WEIGHT (pcf)
0.0		OH		Very soft dark gray **ORGANIC CLAY**		104							0.05			
				- with roots, 0 to 2 feet												
2.5						107	112	31	81	93			0.10		0.06	49
5.0						156							0.02			
7.5		CL		Soft gray **LEAN CLAY**, with organics and silt partings		40	33	16	17	92			0.20		0.19	98
				- Peat layer, 8 feet to 8.5 feet		25							0.25			
10.0		CL		Firm to stiff gray **LEAN CLAY**, with silt		30							0.55			
				- Peat layer, 10 feet to 10.5 feet												
12.5						26							0.40		0.35	96
15.0		CL		Very stiff to hard gray **LEAN CLAY**	10-20-15	30	34	18	16	93						
				- 6.64% sand, 93.36% fines (23.17% clay), 14 to 16 feet	35											
17.5		CL		Very stiff to hard gray **LEAN CLAY WITH SAND**	12-16-22	22										
					38											
					9-12-15	21										
20.0					27											
					11-18-20	23				72						
22.5					38											
25.0		CL		Hard gray **SANDY LEAN CLAY**	10-16-20	23										
					36											
					12-18-22	21										
27.5					40											
					14-19-25	21				60						
30.0					44											
				BORING TERMINATED AT 30 FEET												

SHEAR STRENGTH (tsf): ○ HP ● UC △ TV ◆ MV ▲ UU; 0.0 0.5 1.0 1.5

DEPTH OF BORING: 30 FEET
DATE DRILLED: 6/28/20
NOTE:

▽ GROUNDWATER DURING DRILLING: N / A
▼ GROUNDWATER UPON COMPLETION: N / A
▼ DELAYED GROUNDWATER: N / A .

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LOG OF BORING B-2

LONG POINT BAYOU MARSH CREATION
CAMERON PARISH, LOUISIANA

TYPE OF BORING: ROTARY WASH | LOCATION: MARSH AREA | PSI Project No.: 02541211

DEPTH, FT.	SOIL TYPE	USCS SYMBOL	SAMPLES	SOIL DESCRIPTION	N-BLOWS/FT.	MOISTURE CONTENT (%)	LIQUID LIMIT (LL)	PLASTIC LIMIT (PL)	PLASTICITY INDEX (PI)	% PASSING No. 200 SIEVE	SHEAR STRENGTH (tsf) HP	SHEAR STRENGTH (tsf) UC	SHEAR STRENGTH (tsf) TV	SHEAR STRENGTH (tsf) MV	SHEAR STRENGTH (tsf) UU	DRY UNIT WEIGHT (pcf)
		OH		Dark gray **ORGANIC CLAY**												
		CH		Soft gray/brown **FAT CLAY**, with organics		51	86	23	63	99			0.15		0.15	74
2.5		CL		Firm to stiff gray/brown **LEAN CLAY**, trace organics		29							0.40			
5.0						27							0.45			
7.5						22	44	16	28				0.55		0.61	103
		CH		Very soft to soft gray **FAT CLAY**, with sand		41							0.20			
10.0				- with silt, 8 to 10 feet		33							0.15		0.09	83
12.5		SC		Medium dense brown **CLAYEY SAND**	4-6-9 15	24										
15.0					5-9-11 20	24				19						
17.5					10-9-8 17	26										
		CL		Very stiff brown **SANDY LEAN CLAY**	9-11-12 23	28	35	17	18	68						
20.0		SP		Dense brown **POORLY GRADED SAND**, with clay pockets	10-11-19 30	28										
22.5		CL		Very stiff to hard brown **SANDY LEAN CLAY**, trace sand and silt	12-19-23 42	35										
25.0					9-11-13 24	26										
27.5		SC-SM		Medium dense brown **SILTY, CLAYEY SAND**	9-14-14 28	22										
30.0					10-14-14 28	23	24	20	4	31						
				BORING TERMINATED AT 30 FEET												

SHEAR STRENGTH (tsf): ○ HP ● UC △ TV ◆ MV ▲ UU — 0.0 0.5 1.0 1.5

DEPTH OF BORING: 30 FEET
DATE DRILLED: 6/30/20
NOTE:

▽ GROUNDWATER DURING DRILLING: N / A
▼ GROUNDWATER UPON COMPLETION: N / A
▼ DELAYED GROUNDWATER: N / A .

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LOG OF BORING B-3

LONG POINT BAYOU MARSH CREATION
CAMERON PARISH, LOUISIANA

TYPE OF BORING: ROTARY WASH | LOCATION: MARSH AREA | PSI Project No.: 02541211

DEPTH, FT.	SOIL TYPE	USCS SYMBOL	SAMPLES	SOIL DESCRIPTION	N-BLOWS/FT.	MOISTURE CONTENT (%)	LIQUID LIMIT (LL)	PLASTIC LIMIT (PL)	PLASTICITY INDEX (PI)	% PASSING No. 200 SIEVE	SHEAR STRENGTH (tsf) HP	SHEAR STRENGTH (tsf) UC	SHEAR STRENGTH (tsf) TV	SHEAR STRENGTH (tsf) MV	SHEAR STRENGTH (tsf) UU	DRY UNIT WEIGHT (pcf)
0.0		CH		Soft to firm gray **FAT CLAY**, intermittent organic soil layers and trace sand		33							0.15			
2.5						30	52	14	38	86			0.17		0.22	94
5.0						33					0.25					
7.5						21					0.42					
		CL		Very stiff gray **LEAN CLAY**, with trace sand		19					1.17				1.20	109
10.0		CH		Firm gray **FAT CLAY** - 2.25% sand, 97.75% fines (42.98% clay), 10 to 12 feet	3-4-3 7	37	64	15	49	98						
12.5		CL		Stiff to very stiff gray **LEAN CLAY WITH SAND**	6-7-9 16	19										
15.0					7-7-8 15	21	44	14	30	75						
17.5					7-8-9 17	21										
20.0					4-5-5 10	24										
		CL		Gray/brown **SANDY LEAN CLAY**	6-6-12 18	23										
22.5		SM		Medium dense to dense brown **SILTY SAND**	10-12-17 29	20				13						
25.0					8-15-13 28	20										
27.5					10-14-14 28	20				12						
					10-15-18 33	19										
30.0				BORING TERMINATED AT 30 FEET												

SHEAR STRENGTH (tsf): ○ HP ● UC △ TV ◆ MV ▲ UU — 0.0 0.5 1.0 1.5

DEPTH OF BORING: 30 FEET
DATE DRILLED: 6/29/20
NOTE:

▽ GROUNDWATER DURING DRILLING: N / A
▼ GROUNDWATER UPON COMPLETION: N / A
▼ DELAYED GROUNDWATER: N / A .

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LOG OF BORING B-4

LONG POINT BAYOU MARSH CREATION
CAMERON PARISH, LOUISIANA

TYPE OF BORING: ROTARY WASH | LOCATION: MARSH AREA | PSI Project No.: 02541211

DEPTH, FT.	SOIL TYPE	USCS SYMBOL	SAMPLES	SOIL DESCRIPTION	N-BLOWS/FT.	MOISTURE CONTENT (%)	LIQUID LIMIT (LL)	PLASTIC LIMIT (PL)	PLASTICITY INDEX (PI)	% PASSING No. 200 SIEVE	SHEAR STRENGTH (tsf) HP	SHEAR STRENGTH (tsf) UC	SHEAR STRENGTH (tsf) TV	SHEAR STRENGTH (tsf) MV	SHEAR STRENGTH (tsf) UU	DRY UNIT WEIGHT (pcf)
		CH		Very soft to soft gray **FAT CLAY WITH SAND**, with organics		50							0.20			
2.5						30	56	17	39	83			0.10		0.07	83
		CH		Firm to stiff gray **FAT CLAY WITH SAND**, with silt		32							0.40			
5.0				- with organics, 4 to 6 feet												
						26							0.75			
7.5				- trace organics, 8 to 10 feet												
						24	56	16	40	84			0.60		0.73	100
10.0						27							0.40			
12.5		CL		Stiff to very stiff tan **LEAN CLAY WITH SAND**	4-5-8 13	25										
				- 29.17% sand, 70.83% fines (20.24% clay), 14 to 16 feet	6-13-15 28	23	30	19	11	71						
15.0		SP-SM		Dense brown **POORLY GRADED SAND WITH SILT**	6-17-26 43	25										
17.5					12-14-24 38	22										
20.0					7-14-26 40	21				11						
22.5					9-19-28 47	22										
25.0					9-18-29 47	20										
27.5					9-17-29 46	22										
					8-19-31 50	21				10						
30.0				BORING TERMINATED AT 30 FEET												

SHEAR STRENGTH (tsf): ○ HP ● UC △ TV ◆ MV ▲ UU — 0.0 0.5 1.0 1.5

DEPTH OF BORING: 30 FEET
DATE DRILLED: 6/24/20
NOTE:

▽ GROUNDWATER DURING DRILLING: N / A
▼ GROUNDWATER UPON COMPLETION: N / A
▼ DELAYED GROUNDWATER: N / A .

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LOG OF BORING B-5

LONG POINT BAYOU MARSH CREATION
CAMERON PARISH, LOUISIANA

TYPE OF BORING: ROTARY WASH | LOCATION: MARSH AREA | PSI Project No.: 02541211

DEPTH, FT.	SOIL TYPE	USCS SYMBOL	SAMPLES	SOIL DESCRIPTION	N-BLOWS/FT.	MOISTURE CONTENT (%)	LIQUID LIMIT (LL)	PLASTIC LIMIT (PL)	PLASTICITY INDEX (PI)	% PASSING No. 200 SIEVE	SHEAR STRENGTH (tsf) HP	SHEAR STRENGTH (tsf) UC	SHEAR STRENGTH (tsf) TV	SHEAR STRENGTH (tsf) MV	SHEAR STRENGTH (tsf) UU	DRY UNIT WEIGHT (pcf)
		OH		Very soft dark gray **ORGANIC CLAY**		97							0.05			
2.5		CH		Soft dark gray/gray **FAT CLAY**, with organics and trace sand		35	53	15	38	94					0.19	87
5.0		CH		Stiff gray **FAT CLAY**, trace organics - with silt, 4 to 6 feet		30							0.60			
		CL		Soft to firm gray **LEAN CLAY**, trace sand	1-2-2 4	34										
7.5					3-3-3 6	29	48	15	33							
10.0				- 9.96% sand, 90.04% fines (41.71% clay), 10 to 12 feet	2-2-3 5	32				90						
12.5		CL		Stiff light gray **SANDY LEAN CLAY**	5-5-6 11	21										
15.0					4-5-6 11	22										
17.5					4-5-6 11	24	40	14	26	54						
		CL		Stiff to very stiff light gray **LEAN CLAY WITH SAND**	5-6-9 15	21										
20.0					7-8-10 18	23										
22.5					8-10-12 22	24										
25.0					10-12-15 27	22	36	15	21	75						
		CL		Hard light gray **LEAN CLAY WITH SAND**	12-14-19 33	23										
27.5					13-18-22 40	20										
30.0				BORING TERMINATED AT 30 FEET												

SHEAR STRENGTH (tsf): ○ HP ● UC △ TV ◆ MV ▲ UU — 0.0 0.5 1.0 1.5

DEPTH OF BORING: 30 FEET
DATE DRILLED: 6/27/20
NOTE:

▽ GROUNDWATER DURING DRILLING: N / A
▼ GROUNDWATER UPON COMPLETION: N / A
▼ DELAYED GROUNDWATER: N / A .

JEFFERSON - FULL SPT AND MINIVANE V2 - PSIHOUSTON.GDT - 9/16/20 13:21 - 0254

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LOG OF BORING B-6

LONG POINT BAYOU MARSH CREATION
CAMERON PARISH, LOUISIANA

TYPE OF BORING: PISTON SAMPLER | LOCATION: CALCASIEU SHIP CHANNEL | PSI Project No.: 02541211

DEPTH, FT.	SOIL TYPE	USCS SYMBOL	SAMPLES	SOIL DESCRIPTION	N-BLOWS/FT.	MOISTURE CONTENT (%)	LIQUID LIMIT (LL)	PLASTIC LIMIT (PL)	PLASTICITY INDEX (PI)	% PASSING No. 200 SIEVE	SHEAR STRENGTH (tsf) ○ HP ● UC △ TV ◆ MV ▲ UU 0.0 0.5 1.0 1.5	SHEAR STRENGTH (tsf) HP	UC	TV	MV	UU	DRY UNIT WEIGHT (pcf)
		CH		Gray **FAT CLAY**, with silt pockets													
2.5				-2.5% sand, 97.5% fines (49.67% clay), 0 to 5 feet		185	123	31	92	98							
5.0				BORING TERMINATED AT APPROXIMATE EL. -48.54 FEET													
7.5																	
10.0																	

DEPTH OF BORING: 5 FEET
DATE DRILLED: 5/26/20
NOTE: N / A = NOT AVAILABLE

▽ GROUNDWATER DURING DRILLING: N / A
▼ GROUNDWATER UPON COMPLETION: N / A
▼ DELAYED GROUNDWATER: N / A .

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LOG OF BORING B-7

LONG POINT BAYOU MARSH CREATION
CAMERON PARISH, LOUISIANA

TYPE OF BORING: PISTON SAMPLER | LOCATION: CALCASIEU SHIP CHANNEL | PSI Project No.: 02541211

DEPTH, FT.	SOIL TYPE	USCS SYMBOL	SAMPLES	SOIL DESCRIPTION	N-BLOWS/FT.	MOISTURE CONTENT (%)	LIQUID LIMIT LL	PLASTIC LIMIT PL	PLASTICITY INDEX PI	% PASSING No. 200 SIEVE	SHEAR STRENGTH (tsf) ○ HP ● UC △ TV ◆ MV ▲ UU 0.0 0.5 1.0 1.5	SHEAR STRENGTH (tsf) HP	UC	TV	MV	UU	DRY UNIT WEIGHT (pcf)
		CH		Gray **FAT CLAY**, with silt pockets													
2.5				-2.5% sand, 97.5% fines (49.74% clay), 0 to 5 feet		155	92	29	63	98							
5.0				BORING TERMINATED AT APPROXIMATE EL. -47.24 FEET													
7.5																	
10.0																	

DEPTH OF BORING: 5 FEET
DATE DRILLED: 5/27/20
NOTE: N / A = NOT AVAILABLE

▽ GROUNDWATER DURING DRILLING: N / A
▼ GROUNDWATER UPON COMPLETION: N / A
▼ DELAYED GROUNDWATER: N / A .

JEFFERSON - FULL SPT AND MINIVANE V2 - PSIHOUSTON.GDT - 8/11/20 14:32 - 0254

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(504) 733-9411

LOG OF BORING B-8

LONG POINT BAYOU MARSH CREATION
CAMERON PARISH, LOUISIANA

TYPE OF BORING: PISTON SAMPLER | LOCATION: CALCASIEU SHIP CHANNEL | PSI Project No.: 02541211

DEPTH, FT.	SOIL TYPE	USCS SYMBOL	SAMPLES	SOIL DESCRIPTION	N-BLOWS/FT.	MOISTURE CONTENT (%)	LIQUID LIMIT (LL)	PLASTIC LIMIT (PL)	PLASTICITY INDEX (PI)	% PASSING No. 200 SIEVE	SHEAR STRENGTH (tsf) ○ HP ● UC △ TV ◆ MV ▲ UU 0.0 0.5 1.0 1.5	SHEAR STRENGTH (tsf) HP	UC	TV	MV	UU	DRY UNIT WEIGHT (pcf)
		CH		Gray **FAT CLAY**, with silt pockets													
2.5				-3.16% sand, 96.84% fines (49.75% clay), 0 to 5 feet		128	94	30	64	97							
5.0				BORING TERMINATED AT APPROXIMATE EL. -43.9 FEET													
7.5																	
10.0																	

DEPTH OF BORING: 5 FEET
DATE DRILLED: 5/27/20
NOTE: N / A = NOT AVAILABLE

▽ GROUNDWATER DURING DRILLING: N / A
▼ GROUNDWATER UPON COMPLETION: N / A
▼ DELAYED GROUNDWATER: N / A .

JEFFERSON - FULL SPT AND MINIVANE V2 - PSIHOUSTON.GDT - 8/11/20 14:32 - 0254

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LOG OF BORING B-9

LONG POINT BAYOU MARSH CREATION
CAMERON PARISH, LOUISIANA

TYPE OF BORING: PISTON SAMPLER | LOCATION: CALCASIEU SHIP CHANNEL | PSI Project No.: 02541211

DEPTH, FT.	SOIL TYPE	USCS SYMBOL	SAMPLES	SOIL DESCRIPTION	N-BLOWS/FT.	MOISTURE CONTENT (%)	LIQUID LIMIT (LL)	PLASTIC LIMIT (PL)	PLASTICITY INDEX (PI)	% PASSING No. 200 SIEVE	SHEAR STRENGTH (tsf) ○ HP ● UC △ TV ◆ MV ▲ UU 0.0 0.5 1.0 1.5	SHEAR STRENGTH (tsf) HP	UC	TV	MV	UU	DRY UNIT WEIGHT (pcf)
		CH		Gray **FAT CLAY**, with silt pockets													
2.5				-1.02% sand, 98.98% fines (52.53% clay), 0 to 5 feet		86	72	23	49	99							
5.0				BORING TERMINATED AT APPROXIMATE EL. -45.17 FEET													
7.5																	
10.0																	

DEPTH OF BORING: 5 FEET
DATE DRILLED: 5/28/20
NOTE: N / A = NOT AVAILABLE

▽ GROUNDWATER DURING DRILLING: N / A
▼ GROUNDWATER UPON COMPLETION: N / A
▼ DELAYED GROUNDWATER: N / A .

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LOG OF BORING B-10

LONG POINT BAYOU MARSH CREATION
CAMERON PARISH, LOUISIANA

TYPE OF BORING: PISTON SAMPLER | LOCATION: CALCASIEU SHIP CHANNEL | PSI Project No.: 02541211

DEPTH, FT.	SOIL TYPE	USCS SYMBOL	SAMPLES	SOIL DESCRIPTION	N-BLOWS/FT.	MOISTURE CONTENT (%)	LIQUID LIMIT (LL)	PLASTIC LIMIT (PL)	PLASTICITY INDEX (PI)	% PASSING No. 200 SIEVE	SHEAR STRENGTH (tsf) ○ HP ● UC △ TV ◆ MV ▲ UU 0.0 0.5 1.0 1.5	SHEAR STRENGTH (tsf) HP	UC	TV	MV	UU	DRY UNIT WEIGHT (pcf)
		CH		Gray **FAT CLAY**, with silt pockets													
2.5				-6.53% sand, 93.47% fines (50.43% clay), 0 to 5 feet		102	100	27	73	93							
5.0				BORING TERMINATED AT APPROXIMATE EL. -45.6 FEET													
7.5																	
10.0																	

DEPTH OF BORING: 5 FEET
DATE DRILLED: 5/28/20
NOTE: N / A = NOT AVAILABLE

▽ GROUNDWATER DURING DRILLING: N / A
▼ GROUNDWATER UPON COMPLETION: N / A
▼ DELAYED GROUNDWATER: N / A .

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(504) 733-9411

LOG OF BORING B-11

LONG POINT BAYOU MARSH CREATION
CAMERON PARISH, LOUISIANA

TYPE OF BORING: PISTON SAMPLER | LOCATION: CALCASIEU SHIP CHANNEL | PSI Project No.: 02541211

DEPTH, FT.	SOIL TYPE	USCS SYMBOL	SAMPLES	SOIL DESCRIPTION	N-BLOWS/FT.	MOISTURE CONTENT (%)	LIQUID LIMIT (LL)	PLASTIC LIMIT (PL)	PLASTICITY INDEX (PI)	% PASSING No. 200 SIEVE	SHEAR STRENGTH (tsf) ○ HP ● UC △ TV ◆ MV ▲ UU 0.0 0.5 1.0 1.5	SHEAR STRENGTH (tsf) HP	UC	TV	MV	UU	DRY UNIT WEIGHT (pcf)
		CH		Gray **FAT CLAY**, with silt pockets													
2.5				-5.77% sand, 94.23% fines (57.01% clay), 0 to 5 feet		66	79	25	54	94							
5.0				BORING TERMINATED AT APPROXIMATE EL. -46.76 FEET													
7.5																	
10.0																	

DEPTH OF BORING: 5 FEET
DATE DRILLED: 5/29/20
NOTE: N / A = NOT AVAILABLE

▽ GROUNDWATER DURING DRILLING: N / A
▼ GROUNDWATER UPON COMPLETION: N / A
▼ DELAYED GROUNDWATER: N / A .

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LOG OF BORING B-12

LONG POINT BAYOU MARSH CREATION
CAMERON PARISH, LOUISIANA

TYPE OF BORING: PISTON SAMPLER | LOCATION: CALCASIEU SHIP CHANNEL | PSI Project No.: 02541211

DEPTH, FT.	SOIL TYPE	USCS SYMBOL	SAMPLES	SOIL DESCRIPTION	N-BLOWS/FT.	MOISTURE CONTENT (%)	LIQUID LIMIT (LL)	PLASTIC LIMIT (PL)	PLASTICITY INDEX (PI)	% PASSING No. 200 SIEVE	SHEAR STRENGTH (tsf) ○ HP ● UC △ TV ◆ MV ▲ UU 0.0 0.5 1.0 1.5	SHEAR STRENGTH (tsf) HP	UC	TV	MV	UU	DRY UNIT WEIGHT (pcf)
		CH		Gray **FAT CLAY WITH SAND**, with silt pockets													
2.5				-15.95% sand, 84.05% fines (42.35% clay), 0 to 5 feet		75	70	22	48	84							
5.0				BORING TERMINATED AT APPROXIMATE EL. -45.49 FEET													
7.5																	
10.0																	

DEPTH OF BORING: 5 FEET
DATE DRILLED: 5/29/20
NOTE: N / A = NOT AVAILABLE

▽ GROUNDWATER DURING DRILLING: N / A
▼ GROUNDWATER UPON COMPLETION: N / A
▼ DELAYED GROUNDWATER: N / A .

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CPT: CPT-01

Total depth: 13.98 ft, Date: 6/29/2020

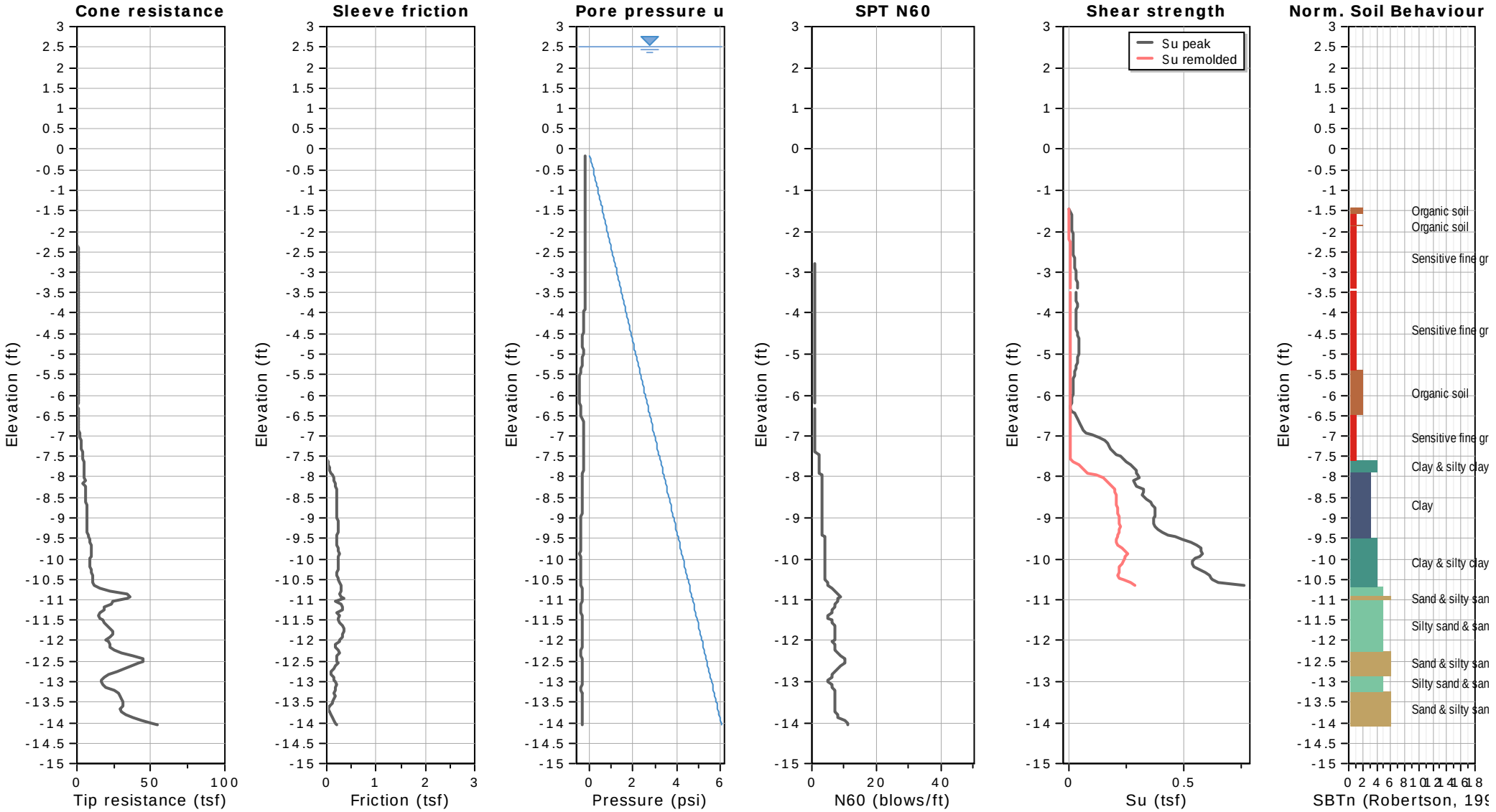
Mudline Elevation: -0.09 ft

Cone Type: 60° 1.4" Diam. Type 2 Electric Cone Penetrometer

Cone Operator: Charley Baker

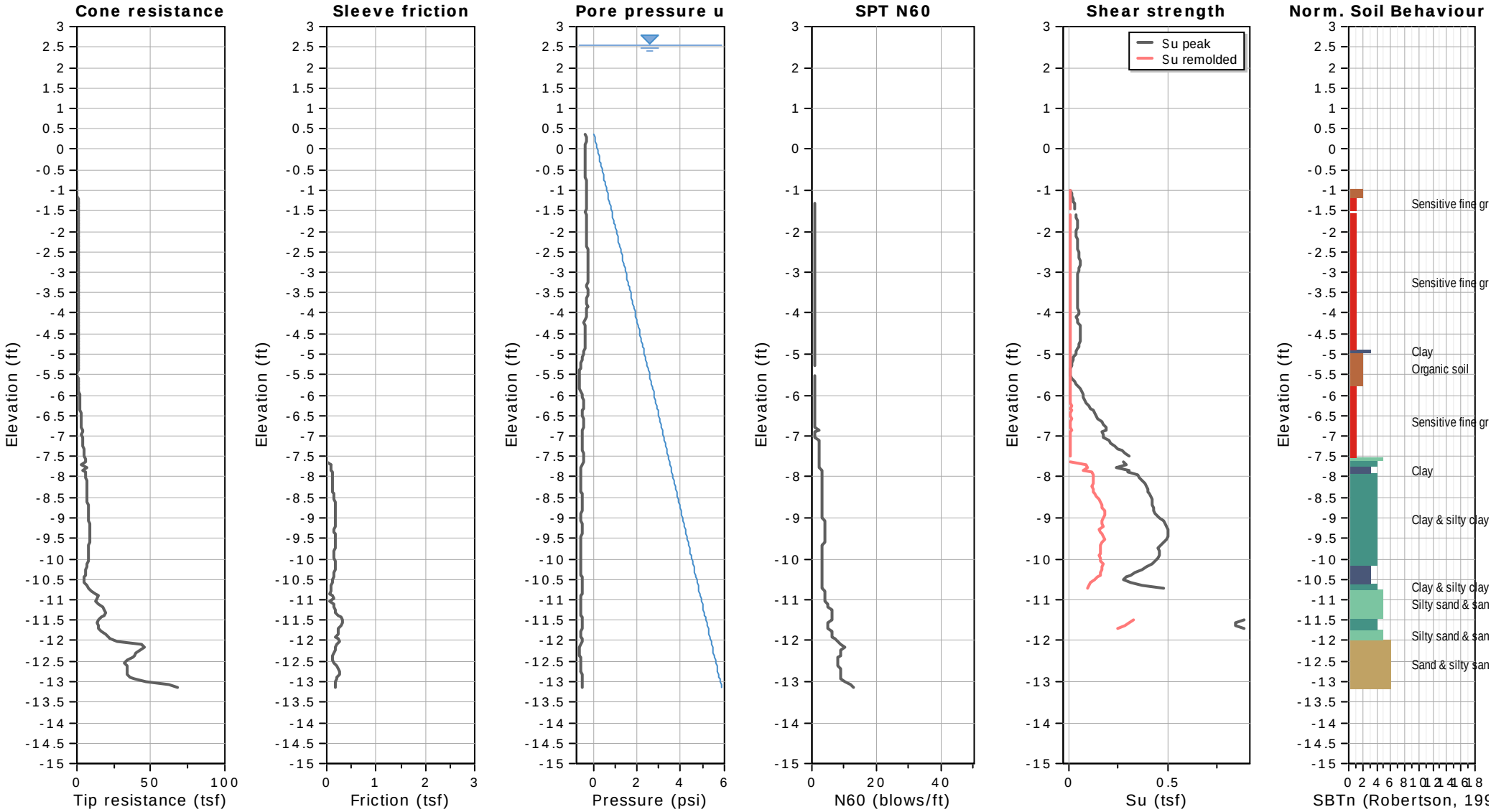
Project: 02541211 - Long Point Marsh Creation

Location: Hackberry, Louisiana



Project: 02541211 - Long Point Marsh Creation
Location: Hackberry, Louisiana

CPT: CPT-02
Total depth: 13.58 ft, Date: 6/29/2020
Mudline Elevation: 0.44 ft
Cone Type: 60° 1.4" Diam. Type 2 Electric Cone Penetrometer
Cone Operator: Charley Baker



CPT: CPT-03

Total depth: 13.12 ft, Date: 6/29/2020

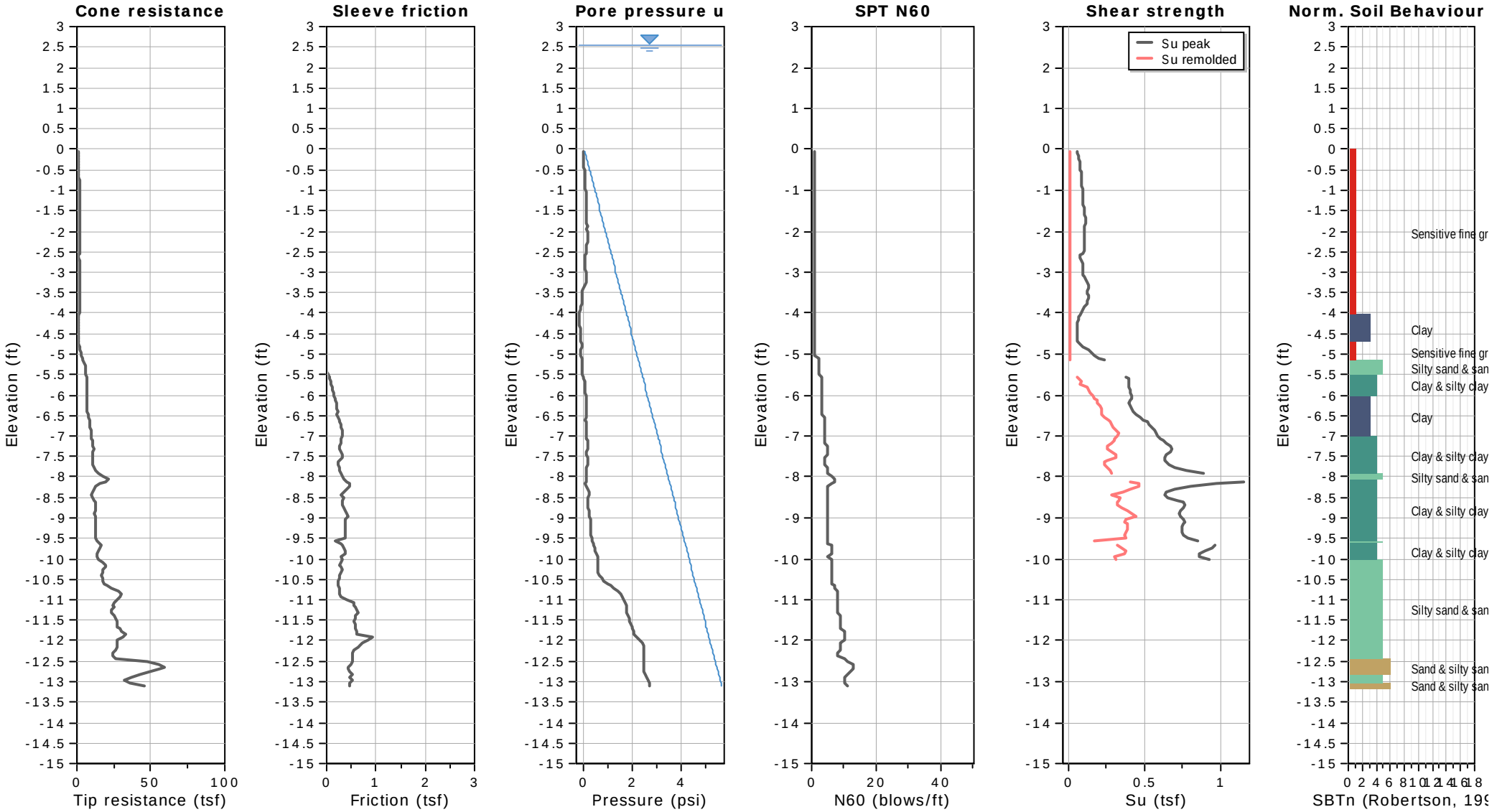
Mudline Elevation: 0.03 ft

Cone Type: 60° 1.4" Diam. Type 2 Electric Cone Penetrometer

Cone Operator: Charley Baker

Project: 02541211 - Long Point Marsh Creation

Location: Hackberry, Louisiana



CPT: CPT-04

Total depth: 12.47 ft, Date: 6/29/2020

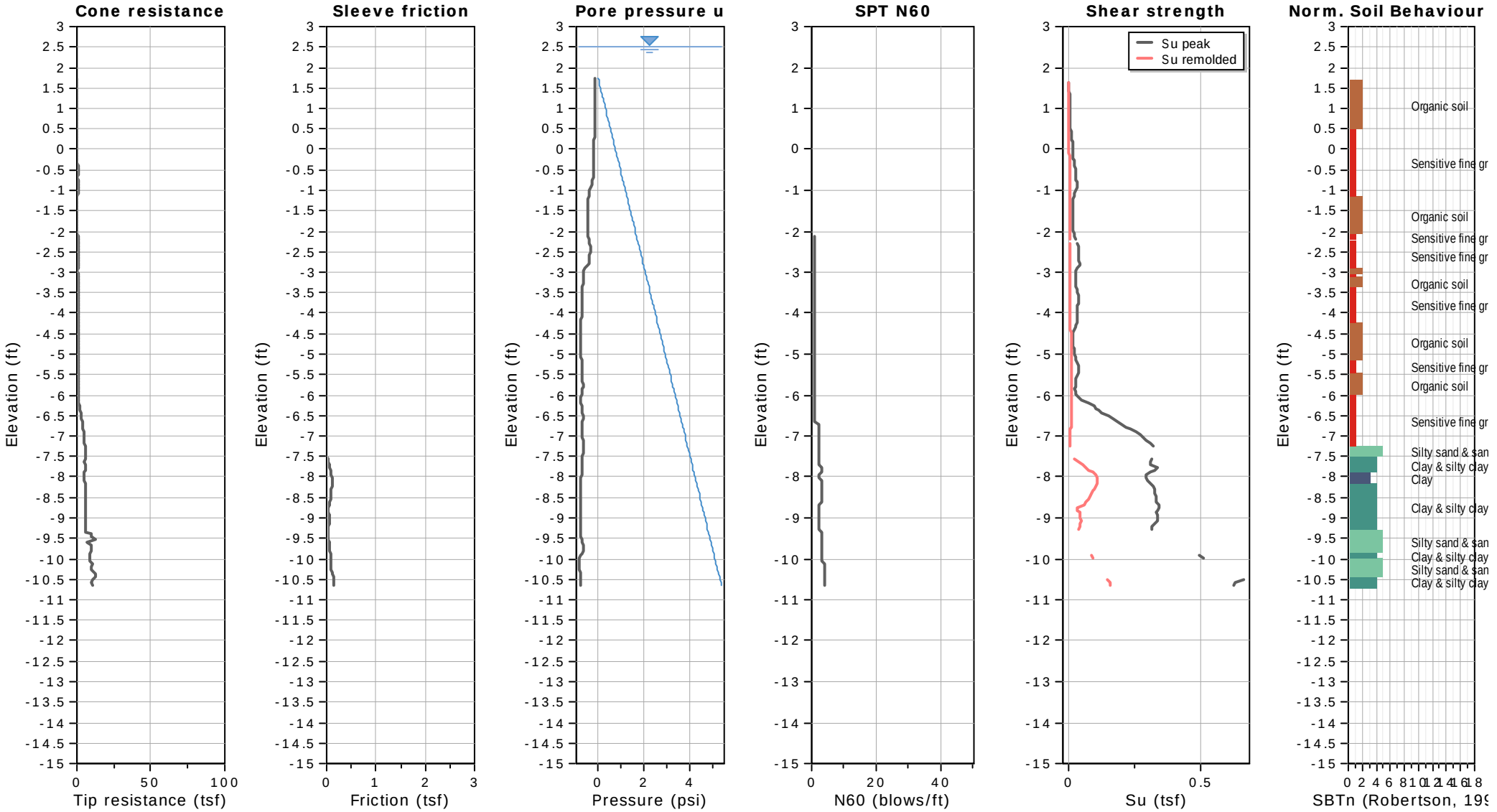
Mudline Elevation: 1.82 ft

Cone Type: 60° 1.4" Diam. Type 2 Electric Cone Penetrometer

Cone Operator: Charley Baker

Project: 02541211 - Long Point Marsh Creation

Location: Hackberry, Louisiana



CPT: CPT-05

Total depth: 11.15 ft, Date: 6/26/2020

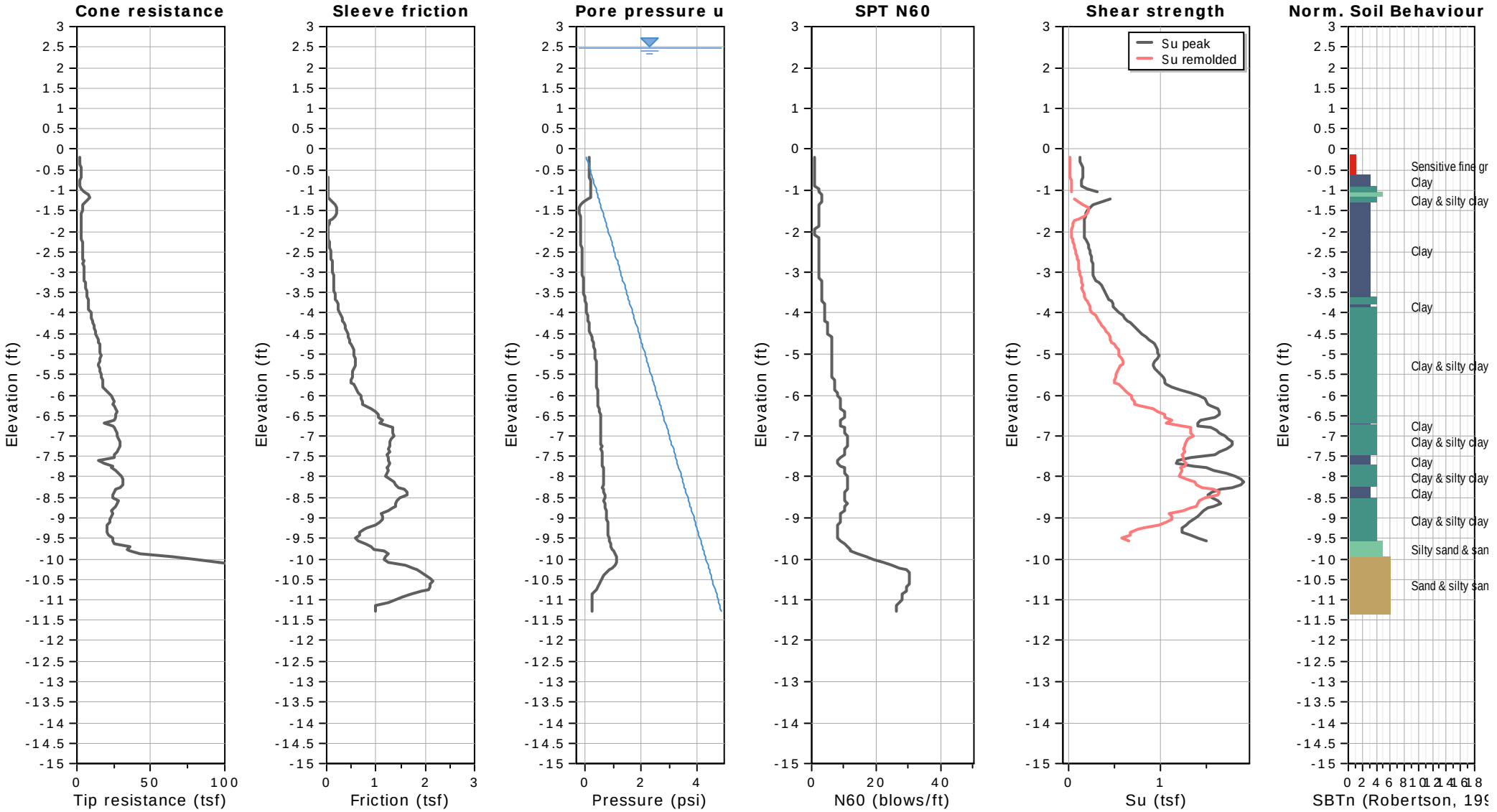
Mudline Elevation: -0.11 ft

Cone Type: 60° 1.4" Diam. Type 2 Electric Cone Penetrometer

Cone Operator: Charley Baker

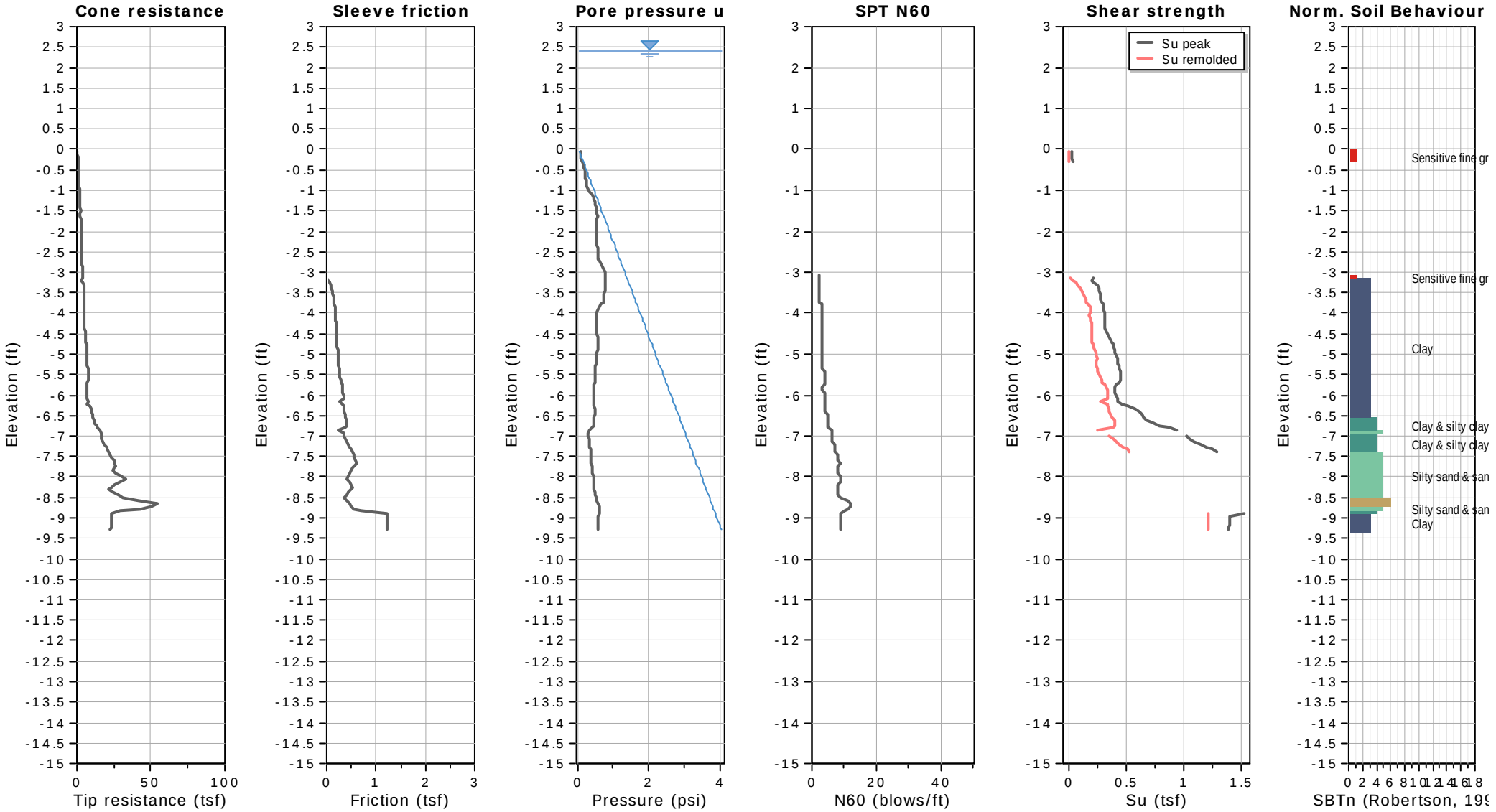
Project: 02541211 - Long Point Marsh Creation

Location: Hackberry, Louisiana



Project: 02541211 - Long Point Marsh Creation
Location: Hackberry, Louisiana

CPT: CPT-06
Total depth: 9.32 ft, Date: 6/29/2020
Mudline Elevation: 0.02 ft
Cone Type: 60° 1.4" Diam. Type 2 Electric Cone Penetrometer
Cone Operator: Charley Baker



CPT: CPT-07

Total depth: 8.79 ft, Date: 6/29/2020

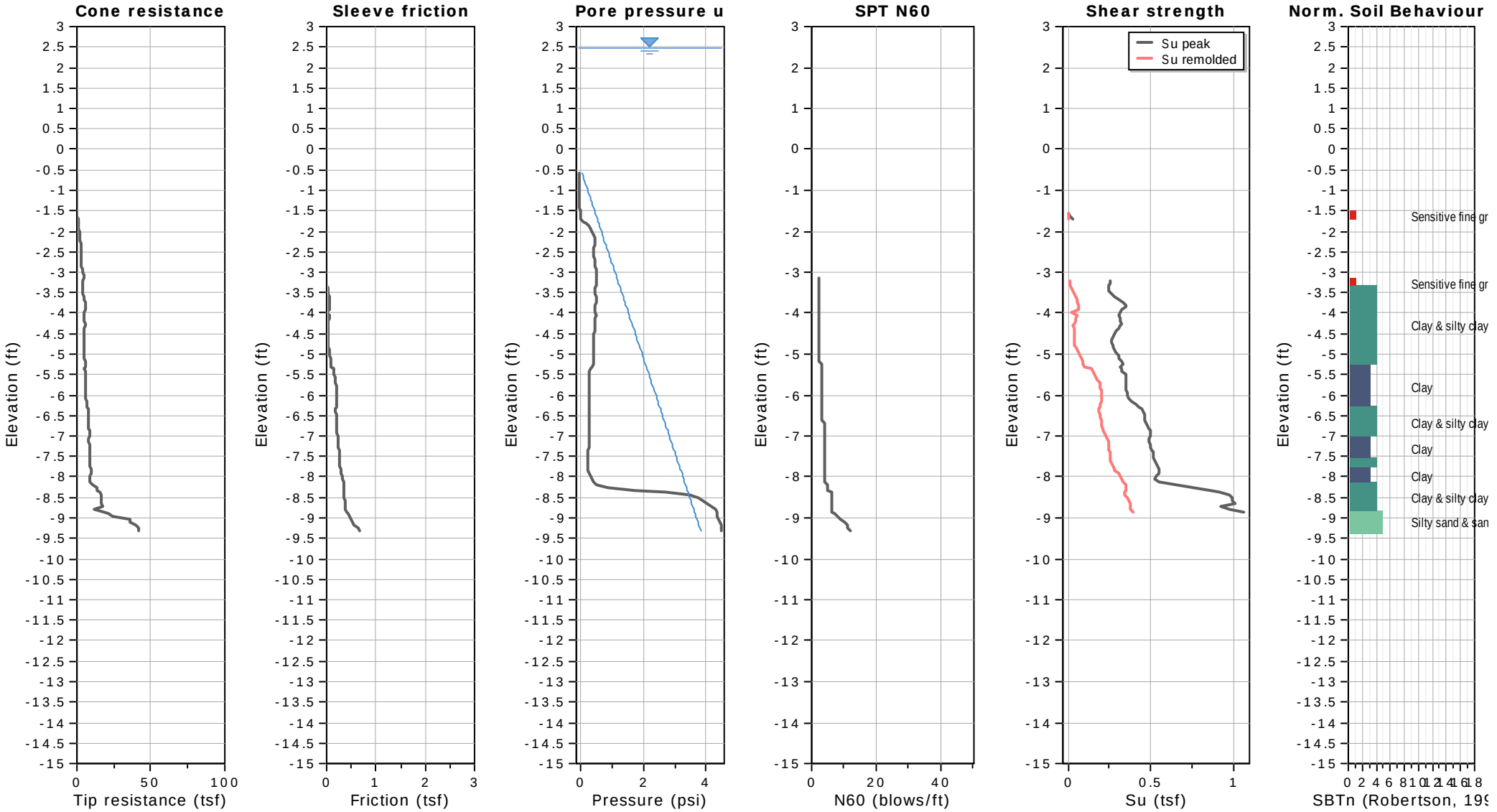
Mudline Elevation: -0.51 ft

Cone Type: 60° 1.4" Diam. Type 2 Electric Cone Penetrometer

Cone Operator: Charley Baker

Project: 02541211 - Long Point Marsh Creation

Location: Hackberry, Louisiana



CPT: CPT-08

Total depth: 9.38 ft, Date: 6/29/2020

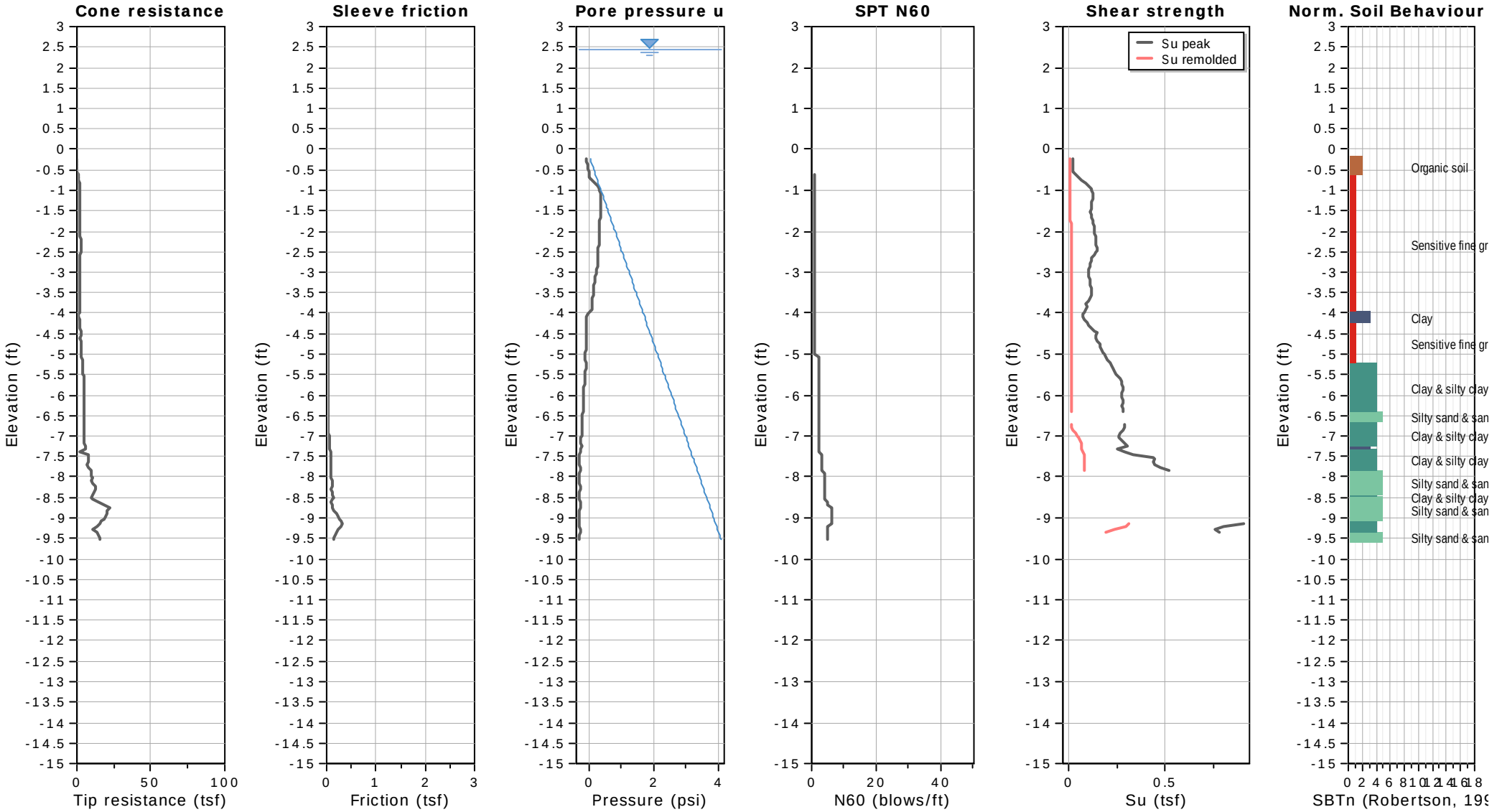
Mudline Elevation: -0.16 ft

Cone Type: 60° 1.4" Diam. Type 2 Electric Cone Penetrometer

Cone Operator: Charley Baker

Project: 02541211 - Long Point Marsh Creation

Location: Hackberry, Louisiana



CPT: CPT-09

Total depth: 15.09 ft, Date: 6/25/2020

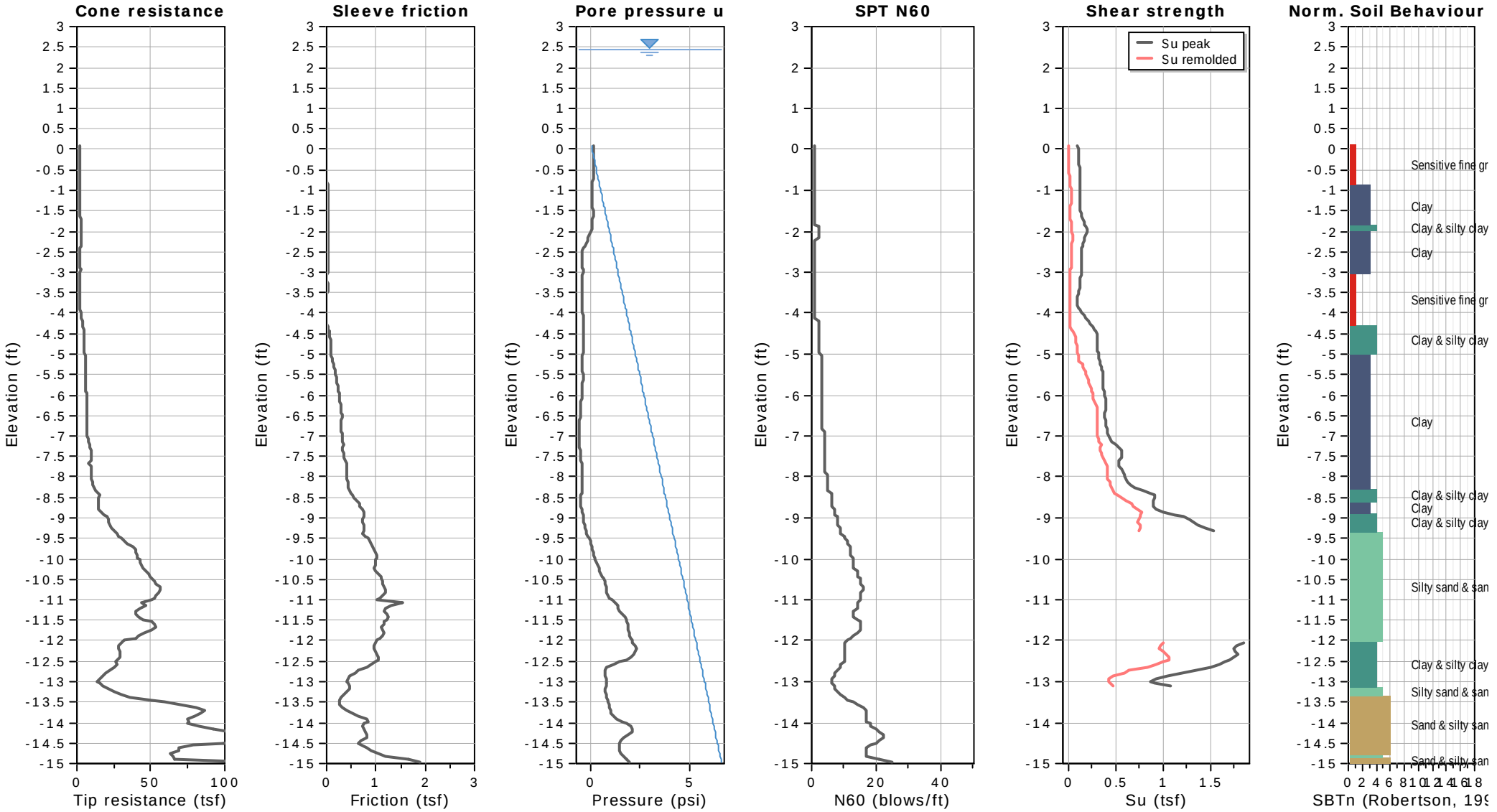
Mudline Elevation: 0.14 ft

Cone Type: 60° 1.4" Diam. Type 2 Electric Cone Penetrometer

Cone Operator: Charley Baker

Project: 02541211 - Long Point Marsh Creation

Location: Hackberry, Louisiana



CPT: CPT-10

Total depth: 14.30 ft, Date: 6/29/2020

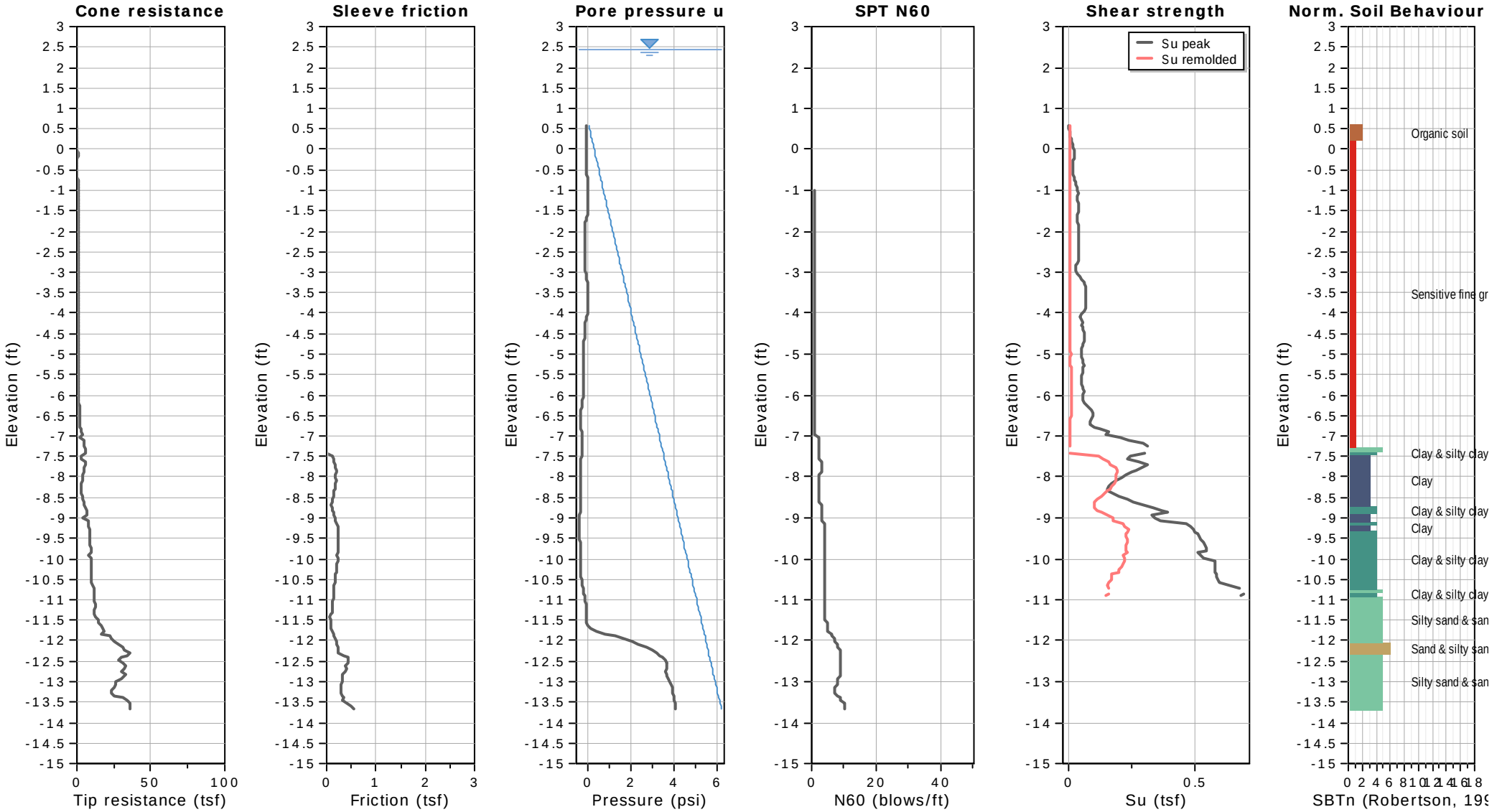
Mudline Elevation: 0.64 ft

Cone Type: 60° 1.4" Diam. Type 2 Electric Cone Penetrometer

Cone Operator: Charley Baker

Project: 02541211 - Long Point Marsh Creation

Location: Hackberry, Louisiana



CPT: CPT-11

Total depth: 11.48 ft, Date: 6/29/2020

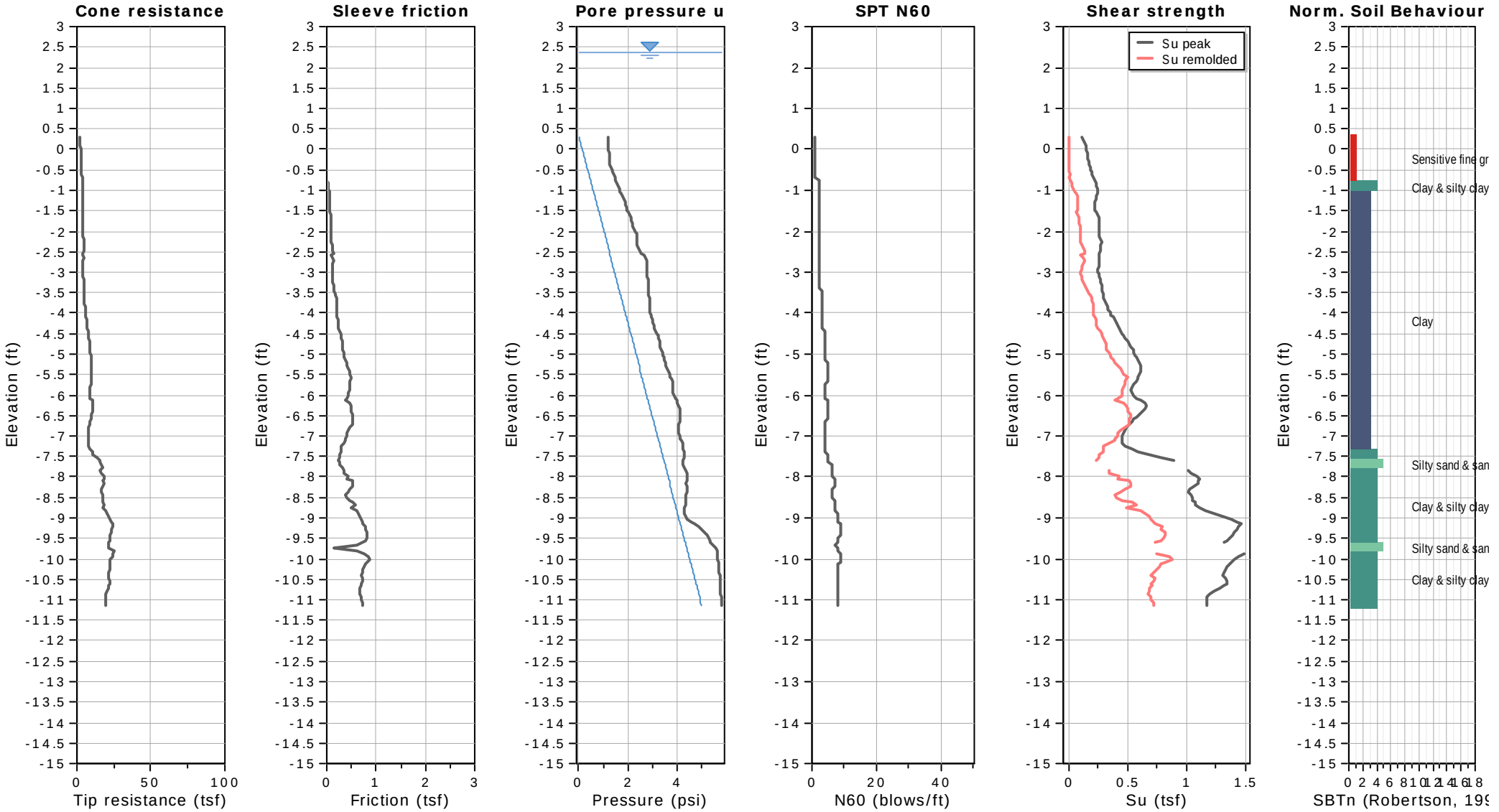
Mudline Elevation: 0.36 ft

Cone Type: 60° 1.4" Diam. Type 2 Electric Cone Penetrometer

Cone Operator: Charley Baker

Project: 02541211 - Long Point Marsh Creation

Location: Hackberry, Louisiana



CPT: CPT-12

Total depth: 9.71 ft, Date: 6/29/2020

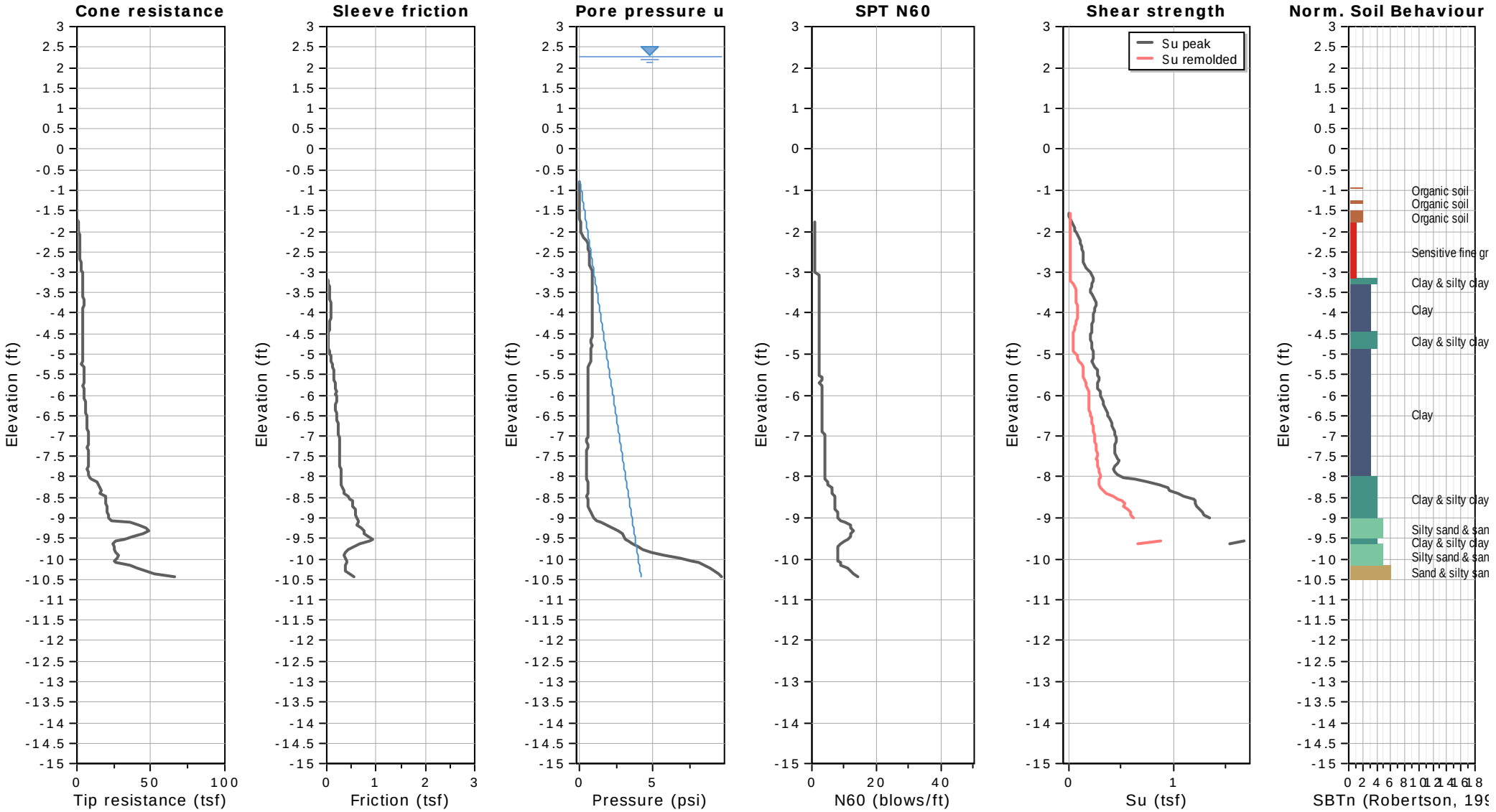
Mudline Elevation: -0.72 ft

Cone Type: 60° 1.4" Diam. Type 2 Electric Cone Penetrometer

Cone Operator: Charley Baker

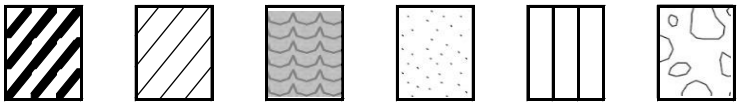
Project: 02541211 - Long Point Marsh Creation

Location: Hackberry, Louisiana



KEY TO TERMS AND SYMBOLS USED ON LOGS

SOIL TYPE

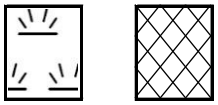


FAT CLAY | LEAN CLAY | ORGANIC CLAY | SAND | SILT | GRAVEL

SAMPLER TYPE

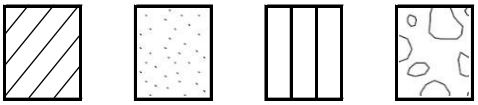
NO RECOVERY | AUGER SAMPLE | SHELBY TUBE | SPLIT SPOON

SOIL TYPE



TOPSOIL | FILL

MODIFIERS



CLAYEY | SANDY | SILTY | GRAVELY

GROUNDWATER DURING DRILLING

GROUNDWATER UPON COMPLETION

UNIFIED SOIL CLASSIFICATION SYSTEM - ASTM D 2487 (1980)

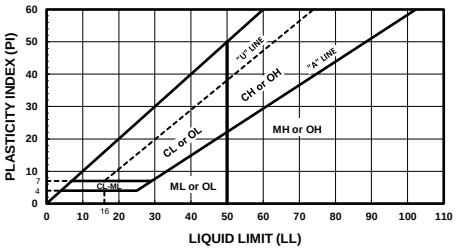
MAJOR DIVISIONS			LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE-GRAINED SOILS LESS THAN 50% PASSING NO. 200 SIEVE	GRAVEL & GRAVELLY SOILS LESS THAN 50% PASSING NO. 4 SIEVE	CLEAN GRAVEL (LITTLE OR NO FINES)	GW	WELL-GRADED GRAVEL, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
			GP	POORLY GRADED GRAVEL, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
		WITH APPRECIABLE FINES	GM	SILTY GRAVEL, GRAVEL-SAND-SILT MIXTURES
			GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
	SANDS MORE THAN 50% PASSING NO. 4 SIEVE	CLEAN SANDS (LITTLE OR NO FINES)	SW	WELL-GRADED SAND
			SP	POORLY-GRADED SANDS
		WITH APPRECIABLE FINES	SM	SILTY SANDS
			SC	CLAYEY SANDS
FINE-GRAINED SOILS MORE THAN 50% PASSING NO. 200 SIEVE	SILTS AND CLAYS LIQUID LIMIT < 50		ML	INORGANIC SILTS & VERY FINE SANDS, CLAYEY SILT W/ LOW PLASTICITY INDEX
			CL	INORGANIC LEAN CLAYS GRAVELLY, SANDY, OR SILTY LEAN CLAYS
			OL	ORGANIC SILTS & ORGANIC SILTY CLAYS W/LOW PLASTICITY INDEX
	SILTS AND CLAYS LIQUID LIMIT ≥ 50		MH	INORGANIC SILTS W/ HIGH PLASTICITY INDEX, ELASTIC SILTS
			CH	INORGANIC FAT CLAYS GRAVELLY, SANDY, OR SILTY FAT CLAYS
			OH	ORGANIC CLAYS OF MED TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOIL			PT	PEAT AND OTHER HIGHLY ORGANIC SOILS
UNCLASSIFIED FILL MATERIALS			ARTIFICIALLY DEPOSITED AND OTHER UNCLASSIFIED SOILS AND MAN-MADE SOIL MIXTURES	

CONSISTENCY - COHESIVE SOILS

CONSISTENCY	SHEAR STRENGTH IN TONS/FT^2
VERY SOFT	0 TO 0.125
SOFT	0.125 TO 0.25
FIRM	0.25 TO .50
STIFF	0.50 TO 1.00
VERY STIFF	1.00 TO 2.00
HARD	> 2.00 OR 2.00+

RELATIVE DENSITY - GRANULAR SOILS

DENSITY	N-VALUE (BLOWS/FT)
VERY LOOSE	0-4
LOOSE	4-9
MEDIUM DENSE	10-29
DENSE	30-49
VERY DENSE	> 50 OR 50+



ABBREVIATIONS

HP - HAND PENETROMETER

TV - MINIATURE TORVANE

UC - UNCONFINED COMPRESSION TEST

UU - UNCONSOLIDATED UNDRAINED TRAIXIAL

NOTE: BORING LOGS INDICATE SHEAR STRENGTH AS OBTAINED BY ABOVE TESTS

CLASSIFICATION OF GRANULAR SOILS

U.S. STANDARD SIEVE SIZE(S)

12"	3"	3/4"	4	10	40	200

BOULDERS	COBBLES	GRAVEL		SAND			SILT OR CLAY	CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE		

300	75	19	4.75	2.0	0.42	0.075	0.005

GRAIN SIZE IN MM

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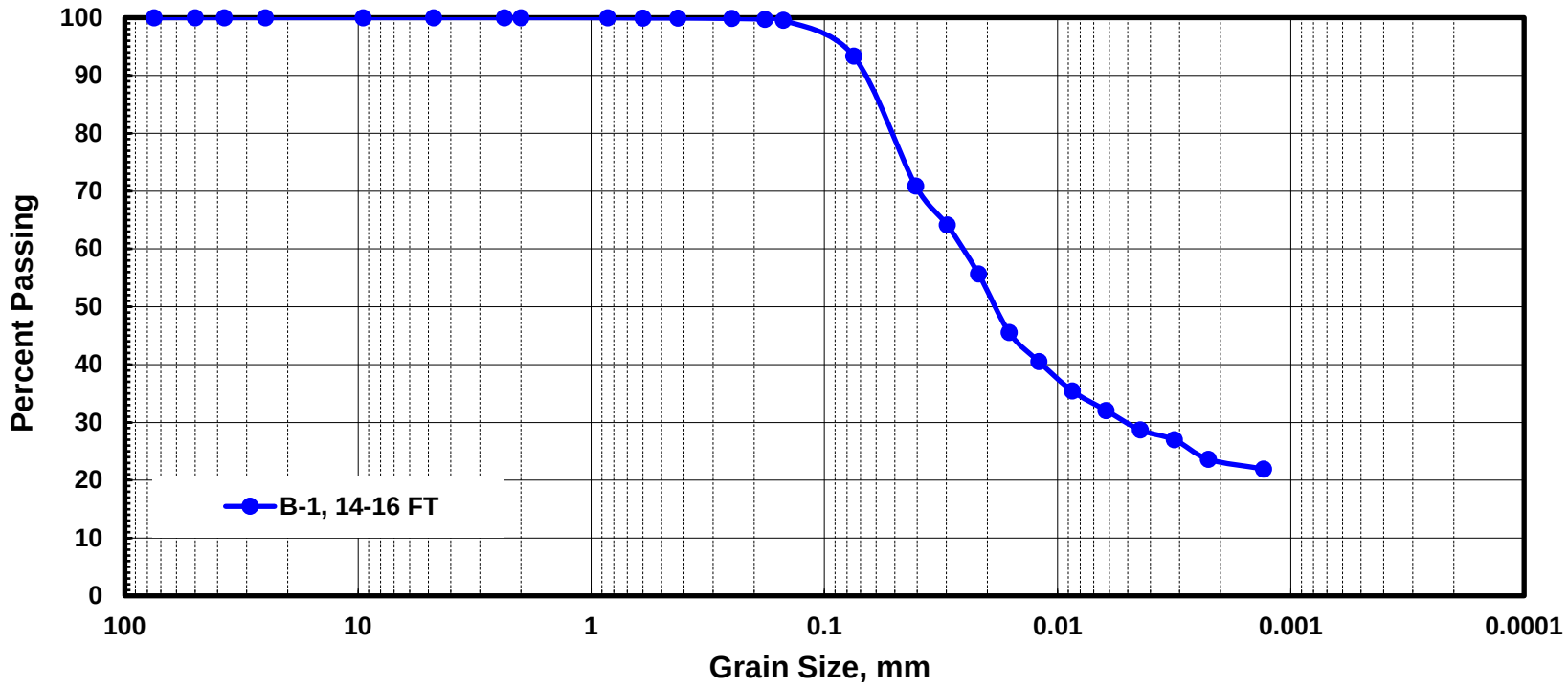
724 Central Avenue
Jefferson, Louisiana 70121
Phone: (504) 733-9411

APPENDIX C

HYDROMETER TEST RESULTS
SPECIFIC GRAVITY TEST RESULTS
ORGANIC CONTENT RESULTS

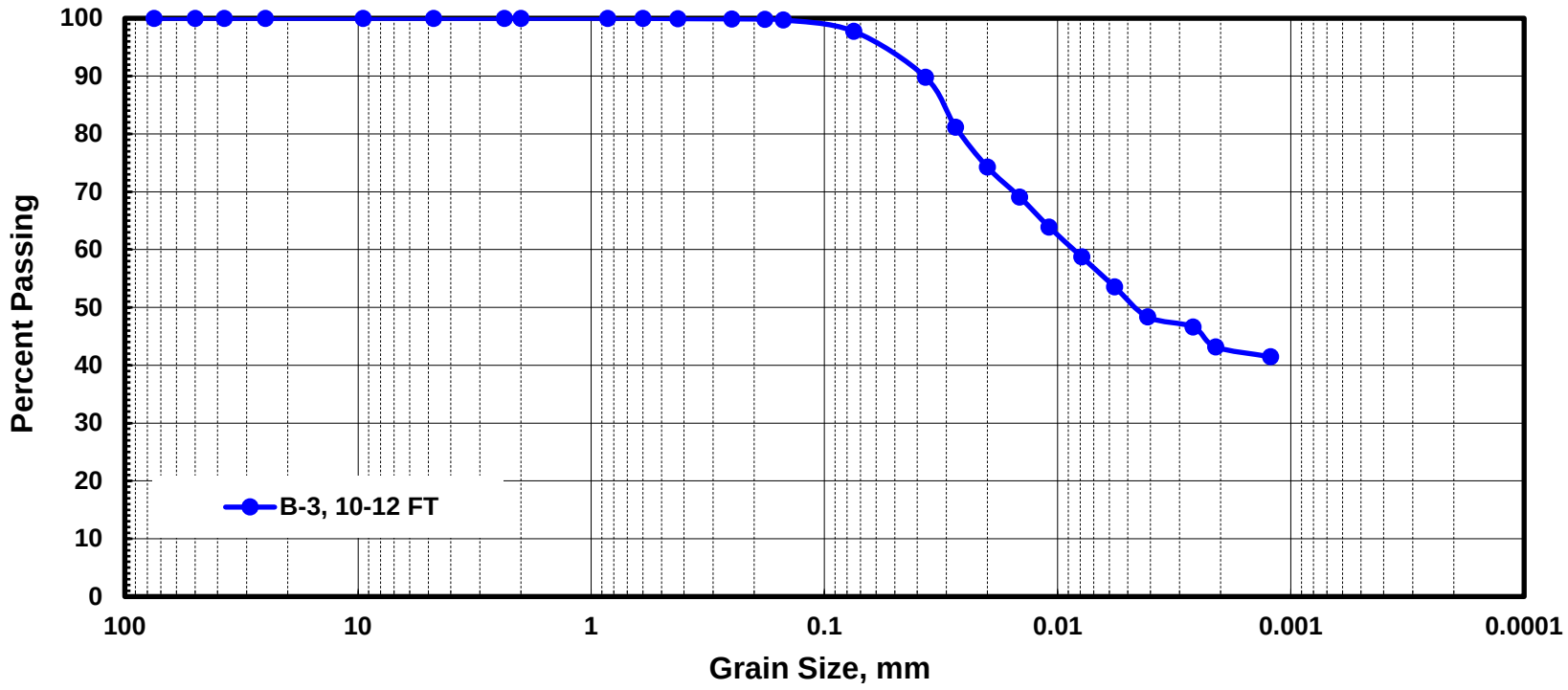


US STANDARD SIEVE SIZE

	6"	3"	3/4"	#4	#10	#40	#200		
BOULDERS	COBBLES	GRAVEL		SAND			SILT OR CLAY	CLAY	
		COARSE	FINE	COARSE	MEDIUM	FINE			
	152	75	19	4.75	2.0	0.425	0.075	0.002	

PARTICLE SIZE IN MM

GRADATION INFORMATION	D_{10} mm	D_{30} mm	D_{50} mm	D_{60} mm	C_u (D_{60}/D_{10})	C_c $D_{30}^2/(D_{60}*D_{10})$	%Gravel Ret. #4	%Sand <#4 & >#200	%Fines Pass #200	%Clay < 0.002 mm
B-1, 14-16 FT	NA	0.0050	0.0184	0.0256	NA	NA	0.0%	6.64	93.36	23.17
Lean Clay (CL), Gray										



US STANDARD SIEVE SIZE

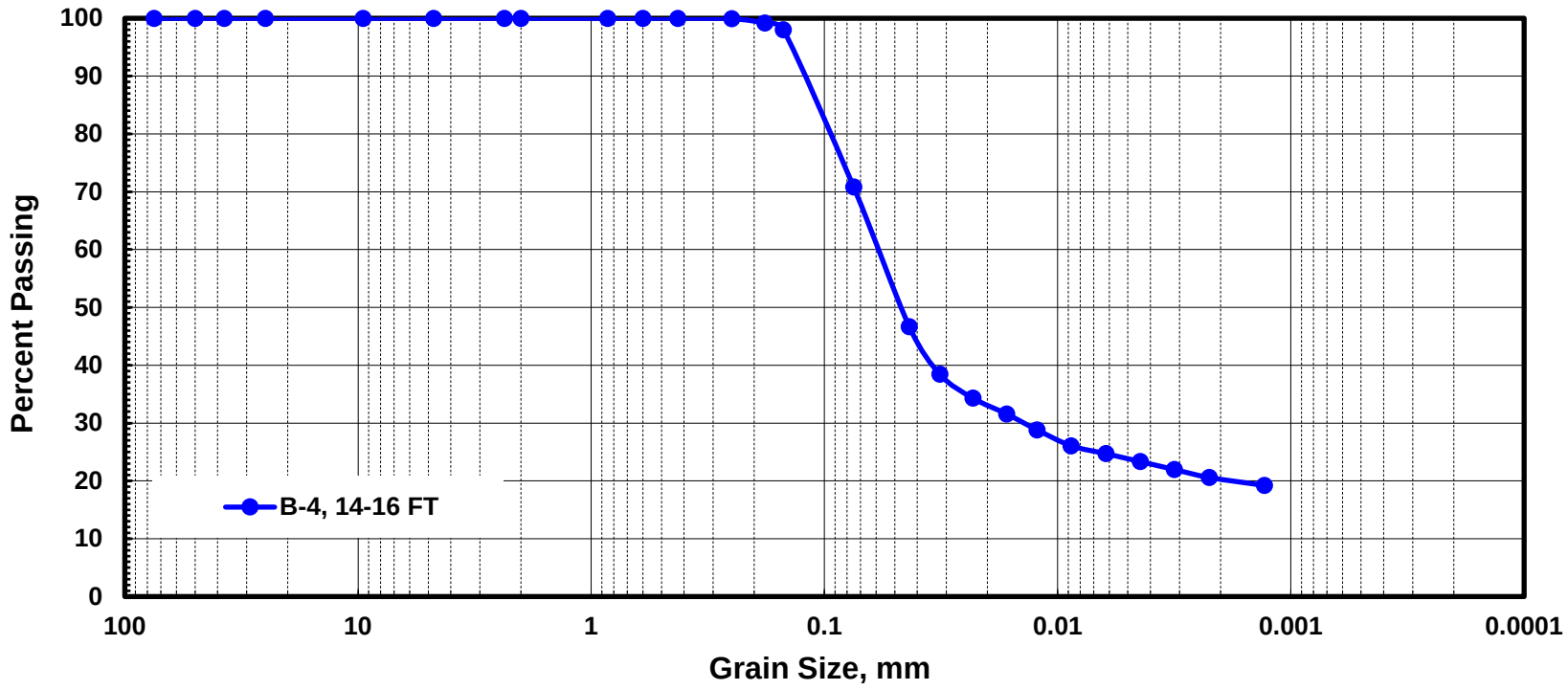
6"	3"	3/4"	#4	#10	#40	#200

BOULDERS	COBBLES	GRAVEL		SAND			SILT OR CLAY	CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE		

152	75	19	4.75	2.0	0.425	0.075	0.002

PARTICLE SIZE IN MM

GRADATION INFORMATION	D_{10} mm	D_{30} mm	D_{50} mm	D_{60} mm	C_u (D_{60}/D_{10})	C_c $D_{30}^2/(D_{60}*D_{10})$	%Gravel Ret. #4	%Sand <#4 & >#200	%Fines Pass #200	%Clay < 0.002 mm
B-3, 10-12 FT	NA	NA	0.0046	0.0085	NA	NA	0.0%	2.25	97.75	42.98
Lean Clay (CL), Gray										

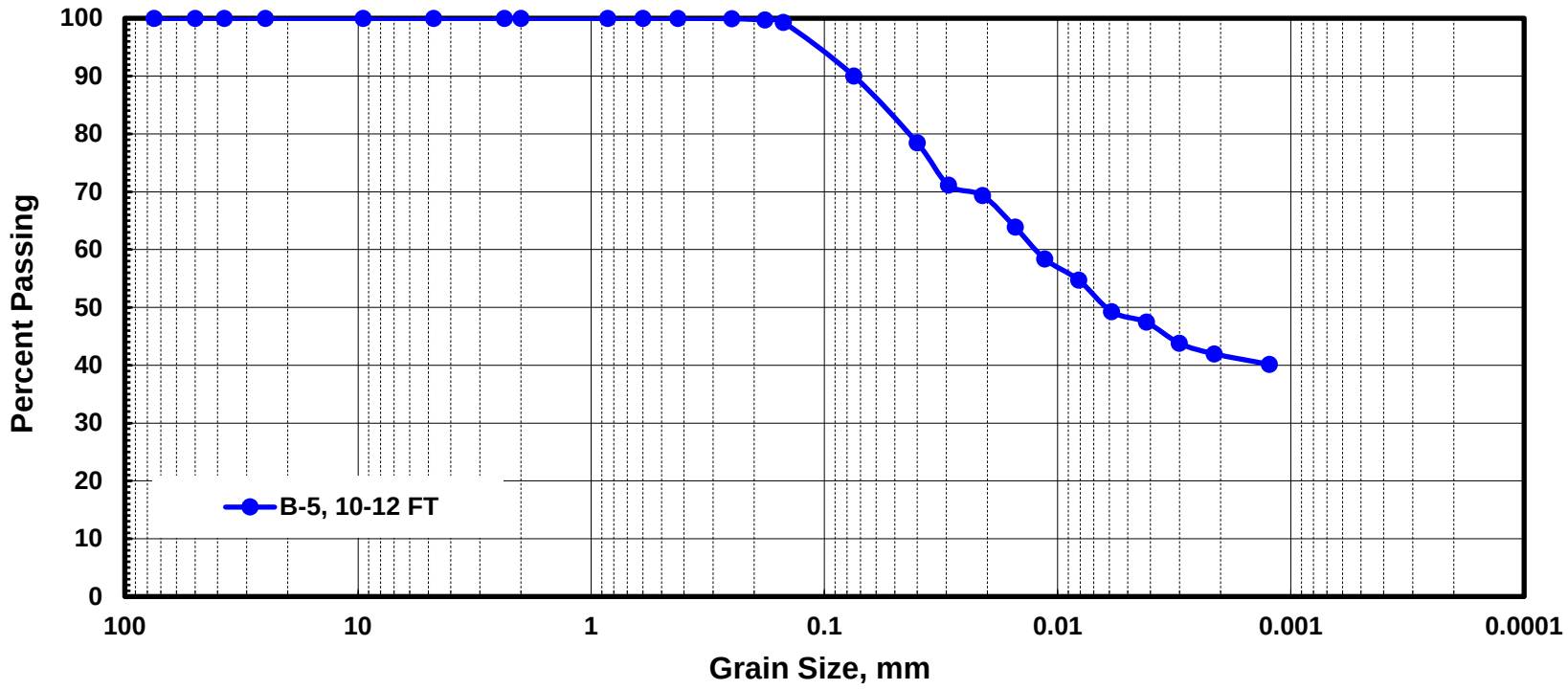


US STANDARD SIEVE SIZE

	6"	3"	3/4"	#4	#10	#40	#200	
BOULDERS	COBBLES	GRAVEL		SAND			SILT OR CLAY	CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE		
	152	75	19	4.75	2.0	0.425	0.075	0.002

PARTICLE SIZE IN MM

GRADATION INFORMATION	D_{10} mm	D_{30} mm	D_{50} mm	D_{60} mm	C_u (D_{60}/D_{10})	C_c $D_{30}^2/(D_{60}*D_{10})$	%Gravel Ret. #4	%Sand <#4 & >#200	%Fines Pass #200	%Clay < 0.002 mm
B-4, 14-16 FT	NA	0.0139	0.0467	0.0586	NA	NA	0.0%	29.17	70.83	20.24
Lean Clay with Sand (CL), Tan										



US STANDARD SIEVE SIZE

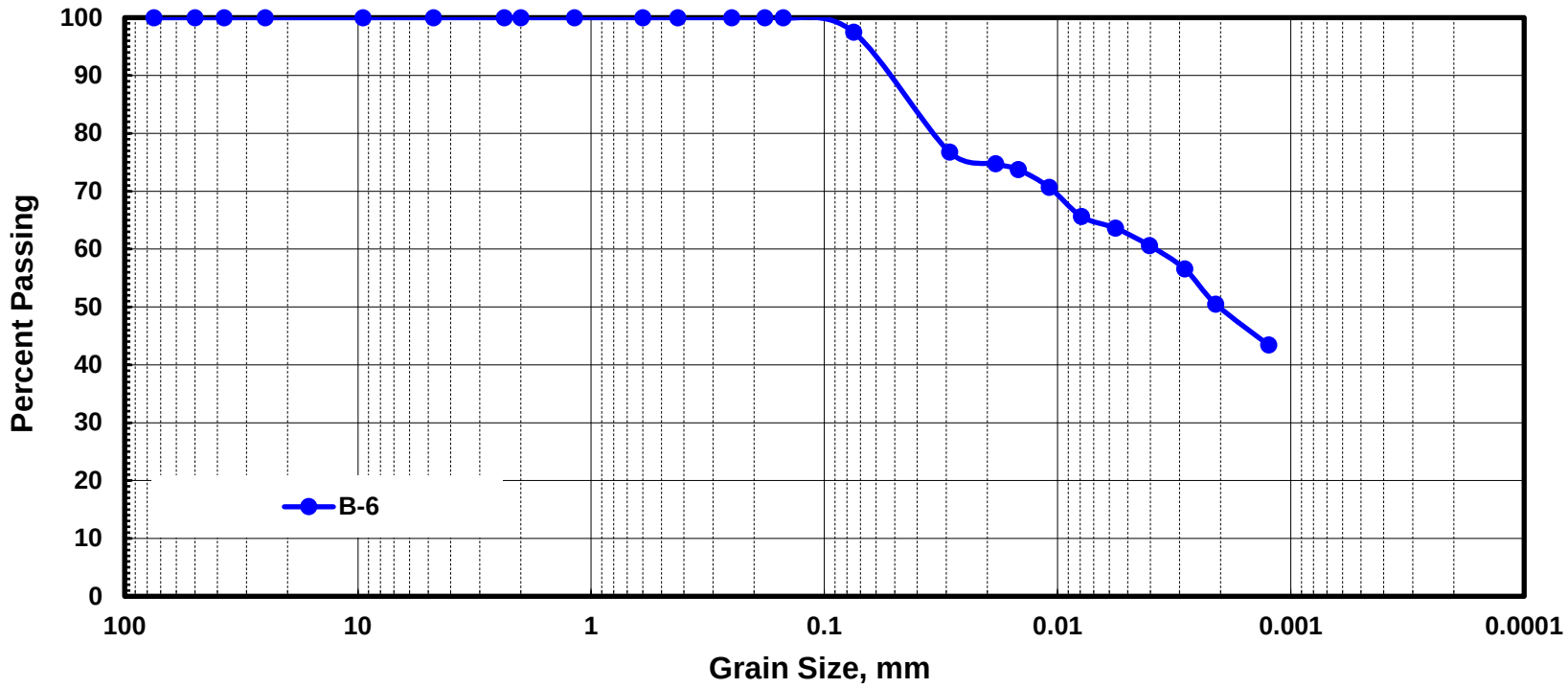
6"	3"	3/4"	#4	#10	#40	#200

BOULDERS	COBBLES	GRAVEL		SAND			SILT OR CLAY	CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE		

152	75	19	4.75	2.0	0.425	0.075	0.002

PARTICLE SIZE IN MM

GRADATION INFORMATION	D_{10} mm	D_{30} mm	D_{50} mm	D_{60} mm	C_u (D_{60}/D_{10})	C_c $D_{30}^2/(D_{60}*D_{10})$	%Gravel Ret. #4	%Sand <#4 & >#200	%Fines Pass #200	%Clay < 0.002 mm
B-5, 10-12 FT	NA	NA	0.0061	0.0124	NA	NA	0.0%	9.96	90.04	41.71
Lean Clay (CL), Gray										

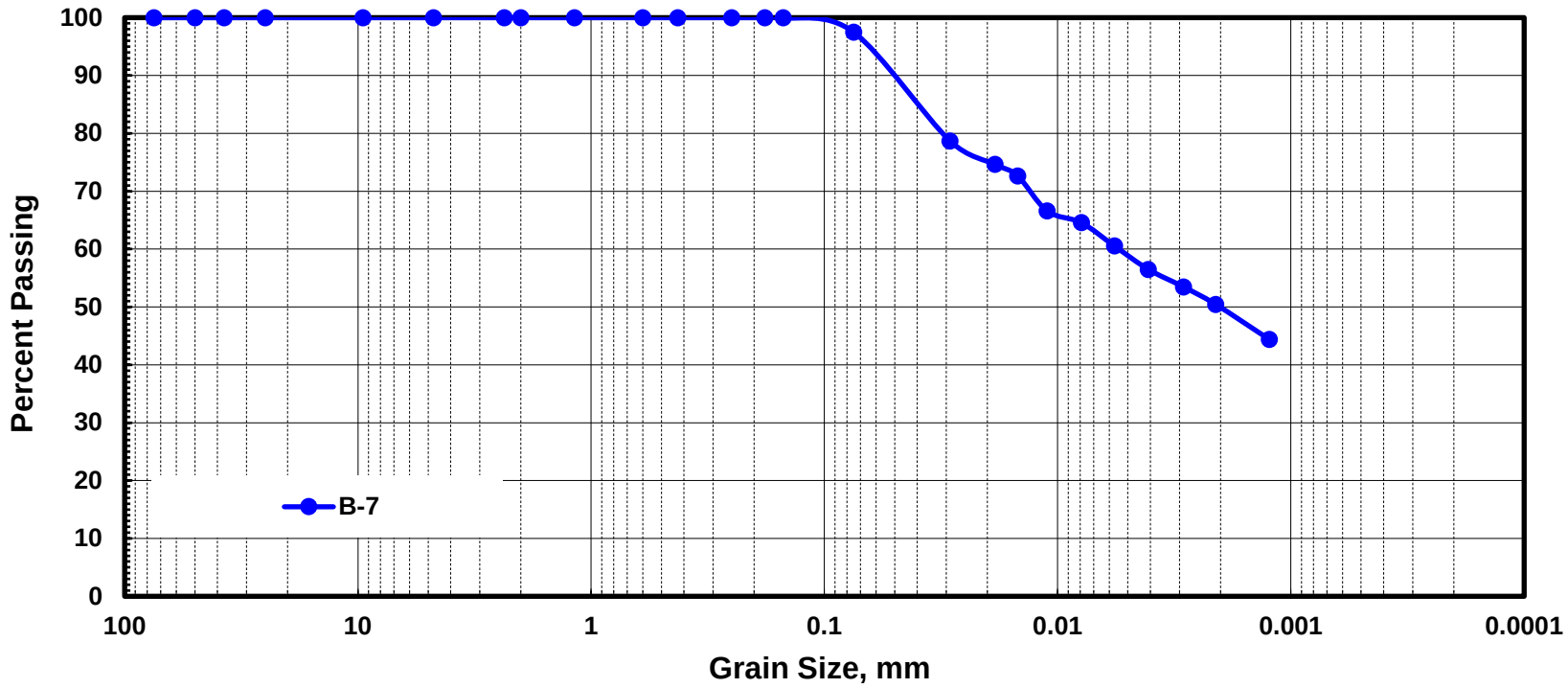


US STANDARD SIEVE SIZE

	6"	3"	3/4"	#4	#10	#40	#200		
BOULDERS	COBBLES	GRAVEL		SAND			SILT OR CLAY	CLAY	
		COARSE	FINE	COARSE	MEDIUM	FINE			
	152	75	19	4.75	2.0	0.425	0.075	0.002	

PARTICLE SIZE IN MM

GRADATION INFORMATION	D_{10} mm	D_{30} mm	D_{50} mm	D_{60} mm	C_u (D_{60}/D_{10})	C_c $D_{30}^2/(D_{60}*D_{10})$	%Gravel Ret. #4	%Sand <#4 & >#200	%Fines Pass #200	%Clay < 0.002 mm
B-6	NA	NA	0.0020	0.0038	NA	NA	0.0%	2.5	97.5	49.67

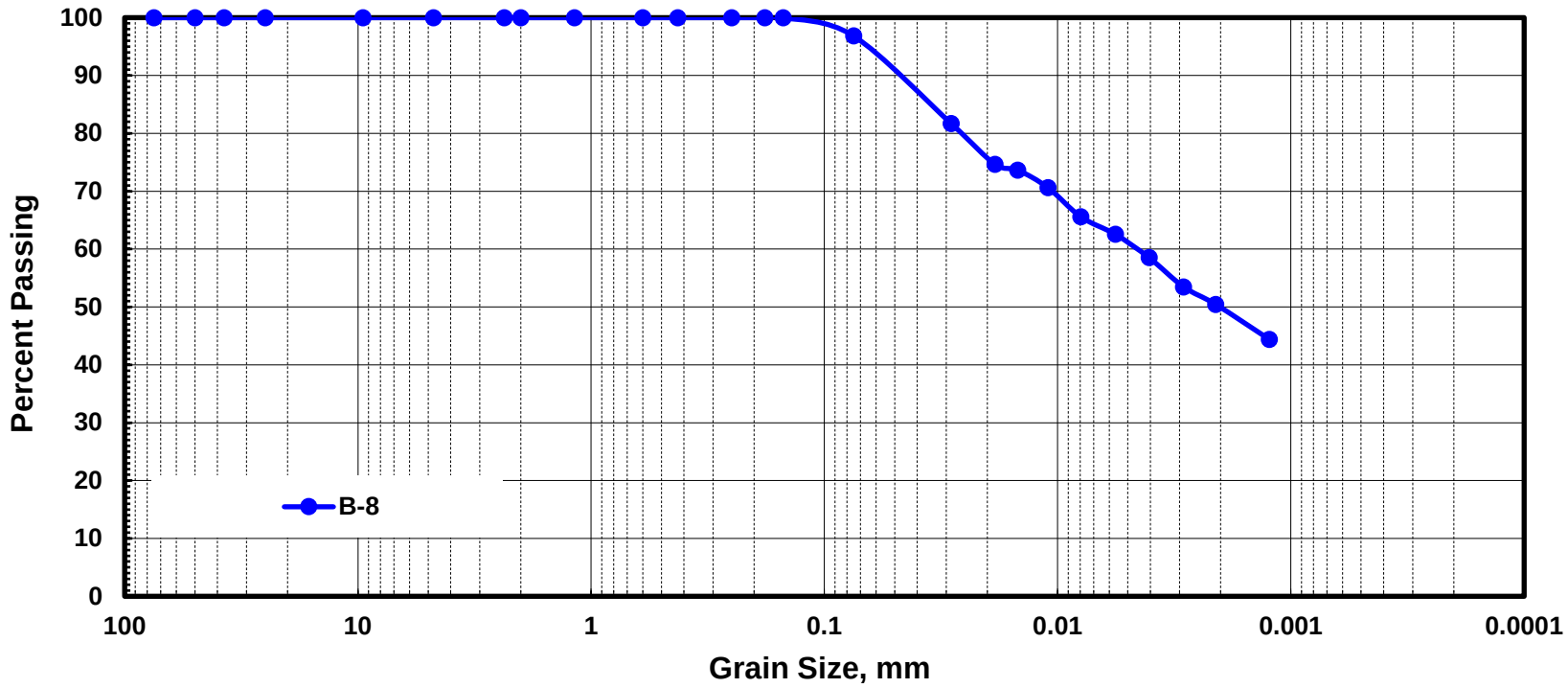


US STANDARD SIEVE SIZE

6"	3"	3/4"	#4	#10	#40	#200	
BOULDERS	COBBLES	GRAVEL		SAND			SILT OR CLAY / CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	
152	75	19		4.75	2.0	0.425	0.075 / 0.002

PARTICLE SIZE IN MM

GRADATION INFORMATION	D_{10} mm	D_{30} mm	D_{50} mm	D_{60} mm	C_u (D_{60}/D_{10})	C_c $D_{30}^2/(D_{60}*D_{10})$	%Gravel Ret. #4	%Sand <#4 & >#200	%Fines Pass #200	%Clay < 0.002 mm
B-7	NA	NA	0.0020	0.0055	NA	NA	0.0%	2.5	97.5	49.74

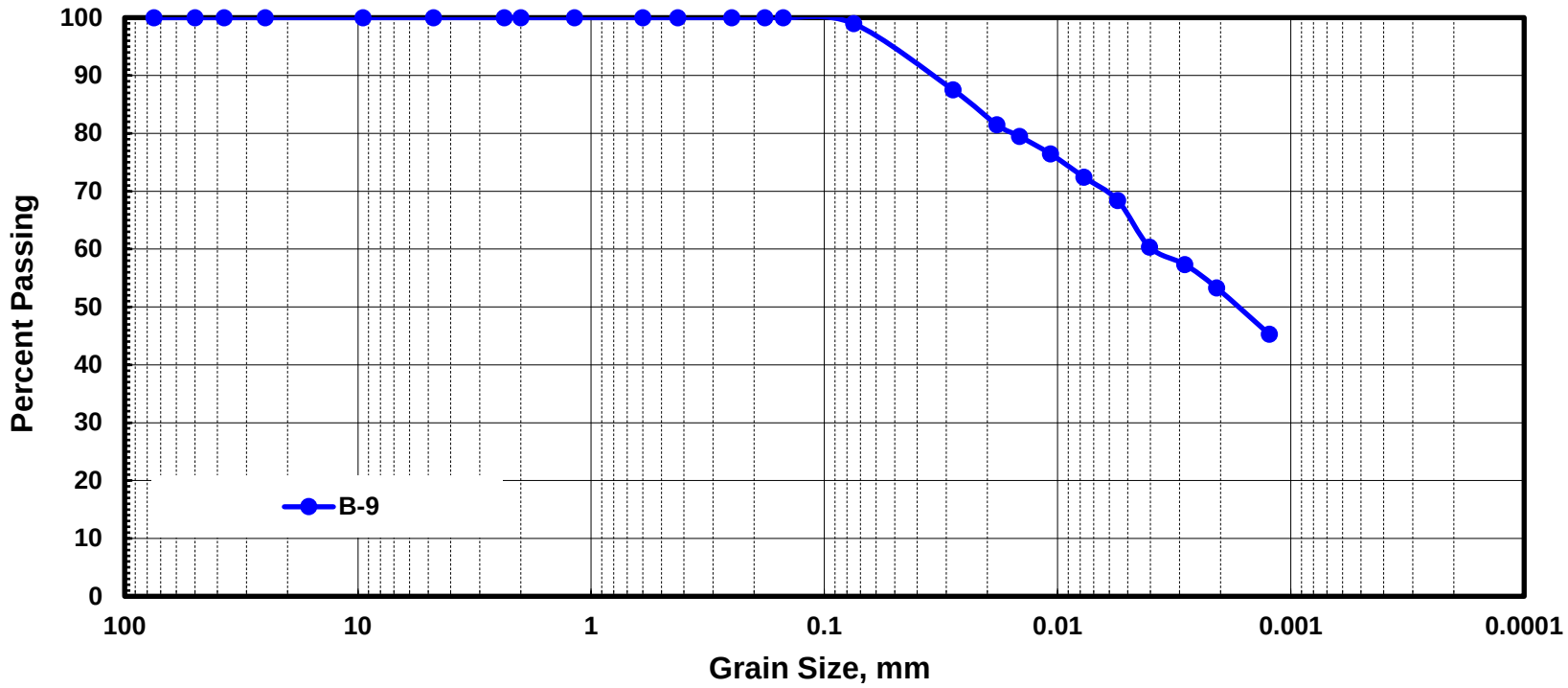


US STANDARD SIEVE SIZE

	6"	3"	3/4"	#4	#10	#40	#200		
BOULDERS	COBBLES	GRAVEL		SAND			SILT OR CLAY	CLAY	
		COARSE	FINE	COARSE	MEDIUM	FINE			
	152	75	19	4.75	2.0	0.425	0.075	0.002	

PARTICLE SIZE IN MM

GRADATION INFORMATION	D_{10} mm	D_{30} mm	D_{50} mm	D_{60} mm	C_u (D_{60}/D_{10})	C_c $D_{30}^2/(D_{60}*D_{10})$	%Gravel Ret. #4	%Sand <#4 & >#200	%Fines Pass #200	%Clay < 0.002 mm
B-8	NA	NA	0.0020	0.0046	NA	NA	0.0%	3.16	96.84	49.75



US STANDARD SIEVE SIZE

	6"	3"	3/4"	#4	#10	#40	#200		
BOULDERS	COBBLES	GRAVEL		SAND			SILT OR CLAY	CLAY	
		COARSE	FINE	COARSE	MEDIUM	FINE			
	152	75	19	4.75	2.0	0.425	0.075	0.002	

PARTICLE SIZE IN MM

GRADATION INFORMATION	D_{10} mm	D_{30} mm	D_{50} mm	D_{60} mm	C_u (D_{60}/D_{10})	C_c $D_{30}^2/(D_{60}*D_{10})$	%Gravel Ret. #4	%Sand <#4 & >#200	%Fines Pass #200	%Clay < 0.002 mm
B-9	NA	NA	0.0017	0.0039	NA	NA	0.0%	1.02	98.98	52.53

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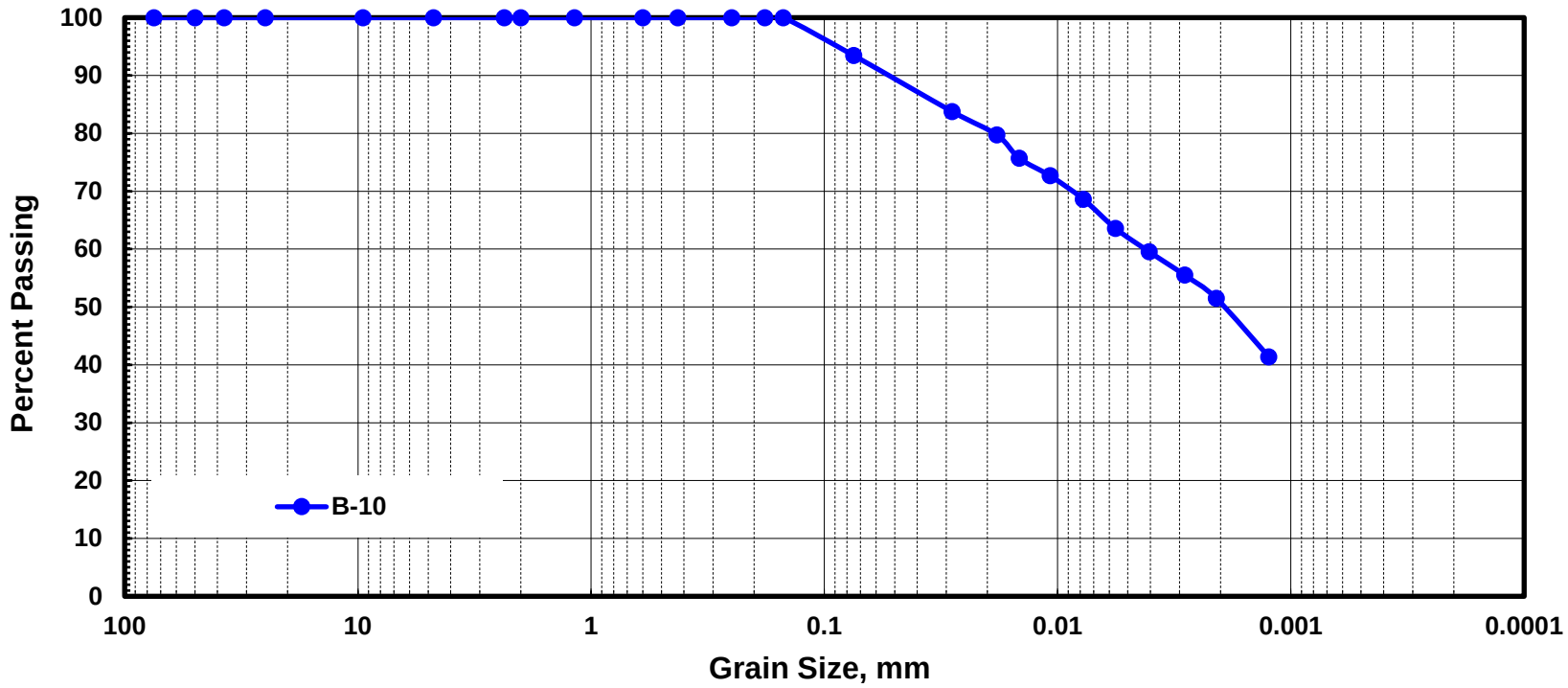
Houston, Texas

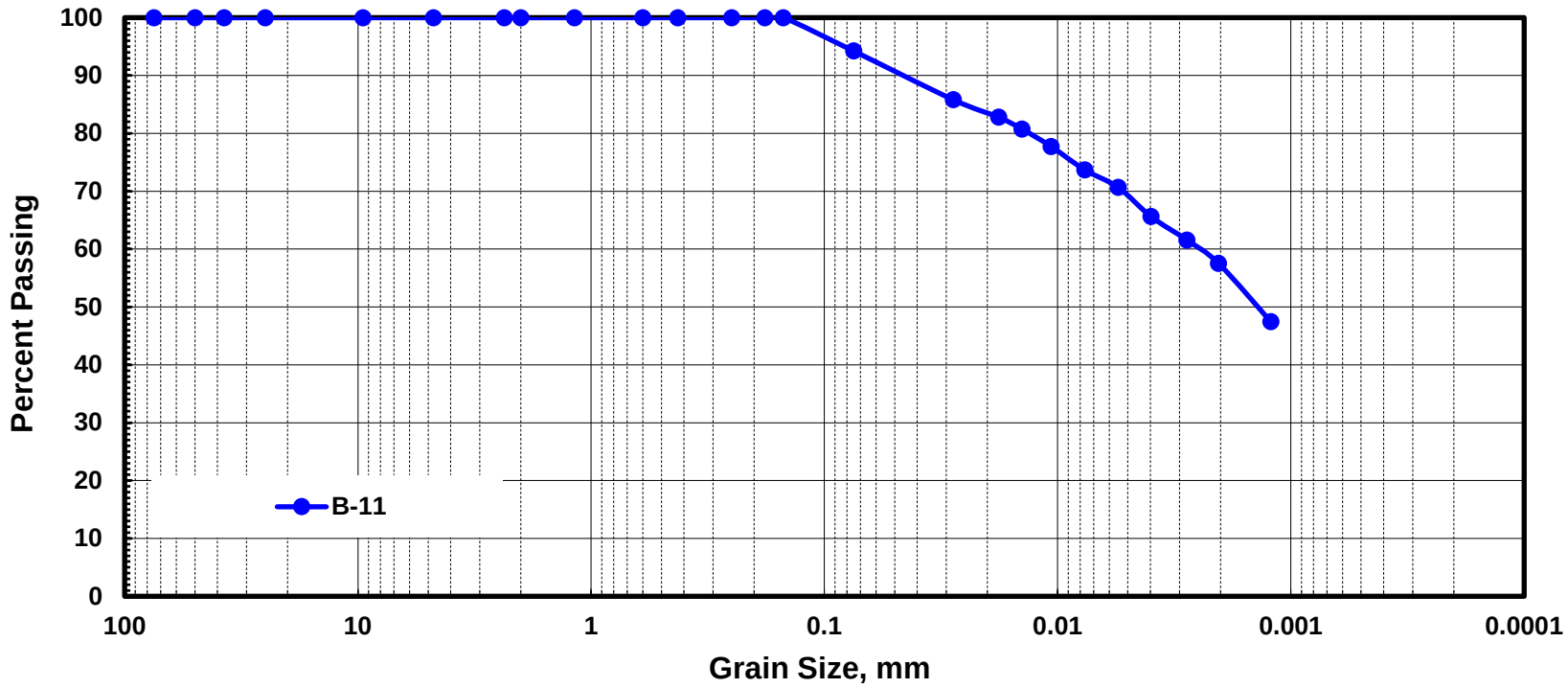


US STANDARD SIEVE SIZE

6"	3"	3/4"	#4	#10	#40	#200	
BOULDERS	COBBLES	GRAVEL		SAND			SILT OR CLAY / CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	
152	75	19	4.75	2.0	0.425	0.075	0.002

PARTICLE SIZE IN MM

GRADATION INFORMATION	D_{10} mm	D_{30} mm	D_{50} mm	D_{60} mm	C_u (D_{60}/D_{10})	C_c $D_{30}^2/(D_{60}*D_{10})$	%Gravel Ret. #4	%Sand <#4 & >#200	%Fines Pass #200	%Clay < 0.002 mm
B-10	NA	NA	0.0019	0.0042	NA	NA	0.0%	6.53	93.47	50.43



US STANDARD SIEVE SIZE

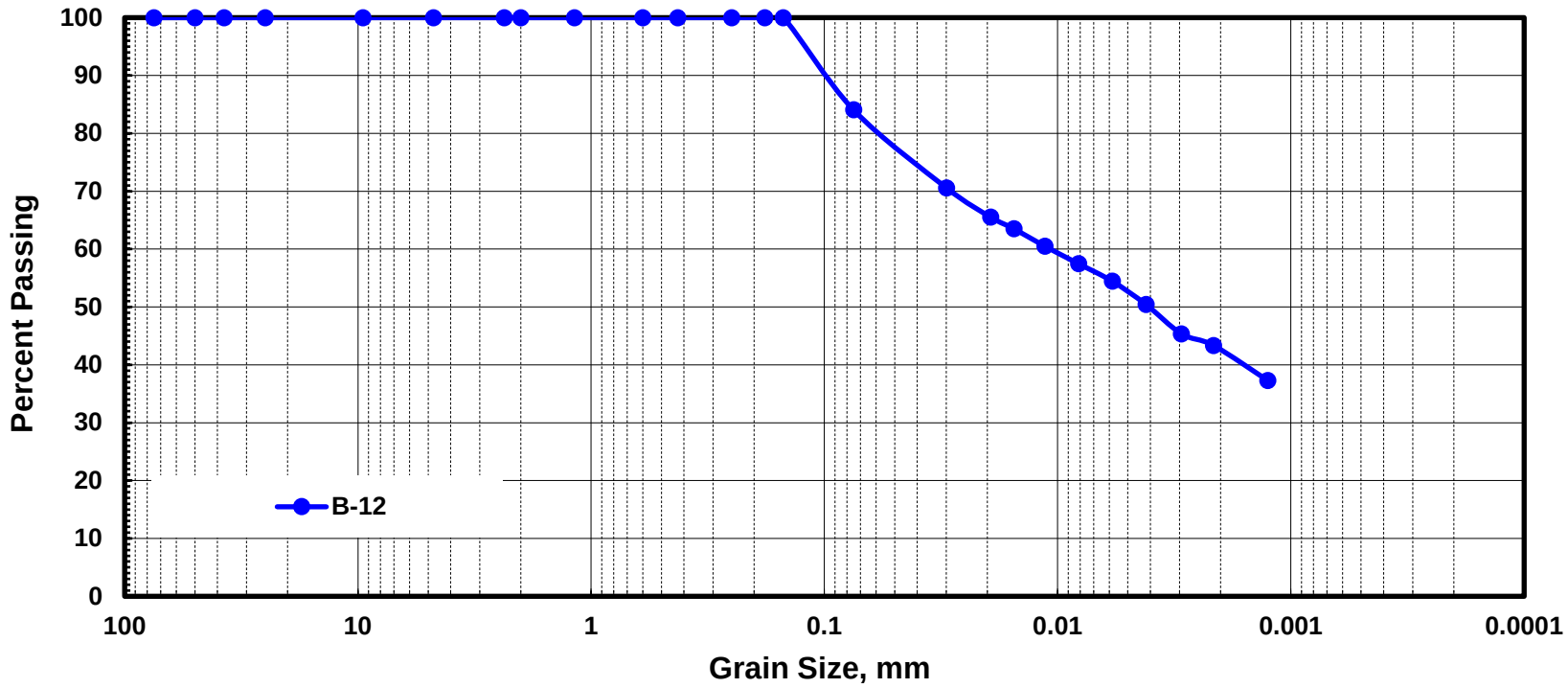
6"	3"	3/4"	#4	#10	#40	#200

BOULDERS	COBBLES	GRAVEL		SAND			SILT OR CLAY	CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE		

152	75	19	4.75	2.0	0.425	0.075	0.002

PARTICLE SIZE IN MM

GRADATION INFORMATION	D_{10} mm	D_{30} mm	D_{50} mm	D_{60} mm	C_u (D_{60}/D_{10})	C_c $D_{30}^2/(D_{60}*D_{10})$	%Gravel Ret. #4	%Sand <#4 & >#200	%Fines Pass #200	%Clay < 0.002 mm
B-11	NA	NA	0.0014	0.0025	NA	NA	0.0%	5.77	94.23	57.01



US STANDARD SIEVE SIZE

6"	3"	3/4"	#4	#10	#40	#200	
BOULDERS	COBBLES	GRAVEL		SAND			SILT OR CLAY / CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	
152	75	19	4.75	2.0	0.425	0.075	0.002

PARTICLE SIZE IN MM

GRADATION INFORMATION	D_{10} mm	D_{30} mm	D_{50} mm	D_{60} mm	C_u (D_{60}/D_{10})	C_c $D_{30}^2/(D_{60}*D_{10})$	%Gravel Ret. #4	%Sand <#4 & >#200	%Fines Pass #200	%Clay < 0.002 mm
B-12	NA	NA	0.0041	0.0107	NA	NA	0.0%	15.95	84.05	42.35

intertek psi	Specific Gravity ASTM (D 854)			
Project Name: Long Point Bayou Marsh Creation	Checked By:		Computed By: RR	
Project No: 254-1211	Date tested:	7/29/2020		
Prepared: AC Date: 7/20/20	Scales Control Number:		AE444189, AE44431, AE9V2283	
Tested by: EG Date: 7/28/20	Oven Control Number:		286-9908419, B33ER01048	
Boring Number :	B-1			
Sample Number:	5			
Depth, feet:	8-10			
Description of Material:	Lean Clay (CL), Gray			
Pyconmeter Calibration Information				
Flask ID.	5E			
Calibrated Mass of Flask (Mpc), gms:	218.110			
Calibrated Volume of the Flask (Vpc), mL:	500.000			
Check for Pyconmeter Calibration				
Mass of Flask, gms(Mp):	218.11	Is Mp within 0.06g of Mpc (Y/N):		N
Mass of Flask + Water, (Mpw,t), gms:	716.74			
Temperature of Water (Ct), deg. C:	23.5	(Temprature of Water After Cooling)		
Density of Water at Tt, (pw,ct), g/mL:	0.99742	(From Table 1 of ASTM D 854)		
Volume of the Flask (Vp), mL:	499.918	Vp = (Mpwct - Mp)/pw,ct		
Test Data				
Mass of Flask + Water at Test (Mpw, t), gms:	716.835	(Mpw = Mp + (Vp * pw,t)		
Mass of Dry Soil (Ms), gms:	52.52			
Mass of Flask + Water + Soil, (Mpws, t), gms:	749.19			
Temperature of Water (Tt), deg. C:	22.7	(Temprature of Water+Soil After Cooling)		
Density of Water at Tt, (pw,t), g/mL:	0.99761	(From Table 1 of ASTM D 854)		
Specific gravity of Water at T, (Gt):	2.605	Gt = Ms /{Mpw,t - (Mpwst - Ms)}		
Temperature Coefficient, K:	0.99941	(From Table 1 of ASTM D 854)		
Specific gravity of soil, Gs (20 deg. C):	*2.603*	Gs (20C) = Gt * K		
Remarks:				

intertek psi	Specific Gravity ASTM (D 854)			
Project Name: Long Point Bayou Marsh Creation	Checked By:		Computed By: RR	
Project No: 254-1211	Date tested: 7/29/2020			
Prepared: AC Date: 7/20/20	Scales Control Number:		AE444189, AE44431, AE9V2283	
Tested by: EG Date: 7/28/20	Oven Control Number:		286-9908419, B33ER01048	
Boring Number :	B-2			
Sample Number:	4			
Depth, feet:	6-8			
Description of Material:	Lean Clay (CL), Gray			
Pyconmeter Calibration Information				
Flask ID.	2A			
Calibrated Mass of Flask (Mpc), gms:	94.840			
Calibrated Volume of the Flask (Vpc), mL:	250.000			
Check for Pyconmeter Calibration				
Mass of Flask, gms(Mp):	94.85	Is Mp within 0.06g of Mpc (Y/N):		N
Mass of Flask + Water, (Mpw,t), gms:	343.96			
Temperature of Water (Ct), deg. C:	23.7	(Temprature of Water After Cooling)		
Density of Water at Tt, (pw,ct), g/mL:	0.99738	(From Table 1 of ASTM D 854)		
Volume of the Flask (Vp), mL:	249.765	Vp = (Mpwct - Mp)/pw,ct		
Test Data				
Mass of Flask + Water at Test (Mpw, t), gms:	343.984	(Mpw = Mp + (Vp * pw,t)		
Mass of Dry Soil (Ms), gms:	38.75			
Mass of Flask + Water + Soil, (Mpws, t), gms:	368.07			
Temperature of Water (Tt), deg. C:	23.3	(Temprature of Water+Soil After Cooling)		
Density of Water at Tt, (pw,t), g/mL:	0.99747	(From Table 1 of ASTM D 854)		
Specific gravity of Water at T, (Gt):	2.643	Gt = Ms /{Mpw,t - (Mpwst - Ms)}		
Temperature Coefficient, K:	0.99926	(From Table 1 of ASTM D 854)		
Specific gravity of soil, Gs (20 deg. C):	*2.641*	Gs (20C) = Gt * K		
Remarks:				

intertek psi	Specific Gravity ASTM (D 854)			
Project Name: Long Point Bayou Marsh Creation	Checked By:		Computed By: RR	
Project No: 254-1211	Date tested: 7/29/2020			
Prepared: AC Date: 7/20/20	Scales Control Number:		AE444189, AE44431, AE9V2283	
Tested by: EG Date: 7/28/20	Oven Control Number:		286-9908419, B33ER01048	
Boring Number :	B-3			
Sample Number:	2			
Depth, feet:	2-4			
Description of Material:	Fat Clay (CH), Gray			
Pyconmeter Calibration Information				
Flask ID.	4D			
Calibrated Mass of Flask (Mpc), gms:	165.800			
Calibrated Volume of the Flask (Vpc), mL:	500.000			
Check for Pyconmeter Calibration				
Mass of Flask, gms(Mp):	165.80	Is Mp within 0.06g of Mpc (Y/N):		N
Mass of Flask + Water, (Mpw,t), gms:	664.33			
Temperature of Water (Ct), deg. C:	23.5	(Temprature of Water After Cooling)		
Density of Water at Tt, (pw,ct), g/mL:	0.99742	(From Table 1 of ASTM D 854)		
Volume of the Flask (Vp), mL:	499.817	Vp = (Mpwct - Mp)/pw,ct		
Test Data				
Mass of Flask + Water at Test (Mpw, t), gms:	664.425	(Mpw = Mp + (Vp * pw,t)		
Mass of Dry Soil (Ms), gms:	51.32			
Mass of Flask + Water + Soil, (Mpws, t), gms:	696.22			
Temperature of Water (Tt), deg. C:	22.7	(Temprature of Water+Soil After Cooling)		
Density of Water at Tt, (pw,t), g/mL:	0.99761	(From Table 1 of ASTM D 854)		
Specific gravity of Water at T, (Gt):	2.628	Gt = Ms /{Mpw,t - (Mpwst - Ms)}		
Temperature Coefficient, K:	0.99941	(From Table 1 of ASTM D 854)		
Specific gravity of soil, Gs (20 deg. C):	*2.627*	Gs (20C) = Gt * K		
Remarks:				

intertek psi	Specific Gravity ASTM (D 854)			
Project Name: Long Point Bayou Marsh Creation	Checked By:		Computed By: RR	
Project No: 254-1211	Date tested: 7/29/2020			
Prepared: AC Date: 7/20/20	Scales Control Number:		AE444189, AE44431, AE9V2283	
Tested by: EG Date: 7/28/20	Oven Control Number:		286-9908419, B33ER01048	
Boring Number :	B-4			
Sample Number:	5			
Depth, feet:	8-10			
Description of Material:	Fat Clay with Sand (CH), Gray			
Pyconmeter Calibration Information				
Flask ID.	3C			
Calibrated Mass of Flask (Mpc), gms:	156.000			
Calibrated Volume of the Flask (Vpc), mL:	500.000			
Check for Pyconmeter Calibration				
Mass of Flask, gms(Mp):	156.00	Is Mp within 0.06g of Mpc (Y/N):		N
Mass of Flask + Water, (Mpw,t), gms:	654.41			
Temperature of Water (Ct), deg. C:	22.8	(Temprature of Water After Cooling)		
Density of Water at Tt, (pw,ct), g/mL:	0.99759	(From Table 1 of ASTM D 854)		
Volume of the Flask (Vp), mL:	499.614	Vp = (Mpwct - Mp)/pw,ct		
Test Data				
Mass of Flask + Water at Test (Mpw, t), gms:	654.279	(Mpw = Mp + (Vp * pw,t)		
Mass of Dry Soil (Ms), gms:	52.68			
Mass of Flask + Water + Soil, (Mpws, t), gms:	687.76			
Temperature of Water (Tt), deg. C:	23.9	(Temprature of Water+Soil After Cooling)		
Density of Water at Tt, (pw,t), g/mL:	0.99733	(From Table 1 of ASTM D 854)		
Specific gravity of Water at T, (Gt):	2.744	Gt = Ms /{Mpw,t - (Mpwst - Ms)}		
Temperature Coefficient, K:	0.99912	(From Table 1 of ASTM D 854)		
Specific gravity of soil, Gs (20 deg. C):	*2.742*	Gs (20C) = Gt * K		
Remarks:				

intertek psi	Specific Gravity ASTM (D 854)				
Project Name: Long Point Bayou Marsh Creation	Checked By:		Computed By: RR		
Project No: 254-1211	Date tested: 7/29/2020				
Prepared: AC Date: 7/20/20	Scales Control Number:		AE444189, AE44431, AE9V2283		
Tested by: EG Date: 7/28/20	Oven Control Number:		286-9908419, B33ER01048		
Boring Number :	B-5				
Sample Number:	2				
Depth, feet:	2-4				
Description of Material:	Fat Clay (CH), Gray				
Pyconmeter Calibration Information					
Flask ID.	6F				
Calibrated Mass of Flask (Mpc), gms:	170.450				
Calibrated Volume of the Flask (Vpc), mL:	500.000				
Check for Pyconmeter Calibration					
Mass of Flask, gms(Mp):	170.45	Is Mp within 0.06g of Mpc (Y/N):		N	
Mass of Flask + Water, (Mpw,t), gms:	668.97				
Temperature of Water (Ct), deg. C:	22.3	(Temprature of Water After Cooling)			
Density of Water at Tt, (pw,ct), g/mL:	0.99771	(From Table 1 of ASTM D 854)			
Volume of the Flask (Vp), mL:	499.666	Vp = (Mpwct - Mp)/pw,ct			
Test Data					
Mass of Flask + Water at Test (Mpw, t), gms:	668.592	(Mpw = Mp + (Vp * pw,t)			
Mass of Dry Soil (Ms), gms:	50.66				
Mass of Flask + Water + Soil, (Mpws, t), gms:	700.46				
Temperature of Water (Tt), deg. C:	25.4	(Temprature of Water+Soil After Cooling)			
Density of Water at Tt, (pw,t), g/mL:	0.99695	(From Table 1 of ASTM D 854)			
Specific gravity of Water at T, (Gt):	2.696	Gt = Ms /{Mpw,t - (Mpwst - Ms)}			
Temperature Coefficient, K:	0.99874	(From Table 1 of ASTM D 854)			
Specific gravity of soil, Gs (20 deg. C):	*2.692*	Gs (20C) = Gt * K			
Remarks:					

ORGANIC CONTENT

Boring No.	Depth (feet)	Organic Content (%)
B-1	2-4	2.4
B-2	6-8	0.6
B-3	0-2	3.3
B-4	2-4	1.1
B-5	0-2	11.5
B-6	0-5	2.9
B-7	0-5	3.4
B-8	0-5	3.3
B-9	0-5	1.9
B-10	0-5	3.6
B-11	0-5	2.3
B-12	0-5	1.7

APPENDIX D

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST RESULTS

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST
ASTM D 2850

Project Name:	Long Point Bayou Marsh Creation Proj.	**Date Tested:**	7/14/2020
Project No.:	02541211	**Scale:**	03ES254
Boring No.:	B-1	**Calipers:**	01CAL254
Samp. and Spec. No.:	S-2	**Oven:**	10OV251
Sample Depth:	2-4'	**GeoJac Station No.:**	02GJ254
Qp / Torvane (tsf):	TV = 0.075	**Loadcell:**	16COM254
Sample Description:	DK GR CH W/ ORGANICS	**Air Pressure (psi):**	1.2

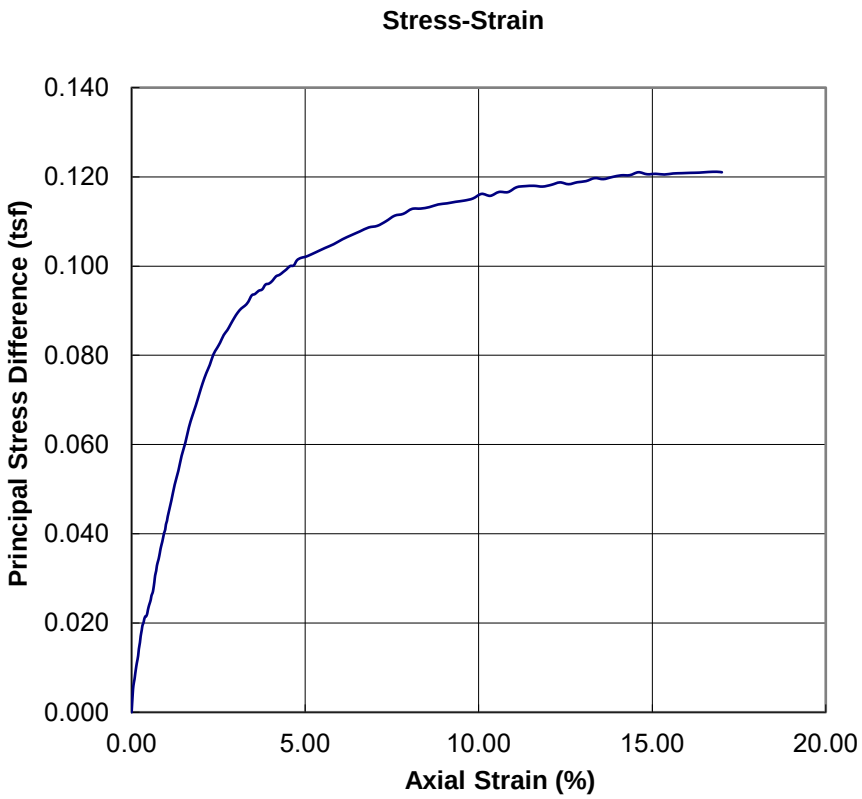
Sample Data:	1	2	3	Average	Height / Diameter Ratio (2 to 2.5)
Diameter (in)	2.757	2.626	2.696	2.693	2.15
Height (in)	5.778	5.782	5.771	5.777	
	Area, ft²:	0.040	Volume, ft³:	0.019	

	Moisture Content (%)		Unit Weight
Can Number:	246-16	Wet Weight of Sample (g):	785.01
Wt. of Can (g):	30.06	Dry Weight of Sample (g):	426.14
Wt. of Wet Soil + Can (g):	80.35	Wet Unit Weight (pcf):	**90.9**
Wt. of Dry Soil + Can (g):	57.36	Dry Unit Weight (pcf):	**49.3**
Wt. of Dry Soil (g):	27.30		
Wt. of Water (g):	22.99		
Moisture Content (%):	**84.2**		

	Max Strain (≤ 15%)	Compressive Strength, tsf	Shear Strength, tsf
RESULTS:	**14.851**	**0.12**	**0.06**

FAILURE TYPE:

NOTE: _____



Tested By: RB

Computed By: RB

Reviewed By: _____

intertek psi

Jefferson, Louisiana

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST
ASTM D 2850

Project Name:	Long Point Bayou Marsh Creation Proj.	**Date Tested:**	7/14/2020
Project No.:	02541211	**Scale:**	03ES254
Boring No.:	B-1	**Calipers:**	01CAL254
Samp. and Spec. No.:	S-4	**Oven:**	10OV251
Sample Depth:	6-8'	**GeoJac Station No.:**	02GJ254
Qp / Torvane (tsf):	TV = 0.20	**Loadcell:**	17COM254
Sample Description:	GR CH W/ SI	**Air Pressure (psi):**	2.8

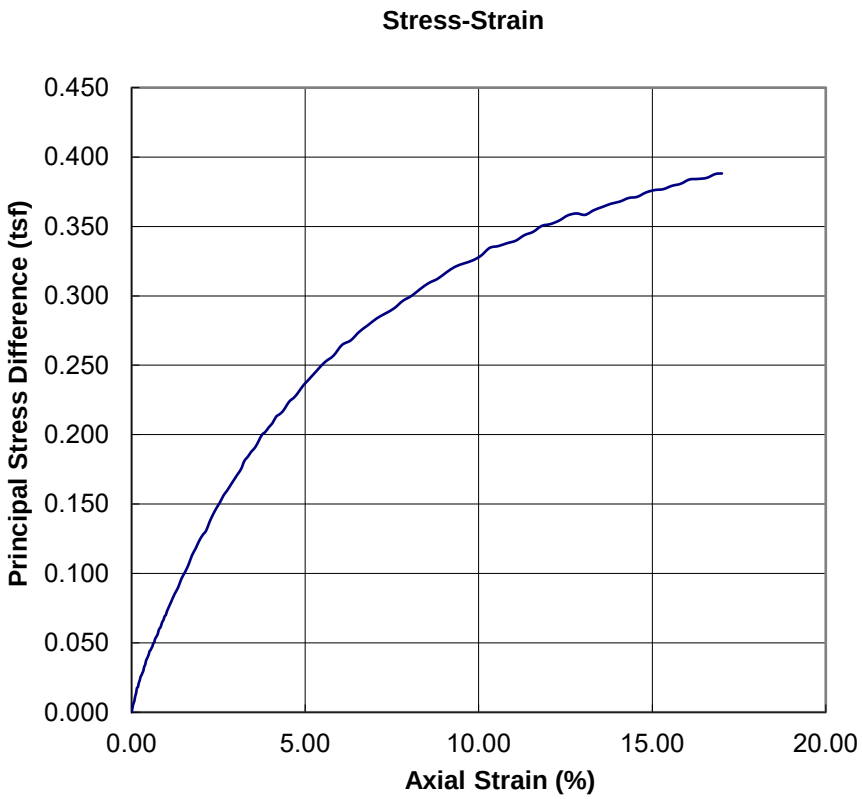
Sample Data:	1	2	3	Average	Height / Diameter Ratio (2 to 2.5)
Diameter (in)	2.881	2.820	2.823	2.841	1.99
Height (in)	5.667	5.659	5.663	5.663	
	Area, ft²:	0.044	Volume, ft³:	0.021	

Moisture Content (%)		**Unit Weight**	
Can Number:	L-33	Wet Weight of Sample (g):	1160.08
Wt. of Can (g):	31.33	Dry Weight of Sample (g):	919.31
Wt. of Wet Soil + Can (g):	83.80	Wet Unit Weight (pcf):	**123.1**
Wt. of Dry Soil + Can (g):	72.91	Dry Unit Weight (pcf):	**97.5**
Wt. of Dry Soil (g):	41.58		
Wt. of Water (g):	10.89		
Moisture Content (%):	**26.2**		

	Max Strain (≤ 15%)	Compressive Strength, tsf	Shear Strength, tsf
RESULTS:	**15.068**	**0.38**	**0.19**

FAILURE TYPE:

NOTE: _____



Tested By: RB
Computed By: RB
Reviewed By: _____

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Jefferson, Louisiana

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST
ASTM D 2850

Project Name:	Long Point Bayou Marsh Creation Proj.	**Date Tested:**	7/27/2020
Project No.:	02541211	**Scale:**	03ES254
Boring No.:	B-1	**Calipers:**	01CAL254
Samp. and Spec. No.:	S-7	**Oven:**	10OV251
Sample Depth:	12-14'	**GeoJac Station No.:**	02GJ254
Qp / Torvane (tsf):	TV = 0.375	**Loadcell:**	12COM254
Sample Description:	GR CH W/ SI	**Air Pressure (psi):**	5.2

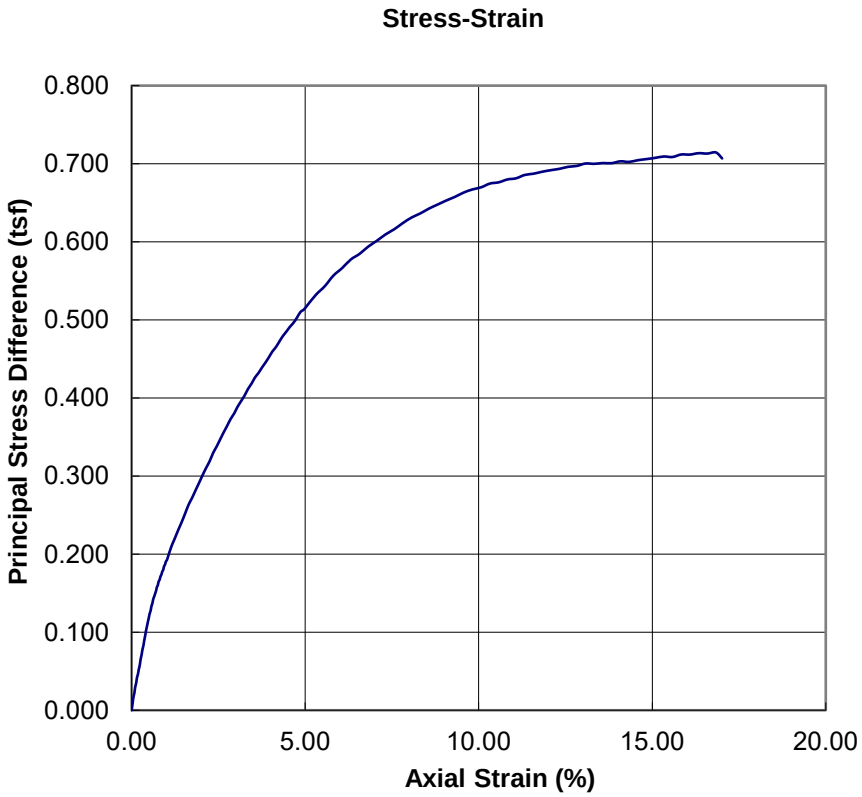
Sample Data:	1	2	3	Average	Height / Diameter Ratio (2 to 2.5)
Diameter (in)	2.795	2.806	2.836	2.812	2.05
Height (in)	5.757	5.765	5.766	5.763	
	Area, ft²:	0.043	Volume, ft³:	0.021	

	Moisture Content (%)		Unit Weight
Can Number:	DB-10	Wet Weight of Sample (g):	1169.76
Wt. of Can (g):	31.53	Dry Weight of Sample (g):	903.76
Wt. of Wet Soil + Can (g):	83.07	Wet Unit Weight (pcf):	**124.5**
Wt. of Dry Soil + Can (g):	71.35	Dry Unit Weight (pcf):	**96.2**
Wt. of Dry Soil (g):	39.82		
Wt. of Water (g):	11.72		
Moisture Content (%):	**29.4**		

	Max Strain (≤ 15%)	Compressive Strength, tsf	Shear Strength, tsf
RESULTS:	**15.082**	**0.71**	**0.35**

FAILURE TYPE:

NOTE: _____



Tested By: RB
Computed By: RB
Reviewed By: _____

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UNCONSOLIDATED UNDRAINED TRIAXIAL TEST
ASTM D 2850

Project Name:	Long Point Bayou Marsh Creation Proj.	**Date Tested:**	**7/14/2020**
Project No.:	02541211	**Scale:**	**03ES254**
Boring No.:	B-2	**Calipers:**	**01CAL254**
Samp. and Spec. No.:	S-1	**Oven:**	**10OV251**
Sample Depth:	0-2'	**GeoJac Station No.:**	**02GJ254**
Qp / Torvane (tsf):	TV = 0.20	**Loadcell:**	**17COM254**
Sample Description:	GR CH W/ SI & ORGANICS	**Air Pressure (psi):**	**0.4**

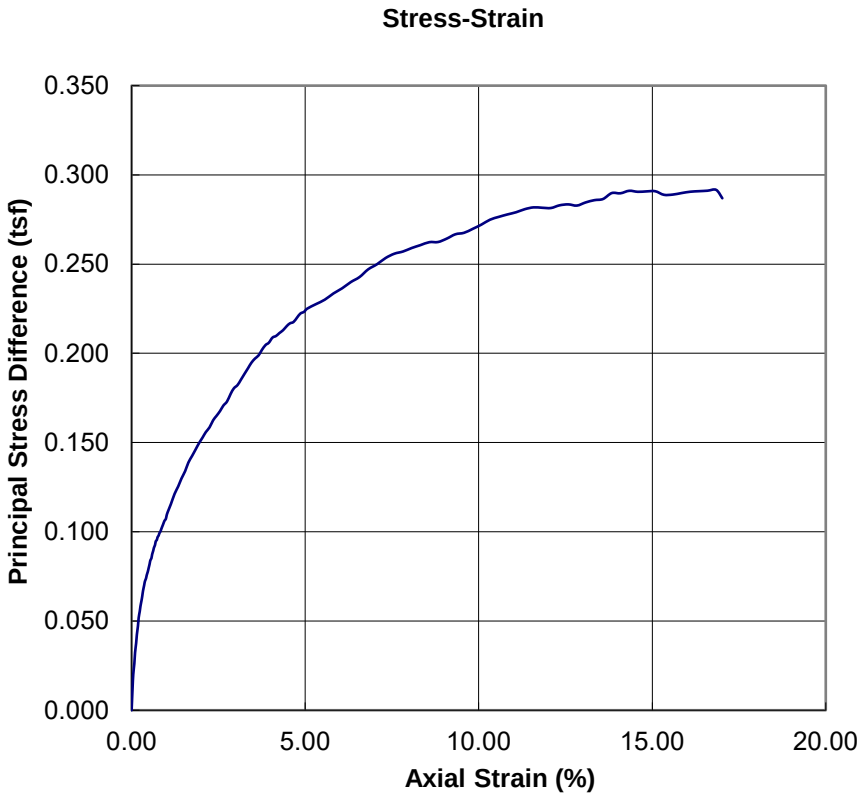
Sample Data:	1	2	3	Average	Height / Diameter Ratio (2 to 2.5)
Diameter (in)	2.829	2.824	2.750	2.801	2.04
Height (in)	5.720	5.720	5.724	5.721	
	Area, ft²:	0.043	Volume, ft³:	0.020	

Moisture Content (%)		**Unit Weight**	
Can Number:	53H	Wet Weight of Sample (g):	1031.51
Wt. of Can (g):	31.12	Dry Weight of Sample (g):	684.70
Wt. of Wet Soil + Can (g):	82.04	Wet Unit Weight (pcf):	**111.5**
Wt. of Dry Soil + Can (g):	64.92	Dry Unit Weight (pcf):	**74.0**
Wt. of Dry Soil (g):	33.80		
Wt. of Water (g):	17.12		
Moisture Content (%):	**50.7**		

	Max Strain (≤ 15%)	Compressive Strength, tsf	Shear Strength, tsf
RESULTS:	**15.085**	**0.29**	**0.15**

FAILURE TYPE:

NOTE: _____



Tested By: RB

Computed By: RB

Reviewed By: _____

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UNCONSOLIDATED UNDRAINED TRIAXIAL TEST
ASTM D 2850

Project Name:	Long Point Bayou Marsh Creation Proj.	**Date Tested:**	7/14/2020
Project No.:	02541211	**Scale:**	03ES254
Boring No.:	B-2	**Calipers:**	01CAL254
Samp. and Spec. No.:	S-4	**Oven:**	10OV251
Sample Depth:	6-8'	**GeoJac Station No.:**	02GJ254
Qp / Torvane (tsf):	TV = 0.55	**Loadcell:**	12COM254
Sample Description:	GR CH W/ SI & SA	**Air Pressure (psi):**	2.8

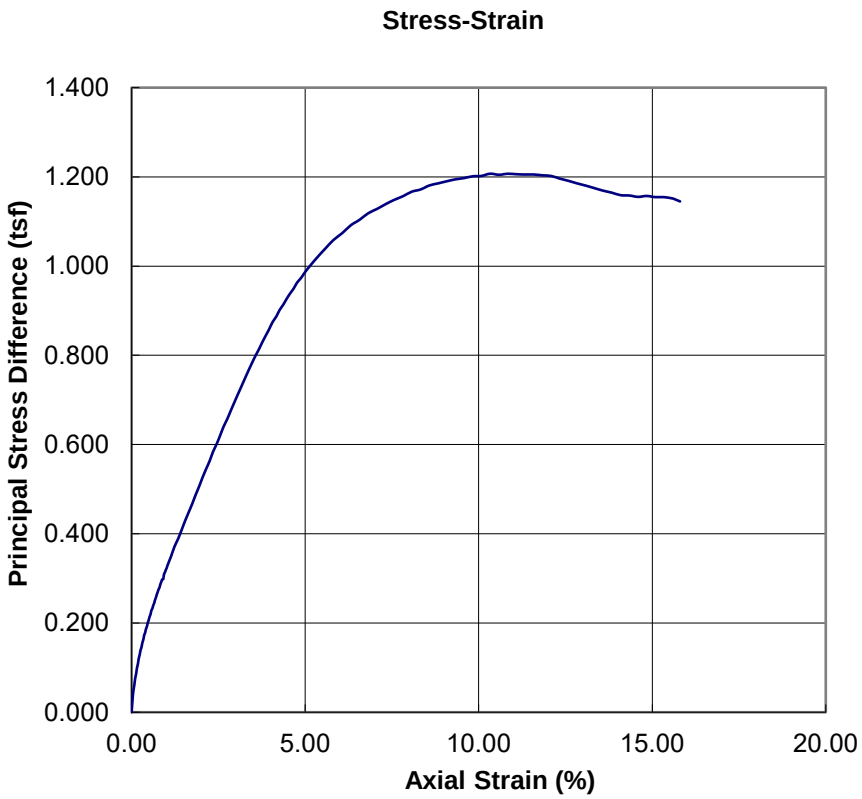
Sample Data:	1	2	3	Average	Height / Diameter Ratio (2 to 2.5)
Diameter (in)	2.836	2.854	2.847	2.846	2.01
Height (in)	5.708	5.719	5.712	5.713	
	Area, ft²:	0.044	Volume, ft³:	0.021	

Moisture Content (%)		**Unit Weight**	
Can Number:	DB-14	Wet Weight of Sample (g):	1196.56
Wt. of Can (g):	31.38	Dry Weight of Sample (g):	977.57
Wt. of Wet Soil + Can (g):	82.96	Wet Unit Weight (pcf):	**125.5**
Wt. of Dry Soil + Can (g):	73.52	Dry Unit Weight (pcf):	**102.5**
Wt. of Dry Soil (g):	42.14		
Wt. of Water (g):	9.44		
Moisture Content (%):	**22.4**		

	Max Strain (≤ 15%)	Compressive Strength, tsf	Shear Strength, tsf
RESULTS:	**10.326**	**1.21**	**0.60**

FAILURE TYPE:

NOTE: _____



Tested By: RB

Computed By: RB

Reviewed By: _____

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UNCONSOLIDATED UNDRAINED TRIAXIAL TEST
ASTM D 2850

Project Name:	Long Point Bayou Marsh Creation Proj.	**Date Tested:**	7/14/2020
Project No.:	02541211	**Scale:**	03ES254
Boring No.:	B-2	**Calipers:**	01CAL254
Samp. and Spec. No.:	S-6	**Oven:**	10OV251
Sample Depth:	10-12'	**GeoJac Station No.:**	02GJ254
Qp / Torvane (tsf):	TV = 0.15	**Loadcell:**	16COM254
Sample Description:	GR CH W/ SI & SA	**Air Pressure (psi):**	4.4

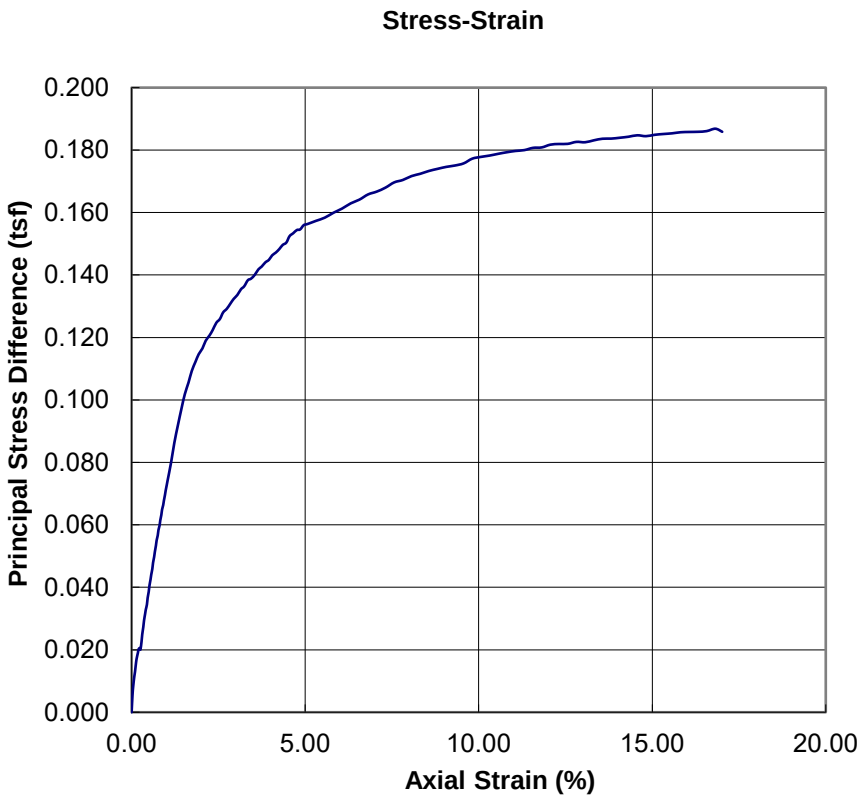
Sample Data:	1	2	3	Average	Height / Diameter Ratio (2 to 2.5)
Diameter (in)	2.853	2.799	2.864	2.839	2.01
Height (in)	5.695	5.701	5.687	5.694	
	Area, ft²:	0.044	Volume, ft³:	0.021	

Moisture Content (%)		**Unit Weight**	
Can Number:	DB-19	Wet Weight of Sample (g):	1090.79
Wt. of Can (g):	31.50	Dry Weight of Sample (g):	790.80
Wt. of Wet Soil + Can (g):	84.95	Wet Unit Weight (pcf):	**115.3**
Wt. of Dry Soil + Can (g):	70.25	Dry Unit Weight (pcf):	**83.6**
Wt. of Dry Soil (g):	38.75		
Wt. of Water (g):	14.70		
Moisture Content (%):	**37.9**		

	Max Strain (≤ 15%)	Compressive Strength, tsf	Shear Strength, tsf
RESULTS:	**15.068**	**0.18**	**0.09**

FAILURE TYPE:

NOTE: _____



Tested By: RB

Computed By: RB

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UNCONSOLIDATED UNDRAINED TRIAXIAL TEST
ASTM D 2850

Project Name:	Long Point Bayou Marsh Creation Proj.	**Date Tested:**	7/14/2020
Project No.:	02541211	**Scale:**	03ES254
Boring No.:	B-3	**Calipers:**	01CAL254
Samp. and Spec. No.:	S-2	**Oven:**	10OV251
Sample Depth:	2-4'	**GeoJac Station No.:**	02GJ254
Qp / Torvane (tsf):	0.5 / 3 TV = 0.40	**Loadcell:**	17COM254
Sample Description:	GR/OR CH W/ SA & SI	**Air Pressure (psi):**	1.2

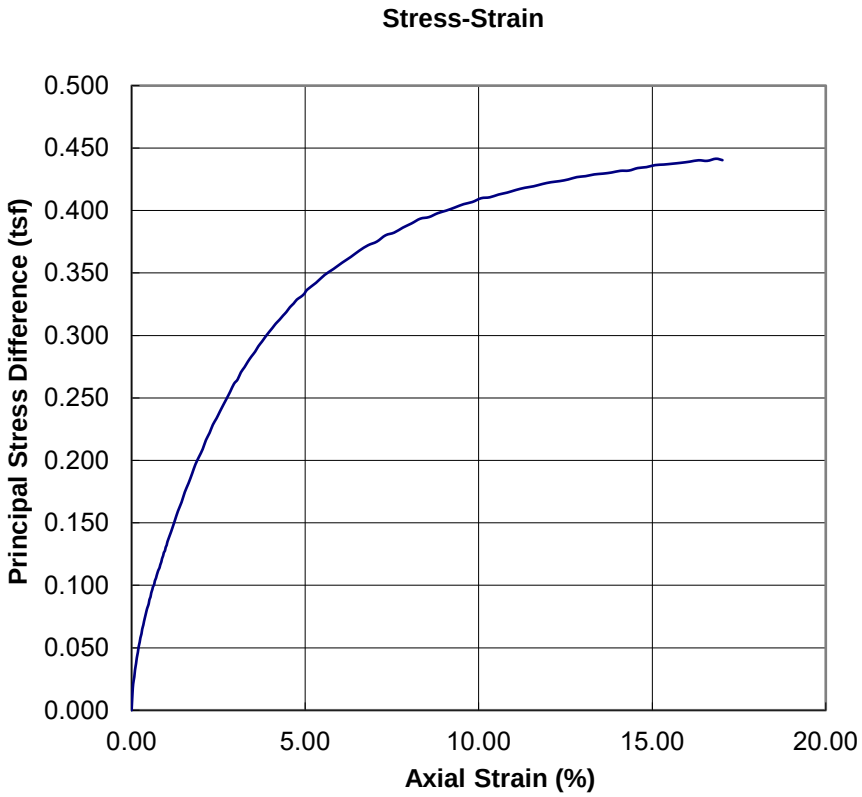
Sample Data:	1	2	3	Average	Height / Diameter Ratio (2 to 2.5)
Diameter (in)	2.813	2.835	2.844	2.831	2.04
Height (in)	5.760	5.762	5.760	5.761	
	Area, ft²:	0.044	Volume, ft³:	0.021	

	Moisture Content (%)		**Unit Weight**
Can Number:	5H	Wet Weight of Sample (g):	1162.65
Wt. of Can (g):	30.40	Dry Weight of Sample (g):	894.23
Wt. of Wet Soil + Can (g):	83.72	Wet Unit Weight (pcf):	**122.2**
Wt. of Dry Soil + Can (g):	71.41	Dry Unit Weight (pcf):	**94.0**
Wt. of Dry Soil (g):	41.01		
Wt. of Water (g):	12.31		
Moisture Content (%):	**30.0**		

	Max Strain (≤ 15%)	Compressive Strength, tsf	Shear Strength, tsf
RESULTS:	**15.081**	**0.44**	**0.22**

FAILURE TYPE:

NOTE: _____



Tested By: RB
Computed By: RB
Reviewed By: _____

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UNCONSOLIDATED UNDRAINED TRIAXIAL TEST
ASTM D 2850

Project Name:	Long Point Bayou Marsh Creation Proj.	**Date Tested:**	7/14/2020
Project No.:	02541211	**Scale:**	03ES254
Boring No.:	B-3	**Calipers:**	01CAL254
Samp. and Spec. No.:	S-5	**Oven:**	10OV251
Sample Depth:	8-10'	**GeoJac Station No.:**	02GJ254
Qp / Torvane (tsf):	3.5 / 3 TV = 1.0625	**Loadcell:**	12COM254
Sample Description:	GR CH W/ SA	**Air Pressure (psi):**	3.6

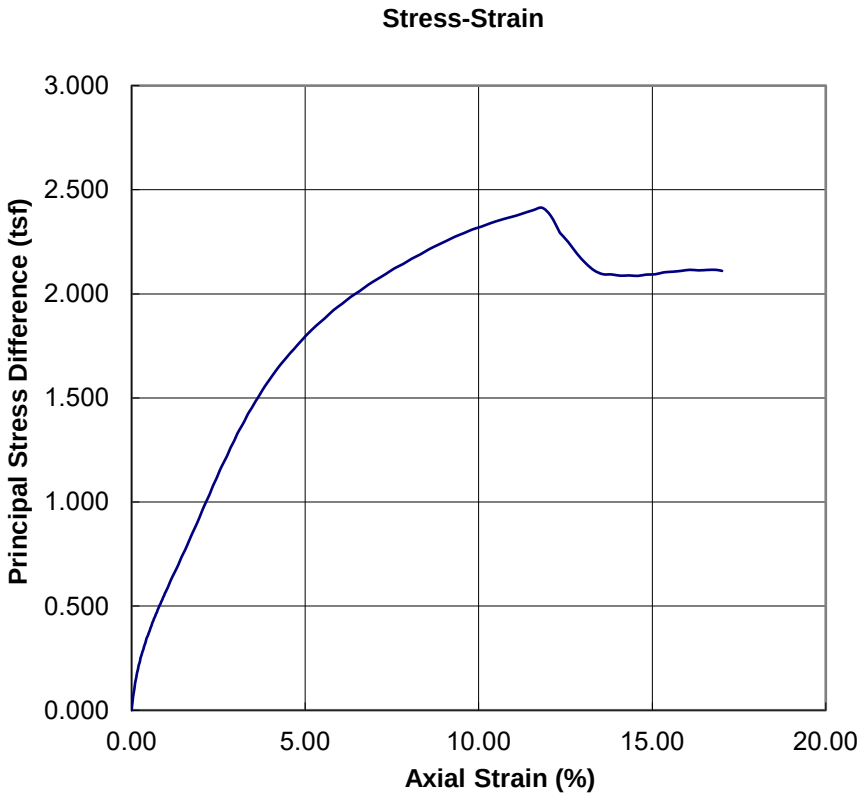
Sample Data:	1	2	3	Average	Height / Diameter Ratio (2 to 2.5)
Diameter (in)	2.862	2.845	2.827	2.845	2.02
Height (in)	5.740	5.735	5.733	5.736	
	Area, ft²:	0.044	Volume, ft³:	0.021	

	Moisture Content (%)		Unit Weight
Can Number:	DB-5	Wet Weight of Sample (g):	1248.07
Wt. of Can (g):	31.46	Dry Weight of Sample (g):	1053.10
Wt. of Wet Soil + Can (g):	84.08	Wet Unit Weight (pcf):	**130.4**
Wt. of Dry Soil + Can (g):	75.86	Dry Unit Weight (pcf):	**110.0**
Wt. of Dry Soil (g):	44.40		
Wt. of Water (g):	8.22		
Moisture Content (%):	**18.5**		

	Max Strain (≤ 15%)	Compressive Strength, tsf	Shear Strength, tsf
RESULTS:	**11.829**	**2.41**	**1.21**

FAILURE TYPE:

NOTE: _____



Tested By: RB
Computed By: RB
Reviewed By: _____

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UNCONSOLIDATED UNDRAINED TRIAXIAL TEST
ASTM D 2850

Project Name:	Long Point Bayou Marsh Creation Proj.	**Date Tested:**	7/14/2020
Project No.:	02541211	**Scale:**	03ES254
Boring No.:	B-4	**Calipers:**	01CAL254
Samp. and Spec. No.:	S-2	**Oven:**	10OV251
Sample Depth:	2-4'	**GeoJac Station No.:**	02GJ254
Qp / Torvane (tsf):	TV = 0.10	**Loadcell:**	16COM254
Sample Description:	GR CH W/ SI	**Air Pressure (psi):**	1.2

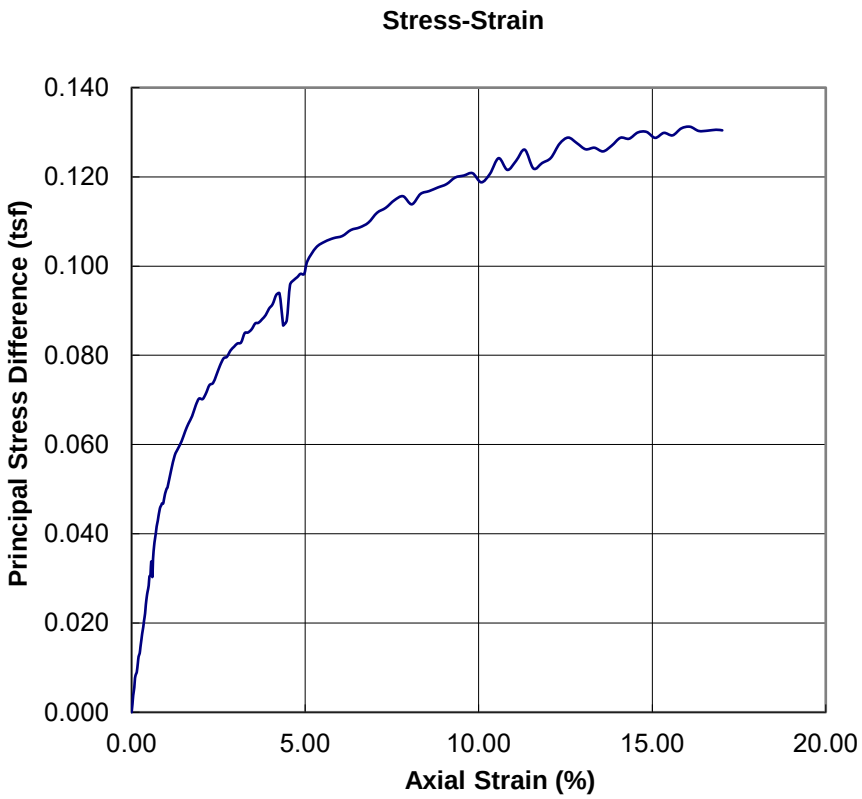
Sample Data:	1	2	3	Average	Height / Diameter Ratio (2 to 2.5)
Diameter (in)	2.822	2.837	2.739	2.799	1.93
Height (in)	5.402	5.379	5.389	5.390	
	Area, ft²:	0.043	Volume, ft³:	0.019	

Moisture Content (%)		**Unit Weight**	
Can Number:	S-28	Wet Weight of Sample (g):	943.72
Wt. of Can (g):	31.61	Dry Weight of Sample (g):	726.47
Wt. of Wet Soil + Can (g):	85.30	Wet Unit Weight (pcf):	**108.4**
Wt. of Dry Soil + Can (g):	72.94	Dry Unit Weight (pcf):	**83.4**
Wt. of Dry Soil (g):	41.33		
Wt. of Water (g):	12.36		
Moisture Content (%):	**29.9**		

	Max Strain (≤ 15%)	Compressive Strength, tsf	Shear Strength, tsf
RESULTS:	**15.086**	**0.13**	**0.06**

FAILURE TYPE:

NOTE: _____



Tested By: RB
Computed By: RB
Reviewed By: _____

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UNCONSOLIDATED UNDRAINED TRIAXIAL TEST
ASTM D 2850

Project Name:	Long Point Bayou Marsh Creation Proj.	**Date Tested:**	7/14/2020
Project No.:	02541211	**Scale:**	03ES254
Boring No.:	B-4	**Calipers:**	01CAL254
Samp. and Spec. No.:	S-5	**Oven:**	10OV251
Sample Depth:	8-10'	**GeoJac Station No.:**	02GJ254
Qp / Torvane (tsf):	TV = 0.65	**Loadcell:**	12COM254
Sample Description:	GR CH W/ SI & SA	**Air Pressure (psi):**	3.6

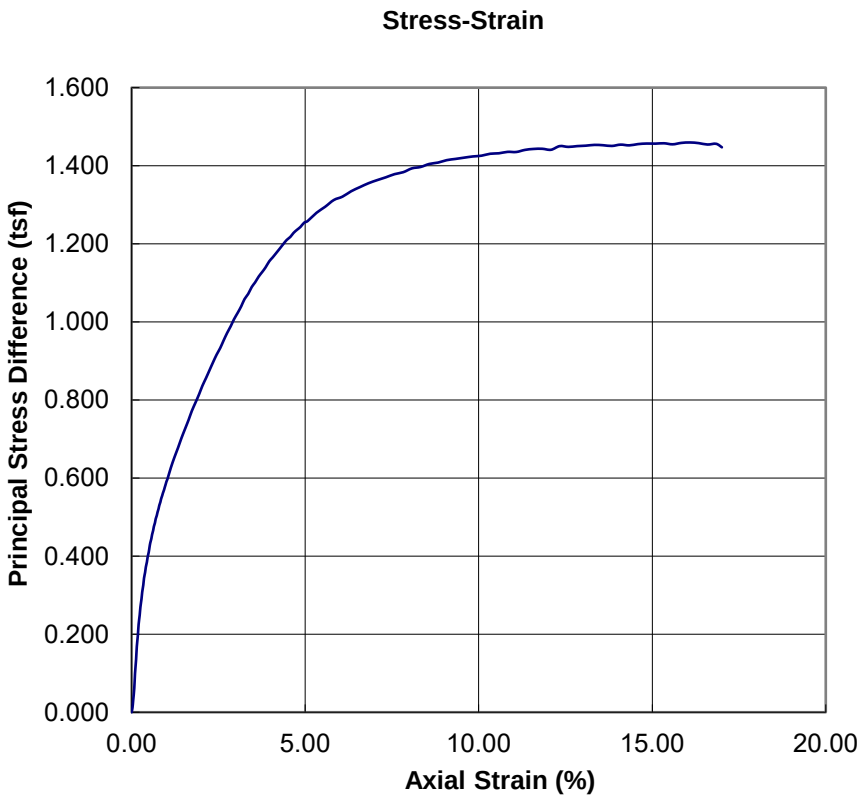
Sample Data:	1	2	3	Average	Height / Diameter Ratio (2 to 2.5)
Diameter (in)	2.860	2.862	2.859	2.860	2.03
Height (in)	5.807	5.799	5.801	5.802	
	Area, ft²:	0.045	Volume, ft³:	0.022	

	Moisture Content (%)		Unit Weight
Can Number:	302	Wet Weight of Sample (g):	1212.61
Wt. of Can (g):	29.81	Dry Weight of Sample (g):	976.48
Wt. of Wet Soil + Can (g):	82.19	Wet Unit Weight (pcf):	**123.9**
Wt. of Dry Soil + Can (g):	71.99	Dry Unit Weight (pcf):	**99.8**
Wt. of Dry Soil (g):	42.18		
Wt. of Water (g):	10.20		
Moisture Content (%):	**24.2**		

	Max Strain (≤ 15%)	Compressive Strength, tsf	Shear Strength, tsf
RESULTS:	**15.087**	**1.46**	**0.73**

FAILURE TYPE:

NOTE: _____



Tested By: RB
Computed By: RB
Reviewed By: _____

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UNCONSOLIDATED UNDRAINED TRIAXIAL TEST
ASTM D 2850

Project Name:	Long Point Bayou Marsh Creation Proj.	**Date Tested:**	7/14/2020
Project No.:	02541211	**Scale:**	03ES254
Boring No.:	B-5	**Calipers:**	01CAL254
Samp. and Spec. No.:	S-2	**Oven:**	10OV251
Sample Depth:	2-4'	**GeoJac Station No.:**	02GJ254
Qp / Torvane (tsf):	TV = 0.30	**Loadcell:**	17COM254
Sample Description:	GR CH W/ TR ORG	**Air Pressure (psi):**	1.2

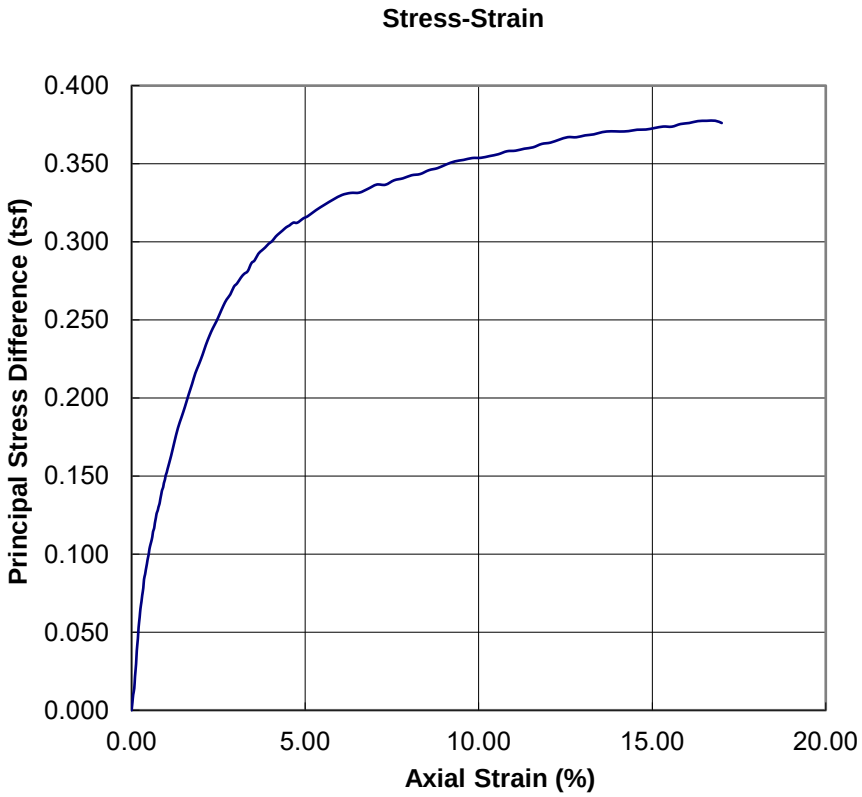
Sample Data:	1	2	3	Average	Height / Diameter Ratio (2 to 2.5)
Diameter (in)	2.852	2.804	2.835	2.830	2.05
Height (in)	5.803	5.812	5.807	5.807	
	Area, ft²:	0.044	Volume, ft³:	0.021	

Moisture Content (%)		**Unit Weight**	
Can Number:	246-21	Wet Weight of Sample (g):	1129.86
Wt. of Can (g):	29.75	Dry Weight of Sample (g):	834.41
Wt. of Wet Soil + Can (g):	82.41	Wet Unit Weight (pcf):	**117.8**
Wt. of Dry Soil + Can (g):	68.64	Dry Unit Weight (pcf):	**87.0**
Wt. of Dry Soil (g):	38.89		
Wt. of Water (g):	13.77		
Moisture Content (%):	**35.4**		

	Max Strain (≤ 15%)	Compressive Strength, tsf	Shear Strength, tsf
RESULTS:	**15.065**	**0.37**	**0.19**

FAILURE TYPE:

NOTE: _____



Tested By: RB
Computed By: RB
Reviewed By: _____

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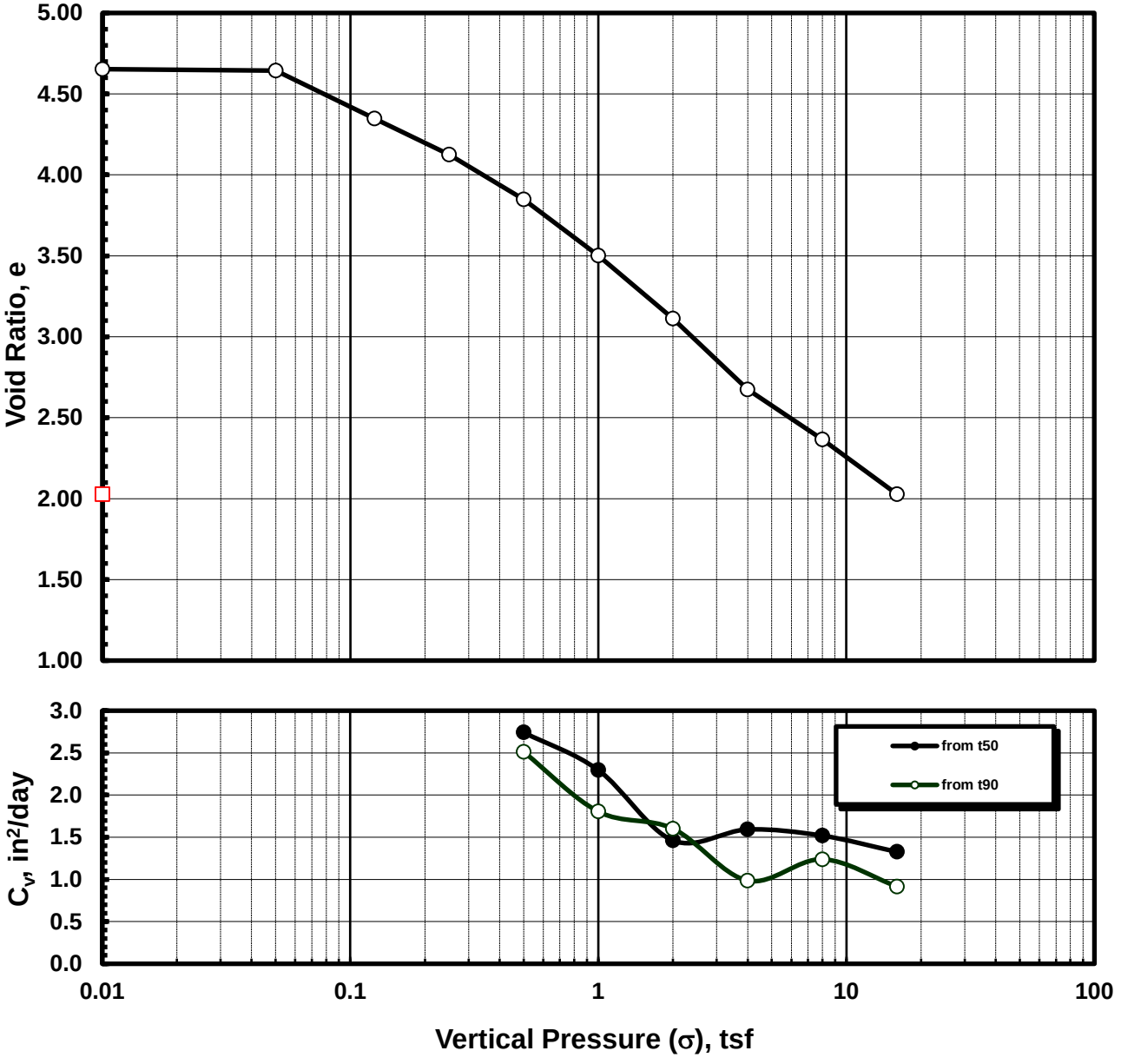
APPENDIX E

CONSOLIDATION TEST RESULTS
SETTLING COLUMN TEST AND SLURRY CONSOLIDATION TEST RESULTS

CONSOLIDATION TEST RESULTS - ASTM D 2435



Sample Condition	Before	After	Consolidation Parameters	
Moisture Content, %:	174.8%	79.4%	Overburden Pressure, tsf:	0.27
Sample Height, in.:	0.9970	0.5340	Preconsolidation Pressure, tsf:	0.20
Void Ratio, e:	4.6531	2.0277	Compression Index, (Cc):	1.224
Dry Unit Weight, pcf:	28.7	53.6	Re-Compression Index, (Cr)	
Degree of Saturation:	1.0	1.0	Swell Index, Cs:	-

Project Number:	02541211	Liquid Limit:	NA	Hand Pen:	0.05 tsf
Project Name	Long Point Bayou Marsh Creation	Plastic Limit:	NA	-200 %:	NA
Boring No.:	B-1	Plasticity Index:	NA	SPG:	2.6
Sample ID, Depth:	S-4, 6-8 ft	Classification:	Organic Clay (OH), Dark Gray		

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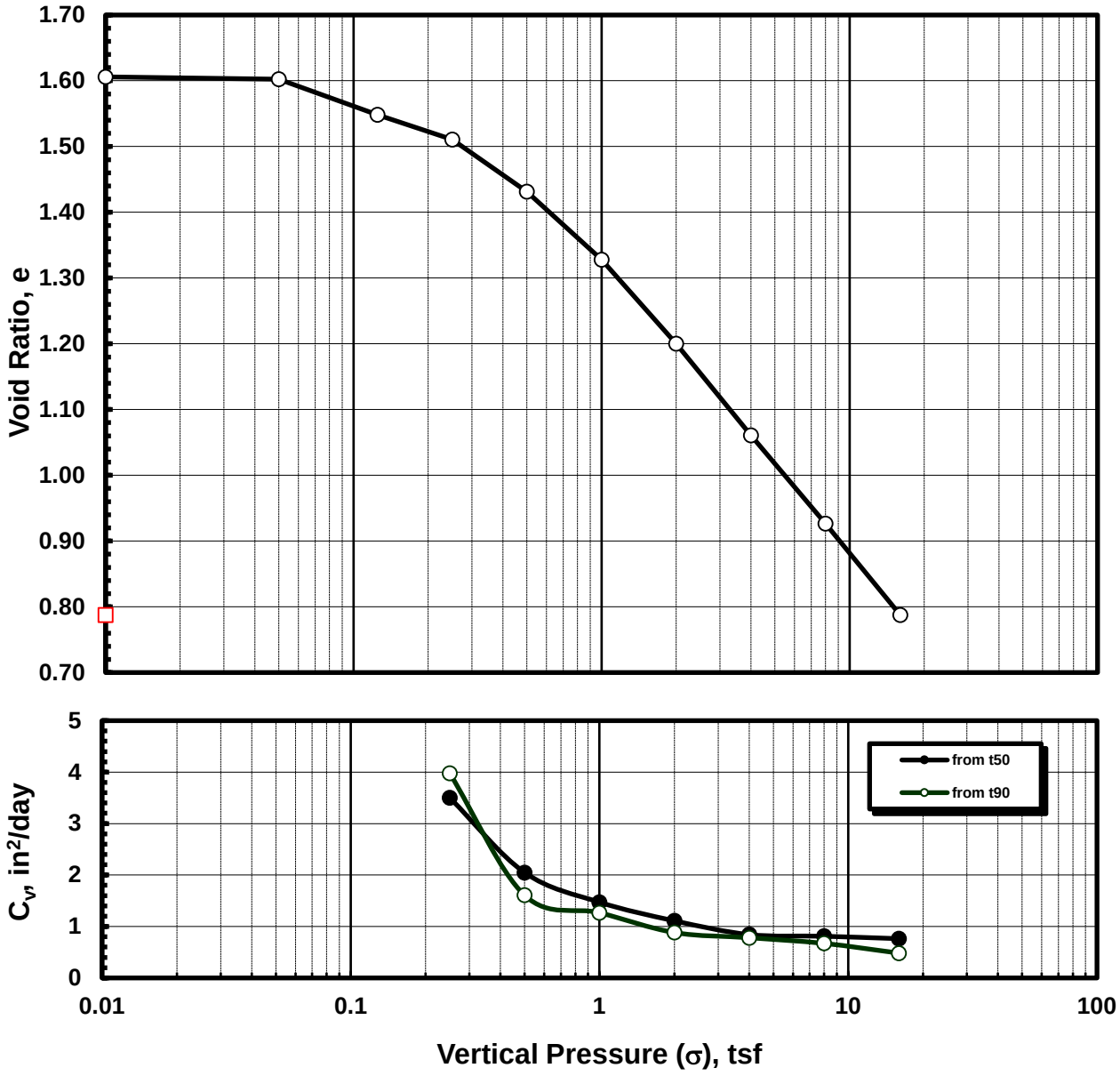
CONSOLIDATION TEST RESULTS - ASTM D 2435



Sample Condition	Before	After	Consolidation Parameters	
Moisture Content, %:	58.7%	29.8%	Overburden Pressure, tsf:	0.09
Sample Height, in.:	0.9980	0.6846	Preconsolidation Pressure, tsf:	0.35
Void Ratio, e:	1.6059	0.7876	Compression Index, (Cc):	0.457
Dry Unit Weight, pcf:	64.7	94.2	Re-Compression Index, (Cr)	-
Degree of Saturation:	1.0	1.0	Swell Index, Cs:	-

Project Number:	254-1211	Liquid Limit:	86	Torvane:	0.25 tsf
Project Name	Long Point Bayou Marsh Creation	Plastic Limit:	23	-200 %:	99
Boring No.:	B-2	Plasticity Index:	63	SPG:	2.7
Sample ID, Depth:	S-1, 0-2 ft	Classification:	Fat Clay (CH), Gray/ Brown		

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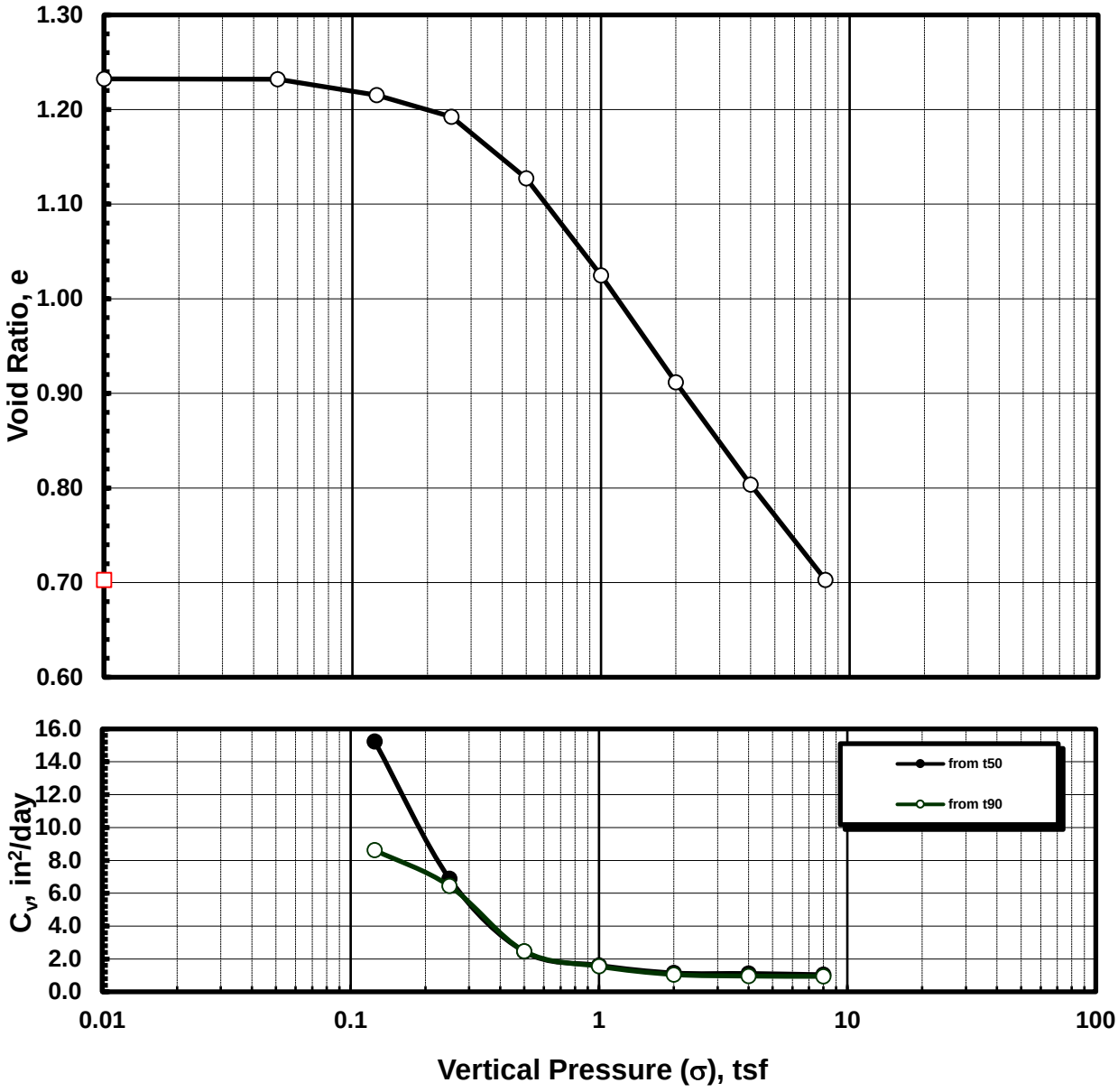
CONSOLIDATION TEST RESULTS - ASTM D 2435



Sample Condition	Before	After	Consolidation Parameters	
Moisture Content, %:	45.7%	26.0%	Overburden Pressure, tsf:	0.21
Sample Height, in.:	0.9980	0.7613	Preconsolidation Pressure, tsf:	0.30
Void Ratio, e:	1.2324	0.7029	Compression Index, (Cc):	0.356
Dry Unit Weight, pcf:	75.5	98.9	Re-Compression Index, (Cr)	
Degree of Saturation:	1.00	1.00	Swell Index, Cs:	-

Project Number:	02541211	Liquid Limit:	NA	Hand Pen:	0.10 tsf
Project Name	Long Point Bayou Marsh Creation	Plastic Limit:	NA	-200 %:	NA
Boring No.:	B-3	Plasticity Index:	NA	SPG:	2.7
Sample ID, Depth:	S-3, 4-6 ft	Classification:	Fat Clay (CH), Gray		

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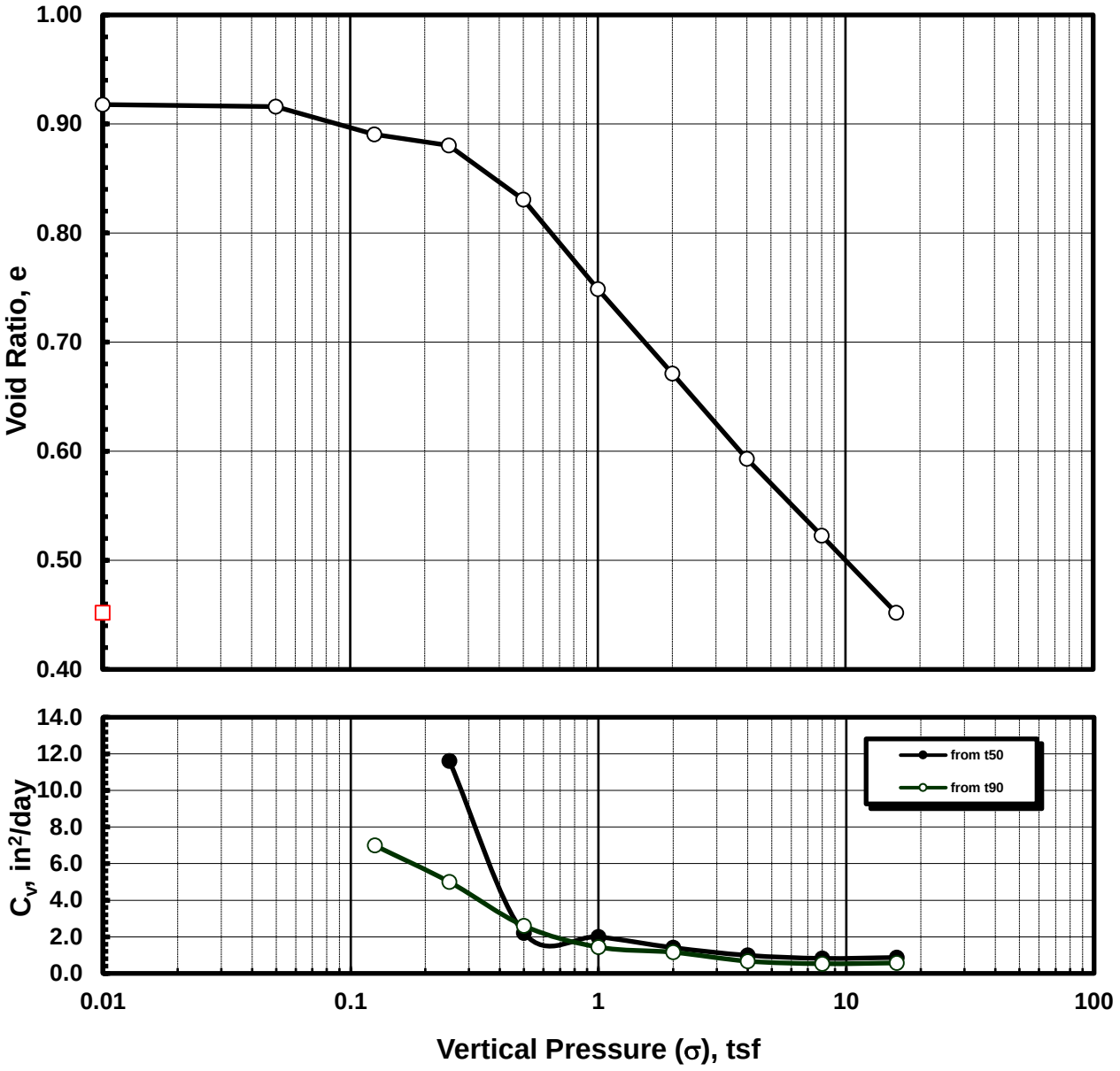
CONSOLIDATION TEST RESULTS - ASTM D 2435



Sample Condition	Before	After	Consolidation Parameters	
Moisture Content, %:	33.9%	16.7%	Overburden Pressure, tsf:	0.4
Sample Height, in.:	1.0000	0.7571	Preconsolidation Pressure, tsf:	0.30
Void Ratio, e:	0.9178	0.4519	Compression Index, (Cc):	0.246
Dry Unit Weight, pcf:	87.8	116.0	Re-Compression Index, (Cr)	-
Degree of Saturation:	1.00	1.00	Swell Index, Cs:	-

Project Number:	254-1211	Liquid Limit:	NA	Torvane:	0.1 tsf
Project Name	Long Point Bayou Marsh Creation	Plastic Limit:	NA	-200 %:	NA
Boring No.:	B-4	Plasticity Index:	NA	SPG:	2.7
Sample ID, Depth:	S-6, 10-12 ft	Classification:	Fat Clay with Sand (CH), Gray		

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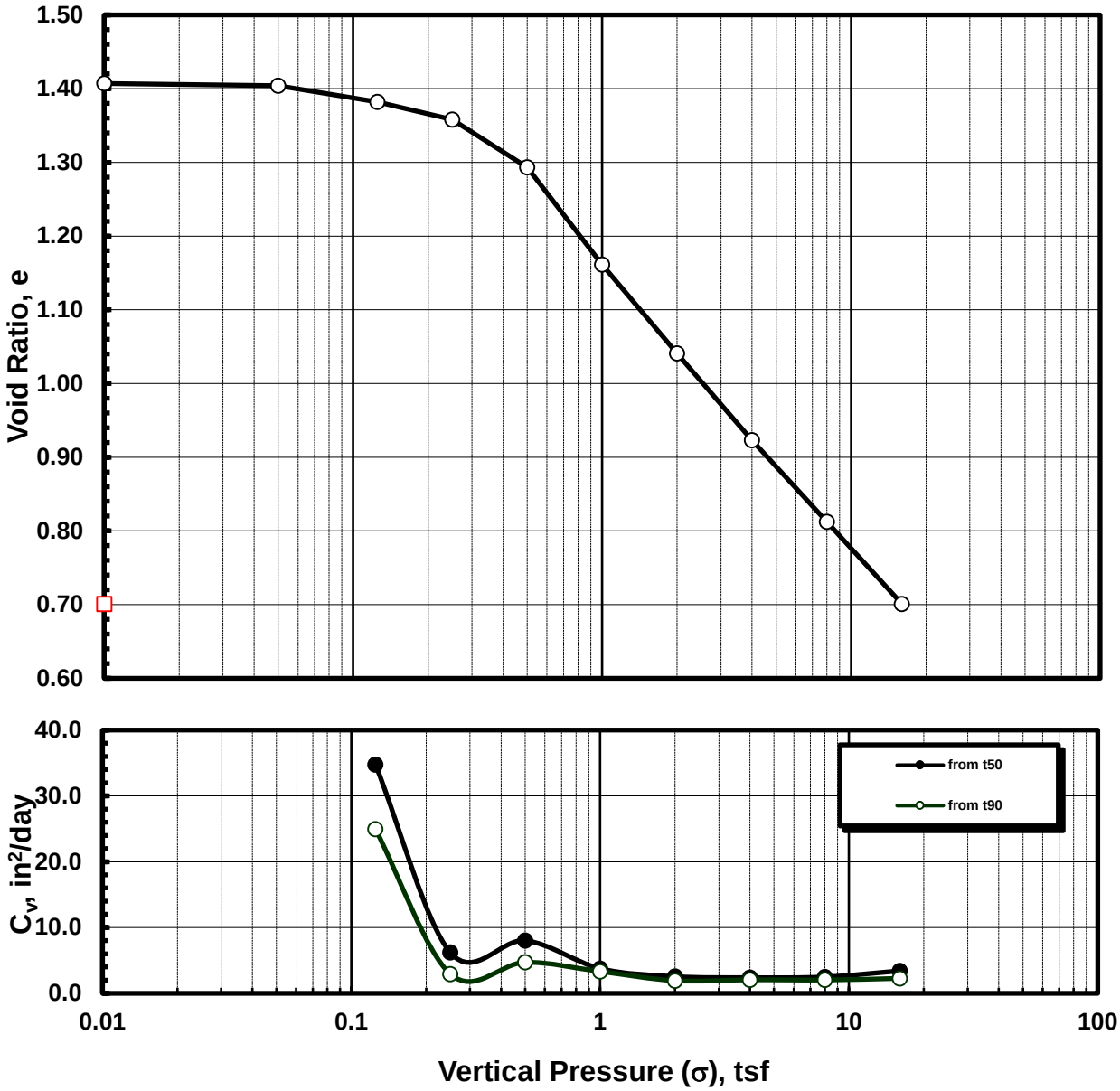
CONSOLIDATION TEST RESULTS - ASTM D 2435



Sample Condition	Before	After	Consolidation Parameters	
Moisture Content, %:	52.4%	26.0%	Overburden Pressure, tsf:	0.15
Sample Height, in.:	0.9960	0.7038	Preconsolidation Pressure, tsf:	0.30
Void Ratio, e:	1.4070	0.7009	Compression Index, (Cc):	0.393
Dry Unit Weight, pcf:	69.8	98.8	Re-Compression Index, (Cr)	-
Degree of Saturation:	1.00	1.00	Swell Index, Cs:	-

Project Number:	02541211	Liquid Limit:	53	Hand Pen:	0.15 tsf
Project Name	Long Point Bayou Marsh Creation	Plastic Limit:	15	-200 %:	94
Boring No.:	B-5	Plasticity Index:	38	SPG:	2.692
Sample ID, Depth:	S-2, 2-4 ft	Classification:	Fat Clay (CH); Dark Gray w/ organics		

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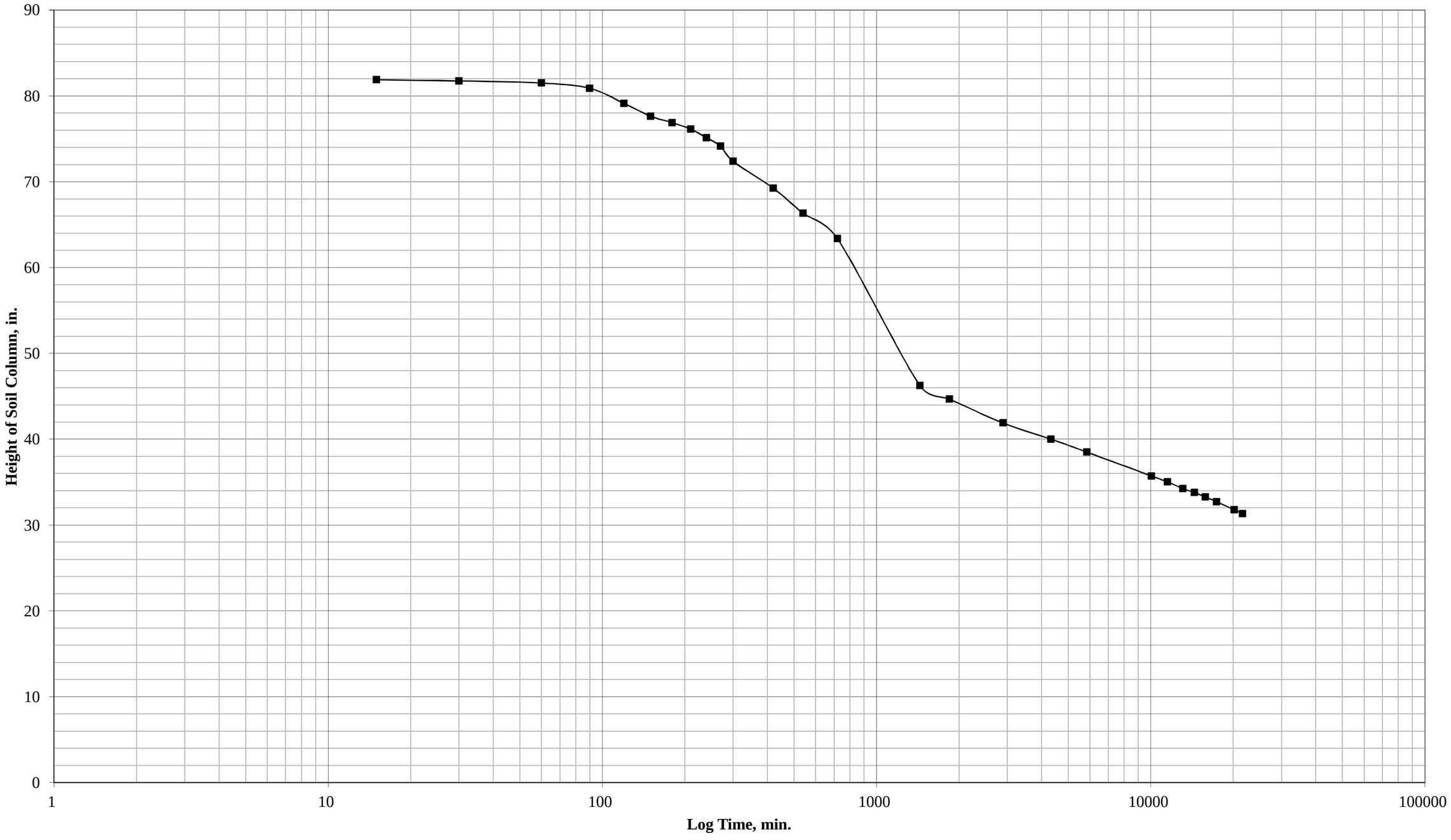
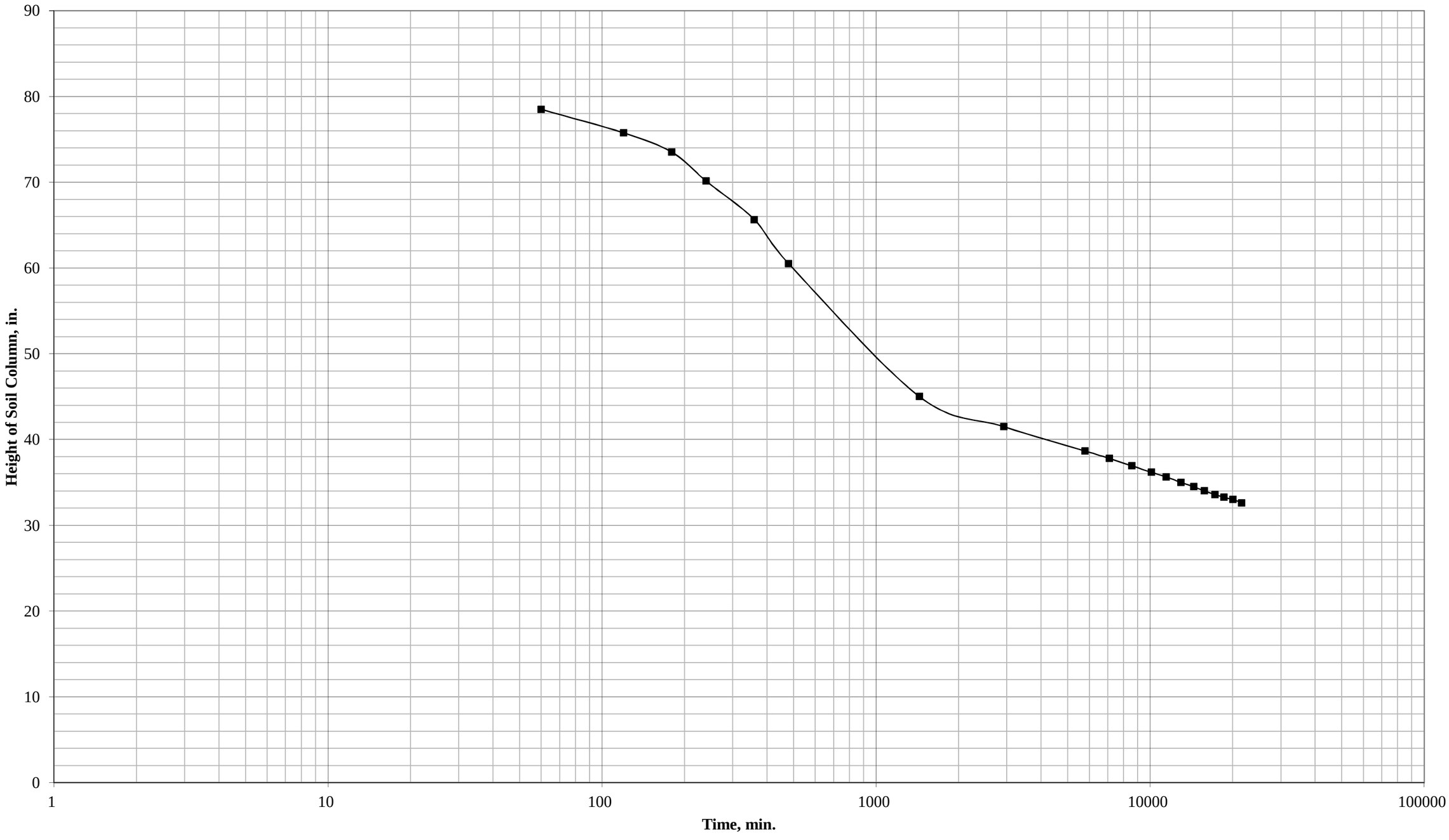
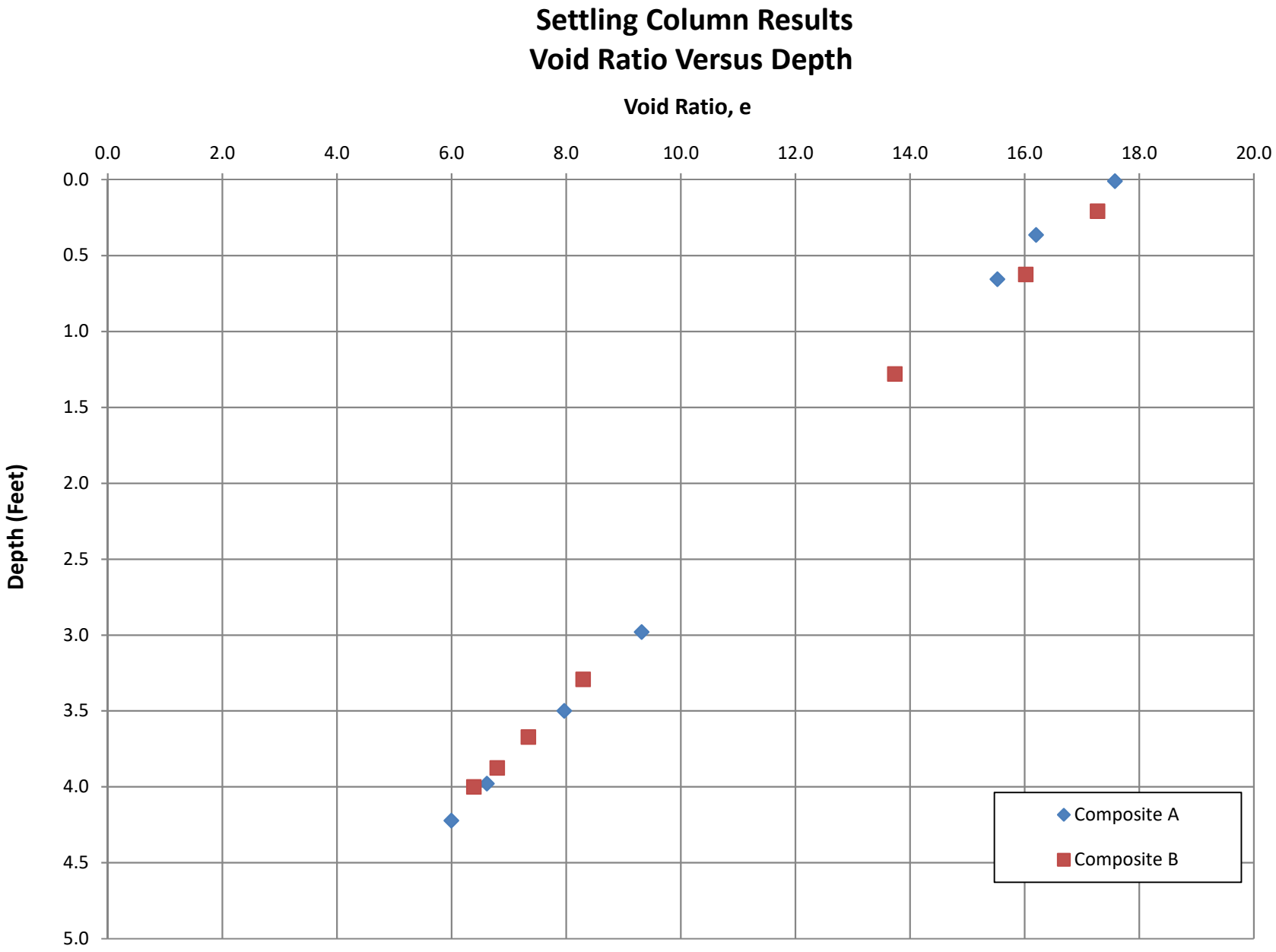
Settling Colum Test

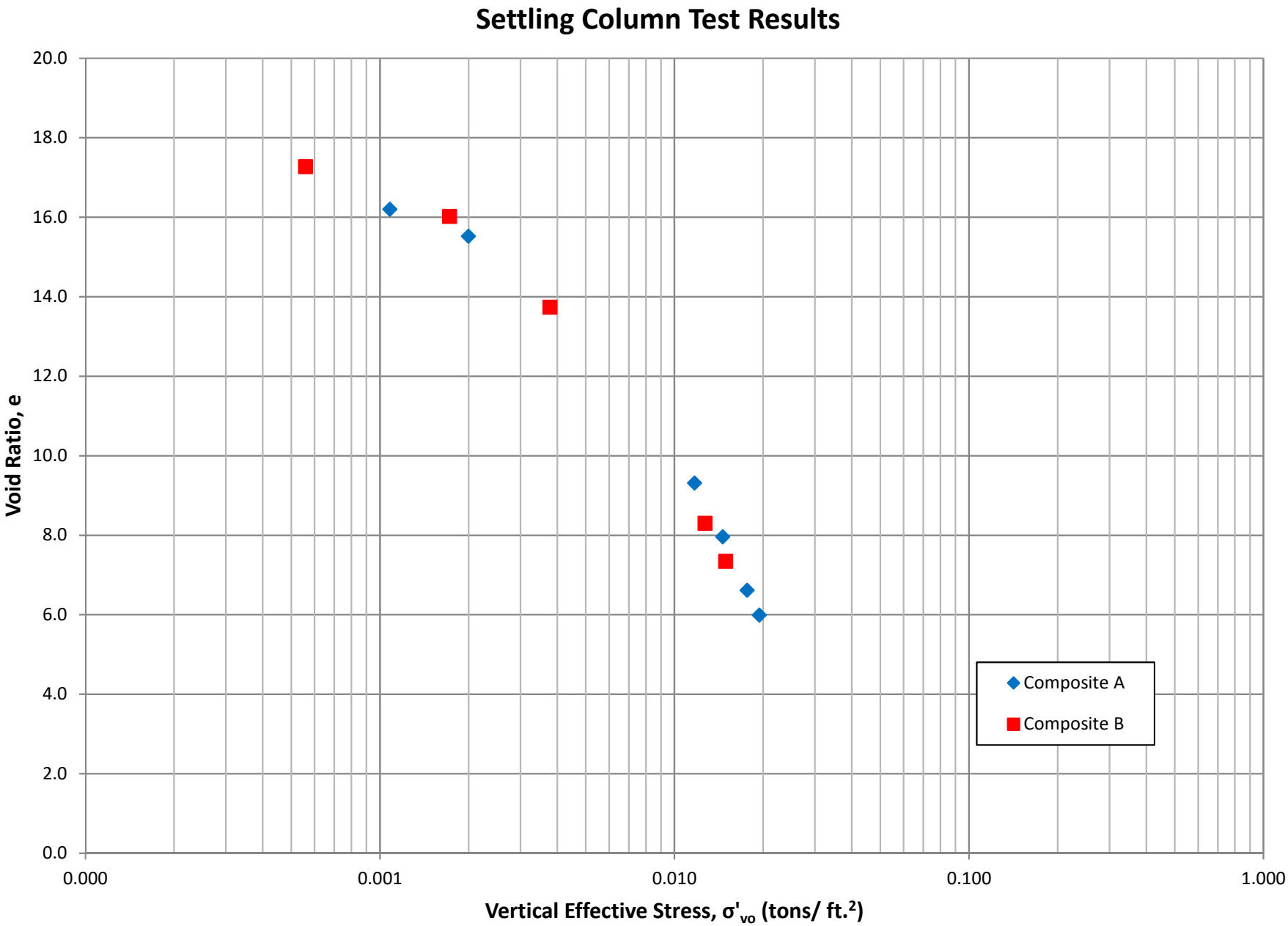
Composite A- Settling column



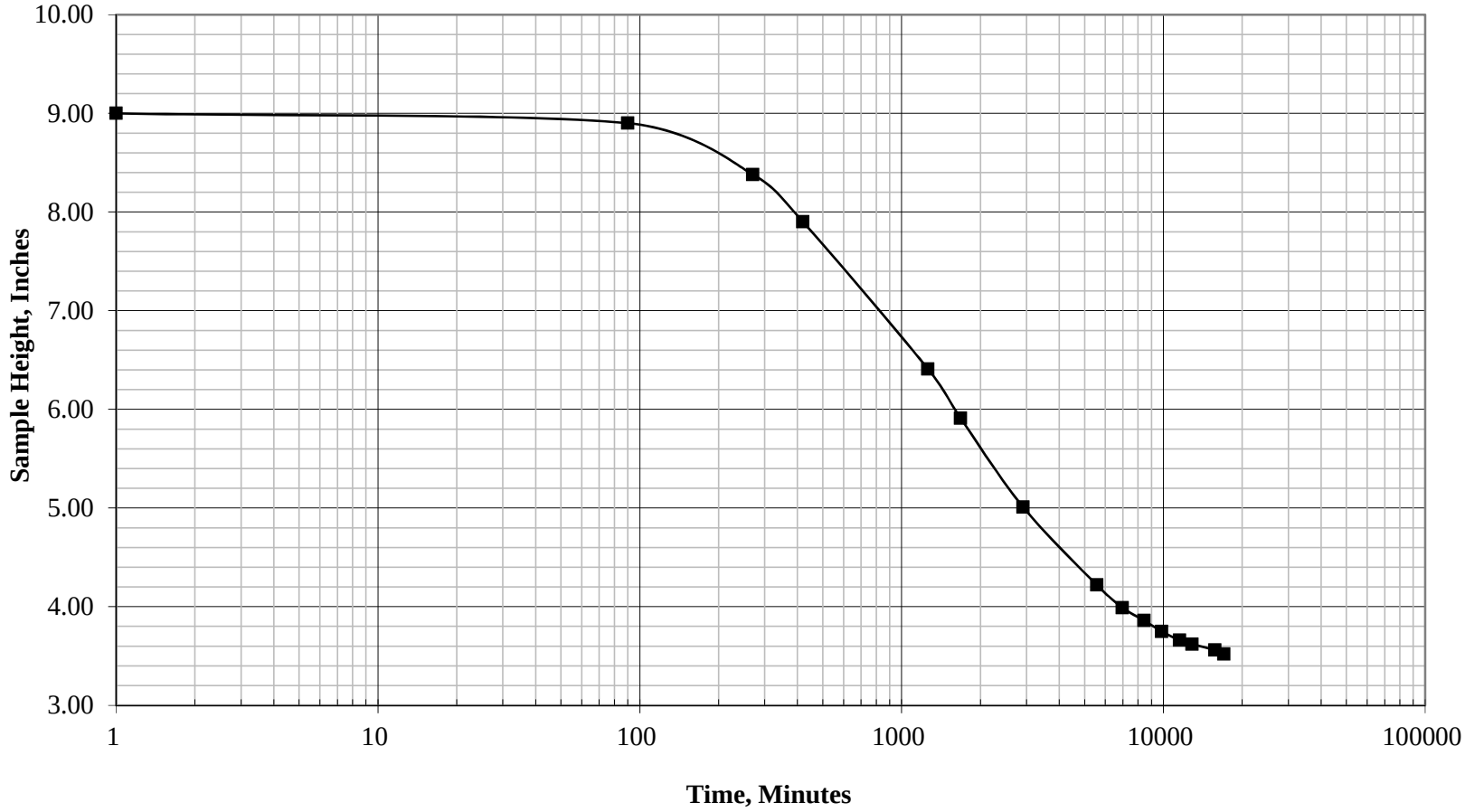
Composite B- Settling column



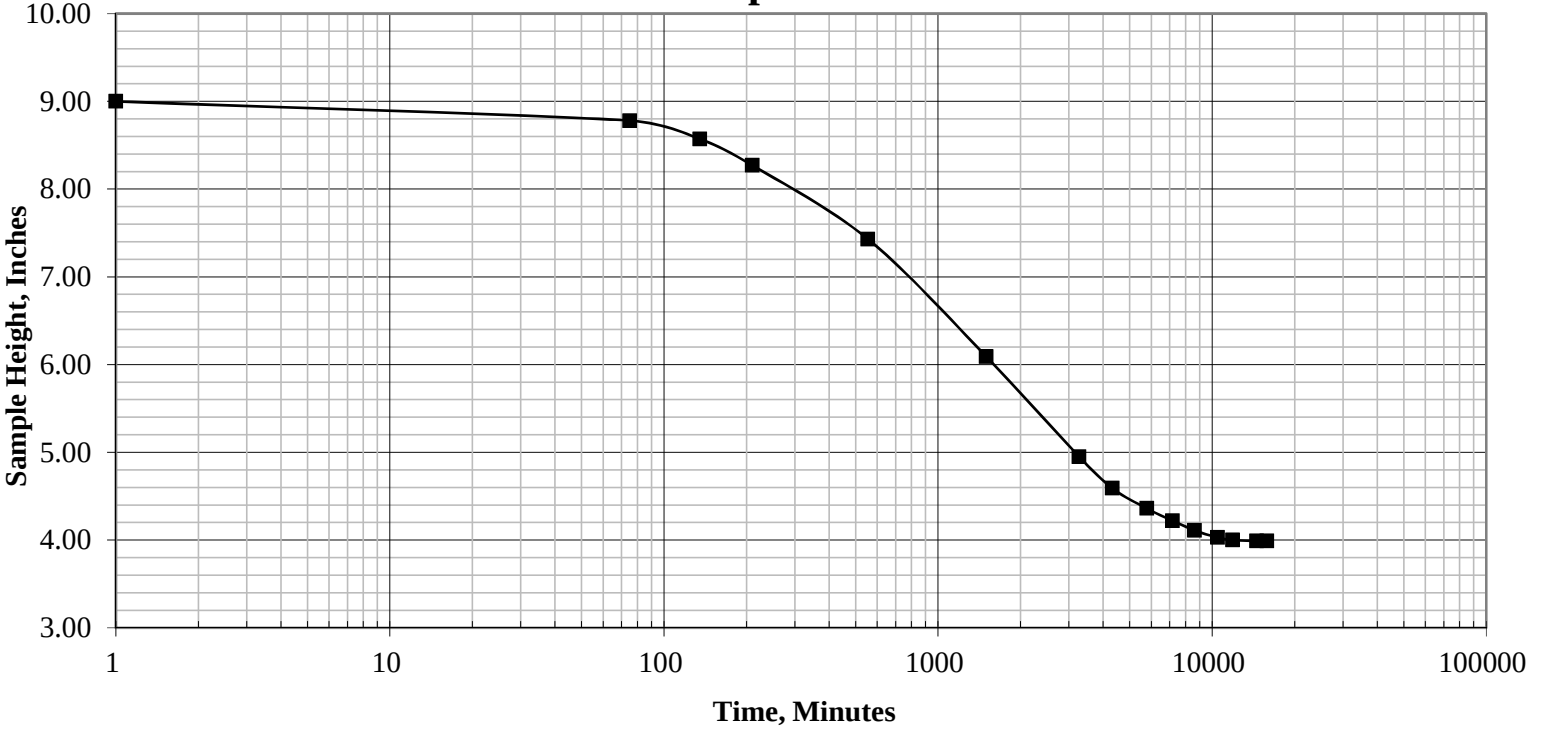

Settling Column Results
Void Ratio Versus Depth
Void Ratio, e
0.0
2.0
4.0
6.0
8.0
10.0
12.0
14.0
16.0
18.0
20.0
Depth (Feet)
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
Composite A
Composite B

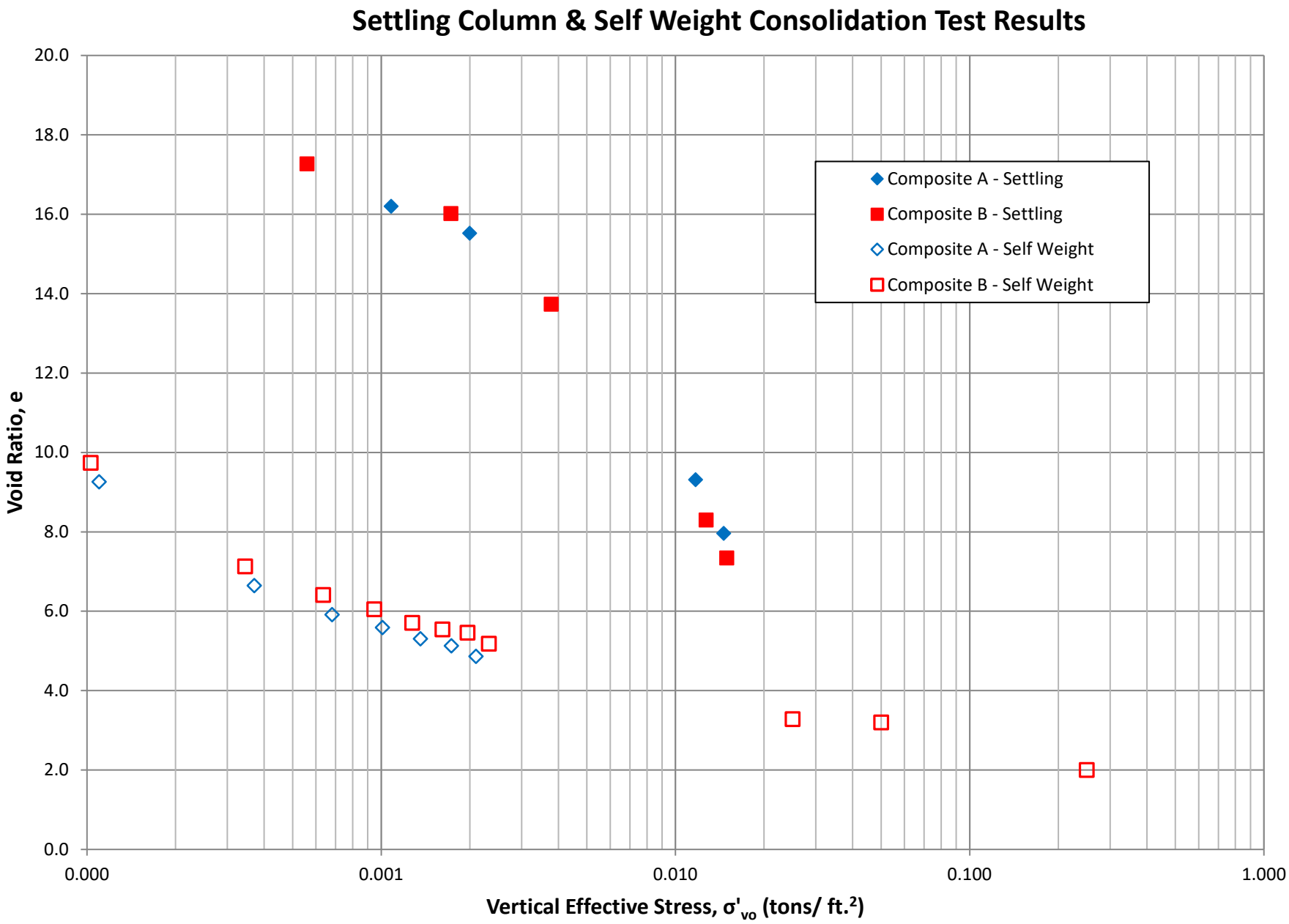

Settling Column Test Results
20.0
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
Void Ratio, e
0.000
0.001
0.010
0.100
1.000
Vertical Effective Stress, σ'vo (tons/ ft.2)
Composite A
Composite B

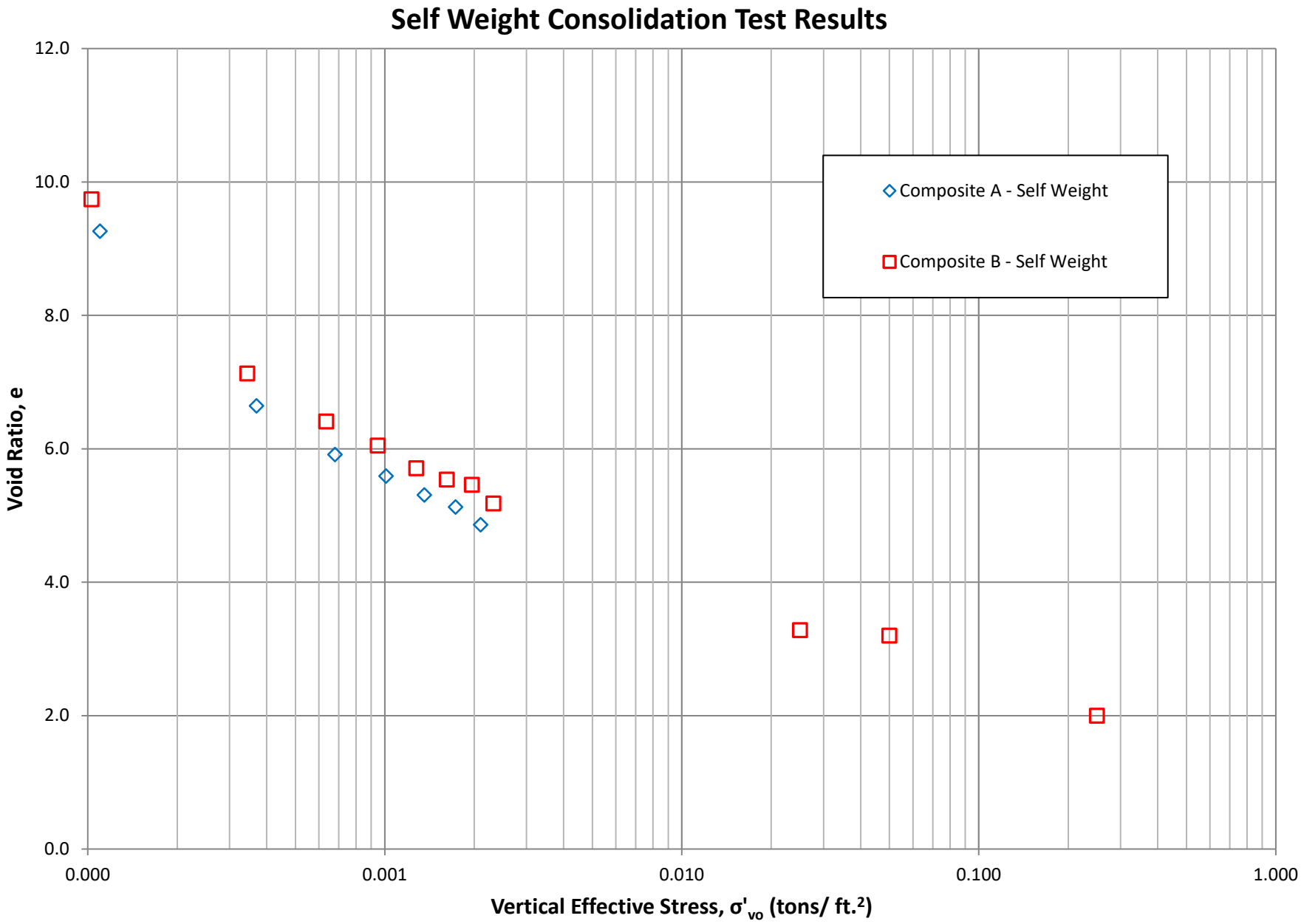
SELF-WEIGHT TEST
Composite A
Initial Sample Consolidation



SELF-WEIGHT TEST
Composite B
Initial Sample Consolidation




Settling Column & Self Weight Consolidation Test Results
Void Ratio, e
20.0
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
0.000
0.001
0.010
0.100
1.000
Vertical Effective Stress, σ'vo (tons/ ft.2)
Composite A - Settling
Composite B - Settling
Composite A - Self Weight
Composite B - Self Weight


Self Weight Consolidation Test Results
12.0
10.0
8.0
6.0
4.0
2.0
0.0
Void Ratio, e
0.000
0.001
0.010
0.100
1.000
Vertical Effective Stress, σ'vo (tons/ ft.²)
Composite A - Self Weight
Composite B - Self Weight