Exhibit 19
Geotechnical Report

PRELIMINARY GEOTECHNICAL INVESTIGATION

POINT HOUMAS
HIGHWAY 18
DONALDSONVILLE, LOUISIANA

REPORT DATE:

NOVEMBER 20, 2007

PREPARED FOR:

DUPLANTIS DESIGN GROUP, PC
THIBODAUX, LOUISIANA

PREPARED BY:

AQUATERRA ENGINEERING, LLC
P. O. BOX 82160 • BATON ROUGE, LA 70884-2160
2822-B O'NEAL LANE • BATON ROUGE, LA • 70816
TEL: 225.344.6052 • FAX: 225.344.6346

STATE OF LOUISIANA
VICTOR R. DONALD
REG. No. 21058
REGISTERED PROFESSIONAL ENGINEER IN CIVIL ENGINEERING

VICTOR R. DONALD, P.E.

2822 O'Neal Lane, Building B Baton Rouge, Louisiana 70816
Office: 225.344.6052 • Fax: 225.344.6346 • Web: www.aquaterraeng.com

November 20, 2007

Mr. Richard C. Galloway
Duplantis Design Group, PC
314 East Bayou Road
Thibodaux, Louisiana

Re: Preliminary Geotechnical Investigation
Point Houmas - Highway 18
Donaldsonville, Louisiana
AQT No. 9107338

Dear Mr. Galloway,

Submitted herein are the results of our preliminary geotechnical investigation for the Point Houmas Site in Donaldsonville, Louisiana.

We understand that an approximately 1,000 acre site located along the west bank of the Mississippi River near the Ascension and St. James Parish line is proposed for potential industrial development. As of this date no particular usage has been identified; therefore, no structural requirements have been established. The purpose of our preliminary geotechnical characterization was to develop general information about the site/groundwater for use in general evaluation of potential site development.

The preliminary investigation has provided a good understanding of the conditions necessary to develop an effective approach for final geotechnical investigations for the various structures.

Please contact this office if you have any questions.

Sincerely,

Aquaterra Engineering, LLC

Lynne R. Smith, E.I.

Victor R. Donald, P.E.

attachments

TABLE OF CONTENTS

FIGURES

APPENDICES

1.0 INTRODUCTION

This report provides preliminary data and opinions about geotechnical and foundation conditions for a potential industrial development on a 1,000-acre site in Donaldsonville, Louisiana. A site vicinity map is illustrated on Figure 1. More detailed information regarding proposed construction is provided in Paragraph 2.2.

1.1 Purpose

Aquaterra Engineering, LLC was retained by Duplantis Design Group, PC (Duplantis) to conduct a preliminary geotechnical investigation for the proposed development. The investigation was intended to provide an understanding of the subsurface conditions at this development.

1.2 Scope

The preliminary geotechnical investigation conducted for this project included the following:

- Site Reconnaissance: A visual review and documentation of site conditions pertinent to the geotechnical study at the time of our field exploration.
- Soil Borings: Eight soil borings were drilled and sampled at the locations illustrated on Figure 2. Detailed soil boring logs are included in Appendix A.
- Cone Penetrometer Tests: Eight Cone Penetrometer Test (CPT) probes were advanced adjacent to the building borings. The results of the CPT testing, expressed as cone and sleeve resistance and pore pressure, are provided in Appendix B.
- Laboratory Testing: The determination of index and engineering properties of selected soil samples by performing geotechnical laboratory testing, including: moisture content, Atterberg limits, and unconfined compressive strength testing on selected soil samples. The results of the testing program are incorporated in this report.

1.3 Procedures

This investigation followed procedures established by our firm as routine for a geotechnical investigation of this nature with sampling and analyses in general accordance with appropriate guidelines established by ASTM. Appendix A describes the field and laboratory procedures utilized to accomplish this geotechnical investigation.

1.4 Limitations

The analyses and recommendations presented in this report are based upon the assumption that the soil borings made for this investigation represent the soil and groundwater conditions throughout the site. This is a preliminary investigation with very widely spaced borings, and variations in soil or groundwater conditions are likely between or away from the widely spaced boring locations. The results of this preliminary investigation should be supplemented with more adequate site characterization prior to final design. If conditions different from those described in Section 3 are encountered or are expected, this office should be promptly notified so that the effects of the varying conditions can be determined, and any necessary changes to these analyses and recommendations can be made.

This investigation program and these preliminary recommendations are intended for specific application to the project generally described in Section 2 at the site described in Paragraph 3.1. The data or the analyses and recommendations presented in this report are not necessarily applicable for any other project or location. If the nature of the project should change from the descriptions provided in Section 2, these recommendations should be reevaluated.

The only warranty made regarding our services is that we have used that degree of care and skill ordinarily exercised under similar conditions by reputable members of our profession practicing in the same or similar locality. No other warranty is expressed or implied.

2.0 PROJECT INFORMATION

The following paragraphs present the project information that was available at the time this report was prepared. Should this information be incorrect, or change significantly, please contact this office so that our analysis and recommendations can be reevaluated.

2.1 Information Sources

Information related to this project was provided by Duplantis Design Group representative, Mr. Ricky Galloway. The primary information source included a site survey. Due to the preliminary nature of the planned construction, no information sources were available about specific construction.

2.2 Anticipated Construction

We understand that the site is proposed for potential industrial development. As of this date no particular usage has been identified; therefore, no structural requirements have been established. The purpose of our preliminary geotechnical characterization will be to develop general information about the site/groundwater for use in general evaluation of potential site development.

3.0 SITE CONDITIONS

In a geotechnical investigation of this nature, local topography and surface conditions, geologic setting and site-specific soil and groundwater conditions are important. The following paragraphs summarize our findings relative to these topics.

3.1 Physical Setting

The site is located near latitude 30°07'34" N and longitude 90°56'00" W on Highway 18 in Donaldsonville, Louisiana (see Figure 1). The property comprises about 1,000 acres along the west bank of the Mississippi River near the Ascension and St. James Parish line.

The property includes the flood protection levee for the Mississippi River. This constructed levee is elevated approximately 20 feet above natural grade. At the time of the exploration, the majority of the site on the landward side of the levee was used for agricultural purposes. Other portions of the site were open pastures. The majority of the property on the river side of the levee was heavily wooded. The site appeared to be relatively flat except for the agricultural rows. Standing water was not present at the time of the investigation.

3.2 Geologic Setting

According to the *Geomorphology Quaternary Geologic History of the Lower Mississippi Valley* (Saucier, 1994) the project site is situated within an area of Point Bar and Backswamp deposits of Holocene Age that are depositions of the Mississippi River. Figure 3 presents pertinent portions of geologic mapping in that publication that illustrates the thickness of the alluvium and the distribution of the point bar and the backswamp deposits. As shown on that figure, the Holocene Age deposits are present to depths of over 200 feet.

3.3 Soil Conditions

The point bar deposits along the river are the sand and silt depositions of the river as the current slows along the sweeping river bend. The backswamp deposits which comprise the majority of the site and all areas further away from the river typically contain little to no sand and are characterized as normally consolidated clays with some silt layering. The soil boring plan shown on Figure 2 also includes a graphical representation of the areas inferred from the published geologic mapping of the locations of the point bar and the backswamp deposits. The following paragraphs describe these two general areas in more detail.

The soil boring logs in Appendix A include the field and laboratory data collected and a description of soil conditions specific to each boring. The CPT logs located in Appendix B provide the results of the CPT data and include interpretations of soil types, undrained shear strength and standard penetration resistance based upon empirical correlations of the data.

3.3.1 Backswamp Soils The explorations locations situated within the backswamp soils encountered very soft to soft clays and silty clays to about 40 feet. Silt seams are present in this stratum below a depth of 20 feet. These weak soils are underlain by soft to firm clays and silty clays to approximately 75 feet. Firm to stiff clays and silty clays are encountered from 75 feet to the lower portions of the 90 foot deep exploration. The extreme lower two feet of the deepest exploration *88 to 90 feet at CPT-3 encountered more granular deposits (silts and fine sands) that are indicative of the underlying sand deposits in this area that are commonly encountered at depths on the order of 100 feet. These more granular deposits are likely an indication of a transition to this massive, fine sand deposit at around 90 feet.

3.3.2 Point Bar Soils One exploration point (B-5/CPT-5) was made in the area where point bar deposits were expected. This location encountered the more granular soils that would be expected in the point bar deposits. However, the upper approximate 35 feet encountered relatively weak clays, silty clays and silts similar to the backswamp deposits. Medium dense sand was detected from about 35 feet to the base of the 70 foot deep boring.

3.4 Groundwater Conditions

As described in Appendix A, the soil borings were dry augered to a maximum depth of 10 feet to document groundwater conditions at the time of our investigation. The soil boring logs illustrate the groundwater observations in each boring. Measurable groundwater was encountered at 7 to 8 feet during drilling. After allowing the water level to rise, the depth to groundwater was recorded as 6 feet.

The proximity of this site to the Mississippi River will result in groundwater levels that are significantly influenced by the Mississippi River. The river level fluctuations will be reflected within the water levels in the point bar deposits. A reduced response would be expected in the silt layers within the backswamp clays. However, the sands below 90 feet would also show a pronounced water level reflection of Mississippi River stage.

Because the area is protected by the levee, the near surface sands within the point bar deposits as well as the underlying sands of the backswamp deposit will probably reflect flowing conditions during times when the river level raises to within the levee elevations.

Because of the significance of the Mississippi River to water level conditions, a program should be established to understand the response of the groundwater levels in these various formations to the change if river level. This should consist of the installation and monitoring of a series of piezometers to observe the water level variations. This program should be initiated in adequate time to observe changes that are common over an annual cycle of river level change.

4.0 PRELIMINARY GEOTECHNICAL CONSIDERATIONS

The location of the site within the point bar deposits and within the backswamp deposits creates a condition of significant geotechnical variation with respect to distance from the Mississippi River. Although all of the deposits which underlie the upper 200 feet of the site are Holocene Age deposits and are normally consolidated, the more coarse grained, backswamp deposits adjacent to the River and are much less compressible and will provide more substantial foundation support conditions. Fill placed in these point bar areas will probably result in fill-induced settlements of less than ½ inch per foot of fill added, and these movements will probably occur relatively rapidly. Light to moderate loads can probably be supported on shallow foundations. Low capacity, timber piles driven into the sands below 35 feet would also represent an economical foundation choice in the point bar deposits. Heavy loads will probably require driven, non-displacement piles such as H-Piles or steel pipe piles. Augered and cast in place piles may also be a viable foundation choice. These type piles would derive support from the more competent sand deposits below 35 feet.

The normally consolidated clays within the backswamp outcrop areas will create poor foundation conditions, and substantial consolidation-related settlements will occur under fill. Consolidation settlements movements on the order of 1 inch per foot of fill are likely, and these movements will occur slowly. The relatively weak and compressible soils will require restricted bearing capacities for lightly loaded structures and construction techniques which limit settlements (for example, stage loading of above ground storage tanks). Moderate to heavy commercial construction will require the use of deep foundations. Deep foundation choices are more diverse for this area.

For purposes of preliminary design, representative pile capacities have been developed for each geologic setting. Preliminary auger cast pile capacities within the point bar deposits are provided on Figure 4. Preliminary estimates for precast concrete pile capacities within the backswamp deposits are provided on Figure 5.

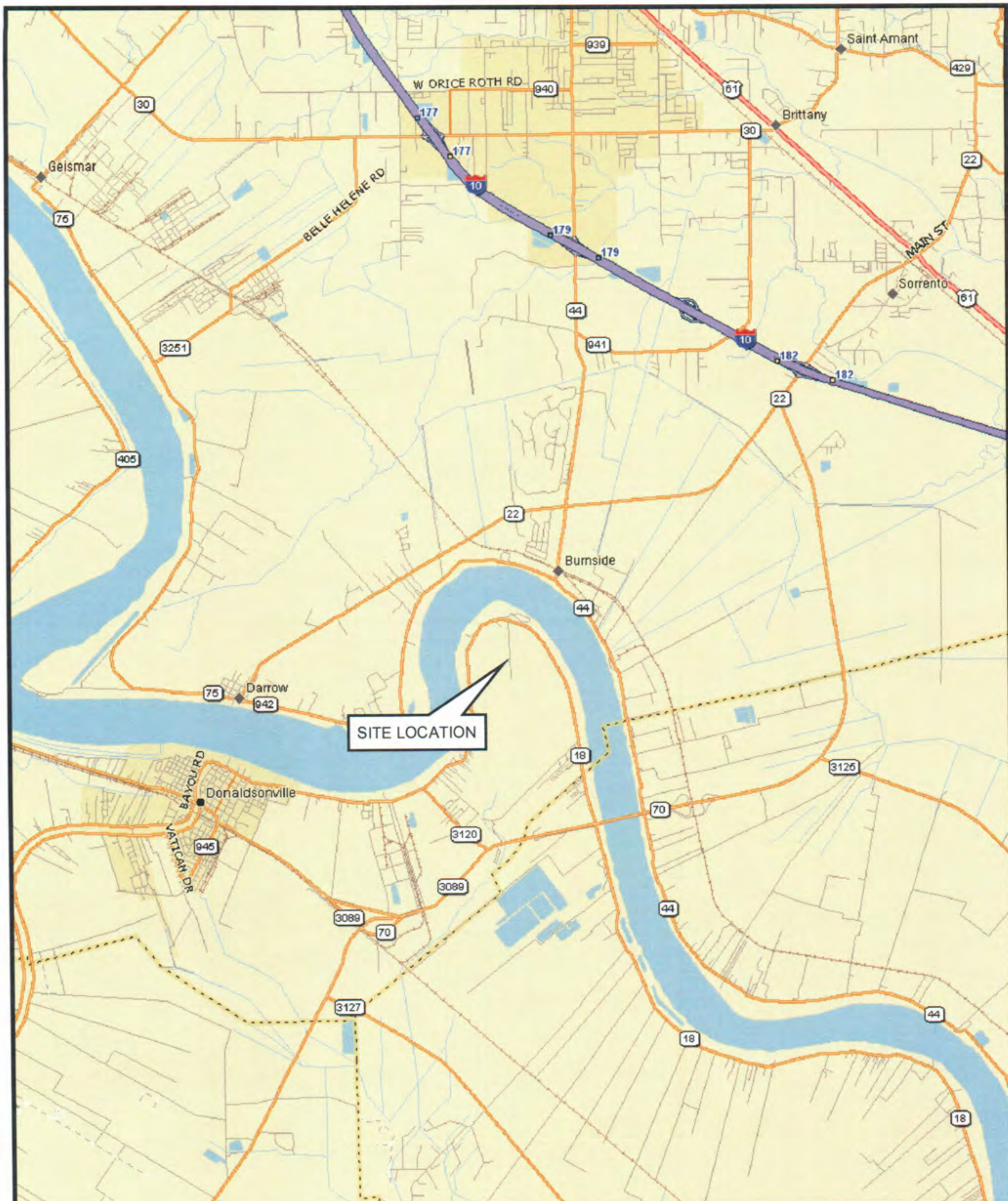
5.0 SUBSEQUENT INVESTIGAITONS

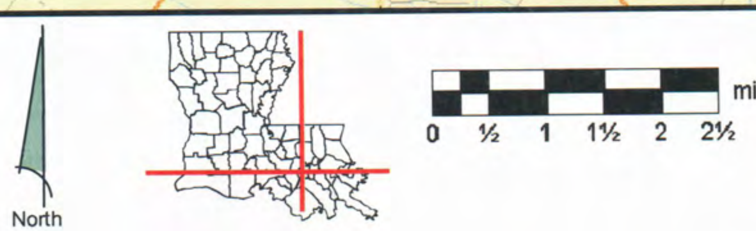
This preliminary investigation provides a valuable understanding of the site conditions such that conceptual design of foundations can be made. However, as noted in Section 1.4, the information collected to date is grossly insufficient for design of foundations. Subsequent investigations should be made to better understand the characteristics and location of the interface between the two geologic deposits on the site, the compressibility characteristics of the backswamp clays and the depth to the competent sand formation throughout the site.

Subsequent investigations can utilize cone penetrometer testing as an efficient means to understand variability of the depositions. Additional soil borings are also necessary to collect sufficient undisturbed samples for laboratory confirmation of shear strength and compressibility properties. Selected soil borings should extend into the more granular materials below 90 feet to confirm classification properties of the lower formations.

As noted in Section 3.4, groundwater levels and their variations will be a critical aspect of foundation design for this site. A program of piezometer installation and monitoring is recommended to understand these variations.

FIGURES





SITE VICINITY MAP	
Donaldsonville Super Site Donaldsonville, Louisiana	
Duplantis Design Group Thibodaux, Louisiana	
Engr: SEG 9107338	Fig No. 1

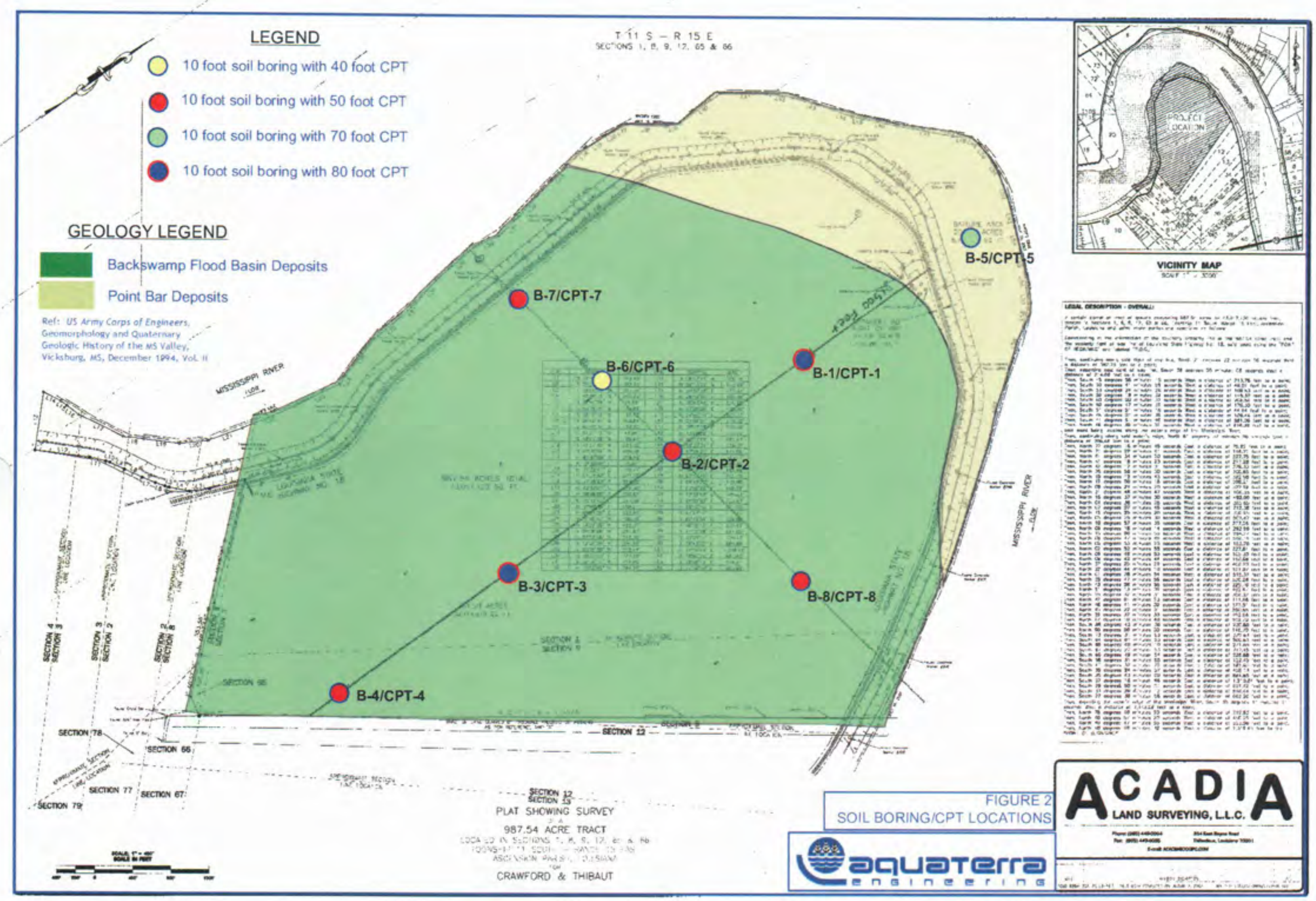
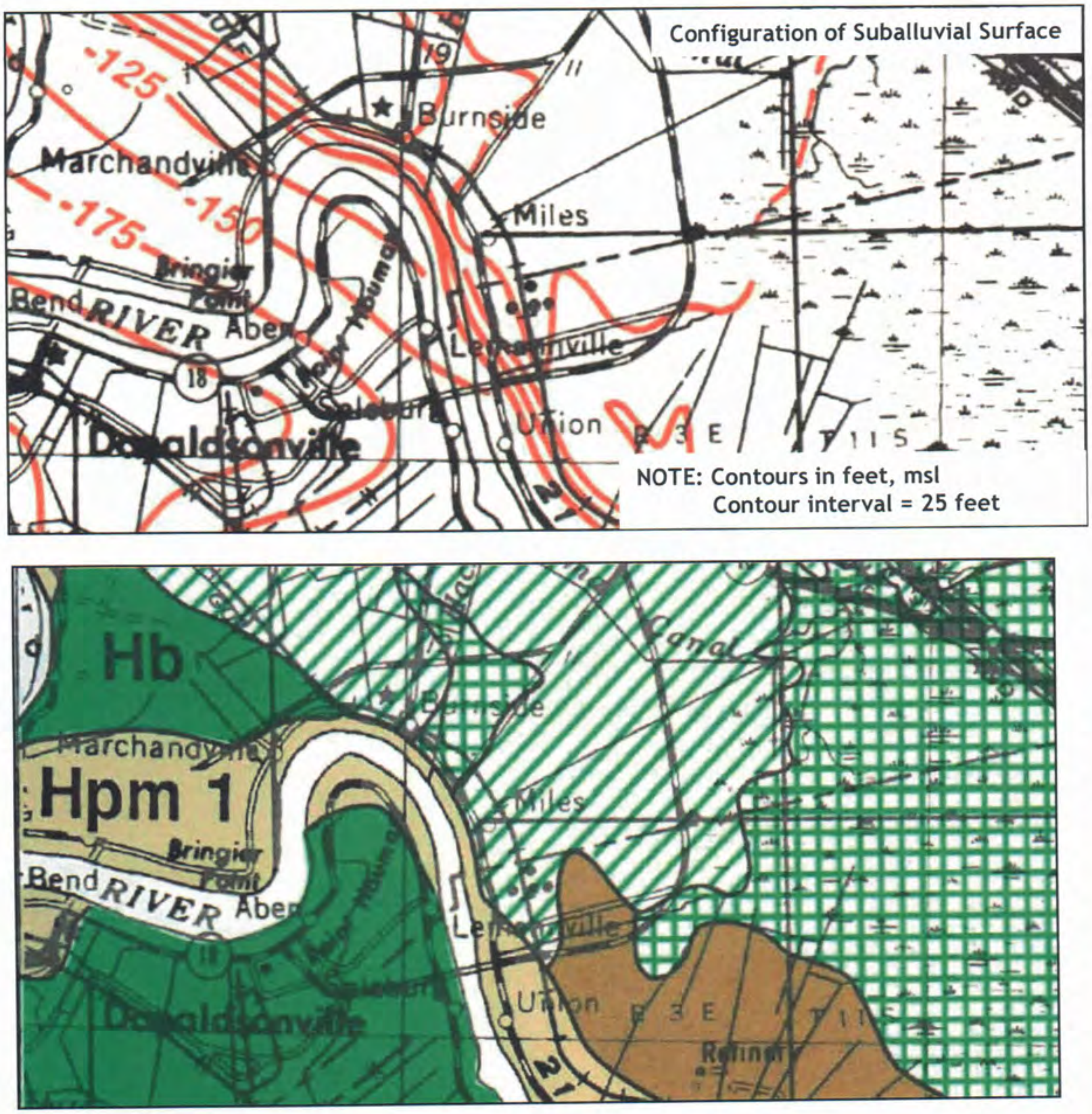


FIGURE 2
SOIL BORING/CPT LOCATIONS



Pleistocene Age Deposits

Undifferentiated Fluvial Deposits of the Prairie Complex. Mostly Natural Levee and Backswamp Complex

Holocene (Alluvial Valley) Age Deposits

Hb — Backswamp Flood Basin Deposits

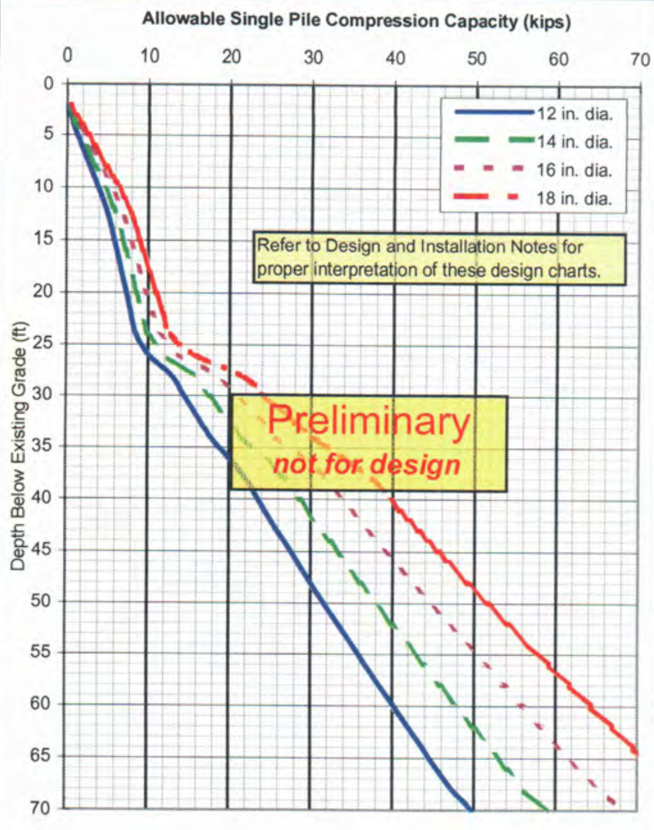
Hpm 1-6 — Point Bar (meander Scroll) Deposits of the Mississippi River

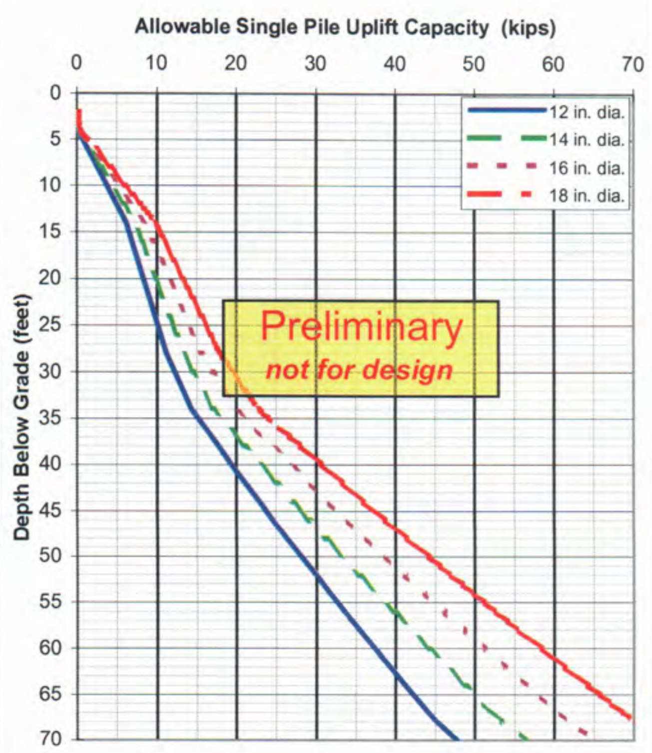
North

Ref: *US Army Corps of Engineers,* Geomorphology and Quaternary Geologic History of the MS Valley, Vicksburg, MS, December 1994, Vol. II

aquaterra engineering

APPROVED: BY: VRD	**Geologic Setting** **Point Houmas - Highway 18** **Donaldsonville, Louisiana**	FIGURE 3
DATE: 11/19/07		
DRAFTED BY: WLW		
PROJECT NO: 9107338		





Notes Regarding Design Capacity Predictions

The chart provides preliminary capacity estimates for individual augered and cast in place piles in static loading. These values can be increased by 30% for designs for highly transient loads (such as max. winds).

Capacity predictions account for adhesion along the shaft/soil interface (with empirically applied limiting adhesion factors) and end bearing at the tip of the shaft.

The capacity predictions should be verified with a more complete field investigation to substantiate subsurface conditions and with a field-scale load test of the pile sizes planned for construction. The test piles should be loaded to a minimum of 200% of its design capacity.

No consideration has been given to decreased capacities that would occur as a result of fill-induced downdrag.

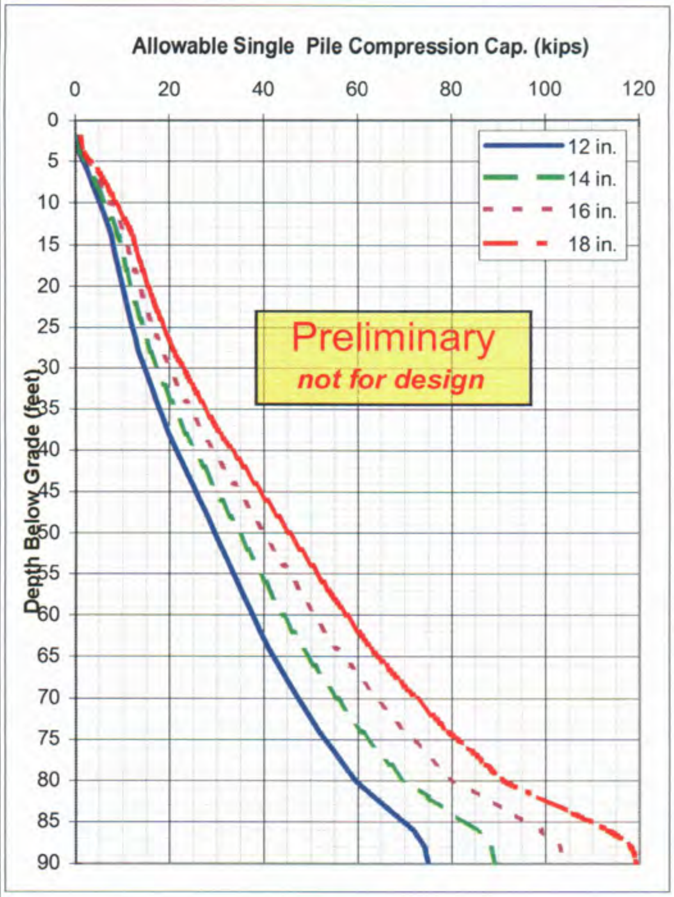
Installation Recommendations

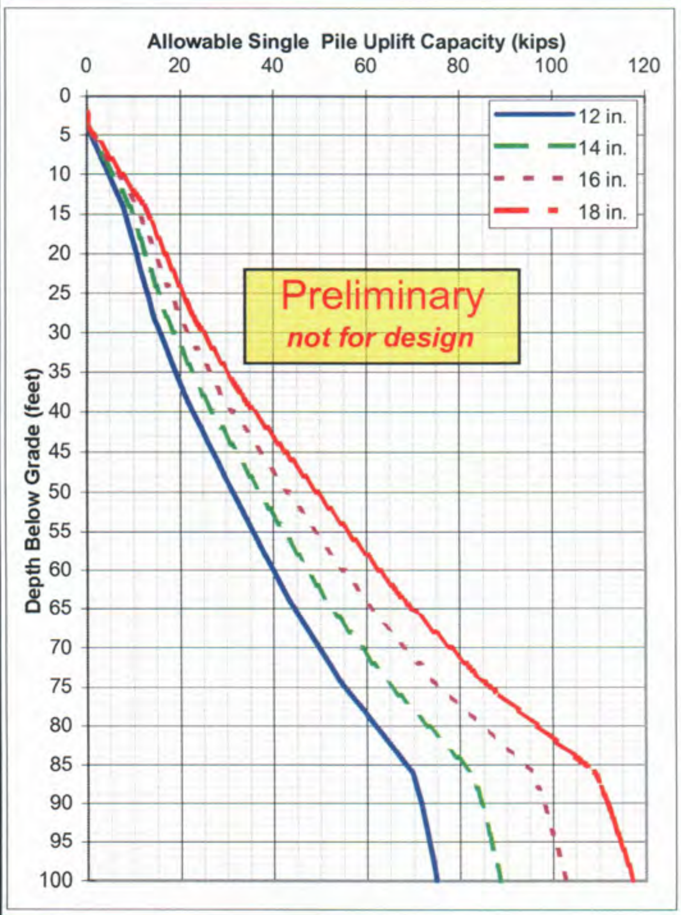
The installation of augered and cast in place piles requires special equiment and procedures. This installation should only be performed by an experienced contractor. Careful quality control is an essential element of construction. Pile integrity testing methods are recommended to ensure the pile is constructed in accordance with designs.

Preliminary Design & Installation Information
Augered Cast in Place Piles

Point Houmas - Highway 18
Donaldsonville, LA

Engr: VRD 9107338	aquaterra engineering	Fig. No. 4





Notes Regarding Design Capacity Predictions

The chart provides preliminary estimates for allowable compression and uplift capacity for individual driven square, precast concrete piles in static loading.

Actual pile capacity should be verified with more complete investigation of the subsurface conditions and during pile driving by monitoring driving resistance (see "Installation" below).

Capacity predictions account for skin friction along the pile/soil interface (with emperically applied limiting adhesion factors) and end bearing at the tip of the pile. Theoritical factors of safety of 2.0 and 2.5 have been used for skin friction and for end bearing, respecitively.

Designs for highly transient loads (such as maximum winds) can increase the values shown above by 30 percent.

No consideration has been given to decreased capacities that would occur as a result of fill-induced downdrag.

Installation

Pile driving should not be difficult in these predominantly cohesive soils. Sand and silt layering may locally increase driving resistance. The driving criteria should be established at the time of construction based on the characteristics of the pile driving hammer used and the required pile capacity. A pile driving analyzer (PDA) should be used during the initial pile driving operations to check the performance of the hammer being used and the actual pile capacity that is achieved.

Vibration monitoring should be performed if movement-sensitive structures are within 200 feet of the installation.

Preliminary Recommendations
Square Concrete Piles

Point Houmas - Highway 18
Donaldsonville, LA

Engr: VRD
9107338

aquaterra

Fig. No.
5

APPENDIX A

FIELD AND LABORATORY PROCEDURES
SOIL BORING LOGS
SOIL BORING LEGEND

This geotechnical investigation was conducted utilizing standard procedures developed by Aquaterra Engineering, LLC for investigations of this nature. The following paragraphs describe the field and laboratory procedures utilized. Detailed soil boring logs which provide data collected and a description of soil and groundwater conditions are also included. The appendix also provides a legend that describes the terms and symbols used in the boring logs.

FIELD INVESTIGATION

The field exploration activities included a site reconnaissance to document characteristics pertinent to the geotechnical investigation and the conduct of a soil exploration program. The information collected during the field investigation was documented by an Aquaterra Engineering Technician.

Site Reconnaissance

The engineering technician walked the project site and documented observations that are of significance to the geotechnical investigation. Such observations include: topography, vegetation, trees, drainage, other structures, surface soil conditions, and trafficability.

These observations were reported to the project engineer in the form of field notes. The project engineer reviewed the results of the field reconnaissance with the engineering technician in a project meeting subsequent to the field investigation.

Soil Borings

Soil Boring Advancement. The borings were advanced at the locations shown on Figure 2 by rotating a four-inch diameter, short-flight earth auger with the drilling rig, removing the auger from each boring, and cleaning the cuttings from the auger before sampling or reinserting the auger into the borings. This technique allowed for the observation of soil cuttings and description of soil conditions encountered. This dry auger technique typically allows detection of free groundwater within each boring.

Soil Sampling. The soil sampling program included the collection of undisturbed and disturbed soil samples. Relatively undisturbed samples were obtained by pushing a three-inch diameter, Shelby tube sampler a distance of two feet into the soil in general accordance with ASTM D1587. Depths at which these undisturbed samples were obtained are indicated by a shaded portion in the "Samples" column of the attached boring logs.

After the Shelby tube was removed from each boring, the sample was carefully extruded in the field and visually classified, or immediately sealed for transport to the laboratory. Relative strength estimates of the samples were obtained by penetrometer readings. These penetrometer readings in units of tons per square foot are indicated by the symbol "(P)" in the "Field Test Results" column of the boring logs. Disturbed portions of the extruded samples were discarded. The undisturbed samples were then sealed in the field to minimize moisture loss and transported to the Aquaterra laboratory.

Disturbed soil samples were also collected during the exploration by the auger method in accordance with ASTM D 1452 (AASHTO T203). The spiral-type (solid-stem) auger consisted of a flat thin metal strip, machine twisted to a spiral configuration of uniform pitch having at one end, a sharpened or hardened point, with a means of attaching a shaft or extension at the opposite end. Depths at which these auger samples were obtained are indicated by a bold vertical line in the "Samples" column of the attached boring logs. The soil content from the auger was visually classified, labeled and placed in a sealed container to minimize moisture loss during transportation to the laboratory.

Groundwater Observations. During the soil boring advancement and sampling operation, observations for free groundwater were made. Information regarding water level observations is recorded in the "groundwater" column on the soil boring logs. Other information regarding water level observations has been noted under "Groundwater Level Data" at the bottom of the soil boring logs.

Boring Abandonment. Upon completion of the field investigation phase of this study, the Soil Borings were backfilled with available soil cuttings according to State Regulations.

LABORATORY TESTING

The soil samples were delivered to the Aquaterra laboratory for testing. The project engineer reviewed the soil boring logs developed in the field and assigned laboratory testing on select samples to provide the data necessary for the anticipated designs.

Laboratory testing was accomplished to determine the engineering properties of the soils encountered. These procedures are discussed below.

Index Properties

Moisture Content. Moisture content tests were performed to better understand the classification and shrink/swell potential of the soils encountered. These tests were performed in general accordance with ASTM D 2216. The results of these tests are tabulated within the Laboratory Data section of the attached boring logs.

Atterberg Limits. Liquid limit (LL) and plastic limit (PL) determinations were performed to assist in classification by the Unified Soil Classification System (USCS). These tests were performed in general accordance with ASTM D 4318. The plasticity index (PI) was calculated as LL - PL for each Atterberg limit determination. The results of these tests are tabulated within the Laboratory Data section of the attached boring logs.

Strength Tests

Unconfined Compression. The undrained shear strength of selected undisturbed soil samples was determined by means of unconfined compression tests (ASTM D 2166). In this test, a cylindrical sample of soil is subjected to a uniformly increasing axial strain until failure develops. For purely cohesive soils, the undrained shear strength, or cohesion, is taken to be equal to one-half of the maximum observed normal stress on the sample during the test.

The results of the unconfined compression tests are provided as undrained shear strength values within the Laboratory Data section of the attached boring logs. Also shown are the natural water contents and unit dry weights determined as a part of each unconfined compression test.

PROJECT: Geotechnical Investigation
Point Houmas - Highway 18
Donaldsonville, Louisiana

CLIENT: Duplantis Design Group
Thibodaux, Louisiana

SOIL BORING LOG

No. B-1

SHEET 1 OF 1

FILE: 9107338
DATE: October 31, 2007
DRILLER: D. Lacap
TECH.: B. Alexander
ENGINEER: V. Donald

Location: See Figure 2.
Lat.: 30° 07' 34.0" Long.: 90° 56' 00.5"

Depth (feet)	Field Test Results	Undrained Shear Strength (ksf)	Unit Weight Moist (pcf)	Unit Weight Dry (pcf)	Plastic Limit	Moisture Content	Liquid Limit	Plasticity Index (PI)	Description	Strata Break Depth
0–2	>4.00 (P)					15			Very stiff to hard brown and gray **SILTY CLAY (CL)**	2.0
2–4	1.00 (P)	0.71	113	88	19	29	30	11	Firm tan and light gray **SILTY CLAY (CL)**	4.0
4–6	0.75 (P)								Firm gray **CLAY (CH)**	
6–8	1.25 (P)	0.90	113	85	25	33	57	32		8.0
8–10	0.50 (P)	0.38	115	89		29			Soft gray **SANDY CLAY (CL)**	10.0

Boring Terminated at 10 Feet.

STRATA BOUNDARIES MAY NOT BE EXACT

Groundwater Level Data

First encountered at 9 ft.
Rose to 7 ft. 6 in. after 20 min.

Advancement Method

Short-flight Auger: 0' - 10'

Abandonment Method

Boring backfilled with soil cuttings upon completion.

Notes

aquaterra engineering

AQ LOG SB.GPJ LOGS 9107338.GPJ AQUATERR.GDT 11/15/07

PROJECT: Geotechnical Investigation
Point Houmas - Highway 18
Donaldsonville, Louisiana

CLIENT: Duplantis Design Group
Thibodaux, Louisiana

SOIL BORING LOG

No. B-2

SHEET 1 OF 1

FILE: 9107338
DATE: October 31, 2007
DRILLER: D. Lacap
TECH.: B. Alexander
ENGINEER: V. Donald

Location: See Figure 2.
Lat.: 30° 07' 20.1" Long.: 90° 56' 59.6"

Depth (feet)	Field Test Results	Undrained Shear Strength (ksf)	Unit Weight (pcf) Moist	Unit Weight (pcf) Dry	Natural Moisture Content and Atterberg Limits (Plastic Limit / Moisture Content / Liquid Limit)	Plasticity Index PI	DESCRIPTION	Strata Break Depth
0–2	4.00 (P)	4.59	122	104	26 / 17 / 45	19	Hard brown **SILTY CLAY (CL)** - dry	2.0
2–4	1.75 (P)						Stiff to very stiff gray and brown **SILTY CLAY (CL)**	4.0
4–6	0.50 (P)	0.38	109	69	59		Soft brown **SILTY CLAY (CL)**	6.0
6–8	0.75 (P)						Firm gray and brown **CLAY (CH)**	
8–10	1.25 (P)	0.86	111	83	20 / 34 / 61	41		10.0

Boring Terminated at 10 Feet.

STRATA BOUNDARIES MAY NOT BE EXACT

Groundwater Level Data
- ▽ First encountered at 8 ft. 6 in.
- ▽ Rose to 6 ft. 3. in. after 20 min.

Advancement Method
Short-flight Auger: 0' - 10'

Abandonment Method
Boring backfilled with soil cuttings upon completion.

Notes

aquaterra engineering

AQ LOG SB... OGS.9107338.GPJ AQUATERR.GDT 11/15/07

PROJECT: Geotechnical Investigation
Point Houmas - Highway 18
Donaldsonville, Louisiana

CLIENT: Duplantis Design Group
Thibodaux, Louisiana

SOIL BORING LOG
No. B-3
SHEET 1 OF 1

FILE: 9107338
DATE: October 31, 2007
DRILLER: D. Lacap
TECH.: B. Alexander
ENGINEER: V. Donald

Location: See Figure 2.
Lat.: 30° 07' 02.3" Long.: 90° 56' 58.5"

Depth (feet)	Field Test Results	Undrained Shear Strength (ksf)	Unit Weight Moist (pcf)	Unit Weight Dry (pcf)	Plastic Limit	Moisture Content	Liquid Limit	PI	Description	Strata Break Depth
	3.00 (P)					28			Stiff to very stiff black **CLAY (CH)**	2.0
	1.75 (P)	1.58	106	78	33	36	87	54	Stiff brown **CLAY (CH)**	
5	1.50 (P)									6.0
	0.75 (P)	0.61	99	66	39	51	90	51	Firm gray and brown **CLAY (CH)**	
	0.50 (P)									
10									**Boring Terminated at 10 Feet.**	10.0

STRATA BOUNDARIES MAY NOT BE EXACT

Groundwater Level Data
☒ No free water encountered

Advancement Method
Short-flight Auger: 0' - 10'

Abandonment Method
Boring backfilled with soil cuttings upon completion.

Notes

aquaterra engineering

PROJECT: Geotechnical Investigation
Point Houmas - Highway 18
Donaldsonville, Louisiana

CLIENT: Duplantis Design Group
Thibodaux, Louisiana

SOIL BORING LOG

No. B-4

SHEET 1 OF 1

FILE: 9107338
DATE: October 31, 2007
DRILLER: D. Lacap
TECH.: B. Alexander
ENGINEER: V. Donald

Location: See Figure 2.
Lat.: 30° 06' 48.0" Long.: 90° 55' 57.8"

Depth (feet)	Groundwater Level	Field Test Results	Undrained Shear Strength (ksf)	Unit Weight Moist (pcf)	Unit Weight Dry (pcf)	Plastic Limit	Moisture Content	Liquid Limit	Plasticity Index PI	Description	Strata Break Depth
		3.75 (P)					34			Stiff black **CLAY (CH)**	
		2.00 (P)	1.26	101	69	40	46	105	65		
5	▽	1.00 (P)								- firm to stiff below 4'	6.0
		0.50 (P)	0.35	95	59	38	61	94	56	Soft dark gray **CLAY (CH)**	
	▽	0.50 (P)									10.0
10										**Boring Terminated at 10 Feet.**	

STRATA BOUNDARIES MAY NOT BE EXACT

Groundwater Level Data
▽ First encountered at 9 ft.
▽ Rose to 5 ft. after 45 min.

Advancement Method
Short-flight Auger: 0' - 10'

Abandonment Method
Boring backfilled with soil cuttings upon completion.

Notes

aquaterra engineering

PROJECT: Geotechnical Investigation
Point Houmas - Highway 18
Donaldsonville, Louisiana

CLIENT: Duplantis Design Group
Thibodaux, Louisiana

SOIL BORING LOG

No. B-5

SHEET 1 OF 1

FILE: 9107338
DATE: November 9, 2007
DRILLER: D. Lacap
TECH.: T. Moore
ENGINEER: V. Donald

Location: See Figure 2.
Lat.: 30° 07' 52.5" Long.: 90° 55' 59.1"

Depth (feet)	Groundwater Level	Field Test Results	Undrained Shear Strength (ksf)	Unit Weight (pcf) Moist	Unit Weight (pcf) Dry	Plastic Limit	Moisture Content	Liquid Limit	Plasticity Index PI	Description	Strata Break Depth
0–2		2.00 (P)	1.07	110	85	18	30	52	34	Stiff brown **CLAY (CH)** - with ferrous nodules	2.0
2–10		1.00 (P)								Firm gray **CLAY (CH)** - with ferrous nodules	
5		1.00 (P)	0.55	113	83		36				
		0.75 (P)	0.60	105	74	18	42	65	47		
	▽	1.00 (P)									10.0
10										**Boring Terminated at 10 Feet.**	

Depth scale: 5, 10, 15, 20, 25. Moisture content scale: 20, 40, 60, 80.

STRATA BOUNDARIES MAY NOT BE EXACT

Groundwater Level Data
▽ First encountered at 9 ft.
No rise after 20 min.

Advancement Method
Short-flight Auger: 0' - 10'

Abandonment Method
Boring backfilled with soil cuttings upon completion.

Notes

aquaterra engineering

AQ LOG SB. LOGS.9107338.GPJ AQUATERR.GDT 11/15/07

PROJECT: Geotechnical Investigation Point Houmas - Highway 18 Donaldsonville, Louisiana CLIENT: Duplantis Design Group Thibodaux, Louisiana	***SOIL BORING LOG*** **No. B-6** SHEET 1 OF 1	FILE: 9107338 DATE: November 9, 2007 DRILLER: D. Lacap TECH.: T. Moore ENGINEER: V. Donald

Location: See Figure 2.

Lat.: 30° 06' 57.8" Long.: 90° 56' 08.9"

Depth (feet)	Samples	Groundwater Level	Field Test Results	Undrained Shear Strength (ksf)	Unit Weight (pcf) Moist	Unit Weight (pcf) Dry		Natural Moisture Content and Atterberg Limits (Plastic Limit / Moisture Content / Liquid Limit)	Plasticity Index PI	DESCRIPTION	Strata Break Depth	Soil Type
	▮		2.75 (P)					39		Firm dark gray and light gray **CLAY (CH)** - with ferrous nodules		▨
	▮		1.25 (P)	0.95	110	77		28 / 42 / 93	65			▨
5	▮		0.75 (P)								6.0	▨
	▮	▽	0.50 (P)					23 / 45 / 62	39	Soft to firm light gray and tan **CLAY (CH)** - with ferrous nodules		▨
	▮		0.75 (P)									▨
10										**Boring Terminated at 10 Feet.**	10.0	
15												
20												
25										*STRATA BOUNDARIES MAY NOT BE EXACT*		

Scale: 20 40 60 80

Groundwater Level Data

▽ First encountered at 7 ft.

No rise after 20 min.

Advancement Method

Short-flight Auger: 0' - 10'

Abandonment Method

Boring backfilled with soil cuttings upon completion.

Notes

aquaterra engineering

PROJECT: Geotechnical Investigation
Point Houmas - Highway 18
Donaldsonville, Louisiana

CLIENT: Duplantis Design Group
Thibodaux, Louisiana

SOIL BORING LOG

No. B-7

SHEET 1 OF 1

FILE: 9107338
DATE: November 9, 2007
DRILLER: D. Lacap
TECH.: T. Moore
ENGINEER: V. Donald

Location: See Figure 2.
Lat.: 30° 06' 57.5" Long.: 90° 56' 23.6"

Depth (feet)	Field Test Results	Undrained Shear Strength (ksf)	Unit Weight (pcf) Moist	Unit Weight (pcf) Dry	Plastic Limit	Moisture Content	Liquid Limit	Plasticity Index PI	DESCRIPTION	Strata Break Depth
	3.25 (P)					27			Stiff dark gray and light gray **CLAY (CH)**	
	1.50 (P)	1.37	108	78	22	38	67	45		
5	0.75 (P)								- firm below 4'	6.0
	0.25 (P)								Soft dark gray **CLAY (CH)**	
	1.00 (P)	0.42	105	72	25	45	73	48		
10									**Boring Terminated at 10 Feet.**	10.0
15										
20										
25										

STRATA BOUNDARIES MAY NOT BE EXACT

Groundwater Level Data

▽ First encountered at 9 ft.
No rise after 20 min.

Advancement Method

Short-flight Auger: 0' - 10'

Abandonment Method

Boring backfilled with soil cuttings upon completion.

Notes

aquaterra engineering

PROJECT: Geotechnical Investigation
Point Houmas - Highway 18
Donaldsonville, Louisiana

CLIENT: Duplantis Design Group
Thibodaux, Louisiana

SOIL BORING LOG
No. B-8
SHEET 1 OF 1

FILE: 9107338
DATE: November 9, 2007
DRILLER: D. Lacap
TECH.: T. Moore
ENGINEER: V. Donald

Location: See Figure 2.
Lat.: 30° 07' 02.8" Long.: 90° 55' 51.3"

Depth (feet)	Samples	Groundwater Level	Field Test Results	Undrained Shear Strength (ksf)	Unit Weight (pcf) Moist	Unit Weight (pcf) Dry		Plastic Limit	Natural Moisture Content	Liquid Limit	Plasticity Index (PI)	DESCRIPTION	Strata Break Depth	Soil Type
			1.75 (P)						35			Stiff dark gray **CLAY (CH)**		
			1.75 (P)	1.20	111	79		26	41	93	67		4.0	
5			0.75 (P)									Firm dark gray **CLAY (CH)**		
		▽	1.25 (P)	0.65	104	69		29	50	95	66			
			0.75 (P)											
10												**Boring Terminated at 10 Feet.**	10.0	
15														
20														
25												*STRATA BOUNDARIES MAY NOT BE EXACT*		

Groundwater Level Data

▽ First encountered at 6 ft. 6 in.
No rise after 20 min.

Advancement Method

Short-flight Auger: 0' - 10'

Abandonment Method

Boring backfilled with soil cuttings upon completion.

Notes

SOIL BORING LEGEND

FIELD DATA				LABORATORY DATA						Location: Coordinate (North & East) Latitude Longitude Surface Elevation: Elev.	
Depth (feet)	Samples	Groundwater Level	Field Test Results	Undrained Shear Strength (ksf)	Unit Weight (pcf) Moist	Unit Weight (pcf) Dry	Other/ Percent Finer	Natural Moisture Content and Atterberg Limits (Plastic Limit, Moisture Content, Liquid Limit; 20 40 60 80)	Plasticity Index PI	DESCRIPTION	Soil Type

Depth (feet): 5, 10, 15, 20, 25

Field Test Results:
- Auger Sample
- Pocket penetrometer reading — 1.00
- Shelby Tube Sample
- Standard Penetration Test (blows/foot) — 35 b/f, 17-17-18
- Split Spoon Sample
- No Recovery
- Rock Core Sample — 1.00
- Probe Core Sample

TERMS DESCRIBING CONSISTENCY

Noncohesive Soils

(includes gravels, sands and silts) Consistency determined by Standard Penetration Resistance

Descriptive Term	Standard Penetration Resistance (blows per foot)
Very Loose	less than 4
Loose	5 to 9
Medium Dense	10 to 29
Dense	30 to 50
Very Dense	above 50

Cohesive Soils

(includes clays) Consistency determined by laboratory shear strength testing or by field visual-manual procedures.

Descriptive Term	Undrained Shear Strength (kips per sq. ft.)
Very Soft	less than 0.25
Soft	0.25 to 0.50
Firm	0.50 to 1.00
Stiff	1.00 to 2.00
Very Stiff	2.00 to 4.00
Hard	above 4.00

FIELD TESTING

Standard Penetration Testing	Pocket Penetrometer
The penetration resistance is the number of blows required to drive the split-spoon sampler the final 12 inches of penetration.	Strength estimates of relatively undisturbed samples are obtained by penetrometer readings. The measured units are in tons per square foot (tsf).

NOTES REGARDING SOIL DESCRIPTION

Soil descriptions provide classifications according to ASTM D2487 - Classifications of Soils for Engineering Purposes. Where laboratory data are available for shear strength and for classification verification, the data are utilized. Where no laboratory data exist, the descriptions are based upon the field classifications as made during the exploration according to ASTM D2488 - Description and Identification of Soils (Visual - Manual Procedure).

Soil structure as described on the boring logs can be defined as follows:

- *Layer:* A soil deposit with a thickness in excess of one inch
- *Seam:* A soil layer with a thickness of less than one inch.
- *Homogeneous:* Having the same color and appearance throughout and lacking fissures.
- *Fissured:* Having definite planes of discontinuity within a soil mass.
- *Slickensided:* A fissured condition with fracture planes that appear polished and glossy.
- *Jointed:* A fissured condition with fracture planes that are numerous and limited in extent.
- *Laminated:* Numerous thin seams of soil types which vary in texture or color.
- *Calcareous:* Containing obvious quantities of calcium carbonate.
- *Indurated:* Hardened by pressure or cementation.
- *Friable:* Easily crumbled.
- *Organic:* Containing remains of living organisms.

DESCRIPTION

- CONCRETE
- FILL
- CLAY
- SANDY SILT
- CLAYEY SAND
- CLAYEY SILT
- SAND
- SILTY SAND
- SILTY CLAY
- CLAYEY SILT/SILTY CLAY
- SANDY CLAY
- GRAVEL

STRATA BOUNDARIES MAY NOT BE EXACT

Groundwater Level Data	Advancement Method	Notes
Water initially encountered during dry augering Groundwater level after a specified observation period Stabilized water level after an extended period of observation Actual depth to water may vary from the conditions observed in the borings. The presence of groundwater is masked in borings advanced by rotary wash methods.	Description of methodology used to advance soil boring. **Abandonment Method** Description of methodology used to abandon or fill the completed borehole.	Notes describing other laboratory tests or surface conditions.

aquaterra engineering

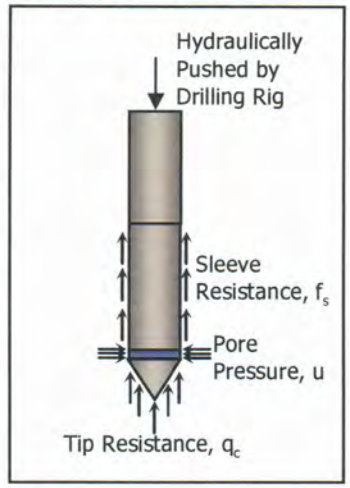
APPENDIX B

CONE PENETROMETER TEST (CPT) PROCEDURES
CPT LOG
CPT LEGEND
CPT CALIBRATION CERTIFICATE

Cone Penetrometer Testing

The field investigation included the conduct of Cone Penetrometer Test (CPT) probes at the locations designated by the project engineer. The locations are illustrated on Figure 2.

At the designated location, a CPT test was performed by pushing a 10-square centimeter electric cone penetrometer (cylindrical probe with a cone-shaped tip, equipped with electronic load sensors) with load cells to measure tip resistance and sleeve resistance. A pressure transducer is utilized to measure pore pressure at an approximate rate of 20 millimeters/second using the hydraulic cylinders of the drilling rig. The illustration shows the forces acting on the CPT device.



The CPT device was equipped to measure soil resistance to tip and sleeve penetration, pore pressure and inclination at 50-millimeter intervals during penetration. These data were transferred to an on-site computer using acoustic data transmission and interpretation software. The data were also stored in the memory of the CPT tool. This process allowed for continuous monitoring of the data as the cone was advanced in order to understand the resistance and inclination of the tool in a real-time fashion.

Upon completion of the testing, the data collected were downloaded directly from the CPT device to the on-site computer. The collected data were then interpreted using software provided by the manufacturer. The software interprets the basic information related to cone and sleeve resistance, pore pressure and inclination. It also allows interpretation of apparent soil behavior properties (for example clay, silt, sand, etc.) and soil parameters, such as undrained shear strength, standard penetration resistance, overconsolidation ratio and unit weight. The conventional field data from the soil boring and the available laboratory test results (presented in Appendix A) were used to correlate the CPT interpretations for this particular site.

The testing and calibration of the CPT device was conducted in general conformance with ASTM D 5778. Upon completion of the CPT, the resulting hole from the CPT probe was backfilled with cement/bentonite grout. The Calibration Certificate for the CPT probe utilized on this project is presented in this Appendix.

The resulting CPT data are included in this Appendix. A description of the symbols and methods used as a part of the CPT effort is also provided in this Appendix.

PROJECT: Geotechnical Investigation
Point Houmas - Highway 18
Donaldsonville, Louisiana

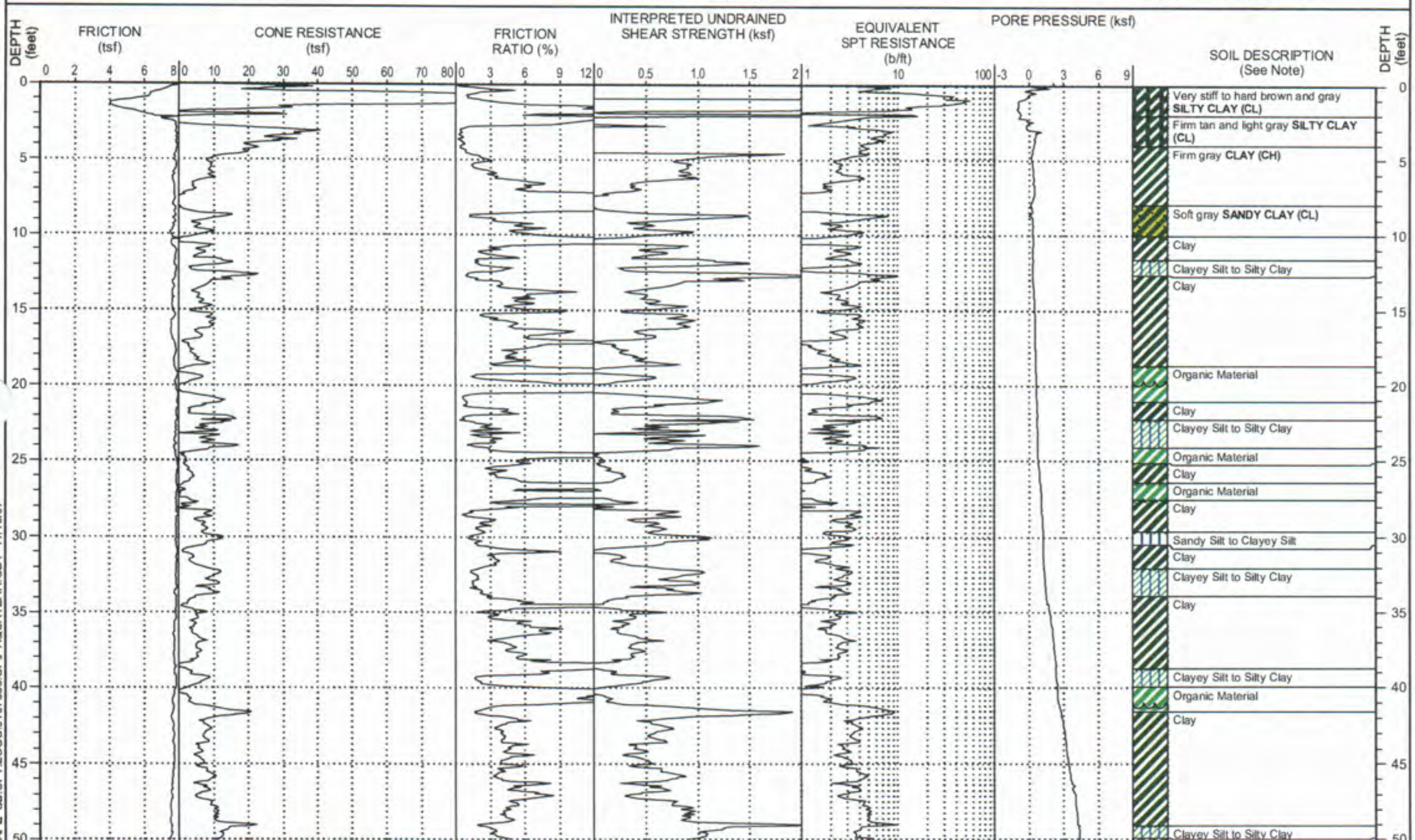
CLIENT: Duplantis Design Group
Thibodaux, Louisiana

CONE PENETROMETER TEST LOG

CPT-1

Associated Soil Boring: B-1

FILE: 9107338
DATE: October 31, 2007
DRILLER: D. Lacap
TECH.: B. Alexander
ENGINEER: V. Donald



STRATA BOUNDARIES MAY NOT BE EXACT

aquaterra engineering

Abandonment Method

CPT backfilled with cement-bentonite grout upon retraction.

Notes

Upper 10 ft. of Interpreted Soil Description is taken from Laboratory Test Results and Visual Classification of soil samples as described in the associated Soil Boring Log. Below 10 ft. Soil Description is an interpreted behavior type based upon empirical correlations of cone tip and sleeve resistance.

CPT LOG - LANDSCAPE SB.CPT LOGS.9107338.GPJ AQUATERR.GDT 11/19/07

PROJECT: Geotechnical Investigation
Point Houmas - Highway 18
Donaldsonville, Louisiana

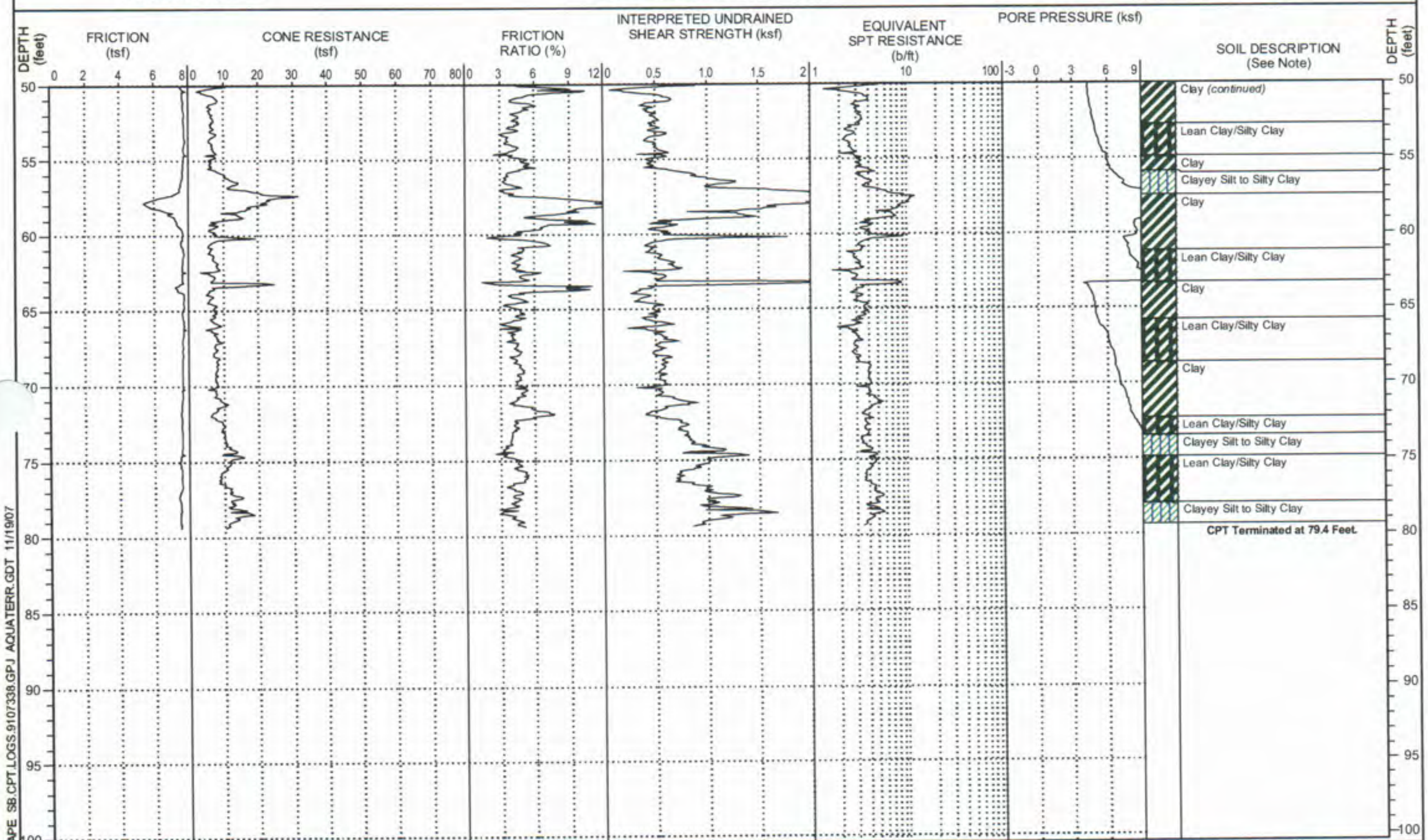
CLIENT: Duplantis Design Group
Thibodaux, Louisiana

CONE PENETROMETER TEST LOG

CPT-1

Associated Soil Boring: B-1

FILE: 9107338
DATE: October 31, 2007
DRILLER: D. Lacap
TECH.: B. Alexander
ENGINEER: V. Donald



STRATA BOUNDARIES MAY NOT BE EXACT

aquaterra engineering

Abandonment Method

CPT backfilled with cement-bentonite grout upon retraction.

Notes

Upper 10 ft. of Interpreted Soil Description is taken from Laboratory Test Results and Visual Classification of soil samples as described in the associated Soil Boring Log. Below 10 ft. Soil Description is an interpreted behavior type based upon empirical correlations of cone tip and sleeve resistance.

CPT LOG - LANDSCAPE SB CPT LOGS 9107338.GPJ AQUATERR.GDT 11/19/07

PROJECT: Geotechnical Investigation
Point Houmas - Highway 18
Donaldsonville, Louisiana

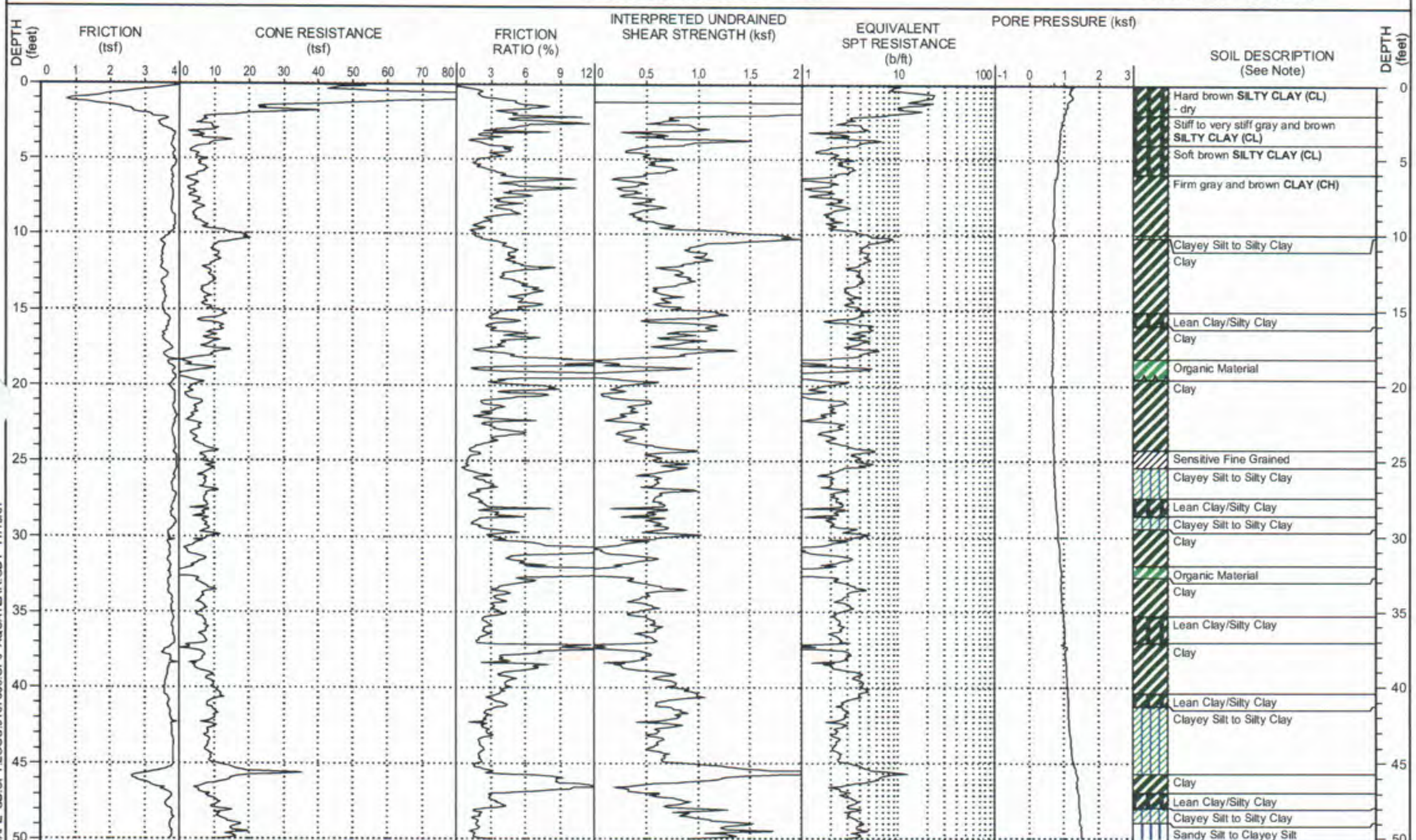
CLIENT: Duplantis Design Group
Thibodaux, Louisiana

CONE PENETROMETER TEST LOG

CPT-2

Associated Soil Boring: B-2

FILE: 9107338
DATE: October 31, 2007
DRILLER: D. Lacap
TECH.: B. Alexander
ENGINEER: V. Donald



STRATA BOUNDARIES MAY NOT BE EXACT

Abandonment Method

CPT backfilled with cement-bentonite grout upon retraction.

Notes

Upper 10 ft. of Interpreted Soil Description is taken from Laboratory Test Results and Visual Classification of soil samples as described in the associated Soil Boring Log. Below 10 ft. Soil Description is an interpreted behavior type based upon empirical correlations of cone tip and sleeve resistance.

aquaterra engineering

CPT LOG - LANDSCAPE SB.CPT LOGS.9107338.GPJ AQUATERR.GDT 11/19/07

PROJECT: Geotechnical Investigation
Point Houmas - Highway 18
Donaldsonville, Louisiana

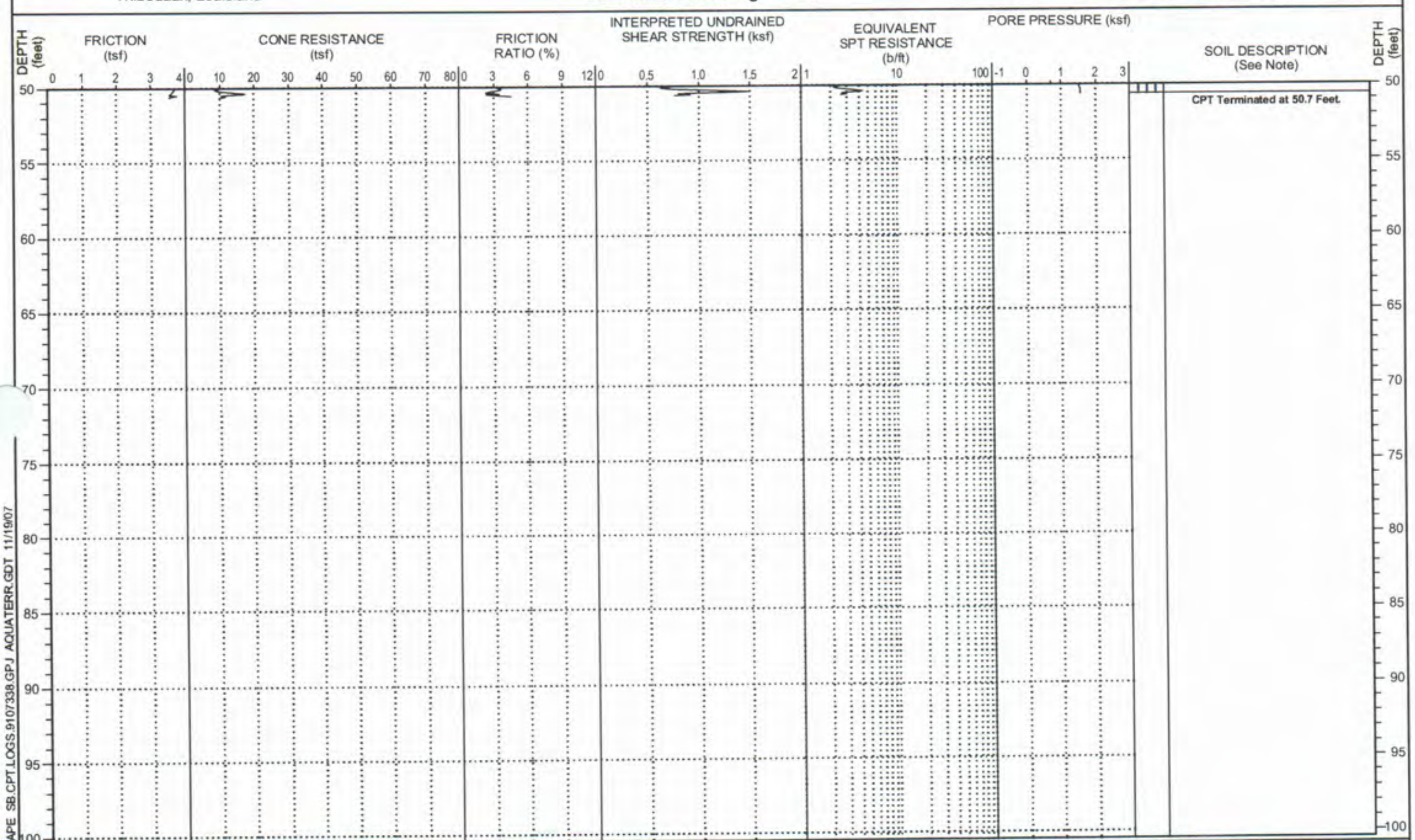
CLIENT: Duplantis Design Group
Thibodaux, Louisiana

CONE PENETROMETER TEST LOG

CPT-2

Associated Soil Boring: B-2

FILE: 9107338
DATE: October 31, 2007
DRILLER: D. Lacap
TECH.: B. Alexander
ENGINEER: V. Donald



Abandonment Method

CPT backfilled with cement-bentonite grout upon retraction.

Notes

Upper 10 ft. of Interpreted Soil Description is taken from Laboratory Test Results and Visual Classification of soil samples as described in the associated Soil Boring Log. Below 10 ft. Soil Description is an interpreted behavior type based upon empirical correlations of cone tip and sleeve resistance.

aquaterra engineering

CPT LOG - LANDSCAPE SB.CPT LOGS 9107338.GPJ AQUATERR.GDT 11/19/07

PROJECT: Geotechnical Investigation
Point Houmas - Highway 18
Donaldsonville, Louisiana

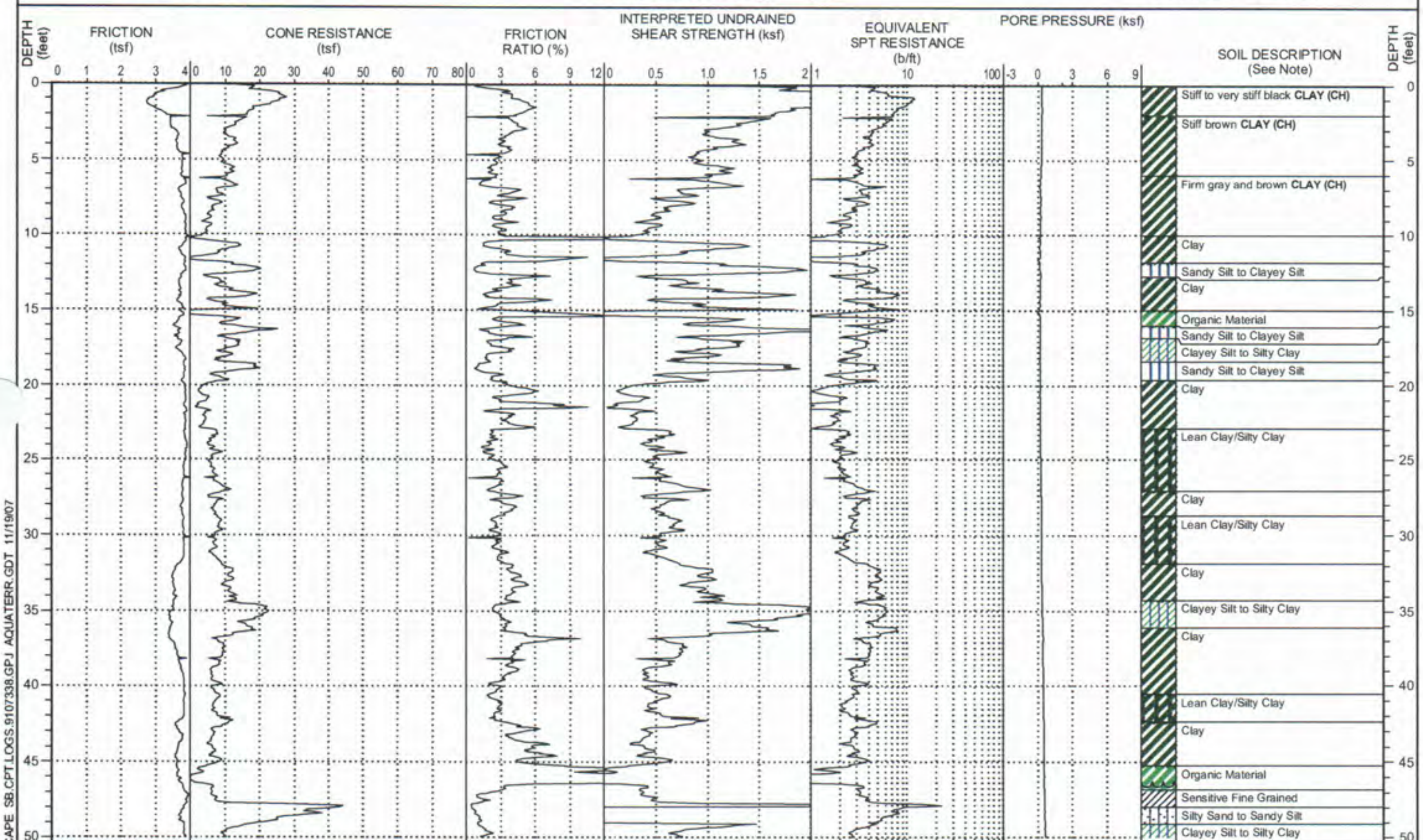
CLIENT: Duplantis Design Group
Thibodaux, Louisiana

CONE PENETROMETER TEST LOG

CPT-3

Associated Soil Boring: B-3

FILE: 9107338
DATE: October 31, 2007
DRILLER: D. Lacap
TECH.: B. Alexander
ENGINEER: V. Donald



CPT LOG - LANDSCAPE SB.CPT LOGS.9107338.GPJ AQUATERR.GDT 11/19/07

aquaterra engineering

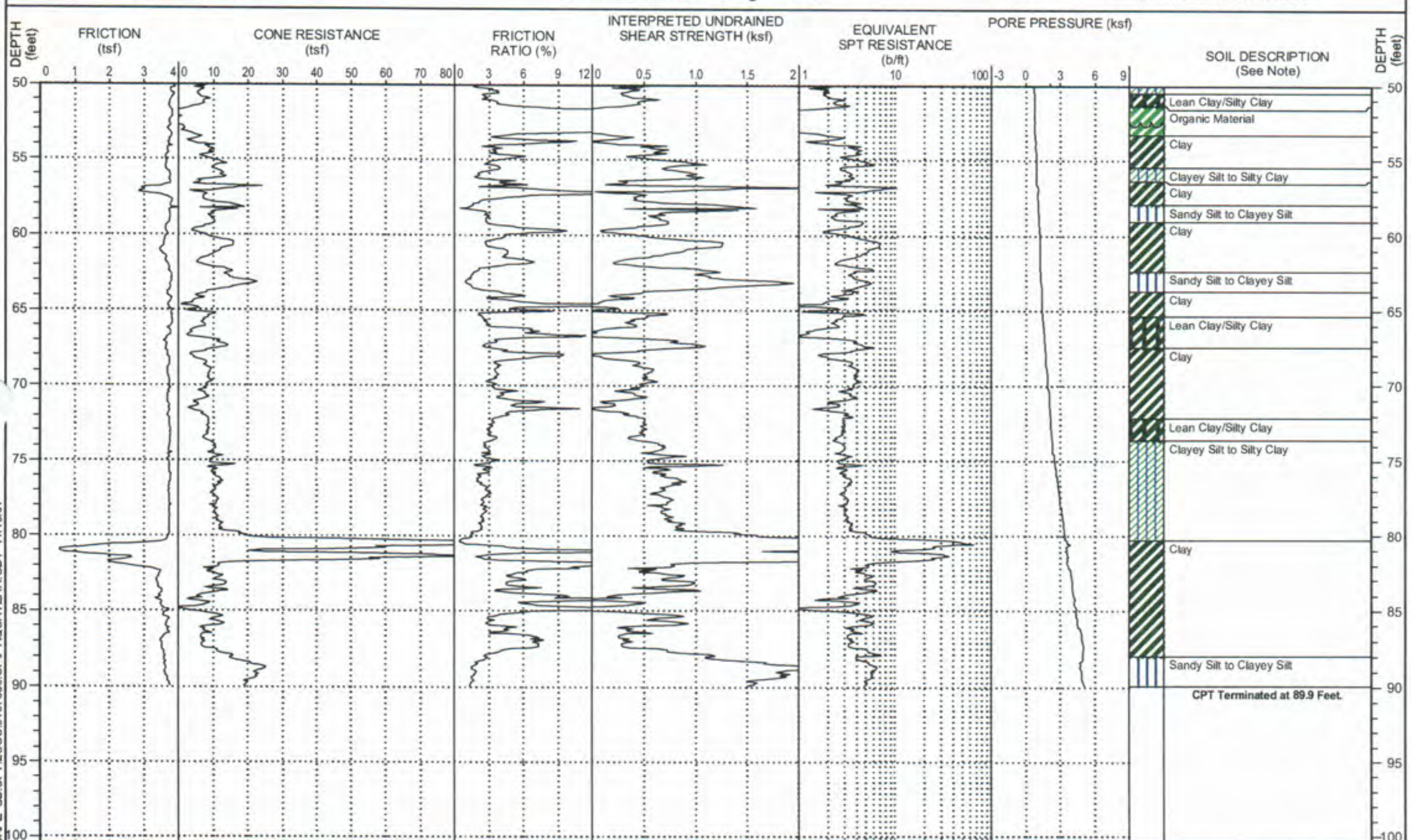
Abandonment Method

CPT backfilled with cement-bentonite grout upon retraction.

Notes

Upper 10 ft. of Interpreted Soil Description is taken from Laboratory Test Results and Visual Classification of soil samples as described in the associated Soil Boring Log. Below 10 ft. Soil Description is an interpreted behavior type based upon empirical correlations of cone tip and sleeve resistance.

PROJECT:	Geotechnical Investigation Point Houmas - Highway 18 Donaldsonville, Louisiana	**_CONE PENETROMETER TEST LOG_** **CPT-3**	FILE: DATE: DRILLER: TECH.: ENGINEER:	9107338 October 31, 2007 D. Lacap B. Alexander V. Donald
CLIENT:	Duplantis Design Group Thibodaux, Louisiana	**Associated Soil Boring: B-3**		



Abandonment Method	Notes
CPT backfilled with cement-bentonite grout upon retraction.	Upper 10 ft. of Interpreted Soil Description is taken from Laboratory Test Results and Visual Classification of soil samples as described in the associated Soil Boring Log. Below 10 ft. Soil Description is an interpreted behavior type based upon empirical correlations of cone tip and sleeve resistance.

aquaterra engineering

CPT LOG - LANDSCAPE SB,CPT LOGS 910/338.GPJ AQUATERR.GDT 11/19/07

PROJECT: Geotechnical Investigation
Point Houmas - Highway 18
Donaldsonville, Louisiana

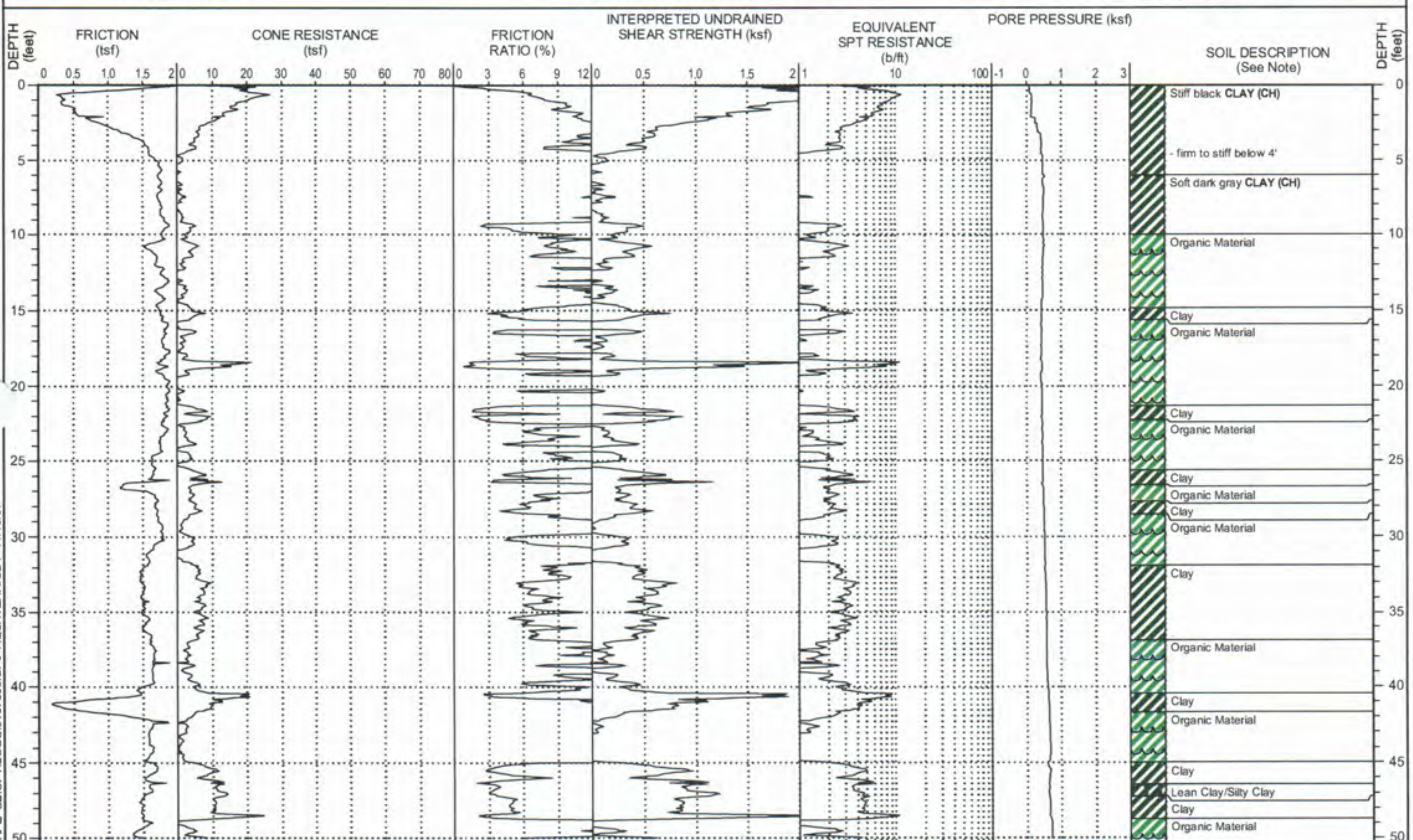
CLIENT: Duplantis Design Group
Thibodaux, Louisiana

CONE PENETROMETER TEST LOG

CPT-4

Associated Soil Boring: B-4

FILE: 9107338
DATE: October 31, 2007
DRILLER: D. Lacap
TECH.: B. Alexander
ENGINEER: V. Donald



STRATA BOUNDARIES MAY NOT BE EXACT

aquaterra ENGINEERING

Abandonment Method

CPT backfilled with cement-bentonite grout upon retraction.

Notes

Upper 10 ft. of Interpreted Soil Description is taken from Laboratory Test Results and Visual Classification of soil samples as described in the associated Soil Boring Log. Below 10 ft. Soil Description is an interpreted behavior type based upon empirical correlations of cone tip and sleeve resistance.

CPT LOG - LANDSCAPE SB,CPT LOGS 9107338.GPJ AQUATERR.GDT 11/19/07

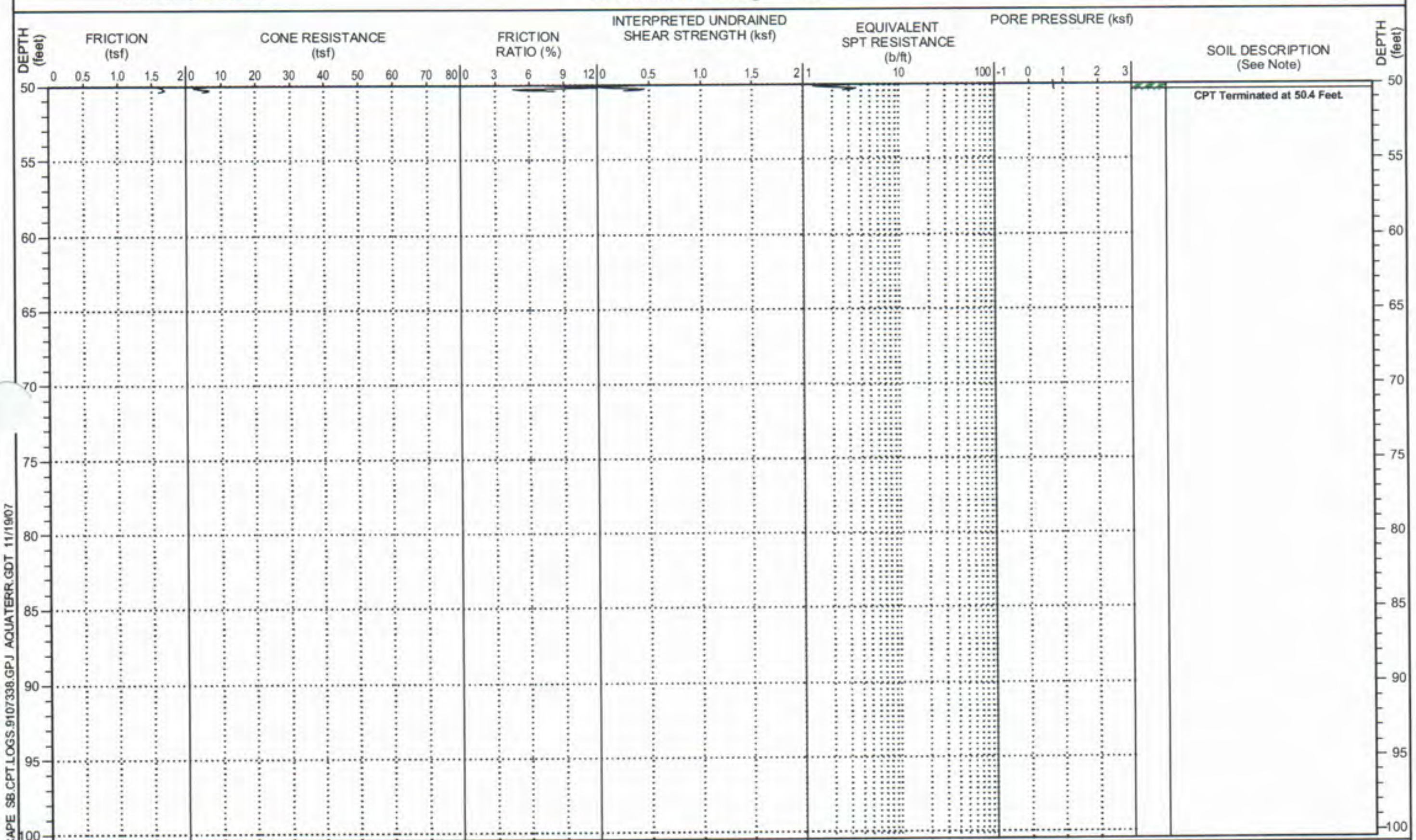
PROJECT: Geotechnical Investigation
Point Houmas - Highway 18
Donaldsonville, Louisiana
CLIENT: Duplantis Design Group
Thibodaux, Louisiana

CONE PENETROMETER TEST LOG

CPT-4

Associated Soil Boring: B-4

FILE: 9107338
DATE: October 31, 2007
DRILLER: D. Lacap
TECH.: B. Alexander
ENGINEER: V. Donald



aquaterra engineering

Abandonment Method

CPT backfilled with cement-bentonite grout upon retraction.

Notes

Upper 10 ft. of Interpreted Soil Description is taken from Laboratory Test Results and Visual Classification of soil samples as described in the associated Soil Boring Log. Below 10 ft. Soil Description is an interpreted behavior type based upon empirical correlations of cone tip and sleeve resistance.

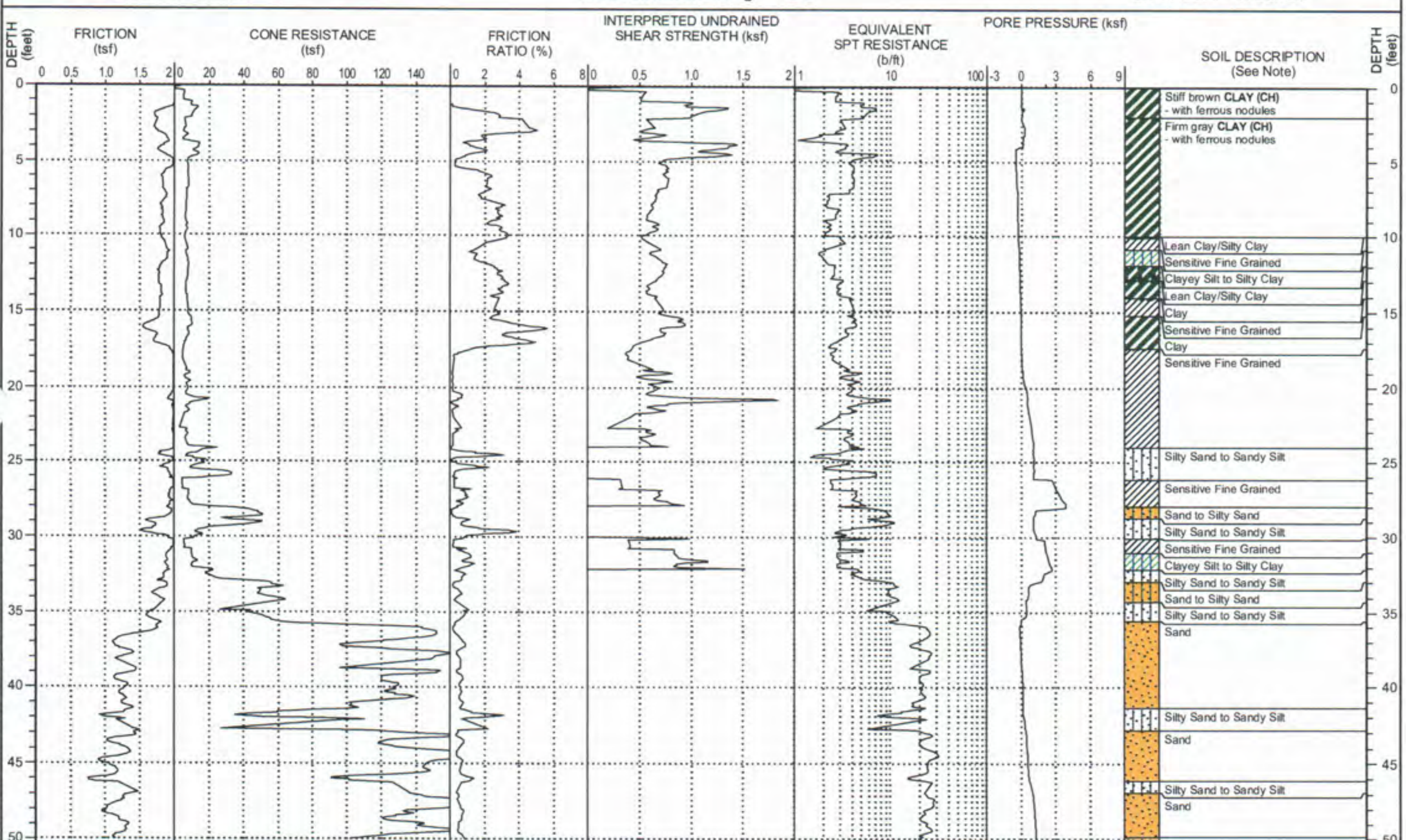
CPT LOG - LANDSCAPE SB.CPT LOGS.9107338.GPJ AQUATERR.GDT 11/19/07

PROJECT:	Geotechnical Investigation Point Houmas - Highway 18 Donaldsonville, Louisiana	FILE:	9107338
		DATE:	November 9, 2007
CLIENT:	Duplantis Design Group Thibodaux, Louisiana	DRILLER:	D. Lacap
		TECH.:	T. Moore
		ENGINEER:	V. Donald

CONE PENETROMETER TEST LOG

CPT-5

Associated Soil Boring: B-5



STRATA BOUNDARIES MAY NOT BE EXACT

aquaterra ENGINEERING

Abandonment Method

CPT backfilled with cement-bentonite grout upon retraction.

Notes

Upper 10 ft. of Interpreted Soil Description is taken from Laboratory Test Results and Visual Classification of soil samples as described in the associated Soil Boring Log. Below 10 ft. Soil Description is an interpreted behavior type based upon empirical correlations of cone tip and sleeve resistance.

CPT LOG - LANDSCAPE SB,CPT LOGS 9107338.GPJ AQUATERR.GDT 11/19/07

PROJECT: Geotechnical Investigation
Point Houmas - Highway 18
Donaldsonville, Louisiana

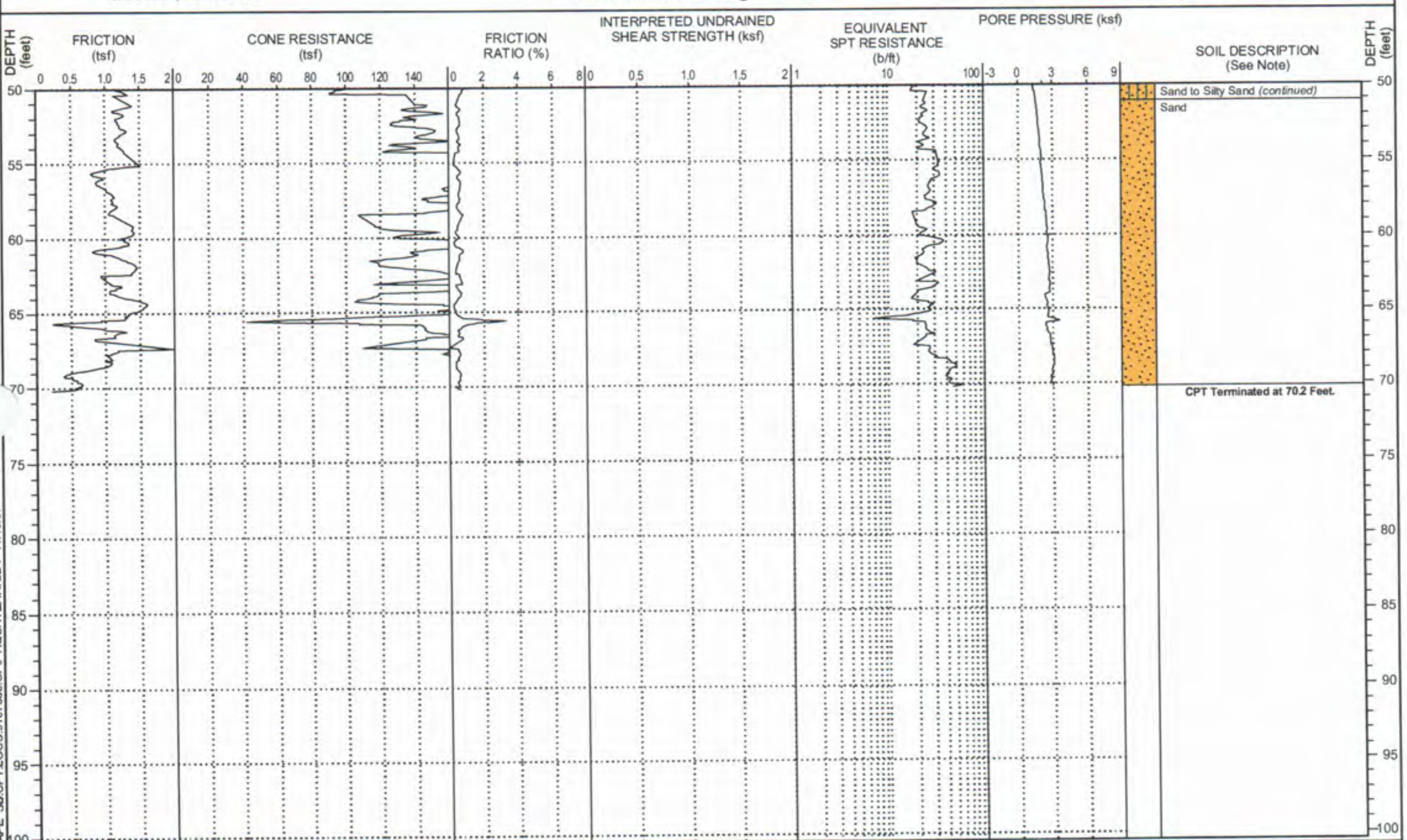
CLIENT: Duplantis Design Group
Thibodaux, Louisiana

CONE PENETROMETER TEST LOG

CPT-5

Associated Soil Boring: B-5

FILE: 9107338
DATE: November 9, 2007
DRILLER: D. Lacap
TECH.: T. Moore
ENGINEER: V. Donald



CPT LOG - LANDSCAPE SB.CPT LOGS.9107338.GPJ AQUATERR.GDT 11/19/07

aquaterra engineering

Abandonment Method

CPT backfilled with cement-bentonite grout upon retraction.

Notes

Upper 10 ft. of Interpreted Soil Description is taken from Laboratory Test Results and Visual Classification of soil samples as described in the associated Soil Boring Log. Below 10 ft. Soil Description is an interpreted behavior type based upon empirical correlations of cone tip and sleeve resistance.

PROJECT: Geotechnical Investigation
Point Houmas - Highway 18
Donaldsonville, Louisiana

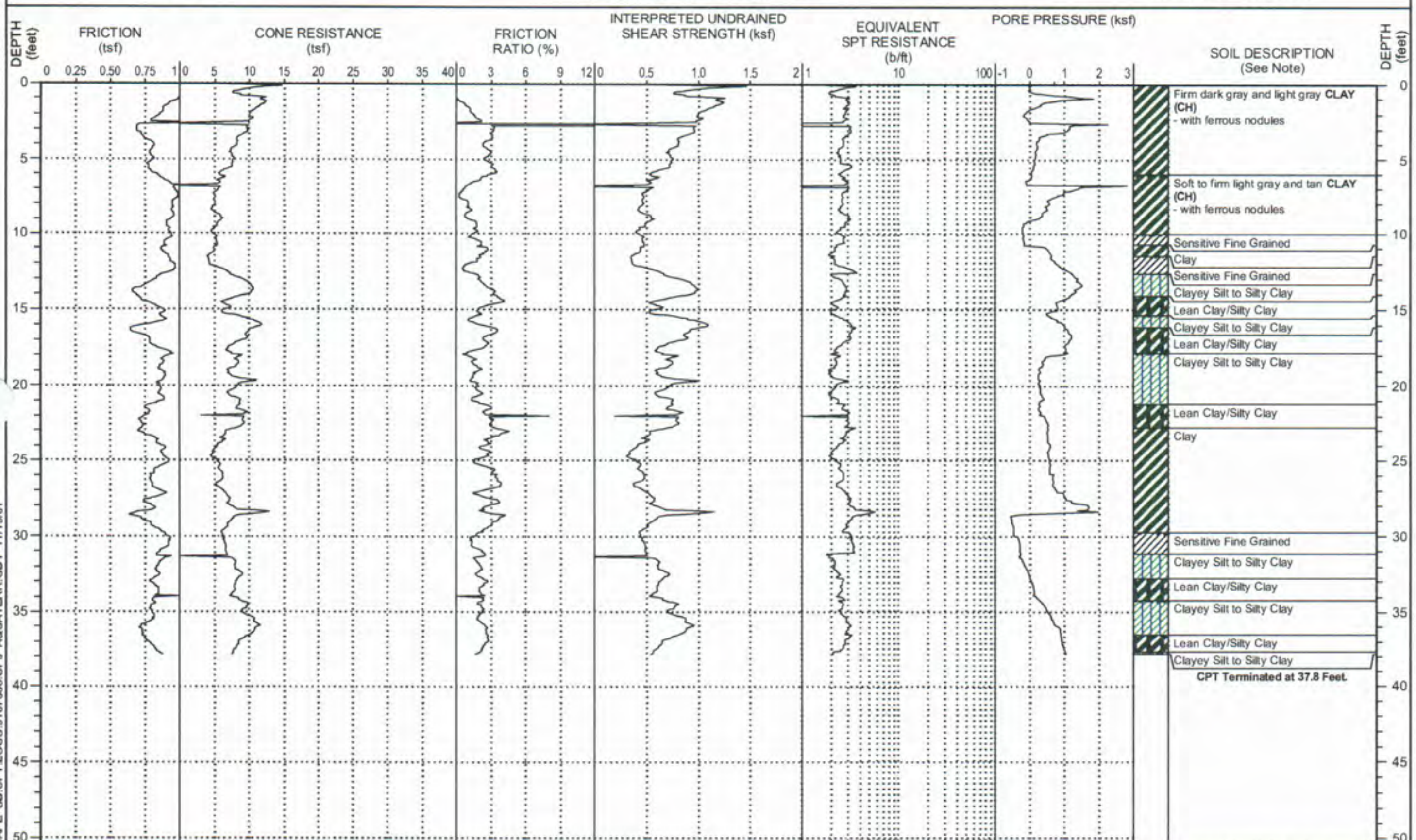
CLIENT: Duplantis Design Group
Thibodaux, Louisiana

CONE PENETROMETER TEST LOG

CPT-6

Associated Soil Boring: B-6

FILE: 9107338
DATE: November 9, 2007
DRILLER: D. Lacap
TECH.: T. Moore
ENGINEER: V. Donald



Abandonment Method

CPT backfilled with cement-bentonite grout upon retraction.

Notes

Upper 10 ft. of Interpreted Soil Description is taken from Laboratory Test Results and Visual Classification of soil samples as described in the associated Soil Boring Log. Below 10 ft. Soil Description is an interpreted behavior type based upon empirical correlations of cone tip and sleeve resistance.

STRATA BOUNDARIES MAY NOT BE EXACT

aquaterra engineering

CPT LOG - LANDSCAPE SB CPT LOGS 9107338.GPJ AQUATERR.GDT 11/19/07

PROJECT: Geotechnical Investigation
Point Houmas - Highway 18
Donaldsonville, Louisiana

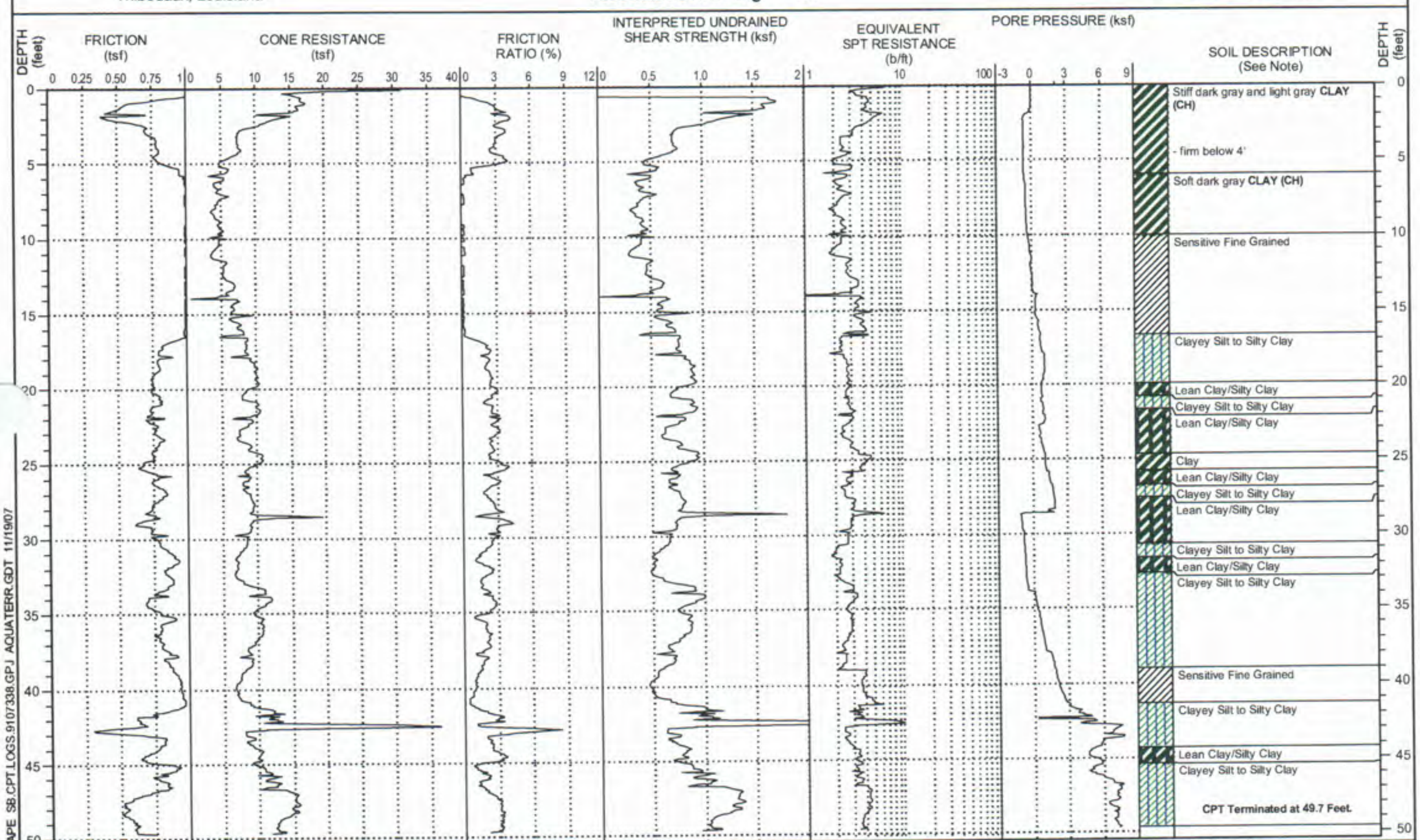
CLIENT: Duplantis Design Group
Thibodaux, Louisiana

CONE PENETROMETER TEST LOG

CPT-7

Associated Soil Boring: B-7

FILE: 9107338
DATE: November 9, 2007
DRILLER: D. Lacap
TECH.: T. Moore
ENGINEER: V. Donald



aquaterra engineering

Abandonment Method

CPT backfilled with cement-bentonite grout upon retraction.

Notes

Upper 10 ft. of Interpreted Soil Description is taken from Laboratory Test Results and Visual Classification of soil samples as described in the associated Soil Boring Log. Below 10 ft. Soil Description is an interpreted behavior type based upon empirical correlations of cone tip and sleeve resistance.

CPT LOG - LANDSCAPE SB.CPT LOGS.9107338.GPJ AQUATERR.GDT 11/19/07

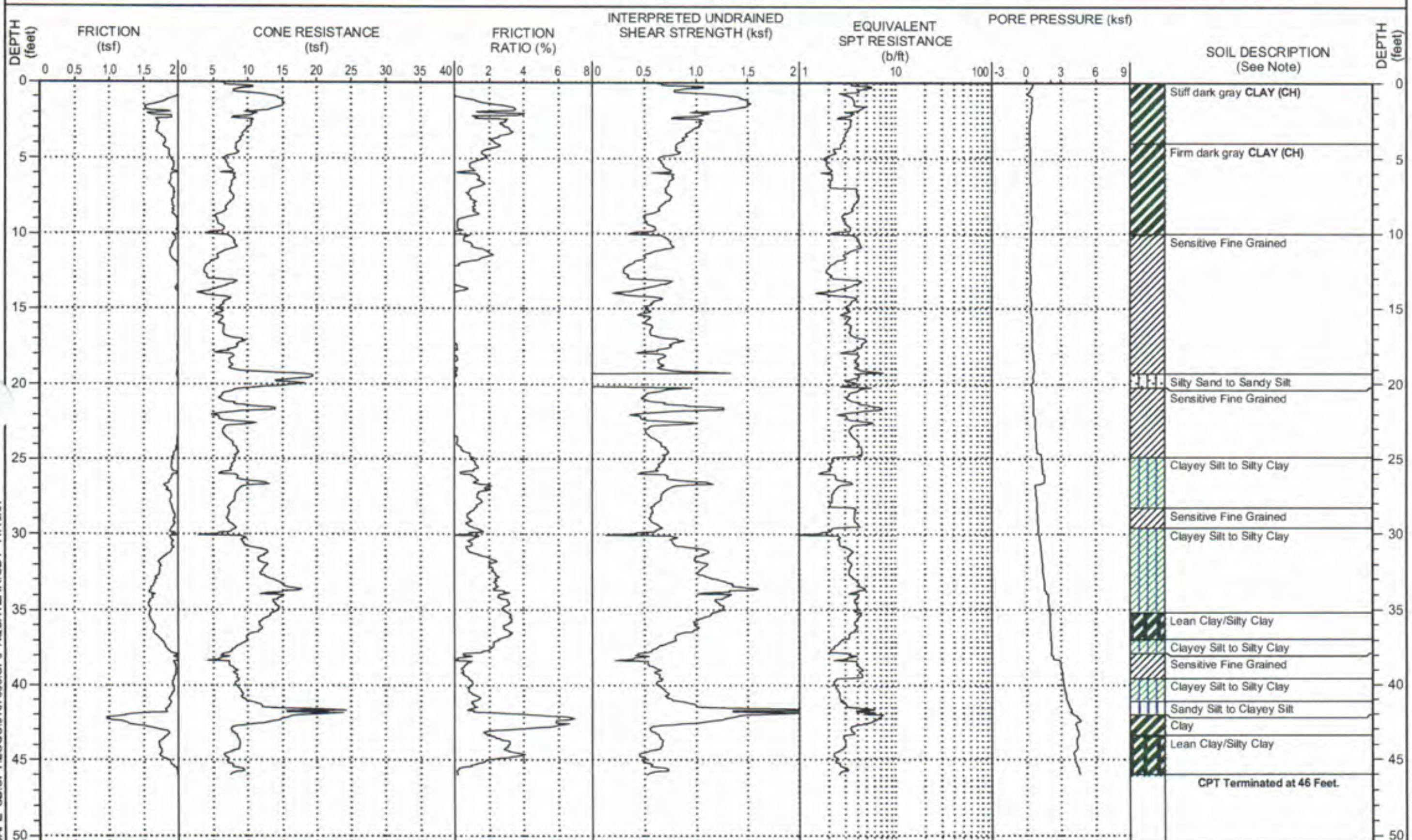
PROJECT: Geotechnical Investigation
Point Houmas - Highway 18
Donaldsonville, Louisiana
CLIENT: Duplantis Design Group
Thibodaux, Louisiana

CONE PENETROMETER TEST LOG

CPT-8

Associated Soil Boring: B-8

FILE: 9107338
DATE: November 9, 2007
DRILLER: D. Lacap
TECH.: T. Moore
ENGINEER: V. Donald



STRATA BOUNDARIES MAY NOT BE EXACT

aquaterra engineering

Abandonment Method

CPT backfilled with cement-bentonite grout upon retraction.

Notes

Upper 10 ft. of Interpreted Soil Description is taken from Laboratory Test Results and Visual Classification of soil samples as described in the associated Soil Boring Log. Below 10 ft. Soil Description is an interpreted behavior type based upon empirical correlations of cone tip and sleeve resistance.

CPT LOG - LANDSCAPE SB.CPT LOGS.9107338.GPJ AQUATERR.GDT 11/19/07

PROJECT:

CLIENT:

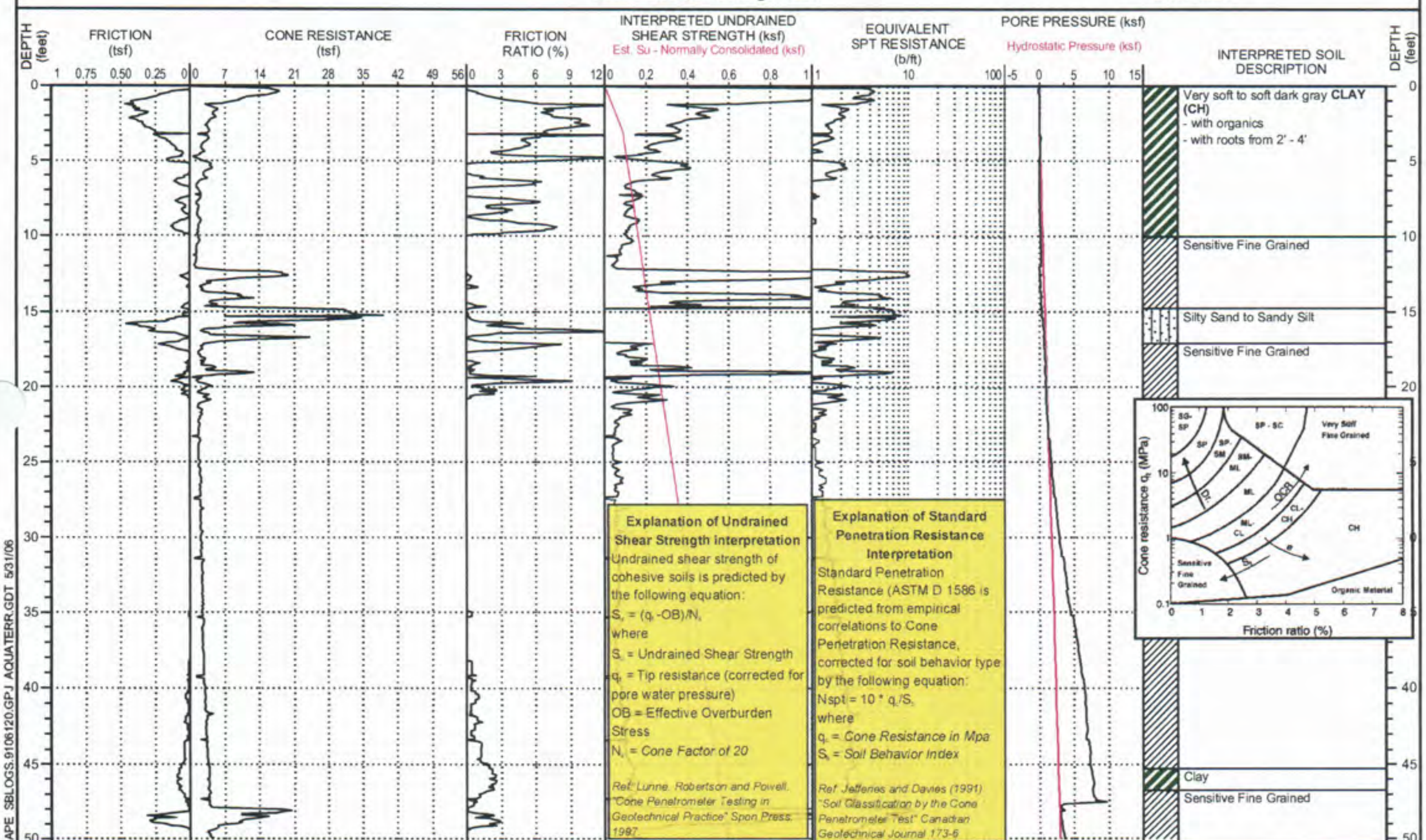
CPT LEGEND
TERMS USED ON CPT LOG

CONE PENETROMETER TEST LOG

CPT-X

Associated Soil Boring: B-X

FILE:
DATE:
DRILLER:
TECH.:
ENGINEER:



Abandonment Method	Notes
Hole backfilled with cement/bentonite grout upon retraction.	Top 10 ft. of Interpreted Soil Description taken from Laboratory Test Results and Visual Classification. See Figure 2 for CPT Location.

aquaterra engineering

CPT LOG - LANDSCAPE SBLOGS.9106120.GPJ AQUATERR.GDT 5/31/06

Geoprobe® Systems
A DIVISION OF KEJR, INC.
601 N. Broadway • Salina, Kansas 67401
Telephone 785-825-1842 • Fax 785-825-2097 • 1-800-GEOPROBE (1-800-436-7762)
www.geoprobe.com

CERTIFICATE FOR CPT PROBE 3752-MEM

PROBE NUMBER	3752 Mem (Aquaterra Eng.)
DATE OF CALIBRATION	April 12, 2007
CALIBRATED BY	Troy Schmidt Geoprobe® Systems

POINT RESISTANCE

Sensor Range	100.00 MPa
Scaling Factor	**815**
Net Area Factor	0.58

LOCAL FRICTION

Sensor Range	0.50 MPa
Scaling Factor	**5820**
Net Area Factor	0.012

PORE PRESSURE

Sensor Range	2.50 MPa
Scaling Factor	**1312**

TILT ANGLE

Range	0 – 40 Deg.

CALIBRATION EQUIPMENT:

Sensotec® Precision Load Cell Model 73/2537-11-02 — Calibrated: 4-3-06
Serial No. 804409
Calibration at: 0.0, 5000, 10000, 15000, 20000, 25000, 30000, 25000, 20000, 15000, 10000, 5000, 0.0 LBS

Sensotec® Pressure Transducer Model A-10/6076-08 — Calibrated: 4-3-06
Serial No. 544931
Calibrated at: 0, 150, 300, 150, 0 PSIG

Cone penetration test probe calibration results are accurate at the time of calibration. Geoprobe® Systems does not guarantee probe accuracy at the time of field testing. ISSMFE international reference test procedure for cone penetration testing recommends probe calibration at least every 3 months.

GEO TECH

CERTIFICATE FOR CPT PROBE 3791

Probe No	3791
Date of Calibration	20060928
Replacement of	
Calibrated by	Mats Tingström ....Mats Tingström..........
File name	3791 20060928 102015.doc

Point Resistance

Maximum Load	50	MPa	
Range	50	Mpa	
Scaling Factor	**1246**		
Resolution	19.59	kPa	(12 bit resolution)
Resolution	0.6123	kPa	(18 bit resolution)
Net area factor	0.826		

ERRORS
Max. Temperature effect when not loaded 29.39 kPa
Temperature range 0 –40 deg. Celsius.

Local Friction

Maximum Load	0.5	MPa	
Range	0.5	Mpa	
Scaling Factor	**7018**		
Resolution	0.17	kPa	(12 bit resolution)
Resolution	0.0054	kPa	(18 bit resolution)
Net area factor	0.001		

ERRORS
Max. Temperature effect when not loaded 0.39 kPa
Temperature range 0 –40 deg. Celsius.

Pore Pressure

Maximum Load	2.0	MPa	
Range	2.0	Mpa	
Scaling Factor	**3881**		
Resolution	0.63	kPa	(12 bit resolution)
Resolution	0.0197	kPa	(18 bit resolution)

ERRORS
Max. Temperature effect when not loaded 1.99 kPa
Temperature range 0 –40 deg. Celsius.

Tilt Angle

Range	0 - 40	Deg.

Back-up Memory