JEFFERSON COUNTY, TEXAS
PURCHASING DEPARTMENT

1001 Pearl Street – 3rd Floor
Beaumont, Texas 77701
409-835-8593

ADDENDUM TO IFB

IFB Number: IFB 15-016/JW

IFB Title: McFaddin National Wildlife Refuge Dune Restoration

IFB Due: **11:00 am CDT, Tuesday, June 30, 2015**

Addendum No.: 1

Issued (Date): June 19, 2015

TO BIDDER: This Addendum is an integral part of the IFB package under consideration by you as a Bidder in connection with the subject matter herein identified. Jefferson County deems all sealed proposals to have been proffered in recognition and consideration of the entire IFB package – **including all addenda.** For purposes of clarification, **receipt of this present Addendum by a Bidder should be evidenced by returning it (signed) as part of the Bidder's sealed proposal.** If the Proposal has already been received by the Jefferson County Purchasing Department, Bidder should return this addendum in a separate sealed envelope, clearly marked with the IFB Title, IFB Number, and Opening Date and Time, as stated above.

Reason for Issuance of this addendum: Clarification Documents (Attached)

The information included herein is hereby incorporated into the documents of this present Bid matter and supersedes any conflicting documents or portion thereof previously issued.

Receipt of this Addendum is hereby acknowledged by the undersigned Bidder:

ATTEST:

_____
Witness

_____
Witness

Approved by ____ Date: _____

_____
Authorized Signature (Bidder)

_____
Title of Person Signing Above

_____
Typed Name of Business or Individual

_____
Address

LJA Engineering, Inc.

905 Orleans Street
Beaumont, Texas 77701

Phone 409.813.1862
Fax 409.813.1916
www.ljaengineering.com

Subject:	Meeting Minutes
Project No.:	IFB 15-016/JW, McFaddin NWR Dune Ridge Restoration
Meeting Location:	Jefferson County Engineering Conference Room
Date/Time:	Tuesday, June 16, 2015 at 10:00AM
Recorded By:	S. Gonzales and V. Jones
Meeting Purpose:	Mandatory Pre-Bid Meeting

Meeting Minutes:

1. **Introductions and Sign-in**
    a. See attached Attendance List for participants

2. **Description of Project and Overview of Contract Documents**
    See Agenda for Project Summary
    a. Technical questions should be addressed to the Engineer, in writing, at spate@ljaengineering.com, by Tuesday June 23, 2015. Answers, in the form of addenda, will be issued by the end of the day on Thursday, June 25, 2015.
    b. Bid questions should be addressed to Jamey West in the County Purchasing Office at jwest@co.jefferson.tx.us
    c. Contractual questions regarding wages, classifications, Section 3 requirements, etc should be addressed to Wesley McPhail, David J. Waxman, Inc. at wesley.mcphail@sbcglobal.net

3. **Bid Procedures: Overview**
    a. Bids will be received in the new courthouse (Purchasing Department 1001 Pearl Street, 3rd Floor). Please plan accordingly, keep in mind the potential for lines outside of security. The bid-opening will be held in the old courthouse (Commissioners' Courtroom 1149 Pearl Street, 4th Floor). The contract will not be awarded as a part of the bid opening.
    b. Bid Form - Additive alternatives are not to be totaled cumulatively. Each alternate grand total should include that additive alternate and the base bid.
    c. Bids must be sealed and labeled on the outside of the package with IFB number and name.
    d. Addenda will be posted on the county website, and must be included in bid – check website before sealing and submitting.
    e. Lowest bidder will automatically be contacted to check for eligibility – NOTE: This does not guarantee an award
    f. Mobilization and Demobilization cannot exceed 10% of the base bid.
    g. Contractual Information:
        i. HUB Standards – Note: TGLO requirements differ from federal requirements; be certain to include all required paperwork, good faith efforts, etc. in bid package.

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ii. Winning bidder must register in SAM on the County website (see §1.20 of General Terms for instructions)
iii. Wage Decision - Updates are typically made on Friday, it has not been updated between bid notice and this meeting.
    1. Wage Decision must be displayed on the jobsite with every page visible.
iv. Overtime - Overtime pay should begin when a worker reaches a total of 40 hours, this includes all projects or work completed within the week. Overtime pay is equal to the base rate times 1.5 and fringes; fringes remain constant.
v. Compliance with Section 3 regulations are mandatory
vi. Subcontracts - If no section 3 contractors are available the contractor must show evidence that a "good faith effort" was made to find a section 3 contractor. See www.hud.gov/Section3 for details.
    1. Regarding Section 3 requirements, the term subcontractor does not apply to survey crews, or soil testing contractor, or material suppliers. (Note: HUB defines sub-contractors differently as typically all vendors)
vii. New work classifications must be approved by the D.O.L.
    1. Often takes 30 days or more
    2. Failure to comply could result in Labor Dept violations and restitutions
    3. D.O.L. typically uses an average rate for these determinations
viii. Hiring (if needed)
    1. 30% of new hires must be section 3 compliant
    2. Forms are available for both individual workers, and businesses
    3. TGLO requires all jobs be posted on State website (Work in Texas)
ix. Payroll is certified weekly; all submittals must be originals

4. Contractor Questions

a. It was noted that boring logs B21 - B32 are not included in the bid package – these will be included in Addendum #1
b. Project Schedule - The intent is to begin construction in a timely fashion following contract award and execution, possibly August; bids are valid for 90 days per bid docs.
c. Construction Sequence is typically berm footprint overburden removal to +2 ft NAVD with material from borrow areas placed in template in approximately 1-ft lifts; this allows for de-watering and berm stability
d. Payment is based on the number of linear feet constructed, in place, with surveys required; acceptance surveys are typically on a monthly basis in support of pay applications
e. Overburden material from berm template is placed on the seaward side of the completed berm; overburden from the borrow areas is placed back into those areas unless otherwise noted.
f. Permitted Construction Corridor extends 20 feet landward of the borrow areas to 20 feet seaward of the berm footprint.

5. Project Site Visits

a. Access and Easements

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Beaumont, Texas 77701

Phone 409.813.1862
Fax 409.813.1916
www.ljaengineering.com

i. The refuge has an easement with Mr. Bill White, through coordination with the refuge manager. Otherwise access is through the footprint of the project. Access from the east is from Clam Lake Road, N to the GIWW, and then to Star Lake and the existing levees. It takes approx. 45+ minutes to access the site from HW 87 on the east side of the refuge. There is an existing road landward of the beach at the western refuge entrance; the use of this road may or may not be granted by the refuge staff. All transportation within the refuge should be approved by Refuge staff (see pre-bid conference agenda for contact info).
ii. TxDot is aware of the potential desire to use their ROW adjacent to the SH 124/87 interchange as a secured contractor staging area.

SIGN-IN SHEET

Project: MCFADDIN WILDLIFE REFUGE DUNE RESTORATION **IFB 15-016/JW**
MANDATORY PRE-BID CONFERENCE

Date: June 16, 2015 Time: **10:00 a.m.**

NAME	COMPANY	E-MAIL	PHONE #
Ron Lane	Brystar Contracting	Ron@Brystar.com	CELL: 409-320-5725 409-842-6468
VICTORIA JONES	LJA ENGINEERING	Vjones@ljaengineering.com	409-291-5346
Stephanie Gonzales	LJA	Sgonzales@ljaengineering.com	361 571 8349
Evan Walters	LJA	ewalters@ljaengineering.com	979-329-2172
Bill Worsham	LJA	bworsham@ljaengineering.com	512 422 0998
Eric Colchriest	Excavators / Constructors	Eric.Colchriest@exconllc.com	409-728-4366
Ethan Langston	Excavation + Construction	Ethanllangston@att.net	409-728-4366
Zach Stiles	Martin Marietta	Zach.Stiles@martinmarietta.com	409-273-9744
Bill Kellen	" "	William.Kellen@MARTINMARIETTA.COM	409 658 7791
CHIP RICHARDSON	MCINNIS CONSTRUCTION	fred@mcinnisprojects.com	409 651 1693

SIGN-IN SHEET

Project: MCFADDIN WILDLIFE REFUGE DUNE RESTORATION **IFB 15-016/JW**
MANDATORY PRE-BID CONFERENCE

Date: June 16, 2015 Time: **10:00 a.m.**

NAME	COMPANY	E-MAIL	PHONE #
Tina Moore	Apollo Environmental	tmoore@apolloenviro.com	409-833-3330
Andy Elms	Apollo Environmental	taelms@apolloenvironmental.com	409-833-3330
Jaime West	Purchasing	jwest@co.jefferson.tx.us	409-835-8593
Deborah Coyle	Purchasing	dyphrett@co.jefferson.tx.us	409 835-8593
Joseph Mullenax	Allco	jmullenax@allco.com	409 860 4459
Wesley McPhail	David J Waxman, Inc.	wesley.mcphail@sbcglobal.net	(409) 384 3458
FRED JACKSON	JEFF. COUNTY	fjackson@co.jefferson.tx.us	835-8466
MIKE MACCAMMOND	BAYOU CONSTRUCTION	MIKE.MACCAMMOND@BAYOUCONSTRUCTION.COM	749-0129
C. Ruiz	"	Estimating@BayouConstruction	

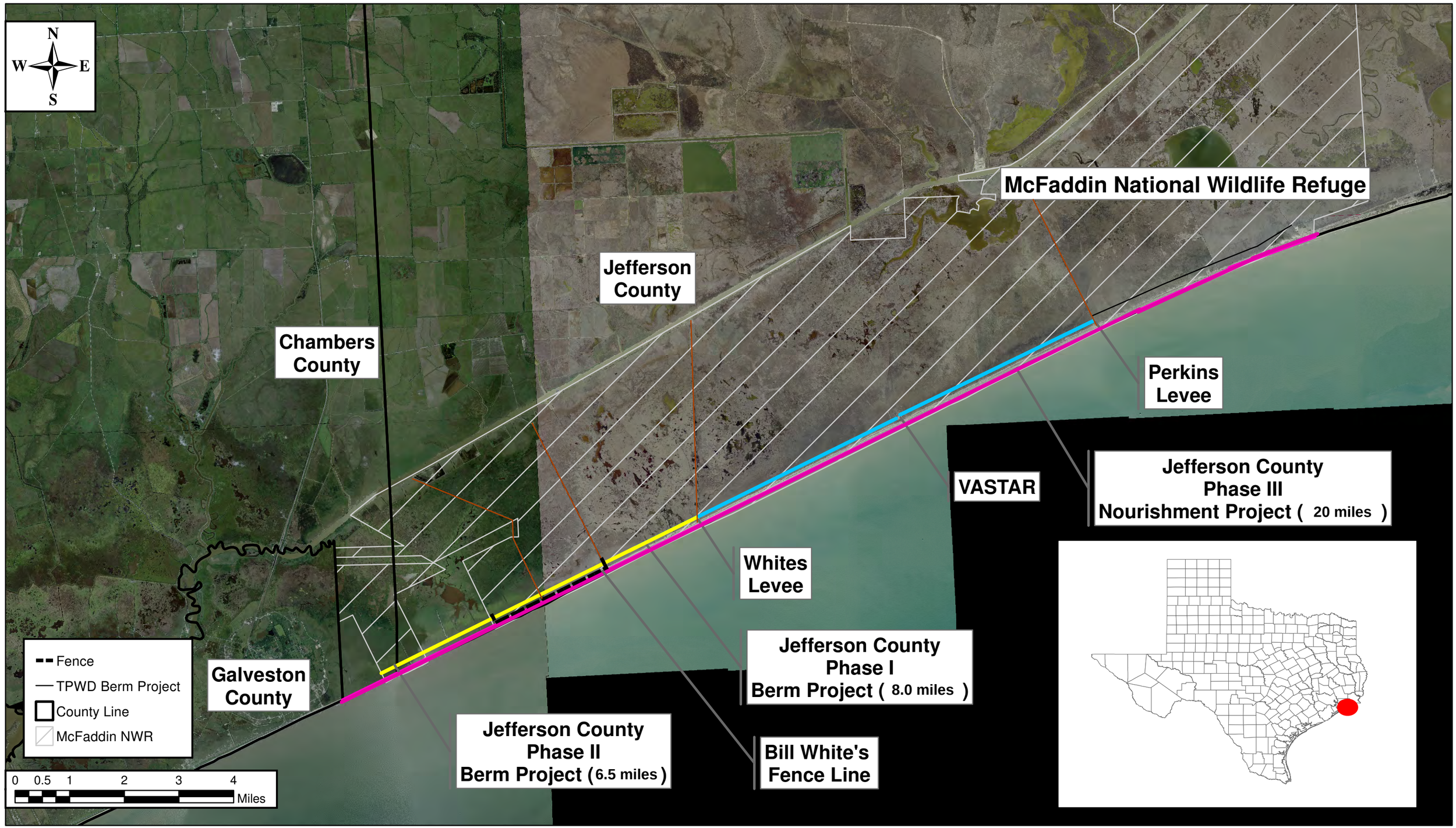


Exhibit A **McFaddin NWR Dune Restoration** **(2009 AERIAL, 2009/2010 LIDAR)**	**Jefferson County** **McFaddin NWR Dune Restoration** **McFaddin Beach, Jefferson County, Texas** Date: March 25, 2015 | LJA Project No. 395-1003	LJA Engineering, Inc. 905 Orleans Street Beaumont, TX 77701 Tel: (409) 813-1862 Fax: (409) 813-1916

Tolunay-Wong Engineers, Inc.

GEOTECHNICAL ENGINEERING STUDY
BEACH RIDGE RESTORATION PHASE II
MCFADDIN NATIONAL WILDLIFE REFUGE
JEFFERSON COUNTY, TEXAS

Prepared for:

LJA Engineering, Inc.
5316 Highway 290 West, Suite 150
Austin, Texas 78735

Prepared by:

Tolunay-Wong Engineers, Inc.
2455 West Cardinal Drive, Suite A
Beaumont, Texas 77705

April 23, 2013

Project No. 12.23.220 / Report No. 57733

Geotechnical Engineering
Environmental Consulting
Construction Materials Testing
Deep Foundations Testing

Tolunay-Wong Engineers, Inc.

2455 West Cardinal Drive, Suite A • Beaumont, Texas 77705 • Phone (409) 840-4214 • Fax (409) 840-4259

April 23, 2013

LJA Engineering, Inc.
5316 Highway 290 West, Suite 150
Austin, Texas 78735

Attn: Mr. Cris Weber, MS, EIT
cweber@ljaengineering.com

Ref: Geotechnical Engineering Study
Beach Ridge Restoration Phase II
McFaddin National Wildlife Refuge
Jefferson County, Texas
TWE Project No. 12.23.220 / Report No. 53844

Dear Mr. Weber,

Tolunay-Wong Engineers, Inc. (TWE) is pleased to submit this report of our geotechnical engineering study performed for the referenced project. This report contains a detailed description of the field program and laboratory services performed for this geotechnical engineering study as well as soil boring logs including tabulated laboratory test results. Also included in this report are our geotechnical design and construction recommendations for phase II of the proposed beach ridge restoration at the McFaddin National Wildlife Refuge in Jefferson County, Texas.

We appreciate the opportunity to provide our services to the project and we look forward to the opportunity of providing additional services as the project progresses. If you have any questions or comments regarding this report or if we can be of further assistance, please contact us.

Sincerely,

TOLUNAY-WONG ENGINEERS, INC.
Texas Board of Professional Engineers Firm Registration No. F-000124

Armando Gomez, Jr., E.I.T.
Staff Engineer
Beaumont, Texas

Patrick J. Kenney, P.E.
Vice President – Southeast Region
Engineering Services

STATE OF TEXAS
PATRICK J. KENNEY
87994
LICENSED
PROFESSIONAL ENGINEER
4-23-13

AG/PJK/ag

TABLE OF CONTENTS

TABLES AND APPENDICES

TABLES

APPENDICES

1 INTRODUCTION AND PROJECT DESCRIPTION

1.1 Introduction

This report presents the results of our geotechnical engineering study performed for Phase II of the proposed beach ridge restoration at the McFaddin National Wildlife Refuge in Jefferson County, Texas. Our geotechnical engineering study was conducted in accordance with TWE Proposal No. P12-B226 (Revision I) dated January 22, 2013 and authorized by Mr. Calvin T. Ladner, P.E. of LJA Engineering on January 24, 2013.

1.2 Project Description

The project includes the second phase of construction of an overwash protection berm along the upper Texas Gulf Coast at the McFaddin National Wildlife Refuge in Jefferson County, Texas. The protection berm is intended to keep seawater from routinely entering the interior of the refuge. TWE recently performed a geotechnical engineering study for Phase I of the project (TWE Project No. 12.23.220 / Report No. 53844) in which soil borings were performed to depths of 15-ft at approximately 0.5-mile intervals along the 10-mile berm alignment.

We were requested to perform a geotechnical engineering study for Phase II of the proposed beach ridge restoration to develop the geotechnical information needed to assist the Client in the design and construction of the new berm. Our geotechnical engineering study included the determination of global stability and settlement analyses of the proposed berm.

2 PURPOSE AND SCOPE OF SERVICES

The purposes of our geotechnical engineering study were to investigate the subsurface conditions within the project alignment and to provide geotechnical design and construction recommendations for the proposed berm.

Our scope of services performed for the project consisted of:

1. Performing twelve (12) soil borings to depths of 15-ft within the proposed berm alignment to determine subsurface soil and groundwater conditions;
2. Performing geotechnical laboratory tests on recovered soil samples to evaluate the physical and engineering properties of the strata encountered;
3. Providing geotechnical design recommendations including suitability of proposed borrow materials, global stability and settlement estimates of the proposed new berm; and,
4. Providing geotechnical construction recommendations including site and subgrade preparation, excavation considerations, fill and backfill placement, compaction requirements and overall quality control testing, inspection and monitoring services for the proposed protection berm.

Our scope of services did not include any environmental assessments for the presence or absence of wetlands or of hazardous or toxic materials within or on the soil, air or water within the project alignment. Any statements in this report or on the boring logs regarding odors, colors or unusual or suspicious items or conditions are strictly for the information of the Client. A geological fault study was also beyond the scope of our services associated with our geotechnical engineering study.

3 FIELD PROGRAM

3.1 Soil Borings

We conducted an exploration of subsurface conditions within the project alignment from February 5, 2013 to February 7, 2013. A total of twelve (12) soil borings were performed to evaluate subsurface conditions within the alignment of the proposed berm. The soil boring locations are presented on Drawing No. 12.23.220-1 in Appendix B of this report. Drilling and sampling of the soil borings were performed using conventional ATV-mounted drilling equipment. Our geotechnician coordinated the field activities, logged the boreholes and obtained the bulk samples needed for our geotechnical engineering study.

3.2 Drilling Methods

Field operations were performed in general accordance with *Standard Practice for Soil Investigation and Sampling by Auger Borings* [American Society for Testing and Materials (ASTM) D 1452]. The soil borings were performed using a buggy-mounted drilling rig equipped with a rotary head. The boreholes were advanced using dry-auger and wash-rotary drilling methods. Typically, borings are dry-augered using a flight auger to advance the boreholes until groundwater is encountered or until the boreholes become unstable and collapse. At that point, borings are completed using wash-rotary drilling techniques. Samples were obtained continuously at intervals of 2-ft from existing ground surface to a depth of 12-ft and at the 13-ft to 15-ft depth interval.

3.3 Soil Sampling

Fine-grained, cohesive soil samples were recovered from the soil borings by hydraulically pushing a 3-in diameter, thin-walled Shelby tube a distance of about 24-in. The field sampling procedures were conducted in general accordance with the *Standard Practice for Thin-Walled Tube Sampling of Soils* (ASTM D 1587). Our geotechnician visually classified the recovered soils and obtained field strength measurements of the recovered soils using a calibrated pocket penetrometer. A factor of 0.67 is typically applied to the penetrometer measurement to estimate the undrained shear strength of the Gulf Coast cohesive soils. The samples were extruded in the field, wrapped in foil, placed in moisture sealed plastic bags and protected from disturbance prior to transport to the laboratory. The recovered soil sample depths and pocket penetrometer measurements are shown on the project boring logs in Appendix C.

3.4 Boring Logs

Our interpretations of general subsurface conditions at the boring locations are included on the project boring logs. The interpretations of the soil types throughout the boring depths and the locations of strata changes were based on visual classifications during field sampling and laboratory testing using *Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)* [ASTM D 2487] and *Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)* [ASTM D 2488]. The boring logs include the type and interval depth for each sample along with the corresponding pocket penetrometer readings for cohesive soils. The project boring logs and a key to the terms and symbols used on boring logs are presented in Appendix C.

3.5 Groundwater Measurements

Groundwater level measurements were attempted in the open boreholes during dry-auger drilling. Water level readings were attempted when groundwater was first encountered and at five (5) minute intervals over a fifteen (15) minute time period. Groundwater observations are summarized in Section 5.3 of this report entitled *"Groundwater Observations."*

4 LABORATORY SERVICES

A laboratory testing program was conducted on selected samples to assist in classification of the soils encountered within the project borings and to evaluate the physical and engineering properties of the strata encountered within the project site.

4.1 Laboratory Testing Program

Laboratory tests were performed in general accordance with ASTM International standards. The types and brief descriptions of the laboratory tests performed are presented in Table 4-1 below.

Table 4-1
Laboratory Testing Program

Test Description	Test Method
Amount of Material in Soils Finer than No. 200 Sieve	ASTM D 1140
Unconfined Compressive (UC) Strength of Cohesive Soil	ASTM D 2166
Water (Moisture) Content of Soil	ASTM D 2216
One-Dimensional Consolidation Properties of Soils using Incremental Loading	ASTM D 2435
Liquid Limit, Plastic Limit and Plasticity Index of Soils	ASTM D 4318
Consolidated-Undrained (CU) Triaxial Compression Test for Cohesive Soils	ASTM D 4767
Dry Unit Weight	--

Amount of Materials in Soils Finer than No. 200 (75-µm) Sieve (ASTM D 1140)
This test method determines the amount of materials in soils finer than the No. 200 (75-µm) sieve by washing. The loss in weight resulting from the wash treatment is presented as a percentage of the original sample and is reported as the percentage of silt and clay particles in the sample.

Unconfined Compressive (UC) Strength of Cohesive Soil (ASTM D 2166)
This test method determines the unconfined compressive (UC) strength of cohesive soil in the undisturbed or remolded condition using strain-controlled application of an axial load. This test method provides an approximate value of the strength of cohesive materials in terms of total stresses. The undrained shear strength of a cohesive soil sample is typically one-half (1/2) the unconfined compressive strength.

Water (Moisture) Content of Soil by Mass (ASTM D 2216)
This test method determines water (moisture) content by mass of soil where the reduction in mass by drying is due to loss of water. The water (moisture) content of soil, expressed as a percentage, is defined as the ratio of the mass of water to the mass of soil solids. Moisture content may provide an indication of cohesive soil shear strength and compressibility when compared to Atterberg Limits.

One-Dimensional Consolidation of Soils Using Incremental Loading (ASTM D 2435)

This test method determines the magnitude and rate of consolidation (CON) of soil when it is restrained laterally and drained axially while subject to incrementally applied controlled-stress loading. Results of consolidation testing provide important information regarding the stress-soil history and soil compressibility. During consolidation testing, the soil sample is initially set in a consolidation cell followed by a saturation period in which swelling is prevented by controlled loading. Once swelling ceases, the consolidation test is performed by adding predetermined incremental loads up to a percent strain of about 20% of the loading frame capacity. Once this capacity is met, the final load is removed to observe the final rebound. Consolidation testing includes an unload-reload cycle which reduces the effect of soil disturbance from sampling.

Liquid Limit, Plastic Limit and Plasticity Index of Soils (ASTM D 4318)

This test method determines the liquid limit, plastic limit and the plasticity index of soils. These tests, also known as Atterberg limits, are used from soil classification purposes. They also provide an indication of the volume change potential of a soil when considered in conjunction with the natural moisture content. The liquid limit and plastic limit establish boundaries of consistency for plastic soils. The plasticity index is the difference between the liquid limit and plastic limit.

Consolidated-Undrained Triaxial Compression Test on Cohesive Soils (ASTM D 4767)

This test method determines the strength and stress-strain relationships of a cylindrical specimen of either undisturbed or remolded cohesive soil. Specimens are subjected to a confining fluid pressure in a triaxial chamber. Drainage of the specimen is not permitted during the test. The specimen is sheared in compression without drainage at a constant rate of axial deformation (strain-controlled). The consolidated-undrained (CU) triaxial shear strength of cohesive soils is applicable to situations where soils that have been fully-consolidated under one (1) set of stresses are subjected to a change in stress without time for further consolidation to take place (undrained condition).

Dry Unit Weight of Soils

This test method determines the weight per unit volume of soil, excluding water. Dry unit weight is used to relate the compactness of soils to volume change and stress-strain tendencies of soils when subjected to external loadings.

Soil properties including moisture content, unit weight, Atterberg limits, grain size distribution, penetration resistance and compressive strength are presented on the project boring logs in Appendix C. Reports of CU triaxial compression test results are provided in Appendix E. One-dimensional consolidation test results are included in Appendix F.

5 SITE CONDITIONS

Our interpretations of subsurface conditions within the project alignment are based on information obtained at the soil boring locations only. This information has been used as the basis for our conclusions and recommendations included in this report. Subsurface conditions may vary at areas not explored by the soil borings. Significant variations at areas not explored will require reassessment of our recommendations.

5.1 Site Descriptions and Surface Conditions

The project site is located at the McFaddin National Wildlife Refuge in Jefferson County, Texas. Additional information regarding the project site is included in Section 1.2 and Appendix A of this report. An aerial image of the project alignment is included in Drawing No. 12.23.220-1 in Appendix B. Surface conditions within the project alignment consisted of thick pasture grasses, dense weeds, ponded water and some areas that were soft and weak. Conventional ATV-mounted drilling equipment and all-wheel drive vehicles were required to access the soil boring locations.

5.2 Subsurface Soil Stratigraphy and Properties

Soil Borings B-21 through B-28, B-30 to B-32

The subsurface profile encountered in project borings B-21 through B-28, and B-30 to B-32 consisted of alternating cohesive clay soils (CL and CH) from existing ground surface to the boring completion depths of 15-ft. A semi-cohesionless sand soil was encountered in project boring B-25 from existing ground surface to a depth of 4-ft and from a depth of 10-ft to 13-ft below ground surface. Ferrous nodules, calcareous nodules and sand pockets were also observed within the subsurface soil matrix of the project borings.

Results of Atterberg limits tests on selected samples of the cohesive clay soils recovered from project borings B-21 through B-28, and B-30 to B-32 indicate liquid limits ranging from 44 to 73 with corresponding plasticity indices ranging from 29 to 54. In-situ moisture contents of the samples ranged from 24% to 51%. The amount of material passing the No. 200 sieve ranged from 72% to 97%.

Undrained shear strengths derived from pocket penetrometer measurements ranged consistently from 0.17-tsf to 0.83-tsf. Undrained shear strengths determined from laboratory UC tests performed on selected samples ranged from 0.06-tsf to 0.51-tsf with corresponding total unit weights ranging from 106-pcf to 122-pcf. Undrained shear strengths determined from laboratory torvane tests performed on selected samples ranged from 0.15-tsf to 0.40-tsf. Based on the above undrained shear strength data, the cohesive soils encountered within project borings B-21 through B-28, B-30 to B-32 are inferred to have very soft to hard, but typically soft to firm consistencies.

Soil Boring B-29

The subsurface profile encountered in project boring B-29 consisted of a surficial layer of poorly graded sand (SP) from existing ground surface to a depth of 3-ft underlain by a fat clay with sand (CH) soil to the boring completion depth of 15-ft. Ferrous nodules, were also observed within the cohesive soil matrix encountered in the project boring.

Results of Atterberg limits tests on a selected sample of the cohesive soils recovered from the project boring indicate liquid limit of 50 with a corresponding plasticity index of 36. An in-situ moisture content of the samples was 24%. The amount of material passing the No. 200 sieve was 81%.

Undrained shear strengths derived from pocket penetrometer measurements ranged from 0.17-tsf to 0.58-tsf. Undrained shear strengths determined from laboratory UC tests performed on a selected sample was 0.64-tsf with a corresponding total unit weight of 128-pcf. Based on the above undrained shear strength data, the cohesive soils encountered within the project boring are inferred to have soft to stiff consistencies.

We recorded SPT N-values from cohesionless soil strata encountered ranging from to 7 to 8 blows per foot indicating loose relative densities of these strata. The in-situ moisture content from testing a selected sample was 9%. The amount of materials finer than the No. 200 sieve on selected cohesionless soil strata was 4%.

Soil properties including moisture content, unit weight, Atterberg limits, grain size distribution, penetration resistance and compressive strength are presented on the project boring logs in Appendix C. Reports of CU triaxial compression test results are provided in Appendix E. One-dimensional consolidation test results are included in Appendix F.

5.3 Groundwater Observations

Groundwater measurements obtained from the project borings during dry-auger drilling are presented in Table 5-1 on the following page.

Table 5-1 Groundwater Level Measurements			
Soil Boring Identification	Groundwater Level Measurements		
	Completion Depth	During Dry-Auger Drilling	Depth Observed after Fifteen (15) Minutes
B-21	15-ft	5.0-ft	2.2-ft
B-22	15-ft	3.0-ft	1.2-ft
B-23	15-ft	5.0-ft	2.6-ft
B-24	15-ft	4.0-ft	2.1-ft
B-25	15-ft	4.5-ft	2.8-ft
B-26	15-ft	4.0-ft	0.8-ft
B-27	15-ft	Free water was not encountered during dry-auger drilling	
B-28	15-ft	6.0-ft	0.3-ft
B-29	15-ft	7.0-ft	3.6-ft
B-30	15-ft	4.0-ft	0.4-ft
B-31	15-ft	3.0-ft	0.4-ft
B-32	15-ft	4.0-ft	0.8-ft

Groundwater levels may fluctuate with climatic and seasonal variations and should be verified before construction. Accurate determination of static groundwater levels throughout the project alignment could be made with standpipe piezometers. Installation of standpipe piezometers to evaluate long-term groundwater conditions within the project alignment was not included in our scope of services.

6 GEOTECHNICAL RECOMMENDATIONS

6.1 Discussion

We understand that the berm will be constructed to an elevation of El +6-ft. According to drawings provided by the Client in Appendix A, we understand natural ground elevation prior to berm construction is at approximately El +2.0-ft. Therefore, the new berm is estimated to have a height of approximately 4-ft above natural ground.

The footprint addressing the critical need area of the protection berm is about 6.0-miles in length with a 12-ft wide crest and 1(V):3(H) side slopes. We understand that a borrow area will be established landward of the proposed berm. Borrow areas will run parallel to the new berm alignment a minimum of 50-ft beyond the toe of the slope. Soils from the borrow areas will be excavated and placed as fill within the limits of the new berm alignment. Based on discussions with the Client, the fill will be placed in layers and semi-compacted.

Our geotechnical design recommendations regarding settlement and global stability of the proposed berm using semi-compacted fill obtained from the borrow area are provided in Sections 6.2 and 6.3 below, respectively.

6.2 Settlement

Settlement analysis was performed using the UniSettle computer program (Version 4) distributed by UniSoft Ltd. The program was developed by Pierre Goudreault and Bengt Fellenius and uses the Janbu Tangent Modulus approach (Janbu 1998) to calculate consolidation and elastic settlements.

In our analysis, we divided the project borings into two (2) groups because of similarities in subsurface profiles within each group. We calculated total long-term settlements at the center and edge of the proposed protection berm for berm heights of 4-ft, 5-ft and 6-ft for each group. Settlements calculated for each berm height are shown in Table 6-1 below.

Table 6-1
Results of Settlement Analysis

	Berm Height					
	4-ft		5-ft		6-ft	
	Center	Edge	Center	Edge	Center	Edge
Borings B-21 Through B-28, B-30 to B-32	0.5-in - 1.0-in	0.5-in - 1.0-in	1.0-in - 1.5-in	0.5-in - 1.0-in	1.5-in - 2.0-in	0.5-in - 1-in
Boring B-29	0.5-in - 1.0-in	0.5-in - 1.0-in	1.0-in - 1.5-in	0.5-in - 1.0-in	1.0-in - 1.5-in	0.5-in - 1-in

Based on the results of our analysis, it appears that long-term settlements for a berm height of 4.0-ft will be on the order of 1-in or less. Based on the magnitude of the estimated settlements, consideration could be given to constructing the proposed berm to at least 0.25-ft higher than design crest elevation to compensate for long-term settlement and construction tolerances. It should be noted that the computed settlement is based on compressibility parameters derived from laboratory one-dimensional consolidation test data and empirical relationships with soil classification. We expect that actual settlements could be within ±30% of the calculated values.

6.3 Global Stability

Based on the cross section provided by the Client, we understand the proposed protection berm will have a crest width of 12-ft with 1(V):3(H) side slopes. Using this information and a 4.5-ft berm height, we have performed slope stability analysis which considers that the in-situ borrow materials will be used as semi-compacted fill for new berm construction. The following sections present our global stability analysis in further detail.

6.3.1 Loading Conditions

Short-term and long-term analysis conditions were considered in our stability analysis of the proposed protection berm. The short-term case considers undrained parameters in the fine-grained, cohesive clay soils. The minimum recommended factor of safety for short-term loading conditions is 1.3. The long-term case considers conditions that will exist for a time period after construction needed for drained soil strength conditions to develop under sustained loading conditions. Analysis of long-term conditions is performed using drained soil parameters for the cohesive clay soils. The minimum recommended factor of safety for long-term loading conditions is 1.5.

6.3.2 Soil Parameters

Soil parameters used in our stability analysis were based on the information derived from the project borings and our experience with similar subsurface conditions. Undrained shear strength (short-term) values for the cohesive soils encountered were based on field and laboratory strength test results. The angle of internal friction used for cohesive soils under undrained conditions was taken as zero (also known as "$\phi = 0$ condition"). Drained shear strength (long-term) values and angles of internal friction were estimated primarily from results of CU testing performed in our laboratory and empirical correlations with plasticity indices. The soil design parameters used in our analysis are presented in Appendix G of this report.

6.3.3 Evaluation

Global stability analyses were performed to evaluate the stability of the proposed protection berm and the respective material types derived from project borings B-21 through B-32. Our stability analyses were performed using the computer program SLIDE Version 6.0 as developed by Rocscience Inc. and the Bishop limit equilibrium procedure implemented within the program. The SLIDE computer program searches for the critical slope failure plane and computes the minimum safety factor for a given slope geometry and subsurface soil and groundwater profile. The computed factor of safety is the ratio of forces resisting movement to the forces causing movement.

6.3.4 Conclusion

Analyses were performed for short-term and long-term loading conditions using the side slopes [1(V):3(H)] provided by the Client and the proposed 4.5-ft berm height. The results of our analyses are included in Table 6-2 below. Graphical plots presenting our design cross sections, soil parameters used and the resulting factors of safety are presented in Appendix H of this report.

Table 6-2
Results of Global Stability Analysis

Soil Borings	Berm Height	Analysis Condition	Soil Parameters	Recommended Factors of Safety	Calculated Factors of Safety
Borings B-21 through B-28, B-30 through B-32	5-ft	Short-Term	Undrained	1.3	5.744
		Long-Term	Drained	1.5	5.177
B-29	5-ft	Short-Term	Undrained	1.3	4.067
		Long-Term	Drained	1.2	1.954

Our global stability analysis of the proposed protection berm produced factors of safety that were greater than the recommended factors of safety for the loading conditions analyzed. Based on results of our stability analysis summarized in Table 6-2 above, it appears that 1(V):3(H) side slopes for a berm height of 4.0-ft will have adequate factor of safety for stability under short and long-term conditions.

6.4 Construction Considerations

6.4.1 Excavation

We understand that the borrow area will be established landward of the proposed berm. The borrow areas will run parallel to the new berm alignment and the soils from the borrow areas will be excavated and placed as fill within the limits of the new berm alignment.

During excavation of the borrow area, satisfactory materials for use as semi-compacted fill should be stockpiled at least 6-ft away from the excavation limits. Berm materials excavated from the borrow area should consist of naturally occurring clay materials as identified in the project borings (CL or CH). These materials should be free of vegetation, organic matter and other deleterious materials.

Excavated materials such as sand or silt soils, vegetation, organic matter and other deleterious materials that are not satisfactory for use with berm construction should be disposed of per the project specifications.

Grading should be performed as necessary to prevent surface water from entering the excavation of the borrow area. Any water accumulated within the excavation should be removed to maintain the stability of the bottom and sides of the excavation.

6.4.2 Semi-Compacted Fill

The alignment designated for new berm construction should be stripped of all surface vegetation, organic matter, debris and other deleterious materials. Once stripping is complete and prior to fill placement, the surface should be scarified to a depth of 6-in. After the foundation soils are scarified, the subgrade should be compacted in accordance with the following sections of this report. Scarification should be performed parallel to the centerline of the proposed berm at least 200-ft, but no greater than 500-ft, in advance of berm construction.

The proposed berm should be constructed to the required design section as specified by the Engineer using sufficient amounts of satisfactory materials obtained from the parallel borrow area. The fill material should be placed and spread in maximum 12-in thick layers prior to compaction.

Moisture Content

The moisture content of the borrow fill material should be controlled during construction. We recommend that moisture contents be conditioned to between 18% and 28% for lean clay (CL) soils and 20% to 37% for fat clay (CH) soils when placed within the new berm alignment. We also recommend that a minimum of one (1) moisture content test be performed for every lift of berm construction.

Compaction should not begin until moisture content tests are performed and the moisture content is within the specified ranges. Wet material should be processed by stockpiling, disking and harrowing until the moisture content is reduced sufficiently. If the borrow material is too dry, pre-wetting will be required prior to compacting.

Compaction

When the moisture content and conditions of the fill layers are satisfactory, each layer should be compacted using a crawler-type tractor with a ground pressure of 7-psi or greater. Three (3) complete passes over each layer should be performed after spreading is completed. Each pass should consist of one (1) complete coverage of the surface of a layer by the treads of the tractor. Portions of the embankment that the compacting equipment cannot reach for any reason should be compacted by an approved method to the density equal to that of the surrounding berm.

7 LIMITATIONS AND DESIGN REVIEW

7.1 Limitations

This report has been prepared for the exclusive use of LJA Engineering, Inc. and their project team for specific application to the design and construction for Phase II of the proposed overwash protection berm at the McFaddin National Wildlife Refuge in Jefferson County, Texas. Our report has been prepared in accordance with the generally accepted geotechnical engineering practice common to the local area. No other warranty, express or implied, is made.

The analyses and recommendations contained in this report are based on the data obtained from the referenced soil borings performed within the project alignment. The soil borings indicate subsurface conditions only at the specific locations, times and depths penetrated. The soil borings do not necessarily reflect strata variations that may exist at other locations within the project alignment. The validity of our recommendations is based in part on assumptions about the stratigraphy made by the Geotechnical Engineer. Such assumptions may be confirmed only during construction of the proposed berm. Our recommendations presented in this report must be reassessed if subsurface conditions during construction are different from those described in this report.

If any changes in the nature, design or location of the project are planned, the conclusions and recommendations contained in this report should not be considered valid unless the changes are reviewed and the conclusions modified or verified in writing by TWE. TWE is not responsible for any claims, damages or liability associated with interpretation or reuse of the subsurface data or engineering analyses without the expressed written authorization of TWE.

7.2 Design Review

Review of the design and construction drawings as well as the specifications should be performed by TWE before release. The review is aimed at determining if the geotechnical design and construction recommendations contained in this report have been properly interpreted. Design review is not within the authorized scope of work for this study.

7.3 Construction Monitoring

Construction surveillance is recommended and has been assumed in preparing our recommendations. These field services are required to check for changes in conditions that may result in modifications to our recommendations. The quality of the construction practices will affect performance of the p and should be monitored. TWE would be pleased to provide construction monitoring, testing and inspection services for the project.

7.4 Closing Remarks

We appreciate the opportunity to be of service during this phase of the project and we look forward to continuing our services during the construction phase and on future projects.

APPENDIX A

PROJECT INFORMATION
LJA ENGINEERING, INC.

McFaddin NWR Beach Ridge Restoration

W.L. "Bill" Worsham, P.E.

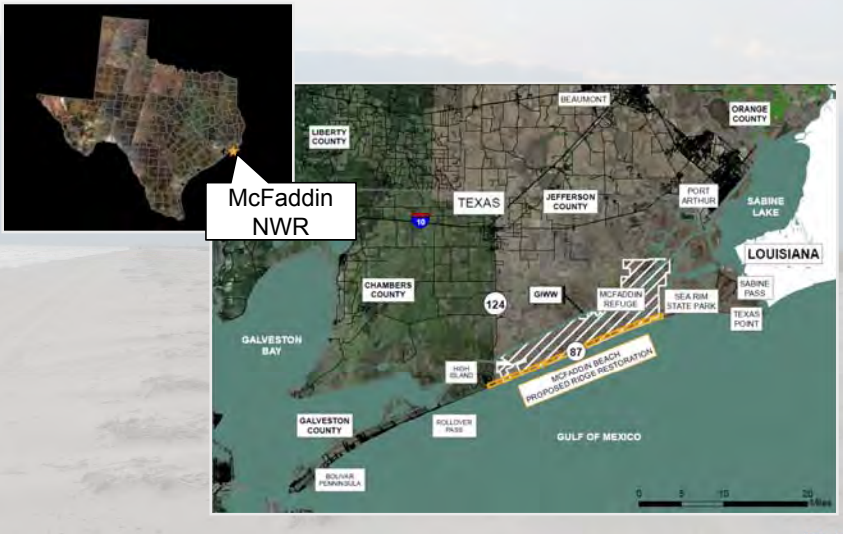
April 11, 2012

Overview

- **Vicinity**
- **Detrimental Marsh Impacts**
- **Critical Need Areas**
- **Proposed McFaddin Beach Ridge Restoration**

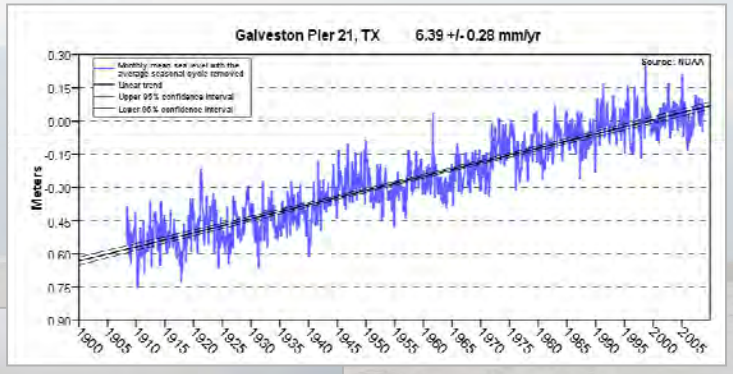
LJA Engineering, Inc.

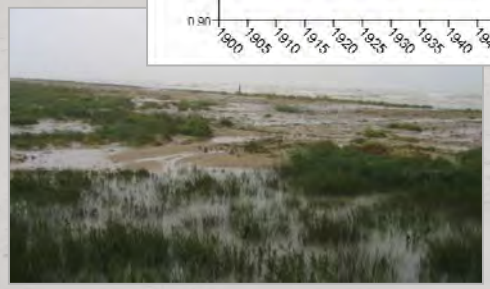
Vicinity



LJA Engineering, Inc.

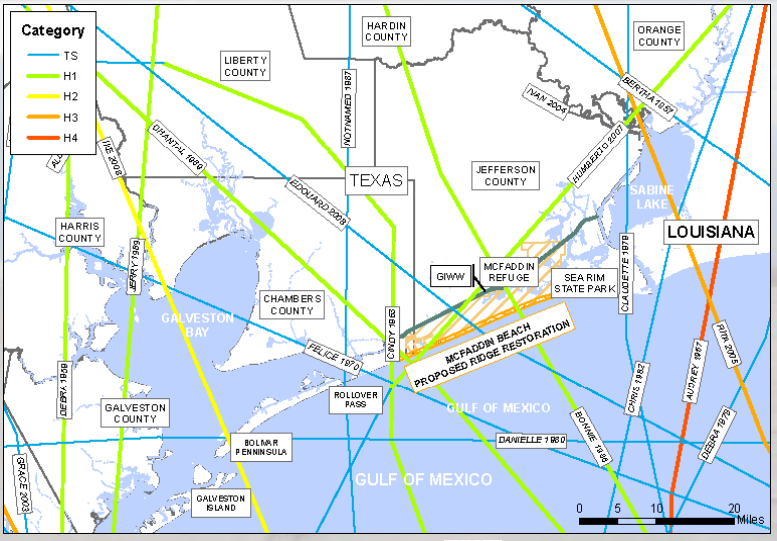
Detrimental Marsh Impacts: Sea Level Rise





LJA Engineering, Inc.

Detrimental Marsh Impact: Storm Events

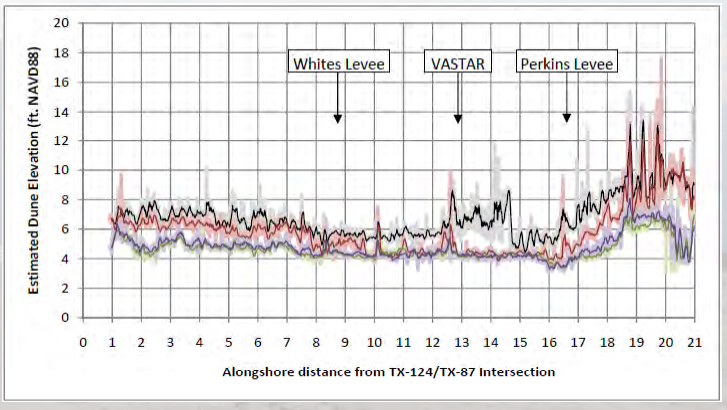


Detrimental Marsh Impacts: Current Status

Detrimental Marsh Impacts: Current Status

LJA Engineering, Inc.

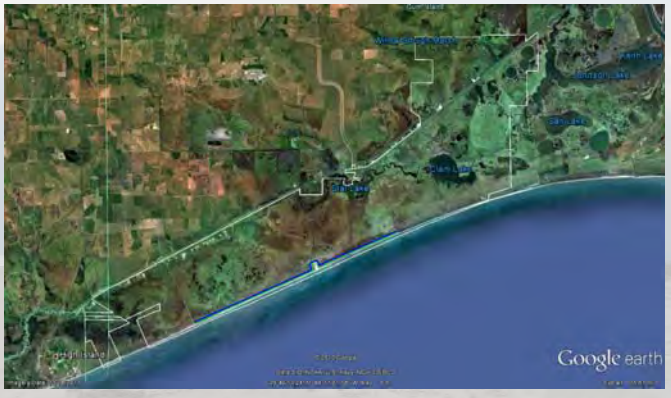
Critical Areas: Dune Elevation



Estimated dune elevation (maximum cross-shore elevation) for August 2005 (black/gray), October 2005 (red), February 2009 (green) and April 2010 (purple). Solid line represents a five point moving average, lighter color represents the actual data.

LJA Engineering, Inc.

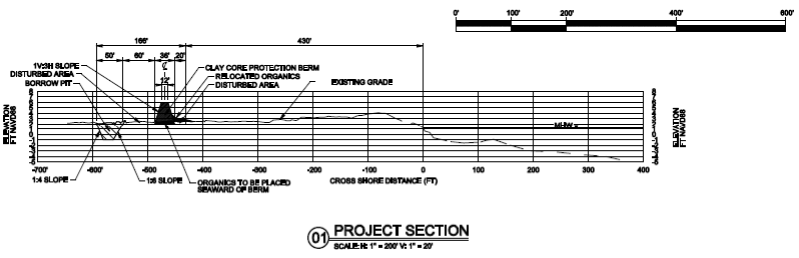
McFaddin NWR Beach Ridge Restoration: Plan



Proposed Clay Beach Ridge, Elevation +6.0' NAVD88
Positioned shoreward of existing dune ridge, >400' from MHW
Footprint: 10.4 miles total length addressing critical need area.
Maximum Construction Disturbance - 203.5 ac
Beach Ridge (Intertidal Marsh raised to Higher Marsh) - 45.5 ac
Aquatic Habitat (converted from intertidal marsh) - 58 ac

LJA Engineering, Inc.

McFaddin NWR Beach Ridge Restoration: Section

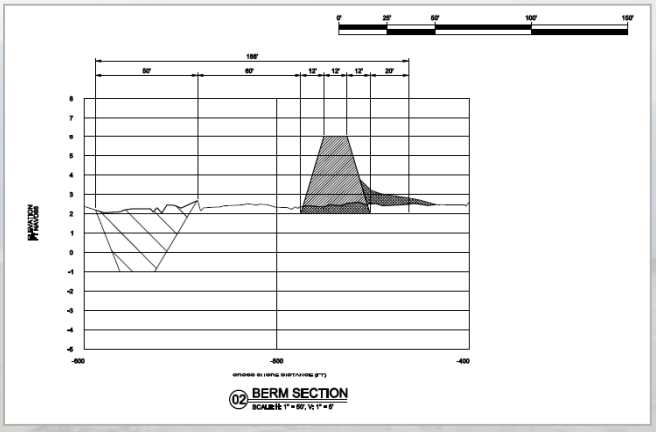


Proposed Clay Berm, Elevation +6.0' NAVD88
12' wide crest, 1:3 side slopes
Positioned shoreward of existing dune ridge, >400' from MHW

Interagency Effort:
USFWS providing funding for construction
Texas General Land Office providing management and oversight
Jefferson County providing funding for engineering (CIAP)

LJA Engineering, Inc.

McFaddin NWR Beach Ridge Restoration: Section

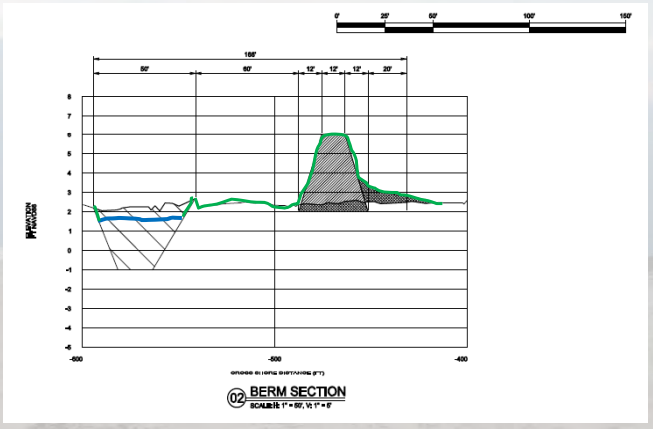


Proposed Clay Berm, Elevation 6.0' NAVD88
12' wide crest, 1:3 side slopes, 166' wide disturbed area during construction

Borrow Area located landward of proposed berm, will be designed to enhance habitat

LJA Engineering, Inc.

McFaddin NWR Beach Ridge Restoration: After



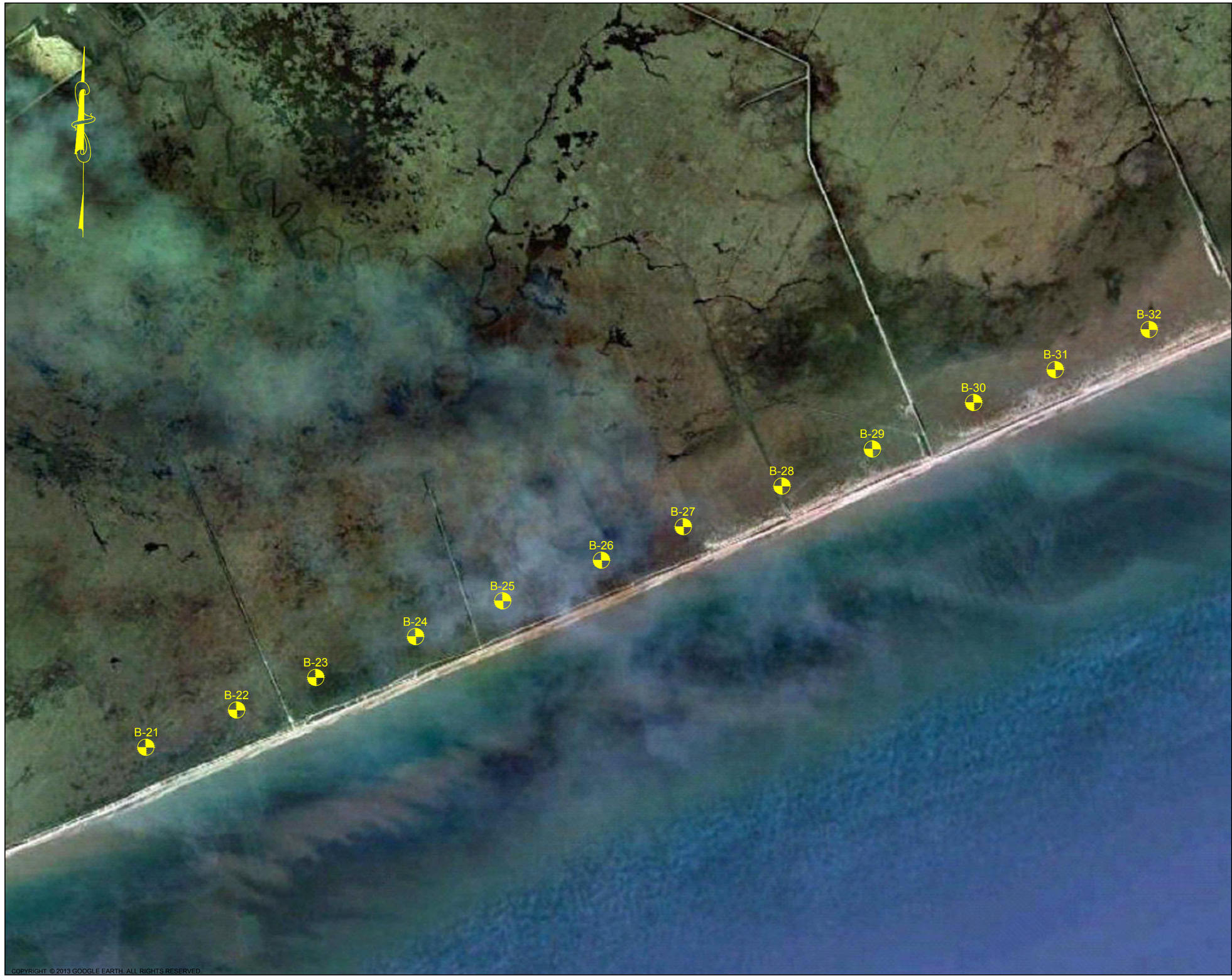
Following construction, the beach ridge, relocated sand overburden and disturbed construction area between the borrow area and the ridge will be restored to marsh habitat.

The borrow area will convert to aquatic habitat.

LJA Engineering, Inc.

APPENDIX B

SOIL BORING LOCATION PLAN
DRAWING NO. 12.23.220-1



VICINITY MAP

FIELD PROGRAM COORDINATES

BORING	DEPTH	LATITUDE	LONGITUDE
B-21	15'	29° 33' 43.47" N	94° 21' 29.42" W
B-22	15'	29° 33' 50.17" N	94° 21' 10.82" W
B-23	15'	29° 34' 58.79" N	94° 20' 50.09" W
B-24	15'	29° 34' 06.83" N	94° 20' 29.40" W
B-25	15'	29° 34' 14.89" N	94° 20' 08.70" W
B-26	15'	29° 34' 22.95" N	94° 19' 48.03" W
B-27	15'	29° 34' 30.98" N	94° 19' 27.34" W
B-28	15'	29° 34' 39.03" N	94° 19' 06.63" W
B-29	15'	29° 34' 47.07" N	94° 18' 45.94" W
B-30	15'	29° 34' 55.13" N	94° 18' 25.24" W
B-31	15'	29° 35' 03.18" N	94° 18' 04.54" W
B-32	15'	29° 35' 11.20" N	94° 17' 43.84" W

LEGEND

SOIL BORING LOCATION

Tolunay-Wong Engineers, Inc.

SOIL BORING LOCATION PLAN
OVERWASH PROTECTION BERM PHASE II
McFADDIN NATIONAL WILDLIFE REFUGE
JEFFERSON COUNTY, TEXAS

DRAWN BY:	M.M.	DWG. NO.	12.23.220-1
CHECKED BY:	T.G.H.	SCALE:	N.T.S.
APPROVED BY:	P.J.K.	DATE:	APRIL 19, 2013

APPENDIX C

LOGS OF PROJECT BORINGS AND A KEY TO
SYMBOLS AND TERMS USED ON BORING LOGS

LOG OF BORING B-21

PROJECT: McFaddin NWR - Beach Ridge Restoration - Phase II
Jefferson County, Texas

CLIENT: LJA Engineers, Inc.
Austin, Texas

COORDINATES: N 29° 33' 43.50"
W 94° 21' 29.50"

SURFACE ELEVATION: --

DRILLING METHOD:
Dry Augered: 0' to 15'
Wash Bored: -- to --

ELEVATION (FT) / DEPTH (FT)	SAMPLE TYPE	SYMBOL	MATERIAL DESCRIPTION	(P) POCKET PEN (tsf) (T) TORVANE (tsf)	STD. PENETRATION TEST BLOWCOUNT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN (%)	CONFINING PRESSURE (psi)	PASSING #200 SIEVE (%)	OTHER TESTS PERFORMED
0			Firm gray FAT CLAY (CH) -with organics from 0' to 2'	(P)0.75										
			becomes soft at 2'	(P)0.50		37		57	40				93	CON
5			Firm gray and reddish brown FAT CLAY with SAND (CH) -with sand pockets from 4' to 12' -becomes stiff at 6'	(P)1.00 (P)1.50										
			-with calcareous nodules from 8' to 12'	(P)2.00		25		57	42				83	CU
10				(P)2.50										
				(P)2.00										
15			Bottom @ 15'											
20														
25														
30														
35														

COMPLETION DEPTH: 15 ft
DATE BORING STARTED: 02/05/13
DATE BORING COMPLETED: 02/05/13
LOGGER: T. McClain
PROJECT NO.: 12.23.220

NOTES: Free water was encountered at a depth of 5-ft during dry-auger drilling and rose to a depth of 2.2-ft after fifteen (15) minutes. The open borehole was backfilled with soil cuttings. CON: One-Dimensional Consolidation. CU: Consolidation-Undrained Triaxial Compression.

LOG OF BORING B-22

PROJECT: McFaddin NWR - Beach Ridge Restoration - Phase II
Jefferson County, Texas

CLIENT: LJA Engineers, Inc.
Austin, Texas

COORDINATES: N 29° 33' 50.70"
W 94° 21' 10.80"

SURFACE ELEVATION: --

DRILLING METHOD:
Dry Augered: 0' to 15'
Wash Bored: -- to --

ELEVATION (FT) / DEPTH (FT)	SAMPLE TYPE	SYMBOL	MATERIAL DESCRIPTION	(P) POCKET PEN (tsf) (T) TORVANE (tsf)	STD. PENETRATION TEST BLOWCOUNT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN (%)	CONFINING PRESSURE (psi)	PASSING #200 SIEVE (%)	OTHER TESTS PERFORMED
0			Stiff gray LEAN CLAY with SAND (CL), with organics	(P)0.50 (T)0.60		29	89	48	33				72	
			Soft gray FAT CLAY with SAND (CH)	(P)0.50										
5				(P)0.50										
			-becomes gray and reddish brown at 6'	(P)0.50										
			-becomes firm at 8' -with ferrous nodules from 8' to 10'	(P)1.00										
10				(P)1.00		32	89	57	42	0.58	15 **		83	
			-becomes stiff at 13' -with sand pockets from 13' to 15'	(P)1.75										
15			Bottom @ 15'											
20														
25														
30														
35														

COMPLETION DEPTH: 15 ft
DATE BORING STARTED: 02/05/13
DATE BORING COMPLETED: 02/05/13
LOGGER: T. McClain
PROJECT NO.: 12.23.220

NOTES: Free water was encountered at a depth of 3-ft during dry-auger drilling and rose to a depth of 1.2-ft after fifteen (15) minutes. The open borehole was backfilled with soil cuttings.

LOG OF BORING B-23

PROJECT: McFaddin NWR - Beach Ridge Restoration - Phase II
Jefferson County, Texas

CLIENT: LJA Engineers, Inc.
Austin, Texas

COORDINATES: N 29° 33' 59.90"
W 94° 20' 50.10"

SURFACE ELEVATION: --

DRILLING METHOD:
Dry Augered: 0' to 15'
Wash Bored: -- to --

ELEVATION (FT) / DEPTH (FT)	SAMPLE TYPE	SYMBOL	MATERIAL DESCRIPTION	(P) POCKET PEN (tsf) (T) TORVANE (tsf)	STD. PENETRATION TEST BLOWCOUNT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN (%)	CONFINING PRESSURE (psi)	PASSING #200 SIEVE (%)	OTHER TESTS PERFORMED
0			Firm gray LEAN CLAY with SAND (CL) -with organics from 0' to 2'	(P)1.00 (P)0.75										
5			Soft gray and reddish brown FAT CLAY (CH) -with ferrous nodules from 4' to 6'	(P)0.75		34	86	54	39	0.41	11		90	
			-becomes firm at 6'	(P)0.75 (P)1.25										
10			-becomes stiff at 10'	(P)1.50										
			Firm gray and reddish brown FAT CLAY with SAND (CH)	(P)1.50		33	91	71	54	0.79	15 **		83	
15			Bottom @ 15'											
20														
25														
30														
35														

COMPLETION DEPTH: 15 ft
DATE BORING STARTED: 02/05/13
DATE BORING COMPLETED: 02/05/13
LOGGER: T. McClain
PROJECT NO.: 12.23.220

NOTES: Free water was encountered at a depth of 5-ft during dry-auger drilling and rose to a depth of 2.6-ft after fifteen (15) minutes. The open borehole was backfilled with soil cuttings.

LOG OF BORING B-24

PROJECT: McFaddin NWR - Beach Ridge Restoration - Phase II
Jefferson County, Texas

CLIENT: LJA Engineers, Inc.
Austin, Texas

COORDINATES: N 29° 24' 06.80"
W 94° 20' 29.50"

SURFACE ELEVATION: --

DRILLING METHOD:
Dry Augered: 0' to 15'
Wash Bored: -- to --

ELEVATION (FT) / DEPTH (FT)	SAMPLE TYPE	SYMBOL	MATERIAL DESCRIPTION	(P) POCKET PEN (tsf) (T) TORVANE (tsf)	STD. PENETRATION TEST BLOWCOUNT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN (%)	CONFINING PRESSURE (psi)	PASSING #200 SIEVE (%)	OTHER TESTS PERFORMED
0			Firm reddish brown and gray LEAN CLAY with SAND (CL), with organics	(P)1.00										
			Soft gray FAT CLAY (CH)	(P)0.75		41	82	62	44	0.40	11		90	
5			-becomes firm, reddish brown and gray at 4' -with sand seams from 4' to 12'	(P)0.75										
				(P)1.00 (T)0.40		40	80	61	43				94	
				(P)1.00										
10			-becomes stiff at 10'	(P)1.50										
				(P)1.75										
15			Bottom @ 15'											
20														
25														
30														
35														

COMPLETION DEPTH: 15 ft
DATE BORING STARTED: 02/05/13
DATE BORING COMPLETED: 02/05/13
LOGGER: T. McClain
PROJECT NO.: 12.23.220

NOTES: Free water was encountered at a depth of 4-ft during dry-auger drilling and rose to a depth of 2.1-ft after fifteen (15) minutes. The open borehole was backfilled with soil cuttings.

LOG OF BORING B-25

PROJECT: McFaddin NWR - Beach Ridge Restoration - Phase II
Jefferson County, Texas

CLIENT: LJA Engineers, Inc.
Austin, Texas

COORDINATES: N 29° 34' 14.80"
W 94° 20' 08.76"

SURFACE ELEVATION: --

DRILLING METHOD:
Dry Augered: 0' to 15'
Wash Bored: -- to --

ELEVATION (FT) / DEPTH (FT)	SAMPLE TYPE	SYMBOL	MATERIAL DESCRIPTION	(P) POCKET PEN (tsf) (T) TORVANE (tsf)	STD. PENETRATION TEST BLOWCOUNT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN (%)	CONFINING PRESSURE (psi)	PASSING #200 SIEVE (%)	OTHER TESTS PERFORMED
0			Soft reddish brown CLAYEY SAND (SC) -with organics from 0' to 2'	(P)0.50		27	98	50	30				33	
			-becomes firm at 2'	(P)1.00										
5			Firm gray and reddish brown FAT CLAY (CH) -with silt seams from 4' to 6'	(P)0.75										
			-becomes gray at 6'	(P)0.75										
			-becomes soft at 8'	(P)0.50		51	70	63	45				87	
10			Soft gray CLAYEY SAND (SC)	(T)0.15										
			Firm gray and reddish brown FAT CLAY (CH), with sand pockets	(P)0.75										
15			Bottom @ 15'											
20														
25														
30														
35														

COMPLETION DEPTH: 15 ft
DATE BORING STARTED: 02/05/13
DATE BORING COMPLETED: 02/05/13
LOGGER: T. McClain
PROJECT NO.: 12.23.220

NOTES: Free water was encountered at a depth of 4.5-ft during dry-auger drilling and rose to a depth of 2.8-ft after fifteen (15) minutes. The open borehole was backfilled with soil cuttings.

LOG OF BORING B-26

PROJECT: McFaddin NWR - Beach Ridge Restoration - Phase II
Jefferson County, Texas

CLIENT: LJA Engineers, Inc.
Austin, Texas

COORDINATES: N 29° 34' 22.93"
W 94° 19' 48.06"

SURFACE ELEVATION: --

DRILLING METHOD:
Dry Augered: 0' to 15'
Wash Bored: -- to --

ELEVATION (FT) / DEPTH (FT)	SAMPLE TYPE	SYMBOL	MATERIAL DESCRIPTION	(P) POCKET PEN (tsf) (T) TORVANE (tsf)	STD. PENETRATION TEST BLOWCOUNT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN (%)	CONFINING PRESSURE (psi)	PASSING #200 SIEVE (%)	OTHER TESTS PERFORMED
0			Soft gray LEAN CLAY with SAND (CL)	(P)0.50										
			-with shell from 0' to 2'											
			-firm from 2' to 4'	(P)0.75										
5				(P)0.50		34	83	44	29				84	
			Firm gray and reddish brown FAT CLAY with SAND (CH)	(P)0.75										
			-becomes stiff at 8'	(P)1.75										
10				(P)1.75		30	94	54	39	1.02	10		85	
				(P)1.75										
15			Bottom @ 15'											
20														
25														
30														
35														

COMPLETION DEPTH: 15 ft
DATE BORING STARTED: 02/07/13
DATE BORING COMPLETED: 02/07/13
LOGGER: T. McClain
PROJECT NO.: 12.23.220

NOTES: Free water was encountered at a depth of 4-ft during dry-auger drilling and rose to a depth of 0.8-ft after fifteen (15) minutes. The open borehole was backfilled with soil cuttings.

LOG OF BORING B-27

PROJECT: McFaddin NWR - Beach Ridge Restoration - Phase II
Jefferson County, Texas

CLIENT: LJA Engineers, Inc.
Austin, Texas

COORDINATES: N 29° 34' 30.99"
W 94° 19' 27.37"

SURFACE ELEVATION: --

DRILLING METHOD:
Dry Augered: 0' to 15'
Wash Bored: -- to --

ELEVATION (FT) / DEPTH (FT)	SAMPLE TYPE	SYMBOL	MATERIAL DESCRIPTION	(P) POCKET PEN (tsf) (T) TORVANE (tsf)	STD. PENETRATION TEST BLOWCOUNT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN (%)	CONFINING PRESSURE (psi)	PASSING #200 SIEVE (%)	OTHER TESTS PERFORMED
0			Firm gray LEAN CLAY with SAND (CL)	(P)0.75										
			Firm gray FAT CLAY (CH) -with silt seams from 2' to 4'	(P)0.75										
			-soft from 4' to 6'	(P)0.50		51		59	39				97	CU
5			-becomes gray and reddish brown at 6'	(P)0.75										
			-soft from 8' to 10'	(P)0.50		43		73	50				97	CON
10			-with sand pockets from 10' to 15'	(P)0.75										
			-becomes stiff at 13' -with ferrous nodules from 13' to 15'	(P)1.75										
15			Bottom @ 15'											
20														
25														
30														
35														

COMPLETION DEPTH: 15 ft
DATE BORING STARTED: 02/07/13
DATE BORING COMPLETED: 02/07/13
LOGGER: T. McClain
PROJECT NO.: 12.23.220

NOTES: Free water was not encountered during dry-auger drilling. The open borehole was backfilled with soil cuttings. CON: One-Dimensional Consolidation. CU: Consolidation-Undrained Triaxial Compression.

LOG OF BORING B-28

PROJECT: McFaddin NWR - Beach Ridge Restoration - Phase II
Jefferson County, Texas

CLIENT: LJA Engineers, Inc.
Austin, Texas

COORDINATES: N 29° 34' 39.14"
W 94° 19' 07.42"

SURFACE ELEVATION: --

DRILLING METHOD:
Dry Augered: 0' to 15'
Wash Bored: -- to --

ELEVATION (FT) / DEPTH (FT)	SAMPLE TYPE	SYMBOL	MATERIAL DESCRIPTION	(P) POCKET PEN (tsf) (T) TORVANE (tsf)	STD. PENETRATION TEST BLOWCOUNT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN (%)	CONFINING PRESSURE (psi)	PASSING #200 SIEVE (%)	OTHER TESTS PERFORMED
0			Firm gray LEAN CLAY with SAND (CL), with organics	(P)1.25										
			Soft gray FAT CLAY (CH) -with organics from 2' to 4'	(P)0.75		51	75	61	41	0.40	15		96	
			-becomes gray and reddish brown at 4'	(P)0.50										
5			▽	(P)0.50		45	77	68	48				94	
			-becomes firm at 8'	(P)0.75										
10			-with ferrous nodules from 10' to 12'	(P)1.25										
			-becomes stiff at 13'	(P)1.75										
15			Bottom @ 15'											
20														
25														
30														
35														

COMPLETION DEPTH: 15 ft
DATE BORING STARTED: 02/07/13
DATE BORING COMPLETED: 02/07/13
LOGGER: T. McClain
PROJECT NO.: 12.23.220

NOTES: Free water was encountered at a depth of 6-ft during dry-auger drilling and rose to a depth of 0.3-ft after (15) minutes. The open borehole was backfilled with soil cuttings.

LOG OF BORING B-29

PROJECT: McFaddin NWR - Beach Ridge Restoration - Phase II
Jefferson County, Texas

CLIENT: LJA Engineers, Inc.
Austin, Texas

COORDINATES: N 29° 34' 42.42"
W 94° 18' 41.40"

SURFACE ELEVATION: --

DRILLING METHOD:
Dry Augered: 0' to 15'
Wash Bored: -- to --

ELEVATION (FT) / DEPTH (FT)	SAMPLE TYPE	SYMBOL	MATERIAL DESCRIPTION	(P) POCKET PEN (tsf) (T) TORVANE (tsf)	STD. PENETRATION TEST BLOWCOUNT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN (%)	CONFINING PRESSURE (psi)	PASSING #200 SIEVE (%)	OTHER TESTS PERFORMED
0			Loose reddish brown and tan POORLY GRADED SAND (SP) -with shell from 0.5' to 2'		5/6" 3/6" 4/6"	9							4	
			Firm gray FAT CLAY with SAND (CH)		5/6" 4/6" 4/6"									
5			-soft from 6' to 8'	(P)0.75 (P)0.50										
			-becomes gray and reddish brown at 8'	(P)1.25										
10			-becomes stiff at 10' -with ferrous nodules from 10' to 15'	(P)1.50										
				(P)1.75		24	103	50	36	1.27	15 **		81	
15			Bottom @ 15'											
20														
25														
30														
35														

COMPLETION DEPTH: 15 ft
DATE BORING STARTED: 02/07/13
DATE BORING COMPLETED: 02/07/13
LOGGER: T.McClain
PROJECT NO.: 12.23.220

NOTES: Free water was encountered at a depth of 7-ft during dry-auger drilling and rose to a depth of 3.6-ft after fifteen (15) minutes. The open borehole was backfilled with soil cuttings.

LOG OF BORING B-30

PROJECT: McFaddin NWR - Beach Ridge Restoration - Phase II
Jefferson County, Texas

CLIENT: LJA Engineers, Inc.
Austin, Texas

COORDINATES: N 29° 34' 55.13"
W 94° 18' 25.40"

SURFACE ELEVATION: --

DRILLING METHOD:
Dry Augered: 0 to 15'
Wash Bored: -- to --

ELEVATION (FT) / DEPTH (FT)	SAMPLE TYPE	SYMBOL	MATERIAL DESCRIPTION	(P) POCKET PEN (tsf) (T) TORVANE (tsf)	STD. PENETRATION TEST BLOWCOUNT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN (%)	CONFINING PRESSURE (psi)	PASSING #200 SIEVE (%)	OTHER TESTS PERFORMED
0			Firm gray LEAN CLAY with SAND (CL)	(P)1.25										
			Soft gray and reddish brown FAT CLAY (CH)	(P)0.50		37	79	50	32				96	
5			-firm from 4' to 6'	(T)0.15										
				(P)0.50										
				(P)1.00		40	82	67	49	0.43	15		92	
10			-becomes stiff at 10'	(P)1.50										
				(P)1.75										
15			Bottom @ 15'											
20														
25														
30														
35														

COMPLETION DEPTH: 15 ft
DATE BORING STARTED: 02/07/13
DATE BORING COMPLETED: 02/07/13
LOGGER: T.McClain
PROJECT NO.: 12.23.220

NOTES: Free water was encountered at a depth of 4-ft during dry-auger drilling and rose to a depth of 0.4-ft after fifteen (15) minutes. The borehole was backfilled with soil cuttings.

LOG OF BORING B-31

PROJECT: McFaddin NWR - Beach Ridge Restoration - Phase II
Jefferson County, Texas

CLIENT: LJA Engineers, Inc.
Austin, Texas

COORDINATES: N 29° 35' 03.18"
W 94° 18' 04.58"

SURFACE ELEVATION: --

DRILLING METHOD:
Dry Augered: 0 to 15
Wash Bored: -- to --

ELEVATION (FT) / DEPTH (FT)	SAMPLE TYPE	SYMBOL	MATERIAL DESCRIPTION	(P) POCKET PEN (tsf) (T) TORVANE (tsf)	STD. PENETRATION TEST BLOWCOUNT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN (%)	CONFINING PRESSURE (psi)	PASSING #200 SIEVE (%)	OTHER TESTS PERFORMED
0			Soft gray LEAN CLAY with SAND (CL) -with organics from 0' to 2'	(P)0.50 (T)0.15 (P)0.50		27	95	45	29				82	
5			Firm gray and reddish brown LEAN CLAY (CL) -with silt seams from 6' to 8' -becomes stiff at 8'	(P)1.25 (P)1.50		28	98	46	32	0.80	15		87	
10			Stiff gray and reddish brown FAT CLAY (CH) -with calcareous nodules from 13' to 15'	(P)1.50 (P)1.75										
15			Bottom @ 15'											
20														
25														
30														
35														

COMPLETION DEPTH: 15 ft
DATE BORING STARTED: 12/07/13
DATE BORING COMPLETED: 12/07/13
LOGGER: T. McClain
PROJECT NO.: 12.23.220

NOTES: Free water was encountered at a depth of 3-ft during dry-auger drilling and rose to a depth of 0.4-ft after fifteen (15) minutes. The open borehole was backfilled with soil cuttings.

LOG OF BORING B-32

PROJECT: McFaddin NWR - Beach Ridge Restoration - Phase II
Jefferson County, Texas

CLIENT: LJA Engineers, Inc.
Austin, Texas

COORDINATES: N -- W --
SURFACE ELEVATION: --
DRILLING METHOD:
Dry Augered: 0 to 15
Wash Bored: -- to --

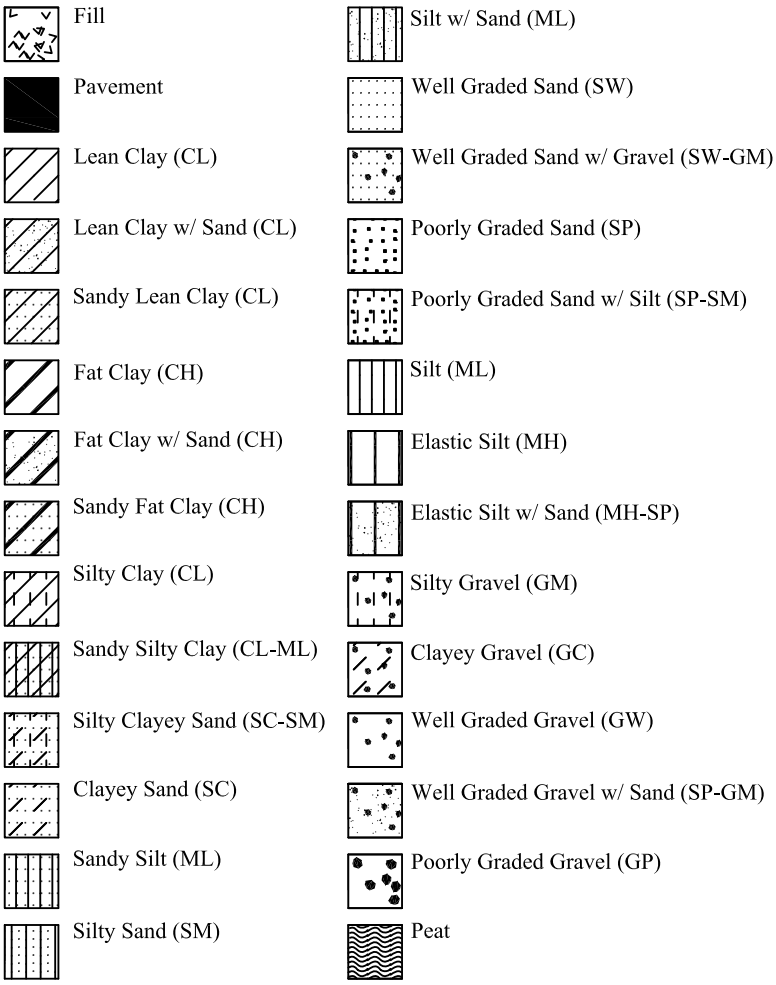
ELEVATION (FT) / DEPTH (FT)	SAMPLE TYPE	SYMBOL	MATERIAL DESCRIPTION	(P) POCKET PEN (tsf) (T) TORVANE (tsf)	STD. PENETRATION TEST BLOWCOUNT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN (%)	CONFINING PRESSURE (psi)	PASSING #200 SIEVE (%)	OTHER TESTS PERFORMED
0			Firm gray LEAN CLAY with SAND (CL)	(P)1.00										
			-becomes very soft at 2'	(T)0.20										
5			Very soft gray FAT CLAY (CH)	(T)0.15		45	79	53	35	0.12	15		97	
			-becomes firm at 6'	(T)0.30										
			-soft from 8' to 10'	(P)0.50										
10			-becomes gray and reddish brown at 8'	(P)1.25		29		51	37					CU
			Stiff gray and reddish brown FAT CLAY with SAND (CH), with ferrous nodules	(P)1.75		24		50	36				80	CON
15			Bottom @ 15'											
20														
25														
30														
35														

COMPLETION DEPTH: 15 ft
DATE BORING STARTED: 12/07/13
DATE BORING COMPLETED: 12/07/13
LOGGER: T. McClain
PROJECT NO.: 12.23.220

NOTES: Free water was encountered at a depth of 4-ft during dry-auger drilling and rose to a depth of 0.8-ft after fifteen (15) minutes. The open borehole was backfilled with soil cuttings. CON: One-Dimensional Consolidation. CU: Consolidation-Undrained Triaxial Compression.

SYMBOLS AND TERMS USED ON BORING LOGS

Most Common Unified Soil Classifications System Symbols



Sampler Symbols	Meaning
	Pavement core
	Thin - walled tube sample
	Standard Penetration Test (SPT)
	Auger sample
	Sampling attempt with no recovery
	TxDOT Cone Penetrometer Test

Field Test Data

2.50	Pocket penetrometer reading in tons per square foot
8/6"	Blow count per 6 - in. interval of the Standard Penetration Test
	Observed free water during drilling
	Observed static water level

Laboratory Test Data

Wc (%)	Moisture content in percent
Dens. (pcf)	Dry unit weight in pounds per cubic foot
Qu (tsf)	Unconfined compressive strength in tons per square foot
UU (tsf)	Compressive strength under confining pressure in tons per square foot
Str. (%)	Strain at failure in percent
LL	Liquid Limit in percent
PI	Plasticity Index
#200 (%)	Percent passing the No. 200 mesh sieve
( )	Confining pressure in pounds per square inch
*	Slickensided failure
**	Did not fail @ 15% strain

RELATIVE DENSITY OF COHESIONLESS & SEMI-COHESIONLESS SOILS

The following descriptive terms for relative density apply to cohesionless soils such as gravels, silty sands, and sands as well as semi-cohesive and semi-cohesionless soils such as sandy silts, and clayey sands.

Relative Density	Typical N_{60} Value Range*
Very Loose	0-4
Loose	5-10
Medium Dense	11-30
Dense	31-50
Very Dense	Over 50

* N_{60} is the number of blows from a 140-lb weight having a free fall of 30-in. required to penetrate the final 12-in. of an 18-in. sample interval, corrected for field procedure to an average energy ratio of 60% (Terzaghi, Peck, and Mesri, 1996).

CONSISTENCY OF COHESIVE SOILS

The following descriptive terms for consistency apply to cohesive soils such as clays, sandy clays, and silty clays.

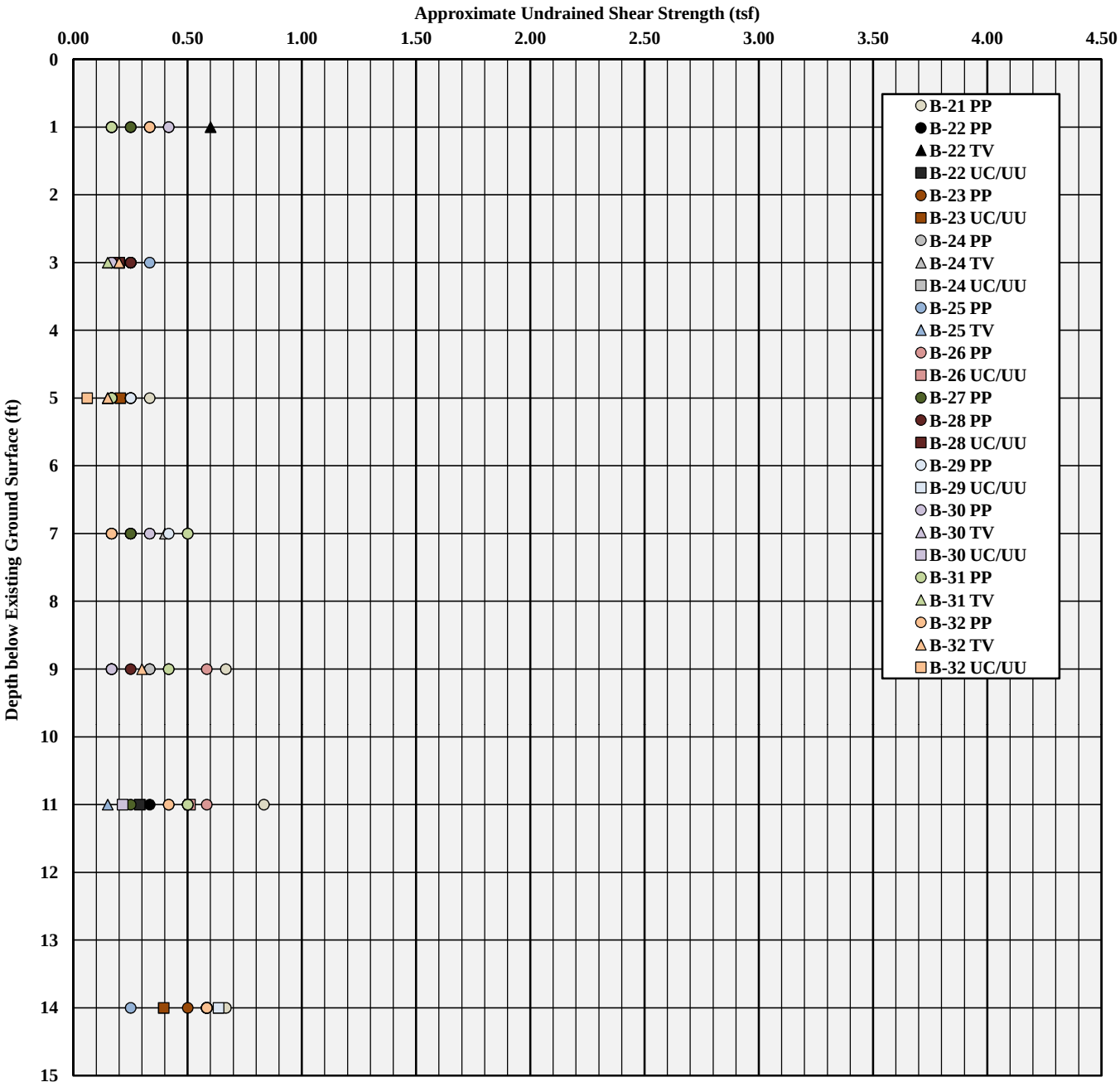
Pocket Penetrometer (tsf)	Typical Compressive Strength (tsf)	Consistency	Typical SPT "N_{60}" Value Range**
pp < 0.50	qu < 0.25	Very soft	≤ 2
0.50 ≤ pp < 0.75	0.25 ≤ qu < 0.50	Soft	3-4
0.75 ≤ pp < 1.50	0.50 ≤ qu < 1.00	Firm	5-8
1.50 ≤ pp < 3.00	1.00 ≤ qu < 2.00	Stiff	9-15
3.00 ≤ pp < 4.50	2.00 ≤ qu < 4.00	Very Stiff	16-30
pp ≥ 4.50	qu ≥ 4.00	Hard	≥ 31

** An "N_{60}" value of 31 or greater corresponds to a hard consistency. The correlation of consistency with a typical SPT "N_{60}" value range is approximate.

APPENDIX D

UNDRAINED SHEAR STRENGTH VS. DEPTH
BORINGS B-21 THROUGH B-32

UNDRAINED SHEAR STRENGTH VS. DEPTH
SOIL BORINGS B-21 THROUGH B-32



Consistency of Cohesive Soils

Consistency	Typical Undrained Shear Strength (S_u)	Typical N-Value Range
Very Soft	$S_u < 0.13$-tsf	N ≤ 2-bpf
Soft	0.13-tsf ≤ S_u < 0.25-tsf	3-bpf < N < 4-bpf
Firm	0.25-tsf ≤ S_u < 0.50-tsf	5-bpf < N < 8-bpf
Stiff	0.50-tsf ≤ S_u < 1.00-tsf	9-bpf < N < 15-bpf
Very Stiff	1.00-tsf ≤ S_u < 2.00-tsf	16-bpf < N < 31-bpf
Hard	$S_u \geq 2.00$-tsf	N ≥ 31-bpf

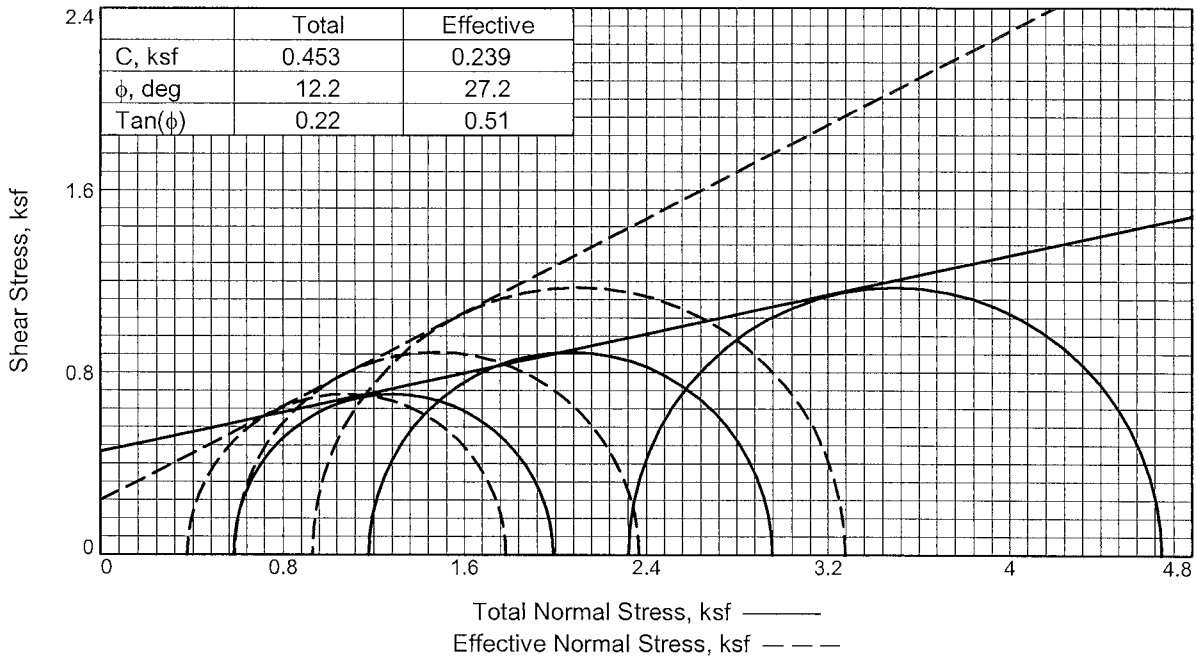
Relative Density of Cohesionless/Semi-Cohesionless Soils

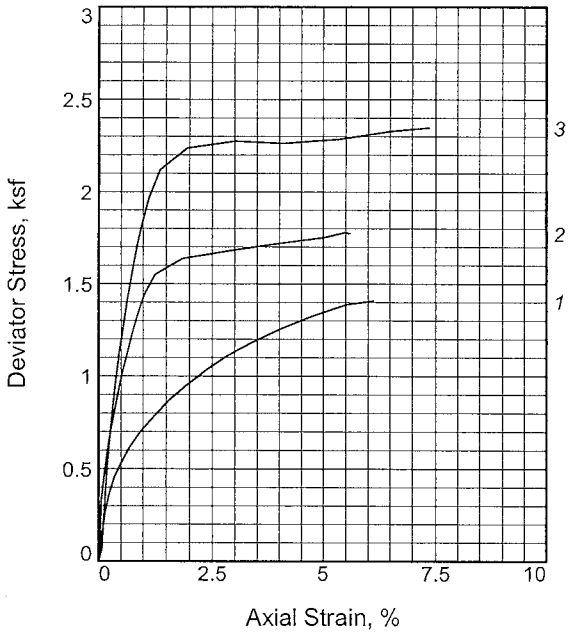
Relative Density	Typical N-Value Range
Very Loose	0-bpf < N < 4-bpf
Loose	5-bpf < N < 10-bpf
Medium Dense	11-bpf < N < 30-bpf
Dense	31-bpf < N < 50-bpf
Very Dense	N ≥ 50-bpf

Project: MacFaddin NWR - Beach Ridge Restoration Phase II - Jefferson County, Texas	Tolunay-Wong Engineers, Inc.	**Project No.** 12.23.220 **Report No.** 57733
Client: LJA Engineering, Inc. Austin, Texas	**Elevation Profiles** **Soil Borings B-21 through B-32**	**Appendix** D **Figure** 1

APPENDIX E

CU TRIAXIAL COMPRESSION TEST REPORTS
ASTM D 4767





Sample No.		1	2	3
Initial	Water Content, %	23.8	23.8	23.8
	Dry Density, pcf	103.7	103.7	103.7
	Saturation, %	99.7	99.7	99.7
	Void Ratio	0.6551	0.6551	0.6551
	Diameter, in.	2.790	2.790	2.790
	Height, in.	5.040	5.040	5.040
At Test	Water Content, %	23.8	23.8	23.8
	Dry Density, pcf	103.7	103.7	103.7
	Saturation, %	100.0	100.0	100.0
	Void Ratio	0.6551	0.6551	0.6551
	Diameter, in.	2.790	2.790	2.790
	Height, in.	5.040	5.040	5.040
Strain rate, in./min.		0.000	0.000	0.000
Back Pressure, psi		60.000	60.000	60.000
Cell Pressure, psi		64.030	68.170	76.120
Fail. Stress, ksf		1.410	1.780	2.347
Excess Pore Pr., ksf		0.206	0.591	1.392
Ult. Stress, ksf				
Excess Pore Pr., ksf				
$\bar{\sigma}_1$ Failure, ksf		1.784	2.366	3.277
$\bar{\sigma}_3$ Failure, ksf		0.374	0.585	0.929

Type of Test:
CU with Pore Pressures

Sample Type: Undisturbed

Description: Gray and tan Lean Clay

Assumed Specific Gravity= 2.75

Remarks: ASTM D4767

Client:

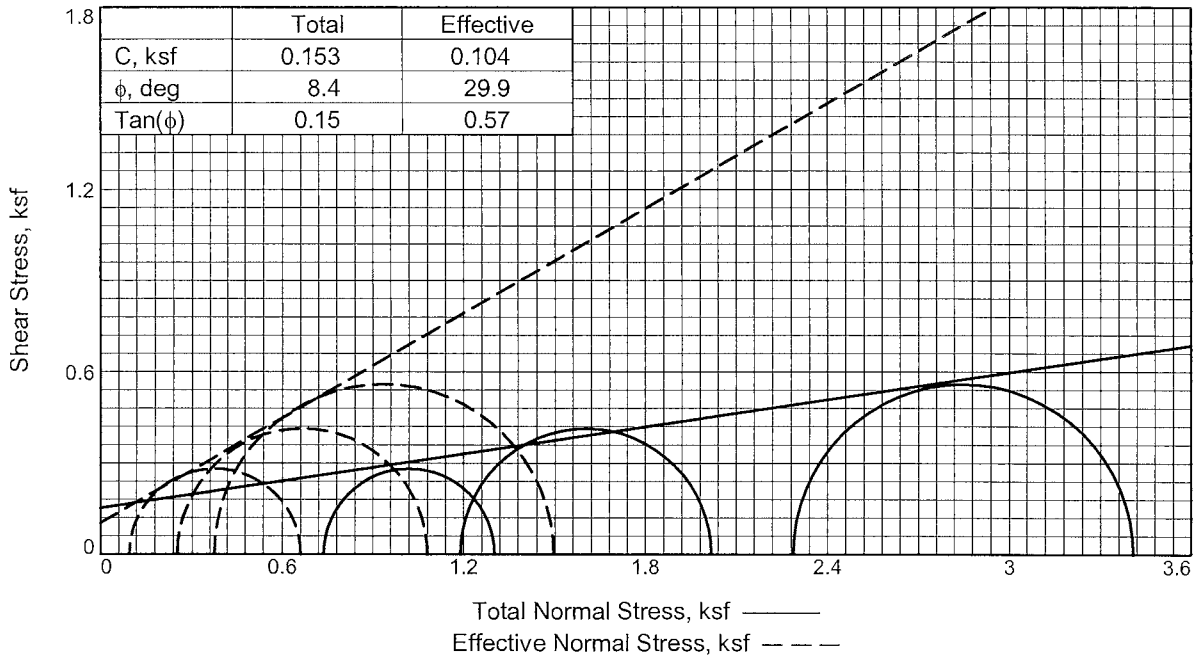
Project: McFaddin NWR - Beach Ridge restoration - Ph. II

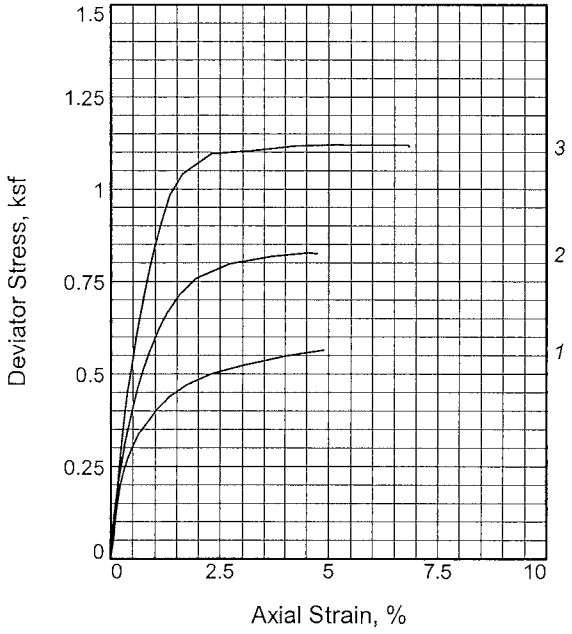
Location: B-21

Depth: 8-10 ft.

Proj. No.: 12.23.220 **Date Sampled:**

TRIAXIAL SHEAR TEST REPORT
Terracon Consultants, Inc.
Houston, TX





Sample No.		1	2	3
Initial	Water Content, %	43.7	43.7	43.7
	Dry Density, pcf	78.1	78.1	78.1
	Saturation, %	100.5	100.5	100.5
	Void Ratio	1.1973	1.1973	1.1973
	Diameter, in.	2.780	2.780	2.780
	Height, in.	5.720	5.720	5.720
At Test	Water Content, %	43.5	43.5	43.5
	Dry Density, pcf	78.1	78.1	78.1
	Saturation, %	100.0	100.0	100.0
	Void Ratio	1.1973	1.1973	1.1973
	Diameter, in.	2.780	2.780	2.780
	Height, in.	5.720	5.720	5.720
Strain rate, in./min.		0.000	0.000	0.000
Back Pressure, psi		60.000	60.000	60.000
Cell Pressure, psi		65.120	68.260	75.880
Fail. Stress, ksf		0.565	0.828	1.120
Excess Pore Pr., ksf		0.641	0.937	1.912
Ult. Stress, ksf				
Excess Pore Pr., ksf				
$\bar{\sigma}_1$ Failure, ksf		0.660	1.080	1.495
$\bar{\sigma}_3$ Failure, ksf		0.096	0.252	0.375

Type of Test:
CU with Pore Pressures

Sample Type: Undisturbed

Description: Gray FAT CLAY

Assumed Specific Gravity= 2.75

Remarks: ASTM D4767

Client:

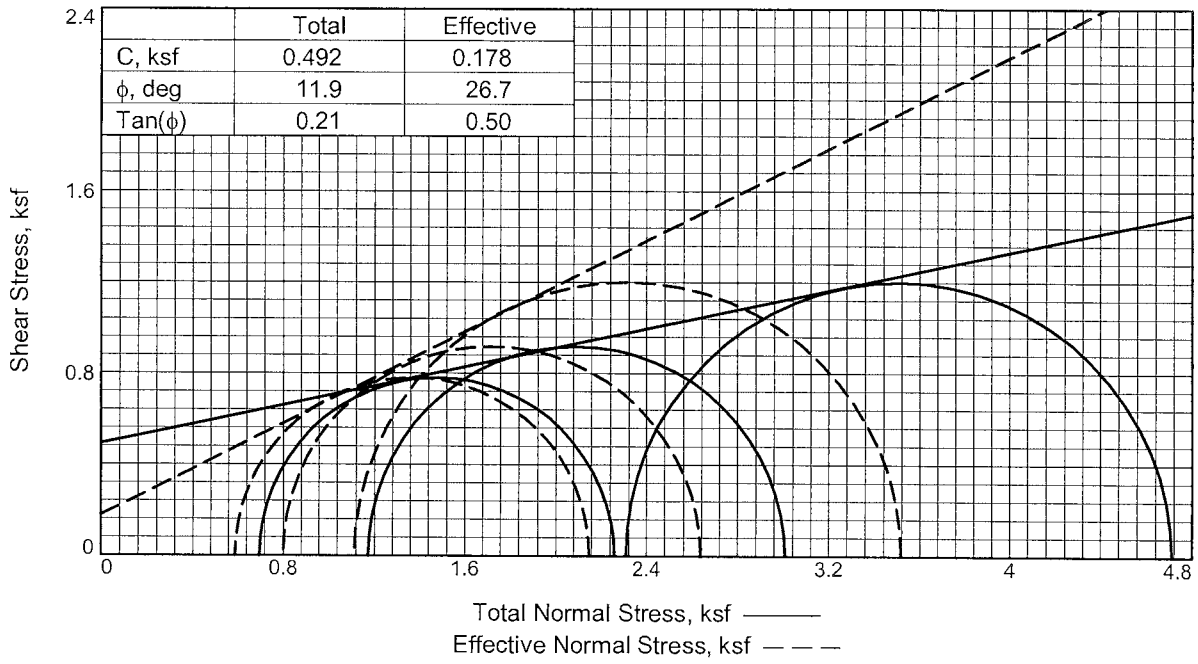
Project: McFaddin NWR - Beach Ridge restoration - Ph. II

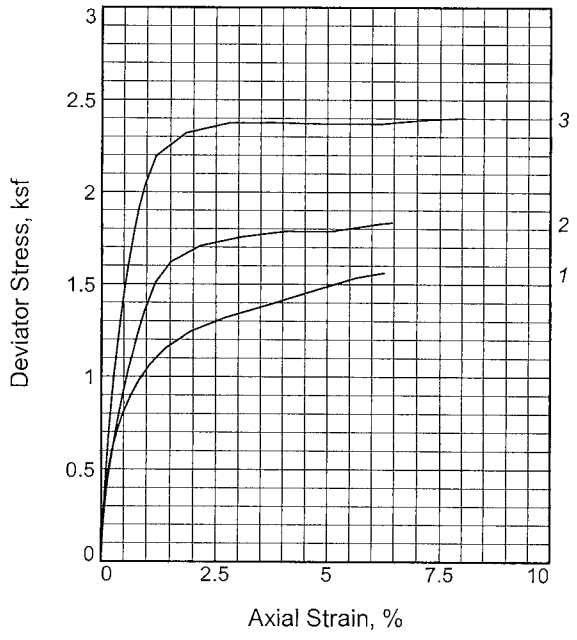
Location: B-27

Depth: 4-6 ft.

Proj. No.: 12.23.220 **Date Sampled:**

TRIAXIAL SHEAR TEST REPORT
Terracon Consultants, Inc.
Houston, TX





Sample No.		1	2	3
Initial	Water Content, %	25.7	25.7	21.3
	Dry Density, pcf	99.8	99.8	103.4
	Saturation, %	98.1	98.1	88.8
	Void Ratio	0.7197	0.7197	0.6603
	Diameter, in.	2.820	2.820	2.820
	Height, in.	5.502	5.502	5.502
At Test	Water Content, %	26.2	26.2	24.0
	Dry Density, pcf	99.8	99.8	103.4
	Saturation, %	100.0	100.0	100.0
	Void Ratio	0.7197	0.7197	0.6603
	Diameter, in.	2.820	2.820	2.820
	Height, in.	5.502	5.502	5.502
Strain rate, in./min.		0.000	0.000	0.000
Back Pressure, psi		60.000	60.000	60.000
Cell Pressure, psi		64.830	68.130	76.020
Fail. Stress, ksf		1.562	1.836	2.403
Excess Pore Pr., ksf		0.108	0.372	1.195
Ult. Stress, ksf				2.394
Excess Pore Pr., ksf				1.159
$\bar{\sigma}_1$ Failure, ksf		2.150	2.634	3.515
$\bar{\sigma}_3$ Failure, ksf		0.588	0.799	1.112

Type of Test:
CU with Pore Pressures

Sample Type: Undisturbed

Description: Gray and tan FAT CLAY

Assumed Specific Gravity= 2.75

Remarks: ASTM D4767

Client:

Project: McFaddin NWR - Beach Ridge Restoration - Ph. II

Location: B-32

Depth: 10-12 ft.

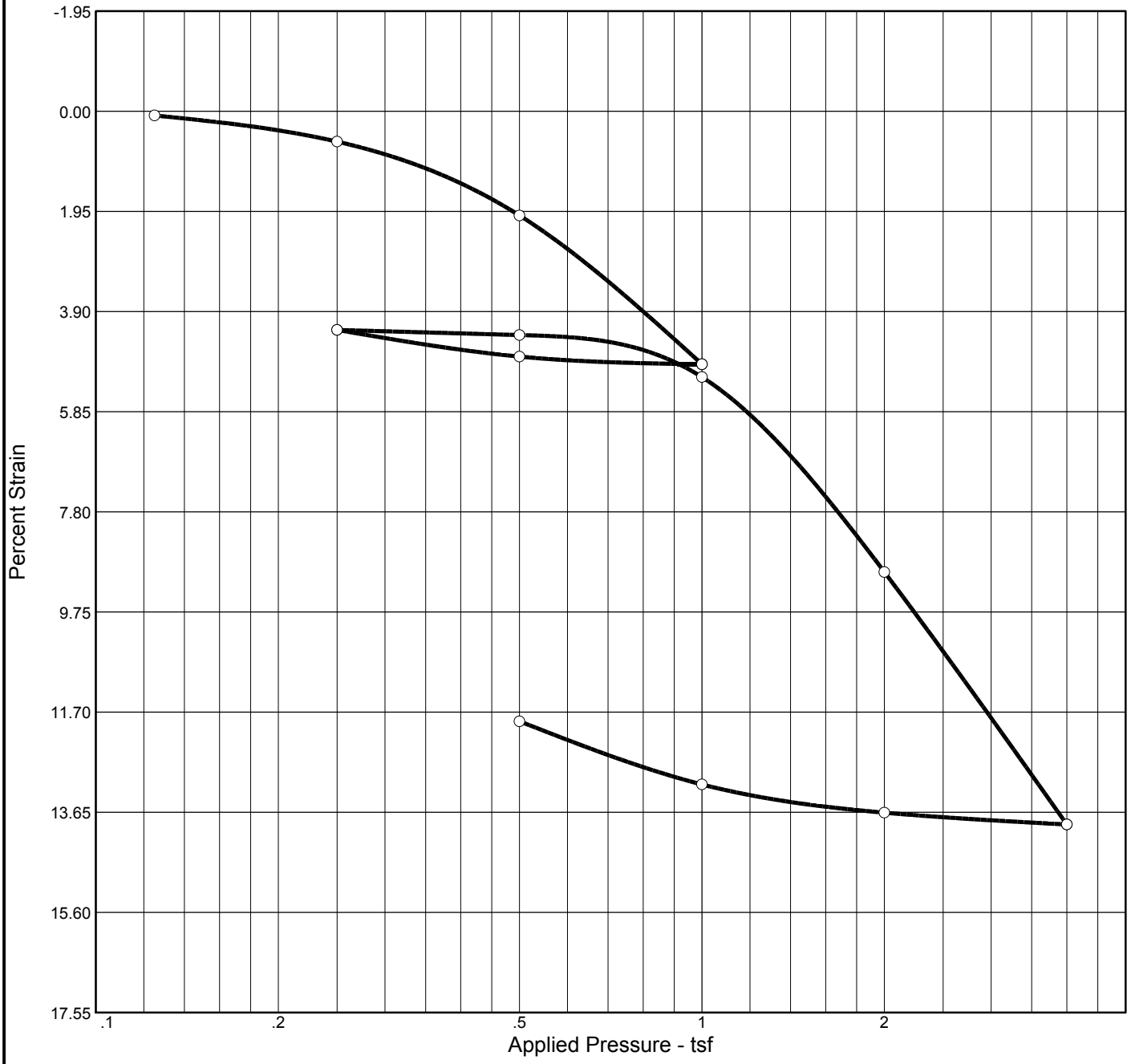
Proj. No.: 12.23.220 **Date Sampled:**

TRIAXIAL SHEAR TEST REPORT
Terracon Consultants, Inc.
Houston, TX

APPENDIX F

ONE-DIMENSIONAL CONSOLIDATION TEST REPORTS
ASTM D 2435

CONSOLIDATION TEST REPORT



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	USCS	AASHTO	Initial Void Ratio
Saturation	Moisture							
103.8 %	36.8 %	84.8	57	40	2.62	CH		0.930

MATERIAL DESCRIPTION

Project No. 12.23.220 **Client:** LJA Engineering, Inc.

Project: McFaddin NWR - Beach Ridge Restoration
Jefferson County, Texas

Source: B-21 **Elev./Depth:** 2

Tolunay-Wong Engineers, Inc.

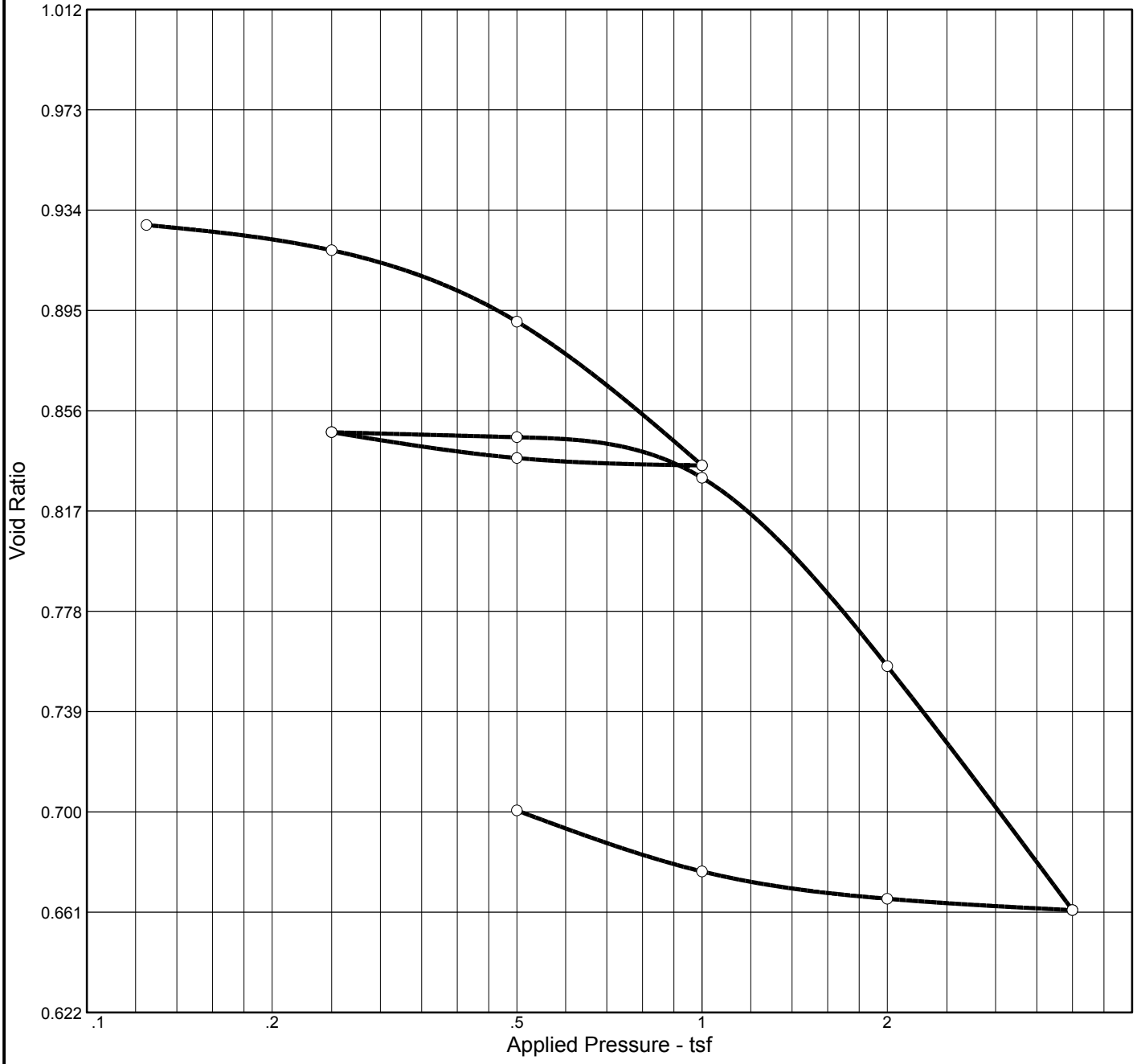
Houston, Texas

Remarks:

ASTM D 2435

Figure 1

CONSOLIDATION TEST REPORT



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	USCS	AASHTO	Initial Void Ratio
Saturation	Moisture							
103.8 %	36.8 %	84.8	57	40	2.62	CH		0.930

MATERIAL DESCRIPTION

Project No. 12.23.220 **Client:** LJA Engineering, Inc.

Project: McFaddin NWR - Beach Ridge Restoration
Jefferson County, Texas

Source: B-21 **Elev./Depth:** 2

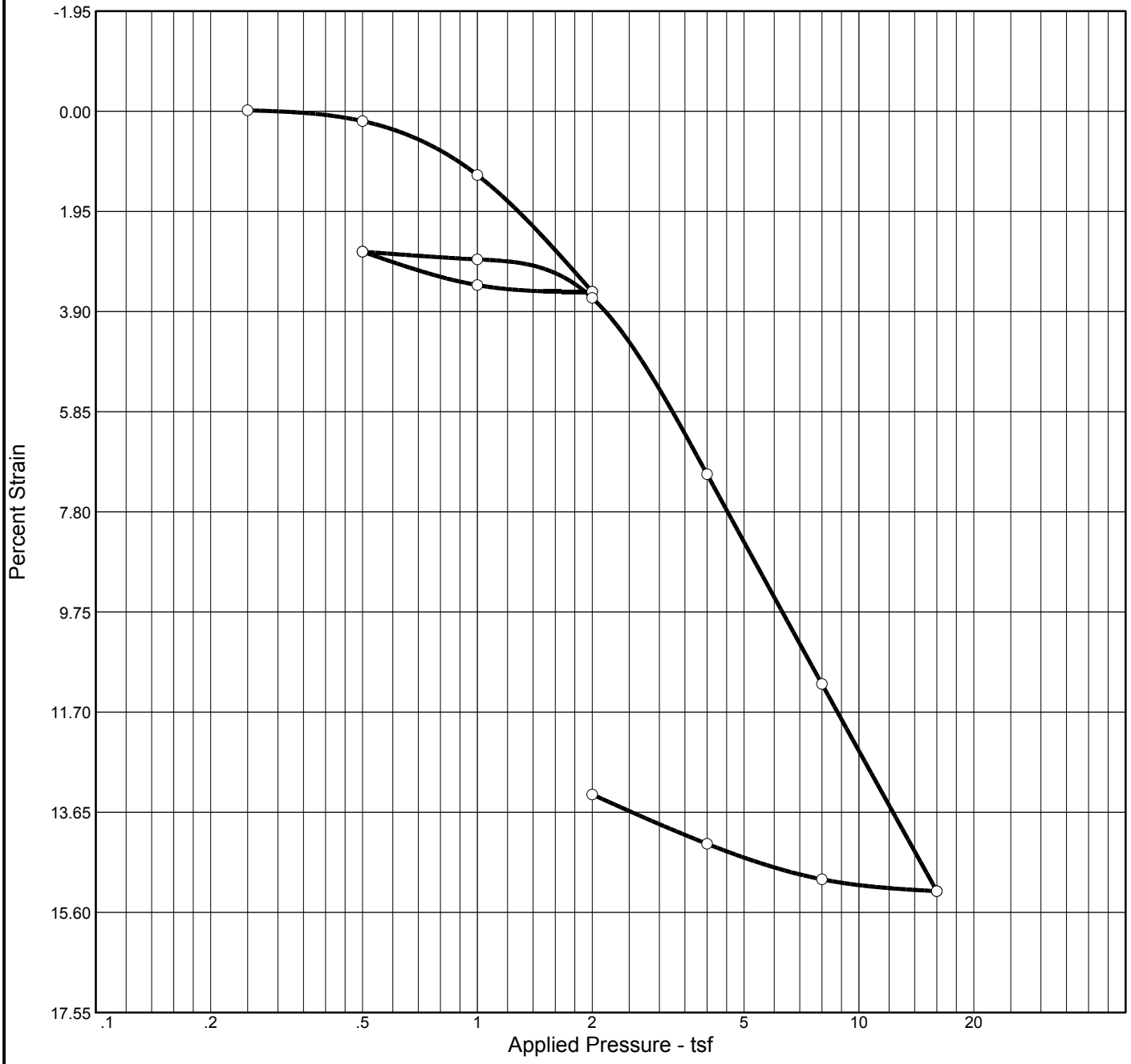
Tolunay-Wong Engineers, Inc.

Houston, Texas

Remarks:
ASTM D 2435

Figure 2

CONSOLIDATION TEST REPORT



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	USCS	AASHTO	Initial Void Ratio
Saturation	Moisture							
108.5 %	27.3 %	98.6	50	36	2.62	CH		0.658

MATERIAL DESCRIPTION

Project No. 12.23.220 **Client:** LJA Engineering, Inc.

Project: McFaddin NWR - Beach Ridge Restoration
Jefferson County, Texas

Source: B-32 **Elev./Depth:** 13

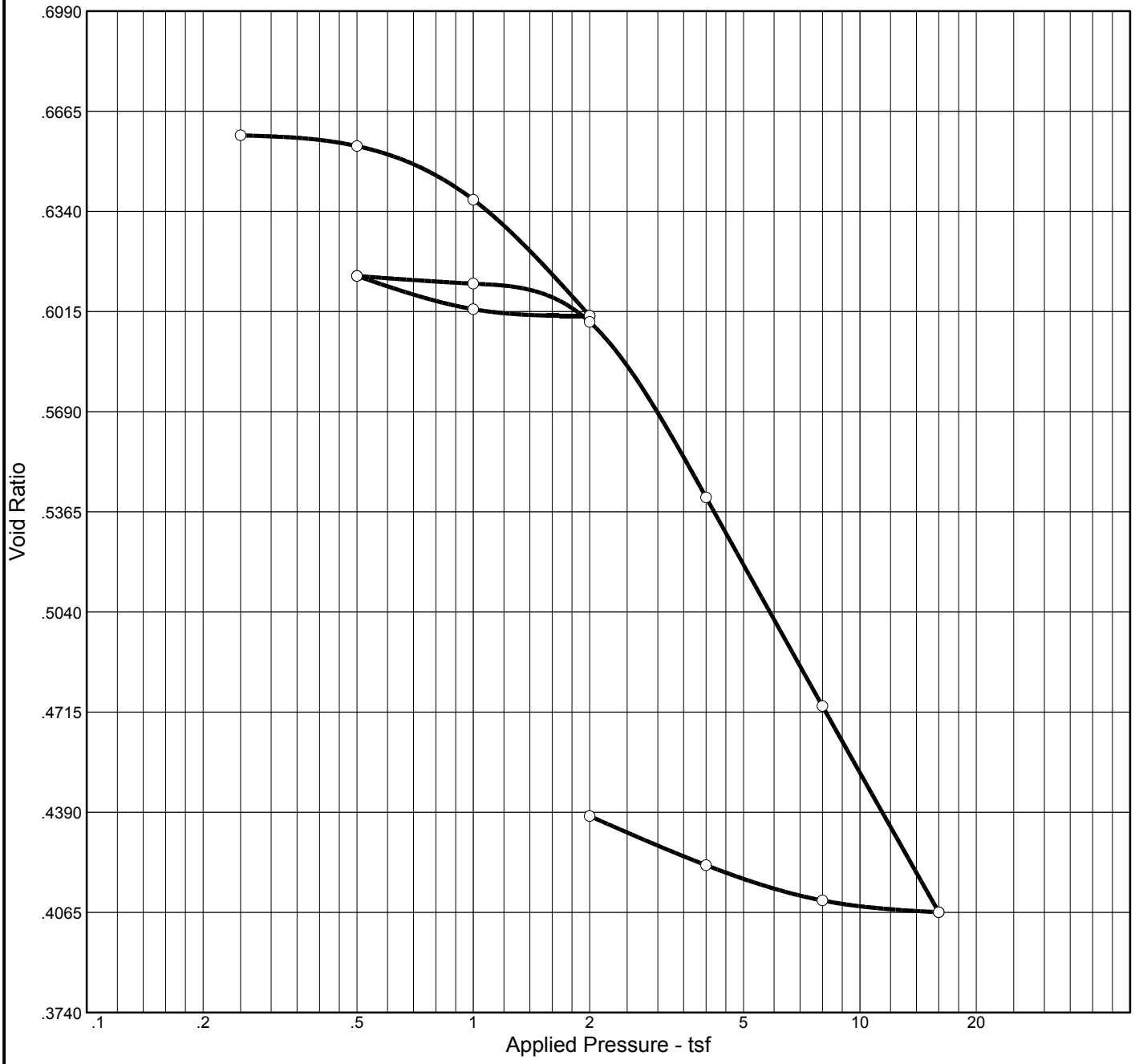
Tolunay-Wong Engineers, Inc.

Houston, Texas

Remarks:
ASTM D 2435

Figure 3

CONSOLIDATION TEST REPORT



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	USCS	AASHTO	Initial Void Ratio
Saturation	Moisture							
108.5 %	27.3 %	98.6	50	36	2.62	CH		0.658

MATERIAL DESCRIPTION

Project No. 12.23.220 **Client:** LJA Engineering, Inc.

Project: McFaddin NWR - Beach Ridge Restoration
Jefferson County, Texas

Source: B-32 **Elev./Depth:** 13

Tolunay-Wong Engineers, Inc.

Houston, Texas

Remarks:
ASTM D 2435

Figure 4

APPENDIX G

SOIL DESIGN PARAMETERS
BORINGS B-1 THROUGH B-32

Tolunay-Wong Engineers, Inc.

2455 West Cardinal Drive, Suite A - Beaumont, Texas 77705 - Phone (409) 840-4214 - Fax (409) 840-4259

Soil Borings B-21 Through B-28, B-30 to B-32 Soil Design Parameters							
Soil Type	Approximate Depth (ft) [1]		Total Unit Weight (pcf)	Undrained Parameters (Short-Term)		Drained Parameters (Long-Term)	
	Top	Bottom		Cohesion, c (psf)	Friction Angle, φ (°)	Cohesion, c (psf)	Friction Angle, φ (°) [2]
Firm Clay	0	2	120	600	0	20	25
Soft Clay	2	6	113	400	0	10	27
Firm Clay	6	12	116	600	0	140	28
Firm Clay	12	15	121	1,000	0	100	28

Soil Boring B-29 Soil Design Parameters							
Soil Type	Approximate Depth (ft) [1]		Total Unit Weight (pcf)	Undrained Parameters (Short-Term)		Drained Parameters (Long-Term)	
	Top	Bottom		Cohesion, c (psf)	Friction Angle, φ (°)	Cohesion, c (psf)	Friction Angle, φ (°) [2]
Loose Sand	0	3	115	-	30	-	30
Firm Clay	3	8	125	400	0	10	27
Stiff Clay	8	15	127	1,000	0	150	27

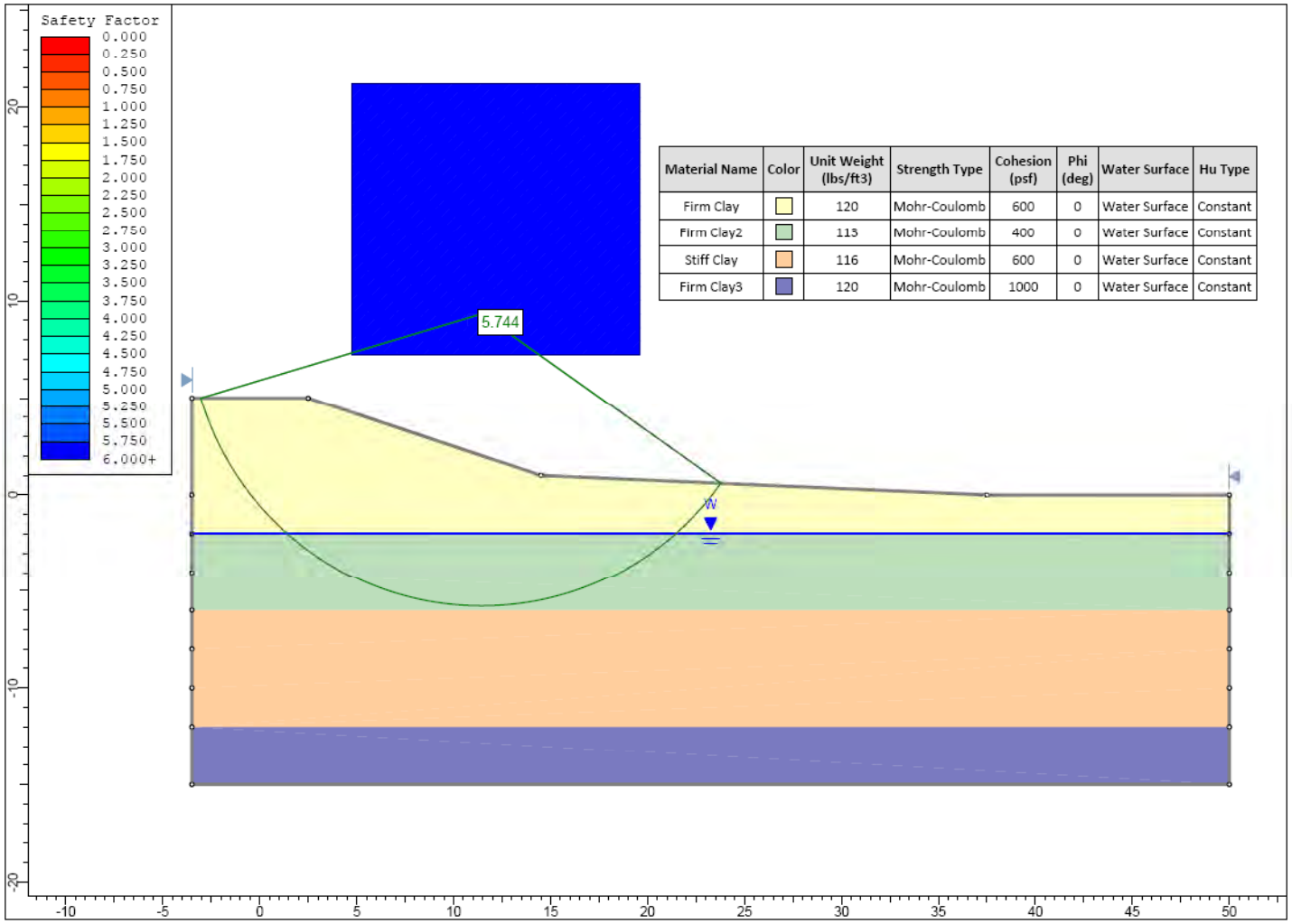
Notes:

1) Approximate depths are from existing ground surface at the boring locations.

2) Drained friction angles for clay soils are based on laboratory CU test results and an empirical correlations with plasticity indices.

APPENDIX H

RESULTS OF GLOBAL STABILITY ANALYSIS



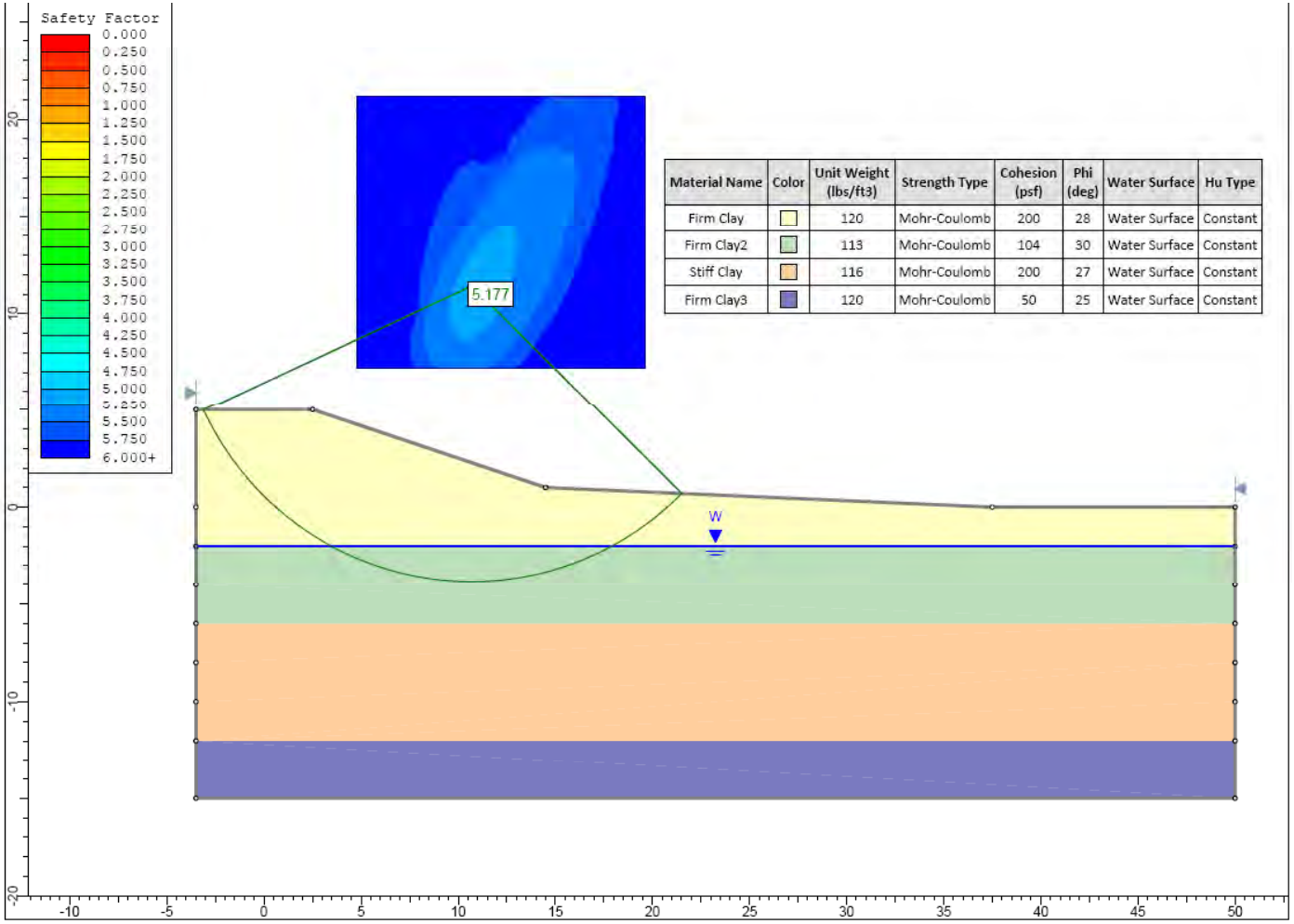
Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Hu Type
Firm Clay		120	Mohr-Coulomb	600	0	Water Surface	Constant
Firm Clay2		115	Mohr-Coulomb	400	0	Water Surface	Constant
Stiff Clay		116	Mohr-Coulomb	600	0	Water Surface	Constant
Firm Clay3		120	Mohr-Coulomb	1000	0	Water Surface	Constant

SOIL BORINGS B-21 THRU B-28, B-30 AND B-31
END OF CONSTRUCTION – CRITICAL CIRCLE
4.5-FT BERM HEIGHT - (3H:1V)

Tolunay-Wong Engineers, Inc.
BEAUMONT, TEXAS

MCFADDIN NWR
BEACH RIDGE RESTORATION
JEFFERSON COUNTY, TEXAS

DRAWN BY: AG	CHECKED BY: PJK
APPROVED BY: PJK	DWG NO.: 1
SCALE: --	DATE: 4-17-2013



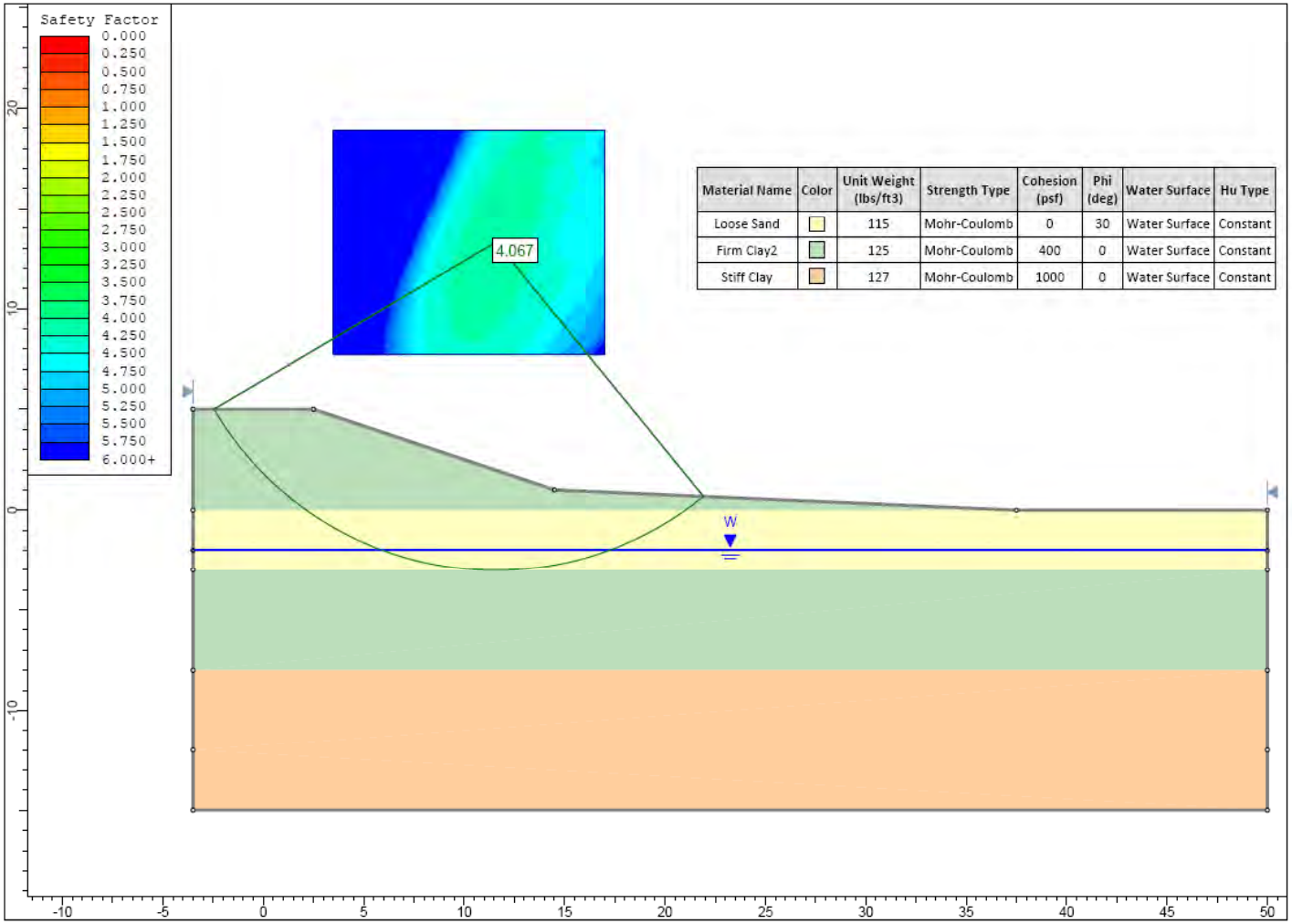
Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Hu Type
Firm Clay		120	Mohr-Coulomb	200	28	Water Surface	Constant
Firm Clay2		113	Mohr-Coulomb	104	30	Water Surface	Constant
Stiff Clay		116	Mohr-Coulomb	200	27	Water Surface	Constant
Firm Clay3		120	Mohr-Coulomb	50	25	Water Surface	Constant

SOIL BORINGS B-21 THRU B-28, B-30 AND B-31
DRAINED CONDITION – CRITICAL CIRCLE
4.5-FT BERM HEIGHT - (3H:1V)

Tolunay-Wong Engineers, Inc.
BEAUMONT, TEXAS

MCFADDIN NWR
BEACH RIDGE RESTORATION
JEFFERSON COUNTY, TEXAS

DRAWN BY: AG	CHECKED BY: PJK
APPROVED BY: PJK	DWG NO.: 2
SCALE: --	DATE: 4-17-2013

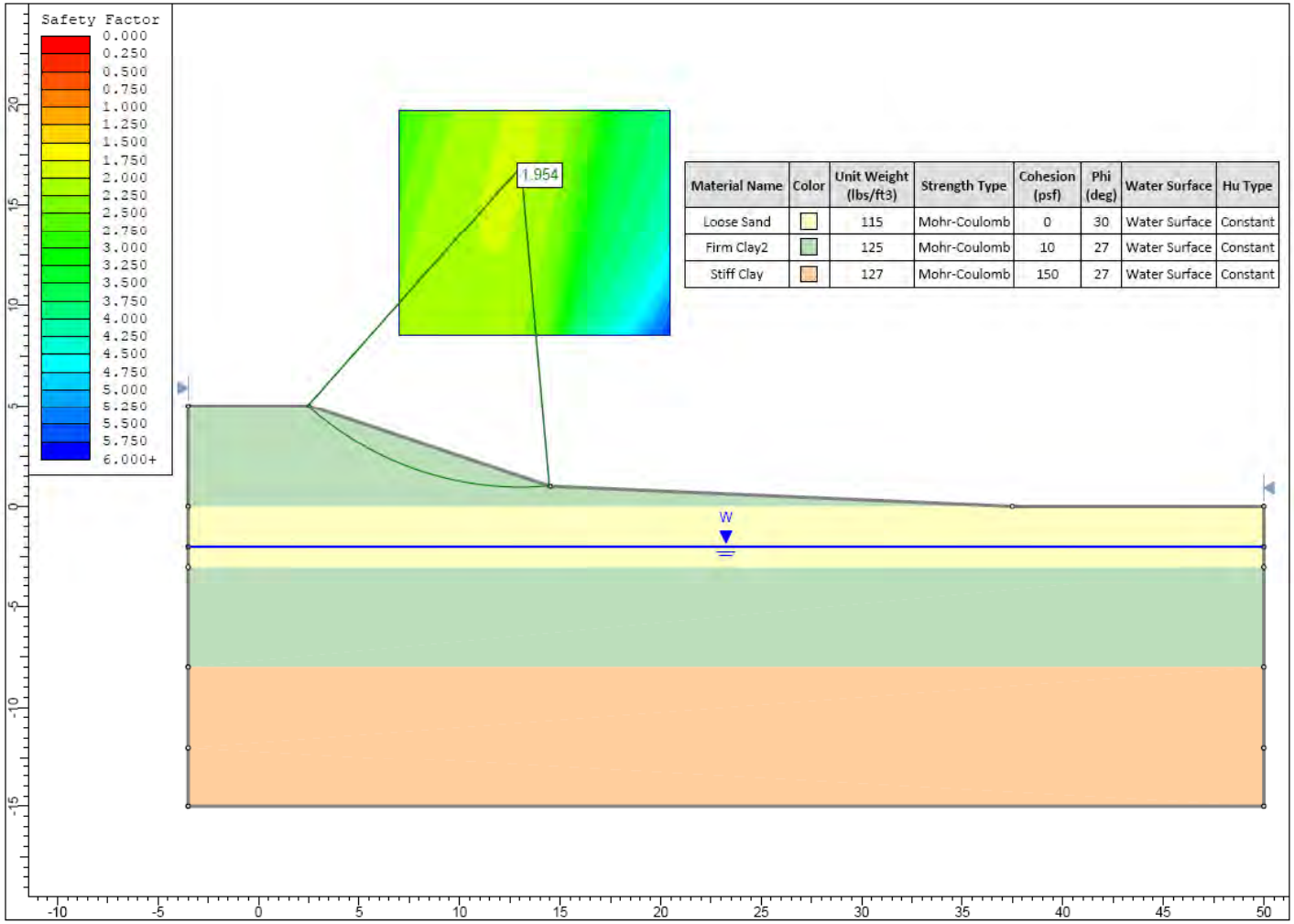


SOIL BORING B-29
END OF CONSTRUCTION – CRITICAL CIRCLE
4.5-FT BERM HEIGHT - (3H:1V)

Tolunay-Wong Engineers, Inc.
BEAUMONT, TEXAS

MCFADDIN NWR
BEACH RIDGE RESTORATION
JEFFERSON COUNTY, TEXAS

DRAWN BY: AG	CHECKED BY: PJK
APPROVED BY: PJK	DWG NO.: 3
SCALE: --	DATE: 4-17-2013



SOIL BORING B-29
DRAINED CONDITION – CRITICAL CIRCLE
4.5-FT BERM HEIGHT - (3H:1V)

Tolunay-Wong Engineers, Inc.
BEAUMONT, TEXAS

MCFADDIN NWR
BEACH RIDGE RESTORATION
JEFFERSON COUNTY, TEXAS

DRAWN BY: AG	CHECKED BY: PJK
APPROVED BY: PJK	DWG NO.: 4
SCALE: --	DATE: 4-17-2013

General Decision Number: TX150079 01/02/2015 TX79

Superseded General Decision Number: TX20140079

State: Texas

Construction Type: Heavy

Counties: Hardin, Jefferson and Orange Counties in Texas.

HEAVY CONSTRUCTION PROJECTS (Including Water and Sewer Lines and Excluding Industrial and Processing Plants, and Refineries)

Note: Executive Order (EO) 13658 establishes an hourly minimum wage of $10.10 for 2015 that applies to all contracts subject to the Davis-Bacon Act for which the solicitation is issued on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.10 (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/02/2015

* ELEC0479-003 09/29/2014

	Rates	Fringes
ELECTRICIAN	$ 27.40	11.66

SUTX2000-002 02/11/2000

	Rates	Fringes
Carpenters:		
Form Building/Form Setting	$ 13.15	
All Other Work	$ 13.56	
Concrete Finisher	$ 13.50	
Laborers:		
Common	$ 7.41	
Pipelayer	$ 8.29	
Painters:		
Spray and Brush	$ 12.07	
PILEDRIVERMAN	$ 13.65	
PLUMBER	$ 18.28	4.69
Power equipment operators:		
Backhoe	$ 15.55	1.89

Bulldozer.....$ 15.00
Crane.....$ 13.77
Front End Loader.....$ 10.63
Trackhoe.....$ 15.60

Truck drivers:
Dump.....$ 10.00

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all

rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor

200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

potentially misrepresented themselves. In such situations, HUD will request documentation to verify the businesses' eligibility. Businesses that are found to have misrepresented themselves will be removed from the Section 3 Business Registry and penalized (see HUD's Section 3 Business Registry webpage for more information).

To search for Section 3 businesses in your community, register your business, or learn more about HUD's Section 3 Business Registry, please visit: www.hud.gov/Sec3biz

SECTION 3 AND HUD-FUNDED CONTRACTS

Section 3 requirements provide preference but not a guarantee to Section 3 residents and Section 3 businesses when new jobs, training, or contracting opportunities are created as a result of HUD funds. Section 3 residents and businesses are not entitled to jobs or contracts simply because they meet the eligibility criteria. Section 3 residents and businesses may need to demonstrate that they have the ability to perform successfully under the terms and conditions of proposed contracts and meet the qualifications for jobs or contracts they are seeking.

Section 3 residents or businesses that believe that they have been denied employment, training, or contracting opportunities associated with HUD-funded projects are encouraged to file a complaint with HUD at the appropriate Regional Office of Fair Housing and Equal Opportunity (FHEO). A copy of the Section 3 Complaint Form (HUD-958) and a list of FHEO Regional Offices can be found online at: www.hud.gov/Section3

U.S. Department of Housing and Urban Development

www.hud.gov/Section3

8804

HUD Form 972-English

HUD SECTION 3 BUSINESS REGISTRY

WHAT IS SECTION 3?

Section 3 is a provision of the Housing and Urban Development (HUD) Act of 1968 that helps foster local economic development, neighborhood improvement, and individual self-sufficiency.

HUD investments in local communities represent one of the largest sources of federal funding, and the expenditure of these funds typically results in new contracts and jobs. The Section 3 requirements stipulate that local low-income persons, and businesses that substantially employ those persons, receive priority consideration for a percentage of new training, employment, and contracting opportunities that are created from certain HUD funds.

Please visit www.hud.gov/section3 for more information on the requirements of Section 3.

WHAT IS A SECTION 3 BUSINESS?

If your business meets one of the following criteria, you may be eligible to receive priority consideration when bidding on certain HUD-funded contracts or subcontracts:

1) 51 percent or more owned by Section 3 residents; or

2) At least 30 percent of full-time, permanent staff are Section 3 residents (or were Section 3 residents within the last 3 years); or

3) Evidence of a commitment to subcontract 25 percent or more of the total dollar amount of all subcontracts to businesses that meet one of the criteria listed above.

WHO ARE SECTION 3 RESIDENTS?

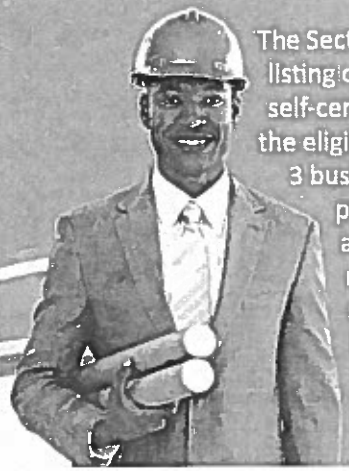
If you meet one of the following criteria, you may be eligible to receive priority consideration when applying for certain HUD-funded jobs and training opportunities:

1) Public housing residents; or

2) Low and very low-income persons who live in the metropolitan area or Non-metropolitan County where covered HUD funding is spent.

To determine income eligibility in your community visit: http://www.huduser.org/portal/datasets/il.html

WHAT IS THE SECTION 3 BUSINESS REGISTRY?



The Section 3 Business Registry is a listing of businesses that have self-certified that they meet one of the eligibility criteria of a Section 3 business, and have submitted publicly available information about their firm (i.e. business name, address, type of services provided, etc.) to be included HUD's online database.

The Section 3 Business Registry will be used by Public Housing Authorities (PHAs); State, County, and local government agencies; property owners; developers; contractors; and others as a resource for finding local Section 3 businesses to be notified about HUD-funded contracting opportunities. Section 3 residents are also encouraged to use the registry to locate Section 3 businesses that may have new HUD-funded jobs as a result of recently awarded HUD-funded contracts.

HUD will maintain the Section 3 Business Registry to assist agencies that receive HUD funds with meeting their Section 3 obligations. However, HUD does not verify information submitted by businesses and does not endorse the services they provide. Therefore, grantees and other users should perform due diligence to confirm eligibility before awarding contracts to firms in the Section 3 Business Registry.

Contact HUD at sec3biz@hud.gov if you believe firms in HUD's Section 3 Business Registry have

continued

Texas General Land Office
Community Development Block Grant (CDBG)
Disaster Recovery Program

SECTION 3
RESIDENT EMPLOYMENT OPPORTUNITY DATA
ELIGIBLITY FOR PREFERENCE

Economic Opportunities for Low and Very Low-Income Persons

Grantee/Subrecipient:	Contract Number:	Date:

ELIGIBILITY FOR PREFERENCE

A Section 3 Resident seeking the preference in training and employment provided by this part shall certify, or submit evidence to the Subrecipient, Grantee, Contractor or Subcontractor, if requested, that the person is a Section 3 Resident, as defined in Section CFR 135.5. (An example of evidence of eligibility for the preference is evidence of receipt of public assistance, or evidence of participation in a public assistance program.)

Section 3 Resident Certification
for Worker Seeking Preference in Training
and Employment

RESIDENT COMPLETES THIS SECTION:

I, _____, am a legal resident of the County of Jefferson, TX

_____ and meet the income eligibility guidelines for a low- or very-low-income person as published on HUD'S income limits www.huduser.org/portal/datasets/il.html and documented on the reverse side of this form.

My permanent address is: _____

_____

I have attached the following documentation as evidence of my status:

- ☐ Copy of Lease
- ☐ Copy of receipt of public assistance
- ☐ Copy of Evidence of participation in a public assistance program
- ☒ Other Evidence

_____ _____
Resident Signature Date

_____
Print Name

SECTION 3 INCOME LIMITS

All residents of public housing developments of the Housing Authority of
The County of Jefferson, TX

Qualify as Section 3 Residents.
Alternatively, individuals residing in the
City of _____
or County of Jefferson, TX

Who meet the income limits set forth below, can also qualify for Section 3 status.

A picture identification card and proof that illustrates applicant is a current resident of the subject area.

HUD updates area median income (AMI) annually and income limits vary by county. To find the latest income limits visit HUD's website: www.huduser.org/portal/datasets/il.html

Eligibility Guideline

Number in Household	Very Low Income (50% AMI)	Low Income (80%)
1 Individual	$20,000.00	$32,000.00
2 Individuals	$22,850.00	$36,550.00
3 Individuals	$25,700.00	$41,100.00
4 Individuals	$28,550.00	$45,650.00
5 Individuals	$30,850.00	$49,350.00
6 Individuals	$33,150.00	$53,000.00
7 Individuals	$35,450.00	$56,650.00
8 Individuals	$37,700.00	$60,300.00

_____ _____
Signature Field Date

_____
Print Name

Texas General Land Office
Community Development Block Grant (CDBG)
Disaster Recovery Program

CERTIFICATION FOR BUSINESS CONCERNS
Seeking Section 3 Preference in Contracting and Demonstration of Capability

Economic Opportunities for Low and Very Low-Income Persons

Grantee/Subrecipient:	Contract Number:	Date:

CONTRACTOR INFORMATION

Name of Business

Address of Business

Type of Business: ☐ Corporation ☐ Partnership ☐ Non-Profit ☐ Sole Proprietorship ☐ Joint Venture ☐ Consortium

Attach the following documentation as evidence of Section 3 eligible status:
(Definition of "Section 3 Business Concern" in 24 CFR 135 describes the three alternative qualifications.)

For Business claiming status as a Section 3 resident-owned enterprise:

- ☐ Copy of resident lease
- ☐ Copy of evidence of participation in a public assistance program
- ☐ Copy of receipt of public assistance
- ☐ Other evidence

_____

For business entity as applicable:

- ☐ Copy of Articles of Incorporation
- ☐ Assumed Business Name Certificate
- ☐ List of owners/stockholders and % ownership of each appointed officers
- ☐ Organization chart with names and titles and brief function statement
- ☐ Certificate of Good Standing
- ☐ Partnership Agreement
- ☐ Corporation Annual Report
- ☐ Latest Board minutes
- ☐ Additional documentation

For business entity claiming Section 3 status by subcontracting 25 percent of the dollar awarded to qualified Section 3 business(es):

- ☐ List of subcontracted Section 3 business(es) and subcontract amount

For business claiming Section 3 status, by claiming at least 30 percent of their workforce are currently Section 3 residents or were Section 3 eligible residents within 3 years of date of first employment with the business:

- ☐ List of all current full-time employees
- ☐ PHA/IHA Residential lease less than 3 years from day of employment
- ☐ List of employees claiming Section 3 status
- ☐ Other evidence of Section 3 status less than 3 years from date of employment

Evidence of ability to perform successfully under the terms and conditions of the proposed contract:

- ☐ Current financial statement
- ☐ List of owned equipment
- ☐ List of all contracts for the past two years
- ☐ Statement of ability to comply with public policy

_____ _____
Authorized Name and Signature Date

(Corporate Seal)

Attested By: _____

SECTION 3 RESIDENT SELF-CERTIFICATION

A Section 3 resident seeking preference in training and employment provide by this part shall certify and submit evidence to the recipient contractor or subcontractor, if requested, that the person is a Section 3 resident, as defined in Section 135.5 (An example of evidence of eligibility for the preference is evidence of receipt of public assistance, or evidence in a public assistance program).

General Information

Project Name: _____

Name _____

Address _____

City _____ State _____ Zip Code _____

Telephone Number _____ Email Address (optional) _____

Job Skill/Trades _____

Certification

Check Yes or No for each statement. If you check "Yes" to one or more of the following please attach the documentation as evidence of your status as a Section 3 Resident.

1. Public housing resident (provide copy of lease) ☐ Yes ☐ No
2. Participate (s) in a federal, state, or local public assistance program (proof of residency) ☐ Yes ☐ No
3. Total annual family income is: _____
   The family size of household is: _____

20 15 Annual Income Limits

Family Size	1	2	3	4	5	6	7	8
Low Income	$32,000.00	$36,550.00	$41,100.00	$45,650.00	$49,350.00	$53,000.00	$56,650.00	$60,300.00

I_____am a legal resident of the **Jefferson County, Texas** area and qualify as a Section 3 resident because I meet the income eligibility guidelines for a low or very low income person as published above.

I understand that the information above may require verification. I agree to provide documents verifying this information if requested and authorize my employer, if applicable, to release information required by _____to verify my status as a "Section 3 Resident". I certify that the above statements are true, complete, and correct to the best of my knowledge and belief.

_____

Print Name

_____ _____

Signature **Date**

Exhibit L

Posting Job Vacancies at WorkInTexas.com

And Connecting Section 3 Residents with Section 3 Jobs

Posting Job Vacancies at WorkInTexas.com

Required Language for Job Title and Job Description

Grantees and Subrecipients:

As required by the GLO Section 3 Policy, all Grantees, Subrecipients and their contractors who are receiving DR funding must post their job vacancies with the state's free job matching system – WorkInTexas.com. There are two ways to do this. You can self-register an employer account and post jobs directly online or you can contact your local Workforce Solutions Office. Staff is available to assist with account registration and/or can post jobs on your behalf at WorkIntexas.com

Specifically, Grantees, Subrecipients and Contractors must:

- Register with WorkInTexas.com;
- Register with their Local Workforce Solutions Center and/or Work-in-Texas Website;
- Post all DR related job postings at WorkInTexas.com; and
- Include the word SEC3 in the job title and job description.

-SAMPLE-

Job Title-

SEC3 Construction Laborer

Job Description-

SEC3

Looking for a general laborer to work in housing construction. Construction experience a plus.

Included with this document is a list of tips that Grantees, Subrecipients and contractors can use in posting job vacancies provided by Texas Workforce Commission.

Tips for Employers Posting Jobs in WorkInTexas.com
Provided by Texas Workforce Commission

WorkInTexas.com is a job matching site rather than a job lead generation site. We compare required job posting qualifications and job seeker qualifications with data in WorkInTexas.com to find quality matches. We believe we're providing better customer service by making sure your jobs attract qualified candidates before providing contact information to you or the job seeker. Recruiting can be difficult and expensive and we don't want to waste anyone's time. So, ensuring your job posting is as good and complete as possible is rule #1.

Rule #1 – Take the time. Quality in means quality out, so spend the extra time up front making sure you've included as much detail as possible. The more complete your job posting, the better your matching results will be. And, a good job posting will keep you from missing out on good matches down the road.

Rule #2 – Choose occupations wisely. Job "matching" is based on behind-the-scenes computer logic, but it all boils down to the occupations you choose. The more occupations you select, the more job seekers you'll attract (match) to your job posting, and vice versa.

Rule #3 – Include pay, even if you choose to suppress it from job seeker view. It will narrow your results, and possibly increase the quality of your matches. Also, job matches are based on minimum salary, even if maximum salary is provided, so consider posting the actual salary amount you're willing to pay to ensure better job matches (matches will be restricted if the pay is too low).

Rule #4 – Using "Keywords" can help you reduce the number of job seekers matched with your job posting. Keywords are single words or phrases you can enter to clarify specific qualifications you're looking for, such as computer languages, licenses, or certifications.

Rule #5 – Use "Screening Questions." These are questions you can add to your posting that job seekers must answer before they contact you or apply. Answers do not limit anyone's ability to apply, but the information does offer you a unique opportunity to pre-screen and evaluate interested applicants.

Rule #6 – View your job posting to see what job seekers will see. This is a great self-test of the quality and completeness of your job opportunity. If it looks short on detail to you, imagine what a job seeker will think. Take the time to go back and enter more information.

Rule #7 – Use Site Help. It's our version of a "tutorial" and explains in general terms the major functions in WorkInTexas.com.

If you're looking for Veterans (only)

- All jobs entered in WorkInTexas.com are automatically made available to veterans only for the first two days.
- When posting your job, you can choose to make it available to veterans only for the lifetime of the posting by selecting "Veterans Only – Yes."
- Veteran applicants who apply for your job will be marked with an American Flag icon, indicating that they are eligible U.S. Military Veterans in good standing.

Registering and Searching For Job Vacancies at WorkInTexas.com

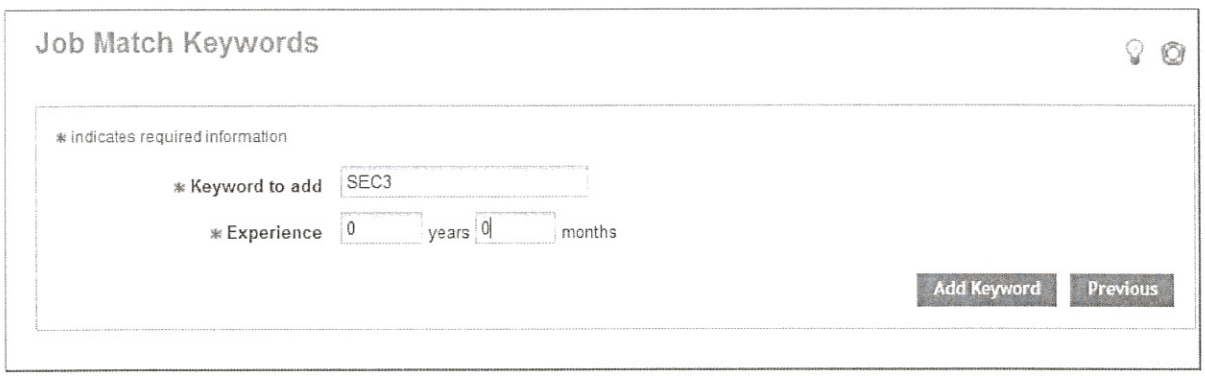
For Section 3 Residents

Dear Section 3 Resident,

As required by the GLO Section 3 Policy, all Grantees, Subrecipients and their contractors who are receiving DR funding post their job vacancies with their Local Workforce Solutions Center and/or Work-in-Texas.

To help connect you to these job opportunities you must:

- Register as a job seeker with WorkInTexas.com and/or contact the local Workforce Solutions Office for assistance with registration;
- After you complete basic registration, it is important you add a Section 3 related keyword to your profile. To do so follow these steps:
    1. Click on the My Portfolio tab, in the top navigation
    2. Click on Keywords in the Job Matching Criteria section
    3. In the Keyword to add field enter: sec3 Enter 0 for both years and months experience
    4. Click the Add Keyword button



In addition, you can search for existing Section 3 job vacancies by selecting the Browse Jobs menu on the title bar then by Text. In the Enter Text line type the word: "**SEC3"**, then hit search.

If you need help, please contact your local Workforce Solutions Center. You may search for one here: http://www.twc.state.tx.us/dirs/wdas/directory-offices-services.html?mid=0.07262226541895678

NEW EMPLOYEE INFORMATION FORM
SECTION 3 RESIDENT CERTIFICATION

GRANTEE: _____
CONSTRUCTION CONTRACTOR: _____
PROJECT NAME: _____ PROJECT #: _____

NOTICE TO EMPLOYERS: This section is to be completed and submitted with the first payroll on which said employee appears by the contractor/subcontractor for all new employees performing work on the job site of the above referenced project.

Name: _____ Address: _____
City_____ State _____ Zip Code_____
Phone #:_____Last 4 Digits of SS#_____ Date of Hire_____

If you do not reside within the jurisdiction of the GRANTEE or within a PHA, you are not required to answer the following questions. The GRANTEE is listed on the first line of this form.

1. How many persons are in your family? _____
2. What was your yearly family income prior to date hired: $_____

Family Size One	Family Size Two	Family Size Three	Family Size Four	Family Size Five	Family Size Six	Family Size Seven	Family Size Eight
$ 32,000.00	$ 36,550.00	$ 41,100.00	$ 45,650.00	$ 49,350.00	$ 53,000.00	$ 56,650.00	$ 60,300.00

In order to demonstrate that you meet the definition of a low-or very low-income person, please provide one of the following:

1) Proof of residency in a Public Housing Development;
2) A copy of your Section 8 voucher certificate or voucher;
3) Evidence of your eligibility or participation in a federally-assisted program for low – and very low-income persons (e.g. Jobs, JTPA, Job Corps, etc):
4) Evidence of your eligibility or participation in a State or Local Assistance Program for low- or very low-income persons or receipt of AFDC;
5) Income tax records
6) Other

I, _____, (participant's name) certify that I meet the requirement stipulated in # _____above. I have provided the following document to demonstrate evidence of this_____(documentation attached)

_____ _____
Participant's Signature ***Date***

SECTON 3 RESIDENT? ☐YES ☐NO

Method used to attempt recruiting lower income residents within the boundaries covered in the Section 3 Plan (local advertising media, signs placed at the proposed site for the project, and community organization and public and private institutions operating within or serving the project area such as Service Employment and Redevelopment 9 (SER), Opportunities Industrialization Center (OIC), Urban League, Concentrated Employment Program Hometown Plan, or the U.S. Employment Service, IE. If applicable attach supporting documentation:

MONTHLY EMPLOYMENT UTILIZATION REPORT/SECTION 3 REPORTING FORM

REPORTING PERIOD _____, 20 _____ CONTRACT #: _____ GRANTEE: _____

NAME OF CONTRACTOR (Prime or Subcontractor): _____

Fill in blanks at the top of the form and write/type in the Job Classification/Work Classification by Trade in Column A. Complete all columns by trade.

A Job Category Work Classifications By Trade	B Number of New Hires	C Number of Section 3 New Hires	D % of Aggregate # of Staff Hours of New Hires that are Section 3 Residents	E % of Total Staff Hours for Section 3 Employees & Trainees	F Number of Section 3 Employees & Trainees

Please refer to Exhibit A, Section 3 Resident Eligibility Form to determine if New Hires are Section 3 Residents. The New Hire must reside in the boundaries of the Grantee and fall within the income limits shown on the Eligibility form to be considered a Section 3 Resident.

MINORITY BUSINESS ENTERPRISE (MBE) REPORT

Construction Contractor: _____ Contract Number(s): _____ Grantee/ Locality Name: _____

Date Submitted: _____ Quarter Reporting (Check One): ☐ Jan-Mar ☐ Apr-Jun ☐ Jul-Sep ☐ Oct-Dec

Contractor: List your firm on the 1st line & specify the dollar amount that you have received from the Grantee during this quarter. List all subcontractors & materials suppliers that you have paid in this quarter (do not list Mat Supp for expenditures less than $1,000.00)			Federal ID #	$ Amount Received or Expended	*See Note Below						
Name	Street Address	City/State/Zip Code		Total Dollars	A	B	C	D	E	F	G

*NOTE: The following tables contain the codes to be used for items A, B, C, D, E, F, and G

COLUMN A

Code	Type of Trade
1	Construction
2	Professional Services
3	Other

COLUMN B

Code	Specific Type of Service Provided
1	Construction/Rehabilitation
2	Materials/Equipment/Supplies
3	Architectural
4	Engineering
5	Management/Administration
6	Legal
7	Appraisal
8	Audit
9	Other

COLUMN C

Code	Business Race/Ethnicity (Based on 51% or more ownership)
1	White
2	Black/African American
3	American Indian / Alaskan Native
4	Hispanic
5	Asian
6	Native Hawaiian/Other Pacific Islander
7	Black/African American & White
8	Asian & White
9	American Indian/Alaskan Native & White
10	American Indian/Alaskan Native & Black/African Amer
11	Other Multi-Racial

COLUMN D

H= Hispanic
NH = Not Hispanic

COLUMN E
Gender
M = Male
F = Female

COLUMN F
Prime/Sub/Materials
P = Prime
S = Subcontractor
M= Materials

COLUMN G
Section 3 Business
Y= Yes N= No