Sabine Pass Port Authority
TGLO/TDRA Round 1 Post-Ike Recovery Project
Dredging and Demolition Phase

Addendum No. 3
January 10, 2012

Item 1:

Federal Dredged Material Placement Area (DMPA) No. 5, located across the Sabine-Neches Channel east of the project site, has been coordinated for placement of dredged material from this project. Refer to the attached Exhibit C—"Location of the Sabine Neches Navigation District DMPA No. 5." No demolition debris may be deposited in DMPA No. 5.

The USACE Permit SWG-2011-00297, Letter of Permission and Nationwide Permit Verification (dated December 23, 2011) is attached to this addendum; also attached are TCEQ Section 401-Water Quality Certification (dated October 17, 2011) and USACE Galveston District Real Estate Consent of Easement (DACW64-9-11-97). A Sabine Neches Navigation District placement permit is pending and will be executed by Owner prior to placement of materials into the DMPA.

Item 2:

In consultation with Owner, Engineer will consider proposals for alternative dredged material placement locations. A Bidder proposing dredge placement method or location other than that specified in Item 1 (of this Addendum), shall so indicate by checking the box on the Revised Bid Form. If a bid so indicated is the apparent successful bid, award will remain contingent until details of the alternative are submitted and determined to be in Owner's best interest. The apparent successful Bidder will be given 5 (five) calendar days to submit such details. This provision may modify timelines for Award contained in the General Conditions.

Recognizing that Contractor removal of dredged material from the project boundary (generally, the area owned or leased by Owner) may expose Owner to additional monitoring costs and/or liability, Owner contemplates including a provision in the Agreement that will cause ownership of the dredged material to convey to the Contractor upon removal of such material from the project boundary. Engineer encourages Bidders to express questions or concerns regarding this contemplated requirement in advance of the bid opening date.

Owner has indicated a preference against extensive land-based mechanical removal or truck hauling of wet material across port property to public roadways, based on the unavoidable impacts of such activities on marina tenants and port facilities.

The Bid Form contained in the original solicitation is hereby deleted in its entirety and replaced by Attachment "A" to Addendum No. 3 and entitled "Revised Bid Form."

LEAP Engineering LLC 2600 Via Fortuna,Suite 360 Austin, TX 78746 Tel:(512) 330-9702 Fax:(512) 330-9756

Item 3:

The Davis-Bacon Wage rates decision under TX96 have been superseded by TX75 (TX1200075), which is included in Attachment "B". There are no changes to the classifications and rates relative to the superseded decision.

Pre-Bid Meeting Questions:

The following questions were received during the Pre-Bid Meeting held on January 4th, 2012.

1. What are the criteria under which the dredge job will be accepted?

Project intent is to achieve template depths while not adversely impacting stability of the existing steel bulkhead. Constraints associated with the source of project funds preclude payment for dredging beneath the template. Therefore, acceptance language relates to minimizing high spots, avoiding overdredging near the bulkhead, and paying to template depth (on average) but no deeper. It is possible that the pay quantity could be reduced if the accepted average elevation is slightly above template.

Specifications Section 35 20 23 (Dredging), Item 4 (Measurement and Payment), Subsection 4.1 (Dredging) is hereby deleted and replaced with the following:

"4.1 Dredging

Measurement:

Offshore survey elevations will be measured to the nearest 0.1 ft referenced to NAVD88. To ensure this accuracy is maintained, the fathometer shall be calibrated at the start of each survey day, after every third profile line, at the end of each paper roll, and at the end of each day. Survey vessel settlement and squat must be determined at survey speeds and applied to correct the water depth measurements.

The pre-construction survey is provided in the Drawings and will be the basis for measurement of dredged quantities. The post-construction survey shall be conducted in the presence of the Contractor or his representative. The Engineer shall provide 24 hour advance notice to the Contractor prior to conducting the post-construction survey.

Acceptance:

A pay section will be deemed completed per specifications when the measured surface is within plus or minus 0.5 ft of the specified template for that section. Owner's emphasis is to minimize high spots. High spots may require correction at the direction of Engineer. Low spots will generally not be penalized but for payment purposes will be treated as being at the lower tolerance elevation. However, overdredging of the slope adjacent to the bulkhead relative to the

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design template or within the bulkhead clear zone (see Drawings) may be detrimental to bulkhead stability. Risk resulting from overdredging remains with the Contractor.

Payment:

Payment for the Dredging work will be made at the unit price for Bid Item No. 352023-1x. Payment will be made based on the measured quantity except that any quantity taken from below the lower tolerance shall not be counted and any quantity resulting from the average elevation (with low spots treated as equal to the lower tolerance elevation) being lower than the template elevation shall not be counted."

2. Can Contractor run dredge pipeline through federal mooring area along the side of the channel?

   No specific coordination has occurred regarding use of the mooring area. Contractor must follow all local, state, and federal regulations for demolition, dredging and dredge material placement. The Engineer is not authorized to make decisions regarding access to federal property.

3. Is there a dedicated pipeline into PA5-B?

   No dedicated pipeline exists into the DMPA. It shall be the Contractors responsibility to provide all required materials and equipment to convey dredged material over the top of the existing levee system.

4. Is there a spill box and/or location of access into the DMPA?

   Yes, there is an existing outflow spill box that is used to decant water from dredged material. Specified access locations for the DMPA will be at the direction of Sabine Neches Navigation District (SNND) personnel. It shall be the Contractors responsibility to provide a method of placement within the DMPA that has no deleterious impacts to the existing DMPA infrastructure during operations.

5. Is there a discharge corridor?

   No discharge corridor exists within the DMPA. The Contractor is responsible for coordinating specific discharge locations with SNND during placement operations. It is expected that SNND will direct operations to existing low points within placement area.

6. Is there any required drainage construction required at the DMPA?

   Neither drainage nor training levees will be required for construction by the Contractor. It is the Contractors responsibility to coordinate placement locations with SNND during placement operations and provide appropriate equipment to meet DMPA placement guidelines. Prior to any dredge disposal operations, SNND will conduct a preconstruction meeting to discuss operations and walk-through the specific requirements for the placement area.

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7. What is the process that the Bid will be awarded? Clarify complications using additive bids regarding how many fall within the construction budget.

   Bids will be evaluated based on best value to the Owner. The intent of the Additive Bids is to utilize the available funds to the maximum extent possible. Bids will be tabulated based on the Base Bid Plus Additive Bids 1 and 2, Base Bid Plus Additive Bid 1, and the Base Bid Total. If no responsive Bid including both Additives falls within the available budget, then that tabulation will be ignored and the tabulation including only Additive 1 will be evaluated, etc.

   Owner reserves the right to reject all bids and all other rights within its procurement authority.

8. What are the possible penalties for overdredging the permit when the permitted depth is much lower than the design depth?

   Particular care should be taken to avoid dredging within the 5 ft bulkhead clear zone or overdredging the adjacent slope. There is no explicit penalty imposed by Owner for overdredging relative to the template depth. However, Contractor remains responsible for his activities.

9. Request for boring information collected at the site and the 07/2010 survey comparison.

   Boring data collected at a single upland location at the project site is provided in this addendum as Attachment "C".

   A comparison of the 2007/2010 survey data is included in this addendum as Attachment "D." Note that these graphs as presented lack a datum correction of less than one foot to truly represent NAVD88 elevations but relative elevations are deemed accurate.

   Geotechnical analysis conducted for 2 grab sample locations within the Sabine Pass Port Authority Marina are included as Attachment "E".

10. Clarify debris removal scope. Will there be a provision for downtime due to excessive debris?

    To the Owner/Engineer, "excessive" would be indicated either by large size (e.g., a vessel or vehicle) or a cumulative quantity that is significant relative to the scope of the pier demolition. Otherwise, the risk of encountering debris in the project area remains with the Contractor.

    Additional contract time will not be unreasonably withheld, but it is expected that a monetary claim for dredge plant downtime can be avoided by appropriate debris identification during the demolition task.

    The Project Area was within the disaster recovery activity area for Post-Ike vessel and debris (items larger than one cubic yard) identification and removal. Owner/Engineer contemplates neither the existence nor removal of vessels or vehicles within the current project. Should such items be found, avoidance will be the likely response if other accommodations cannot be arranged.

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Project intent is for Contractor to perform a significant debris removal task in removing the remaining T-Head pier and any associated debris so that Contractor can then dredge to required depth.

11. Will a new survey be required prior to start of construction and/or submittal of Bids?

    The December 8, 2010 survey will be used as a baseline for dredge quantities.

12. Will a zero amount for the additive bid item for mobe-demobe be considered unresponsive?

    No. Zero is an acceptable amount for those items. Because mobe-demobe is limited to a maximum percentage of the contract subtotal, these items were provided to allow the percentage to be achieved in the event of execution of additives.

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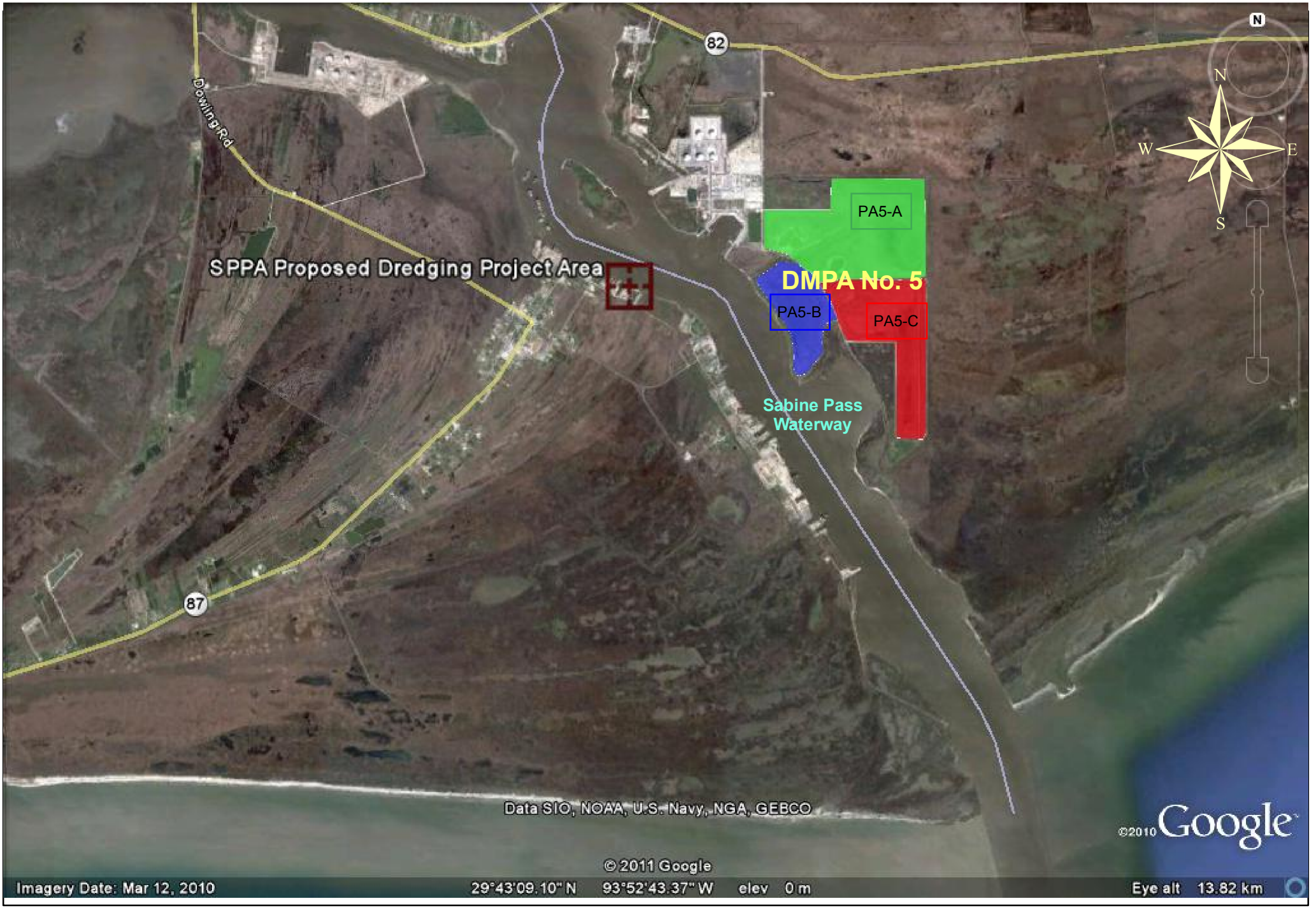

Exhibit C
Location of Sabine-Neches Navigation District DMPA No. 5

Sabine Pass Port Authority
USACE Individual Permit Application

Date: March 30, 2011

LE Project No. 474-1001

LEAP ENGINEERING
322 Tremont
Galveston, Texas 77550
Tel. (409) 877-4078
Fax (409) 813-1916

JEFFERSON COUNTY

Texas Dept of Rural Affairs
Round 1 Post-Ike Recovery Project

at

SABINE PASS PORT AUTHORITY
JEFFERSON COUNTY CONTRACT NO. DRS010210

ATTACHMENT "A" TO ADDENDUM NO. 1
REVISED BID FORM

PROPOSAL

Proposal of _____, (hereinafter called "Bidder") organized and existing under the State of Texas and doing business as* _____, to the County of Jefferson (hereinafter called "Owner").

In compliance with your Call for Bids dated _____ 20__, Bidder hereby proposes to furnish all materials and equipment and to perform all work for Sabine Pass Port Authority, in strict accordance with the Contract Documents at the prices stated below.

By submission of this Bid, each Bidder certifies, and in case of a joint Bid, each party thereto certifies as to his own organization, that this Bid has been received independently, without consultation, communication, or agreement as to any matter relating to this Bid with any other Bidder or with any competitor.

Bidder hereby agrees to commence work under this contract on or before date to be specified in the NOTICE TO PROCEED and to fully complete the project within the time specified below. Bidder further agrees to pay as liquidated damages, the sum of (Five Hundred Dollars, $500.00), for each consecutive calendar day thereafter, as provided in SECTION 01 00 00 - THE SPECIAL CONDITIONS of the Technical Specifications.

Bidder acknowledges receipt of the following ADDENDA:

_____

_____

_____

* Corporation, PLLC, LLC, etc

Bidder has carefully examined the Instructions to Bidders, General Conditions, Technical Specifications, and Construction Drawings.

Bidder has secured and enclosed the Bid Security as required.

Bidder agrees to perform all work described in the CONTRACT DOCUMENTS for the following Schedule of Quantities and Prices:

*insert "a corporation", "a partnership", or "an individual" as applicable, or leave blank without DBA designation.

Base Bid - Pier Demolition and Dredging

Bid Item	Description	Estimated Qty's	Units	Unit Price	Total
01 73 20 – Selective Demolition					
17320-1	All components of existing derelict T-head pier structure and associated miscellaneous materials and components	1	LS		
31 11 00 – Clearing and Grubbing					
311100-1	Clearing and Grubbing upland site elements	1	LS		
35 20 23 – Dredging and Placement					
352023-1	Dredging & Placement of dredge material from SNWW (-13 NAVD88)	29800	CY		
				Base Bid Subotal:	_____
01 71 13 – Mobilization and Demobilization					
017013-1	Mob / Demob	1	LS		
				Base Bid Total:	_____

Additive Bid 1 - Additional Dredging

Bid Item	Description	Estimated Qty's	Units	Unit Price	Total
35 20 23 – Dredging and Placement					
3520230-1A	Dredging & Placement of dredge material from SNWW (-14 NAVD88)	7100	CY		
01 71 13 – Mobilization and Demobilization					
017013-1A	Mob / Demob	1	LS		
				Additive Bid 1 Total:	_____

Additive Bid 2 - Additional Dredging

Bid Item	Description	Estimated Qty's	Units	Unit Price	Total
35 20 23 – Dredging and Placement					
352023-1B	Dredging & Placement of dredge material from SNWW (-15 NAVD88)	7900	CY		
01 71 13 – Mobilization and Demobilization					
017013-1B	Mob / Demob	1	LS		
				Base Bid Total:	_____

☐ If this box is checked, Bidder is indicating that this Bid includes an alternative placement method or location. If this Bid is the apparent successful Bid, Award shall be contingent upon review and acceptance of Bidder's proposed alternative.

Notes:

1. Quantities are estimated based on data shown on the Drawings.
2. QUANTITIES SHOWN ARE TO BE USED FOR EVALUATING THIS PROPOSAL ONLY. Payment will be made in accordance with the payment section as described in a particular bid item's specification reference section.
3. The Owner reserves the right to increase or decrease the unit priced quantities by up to 25 percent at the stated unit price.
4. Bidder understands and agrees that all work must be completed WITHIN 120 CALENDAR DAYS from Notice to Proceed. Bidder understands that failure to complete work within that time period will subject him to LIQUIDATED DAMAGES.
5. Bidder shall submit with its bid a list of all subcontractors proposed for the Work.
6. The prices mentioned herein shall be full compensation for furnishing all materials, equipment, labor, and all other expenses necessary to perform work in accordance with these drawings, specifications and contract documents.

SUBMITTED BY:

Company Bidding: _____

Name of Bidder: _____

Address of Bidder: _____

_____

Dated at: _____this _____ day of _____, 20__.

Signature of Authorized Agent: _____

Title: _____

Form 6-3 Ten Day Confirmation Form

*10 days **or less** before the bid opening date, confirm that the initial wage decision inserted in the bid package is still current. Count the 10 days to include the weekends -- 10 calendar days before the bid opening date. Wage rates are not "locked-in" and may be modified until bids are opened. If wage rates are modified after the Ten Day Confirmation but before bid opening, and the LSO is unable to contact all bidders, contact the DR Division Labor Standards Specialist.*

Grantee Name: JEFFERSON COUNTY

TDRA-DR Contract #: DRS 010219 SPAA

Ten Day Confirmation Information:

Confirmed Wage Decision: TX96 Published Date: 03/12/2010

Bid Activity: Dredging & demolition of pier

LSO Confirming: Beth Waxman

Date of 10-day Confirmation: January 6, 2012

Bid Opening Date*: January 17, 2012

*(*If the Small Purchase method of procurement is used the above entry will be the bid tabulation date.)*

If Wage Decision was modified, describe action taken by LSO to distribute the updated wage decision to all interested parties:

10-day call Action Taken: ☐ None ☐ Faxed ■ E-Mailed ☐ Mailed

Distributed By LSO: Beth Waxman Date: January 6, 2012

Comments: TX96 has been superseded by TX120075 dated 01/06/2012 (TX75)

****Attach wage decision to this form and retain in local files. Do not send a copy to TDRA-DR****

General Decision Number: TX120075 01/06/2012 TX75

Superseded General Decision Number: TX20100096

State: Texas

Construction Type: Heavy Dredging

Counties: Texas Statewide.

DREDGING PROJECTS ALONG THE TEXAS GULF COAST AREA INCLUDING ALL PUBLIC CHANNELS, HARBORS, RIVERS, TRIBUTARIES AND THE GULF INTRACOASTAL WATERWAYS

Modification Number	Publication Date
0	01/06/2012

* SUTX1994-001 01/18/1994

	Rates	Fringes
Derrick Operator	$ 7.25	
Dozer Operator	$ 7.25	
Dredge 16" and Over		
DECKHAND	$ 7.25	
DREDGE TENDER OPERATOR	$ 7.25	
FIREMAN	$ 7.25	
FIRST ASSISTANT ENGINEER	$ 7.25	
LEVERMAN	$ 7.25	
OILER	$ 7.25	
SECOND ASSISTANT ENGINEER	$ 7.25	
SHOREMAN	$ 7.25	
THIRD ASSISTANT ENGINEER	$ 7.25	
TRUCK DRIVER	$ 7.25	
WELDER	$ 7.25	
Dredge Under 16"		
DECKHAND	$ 7.25	
DREDGE TENDER OPERATOR	$ 7.25	
LEVERMAN	$ 7.25	
OILER	$ 7.25	
WELDER	$ 7.25	
Hydraulic Dredging		
FIRST COOK	$ 7.25	
HANDYMAN	$ 7.25	
JANITOR - CABIN PERSON	$ 7.25	
MESS PERSON	$ 7.25	
SECOND COOK	$ 7.25	
Marsh Buggy Dragline		
OILER	$ 7.25	
OPERATOR	$ 7.25	

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 union or non-union.

Union Identifiers

An identifier enclosed in dotted lines beginning with characters other than "SU" denotes that the union classification and rate have found to be prevailing for that classification. Example: PLUM0198-005 07/01/2011. The first four letters , PLUM, indicate the international union and the four-digit number, 0198, that follows 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. The date, 07/01/2011, following these characters is the effective date of the most current negotiated rate/collective bargaining agreement which would be July 1, 2011 in the above example.

Union prevailing wage rates will be updated to reflect any changes in the collective bargaining agreements governing the rate.

Non-Union Identifiers

Classifications listed under an "SU" identifier were derived from survey data by computing average rates and are not union rates; however, the data used in computing these rates may include both union and non-union data. Example: SULA2004-007 5/13/2010. SU indicates the rates are not union rates, LA indicates the State of Louisiana; 2004 is the year of the survey; and 007 is an internal number used in producing the wage determination. A 1993 or later date, 5/13/2010, indicates the classifications and rates under that identifier were issued as a General Wage Determination on that date.

Survey wage rates will remain in effect and will not change

until a new survey is conducted.

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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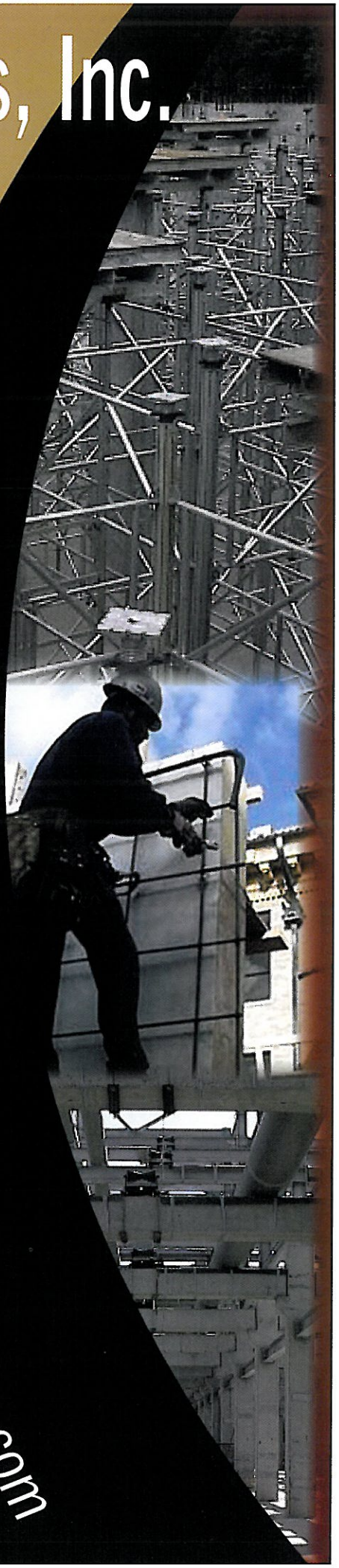
END OF GENERAL DECISION

Attachment "C" - Geotechnical Report

Tolunay-Wong Engineers, Inc.



GEOTECHNICAL ENGINEERING STUDY
REGIONAL MARINE SECURITY CENTER
SABINE PASS, TEXAS

Prepared for:

Leap Engineering, LLC
550 Fannin, Suite 510
Beaumont, Texas 77701

Prepared by:

Tolunay-Wong Engineers, Inc.
2455 W Cardinal Drive, Suite A
Beaumont, Texas 77705
(409) 840-4214

January 26, 2010

Project No. 10.23.002 / Report No. 27759

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Tolunay-Wong Engineers, Inc.
2455 W. Cardinal Drive, Suite A, * Beaumont, Texas 77705 * 409-840-4214 * Fax 409-840-4259
(• Houston, Texas • Corpus Christi, Texas • Beaumont, Texas • Gonzales, Louisiana • Gainesville, Florida)

January 26, 2010

Leap Engineering, LLC
550 Fannin, Suite 510
Beaumont, TX 77701

Attn: Mr. Robert Hickman, P.E.

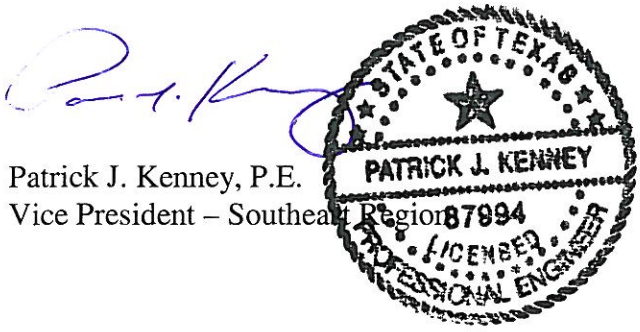
Re: Geotechnical Engineering Study
Regional Marine Security Center
Sabine Pass, Texas
TWE Project No: 10.23.002 / Report No: 27759

Dear Mr. Hickman,

Tolunay-Wong Engineers, Inc. is pleased to submit this report of our geotechnical study for the above referenced project. This report contains a detailed description of the field and laboratory work performed for this study, as well as soil boring logs including tabulated laboratory test results. Also included in this report are soil parameters for sheet pile design and recommendations for deep foundation design.

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

Sincerely,
TOLUNAY-WONG ENGINEERS, INC.
(TX Firm Registration No. F-000124)



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

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Tables

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Appendices

1 INTRODUCTION AND PROJECT DESCRIPTION

1.1 Introduction

This report presents the results of the geotechnical study for the proposed installation of a new steel sheet pile bulkhead on the Sabine Ship Channel in Sabine Pass, Texas.

This study was conducted in general accordance with TWE Proposal P09-B271 dated December 10, 2009, and authorized by Mr. Robert Hickman, P.E. on 12/29/09.

1.2 Project Description

We understand that the project will consist of the construction of a new sheetpile bulkhead system and a single-story structure. The bulkhead will be approximately 500-feet in total length. The bulkhead will be a U-Shaped anchored sheet pile system tied-back to anchor piles or other tieback system. The maximum wall height will be approximately 15-feet. We have been requested to provide geotechnical design parameters needed for analysis of the sheet pile wall and anchor system to be performed by the client. Axial capacity has been requested for driven piles to support the proposed building. Lateral analyses of driven piles will be performed by the client based on the geotechnical design parameters provided in this report.

2 PURPOSE AND SCOPE OF SERVICES

The purposes of the geotechnical study were to investigate the soil and groundwater conditions and to interpret this data to develop geotechnical design parameters for proposed sheet pile bulkhead and building foundations. The scope of services for this project consisted of:

- Drilling one (1) soil test boring to a depth of one-hundred twenty (120) feet at a selected location within the project area to evaluate subsurface stratigraphy and groundwater conditions.

- Performing geotechnical laboratory tests on recovered soil samples to evaluate the physical and engineering properties of the strata encountered.

- Preparation of a report documenting the findings of this investigation and presenting geotechnical engineering design parameters for sheet pile design and recommendations for deep foundation design.

Environmental assessments, a geologic fault study, and recommendations for areas outside the area covered by the project-boring layout were beyond the scope of this study.

3 FIELD EXPLORATION

3.1 Test Borings

Tolunay-Wong Engineers, Inc. conducted an exploration of subsurface soil and groundwater conditions at the proposed project site on January 8, 2010 by drilling one (1) soil test boring to a depth of one-hundred twenty (120) feet below ground surface.

The boring location is shown on Drawing 10.23.002-01 attached to this report. Drilling, sampling and grouting of the test boring was performed by using an all-terrain buggy mounted drill rig. Our field personnel coordinated the field activities and logged the boreholes.

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]. Soil borings were drilled using a buggy drilling rig equipped with a rotary head. Boreholes were advanced using dry-auger and wet-rotary drilling methods. Typically, borings are dry-augered using a flight auger to advance the boreholes until groundwater is encountered or until the borehole becomes unstable and collapses. At that point, the borings are completed using wet-rotary drilling techniques. Samples were obtained continuously at intervals of 2-feet from the ground surface to a depth of 12-feet, at the 13-feet to 15-feet depth interval and then at intervals of 5-feet to boring completion depth.

3.3 Soil Sampling

Cohesive/semi-cohesive soil samples were recovered from the test borings by hydraulically pushing a 3-in. diameter, thin-walled tube a distance of about 24 inches. The field sampling procedures were conducted in general accordance with the *Standard Practice for Thin-Walled Tube Sampling of Soils* (ASTM D 1587). The field technician visually classified the recovered soils, and obtained a penetration resistance measurement 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, sealed and placed into secure containers, protected from disturbance, and transported to the laboratory. The recovered soil sample depths and pocket penetrometer measurements are shown on the test boring logs in Appendix A.

Cohesionless sands and semi-cohesionless silts, and soil samples inferred to be granular were collected with the Standard Penetration Test (SPT) sampler driven 18in. by blows from a 140 pound hammer falling 30-inches (ASTM D1586). The number of blows required to advance the sampler three consecutive 6 in. depths are recorded for each corresponding sample on the boring log. The N-value, in blows per foot, is obtained from SPT by adding the last two blow count numbers. The compactness of the cohesionless/semi-cohesionless samples and the consistency of the cohesive samples are inferred from the N-value. The samples obtained from the split barrel sampler were visually classified, sealed in plastic bags, and transported to our laboratory. The SPT sampling intervals and blow counts are presented on the boring logs in Appendix A.

3.4 Boring Logs

Our interpretations of general subsurface soil and groundwater conditions at the boring locations are included on the boring logs. The interpretations of the soil types throughout the boring depth and the locations of strata changes were based on visual classifications during field sampling and laboratory testing using ASTM D 2487, Unified Soil Classification System, and ASTM D 2488, Description and Identification of Soils. 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 the logs are presented in Appendix A.

3.5 Groundwater Measurements

Boring B-1 was dry augered in an attempt to measure groundwater levels. Water was encountered in the test boring at a depth of 8-feet. Static water level was not measure due to them hole squeezing at a depth of 6-feet after ten minutes. It should be noted that the groundwater level may fluctuate with climatic and seasonal variations and should be verified before construction. In addition, groundwater level in cohesive soil is time dependent.

Accurate determination of the static groundwater level is usually made with a standpipe piezometer. Installation of a piezometer to evaluate the long-term groundwater level was not included in the work scope.

4 LABORATORY TESTING

A laboratory testing program was conducted on selected samples to assist in classification of the soils encountered in the borings, and to evaluate the engineering properties of the soils pertinent to the deep foundation design parameters for this project.

4.1 Soil Classification Tests

All samples obtained during the field program were visually classified in the laboratory according to procedures outlined in ASTM D 2488. In addition, tests for natural moisture content, Atterberg Limits, and particle size analysis were conducted on selected samples obtained from the borings. These laboratory test results were used to classify the soils encountered in general accordance with the Unified Soil Classification System (ASTM D 2487). Results of the classification tests are presented on Boring Log, B-1in Appendix A.

4.2 Soil Strength Tests

The approximate undrained shear strength of selected samples of cohesive soils obtained in the borings was determined by performing unconfined compression (UC) tests. Natural moisture content and dry unit weight was determined for each sample tested for shear strength. Results of the UC tests are presented on Boring Log, B-1in Appendix A.

4.3 Laboratory Procedures

Laboratory tests were performed in general accordance with ASTM Standards to measure physical and engineering properties of the soil samples obtained for this project. The types of laboratory tests performed are presented in Table 4-1.

Table 4-1
Laboratory Testing Program

Type of Test	Testing Method
Natural Water Content	ASTM D 2216
Atterberg Limits	ASTM D 4318
Material Passing Sieve No. 200	ASTM D 1140
Dry Unit Weight	ASTM D 2937
Unconfined Compression	ASTM D 2166

The tests results are shown on the boring logs in Appendix A.

5 SITE CONDITIONS

5.1 General

Our interpretations of soil and groundwater conditions at the site are based on information obtained at the soil boring location only. The project boring log is presented in Appendix A. This information has been used as the basis for our conclusions and recommendations. Subsurface conditions may vary at areas not explored by the project soil borings. Significant variations at areas not explored by the project borings will require re-evaluation of our recommendations.

5.2 Subsurface Soil Stratigraphy

The soil profile, as interpreted from the project boring B-1, consists of soft to very soft clays from the ground surface to a depth of 73-feet. Clayey sands and poorly graded sands with clay were encountered from 73-feet to 93-feet. Stiff to very stiff clays were encountered below the sand strata from 93-feet to boring completion depth of 120-feet. The cohesive soils were comprised of soft to very stiff, high plasticity fat clays. Ferrous nodules, sand seams, silt pockets, shell fragments, wood, and slickensided substructure were observed within the clay soil matrix.

The upper 12 to 24-inches of soils observed in the project boring was described as fill on the boring log. The fill consisted of fat clay with base material. In practice, it is relatively difficult to delineate fill from adjacent natural soil. Fill identification is based on visual observation and requires considerable experience and the use of judgment. Actual fill depths may vary somewhat from those indicated on the boring logs.

A detailed description of the soils encountered at the boring location is presented on the boring log included in Appendix A.

5.3 Subsurface Soil Properties

We measured liquid limits of 52 to 94, and corresponding plasticity indices of 33 and 66 on seven selected cohesive soil sample recovered from various depths in the project borings. In situ moisture contents of the samples were four to fifty-one percentage points greater than their corresponding plastic limits, indicating a relatively wet condition at the time of the field investigation. Fines contents ranging from 6% to 27% were determined on selected cohesionless material in the project boring.

Undrained shear strengths ranging from 430 psf to 1,810 psf were measured on cohesive samples recovered at various depths in the project boring during unconfined compression testing. Corresponding dry unit weights of the tested samples were 54 pcf and 87 pcf. SPT N-values of 1 and 3 blows per foot were registered within the fat clays at a depth range of 13-ft to 50-ft. Pocket penetrometer readings taken on recovered cohesive soil samples ranged from 0.25 tsf to 4.25 tsf.

The cohesionless poorly graded sands with clay at the depth range of 79-ft to 93-ft recorded N-values of 50 blows per foot and greater, indicative of very dense compactness. Selected clayey sand and poorly graded sand with clay recovered from the project boring had fines contents of 27% and 6%.

6 GEOTECHNICAL DESIGN RECOMMENDATIONS

6.1 General

As previously mentioned, this project consists of a sheet pile bulkhead tied-back to anchor piles or other tieback system. We have been requested to provide geotechnical design parameters needed for analysis of the sheet pile wall and anchor system to be performed by the client. The project will also include a single-story light framed structured supported on driven piles. Axial capacity has been requested for driven piles. Lateral analyses of driven piles will be performed by the client based on the geotechnical design parameters provided in this report.

6.2 Geotechnical Design Parameters

Soil parameters for analysis and design of sheet pile as well as deep foundations (axial and lateral) were developed based on the subsurface data obtained from this investigation.

For the conditions observed at this site, we recommend the following soil parameters be used for sheet pile analyses as well as for axial and lateral analysis of pile foundations.

Table 6-1

GEOTECHNICAL DESIGN PARAMETERS
FOR SHEET PILE AND DEEP FOUNDATION DESIGN

Depth Range	LPILE Soil Type	Shear Strength C (psi) or Φ	Unit Weight, pci	Lateral Modulus, k, pci	Strain Factor, E_{50}
0’ – 8’	Soft Clay (Matlock)	1.74	0.060	30	0.020
8’ – 25’	Soft Clay (Matlock)	1.74	0.024	30	0.020
25’ – 43’	Soft Clay (Matlock)	2.78	0.020	30	0.020
43’ – 63’	Soft Clay (Matlock)	3.00	0.020	30	0.020
63’ – 78’	Soft Clay (Matlock)	4.17	0.021	100	0.010
78’ – 93’	Sand (Reese)	Φ = 42°	0.039	125	--
93’ – 110’	Stiff Clay with Free Water	12.50	0.032	800	0.007
110’ – 120’	Stiff Clay with Free Waer	5.07	0.037	300	0.010

6.3 Driven Pile Foundation Design

6.3.1 Axial Pile Capacity

We have developed unit friction and end bearing capacity curves for calculating allowable pile capacity for use with driven piles for deep foundations in the areas of the proposed new building. If open-ended pipe piles are going to be considered for this project, TWE should be contacted to provide specific pile capacity for the size and length of open-ended steel pipe pile proposed. Design factor curves (F and E) are provided for driven piles on Sheet B-1in Appendix B. Example calculations illustrating the proper use of these curves are provided on Sheet B-1. The unit friction (F) and end bearing (E) curves include a minimum factor of safety of 2.0. The values presented are based on the assumption that the piles to be installed will have a minimum center-to-center spacing of three pile diameters. If groups of piles having spacing of less than three diameters are designed for this project, Tolunay-Wong Engineers, Inc. should be contacted to analyze group capacities and settlements.

The pile capacity curves presented are also based on the assumption that less than 2 feet of fill will be placed above grade in the vicinity of the pile foundations. If new fill is placed to raise the site grade above the existing elevation, significant settlement will occur as the soft to very soft clays consolidate. Depths for driven piles will depend on the design loads and required pile capacities, however, we recommend that the piles be tipped in the competent sand stratum encountered in the boring at a depth of approximately 75 feet. The recommended minimum pile length for this project is 80 feet. Pile capacities will also be dependent on the amount of fill placed above grade at the location of the pile foundation. Negative skin friction may be caused by placement of sufficient quantities of fill such that the overburden pressure exerted by the fill exceeds the preconsolidation pressure of the underlying soft to very soft clays resulting in consolidation of the compressible clays. Negative skin friction is a downward shear drag acting on piles due to downward movement of surrounding soil strata relative to the piles. Depending on the quantities of fill and corresponding overburden pressure, this load can become large and must be considered in the design of pile foundations for this project. If more than 2 feet of fill above grade will be required in the vicinity of the planned pile foundations, TWE should be contacted to re-evaluate pile capacity and settlement based on the proposed construction.

Some general guidelines for estimating group pile capacities are provided in Section 6.3.3 of this report. It should be noted that the tension capacity is based solely on soil-pile interaction. Piles and pile cap connections should be structurally capable of resisting design uplift loads.

For single isolated piles, designed in accordance with the computed allowable values of side friction and end bearing, foundation settlements should be less than about ½ inch.

6.3.2 Lateral Pile Capacity

For deep foundations, the lateral loads are resisted by the soil as well as the rigidity of the pile. Lateral capacity will vary with pile type and properties, degree of fixity and pile spacing. The table provided in Section 6.2 of this report contains design parameters which can be used for lateral analyses. We understand that these analyses will be performed by the client.

6.3.3 Pile Groups

As indicated above, groups of piles having a center-to-center spacing of less than three diameters should be analyzed for group efficiency. If pile groups are planned for this project, Tolunay-Wong Engineers, Inc. should be contacted to analyze group capacities and settlements once the final pile size, depth and group configurations are selected. Some general guidelines for estimating group pile capacities are provided below.

6.3.3.1 Pile Settlement and Spacing

Vertical movement (settlement) of individual piles when subjected to structural loading will be the sum of elastic pile deformation and pile tip movement. Settlement of pile groups will depend on individual pile movements, pile spacing and the compressibility of the soils below the pile tips. Pile spacing is important in reducing pile group movement. A minimum pile spacing of three pile diameters, center-to-center, is assumed and should be maintained if possible. Closer spacing could result in increased group settlement and a reduction of load-carrying capacity of individual piles as indicated below.

6.3.3.2 Axial Group Efficiency

The following method can be used to determine the axial capacity of pile groups. This method assumes that the piles and confined soil mass encompassed by the group act as a unit like a pier. The ultimate bearing capacity of the cluster, Q_c, is equal to the ultimate load carried in friction by the circumferential area of the group plus the ultimate load resistance derived from the base of the assumed equivalent pier. In equation form:

$$Q_c = f_s A_c + 9 C_u A_b$$

Where:

f_s = ultimate unit soil-pile adhesion
A_c = circumferential embedded area of equivalent pier
C_u = soil shear strength at pile tips
A_b = base area of equivalent pier

The pile group is considered safe against a bearing failure if the number of piles in the group times the applied design load per pile does not exceed Q_c/F.S. If the total group design load is greater than Q_c/F.S., then one alternative is to reduce the design load for individual piles within the group accordingly. Based on this approach to pile group capacity analysis, a pile spacing can be

determined which utilizes the full capacity of individual piles. Generally, a pile spacing of three (3) pile diameters, center-to-center, is selected as a first approximation.

Total settlements of the group, primarily elastic in nature, will occur during loading and may be on the order of one-half (½) to one (1) inch for normal operating conditions. Differential settlements between adjacent groups may occur as a result of variation in applied load, group size and group location. Structural connections also supported on adjacent pile foundations may be designed for differential settlements between adjacent pile groups on the order of one-half (½) to three-fourths (¾) inch.

6.3.3.3 Lateral Group Effect

The reduction of the lateral pile capacity due to group action involves factors such as pile spacing, location of the pile within the group, soil to pile stiffness ratio, direction of loading and other factors. When the lateral load has been selected for design purposes, group reductions can be estimated by using the following lateral group efficiency factors.

Static Lateral Group Efficiency Factors	
S/D (Center to Center Spacing/Diameter)	**Group Efficiency**
3	0.55
3.5	0.65
4	0.75
5	0.85
6	1.0

The group lateral efficiency factors above should be applied as follows:

Allowable lateral load of pile group = (N)(GE)(SPALL)

Where:

N = Number of piles in group

GE = Group efficiency factor

SPALL = Single pile allowable lateral load

The above procedure for determining lateral group reduction is considered to provide a general estimate of group efficiency. A more detailed approach to determining the lateral grouping effects is provided in *"Analysis and Design of Shallow and Deep Foundations"* by Lymon C. Reese, William M. Isenhower, and Shin-Tower Wang (2006 edition). Article 15.5.3 of this publication describes a method in which the *p-y* curves for a single pile are modified to take into account the group effect. This article concludes that the group effect could be taken into account most favorably by reducing the value of *p* for the *p-y* curve of the single pile to obtain *p-y* curves for the pile group. The L-Pile computer program provides a mechanism whereby the *p-y* modification factor can be included in the input file. The *p-y* modification factor is calculated based on the number of piles in the group, pile spacing, pile diameter, location of the pile to be analyzed within the group and the direction of the horizontal loading on the group with respect to the group geometry. This method is considered to provide more realistic estimates of lateral group effects than the general procedure provided above.

6.4 Driven Pile Installation

Pile driving hammers should be selected according to pile type, length, size and weight of pile, as well as potential vibrations resulting from pile driving operations. Care should be taken to assure that the hammer selected is capable of achieving the desired penetration without causing damage to the piles or causing excessive vibrations which could damage existing, nearby structures.

Each pile should be driven to the desired tip elevation and driving resistance without interruption in the driving operations. Supplemental techniques like pilot holes or jetting are not considered necessary for this project based on the soils encountered and design pile capacities, and should be avoided. The supplemental techniques may reduce the pile capacity. Driving of the center piles in the cluster first will facilitate driving operations. Accurate records of the final tip elevation and driving resistances should be obtained during the pile driving operations.

Some pile heaving may be experienced during installation of adjacent displacement type piles. It is therefore recommended that the tip elevation of the piles be recorded and if significant heave is noted after driving of subsequent piles, provisions must be made for reseating them.

It is important that inspection of pile driving by qualified geotechnical technicians be maintained so as to detect unexpected conditions as indicated by the driving resistance as well as any potential problems with pile breakage or driving difficulties.

6.5 Pile Load Tests

It is recommended that the computed pile capacities be verified by field load tests. Since both axial and lateral loads are significant for this project and are both critical to foundation design, we recommend that piles be tested for both axial and lateral capacity. Axial and lateral load tests should be performed in accordance with the following ASTM procedures:

1. ASTM D 1143: Standard Test Method for Piles Under Static Axial Compressive Load

2. ASTM D 3689: Standard Test Method for Individual Piles Under Static Axial Tensile Load

3. ASTM D 3966: Standard Test Method for Piles Under Lateral Loads

For compression tests, the pile should be taken to the ultimate load or failure load. The failure load can be defined by the Davisson Offset Method which is based on pile top deflection exceeding an offset to the theoretical elastic pile deflection line. This method should carry the load to not more than 250 percent of the design load on the test pile. This test should be conducted prior to installation of production piles to establish the installation criteria and to confirm the design load.

6.6 Dynamic Pile Testing

We recommended that the computed pile capacities be further verified by performing Dynamic Pile Testing as a quality assurance tool during construction.

Dynamic Pile Testing is a high-strain testing process based on the theory of Stress Wave Propagation on Piles from the impact of a hammer blow to the pile. Dynamic pile testing can be used to evaluate the bearing capacity of driven piles. This technology has been used in the deep foundation industry for more than 30 years and the process is officially recognized by numerous organizations including the American Society for Testing Materials (ASTM D 4945) as well as FHWA, AASHTO, and the U.S. Army Corps of Engineers among others. The procedure involves accelerometers and strain transducers which are attached to the pile. For each impact by the pile driving hammer or drop weight, the sensors acquire acceleration and strain signals and send them to the Pile Driving Analyzer (PDA). The PDA conditions, digitizes, displays and stores the signals and performs automatic calculations. Dynamic Pile Monitoring is typically conducted during the impact driving of steel, concrete or timber piles to determine soil resistance to driving, hammer performance, dynamic pile stresses during driving and pile integrity. Dynamic pile load testing can also be performed on straight-sided drilled shafts or augercast piles using a drop weight device designed for this purpose after the shafts/piles have been installed. Results are obtained in real time. Tolunay-Wong Engineers, Inc. would be pleased to develop a plan for foundation monitoring and testing to be incorporated in the overall quality control program.

7 LIMITATIONS AND DESIGN REVIEW

7.1 Limitations

This report has been prepared for the exclusive use of Leap Engineering, LLC and their design team for specific application to the construction of the Regional Marine Security Center in Sabine Pass, 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 subsurface exploration. The borings indicated subsurface conditions only at the specific locations and times, and only to the depths penetrated. The borings do not necessarily reflect strata variations that may exist at other locations within the project site. The validity of the recommendations is based in part on assumptions about the stratigraphy made by the Geotechnical Engineer. Such assumptions may be confirmed only during earthwork and foundation installation. Our recommendations presented in this report must be re-evaluated 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.

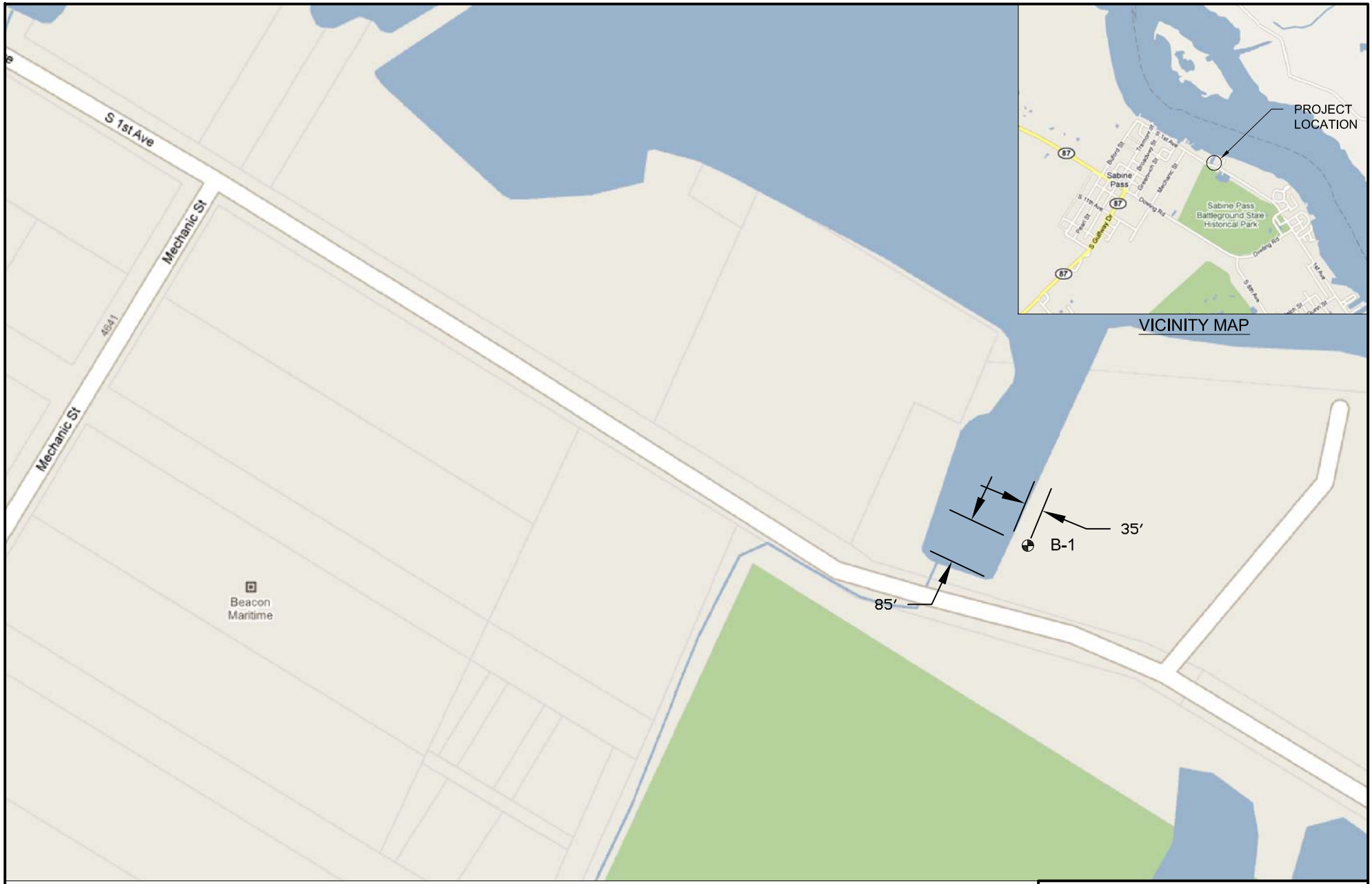
7.3 Construction Monitoring

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 foundation performance and should be monitored.

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.

BORING LOCATION MAP



LEGEND:

BORING LOCATION

Tolunay-Wong Engineers, Inc.
Beaumont, Texas

BORING LOCATION			
NEW MARINE SECURITY CENTER SABINE PASS, TEXAS			
LEAP ENGINEERING BEAUMONT, TEXAS			
DRAWN BY:	S.O.S.	DWG. NO.	10.23.002-01
CHECKED BY:	D.W.G.	SCALE:	NONE
APPROVED BY:	P.J.K.	DATE:	JANUARY 19, 2010

APPENDIX A

TWE PROJECT BORING LOG B-1
AND
KEY TO LOG TERMS AND SYMBOLS

LOG OF BORING B-1

PROJECT: Regional Marine Security Center
Sabine Pass, Texas

CLIENT: Leap Engineering
Beaumont, Texas

COORDINATES: N W

SURFACE ELEVATION:

DRILLING METHOD:
Dry Augered: 0' to 15'
Wash Bored: 15' to 120'

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			Fill: Brown & tan FAT CLAY (CH), w/ base material											
			Dark gray FAT CLAY (CH)											
5			-becomes soft dark gray & gray -w/ organics @ 4'-6'	(P)0.75		55	67			0.46	3			
			-becomes very soft -w/ ferrous nodules @ 6'-8'	(P)0.25		75		94	66				92	
				(P)0.25										
10														
15			-w/ sand pockets @ 13'-15'		WOH	63		66	47					
			no recovery		WOH									
20														
25			-w/ sand seams & pockets @ 23'-25'		WOH 1/6 1/6									
30			-w/ shell fragments @ 28'-30'		1/6 WOH 1/6									
35			-w/ silt pockets @ 33'-35'		WOH	73		83	61			91		

COMPLETION DEPTH: 120 ft
DATE BORING STARTED: 1-8-10
DATE BORING COMPLETED: 1-8-10
LOGGER: J. Turner
PROJECT NO.: 10.23.002

NOTES: Free water was encountered at a depth of 8-feet. Static water level was not measured due to hole squeezing at 6-feet after ten minutes.

LOG OF BORING B-1

PROJECT: Regional Marine Security Center
Sabine Pass, Texas

CLIENT: Leap Engineering
Beaumont, Texas

COORDINATES: N W

SURFACE ELEVATION:

DRILLING METHOD:
Dry Augered: 0' to 15'
Wash Bored: 15' to 120'

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
35														
					WOH									
40					1/6									
					WOH									
					WOH									
45														
			-w/ wood @ 48'-50'		1/6									
50					1/6									
					2/6									
				(P)0.25		70		93	67					
55														
			-soft @ 58'-60'	(P)0.50		78	54			0.43	10			
60														
			-becomes firm	(P)0.75										
65														
				(P)1.00		70	58			0.61	4			
70														

COMPLETION DEPTH: 120 ft
DATE BORING STARTED: 1-8-10
DATE BORING COMPLETED: 1-8-10
LOGGER: J. Turner
PROJECT NO.: 10.23.002

NOTES: Free water was encountered at a depth of 8-feet. Static water level was not measured due to hole squeezing at 6-feet after ten minutes.

LOG OF BORING B-1

PROJECT: Regional Marine Security Center
Sabine Pass, Texas

CLIENT: Leap Engineering
Beaumont, Texas

COORDINATES: N
W

SURFACE ELEVATION:

DRILLING METHOD:
Dry Augered: 0' to 15'
Wash Bored: 15' to 120'

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
70														
			Gray CLAYEY SAND (SC)	(P)0.50		26		27	8				27	
75														
			Dense gray POORLY GRADED SAND w/ CLAY (SP-SC)		9/6 21/6 29/6									
80														
			-becomes very dense		25/6 30/6 25/6									
85														
					25/6 35/6 38/6	25						6		
90														
			Very stiff gray & brown FAT CLAY (CH), w/ silt seams -w/ slickensides @ 93'-105'	(P)3.25		28		77	53			79		
95														
			-becomes stiff	(P)2.75		35	87			1.81	9			
100														
				(P)2.50		35		80	57			93		
105														

COMPLETION DEPTH: 120 ft
DATE BORING STARTED: 1-8-10
DATE BORING COMPLETED: 1-8-10
LOGGER: J. Turner
PROJECT NO.: 10.23.002

NOTES: Free water was encountered at a depth of 8-feet. Static water level was not measured due to hole squeezing at 6-feet after ten minutes.

LOG OF BORING B-1

PROJECT: Regional Marine Security Center
Sabine Pass, Texas

CLIENT: Leap Engineering
Beaumont, Texas

COORDINATES: N W

SURFACE ELEVATION:

DRILLING METHOD:
Dry Augered: 0' to 15'
Wash Bored: 15' to 120'

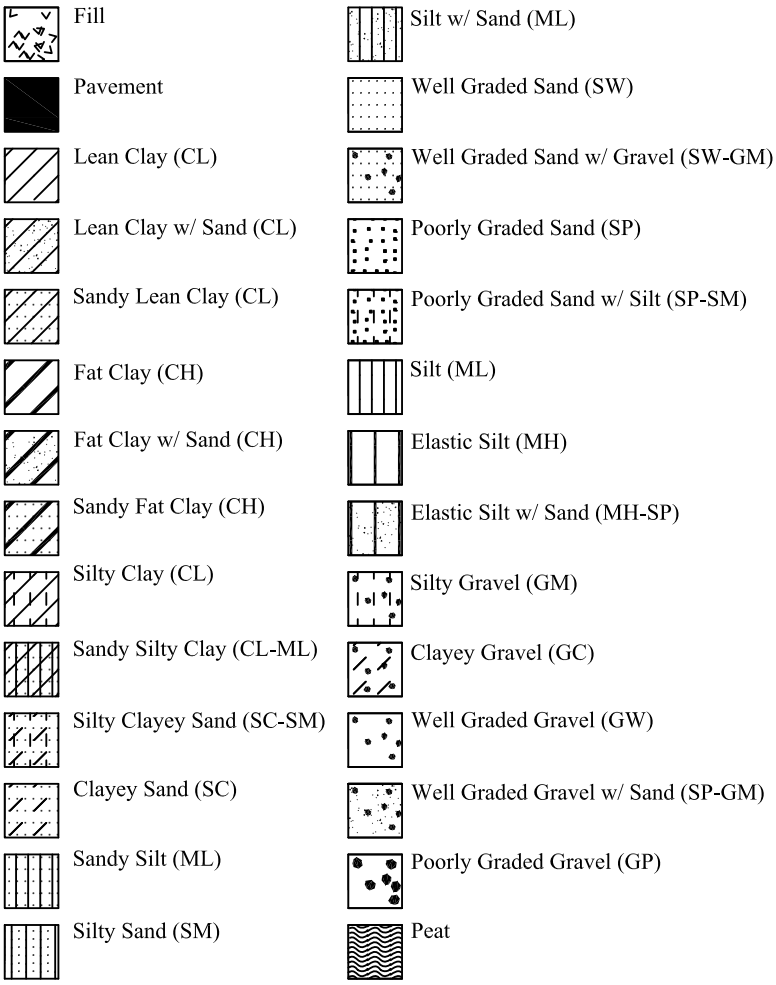
ELEVATION (FT) / DEPTH (FT)	SAMPLE TYPE	SYMBOL	MATERIAL DESCRIPTION	(P) POCKET PEN (tsf) (T) TORVANE (tsf)	STD. PENETRATION TEST BLOWCOUNT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN (%)	CONFINING PRESSURE (psi)	PASSING #200 SIEVE (%)	OTHER TESTS PERFORMED
105														
			-becomes very stiff	(P)4.00										
110														
			-firm @ 113'-115'	(P)3.50		21	104			0.72	5			
115														
			-w/ silt seams @ 118'-120'	(P)4.25		29		52	33				96	
120			Bottom @ 120'											
125														
130														
135														
140														

COMPLETION DEPTH: 120 ft
DATE BORING STARTED: 1-8-10
DATE BORING COMPLETED: 1-8-10
LOGGER: J. Turner
PROJECT NO.: 10.23.002

NOTES: Free water was encountered at a depth of 8-feet. Static water level was not measured due to hole squeezing at 6-feet after ten minutes.

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.

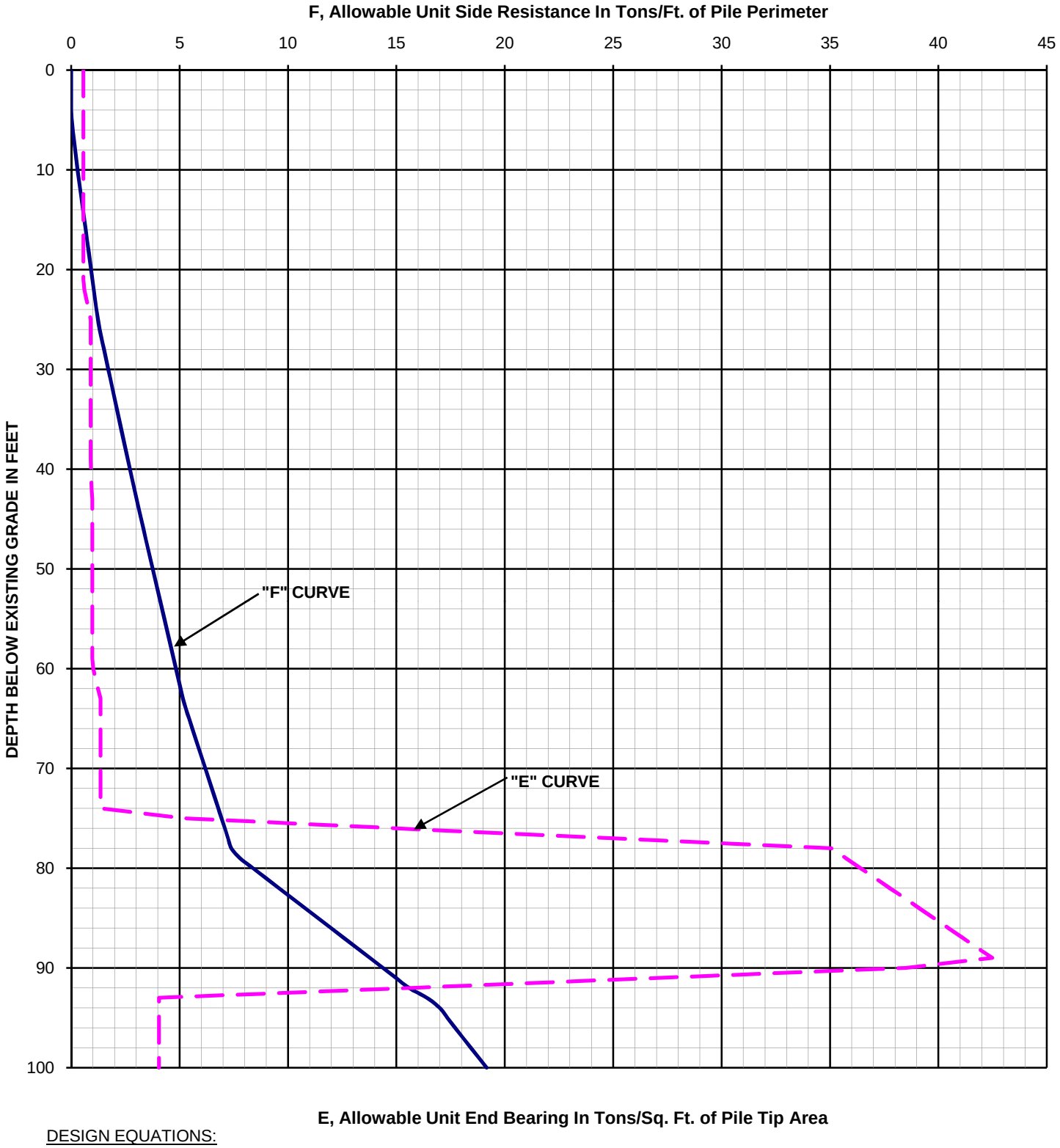
Pocket Penetrometer (tsf)	Typical Compressive Strength (tsf)	Consistency	Typical SPT "N_{60}" Value Range**
$pp < 0.50$	$qu < 0.25$	Very soft	≤ 2
$0.50 \leq pp < 0.75$	$0.25 \leq qu < 0.50$	Soft	3-4
$0.75 \leq pp < 1.50$	$0.50 \leq qu < 1.00$	Firm	5-8
$1.50 \leq pp < 3.00$	$1.00 \leq qu < 2.00$	Stiff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

UNIT FRICTION AND END BEARING PILE CAPACITY CURVES

ALLOWABLE UNIT SIDE FRICTION AND END BEARING RESISTANCE
DRIVEN TIMBER, CONCRETE OR CLOSED-ENDED STEEL PIPE PILES



DESIGN EQUATIONS:

Compression: $Q_C = PF + AE$

Tension: $Q_T = PF$

TERMS:

P = Average Pile Perimeter, Ft.

A = Pile Tip Area, Sq. Ft.

F, E = Unit Friction and End Bearing Factors From Curves

Q = Allowable Pile Capacity in Tons

EXAMPLE:

16" Square Precast Concrete Pile, 80' Length

P = 5.33 ft. F = 8.38Tons/Ft.

A = 1.77 ft^2 E = 36.41 Tons/Ft^2

$Q_C = (5.33)(8.38) + (1.77)(36.41) = 109$ Tons

$Q_T = (5.33)(8.38) = 44$ Tons

TWE Project No. 10.23.002

SHEET B-1

Attachment "D" - Compaison of the 2007 v 2010 Suvey Data

0' 100' 200'

NOTES

1. BATHYMETRIC SURVEY COLLECTED 10/5/2007 BY LEAP (LPRG:268-1002)
2. HORIZONTAL DATUM IS NAD83 - STATEPLANE TEXAS SOUTH CENTRAL FIPS 4202 (FEET) VERTICAL DATUM IS NAVD88 (FEET)

KEY

- MAJOR CONTOURS
- MINOR CONTOURS
- CONTROL POINT

CONTROL POINTS

POINT	EASTING	NORTHING	ELEVATION
CP7	3592432.26	13850919.55	4.82

LEAP ENGINEERING
905 Orleans St
Beaumont, Texas 77701
Tel: (409) 813-1862
Fax: (409) 813-1916
Texas Registered Engineering Firm F-2601

FOR REVIEW ONLY
WILLIAM L. WORSHAM P.E. 83153
NOT TO BE USED FOR CONSTRUCTION PURPOSES

ISSUE	DATE	BY	DESCRIPTION	CHK'D	APP'D
A	1/20/10	JWB	ISSUED FOR REVIEW		

SABINE PASS PORT AUTHORITY

SABINE PASS PORT AUTHORITY
FEMA IKE RECOVERY GRANT APPLICATION
SUPPLEMENTARY INFORMATION
POST-RITA BOTTOM ELEVATIONS (OCTOBER 2007)

DRAWN BY	DATE	SCALE	CHK'D
JWB	17JAN11	1" = 100'	APP'D

DRAWING NO. 268-1004-CST-1000

ISSUE NO. A

0' 100' 200'

NOTES

1. BATHYMETRIC SURVEY COLLECTED 12/7/2010 AND 12/8/10 BY LEAP (LPRG:474-1001)
2. HORIZONTAL DATUM IS NAD83 - STATEPLANE TEXAS SOUTH CENTRAL FIPS 4202 (FEET)
   VERTICAL DATUM IS NAVD88 (FEET)

KEY

- MAJOR CONTOURS
- MINOR CONTOURS
- IMPACT EXTENT
- CONTROL POINT

CONTROL POINTS

POINT	EASTING	NORTHING	ELEVATION
CP7	3592432.26	13850919.55	4.82

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905 Orleans St
Beaumont, Texas 77701
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Fax: (409) 813-1916
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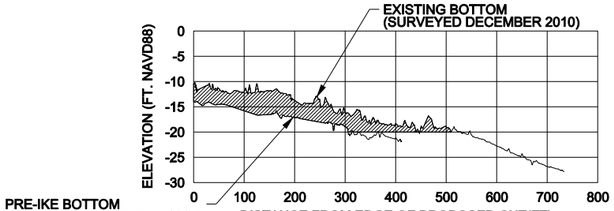
ISSUE	DATE	BY	DESCRIPTION	CHK'D	APP'D
A	1/20/10	JWB	ISSUED FOR REVIEW		

SABINE PASS PORT AUTHORITY

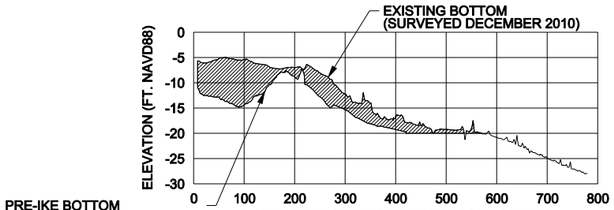
SABINE PASS PORT AUTHORITY
FEMA IKE RECOVERY GRANT APPLICATION
SUPPLEMENTARY INFORMATION
EXISTING BOTTOM ELEVATIONS (DECEMBER 2010)

DRAWN BY	DATE	SCALE	CHK'D
JWB	17JAN11	1" = 100'	APP'D

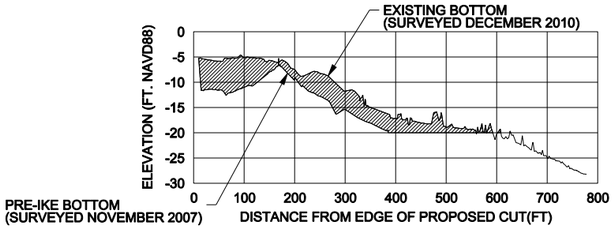
DRAWING NO. 268-1004-CST-1001 ISSUE NO. A



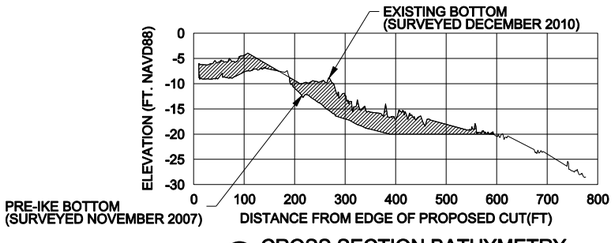
01 CROSS SECTION BATHYMETRY
SCALE:H: 1" = 300' V: 1" = 30'



02 CROSS SECTION BATHYMETRY
SCALE:H: 1" = 300' V: 1" = 30'



03 CROSS SECTION BATHYMETRY
SCALE:H: 1" = 300' V: 1" = 30'



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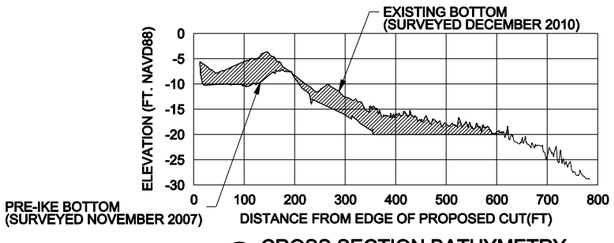
SCALE:H: 1" = 300' V: 1" = 30'



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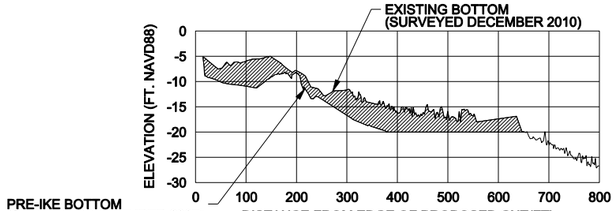
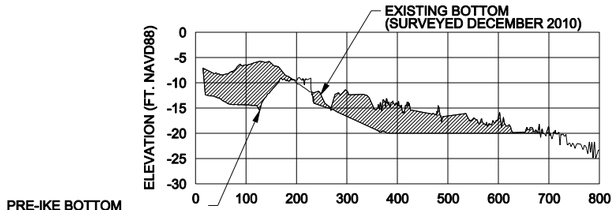
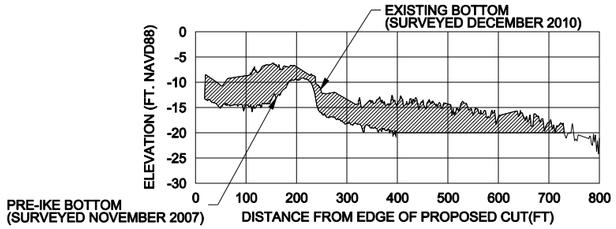


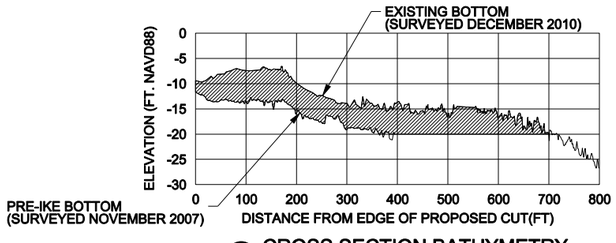
06 CROSS SECTION BATHYMETRY
SCALE:H: 1" = 300' V: 1" = 30'



07 CROSS SECTION BATHYMETRY
SCALE:H: 1" = 300' V: 1" = 30'



08 CROSS SECTION BATHYMETRY
SCALE:H: 1" = 300' V: 1" = 30'



09 CROSS SECTION BATHYMETRY
SCALE:H: 1" = 300' V: 1" = 30'

SECTION #	ACCUMULATED AREA (SQ. FT.)	DREDGE VOLUME (CY)
1	1478	5474
2	1982	7342
3	1946	7208
4	1551	5745
5	1760	6520
6	2175	8057
7	2472	9154
8	3231	11968
9	3303	12232
	TOTAL	73700

NOTES

1. EXISTING BATHYMETRY SURVEY COLLECTED 12/7/10 AND 12/8/10 BY LEAP (LPRG:474-1001)
2. PRE-IKE BATHYMETRY COLLECTED OCTOBER 2007 BY LEAP (LPRG:268-1002)
3. HORIZONTAL DATUM IS NAD83 - STATEPLANE TEXAS SOUTH CENTRAL FIPS 4202 (FEET)
   VERTICAL DATUM IS NAVD88 (FEET)

LEAP ENGINEERING
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Beaumont, Texas 77701
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CONSTRUCTION PURPOSES

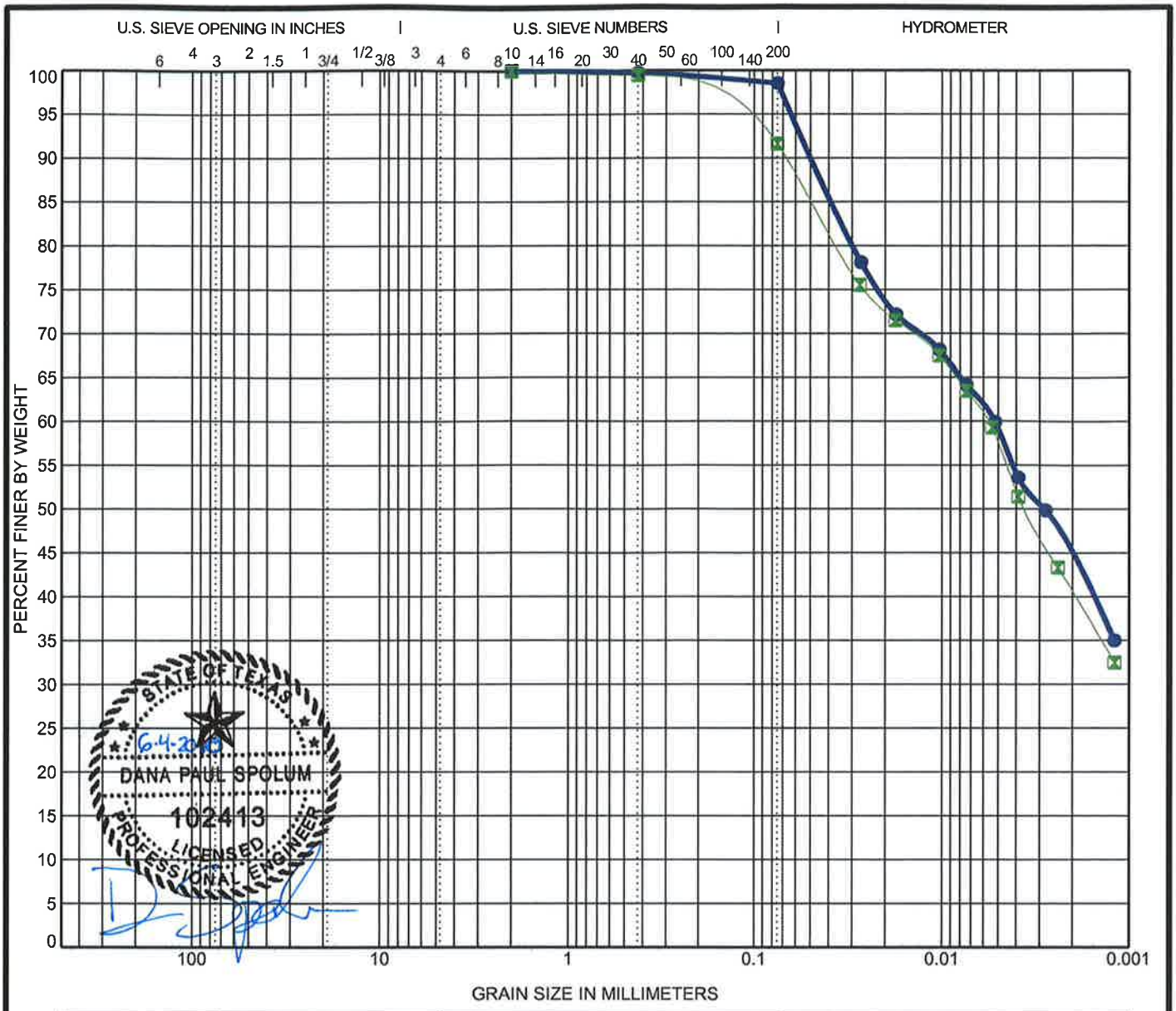
ISSUE	DATE	BY	DESCRIPTION	CHK'D	APP'D
A	1/20/11	JWB	ISSUED FOR REVIEW		

SABINE PASS PORT AUTHORITY

SABINE PASS PORT AUTHORITY
FEMA IKE RECOVERY GRANT APPLICATION
SUPPLEMENTARY INFORMATION
PRE AND POST-IKE BOTTOM ELEVATION COMPARISONS

DRAWN BY	DATE	SCALE	CHK'D
JWB	17JAN11	AS NOTED	APP'D

DRAWING NO. 268-1004-CST-1002
ISSUE NO. A



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		0.02 mm	0.005 mm	0.002 mm	0.001 mm	LL	PL	PI	Cc	Cu
●	1	0.5	74.0	59.1	44.0		86	25	61		
⊠	2	0.5	72.7	57.4	40.5		85	25	60		

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	1	0.5	2	0.005			0.0	1.4	39.5	59.1
⊠	2	0.5	2	0.006			0.0	8.4	34.2	57.4

Raba Kistner
TBPE Firm Registration No. F-3257
8100 Cameron Road
Suite B-150
Austin, Texas 78754
(512) 339-1745
(512) 339-6174 fax
www.rkci.com

GRAIN SIZE DISTRIBUTION

Leap Engineering Lab Testing

R-K GRAIN SIZE FOR AASHTO LEAP ENGINEERING LABS.GPJ RKCI.GDT 6/4/10

DEPARTMENT OF THE ARMY
GALVESTON DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1229
GALVESTON TX 77553-1229

December 23, 2011

REPLY TO
ATTENTION OF:

Evaluation Section

SUBJECT: Permit No. SWG-2011-00297; Letter of Permission and Nationwide Permit Verification

Sabine Pass Port Authority
ATTN: Sherri Droddy
P.O. Box 318
Sabine Pass, Texas 77655

Dear Ms. Sherri Droddy:

Your request, dated April 1, 2011, to replace a damaged T-head pier with a new L-head pier and perpendicular finger piers, to dredge the pier vicinity to a depth of -20 feet MLT, to place the 148,000 cubic yards of dredge material in the Sabine-Neches Navigation District's DMPA No. 5, and to install two culverts connecting the southern portion of the Sabine Pass Port Authority's property to a drainage ditch is approved pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899. The project site is located in Sabine-Neches Waterway at 5960 South 1st Street, Sabine Pass, Jefferson County, Texas.

The discharge of fill material into the drainage ditch as part of the installation of 2 culverts is verified under Nationwide Permit (NWP) 39. Nationwide Permit 39 authorizes discharges of dredged or fill material into non-tidal waters of the United States for the construction or expansion of commercial and institutional building foundations, building pads, and attendant features. Attendant features include, but are not limited to, roads, parking lots, garages, yards, utility lines, storm water management facilities, and recreation facilities. The work authorized under this NWP must comply with the Nationwide General/Regional Conditions and the Texas Commission on Environmental Quality's Best Management Practice Guidelines for NWP 39.

This verification is valid until the NWP is modified, reissued, or revoked. All of the existing NWPs are scheduled to be modified, reissued, or revoked prior to March 18, 2012. It is incumbent upon you to remain informed of changes to the NWPs. We will issue a public notice when the NWPs are reissued. Furthermore, if you commence or are under contract to commence this activity before the date that the relevant NWP is modified or revoked, you will have 12 months from the date of the modification or revocation of the NWP to complete the activity under the present terms and conditions of this NWP.

The replacement of a damaged T-head pier with a new L-head pier and perpendicular finger piers, and associated dredging is authorized by Letter of Permission (LOP). This work must comply with the enclosed LOP conditions. If the work authorized under this LOP is not completed by December 31, 2016, this authorization will expire. The following special conditions have been added to this LOP authorization:

(1) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

(2) Prior to the performance of hydraulic dredging, the permittee will obtain a Section 401-water quality certification from the TCEQ for the effluent or return water from Dredge material Placement Area No. 5. The permittee will submit a copy of the Section 401-certification to the Corps of Engineers Chief of Compliance Galveston Regulatory Branch, prior to performing hydraulic dredging.

(3) The permittee is required to obtain a Corps of Engineers (CE) Galveston District Real Estate Out Grant prior to utilizing the CE dredged material placement areas.

(4) The permittee must coordinate the use of Dredged Material Placement Area No. 5 with the Corps of Engineers Galveston District's Port Arthur Resident Office, the Navigation Branch and the Operations Division, at least 60 days prior to conducting any and all work in or affecting the disposal area to assure that the work will not conflict with U. S. Government dredging or disposal area management activities.

If you object to the work authorized by this LOP, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Also enclosed are a combined Notification of Administrative Appeal Options and Process (NAP) and Request for Appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA to the Southwestern Division Office at the following address:

Mr. Elliott Carman
Regulatory Appeals Officer
Southwest Division USACE (CESWD-PD-O)
1100 Commerce Street, Suite 831
Dallas , Texas 75242-1317
Telephone: 469-487-7061; FAX: 469-487-7199

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete; that it meets the criteria for appeal under 33 CFR Part 331.5, and that it has been received by the Division Office within **60 days** of the date of the NAP. It is not necessary to submit an RFA form to the Division office if you do not object to the determination in this letter.

This letter is based on a preliminary jurisdictional determination (JD) for your subject site. If you wish, you may request an approved JD (which may be appealed), by submitting a written request to us within 30 days from the date of this letter. Please note that if you request an approved JD and then decide to appeal it, the appeal will not be accepted if any work has started in waters of the U.S. or that would alter the hydrology of waters of the United States.

All work is to be performed in accordance with the enclosed plans in 8 sheets. Please notify the District Commander, in writing, upon completion of the authorized work. A pre-addressed postcard has been enclosed for your convenience.

If you have any questions concerning this matter, please contact Jeffrey F. Pinsky at the letterhead address or by telephone at 409-766-3087.

FOR THE DISTRICT COMMANDER:

Janet Thomas Botello
Leader, North Evaluation Unit

Copies Furnished:

Leap Engineering, LLC
ATTN: Jene Adler
323 Tremont
Galveston, Texas 77550

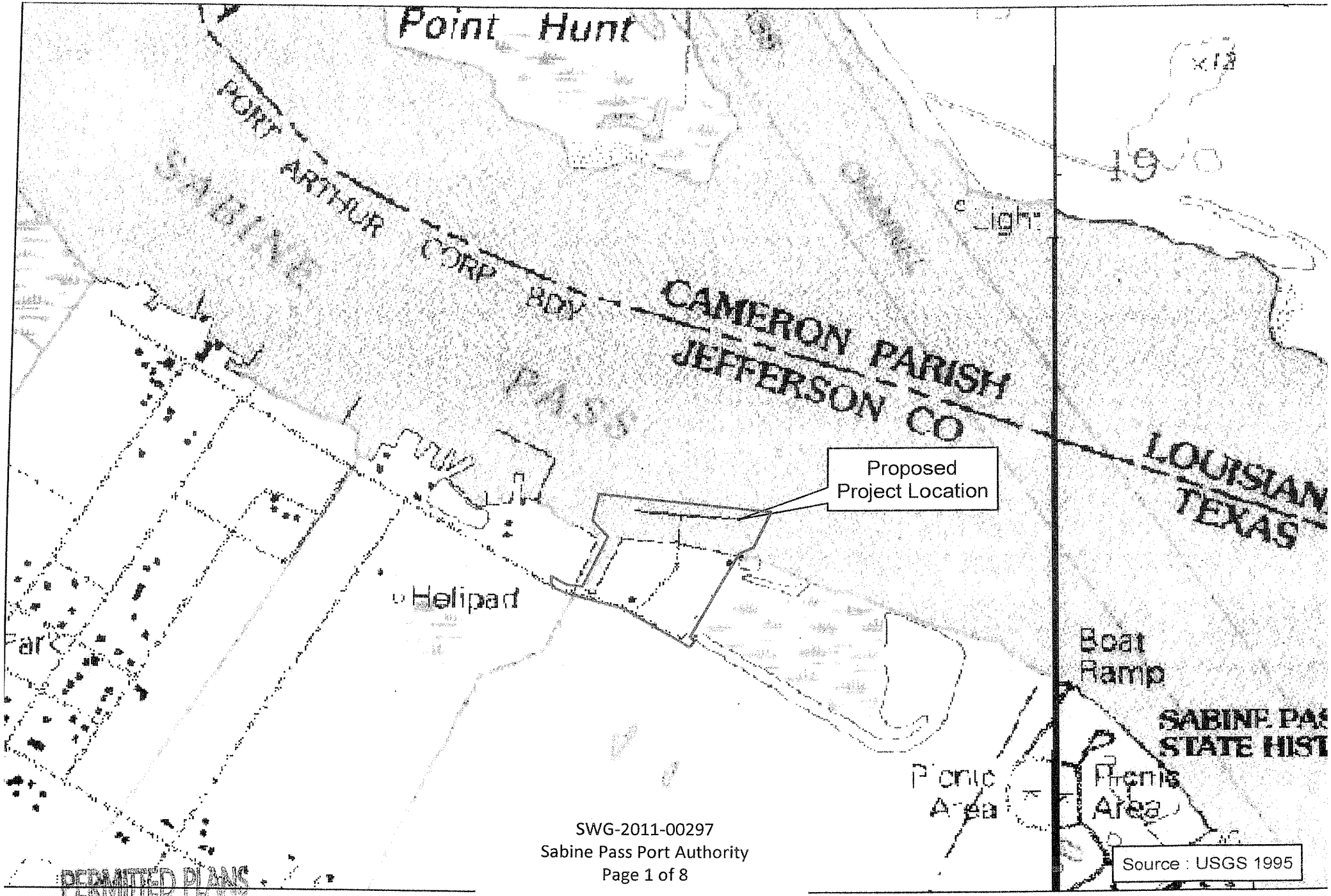
Eighth Coast Guard District, New Orleans, LA

U.S. Fish and Wildlife Service, Houston, TX

Texas General Land Office, Austin, TX

Texas General Land Office, La Porte, TX

Houston/Galveston South Resident Office, Galveston, TX



SWG-2011-00297
Sabine Pass Port Authority
Page 1 of 8

Exhibit C
Proposed Project Area

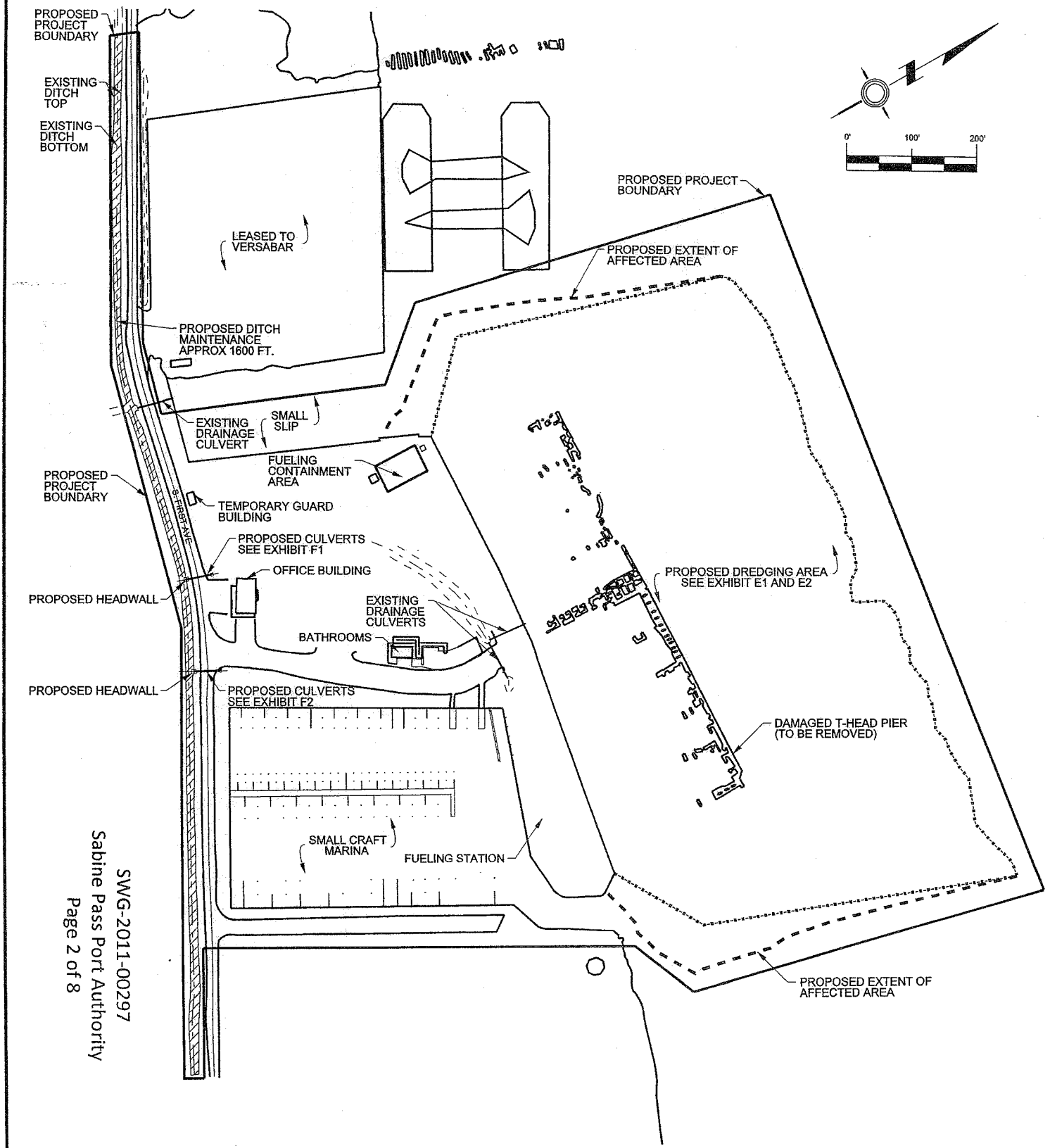
Sabine Pass Port Authority
USACE Individual Permit Application

Date: March 28, 2011 | LE Project No. 474-1001

LEAP ENGINEERING
322 Tremont
Galveston, Texas 7755(
Tel. (409) 877-4078
Fax (409) 813-1916

APR 1 2011

PERMITTED PLANS



PROJECT PLAN VIEW

SCALE: 1" = 200'

SWG-2011-00297
Sabine Pass Port Authority
Page 2 of 8

0	3/28/11	IS. FOR PERMITTING	WLW

TITLE: PLAN VIEW OF PROJECT AREA

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WILLIAM L. WORSHAM P.E. 83153
NOT TO BE USED FOR CONSTRUCTION PURPOSES

LEAP ENGINEERING
323 Tremont Street
Galveston, Texas 77550
Tel: (409) 813-1662
Fax: (409) 813-1916
Texas Registered Engineering Firm F-2601

CLIENT: SABINE PASS PORT AUTHORITY

SABINE PASS PORT AUTHORITY

DRAWN BY	DATE	SCALE	CHK PJA
JWB	28MAR11	1" = 200'	APP WLW

DRAWING NO. EXHIBIT D1 REV. NO. 0

PERMITTED PLANS APR 1 2011

LEGEND	
———	SURVEYED CONTOUR
— — —	ESTIMATED CONTOUR
——+——+——	PROPOSED LIMIT OF -20 NAVD88 DREDGING
— — —	DREDGE EXTENT

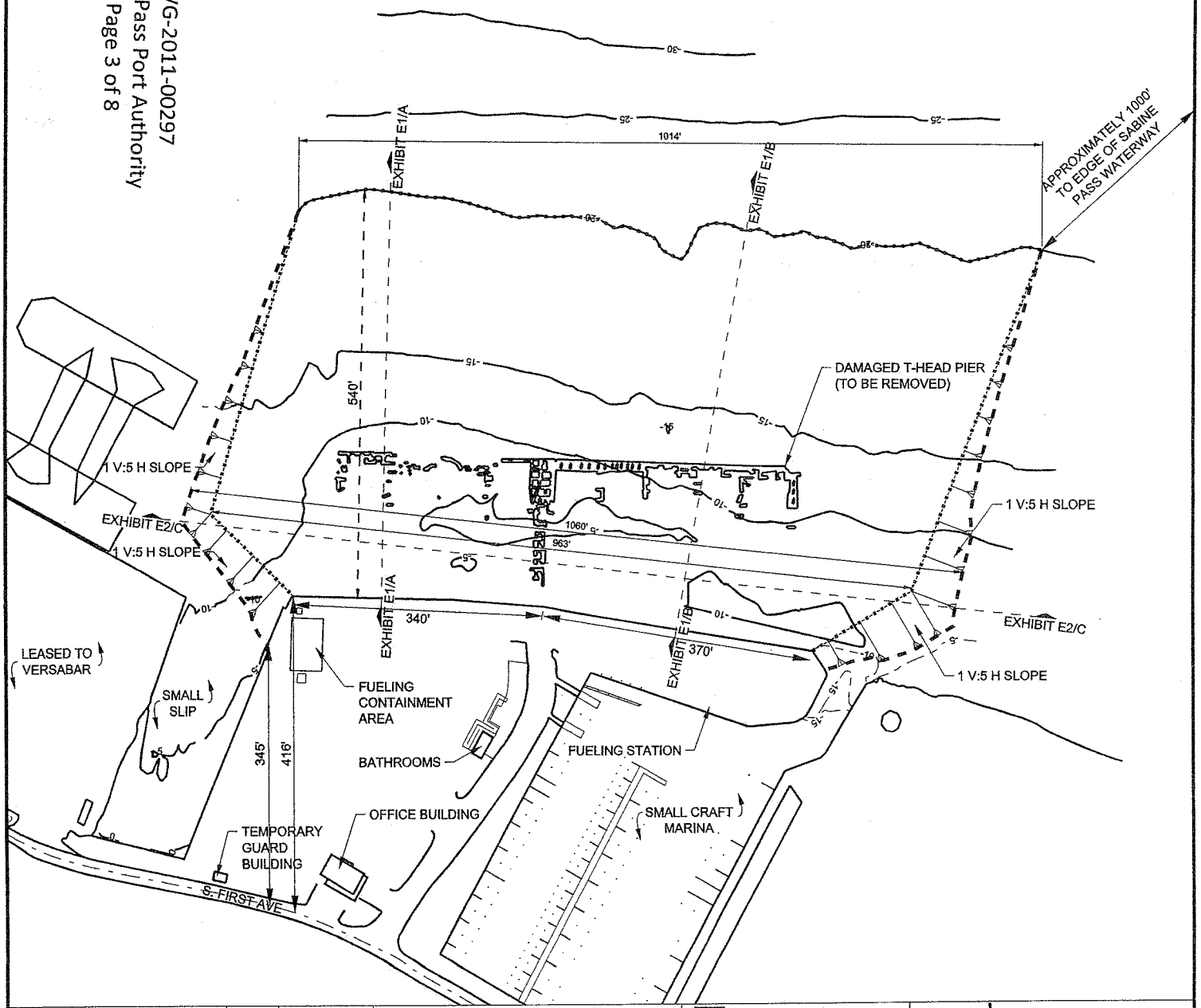
NOTES

BATHYMETRIC SURVEY COLLECTED 6/09 AND 12/09 BY LEAP (LPRG:268-1005 & 079-1009)

HORIZONTAL DATUM IS NAD83 - STATEPLANE TEXAS SOUTH CENTRAL FIPS 4202 (FEET)
VERTICAL DATUM IS NAVD88 (FEET)

0' 100' 200'

SWG-2011-00297
Sabine Pass Port Authority
Page 3 of 8



0	3/28/11	IS. FOR PERMITTING	WLW

TITLE
PROPOSED DREDGING AREA - PLAN VIEW

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323 Tremont Street
Galveston, Texas 77550
Tel: (409) 813-1662
Fax: (409) 813-1916
Texas Registered Engineering Firm F-2601

CLIENT
SABINE PASS PORT AUTHORITY

SABINE PASS PORT AUTHORITY

DRAWN BY	DATE	SCALE	CHK
JWB	28MAR11	1" = 200'	PJA
DRAWING NO.			APP WLW
EXHIBIT D2			REV. NO. 0

APR 1 2011

LEGEND	
———	SURVEYED BOTTOM
– – –	ESTIMATED BOTTOM
-·-·-·-·-	PROPOSED LIMIT OF -20 NAVD88 DREDGING
▨	PROPOSED TO BE REMOVED

NOTES

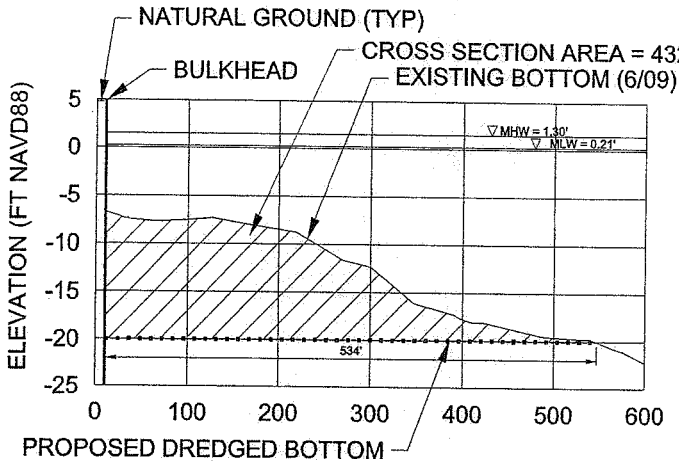
BATHYMETRIC SURVEY COLLECTED 6/09, 12/09 AND 12/10

HORIZONTAL DATUM IS NAD83 - STATEPLANE TEXAS SOUTH CENTRAL FIPS 4202 (FEET)
VERTICAL DATUM IS NAVD88 (FEET)

PROPOSED AFFECTED AREA = 548583 SF
PROPOSED DREDGED QUANITITY TO BE REMOVED = 148000 CY

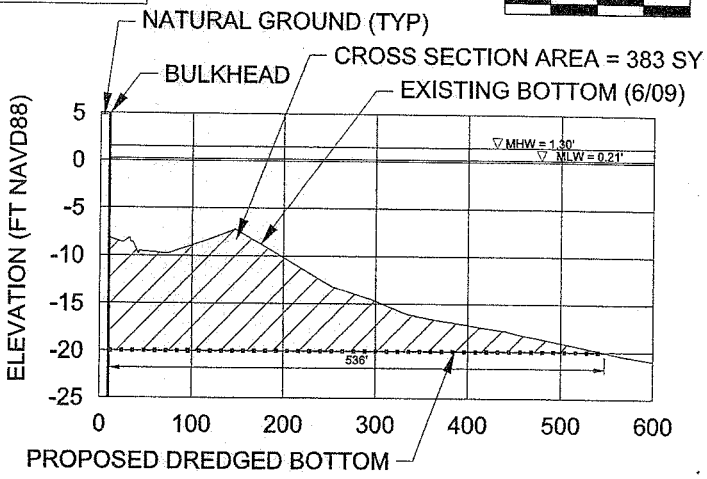
PERMITTED PLANS

0' 100' 200'



A EXISTING AND PROPOSED CROSS-SECTION A-A

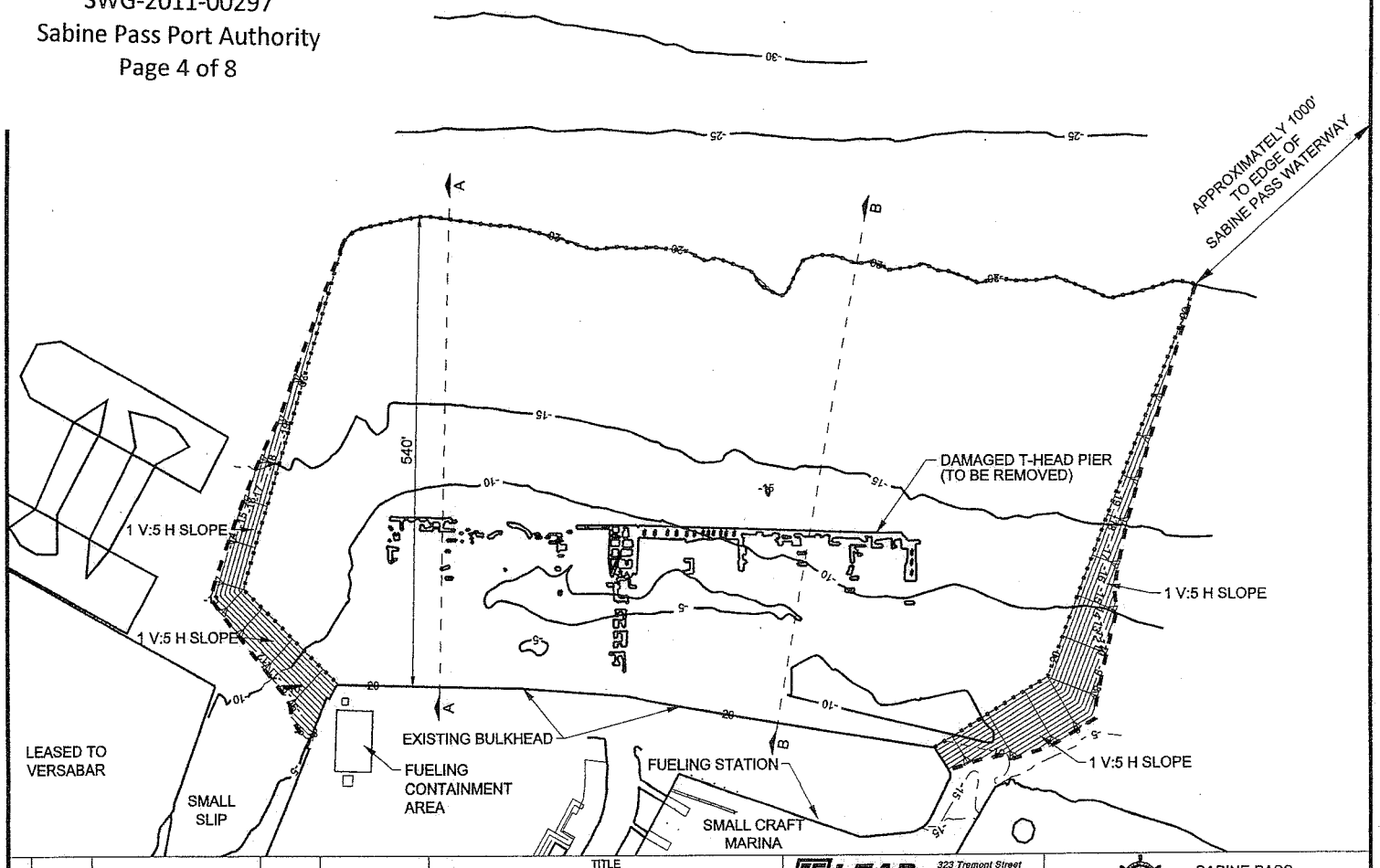
SCALE: H: 1' = 200' V: 1' = 20'



B EXISTING AND PROPOSED CROSS SECTION B-B

SCALE: H: 1" = 200' V: 1" = 20'

SWG-2011-00297
Sabine Pass Port Authority
Page 4 of 8



0	3/28/11	IS. FOR PERMITTING	WLW

TITLE: PROPOSED DREDGE, SECTIONS A-A, AND B-B

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DATE

LEAP ENGINEERING
323 Tremont Street
Galveston, Texas 77550
Tel: (409) 813-1862
Fax: (409) 813-1916
Texas Registered Engineering Firm F-2601

CLIENT: SABINE PASS PORT AUTHORITY

SABINE PASS PORT AUTHORITY

DRAWN BY	DATE	SCALE	CHK	PJA
JWB	28MAR11	1" = 200'	APP	WLW

DRAWING NO.: EXHIBIT E1
REV. NO.: 0

APR 1 2011

LEGEND
SURVEYED BOTTOM
ESTIMATED BOTTOM
PROPOSED LIMIT OF -20 NAVD88 DREDGING
PROPOSED TO BE REMOVED

NOTES

BATHYMETRIC SURVEY COLLECTED 6/09,12/09 AND 12/10

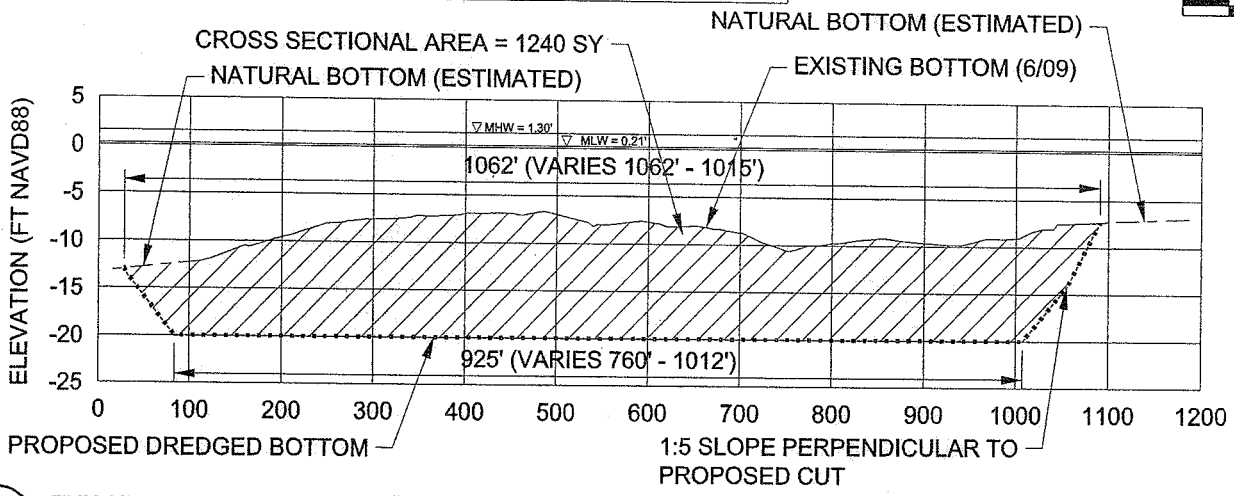
HORIZONTAL DATUM IS NAD83 - STATEPLANE TEXAS SOUTH CENTRAL FIPS 4202 (FEET)
VERTICAL DATUM IS NAVD88 (FEET)

PROPOSED AFFECTED AREA = 548583 SF
PROPOSED DREDGED QUANITITY TO BE REMOVED = 148000 CY

PERMITTED PLANS

N

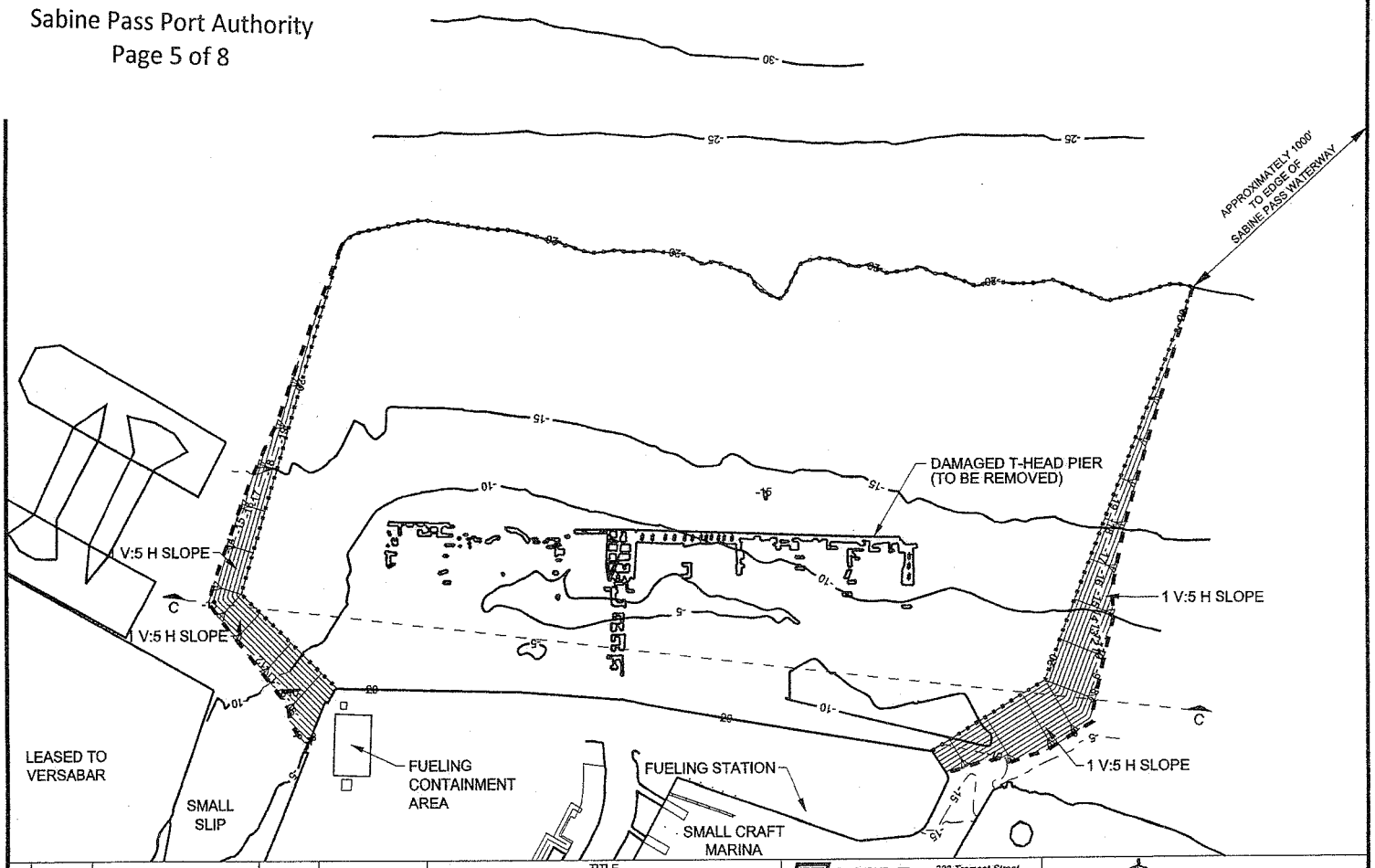
0' 100' 200'



C EXISTING AND PROPOSED CROSS-SECTION C-C: 55'-80' FROM EXISTING BULKHEAD

SCALE: H: 1' = 200' V: 1' = 20'

SWG-2011-00297
Sabine Pass Port Authority
Page 5 of 8



0	3/28/11	IS. FOR PERMITTING	WLW

TITLE: PROPOSED DREDGE, SECTION C-C

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DATE

LEAP ENGINEERING
323 Tremont Street
Galveston, Texas 77550
Tel: (409) 813-1862
Fax: (409) 813-1916
Texas Registered Engineering Firm F-2601

CLIENT: SABINE PASS PORT AUTHORITY

SABINE PASS PORT AUTHORITY

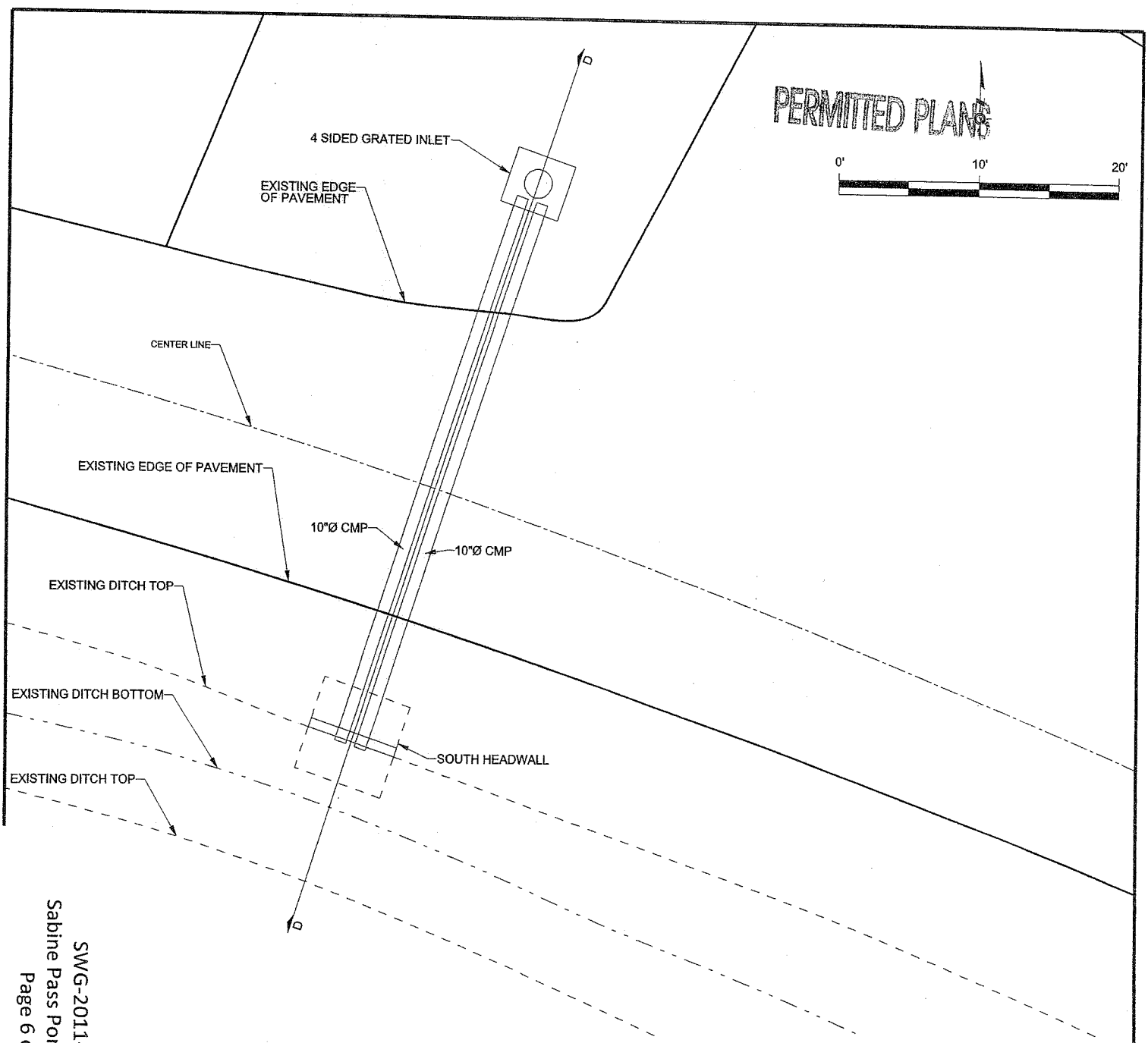
DRAWN BY	DATE	SCALE	CHK	PJA
JWB	28MAR11	1" = 200'	APP	WLW

DRAWING NO.: EXHIBIT E2

REV. NO.: 0

APR 1 2011

PERMITTED PLANS



PLAN VIEW
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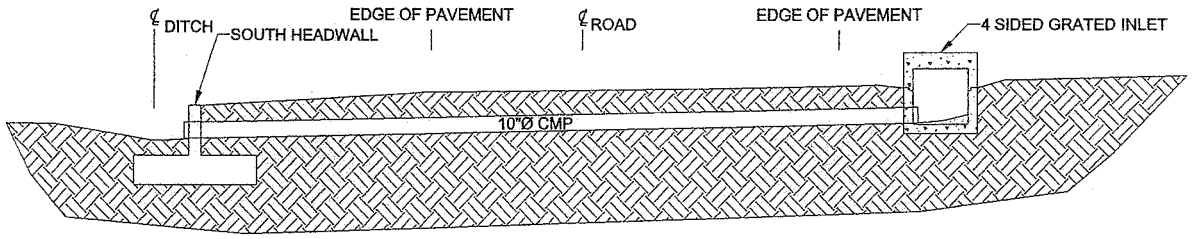

Ⓓ SECTION
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SWG-2011-00297
Sabine Pass Port Authority
Page 6 of 8

0	3/28/11	IS. FOR PERMITTING	WLW

TITLE
WEST CULVERTS - PLAN VIEW AND SECTION

FOR PERMITTING ONLY
WILLIAM L. WORSHAM P.E. 83153
NOT TO BE USED FOR
CONSTRUCTION PURPOSES

LEAP ENGINEERING
323 Tremont Street
Galveston, Texas 77550
Tel: (409) 813-1662
Fax: (409) 813-1916
Texas Registered Engineering Firm F-2601

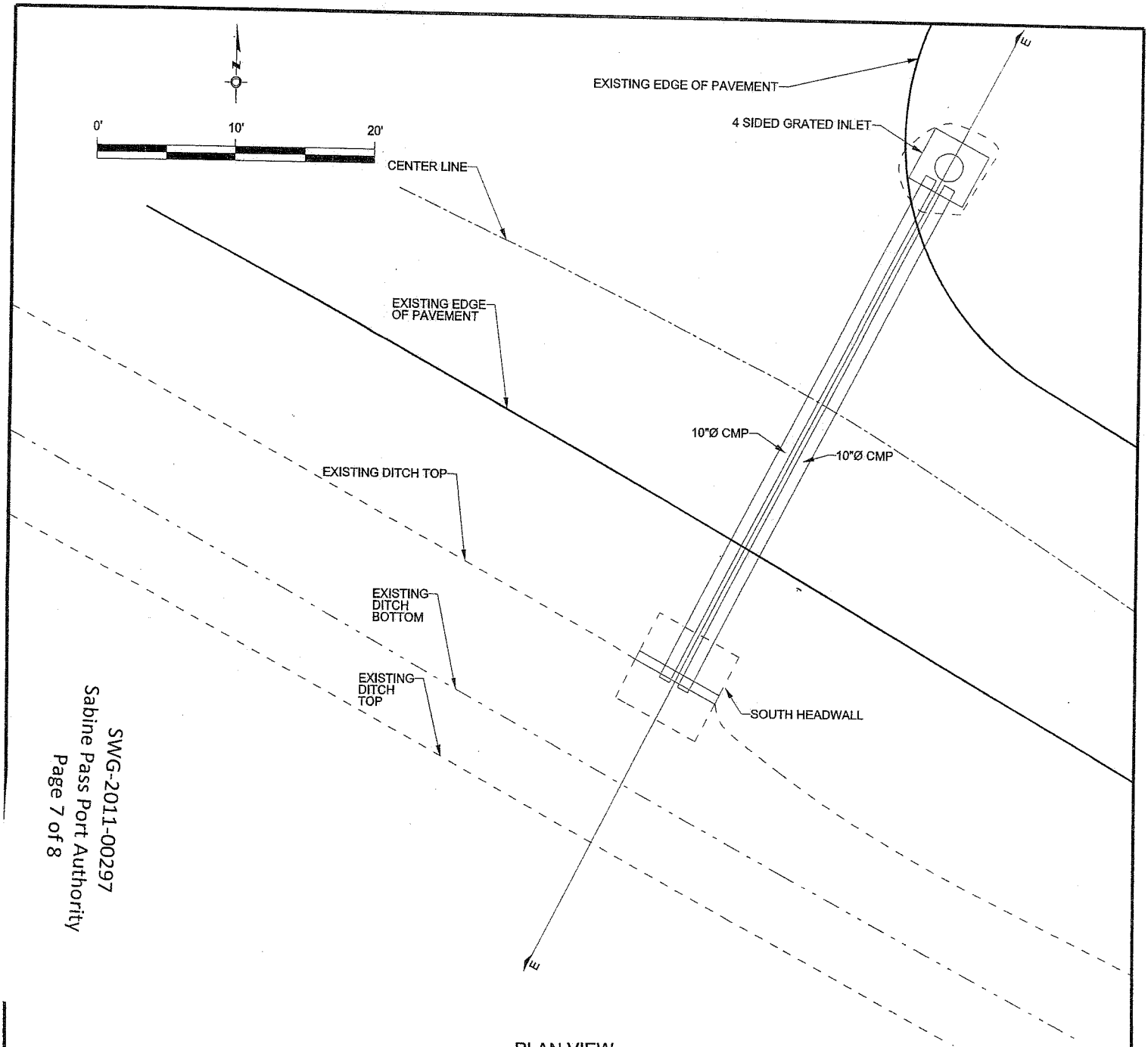
CLIENT
SABINE PASS PORT AUTHORITY

SABINE PASS PORT AUTHORITY

DRAWN BY	DATE	SCALE	CHK PJA
JWB	28MAR11	1" = 10'	APP WLW

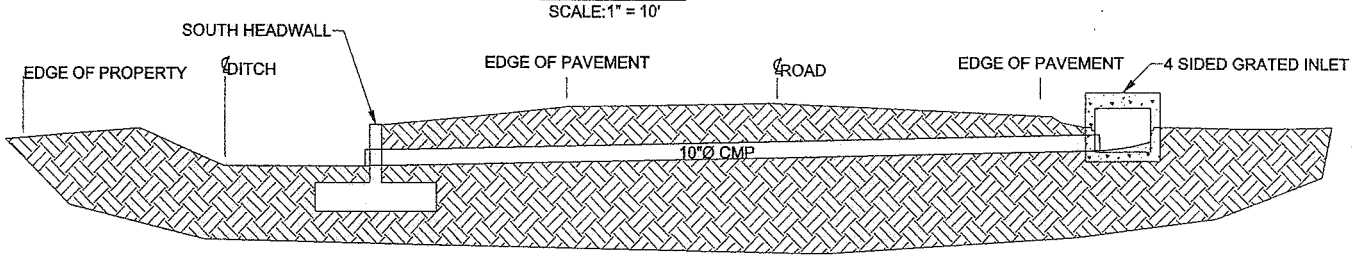
DRAWING NO.
REV. NO.

PERMITTED PLANS APR 1 2011



SWG-2011-00297
Sabine Pass Port Authority
Page 7 of 8

PLAN VIEW
SCALE:1" = 10'



E SECTION
SCALE:1" = 10'

A	3/28/11	ISSUED FOR REVIEW	WLW

TITLE
EAST CULVERTS - PLAN VIEW AND SECTION

FOR PERMITTING ONLY
WILLIAM L. WORSHAM P.E. 83153
NOT TO BE USED FOR
CONSTRUCTION PURPOSES

LEAP ENGINEERING
323 Tremont Street
Galveston, Texas 77550
Tel: (409) 813-1662
Fax: (409) 813-1916
Texas Registered Engineering Firm F-2601

CLIENT
SABINE PASS PORT AUTHORITY

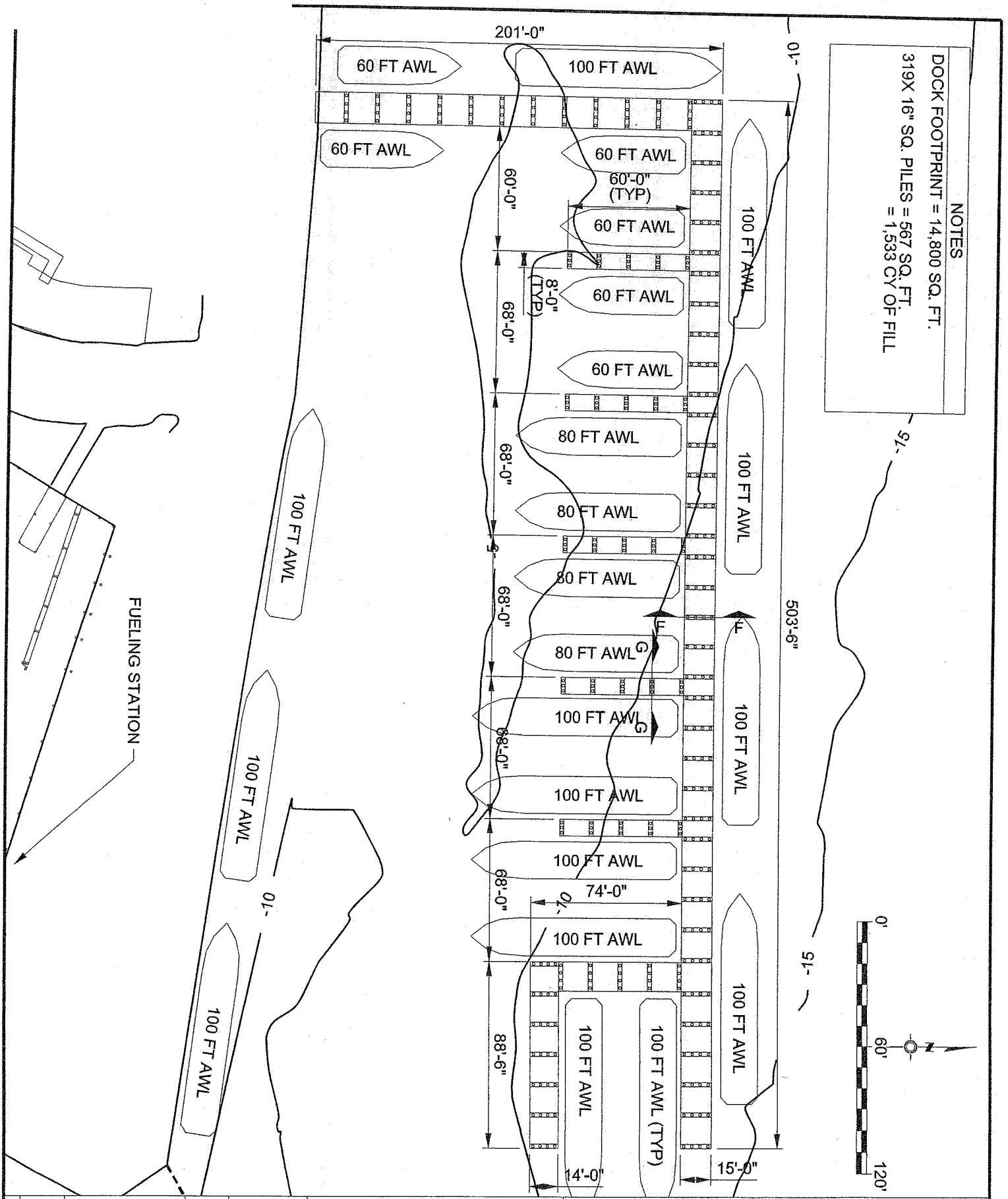
SABINE PASS PORT AUTHORITY

DRAWN BY	DATE	SCALE	CHK PJA
JWB	28MAR11	1" = 10'	APP WLW

DRAWING NO. EXHIBIT E2
REV. NO. 0

PERMITTED PLANS

APR 1 2011



TITLE: PROPOSED L-HEAD PIER PLAN VIEW	LEAP ENGINEERING, 323 Tremont Street, Galveston, Texas 77550, Tel: (409) 813-1862, Fax: (409) 813-1916, Texas Registered Engineering Firm F-2601	SABINE PASS PORT AUTHORITY			
FOR PERMITTING ONLY WILLIAM L. WORSHAM P.E. 83153	CLIENT	DRAWN BY: JWB	DATE: 28MAR11	SCALE: 1" = 60'	CHK: PJA APP: WLW

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

October 17, 2011

Ms. Sherri Droddy
Sabine Pass Port Authority
P.O. Box 318
Sabine Pass, Texas 77655

Re: USACE Permit Application Number SWG-2011-00297

Dear Ms. Droddy:

This letter is in response to your request for authorization to use the United States Army Corps of Engineers (Corps) Nationwide Permit 16 (NW 16) for Discharge of Return Water from Contained Upland Disposal Areas associated with Corps Permit Number SWG-2011-00297. The Sabine Pass Port Authority (SPPA) proposes to replace a damaged T-head pier with a new L-head pier that would have perpendicular finger piers. The SPPA proposes to perform dredging of the Sabine-Neches Waterway and place approximately 148,000 cubic yards of dredged material in Dredge Material Placement Area Number 5, managed by the Sabine-Neches Navigation District. The project site is located in the Sabine Pass Waterway, at 5960 South 1st Street, Sabine Pass, Jefferson County, Texas.

The Texas Commission on Environmental Quality (TCEQ) issued a conditional certification for the NW 16 on April 26, 2007, which required effluent from an upland contained disposal area to not exceed a total suspended solids (TSS) concentration of 300 milligrams per liter (mg/l).

By letter dated April 19, 2011, you have consented to having a 300 mg/l TSS condition as part of the Water Quality Certification for use of NW 16. On behalf of the Executive Director, this satisfies TCEQ's water quality certification requirements of NW 16 for all discharge of dredged material from confined upland disposal areas associated with Corps Permit Number SWG-2011-00297. A copy of this letter is being sent to the Corps.

If you have any questions, please contact Mr. Peter Schaefer of the Water Quality Division (MC150) at (512) 239-4372, or by e-mail at *peter.schaefer@tceq.texas.gov.*

Sincerely,

Charles W. Maguire, Director
Water Quality Division
Texas Commission on Environmental Quailty

CWM/PS/gg

ccs: Mr. Jeffrey E. Pinsky, U.S. Army Corps of Engineers, Galveston District, CESWG-PE-RE, P.O. Box 1229, Galveston, Texas 77553-1229
Ms. Jene Adler, LEAP Engineering, LLC, 323 23rd Street, Galveston, Texas 77550-1509
Mr. Cris Webber, LEAP Engineering, LLC, 323 23rd Street, Galveston, Texas 77550-1509

DEPARTMENT OF THE ARMY
GALVESTON DISTRICT, CORPS OF ENGINEERS
P.O. BOX 1229
GALVESTON, TEXAS 77553-1229

REPLY TO
ATTENTION OF:

August 30, 2011

Real Estate Division

SUBJECT: Consent No. DACW64-9-11-97, Sabine Pass Port Authority, Sabine- Neches Waterway Project, Texas

Leap Engineering, LLC
ATTN: Ms. Jene Adler
323 Tremont
Galveston, Texas 77550

Dear Ms. Adler:

I am enclosing a fully executed copy of Consent No. DACW64-9-11-97. This Consent authorizes the Sabine Pass Port Authority to place dredged material in PA 5 B, Sabine Pass Channel, Sabine-Neches Waterway Project.

Please retain for your records. Should you have any questions or need assistance, please do not hesitate to call Mr. Eric F. Willmore of our Real Estate Division at (409) 766-3815.

Sincerely,

Orlando Rosas
Chief, Real estate Division

Enclosure

DEPARTMENT OF THE ARMY

CORPS OF ENGINEERS

GALVESTON DISTRICT

CONSENT NO.DACW64-9-11-97 PROJECT Sabine- Neches Waterway, Sabine Pass Channel Placement Area: No. 5B

CONSENT

WHEREAS, the United States has the right by virtue of Navigational Servitude under the Commerce Clause of the United States Constitution to use Cell B of Placement Area No. 5, Sabine Pass Channel, Sabine Neches Waterway, Texas.

WHEREAS, said Navigational Servitude gives the United States the prior and dominant right to use the property for navigation including the right to deposit dredged material as needed in the interest of navigation. The Navigational Servitude vests power into the United States to ensure that uses of the property, by others, do not interfere with navigation uses being made of the property. The Navigational Servitude includes the right to require prior approval by the United States for any activity to be located within the servitude area, which area is under the administrative control of the Galveston District, Corps of Engineers.

WHEREAS, the United States has been requested to give consent for the placement of dredged material on Placement Area No. 5B.

NOW THEREFORE, the United States hereby gives consent to **Sabine Pass Port Authority**, P.O Box 318 Sabine Pass, Texas 77655, hereinafter know as the Grantee, to place dredged material on Placement Area No. 5B, Sabine Neches Waterway, Sabine Pass Channel, Texas, as shown on Exhibit A, attached hereto and made a part hereof.

PROVIDED HOWEVER, that this consent is subject to the following conditions:

1. All activities conducted on the premises shall comply with all applicable Federal, state, county and municipal laws, ordinances and regulations wherein the premises are located.

2. The giving of this consent does not in any way subordinate the United States' prior rights. The United States shall in no case be liable for any damage or injury which may be caused by any action of the United States under its rights, or that may result from future operations undertaken by the United States, and no

claim or right to compensation shall accrue from such exercise of the United States' rights.

3. The United States shall not be responsible for damages to property or injuries to persons which may arise from or be incident to the exercise of the consented activity.

4. This instrument is effective only insofar as the rights of the United States in the premises are concerned, and the Grantee shall obtain such permission as may be required on account of any other existing rights. It is understood that this consent does not eliminate the necessity for obtaining any Department of the Army Permit which may be required pursuant to the provisions of Section 10 of the Rivers and Harbors Act of 3 March 1989 (30 Stat. 1151; 33 U.S.C. 403), Section 404 of the Clean Water Act (33 U.S.C. 1344) or any other permit or license which may be required by Federal, state, or local laws in connection with the use of the premises.

5. Grantee must coordinate this job with Sabine Neches Navigation District for their approval and for any charge they may assess for the deposit of any dredged material.

6. Grantee shall coordinate the work activities with Mr. Richard Whitmire, Corps of Engineers Port Arthur Project Office, telephone number 409-725-0176 extension 412.

7. This consent is granted for a one-year term, beginning 31 August 2011 and ending 30 August 2012 or upon completion of the job whichever is first, but is revocable at will by the Secretary of the Army.

IN WITNESS WHEREOF, I have hereunto set my hand by authority of the Secretary of the Army, this 30th day of August, 2011.

ORLANDO ROSAS
Chief, Real Estate Division
USAED, Galveston

THIS CONSENT is also executed by the Grantee this 16 day of August, 2011

SABINE PASS PORT AUTHORITY

By: _____
Ms. Sherri Droddy