

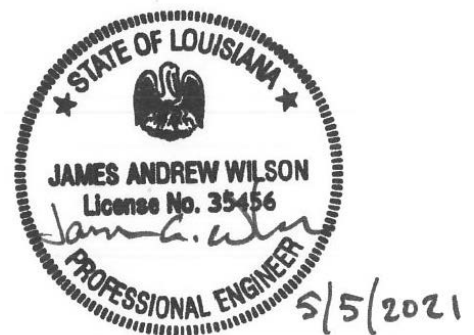
**BID DOCUMENTS  
FOR  
NORTH LAKE MECHANT  
SHEETPILE PLUG NO. 2 REPLACEMENT  
PROJECT (TE-44)**

**TERREBONNE PARISH, LOUISIANA**



**STATE OF LOUISIANA  
COASTAL PROTECTION AND RESTORATION  
AUTHORITY**

**MAY 2021**



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12.	CONCRETE MAT DETAILS
13.	SIGN DETAILS
14.	ACCESS CHANNEL DETAILS
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## **ADVERTISEMENT FOR BIDS**

Sealed bids will be received for the State of Louisiana by the Coastal Protection and Restoration Authority, 150 Terrace Avenue, 4<sup>th</sup> Floor Conference Center, Baton Rouge, Louisiana 70802 until **2:00 P.M., Tuesday, July 13, 2021.**

ANY PERSON REQUIRING SPECIAL ACCOMMODATIONS SHALL NOTIFY THE COASTAL PROTECTION AND RESTORATION AUTHORITY OF THE TYPE(S) OF ACCOMMODATION REQUIRED NOT LESS THAN SEVEN (7) DAYS BEFORE THE BID OPENING.

FOR: **North Lake Mechant Sheetpile Plug No. 2 Replacement Project  
Terrebonne Parish**

PROJECT NUMBER: **TE-0044**

Complete Bid Documents for this project are available in electronic form. They may be obtained without charge and without deposit from <http://coastal.la.gov/resources/rfps-rsiqs-contracts/bids/>. Printed copies can also be obtained from:

**COASTAL PROTECTION AND RESTORATION AUTHORITY (CPRA)**

150 Terrace Avenue, Baton Rouge, LA 70802

Attn: Jordan Delaune

E-mail: [cpa.bidding@la.gov](mailto:cpa.bidding@la.gov) Phone: (225) 342-1150 Fax: (225) 342-4004

All bids shall be accompanied by bid security in an amount of five percent (5.0%) of the sum of the base bid and all alternates. The form of this security shall be as stated in the Instructions to Bidders included in the Bid Documents for this project.

The successful Bidder shall be required to furnish a Performance and Payment Bond written as described in the Instructions to Bidders included in the Bid Documents for this project.

**A NON-MANDATORY PRE-BID CONFERENCE WILL BE HELD at**

**10:30 AM on Tuesday, June 15, 2021 via Zoom webinar at:**

<https://us02web.zoom.us/j/84147416398?pwd=WDF0TFIxei8rZkZZS3kzM0ZaWWRDQT09>

Meeting ID: 841 4741 6398; Passcode: 637757

Meeting audio may be accessed through your computer/device. If your computer/device does not have audio, meeting audio can be accessed via phone with the following call-in information:

Conference Line Phone Number: (646) 558-8656; Conference code: 637757

Contact Brian Babin at (985) 447-0956 with any questions or issues related to the webinar link.

It is the responsibility of all potential bidders to visit the job site to assess the location, logistics, and site conditions prior to bidding.

Bids shall be accepted from Contractors who are licensed under LA. R.S. 37:2150-2192 for the classification of **Heavy Construction; Specialty: Coastal Restoration and Habitat Enhancement.** In accordance with LA. R.S. 37:2163(D), anyone objecting to the classification must send a certified letter to both the Louisiana State Licensing Board for Contractors and the CPRA at the address listed above. The letter must be received no later than ten (10) working days prior to the day on which bids are to be opened.

Bidder is required to comply with provisions and requirements of LA R.S.38:2212(B)(5). No bid may be withdrawn for a period of forty-five (45) calendar days after receipt of bids, except under the provisions of LA. R.S. 38:2214.

The Owner reserves the right to reject any and all bids for just cause. In accordance with La. R.S. 38:2212(B)(1), the provisions and requirements of this Section; and those stated in the bidding documents shall not be waived by any entity.

When this project is financed either partially or entirely with State Bonds or financed in whole or in part by federal or other funds which are not readily available at the time bids are received, the award of this Contract is contingent upon the granting of lines of credit, or the sale of bonds by the Bond Commission or the availability of federal or other funds. The State shall incur no obligation to the Contractor until the Contract between Owner and Contractor is fully executed.

Coastal Protection and Restoration Authority is a participant in the Small Entrepreneurship (SE) Program (the Hudson Initiative) and the Veteran-Owned and Service-Connected Disabled Veteran-Owned (LaVet) Small Entrepreneurships Program. Bidders are encouraged to consider participation. Information is available from Coastal Protection and Restoration Authority or on its website at <http://www.coastal.la.gov/>.

STATE OF LOUISIANA  
COASTAL PROTECTION AND RESTORATION AUTHORITY  
LAWRENCE B. HAASE, EXECUTIVE DIRECTOR

# INSTRUCTIONS TO BIDDERS

## COMPLETION TIME:

The Bidder shall agree to fully complete the contract within **Two Hundred (200)** consecutive calendar days, subject to such extensions as may be granted under Section GP-44 of the General Provisions and acknowledges that this construction time will start on or before the date specified in the written “Notice to Proceed” from the Owner.

## LIQUIDATED DAMAGES:

The Bidder shall agree to pay as Liquidated Damages the amount of **Two Thousand Four Hundred Fifty Dollars (\$2,450.00)** for each consecutive calendar day for which the work is not complete, beginning with the first day beyond the contract completion date stated on the “Notice to Proceed” or as amended by change order.

## ARTICLE 1

### DEFINITIONS

#### 1.1 The Bid Documents include the following:

Advertisement for Bids  
Instructions to Bidders  
Bid Form  
Bid Bond  
General Provisions  
Special Provisions  
Technical Specifications  
Construction Drawings  
Contract Between Owner and Contractor  
and Performance and Payment Bond  
Affidavit  
User Agency Documents (if applicable)  
Change Order Form  
Recommendation of Acceptance  
Other Documents (if applicable)  
Addenda issued during the bid period and  
acknowledged in the Bid Form

1.2 All definitions set forth in the General Provisions and the Special Provisions are applicable to the Bid Documents, unless otherwise specifically stated or written.

1.3 Addenda are written and/or graphic instruments issued by the Engineer prior to the

opening of bids  
which modify or interpret the Bid Documents by additions, deletions, clarifications, corrections and prior approvals.

1.4 A bid is a complete and properly signed proposal to do the work or designated portion thereof for the sums stipulated therein supported by data called for by the Bid Documents.

1.5 Base bid is the sum stated in the bid for which the Bidder offers to perform the work described as the base, to which work may be added, or deleted for sums stated in alternate bids.

1.6 An alternate bid (or alternate) is an amount stated in the bid to be added to the amount of the base bid if the corresponding change in project scope or materials or methods of construction described in the Bid Documents is accepted.

1.7 A Bidder is one who submits a bid for a prime Contract with the Owner for the work described in the Bid Documents.

1.8 A Sub-bidder is one who submits a bid to a Bidder for materials and/or labor for a portion of the work.

1.9 Where the word "Engineer" is used in any of the documents, it shall refer to the Prime Designer of the project, regardless of discipline.

## **ARTICLE 2**

### **PRE-BID CONFERENCE**

2.1 A Pre-Bid Conference may be held at the time and location described in the Advertisement for Bids. The purpose of the Pre-Bid Conference is to familiarize Bidders with the requirements of the Project and the intent of the Bid Documents, and to receive comments and information from interested Bidders. If the Pre-Bid Conference and/or Job Site Visit is stated in the Advertisement for Bids to be a Mandatory Pre-Bid Conference and/or Mandatory Job Site Visit, bids shall be accepted only from those bidders who attend the Pre-Bid Conference and/or Job Site Visit. Contractors who are not in attendance for the entire Pre-Bid Conference and/or Job Site Visit will be considered to have not attended.

2.2 Any revision of the Bid Documents made as a result of the Pre-Bid Conference shall not be valid unless included in an addendum.

## **ARTICLE 3**

### **BIDDER'S REPRESENTATION**

3.1 Each Bidder by making his bid represents that:

3.1.1 He has read and understands the Bid Documents and his bid is made in accordance therewith.

3.1.2 He has visited the site and has familiarized himself with the local conditions under which the work is to be performed.

3.1.3 His bid is based solely upon the

materials, systems and equipment described in the Bid Documents as advertised and as modified by addenda.

3.1.4 His bid is not based on any verbal instructions contrary to the Bid Documents and addenda.

3.1.5 He is familiar with the Code of Governmental Ethics requirement that prohibits public servants and/or their immediate family members from bidding on or entering into contracts; he is aware that the Designer and its principal owners are considered Public Servants under the Code of Governmental Ethics for the limited purposes and scope of the Design Contract with the State on this Project (see Ethics Board Advisory Opinion, No. 2009-378 and 2010-128); and neither he nor any principal of the Bidder with a controlling interest therein has an immediate family relationship with the Designer or any principal within the Designer's firm. (see La. R.S. 42:1113). Any Bidder submitting a bid in violation of this clause shall be disqualified and any contract entered into in violation of this clause shall be null and void.

3.2 The Bidder must be fully qualified under any State or local licensing law for Contractors in effect at the time and at the location of the work before submitting his bid. In the State of Louisiana, Revised Statutes 37:2150, et seq. will be considered, if applicable.

The Contractor shall be responsible for determining that all of his Sub-bidders or prospective Subcontractors are duly licensed in accordance with law.

## **ARTICLE 4**

### **BID DOCUMENTS**



## 4.1 Copies

4.1.1 Bid Documents may be obtained from the Coastal Protection and Restoration Authority as stated in the Advertisement for Bids.

4.1.1.2 In addition to the availability of printed Bid Documents, the Coastal Protection and Restoration Authority will provide the Bid Documents in electronic format. They may be obtained without charge and without deposit as stated in the Advertisement for Bids.

4.1.1.2.2 Where electronic distribution is provided, all other plan holders are responsible for their own reproduction costs.

4.1.2 Complete sets of Bid Documents shall be used in preparing bids; neither the Owner nor the Engineer assume any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bid Documents.

4.1.3 The Owner or Engineer in making copies of the Bid Documents available on the above terms, do so only for the purpose of obtaining bids on the work and do not confer a license or grant for any other use.

## 4.2 Interpretation or Correction of Bid Documents

4.2.1 Bidders shall promptly notify the Coastal Protection and Restoration Authority contact person listed in the Advertisement for Bids of any ambiguity, inconsistency or error which they may discover upon examination of the Bid Documents or of the site and local conditions.

4.2.2 Bidders requiring clarification or interpretation of the Bid Documents shall make a written request to the Coastal Protection and Restoration Authority contact person listed in the Advertisement for Bids, to reach him/her at least seven days prior to the date for receipt of bids.

4.2.3 Any interpretation, correction or change of the Bid Documents will be made by addendum. Interpretations, corrections or changes of the Bid Documents made in any other manner will not be binding and Bidders shall not rely upon such interpretations, corrections and changes.

## 4.3 Substitutions

4.3.1 The materials, products and equipment described in the Bid Documents establish a standard of required function, dimension, appearance and quality to be met by any proposed substitution. No substitutions shall be allowed after bids are received.

4.3.2 No substitution will be considered unless written request for approval has been submitted by the Proposer and has been received by the Engineer at least seven (7) working days prior to the opening of bids. (La. R.S. 38:2295(C)) Each such request shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed substitute including model numbers, drawings, cuts, performance and test data and any other information necessary for an evaluation. A statement setting forth any changes in other materials, equipment or work that incorporation of the substitute would require shall be included. It shall be the responsibility of the proposer to include in his proposal all changes required of the Bid Documents if the proposed product is used. Prior approval is given contingent upon supplier being responsible for any costs which may be necessary to modify the space or facilities needed to accommodate the materials and equipment approved.

4.3.3 If the Engineer approves any proposed substitution, such approval will be set forth in an addendum. Bidders shall not rely upon approvals made in any other manner.

#### 4.4 Addenda

4.4.1 Addenda will be mailed or delivered to all who are known by the Coastal Protection and Restoration Authority to have received a complete set of Bid Documents.

4.4.2 Copies of addenda will be made available for inspection wherever Bid Documents are on file for that purpose.

4.4.3 Except as described herein, addenda shall not be issued within a period of seventy-two (72) hours prior to the advertised time for the opening of bids, excluding Saturdays, Sundays, and any other legal holidays. If the necessity arises of issuing an addendum modifying the Bid Documents within the seventy-two (72) hour period prior to the advertised time for the opening of bids, then the opening of bids shall be extended at least seven but no more than twenty-one (21) working days, without the requirement of re-advertising. The revised time and date for the opening of bids shall be stated in the addendum.

4.4.4 Each Bidder shall ascertain from the Coastal Protection and Restoration Authority prior to submitting his bid that he has received all addenda issued, and he shall acknowledge their receipt on the Bid Form.

4.4.5 The Owner shall have the right to extend the bid date by up to (30) thirty days without the requirement of re-advertising. Any such extension shall be made by addendum issued by the Coastal Protection and Restoration Authority.

### ARTICLE 5

#### BID PROCEDURE

##### 5.1 Form and Style of Bids

5.1.1 Bids shall be submitted on the Louisiana Uniform Public Work Bid Form

provided by the Engineer.

5.1.2 The Bidder shall ensure that all applicable blanks on the Bid Form are completely and accurately filled in.

5.1.3 Bid sums shall be expressed in both words and figures, and in case of discrepancy between the two, the written words shall govern.

5.1.4 Any interlineation, alteration or erasure must be initialed by the signer of the bid or his authorized representative.

5.1.5 Bidders are cautioned to complete all alternates should such be required in the Bid Form. Failure to submit alternate prices will render the bid non responsive and shall cause its rejection.

5.1.6 Bidders are cautioned to complete all unit prices should such be required in the Bid Form. Unit prices represent a price proposal to do a specified quantity and quality of work. Unit prices are incorporated into the base bid or alternates, as indicated on the Unit Price Form, but are not the sole components thereof.

5.1.7 Bidder shall make no additional stipulations on the Bid Form nor qualify his bid in any other manner.

5.1.8 Written evidence of the authority of the person signing the bid for the public work shall be submitted in accordance with La. R.S. 38:2212(B)(5).

5.1.9 On any bid in excess of fifty thousand dollars (\$50,000.00), the Contractor shall certify that he is licensed under R.S. 37: 2150-2173 and show his license number on the bid above his signature or his duly authorized representative.

##### 5.2 Bid Security

5.2.1 No bid shall be considered or accepted unless the bid is accompanied by bid security in an amount of five percent (5.0%) of the base bid and all alternates.

The bid security shall be in the form of a certified check or cashier's check drawn on a bank insured by the Federal Deposit Insurance Corporation, or a Bid Bond written by a surety company licensed to do business in Louisiana and signed by the surety's agent or attorney-in-fact. The Bid Bond shall be written on the Coastal Protection and Restoration Authority Bid Bond Form, and the surety for the bond must meet the qualifications stated thereon. The Bid Bond shall include the legal name of the bidder be in favor of the State of Louisiana, Coastal Protection and Restoration Authority, and shall be accompanied by appropriate power of attorney. The Bid Bond must be signed by both the bidder/principal and the surety in the space provided on the Coastal Protection and Restoration Authority Bid Bond Form. Failure by the bidder/principal or the surety to sign the bid bond shall result in the rejection of the bid.

Bid security furnished by the Contractor shall guarantee that the Contractor will, if awarded the work according to the terms of his proposal, enter into the Contract and furnish Performance and Payment Bonds as required by these Bid Documents, within fifteen (15) days after written notice that the instrument is ready for his signature.

Should the Bidder refuse to enter into such Contract or fail to furnish such bonds, the amount of the bid security shall be forfeited to the Owner as liquidated damages, not as penalty.

5.2.2 The Owner will have the right to retain the bid security of Bidders until either (a) the Contract has been executed and bonds have been furnished, or (b) the specified time has elapsed so that bids may be withdrawn, or (c)

all bids have been rejected.

### 5.3 Submission of Bids

5.3.1 The Bid shall be sealed in an opaque envelope. The bid envelope shall be identified on the outside with the name of the project, and the name, address, and license number of the Bidder.

The envelope shall not contain multiple bid forms, and will be received until the time specified and at the place specified in the Advertisement for Bids. It shall be the specific responsibility of the Bidder to deliver his sealed bid to the Coastal Protection and Restoration Authority at the appointed place and prior to the announced time for the opening of bids. Late delivery of a bid for any reason, including late delivery by United States Mail, or express delivery, shall disqualify the bid.

If the bid is sent by mail, the sealed envelope shall be enclosed in a separate mailing envelope with the notation "Bid Enclosed" on the face thereof. Such bids shall be sent by Registered or Certified Mail, Return Receipt Requested, addressed to:

Coastal Protection and Restoration  
Authority  
P. O. Box 44027  
Baton Rouge, Louisiana, 70804-4027.

Bids sent by express delivery shall be delivered to: Coastal Protection and Restoration Authority  
150 Terrace Avenue  
Suite 100  
Baton Rouge, Louisiana 70802

5.3.2 Bids shall be deposited at the designated location prior to the time on the date for receipt of bids indicated in the Advertisement for Bids, or any extension thereof made by addendum. Bids received after the time and date for receipt of bids will be returned unopened.

5.3.3 Bidder shall assume full responsibility for timely delivery at location designated for receipt of bids.

5.3.4 Oral, telephonic or telegraphic bids are invalid and shall not receive consideration. Owner shall not consider notations written on outside of bid envelope which have the effect of amending the bid. Written modifications enclosed in the bid envelope, and signed or initialed by the Contractor or his representative, shall be accepted.

#### 5.4 Modification or Withdrawal of Bid

5.4.1 A bid may not be modified, withdrawn or canceled by the Bidder during the time stipulated in the Advertisement for Bids, for the period following the time and bid date designated for the receipt of bids, and Bidder so agrees in submitting his bid, except in accordance with R.S. 38:2214 which states, in part, "Bids containing patently obvious, unintentional, and substantial mechanical, clerical or mathematical errors, or errors of unintentional omission of a substantial quantity of work, labor, material, or services made directly in the compilation of the bid, may be withdrawn by the Contractor if clear and convincing sworn, written evidence of such errors is furnished to the public entity within forty eight hours of the Bid Opening excluding Saturdays, Sundays and legal holidays".

5.4.2 Prior to the time and date designated for receipt of bids, bids submitted early may be modified or withdrawn only by notice to the party receiving bids at the place and prior to the time designated for receipt of bids.

5.4.3 Withdrawn bids may be resubmitted up to the time designated for the receipt of bids provided that they are then fully in conformance with these Instructions to Bidders.

5.4.4 Bid Security shall be in an amount sufficient for the bid as modified or resubmitted.

#### 5.5 Prohibition of Discriminatory Boycotts of Israel

By submitting its bid, the bidder certifies and agrees that the following information is correct:

In preparing its bid, the bidder has considered all proposals submitted from qualified, potential subcontractors and suppliers, and has not, in the solicitation, selection, or commercial treatment of any subcontractor or supplier, refused to transact or terminated business activities, or taken other actions intended to limit commercial relations, with a person or entity that is engaging in commercial transactions in Israel or Israel-controlled territories, with the specific intent to accomplish a boycott or divestment of Israel. The bidder has also not retaliated against any person or other entity for reporting such refusal, termination, or commercially limiting actions. The state reserves the right to reject any bids if this certification is subsequently determined to be false and to terminate any contract awarded based on such a false response.

## ARTICLE 6

### CONSIDERATION OF BIDS

#### 6.1 Opening of Bids

6.1.1 The properly identified Bids received on time will be opened publicly and will be read aloud, and a tabulation abstract of the amounts of the base bids and alternates, if any, will be made available to Bidders.

#### 6.2 Rejection of Bids

6.2.1 The Owner shall have the right to

reject any or all bids and in particular to reject a bid not accompanied by any required bid security or data required by the Bid Documents or a bid in any way incomplete or irregular.

### 6.3 Acceptance of Bid

6.3.2 It is the intent of the Owner, if he accepts any alternates, to accept them in the order in which they are listed in the Bid Form. Determination of the Low Bidder shall be on the basis of the sum of the base bid and the alternates accepted. However, the Owner shall reserve the right to accept alternates in any order which does not affect determination of the Low Bidder.

## ARTICLE 7

### POST-BID INFORMATION

#### 7.1 Submissions

7.1.1 The Contractor shall submit a Work Plan and Progress Schedule prior to the Pre-Construction Conference in conformance with applicable sections of the General and Special Provisions.

It is the preference of the Owner that, to the greatest extent possible or practical, the Contractor utilize Louisiana Subcontractors, manufacturers, suppliers and labor.

7.1.2 The General Contractor shall be responsible for actions or inactions of Subcontractors and/or material suppliers.

The General Contractor is totally responsible for any lost time or extra expense incurred due to a Subcontractor's/or Material Supplier's failure to perform. Failure to perform includes, but is not limited to, a Subcontractor's financial failure, abandonment of the project, failure to make prompt delivery, or failure to do work up to standard. Under no circumstances shall the Owner

mitigate the General Contractor's losses or reimburse the General Contractor for losses caused by these events.

#### 7.1.3

In accordance with La. R.S. 38:2227 [references La. R.S. 38:2212(A)(3)(c)(ii), which has since been renumbered as La. R.S. 38:2212(B)(3)], La. R.S. 38:2212.10 and La. R.S. 23:1726(B) the apparent low bidder on this project shall submit the completed Attestations Affidavit (Past Criminal Convictions of Bidders, Verification of Employees and Certification Regarding Unpaid Workers Compensation Insurance) form found within this bid package to the Coastal Protection and Restoration Authority contact person listed in the Advertisement For Bids within 10 days after the opening of bids.

## ARTICLE 8

### PERFORMANCE AND PAYMENT BOND

#### 8.1 Bond Required

8.1.1 The Contractor shall furnish and pay for a Performance and Payment Bond written by a company licensed to do business in Louisiana, which shall be signed by the surety's agent or attorney-in-fact, in an amount equal to 100% of the Contract amount. Surety must be listed currently on the U. S. Department of Treasury Financial Management Service List (Treasury List) as approved for an amount equal to or greater than the contract amount, or must be an insurance company domiciled in Louisiana or owned by Louisiana residents. If surety is qualified other than by listing on the Treasury list, the contract amount may not exceed fifteen percent of policyholders' surplus as shown by surety's most recent financial statements filed with the Louisiana Department of Insurance and may not exceed the amount of \$500,000. However, a Louisiana domiciled insurance company with at least an A- rating in the latest printing of the A. M. Best's Key Rating Guide shall not be subject to the \$500,000 limitation, provided that the contract amount does not exceed ten

percent of policyholders' surplus as shown in the latest A. M. Best's Key Rating Guide nor fifteen percent of policyholders' surplus as shown by surety's most recent financial statements filed with the Louisiana Department of Insurance. The Bond shall be signed by the surety's agent or attorney-in-fact. The Bond shall be in favor of the Coastal Protection and Restoration Authority.

## 8.2 Time of Delivery and Form of Bond

8.2.1 The Bidder shall deliver the required bond to the Owner simultaneous with the execution of the Contract.

8.2.2 Bond shall be in the form furnished by the Coastal Protection and Restoration Authority, entitled CONTRACT BETWEEN OWNER AND CONTRACTOR AND PERFORMANCE AND PAYMENT BOND, a copy of which is included in the Bid Documents.

8.2.3 The Bidder shall require the Attorney-in-Fact who executes the required bond on behalf of the surety to affix thereto a certified and current copy of his power of Attorney.

## ARTICLE 9

### FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR

#### 9.1 Form to be Used

9.1.1 Form of the Contract to be used shall be furnished by the Coastal Protection and Restoration Authority, an example of which is bound in the Bid Documents.

#### 9.2 Award

9.2.1 After award of the Contract, the successful Bidder, if a corporation, shall furnish to the Owner the most current copy of a Disclosure of Ownership Affidavit on file

with the Secretary of State.

9.2.2 In accordance with Louisiana Law, when the Contract is awarded, the successful Bidder shall, at the time of the signing of the Contract, execute the Non-Collusion Affidavit included in the Contract Documents.

9.2.3 When this project is financed either partially or entirely with State Bonds, the award of this Contract is contingent upon the sale of bonds by the State Bond Commission. The State shall incur no obligation to the Contractor until the Contract between Owner and Contractor is duly executed.



# LOUISIANA UNIFORM PUBLIC WORK BID FORM

**TO:** Coastal Protection and Restoration Authority  
150 Terrace Avenue  
Suite 100  
Baton Rouge, LA 70802  
*(Owner to provide name and address of owner)*

**BID FOR:** North Lake Mechant Sheetpile Plug No. 2  
Project No. TE-44  
Terrebonne Parish  
*(Owner to provide name of project and other identifying information)*

The undersigned bidder hereby declares and represents that she/he: a) has carefully examined and understands the Bidding Documents, b) has not received, relied on, or based his bid on any verbal instructions contrary to the Bidding Documents or any addenda, c) has personally inspected and is familiar with the project site, and hereby proposes to provide all labor, materials, tools, appliances and facilities as required to perform, in a workmanlike manner, all work and services for the construction and completion of the referenced project, all in strict accordance with the Bidding Documents prepared by: MSMM Engineering, LLC, 4508 Clearview Pkwy, Suite 200, Metairie, LA 70006 and dated: May 2021.  
*(Owner to provide name of entity preparing bidding documents.)*

Bidders must acknowledge all addenda. The Bidder acknowledges receipt of the following **ADDENDA:** (Enter the number the Designer has assigned to each of the addenda that the Bidder is acknowledging) \_\_\_\_\_.

**TOTAL BASE BID:** For all work required by the Bidding Documents (including any and all unit prices designated "Base Bid" \* but not alternates) the sum of:  
\_\_\_\_\_ Dollars (\$ \_\_\_\_\_)

**ALTERNATES:** For any and all work required by the Bidding Documents for Alternates including any and all unit prices designated as alternates in the unit price description.

**Alternate No. 1** *(Owner to provide description of alternate and state whether add or deduct)* for the lump sum of:  
Not Applicable Dollars (\$ Not Applicable)

**Alternate No. 2** *(Owner to provide description of alternate and state whether add or deduct)* for the lump sum of:  
Not Applicable Dollars (\$ Not Applicable)

**Alternate No. 3** *(Owner to provide description of alternate and state whether add or deduct)* for the lump sum of:  
Not Applicable Dollars (\$ Not Applicable)

**NAME OF BIDDER:** \_\_\_\_\_

**ADDRESS OF BIDDER:** \_\_\_\_\_  
\_\_\_\_\_

**LOUISIANA CONTRACTOR'S LICENSE NUMBER:** \_\_\_\_\_

**NAME OF AUTHORIZED SIGNATORY OF BIDDER:** \_\_\_\_\_

**TITLE OF AUTHORIZED SIGNATORY OF BIDDER:** \_\_\_\_\_

**SIGNATURE OF AUTHORIZED SIGNATORY OF BIDDER \*\*:** \_\_\_\_\_

**DATE:** \_\_\_\_\_

## **THE FOLLOWING ITEMS ARE TO BE INCLUDED WITH THE SUBMISSION OF THIS LOUISIANA UNIFORM PUBLIC WORK BID FORM:**

\* The Unit Price Form shall be used if the contract includes unit prices. Otherwise it is not required and need not be included with the form. The number of unit prices that may be included is not limited and additional sheets may be included if needed.

\*\* **A CORPORATE RESOLUTION OR WRITTEN EVIDENCE** of the authority of the person signing the bid for the public work as prescribed by LA R.S. 38:2212(B)(5).

**BID SECURITY** in the form of a bid bond, certified check or cashier's check as prescribed by LA R.S. 38:2218(A) attached to and made a part of this bid.



# LOUISIANA UNIFORM PUBLIC WORK BID FORM

## UNIT PRICE FORM

**TO:** Coastal Protection and Restoration Authority  
150 Terrace Avenue  
Suite 100  
Baton Rouge, LA 70802

**BID FOR:** North Lake Mechant Landbridge Sheet Pile Plug No. 2  
 Project No. TE-44  
 Terrebonne Parish

**UNIT PRICES:** This form shall be used for any and all work required by the Bidding Documents and described as unit prices. Amounts shall be stated in figures and only in figures.

DESCRIPTION:	<input type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ____ General Mobilization / Demobilization (TS-100)			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION ( <i>Quantity times Unit Price</i> )
1	1	Lump Sum		

DESCRIPTION:	<input type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ____ Surveys (TS-210)			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION ( <i>Quantity times Unit Price</i> )
2	1	Lump Sum		

DESCRIPTION:	<input type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ____ Flotation Access Channels (TS-330)			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION ( <i>Quantity times Unit Price</i> )
3	13,307	Linear Feet		

DESCRIPTION:	<input type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ____ Woven Geotextile Fabric (TS-640)			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION ( <i>Quantity times Unit Price</i> )
4	1,310	Square Yard		

DESCRIPTION:	<input type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ____ Articulated Concrete Block Mat (TS-750)			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION ( <i>Quantity times Unit Price</i> )
5	655	Square Yard		

DESCRIPTION:	<input type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ____ PZC-26 Steel Sheet Piling Complete (TS-950)			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION ( <i>Quantity times Unit Price</i> )
6	3,763.8	Square Foot		

DESCRIPTION:	<input type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ____ PZC-13 Steel Sheet Piling Complete (TS-950)			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION ( <i>Quantity times Unit Price</i> )
7	5,613.2	Square Foot		

DESCRIPTION:	<input type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ____ Earthwork (TS-310)			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION ( <i>Quantity times Unit Price</i> )
8	500	Cubic Yard		

**Wording for "DESCRIPTION" is to be provided by the Owner.**

**All quantities are estimated. The contractor will be paid based upon actual quantities as verified by the Owner.**

DESCRIPTION:	<input type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ____ Existing Sheetpile Plug Removal (TS-960)			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION ( <i>Quantity times Unit Price</i> )
9	1	Lump Sum		

DESCRIPTION:	<input type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ____ Warning Signs (TS-970)			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION ( <i>Quantity times Unit Price</i> )
10	10	Each		

DESCRIPTION:	<input type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ____ Not Applicable			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION ( <i>Quantity times Unit Price</i> )
Not Applicable	Not Applicable	Not Applicable		

DESCRIPTION:	<input type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ____ Not Applicable			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION ( <i>Quantity times Unit Price</i> )
Not Applicable	Not Applicable	Not Applicable		

DESCRIPTION:	<input type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ____ Not Applicable			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION ( <i>Quantity times Unit Price</i> )
Not Applicable	Not Applicable	Not Applicable		

DESCRIPTION:	<input type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ____ Not Applicable			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION ( <i>Quantity times Unit Price</i> )
Not Applicable	Not Applicable	Not Applicable		

DESCRIPTION:	<input type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ____ Not Applicable			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION ( <i>Quantity times Unit Price</i> )
Not Applicable	Not Applicable	Not Applicable		

DESCRIPTION:	<input type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ____ Not Applicable			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION ( <i>Quantity times Unit Price</i> )
Not Applicable	Not Applicable	Not Applicable		

**Wording for “DESCRIPTION” is to be provided by the Owner.**

**All quantities are estimated. The contractor will be paid based upon actual quantities as verified by the Owner.**

## BID BOND

### FOR COASTAL PROTECTION AND RESTORATION AUTHORITY PROJECTS

Date: \_\_\_\_\_

KNOW ALL MEN BY THESE PRESENTS:

That \_\_\_\_\_ of \_\_\_\_\_, as Principal, and \_\_\_\_\_, as Surety, are held and firmly bound unto the State of Louisiana, Coastal Protection and Restoration Authority (Obligee), in the full and just sum of five (5%) percent of the total amount of this proposal, including all alternates, lawful money of the United States, for payment of which sum, well and truly be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally firmly by these presents.

Surety represents that it is listed on the current U. S. Department of the Treasury Financial Management Service list of approved bonding companies as approved for an amount equal to or greater than the amount for which it obligates itself in this instrument or that it is a Louisiana domiciled insurance company with at least an A - rating in the latest printing of the A. M. Best's Key Rating Guide. If surety qualifies by virtue of its Best's listing, the Bond amount may not exceed ten percent of policyholders' surplus as shown in the latest A. M. Best's Key Rating Guide.

Surety further represents that it is licensed to do business in the State of Louisiana and that this Bond is signed by surety's agent or attorney-in-fact. This Bid Bond is accompanied by appropriate power of attorney.

THE CONDITION OF THIS OBLIGATION IS SUCH that, whereas said Principal is herewith submitting its proposal to the Obligee on a Contract for:

\_\_\_\_\_  
NOW, THEREFORE, if the said Contract be awarded to the Principal and the Principal shall, within such time as may be specified, enter into the Contract in writing and give a good and sufficient bond to secure the performance of the terms and conditions of the Contract with surety acceptable to the Obligee, then this obligation shall be void; otherwise this obligation shall become due and payable.

\_\_\_\_\_  
PRINCIPAL (BIDDER)

\_\_\_\_\_  
SURETY

BY: \_\_\_\_\_  
AUTHORIZED OFFICER-OWNER-PARTNER

BY: \_\_\_\_\_  
AGENT OR ATTORNEY-IN-FACT(SEAL)

**LAKE MECHANT SHEET PILE PLUG NO. 2**  
**REPLACEMENT PROJECT**  
**Name of Project**

**TE-44**  
**Project No.**

**STATE OF LOUISIANA**

**PARISH OF TERREBONNE**

**ATTESTATIONS AFFIDAVIT**

**Before me**, the undersigned notary public, duly commissioned and qualified in and for the parish and state aforesaid, personally came and appeared Affiant, who after being duly sworn, attested as follows:

**LA. R.S. 38:2227 PAST CRIMINAL CONVICTIONS OF BIDDERS**

A. No sole proprietor or individual partner, incorporator, director, manager, officer, organizer, or member who has a minimum of a ten percent (10%) ownership in the bidding entity named below has been convicted of, or has entered a plea of guilty or nolo contendere to any of the following state crimes or equivalent federal crimes:

- |                                       |                                   |
|---------------------------------------|-----------------------------------|
| (a) Public bribery (R.S. 14:118)      | (c) Extortion (R.S. 14:66)        |
| (b) Corrupt influencing (R.S. 14:120) | (d) Money laundering (R.S. 14:23) |

B. Within the past five years from the project bid date, no sole proprietor or individual partner, incorporator, director, manager, officer, organizer, or member who has a minimum of a ten percent (10%) ownership in the bidding entity named below has been convicted of, or has entered a plea of guilty or nolo contendere to any of the following state crimes or equivalent federal crimes, during the solicitation or execution of a contract or bid awarded pursuant to the provisions of Chapter 10 of Title 38 of the Louisiana Revised Statutes:

- |   |  |
|---|--|
| (a) Theft (R.S. 14:67)                            | (f) Bank fraud (R.S. 14:71.1)                                |
| (b) Identity Theft (R.S. 14:67.16)                | (g) Forgery (R.S. 14:72)                                     |
| (c) Theft of a business record<br>(R.S. 14:67.20) | (h) Contractors; misapplication of<br>payments (R.S. 14:202) |
| (d) False accounting (R.S. 14:70)                 | (i) Malfeasance in office (R.S. 14:134)                      |
| (e) Issuing worthless checks<br>(R.S. 14:71)      |  |

**LA. R.S. 38:2212.10 Verification of Employees**

- A. At the time of bidding, Appearer is registered and participates in a status verification system to verify that all new employees in the state of Louisiana are legal citizens of the United States or are legal aliens.
- B. If awarded the contract, Appearer shall continue, during the term of the contract, to utilize a status verification system to verify the legal status of all new employees in the state of Louisiana.
- C. If awarded the contract, Appearer shall require all subcontractors to submit to it a sworn affidavit verifying compliance with Paragraphs (A) and (B) of this Subsection.

**LAKE MECHANT SHEETPILE PLUG NO. 2**  
**REPLACEMENT PROJECT**  
**Name of Project**

**BA-0213**  
**Project No.**

**LA. R.S. 23:1726(B) Certification Regarding Unpaid Workers Compensation Insurance**

- A. R.S. 23:1726 prohibits any entity against whom an assessment under Part X of Chapter 11 of Title 23 of the Louisiana Revised Statutes of 1950 (Alternative Collection Procedures & Assessments) is in effect, and whose right to appeal that assessment is exhausted, from submitting a bid or proposal for or obtaining any contract pursuant to Chapter 10 of Title 38 of the Louisiana Revised Statutes of 1950 and Chapters 16 and 17 of Title 39 of the Louisiana Revised Statutes of 1950.
- B. By signing this bid /proposal, Affiant certifies that no such assessment is in effect against the bidding / proposing entity.

\_\_\_\_\_  
**NAME OF BIDDER**

\_\_\_\_\_  
**NAME OF AUTHORIZED SIGNATORY OF BIDDER**

\_\_\_\_\_  
**DATE**

\_\_\_\_\_  
**TITLE OF AUTHORIZED SIGNATORY OF BIDDER**

\_\_\_\_\_  
**SIGNATURE OF AUTHORIZED  
SIGNATORY OF BIDDER/AFFIANT**

**Sworn to and subscribed** before me by Affiant on the \_\_\_\_ day of \_\_\_\_\_, 20\_\_ .

\_\_\_\_\_  
Notary Public

## FOR INFORMATION ONLY

This document will be prepared by the Coastal Protection and Restoration Authority in the form appropriate for the project.

### CONTRACT BETWEEN OWNER AND CONTRACTOR AND PERFORMANCE AND PAYMENT BOND

This agreement entered into this \_\_\_\_\_ day of \_\_\_\_\_, 2021, by (CONTRACTOR NAME) hereinafter called the "Contractor", whose business address is \_\_\_\_\_, and the State of Louisiana Coastal Protection and Restoration Authority, herein represented by its Executive Director executing this contract, and hereinafter called the "Owner".

Witnesseth that the Contractor and the Owner, in consideration of premises and the mutual covenants; consideration and agreement herein contained, agree as follows:

Statement of Work: The Contractor shall furnish all labor and materials and perform all of the work required to build, construct and complete in a thorough and workmanlike manner:

Project No.: TE-44

Project Name: Lake Mechant Sheetpile Plug No. 2 Replacement Project

in strict accordance with Contract Documents prepared by Owner.

It is recognized by the parties herein that said Contract Documents, including by way of example and not of limitation, the Plans, Specifications (including General Provisions, Special Provisions, and Technical Specifications), Any Addenda thereto, Instructions To Bidders, this Contract, Advertisement For Bids, Affidavit, Bid Form, Bonds (Bid, Performance, and Payment), any Submitted Post-Bid Documentation, Notice of Award, Notice to Proceed, Change Orders, and Claims, if any, impose duties and obligations upon the parties herein, and said parties thereby agree that they shall be bound by said duties and obligations. For these purposes, all of the provisions contained in the aforementioned Contract Documents are incorporated herein by reference with the same force and effect as though said Contract Documents were herein set out in full.

Time for Completion: The work shall be commenced on a date to be specified in a written order of the Owner and shall be completed within 200 consecutive calendar days from and after the said date.

Liquidated Damages: Contractor shall be assessed Liquidated Damages in the amount of \$2,450.00 per day for each consecutive calendar day which work is not complete beginning with the first day beyond the completion time.

Compensation to be paid to the Contractor: The Owner will pay and the Contractor will accept in full consideration for the performance of the Contract the sum of \_\_\_\_\_ Dollars (\$) which sum represents the Contract Price.

Performance and Payment Bond: To these presents personally came and intervened

\_\_\_\_\_, herein acting for \_\_\_\_\_, a corporation organized and existing under the laws of the State of \_\_\_\_\_, and duly authorized to transact business in the State of Louisiana, as surety, who declared that having taken cognizance of this Contract and of the Construction Documents mentioned herein, he hereby in his capacity as its Attorney in Fact obligates his said company, as Surety for the said Contractor, unto the said Owner, up to the sum of \_\_\_\_\_ **Dollars (\$)**. By issuance of this bond, the surety acknowledges they are in compliance with R.S. 38:2219.

The condition of this performance and payment bond shall be that should the Contractor herein not perform the Contract in accordance with the terms and conditions hereof, or should said Contractor not fully indemnify and save harmless the Owner, from all cost and damages which he may suffer by said Contractor's non-performance or should said Contractor not pay all persons who have and fulfill obligations to perform labor and/or furnish materials in the prosecution of the work provided for herein, including by way of example workmen, laborers, mechanics, and furnishers of materials, machinery, equipment and fixtures, then said Surety agrees and is bound to so perform the Contract and make said payment(s).

Provided, that any alterations which may be made in the terms of the Contract or in the work to be done under it, or the giving by the Owner of any extensions of time for the performance of the Contract, or any other forbearance on the part of either the Owner or the Contractor to the other shall not in any way release the Contractor or the Surety from their liability hereunder, notice to the Surety of any such alterations, extensions or other forbearance being hereby waived.

The Contractor agrees to abide by the requirements of the following as applicable: Title VI of the Civil Rights Act of 1964 and Title VII of the Civil Rights Act of 1964, as amended by the Equal Opportunity Act of 1972, Federal Executive Order 11246 as amended, the Federal Rehabilitation Act of 1973, as amended, the Vietnam Era Veteran's Readjustment Assistance Act of 1974, Title IX of the Education Amendments of 1972, the Age Discrimination Act of 1975, the Fair Housing Act of 1968 as amended, and Contractor agrees to abide by the requirements of the Americans with Disabilities Act of 1990.

Contractor agrees not to discriminate in its employment practices, and will render services under this Contract without regard to race, color, religion, sex, sexual orientation, national origin, veteran status, political affiliation, disability, or age in any matter relating to employment. Any act of discrimination committed by Contractor, or failure to comply with these statutory obligations when applicable shall be grounds for termination of this Contract.

In Witness whereof, the parties hereto on the day and year first above written have executed this agreement in seven (7) counterparts, each of which shall, without proof or accountancy for the other counterparts, be deemed an original thereof.

**WITNESSES:**

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**STATE OF LOUISIANA  
COASTAL PROTECTION AND  
RESTORATION AUTHORITY**

BY: \_\_\_\_\_  
Lawrence B. Haase, Executive Director

BY: \_\_\_\_\_

SURETY: \_\_\_\_\_

BY: \_\_\_\_\_  
ATTORNEY IN FACT

\_\_\_\_\_

\_\_\_\_\_  
ADDRESS

\_\_\_\_\_  
TELEPHONE NUMBER



STATE OF LOUISIANA  
PARISH OF Jefferson

PROJECT NO. TE-44

NAME: Lake Mechant Sheetpile Plug No. 2 Replacement Project

LOCATION: Terrebonne Parish

### **A F F I D A V I T**

Before me, the undersigned authority, duly commissioned and qualified within and for the State and Parish aforesaid, personally came and appeared \_\_\_\_\_ representing who, being by me first duly sworn deposed and said that he has read this affidavit and does hereby agree under oath to comply with all provisions herein as follows:

#### **PART I.**

Section 2224 of Part II of Chapter 10 of Title 38 of the Louisiana Revised Statutes, as amended.

(1) That affiant employed no person, corporation, firm, association, or other organization, either directly or indirectly, to secure the public contract under which he received payment, other than persons regularly employed by the affiant whose services in connection with the construction, alteration or demolition of the public building or project or in securing the public contract were in the regular course of their duties for affiant; and

(2) That no part of the Contract price received by affiant was paid or will be paid to any person, corporation, firm, association, or other organization for soliciting the Contract, other than the payment of their normal compensation to persons regularly employed by the affiant whose services in connection with the construction, alteration or demolition of the public building or project were in the regular course of their duties for affiant.

#### **PART II.**

Section 2190 of Part I of Chapter 10 of Title 38 of the Louisiana Revised Statutes, as amended.

That affiant, if an architect or engineer, or representative thereof, does not own a substantial financial interest, either directly or indirectly, in any corporation, firm, partnership, or other organization which supplies materials for the construction of a public work when the architect or engineer has performed architectural or engineering services, either directly or indirectly, in connection with the public work for which the materials are being supplied.

For the purposes of this Section, a "substantial financial interest" shall exclude any interest in stock being traded on the American Stock Exchange or the New York Stock Exchange.

That affiant, if subject to the provisions of this section, does hereby agree to be subject to the penalties involved for the violation of this section.

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AFFIANT

SWORN TO AND SUBSCRIBED BEFORE ME THIS \_\_\_\_\_ DAY OF \_\_\_\_\_, 2021.

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NOTARY

**PART I      GENERAL PROVISIONS**

**GP-1    DEFINITION OF TERMS**

Whenever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to the singular or plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs and the titles of other documents or forms.

Unless stated otherwise in the Contract Documents, words or phrases which have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

- a.    Acceptance: A written approval from the Engineer which certifies that specific items of work in the Contract have been completed and/or obligations have been fulfilled by the Contractor.
- b.    Addenda: Those written or graphic documents which are issued prior to opening of Bids in accordance with the Bidding Requirements and clarify or change the bidding requirements or the proposed Contract Documents.
- c.    Application of Payment: That form which is used by the Contractor to request partial and final payment and is deemed acceptable to the Owner. It shall be accompanied by any supporting documentation required by the Contract Documents.
- d.    A.S.T.M.: American Society for Testing and Materials.
- e.    Bid: An offer or proposal submitted on the prescribed form setting forth the prices for the Work.
- f.    Bidder: The person, association of persons, firm, or corporation submitting a proposal for the Work.
- g.    Bidding Requirements: The Advertisement for Bids, Instructions to Bidders, Form of Bid Security, if any, and Bid Form with any supplements.
- h.    Change Order: A written order which is submitted to the Contractor, signed by the Owner, and authorizes an addition, deletion, or revision in the Work, or an adjustment in the contract price or the contract time issued after the effective date of the Contract.
- i.    Claim: A written demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both or other relief with respect to the terms of the Contract.
- j.    Contract: The written agreement between the Owner and the Contractor which defines the work to be completed and shall be understood to also include all Contract Documents.
- k.    Contract Documents: The Contract, all addenda which pertains to the Contract Documents, Bid Documents and specified Attachments accompanying the Bid and any

post-bid documentation submitted prior to the Notice of Award, Contractor's Bid when attached as an exhibit to the Agreement, the Bonds (Bid and Performance/Payment), General Provisions, Special Provisions, Technical Specifications, Plans, and all Field or Change Orders issued after the execution of the Agreement. Shop Drawings and other submittals by the Contractor are not Contract Documents.

- l. Contract Price: The moneys payable by the Owner to the Contractor for the Work in accordance with the Contract Documents as stated in the Contract.
- m. Contract Time: The number of calendar days specified in the Contract for completion of the Work, together with any extensions authorized through change orders.
- n. Contractor: The person, association of persons, firm, or corporation entering into the duly awarded Contract.
- o. Contracting Agency: The State of Louisiana, Coastal Protection and Restoration Authority (CPRA).
- p. Day: When any period of time is referred to in the Contract Documents using days, it will be computed to exclude the first day and include the last day of such period. If the last day of any such period falls on a Saturday, Sunday, or a legal holiday, that day will be omitted from the computation. A calendar day is measured as twenty-four (24) hour period starting at midnight and ending the following midnight.
- q. Design Report: A written report by the Engineer which provides the design methodology for the Work.
- r. Effective Date of the Contract: The date indicated in the Contract on which it becomes effective.
- s. Engineer: The State of Louisiana, Coastal Protection and Restoration Authority, or its designee.
- t. Equipment: All machinery, implements, and power-tools, in conjunction with the necessary supplies for the operation, upkeep, maintenance, and all other tools and apparatuses necessary for the proper construction and acceptable completion of the Work.
- u. Extension of Contract: Any extension of time for completion of Work beyond the Contract Time which is granted by the Owner, recommended by the Engineer and approved by the Coastal Protection and Restoration Authority in the form of a Change Order.
- v. Federal Sponsor: The federal agency which has been tasked, if applicable, to manage the implementation of the project.
- w. Field Order: A written order issued by the Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or Contract Time.
- x. Laboratory: The firm, company, or corporation which is used to test materials and is approved for use by the Engineer.

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- y. Laws and Regulations; Laws or Regulations: Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
- z. Materials: Any substance used in the Work to build structures, but does not include material used in false work or other temporary structures not incorporated in the Work.
- aa. Milestone: A principal event specified in the Contract Documents relating to an intermediated completion date or time prior to the Contract Times.
- bb. Notice of Award: A written notice to the successful Bidder stating that the Bid has been accepted by the Owner and that the successful Bidder is required to execute the Contract and furnish the Payment and Performance Bond and Non-Collusion Affidavit.
- cc. Notice to Proceed: The written notice to the Contractor by the Owner which provides the starting date for the Contract Time.
- dd. Owner: The Owner is the State of Louisiana (State) which acts through the Contracting Agency.
- ee. Performance and Payment Bond: The approved form of security furnished by the Contractor and Surety for the faithful performance of the Work, and the payment for all labor, materials, and/or obligations incurred by the Contractor in the prosecution thereof.
- ff. Plans: That part of the Contract Documents prepared or approved by the Engineer which graphically shows the scope, intent, and character of the Work to be completed by the Contractor.
- gg. Project Site: The location where the Work is to be performed as stated in the Contract Documents.
- hh. Resident Project Representative: An authorized representative of the Engineer who is responsible to inspect the Work and materials furnished by the Contractor.
- ii. Right-of-way: That entire area reserved for constructing, maintaining, and protecting the proposed improvement, structures, and appurtenances of the Work.
- jj. Samples: Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portions of the Work will be judged.
- kk. Shop Drawings: All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for the Contractor and submitted by the Contractor to illustrate some portion of the Work to be performed.
- ll. Specifications: That part of the Contract Documents consisting of written technical descriptions of materials, equipment, systems, standards, and workmanship as applied to the work to be performed and certain administrative details applicable thereto.
- mm. State: The State of Louisiana.

- nn. Structures: Bridges, plugs, weirs, bulkheads, berms, dams, levees, and other miscellaneous construction encountered during the Work and not otherwise classified herein.
- oo. Subcontractor: Any person, association of persons, firm, or corporation who contracts with the Contractor to perform any part of the project covered by the Contract.
- pp. Submittals: Certificates, samples, shop drawings, and all other project data which are submitted to the Engineer in order to verify that the correct products will be installed on the project.
- qq. Successful Bidder: The lowest responsive and responsible Bidder whom the Owner makes an award.
- rr. Special Provisions: That part of the Contract Documents which amends or supplements these General Provisions.
- ss. Surety: The corporate body, licensed to do business in Louisiana, bound with and for the Contractor's primary liability, and engages to be responsible for payment of all obligations pertaining to acceptable performance of the Work contracted.
- tt. Temporary Structures: Any non-permanent structure required while engaged in the prosecution of the Contract.
- uu. Work: All work specified herein or indicated on the Plans.
- vv. Work Plan: A written plan by the Contractor that details how the Work will be provided including layout drawings, projected schedule (Initial Progress Schedule), and a list of labor hours, materials, and equipment.

## GP-2 BID REQUIREMENTS

The Contract and Bonds which govern the Work shall be performed in accordance with the Plans, Specifications, and the Louisiana Standard Specifications for Roads and Bridges, 2016 edition. The Bidder understands that all quantities for performing the Work have been estimated by the Engineer, and that the Bid shall be the sum of the quantities multiplied by their respective unit rates. The Contract shall be awarded by the Owner through a comparison of all bids. It is the responsibility of each Bidder before submitting a Bid to:

- 2.1. Examine the Bidding Documents including the Plans and Specifications and any Addenda or related data identified in the Bidding Documents;
- 2.2. Visit the Project Site to become familiar with the local conditions if they are believed to affect cost, progress, or the completion of the Work;
- 2.3. Become familiar and satisfied with all federal, state, and local Laws and Regulations that may affect cost, progress, or the completion of the Work;
- 2.4. Study and correlate all information known to the Bidder including observations obtained from Bidder's visits, if any, to the Project Site, with the Bidding Documents;

- 2.5. Submit a written notice to the Engineer within three (3) days regarding any conflicts, errors, ambiguities, or discrepancies discovered in the Bidding Documents and confirm that the written resolution thereof by the Engineer is acceptable to the Bidder; and
- 2.6. Determine that the Bidding Documents are generally sufficient to convey an understanding of all terms and conditions for completing the required Work.

The submission of a Bid will constitute an incontrovertible representation that the Bidder has complied with every requirement of these Specifications. The Bidder shall comply with all other requirements specified in the Advertisement For Bids and the Instruction To Bidders.

### GP-3 AVAILABILITY OF PLANS AND SPECIFICATIONS

One (1) set of Plans and Specifications shall be furnished to each Bidder. Three (3) sets of the Plans and Specifications shall be furnished to the Contractor upon award of the Contract. Additional sets may be furnished to the Contractor upon request from the Coastal Protection and Restoration Authority, 150 Terrace Avenue, Suite 100, Baton Rouge, Louisiana 70802.

### GP-4 LAWS, REGULATIONS, STANDARDS, SPECIFICATIONS, AND CODES

Bidders are required to become familiar and remain in compliance with all Federal, State, and local laws, ordinances, and regulations and all orders and decrees of bodies or tribunals having any jurisdiction or authority which may affect those employed for the execution of the Work or which may affect the conduct of the Work. The Contractor shall indemnify the Owner and its representatives against any claim or liability arising from all violations of any laws, bylaws, ordinances, codes, regulations, orders, or decrees, whether by the Contractor or by the Contractor's employees. The filing of a bid will be presumptive evidence that the Bidder has complied with this requirement. The Owner will not be responsible for any inaccurate interpretations or conclusions drawn by the Contractor from information and documentation provided by the Owner.

References to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws and Regulations, whether such reference be specific or by implication, may not be in effect at the time of opening the Bids (or on the Effective Date of the Contract if there were no Bids), except as may be otherwise specifically stated in the Contract Documents. No provision of any such standard, specification, manual, or code, or any instruction of a supplier shall be effective to change the duties or responsibilities of the Owner or Engineer, or any of their Subcontractors, consultants, agents, or employees from those set forth in the Bid Documents. No such provision shall be effective to assign to the Owner or Engineer, or any of their consultants, agents, or employees any duty or authority to supervise or direct the performance of the Contractor's obligations or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

The obligations imposed by these specifications are in addition to and are not to be construed in any way as a limitation of any rights available to the Engineer or Owner which are otherwise imposed by any laws or regulations or other provisions within the Contract Documents.

The Contractor shall abide by laws set forth in the Davis-Bacon Act of 1931 which states that all laborers and mechanics employed by recipients, the recipient's contractors, or subcontractors on

this project shall be paid wages at rates no less than those prevailing on projects of a character similar in the locality as determined by the Secretary of Labor in accordance with Subchapter IV of Chapter 31 of Title 40 United States Code. Additionally, with respect to the labor standards specified in this section, the Secretary of Labor shall have the authority and functions set forth in Reorganization Plan Number 14 of 1950 (64 Stat. 1267; 5 U.S.C. App.) and The Copeland Act of Title 40 (40 U.S.C. § 3145). Prevailing Wage Determination Schedules, as determined by the United States Department of Labor, are provided in the Appendix. Prevailing Wage Determination Schedules are subject to modification by the United States Department of Labor. The Contractor is responsible for utilizing the most current Prevailing Wage Determination Schedule. These documents can be downloaded from the following link: <http://www.wdol.gov/dba.aspx#3>. Modifications to Prevailing Wage Determination Schedules shall be effective if received (or posted) no less than 10 days prior to bid opening.

#### GP-5 PRE-BID CONFERENCE AND SITE VISIT

A Pre-Bid Conference and/or Job Site Visit may be held at the location and on the date provided in the Advertisement For Bids. If the Pre-Bid Conference and/or Job Site Visit is stated in the Advertisement for Bids to be a MANDATORY Pre-Bid Conference and/or MANDATORY Job Site Visit, bids shall be accepted only from those bidders who attend the Pre-Bid Conference and/or Job Site Visit in its entirety. Failure to attend a mandatory Pre-Bid Conference and/or mandatory Job Site Visit in its entirety will result in a null or void Bid.

All questions shall be in writing and faxed or emailed to the Coastal Protection and Restoration Authority contact person listed in the Advertisement For Bids after the Pre-Bid Conference and by the due date announced at the Pre-Bid conference. In order to ensure adequate response time, all questions and/or requests for clarification or interpretation of the Bid Documents should be received by the Coastal Protection and Restoration Authority at least seven days prior to the date for receipt of bids. Oral statements will not be binding or legally effective. The Coastal Protection and Restoration Authority will issue addenda in response to all questions arising at the Pre-Bid Conference and site visit to all prospective Bidders on record. All prospective Bidders on record may contact the Coastal Protection and Restoration Authority contact person for any additional information.

#### GP-6 NOTICE OF AWARD

The Owner, or its designated bidding agent, shall provide written notice to the Successful Bidder stating that the Owner will sign and deliver the Contract upon compliance with the conditions enumerated therein and within the time specified.

#### GP-7 NOTICE TO PROCEED AND CONTRACT TIME

The Contractor shall start the Work and begin the Contract Time on the dates provided in the Notice to Proceed. The Work shall be conducted using sufficient labor, materials, and equipment as necessary to ensure completion within the Contract Time. The Contract Time for completion of the Base Bid for the Work is provided in the Instructions To Bidders, unless an extension is granted to the Contract Time as specified in GP-44. If the Bid contains an Alternate Bid(s), and the Alternate Bid(s) is awarded and included in the Contract, the Contract Time associated with the Alternate Bid(s) will be as provided in the Instructions To Bidders.



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Unless otherwise noted in the Contract Documents, Contract Time will be on a calendar day basis. Contract Time shall consist of the number of calendar days stated in the Instructions To Bidders and the Contract beginning with the date noted in the written Notice to Proceed, including Saturdays, Sundays, holidays and non-work days.

The following table defines the monthly anticipated adverse weather days that are expected to occur during the Contract Time and will constitute the baseline monthly weather time for evaluations. The schedule is based upon National Oceanic and Atmospheric Administration (NOAA) or similar data for the regional geographic area.

Monthly Anticipated Adverse Weather Calendar Days											
Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
5	5	4	4	4	5	7	7	5	3	3	4

Adverse weather days must prevent Work for fifty percent (50%) or more of the work day and delay work critical to the timely completion of the project. The number of actual adverse weather days shall be calculated chronologically from the first to the last day of each month.

If adverse weather conditions are the basis for a claim for additional time, the Contractor shall document that weather conditions had an adverse effect on the scheduled construction. An increase in Contract Time due to weather due to weather shall not be cause for an increase in the contract sum.

#### GP-8 WORK PLAN

The Contractor shall develop a written Work Plan which accounts for all of the construction activities required by the Contract Documents. The Work Plan shall include a list of the individual construction tasks to be completed and the estimated dates for beginning and completing the tasks. It shall also include all other items which are applicable to completing the Work such as, but not limited to, the following:

- a. Typical report form for the Bi-Weekly Progress Meeting;
- b. Typical form for Daily Progress Report;
- c. Hurricane and Severe Storm Plan;
- d. Site-specific Health and Safety Plan;
- e. The delivery method and source(s) of all construction materials (company or producer name, mailing and physical address, phone number, and name of contact person).
- f. The personnel, material, subcontractors, fabricators, suppliers, types of equipment, and equipment staging areas the Contractor proposes to use for construction;
- g. Shop drawings, test results, and sample submittals;
- h. Survey layout and stakeout;

- i. All supplemental items specified in the Special Provisions.  
The Work Plan shall be submitted to the Engineer prior to the Pre-Construction Conference by the date provided in the Special Provisions. The Engineer shall review the Work Plan and have the Contractor make any necessary revisions prior to acceptance of the plan. **No payment for mobilization will be made until the Work Plan has been accepted by the Engineer.**

#### GP-9 PROGRESS SCHEDULE

The Contractor shall develop a written Progress Schedule which provides for an orderly progression of the Work, submittals, tests, and deliveries in order to complete the Work within the specified Milestones and Contract Time. All of the items listed in the Work Plan shall be integrated into the Progress Schedule. The format of the schedule shall be composed using Microsoft Project®, or any other software deemed acceptable by the Engineer. It shall be updated weekly by the Contractor, at a minimum. The Progress Schedule shall also include, but not be limited to the following:

- a. All of the elements in the Work Plan, including updates;
- b. A work order issued from Louisiana One Call ordering all their subscribers in the project area to mark their utilities;
- c. A telephone log verifying that all property owners and utilities have been contacted. This log should list the time, date, and names of the personnel representing the property owners, utilities, and Contractor;

The Progress schedule must reflect the anticipated adverse weather delays described in GP-7 on all weather dependent activities.

The Progress Schedule shall be submitted to the Engineer prior to the Pre-Construction Conference by the date provided in the Special Provisions. The Engineer shall perform a review and have the Contractor make any necessary revisions prior to acceptance of the schedule. Acceptance will not impose responsibility on the Owner or Engineer for the sequencing, scheduling, or progression of the Work. The Contractor is fully responsible for progression of the Work in order to maintain compliance with the Progress Schedule and Contract Time.

#### GP-10 DAILY PROGRESS REPORTS

The Contractor shall record the following daily information on Daily Progress Reports:

- a. Date and signature of the author of the report;
- b. Dollar amount of all bid items that are fabricated, installed, backfilled, pumped, constructed, damaged, replaced, etc. The amount of material shall be expressed in the units stated in the bid;
- c. Field notes of all surveys;
- d. Notes on all inspections;

- e. Details of Health and Safety meetings;
- f. A brief description of any Change Orders, Field Orders, Claims, Clarifications, or Amendments;
- g. Condition of all navigation aids (i.e., warning signs, lighted marker buoys) and any repairs performed on them;
- h. Weather conditions (adverse weather day, wind speed and direction, temperature, wave height, precipitation, etc.);
- i. The amount of time lost to severe weather or personnel injury, etc;
- j. Notes regarding compliance with the Progress Schedule;
- k. Visitor log (Instructions for format will be furnished by the Field Engineer).

The daily progress reports shall be submitted to the Engineer at the Bi-Weekly Progress Meetings specified in GP-13 in both hard copy and digital format (Adobe Acrobat® Format, or approved equal). The typical form for Daily Progress Reports shall be developed by the Contractor and incorporated into the Work Plan.

#### GP-11 HURRICANE AND SEVERE STORM PLAN

The Contractor shall develop and maintain a written Hurricane and Severe Storm Plan. The Plan shall include, but not be limited to, the following:

- a. What type of actions will be taken before storm strikes at the Project Site. The plan should specify what weather conditions or wave heights will require shutdown of the Work and removal of equipment, personnel, etc.
- b. Notes from continuous monitoring of NOAA marine weather broadcasts and other local commercial weather forecasts.
- c. Equipment list with details on their ability to handle adverse weather and wave conditions.
- d. List of safe harbors or ports and the distance and travel time required to transfer equipment from the Project Site.
- e. Hard copies of any written approvals or operations schedules associated with the use of the safe harbors or ports.
- f. Method of securing equipment at the safe harbors or ports.
- g. List of tug boats and work boats and their respective length, horsepower, etc. which will adequately transfer the equipment to safe harbor or port under adverse weather conditions.
- h. Methods which will be used to secure equipment left onsite during adverse weather conditions.

- i. Evacuation or immediate reaction plans to be taken by personnel for sudden storm occurrences.
- j. Operations procedures which will be used to secure critical dredging equipment such as spuds, swing wires, anchor wires, or tugs during adverse weather conditions.
- k. Communications protocol with local law enforcement and fire and rescue agencies.

The Contractor shall incorporate the Hurricane and Severe Storm Plan into the Work Plan. The Owner and Engineer are not responsible for the adequacy of this plan.

#### GP-12 HEALTH AND SAFETY PLAN AND INSPECTIONS

The Contractor shall develop and maintain a written Health and Safety Plan which allows the Work to be performed in compliance with all applicable laws, ordinances, rules, and regulations of any government agency having jurisdiction over the safety of personnel or property. This includes maintaining compliance with the Code of Federal Regulations, Title 29, Occupational Safety and Health Administration (OSHA) and all applicable Health and Safety Provisions of the State of Louisiana.

The Contractor shall institute a daily inspection program to assure that the requirements of the Health and Safety Plan are being fulfilled. Inspections shall include the nature of deficiencies observed, corrective action taken or to be taken, location of inspection, date, and signature of the person responsible for its contents. The results of the inspections shall be recorded on Daily Progress Reports and kept at the Project Site during the Work.

The Contractor shall incorporate the Health and Safety Plan into the Work Plan. The Owner and Engineer are not responsible for the adequacy of this plan.

#### GP-13 PROGRESS MEETINGS AND REPORTS

The Engineer shall schedule meetings to review the progress of the Work, coordinate future efforts, discuss compliance with the Progress Schedule and resolve miscellaneous problems. The Engineer or Resident Project Representative, Contractor, and all Subcontractors actively working at the Project Site shall attend each meeting. Representatives of suppliers, manufacturers, and other Subcontractors may also attend at the discretion of the Contractor. The Contractor shall record the details of each meeting in a Progress Report. The format of this report shall be developed by the Contractor, approved by the Engineer, and included in the Work Plan. The progress meetings and reports shall be scheduled according to the Special Provisions.

#### GP-14 PRE-CONSTRUCTION CONFERENCE

A Pre-Construction Conference shall be held by the Contractor, Owner, Engineer, local stakeholders, and other appropriate personnel prior to starting construction on the date specified in the Special Provisions. This conference shall serve to establish a mutual understanding of the Work to be performed, the elements of the Progress Schedule and Work Plan, expectations for bi-weekly progress meetings, the Plans and Specifications, processing Applications for Payment,

and any other items of concern. If any subcontractors are not present, another pre-construction conference will be required.

#### GP-15 CONTRACT INTENT

The Bid Documents are complementary; what is called for by one is as binding as if called for by all. Clarifications and interpretations or notifications of minor variations and deviations of the Contract Documents will be issued by Engineer as provided in these Specifications. Any labor, documentation, services, materials, or equipment that may reasonably be inferred from the Bid Documents or from prevailing custom or trade usage as being required to produce the intended result will be provided at no additional cost to the Owner.

#### GP-16 ENGINEER AND AUTHORITY OF ENGINEER

The Engineer will be the designated representative of the Owner, the initial interpreter of the Contract Documents and the judge over acceptability of all the Work. Claims, disputes, and other matters relating to the acceptability of the Work, performance by the Contractor or the interpretation of the requirements of the Contract Documents must be submitted to the Engineer in writing. Upon written request from the Contractor, the Engineer shall issue written clarifications or interpretations which are consistent with the overall intent of the Contract Documents. Such written clarifications and interpretations will be binding on the Owner and the Contractor. Either the Owner or the Contractor may make a Claim if a written clarification or interpretation justifies an adjustment in the Contract Price or Contract Times.

The Engineer has the authority to suspend the Work in whole or in part due to failure of the Contractor to correct conditions unsafe for workmen or the general public, carry out provisions of the Contract, perform conformance work, or to carry out orders. The Engineer shall submit a written order to the Contractor for work which must be suspended or resumed. Nothing in this provision shall be construed as establishing responsibility on the part of the Engineer for safety which is the responsibility of the Contractor.

The Engineer or Resident Project Representative shall keep a daily record of weather and flood conditions and may suspend the Work as deemed necessary due to periods of unsuitable weather, conditions considered unsuitable for execution of the Work, or for any other condition or reason deemed to be in the public interest.

#### GP-17 CONFORMITY WITH PLANS AND SPECIFICATIONS

All work and materials involved with the Work shall conform with the lines, grades, cross sections, dimensions, and other requirements shown on the Plans or indicated in these Specifications unless otherwise approved by the Engineer.

#### GP-18 CLARIFICATIONS AND AMENDMENTS TO CONTRACT DOCUMENTS

The Contract Documents may be clarified or amended by the Engineer to account for additions, deletions, and revisions to the Work after the Effective Date of the Contract. The clarifications and amendments shall be addressed by either a Change Order or a written clarification by the Engineer. The Contractor shall not proceed with the Work until the Change Order or clarification

has been issued by the Engineer. The Contractor shall not be liable to the Owner or Engineer for failure to report any such discrepancy unless the Contractor had reasonable knowledge.

The Contractor may request a clarification or amendment for the following:

- a. Any conflict, error, ambiguity, or discrepancy within the Contract Documents; or
- b. Any conflict, error, ambiguity, or discrepancy between the Bid Documents and the provision of any Law or Regulation applicable to the performance of the Bid; or
- c. Any standard, specification, manual, or code (whether or not specifically incorporated by reference in the Bid Documents); or
- d. Instructions by a supplier.

The official form for a written clarification is provided in the appendices of the Contract Documents. This form shall be filled out appropriately by the Contractor and submitted to the Engineer. The Engineer shall clarify the issue in writing on either the clarification form, Field Order or a Change Order and submit it to the Contractor.

#### GP-19 SUBCONTRACTS

The Contractor shall provide the names of all Subcontractors to the Engineer in writing before awarding any Subcontracts. The Contractor shall be responsible for the coordination of the trades and Subcontractors engaged in the Work. The Contractor is fully responsible to the Owner for the acts and omissions of all the Subcontractors. The Owner and Engineer will not settle any differences between the Contractor and Subcontractors or between Subcontractors. The Contractor shall have appropriate provisions in all Subcontracts to bind Subcontractors to the Contractor by the terms of the General Provisions and other Contract Documents, as applicable to the Work of Subcontractors. The provisions should provide the Contractor the same power regarding termination of Subcontracts that the Owner may exercise over the Contractor under any provisions of the Contract Documents.

#### GP-20 WORKERS, METHODS, AND EQUIPMENT

The Contractor shall provide competent, qualified, and trained personnel to perform the Work. The Contractor shall not employ any person found objectionable by the Engineer. Any person employed by the Contractor or any Subcontractor who, in the opinion of the Engineer, does not perform the Work in a proper, skillful, and orderly manner shall be immediately removed upon receiving a written order by the Engineer. The Engineer may also suspend the Work until the Contractor removes the employee or provides a suitable replacement. Such an employee shall not be re-employed in any portion of the Work without written approval from the Engineer.

The on-site superintendent for the Contractor shall be competent, English-speaking, and qualified to receive orders, supervise, and coordinate all Work for the Contractor and any Subcontractors. The qualifications of the superintendent must be established and approved by the Engineer prior to commencement of the Work. The superintendent shall be furnished by the Contractor regardless of how much Work may be sublet. In the performance of the Work under this

Contract, the Contractor shall conduct operations to avoid interference with any other Contractors.

All equipment, products, and material incorporated into the Work shall be as specified, or if not specified, shall be new, of good quality, and protected, assembled, used, connected, applied, cleaned, and conditioned in accordance with the manufacturer's instructions, except as otherwise may be provided in the Bid Documents. All equipment shall be of sufficient size and mechanical condition to meet the requirements of the Work and produce a satisfactory quality of work. Equipment shall not damage adjacent property throughout the performance of the Work. The Plant and Equipment Schedule should be completed by the Contractor.

The Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures used to complete the Work in conformance with the Contract Documents.

The Contractor shall obtain permission from the Engineer if a method or type of equipment other than specified in the Contract is desired. The request shall be in writing and shall include a full description of the methods, equipment proposed, and reasons for the modification. A proposed item of material or equipment may be considered by the Engineer to be functionally equal to an item specified in the Contract if:

- a. It is at least equal in quality, durability, appearance, strength, and design characteristics;
- b. There is no increase in any cost including capital, installation, or operating to the Owner;
- c. The proposed item will conform substantially, even with deviations, to the detailed requirements of the item named in the Bid Documents.

If, after trial use of the substituted methods or equipment, the Engineer determines that the Work produced does not meet Contract requirements, the Contractor shall discontinue use of the substituted methods or equipment and shall complete the Work with the specified methods and equipment. The Contractor shall remove the deficient Work and replace it with Work of specified quality or take other corrective action as directed. No change will be made in basis of payment for construction items involved or in Contract Time as a result of authorizing a change in methods or equipment.

#### GP-21 ACCIDENT PREVENTION, INVESTIGATIONS, AND REPORTING

The Contractor shall be responsible to develop and maintain all safeguards and safety precautions necessary to prevent damage, injury, or loss throughout the performance of the Work. All accidents at the Project Site shall be investigated by the immediate supervisor of employee(s) involved and reported to the Engineer or Resident Project Representative within one (1) working day. A complete and accurate written report of the accident including estimated lost time days shall be submitted to the Engineer within four (4) calendar days. A follow-up report shall be submitted to the Engineer if the estimated lost time days differ from the actual lost time days.

#### GP-22 PRESERVATION AND RESTORATION OF PROPERTY, MONUMENTS, ETC.

The Contractor shall comply with all applicable laws, ordinances, rules, and regulations of any government agency having jurisdiction over the preservation and protection of public and private

property. The Contractor shall install and maintain suitable safeguards and safety precautions during the Work as necessary to prevent damage, injury, or loss to property. This responsibility shall remain with the Contractor until the Work has been completed and accepted. Any damage, injury, or loss to property which is caused by the Contractor or Subcontractors shall be repaired or replaced at the expense of the Contractor.

The Contractor shall protect all land monuments, State and United States bench marks, geodetic and geological survey monuments, and property markers from disturbance or damage until an authorized agent has witnessed or otherwise referenced their location. The Contractor shall also provide protection for all public and private property including trees, utilities, pipes, conduits, structures, etc. These items shall not be removed unless directed by the Engineer.

The Contractor shall be responsible to completely repair all damages to public or private property due to any act, omission, neglect, or misconduct in the execution of the Work unless it is due to unforeseeable causes beyond the control of and without the fault or negligence of the Contractor, including but not restricted to acts of God, public enemies, or governmental authorities. The damage must be repaired at the expense of the Contractor before final acceptance of the Work can be granted by the Engineer. If the Contractor fails to repair the damage within forty-eight (48) hours, the Owner may independently proceed with the repairs at the expense of the Contractor by deducting the cost from the Contract. If the Contractor cannot provide for the cost of repairs, the Surety of the Contractor shall be held until all damages, suits, or claims have been settled.

#### GP-23 PROTECTION OF THE WORK, MATERIALS, AND EQUIPMENT

It shall be the responsibility of the Contractor to protect the Work, materials, and equipment from damages or delays due to inflows, tidal rise, and storm water runoff which may occur at the Project Site. The Owner shall not be held liable or responsible for these types of delays or damages.

#### GP-24 LAND RIGHTS

The Owner has been granted all of the temporary easements, servitudes, and right-of-way agreements from public and private landowners in order to perform the Work. A land rights memorandum which lists all known responsible contacts and required stipulations is provided in the appendices of the Contract Documents. The Contractor is responsible to notify all of the contacts and abide by stipulations listed in that memorandum.

#### GP-25 UTILITIES

The Owner has been granted all of the temporary easements, servitudes, and right-of-way agreements from known public and private utilities in order to perform the Work. The utilities include, but are not limited to telephone, telegraph, power poles or lines, water or fire hydrants, water or gas mains and pipelines, sewers, conduits, and other accessories or appurtenances of a similar nature which are fixed or controlled by a city, public utility company or corporation.

The Contractor shall conduct the Work in such a manner as to cooperate and minimize inconveniences with utilities. Prior to commencement of the Work, the Contractor is responsible to notify all of the utilities and abide by stipulations required by the utility company(s). The



Contractor shall also call Louisiana One Call at 811 or (800) 272-3020 a minimum of 5 working days prior to construction to locate existing utilities at the Project Site.

Any damage to utilities that is caused by the Contractor within the Project Site shall be repaired at the expense of the Contractor. The Owner will not be responsible for any delay or damage incurred by the Contractor due to working around or joining the Work to utilities left in place or for making adjustments.

Any unidentified pipes or structures which may be discovered within the limits of the Project Site shall not be disturbed and shall be reported to the Engineer as soon as possible. Construction or excavation shall not be performed around unidentified utilities without prior approval from the Engineer.

#### GP-26 PERMITS

Federal and State permits that are required to perform the Work, such as the Department of the Army Permit, Coastal Use Permit, LDEQ Clean Water Permit, LDWF Fill Material License, and LADOTD highway crossing permit have been secured by the Owner. Permit conditions affecting the construction processes have been included in these Specifications. Copies of these permits will be provided to the Contractor at the pre-construction conference. These permits will not relieve the responsibility of the Contractor from obtaining any additional permits which may be needed to complete the Work. Copies of any special permits that are obtained by the Contractor must be submitted to the Owner. The Contractor shall conform to the requirements therein and display copies of the permits in a public setting at the Project Site at all times.

#### GP-27 PROJECT SITE CLEAN-UP

The Contractor shall keep the Project Site free from accumulations of waste material or trash at all times. All trash and waste materials shall be removed by the Contractor and disposed off-site in an approved waste disposal facility. In addition, all equipment, tools, and non-conforming work shall also be removed prior to the Work being accepted. No materials shall be placed outside of the Project Site.

#### GP-28 OWNER INSPECTION

The Owner, Resident Project Representative, and Federal Sponsor shall have the right to perform reasonable inspections and testing of the Work at the Project Site. Access shall be granted to the entire Project Site including all materials intended for use in the Work. The Contractor shall allow reasonable time for these inspections and tests to be performed. The inspections shall not relieve the Contractor from any obligation in accordance with the requirements of the Contract.

The Owner shall notify the Contractor prior to all tests, inspections, and approvals of the Work which are to be conducted at the Project Site. The Owner shall also provide the Contractor with the written results of all inspections and tests. Inspections, tests, or Payments made by the Owner shall not constitute acceptance of non-conforming Work or prejudice the Owner's rights under the Contract.

#### GP-29 DUTIES OF RESIDENT PROJECT REPRESENTATIVE

A Resident Project Representative may be assigned by the Engineer to the Project Site to observe the Contractor and monitor the progress and manner in which the Work is being performed. The Resident Project Representative will also report to the Engineer and Contractor whenever materials or Work fail to comply with the Contract. The Resident Project Representative is authorized to reject any materials or suspend work which does not comply with the Contract until the issue is resolved by the Engineer.

However, the Resident Project Representative is not authorized to revoke, alter, enlarge, relax, or release any requirements of the Contract, or to approve or accept any portion of the Work, or to issue instructions contrary to the Plans and Specifications. The Resident Project Representative shall not manage or perform duties for the Contractor.

#### GP-30 CONSTRUCTION STAKES, LINES, AND GRADES

The Engineer shall direct the Contractor to all control points necessary for setting stakes and establishing lines and grades as shown on the Plans. The Contractor shall be responsible for laying out all of the Work. All layouts shall be witnessed and verified by the Engineer or Resident Project Representative prior to beginning the Work. The Contractor shall be responsible for proper execution of the Work according to the layouts after receiving verification from the Engineer.

The Contractor shall be responsible for furnishing and maintaining stakes such that the Work can be verified for acceptance. The Engineer may suspend the Work at any time if it cannot be adequately verified due to the number, quality, or condition of the stakes.

#### GP-31 CONTRACTOR'S RESPONSIBILITY FOR WORK

The Contractor shall execute all items covered by the Contract, and shall furnish, unless otherwise definitely provided in the Contract, all materials, implements, machinery, equipment, tools, supplies, transportation, and labor necessary to complete the Work. The Contractor shall pay constant attention to the progress of the Work and shall cooperate with the Engineer in every way possible. The Contractor shall maintain a complete copy of the Contract at all times, including the Plans, Specifications, and any authorized modifications.

#### GP-32 ENVIRONMENTAL PROTECTION

The Contractor shall comply with and abide by all federal, state, and local laws and regulations controlling pollution of the environment, including air, water, and noise. The Contractor shall take precautions to prevent pollution of waters and wetlands with fuels, oils, bituminous materials, chemicals, sewage, or other harmful materials and contaminants, and to prevent pollution of the atmosphere from particulate and gaseous matter, in accordance with all terms and conditions of federal, state, and local air and water pollution control laws and programs and their rules and regulations, including the federal Clean Air Act and the federal Clean Water Act.

The Contractor shall adhere to the provisions which require compliance with all standards, orders, or requirements contained under Section 306 of the Clean Air Act and Section 508 of the

Clean Water Act, which prohibit the use under non-exempt Federal contracts, grants, or loans, of facilities included on the Environmental Protection Agency (EPA) list of Violating Facilities.

Construction operations in rivers, streams, lakes, tidal or coastal waters, reservoirs, canals, wetlands, and any other impoundments shall be restricted to areas where it is necessary to accomplish the Work and performed in accordance with any applicable federal, state, and local laws, regulations, permit requirements, and guidelines, and the Contractor shall conduct the Work in a manner that will not cause damaging concentrations of silt or pollution to water.

Contractor shall maintain and operate equipment to minimize noise, dust, and vibration near noise, dust and vibration-sensitive areas such as churches, hospitals, schools, and residential areas, and assure that any activities conducted near such areas are not unduly disruptive. Contractor shall maintain all equipment with properly functioning mufflers.

The Contractor shall be responsible for determining and utilizing any erosion and pollution control features or methods that may be necessary to comply with all federal, state, and local laws and regulations.

#### GP-33 SANITARY PROVISION

The Contractor shall provide and maintain sanitary accommodations for use by all employees and Subcontractors. Facilities shall comply with the requirements of the Louisiana State Board of Health and Hospitals and other authorities having jurisdiction. Committing public nuisance on the Project Site is prohibited.

#### GP-34 PAYMENT OF TAXES

The Contractor shall be responsible for all taxes and duties that maybe levied under existing State, Federal, and local laws during the completion of the Work. The Owner will presume that the amount of such taxes is included in the unit prices bid by the Contractor and will not provide additional reimbursement.

#### GP-35 RADIO AND TELEPHONES

The Contractor shall furnish and maintain radio and telephone equipment throughout the Contract Time which will allow communication between the Contractor and the Engineer or Resident Project Representative.

#### GP-36 NAVIGATION

All marine vessels shall comply with the following Federal Laws and Regulations:

- a. The International Navigational Rules Act of 1977 (Public Law 95-75, 91 Stat. 308, or 33 U.S.C. 1601-1608); and
- b. The Inland Navigational Rules Act of 1980 (Public Law 96-591, 94 Stat. 3415, 33 U.S.C. 2001-2038).

These rules can be found on the Internet at:  
<http://www.navcen.usg.gov/?pageName=navRulesContent>

All marine vessels shall display the lights and day shapes required by Part C-Lights and Shapes of the Inland Navigation Rules. The locations, type, color, and size of the lights and day shape shall be in accordance with Annex I – Positioning and Technical Details of Lights and Shapes. Any vessel engaged in dredging is considered a “Vessel restricted in her ability to maneuver” and shall display all lights and shapes required in Rule 27, “Vessel Not Under Control.”

#### GP-37 OBSTRUCTION TO NAVIGATION

The Contractor shall minimize all obstructions to navigation in compliance with pertinent U. S. Coast Guard regulations while conducting the Work. The Contractor shall promptly move any floating equipment or marine vessels which obstruct safe passage of other marine vessels. Upon completion of the Work, the Contractor shall remove all marine vessels and other floating equipment such as temporary ranges, buoys, piles, and other marks or objects that are not permanent features of the Work.

#### GP-38 MARINE VESSELS AND MARINE ACTIVITIES

All marine vessels regulated by the USCG shall have the required USCG documentation that is current before being placed in service. A copy of any USCG Form 835 issued to the vessel in the preceding year shall be made available to the Owner and Engineer and a copy shall be on board the vessel. All officers and crew shall possess valid USCG licenses as required by USCG regulations. These certificates, classifications, and licenses shall be posted in a public area on board each vessel.

All dredges and quarter boats not subject to USCG inspection and certification or not having a current ABS classification shall be inspected in the working mode annually by a marine surveyor accredited by the National Association of Marine Surveyors (NAMS) or the Society of Accredited Marine Surveyors (SAMS) and having at least 5 years’ experience in commercial marine plant and equipment. The inspection certificate shall be posted in a public area on board each dredge and/or quarter boat.

All other plant and support vessels shall be inspected before being placed in service and at least annually by a qualified person. The inspection certificate shall be posted in a public area on board each plant and/or vessel.

#### GP-39 RECORD KEEPING

The Contractor shall maintain orderly records of the Progress Schedule, Daily Progress Reports, Progress Meetings, correspondence, submittals, reproductions of original Contract Documents, Change Orders, Field Orders, certificates, additional drawings issued subsequent to the executed Contract, clarifications and interpretations of the Contract Documents by the Engineer, and other related documents at the Project Site until all of the Work is accepted by the Engineer.

#### GP-40 CERTIFICATES OF COMPLIANCE

Any certificates required for demonstrating proof of compliance of materials with specification requirements shall be executed in three (3) copies. Each certificate shall be certified by an authorized agent of the supplying company and shall contain the name and address of the Contractor, the project name and location, and the quantity and date of shipment. Copies of laboratory test reports submitted with certificates shall contain the name and address of the testing laboratory and the testing date. The Contractor shall also certify that all materials and test reports conform to the requirements of the Contract. Certification shall not be construed as relieving the Contractor from furnishing satisfactory material if the material is tested and determined to be in nonconformance.

#### GP-41 SUBMITTALS

The Contractor shall review all Submittals for compliance with the requirements of the Contract prior to delivery to the Engineer. Each Submittal shall contain a signed statement by the Contractor that it complies with the Contract requirements with any exceptions explicitly listed. The Contractor shall comply with these requirements for Submittals from Subcontractors, manufacturers, and suppliers.

All Submittals shall include sufficient data to demonstrate that the requirements of the Contract are met or exceeded. All submittals shall be legible and marked with the project title and clearly identify the item submitted. Each submittal package shall include an itemized list of the items submitted.

All Submittals will be reviewed within fourteen (14) days after being received by the Engineer. The Contractor shall allow the Engineer sufficient time for review, corrections, and resubmission of all Submittals prior to beginning the associated Work. The Contract Time shall not be extended based on incorrect or incomplete Submittals.

#### GP-42 CLAIMS FOR EXTRA COST

The Contractor is expected to complete the Work according to the Contract Price specified in the Bid Documents. If the Contractor deems additional compensation is due for work, materials, delays or other additional costs/or expenses not covered in the Contract or not ordered as extra work, the Contractor shall give the Engineer written notice thereof within fourteen (14) calendar days after the receipt of such instructions and, in any event, before commencing the procedure. The Contractor shall justify the claim for extra cost by providing supporting data and calculations. The Engineer shall determine whether the Contractor is entitled to be compensated for such extra cost and shall make any required adjustments of the Contract in accordance with GP-43. If no written claim is made within this fourteen (14) calendar-day period, the Contractor will be deemed to have waived any claim for extra cost for such work.

Claim for damages or delays of the Work shall not be made by the Contractor for a relocation of the construction operation or portions thereof to other locations within the geographical scope of the project, when in the opinion of the Engineer, such relocation is necessary for the most effective prosecution of the Work and may be accomplished without undue hardship.

#### GP-43 ALTERATION OF THE CONTRACT AND COMPENSATION

Using Change Orders, Field Orders, or Written Amendments, the Owner may order extra work or make changes by altering the details of construction, add to or deduct from the Work. The requirements and stipulations of these documents shall be binding on the Owner and Contractor throughout the remainder of the Contract. Any claim for an extension of Contract Time caused thereby shall be adjusted at the time of ordering such change.

The value of any such extra work or change shall be determined in one or more of the following ways and in the following priority:

- a. By application of the unit prices in the Contract to the quantities of the items involved or subsequently agreed upon; or
- b. By mutual acceptance between the Owner and Contractor of a lump sum.

If none of the above methods is agreed upon, the Contractor, provided he is so ordered by the Owner in writing, shall proceed with the Work on a "force account" basis. In such a case, the Contractor shall keep and preserve in such form as the Engineer may direct, a correct itemized account of the direct cost of labor, materials, equipment, together with vouchers bearing written certification by the Contractor. In any case, the Engineer shall certify to the amount, including an allowance of fifteen percent (15%) for jobsite and home office overhead indirect expenses and profit due to the Contractor. Where such change involves a subcontractor, an allowance of fifteen percent (15%) for overhead and profit shall be due the subcontractor and an allowance of ten percent (10%) shall be due the Contractor. Pending final determination of value, payments on account of changes shall be made on the Engineer's estimate and as approved in an executed Change Order.

If the Contractor is prevented from completing the Work according to the Contract Price due to the Owner, the Contractor may be entitled to any reasonable and necessary addition of cost as determined by the Engineer. Neither the Owner nor the Contractor shall be entitled to any damages arising from events or occurrences which are beyond their control, including but not limited to fires, floods, epidemics, abnormal weather conditions, acts of God, acts of war, and other like matters. The provisions of this section exclude recovery for damages caused by the Contractor and compensation for additional professional services by either party.

#### GP-44 EXTENSION OF CONTRACT TIME

The Contractor is expected to complete the Work within the Contract Time specified in the Bid Documents. A legitimate increase of the Contract time may be requested by the Contractor throughout the course of the Work. This Claim must be submitted to the Engineer in writing within fourteen (14) days of the event which caused the time delay to the Contractor. If an extension of Contract Time involves an increase in Contract Price, both claims shall be submitted together. The Contractor shall justify the increase of the Contract Time in the Claim using supporting data and calculations. The Engineer may deny the claim if there is insufficient information to make a determination. If the Claim is approved, the Engineer shall issue a Change Order within thirty (30) days of the Claim. The Contract Time shall be increased on a basis that is commensurate with the amount of additional or remaining Work. For example, the Contract

Time can be increased where the number of actual adverse weather days exceeds the number of days estimated in the Contract.

#### GP-45 OWNER'S RIGHT TO TERMINATE CONTRACT FOR CAUSE OR CONVENIENCE

##### 45.1 TERMINATION FOR CAUSE

The Owner shall submit a written notice to the Contractor and Surety which justifies placement of the Contractor in default if:

- a. The Work is not begun within the time specified in the Notice to Proceed; or
- b. The Work is performed with insufficient workmen, equipment, or materials to assure prompt completion; or
- c. The Contractor performs unsuitable, neglected or rejected work, refuses to remove materials; or
- d. The Work is discontinued; or
- e. The Work is not completed within the Contract Time or time extension; or
- f. Work is not resumed within a reasonable time after receiving a notice to continue; or
- g. The Contractor becomes insolvent or is declared bankrupt, or commits any act of bankruptcy or insolvency; or
- h. The Contractor allows any final judgment to stand unsatisfied for a period of ten (10) days; or
- i. The Contractor makes an assignment for the benefit of creditors; or
- j. The Work is not performed in an acceptable manner.

If the Contractor or Surety does not remedy all conditions cited in the written notice within ten (10) days after receiving such a notice, the Contractor will be in default and the Owner shall remove the Contractor from the Work. If the Contractor is placed into default, the Owner may obtain the necessary labor, materials, and equipment or enter into a new Contract in order to complete the Work. All costs incurred by the Owner for completing the Work under the new Contract will be deducted from the payment due the Contractor. If the expense exceeds the sum payable under the Contract, the Contractor and Surety shall be liable to pay the Owner the difference.

##### 45.2 TERMINATION FOR CONVENIENCE

Owner may, at any time, terminate this Contract or any portion thereof, for Owner's convenience, upon providing written notice to the Contractor. In such case, Contractor shall be paid for all work completed through the date notice was provided (less payments already received) and reasonable demobilization and restocking charges incurred and reasonable

overhead and profit based upon industry standards on the work performed. In no event shall the Contractor be entitled to payment of overhead and profit on work not performed. In the event it is determined that the Contractor was wrongfully terminated for cause, pursuant to Section GP 45.1 above, such termination shall be automatically converted to a termination for convenience under and payment made as provided under this Section.

#### GP-46 TEMPORARY SUSPENSION OF WORK

The Engineer shall have the authority to temporarily suspend the Work in whole or in part. A Field Order shall be issued to the Contractor for any of the Work that is suspended for periods exceeding one (1) calendar day. The Field Order shall include the specific reasons and details for the suspension. The Contract Time shall not be extended if the Work is suspended due to failure by the Contractor to comply with a Field Order or with the Plans and Specifications. If the Work is suspended in the interest of the Owner, the Contractor shall make due allowances for the lost time.

#### GP-47 NON-CONFORMING AND UNAUTHORIZED WORK

Work not conforming to the Plans, Specifications, Field Orders, or Change Orders shall not be accepted for payment. Unacceptable or unauthorized work shall be removed and replaced in an acceptable manner at the expense of the Contractor in order to obtain final acceptance of the Work.

If the Contractor should neglect to prosecute the work properly or fail to perform any provision of this Contract, the Owner after seven (7) calendar days written notice to the Contractor, may correct such deficiencies itself or by use of other contractors without prejudice to any other remedy it may have, and may deduct the cost thereof from the payment then or thereafter due to the Contractor.

#### GP-48 CONTRACTOR'S RIGHT TO TERMINATE CONTRACT

The Contractor may terminate the Contract or Work and recover payment from the Owner for labor and materials if the Work is stopped through no act or fault of the Contractor for more than three (3) months. For example, such an occurrence could be caused by a court order or other public authority. In any case, the Contractor shall submit a written notice to the Engineer at the beginning of the occurrence, and a written Claim to the Owner at the end of the occurrence.

#### GP-49 BREACH OF CONTRACT

The Owner shall submit a written Claim to the Contractor regarding any breach of the Contract. The Contractor must provide a written response to the Owner regarding the breach of Contract within ten (10) days after the Claim. This response must provide either an admission to the Claim or a detailed denial based on relevant data and calculations. The failure of the Contractor to provide a proper response within ten (10) days shall result in justification of the Claim by default.



#### GP-50 NO WAIVER OF LEGAL RIGHTS

The Owner shall not be prevented from recovering costs from the Contractor, Surety, or both due to failure of the Contractor to fulfill all of the obligations under the Contract. If a waiver is provided to the Contractor for a breach of Contract by the Owner, it shall not apply to any other breach of Contract. Final acceptance of the Work shall not prevent the Owner from correcting any measurement, estimate, or certificate. The Contractor shall be liable to the Owner without prejudice to the terms of the Contract or any warranty for latent defects, fraud, or gross negligence.

#### GP-51 LIABILITY FOR DAMAGES AND INJURIES

To the fullest extent permitted by Laws and Regulations, the Contractor shall indemnify and hold harmless the Owner, Engineer, and their officers, employees, representatives, and/or agents from all suits, actions, claims, costs, losses, demands, and judgments (including but not limited to fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) brought because of injuries or damage sustained by a person or property due to the operations of Contractor; due to negligence in safeguarding the Work, or use of unacceptable materials in constructing the Work; or any negligent act, omission, or misconduct of the Contractor; or claims or amounts recovered under the Workmen's Compensation Act or other law, ordinance, order, or decree; any money due the Contractor as considered necessary by the Owner for such purpose may be retained for use of the State or in case no money is due, the performance and payment bond may be held until such suits, actions, claims for injuries or damages have been settled and suitable evidence to that effect furnished to the Owner; except that money due the Contractor will not be withheld when the Contractor produces satisfactory evidence that adequate Workman's Compensation, Public Liability, and Property Damage Insurance are in effect.

The indemnification obligations of the Contractor shall not extend to the liability of the Owner, Engineer, and their affiliates arising out of the preparation or approval of the Plans, Specifications, maps, opinions, reports, surveys, or Change Orders, or for providing directions or instructions which are the primary cause of the injury or damage.

Should the Owner or Contractor suffer from any injury or damage due to an error, omission, or act of the other party or their legally liable affiliates, a written Claim shall be submitted to the other party within ten (10) days. The Claim shall provide all details regarding the injury or damage, the results of any investigations, and the action to be taken to prevent any reoccurrence.

#### GP-52 LIABILITY FOR LOSSES BY ACTS OF THE GOVERNMENT

The Owner shall not be liable for any loss or damage suffered by the Contractor arising out of a cessation of Work under this Contract due to any act or order of any local, state, or federal government agency. If this cessation occurs, the Contractor may request an extension of the Contract Time according to the provisions in GP-44.

#### GP-53 FINAL INSPECTION AND ACCEPTANCE

Whenever the Work provided for, or contemplated by the contract, has been satisfactorily completed, all punch list items completed and the final cleaning up is performed, the Engineer shall be notified in writing that said work is completed and ready for final inspection. The Engineer shall, unless otherwise provided, make the final inspection within a reasonable length of time after the receipt of such notification.

If all construction provided for in the contract is found completed to the Engineer's satisfaction, the inspection shall constitute the final inspection and the Engineer will make recommendation to the Owner for final acceptance and notify the Contractor in writing of this recommendation of acceptance.

The Owner will record the Notice of Acceptance with the Clerk of Court in the Parish(s) in which the Work has been performed. The recording of the Notice of Acceptance shall commence a lien period of not less than forty-five (45) consecutive calendar days, during which period the retainage will be withheld by the Owner. The Owner will provide the Contractor with a copy of the Certificate of Recordation.

#### GP-54 AS-BUILT DRAWINGS

The Contractor shall submit all originals and copies of the As-Built Drawings to the Engineer for review and acceptance in accordance with the Special Provisions. The As-Built Drawings shall provide complete data for quantities, dimensions, specified performance and design criteria, and similar items which clearly represent the services, materials, and equipment the Contractor has provided. All revision sheets shall be clearly stamped with the words "As-Built".

#### GP-55 COMPLETION OF CONTRACT

Notwithstanding any other provision of this Contract and all applicable and necessary time delays under Louisiana law, completion of the Contract requires all of the Work to be complete, inspected by the Engineer, accepted by the Owner as recommended by the Engineer, and after final payment is made. After the Contract is complete, the Contractor will then be released from further obligation except as set forth in the Contract Bond and Contractor's Guarantee.

#### GP-56 CONTRACTOR'S GUARANTEE

The Contractor is obligated to provide a written guarantee to the Owner that all of the Work conforms to the Contract Documents. The Work shall be guaranteed to survive for a minimum period of 1 year after final acceptance, unless otherwise specified in the Technical Specifications.

- a. The guarantee shall include:
  1. A written warranty by the manufacturer for each piece of installed project equipment or apparatus furnished under the Contract.
  2. Any necessary repair or replacement of the warranted equipment during the guarantee

period at no cost to the Owner.

3. Satisfactory operation of installed equipment including, but not limited to, any mechanical and electrical systems furnished and constructed under the Contract during the guarantee period. The Contractor shall repair all equipment which fails due to defective materials or faulty workmanship during the guarantee period. The Contractor shall also be liable for all other ancillary expenses incurred by the Owner due to the failure.
- b. The guarantee shall exclude defects or damage caused by:
1. Abuse or improper modification, maintenance, or operation by anyone other than the Contractor; or
  2. Wear and tear under normal usage.
- c. This obligation by the Contractor shall be absolute. The following actions will not constitute acceptance of non-conformance Work or release the Contractor from obligation to furnish the Work in accordance with the Contract Documents:
1. Observations by the Owner or Engineer; or
  2. Recommendations by the Engineer or payment by the Owner; or
  3. Use of the Work by the Owner; or
  4. Issuance of a notice of acceptance by the Owner pursuant to the provisions of GP-53, or failure to do so; or
  5. Any inspection, test, or approval by others; or
  6. Any correction to non-conforming work by the Owner.

#### GP-57 DISPUTE RESOLUTION

The parties shall use their best efforts to resolve all disputes in an amicable fashion. Prior to filing suit by either party with respect to any claims, or disputes arising between the parties, the disputes shall be submitted first to non-binding mediation. The mediation shall be conducted in accordance with the Construction Industry Mediation Rules of the American Arbitration Association. If the parties cannot agree to a private mediator, then the mediator shall be selected by the American Arbitration Association, upon the filing of a demand for mediation.

If the dispute is not resolved by mediation within 60 days from the request for mediation, then either party may institute legal proceedings. Any litigation involving the Owner and arising under or related to the Contract or the bidding or award thereof shall be instituted exclusively in the 19<sup>th</sup> Judicial District Court in and for the Parish of East Baton Rouge, State of Louisiana.

#### GP-58 PAYMENT

The Owner hereby agrees to pay to the Contractor as full compensation for all work performed under the contract, and/or supplemental agreements thereto, the monetary value of the actual quantities in the completed work according to the schedule of unit prices and/or lump sum

prices set forth in attached bid proposal and/or duly authorized supplements thereto, and made a part of the Contract.

Partial payments under the Contract shall be made at the request of the Contractor not more than once each month, based upon partial estimates agreed to by the Contractor and Engineer and shall be furnished to the Engineer and approved by the Engineer prior to transmittal to the Owner for approval and payment.

A Subcontractor Report (included in the appendices of the Contract Documents) should be submitted by the Contractor with each request for partial payment, to be used for informational purposes only by CPRA.

The partial estimates will be approximately stated, and all partial estimates and payments shall be subject to corrections in the estimate rendered following the discovery of any error in any previous estimates.

The payment of the partial estimate shall be taken as verification that the work has been performed and that its quality is satisfactory, however it will in no way serve as a release to the Contractor for the responsibility of any portions thereof. The work and any particulars relating thereto shall be subject to revision and adjustment by the Engineer and/or the Owner at any time prior to final payment, regardless of any previous action taken.

There shall be reserved from the payments provided for the Contract ten percent (10%) for contracts less than \$500,000 or five percent (5%) for contracts of \$500,000 or more, of the estimates submitted, said sum to constitute a trust fund for the protection of and payment to any person or persons, mechanic, subcontractor or materialmen who shall perform any labor upon such contract, or the doing of said work, and all persons who shall supply such person or persons or subcontractors with provisions and supplies for the carrying on of such work, and shall be withheld for a minimum of forty-five (45) calendar days after final acceptance of the completed contract and filing of the Notice of Acceptance as described in GP-53.

After the expiration of the forty-five (45) calendar day period, the reserve in excess of a sum sufficient to discharge the claims of materialmen and laborers who have filed their claims, together with a sum sufficient to defray the cost of such action and to pay attorneys' fees, shall be paid to the Contractor.

The Contractor shall be responsible for obtaining and furnishing a clear lien and privilege certificate to the Owner at the expiration of the retainage period, and prior to payment of any reserve withheld.

#### GP-59 PAYMENTS WITHHELD

In addition to the percentage provided for in Section GP-58 of these General Provisions and in

accordance with any other provision of this Contract, the Owner may withhold such amounts from any payment as may be necessary to protect himself from loss on account of:

- a) Defective work not remedied;
- b) Claims filed or reasonable evidence indicating probable filing of claims;
- c) Failure of the Contractor to make payments properly to subcontractors or for material or labor;
- d) Reasonable evidence that the Work will not be completed within the Contract time and that the unpaid balance would not be adequate to cover damages for the anticipated delay;
- e) A reasonable doubt that the contract can be completed within the time period remaining under the contract;
- f) Damage to another contractor;
- g) Failure to submit required reports; or
- h) Modifications of the contract which necessitate the execution of change orders prior to payment of funds.

Furthermore, nothing contained in this Section shall be deemed to limit the right of the Owner to withhold liquidated damages, as stated in the Instructions to Bidders, from any amounts which may be due and owed the Contractor for work performed under the contract.

#### GP-60 LIENS

Neither the final payment nor any part of the retained percentage shall come due until the Contractor shall deliver to the Owner a complete release of all liens arising out of this contract, or receipts in full in lieu thereof, and, if required by the Owner, an affidavit that so far as he has knowledge or information, the releases and receipts include all labor and material for which a lien could be filed; but if any subcontractor refuses to furnish a release or receipt in full, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against any lien, construction cost, or attorney's fees.

#### GP-61 EQUAL EMPLOYMENT OPPORTUNITY

The State of Louisiana is an equal opportunity employer, and looks to its Contractor, subcontractors, vendors and suppliers to take affirmative action to effect this commitment in its operations.

By submitting the bid proposal and executing the Contract, the Contractor agrees to abide by the requirements of the following as applicable: Title VI and VII of the Civil Rights Act of 1964, as amended by the Equal Opportunity Act of 1972, Federal Executive Order 11246, the Federal Rehabilitation Act of 1973, as amended, the Vietnam Era Veterans Readjustment Assistance Act of 1974, Title IX of the Education Amendments of 1972, and the Age Act of 1975, and the Contractor agrees to abide by the requirements of the Americans with Disabilities Act of 1990.

The Contractor agrees not to discriminate in its employment practices, and will render services the Contract, without regard to their race, age, color, religion, sex, national origin, veteran status, political affiliation or disabilities. Any act of discrimination committed by the Contractor, or failure to comply with these statutory obligations when applicable, shall be grounds for termination of the Contract.

#### GP-62 ANTI-KICKBACK CLAUSE

The Contractor agrees to adhere to the mandate dictated by the Copeland “Anti-Kickback” Act which provides that each contractor or subcontractor shall be prohibited from inducing, by any means, any person employed in the completion of the work, to give up any part of the compensation to which he is otherwise entitled.

#### GP-63 SUSPENSION/DEBARMENT

Contractor certifies, by signing and submitting any bid, that their company, any subcontractors, or principals are not suspended, debarred, or ineligible from entering into contracts with any department or agency of the Federal Government or of the State of Louisiana, or in receipt of notice of proposed debarment or suspension.

Contractor agrees to secure from any contractor(s) and subcontractor(s) for the captioned project, certification that such contractor(s) and subcontractor(s) are not suspended, debarred or declared ineligible from entering into contracts with any department or agency of the Federal Government or of the State of Louisiana, or in receipt of a notice of proposed debarment or suspension.

Contractor shall provide immediate notice to Owner in the event of it or its contractor(s) or any subcontractor(s) being suspended, debarred or declared ineligible by any department or agency of the Federal Government or of the State of Louisiana, or upon receipt of a notice of a proposed debarment or suspension, either prior to or after execution of this Contract.

Upon receipt of notice of suspension, debarment, or declaration that Contractor or its contractor(s) or any subcontractor(s) is/are ineligible to enter into contracts with any department or agency of the Federal Government or of the State of Louisiana, either prior to or after execution of this Contract, Owner reserves the right to review cause for said debarment, suspension, or declaration of ineligibility, and to terminate this Contract pursuant to the terms of GP-45 OWNER’S RIGHT TO TERMINATE CONTRACT FOR CAUSE OR CONVENIENCE, or take such other action it deems appropriate under this Contract.

#### GP-64 LOUISIANA FIRST HIRING ACT

Contractor shall comply with the Louisiana First Hiring Act (La. R.S. 39:2201-2204), which requires that within ten (10) days of executing the Contract, Contractor shall submit the following information to the Louisiana Workforce Commission:

1. The number and types of jobs anticipated for the Work.
2. The skill level of the jobs anticipated for the Work.

3. The wage or salary range for each job anticipated for the Work.
4. Methods, if any, that the Contractor will use to recruit unemployed persons or person employed in low wage jobs to fill job openings for the Work.

**END OF PART I - GENERAL PROVISIONS**

## **PART II SPECIAL PROVISIONS**

### **SP-1 LOCATION OF WORK**

The North Lake Mechant Sheetpile Plug No. 2 Replacement Project (TE-44) is located in Terrebonne Parish, Louisiana. The Work Site is bounded generally to the south by Lake Mechant, west by Lake Pagie, north by Bayou DeCade and east by Small Bayou LaPointe. Approximate coordinates for the center of the project are 29°19'59.93" N and 90°58'32.35" W.

The Project Site is only accessible by boat. The General Notes in the Plans give information on the tides and draft requirements in this area. A boat launch is located in Theriot, LA.

### **SP-2 WORK TO BE DONE**

The Contractor shall provide all labor, materials, and equipment necessary to perform the Work. The Work shall include, but not be limited to, mobilization and demobilization to the Project Site, surveying, removal of existing sheetpile plug and installation of new sheetpile plug. The Work shall be performed in accordance with these Specifications and in conformity to lines, grades, and elevations shown on the Plans or as directed by Engineer. Quantity calculations, layouts, shop drawings, and construction sequencing of these items shall be provided in the Work Plan. The major tasks associated with the Work are described as follows:

- 2.1 Site Examination: The Contractor shall examine the Project Site and make determinations of the character of the site conditions at the proposed play area location. Material such as logs, stumps, snags, tires, scrap, debris and other obstructions may be encountered within the Project Site. No separate payment for removal and disposal of these obstructions shall be made.
- 2.2 Surveying: Prior to construction, a Pre-Construction Survey shall be performed on the area in and around the new sheetpile plug, equipment access corridors and temporary placement areas. After construction is complete, the Contractor shall develop an As-Built Survey for final Acceptance of all the Work.
- 2.3 Channels: If the Contractor proposes to mobilize his equipment to the project area via Raccourci Bay, a temporary access channel may be dredged in accordance with the Plans and these Specifications.
- 2.4 Sheetpile Plug: PZC-26 Sheetpile and Combi Wall (30" pipe pile with PZC-26 sheetpile) with earthen wingwalls and concrete matting as shown on the Plans.
- 2.5 Use of Equipment: The equipment used for the Work shall be operated within the boundaries of the Project Site and away from existing vegetated wetlands or any other sensitive areas. The Contractor shall be responsible for returning all disturbed areas to pre-existing conditions at no expense to the Owner.
- 2.6 Existing Infrastructure: The Contractor shall be responsible for investigating, locating, and protecting all existing facilities, structures, services, and pipelines on, above, or under the surface of the area where dredging, excavation, or Work including equipment crossings, dredge pipeline crossings, etc. is to be performed. The Owner will not be held responsible for damage to the Contractor's equipment, employees, subcontractors, adjacent property owners,



or anyone else connected with the project due to encountering objects above and/or below the ground.

Existing infrastructure, where indicated on the Plans, are shown only to the extent such information was made available to or discovered by the Engineer during design. There is no guarantee as to the accuracy or completeness of such information, and all responsibility for the accuracy and completeness is expressly disclaimed. If the Contractor fails to discover an underground installation and damages the same, the Contractor shall be responsible for the cost of the repair of the infrastructure plus the cost of any environmental damage and clean up.

### SP-3 CONTRACT MILESTONES

<b>Milestone</b>	<b>Locations and Recipient</b>	<b>Date Due</b>
Bid Advertisement	Publications	As advertised
Mandatory Pre-Bid Conference and Non-Mandatory Site Visit (GP-5)	Location provided in Advertisement for Bids	Provided in Advertisement for Bids
Questions on Bid Documents (GP-5 and SP-5)	Submit to CPRA	Provided in Instructions to Bidders
Effective Date of Contract	Contractor and Owner	Stated in Contract
Start of Contract Time	Contractor and Owner	Stated in Notice to Proceed
List of all Subcontractors (GP-19)	Submit to Engineer	Prior to awarding any subcontracts
Work Plan (GP-8 and SP-7)	Submit to Engineer	14 days prior to Pre-Construction Conference
Progress Schedule (GP-9)	Submit to Engineer	14 days prior to starting construction, monthly thereafter
Daily Progress Report (GP-10)	Submit to Resident Project Representative	Daily during construction
Pre-Construction Conference (GP-14)	Contractor, Engineer and Resident Project Representative	Scheduled by the Engineer after the Notice to Proceed is issued
Progress Meetings and Reports (GP-13, GP-39)	Engineer and Resident Project Representative	Bi-weekly

<b>Milestone</b>	<b>Locations and Recipient</b>	<b>Date Due</b>
As-Built Survey	Submit to Engineer	5 working days prior to Final Inspection
Written Notice of Completion of Work	Submit to Engineer	Upon completion of the Work
End of Contract Time	Contractor and Owner	Provided in Instructions to Bidders

#### SP-4 DELIVERABLES

- 4.1 Prior to Construction: The Contractor shall provide the following information to the Engineer at the Pre-Construction Conference:
  - 4.1.1 Updates to the Work Plan and Progress Schedule based on comments from the Engineer;
  - 4.1.2 Proposed changes to the layout of the Work;
  - 4.1.3 Records of communication between the Contractor and private property owners, pipeline operators, government agencies, etc.
- 4.2 During Construction: The Contractor shall provide the following information to the Engineer during construction:
  - 4.2.1 Progress Schedule as specified in GP-9;
  - 4.2.2 Daily Progress Reports as specified in GP-10;
  - 4.2.3 Copies of all inspection and monitoring reports;
  - 4.2.4 All Change Orders, Field Orders, Claims, Requests for Information, and Amendments;
  - 4.2.5 Results of any materials testing;
  - 4.2.6 Copies of all delivery slips, which shall include the source of construction materials, date of delivery, exact quantity, and size of materials delivered with each shipment to the Project Site;
- 4.3 Post Construction: The following documents shall also be submitted to the Engineer after the completion and final Acceptance of the Work:
  - 4.3.1 As-Built Drawings shall show revisions such as field or change orders and shall be noted, shown in red and be easily distinguishable from the original design.

#### SP-5 CONTACT INFORMATION

Prior to the Bid opening date, the Bidder shall submit all questions regarding the Bid Documents in writing to the Owner as follows:

Coastal Protection and Restoration Authority (CPRA) 150  
Terrace Avenue, Suite 100  
Baton Rouge, LA 70802 Attn:  
Allison Richard Phone: 225-  
342-5453  
Fax: 225-800-5599  
Email: [cpra.bidding@la.gov](mailto:cpra.bidding@la.gov)

After execution of the contract between Owner and Contractor, the successful Contractor shall direct all communications to the following:

**CPRA Project Manager**

Brian Babin  
1440 Tiger Drive  
Thibodaux, LA 70301  
Email: [brian.babin@la.gov](mailto:brian.babin@la.gov)  
Phone: 985-449-5103  
Fax: 985-447-0997

The Owner and Engineer shall deliver all written Claims, Notices, Submittals, Plans, and other documents to the Contractor at the address indicated on the Bid.

## SP-6 INSURANCE AND BONDS

The Contractor shall purchase and maintain without interruption, for the duration of the contract, insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the Work hereunder by the Contractor, its agents, representatives, employees or subcontractors. The duration of the contract shall be from the inception of the contract until the date of final payment.

### 6.1 Minimum Scope and Limits of Insurance

#### 6.1.1 Worker's Compensation

Worker's Compensation insurance shall be in compliance with the Worker's Compensation law of the State of Louisiana. Employers Liability is included with a minimum limit of \$500,000 per accident/per disease/per employee. If Work is to be performed over water and involves maritime exposure, applicable LHWCA, Jones Act or other maritime law coverage shall be included, and the Employers Liability limit increased to a minimum of \$1,000,000. A.M. Best's insurance company rating requirement may be waived for Worker's compensation coverage only.

#### 6.1.2 Commercial General Liability

Commercial General Liability insurance, including Personal and Advertising Injury Liability and Products and Completed Operations Liability, shall have a minimum limit per occurrence based on the project value. The Insurance Services

Office (ISO) Commercial General Liability occurrence coverage form CG 00 01 (current form approved for use in Louisiana), or equivalent, is to be used in the policy. Claims-made form is unacceptable.

The aggregate loss limit must apply to each project. ISO form CG 25 03 (current form approved for use in Louisiana), or equivalent, shall also be submitted. The State project number, including part number, and project name shall be included on this endorsement.

#### **COMBINED SINGLE LIMIT (CSL) PER OCCURRENCE**

The required minimum combined single limit amount of insurance shall be as provided below:

<b><u>Initial Contract Amount</u></b>	<b><u>Minimum Insurance</u></b>
<b>Up to \$1,000,000</b>	<b>\$1,000,000</b>
<b>From \$1,000,001 to \$2,000,000</b>	<b>\$2,000,000</b>
<b>Over \$2,000,000</b>	<b>\$5,000,000</b>

##### **6.1.3 Automobile and Watercraft Liability**

Automobile Liability Insurance and Watercraft Liability Insurance shall have a minimum combined single limit per occurrence of \$1,000,000. ISO form number CA 00 01 (current form approved for use in Louisiana), or equivalent, is to be used in the policy. This insurance shall include third-party bodily injury and property damage liability for owned, hired and non-owned automobiles and/or watercraft. If any non-licensed motor vehicles and/or watercraft are engaged in operations within the terms of the contract on the site of the work to be performed thereunder, such insurance shall cover the use of any such vehicles.

NOTE: If the Contractor does not own an automobile and/or watercraft and such vehicles are utilized in the execution of the contract, then hired and non-owned coverage is acceptable. If an automobile and/or watercraft is not utilized in the execution of the contract, then automobile and/or watercraft coverage is not required.

##### **6.1.4 Excess Umbrella**

Excess Umbrella Insurance may be used to meet the minimum requirements for General Liability, Automobile Liability, and Watercraft Liability only.

##### **6.1.5 Pollution Liability (*required when asbestos or other hazardous material abatement is included in the contract*)**

Pollution Liability insurance, including gradual release as well as sudden and accidental, shall have a minimum limit of not less than \$1,000,000 per claim. A claims-made form will be acceptable. A policy period inception date of no later than the first day of anticipated Work under this contract and an expiration date of no earlier than 30 days after anticipated completion of all Work under the contract shall be provided. There shall be an extended reporting period of at least 24 months, with full reinstatement of limits, from the expiration date of the policy. The policy shall not be cancelled for any reason, except non-payment of premium.

#### 6.1.6 Deductibles and Self-Insured Retentions

Any deductibles or self-insured retentions must be declared to and accepted by the Owner. The Contractor shall be responsible for all deductibles and self-insured retentions.

### 6.2 Other Insurance Provisions

The policies are to contain, or be endorsed to contain, the following provisions:

#### 6.2.1 Worker's Compensation and Employers Liability Coverage

The insurer shall agree to waive all rights of subrogation against the Owner, its officers, agents, employees and volunteers for losses arising from Work performed by the Contractor for the Owner.

#### 6.2.2 General Liability Coverage

The Owner, its officers, agents, employees and volunteers are to be added as additional insureds as respects liability arising out of activities performed by or on behalf of the Contractor; products and completed operations of the Contractor, premises owned, occupied or used by the Contractor. ISO Form CG 20 10 (current form approved for use in Louisiana), or equivalent, is to be used.

The Contractor's insurance shall be primary as respects the Owner, its officers, agents, employees and volunteers. The coverage shall contain no special limitations on the scope of protection afforded to the Owner, its officers, officials, employees or volunteers. Any insurance or self-insurance maintained by the Owner shall be excess and non-contributory of the Contractor's insurance.

The Contractor's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the policy limits.

#### 6.2.3 All Coverages

Coverage shall not be canceled, suspended, or voided by either party (the Contractor or the insurer) or reduced in coverage or in limits except after 30 days written notice has been given to the Owner. Ten-day written notice of cancellation is acceptable for non-payment of premium. Notifications shall comply with the standard cancellation provisions in the Contractor's policy.

Neither the acceptance of the completed Work nor the payment thereof shall release the Contractor from the obligations of the insurance requirements or indemnification agreement.

The insurance companies issuing the policies shall have no recourse against the Owner for payment of premiums or for assessments under any form of the policies.

Any failure of the Contractor to comply with reporting provisions of the policy shall not affect coverage provided to the Owner, its officers, agents, employees and volunteers.

#### 6.2.4 Acceptability of Insurers

All required insurance shall be provided by a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located. Insurance shall be placed with insurers with an A.M. Best's rating of **A-:VI or higher**. This rating requirement may be waived for Worker's compensation coverage only.

If at any time an insurer issuing any such policy does not meet the minimum A.M. Best rating, the Contractor shall obtain a policy with an insurer that meets the A.M. Best rating and shall submit another certificate of insurance as required in the contract.

#### 6.2.5 Verification of Coverage

Contractor shall furnish the Owner with Certificates of Insurance reflecting proof of required coverage. The Certificates for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf. The Certificates are to be received and approved by the Owner before Work commences and upon any contract renewal thereafter.

The Certificate Holder must be listed as follows:

State of Louisiana  
Coastal Protection and Restoration Authority  
150 Terrace Avenue  
Baton Rouge, LA 70802  
Attn: Project # BA-0213

In addition to the Certificates, Contractor shall submit the declarations page and the cancellation provision endorsement for each insurance policy. The Owner reserves the right to request complete certified copies of all required insurance policies at any time.

Upon failure of the Contractor to furnish, deliver and maintain such insurance as above provided, this contract, at the election of the Owner, may be suspended, discontinued or terminated. Failure of the Contractor to purchase and/or maintain any required insurance shall not relieve the Contractor from any liability or indemnification under the contract.

If the Contractor does not meet the insurance requirements at policy renewal, at the option of the Owner, payment to the Contractor may be withheld until the requirements have been met, OR the Owner may pay the renewal premium and withhold such payment from any monies due the Contractor, OR the contract may be suspended or terminated for cause.

#### 6.2.6 Subcontractors

Contractor shall include all subcontractors as insureds under its policies OR shall be responsible for verifying and maintaining the certificates provided by each subcontractor. Subcontractors shall be subject to all of the requirements stated herein. The Owner reserves the right to request copies of subcontractor's certificates at any time.

If Contractor does not verify subcontractors' insurance as described above, Owner has the right to withhold payments to the Contractor until the requirements have been met.

#### 6.2.7 Worker's Compensation Indemnity

In the event Contractor is not required to provide or elects not to provide Worker's compensation coverage, the parties hereby agree the Contractor, its Owners, agents and employees will have no cause of action against, and will not assert a claim against, the State of Louisiana, its departments, agencies, agents and employees as an employer, whether pursuant to the Louisiana Worker's Compensation Act or otherwise, under any circumstance. The parties also hereby agree that the State of Louisiana, its departments, agencies, agents and employees shall in no circumstance be, or considered as, the employer or statutory employer of Contractor, its Owners, agents and employees. The parties further agree that Contractor is a wholly independent Contractor and is exclusively responsible for its employees, Owners, and agents. Contractor hereby agrees to protect, defend, indemnify and hold the State of Louisiana, its departments, agencies, agents and employees harmless from any such assertion or claim that may arise from the performance of this contract.

#### 6.2.8 Indemnification/Hold Harmless Agreement

Contractor agrees to protect, defend, indemnify, save, and hold harmless, the State of Louisiana, all State Departments, Agencies, Boards and Commissions, its officers, agents, servants, employees and volunteers, from and against any and all claims, damages, expenses and liability arising out of injury or death to any person or the damage, loss or destruction of any property which may occur, or in any way grow out of, any act or omission of Contractor, its agents, servants and employees, or any and all costs, expenses and/or attorney fees incurred by Contractor as a result of any claims, demands, suits or causes of action, except those claims, demands, suits or causes of action arising out of the negligence of the State of Louisiana, all State Departments, Agencies, Boards, Commissions, its officers, agents, servants, employees and volunteers.

Contractor agrees to investigate, handle, respond to, provide defense for and defend any such claims, demands, suits or causes of action at its sole expense and agrees to bear all other costs and expenses related thereto, even if the claims, demands, suits, or causes of action are groundless, false or fraudulent.

### SP-7 WORK PLAN SUPPLEMENTAL

The following items shall be included in the Work Plan in addition to those required by those required by GP-8:

- 7.1 The field equipment, methodology and software to be used for survey data collection, post-processing, and calculations of quantities;
- 7.2 Layout of equipment staging areas;
- 7.3 Layout and schedule for removal of existing sheetpile plug;
- 7.4 Layout for all equipment access routes and dredging equipment as necessary;
- 7.5 Layout and schedule for installation of new sheetpile plug and earthen wingwalls.

#### SP-8 FAILURE TO COMPLETE ON TIME

For each day the Work remains incomplete beyond the Contract Time, as specified in SP-3, or Extension of Contract Time, as specified in GP-44, the sum of two thousand four hundred fifty dollars (\$2,450) per calendar day will be deducted from any money due to the Contractor as liquidated damages. The Contractor and Surety shall be liable for any liquidated damages that are in excess of the amount due the Contractor. Weather days will not be considered beyond the Contract Time.

#### SP-9 OFFICE FOR OWNER

The Contractor shall provide an office for the Engineer and Resident Project Representative at the Project Site. This office shall be for the sole use of the Engineer or Resident Project Representative, suitably sized, and provided with lighting, heat, and air conditioning. The office furnishings shall include a worktable and two chairs.

In the event that the Contractor refuses, neglects, or delays compliance with the requirements of this provision, the Owner may obtain and use another necessary office at the expense of the Contractor. The cost for providing and furnishing this office shall be included in the contract lump sum price for Bid Item No. 3, "General Mobilization and Demobilization (TS-102)."

#### SP-10 NOTIFICATION OF DISCOVERY OF HISTORICAL OR CULTURAL SITES

If during construction activities the Contractor observes items that may have prehistoric, historical, archeological, or cultural value, the Contractor shall immediately cease all activities that may result in the destruction of these resources and shall prevent his employees from trespassing on, removing, or otherwise damaging such resources. Such observations shall be reported immediately to the Engineer so that the appropriate authorities may be notified, and a determination made as to their significance and what, if any, special dispositions of the finds should be made. The Contractor shall not resume work at location without approval from the Engineer.

#### SP-11 ADJUSTMENT OF QUANTITIES

The Owner has the right to adjust quantities for contract items 25% higher or 25% lower without an adjustment of the unit price during construction. The contract time may be extended by the Owner if quantities are adjusted higher.

#### SP-12 FINAL CLEAN UP

The Contractor shall leave the construction site in a clean condition free of construction material and trash, acceptable to the Owner.



### **SP-13 PROHIBITION OF DISCRIMINATORY BOYCOTTS OF ISRAEL IN STATE PROCUREMENT**

By submitting a response to this solicitation, the bidder or proposer certifies and agrees that the following information is correct:

In preparing its response, the bidder or proposer has considered all proposals submitted from qualified, potential subcontractors and suppliers, and has not, in the solicitation, selection, or commercial treatment of any subcontractor or supplier, refused to transact or terminated business activities, or taken other actions intended to limit commercial relations, with a person or entity that is engaging in commercial transactions in Israel or Israeli-controlled territories, with the specific intent to accomplish a boycott or divestment of Israel. The bidder also has not retaliated against any person or other entity for reporting such refusal, termination, or commercially limiting actions. The state reserves the right to reject the response of the bidder or proposer if this certification is subsequently determined to be false, and to terminate any contract awarded based on such a false response.

### **END OF PART II - SPECIAL PROVISIONS**

### **PART III TECHNICAL SPECIFICATIONS**

#### **TS-100 GENERAL MOBILIZATION AND DEMOBILIZATION**

- 100.1 Scope: The Contractor shall furnish all of the material, labor and equipment necessary to mobilize and demobilize personnel, equipment, supplies, incidentals, offices, buildings and other facilities necessary for the Work at the Project Site, obtain bonds, required insurances and other pre-construction expenses necessary to perform the Work.
- 100.2 Arbitrary Mobilization by Contractor: The Owner shall pay for only one mobilization and demobilization effort. Should the Contractor demobilize prior to completing the Work, subsequent remobilization shall be performed at no expense to the Owner.
- 100.3 Equipment: All equipment shall be in satisfactory operating condition, capable of efficiently performing the Work as set forth in the Plans and these Specifications and shall be subject to inspection by the Engineer or Resident Project Representative at all times.
- 100.3.1 Equipment Data Sheet: The Equipment Data Sheet in Appendix L shall be submitted in the Work Plan for all heavy equipment proposed to perform the Work including pile driving equipment and other ( I.E. marsh buggies, tenders, etc.)
- 100.4 Equipment Access: All proposed routes for equipment access are provided in the Plans. Proposed alternative routes shall be provided in the Work Plan. Equipment access shall be limited to open water and the equipment access routes to the greatest extent possible. Any impacts to wetlands or water bottoms located external to the Project Site shall be repaired prior to demobilization at no direct pay. Channel excavation shall only be allowed as specified on the Plans and these Specifications. The Contractor shall not traverse across any pipeline with equipment which could damage the pipeline.
- 100.5 Ratio of Effort: Sixty percent (60%) of the Contract cost for this bid item will be paid to the Contractor after mobilization of all equipment and materials to the Project Site. Forty percent (40%) of the Contract cost for this bid item will be paid to the Contractor upon final Acceptance of the new sheetpile plug and after all equipment and unused materials have been removed from the Project Site.
- 100.6 Justification of Costs: If the Engineer determines that the unit price for this Bid Item does not bear a reasonable relation to the amount of Work, the Contractor shall be required to justify the unit price in the Application for Payment using cost data. Failure to justify the unit price may result in payment of the estimated cost through commensurate additions or deductions to Bid Items Nos. 1 and 2 as determined by the Engineer. This determination by the Engineer is not subject to appeal.
- 100.7 Measurement and Payment: Payment shall be made at the Contract Lump Sum price for Bid Item No. 1, "General Mobilization and Demobilization (TS-100)". Payment shall constitute full compensation for furnishing the labor, equipment, materials and other incidentals related to this item of the Work.

TS-210 SURVEYS

- 210.1 Scope: The Contractor shall furnish all of the material, labor and equipment necessary to perform the Pre-Construction and As-Built Surveys of the Work in compliance with the Plans and these Specifications. All surveys shall be performed by personnel who are approved by the Engineer and under the direct supervision of a professional engineer or surveyor licensed in the state of Louisiana. The Contractor shall provide the schedule for the surveys and deliverables in the Work Plan.
- 210.2 Notifications to the Engineer: The Contractor shall notify the Engineer a minimum of two (2) working days prior to performing the Pre-Construction and As-Built Surveys. The Contractor shall also notify the Engineer immediately after field data collection for each survey is complete. The Owner may stop the respective portions of the Work if the notifications are not made. The Contractor shall not submit a Claim for this type of Work stoppage.
- 210.3 Reference and Control: Survey data shall reference the North American Datum of 1983 (NAD 83), Louisiana South Zone, U. S. Survey Feet, and the North American Vertical Datum of 1988 (NAVD 88), U. S. Survey Feet Geoid 12A-Epoch2010.00. Horizontal and vertical control shall be established by using the CPRA monument provided in Appendix H. Temporary Benchmarks (TBMs) shall be installed as deemed necessary by the Contractor to perform all surveys.
- 210.4 Method: Surveys shall utilize conventional RTK surveying methods or an appropriate GNSS or GPS Real Time Network such as Gulfnet Virtual Real-Time Network (VRS).
- 210.5 Survey Equipment: The Contractor shall utilize appropriate equipment to survey the Work as follows:
- 210.5.1 Topographic Surveys: Topographic survey equipment shall have a minimum vertical and positional accuracy of one-tenth (0.1) of a foot. A six (6) inch diameter metal plate shall be attached to the bottom of the survey rod to prevent the rod from sinking below ground level. In vegetated areas, the survey rod shall rest among living vegetative stems and be supported by soil containing living vegetative roots. Bathymetric and topographic surveys shall overlap by 25 feet at all interfaces between land and water.
- 210.5.2 Bathymetric Surveys: Bathymetric survey equipment shall have a minimum vertical accuracy of one-tenth (0.1) of a foot  $\pm 0.1\%$  of depth. Bathymetric surveys collected on board vessels must be differentially corrected to the referenced datum for tidal fluctuations and vessel pitch, roll and heave. Bathymetric and topographic surveys shall overlap by 25 feet at all interfaces between land and water.
- 210.5.3 Magnetometer Surveys: Magnetometer survey equipment shall have a minimum accuracy of 3 gammas throughout its operational range.
- 210.5.4 Survey Stakes: Survey stakes utilized for topographic stakeout shall consist of forty-eight (48) inch long survey laths and be composed of #1 grade pine wood or approved equal. Survey stakes utilized for bathymetric stakeout shall consist of bamboo cane of sufficient length to remain a minimum of two (2) feet above mean water level. Survey stakes shall be removed after completion of the project unless otherwise directed by the Engineer.
- 210.6 Design Survey: Not Applicable

- 210.7 Modifications to Survey Layout: All approved modifications to the layout of the Work by the Engineer shall be surveyed and included in the Pre-Construction, Process and As-Built Surveys.
- 210.8 Pre-Construction Survey: The Pre-Construction Survey shall be used to verify the existing conditions at the Project Site and the dredged portions of the access corridor, modify the bid items as deemed necessary by the Engineer, and lay out and stake out the Work. The Pre-Construction Survey shall show the existing bathymetry, topography, existing infrastructure and magnetic detections in plan and profile using markers, spot elevations, coordinates, contours, lines and grades. The Pre-Construction Survey shall include the following items:
- 210.8.1 Quantities: The measured pay items shall be measured and paid for as outlined in their respective sections.
- 210.8.2 Temporary Benchmarks: The Contractor may install temporary benchmarks at any location within the Project Site as necessary to perform the Work. All temporary benchmarks shall be repaired and resurveyed if disturbed or damaged during construction.
- 210.8.3 Temporary Aids to Navigation: All temporary aids to navigation shall be surveyed after installation.
- 210.8.4 Existing Infrastructure: All infrastructure (pipelines, power lines, etc.) that is located within one-hundred-fifty (150) feet of the equipment access corridors, and sheetpile plug shall be surveyed and marked at a minimum of fifty (50) foot intervals along the alignment of the infrastructure. The proposed methods for marking the infrastructure shall be included in the Work Plan. Pipelines shall also be probed for depth of cover (top of pipe to existing ground) at fifty (50) foot intervals. Only the Tennessee Gas pipeline shall be located.
- 210.8.5 Significant Magnetometer Detections: For anomalies that exhibit amplitudes greater than 50 gammas, the depth and source of the anomalies shall be determined by running a 30-foot closed loop path and by probing. The Contractor shall determine if the sources of all anomalies will interfere with the performance of the Work and provide proposed corrective measures in the Progress Schedule. Failure by the Contractor to identify the source of anomalies and provide corrective measures shall not provide grounds for any Claims against the Owner.
- 210.8.6 Equipment Access Corridors: A topographic/bathymetric and magnetometer survey shall be performed along the centerlines of the equipment access corridors shown on the Plans prior to mobilization of equipment. Perpendicular transects shall be surveyed at one thousand (1,000) foot intervals along the centerline corridors as shown on the construction survey layout in the Plans. Bottom elevations and coordinates shall be recorded at one hundred (100) foot intervals along the centerline and all points of inflection. Bottom elevations and coordinates shall be recorded along the perpendicular transects at twenty-five (25) foot intervals and at all points of inflection. The access route does not need to be surveyed and is shown on the plans for information only.
- 210.9 Sheetpile Plug: A topographic/bathymetric and magnetometer survey shall be performed at Sheetpile Plug 2 using a ten (10) foot wide evenly spaced grid. These transects shall extend a minimum of twenty-five (25) feet beyond the limits of the sheetpile plug. The ground elevation and coordinates shall be recorded every ten (10) feet or where there is a change in grade greater than  $\pm 0.5$  feet along the transects.

- 210.10 As-Built Survey: The As-Built Survey shall be used to verify final payment and acceptance of all Work. The As-Built Survey shall show the constructed bid items in plan and profile using elevations, coordinates, lines and grades. The As-Built Survey shall also include the following items:
- 210.10.1 Quantities: The As-Built Surveys shall show the constructed quantities for each constructed bid item, including equipment access corridors, earthwork, and articulated concrete mattresses.
- 210.10.2 Equipment Access Corridors: The topography/bathymetry of the equipment access corridors shall be resurveyed consistent with the Pre-Construction Survey after all equipment has been demobilized. This will be used to confirm the quantity of dredged access channel by the linear foot.
- 210.10.3 Earthwork: The surface of the earthen wingwalls as-built survey shall be compared to the surface of the pre-construction survey to determine the in-place volume of the earthwork by the cubic yard. Civil 3D or similar program shall be used.
- 210.10.4 Articulated Concrete Mattresses: The as-built survey shall define the limits of the installed Articulated Concrete Mattresses by the square yard.
- 210.11 Deliverables: The Contractor shall submit all survey data and drawings to the Engineer for review and Acceptance by the dates specified in SP-3. The Owner may stop the respective portions of the Work if the surveys are not submitted by the specified date. The Contractor shall not submit a Claim for an adjustment to either the Contract Time or Price on any bid item for failure to submit the surveys by the specified date.
- 210.11.1 Survey Data: Survey data shall be provided in Microsoft Excel, or approved equal on digital compact disk or a web-based file transfer site. Survey data shall be presented as follows:
- 210.11.1.1 Bathymetry and topography data shall be provided in tables and include separate columns for the transect/alignment number, point number, point description, northing coordinate, easting coordinate and elevation. Bathymetric survey data shall include bar check results, survey scroll of BIN file, and corrected for tidal fluctuations and vessel pitch, roll and heave.
- 210.11.1.2 Magnetometer detections shall be provided in tables and include the transect (track) number, shot point number, northing coordinate, easting coordinate, sensor height, signature type, amplitude and duration. Elevations and depth of cover shall be provided for all pipelines and magnetic detections higher than 50 gammas via probing. Descriptions shall also be provided for the probable causes of all magnetic detections higher than 50 gammas.
- 210.11.2 Survey Drawings: Surveys shall be provided in the latest version of AutoCAD and Adobe Acrobat, or approved equal on digital compact disk or a web-based file transfer site. Three (3) hard copies of the As-Built Surveys shall be provided to the Engineer. All survey drawings shall conform to CPRA drafting standards and be presented as follows:
- 210.11.2.1 All sheets shall include the project name, number and seal of a professional engineer or professional land surveyor licensed in the State of Louisiana
- 210.11.2.2 The location of all secondary survey monuments and temporary benchmarks shall appear in plan

view;

- 210.11.2.3 Survey transects, spot elevations and  $\pm 1.0$ -foot contours shall be shown in plan view. Transects shall also be shown in profile and include mean high and mean low water levels;
- 210.11.2.4 Magnetometer anomalies and infrastructure (pipelines, power lines, etc.) shall be shown in plan view. Infrastructure and magnetic anomalies higher than 50 gammas shall also be shown in profile;
- 210.11.2.5 All plan views shall be overlaid onto the most recent geo-rectified Digital Orthophoto Quarter Quadrangle aerial color photographs;
- 210.11.2.6 Revisions such as field or change orders shall be noted, shown in red and be easily distinguishable from the original design.
- 210.12 Acceptance: The Contractor shall request for Acceptance after completion of the Pre-Construction and As-Built Surveys. The Engineer shall determine Acceptance of the Work based on these surveys and conformance to the Plans and Specifications. The engineer shall be afforded fourteen (14) working days from the date of receipt to review and determine Acceptance of each survey.
- 210.12.1 Pre-Construction Survey: The Contractor may mobilize equipment but shall not start construction until Acceptance of the Pre-Construction Survey.
- 210.12.2 As-Built Survey: A draft of the As-Built Survey shall be submitted to the Engineer for review prior to the Final Inspection as per SP-3. A final version of the As-Built Survey shall be submitted to the Engineer for Acceptance after the Final Inspection as per SP-3. Final payment for this bid item will not be received until the As-Built Survey has gained Acceptance from the Engineer.
- 210.13 Ratio of Effort: Fifty percent (50%) of the Contract cost for this bid item will be paid to the Contractor upon Acceptance of the Pre-Construction Survey. The remaining fifty percent (50%) will be paid to the Contractor upon Acceptance of the As-Built Survey.
- 210.14 Measurement and Payment: The Contractor shall submit Applications for Payment after gaining Acceptance. Payment shall be made at the Contract Lump Sum price for Bid Item No. 2, "Surveys (TS-210)". Payment shall constitute full compensation for furnishing the material, labor, equipment and other incidentals related to this item of the Work.

## TS-310 EARTHWORK

- 310.1 Scope: The Contractor shall furnish all of the material, labor and equipment necessary to perform earthwork at the sheetpile plug structure in accordance with these Specifications and in conformity to the lines, grades, elevations and tolerances shown on the Plans. Construction sequencing of this shall be provided in the Work Plan.
- 310.2 Equipment: Earthwork shall be performed using mechanical excavation equipment. The Equipment Data Sheet in Appendix L shall be included in the Work Plan for all mechanical excavation equipment proposed to perform the Work. The mechanical equipment shall be in satisfactory operating condition, capable of efficiently performing the Work, and shall be subject

to inspection by the Owner or Engineer throughout the performance of the Work.

- 310.3 Clearing and Grubbing: Organic and inorganic debris that exists within the extents of the earthen wingwalls shall be cleared, grubbed and disposed off-site in an approved waste disposal facility. Burning of debris is prohibited.
- 310.3.1 Debris: All deleterious inorganic debris greater than five (5) pounds that is encountered during excavation shall be disposed off-site in an approved waste disposal facility. All deleterious organic debris greater than two (2) inches in diameter or two (2) feet in length that is encountered during excavation shall also be disposed off-site in an approved waste disposal facility.
- 310.4 Earthen Wingwalls: Earthen wingwalls shall be constructed at the locations as shown on the Plans.
- 310.5.1 Borrow: For the earthen wingwalls, in-situ material excavated from the channel as shown on the Plans shall be used to construct the earthen wingwalls. The borrow areas shall be excavated of sufficient depth to obtain material that is granular with low organic content. The excavated material may be temporarily stockpiled for drying and reuse.
- 310.5.1.1 Excavation Limits: Excavation shall occur within the limits of the borrow areas as shown on the Plans.
- 310.5.2 Installation of Articulated Concrete Block Mats: Articulated Concrete Block Mats shall be installed over the constructed berms as per TS-750.3.
- 310.6 Acceptance: The Contractor shall request for Acceptance after the earthwork at the wingwalls has been completed. The Engineer may require the addition or removal of material excavated or backfilled beyond the specified tolerances.
- 310.7 Measurement and Payment: Payment will be made at the Contract unit price per cubic yard (in place) for Bid Item No. 8, "Earthwork (TS-310)". Payment shall constitute full compensation for furnishing the labor, equipment and other incidentals related to this item of the Work. No separate payment shall be made for construction of temporary dewatering structures.

TS-330 ACCESS AND FLOTATION CHANNELS

- 330.1 Scope: The Contractor shall furnish all of the material, labor and equipment necessary to excavate, maintain and backfill material from access and flotation channels in accordance with these Specifications and in conformity to the lines, grades, elevations and tolerances shown on the Plans. Construction sequencing of this item shall be included in the Work Plan.
- 330.2 Equipment: The flotation access channels shall be excavated using mechanical (bucket) excavation equipment. The Equipment Data Sheet in Appendix L shall be included in the Work Plan for all mechanical excavation equipment proposed to perform the Work. The mechanical excavation equipment shall be in satisfactory operating condition, capable of efficiently performing the Work, and shall be subject to inspection by the Owner or Engineer throughout the performance of the Work.

- 330.3 Channel Excavation: Channel excavation shall occur within the limits shown on the Plans. The Contractor is not required to fully excavate to the limits. The Contractor shall pay for all damages and repairs associated with excavation beyond those limits. All deleterious organic or inorganic debris greater than five (5) pounds that is encountered during excavation shall be disposed off-site in an approved waste disposal facility.
- 330.4 Material Placement: Material excavated from the access and flotation channels shall be temporarily deposited in the stockpile areas shown on the Plans. Temporary aids to navigation may be required per USCG requirements.
- 330.5 Maintenance: The access and flotation channels shall be maintained as needed in order to transport the equipment and materials to and from the project location. Maintenance dredging shall be performed at no cost to the Owner.
- 330.6 Backfilling: The temporary stockpile areas shall be backfilled into the access and flotation channels to original grade after demobilization of the equipment and the project has gained Acceptance. All misplaced material shall be immediately returned to the designated areas at no pay.
- 330.6.1 Construction Tolerance: After being backfilled, the vertical elevation tolerance for the finished grade of the temporary disposal areas shall be plus one-half foot (+0.5 ft) from Pre-Construction grade.
- 330.7 Acceptance: The Contractor shall request for final Acceptance after the access and flotation channels have been backfilled. The channels shall gain Acceptance if the As-Built surveys show compliance with the lines, grades, elevations, and tolerances shown on the Plans. The Engineer may require the addition or removal of material dredged or placed beyond the specified tolerances.
- 330.8 Ratio of Effort: Fifty percent (50%) of the Contract cost for this bid item will be paid to the Contractor after excavation of the access and flotation channels. The remaining fifty percent (50%) will be paid to the Contractor after backfilling and the As-Built Survey of the access and flotation channels.
- 330.9 Measurement and Payment: Payment shall be made at the Contract price per linear foot for Bid Item No. 3, "Flotation Access Channels (TS-330)". Payment shall constitute full compensation for furnishing the labor, equipment and other incidentals related to this item of the Work.
- TS-640 WOVEN GEOTEXTILE
- 640.1 Scope: The Contractor shall furnish all of the materials, labor, and equipment necessary to obtain and install the woven geotextile above the existing bank, prior to placement of the earthen wingwalls and on top of the earthen wingwalls prior to placement of the concrete matting in accordance with the Plans and these Specifications. Manufacturer's specifications and construction sequencing of this item shall be submitted in the Work Plan.
- 640.2 Materials: The woven geotextile shall meet or exceed the geotextile physical property requirements specified in the Louisiana Standard Specifications for Roads and Bridges, 2016



Edition, Section 1019.01, Table 1019-1 for Class D geotextile. The material shall be a woven geotextile consisting only of long chain polymeric filaments or yarns formed into a stable network such that the filaments or yarns retain their position relative to each other during handling, placement, and throughout the design service life. At least eighty-five percent (85%), by weight of the material shall be polypropylenes, polyesters, polyamides, polyethylene, or polyolefins. The geotextile shall be free of any treatment or coating which might adversely alter the geotextile's hydraulic or physical properties after installation. When required, the geotextile shall contain stabilizers and/or inhibitors added to the base material to make filaments resistant to deterioration due to ultraviolet light and/or heat exposure. The edges of the geotextile shall be selvedge. The geotextile shall be free from defects or tears. Thread used for factory or field sewing shall be of contrasting color to the geotextile and made of high strength polypropylene, polyester, or polyamide thread.

640.3 Installation: The woven geotextile shall be installed under and above the earthen wingwalls to the lines and grades shown on the Plans. Geotextile shall be installed under the articulated concrete block mats as shown on the Plans. The Contractor shall prepare the surface to receive the woven geotextile such that it is relatively smooth and free of obstructions, depressions, debris, and soft or low-density pockets of material which could cause damage to the geotextile. Prior to installation, any geotextile with defects, rips, holes, flaws, deterioration or damage shall be rejected. The geotextile shall be protected at all times to assure the original chemical and physical properties remain unchanged. Installation of the geotextile shall be consecutive with placement of the articulated concrete mats. All wrinkles and sags shall be stretched out immediately before the articulated concrete mats are placed on the geotextile. Any geotextile rejected or damaged shall be replaced by the Contractor at no additional cost to the Owner.

640.3.1 Seams and End Laps: Each woven geotextile panel shall consist of multiple geotextile strips factory sewn for as large a panel area as manageable. The panels must cover the width of the earthen wingwall shown on the Plans. Adjacent panels shall be overlapped a minimum of five (5) feet.

640.4 Shipment and Storage: Rolls of woven geotextile shall be shipped, transported and maintained in a protective cover prior to placement. Each roll shall be labeled or tagged with the manufacturer's name, date of manufacture, batch number, and name of product.

640.5 Material Acceptance: The Contractor shall furnish a signed mill certificate or affidavit to the Engineer at least thirty (30) days prior to installation. The mill certificate or affidavit shall attest the geotextile and seams complies with the requirement of these specifications. The Contractor shall also provide a three (3) foot by three (3) foot sample of the woven geotextile to the Engineer.

640.6 Measurement and Payment: Payment shall be made at the Contract Unit Price per Square Yard for Bid Item No. 4, "Woven Geotextile Fabric (TS-640)". Payment shall constitute full compensation for furnishing the labor, equipment and other incidentals related to this item of Work.

#### TS-750 ARTICULATED CONCRETE MATS

750.1 Scope: The Contractor shall furnish all of the materials, labor and equipment necessary to install articulated concrete block (ACB) mats at the earthen wingwalls in accordance with the Plans and these Specifications. Manufacturer's specifications and construction sequencing of this item in reference to the earthen wingwalls shall be provided in the Work Plan.

- 750.2      Materials: Each ACB mat shall consist of individual concrete elements that are interlinked to form overall dimensions of eight (8) feet in width, twenty (20) feet in length, and a minimum of four (4) inches in nominal thickness. The open area of the entire articulated concrete mat shall not exceed twenty percent (20%).
- 750.2.1    Concrete Elements: Each ACB concrete element shall be cast as an open cell and have minimum dimensions of twelve (12) inches in width, twelve (12) inches in length, and a minimum of four and one half (4.5) inches in nominal thickness. The dimensional tolerance of each concrete element shall be  $\pm$  one-quarter (1/4) of an inch. The concrete shall have a minimum compressive strength of 4,000 psi and minimum density of 125 pounds per cubic foot. The edges of the concrete elements shall be tapered enough to allow for a minimum articulation angle of forty-five (45) degrees in all directions.
- 750.2.2    Interlinks: The interlinks shall be embedded during the casting of the concrete elements and effectively bind all adjacent elements. The interlinks shall be composed of either polyester cable, copolymer rope, or steel cable. The interlinks shall have good resistance to chemicals, ultra-violet light, high salinity, rot and corrosion. The minimum tensile strength of each interlink shall be a minimum of 150% of the weight.
- 750.3      Installation: The ACBs shall be installed over the woven geotextile at the earthen wingwalls as shown on the Plans, or as directed by the Engineer. The ACBs shall be connected or fastened together using cable clamps, or approved equal. The woven geotextile shall be protected from damage during placement of the articulated concrete mats. The ACBs shall be placed on top of the woven geotextile on the earthen wingwalls.
- 750.4      Maintenance: The Contractor shall maintain the ACBs in good condition until acceptance of the Work. The Contractor shall repair or replace any ACBs at no pay if they become damaged or moved from their original location.
- 750.4.1    Rejection: The Owner reserves the right to reject any ACB mat that does not comply with these Specifications. All ACB mats shall be free of defects that would interfere with the proper placing of the unit. Surface cracks incidental to the usual methods of manufacture, or surface chipping resulting from customary methods of handling in shipment and delivery, shall not be deemed grounds for rejection. An ACB mat shall be rejected if any of the interlinks between the concrete elements have been severed or more than ten (10) percent of any element is not intact.
- 750.5      Acceptance: The Contractor shall submit a request for Acceptance after construction of the completed wingwalls. Acceptance shall be determined from compliance with the lines, grades, elevations, and tolerances shown on the Plans. The Engineer may require the addition or removal of ACBs that are not properly installed.
- 750.6      Measurement and Payment: Payment shall be made at the Contract Unit Price per Square Yard for Bid Item No. 5, "Articulated Concrete Mats (TS-750)". Payment shall constitute full compensation for furnishing the labor, equipment, and other incidentals related to this item of Work.

TS-950      STEEL SHEET PILING

950.1 Scope: The work consists of furnishing and driving all new steel sheet piling to the lines and depths as shown on the drawings.

950.2 Material: Steel sheet piling shall consist of the following minimum specifications:

950.2.1a General: Steel sheet piles shall comply with ASTM A572, Grade 50. Steel sheet pile sections shall be PZC-26 and PZC-13 per plans, or approved equivalent.

950.2.1b Coatings: Steel sheet piles shall be coated to the elevations shown on the plans. Coating shall be coal-tar epoxy and shall conform to SSPC- PAINT 16 per Sections 811 and 1008.04 of the Louisiana DOTD Standard Specifications for Roads and Bridges, 2016 Edition. Any piles damaged or cut off shall be recoated as per the manufacturer's recommendation.

950.2.2 Physical Requirements: The steel sheet piling shall be new and conform to these minimum physical requirements when delivered to the site:

Sheet Pile Section	Section of Modulus per foot of wall (in <sup>3</sup> /ft)	Web Thickness (in)	Moment of Inertia per foot of wall (in <sup>4</sup> /ft)
PZC-26	48.4	0.525	428.1
PZC-13	24.2	0.375	152.0

950.3 Pile Lengths: Piles shall be driven to the specified lengths shown on the Plans.

950.4 Site Preparation: All excavation in the area shall be completed before the sheet piles are driven.

950.5 Protection of Pile Heads: The heads of all piles shall be protected during driving by suitable caps, rings, heads, blocks, mandrels, and other devices which shall be provided by the Contractor as needed for the type of pile and shall conform to the recommendations of the pile manufacturer.

950.6 Installation: A description of the proposed pile driving system, which includes the pile driving equipment and method of installation, shall be submitted as part of the Work Plan for approval by the Engineer. The Contractor shall notify the Engineer before pile driving operation commences. Such notice shall be far enough in advance, a minimum of 24 hours, to provide the Engineer adequate time to be present for the driving operations. Piles shall be driven only in the presence of the Engineer or resident project representative. Piles shall be furnished and driven to the depths shown on the Plans.

950.7 Equipment:

950.7.1 Piles shall be driven with approved pile driving impact equipment. Vibratory hammers will not be allowed.

950.8 Driving Tolerance: Piles shall be driven at locations shown on the Plans or as directed in writing. The final pile head at cut-off elevation shall be plus 1 inch of the final grade shown in the Plans.

- 950.9      Cutting off Piles: Piles shall be driven and the damaged end cut off to the lines and grade as shown on the Plans. Cut-off ends shall be disposed of offsite.
- 950.10     Defective Piles: Any piles damaged in driving, driven out of proper location, driven less than the minimum specified depth, or inaccurately cut off shall be corrected by the following method, as approved by the Engineer:
- 950.10.1   The defective pile shall be pulled and replaced.
- 950.11     Measurement and Payment: Payment shall be made at the Contract unit price per square foot for Bid Item No. 7, "PZC-13 Steel Sheet Piling Complete (TS-950)". Payment shall be made at the Contract unit price per square foot for Bid Item No. 6, "PZC-26 Steel Sheet Piling Complete (TS-950)". Payment shall constitute full compensation for furnishing the labor, equipment, and other incidentals related to these items of Work. No payment is made for furnishing or driving piles to replace piles lost or damaged before the completion of the Contract while in stockpile or during handling and driving.
- TS-960     EXISTING SHEETPILE PLUG REMOVAL
- 960.1      Scope: The work provided herein consists of furnishing all labor, equipment, and performance of all operations required for removing the existing sheetpile plug as shown on the Plans.
- 960.2      Removal: The Contractor shall be responsible for the demolition, removal and disposal of the existing plug structure depicted on the Plans. The existing condition of the structure may not be as depicted on the Plans. The Contractor will be responsible for inspecting the structure's condition prior to bidding. Any structure penetrating the mud line must be removed in its entirety with as little soil disturbance possible. If this is not possible, and as approved by the Engineer, any and all such structures shall be removed to four feet below the mud line or lower.
- 960.3      Disposal: Once removed, all materials shall be disposed of in accordance with Title 33, Part VII, Sub-Part 1 (Solid Waste) of the Louisiana Environmental Regulatory Code, latest revision. The Contractor is responsible for any and all costs associated with the disposal of the removed materials.
- 960.4      Acceptance: The existing plug location will be inspected for remnant materials above and below the water line. The area will also be probed to ensure that any remaining buried objects are at least four (4) feet below the mud line. Final acceptance for the work will be made upon receipt of proof of disposal at an appropriate facility specified in Title 33, Part VII, Sub-Part 1 (Solid Waste) of the Louisiana Environmental Regulatory Code, latest revision.
- 960.5      Measurement and Payment: All costs associated with removal of the existing sheetpile plug and disposal of all associated materials shall be paid at the contract lump sum price for Bid Item No. 9, "Existing Sheetpile Plug Removal (TS-960)".
- TS-970     WARNING SIGNS
- 970.1      Scope: The contractor shall furnish all of the materials, labor and equipment necessary to construct and install the warning signs in accordance with the Plans and these Specifications. The signs shall also conform to the regulations in the United States Coast Guard (USCG)

Commandant Directives Manuals No. 16500.3 (Series), "Aids to Navigation Manual – Technical" and No. 10360-3 (Series), "Coatings and Color Manual".

970.2      Materials:

970.2.1      Sign – Each of the warning signs shall be fabricated from 3/16-inch-thick commercial grade aluminum plate that is 3-feet high and 3-feet wide. Each sign shall be overlaid with white vinyl film. All letters and borders shall be retroreflective and match the locations, dimensions, colors and sizes shown on the Plans. The film, letters, and borders shall be obtained from a USCG qualified supplier.

970.2.2      Piles – The piles shall be 60-feet long treated timber piles with a nominal 12-inch diameter butt and 7-inch minimum diameter at the tip. All timber piles shall conform to LADOTD 2016 Standard Specifications Sections 812 and 1014. All piles shall be treated with Creosote or Chromated Copper Arsenate (CCA). All creosote treatment shall meet American Wood Preservers Association (AWPA) P2 with a minimum retention of 2.0 lbs./cu. ft. All creosote treated piles shall be steam flushed for a minimum of one (1) hour at 240° F (116° C) after treatment. All CCA treated piles shall conform to AWPA C2 with a minimum retention of 2.5 lbs./cu. ft. of CCA oxides in the outer 0.60 inches. Retention shall be determined by assay performed and certified by the treating company.

970.3      Fabrication: Fabrication of structural aluminum shall conform to the requirements in the Aluminum Construction Manual, Specifications for Aluminum Structures, Sections 6 and 7, the Aluminum Associations, November 1994 or Owner approved equivalent.

970.4      Installation: The warning signs shall be installed equally at locations shown on the Plans or as directed by the Engineer. The 60-ft timber piles shall be driven 40 feet so that the top of pile will stand a total of 10-feet high above the mean high-water elevation and the center of the signs will stand about 8-feet above the mean high-water elevation.

970.5      Measurement and Payment: Warning signs will be measured per Each, completed and installed. Payment will be made at the contract unit price for Bid Item No. 10, "Warning Signs (TS-970)".

**END OF PART III – TECHNICAL SPECIFICATIONS**

## Appendix 'A'

### Supplemental Information

Attachment A1: Subcontractor Report  
Attachment A2: Plant and Equipment Schedule

**CURRENT INVOICE NO.** \_\_\_\_\_  
**PURCHASE ORDER NO.** \_\_\_\_\_

**APPENDIX A, ATTACHMENT A1**

## COASTAL CONSTRUCTION AND VEGETATIVE PROJECTS

## SUBCONTRACTOR REPORT

PRIME CONTRACTOR \_\_\_\_\_

[illegible]

## **APPENDIX L: EQUIPMENT DATA SHEET**



## EQUIPMENT DATA SHEET

### NORTH LAKE MECHANIC SHEETPILE PLUG NO. 2 REPLACEMENT PROJECT (TE-44)

The Contractor shall submit the following Equipment Data Sheet in the Work Plan for each piece of heavy construction equipment (I.E., barge, track hoe, dozer, pile hammer, etc.) that is proposed to be utilized to perform the Work. The Equipment Data Sheet shall only be utilized for informational purposes. The submitted information is pertinent to the evaluation of the proposed equipment and their capability to perform the Work. The Contractor shall only omit data or information considered to be proprietary. The Equipment Data Sheet shall constitute a certification that the proposed equipment is available to and under control of the Contractor during the Work.

Type of equipment	
Manufacturer and manufacture date	
Condition	
Current location	
Description of use on project	

Owner/Lease (specify) name	
Contact person	
Contact address	
Contact phone number	

Expected production rate (Daily or hourly)	
Weight (tons)	
Dimensions (ft)	
Method of mobilization and demobilization	

## Appendix 'B'

### Clarification, Change Orders, and Acceptance

Attachment B1: Interpretation or Clarification by Engineer Form

Attachment B2: Change Order

Attachment B3: Recommendation of Acceptance

NORTH LAKE MECHANT SHEETPILE PLUG NO. 2 REPLACEMENT PROJECT (TE-44)  
Request for Information (RFI)

DATE:

RFI Number:

Summary of RFI by Contractor
Signature:

Response to RFI by Engineer
Signature:

## CHANGE ORDER NO. \_\_

**OWNER:** State of Louisiana, Coastal Protection & Restoration Authority  
**CONTRACTOR:** \_\_\_\_\_  
**PROJECT:** North Lake Mechant Sheetpile Plug No. 2 Replacement Project (TE-44)  
**FILE NO:** \_\_\_\_\_  
**SOLICITATION NO:** \_\_\_\_\_  
**CONSTRUCTION**  
**MANAGER:** Brian Babin

---

The following changes are hereby proposed to be made to the Contract Documents:

- 

**Description:** See attached summary.

**Attachments (list documents supporting change):**

- 

Change in Contract Price		Change in Contract Time	
Original Contract Price		Original Contract Time (calendar days)	
Net Increase /(Decrease) from previous Change Orders		Net Increase /Decrease from previous Change Orders (days)	
Contract Price prior to this Change Order		Contract Time prior to this Change Order (calendar days)	
Net Increase/(Decrease) of this Change Order		Net Increase (Decrease) of this Change Order (days)	
Contract Price with this Change Order		Contract Time with this Change Order (calendar days)	

**RECOMMENDED:**

By: \_\_\_\_\_  
Engineer  
Date: \_\_\_\_\_

**RECOMMENDED:**

By: \_\_\_\_\_  
CPRA Construction Manager  
Date: \_\_\_\_\_

**ACCEPTED:**

By: \_\_\_\_\_  
Contractor  
Date: \_\_\_\_\_

**NORTH LAKE MECHANICAL SHEETPILE PLUG NO. 2 REPLACEMENT PROJECT (TE-44)**

**SUMMARY OF CHANGE ORDER NO: \_\_\_\_\_**

ITEM NO.	DESCRIPTION	UNIT	ORIGINAL QUANTITY	ADJUSTED QUANTITY	UNIT PRICE	AMOUNT OVERRUN	AMOUNT UNDERRUN
Net Increase of this Change Order							

**Justification:**

- 

No additional contract time is requested to accomplish the work for the change order.

❖ NOT FOR RECORDATION PURPOSES ❖

## RECOMMENDATION OF ACCEPTANCE

TO: Coastal Protection and Restoration Authority  
150 Terrace Ave.  
Baton Rouge, LA 70802

FROM: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
*Firm Name and Address*

DATE: \_\_\_\_\_

PROJECT NAME & NUMBER: \_\_\_\_\_

SITE CODE: \_\_\_\_\_ STATE ID: \_\_\_\_\_ CFMS: \_\_\_\_\_

CONTRACTOR: \_\_\_\_\_  
\_\_\_\_\_

ORIGINAL CONTRACT AMOUNT: \$ \_\_\_\_\_

FINAL CONTRACT AMOUNT: \$ \_\_\_\_\_

DATE OF ACCEPTANCE: \_\_\_\_\_

CONTRACT DATE OF COMPLETION: \_\_\_\_\_

NUMBER OF DAYS (OVERRUN) (UNDERRUN) (As of Acceptance Date) \_\_\_\_\_

LIQUIDATED DAMAGES PER DAY STIPULATED IN CONTRACT \$ \_\_\_\_\_

VALUE OF PUNCH LIST \$ \_\_\_\_\_

*(Attach Punch List)*

Signed: \_\_\_\_\_  
ENGINEER

**FOR USE OF PROJECT MANAGER:**

Signed: \_\_\_\_\_  
PROJECT MANAGER

❖ NOT FOR RECORDATION PURPOSES ❖

Appendix 'C'  
Landowners, Utility Operator, and Pipeline Company Contact  
Information and Landrights Memorandum

May 26, 2005

Memorandum

To: Ralph Libersat, CED Project Manager

From: Helen Hoffpauir, CRD Land Manager

RE: Completion of Landrights for North Lake Mechant Restoration Project TE-44

The CRD Land Section has completed additional landrights necessary to proceed to construction contracting on the above referenced project. The following information is being transmitted to you under cover of this memorandum:

<input checked="" type="checkbox"/> <i>Servitude Agreement(s)</i>	<input type="checkbox"/> <i>Grant of Particular Use</i>
<input checked="" type="checkbox"/> <i>Pipeline Agreement(s)</i>	<input checked="" type="checkbox"/> <i>State Land Office Letter of No Objection</i>
<input type="checkbox"/> <i>Oil/Gas Operator Agreement(s)</i>	<input type="checkbox"/> <i>Assignment of Rights to Federal Sponsor</i>
<input type="checkbox"/> <i>Memorandum(s) of Agreement</i>	<input type="checkbox"/> <i>Landrights Certification Letter</i>
<input checked="" type="checkbox"/> <i>CWPPRA Section 303(e) approval</i>	<input checked="" type="checkbox"/> <i>Other (Authorization for Entry for</i>
<input type="checkbox"/> <i>Right(s) of Entry for Construction</i>	<i>Construction, Letters of No Objection, Utility Access</i>
<input type="checkbox"/> <i>Mineral Operations Agreement(s)</i>	<i>Agreements)</i>

Please be aware of the following important information, some of which will be used in the contracting specifications and requirements:

**Easements, Servitudes and Rights-of-Way:**

**A. Apache Louisiana Minerals, Inc.**

1. STATE agrees to give reasonable notice to GRANTOR of the equipment type to be used prior to initiation of work, and the coordination of ingress or egress, if necessary, for the purposes required in implementing, constructing and maintaining the Project.



2. Should work on said Lands be performed via a contract, STATE shall ensure that the contractor lists GRANTOR as an additional insured on any policies carried by the contractor, including completed operations coverage. Such insurance policies shall provide that GRANTOR is, and will be, protected from and defended and insured against, without costs or expense to GRANTOR, any liability or loss (including loss of life), or damage to property of any kind, arising wholly or in part from or in connection with STATE operations hereunder on said Lands. The obligations of the STATE hereunder assumed to GRANTOR extend to any liens or claims (including lawsuits) asserted against GRANTOR'S Lands in respect to any work performed and/ or labor and materials supplied under, in respect to, or, as a consequence of any such STATE contract for performance of work on said Lands.
3. STATE shall verify that every contractor working on GRANTOR'S Lands shall maintain in full force, during the entire existence of this Agreement, Workman's Compensation Insurance in an amount necessary to satisfy the minimum requirements of the laws of the State of Louisiana.

Apache Louisiana Minerals, Inc. Contact Information:

Mr. John Woodard, or Mr. Tim Allen

Apache Louisiana Minerals, Inc.

1913 La Terre Court

Houma, LA 70363

P.O. Box 206

Houma, LA 70361

985-879-3526

B. Burlington Resources, Inc.

1. STATE agrees to give reasonable notice to GRANTOR of the equipment type to be used prior to initiation of work, and the coordination of ingress or egress, if necessary, for the purposes required in implementing, constructing and maintaining the Project.

2. Should work on said Lands be performed via a contract, STATE shall ensure that the contractor lists GRANTOR as an additional insured on any policies carried by the contractor, including completed operations coverage. Such insurance policies shall provide that GRANTOR is, and will be, protected from and defended and insured against, without costs or expense to GRANTOR, any liability or loss (including loss of life), or damage to property of any kind, arising wholly or in part from or in connection with STATE operations hereunder on said Lands. The obligations of the STATE hereunder assumed to GRANTOR extend to any liens or claims (including lawsuits) asserted against GRANTOR'S Lands in respect to any work performed and/ or labor and materials supplied under, in respect to, or, as a consequence of any such STATE contract for performance of work on said Lands.
3. STATE shall verify that every contractor working on GRANTOR'S Lands shall maintain in full force, during the entire existence of this Agreement, Workman's Compensation Insurance in an amount necessary to satisfy the minimum requirements of the laws of the State of Louisiana.
4. THIS IS FOR YOUR FUTURE REFERENCE ONLY!  
GRANTOR shall further have and expressly reserves unto itself, its heirs, successors, assigns, transferees or lessees (collectively, @grantor@), the right to alter the shoreline stabilization structures subject to the following conditions:
  - a. The only allowable purpose of such alteration is for the exploration and production of oil and/ or gas;
  - b. GRANTOR where practicable, shall provide STATE with sixty (60) days advance written notice of its intent to alter said canal earthen, rock and steel sheet pile plugs/ structures, shoreline stabilization and any other structures, except where emergency conditions require a rapid response, in which event LESSEE shall provide written notice to STATE within seventy-two (72) hours after a decision is made to take emergency action. For non-

emergency activities, GRANTOR agrees to consider and use alternate locations, if technically and economically feasible, to avoid alteration of said shoreline stabilization structures;

- c. For all plugs, shoreline stabilization, and structures, the alteration shall consist of the removal of plugs, shoreline stabilization and structures to establish a canal not to exceed eighty (80) feet wide. Dredged earthen material and/ or sediment is to be used so as to establish and maintain a continuous spoil bank around the canal, as shown on Exhibit B;
- d. Within three (3) months after production has ceased, or within three (3) months after a well is determined to be a @dry hole@, GRANTOR shall:
  - i. establish a rock plug or other suitable canal closure approved by the STATE across the canal as shown on Exhibit C in accordance with specifications (including gradation of rock, foundation support, e.g. geotextile, and dimensions) to be provided by the STATE; earthen material shall not be used as backfill below the canal plug(s); or
  - ii. establish a concrete sheetpile wall or other suitable closure approved by the STATE across the canal in accordance with specifications to be provided by the STATE; and
  - iii. if necessary to establish sufficient water circulation as jointly determined and defined by GRANTOR, STATE and the U.S. Fish and Wildlife Service, construct gaps in canal spoil bank.
- e. Any such alteration, subsequent restorations, or rebuilding of the shoreline stabilization structures shall be implemented at no cost to STATE.

Burlington Resources Contact Information:

Mr. Kermit Coulon or Mr. Jeff DeBlieux

806 Bayou Black Road  
Houma, LA 70360  
P.O. Box 7097  
Houma, LA 70361  
Ph 985-879-1517

**Pipelines:**

**A. Tennessee Gas Pipeline (TGP) Letter of No Objection:**

1. Said letter of no objection allows STATE, its successors, assigns or transferees to cross over TGP=s pipeline with floating equipment within the Project area. STATE, shall coordinate with TGP representatives prior to movement of equipment to ensure pipeline integrity is maintained throughout the duration of STATE=s project.
2. Location of ingress/ egress routes shall be coordinated with TGP prior to the commencement of construction activities.
3. STATE shall provide reasonable notice of ingress and egress to TGP, specifically to Mr. Larry Slowik, Houma Area Manager, 985-879-3516, ext. 2022.
4. STATE shall indemnify and hold TGP harmless from any loss, liability, claims or damages arising out of the Project activities where such loss, liability, claim or damage is caused by STATE, its employees, contractors or subcontractors.

**TGT Pipeline Contact Information:**

Mr. Kurt J. Cheramie  
Tennessee Gas Pipeline  
115 Regal Row  
Houma, Louisiana 70360  
985-868-6785 ext 2217  
Larry Slowik, Houma Area Manager, 985-879-3516, ext. 2022

**B. Texas Gas Transmission (TGT) Letter of No Objection**

5. Said letter of no objection allows STATE, its successors, assigns or transferees to cross over TGT\_s pipeline within the Project area.
6. Location of ingress/ egress routes shall be coordinated with TGT prior to the commencement of construction activities, and TGT will re-mark its pipeline prior to construction IF NECESSARY.
7. STATE shall provide reasonable notice of ingress and egress to TGT, specifically to Mr. Wayne Johns, Assistant District Manager, 985/ 631-0186, or his assigns as designated.
8. Letter of no objection is in effect for five (5) years only.

**TGT Pipeline Contact Information:**

Texas Gas Transmission  
1819 W. Pinhook Road, Suite 200  
Lafayette, LA 70508  
Wayne Johns\* 985/ 631-0186  
Rod Wimberley, Land Dept. (Lafayette LA office), Phone: (337) 501-4602/cell

**Utilities:**

**A. South Louisiana Electric Cooperative Association**

1. The State agrees not to unreasonably interfere with the rights of SLECA under the Right-of-Way.

The State agrees to notify SLECA not less than seventy-two (72) hours (Saturdays and Sundays are not included) in advance of any construction work pursuant to the Agreement within or adjacent to the areas affected by the Right-of-Way. Notice to SLECA may be given in person or by telephone to the Operations Superintendent or his assistant at (504) 876-6880.

1. SLECA hereby consents to the Agreement and to the exercise by the State of the rights granted in the Agreement, including the construction of the Project pursuant to the plans and specifications contained in the Agreement within or adjacent to the areas affected by the right-of-way and adjacent to the power line subject to the following conditions:
  - a. To the extent that relocation or modification of SLECA facilities is directly caused by the herein described project, State shall be responsible for actual costs directly associated with

such relocation or modification. The State shall be responsible for obtaining, and the costs of obtaining, rights-of-way made necessary by such relocation or modification.

- b. The State hereby obligates itself to advise each and every SLECA customer in the area who will be affected by the de-energization of the lines of the scope of the Project and the times during which the lines will be de-energized by having each customer sign the attached letter form made a part hereof as Exhibit A. Concerning these customers, SLECA will furnish the State with an active list of affected customers.
  - c. The State recognizes that the de-energizing of the subject SLECA facilities may cause inconveniences and potential loss to customers of SLECA. As such the State acknowledges that it is aware of the importance of advising each and every customer of SLECA of this project and the necessity for same. In connection therewith the State, therefore, agrees to assume and pay all damages caused to, customers of SLECA by the de-energization of the subject line including, but not necessarily limited to property damage, appliance damage, loss of food stuffs, inconvenience, personal injury and death and agrees that the State shall hold and save SLECA harmless from and shall indemnify SLECA, its employees, and agents against loss or damage of any kind, resulting in any way from injury to persons, including death, or damage to property, and any and all claims made by any customers of SLECA or any other parties including guests and third parties, arising out the construction, operation or maintenance of the Project herein contemplated including any operations of the employees, agents, or contractors of the State; except, however, the State shall have no liability and shall not be responsible for any personal injuries, death or property damage arising out of or resulting from the actions of SLECA\_s customers or from the negligence of SLECA or SLECA\_s customers.
  - d. Nothing in this Agreement shall be held to restrict SLECA\_s access or the access of its agents or contractors to its right-of-way and its facilities thereon for the purposes of inspection, operations, maintenance, repair, replacement, or relocation of said facilities. Should any fencing or similar impediment to access be installed by the State that would restrict SLECA\_s access in any way to its facilities, then the State agrees to provide a gate for access and to provide SLECA with keys to any locks on such gate or gates.
- 4. SLECA agrees to de-energize its powerlines during the time periods referenced below and as requested by State;
  - 5. State agrees to remove the SLECA identification sign prior to construction, and to re-install said sign upon completion of construction;
  - 6. The construction activity planned for the herein described project will require the de-energization of SLECA\_s facilities in the area. Accordingly, the State and SLECA agree as follows:
    - a. The electric facilities shall be de-energized from Monday morning at 9:00 a.m. until the following Thursday at 4:00 p.m. for such time as is required for the construction of the

- project.
- b. To facilitate such de-energization, while work is ongoing within 500 feet of SLECA facilities, the State agrees to meet with a representative of SLECA every Monday between 8:00 and 9:00 a.m. and every Thursday at approximately 4:00 p.m. at the Project site, and the representative of the State shall advise the SLECA representative of the status of the Project and whether or not there has been any damage to SLECA facilities during the course of the week\_s operations. SLECA shall also have the right, but not the responsibility, to inspect and observe the work being done by the State. In the event that SLECA feels any safety hazard is being created by such work, it shall have the right, although not the responsibility, to demand that the work cease until the problem is corrected.
  - c. State and SLECA agree that there shall be no de-energization of any electric facilities during the shrimp trawling season, August 15 through November 15 of a calendar year.
7. SLECA agrees that, for ordinary inspection, maintenance and repair activities within the Right-of-Way, no structures, improvements, constructions, and/or appurtenances constructed by the State pursuant to the Project shall be adjusted, removed and/or interfered with by SLECA or anyone holding rights by, through or under SLECA, without the prior coordination and approval of the State, which approval shall not be unreasonably withheld or delayed; and
8. SLECA agrees that, for emergency activities within the Right-of-Way that necessitate immediate action, SLECA shall notify the State of such emergency as soon as possible, but no later than twenty-four (24) hours after SLECA is made aware of the event necessitating the action. Notice to the State may be given in person or by telephone to North Lake Mechant Landbridge Restoration Project TE-44 Manager, Phone (504)342-7308, Department of Natural Resources, Coastal Restoration Division, P.O. Box 94396, Baton Rouge, LA 70804-9396.

SLECA Contact Information:

South Louisiana Electric Cooperative Association  
Operations Superintendent or assistant at (504) 876-6880  
P.O. Box 4037, Houma, LA 70381

Please be aware that **oyster lease issues are still outstanding** on this project. Oyster lease acquisition information should be coordinated through CRD, Restoration Technology Section, Jason Shackelford.

**This landrights completion memo will be sent to you in Apdf@ electronic format, which we request that you forward to project team members you deem necessary. Please include the land specialist in the ACC@ section of the e-mail as well.**

I WILL CONTACT YOU TO SCHEDULE A WRAP-UP MEETING TO DISCUSS THE REQUIREMENTS IN THE DOCUMENTS WHICH MAY HAVE AN IMPACT ON CONTRACTING SPECIFICATIONS. Thank you for your attention to this matter.

Should you need further information, please contact me at 225-342-9420.

c: Russ Joffrion, CED Project Engineer



## Appendix 'D'

### Design Geotechnical Data



July 21, 2020

MSMM Engineering, LLC  
4640 South Carrollton Avenue, Suite 220  
New Orleans, Louisiana 70119

Attention: Mr. Josh Carson

Reference: **Final Design Letter**  
**North Lake Mechant Landbridge Restoration (TE-44)**  
**Sheetpile Plug No. 2 Replacement**  
Terrebonne Parish, Louisiana  
S&ME Project No. 4589-18-001

Dear Mr. Carson:

S&ME, Inc. is pleased to submit this *Final Design Letter* for the subject project. We performed this work in general accordance with our Proposal No. 45-1800008, Revision 1, dated May 14, 2018. We did not receive any further comments after presenting our *90% Design Letter*, dated August 27, 2019. We are issuing this letter to summarize our final design recommendations for replacement sheetpile Plug No. 2.

## Project Background

Sheetpile Plug No. 2 of the North Lake Mechant Landbridge Restoration (TE-44) project is located between Lake Page and Lake Mechant. The original sheetpile plug was constructed circa 2008. We were provided with the following documents related to the original sheetpile plug construction: *Report of Geotechnical Investigation*, dated October 31, 2002, prepared by Soil Testing Engineers, Inc. for the TE-44 project; and the *North Lake Mechant Landbridge Restoration Project* final plans, dated January 2008, prepared by the Coastal Engineering Division. It is our understanding that sheetpile plug No. 2 was severely damaged during or immediately after Hurricane Isaac in 2012 and needs to be replaced.

## Summary of Existing Plug Designs

As noted above, we were provided with the design plans for the existing sheetpile plugs. In the table below, we have summarized design features of the existing plugs based on the provided plans for Sheetpile Plug Nos. 1, 2, and 3.

**Summary of Previous Sheetpile Plug Sections**

Plug No.	Top of Wall Elevation (feet)	Mudline Elevation (feet)	Min. Tip Elevation (feet)	Cantilever Height (feet)	Pile Embedment (feet)	Embedment / Cantilever Ratio
1	+ 4	- 8	- 35	12	27	2.25
2	+ 4	- 9	- 23	13	14	1.1
3	+ 4	- 10.5	- 44.5	14.5	34	2.3

Note that the ratio of the pile embedment to the cantilever height for Sheetpile Plug No. 2 is only about 1.1 whereas the embedment-to-height ratios for Plug Nos. 1 and 3, which, as we understand, are still performing well, range from 2.2 to 2.3. The plans specify a LX16 sheetpile section for each of the three plugs, which has a moment of inertia of about 228 in<sup>4</sup> per foot of width.

## Design Summary

Geotechnical engineering analyses were performed to determine the required embedment depth of cantilever sheet pile plug wall sections using classical soil mechanics procedures and to estimate the sheet pile deflections at the mudline and top of plug wall using the p-y curve method. Our limit equilibrium stability analyses were performed using the software program *CWALSHT*, developed by the U.S. Army Corps of Engineers, to determine the embedment depth needed to achieve a computed factor of safety of 1.5 for both the active and passive sides of the sheet pile wall. Sheet pile plug deflections were analyzed using the software program *PYWall*.

## Proposed Plug Geometry

Our understanding of the plug wall configuration and geometry is based on the attached "Proposed Site Plan", Sheet C-101, dated August 2018, received via email on April 12, 2019, and prepared by MSMM Engineering, LLC. The proposed replacement sheet pile plug will be located about 175 feet north of the existing failed plug and will consist of an approximately 250 feet long sheet pile wall constructed across the channel with a top elevation of +4 feet, NAVD88. The sheetpile wall will begin at Station 2+24.56 and end at Station 4+75.44.

The site plan provided by MSMM Engineering, LLC indicates three different pile section and tip elevation combinations will be used for the wall, designated as Plug Section Nos. 1 through 3 in this letter. Plug Section Nos. 1 and 2 will consist of a PZC-26 sheetpile with tip elevations of -26 and -46 feet, NAVD88, respectively. Plug Section No. 3 will consist of a combi-wall section with a tip elevation of -58 feet. We understand that the combi-wall section will consist of 30-inch diameter, 0.5 inch wall thickness pipe piles connected by PZC-26 intermediate sheets.

The approximate extents of each of the three Plug Sections are shown on the attached Proposed Design Mudline and Plug Sections (Figure 1). The mudline elevations used for design are indicated in red. For each of the three Plug Sections, we evaluated the minimum pile tip elevation and estimated wall deflections.

## Soil Conditions

Our interpretation of the soil conditions at the site is based on the Soil Parameter plots in Attachment B-1 that summarize soil conditions and laboratory test results for boring No. B-7 from the 2002 geotechnical report and boring No. B-1, performed by S&ME. Our selected soil properties are summarized in the table below.

**Summary of Soil Properties**

Top Elevation (feet)	Bottom Elevation (feet)	Total Unit Weight (pcf)	Undrained Shear Strength (psf)
-15.5	-20.5	90	200
-20.5	-31	85	300
-31	-62	100	400
-62	-	110	560

### *Loading*

In our May 7, 2019 66% *Design Letter*, the design for all three of the plug sections considered the following loading conditions: (i) a differential hydrostatic pressure due to a water elevation at Elevation +4 Feet, NAVD88, on the upstream side of the wall and Elevation 0 Feet on the downstream wall; and (ii) wave loading acting on the wall with a magnitude of 50 pounds/foot at Elevation +4 Feet, NAVD88 that decreases linearly to 20 pounds per foot at the mudline elevation (varies).

A subsequent *Technical Memorandum*, prepared by Mott MacDonald and dated July 10, 2019, provided revised hydrostatic and hydrodynamic (wave) design loads for the sheetpile plug for return periods of 5, 10, 25, and 50 years. The hydrostatic load for all return periods is based on a high-water surface elevation of +1.6 feet, NAVD88, on one side of the wall and a low water surface elevation of -0.75 feet, NAVD88, on the opposite side of the wall. The hydrodynamic load is based on three pressure ordinates, identified as P1, P2, and P3, that occur at the high-water surface elevation, top of wall, and mudline, respectively. The revised hydrodynamic pressures from the July 10, 2019 *Technical Memorandum* are summarized in the table below.

**Hydrodynamic Pressures, in psf**

Location	Return Period			
	5 Year	10 Year	25 Year	50 Year
P1	69.6	93.9	123.6	144.8
P2	8.1	32.3	62.0	83.2
P3	0	0	0	0

Revised loading information was only provided for Plug Section No. 3. For all return periods, the combined hydrostatic and hydrodynamic loading results in less total force per foot of wall than the loading conditions reflected in our May 7, 2019 66% *Design Letter*. Therefore, we have revised our analyses for Plug Section No. 3 using the loading information provided in the July 2019 *Technical Memorandum*. Analyses and design recommendations provided in our May 7, 2019 letter report for Plug Section Nos. 1 and 2 remain applicable.

### *Sheetpile Deflection*

In order to estimate the sheetpile deflection, the wall was analyzed using the software program *PYWall*, which uses the p-y curve method to analyze deflections of retaining walls. Our *PYWall* models were setup using the sheet pile tip elevation calculated using the *CWALSH*T program and incorporating the same input soil parameters and loading conditions. A factor of safety of 1 was used for the soil parameters to represent a service condition.

### *Design Recommendations*

Our design recommendations are summarized in the table below. The *CWALSHT* and *PYWall* output files are attached. The maximum estimated deflections at the top of the wall and at the mudline under wave loading condition with a factor of safety of 1 are 6.3 and 3.2 inches, respectively.

**Summary of Design Recommendations**

Plug Section	Sheetpile Section	Top Elevation (feet)	Mudline Elevation (feet)	Tip Elevation (feet)	Sheetpile Height (feet)	Estimated Deflection at Top of Wall (inch)	Estimated Deflection at Mudline (inch)
1	PZC-26	+4	-3	-26	30	4.0	2.9
2	PZC-26	+4	-11	-46	50	6.3	3.2
3	Combi-wall*	+4	-15.5	-56	60	3.1	1.2

Notes:

\* Combi-wall to consist of 30 inch diameter, 0.5 inch wall thickness pipe piles driven to a tip elevation of -56 feet, NAVD88 connected by PZC-26 intermediate sheets.

For perspective in terms of resiliency, additional stability and deflection analyses were performed for a hypothetical "worst-case" loading condition, where the revised hydrodynamic loading conditions tabulated above are combined with the previously assumed hydrostatic loading the water surface at the top of wall elevation of +4 feet, NAVD88. Results of these analyses for Plug Section No. 3 yielded a stability factor of safety of 1.3, which we would consider adequate for these hypothetical "worst case" conditions, and estimated deflection at the top of wall of 6.4 inches, which is similar to the estimate deflection for Plug Section No. 2 under its design loading conditions.

### **Acknowledgement**

We appreciate the opportunity to continue to serve as your geotechnical engineering consultant for this project. Please contact us with questions regarding this letter, or if we may be of further service.

Sincerely,

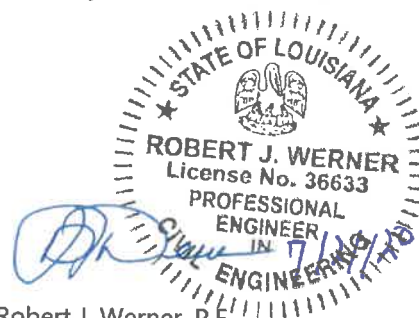
**S&ME, Inc.**



Gregory A. Mattson, II, P.E.  
Office Principal

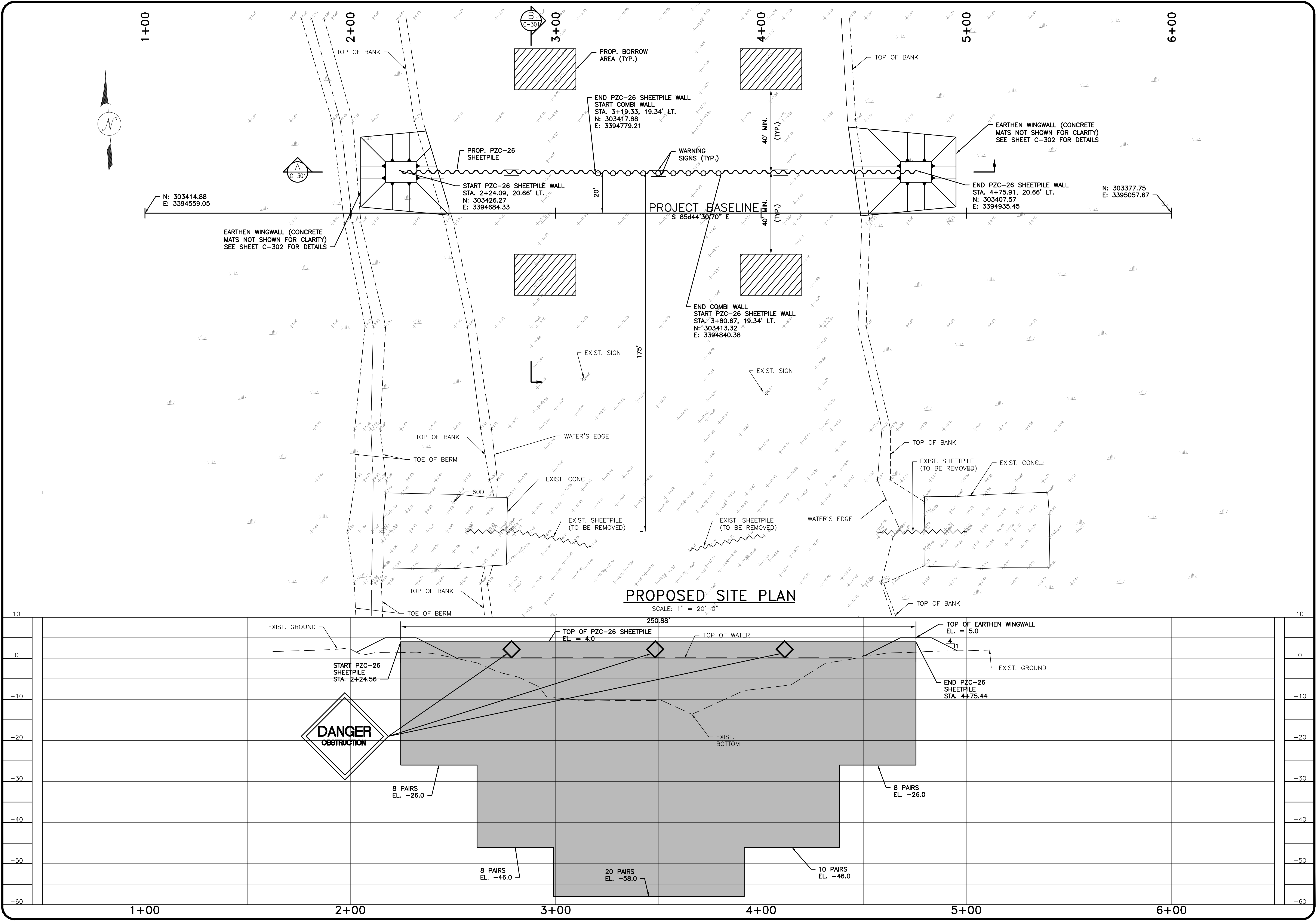
### **Attachments**

*Proposed Site Plan*  
*Proposed Design Mudline*  
*B-1 Soil Parameter Plots*  
*CWALSHT Output*  
*PYWall Output*



Robert J. Werner, P.E.  
Principal Engineer





REV.	DATE	DESCRIPTION	BY



**MSMM**  
ENGINEERING, LLC

DESIGNED BY: J.A.W.  
DRAWN BY: E.M.C.

DRAWING: PROP. SITE  
CHECKED BY: S.G.C.

APPROVED BY:  
M.M.

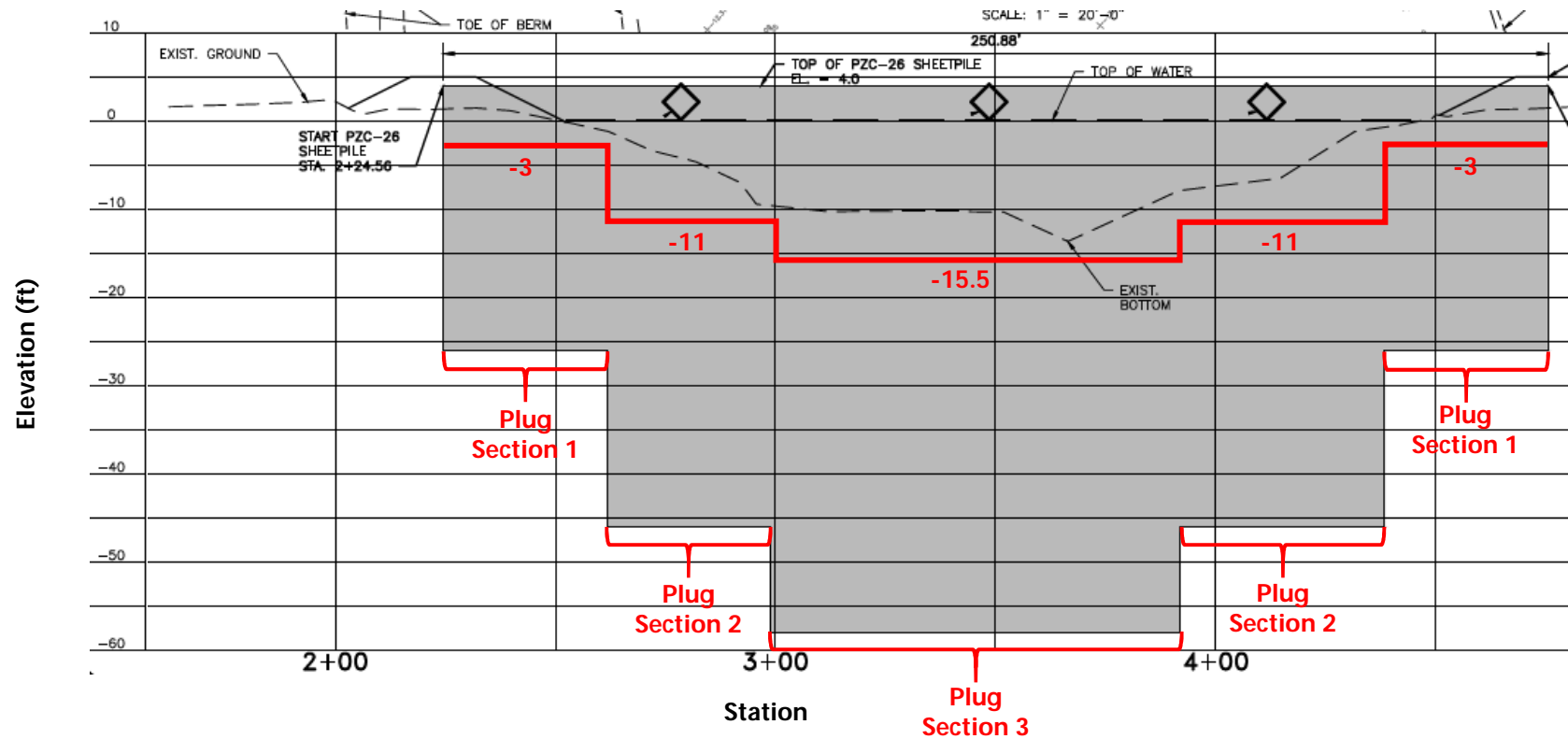
PROJECT NAME  
NORTH LAKE MECHANT LANDBRIDGE  
SHEETPILE PLUG NO. 2 REPLACEMENT  
TERREBONNE PARISH, LOUISIANA

SHEET TITLE  
PROPOSED SITE PLAN

DATE  
AUGUST, 2018

PROJECT NO.  
1218-10

SHEET NO.  
C-101



**REFERENCE:**  
Existing groundline, top of sheetpile, top of water from *Proposed Site Plan*, dated August 2018, prepared by MSMM Engineering, LLC

**DRAWING FOR ILLUSTRATION PURPOSES ONLY**

**LEGEND:**

— -2 PROPOSED DESIGN MUDLINE ELEVATION (FT)



## PROPOSED DESIGN MUDLINE AND PLUG SECTIONS

NORTH LAKE MECHANIC LANDBRIDGE RESTORATION (TE-44)  
SHEETPILE PLUG NO. 2 REPLACEMENT  
TERREBONNE PARISH, LOUISIANA

SCALE:  
NOT TO SCALE

DATE:  
5-6-2019

PROJECT NUMBER  
4589-18-001

FIGURE NO.

1

REVISION NO.

1

Drawing path: T:\Projects\2018\ENV\4589-18-001 N Lake Mechant Landbridge TE-44\CAD\Soil Parameter Plot (NEW & OLD).dwg

MUDLINE ELEVATION  
= -13.6 FEET



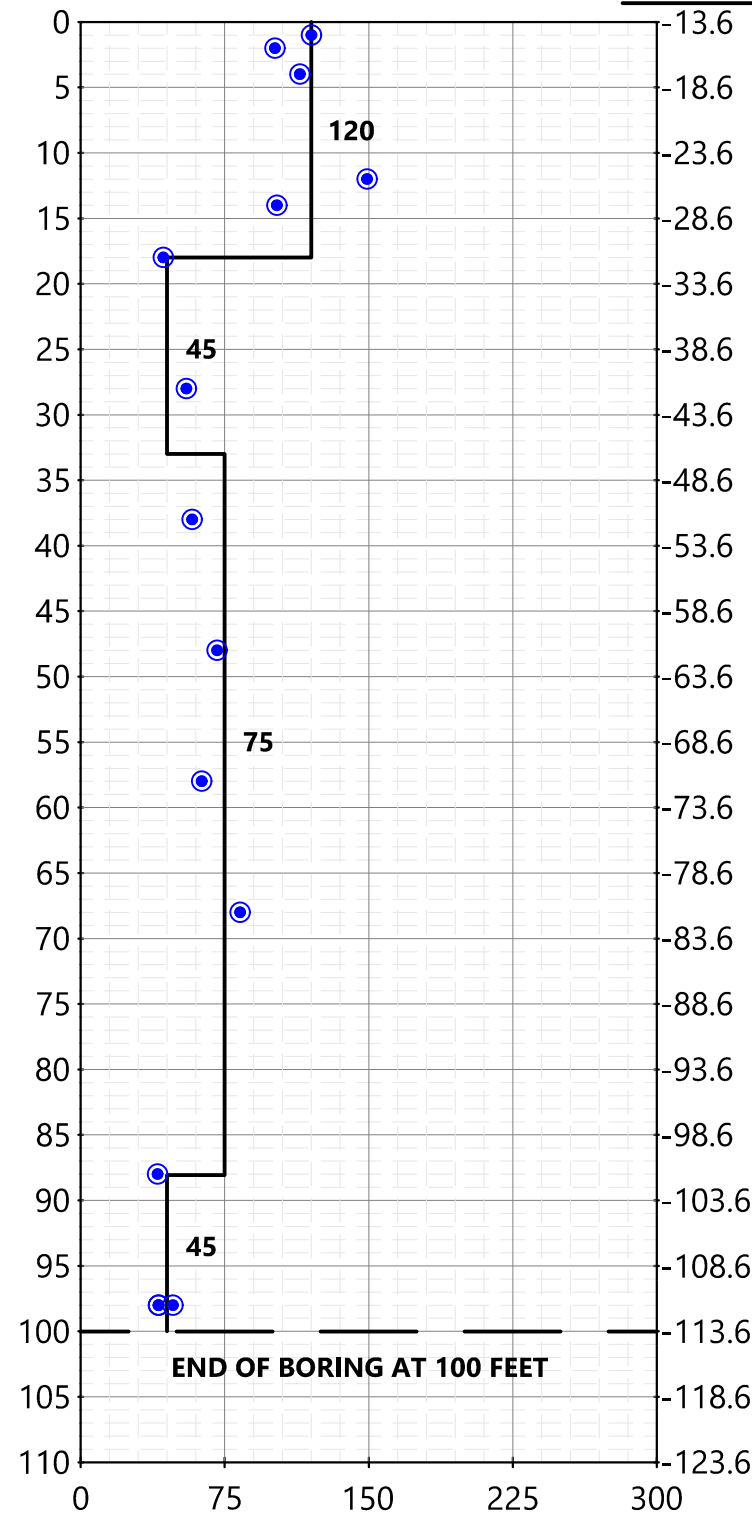
B-7\*

B-1

DEPTH BELOW MUDLINE (FEET)

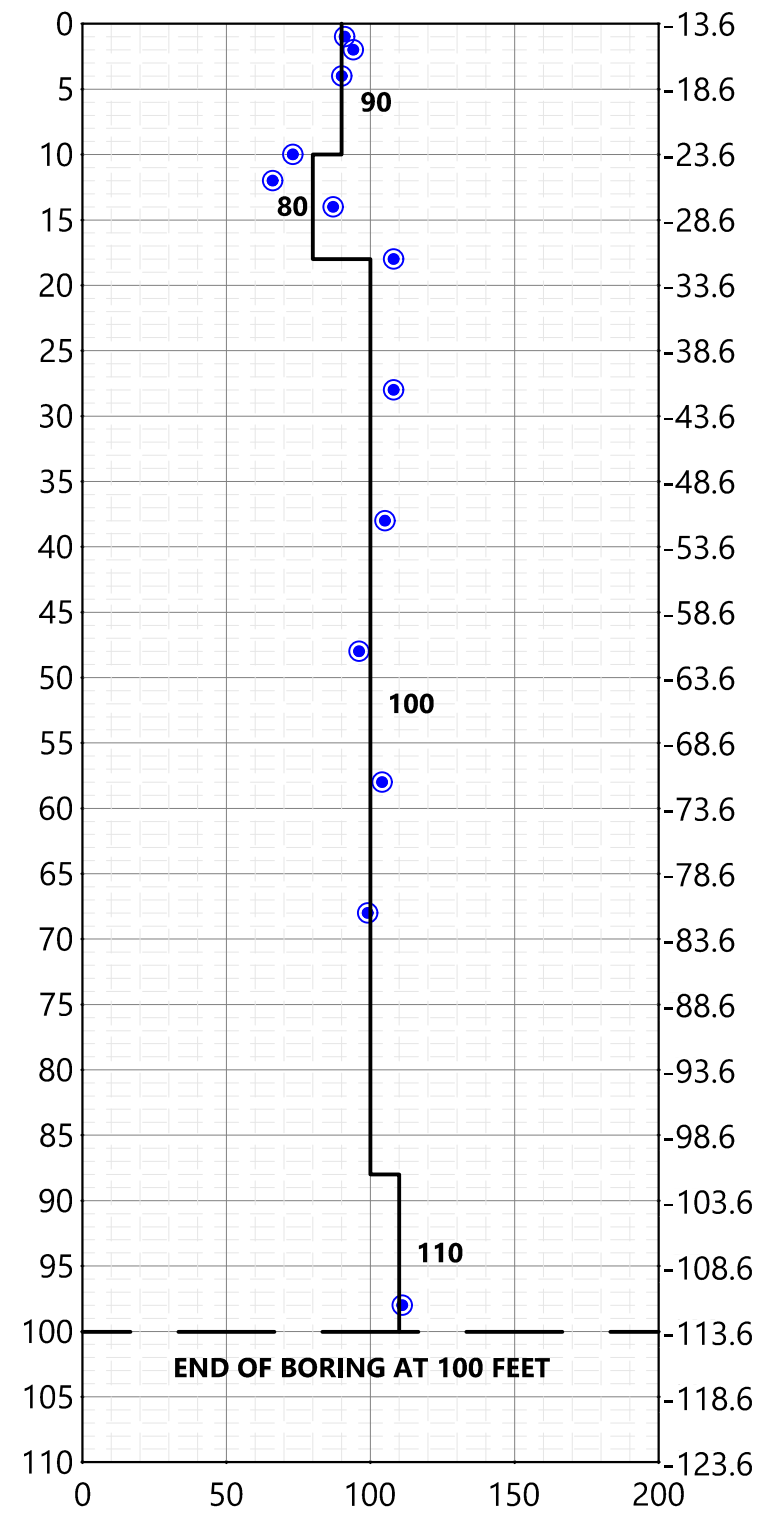
MOISTURE CONTENT (PERCENT)

ELEVATION



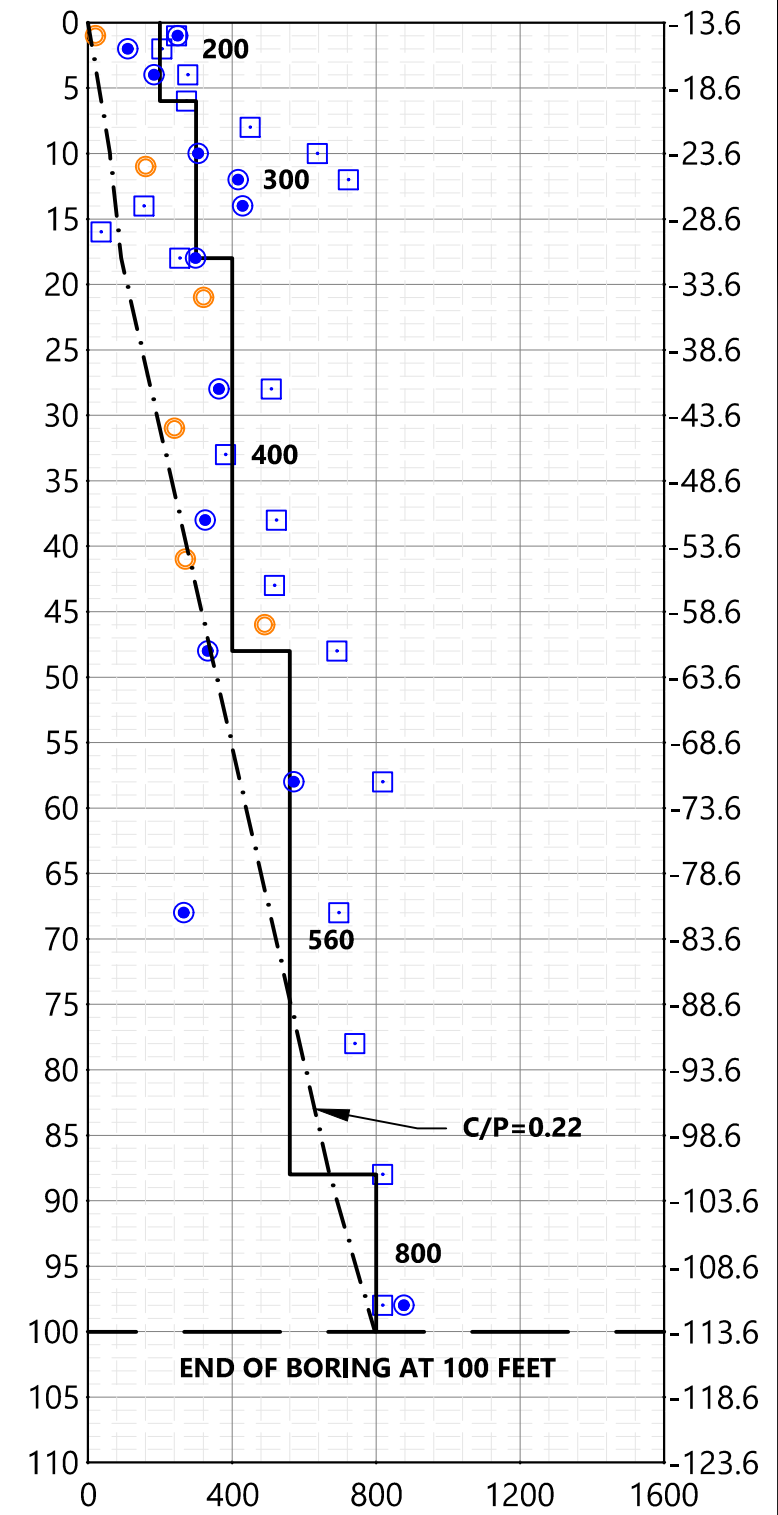
TOTAL UNIT WEIGHT (POUNDS PER CUBIC FOOT)

DEPTH BELOW MUDLINE (FEET)



SHEAR STRENGTH (POUNDS PER SQUARE FOOT)

DEPTH BELOW MUDLINE (FEET)



LEGEND

● CURRENT LABRATORY DATA

□ MINI VANE DATA

○ DATA FROM PREVIOUS REPORT\*

- · - NORMALLY CONSOLIDATED LINE (C/P)

▨ HIGH PLASTICITY CLAY (CH)

▨ LOW PLASTICITY SILT (ML)

▨ LOW PLASTICITY CLAY (CL)

▨ HIGH PLASTICITY ORGANIC CLAY (OH)

▨ SILTY CLAY (CL-ML)

\*DATA FROM PREVIOUS GEOTECHNICAL  
REPORT BY STE, DATED 10-31-2002.



## B-1 SOIL PARAMETER PLOTS

NORTH LAKE MECHANT LANDBRIDGE RESTORATION (TE-44)

STEEL SHEETPILE PLUG NO. 2 REPLACEMENT  
TERREBONNE PARISH, LOUISIANA

SCALE:

NTS

DATE:

02/22/2019

PROJECT NUMBER

4589-18-001

FIGURE NO.



Section 1.out  
PROGRAM CWALSHT-DESIGN/ANALYSIS OF ANCHORED OR CANTILEVER SHEET PILE WALLS  
BY CLASSICAL METHODS

DATE: 26-APRIL-2019

TIME: 14:52:13

\*\*\*\*\*  
\* INPUT DATA \*  
\*\*\*\*\*

I.--HEADING  
'LAKE MECHANIC BARRIER WALL  
'CANTILEVER RETAINING WALL AT SECTION 1  
'DESIGN FOR FS=1.5 ON BOTH ACTIVE AND PASSIVE

II.--CONTROL  
CANTILEVER WALL DESIGN  
FACTOR OF SAFETY FOR ACTIVE PRESSURES = 1.50  
FACTOR OF SAFETY FOR PASSIVE PRESSURES = 1.50

III.--WALL DATA  
ELEVATION AT TOP OF WALL = 4.00 FT.

IV.--SURFACE POINT DATA

IV.A.--RIGHTSIDE  
DIST. FROM WALL (FT) ELEVATION (FT)  
40.00 -3.00

IV.B.--LEFTSIDE  
DIST. FROM WALL (FT) ELEVATION (FT)  
40.00 -3.00

V.--SOIL LAYER DATA

V.A.--RIGHTSIDE  
LEVEL 2 FACTOR OF SAFETY FOR ACTIVE PRESSURE = 1.50  
LEVEL 2 FACTOR OF SAFETY FOR PASSIVE PRESSURE = 1.50

SAT. WGHT. (PCF)	MOIST WGHT. (PCF)	ANGLE OF INTERNAL FRICTION (DEG)	COHESION (PSF)	ANGLE OF WALL FRICTION (DEG)	ADHESION (PSF)	<--BOTTOM--> ELEV. (FT) SLOPE (FT/FT)		<-SAFETY-> <-FACTOR-> ACT. PASS.	
90.00	90.00	0.00	200.00	0.00	0.00	-20.50	0.00	DEF	DEF
85.00	85.00	0.00	300.00	0.00	0.00	-31.00	0.00	DEF	DEF
100.00	100.00	0.00	400.00	0.00	0.00	-62.00	0.00	DEF	DEF
110.00	110.00	0.00	560.00	0.00	0.00			DEF	DEF

V.B.--LEFTSIDE  
LEVEL 2 FACTOR OF SAFETY FOR ACTIVE PRESSURE = 1.50  
LEVEL 2 FACTOR OF SAFETY FOR PASSIVE PRESSURE = 1.50

SAT. WGHT. (PCF)	MOIST WGHT. (PCF)	ANGLE OF INTERNAL FRICTION (DEG)	COHESION (PSF)	ANGLE OF WALL FRICTION (DEG)	ADHESION (PSF)	<--BOTTOM--> ELEV. (FT) SLOPE (FT/FT)		<-SAFETY-> <-FACTOR-> ACT. PASS.	
90.00	90.00	0.00	200.00	0.00	0.00	-20.50	0.00	DEF	DEF
85.00	85.00	0.00	300.00	0.00	0.00	-31.00	0.00	DEF	DEF
100.00	100.00	0.00	400.00	0.00	0.00	-62.00	0.00	DEF	DEF
110.00	110.00	0.00	560.00	0.00	0.00			DEF	DEF

VI.--WATER DATA  
UNIT WEIGHT = 64.00 (PCF)

Section 1.out

RIGHTSIDE ELEVATION = 4.00 (FT)  
LEFTSIDE ELEVATION = 0.00 (FT)  
NO SEEPAGE

VII.--VERTICAL SURCHARGE LOADS  
NONE

VIII.--HORIZONTAL LOADS

VIII.A.--HORIZONTAL LINE LOADS  
NONE

VIII.B.--HORIZONTAL DISTRIBUTED LOADS

ELEVATION (FT)	DIST. LOAD (PSF)
4.00	50.00
-3.00	20.00

PROGRAM CWALSHT-DESIGN/ANALYSIS OF ANCHORED OR CANTILEVER SHEET PILE WALLS  
BY CLASSICAL METHODS

DATE: 26-APRIL-2019

TIME: 14:52:39

\*\*\*\*\*  
\* SOIL PRESSURES FOR \*  
\* CANTILEVER WALL DESIGN \*  
\*\*\*\*\*

I.--HEADING  
'LAKE MECHANT BARRIER WALL  
'CANTILEVER RETAINING WALL AT SECTION 1  
'DESIGN FOR FS=1.5 ON BOTH ACTIVE AND PASSIVE

II.--SOIL PRESSURES

RIGHTSIDE SOIL PRESSURES DETERMINED BY COULOMB COEFFICIENTS  
AND THEORY OF ELLASTICITY EQUATIONS FOR SURCHARGE LOADS.

LEFTSIDE SOIL PRESSURES DETERMINED BY COULOMB COEFFICIENTS  
AND THEORY OF ELLASTICITY EQUATIONS FOR SURCHARGE LOADS.

NET SOIL PRESSURES INCLUDE APPLIED HORIZONTAL DISTRIBUTED LOADS.

ELEV. (FT)	NET WATER (PSF)	<---LEFTSIDE--->		<-----NET-----> (SOIL + WATER)		<---RIGHTSIDE--->	
		PASSIVE (PSF)	ACTIVE (PSF)	ACTIVE (PSF)	PASSIVE (PSF)	ACTIVE (PSF)	PASSIVE (PSF)
4.0	0.0	0.0	0.0	50.0	50.0	0.0	0.0
3.0	64.0	0.0	0.0	109.7	109.7	0.0	0.0
2.0	128.0	0.0	0.0	169.4	169.4	0.0	0.0
1.0	192.0	0.0	0.0	229.1	229.1	0.0	0.0
0.0	256.0	0.0	0.0	288.9	288.9	0.0	0.0
-1.0	256.0	0.0	0.0	284.6	284.6	0.0	0.0
-2.0	256.0	0.0	0.0	280.3	280.3	0.0	0.0
-3.0+	256.0	0.0	0.0	276.0	276.0	0.0	0.0

Section 1.out							
-3.0-	256.0	266.7	0.0	-10.7	522.7	0.0	266.7
-4.0	256.0	292.7	0.0	-36.7	548.7	0.0	292.7
-5.0	256.0	318.7	0.0	-62.7	574.7	0.0	318.7
-6.0	256.0	344.7	0.0	-88.7	600.7	0.0	344.7
-7.0	256.0	370.7	0.0	-114.7	626.7	0.0	370.7
-8.0	256.0	396.7	0.0	-140.7	652.7	0.0	396.7
-9.0	256.0	422.7	0.0	-166.7	678.7	0.0	422.7
-10.0	256.0	448.7	0.0	-192.7	704.7	0.0	448.7
-11.0	256.0	474.7	0.0	-218.7	730.7	0.0	474.7
-12.0	256.0	500.7	0.0	-244.7	756.7	0.0	500.7
-13.0	256.0	526.7	0.0	-270.7	782.7	0.0	526.7
-13.3	256.0	533.3	0.0	-277.3	789.3	0.0	533.3
-14.0	256.0	552.7	19.3	-277.3	789.3	19.3	552.7
-15.0	256.0	578.7	45.3	-277.3	789.3	45.3	578.7
-16.0	256.0	604.7	71.3	-277.3	789.3	71.3	604.7
-17.0	256.0	630.7	97.3	-277.3	789.3	97.3	630.7
-18.0	256.0	656.7	123.3	-277.3	789.3	123.3	656.7
-19.0	256.0	682.7	149.3	-277.3	789.3	149.3	682.7
-20.0	256.0	708.7	175.3	-277.3	789.3	175.3	708.7
-20.5+	256.0	721.7	188.3	-410.7	922.7	188.3	721.7
-20.5-	256.0	855.0	55.0	-410.7	922.7	55.0	855.0
-21.0	256.0	865.5	65.5	-544.0	1056.0	65.5	865.5
-22.0	256.0	886.5	86.5	-544.0	1056.0	86.5	886.5
-23.0	256.0	907.5	107.5	-544.0	1056.0	107.5	907.5
-24.0	256.0	928.5	128.5	-544.0	1056.0	128.5	928.5
-25.0	256.0	949.5	149.5	-544.0	1056.0	149.5	949.5
-26.0	256.0	970.5	170.5	-544.0	1056.0	170.5	970.5
-27.0	256.0	991.5	191.5	-544.0	1056.0	191.5	991.5
-28.0	256.0	1012.5	212.5	-544.0	1056.0	212.5	1012.5
-29.0	256.0	1033.5	233.5	-544.0	1056.0	233.5	1033.5
-30.0	256.0	1054.5	254.5	-544.0	1056.0	254.5	1054.5
-31.0+	256.0	1075.5	275.5	-677.3	1189.3	275.5	1075.5
-31.0-	256.0	1208.8	142.2	-677.3	1189.3	142.2	1208.8
-32.0	256.0	1244.8	178.2	-810.7	1322.7	178.2	1244.8
-33.0	256.0	1280.8	214.2	-810.7	1322.7	214.2	1280.8
-34.0	256.0	1316.8	250.2	-810.7	1322.7	250.2	1316.8

PROGRAM CWALSHT-DESIGN/ANALYSIS OF ANCHORED OR CANTILEVER SHEET PILE WALLS  
 BY CLASSICAL METHODS  
 DATE: 26-APRIL-2019 TIME: 14:52:40

\*\*\*\*\*  
 \* SUMMARY OF RESULTS FOR \*  
 \* CANTILEVER WALL DESIGN \*  
 \*\*\*\*\*

I.--HEADING  
 'LAKE MECHANT BARRIER WALL  
 'CANTILEVER RETAINING WALL AT SECTION 1  
 'DESIGN FOR FS=1.5 ON BOTH ACTIVE AND PASSIVE

II.--SUMMARY

RIGHTSIDE SOIL PRESSURES DETERMINED BY COULOMB COEFFICIENTS  
 Page 3

Section 1.out  
AND THEORY OF ELLASTICITY EQUATIONS FOR SURCHARGE LOADS.

LEFTSIDE SOIL PRESSURES DETERMINED BY COULOMB COEFFICIENTS  
AND THEORY OF ELLASTICITY EQUATIONS FOR SURCHARGE LOADS.

WALL BOTTOM ELEV. (FT) : -25.55  
PENETRATION (FT) : 22.55  
  
MAX. BEND. MOMENT (LB-FT) : 1.4760E+04  
AT ELEVATION (FT) : -13.43  
  
MAX. SCALED DEFL. (LB-IN^3): 6.4820E+09  
AT ELEVATION (FT) : 4.00

NOTE: DIVIDE SCALED DEFLECTION MODULUS OF  
ELLASTICITY IN PSI TIMES PILE MOMENT  
OF INERTIA IN IN^4 TO OBTAIN DEFLECTION  
IN INCHES.

PROGRAM CWALSHT-DESIGN/ANALYSIS OF ANCHOREDOR CANTILEVER SHEET PILE WALLS  
BY CLASSICAL METHODS

DATE: 26-APRIL-2019

TIME: 14:52:40

\*\*\*\*\*  
\* COMPLETE OF RESULTS FOR \*  
\* CANTILEVER WALL DESIGN \*  
\*\*\*\*\*

I.--HEADING

'LAKE MECHANT BARRIER WALL  
'CANTILEVER RETAINING WALL AT SECTION 1  
'DESIGN FOR FS=1.5 ON BOTH ACTIVE AND PASSIVE

II.--RESULTS

ELEVATION (FT)	BENDING MOMENT (LB-FT)	SHEAR (LB)	SCALED DEFLECTION (LB-IN^3)	NET PRESSURE (PSF)
4.00	0.0000E+00	0.	6.4820E+09	50.00
3.00	3.4952E+01	80.	6.0921E+09	109.71
2.00	1.7962E+02	219.	5.7022E+09	169.43
1.00	4.9371E+02	419.	5.3126E+09	229.14
0.00	1.0370E+03	678.	4.9239E+09	288.86
-1.00	1.8584E+03	964.	4.5371E+09	284.57
-2.00	2.9644E+03	1247.	4.1535E+09	280.29
-3.00+	4.3507E+03	1525.	3.7751E+09	276.00
-3.00-	4.3507E+03	1525.	3.7751E+09	-10.67
-4.00	5.8660E+03	1501.	3.4042E+09	-36.67
-5.00	7.3447E+03	1452.	3.0435E+09	-62.67
-6.00	8.7607E+03	1376.	2.6954E+09	-88.67
-7.00	1.0088E+04	1274.	2.3624E+09	-114.67
-8.00	1.1301E+04	1147.	2.0469E+09	-140.67
-9.00	1.2373E+04	993.	1.7509E+09	-166.67
-10.00	1.3278E+04	813.	1.4762E+09	-192.67
-11.00	1.3991E+04	608.	1.2245E+09	-218.67
-12.00	1.4485E+04	376.	9.9685E+08	-244.67
-13.00	1.4734E+04	118.	7.9424E+08	-270.67
-13.26	1.4755E+04	48.	7.4637E+08	-277.33
-14.00	1.4714E+04	-158.	6.1705E+08	-277.33

# Section 1.out

-15.00	1.4418E+04	-435.	4.6524E+08	-277.33
-16.00	1.3843E+04	-713.	3.3831E+08	-277.33
-17.00	1.2992E+04	-990.	2.3526E+08	-277.33
-18.00	1.1863E+04	-1267.	1.5462E+08	-277.33
-19.00	1.0457E+04	-1545.	9.4440E+07	-277.33
-20.00	8.7736E+03	-1822.	5.2290E+07	-277.33
-20.24	8.3244E+03	-1897.	4.4492E+07	-341.79
-20.50	7.8238E+03	-1976.	3.7086E+07	-273.82
-21.00	6.8068E+03	-2080.	2.5259E+07	-142.26
-22.00	4.6991E+03	-2091.	9.9694E+06	120.88
-23.00	2.7122E+03	-1839.	2.8172E+06	384.01
-24.00	1.1093E+03	-1323.	4.0694E+05	647.15
-25.00	1.5356E+02	-544.	6.7119E+03	910.28
-25.55	0.0000E+00	0.	0.0000E+00	1056.00

NOTE: DIVIDE SCALED DEFLECTION MODULUS OF  
ELLASTICITY IN PSI TIMES PILE MOMENT  
OF INERTIA IN IN^4 TO OBTAIN DEFLECTION  
IN INCHES.

## III.--WATER AND SOIL PRESSURES

ELEVATION (FT)	WATER PRESSURE (PSF)	<-----SOIL PRESSURES----->			
		<----LEFTSIDE----->		<---RIGHTSIDE----->	
		PASSIVE (PSF)	ACTIVE (PSF)	ACTIVE (PSF)	PASSIVE (PSF)
4.00	0.	0.	0.	0.	0.
3.00	64.	0.	0.	0.	0.
2.00	128.	0.	0.	0.	0.
1.00	192.	0.	0.	0.	0.
0.00	256.	0.	0.	0.	0.
-1.00	256.	0.	0.	0.	0.
-2.00	256.	0.	0.	0.	0.
-3.00+	256.	0.	0.	0.	0.
-3.00-	256.	267.	0.	0.	267.
-4.00	256.	293.	0.	0.	293.
-5.00	256.	319.	0.	0.	319.
-6.00	256.	345.	0.	0.	345.
-7.00	256.	371.	0.	0.	371.
-8.00	256.	397.	0.	0.	397.
-9.00	256.	423.	0.	0.	423.
-10.00	256.	449.	0.	0.	449.
-11.00	256.	475.	0.	0.	475.
-12.00	256.	501.	0.	0.	501.
-13.00	256.	527.	0.	0.	527.
-13.26	256.	533.	0.	0.	533.
-14.00	256.	553.	19.	19.	553.
-15.00	256.	579.	45.	45.	579.
-16.00	256.	605.	71.	71.	605.
-17.00	256.	631.	97.	97.	631.
-18.00	256.	657.	123.	123.	657.
-19.00	256.	683.	149.	149.	683.
-20.00	256.	709.	175.	175.	709.
-20.24	256.	715.	117.	182.	715.
-20.50+	256.	722.	188.	188.	722.
-20.50-	256.	855.	55.	55.	855.
-21.00	256.	866.	66.	66.	866.
-22.00	256.	887.	87.	87.	887.
-23.00	256.	908.	108.	108.	908.
-24.00	256.	929.	129.	129.	929.
-25.00	256.	950.	150.	150.	950.
-25.55	256.	971.	171.	171.	971.
-27.00	256.	992.	192.	192.	992.

Section 1.out

Section 2.out  
PROGRAM CWALSHT-DESIGN/ANALYSIS OF ANCHORED OR CANTILEVER SHEET PILE WALLS  
BY CLASSICAL METHODS

DATE: 6-MAY-2019

TIME: 13:58:44

\*\*\*\*\*  
\* INPUT DATA \*  
\*\*\*\*\*

I.--HEADING  
'LAKE MECHANIC BARRIER WALL  
'CANTILEVER RETAINING WALL AT SECTION 2  
'DESIGN FOR FS=1.5 ON BOTH ACTIVE AND PASSIVE

II.--CONTROL  
CANTILEVER WALL DESIGN  
FACTOR OF SAFETY FOR ACTIVE PRESSURES = 1.50  
FACTOR OF SAFETY FOR PASSIVE PRESSURES = 1.50

III.--WALL DATA  
ELEVATION AT TOP OF WALL = 4.00 FT.

IV.--SURFACE POINT DATA

IV.A.--RIGHTSIDE  
DIST. FROM ELEVATION  
WALL (FT) (FT)  
40.00 -11.00

IV.B.--LEFTSIDE  
DIST. FROM ELEVATION  
WALL (FT) (FT)  
40.00 -11.00

V.--SOIL LAYER DATA

V.A.--RIGHTSIDE  
LEVEL 2 FACTOR OF SAFETY FOR ACTIVE PRESSURE = 1.50  
LEVEL 2 FACTOR OF SAFETY FOR PASSIVE PRESSURE = 1.50

SAT. WGHT. (PCF)	MOIST WGHT. (PCF)	ANGLE OF INTERNAL FRICTION (DEG)	COH- ESION (PSF)	ANGLE OF WALL FRICTION (DEG)	ADH- ESION (PSF)	<--BOTTOM-->		<-SAFETY->	
						ELEV. (FT)	SLOPE (FT/FT)	<-FACTOR-> ACT.	PASS.
90.00	90.00	0.00	200.00	0.00	0.00	-20.50	0.00	DEF	DEF
85.00	85.00	0.00	300.00	0.00	0.00	-31.00	0.00	DEF	DEF
100.00	100.00	0.00	400.00	0.00	0.00	-62.00	0.00	DEF	DEF
110.00	110.00	0.00	560.00	0.00	0.00			DEF	DEF

V.B.--LEFTSIDE  
LEVEL 2 FACTOR OF SAFETY FOR ACTIVE PRESSURE = 1.50  
LEVEL 2 FACTOR OF SAFETY FOR PASSIVE PRESSURE = 1.50

SAT. WGHT. (PCF)	MOIST WGHT. (PCF)	ANGLE OF INTERNAL FRICTION (DEG)	COH- ESION (PSF)	ANGLE OF WALL FRICTION (DEG)	ADH- ESION (PSF)	<--BOTTOM-->		<-SAFETY->	
						ELEV. (FT)	SLOPE (FT/FT)	<-FACTOR-> ACT.	PASS.
90.00	90.00	0.00	200.00	0.00	0.00	-20.50	0.00	DEF	DEF
85.00	85.00	0.00	300.00	0.00	0.00	-31.00	0.00	DEF	DEF
100.00	100.00	0.00	400.00	0.00	0.00	-62.00	0.00	DEF	DEF
110.00	110.00	0.00	560.00	0.00	0.00			DEF	DEF

VI.--WATER DATA  
UNIT WEIGHT = 64.00 (PCF)

Section 2.out

RIGHTSIDE ELEVATION = 4.00 (FT)  
LEFTSIDE ELEVATION = 0.00 (FT)  
NO SEEPAGE

VII.--VERTICAL SURCHARGE LOADS  
NONE

VIII.--HORIZONTAL LOADS

VIII.A.--HORIZONTAL LINE LOADS  
NONE

VIII.B.--HORIZONTAL DISTRIBUTED LOADS

ELEVATION (FT)	DIST. LOAD (PSF)
4.00	50.00
-10.00	20.00

PROGRAM CWALSHT-DESIGN/ANALYSIS OF ANCHORED OR CANTILEVER SHEET PILE WALLS  
BY CLASSICAL METHODS

DATE: 6-MAY-2019

TIME: 13:58:46

\*\*\*\*\*  
\* SOIL PRESSURES FOR \*  
\* CANTILEVER WALL DESIGN \*  
\*\*\*\*\*

I.--HEADING  
'LAKE MECHANT BARRIER WALL  
'CANTILEVER RETAINING WALL AT SECTION 2  
'DESIGN FOR FS=1.5 ON BOTH ACTIVE AND PASSIVE

II.--SOIL PRESSURES

RIGHTSIDE SOIL PRESSURES DETERMINED BY COULOMB COEFFICIENTS  
AND THEORY OF ELLASTICITY EQUATIONS FOR SURCHARGE LOADS.

LEFTSIDE SOIL PRESSURES DETERMINED BY COULOMB COEFFICIENTS  
AND THEORY OF ELLASTICITY EQUATIONS FOR SURCHARGE LOADS.

NET SOIL PRESSURES INCLUDE APPLIED HORIZONTAL DISTRIBUTED LOADS.

ELEV. (FT)	NET WATER (PSF)	<---LEFTSIDE--->		<-----NET-----> (SOIL + WATER)		<---RIGHTSIDE--->	
		PASSIVE (PSF)	ACTIVE (PSF)	ACTIVE (PSF)	PASSIVE (PSF)	ACTIVE (PSF)	PASSIVE (PSF)
4.0	0.0	0.0	0.0	50.0	50.0	0.0	0.0
3.0	64.0	0.0	0.0	111.9	111.9	0.0	0.0
2.0	128.0	0.0	0.0	173.7	173.7	0.0	0.0
1.0	192.0	0.0	0.0	235.6	235.6	0.0	0.0
0.0	256.0	0.0	0.0	297.4	297.4	0.0	0.0
-1.0	256.0	0.0	0.0	295.3	295.3	0.0	0.0
-2.0	256.0	0.0	0.0	293.1	293.1	0.0	0.0
-3.0	256.0	0.0	0.0	291.0	291.0	0.0	0.0



Section 2.out

-4.0	256.0	0.0	0.0	288.9	288.9	0.0	0.0
-5.0	256.0	0.0	0.0	286.7	286.7	0.0	0.0
-6.0	256.0	0.0	0.0	284.6	284.6	0.0	0.0
-7.0	256.0	0.0	0.0	282.4	282.4	0.0	0.0
-8.0	256.0	0.0	0.0	280.3	280.3	0.0	0.0
-9.0	256.0	0.0	0.0	278.1	278.1	0.0	0.0
-10.0+	256.0	0.0	0.0	276.0	276.0	0.0	0.0
-10.0-	256.0	0.0	0.0	256.0	256.0	0.0	0.0
-11.0+	256.0	0.0	0.0	256.0	256.0	0.0	0.0
-11.0-	256.0	266.7	0.0	-10.7	522.7	0.0	266.7
-12.0	256.0	292.7	0.0	-36.7	548.7	0.0	292.7
-13.0	256.0	318.7	0.0	-62.7	574.7	0.0	318.7
-14.0	256.0	344.7	0.0	-88.7	600.7	0.0	344.7
-15.0	256.0	370.7	0.0	-114.7	626.7	0.0	370.7
-16.0	256.0	396.7	0.0	-140.7	652.7	0.0	396.7
-17.0	256.0	422.7	0.0	-166.7	678.7	0.0	422.7
-18.0	256.0	448.7	0.0	-192.7	704.7	0.0	448.7
-19.0	256.0	474.7	0.0	-218.7	730.7	0.0	474.7
-20.0	256.0	500.7	0.0	-244.7	756.7	0.0	500.7
-20.5+	256.0	513.7	0.0	-324.3	836.3	0.0	513.7
-20.5-	256.0	647.0	0.0	-324.3	836.3	0.0	647.0
-21.0	256.0	657.5	0.0	-401.5	913.5	0.0	657.5
-22.0	256.0	678.5	0.0	-422.5	934.5	0.0	678.5
-23.0	256.0	699.5	0.0	-443.5	955.5	0.0	699.5
-24.0	256.0	720.5	0.0	-464.5	976.5	0.0	720.5
-25.0	256.0	741.5	0.0	-485.5	997.5	0.0	741.5
-26.0	256.0	762.5	0.0	-506.5	1018.5	0.0	762.5
-27.0	256.0	783.5	0.0	-527.5	1039.5	0.0	783.5
-27.8	256.0	800.0	0.0	-544.0	1056.0	0.0	800.0
-28.0	256.0	804.5	4.5	-544.0	1056.0	4.5	804.5
-29.0	256.0	825.5	25.5	-544.0	1056.0	25.5	825.5
-30.0	256.0	846.5	46.5	-544.0	1056.0	46.5	846.5
-31.0+	256.0	867.5	67.5	-644.4	1156.4	67.5	867.5
-31.0-	256.0	1000.8	0.0	-644.4	1156.4	0.0	1000.8
-32.0	256.0	1036.8	0.0	-780.8	1292.8	0.0	1036.8
-32.8	256.0	1066.7	0.0	-810.7	1322.7	0.0	1066.7
-33.0	256.0	1072.8	6.2	-810.7	1322.7	6.2	1072.8
-34.0	256.0	1108.8	42.2	-810.7	1322.7	42.2	1108.8
-35.0	256.0	1144.8	78.2	-810.7	1322.7	78.2	1144.8
-36.0	256.0	1180.8	114.2	-810.7	1322.7	114.2	1180.8
-37.0	256.0	1216.8	150.2	-810.7	1322.7	150.2	1216.8
-38.0	256.0	1252.8	186.2	-810.7	1322.7	186.2	1252.8
-39.0	256.0	1288.8	222.2	-810.7	1322.7	222.2	1288.8
-40.0	256.0	1324.8	258.2	-810.7	1322.7	258.2	1324.8
-41.0	256.0	1360.8	294.2	-810.7	1322.7	294.2	1360.8
-42.0	256.0	1396.8	330.2	-810.7	1322.7	330.2	1396.8
-43.0	256.0	1432.8	366.2	-810.7	1322.7	366.2	1432.8
-44.0	256.0	1468.8	402.2	-810.7	1322.7	402.2	1468.8
-45.0	256.0	1504.8	438.2	-810.7	1322.7	438.2	1504.8
-46.0	256.0	1540.8	474.2	-810.7	1322.7	474.2	1540.8
-47.0	256.0	1576.8	510.2	-810.7	1322.7	510.2	1576.8
-48.0	256.0	1612.8	546.2	-810.7	1322.7	546.2	1612.8
-49.0	256.0	1648.8	582.2	-810.7	1322.7	582.2	1648.8
-50.0	256.0	1684.8	618.2	-810.7	1322.7	618.2	1684.8
-51.0	256.0	1720.8	654.2	-810.7	1322.7	654.2	1720.8
-52.0	256.0	1756.8	690.2	-810.7	1322.7	690.2	1756.8
-53.0	256.0	1792.8	726.2	-810.7	1322.7	726.2	1792.8
-54.0	256.0	1828.8	762.2	-810.7	1322.7	762.2	1828.8
-55.0	256.0	1864.8	798.2	-810.7	1322.7	798.2	1864.8
-56.0	256.0	1900.8	834.2	-810.7	1322.7	834.2	1900.8
-57.0	256.0	1936.8	870.2	-810.7	1322.7	870.2	1936.8

Section 2.out

PROGRAM CWALSHT-DESIGN/ANALYSIS OF ANCHORED OR CANTILEVER SHEET PILE WALLS  
BY CLASSICAL METHODS

DATE: 6-MAY-2019

TIME: 13:58:47

\*\*\*\*\*  
\* SUMMARY OF RESULTS FOR \*  
\* CANTILEVER WALL DESIGN \*  
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I.--HEADING  
'LAKE MECHANIC BARRIER WALL  
'CANTILEVER RETAINING WALL AT SECTION 2  
'DESIGN FOR FS=1.5 ON BOTH ACTIVE AND PASSIVE

II.--SUMMARY

RIGHTSIDE SOIL PRESSURES DETERMINED BY COULOMB COEFFICIENTS  
AND THEORY OF ELASTICITY EQUATIONS FOR SURCHARGE LOADS.

LEFTSIDE SOIL PRESSURES DETERMINED BY COULOMB COEFFICIENTS  
AND THEORY OF ELASTICITY EQUATIONS FOR SURCHARGE LOADS.

WALL BOTTOM ELEV. (FT)	:	-45.66
PENETRATION (FT)	:	34.66
MAX. BEND. MOMENT (LB-FT)	:	6.5780E+04
AT ELEVATION (FT)	:	-26.15
MAX. SCALED DEFL. (LB-IN <sup>3</sup> )	:	7.7642E+10
AT ELEVATION (FT)	:	4.00

NOTE: DIVIDE SCALED DEFLECTION MODULUS OF  
ELASTICITY IN PSI TIMES PILE MOMENT  
OF INERTIA IN IN<sup>4</sup> TO OBTAIN DEFLECTION  
IN INCHES.

PROGRAM CWALSHT-DESIGN/ANALYSIS OF ANCHORED OR CANTILEVER SHEET PILE WALLS  
BY CLASSICAL METHODS

DATE: 6-MAY-2019

TIME: 13:58:47

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\* COMPLETE OF RESULTS FOR \*  
\* CANTILEVER WALL DESIGN \*  
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I.--HEADING  
'LAKE MECHANIC BARRIER WALL  
'CANTILEVER RETAINING WALL AT SECTION 2  
'DESIGN FOR FS=1.5 ON BOTH ACTIVE AND PASSIVE

II.--RESULTS

# Section 2.out

ELEVATION (FT)	BENDING MOMENT (LB-FT)	SHEAR (LB)	SCALED DEFLECTION (LB-IN^3)	NET PRESSURE (PSF)
4.00	0.0000E+00	0.	7.7642E+10	50.00
3.00	3.5310E+01	81.	7.4898E+10	111.86
2.00	1.8248E+02	224.	7.2154E+10	173.71
1.00	5.0336E+02	428.	6.9410E+10	235.57
0.00	1.0598E+03	695.	6.6667E+10	297.43
-1.00	1.9030E+03	991.	6.3926E+10	295.29
-2.00	3.0415E+03	1285.	6.1188E+10	293.14
-3.00	4.4732E+03	1578.	5.8456E+10	291.00
-4.00	6.1958E+03	1867.	5.5731E+10	288.86
-5.00	8.2073E+03	2155.	5.3017E+10	286.71
-6.00	1.0506E+04	2441.	5.0318E+10	284.57
-7.00	1.3088E+04	2724.	4.7636E+10	282.43
-8.00	1.5954E+04	3006.	4.4977E+10	280.29
-9.00	1.9099E+04	3285.	4.2346E+10	278.14
-10.00+	2.2523E+04	3562.	3.9748E+10	276.00
-10.00-	2.2523E+04	3562.	3.9748E+10	256.00
-11.00+	2.6213E+04	3818.	3.7189E+10	256.00
-11.00-	2.6213E+04	3818.	3.7189E+10	-10.67
-12.00	3.0021E+04	3794.	3.4675E+10	-36.67
-13.00	3.3793E+04	3745.	3.2213E+10	-62.67
-14.00	3.7502E+04	3669.	2.9809E+10	-88.67
-15.00	4.1122E+04	3567.	2.7470E+10	-114.67
-16.00	4.4628E+04	3440.	2.5203E+10	-140.67
-17.00	4.7993E+04	3286.	2.3012E+10	-166.67
-18.00	5.1191E+04	3106.	2.0904E+10	-192.67
-19.00	5.4197E+04	2901.	1.8885E+10	-218.67
-20.00	5.6984E+04	2669.	1.6959E+10	-244.67
-20.50	5.8284E+04	2527.	1.6033E+10	-324.33
-21.00	5.9504E+04	2345.	1.5132E+10	-401.50
-22.00	6.1645E+04	1933.	1.3407E+10	-422.50
-23.00	6.3363E+04	1500.	1.1789E+10	-443.50
-24.00	6.4639E+04	1046.	1.0280E+10	-464.50
-25.00	6.5449E+04	571.	8.8833E+09	-485.50
-26.00	6.5774E+04	75.	7.5993E+09	-506.50
-27.00	6.5593E+04	-442.	6.4289E+09	-527.50
-27.79	6.5081E+04	-863.	5.5888E+09	-544.00
-28.00	6.4884E+04	-979.	5.3717E+09	-544.00
-29.00	6.3632E+04	-1523.	4.4266E+09	-544.00
-30.00	6.1837E+04	-2067.	3.5914E+09	-544.00
-31.00	5.9481E+04	-2661.	2.8629E+09	-644.42
-32.00	5.6475E+04	-3374.	2.2372E+09	-780.83
-32.25	5.5600E+04	-3572.	2.0951E+09	-789.90
-32.83	5.3413E+04	-4001.	1.7927E+09	-699.02
-33.00	5.2718E+04	-4119.	1.7089E+09	-672.04
-34.00	4.8289E+04	-4712.	1.2716E+09	-514.49
-35.00	4.3346E+04	-5148.	9.1766E+08	-356.94
-36.00	3.8047E+04	-5426.	6.3860E+08	-199.39
-37.00	3.2547E+04	-5546.	4.2524E+08	-41.83
-38.00	2.7006E+04	-5510.	2.6813E+08	115.72
-39.00	2.1581E+04	-5315.	1.5770E+08	273.27
-40.00	1.6429E+04	-4963.	8.4596E+07	430.82
-41.00	1.1707E+04	-4453.	3.9946E+07	588.37
-42.00	7.5743E+03	-3786.	1.5610E+07	745.92
-43.00	4.1872E+03	-2962.	4.4700E+06	903.47
-44.00	1.7036E+03	-1979.	6.9557E+05	1061.02
-45.00	2.8107E+02	-840.	1.7837E+04	1218.57
-45.66	0.0000E+00	0.	0.0000E+00	1322.67

NOTE: DIVIDE SCALED DEFLECTION MODULUS OF

Section 2.out  
 ELLASTICITY IN PSI TIMES PILE MOMENT  
 OF INERTIA IN IN<sup>4</sup> TO OBTAIN DEFLECTION  
 IN INCHES.

III.--WATER AND SOIL PRESSURES

ELEVATION (FT)	WATER PRESSURE (PSF)	<-----SOIL PRESSURES----->			
		<----LEFTSIDE----->		<----RIGHTSIDE----->	
		PASSIVE (PSF)	ACTIVE (PSF)	ACTIVE (PSF)	PASSIVE (PSF)
4.00	0.	0.	0.	0.	0.
3.00	64.	0.	0.	0.	0.
2.00	128.	0.	0.	0.	0.
1.00	192.	0.	0.	0.	0.
0.00	256.	0.	0.	0.	0.
-1.00	256.	0.	0.	0.	0.
-2.00	256.	0.	0.	0.	0.
-3.00	256.	0.	0.	0.	0.
-4.00	256.	0.	0.	0.	0.
-5.00	256.	0.	0.	0.	0.
-6.00	256.	0.	0.	0.	0.
-7.00	256.	0.	0.	0.	0.
-8.00	256.	0.	0.	0.	0.
-9.00	256.	0.	0.	0.	0.
-10.00	256.	0.	0.	0.	0.
-11.00+	256.	0.	0.	0.	0.
-11.00-	256.	267.	0.	0.	267.
-12.00	256.	293.	0.	0.	293.
-13.00	256.	319.	0.	0.	319.
-14.00	256.	345.	0.	0.	345.
-15.00	256.	371.	0.	0.	371.
-16.00	256.	397.	0.	0.	397.
-17.00	256.	423.	0.	0.	423.
-18.00	256.	449.	0.	0.	449.
-19.00	256.	475.	0.	0.	475.
-20.00	256.	501.	0.	0.	501.
-20.50+	256.	514.	0.	0.	514.
-20.50-	256.	647.	0.	0.	647.
-21.00	256.	658.	0.	0.	658.
-22.00	256.	679.	0.	0.	679.
-23.00	256.	700.	0.	0.	700.
-24.00	256.	721.	0.	0.	721.
-25.00	256.	742.	0.	0.	742.
-26.00	256.	763.	0.	0.	763.
-27.00	256.	784.	0.	0.	784.
-27.79	256.	800.	0.	0.	800.
-28.00	256.	805.	5.	5.	805.
-29.00	256.	826.	26.	26.	826.
-30.00	256.	847.	47.	47.	847.
-31.00+	256.	868.	68.	68.	868.
-31.00-	256.	1001.	0.	0.	1001.
-32.00	256.	1037.	0.	0.	1037.
-32.25	256.	1046.	0.	0.	1046.
-32.83	256.	1067.	0.	0.	1067.
-33.00	256.	1073.	6.	6.	1073.
-34.00	256.	1109.	42.	42.	1109.
-35.00	256.	1145.	78.	78.	1145.
-36.00	256.	1181.	114.	114.	1181.
-37.00	256.	1217.	150.	150.	1217.
-38.00	256.	1253.	186.	186.	1253.
-39.00	256.	1289.	222.	222.	1289.
-40.00	256.	1325.	258.	258.	1325.
-41.00	256.	1361.	294.	294.	1361.

			Section 2.out		
-42.00	256.	1397.	330.	330.	1397.
-43.00	256.	1433.	366.	366.	1433.
-44.00	256.	1469.	402.	402.	1469.
-45.00	256.	1505.	438.	438.	1505.
-45.66	256.	1541.	474.	474.	1541.
-47.00	256.	1577.	510.	510.	1577.

PROGRAM CWALSHT-DESIGN/ANALYSIS OF ANCHORED OR CANTILEVER SHEET PILE WALLS  
BY CLASSICAL METHODS

DATE: 5-AUGUST-2019

TIME: 13:39:14

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\* INPUT DATA \*  
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I.--HEADING

'LAKE MECHANT BARRIER WALL  
'CANTILEVER RETAINING WALL AT EL.15  
'SOLVE FOR FoS

II.--CONTROL

CANTILEVER WALL ANALYSIS  
SAME FACTOR OF SAFETY APPLIED TO BOTH ACTIVE AND PASSIVE PRESSURES.

III.--WALL DATA

ELEVATION AT TOP OF WALL = 4.00 FT.  
ELEVATION AT BOTTOM OF WALL = -56.00 FT.  
WALL MODULUS OF ELLASTACITY = 2.900E+07 PSI.  
WALL MOMENT OF INERTIA = 1071.00 IN^4.

IV.--SURFACE POINT DATA

IV.A.--RIGHTSIDE

DIST. FROM WALL (FT)	ELEVATION (FT)
40.00	-15.50

IV.B.--LEFTSIDE

DIST. FROM WALL (FT)	ELEVATION (FT)
40.00	-15.50

V.--SOIL LAYER DATA

V.A.--RIGHTSIDE

LEVEL 2 FACTOR OF SAFETY FOR ACTIVE PRESSURE = 1.50  
LEVEL 2 FACTOR OF SAFETY FOR PASSIVE PRESSURE = 1.50

SAT. WGHT. (PCF)	MOIST WGHT. (PCF)	ANGLE OF INTERNAL FRICTION (DEG)	COH- ESION (PSF)	ANGLE OF WALL FRICTION (DEG)	ADH- ESION (PSF)	<--BOTTOM-->		<-SAFETY->	
						ELEV. (FT)	SLOPE (FT/FT)	ACT.	PASS.
85.00	85.00	0.00	200.00	0.00	0.00	-20.50	0.00	DEF	DEF
85.00	85.00	0.00	300.00	0.00	0.00	-31.00	0.00	DEF	DEF
100.00	100.00	0.00	400.00	0.00	0.00	-62.00	0.00	DEF	DEF
110.00	110.00	0.00	560.00	0.00	0.00			DEF	DEF

V.B.--LEFTSIDE

LEVEL 2 FACTOR OF SAFETY FOR ACTIVE PRESSURE = 1.50

LEVEL 2 FACTOR OF SAFETY FOR PASSIVE PRESSURE = 1.50

SAT.	MOIST	ANGLE OF	COH-	ANGLE OF	ADH-	<--BOTTOM-->		<-SAFETY->	
WGHT.	WGHT.	INTERNAL	ESION	WALL	ESION	ELEV.	SLOPE	ACT.	PASS.
(PCF)	(PCF)	(DEG)	(PSF)	(DEG)	(PSF)	(FT)	(FT/FT)		
85.00	85.00	0.00	200.00	0.00	0.00	-20.50	0.00	DEF	DEF
85.00	85.00	0.00	300.00	0.00	0.00	-31.00	0.00	DEF	DEF
100.00	100.00	0.00	400.00	0.00	0.00	-62.00	0.00	DEF	DEF
110.00	110.00	0.00	560.00	0.00	0.00			DEF	DEF

VI.--WATER DATA

UNIT WEIGHT = 64.00 (PCF)

RIGHTSIDE ELEVATION = 1.60 (FT)

LEFTSIDE ELEVATION = -0.75 (FT)

NO SEEPAGE

VII.--VERTICAL SURCHARGE LOADS

NONE

VIII.--HORIZONTAL LOADS

VIII.A.--HORIZONTAL LINE LOADS

NONE

VIII.B.--HORIZONTAL DISTRIBUTED LOADS

ELEVATION	DIST. LOAD
(FT)	(PSF)
4.00	83.20
1.60	144.80
-15.50	0.00

PROGRAM CWALSHT-DESIGN/ANALYSIS OF ANCHORED OR CANTILEVER SHEET PILE WALLS  
BY CLASSICAL METHODS

DATE: 5-AUGUST-2019

TIME: 13:39:31

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\* SUMMARY OF RESULTS FOR \*

\* CANTILEVER WALL ANALYSIS \*

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I.--HEADING

'LAKE MECHANIC BARRIER WALL  
'CANTILEVER RETAINING WALL AT EL.15  
'SOLVE FOR FoS

II.--SUMMARY

RIGHTSIDE SOIL PRESSURES DETERMINED BY COULOMB COEFFICIENTS  
AND THEORY OF ELASTICITY EQUATIONS FOR SURCHARGE LOADS.

LEFTSIDE SOIL PRESSURES DETERMINED BY COULOMB COEFFICIENTS  
AND THEORY OF ELASTICITY EQUATIONS FOR SURCHARGE LOADS.

FACTOR OF SAFETY : 2.31  
  
MAX. BEND. MOMENT (LB-FT) : 7.8352E+04  
AT ELEVATION (FT) : -31.40  
  
MAXIMUM DEFLECTION (IN.) : 4.1653E+00  
AT ELEVATION (FT) : 4.00

PROGRAM CWALSHT-DESIGN/ANALYSIS OF ANCHORED OR CANTILEVER SHEET PILE WALLS  
BY CLASSICAL METHODS

DATE: 5-AUGUST-2019

TIME: 13:39:31

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\* COMPLETE OF RESULTS FOR \*  
\* CANTILEVER WALL ANALYSIS \*  
\*\*\*\*\*

I.--HEADING

'LAKE MECHANIC BARRIER WALL  
'CANTILEVER RETAINING WALL AT EL.15  
'SOLVE FOR FoS

II.--RESULTS

ELEVATION (FT)	BENDING MOMENT (LB-FT)	SHEAR (LB)	DEFLECTION (IN)	NET PRESSURE (PSF)
4.00	0.0000E+00	0.	4.1653E+00	83.20
3.00	4.5878E+01	96.	4.0404E+00	108.87
2.00	2.0062E+02	218.	3.9155E+00	134.53
1.60	2.9875E+02	274.	3.8656E+00	144.80



1.00	4.9098E+02	370.	3.7907E+00	178.12
0.00	9.5977E+02	576.	3.6659E+00	233.65
-0.75	1.4617E+03	767.	3.5723E+00	275.30
-1.00	1.6620E+03	836.	3.5411E+00	273.18
-2.00	2.6330E+03	1105.	3.4165E+00	264.72
-3.00	3.8687E+03	1365.	3.2919E+00	256.25
-4.00	5.3606E+03	1617.	3.1676E+00	247.78
-5.00	7.1003E+03	1861.	3.0436E+00	239.31
-6.00	9.0793E+03	2096.	2.9200E+00	230.84
-7.00	1.1289E+04	2322.	2.7969E+00	222.38
-8.00	1.3721E+04	2541.	2.6745E+00	213.91
-9.00	1.6368E+04	2750.	2.5528E+00	205.44
-10.00	1.9219E+04	2951.	2.4320E+00	196.97
-11.00	2.2268E+04	3144.	2.3122E+00	188.51
-12.00	2.5505E+04	3328.	2.1938E+00	180.04
-13.00	2.8922E+04	3504.	2.0767E+00	171.57
-14.00	3.2511E+04	3672.	1.9612E+00	163.10
-15.00	3.6262E+04	3831.	1.8476E+00	154.63
-15.50+	3.8197E+04	3907.	1.7915E+00	150.40
-15.50-	3.8197E+04	3907.	1.7915E+00	-22.68
-16.00	4.0147E+04	3893.	1.7360E+00	-33.18
-16.50	4.2089E+04	3874.	1.6810E+00	-43.68
-17.00	4.4020E+04	3849.	1.6266E+00	-54.18
-18.00	4.7838E+04	3784.	1.5196E+00	-75.18
-19.00	5.1581E+04	3699.	1.4153E+00	-96.18
-20.00	5.5229E+04	3592.	1.3139E+00	-117.18
-20.50	5.7008E+04	3520.	1.2644E+00	-170.96
-21.00	5.8744E+04	3421.	1.2156E+00	-224.73
-22.00	6.2049E+04	3186.	1.1205E+00	-245.73
-23.00	6.5109E+04	2930.	1.0289E+00	-266.73
-24.00	6.7902E+04	2652.	9.4089E-01	-287.73
-25.00	7.0407E+04	2354.	8.5667E-01	-308.73
-26.00	7.2603E+04	2035.	7.7636E-01	-329.73
-27.00	7.4470E+04	1695.	7.0008E-01	-350.73
-27.86	7.5800E+04	1384.	6.3757E-01	-368.85
-28.00	7.5985E+04	1334.	6.2795E-01	-368.85
-29.00	7.7135E+04	965.	5.6005E-01	-368.85
-30.00	7.7915E+04	596.	4.9643E-01	-368.85
-31.00	7.8314E+04	189.	4.3715E-01	-445.06
-31.57	7.8344E+04	-94.	4.0508E-01	-541.94
-32.00	7.8255E+04	-325.	3.8222E-01	-541.94
-33.00	7.7659E+04	-867.	3.3165E-01	-541.94
-34.00	7.6521E+04	-1409.	2.8539E-01	-541.94
-35.00	7.4841E+04	-1951.	2.4339E-01	-541.94
-36.00	7.2619E+04	-2493.	2.0554E-01	-541.94
-36.74	7.0619E+04	-2895.	1.8008E-01	-541.94
-37.00	6.9855E+04	-3032.	1.7174E-01	-523.39
-38.00	6.6573E+04	-3520.	1.4182E-01	-451.46
-39.00	6.2839E+04	-3935.	1.1560E-01	-379.53
-40.00	5.8726E+04	-4279.	9.2879E-02	-307.59

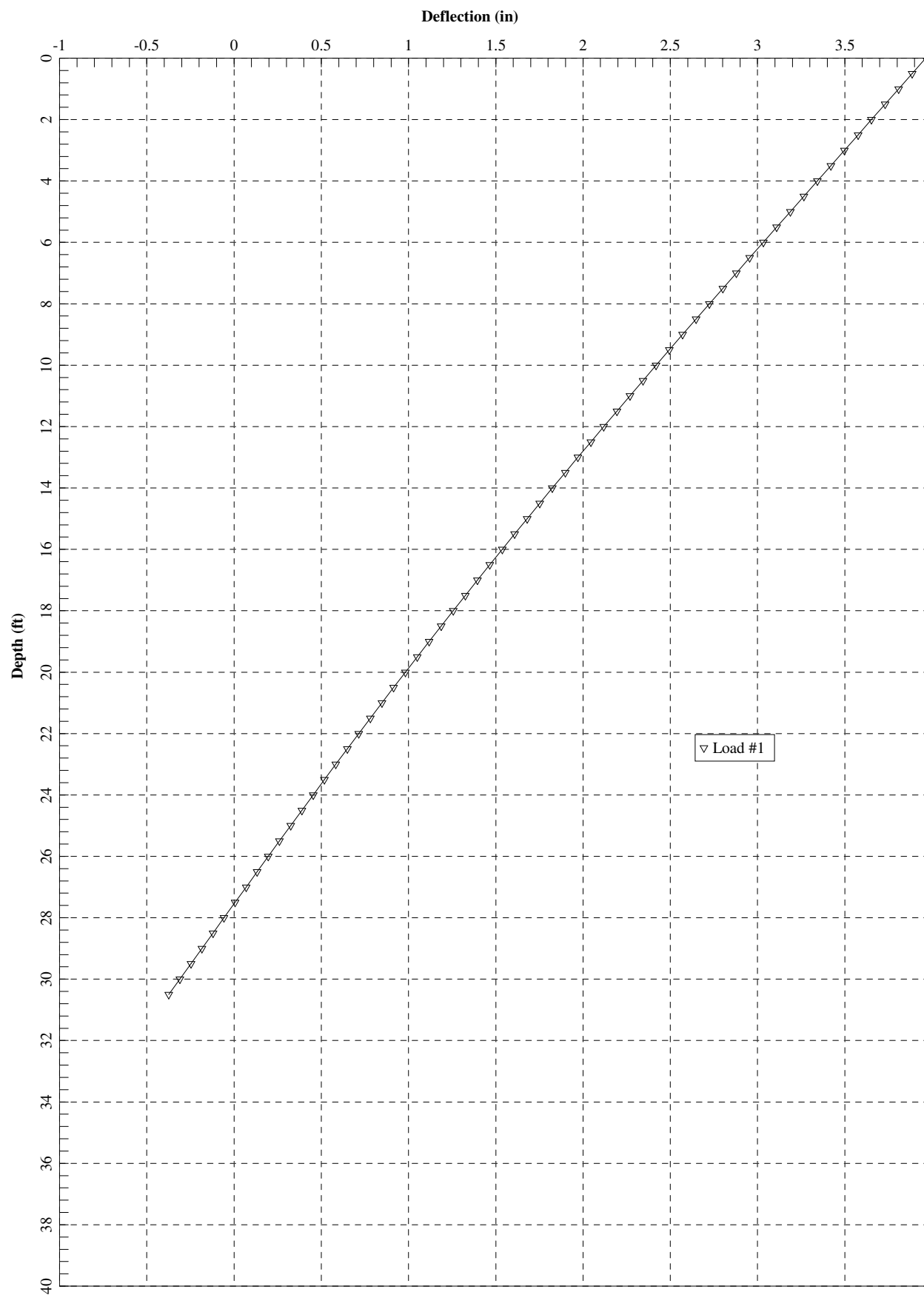
-41.00	5.4306E+04	-4550.	7.3421E-02	-235.66
-42.00	4.9649E+04	-4750.	5.6983E-02	-163.72
-43.00	4.4829E+04	-4878.	4.3307E-02	-91.79
-44.00	3.9917E+04	-4934.	3.2125E-02	-19.85
-45.00	3.4986E+04	-4918.	2.3163E-02	52.08
-46.00	3.0106E+04	-4830.	1.6148E-02	124.02
-47.00	2.5351E+04	-4670.	1.0809E-02	195.95
-48.00	2.0791E+04	-4438.	6.8805E-03	267.88
-49.00	1.6499E+04	-4134.	4.1104E-03	339.82
-50.00	1.2547E+04	-3758.	2.2599E-03	411.75
-51.00	9.0070E+03	-3310.	1.1093E-03	483.69
-52.00	5.9505E+03	-2791.	4.6204E-04	555.62
-53.00	3.4496E+03	-2199.	1.4844E-04	627.56
-54.00	1.5763E+03	-1536.	2.9677E-05	699.49
-55.00	4.0245E+02	-800.	1.8551E-06	771.43
-55.99	0.0000E+00	0.	0.0000E+00	842.74

### III.--WATER AND SOIL PRESSURES

ELEVATION (FT)	WATER PRESSURE (PSF)	<-----SOIL PRESSURES----->			
		<----LEFTSIDE----->		<---RIGHTSIDE----->	
		PASSIVE (PSF)	ACTIVE (PSF)	ACTIVE (PSF)	PASSIVE (PSF)
4.00	0.	0.	0.	0.	0.
3.00	0.	0.	0.	0.	0.
2.00	0.	0.	0.	0.	0.
1.60	0.	0.	0.	0.	0.
1.00	38.	0.	0.	0.	0.
0.00	102.	0.	0.	0.	0.
-0.75	150.	0.	0.	0.	0.
-1.00	150.	0.	0.	0.	0.
-2.00	150.	0.	0.	0.	0.
-3.00	150.	0.	0.	0.	0.
-4.00	150.	0.	0.	0.	0.
-5.00	150.	0.	0.	0.	0.
-6.00	150.	0.	0.	0.	0.
-7.00	150.	0.	0.	0.	0.
-8.00	150.	0.	0.	0.	0.
-9.00	150.	0.	0.	0.	0.
-10.00	150.	0.	0.	0.	0.
-11.00	150.	0.	0.	0.	0.
-12.00	150.	0.	0.	0.	0.
-13.00	150.	0.	0.	0.	0.
-14.00	150.	0.	0.	0.	0.
-15.00	150.	0.	0.	0.	0.
-15.50+	150.	0.	0.	0.	0.
-15.50-	150.	173.	0.	0.	173.
-16.00	150.	184.	0.	0.	184.
-16.50	150.	194.	0.	0.	194.
-17.00	150.	205.	0.	0.	205.

-18.00	150.	226.	0.	0.	226.
-19.00	150.	247.	0.	0.	247.
-20.00	150.	268.	0.	0.	268.
-20.50+	150.	278.	0.	0.	278.
-20.50-	150.	365.	0.	0.	365.
-21.00	150.	375.	0.	0.	375.
-22.00	150.	396.	0.	0.	396.
-23.00	150.	417.	0.	0.	417.
-24.00	150.	438.	0.	0.	438.
-25.00	150.	459.	0.	0.	459.
-26.00	150.	480.	0.	0.	480.
-27.00	150.	501.	0.	0.	501.
-27.86	150.	519.	0.	0.	519.
-28.00	150.	522.	3.	3.	522.
-29.00	150.	543.	24.	24.	543.
-30.00	150.	564.	45.	45.	564.
-31.00+	150.	585.	66.	66.	585.
-31.00-	150.	672.	0.	0.	672.
-31.57	150.	692.	0.	0.	692.
-32.00	150.	708.	15.	15.	708.
-33.00	150.	744.	51.	51.	744.
-34.00	150.	780.	87.	87.	780.
-35.00	150.	816.	123.	123.	816.
-36.00	150.	852.	159.	159.	852.
-36.74	150.	878.	186.	186.	878.
-37.00	150.	888.	195.	195.	888.
-38.00	150.	924.	231.	231.	924.
-39.00	150.	960.	267.	267.	960.
-40.00	150.	996.	303.	303.	996.
-41.00	150.	1032.	339.	339.	1032.
-42.00	150.	1068.	375.	375.	1068.
-43.00	150.	1104.	411.	411.	1104.
-44.00	150.	1140.	447.	447.	1140.
-45.00	150.	1176.	483.	483.	1176.
-46.00	150.	1212.	519.	519.	1212.
-47.00	150.	1248.	555.	555.	1248.
-48.00	150.	1284.	591.	591.	1284.
-49.00	150.	1320.	627.	627.	1320.
-50.00	150.	1356.	663.	663.	1356.
-51.00	150.	1392.	699.	699.	1392.
-52.00	150.	1428.	735.	735.	1428.
-53.00	150.	1464.	771.	771.	1464.
-54.00	150.	1500.	807.	807.	1500.
-55.00	150.	1536.	843.	843.	1536.
-55.99	150.	1572.	879.	879.	1572.
-57.00	150.	1608.	915.	915.	1608.





Section 1 - Tip EL 26.py5o

PYWALL for windows, Version 2015.5.21

Serial Number : 136086168

A Program for the Analysis of  
Flexible Retaining Walls  
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Path to file locations : T:\Projects\2019\GEO\Other Office Projects\North Lake Mechant  
Sheetpile Plug\Design\Combi-wall Design\  
Name of input data file : Section 1 - Tip EL 26.py5d  
Name of output file : Section 1 - Tip EL 26.py5o  
Name of plot output file : Section 1 - Tip EL 26.py5p

Time and Date of Analysis

Date: May 06, 2019 Time: 14:24:11

Section 1

\*\*\*\*\*  
\* PROGRAM CONTROL PARAMETERS \*  
\*\*\*\*\*

NO OF POINTS FOR SPECIFIED DEFLECTIONS AND SLOPES = 0  
NO OF POINTS FOR WALL STIFFNESS AND LOAD DATA = 1  
GENERATE EARTH PRESSURE INTERNALLY = 0  
GENERATE SOIL RESISTANCE (P-Y) CURVES INTERNALLY = 1  
NO OF P-Y MODIFICATION FACTORS FOR GEN. P-Y CURVES = 0  
NO OF USER-SPECIFIED SOIL RESISTANCE (P-Y) CURVES = 0  
NUMBER OF INCREMENTS = 60  
INCREMENT LENGTH = 6.000 IN  
FREE HEIGHT OF WALL = 84.000 IN  
MAXIMUM ALLOWABLE DEFLECTION = 100.000 IN  
DEFLECTION CLOSURE TOLERANCE = 1.000E-05 IN

\*\*\*\*\*  
\* STIFFNESS AND LOAD DATA \*  
\*\*\*\*\*

EI - FLEXURAL RIGIDITY, Q - TRANSVERSE LOAD,  
S - STIFFNESS OF TRANSVERSE RESISTANCE,  
T - TORQUE, P - AXIAL LOAD,  
R - STIFFNESS OF TORSIONAL RESISTANCE.

FROM	TO	CONTD	EI	Q	S'	T	R	P
------	----	-------	----	---	----	---	---	---

# Section 1 - Tip EL 26.py5o

	LBS-IN**2	LBS	LBS/IN	IN-LBS	IN-LBS	LBS
0 60 0	0.124E+11	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

\*\*\*\*\*  
 \* SPECIFIED ACTIVE EARTH PRESSURE \*  
 \*\*\*\*\*

DEPTH IN	ACTIVE EARTH PRESSURE LBS/IN
0.000E+00	0.417E+01
0.480E+02	0.245E+02
0.840E+02	0.225E+02
0.852E+02	0.208E+02
0.360E+03	0.208E+02

\*\*\*\*\*  
 \* SOIL LAYERS AND STRENGTH DATA \*  
 \*\*\*\*\*

X AT THE SURFACE OF EXCAVATION SIDE = 84.00 IN

2 LAYER(S) OF SOIL

LAYER 1  
 THE SOIL IS A SOFT CLAY

LAYER 2  
 THE SOIL IS A SOFT CLAY

DISTRIBUTION OF EFFECTIVE UNIT WEIGHT WITH DEPTH  
 4 POINTS

X, IN	WEIGHT, LBS/IN**3
84.0000	0.1608D-01
294.0000	0.1608D-01
294.0000	0.1319D-01
372.0000	0.1319D-01

DISTRIBUTION OF STRENGTH PARAMETERS WITH DEPTH  
 4 POINTS

X, IN	S, LBS/IN**2	PHI, DEGREES	E50
84.00	0.1389D+01	0.000	0.2000D-01
294.00	0.1389D+01	0.000	0.2000D-01
294.00	0.2083D+01	0.000	0.1500D-01
372.00	0.2083D+01	0.000	0.1500D-01

P-Y CURVES DATA

AT THE EXCAVATION SIDE

DEPTH BELOW GS	DIAM	C	GAMMA AVG	E50
Page 2				

Section 1 - Tip EL 26.py5o  
 IN IN LBS/IN\*\*2 LBS/IN\*\*3  
 0.10 12.000 0.1389D+01 0.1608D-01 0.2000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00120	2.10108
0.01200	4.52665
0.03600	6.52856
0.09600	9.05330
0.19200	11.40644
0.28800	13.05711
0.48000	15.48092
0.72000	17.72123
1.08000	20.28575
1.44000	22.32735
1.92000	24.57443
2.40000	26.47200
3.12000	28.89136
3.84000	30.96184
4.80000	33.35263
5.76000	33.35263

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE BACKFILL SIDE

DEPTH BELOW GS DIAM C GAMMA AVG E50  
 IN IN LBS/IN\*\*2 LBS/IN\*\*3  
 84.10 12.000 0.1389D+01 0.1608D-01 0.2000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00120	3.12238
0.01200	6.72696
0.03600	9.70195
0.09600	13.45391
0.19200	16.95087
0.28800	19.40390
0.48000	23.00587
0.72000	26.33514
1.08000	30.14621
1.44000	33.18020
1.92000	36.51954
2.40000	39.33948
3.12000	42.93483
3.84000	46.01173
4.80000	49.56464
5.76000	49.56463

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE EXCAVATION SIDE

DEPTH BELOW GS DIAM C GAMMA AVG E50  
 IN IN LBS/IN\*\*2 LBS/IN\*\*3  
 52.50 12.000 0.1389D+01 0.1608D-01 0.2000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00120	2.73818
0.01200	5.89922



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0.03600	8.50815
0.09600	11.79844
0.19200	14.86511
0.28800	17.01630
0.48000	20.17505
0.72000	23.09467
1.08000	26.43680
1.44000	29.09746
1.92000	32.02590
2.40000	34.49886
3.12000	37.65181
3.84000	40.35011
4.80000	43.46584
5.76000	43.46583

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE BACKFILL SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
136.50	12.000	0.1389D+01	0.1608D-01	0.2000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00120	3.75947
0.01200	8.09953
0.03600	11.68154
0.09600	16.19906
0.19200	20.40953
0.28800	23.36308
0.48000	27.70000
0.72000	31.70858
1.08000	36.29726
1.44000	39.95031
1.92000	43.97101
2.40000	47.36633
3.12000	51.69528
3.84000	55.40000
4.80000	59.67784
5.76000	59.67784

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE EXCAVATION SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
105.00	12.000	0.1389D+01	0.1608D-01	0.2000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00120	3.37648
0.01200	7.27441
0.03600	10.49152
0.09600	14.54883
0.19200	18.33037
0.28800	20.98304
0.48000	24.87814
0.72000	28.47837
1.08000	32.59959

Section 1 - Tip EL 26.py5o

1.44000	35.88049
1.92000	39.49159
2.40000	42.54103
3.12000	46.42897
3.84000	49.75629
4.80000	53.59834
5.76000	53.59834

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE BACKFILL SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
189.00	12.000	0.1389D+01	0.1608D-01	0.2000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00120	4.39778
0.01200	9.47472
0.03600	13.66491
0.09600	18.94944
0.19200	23.87480
0.28800	27.32982
0.48000	32.40309
0.72000	37.09228
1.08000	42.46006
1.44000	46.73334
1.92000	51.43670
2.40000	55.40850
3.12000	60.47244
3.84000	64.80618
4.80000	69.81034
5.76000	69.81034

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE EXCAVATION SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
157.50	12.000	0.1389D+01	0.1608D-01	0.2000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00120	4.01479
0.01200	8.64960
0.03600	12.47489
0.09600	17.29921
0.19200	21.79564
0.28800	24.94978
0.48000	29.58123
0.72000	33.86206
1.08000	38.76238
1.44000	42.66352
1.92000	46.95728
2.40000	50.58320
3.12000	55.20614
3.84000	59.16247
4.80000	63.73084
5.76000	63.73084

Section 1 - Tip EL 26.py5o

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE BACKFILL SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
241.50	12.000	0.1389D+01	0.1608D-01	0.2000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00120	5.03608
0.01200	10.84991
0.03600	15.64828
0.09600	21.69982
0.19200	27.34007
0.28800	31.29656
0.48000	37.10618
0.72000	42.47597
1.08000	48.62285
1.44000	53.51637
1.92000	58.90239
2.40000	63.45067
3.12000	69.24961
3.84000	74.21236
4.80000	79.94284
5.76000	79.94284

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE EXCAVATION SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
209.90	12.000	0.1389D+01	0.1608D-01	0.2000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00120	4.65188
0.01200	10.02218
0.03600	14.45448
0.09600	20.04435
0.19200	25.25430
0.28800	28.90896
0.48000	34.27537
0.72000	39.23550
1.08000	44.91343
1.44000	49.43363
1.92000	54.40875
2.40000	58.61005
3.12000	63.96659
3.84000	68.55073
4.80000	73.84404
5.76000	73.84404

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE BACKFILL SIDE

DEPTH BELOW GS	DIAM	C	GAMMA AVG	E50
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Section 1 - Tip EL 26.py5o  
 IN IN LBS/IN\*\*2 LBS/IN\*\*3  
 293.90 12.000 0.1389D+01 0.1608D-01 0.2000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00120	5.67317
0.01200	12.22248
0.03600	17.62787
0.09600	24.44497
0.19200	30.79873
0.28800	35.25575
0.48000	41.80031
0.72000	47.84941
1.08000	54.77390
1.44000	60.28648
1.92000	66.35386
2.40000	71.47753
3.12000	78.01006
3.84000	83.60062
4.80000	90.05604
5.76000	90.05604

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE EXCAVATION SIDE

DEPTH BELOW GS DIAM C GAMMA AVG E50  
 IN IN LBS/IN\*\*2 LBS/IN\*\*3  
 210.10 12.000 0.2083D+01 0.1608D-01 0.1500D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00090	5.70403
0.00900	12.28896
0.02700	17.72375
0.07200	24.57792
0.14400	30.96624
0.21600	35.44749
0.36000	42.02765
0.54000	48.10965
0.81000	55.07180
1.08000	60.61436
1.44000	66.71474
1.80000	71.86627
2.34000	78.43434
2.88000	84.05530
3.60000	90.54583
4.32000	90.54583

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE BACKFILL SIDE

DEPTH BELOW GS DIAM C GAMMA AVG E50  
 IN IN LBS/IN\*\*2 LBS/IN\*\*3  
 294.10 12.000 0.2083D+01 0.1608D-01 0.1500D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00090	6.72523
0.00900	14.48908

Section 1 - Tip EL 26.py5o

0.02700	20.89687
0.07200	28.97816
0.14400	36.51019
0.21600	41.79373
0.36000	49.55195
0.54000	56.72283
0.81000	64.93142
1.08000	71.46628
1.44000	78.65882
1.80000	84.73265
2.34000	92.47661
2.88000	99.10391
3.60000	106.75645
4.32000	106.75644

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE EXCAVATION SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
229.50	12.000	0.2083D+01	0.1584D-01	0.1500D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00090	5.89746
0.00900	12.70570
0.02700	18.32479
0.07200	25.41141
0.14400	32.01636
0.21600	36.64959
0.36000	43.45289
0.54000	49.74115
0.81000	56.93940
1.08000	62.66992
1.44000	68.97717
1.80000	74.30340
2.34000	81.09420
2.88000	86.90579
3.60000	93.61642
4.32000	93.61642

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE BACKFILL SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
313.50	12.000	0.2083D+01	0.1584D-01	0.1500D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00090	6.90314
0.00900	14.87237
0.02700	21.44968
0.07200	29.74475
0.14400	37.47604
0.21600	42.89935
0.36000	50.86281
0.54000	58.22338
0.81000	66.64913

Section 1 - Tip EL 26.py5o

1.08000	73.35687
1.44000	80.73968
1.80000	86.97418
2.34000	94.92300
2.88000	101.72562
3.60000	109.58060
4.32000	109.58060

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE EXCAVATION SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
249.00	12.000	0.2083D+01	0.1563D-01	0.1500D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00090	6.09190
0.00900	13.12459
0.02700	18.92894
0.07200	26.24919
0.14400	33.07190
0.21600	37.85788
0.36000	44.88548
0.54000	51.38105
0.81000	58.81662
1.08000	64.73607
1.44000	71.25126
1.80000	76.75309
2.34000	83.76778
2.88000	89.77096
3.60000	96.70284
4.32000	96.70284

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE BACKFILL SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
333.00	12.000	0.2083D+01	0.1563D-01	0.1500D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00090	7.08441
0.00900	15.26290
0.02700	22.01291
0.07200	30.52580
0.14400	38.46010
0.21600	44.02582
0.36000	52.19838
0.54000	59.75224
0.81000	68.39923
1.08000	75.28310
1.44000	82.85977
1.80000	89.25798
2.34000	97.41553
2.88000	104.39677
3.60000	112.45801
4.32000	112.45801

Section 1 - Tip EL 26.py5o

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE EXCAVATION SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
268.50	12.000	0.2083D+01	0.1545D-01	0.1500D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00090	6.28633
0.00900	13.54348
0.02700	19.53309
0.07200	27.08697
0.14400	34.12744
0.21600	39.06617
0.36000	46.31807
0.54000	53.02095
0.81000	60.69384
1.08000	66.80222
1.44000	73.52535
1.80000	79.20278
2.34000	86.44135
2.88000	92.63614
3.60000	99.78926
4.32000	99.78925

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE BACKFILL SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
352.50	12.000	0.2083D+01	0.1545D-01	0.1500D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00090	7.26759
0.00900	15.65754
0.02700	22.58209
0.07200	31.31509
0.14400	39.45454
0.21600	45.16418
0.36000	53.54805
0.54000	61.29722
0.81000	70.16780
1.08000	77.22966
1.44000	85.00223
1.80000	91.56588
2.34000	99.93435
2.88000	107.09611
3.60000	115.36578
4.32000	115.36578

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE EXCAVATION SIDE

DEPTH BELOW GS	DIAM	C	GAMMA AVG	E50
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Section 1 - Tip EL 26.py5o  
 IN IN LBS/IN\*\*2 LBS/IN\*\*3  
 287.90 12.000 0.2083D+01 0.1530D-01 0.1500D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00090	6.47976
0.00900	13.96023
0.02700	20.13413
0.07200	27.92046
0.14400	35.17757
0.21600	40.26827
0.36000	47.74331
0.54000	54.65245
0.81000	62.56143
1.08000	68.85777
1.44000	75.78778
1.80000	81.63991
2.34000	89.10122
2.88000	95.48662
3.60000	102.85984
4.32000	102.85984

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE BACKFILL SIDE

DEPTH BELOW GS DIAM C GAMMA AVG E50  
 IN IN LBS/IN\*\*2 LBS/IN\*\*3  
 371.90 12.000 0.2083D+01 0.1530D-01 0.1500D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00090	7.45134
0.00900	16.05343
0.02700	23.15305
0.07200	32.10685
0.14400	40.45210
0.21600	46.30609
0.36000	54.90194
0.54000	62.84704
0.81000	71.94190
1.08000	79.18231
1.44000	87.15140
1.80000	93.88100
2.34000	102.46106
2.88000	109.80389
3.60000	118.28265
4.32000	118.28265

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

Section 1

RESULTS -- ITERATION 8

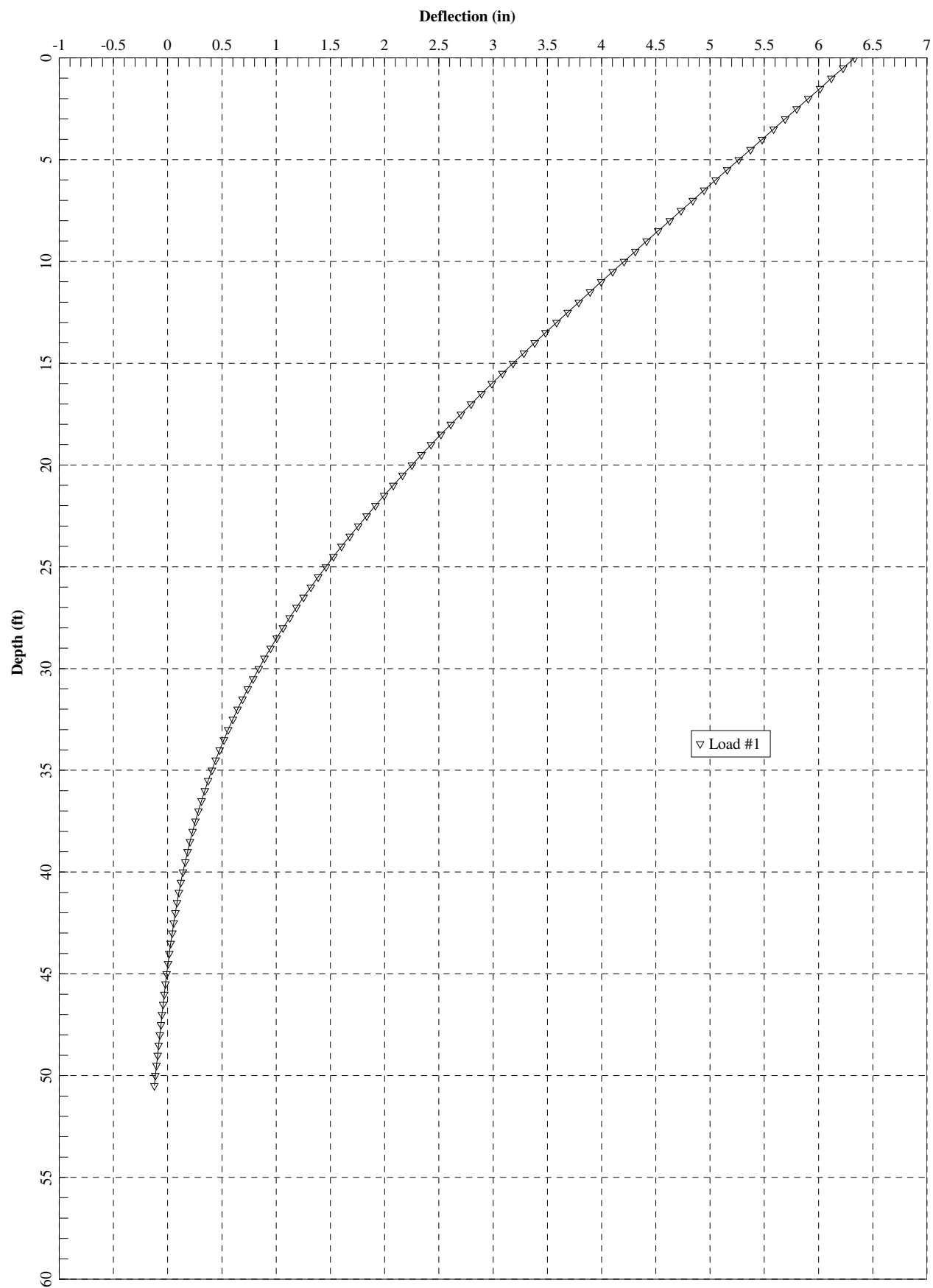
STA I	X IN	DEFL. IN	SLOPE	MOMENT LBS-IN	SHEAR LBS	NET REACT/STA LBS	EI LBS-IN**2
0	0.000E+00	0.396E+01	-0.129E-01	0.765E-07	0.000E+00	-0.255E-07	0.620E+10
1	0.600E+01	0.389E+01	-0.129E-01	0.000E+00	0.201E+02	0.402E+02	0.124E+11



# Section 1 - Tip EL 26.py5o

2	0.120E+02	0.381E+01	-0.129E-01	0.241E+03	0.679E+02	0.554E+02	0.124E+11
3	0.180E+02	0.373E+01	-0.129E-01	0.815E+03	0.131E+03	0.707E+02	0.124E+11
4	0.240E+02	0.365E+01	-0.129E-01	0.181E+04	0.209E+03	0.859E+02	0.124E+11
5	0.300E+02	0.358E+01	-0.129E-01	0.333E+04	0.303E+03	0.101E+03	0.124E+11
6	0.360E+02	0.350E+01	-0.129E-01	0.545E+04	0.411E+03	0.116E+03	0.124E+11
7	0.420E+02	0.342E+01	-0.129E-01	0.826E+04	0.535E+03	0.132E+03	0.124E+11
8	0.480E+02	0.334E+01	-0.129E-01	0.119E+05	0.674E+03	0.147E+03	0.124E+11
9	0.540E+02	0.327E+01	-0.129E-01	0.164E+05	0.820E+03	0.145E+03	0.124E+11
10	0.600E+02	0.319E+01	-0.129E-01	0.217E+05	0.964E+03	0.143E+03	0.124E+11
11	0.660E+02	0.311E+01	-0.129E-01	0.279E+05	0.111E+04	0.141E+03	0.124E+11
12	0.720E+02	0.303E+01	-0.129E-01	0.350E+05	0.125E+04	0.139E+03	0.124E+11
13	0.780E+02	0.296E+01	-0.129E-01	0.429E+05	0.138E+04	0.137E+03	0.124E+11
14	0.840E+02	0.288E+01	-0.128E-01	0.516E+05	0.148E+04	0.505E+02	0.124E+11
15	0.900E+02	0.280E+01	-0.128E-01	0.606E+05	0.148E+04	-0.479E+02	0.124E+11
16	0.960E+02	0.272E+01	-0.128E-01	0.693E+05	0.143E+04	-0.518E+02	0.124E+11
17	0.102E+03	0.265E+01	-0.128E-01	0.777E+05	0.137E+04	-0.557E+02	0.124E+11
18	0.108E+03	0.257E+01	-0.127E-01	0.858E+05	0.132E+04	-0.595E+02	0.124E+11
19	0.114E+03	0.250E+01	-0.127E-01	0.935E+05	0.126E+04	-0.631E+02	0.124E+11
20	0.120E+03	0.242E+01	-0.126E-01	0.101E+06	0.119E+04	-0.667E+02	0.124E+11
21	0.126E+03	0.234E+01	-0.126E-01	0.108E+06	0.112E+04	-0.699E+02	0.124E+11
22	0.132E+03	0.227E+01	-0.125E-01	0.114E+06	0.105E+04	-0.729E+02	0.124E+11
23	0.138E+03	0.219E+01	-0.125E-01	0.120E+06	0.977E+03	-0.758E+02	0.124E+11
24	0.144E+03	0.212E+01	-0.124E-01	0.126E+06	0.900E+03	-0.786E+02	0.124E+11
25	0.150E+03	0.204E+01	-0.123E-01	0.131E+06	0.820E+03	-0.813E+02	0.124E+11
26	0.156E+03	0.197E+01	-0.123E-01	0.136E+06	0.737E+03	-0.839E+02	0.124E+11
27	0.162E+03	0.190E+01	-0.122E-01	0.140E+06	0.652E+03	-0.863E+02	0.124E+11
28	0.168E+03	0.182E+01	-0.121E-01	0.144E+06	0.565E+03	-0.883E+02	0.124E+11
29	0.174E+03	0.175E+01	-0.121E-01	0.147E+06	0.476E+03	-0.901E+02	0.124E+11
30	0.180E+03	0.168E+01	-0.120E-01	0.149E+06	0.385E+03	-0.919E+02	0.124E+11
31	0.186E+03	0.161E+01	-0.119E-01	0.151E+06	0.292E+03	-0.935E+02	0.124E+11
32	0.192E+03	0.154E+01	-0.119E-01	0.153E+06	0.198E+03	-0.949E+02	0.124E+11
33	0.198E+03	0.147E+01	-0.118E-01	0.154E+06	0.102E+03	-0.969E+02	0.124E+11
34	0.204E+03	0.140E+01	-0.117E-01	0.154E+06	0.443E+01	-0.982E+02	0.124E+11
35	0.210E+03	0.133E+01	-0.116E-01	0.154E+06	-0.943E+02	-0.992E+02	0.124E+11
36	0.216E+03	0.126E+01	-0.116E-01	0.153E+06	-0.194E+03	-0.999E+02	0.124E+11
37	0.222E+03	0.119E+01	-0.115E-01	0.152E+06	-0.294E+03	-0.101E+03	0.124E+11
38	0.228E+03	0.112E+01	-0.114E-01	0.150E+06	-0.395E+03	-0.101E+03	0.124E+11
39	0.234E+03	0.105E+01	-0.113E-01	0.147E+06	-0.496E+03	-0.101E+03	0.124E+11
40	0.240E+03	0.982E+00	-0.113E-01	0.144E+06	-0.596E+03	-0.100E+03	0.124E+11
41	0.246E+03	0.915E+00	-0.112E-01	0.140E+06	-0.696E+03	-0.983E+02	0.124E+11
42	0.252E+03	0.848E+00	-0.111E-01	0.135E+06	-0.793E+03	-0.965E+02	0.124E+11
43	0.258E+03	0.781E+00	-0.111E-01	0.130E+06	-0.888E+03	-0.945E+02	0.124E+11
44	0.264E+03	0.715E+00	-0.110E-01	0.125E+06	-0.982E+03	-0.921E+02	0.124E+11
45	0.270E+03	0.649E+00	-0.109E-01	0.118E+06	-0.107E+04	-0.880E+02	0.124E+11
46	0.276E+03	0.584E+00	-0.109E-01	0.112E+06	-0.116E+04	-0.838E+02	0.124E+11
47	0.282E+03	0.518E+00	-0.108E-01	0.105E+06	-0.124E+04	-0.793E+02	0.124E+11
48	0.288E+03	0.453E+00	-0.108E-01	0.968E+05	-0.132E+04	-0.735E+02	0.124E+11
49	0.294E+03	0.389E+00	-0.107E-01	0.887E+05	-0.139E+04	-0.656E+02	0.124E+11
50	0.300E+03	0.325E+00	-0.107E-01	0.802E+05	-0.146E+04	-0.785E+02	0.124E+11
51	0.306E+03	0.260E+00	-0.107E-01	0.712E+05	-0.154E+04	-0.859E+02	0.124E+11
52	0.312E+03	0.197E+00	-0.106E-01	0.617E+05	-0.163E+04	-0.874E+02	0.124E+11
53	0.318E+03	0.133E+00	-0.106E-01	0.517E+05	-0.170E+04	-0.627E+02	0.124E+11
54	0.324E+03	0.693E-01	-0.106E-01	0.413E+05	-0.175E+04	-0.274E+02	0.124E+11
55	0.330E+03	0.588E-02	-0.106E-01	0.308E+05	-0.173E+04	0.629E+02	0.124E+11
56	0.336E+03	-0.575E-01	-0.106E-01	0.206E+05	-0.155E+04	0.291E+03	0.124E+11
57	0.342E+03	-0.121E+00	-0.105E-01	0.122E+05	-0.123E+04	0.342E+03	0.124E+11
58	0.348E+03	-0.184E+00	-0.105E-01	0.578E+04	-0.874E+03	0.379E+03	0.124E+11
59	0.354E+03	-0.247E+00	-0.105E-01	0.167E+04	-0.481E+03	0.407E+03	0.124E+11
60	0.360E+03	-0.310E+00	-0.105E-01	0.956E-08	-0.139E+03	0.278E+03	0.620E+10

END OF ANALYSIS



Section 2 - Tip EL 46.py5o

PYWALL for windows, Version 2015.5.21

Serial Number : 136086168

A Program for the Analysis of  
Flexible Retaining Walls  
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This program is licensed to :

S&ME, Inc.  
Nashville, TN

Path to file locations : T:\Projects\2019\GEO\Other Office Projects\North Lake Mechant  
Sheetpile Plug\Design\Combi-wall Design\  
Name of input data file : Section 2 - Tip EL 46.py5d  
Name of output file : Section 2 - Tip EL 46.py5o  
Name of plot output file : Section 2 - Tip EL 46.py5p

Time and Date of Analysis

Date: May 06, 2019 Time: 14:21:18

Section 2

\*\*\*\*\*  
\* PROGRAM CONTROL PARAMETERS \*  
\*\*\*\*\*

NO OF POINTS FOR SPECIFIED DEFLECTIONS AND SLOPES = 0  
NO OF POINTS FOR WALL STIFFNESS AND LOAD DATA = 1  
GENERATE EARTH PRESSURE INTERNALLY = 0  
GENERATE SOIL RESISTANCE (P-Y) CURVES INTERNALLY = 1  
NO OF P-Y MODIFICATION FACTORS FOR GEN. P-Y CURVES = 0  
NO OF USER-SPECIFIED SOIL RESISTANCE (P-Y) CURVES = 0  
NUMBER OF INCREMENTS = 100  
INCREMENT LENGTH = 6.000 IN  
FREE HEIGHT OF WALL = 168.000 IN  
MAXIMUM ALLOWABLE DEFLECTION = 100.000 IN  
DEFLECTION CLOSURE TOLERANCE = 1.000E-05 IN

\*\*\*\*\*  
\* STIFFNESS AND LOAD DATA \*  
\*\*\*\*\*

EI - FLEXURAL RIGIDITY, Q - TRANSVERSE LOAD,  
S - STIFFNESS OF TRANSVERSE RESISTANCE,  
T - TORQUE, P - AXIAL LOAD,  
R - STIFFNESS OF TORSIONAL RESISTANCE.

FROM TO CONTD EI Q S' T R P

Section 2 - Tip EL 46.py5o

		LBS-IN**2	LBS	LBS/IN	IN-LBS	IN-LBS	LBS
0	100	0	0.124E+11	0.000E+00	0.000E+00	0.000E+00	0.000E+00

\*\*\*\*\*  
 \* SPECIFIED ACTIVE EARTH PRESSURE \*  
 \*\*\*\*\*

DEPTH IN	ACTIVE EARTH PRESSURE LBS/IN
-----	-----
0.000E+00	0.417E+01
0.480E+02	0.245E+02
0.168E+03	0.225E+02
0.169E+03	0.208E+02
0.600E+03	0.208E+02

\*\*\*\*\*  
 \* SOIL LAYERS AND STRENGTH DATA \*  
 \*\*\*\*\*

X AT THE SURFACE OF EXCAVATION SIDE = 168.00 IN

3 LAYER(S) OF SOIL

LAYER 1  
 THE SOIL IS A SOFT CLAY

LAYER 2  
 THE SOIL IS A SOFT CLAY

LAYER 3  
 THE SOIL IS A SOFT CLAY

DISTRIBUTION OF EFFECTIVE UNIT WEIGHT WITH DEPTH  
 6 POINTS

X, IN	WEIGHT, LBS/IN**3
168.0000	0.1608D-01
294.0000	0.1608D-01
294.0000	0.1319D-01
420.0000	0.1319D-01
420.0000	0.2187D-01
612.0000	0.2187D-01

DISTRIBUTION OF STRENGTH PARAMETERS WITH DEPTH  
 6 POINTS

X, IN	S, LBS/IN**2	PHI, DEGREES	E50
168.00	0.1389D+01	0.000	0.2000D-01
294.00	0.1389D+01	0.000	0.2000D-01
294.00	0.2083D+01	0.000	0.1500D-01
420.00	0.2083D+01	0.000	0.1500D-01
420.00	0.2778D+01	0.000	0.1000D-01
612.00	0.2778D+01	0.000	0.1000D-01

# Section 2 - Tip EL 46.py5o

## P-Y CURVES DATA

### AT THE EXCAVATION SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
0.10	12.000	0.1389D+01	0.1608D-01	0.2000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00120	2.10108
0.01200	4.52665
0.03600	6.52856
0.09600	9.05330
0.19200	11.40644
0.28800	13.05711
0.48000	15.48092
0.72000	17.72123
1.08000	20.28575
1.44000	22.32735
1.92000	24.57443
2.40000	26.47200
3.12000	28.89136
3.84000	30.96184
4.80000	33.35263
5.76000	33.35263

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

### AT THE BACKFILL SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
168.10	12.000	0.1389D+01	0.1608D-01	0.2000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00120	4.14367
0.01200	8.92726
0.03600	12.87534
0.09600	17.85453
0.19200	22.49529
0.28800	25.75068
0.48000	30.53081
0.72000	34.94905
1.08000	40.00668
1.44000	44.03305
1.92000	48.46464
2.40000	52.20695
3.12000	56.97829
3.84000	61.06162
4.80000	65.77664
5.76000	65.77664

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

### AT THE EXCAVATION SIDE

DEPTH BELOW GS	DIAM	C	GAMMA AVG	E50
----------------	------	---	-----------	-----

Section 2 - Tip EL 46.py5o  
 IN IN LBS/IN\*\*2 LBS/IN\*\*3  
 31.50 12.000 0.1389D+01 0.1608D-01 0.2000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00120	2.48285
0.01200	5.34914
0.03600	7.71480
0.09600	10.69829
0.19200	13.47900
0.28800	15.42960
0.48000	18.29382
0.72000	20.94119
1.08000	23.97168
1.44000	26.38425
1.92000	29.03962
2.40000	31.28199
3.12000	34.14094
3.84000	36.58763
4.80000	39.41283
5.76000	39.41283

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE BACKFILL SIDE

DEPTH BELOW GS DIAM C GAMMA AVG E50  
 IN IN LBS/IN\*\*2 LBS/IN\*\*3  
 199.50 12.000 0.1389D+01 0.1608D-01 0.2000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00120	4.52544
0.01200	9.74976
0.03600	14.06158
0.09600	19.49952
0.19200	24.56785
0.28800	28.12317
0.48000	33.34371
0.72000	38.16902
1.08000	43.69261
1.44000	48.08995
1.92000	52.92983
2.40000	57.01694
3.12000	62.22788
3.84000	66.68741
4.80000	71.83684
5.76000	71.83684

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE EXCAVATION SIDE

DEPTH BELOW GS DIAM C GAMMA AVG E50  
 IN IN LBS/IN\*\*2 LBS/IN\*\*3  
 63.00 12.000 0.1389D+01 0.1608D-01 0.2000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00120	2.86584
0.01200	6.17426

Section 2 - Tip EL 46.py5o

0.03600	8.90482
0.09600	12.34852
0.19200	15.55816
0.28800	17.80965
0.48000	21.11567
0.72000	24.17141
1.08000	27.66936
1.44000	30.45407
1.92000	33.51904
2.40000	36.10729
3.12000	39.40724
3.84000	42.23134
4.80000	45.49234
5.76000	45.49233

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE BACKFILL SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
231.00	12.000	0.1389D+01	0.1608D-01	0.2000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00120	4.90842
0.01200	10.57487
0.03600	15.25161
0.09600	21.14975
0.19200	26.64701
0.28800	30.50321
0.48000	36.16556
0.72000	41.39923
1.08000	47.39029
1.44000	52.15976
1.92000	57.40925
2.40000	61.84224
3.12000	67.49418
3.84000	72.33112
4.80000	77.91634
5.76000	77.91634

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE EXCAVATION SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
94.50	12.000	0.1389D+01	0.1608D-01	0.2000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00120	3.24882
0.01200	6.99937
0.03600	10.09485
0.09600	13.99875
0.19200	17.63732
0.28800	20.18969
0.48000	23.93753
0.72000	27.40163
1.08000	31.36703

Section 2 - Tip EL 46.py5o

1.44000	34.52389
1.92000	37.99845
2.40000	40.93259
3.12000	44.67354
3.84000	47.87505
4.80000	51.57184
5.76000	51.57183

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE BACKFILL SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
262.50	12.000	0.1389D+01	0.1608D-01	0.2000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00120	5.29141
0.01200	11.39999
0.03600	16.44163
0.09600	22.79998
0.19200	28.72617
0.28800	32.88326
0.48000	38.98741
0.72000	44.62945
1.08000	51.08796
1.44000	56.22958
1.92000	61.88866
2.40000	66.66754
3.12000	72.76048
3.84000	77.97483
4.80000	83.99584
5.76000	83.99584

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE EXCAVATION SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
125.90	12.000	0.1389D+01	0.1608D-01	0.2000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00120	3.63059
0.01200	7.82187
0.03600	11.28109
0.09600	15.64374
0.19200	19.70988
0.28800	22.56218
0.48000	26.75042
0.72000	30.62159
1.08000	35.05297
1.44000	38.58078
1.92000	42.46365
2.40000	45.74258
3.12000	49.92312
3.84000	53.50084
4.80000	57.63204
5.76000	57.63204



# Section 2 - Tip EL 46.py5o

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

## AT THE BACKFILL SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
293.90	12.000	0.1389D+01	0.1608D-01	0.2000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00120	5.67317
0.01200	12.22248
0.03600	17.62787
0.09600	24.44497
0.19200	30.79873
0.28800	35.25575
0.48000	41.80031
0.72000	47.84941
1.08000	54.77390
1.44000	60.28648
1.92000	66.35386
2.40000	71.47753
3.12000	78.01006
3.84000	83.60062
4.80000	90.05604
5.76000	90.05604

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

## AT THE EXCAVATION SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
126.10	12.000	0.2083D+01	0.1608D-01	0.1500D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00090	4.68274
0.00900	10.08865
0.02700	14.55035
0.07200	20.17730
0.14400	25.42181
0.21600	29.10071
0.36000	34.50271
0.54000	39.49574
0.81000	45.21134
1.08000	49.76152
1.44000	54.76963
1.80000	58.99880
2.34000	64.39087
2.88000	69.00542
3.60000	74.33383
4.32000	74.33383

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

## AT THE BACKFILL SIDE

DEPTH BELOW GS	DIAM	C	GAMMA AVG	E50
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Section 2 - Tip EL 46.py5o  
 IN IN LBS/IN\*\*2 LBS/IN\*\*3  
 294.10 12.000 0.2083D+01 0.1608D-01 0.1500D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00090	6.72503
0.00900	14.48864
0.02700	20.89623
0.07200	28.97728
0.14400	36.50908
0.21600	41.79247
0.36000	49.55045
0.54000	56.72111
0.81000	64.92946
1.08000	71.46411
1.44000	78.65644
1.80000	84.73008
2.34000	92.47380
2.88000	99.10090
3.60000	106.75321
4.32000	106.75321

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE EXCAVATION SIDE

DEPTH BELOW GS DIAM C GAMMA AVG E50  
 IN IN LBS/IN\*\*2 LBS/IN\*\*3  
 157.50 12.000 0.2083D+01 0.1550D-01 0.1500D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00090	4.99582
0.00900	10.76317
0.02700	15.52318
0.07200	21.52635
0.14400	27.12150
0.21600	31.04637
0.36000	36.80954
0.54000	42.13641
0.81000	48.23414
1.08000	53.08855
1.44000	58.43150
1.80000	62.94343
2.34000	68.69601
2.88000	73.61908
3.60000	79.30375
4.32000	79.30375

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE BACKFILL SIDE

DEPTH BELOW GS DIAM C GAMMA AVG E50  
 IN IN LBS/IN\*\*2 LBS/IN\*\*3  
 325.50 12.000 0.2083D+01 0.1550D-01 0.1500D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00090	6.96491
0.00900	15.00545

Section 2 - Tip EL 46.py5o

0.02700	21.64160
0.07200	30.01090
0.14400	37.81136
0.21600	43.28320
0.36000	51.31791
0.54000	58.74434
0.81000	67.24549
1.08000	74.01324
1.44000	81.46211
1.80000	87.75239
2.34000	95.77234
2.88000	102.63582
3.60000	110.56109
4.32000	110.56109

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE EXCAVATION SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
189.00	12.000	0.2083D+01	0.1512D-01	0.1500D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00090	5.30991
0.00900	11.43984
0.02700	16.49911
0.07200	22.87969
0.14400	28.82660
0.21600	32.99822
0.36000	39.12372
0.54000	44.78548
0.81000	51.26658
1.08000	56.42617
1.44000	62.10504
1.80000	66.90062
2.34000	73.01486
2.88000	78.24744
3.60000	84.28950
4.32000	84.28950

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE BACKFILL SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
357.00	12.000	0.2083D+01	0.1512D-01	0.1500D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00090	7.23000
0.00900	15.57656
0.02700	22.46528
0.07200	31.15312
0.14400	39.25047
0.21600	44.93057
0.36000	53.27108
0.54000	60.98016
0.81000	69.80486

Section 2 - Tip EL 46.py5o

1.08000	76.83019
1.44000	84.56257
1.80000	91.09227
2.34000	99.41745
2.88000	106.54216
3.60000	114.76906
4.32000	114.76906

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE EXCAVATION SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
220.50	12.000	0.2083D+01	0.1484D-01	0.1500D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00090	5.62399
0.00900	12.11652
0.02700	17.47504
0.07200	24.23303
0.14400	30.53171
0.21600	34.95008
0.36000	41.43790
0.54000	47.43456
0.81000	54.29901
1.08000	59.76380
1.44000	65.77857
1.80000	70.85782
2.34000	77.33372
2.88000	82.87581
3.60000	89.27525
4.32000	89.27525

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE BACKFILL SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
388.50	12.000	0.2083D+01	0.1484D-01	0.1500D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00090	7.50908
0.00900	16.17783
0.02700	23.33246
0.07200	32.35566
0.14400	40.76557
0.21600	46.66493
0.36000	55.32739
0.54000	63.33406
0.81000	72.49939
1.08000	79.79591
1.44000	87.82676
1.80000	94.60851
2.34000	103.25506
2.88000	110.65479
3.60000	119.19926
4.32000	119.19926

Section 2 - Tip EL 46.py5o

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE EXCAVATION SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
251.90	12.000	0.2083D+01	0.1464D-01	0.1500D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00090	5.93707
0.00900	12.79104
0.02700	18.44787
0.07200	25.58208
0.14400	32.23140
0.21600	36.89574
0.36000	43.74474
0.54000	50.07522
0.81000	57.32182
1.08000	63.09083
1.44000	69.44044
1.80000	74.80245
2.34000	81.63886
2.88000	87.48947
3.60000	94.24518
4.32000	94.24518

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE BACKFILL SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
419.90	12.000	0.2083D+01	0.1464D-01	0.1500D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00090	7.79599
0.00900	16.79596
0.02700	24.22396
0.07200	33.59191
0.14400	42.32316
0.21600	48.44792
0.36000	57.44137
0.54000	65.75395
0.81000	75.26948
1.08000	82.84479
1.44000	91.18249
1.80000	98.22335
2.34000	107.20027
2.88000	114.88273
3.60000	123.75367
4.32000	123.75367

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE EXCAVATION SIDE

DEPTH BELOW GS	DIAM	C	GAMMA AVG	E50
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Section 2 - Tip EL 46.py5o  
 IN IN LBS/IN\*\*2 LBS/IN\*\*3  
 252.10 12.000 0.2778D+01 0.1464D-01 0.1000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00060	6.98966
0.00600	15.05876
0.01800	21.71849
0.04800	30.11753
0.09600	37.94570
0.14400	43.43699
0.24000	51.50025
0.36000	58.95307
0.54000	67.48441
0.72000	74.27621
0.96000	81.75155
1.20000	88.06418
1.56000	96.11262
1.92000	103.00049
2.40000	110.95392
2.88000	110.95392

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE BACKFILL SIDE

DEPTH BELOW GS DIAM C GAMMA AVG E50  
 IN IN LBS/IN\*\*2 LBS/IN\*\*3  
 420.10 12.000 0.2778D+01 0.1464D-01 0.1000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00060	8.84887
0.00600	19.06431
0.01800	27.49549
0.04800	38.12862
0.09600	48.03905
0.14400	54.99099
0.24000	65.19902
0.36000	74.63425
0.54000	85.43489
0.72000	94.03327
0.96000	103.49700
1.20000	111.48876
1.56000	121.67804
1.92000	130.39805
2.40000	140.46704
2.88000	140.46704

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE EXCAVATION SIDE

DEPTH BELOW GS DIAM C GAMMA AVG E50  
 IN IN LBS/IN\*\*2 LBS/IN\*\*3  
 300.00 12.000 0.2778D+01 0.1579D-01 0.1000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00060	7.78159
0.00600	16.76492

Section 2 - Tip EL 46.py5o

0.01800	24.17920
0.04800	33.52984
0.09600	42.24496
0.14400	48.35840
0.24000	57.33523
0.36000	65.63245
0.54000	75.13040
0.72000	82.69171
0.96000	91.01400
1.20000	98.04186
1.56000	107.00219
1.92000	114.67046
2.40000	123.52501
2.88000	123.52501

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE BACKFILL SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
468.00	12.000	0.2778D+01	0.1579D-01	0.1000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00060	9.78742
0.00600	21.08637
0.01800	30.41180
0.04800	42.17273
0.09600	53.13431
0.14400	60.82360
0.24000	72.11436
0.36000	82.55033
0.54000	94.49654
0.72000	104.00690
0.96000	114.47441
1.20000	123.31382
1.56000	134.58382
1.92000	144.22872
2.40000	155.36568
2.88000	155.36568

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE EXCAVATION SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
348.00	12.000	0.2778D+01	0.1663D-01	0.1000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00060	8.57517
0.00600	18.47464
0.01800	26.64505
0.04800	36.94929
0.09600	46.55318
0.14400	53.29009
0.24000	63.18239
0.36000	72.32579
0.54000	82.79236

Section 2 - Tip EL 46.py5o  
0.72000 91.12478  
0.96000 100.29580  
1.20000 108.04037  
1.56000 117.91449  
1.92000 126.36479  
2.40000 136.12234  
2.88000 136.12234

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE BACKFILL SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
516.00	12.000	0.2778D+01	0.1663D-01	0.1000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00060	10.68745
0.00600	23.02541
0.01800	33.20839
0.04800	46.05082
0.09600	58.02039
0.14400	66.41677
0.24000	78.74579
0.36000	90.14143
0.54000	103.18618
0.72000	113.57109
0.96000	125.00115
1.20000	134.65341
1.56000	146.95977
1.92000	157.49159
2.40000	169.65267
2.88000	169.65266

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE EXCAVATION SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
396.00	12.000	0.2778D+01	0.1727D-01	0.1000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00060	9.36875
0.00600	20.18436
0.01800	29.11089
0.04800	40.36873
0.09600	50.86141
0.14400	58.22178
0.24000	69.02956
0.36000	79.01912
0.54000	90.45431
0.72000	99.55785
0.96000	109.57759
1.20000	118.03888
1.56000	128.82680
1.92000	138.05912
2.40000	148.71968
2.88000	148.71967



# Section 2 - Tip EL 46.py5o

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

## AT THE BACKFILL SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
564.00	12.000	0.2778D+01	0.1727D-01	0.1000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00060	11.56167
0.00600	24.90886
0.01800	35.92479
0.04800	49.81772
0.09600	62.76639
0.14400	71.84958
0.24000	85.18710
0.36000	97.51489
0.54000	111.62668
0.72000	122.86106
0.96000	135.22609
1.20000	145.66789
1.56000	158.98090
1.92000	170.37420
2.40000	183.53004
2.88000	183.53004

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

## AT THE EXCAVATION SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
443.90	12.000	0.2778D+01	0.1776D-01	0.1000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00060	10.16068
0.00600	21.89052
0.01800	31.57160
0.04800	43.78105
0.09600	55.16066
0.14400	63.14320
0.24000	74.86454
0.36000	85.69851
0.54000	98.10030
0.72000	107.97335
0.96000	118.84005
1.20000	128.01657
1.56000	139.71637
1.92000	149.72908
2.40000	161.29077
2.88000	161.29076

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

## AT THE BACKFILL SIDE

DEPTH BELOW GS	DIAM	C	GAMMA AVG	E50
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Section 2 - Tip EL 46.py5o  
 IN IN LBS/IN\*\*2 LBS/IN\*\*3  
 611.90 12.000 0.2778D+01 0.1776D-01 0.1000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00060	12.41668
0.00600	26.75093
0.01800	38.58152
0.04800	53.50186
0.09600	67.40812
0.14400	77.16303
0.24000	91.48690
0.36000	104.72635
0.54000	119.88175
0.72000	131.94694
0.96000	145.22640
1.20000	156.44039
1.56000	170.73793
1.92000	182.97379
2.40000	197.10255
2.88000	197.10254

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

## Section 2

RESULTS -- ITERATION 9

STA I	X IN	DEFL. IN	SLOPE	MOMENT LBS-IN	SHEAR LBS	NET REACT/STA LBS	EI LBS-IN**2
0	0.000E+00	0.633E+01	-0.178E-01	0.000E+00	0.000E+00	0.000E+00	0.620E+10
1	0.600E+01	0.623E+01	-0.178E-01	0.000E+00	0.201E+02	0.402E+02	0.124E+11
2	0.120E+02	0.612E+01	-0.178E-01	0.241E+03	0.679E+02	0.554E+02	0.124E+11
3	0.180E+02	0.601E+01	-0.178E-01	0.815E+03	0.131E+03	0.707E+02	0.124E+11
4	0.240E+02	0.591E+01	-0.178E-01	0.181E+04	0.209E+03	0.859E+02	0.124E+11
5	0.300E+02	0.580E+01	-0.178E-01	0.333E+04	0.303E+03	0.101E+03	0.124E+11
6	0.360E+02	0.569E+01	-0.178E-01	0.545E+04	0.411E+03	0.116E+03	0.124E+11
7	0.420E+02	0.559E+01	-0.178E-01	0.826E+04	0.535E+03	0.132E+03	0.124E+11
8	0.480E+02	0.548E+01	-0.178E-01	0.119E+05	0.674E+03	0.147E+03	0.124E+11
9	0.540E+02	0.537E+01	-0.178E-01	0.164E+05	0.821E+03	0.146E+03	0.124E+11
10	0.600E+02	0.527E+01	-0.178E-01	0.217E+05	0.967E+03	0.146E+03	0.124E+11
11	0.660E+02	0.516E+01	-0.178E-01	0.280E+05	0.111E+04	0.145E+03	0.124E+11
12	0.720E+02	0.505E+01	-0.177E-01	0.351E+05	0.126E+04	0.144E+03	0.124E+11
13	0.780E+02	0.495E+01	-0.177E-01	0.430E+05	0.140E+04	0.144E+03	0.124E+11
14	0.840E+02	0.484E+01	-0.177E-01	0.519E+05	0.154E+04	0.143E+03	0.124E+11
15	0.900E+02	0.473E+01	-0.177E-01	0.616E+05	0.169E+04	0.143E+03	0.124E+11
16	0.960E+02	0.463E+01	-0.176E-01	0.721E+05	0.183E+04	0.142E+03	0.124E+11
17	0.102E+03	0.452E+01	-0.176E-01	0.835E+05	0.197E+04	0.141E+03	0.124E+11
18	0.108E+03	0.442E+01	-0.176E-01	0.958E+05	0.211E+04	0.141E+03	0.124E+11
19	0.114E+03	0.431E+01	-0.175E-01	0.109E+06	0.225E+04	0.140E+03	0.124E+11
20	0.120E+03	0.421E+01	-0.175E-01	0.123E+06	0.239E+04	0.140E+03	0.124E+11
21	0.126E+03	0.410E+01	-0.174E-01	0.138E+06	0.253E+04	0.139E+03	0.124E+11
22	0.132E+03	0.400E+01	-0.173E-01	0.153E+06	0.267E+04	0.138E+03	0.124E+11
23	0.138E+03	0.389E+01	-0.172E-01	0.170E+06	0.281E+04	0.138E+03	0.124E+11
24	0.144E+03	0.379E+01	-0.172E-01	0.187E+06	0.295E+04	0.137E+03	0.124E+11
25	0.150E+03	0.369E+01	-0.171E-01	0.205E+06	0.308E+04	0.137E+03	0.124E+11
26	0.156E+03	0.359E+01	-0.170E-01	0.224E+06	0.322E+04	0.136E+03	0.124E+11
27	0.162E+03	0.348E+01	-0.168E-01	0.244E+06	0.335E+04	0.135E+03	0.124E+11
28	0.168E+03	0.338E+01	-0.167E-01	0.264E+06	0.345E+04	0.458E+02	0.124E+11
29	0.174E+03	0.328E+01	-0.166E-01	0.285E+06	0.344E+04	-0.578E+02	0.124E+11

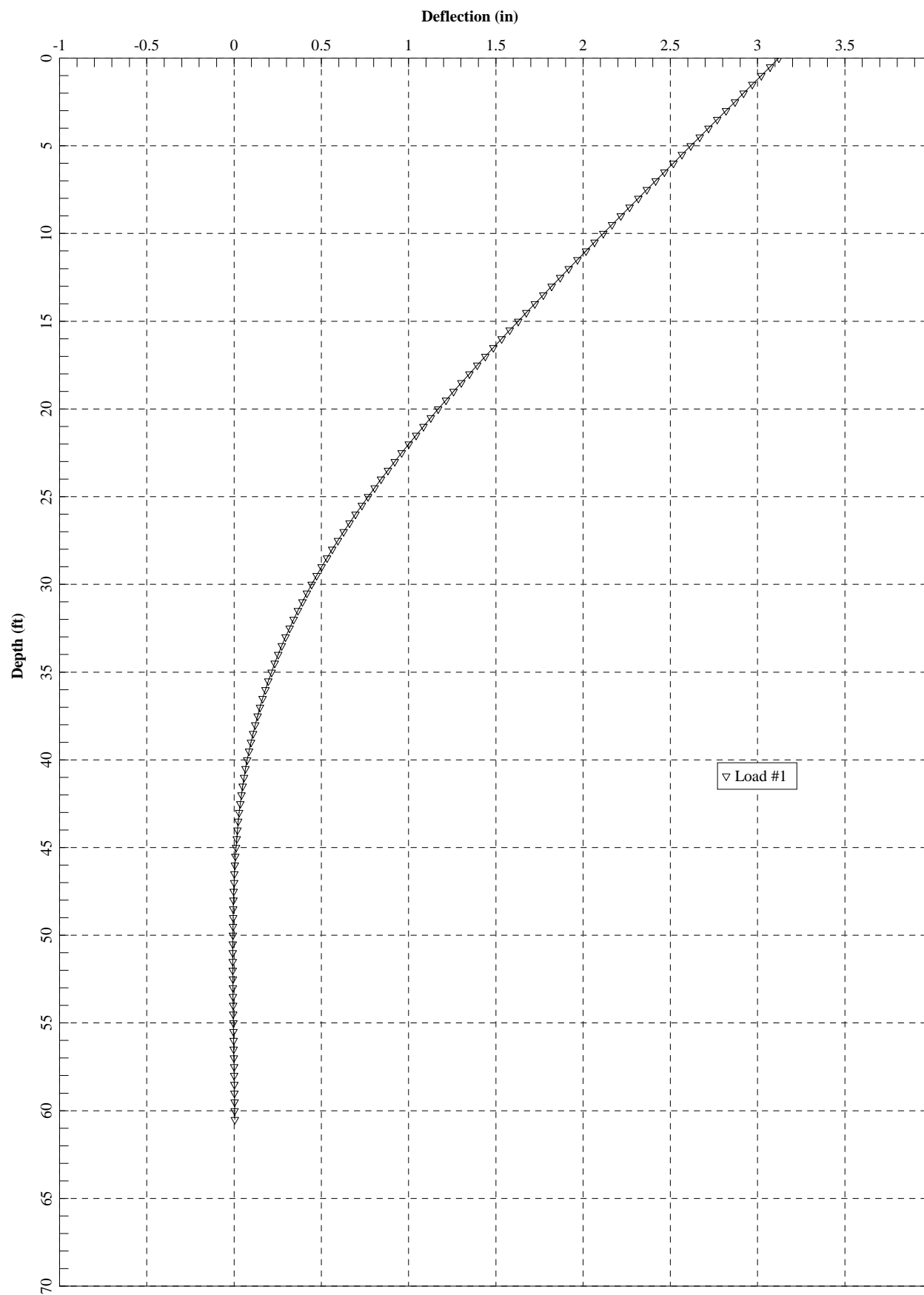
# Section 2 - Tip EL 46.py5o

30	0.180E+03	0.318E+01	-0.164E-01	0.305E+06	0.338E+04	-0.623E+02	0.124E+11
31	0.186E+03	0.309E+01	-0.163E-01	0.326E+06	0.331E+04	-0.666E+02	0.124E+11
32	0.192E+03	0.299E+01	-0.161E-01	0.345E+06	0.325E+04	-0.706E+02	0.124E+11
33	0.198E+03	0.289E+01	-0.160E-01	0.364E+06	0.317E+04	-0.745E+02	0.124E+11
34	0.204E+03	0.280E+01	-0.158E-01	0.383E+06	0.310E+04	-0.773E+02	0.124E+11
35	0.210E+03	0.270E+01	-0.156E-01	0.402E+06	0.302E+04	-0.801E+02	0.124E+11
36	0.216E+03	0.261E+01	-0.154E-01	0.420E+06	0.294E+04	-0.827E+02	0.124E+11
37	0.222E+03	0.252E+01	-0.152E-01	0.437E+06	0.285E+04	-0.853E+02	0.124E+11
38	0.228E+03	0.243E+01	-0.150E-01	0.454E+06	0.277E+04	-0.878E+02	0.124E+11
39	0.234E+03	0.234E+01	-0.147E-01	0.470E+06	0.268E+04	-0.898E+02	0.124E+11
40	0.240E+03	0.225E+01	-0.145E-01	0.486E+06	0.259E+04	-0.926E+02	0.124E+11
41	0.246E+03	0.216E+01	-0.143E-01	0.501E+06	0.249E+04	-0.953E+02	0.124E+11
42	0.252E+03	0.208E+01	-0.140E-01	0.516E+06	0.240E+04	-0.980E+02	0.124E+11
43	0.258E+03	0.200E+01	-0.138E-01	0.530E+06	0.230E+04	-0.101E+03	0.124E+11
44	0.264E+03	0.191E+01	-0.135E-01	0.543E+06	0.220E+04	-0.103E+03	0.124E+11
45	0.270E+03	0.183E+01	-0.133E-01	0.556E+06	0.209E+04	-0.105E+03	0.124E+11
46	0.276E+03	0.176E+01	-0.130E-01	0.568E+06	0.199E+04	-0.106E+03	0.124E+11
47	0.282E+03	0.168E+01	-0.127E-01	0.580E+06	0.188E+04	-0.108E+03	0.124E+11
48	0.288E+03	0.160E+01	-0.124E-01	0.591E+06	0.177E+04	-0.110E+03	0.124E+11
49	0.294E+03	0.153E+01	-0.121E-01	0.601E+06	0.166E+04	-0.111E+03	0.124E+11
50	0.300E+03	0.146E+01	-0.118E-01	0.611E+06	0.154E+04	-0.132E+03	0.124E+11
51	0.306E+03	0.139E+01	-0.115E-01	0.620E+06	0.140E+04	-0.151E+03	0.124E+11
52	0.312E+03	0.132E+01	-0.112E-01	0.628E+06	0.124E+04	-0.169E+03	0.124E+11
53	0.318E+03	0.125E+01	-0.109E-01	0.635E+06	0.106E+04	-0.186E+03	0.124E+11
54	0.324E+03	0.119E+01	-0.106E-01	0.640E+06	0.865E+03	-0.203E+03	0.124E+11
55	0.330E+03	0.113E+01	-0.103E-01	0.645E+06	0.663E+03	-0.201E+03	0.124E+11
56	0.336E+03	0.106E+01	-0.100E-01	0.648E+06	0.463E+03	-0.199E+03	0.124E+11
57	0.342E+03	0.101E+01	-0.968E-02	0.651E+06	0.266E+03	-0.195E+03	0.124E+11
58	0.348E+03	0.948E+00	-0.937E-02	0.652E+06	0.720E+02	-0.192E+03	0.124E+11
59	0.354E+03	0.893E+00	-0.905E-02	0.651E+06	-0.119E+03	-0.189E+03	0.124E+11
60	0.360E+03	0.839E+00	-0.874E-02	0.650E+06	-0.306E+03	-0.186E+03	0.124E+11
61	0.366E+03	0.788E+00	-0.842E-02	0.648E+06	-0.491E+03	-0.183E+03	0.124E+11
62	0.372E+03	0.738E+00	-0.811E-02	0.644E+06	-0.673E+03	-0.180E+03	0.124E+11
63	0.378E+03	0.691E+00	-0.780E-02	0.640E+06	-0.851E+03	-0.176E+03	0.124E+11
64	0.384E+03	0.645E+00	-0.749E-02	0.634E+06	-0.102E+04	-0.172E+03	0.124E+11
65	0.390E+03	0.601E+00	-0.719E-02	0.627E+06	-0.120E+04	-0.169E+03	0.124E+11
66	0.396E+03	0.558E+00	-0.689E-02	0.620E+06	-0.136E+04	-0.166E+03	0.124E+11
67	0.402E+03	0.518E+00	-0.659E-02	0.611E+06	-0.153E+04	-0.162E+03	0.124E+11
68	0.408E+03	0.479E+00	-0.630E-02	0.601E+06	-0.169E+04	-0.157E+03	0.124E+11
69	0.414E+03	0.442E+00	-0.601E-02	0.591E+06	-0.184E+04	-0.152E+03	0.124E+11
70	0.420E+03	0.407E+00	-0.572E-02	0.579E+06	-0.199E+04	-0.147E+03	0.124E+11
71	0.426E+03	0.374E+00	-0.545E-02	0.567E+06	-0.214E+04	-0.157E+03	0.124E+11
72	0.432E+03	0.342E+00	-0.518E-02	0.554E+06	-0.230E+04	-0.165E+03	0.124E+11
73	0.438E+03	0.312E+00	-0.491E-02	0.539E+06	-0.247E+04	-0.171E+03	0.124E+11
74	0.444E+03	0.283E+00	-0.465E-02	0.524E+06	-0.264E+04	-0.176E+03	0.124E+11
75	0.450E+03	0.256E+00	-0.440E-02	0.508E+06	-0.282E+04	-0.181E+03	0.124E+11
76	0.456E+03	0.230E+00	-0.416E-02	0.490E+06	-0.301E+04	-0.185E+03	0.124E+11
77	0.462E+03	0.206E+00	-0.393E-02	0.472E+06	-0.319E+04	-0.187E+03	0.124E+11
78	0.468E+03	0.183E+00	-0.371E-02	0.452E+06	-0.338E+04	-0.187E+03	0.124E+11
79	0.474E+03	0.161E+00	-0.349E-02	0.431E+06	-0.356E+04	-0.179E+03	0.124E+11
80	0.480E+03	0.141E+00	-0.329E-02	0.409E+06	-0.374E+04	-0.171E+03	0.124E+11
81	0.486E+03	0.122E+00	-0.310E-02	0.386E+06	-0.390E+04	-0.159E+03	0.124E+11
82	0.492E+03	0.104E+00	-0.292E-02	0.362E+06	-0.405E+04	-0.148E+03	0.124E+11
83	0.498E+03	0.869E-01	-0.275E-02	0.337E+06	-0.420E+04	-0.134E+03	0.124E+11
84	0.504E+03	0.709E-01	-0.259E-02	0.312E+06	-0.432E+04	-0.119E+03	0.124E+11
85	0.510E+03	0.558E-01	-0.245E-02	0.286E+06	-0.443E+04	-0.103E+03	0.124E+11
86	0.516E+03	0.416E-01	-0.231E-02	0.259E+06	-0.453E+04	-0.833E+02	0.124E+11
87	0.522E+03	0.280E-01	-0.220E-02	0.231E+06	-0.460E+04	-0.576E+02	0.124E+11
88	0.528E+03	0.152E-01	-0.209E-02	0.204E+06	-0.464E+04	-0.270E+02	0.124E+11
89	0.534E+03	0.296E-02	-0.200E-02	0.176E+06	-0.463E+04	0.446E+02	0.124E+11
90	0.540E+03	-0.877E-02	-0.192E-02	0.148E+06	-0.447E+04	0.283E+03	0.124E+11
91	0.546E+03	-0.201E-01	-0.185E-02	0.122E+06	-0.415E+04	0.340E+03	0.124E+11
92	0.552E+03	-0.310E-01	-0.180E-02	0.981E+05	-0.380E+04	0.372E+03	0.124E+11

Section 2 - Tip EL 46.py5o

93	0.558E+03	-0.417E-01	-0.176E-02	0.765E+05	-0.341E+04	0.403E+03	0.124E+11
94	0.564E+03	-0.521E-01	-0.173E-02	0.572E+05	-0.299E+04	0.430E+03	0.124E+11
95	0.570E+03	-0.624E-01	-0.170E-02	0.405E+05	-0.255E+04	0.450E+03	0.124E+11
96	0.576E+03	-0.726E-01	-0.169E-02	0.265E+05	-0.209E+04	0.470E+03	0.124E+11
97	0.582E+03	-0.826E-01	-0.168E-02	0.154E+05	-0.162E+04	0.490E+03	0.124E+11
98	0.588E+03	-0.927E-01	-0.167E-02	0.716E+04	-0.112E+04	0.510E+03	0.124E+11
99	0.594E+03	-0.103E+00	-0.167E-02	0.200E+04	-0.597E+03	0.527E+03	0.124E+11
100	0.600E+03	-0.113E+00	-0.167E-02	0.239E-08	-0.167E+03	0.334E+03	0.620E+10

END OF ANALYSIS



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PYWALL for Windows, Version 2015.5.22

Serial Number : 136086168

A Program for the Analysis of  
Flexible Retaining Walls  
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Nashville, TN

Path to file locations : T:\Projects\2019\GEO\Other Office  
Projects\4589-18-001 North Lake Mechant Sheetpile Plug\Design\Revised Wave Loads\  
Name of input data file : 50 Year.py5d  
Name of output file : 50 Year.py5o  
Name of plot output file : 50 Year.py5p

-----  
Time and Date of Analysis  
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Date: August 05, 2019 Time: 15:43:08

New Wall

\*\*\*\*\*  
\* PROGRAM CONTROL PARAMETERS \*  
\*\*\*\*\*

NO OF POINTS FOR SPECIFIED DEFLECTIONS AND SLOPES	= 0
NO OF POINTS FOR WALL STIFFNESS AND LOAD DATA	= 2
GENERATE EARTH PRESSURE INTERNALLY	= 0
GENERATE SOIL RESISTANCE (P-Y) CURVES INTERNALLY	= 1
NO OF P-Y MODIFICATION FACTORS FOR GEN. P-Y CURVES	= 0
NO OF USER-SPECIFIED SOIL RESISTANCE (P-Y) CURVES	= 0
NUMBER OF INCREMENTS	= 120
INCREMENT LENGTH	= 6.000 IN
FREE HEIGHT OF WALL	= 234.000 IN
MAXIMUM ALLOWABLE DEFLECTION	= 100.000 IN
DEFLECTION CLOSURE TOLERANCE	= 1.000E-05 IN

\*\*\*\*\*

\* STIFFNESS AND LOAD DATA \*

\*\*\*\*\*

EI - FLEXURAL RIGIDITY, Q - TRANSVERSE LOAD,  
S - STIFFNESS OF TRANSVERSE RESISTANCE,  
T - TORQUE, P - AXIAL LOAD,  
R - STIFFNESS OF TORSIONAL RESISTANCE.

FROM	TO	CONTD	EI	Q	S'	T	R	P
			LBS-IN**2	LBS	LBS/IN	IN-LBS	IN-LBS	LBS
0	100	0	0.311E+11	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
100	120	0	0.189E+11	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

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\* SPECIFIED ACTIVE EARTH PRESSURE \*

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DEPTH IN	ACTIVE EARTH PRESSURE LBS/IN
-----	-----
0.000E+00	0.693E+01
0.288E+02	0.121E+02
0.570E+02	0.230E+02
0.234E+03	0.126E+02
0.720E+03	0.126E+02

\*\*\*\*\*

\* SOIL LAYERS AND STRENGTH DATA \*

\*\*\*\*\*

X AT THE SURFACE OF EXCAVATION SIDE = 234.00 IN

3 LAYER(S) OF SOIL

LAYER 1  
THE SOIL IS A SOFT CLAY

LAYER 2  
THE SOIL IS A SOFT CLAY

LAYER 3

THE SOIL IS A SOFT CLAY

DISTRIBUTION OF EFFECTIVE UNIT WEIGHT WITH DEPTH  
6 POINTS

X, IN	WEIGHT, LBS/IN**3
234.0000	0.1608D-01
294.0000	0.1608D-01
294.0000	0.2187D-01
420.0000	0.2187D-01
420.0000	0.2187D-01
732.0000	0.2187D-01

DISTRIBUTION OF STRENGTH PARAMETERS WITH DEPTH  
6 POINTS

X, IN	S, LBS/IN**2	PHI, DEGREES	E50
234.00	0.1389D+01	0.000	0.2000D-01
294.00	0.1389D+01	0.000	0.2000D-01
294.00	0.2778D+01	0.000	0.1000D-01
420.00	0.2778D+01	0.000	0.1000D-01
420.00	0.2778D+01	0.000	0.1000D-01
732.00	0.2778D+01	0.000	0.1000D-01

P-Y CURVES DATA

AT THE EXCAVATION SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
0.10	12.000	0.1389D+01	0.1608D-01	0.2000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00120	2.10108
0.01200	4.52665
0.03600	6.52856
0.09600	9.05330
0.19200	11.40644
0.28800	13.05711
0.48000	15.48092
0.72000	17.72123
1.08000	20.28575
1.44000	22.32735
1.92000	24.57443



2.40000	26.47200
3.12000	28.89136
3.84000	30.96184
4.80000	33.35263
5.76000	33.35263

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

#### AT THE BACKFILL SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
234.10	12.000	0.1389D+01	0.1608D-01	0.2000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00120	4.94611
0.01200	10.65608
0.03600	15.36872
0.09600	21.31215
0.19200	26.85163
0.28800	30.73744
0.48000	36.44327
0.72000	41.71713
1.08000	47.75419
1.44000	52.56029
1.92000	57.85008
2.40000	62.31711
3.12000	68.01245
3.84000	72.88653
4.80000	78.51464
5.76000	78.51464

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

#### AT THE EXCAVATION SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
15.00	12.000	0.1389D+01	0.1608D-01	0.2000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00120	2.28224
0.01200	4.91694
0.03600	7.09146
0.09600	9.83388
0.19200	12.38992

0.28800	14.18291
0.48000	16.81570
0.72000	19.24917
1.08000	22.03480
1.44000	24.25244
1.92000	26.69327
2.40000	28.75445
3.12000	31.38240
3.84000	33.63141
4.80000	36.22833
5.76000	36.22833

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

#### AT THE BACKFILL SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
249.00	12.000	0.1389D+01	0.1608D-01	0.2000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00120	5.12727
0.01200	11.04637
0.03600	15.93162
0.09600	22.09274
0.19200	27.83510
0.28800	31.86324
0.48000	37.77805
0.72000	43.24507
1.08000	49.50325
1.44000	54.48537
1.92000	59.96891
2.40000	64.59955
3.12000	70.50349
3.84000	75.55610
4.80000	81.39034
5.76000	81.39034

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

#### AT THE EXCAVATION SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
30.00	12.000	0.1389D+01	0.1608D-01	0.2000D-01

Y, IN	P, LBS/IN
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0.00000	0.00000
0.00120	2.46462
0.01200	5.30985
0.03600	7.65813
0.09600	10.61971
0.19200	13.37999
0.28800	15.31627
0.48000	18.15944
0.72000	20.78737
1.08000	23.79560
1.44000	26.19045
1.92000	28.82632
2.40000	31.05221
3.12000	33.89016
3.84000	36.31889
4.80000	39.12333
5.76000	39.12333

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE BACKFILL SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
264.00	12.000	0.1389D+01	0.1608D-01	0.2000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00120	5.30964
0.01200	11.43928
0.03600	16.49830
0.09600	22.87856
0.19200	28.82518
0.28800	32.99659
0.48000	39.12179
0.72000	44.78327
1.08000	51.26404
1.44000	56.42338
1.92000	62.10197
2.40000	66.89732
3.12000	73.01126
3.84000	78.24358
4.80000	84.28534
5.76000	84.28534

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE EXCAVATION SIDE

DEPTH BELOW GS	DIAM	C	GAMMA AVG	E50
IN	IN	LBS/IN**2	LBS/IN**3	
45.00	12.000	0.1389D+01	0.1608D-01	0.2000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00120	2.64699
0.01200	5.70277
0.03600	8.22481
0.09600	11.40553
0.19200	14.37007
0.28800	16.44962
0.48000	19.50318
0.72000	22.32557
1.08000	25.55640
1.44000	28.12846
1.92000	30.95937
2.40000	33.34997
3.12000	36.39792
3.84000	39.00637
4.80000	42.01834
5.76000	42.01833

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE BACKFILL SIDE

DEPTH BELOW GS	DIAM	C	GAMMA AVG	E50
IN	IN	LBS/IN**2	LBS/IN**3	
279.00	12.000	0.1389D+01	0.1608D-01	0.2000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00120	5.49202
0.01200	11.83219
0.03600	17.06497
0.09600	23.66438
0.19200	29.81526
0.28800	34.12995
0.48000	40.46553
0.72000	46.32147
1.08000	53.02484
1.44000	58.36139
1.92000	64.23502
2.40000	69.19508
3.12000	75.51902
3.84000	80.93106
4.80000	87.18034

5.76000 87.18034

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE EXCAVATION SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
59.90	12.000	0.1389D+01	0.1608D-01	0.2000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00120	2.82815
0.01200	6.09306
0.03600	8.78771
0.09600	12.18612
0.19200	15.35354
0.28800	17.57542
0.48000	20.83796
0.72000	23.85352
1.08000	27.30546
1.44000	30.05355
1.92000	33.07821
2.40000	35.63242
3.12000	38.88897
3.84000	41.67593
4.80000	44.89404
5.76000	44.89403

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE BACKFILL SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
293.90	12.000	0.1389D+01	0.1608D-01	0.2000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00120	5.67317
0.01200	12.22248
0.03600	17.62787
0.09600	24.44497
0.19200	30.79873
0.28800	35.25575
0.48000	41.80031
0.72000	47.84941
1.08000	54.77390

1.44000	60.28648
1.92000	66.35386
2.40000	71.47753
3.12000	78.01006
3.84000	83.60062
4.80000	90.05604
5.76000	90.05604

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

#### AT THE EXCAVATION SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
60.10	12.000	0.2778D+01	0.1609D-01	0.1000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00060	4.93088
0.00600	10.62327
0.01800	15.32140
0.04800	21.24654
0.09600	26.76896
0.14400	30.64281
0.24000	36.33107
0.36000	41.58869
0.54000	47.60717
0.72000	52.39847
0.96000	57.67198
1.20000	62.12525
1.56000	67.80306
1.92000	72.66214
2.40000	78.27291
2.88000	78.27291

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

#### AT THE BACKFILL SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
294.10	12.000	0.2778D+01	0.1609D-01	0.1000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00060	7.77762
0.00600	16.75636
0.01800	24.16686

0.04800	33.51273
0.09600	42.22339
0.14400	48.33372
0.24000	57.30596
0.36000	65.59895
0.54000	75.09205
0.72000	82.64950
0.96000	90.96755
1.20000	97.99182
1.56000	106.94757
1.92000	114.61193
2.40000	123.46196
2.88000	123.46195

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

#### AT THE EXCAVATION SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
91.50	12.000	0.2778D+01	0.1808D-01	0.1000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00060	5.45002
0.00600	11.74171
0.01800	16.93448
0.04800	23.48342
0.09600	29.58726
0.14400	33.86896
0.24000	40.15609
0.36000	45.96725
0.54000	52.61936
0.72000	57.91510
0.96000	63.74382
1.20000	68.66595
1.56000	74.94152
1.92000	80.31218
2.40000	86.51367
2.88000	86.51367

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

#### AT THE BACKFILL SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
325.50	12.000	0.2778D+01	0.1808D-01	0.1000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00060	8.64746
0.00600	18.63040
0.01800	26.86968
0.04800	37.26079
0.09600	46.94566
0.14400	53.73936
0.24000	63.71506
0.36000	72.93554
0.54000	83.49035
0.72000	91.89302
0.96000	101.14135
1.20000	108.95122
1.56000	118.90859
1.92000	127.43012
2.40000	137.26994
2.88000	137.26993

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

#### AT THE EXCAVATION SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
123.00	12.000	0.2778D+01	0.1905D-01	0.1000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00060	5.97081
0.00600	12.86372
0.01800	18.55269
0.04800	25.72743
0.09600	32.41453
0.14400	37.10538
0.24000	43.99329
0.36000	50.35975
0.54000	57.64752
0.72000	63.44930
0.96000	69.83500
1.20000	75.22747
1.56000	82.10272
1.92000	87.98658
2.40000	94.78067
2.88000	94.78067

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01



AT THE BACKFILL SIDE

DEPTH BELOW GS	DIAM	C	GAMMA AVG	E50
IN	IN	LBS/IN**2	LBS/IN**3	
357.00	12.000	0.2778D+01	0.1905D-01	0.1000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00060	9.34016
0.00600	20.12277
0.01800	29.02206
0.04800	40.24554
0.09600	50.70620
0.14400	58.04411
0.24000	68.81891
0.36000	78.77799
0.54000	90.17828
0.72000	99.25404
0.96000	109.24321
1.20000	117.67868
1.56000	128.43367
1.92000	137.63782
2.40000	148.26585
2.88000	148.26584

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE EXCAVATION SIDE

DEPTH BELOW GS	DIAM	C	GAMMA AVG	E50
IN	IN	LBS/IN**2	LBS/IN**3	
154.50	12.000	0.2778D+01	0.1962D-01	0.1000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00060	6.49160
0.00600	13.98572
0.01800	20.17090
0.04800	27.97144
0.09600	35.24181
0.14400	40.34180
0.24000	47.83049
0.36000	54.75225
0.54000	62.67567
0.72000	68.98351
0.96000	75.92617
1.20000	81.78899
1.56000	89.26392

1.92000	95.66098
2.40000	103.04767
2.88000	103.04767

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

#### AT THE BACKFILL SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
388.50	12.000	0.2778D+01	0.1962D-01	0.1000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00060	9.96276
0.00600	21.46412
0.01800	30.95662
0.04800	42.92824
0.09600	54.08619
0.14400	61.91324
0.24000	73.40626
0.36000	84.02919
0.54000	96.18941
0.72000	105.87015
0.96000	116.52518
1.20000	125.52294
1.56000	136.99484
1.92000	146.81252
2.40000	158.14900
2.88000	158.14899

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

#### AT THE EXCAVATION SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
185.90	12.000	0.2778D+01	0.2000D-01	0.1000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00060	7.01073
0.00600	15.10416
0.01800	21.78397
0.04800	30.20833
0.09600	38.06011
0.14400	43.56794
0.24000	51.65551

0.36000	59.13080
0.54000	67.68787
0.72000	74.50014
0.96000	81.99801
1.20000	88.32968
1.56000	96.40239
1.92000	103.31102
2.40000	111.28843
2.88000	111.28843

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

#### AT THE BACKFILL SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
419.90	12.000	0.2778D+01	0.2000D-01	0.1000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00060	10.54905
0.00600	22.72723
0.01800	32.77834
0.04800	45.45446
0.09600	57.26903
0.14400	65.55668
0.24000	77.72604
0.36000	88.97410
0.54000	101.84992
0.72000	112.10035
0.96000	123.38240
1.20000	132.90966
1.56000	145.05665
1.92000	155.45208
2.40000	167.45568
2.88000	167.45567

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

#### AT THE EXCAVATION SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
186.10	12.000	0.2778D+01	0.2000D-01	0.1000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00060	7.01404

0.00600	15.11129
0.01800	21.79425
0.04800	30.22257
0.09600	38.07806
0.14400	43.58849
0.24000	51.67987
0.36000	59.15869
0.54000	67.71979
0.72000	74.53528
0.96000	82.03669
1.20000	88.37134
1.56000	96.44785
1.92000	103.35975
2.40000	111.34092
2.88000	111.34091

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE BACKFILL SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
420.10	12.000	0.2778D+01	0.2000D-01	0.1000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00060	10.55271
0.00600	22.73512
0.01800	32.78972
0.04800	45.47024
0.09600	57.28891
0.14400	65.57943
0.24000	77.75302
0.36000	89.00499
0.54000	101.88528
0.72000	112.13926
0.96000	123.42522
1.20000	132.95579
1.56000	145.10700
1.92000	155.50604
2.40000	167.51380
2.88000	167.51380

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE EXCAVATION SIDE

DEPTH BELOW GS	DIAM	C	GAMMA AVG	E50
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IN	IN	LBS/IN**2	LBS/IN**3
264.00	12.000	0.2778D+01	0.2056D-01 0.1000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00060	8.30196
0.00600	17.88602
0.01800	25.79611
0.04800	35.77204
0.09600	45.06995
0.14400	51.59221
0.24000	61.16934
0.36000	70.02141
0.54000	80.15450
0.72000	88.22145
0.96000	97.10027
1.20000	104.59809
1.56000	114.15761
1.92000	122.33867
2.40000	131.78534
2.88000	131.78534

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE BACKFILL SIDE

DEPTH BELOW GS	DIAM	C	GAMMA AVG	E50
IN	IN	LBS/IN**2	LBS/IN**3	
498.00	12.000	0.2778D+01	0.2056D-01	0.1000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00060	11.93801
0.00600	25.71967
0.01800	37.09418
0.04800	51.43934
0.09600	64.80951
0.14400	74.18837
0.24000	87.96004
0.36000	100.68911
0.54000	115.26026
0.72000	126.86033
0.96000	139.62786
1.20000	150.40955
1.56000	164.15591
1.92000	175.92008
2.40000	189.50416
2.88000	189.50416

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE EXCAVATION SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
342.00	12.000	0.2778D+01	0.2086D-01	0.1000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00060	9.59153
0.00600	20.66432
0.01800	29.80310
0.04800	41.32864
0.09600	52.07082
0.14400	59.60621
0.24000	70.67098
0.36000	80.89808
0.54000	92.60518
0.72000	101.92519
0.96000	112.18319
1.20000	120.84567
1.56000	131.89011
1.92000	141.34196
2.40000	152.25601
2.88000	152.25601

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

AT THE BACKFILL SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
576.00	12.000	0.2778D+01	0.2086D-01	0.1000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00060	13.28065
0.00600	28.61229
0.01800	41.26606
0.04800	57.22457
0.09600	72.09844
0.14400	82.53212
0.24000	97.85264
0.36000	112.01332
0.54000	128.22324
0.72000	141.12794
0.96000	155.33139

1.20000	167.32567
1.56000	182.61804
1.92000	195.70529
2.40000	210.81714
2.88000	210.81713

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

#### AT THE EXCAVATION SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
420.00	12.000	0.2778D+01	0.2104D-01	0.1000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00060	10.88110
0.00600	23.44262
0.01800	33.81010
0.04800	46.88523
0.09600	59.07169
0.14400	67.62021
0.24000	80.17262
0.36000	91.77474
0.54000	105.05585
0.72000	115.62893
0.96000	127.26610
1.20000	137.09325
1.56000	149.62260
1.92000	160.34524
2.40000	172.72668
2.88000	172.72667

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

#### AT THE BACKFILL SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
654.00	12.000	0.2778D+01	0.2104D-01	0.1000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00060	14.60357
0.00600	31.46244
0.01800	45.37669
0.04800	62.92488
0.09600	79.28038

0.14400	90.75338
0.24000	107.60004
0.36000	123.17129
0.54000	140.99593
0.72000	155.18611
0.96000	170.80441
1.20000	183.99347
1.56000	200.80917
1.92000	215.20007
2.40000	231.81725
2.88000	231.81725

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

#### AT THE EXCAVATION SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
497.90	12.000	0.2778D+01	0.2117D-01	0.1000D-01

Y, IN	P, LBS/IN
0.00000	0.00000
0.00060	12.16902
0.00600	26.21735
0.01800	37.81196
0.04800	52.43470
0.09600	66.06358
0.14400	75.62393
0.24000	89.66208
0.36000	102.63746
0.54000	117.49056
0.72000	129.31510
0.96000	142.32968
1.20000	153.32000
1.56000	167.33236
1.92000	179.32417
2.40000	193.17110
2.88000	193.17110

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

#### AT THE BACKFILL SIDE

DEPTH BELOW GS IN	DIAM IN	C LBS/IN**2	GAMMA AVG LBS/IN**3	E50
731.90	12.000	0.2778D+01	0.2117D-01	0.1000D-01

Y, IN	P, LBS/IN
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0.00000	0.00000
0.00060	15.91437
0.00600	34.28647
0.01800	49.44965
0.04800	68.57294
0.09600	86.39649
0.14400	98.89929
0.24000	117.25808
0.36000	134.22700
0.54000	153.65155
0.72000	169.11542
0.96000	186.13560
1.20000	200.50850
1.56000	218.83355
1.92000	234.51617
2.40000	252.62488
2.88000	252.62488

P-Multiplier = 0.100E+01 Y-Multiplier = 0.100E+01

New Wall

RESULTS -- ITERATION 8

STA I	X	DEFL.	SLOPE	MOMENT	SHEAR	NET REACT/STA
EI						
	IN	IN		LBS-IN	LBS	LBS
LBS-IN**2						
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0	0.000E+00	0.312E+01	-0.841E-02	0.000E+00	0.000E+00	0.000E+00
0.156E+11						
1	0.600E+01	0.307E+01	-0.841E-02	0.000E+00	0.240E+02	0.480E+02
0.311E+11						
2	0.120E+02	0.302E+01	-0.841E-02	0.288E+03	0.752E+02	0.544E+02
0.311E+11						
3	0.180E+02	0.297E+01	-0.841E-02	0.903E+03	0.133E+03	0.609E+02
0.311E+11						
4	0.240E+02	0.292E+01	-0.841E-02	0.188E+04	0.197E+03	0.673E+02
0.311E+11						
5	0.300E+02	0.287E+01	-0.841E-02	0.327E+04	0.268E+03	0.752E+02
0.311E+11						
6	0.360E+02	0.282E+01	-0.841E-02	0.510E+04	0.350E+03	0.891E+02
0.311E+11						
7	0.420E+02	0.277E+01	-0.840E-02	0.747E+04	0.446E+03	0.103E+03
0.311E+11						
8	0.480E+02	0.272E+01	-0.840E-02	0.105E+05	0.556E+03	0.117E+03
0.311E+11						

9	0.540E+02	0.267E+01	-0.840E-02	0.141E+05	0.680E+03	0.131E+03
0.311E+11						
10	0.600E+02	0.262E+01	-0.840E-02	0.186E+05	0.814E+03	0.137E+03
0.311E+11						
11	0.660E+02	0.257E+01	-0.839E-02	0.239E+05	0.949E+03	0.135E+03
0.311E+11						
12	0.720E+02	0.252E+01	-0.839E-02	0.300E+05	0.108E+04	0.132E+03
0.311E+11						
13	0.780E+02	0.247E+01	-0.838E-02	0.369E+05	0.121E+04	0.130E+03
0.311E+11						
14	0.840E+02	0.242E+01	-0.837E-02	0.446E+05	0.134E+04	0.128E+03
0.311E+11						
15	0.900E+02	0.237E+01	-0.836E-02	0.530E+05	0.147E+04	0.126E+03
0.311E+11						
16	0.960E+02	0.232E+01	-0.835E-02	0.622E+05	0.160E+04	0.124E+03
0.311E+11						
17	0.102E+03	0.227E+01	-0.834E-02	0.722E+05	0.172E+04	0.122E+03
0.311E+11						
18	0.108E+03	0.222E+01	-0.832E-02	0.829E+05	0.184E+04	0.120E+03
0.311E+11						
19	0.114E+03	0.217E+01	-0.831E-02	0.943E+05	0.196E+04	0.118E+03
0.311E+11						
20	0.120E+03	0.212E+01	-0.829E-02	0.106E+06	0.207E+04	0.116E+03
0.311E+11						
21	0.126E+03	0.207E+01	-0.827E-02	0.119E+06	0.219E+04	0.113E+03
0.311E+11						
22	0.132E+03	0.202E+01	-0.824E-02	0.133E+06	0.230E+04	0.111E+03
0.311E+11						
23	0.138E+03	0.197E+01	-0.822E-02	0.147E+06	0.241E+04	0.109E+03
0.311E+11						
24	0.144E+03	0.192E+01	-0.819E-02	0.162E+06	0.252E+04	0.107E+03
0.311E+11						
25	0.150E+03	0.187E+01	-0.815E-02	0.177E+06	0.263E+04	0.105E+03
0.311E+11						
26	0.156E+03	0.182E+01	-0.812E-02	0.193E+06	0.273E+04	0.103E+03
0.311E+11						
27	0.162E+03	0.177E+01	-0.808E-02	0.210E+06	0.283E+04	0.101E+03
0.311E+11						
28	0.168E+03	0.172E+01	-0.804E-02	0.227E+06	0.293E+04	0.986E+02
0.311E+11						
29	0.174E+03	0.168E+01	-0.799E-02	0.245E+06	0.303E+04	0.965E+02
0.311E+11						
30	0.180E+03	0.163E+01	-0.794E-02	0.263E+06	0.312E+04	0.944E+02
0.311E+11						
31	0.186E+03	0.158E+01	-0.789E-02	0.282E+06	0.322E+04	0.922E+02
0.311E+11						
32	0.192E+03	0.153E+01	-0.783E-02	0.302E+06	0.331E+04	0.901E+02
0.311E+11						
33	0.198E+03	0.149E+01	-0.777E-02	0.322E+06	0.340E+04	0.880E+02
0.311E+11						

34	0.204E+03	0.144E+01	-0.771E-02	0.343E+06	0.348E+04	0.859E+02
0.311E+11						
35	0.210E+03	0.139E+01	-0.764E-02	0.364E+06	0.357E+04	0.838E+02
0.311E+11						
36	0.216E+03	0.135E+01	-0.757E-02	0.386E+06	0.365E+04	0.817E+02
0.311E+11						
37	0.222E+03	0.130E+01	-0.749E-02	0.408E+06	0.373E+04	0.795E+02
0.311E+11						
38	0.228E+03	0.126E+01	-0.741E-02	0.430E+06	0.381E+04	0.774E+02
0.311E+11						
39	0.234E+03	0.121E+01	-0.733E-02	0.454E+06	0.386E+04	0.122E+02
0.311E+11						
40	0.240E+03	0.117E+01	-0.724E-02	0.477E+06	0.384E+04	-0.531E+02
0.311E+11						
41	0.246E+03	0.113E+01	-0.714E-02	0.500E+06	0.378E+04	-0.550E+02
0.311E+11						
42	0.252E+03	0.108E+01	-0.704E-02	0.522E+06	0.373E+04	-0.569E+02
0.311E+11						
43	0.258E+03	0.104E+01	-0.694E-02	0.544E+06	0.367E+04	-0.603E+02
0.311E+11						
44	0.264E+03	0.100E+01	-0.683E-02	0.566E+06	0.361E+04	-0.636E+02
0.311E+11						
45	0.270E+03	0.961E+00	-0.672E-02	0.588E+06	0.354E+04	-0.649E+02
0.311E+11						
46	0.276E+03	0.921E+00	-0.661E-02	0.609E+06	0.348E+04	-0.662E+02
0.311E+11						
47	0.282E+03	0.881E+00	-0.649E-02	0.629E+06	0.341E+04	-0.674E+02
0.311E+11						
48	0.288E+03	0.843E+00	-0.636E-02	0.649E+06	0.334E+04	-0.702E+02
0.311E+11						
49	0.294E+03	0.805E+00	-0.624E-02	0.669E+06	0.327E+04	-0.729E+02
0.311E+11						
50	0.300E+03	0.768E+00	-0.610E-02	0.689E+06	0.318E+04	-0.112E+03
0.311E+11						
51	0.306E+03	0.732E+00	-0.597E-02	0.707E+06	0.304E+04	-0.151E+03
0.311E+11						
52	0.312E+03	0.696E+00	-0.583E-02	0.725E+06	0.288E+04	-0.187E+03
0.311E+11						
53	0.318E+03	0.662E+00	-0.569E-02	0.742E+06	0.267E+04	-0.222E+03
0.311E+11						
54	0.324E+03	0.628E+00	-0.555E-02	0.757E+06	0.243E+04	-0.256E+03
0.311E+11						
55	0.330E+03	0.595E+00	-0.540E-02	0.771E+06	0.218E+04	-0.255E+03
0.311E+11						
56	0.336E+03	0.563E+00	-0.525E-02	0.783E+06	0.192E+04	-0.255E+03
0.311E+11						
57	0.342E+03	0.532E+00	-0.510E-02	0.794E+06	0.167E+04	-0.254E+03
0.311E+11						
58	0.348E+03	0.502E+00	-0.494E-02	0.803E+06	0.141E+04	-0.251E+03
0.311E+11						

59	0.354E+03	0.473E+00	-0.479E-02	0.811E+06	0.116E+04	-0.249E+03
0.311E+11	60	0.360E+03	0.445E+00	-0.463E-02	0.817E+06	0.916E+03
0.311E+11	61	0.366E+03	0.417E+00	-0.447E-02	0.822E+06	0.669E+03
0.311E+11	62	0.372E+03	0.391E+00	-0.431E-02	0.825E+06	0.423E+03
0.311E+11	63	0.378E+03	0.366E+00	-0.415E-02	0.827E+06	0.178E+03
0.311E+11	64	0.384E+03	0.341E+00	-0.399E-02	0.828E+06	-0.652E+02
0.311E+11	65	0.390E+03	0.318E+00	-0.383E-02	0.826E+06	-0.305E+03
0.311E+11	66	0.396E+03	0.295E+00	-0.367E-02	0.824E+06	-0.543E+03
0.311E+11	67	0.402E+03	0.274E+00	-0.352E-02	0.820E+06	-0.777E+03
0.311E+11	68	0.408E+03	0.253E+00	-0.336E-02	0.815E+06	-0.101E+04
0.311E+11	69	0.414E+03	0.233E+00	-0.320E-02	0.808E+06	-0.124E+04
0.311E+11	70	0.420E+03	0.215E+00	-0.305E-02	0.800E+06	-0.146E+04
0.311E+11	71	0.426E+03	0.197E+00	-0.289E-02	0.790E+06	-0.168E+04
0.311E+11	72	0.432E+03	0.180E+00	-0.274E-02	0.780E+06	-0.190E+04
0.311E+11	73	0.438E+03	0.164E+00	-0.259E-02	0.768E+06	-0.211E+04
0.311E+11	74	0.444E+03	0.149E+00	-0.245E-02	0.754E+06	-0.231E+04
0.311E+11	75	0.450E+03	0.134E+00	-0.230E-02	0.740E+06	-0.251E+04
0.311E+11	76	0.456E+03	0.121E+00	-0.216E-02	0.724E+06	-0.271E+04
0.311E+11	77	0.462E+03	0.109E+00	-0.202E-02	0.707E+06	-0.289E+04
0.311E+11	78	0.468E+03	0.968E-01	-0.189E-02	0.689E+06	-0.308E+04
0.311E+11	79	0.474E+03	0.859E-01	-0.176E-02	0.670E+06	-0.325E+04
0.311E+11	80	0.480E+03	0.757E-01	-0.163E-02	0.650E+06	-0.342E+04
0.311E+11	81	0.486E+03	0.663E-01	-0.151E-02	0.629E+06	-0.358E+04
0.311E+11	82	0.492E+03	0.576E-01	-0.139E-02	0.607E+06	-0.373E+04
0.311E+11	83	0.498E+03	0.497E-01	-0.127E-02	0.585E+06	-0.388E+04
0.311E+11						

84	0.504E+03	0.424E-01	-0.116E-02	0.561E+06	-0.401E+04	-0.131E+03
0.311E+11						
85	0.510E+03	0.357E-01	-0.106E-02	0.536E+06	-0.414E+04	-0.119E+03
0.311E+11						
86	0.516E+03	0.297E-01	-0.954E-03	0.511E+06	-0.425E+04	-0.109E+03
0.311E+11						
87	0.522E+03	0.243E-01	-0.858E-03	0.485E+06	-0.436E+04	-0.100E+03
0.311E+11						
88	0.528E+03	0.194E-01	-0.767E-03	0.459E+06	-0.445E+04	-0.917E+02
0.311E+11						
89	0.534E+03	0.151E-01	-0.681E-03	0.432E+06	-0.454E+04	-0.783E+02
0.311E+11						
90	0.540E+03	0.112E-01	-0.600E-03	0.405E+06	-0.461E+04	-0.636E+02
0.311E+11						
91	0.546E+03	0.788E-02	-0.525E-03	0.377E+06	-0.466E+04	-0.506E+02
0.311E+11						
92	0.552E+03	0.495E-02	-0.455E-03	0.349E+06	-0.471E+04	-0.313E+02
0.311E+11						
93	0.558E+03	0.242E-02	-0.390E-03	0.320E+06	-0.472E+04	-0.223E+01
0.311E+11						
94	0.564E+03	0.264E-03	-0.331E-03	0.292E+06	-0.470E+04	0.505E+02
0.311E+11						
95	0.570E+03	-0.156E-02	-0.278E-03	0.264E+06	-0.459E+04	0.171E+03
0.311E+11						
96	0.576E+03	-0.307E-02	-0.229E-03	0.237E+06	-0.440E+04	0.197E+03
0.311E+11						
97	0.582E+03	-0.431E-02	-0.186E-03	0.211E+06	-0.420E+04	0.219E+03
0.311E+11						
98	0.588E+03	-0.530E-02	-0.148E-03	0.187E+06	-0.397E+04	0.238E+03
0.311E+11						
99	0.594E+03	-0.608E-02	-0.114E-03	0.163E+06	-0.372E+04	0.251E+03
0.311E+11						
100	0.600E+03	-0.667E-02	-0.814E-04	0.142E+06	-0.347E+04	0.257E+03
0.250E+11						
101	0.606E+03	-0.706E-02	-0.450E-04	0.122E+06	-0.321E+04	0.261E+03
0.189E+11						
102	0.612E+03	-0.722E-02	-0.929E-05	0.103E+06	-0.295E+04	0.263E+03
0.189E+11						
103	0.618E+03	-0.717E-02	0.208E-04	0.864E+05	-0.268E+04	0.264E+03
0.189E+11						
104	0.624E+03	-0.697E-02	0.459E-04	0.711E+05	-0.242E+04	0.264E+03
0.189E+11						
105	0.630E+03	-0.662E-02	0.663E-04	0.574E+05	-0.216E+04	0.263E+03
0.189E+11						
106	0.636E+03	-0.617E-02	0.825E-04	0.453E+05	-0.189E+04	0.261E+03
0.189E+11						
107	0.642E+03	-0.563E-02	0.952E-04	0.347E+05	-0.164E+04	0.255E+03
0.189E+11						
108	0.648E+03	-0.503E-02	0.105E-03	0.256E+05	-0.139E+04	0.245E+03
0.189E+11						

109	0.654E+03	-0.437E-02	0.112E-03	0.180E+05	-0.115E+04	0.234E+03
0.189E+11						
110	0.660E+03	-0.369E-02	0.116E-03	0.119E+05	-0.919E+03	0.222E+03
0.189E+11						
111	0.666E+03	-0.298E-02	0.119E-03	0.700E+04	-0.704E+03	0.209E+03
0.189E+11						
112	0.672E+03	-0.225E-02	0.121E-03	0.341E+04	-0.501E+03	0.196E+03
0.189E+11						
113	0.678E+03	-0.152E-02	0.122E-03	0.995E+03	-0.311E+03	0.183E+03
0.189E+11						
114	0.684E+03	-0.791E-03	0.122E-03	-0.322E+03	-0.135E+03	0.170E+03
0.189E+11						
115	0.690E+03	-0.599E-04	0.122E-03	-0.621E+03	-0.766E+01	0.844E+02
0.189E+11						
116	0.696E+03	0.670E-03	0.122E-03	-0.414E+03	0.369E+02	0.466E+01
0.189E+11						
117	0.702E+03	0.140E-02	0.122E-03	-0.179E+03	0.358E+02	-0.682E+01
0.189E+11						
118	0.708E+03	0.213E-02	0.121E-03	0.154E+02	0.231E+02	-0.185E+02
0.189E+11						
119	0.714E+03	0.286E-02	0.122E-03	0.987E+02	-0.128E+01	-0.303E+02
0.189E+11						
120	0.720E+03	0.359E-02	0.122E-03	0.000E+00	-0.823E+01	0.165E+02
0.945E+10						

END OF ANALYSIS

## Appendix 'E'

### Owner Obtained Permits



**DEPARTMENT OF NATURAL RESOURCES  
OFFICE OF COASTAL MANAGEMENT**

P.O. BOX 44487  
BATON ROUGE, LOUISIANA 70804-4487  
(225)342-7591  
1-800-267-4019

**COASTAL USE PERMIT/CONSISTENCY DETERMINATION**

**C.U.P. No.:** P20191205

**C.O.E. No.:** MVN- 2004- 00014- WKK

**NAME:** **COASTAL PROTECTION AND RESTORATION AUTHORITY (CPRA) - LOUISIANA**  
c/o MSMM ENGINEERING, LLC  
4508 CLEARVIEW PARKWAY  
METAIRIE, LA 70006  
Attn: Joshua Carson

**LOCATION:** **Terrebonne Parish, LA**  
Lat. 29-20-1.8, Long. 90-58-32.3; Lake Mechant; Theriot, LA.

**DESCRIPTION:** Proposal to modify an existing CWPPRA project. The approx. 280' project (TE-44 North Lake Mechant Landbridge Sheetpile Plug No. 2) will construct a replacement Sheetpile Plug #2 in the same vicinity. The new structure will be shifted 175 feet to the north of the existing structure. Approx. 58,419 cy of material to be excavated and placed onsite. Approx. 73 cy of concrete mats required.

In accordance with the rules and regulations of the Louisiana Coastal Resources Program and Louisiana R.S. 49, Sections 214.21 to 214.41, the State and Local Coastal Resources Management Act of 1978, as amended, the permittee agrees to:

1. Carry out, perform, and/or operate the use in accordance with the permit conditions, plans and specifications approved by the Department of Natural Resources.
2. Comply with any permit conditions imposed by the Department of Natural Resources.
3. Adjust, alter or remove any structure or other physical evidence of the permitted use if, in the opinion of the Department of Natural Resources, it proves to be beyond the scope of the use as approved or is abandoned.
4. Provide, if required by the Department of Natural Resources, an acceptable surety bond in an appropriate amount to ensure adjustment, alteration, or removal should the Department of Natural Resources determine it necessary.
5. Hold and save the State of Louisiana, the local government, the department, and their officers and employees harmless from any damage to persons or property which might result from the use, including the work, activity, or structure permitted.
6. Certify that the use has been completed in an acceptable and satisfactory manner and in accordance with the plans and specifications approved by the Department of Natural Resources. The Department of Natural Resources may, when appropriate, require such certification to be given by a registered professional engineer.
7. All terms of the permit shall be subject to all applicable federal and state laws and regulations.
8. This permit, or a copy thereof, shall be available for inspection at the site of work at all times during operations.
9. The applicant will notify the Office of Coastal Management of the date on which initiation of the permitted activity described under the "Coastal Use Description" began. The applicant shall notify the Office of Coastal Management by entering a commencement date through the online system, or by mailing said information to OCM.
10. Unless specified elsewhere in this permit, this permit authorizes the initiation of the coastal use described under "Coastal Use Description" for two (2) years from the date of the signature of the Secretary or his designee on the original permit which was June 30, 2020. If the coastal use is not initiated within this two (2) year period, then this permit will expire and the applicant will be required to submit a new application. Initiation of the coastal use, for the purposes of this permit, means the actual physical beginning of the use of activity for which the permit is required. Initiation does not include preparatory activities, such as movement of equipment onto the coastal use site, expenditure of funds, contracting out of work, or performing activities which by themselves do not require a permit. In addition, the permittee must, in good faith, and with due diligence, reasonably progress toward completion of the project once the coastal use has been initiated.
11. The following special conditions must also be met in order for the use to meet the guidelines of the Coastal Resources Program:

- a. As-built drawings and/or plats shall have written on them the date of completion of said activities and shall be submitted to the Louisiana Department of Natural Resources, Office of Coastal Management, P.O. Box 44487, Baton Rouge, LA 70804-4487 within 30 days following project completion.
- b. This permit does not convey any property rights, mineral rights, or exclusive privileges; nor does it authorize injury to property.





- c. The requirement for compensatory mitigation for impacts to marsh habitat resulting from the referenced project will be determined after one full growing season (March 1 to November 1) following the completion of the permitted activities. This assessment shall include both primary impacts and secondary impacts which may result from the permitted activities.

Permittee shall provide on-ground pre- and post-construction photographic documentation, including a photograph key that shows location and direction of each photograph, that clearly shows all vegetated wetlands occurring within the permitted project area. The post-construction photos should be taken at the same location and in the same direction as the pre-construction photos. The post-construction documentation shall be acquired (photos actually taken) and submitted within 60 days of the end of the first full growing season following completion of the project. Permittee shall notify OCM of the date of completion of permitted activities within 5 working days of completion.

If OCM determines that compensatory mitigation is required, permittee shall submit a compensatory mitigation plan for approval within 30 days of notification of the compensatory mitigation requirements by OCM. All necessary approvals shall be obtained for the compensatory mitigation plan and the plan shall be implemented as directed by OCM. Permittee should be aware that compensatory mitigation projects may be required to be maintained for as many as 20 years for marsh mitigation projects and 50 years for forested wetland mitigation projects. A processing fee will be assessed for the determination of compensatory mitigation requirements and evaluation of the proposed compensatory mitigation plan in accordance with LAC Title 43, Part I, Chapter 7, §724.D. This fee shall apply regardless of which compensatory mitigation option is selected and does not include the cost incurred to implement the required compensatory mitigation.

- d. All equipment utilized to perform activities authorized under this permit shall stay within the access routes and work areas designated on the permit plats utilizing the least damaging route and/or open water areas.
- e. All structures built under the authorization and conditions of this permit shall be removed from the site within 120 days of abandonment of the facilities for the herein permitted use, or when these structures fall into a state of disrepair such that they can no longer function as intended. This condition does not preclude the necessity for revising the current permit or obtaining a separate Coastal Use Permit, should one be required, for such removal activities.
- f. All fill material shall be clean and free of contaminants and shall not contain hazardous materials such as asbestos or asbestos residue, shingles, tires, oil/grease residue, exposed rebar, protruding objects, etc.
- g. All logs, stumps and other debris encountered during dredging activities shall be removed from the site during or immediately after the activity and disposed of in accordance with all applicable laws and regulations.
- h. Permittee shall obtain a Water Quality Certification, should one be required, from the LA Department of Environmental Quality prior to initiation of any construction activities.
- i. The permittee shall insure that all sanitary sewage and/or related domestic wastes generated during the subject project activity and at the site, thereafter, as may become necessary shall not be discharged into any of the streams or adjacent waters of the area without authorization from DH and/or DEQ or, in the case of total containment, shall be disposed of in approved sewerage and sewage treatment facilities, as is required by the State Sanitary Code and DEQ regulations. Such opinion as may be served by those comments offered herein shall not be construed to suffice as any more formal approval(s) which may be required of possible sanitary details (i.e. provisions) scheduled to be associated with the subject activity. Such shall generally require that appropriate plans and specifications be submitted to DH for purpose of review and approval prior to any utilization of such provisions.
- j. Structures must be marked/lighted in accordance with U. S. Coast Guard regulations.



- k. The area where the project is located is all part of the aboriginal homelands of the Chitimacha Tribe of Louisiana. As such, large villages, burial sites, and sacred sites were in place in that entire area. If at any time during the course of the work, any traditional cultural properties are discovered, Permittee shall immediately contact Kimberly S. Walden (Cultural Director) or Melanie Aymond (Research Coordinator) at (337) 923-9923 or (337) 923-4395. Office hours are Monday through Thursday from 7:30 A.M. - 5:00 P.M. and on Friday between 7:30 A.M. - 11:30 A.M. If traditional cultural properties are discovered on the weekend or after business hours, the notification shall be made the next business morning.
- l. Permittee is subject to all applicable state laws related to damages which are demonstrated to have been caused by this action.
- m. Permittee shall allow representatives of the Office of Coastal Management or authorized agents to make periodic, unannounced inspections to assure the activity being performed is in accordance with the conditions of this permit.
- n. Permittee shall comply with all applicable state laws regarding the need to contact the Louisiana One Call (LOC) system (1-800-272-3020) to locate any buried cables and pipelines.
- o. This permit authorizes the initiation of the Coastal Use described under "Coastal Use Description" for two (2) years from the date of the signature of the Secretary or his designee on the original permit which was June 30, 2020. Initiation of the Coastal Use, for purposes of this permit, means the actual physical beginning of the use or activity for which the permit is required. Initiation does not include preparatory activities, such as movement of equipment onto the Coastal Use site, expenditure of funds, contracting out of work, or performing activities which by themselves do not require a permit. In addition, Permittee must, in good faith and with due diligence, reasonably progress toward completion of the project once the Coastal Use has been initiated. If the Coastal Use is not initiated within this two (2) year period, an extension may be granted pursuant to the requirements contained in the Rules and Procedures for Coastal Use Permits (Title 43:I.723.D.). Please note that a request for permit extension MUST be made no sooner than one hundred eighty (180) days and no later than sixty (60) days prior to the expiration of the permit.

The expiration date of this permit is five (5) years from the date of the signature of the Secretary or his designee on the original permit which was June 30, 2020. If the Coastal Use is not completed within this five (5) year period, an extension may be granted pursuant to the requirements contained in the Rules and Procedures for Coastal Use Permits (LAC 43:I.723(D)).

Upon expiration of this permit, a new Coastal Use Permit will be required for completion of any unfinished or uncommenced work items and for any maintenance activities involving dredging or fill that may become necessary. Other types of maintenance activities may also require a new Coastal Use Permit.

- p. This determination does not eliminate the need to obtain a permit from the United States Army, Corps of Engineers or any other Federal, state or local approval that may be required by law. The drawings submitted with your referenced application are attached hereto and made a part of the record.

\*\*\*\*\* End of Conditions \*\*\*\*\*

Page: 4 of 5  
C.U.P. No.: P20191205  
C.O.E. No.: MVN- 2004- 00014- WKK



By accepting this permit the applicant agrees to its terms and conditions.

I affix my signature and issue this permit this 30th day of June, 2020.

THE DEPARTMENT OF NATURAL RESOURCES

Karl L. Morgan, Administrator  
Office of Coastal Management

This agreement becomes binding when signed by Administrator of  
the Office of Coastal Management Permits/Mitigation Division, Department of Natural Resources.

Attachments



**Final Plats:**

1) P20191205 Final Plats 01/10/2020

cc: Martin Mayer, COE w/attachments  
Dave Butler, LDWF w/attachments  
Coastal Protection and Restoration Authority, CPRA w/attachments  
Elizabeth Hill, DEQ w/attachments  
Jordan Cobbs, OCM w/attachments  
Rod Pierce, OCM/FI w/attachments  
Terrebonne Parish w/attachments

COASTAL PROTECTION AND RESTORATION AUTHORITY (CPRA) - LOUISIANA  
w/attachments

Appendix 'F'  
Davis-Bacon Act Prevailing Wage Determinations

"General Decision Number: LA20210002 03/12/2021

Superseded General Decision Number: LA20200002

State: Louisiana

Construction Type: Heavy

Counties: Acadia, Ascension, Bossier, Caddo, Calcasieu, East Baton Rouge, Lafayette, Lafourche, Livingston, Ouachita, Rapides, St Landry, St Martin, Terrebonne, Webster and West Baton Rouge Counties in Louisiana.

HEAVY CONSTRUCTION PROJECTS (includes flood control, water & sewer lines, and water wells; excludes elevated storage tanks, industrial construction-chemical processing, power plants, and refineries)

Note: Under Executive Order (EO) 13658, an hourly minimum wage of \$10.95 for calendar year 2021 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was 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 \$10.95 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2021. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate, if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at [www.dol.gov/whd/govcontracts](http://www.dol.gov/whd/govcontracts).

Modification Number	Publication Date
0	01/01/2021
1	01/08/2021
2	02/05/2021
3	03/12/2021

CARP1098-004 07/01/2014

ASCENSION, EAST BATON ROUGE, LIVINGSTON AND WEST BATON ROUGE  
PARISHES

	Rates	Fringes
CARPENTER (formbuilding/formsetting).....	\$ 26.16	8.39
-----		
CARP1098-014 07/01/2014		

CALCASIEU PARISH

	Rates	Fringes
CARPENTER (formbuilding/formsetting).....	\$ 26.16	6.80
-----		
CARP1098-015 07/01/2014		

ACADIA, LAFAYETTE, ST. LANDRY AND ST. MARTIN PARISHES

	Rates	Fringes
CARPENTER (formbuilding/formsetting).....	\$ 26.16	5.60
-----		
CARP1098-016 07/01/2014		

BOSSIER, CADDO, OUACHITA, RAPIDES AND WEBSTER PARISHES

	Rates	Fringes
CARPENTER (formbuilding/formsetting).....	\$ 20.80	6.80
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CARP1846-008 07/01/2020		

LAFOURCHE and TERREBONNE PARISHES

	Rates	Fringes
CARPENTER (formbuilding/formsetting).....	\$ 27.41	9.80
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ELEC0130-009 11/30/2020		

LAFOURCHE AND TERREBONNE PARISHES

	Rates	Fringes
ELECTRICIAN.....	\$ 31.65	13.13
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ELEC0194-007 09/07/2020		

BOSSIER, CADDO, and WEBSTER PARISHES

	Rates	Fringes
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ELECTRICIAN

Lineman and Heavy

Equipment Operator.....	\$ 28.95	12.82
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\* ELEC0446-007 03/01/2021

OUACHITA PARISH

	Rates	Fringes
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ELECTRICIAN.....	\$ 25.40	1%+12.71
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ELEC0576-006 09/01/2020

RAPIDES PARISH

	Rates	Fringes
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ELECTRICIAN.....	\$ 25.30	4.25%+8.40
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ELEC0861-006 01/01/2021

ACADIA, CALCASIEU, LAFAYETTE, AND ST. MARTIN PARISHES

	Rates	Fringes
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ELECTRICIAN.....	\$ 28.58	4.34%+12.70
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ELEC0995-006 01/01/2021

ASCENSION, EAST BATON ROUGE, LIVINGSTON, ST. LANDRY, AND WEST  
BATON ROUGE PARISHES

	Rates	Fringes
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ELECTRICIAN.....	\$ 27.03	11.49
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SULA2004-006 04/29/2004

	Rates	Fringes
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CARPENTER (all other work).....	\$ 12.81	0.00
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Cement Mason/Concrete Finisher...	\$ 13.77	0.00
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Laborers

Common.....	\$ 8.20	0.00
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Pipelayer.....	\$ 9.45	0.00
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#### Power Equipment Operators

Backhoe/Excavator.....	\$ 13.01	0.00
Bulldozer.....	\$ 13.83	0.00
Crane.....	\$ 16.62	3.28
Dragline.....	\$ 15.16	0.00
Front End Loader.....	\$ 11.50	0.00
Motor Grader/Blade.....	\$ 11.75	0.00
Oiler.....	\$ 8.59	2.50
Trackhoe.....	\$ 12.64	0.00
Water Well Driller.....	\$ 11.91	2.44
Winch.....	\$ 11.38	0.00

Truck Driver, Dump.....\$ 10.25 0.00

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

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at [www.dol.gov/whd/govcontracts](http://www.dol.gov/whd/govcontracts).

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)).

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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.

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## 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"

Appendix 'G'  
Monument Survey Data Sheet



## VICINITY MAP

1 inch = 3,000 feet

Reproduced from NAIP Louisiana 2013 1m Aerial Imagery

## Station Name: TE44 SM A

**Location:** At the northern end of Lake Menchant, approximately 1.7 miles east of Bayou Chevreau and Lake Pagie, and approximately 1.6 miles west of the intersection of Raccourci Bayou and Lake Mechant, in Terrebonne Parish, LA.

**Monument Description:** NGS Style floating sleeve monument; 9/16" stainless steel rods driven to refusal, set in a sand filled 6" PVC pipe with access cover set flush with the ground.

**Stamping:** TE44 SM A

**Installation Date:** 2002      **Date of Survey:** 2014

**Monument Established By:** JCLS

### NAD83 (2011) Epoch 2010.00 Geodetic Position

Lat: 29°20'04.46812"N

Long: 90°58'30.66532"W

### NAD83 (2011) Epoch 2010.00 Datum LSZ (1702) Ft

N= 303,687.93'

E= 3,394,954.90'

### Adjusted NAVD88 Height

Elevation = -0.11 feet ( -0.032 mtrs )

*Ellipsoid Height (2011.00) = -24.692mtrs.*

*Geoid12A Height = -24.660 mtrs.*

### *FOR REFERENCE ONLY*

*LCZ Adjusted NAVD88 Height*

*Elevation (Geoid09)= N/A*

*Ellipsoid Height = N/A*

*Elevation (Geoid03)= N/A*

*Ellipsoid Height = N/A*

*Elevation (Geoid99)= 0.84 feet ( 0.255mtrs.)*

*Ellipsoid Height = -24.612 mtrs.*

