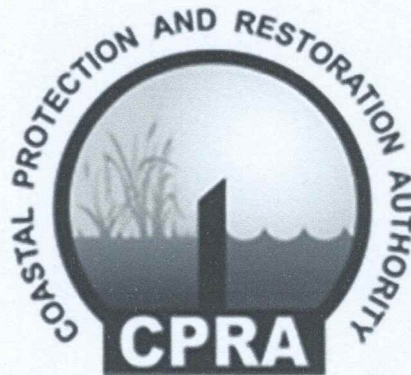


**BID DOCUMENTS
FOR
OYSTER BAYOU MARSH RESTORATION
PROJECT (CS-59)**

CAMERON PARISH, LOUISIANA



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

JUNE 2016



TABLE OF CONTENTS

<u>GENERAL REQUIREMENTS</u>	Pages Included
Project Title Page	1
Table of Contents	5
List of Drawings	1
Procurement Requirements	
Advertisement for Bids	1
Instruction for Procurement	
Instructions to Bidders	8
Procurement Forms and Supplements	
Louisiana Uniform Public Works Bid Form	3
Bid Security Form	1
Attestations	2
Contracting Requirements	
Example Contract Between Owner & Contractor & Performance & Payment Bond & Affidavit	5

SECTION	TITLE	PAGE NO.
---------	-------------	----------

GP-1	DEFINITION OF TERMS	1
GP-2	BID REQUIREMENTS	4
GP-3	AVAILABILITY OF PLANS AND SPECIFICATIONS.....	5
GP-4	LAWS, REGULATIONS, STANDARDS, SPECIFICATIONS, AND CODES.....	5
GP-5	PRE-BID CONFERENCE AND SITE VISIT	6
GP-6	NOTICE OF AWARD	6
GP-7	NOTICE TO PROCEED AND CONTRACT TIME	6
GP-8	WORK PLAN	7
GP-9	PROGRESS SCHEDULE.....	7
GP-10	DAILY PROGRESS REPORTS.....	8
GP-11	HURRICANE AND SEVERE STORM PLAN	9
GP-12	HEALTH AND SAFETY PLAN AND INSPECTIONS	10
GP-13	PROGRESS MEETINGS AND REPORTS.....	10
GP-14	PRE-CONSTRUCTION CONFERENCE	10
GP-15	CONTRACT INTENT	11
GP-16	ENGINEER AND AUTHORITY OF ENGINEER	11
GP-17	CONFORMITY WITH PLANS AND SPECIFICATIONS	11
GP-18	CLARIFICATIONS AND AMENDMENTS TO CONTRACT DOCUMENTS	11
GP-19	SUBCONTRACTS	12
GP-20	WORKERS, METHODS, AND EQUIPMENT.....	12
GP-21	ACCIDENT PREVENTION, INVESTIGATIONS, AND REPORTING	13
GP-22	PRESERVATION AND RESTORATION OF PROPERTY, MONUMENTS, ETC.	13
GP-23	PROTECTION OF THE WORK, MATERIALS, AND EQUIPMENT	14
GP-24	LAND RIGHTS	14

GP-25	UTILITIES	14
GP-26	PERMITS	15
GP-27	PROJECT SITE CLEAN-UP	15
GP-28	OWNER INSPECTION	15
GP-29	DUTIES OF RESIDENT PROJECT REPRESENTATIVE	15
GP-30	CONSTRUCTION STAKES, LINES, AND GRADES	16
GP-31	CONTRACTOR'S RESPONSIBILITY FOR WORK	16
GP-32	ENVIRONMENTAL PROTECTION.....	16
GP-33	SANITARY PROVISION.....	17
GP-34	PAYMENT OF TAXES.....	17
GP-35	RADIO AND TELEPHONES	17
GP-36	NAVIGATION.....	17
GP-37	OBSTRUCTION TO NAVIGATION.....	18
GP-38	MARINE VESSELS AND MARINE ACTIVITIES	18
GP-39	RECORD KEEPING.....	18
GP-40	CERTIFICATES OF COMPLIANCE	18
GP-41	SUBMITTALS	19
GP-42	CLAIMS FOR EXTRA COST.....	19
GP-43	ALTERATION OF THE CONTRACT AND COMPENSATION	19
GP-44	EXTENSION OF CONTRACT TIME	20
GP-45	OWNER'S RIGHT TO TERMINATE CONTRACT FOR CAUSE OR CONVENIENCE.....	20
GP-46	TEMPORARY SUSPENSION OF WORK	21
GP-47	NON-CONFORMING AND UNAUTHORIZED WORK	22
GP-48	CONTRACTOR'S RIGHT TO TERMINATE CONTRACT.....	22
GP-49	BREACH OF CONTRACT	22
GP-50	NO WAIVER OF LEGAL RIGHTS.....	22
GP-51	LIABILITY FOR DAMAGES AND INJURIES	22
GP-52	LIABILITY FOR LOSSES BY ACTS OF THE GOVERNMENT	23
GP-53	SUBSTANTIAL COMPLETION	23
GP-54	FINAL INSPECTION AND ACCEPTANCE	24
GP-55	AS-BUILT DRAWINGS	25
GP-56	COMPLETION OF CONTRACT.....	25
GP-57	CONTRACTOR'S GUARANTEE	25
GP-58	DISPUTE RESOLUTION.....	26
GP-59	PAYMENT.....	26
GP-60	PAYMENTS WITHHELD	27
GP-61	LIENS	28
GP-62	EQUAL EMPLOYMENT OPPORTUNITY	28
GP-63	ANTI-KICKBACK CLAUSE.....	28
GP-64	SUSPENSION/DEBARMENT	28
GP-65	LOUISIANA FIRST HIRING ACT.....	29
PART II	SPECIAL PROVISIONS	30
SP-1	PRECEDENCE OF CONTRACT DOCUMENTS	30
SP-2	LOCATION OF WORK	30
SP-3	WORK TO BE DONE	30
SP-4	GENERAL REQUIREMENTS.....	31
SP-5	CONTRACT DATES AND MILESTONES	34
SP-6	DELIVERABLES	34
SP-7	LANDOWNER AND LEASEHOLDER REQUIREMENTS.....	38
SP-8	THREATENED AND ENDANGERED SPECIES	41
SP-9	WORK PLAN SUPPLEMENTAL	41
SP-10	FAILURE TO COMPLETE ON TIME	41
SP-11	PROTECTION OF WORK.....	42

SP-12	PROJECT SCHEDULING.....	42
SP-13	SAFETY REQUIREMENTS.....	42
SP-14	TRAINING OF CONTRACTOR PERSONNEL IN POLLUTION CONTROL AND ENVIRONMENTAL PROTECTION.....	45
SP-15	COMMENCEMENT, EXECUTION, AND COMPLETION.....	45
SP-16	TRANSPORTATION.....	45
SP-17	DREDGE DATA SHEET.....	46
SP-18	OFFICE FOR ENGINEER AND RESIDENT PROJECT REPRESENTATIVE.....	46
SP-19	ACCOMMODATION FOR THE RESIDENT PROJECT REPRESENTATIVE.....	47
SP-20	CONSTRUCTION OFFICE.....	47
SP-21	CONTRACTOR INFORMATION.....	47
SP-22	INSURANCE AND BONDS.....	47
SP-23	EMPLOYEE WHISTLEBLOWER PROTECTION.....	51
PART III	TECHNICAL SPECIFICATIONS.....	52
TS-1	MOBILIZATION AND DEMOBILIZATION.....	52
TS-2	PRE-CONSTRUCTION SURVEYS.....	52
TS-3	POST-CONSTRUCTION, PROCESS, CHECK, AND AS-BUILT SURVEYS.....	56
TS-4	HYDRAULIC DREDGING – MARSH CREATION.....	57
TS-5	PRIMARY CONTAINMENT DIKE CONSTRUCTION.....	61
TS-6	SECONDARY POND CONTAINMENT CONSTRUCTION.....	62
TS-7	TRENASSE CONSTRUCTION.....	63
TS-8	EARTHEN TERRACE CONSTRUCTION.....	64
TS-9	SETTLEMENT PLATES.....	64
TS-10	CONVEYANCE CORRIDOR.....	65
TS-11	WATERLINE RELOCATION.....	69
TS-12	LOUISIANA HIGHWAY 27/82 CROSSING.....	75
TS-13	BORROW AREA AND SEDIMENT PIPELINE BUOYS AND MARKERS.....	79
TS-14	EXCAVATION.....	81
TS-15	TRANSPORT OF EXCAVATED MATERIALS.....	83
TS-16	WATER DISCHARGE AREA AND OPEN WATER DISCHARGE.....	84
TS-17	MISPLACED MATERIALS.....	85
TS-18	WORK WITHIN THE VICINITY OF EXISTING PIPELINES.....	85
TS-19	VESSEL-SHORE TRANSFERS.....	85
TS-20	WORK AREA AND TEMPORARY FENCING.....	85
TS-21	CONSTRUCTION ACCESS.....	86
TS-22	MISPLACED MATERIAL, PLANT MACHINERY, EQUIPMENT, OR APPLIANCE.....	86
TS-23	FINAL CLEAN-UP.....	86
PART IV	ENVIRONMENTAL PROTECTION PROVISIONS.....	88
EP-1.	SCOPE.....	88
EP-2.	QUALITY CONTROL.....	88
EP-3.	PERMITS.....	88
EP-4.	SUBCONTRACTORS.....	88
EP-5.	NOTIFICATION.....	88
EP-6.	PROTECTION OF ENVIRONMENTAL RESOURCES.....	89
EP-7.	POST CONSTRUCTION CLEAN-UP.....	91
EP-8.	RESTORATION OF LANDSCAPE DAMAGE.....	91
EP-9.	MAINTENANCE OF POLLUTION CONTROL FACILITIES.....	91
EP-10.	FUEL OIL TRANSFER OPERATIONS.....	92
EP-11.	SUBMITTALS.....	92
EP-12.	NOISE CONTROL.....	93

List of Appendices

APPENDIX I	SUPPLEMENTAL INFORMATION
APPENDIX II	DAILY PROGRESS REPORT
APPENDIX III	SURVEY DATA FORMATS
APPENDIX IV	GEOTECHNICAL REPORTS
APPENDIX V	USACE PROJECT PERMIT
APPENDIX VI	LDNR COASTAL USE PERMIT
APPENDIX VII	DOTD PERMIT
APPENDIX VIII	DOTD STANDARD SPECIFICATIONS
APPENDIX IX	PREVAILING WAGE DETERMINATION SCHEDULE
APPENDIX X	FIELD ADJUSTMENT REPORT
APPENDIX XI	REQUEST FOR INTERPRETATION
APPENDIX XII	LAND RIGHTS APPENDIX
APPENDIX XIII	SURVEY MONUMENTS
APPENDIX XIV	U.S. COAST GUARD NOTICE OF INTENT TO DREDGE INFORMATION REQUIREMENTS
APPENDIX XV	LOUISIANA ADMINISTRATIVE CODE – TITLE 51
APPENDIX XVI	WATERLINE RELOCATION DETAILS
APPENDIX XVII	DHH PERMIT
APPENDIX XVIII	LDWF PERMIT

LIST OF DRAWING SHEETS

<u>SHEET NO.</u>	<u>DESCRIPTION</u>
1	TITLE SHEET
2	GENERAL NOTES
3	ALIGNMENT TABLES
4	EARTHEN TERRACE COORDINATE LOCATIONS
5	PROJECT OVERVIEW
6	PLAN VIEW
7	MARSH CREATION PLAN VIEW
8	EARTHEN TERRACE PLAN VIEW
9	BORROW AREA PLAN VIEW
10	MARSH CREATION TYPICAL SECTIONS A-A' AND B-B'
11	MARSH CREATION TYPICAL SECTION C-C'
12	MARSH CREATION TYPICAL SECTION BL
13	MARSH CREATION TYPICAL SECTION D-D'
14-15	MARSH CREATION DETAILS
16	TYPICAL EARTHEN TERRACE DETAIL
17	TYPICAL EARTHEN TERRACE CROSS SECTION
18	BORROW AREA CROSS SECTION E-E'
19	BORROW AREA CROSS SECTION F-F'
20	LA 27/82 CROSSING PLAN VIEW AND PAVEMENT PATCH DETAIL
21	LA 27/82 TEMPORARY WATERLINE BYPASS PLAN AND DETAIL
22	LA 27/82 WATERLINE RELOCATION PLAN AND DETAIL
23	LA 27/82 PHASE 1 PLAN VIEW CASING PIPE INSTALLATION: SEQUENCE OF CONSTRUCTION
24	LA 27/82 PHASE 2 PLAN VIEW CASING PIPE INSTALLATION: SEQUENCE OF CONSTRUCTION
25	LA 27/82 PHASE 3 PLAN VIEW DREDGING OPERATIONS: SEQUENCE OF CONSTRUCTION
26	LA 27/82 CROSSING OPEN CUT EXCAVATION SECTIONS G-G' AND H-H'
27	LA 27/82 WATERLINE RELOCATION DETAILS
28	LA 27/82 CROSSING PHASE 1 SECTION J-J' CASING PIPE INSTALLATION
29	LA 27/82 CROSSING PHASE 1 SECTION K-K' CASING PIPE INSTALLATION
30	TEMPORARY TRAFFIC CONTROL - TTC-00 (A)
31	TEMPORARY TRAFFIC CONTROL - TTC-00 (B)
32	TEMPORARY TRAFFIC CONTROL - TTC-00 (C)
33	TEMPORARY TRAFFIC CONTROL - TTC-00 (D)
34	TEMPORARY TRAFFIC CONTROL - TTC-02
35	TEMPORARY TRAFFIC CONTROL - TTC-04
36	TEMPORARY PIPELINE MARKER AND CASING PIPE CAP/MARKER DETAIL
37	SURVEY PROFILE LOCATIONS
38-42	EXISTING CONDITIONS PROFILES
43-53	MARSH CREATION CONSTRUCTION PROFILES
54-57	TERRACE FIELD CONSTRUCTION PROFILES
58	ACCESS ROUTES PLAN VIEW
59	ACCESS ROUTE "CL1"
60	ACCESS ROUTE "CL1"
61	ACCESS ROUTE "CL2"
62-65	ACCESS ROUTE "CL3"
66-69	ACCESS ROUTE "CL4"

ADVERTISEMENT FOR BIDS

Sealed bids will be received for the State of Louisiana by the Division of Administration, Office of Facility Planning and Control, Claiborne Office Building, 1201 North Third Street, Conference Room 1-145, Post Office Box 94095, Baton Rouge, Louisiana 70804-9095 until 2:00 P.M., **Tuesday, August 9, 2016.**

ANY PERSON REQUIRING SPECIAL ACCOMMODATIONS SHALL NOTIFY FACILITY PLANNING AND CONTROL OF THE TYPE(S) OF ACCOMMODATION REQUIRED NOT LESS THAN SEVEN (7) DAYS BEFORE THE BID OPENING.

FOR: **Oyster Bayou
Marsh Restoration Project
Cameron Parish, Louisiana**

PROJECT NUMBER: **CS-59**

Complete Bidding Documents for this project are available in electronic form. They may be obtained without charge and without deposit from coastal.la.gov/resources/doing-business-with-cpra/bids/.com. Printed copies are not available from the Designer but arrangements can be made to obtain them through most reprographic firms. Plan holders are responsible for their own reproduction costs.

Questions about this procedure shall be directed to the Designer at:

Coastal Protection and Restoration Authority (CPRA)

P.O. Box 44027

Baton Rouge, LA 70804

Telephone: 225-342-0811

Fax: 225-342-4674

E-mail: cpra.bidding@la.gov

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 10:00 AM on Tuesday, July 19, 2016 at Room 1201, 12th Floor Chase Tower North,
450 Laurel Street, Baton Rouge, Louisiana 70801.**

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 **Major Classification: Heavy Construction, and/or Specialty Classification: Dredging**. 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) 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 document 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 the Office of Facility Planning and Control or on its website at www.coastal.la.gov/Pages/ofpc/Index.aspx.

STATE OF LOUISIANA

DIVISION OF ADMINISTRATION

FACILITY PLANNING AND CONTROL

MARK A. MOSES, DIRECTOR

INSTRUCTIONS TO BIDDERS

COMPLETION TIME:

The Bidder shall agree to fully complete the contract within **Three Hundred Forty-Five (345)** consecutive calendar days for the Base Bid, 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 **Five Thousand Dollars (\$5,000.00)** 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 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. (RS38:2295C) 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 All blanks on the Bid Form shall be filled in manually in ink or typewritten.

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.

5.1.7 Bidders are strongly cautioned to ensure that all blanks on the bid form are completely and accurately filled in.

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

5.1.9 The bid shall include the legal name of Bidder. Written evidence of the authority of the person signing the bid shall be submitted at the time of bidding.

The authority of the signature of the person submitting the bid shall be deemed sufficient and acceptable under any of the following conditions:

(a) Signature on bid is that of any corporate officer listed on the most current annual report on file with the Secretary of State, or the signature on the bid is that of any member of a partnership, limited liability company, limited liability partnership, or other legal entity listed in the most current business records on file with the Secretary of State.

(b) Signature on bid is that of authorized representative as documented by the legal entity certifying the authority of the person.

(c) Legal entity has filed in the appropriate records of the Secretary of State, an affidavit, resolution or other acknowledged or authentic document indicating the names of all parties authorized to submit bids for public contracts. Such document on file with the Secretary of State shall remain in effect

and shall be binding upon the principal until specifically rescinded and canceled from the records of the office. A bid submitted by an agency shall have a current Power of Attorney attached certifying agent's authority to bind Bidder. The name and license number on the envelope shall be the same as the entity identified on the Bid Form.

5.1.10 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 ten (10) 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 contain **only one bid form** 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 Facility Planning and Control Department 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:

Facility Planning and Control,
P. O. Box 94095
Baton Rouge, Louisiana, 70804-9095.

Bids sent by express delivery shall be delivered to:

Facility Planning and Control
Suite 7-160
Claiborne Office Building
1201 North Third Street
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 mechanical, clerical or mathematical errors 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.

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 all required deliverables in conformance with Section SP-4 of the 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 Contractor will be required to establish to the satisfaction of the Engineer the reliability and responsibility of the proposed Subcontractors to furnish and perform the work described in the sections of the Specifications pertaining to such proposed Subcontractor's respective trades. 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 Subcontractors and other persons and organizations selected by the Bidder must be used on the work for which they were proposed and shall not be changed except with the written approval of the Owner and the Engineer.

In accordance with La. R.S. 38:2227, LA. R.S. 38:2212.10 and LA. R.S. 23:1726(B) the low bidder on this project must 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. The Attestations Affidavit form shall be submitted to 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.

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.

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 Before award of the Contract, the successful Bidder shall furnish to the Owner a copy of a Disclosure of Ownership Affidavit stamped by the Secretary of State, a certified copy of the minutes of the corporation or partnership meeting which authorized the party executing the bid to sign on behalf of the Contractor.

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

LOUISIANA UNIFORM PUBLIC WORK BID FORM

TO: Facility Planning and Control
P.O. Box 94095
Claiborne Building
Baton Rouge, LA 70804
(Owner to provide name and address of owner)

BID FOR: Oyster Bayou
Marsh Restoration Project
(CS-59)
Cameron Parish, Louisiana
(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: CB&I and dated: June 2016
(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 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.

** If someone other than a corporate officer signs for the Bidder/Contractor, a copy of a corporate resolution or other signature authorization shall be required for submission of bid. Failure to include a copy of the appropriate signature authorization, if required, may result in the rejection of the bid unless bidder has complied with La. R.S. 38:2212(A)(1)(c) or RS 38:2212(O) .

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

LOUISIANA UNIFORM PUBLIC WORK BID FORM

UNIT PRICE FORM

TO: Facility Planning and Control
P.O. Box 94095
Claiborne Building
Baton Rouge, LA 70804
(Owner to provide name and address of owner)

BID FOR: Oyster Bayou
Marsh Restoration Project
(CS-59)
Cameron Parish, Louisiana
(Owner to provide name of project and other identifying information)

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

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

DESCRIPTION: <input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ____ As-Built Surveys				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
3	1	Lump Sum		

DESCRIPTION: <input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ____ Hydraulic Dredging – Marsh Creation				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
4	3,481,700	Cubic Yard		

DESCRIPTION: <input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ____ Primary Containment Dikes				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
5	45,041	Linear Foot		

DESCRIPTION: <input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ____ Secondary Pond Containment				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
6	2,543	Linear Foot		

DESCRIPTION: <input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ____ Trenasses				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
7	9,491	Linear Foot		

DESCRIPTION: <input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ____ Earthen Terraces				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
8	17,550	Linear Foot		

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

LOUISIANA UNIFORM PUBLIC WORK BID FORM

UNIT PRICE FORM

TO: Facility Planning and Control
P.O. Box 94095
Claiborne Building
Baton Rouge, LA 70804
(Owner to provide name and address of owner)

BID FOR: Oyster Bayou
Marsh Restoration Project
(CS-59)
Cameron Parish, Louisiana
(Owner to provide name of project and other identifying information)

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 checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ___ Settlement Plates			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
9	7	Each		

DESCRIPTION:	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ___ Temporary Waterline Bypass			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
10	1	Lump Sum		

DESCRIPTION:	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ___ Waterline Relocation			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
11	1	Lump Sum		

DESCRIPTION:	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ___ Traffic Control			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
12	1	Lump Sum		

DESCRIPTION:	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ___ Highway Crossing Mobilization			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
13	1	Lump Sum		

DESCRIPTION:	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ___ Highway Embankment (DOTD 203-03-00100)			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
14	270	Cubic Yard		

DESCRIPTION:	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ___ Highway Excavation (DOTD 203-01-00100)			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
15	470	Cubic Yard		

DESCRIPTION:	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ___ Geotextile Fabric (DOTD 203-08-00100)			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
16	63	Square 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

LOUISIANA UNIFORM PUBLIC WORK BID FORM

UNIT PRICE FORM

TO: Facility Planning and Control
P.O. Box 94095
Claiborne Building
Baton Rouge, LA 70804
(Owner to provide name and address of owner)

BID FOR: Oyster Bayou
Marsh Restoration Project
(CS-59)
Cameron Parish, Louisiana
(Owner to provide name of project and other identifying information)

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 checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ___ Pavement Patching 12 in Thick (DOTD 510-01-00100)			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
17	63	Square Yard		

DESCRIPTION:	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ___ Bedding Material (DOTD 726-01-00100)			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
18	11	Cubic Yard		

DESCRIPTION:	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ___ Concrete Drain Pipe (51" O.D. Reinforced Concrete Pipe) (DOTD 701-01-N)			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
19	43	Linear Foot		

DESCRIPTION:	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ___ Flowable Fill (DOTD 710-01-00100)			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
20	115	Cubic Yard		

DESCRIPTION:	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ___ Plastic Pavement Markings (Solid Line)(4" Width)(DOTD 732-02-00100)			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
21	80	Linear Foot		

DESCRIPTION:	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ___ Plastic Pavement Markings (Broken Line)(4" Width)(DOTD 732-03-00100)			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
22	40	Linear Foot		

DESCRIPTION:	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ___ Raised Pavement Markers (DOTD 731-02-00100)			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
23	4	Each		

DESCRIPTION:	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ___ Casing Pipe Cap			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
24	2	Each		

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 that 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)

OYSTER BAYOU MARSH RESTORATION
PROJECT (CS-59)
Name of Project

CS-59
Project No.

STATE OF _____

PARISH OF _____

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
(R.S.14:67.20) | (h) Contractors; misapplication of
payments (R.S. 14:202) |
| (d) False accounting (R.S. 14:70) | (i) Malfeasance in office (R.S. 14:134) |
| (e) Issuing worthless checks (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 hires 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.

OYSTER BAYOU MARSH RESTORATION
PROJECT (CS-59)
Name of Project

CS-59
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 _____, 2016, 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. _____
State ID No. _____ Site Code _____

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 _____ consecutive calendar days from and after the said date.

Liquidated Damages: Contractor shall be assessed Liquidated Damages in the amount of \$_____ 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 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 Veteran's Readjustment Assistance Act of 1974, Title IX of the Education Amendments of 1972, the Age Act of 1972, 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, sex, religion, national origin, genetic information, age or disabilities. 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 eight (8) counterparts, each of which shall, without proof or accountancy for the other counterparts, be deemed an original thereof.

WITNESSES:

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

BY: _____
Michael Ellis, Executive Director

BY: _____

SURETY: _____

BY: _____
ATTORNEY IN FACT

ADDRESS

TELEPHONE NUMBER

STATE OF LOUISIANA
PARISH OF _____

PROJECT NO.
NAME
LOCATION:

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.

AFFIANT

SWORN TO AND SUBSCRIBED BEFORE ME THIS _____ DAY OF _____, 2016.

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.

- 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 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, 2006 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 Engineering Division of the Coastal Protection and Restoration Authority, 450 Laurel Street, 11th Floor, Baton Rouge, Louisiana 70801.

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

A site visit may also be held at the Project Site as specified in the Advertisement For Bids or at the Pre-Bid conference. If held, bidders will be required to furnish their own transportation to the Project Site. Representatives of the Owner and Engineer will attend the Pre-Bid conference and site visit, if held, to discuss the Work.

All questions shall be in writing and faxed or emailed to the Coastal Protection and Restoration 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.

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 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

The Progress schedule must reflect these anticipated adverse weather delays on all weather dependent activities. 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.

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 the compliance with the Progress Schedule.

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 aides (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 Appendix B. 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 Appendix C. 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 1-800-272-3020 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 of prejudice the Owner's rights under the Contract.

GP-29 DUTIES OF RESIDENT PROJECT REPRESENTATIVE

A Resident Project Representative shall 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 Navigation 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.uscg.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 location, 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 the 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 an 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 SUBSTANTIAL COMPLETION

Upon notice from the Contractor that it believes the project has reached substantial completion, and before final acceptance, the Engineer will make an inspection of the Work. "Substantial Completion" is defined as the date on which the Work is complete in accordance with the Contract Documents in order that the Owner can occupy and use the project for its intended use. The date of Substantial Completion shall be specified in the Notice of Acceptance.

If the Owner or its representative determines the Project is substantially complete, the Owner will issue a Notice of Acceptance identifying the date the Project reached Substantial Completion and attach a punch list, if applicable, identifying the remaining items that must be completed before final payment. The Contractor shall then file the executed Notice of Acceptance with the Clerk of Court in the Parish(s) where the work is performed and shall forward one complete copy of the recorded acceptance to the Owner and Engineer.

If the inspection discloses any work as being unsatisfactory or incomplete and such work generates a formal punch list, the Engineer will give the Contractor instructions for correction of same, and the Contractor shall immediately comply with such instructions. Upon satisfactory completion of the corrections, when a "Punch List" is generated, the Engineer shall

prepare a "Recommendation of Acceptance" incorporating the punch list and submit to the Owner. Upon approval of the Recommendation of Acceptance, the Owner may issue a Notice of Acceptance of the Contract which shall establish the date of Substantial Completion.

Any punch list generated by the Engineer shall be accompanied by a cost estimate to correct the particular items of work the Engineer has developed. The cost estimate shall be developed based on mobilization, labor, material, and equipment costs of correcting each punch list item and shall be retained from monies owed to the Contractor, above and beyond the standard retainage. The Engineer shall retain his working papers used to determine the punch list items cost estimates should the matter be disputed later. The Owner shall not withhold from payment more than the value of the punch list. Punch list items completed shall be paid upon the expiration of the forty-five (45) day lien period. After that payment, none of the remaining funds shall be due the Contractor until all punch list items are completed and are accepted by the Engineer.

If the dollar value of the punch list exceeds the amount of funds, less retainage amount, in the remaining balance of the Contract, the Project shall not be accepted as Substantially Complete. If the funds remaining are less than required to complete the punch list work, the Contractor shall pay the difference. The provisions listed above shall not be subject to waiver.

Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work/project as provided in the Notice of Acceptance, unless otherwise agreed to in writing by the Owner and Contractor. In the instance where the Owner has accepted the Work/project as substantially complete and issued a Notice of Acceptance, and the Contractor must remain on the premises to complete the "Punch List" or for whatever reason, the Contractor shall maintain Commercial General Liability insurance, Auto Liability insurance and Worker's Compensation insurance as set forth herein until the expiration of the forty-five (45) day lien period or upon the completion of the work/project, whichever is later. Builder's Risk insurance, if applicable, may be cancelled only with the written permission of the Owner or the Owner's representative at Substantial Completion.

If the punch list is not completed within forty-five (45) days, through no fault of Owner or Engineer, the Owner may, but is not required, to place the Contractor in default. Thereafter, the Owner shall notify the Surety. If the Surety has not completed the punch list within forty-five days of receipt of notification, the Owner may, but is not required to, complete the remaining punch list items. Any costs incurred shall be paid for first out of any remaining Contract funds. If the costs incurred exceed the remaining Contract funds, the Contractor and its Surety shall be liable for such costs.

Upon completion of the punch list, Contractor shall request Final Inspection.

GP-54 FINAL INSPECTION AND ACCEPTANCE

Whenever the work provided for, or contemplated by the contract, have 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, that 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.

GP-55 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-56 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-57 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-58 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 19th Judicial District Court in and for the Parish of East Baton Rouge, State of Louisiana.

GP-59 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.

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.

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-60 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-61 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-62 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-63 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-64 SUSPENSION/DEBARMENT

Contractor certifies, by signing and submitting any bid, that their company, any subcontractors, or principals are not suspended or debarred by the General Services Administration (GSA) in accordance with the requirements in OMB Circular A-133. A list of parties who have been suspended or debarred can be viewed via the internet at www.epls.gov.

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-65 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 PRECEDENCE OF CONTRACT DOCUMENTS

These Contract Provisions, Specifications, Plans, Bid Forms, Appendices, and supplementary documents are essential parts of the Contract. A requirement occurring in one is as binding as though occurring in all. These documents are intended to be complementary and to describe and provide for a complete work. In the case where a conflict occurs, the order of precedence of the Contract Documents is as follows:

- Permits from other agencies as may be required by law
- Change Orders
- Contract Agreement
- Addenda
- Bid Forms
- Notice to Bidders
- Instructions to Bidders, Policies, and Procedures
- Special Provisions
- Technical Specifications
- General Provisions
- Plans
- Appendices

Calculated dimensions will govern over scaled dimensions. Follow GP-2 if any conflicts, errors, ambiguities, or discrepancies are discovered within the listed documents.

SP-2 LOCATION OF WORK

The Oyster Bayou Marsh Restoration Project is located in Cameron Parish, Louisiana between Mud Lake and the Calcasieu River, north of Louisiana Highway 27/82 (LA 27/82). The project area is located approximately 3 miles east of the community of Holly Beach. The marsh creation fill area is located in the southern portion of the project area with the terrace field in the northern portion. The borrow area is located in the Gulf of Mexico, approximately 3.5 miles south-southeast of the project area.

SP-3 WORK TO BE DONE

The Work to be performed under these Plans and Specifications shall include, but not be limited to, furnishing all labor and materials including mobilization and demobilization at or to the Project Site, to dredge fill material to create the design fill template, to construct containment dikes, earthen terraces, ponds, and trassess, and to install settlement plates, a permanent highway crossing, and a waterline relocation.

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:

- 3.1 Hydraulic Dredging: Approximately 3,481,700 cubic yards of marsh fill material shall be hydraulically dredged and placed in the locations and to the elevations depicted in the plans.
- 3.2 Sediment Pipeline Corridor and Highway Crossing: Dredge pipe used by the Contractor to facilitate the placement of the marsh fill material shall be placed in the proposed submerged pipeline corridor and within the construction limits shown on the plans. This corridor includes the installation of a

40 linear foot permanent casing pipe as well as a waterline relocation to facilitate the temporary sediment pipeline across LA 27/82.

- 3.3 Primary Containment Dikes: Containment dikes are mandatory and shall be constructed from in-situ soils in order to contain the marsh fill areas. The Contractor may construct internal training dikes as necessary to improve containment or dewatering of the fill containment areas, but at no cost to the Owner. The Contractor shall maintain the integrity of the containment dikes during construction. Approximately 45,041 linear feet of containment dikes shall be constructed and maintained in the fill area, as shown on the plans.
- 3.4 Secondary Pond Containment: Where indicated on the plans, pond containment is mandatory and shall be constructed from in-situ soils in order to retain the marsh fill and create ponds. Approximately 2,543 linear feet of secondary pond containment shall be constructed and maintained within the fill area, as shown on the plans.
- 3.5 Earthen Terraces: Approximately 17,550 linear feet of earthen terraces shall be constructed in an open water area north of the marsh fill areas. Terraces will be constructed in a similar manner as the containment dikes, using in-situ material.
- 3.6 Trenasses: Approximately 9,491 linear feet of trenasses shall be excavated prior to placement of marsh fill material as shown on the Plans. Trenasse excavation will be backfilled with hydraulic fill material. It is anticipated that differential settlement will create trenasses within the marsh creation areas over time.
- 3.7 Settlement Plates: Seven (7) settlement plates shall be installed as shown in the Plans. Settlement plates shall be surveyed during installation and throughout construction.
- 3.8 Pre-construction Survey: This item includes surveying the profiles shown on the plans and required in these specifications prior to construction. Prior to construction, the survey profiles established in the design survey shall be resurveyed for bathymetry and topography. Prior to construction, the Contractor shall perform a magnetometer survey in the borrow areas, fill sources for containment dikes, and any areas to be excavated along the pipeline corridor to verify pipeline or obstruction locations and ensure no unknown pipelines exist within the project area. The magnetometer survey shall be submitted to the Engineer prior to excavation of material. During construction, marsh fill area surveys for quality control shall be performed as deemed necessary by the Contractor and as requested by the Engineer.
- 3.9 As-built Survey: This item includes surveying the profiles and borrow areas shown on the plans and required in these specifications following construction.
- 3.10 Use of Equipment: The Equipment used for the Work shall be operated within the boundaries of the Project Construction Limits and away from existing vegetated wetlands or any other sensitive areas. The Contractor shall be responsible for returning all disturbed wetlands to pre-existing conditions at no expense to the Owner.

SP-4 GENERAL REQUIREMENTS

- 4.1 Scope: The Work covered under these Plans and Specifications consists of furnishing all plant, labor, materials, and equipment for performing all required Work for the mobilization, demobilization, hydraulic dredging, and placement of spoils in accordance with these Specifications and in conformity to the lines, grades, and elevations shown in the Plans or as directed by the Engineer. Major tasks associated with this Work include, but may not necessarily be limited to, the following:

- 4.1.1 Surveying: This item includes surveying the marsh profiles shown in the Plans. This item also includes performing a magnetometer survey of all access routes to the Project Site and temporary access channels, and surveying the access channels, fill sources, and the borrow areas. All quality control and acceptance surveys shall be performed by approved Contractor personnel at no direct pay.
 - 4.1.2 Containment Dikes: Construction and maintenance of containment dikes in water areas as shown in the Plans.
 - 4.1.3 Hydraulic Dredging: Hydraulically dredged fill material shall be placed in the location and to the slopes and elevations depicted in the Plans.
 - 4.1.4 Grading: All dredged material shall be graded to the tolerances stated in the Plans.
 - 4.1.5 Settlement Plates: Settlement plates shall be installed at locations shown in the Plans.
 - 4.1.6 Highway Crossing: A section of waterline shall be relocated, and a permanent casing pipe shall be installed across LA 27/82 to facilitate the placement of the sediment pipeline.
- 4.2 Site Examination: Bidders are required to examine the Project Site and determine the character of the material to be dredged from the borrow areas, access and dike excavation channels, existing infrastructure, and the nature of the terrain. Further investigation of the site may show that logs, stumps, snags, debris, and other obstructions may be encountered. No separate payment for removal and disposal of these obstructions shall be made.

Before submitting a Bid, each Bidder should: (a) examine the Bid Documents thoroughly; (b) visit the Project Site to familiarize himself with local conditions that may in any manner affect cost, progress, or performance of the Work; (c) familiarize himself with Federal, State, and Local laws, ordinances, rules, and regulations that may in any manner affect cost, progress, or performance of the Work; (d) review such geotechnical data that is on file in the Engineering Division of the Coastal Protection and Restoration Authority or available from other sources and which concerns the area from which materials are to be dredged; and (e) study and carefully correlate Bidder's observations with the Bid Documents.

A highly encouraged pre-bid site visit will be held. Bidders must inspect the Project Site prior to Bid Submittal. Bidders may access the Project Site to conduct such observations, investigations, and tests as the Bidder deems necessary for submission of his Bid. He shall, however, conform to such restrictions as may be imposed by agreements, permits, etc. See SP-7 Landowner and Leaseholder Requirements of the Special Provisions for details of other restrictions and requirements.

- 4.3 Permits: The Owner has obtained a Coastal Use Permit from the Louisiana Department of Natural Resources, Office of Coastal Management; Clean Water Certificate from Louisiana Department of Environmental Quality; 404 Corps of Engineers Permit; Louisiana Department of Transportation and Development Highway Crossing Permit; and a LDWF Fill Area permit. The Contractor will be furnished with a copy of these permits and shall be responsible for compliance with all provisions and conditions. These permits do not relieve the responsibility of the Contractor from obtaining additional permits that may be needed to complete the Work. Copies of any special permits obtained by the Contractor to complete the Work must be submitted to the Owner.
- 4.4 Removal of Trash: The Contractor shall remove all debris, trash, and garbage resulting from construction activities at the site within three (3) Days after completion of the construction activities. The Contractor must keep project area clean at all times.
- 4.5 Placement of Dredged Material: The Contractor shall not deposit dredged material into areas other than those shown in the Plans or stated in the permits without approval of the Engineer.

- 4.6 Navigation: All operations in connection with the Work shall be in accordance with Subsection 107.09, Navigable Waters and Wetlands, of the Louisiana Standard Specification for Roads and Bridges, 2006. Failure of the Contractor to familiarize himself with all terms, conditions, and provisions of the rules and regulations applicable to the Work shall not relieve him of his responsibility under the Contract. Navigable depths shall not be impaired except as allowed by laws regulating navigation in the area.
- 4.7 Existing Features: 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 operations are 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 water line.

An existing bridge structure is located between Marsh Creation Areas 2 and 3 as well as a section of Amoco pipeline that is elevated. The Contractor shall provide methodology for working around these features in the Work Plan for approval by the Engineer. Containment shall be constructed adjacent and parallel to the bridge structure.

Existing features indicated in the Plans are shown only to the extent that such information was made available to or discovered by the Engineer during preparation of the Plans. 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, he shall be responsible for the cost of the repair.

SP-5 CONTRACT DATES AND MILESTONES

Milestone	Location or Recipient	Date Due
Bid Advertisement	Publication	As Advertised
Pre-Bid Conference and Site Visit	Advertisement for bids	As Advertised
Questions on Bid Documents	cpra.bidding@la.gov	Provided in Instruction to Bidders (or as announced at the Pre-Bid Conference)
Effective Date of Contract	Contractor and Owner	Stated in Contract
Start of Contract Time	Contractor and Owner	As stated in Notice to Proceed
Work Plan	Submit to Engineer	At least 14 days prior to the pre-construction conference
Progress Schedule	Contractor and Engineer	At least 14 days prior to the pre-construction conference, bi-weekly thereafter
Superintendent Qualifications	Engineer	Prior to pre-construction conference
List of Subcontractors	Engineer	Prior to awarding subcontracts
Pre-Construction Conference	Contractor and Engineer	As determined by the Engineer after the Notice to Proceed is issued
Progress Meetings and Reports	At Project Site	Bi-weekly or as determined at the Pre-Construction Conference (See GP-13, GP-39)
Written Notice of Completion of Work	Engineer	Upon substantial completion of Work
Pre-construction Survey	Engineer	After pre-construction meeting and 21 days prior to the start of construction
As-Built Survey and Drawings	Deliver to Engineer	Prior to Final Inspection as scheduled by the Engineer
End of Contract Time	Project Site	345 calendar Days after Notice to Proceed

SP-6 DELIVERABLES

6.1 Prior to Construction

6.1.1 The Contractor shall submit all documents to the Engineer prior to the Pre-Construction Conference required by GP-8, GP-9, GP-10, GP-11, and GP-12:

6.1.1.1 Turbidity Control Plan as specified in Section TS-16.

6.1.1.2 Environmental Protection Plan as specified in Section EP-11.

6.1.2 The Contractor shall provide the following information to the Engineer at the Pre-Construction Conference specified in GP-14:

6.1.2.1 Updates to all plans and schedules based on comments from the Engineer;

6.1.2.2 Potential construction corridors (other than from what is provided, if needed) which may be approved on an as needed basis.

6.1.3 The Contractor shall submit a pre-construction survey a minimum of twenty-one (21) calendar days prior to the start of excavation or dredging as specified in Section TS-2 of the Technical Specifications.

6.2 During Construction

The Contractor shall deliver copies of the following documents upon request by the Engineer, or as specified in these provisions:

6.2.1 The results of all surveys and calculations as specified in TS-3;

6.2.2 Progress Schedule as specified in GP-9;

6.2.3 Daily Progress Reports as specified in GP-10;

Daily Progress Reports shall be submitted daily following issuance of the Notice to Proceed until project completion. A copy of the typical Daily Progress Report shall be submitted to the Engineer with the Work Plan.

6.2.4 Progress Meeting Reports as specified in Section GP-13 of the General Provisions;

6.2.5 Copies of all inspection reports;

6.2.6 All Change Orders, Field Orders, Claims, clarifications, and amendments;

6.2.7 Results of any Materials testing.

6.3 Administrative Records

6.3.1 Notice of Intent to Dredge: At least thirty (30) Days prior to commencement of Work on this Contract, the Contractor shall notify the U.S. Coast Guard, Sector New Orleans Command Center, at the address below, of his intended operations to dredge and request that it be published in the Local Notice to Mariners. This notification must be given in sufficient time so that it appears in the Notice to Mariners at least seven (7) Days prior to the commencement of this dredging operation. A copy of the Department of the Army Permit and drawings shall be provided to the U.S. Coast Guard. A copy of the notification shall be provided to the Owner and Engineer prior to the commencement of dredging.

U.S. Coast Guard
Commander, Eighth Coast Guard District
Hale Boggs Federal Building
500 Poydras Street
New Orleans, LA 70130
504-671-2107

6.3.2 National Ocean Service Notification: At least thirty (30) Days prior to commencement of Work on this Contract, the Contractor shall notify the National Ocean Service (NOS) in writing of activity in navigable waters. Upon completion of the work, the NOS shall be notified and a drawing certifying the location and configuration of the completed activity shall be included (a certified permit drawing may be used). A copy of the notification shall

be provided to the Owner and Engineer prior to the commencement of dredging.

Director National Ocean Service
Office of Coast Survey, N/CS261
1315 East West Highway
Silver Springs, Maryland 20910-3282

- 6.3.3 Relocation of Navigational Aids: Temporary removal of any navigation aids located within or near the areas required to be dredged or filled and material stockpile areas shall be coordinated by the Contractor with the U.S. Coast Guard prior to removal. The Contractor shall not otherwise remove, change the location of, obstruct, willfully damage, make fast to, or interfere with any aid to navigation. The Contractor shall notify the Eighth U.S. Coast Guard District, New Orleans, Louisiana, in writing, with a copy to the Owner and Engineer, seven (7) Days in advance of the time he plans to dredge or Work adjacent to any aids which require relocation to facilitate the Work. The Contractor shall contact the U.S. Coast Guard for information concerning the position to which the aids will be relocated.
- 6.3.4 Private Aids to Navigation: The Contractor shall obtain approval for all dredging aids, including, but not limited to, temporary navigation aids, warning signs, buoys, and lights, required to conduct the Work specified in this Contract. The Contractor shall obtain a temporary permit from the U.S. Coast Guard for all buoys or dredging aid markers to be placed in the water prior to installation. The permit application shall state the position, color, and dates to be installed and removed for all dredging aid markers and be submitted to the U.S. Coast Guard. Dredging aid markers and lights shall not be colored or placed in a manner that they will obstruct or be confused with navigation aids. Copies of the application and permit shall be submitted to the Owner and Engineer seven (7) Days prior to commencement of dredging operations.
- 6.3.5 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 Owner, Engineer, and Resident Project Representative 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 report any observed unauthorized removal or destruction of such resources by any person to the Owner and Engineer so the appropriate State of Louisiana authorities can be notified. The Contractor shall not resume Work at the site in question until State authorities have rendered judgment concerning the artifacts of interest.
- 6.4 Post Construction: The Contractor shall contact the Engineer by phone a minimum of five (5) working Days prior to the anticipated completion of the Work in order to schedule the Final Inspection and gain Acceptance by the Engineer. As-Built Drawings as specified in Section GP-55 of the General Provisions shall also be submitted to the Engineer.
- 6.5 Summary of Project Submittals: The following table is a summary of Submittals required of the Contractor as part of this section and other sections of these Specifications:

Specification	Deliverable	Submittal
GP-8	Work Plan	At least 14 Days prior to the pre-construction conference
GP-8	Work Plan Updates	Pre-Construction Conference
GP-9	Progress Schedule	Within 15 days of Notice to Proceed
GP-9	Progress/Work Schedule	Prior to Pre-construction conference
GP-9	Progress Schedule	Bi-weekly as determined at the Pre-Construction Conference
GP-10	Typical Daily Progress Report	At least 14 Days prior to the pre-construction conference
GP-10	Daily Progress Reports	Daily by 12:00 PM (noon) to the Resident Project Representative and Engineer
GP-11	Hurricane and Severe Storm Plan	At least 14 Days prior to the pre-construction conference
GP-12	Health and Safety Plan	At least 14 Days prior to the pre-construction conference
GP-13	Typical Progress Meeting Report	At least 14 Days prior to the pre-construction conference
GP-19	Names of all Subcontractors	Prior to awarding subcontracts
GP-53	Written Notice of Completion of Work	Upon substantial completion of work
GP-55	As-Built Drawings	Prior to Final Acceptance
SP-6	Copies of Inspection Reports	During Construction
SP-6	Potential Construction Corridors	Pre-Construction Conference
SP-6	Results of Materials Testing	During Construction
SP-6	Notice of Intent to Dredge	30 Days Prior to Commencement of Work with a request to publish the Notice to Mariners 7 days prior to commencement of work. Submit to Coast Guard with copy to Owner and Engineer
SP-6	National Ocean Service Notification	30 Days Prior to Commencement of Work
SP-6	Relocation of Navigation Aids	At least 7 Days prior to relocating navigation aids
SP-6	Dredging Aids Permit	At least 7 Days prior to the commencement of offshore dredging
SP-6	Historic Cultural Sites	Immediately upon discovery. Submit to Engineer, Owner, and Resident Project Representative
SP-6	Notice to Mariners	7 Days Prior to Start of Dredging

SP-13	Accident Prevention Plan	At least 14 Days prior to the pre-construction conference
TS-4	Results of Surveys and Calculations	At least 4 Days prior to Acceptance notification
TS-14.10	Dredge Mobilization Notification	At least 3 days prior to mobilization of the Dredge and other Equipment
TS-16	Turbidity Control Plan	At least 14 Days prior to the pre-construction conference
TS-5	Dike Construction Plan	At least 14 Days prior to the pre-construction conference
TS-12.4	Pavement Patch Shop Drawing	At least 14 Days prior to the pre-construction conference
TS-12.8	LA 27/82 Crossing Lighting Plan	At least 30 Days prior to night operations
TS-12.10	Truck Advisory	At least 14 Days prior to the pre-construction conference
TS-12.11	Waterline Relocation and Temporary Bypass Plan	At least 14 Days prior to the pre-construction conference
TS-3.1.1	Marsh As-Built Survey Methodology	At least 14 Days prior to the pre-construction conference
TS-2	Pre-Construction Survey	21 Days Prior to the Start of Construction
TS-2.2	Magnetometer Survey	3 Days Prior to the Start of Excavation or Dredging
EP-11	Environmental Protection Plan	At least 14 Days prior to the pre-construction conference

SP-7 LANDOWNER AND LEASEHOLDER REQUIREMENTS

The Owner has obtained temporary easement, servitude, and right-of-way agreements required for construction of the project. The agreements executed with landowners and leaseholders for the Work at the site contain special requirements pertaining to access routes and insurance. Additional land rights information and maps are included in Appendix XII. The Contractor shall abide by the following stipulations as set forth by the Owner and respective landowners (Grantors):

Louisiana Department Wildlife and Fisheries: No activities will be allowed within 100 feet of nesting bird colonies unless approved by Program Manager.

Landowners: The Contractor shall give reasonable notice to GRANTOR prior to initiation of access to the said Lands for the purpose of implementing, constructing, operating, modifying, monitoring, and maintaining the Project. See Appendix XII for list of land owners.

Landowner notification requirements:

- A. The following notice language is in Paragraph 6 of the State Land Office, Division of Administration's Grant of Particular Use and Right of Entry for Construction: "Pursuant to the Permits and Responsibilities clause, you are required to contact the Administrator of the State Land Office or his representative at (225) 342-4575, to notify the Office when construction will commence on the State-owned seashore, State lands and/or State water bottoms."
- B. STATE agrees to give reasonable notice to GRANTOR prior to initiation of access to the said Lands for the purpose of implementing, constructing, operating, modifying, monitoring and maintaining the Project.

Landowner General Provisions:

- A. Article III: in the agreements includes that should work on (landowner's) Lands be performed via contract, STATE shall ensure that the contractor lists GRANTORS as an additional insured on any policies carried by the contractor, including completed operations coverage.
- B. Article IV: includes that **STATE through its Contractor shall be responsible for repair...such repair shall be to that condition and value which existed immediately prior to Contractor's activities.** STATE shall remove or dispose of all debris associated with construction, operation and maintenance of the Project.
- C. Article X: includes that the **Agreement shall become effective upon the date of the signature of State, and shall remain in effect for a term of twenty-five (25) years** unless sooner released by STATE.
- D. The Contractor shall add the landowners listed above as additional insured to their certificate of insurance. It is also agreed and understood that the Contractor will at all times indemnify and hold harmless all landowners from and against any and all claims, demands, causes of action, judgments, liabilities, and expense of every nature, including attorney's fees, by reason of personal injury, death (including but not limited to injuries to and death of employees of the landowners and the Contractor's employees), or damage to property, (including environmental) which arises out of, results from, or is in any manner related to, directly or indirectly, any operations or acts hereunder, or to the exercise of your rights hereunder, or to your presence upon or use of the landowners' premises above referred to, or to the use or existence of your facilities on such premises. The indemnity provisions of this paragraph shall not apply if any such injury, death, damage, liability claim, or cause of action is caused by the negligence of the landowners, their employees, agents, or representatives.

Special Conditions in Servitude Agreements:

None

Additional Provisions:

In addition to obligations of Contractor set forth in GP-24: Contractor shall provide to the CPRA Landrights Project Land Manager listed below within thirty (30) calendar days after the bid contract's notice to proceed is issued: certificate of insurance that lists all landowners provided above as additional insured; and certified mail receipts of project construction notification letters sent to all landowner(s) and pipeline owner(s)/operator(s).

Angela Thomas
450 Laurel Street
Suite 1200
Baton Rouge, LA 70801

Pipeline Operators:

Amoco Production Company/Oleum Operating Company:
Contact: Andrew Snell
Phone: 903-758-9896

Cameron Parish Waterworks:

Contact: Mark Young
Phone: 337-569-2110

Cameron Telephone Company:

Contact: Bobby Bult
Phone: 337-496-6530

Cheniere Creole Trail Pipeline, LP:

Contact: Joey Mahmoud
Phone: 713-375-5000

Department of Energy Pipeline:

Contact: Dale Marcantel
Phone: 337-558-3362

Kinetica Pipeline:

Contact: Shane Lopez
Phone: 337-485-1825

Targa Pipeline Company:

Contact: Todd Morrison
Phone: 337-569-2307

Infrastructure Provisions

- A. The Contractor shall notify all pipeline companies at least ten (10) working days prior to mobilization. All pipelines located within 150 feet of the dike alignments, marsh fill areas, borrow area, excavation area, and sediment pipeline corridor shall be probed and their locations marked, prior to excavation and/or installation of the sediment pipeline, for the duration of construction activities. No excavation shall be permitted within 50 feet of any oil and gas pipeline. No excavation shall be permitted within 50 feet of any exposed pipeline unless the Contractor acquires an agreement to the contrary with the pipeline owner. Tracked equipment may only traverse the Kinetica pipeline shown on the Plans at the oil field road crossing. Construction of a temporary gravel crossing or use of timber matting may be required by the pipeline owner. The Contractor shall coordinate with the pipeline owner regarding crossing requirements and secure an agreement from the pipeline owner to cross the Kinetica pipeline. The Plans indicate pipelines that were obtained from databases and those that were field verified. It is the Contractor's responsibility to locate all pipelines for purposes of determining areas where excavation is not permitted.
- B. NOTE: Special care and extremely close coordination by the construction contractor with the pipeline companies will be crucial in order to avoid impacting the pipelines within or near the project area. Due to the extensive numbers of oil and gas lines in the area, and the limited time available to obtain landrights coverage for same, the contractor(s) will need to acquire any permission for crossings of lines outside of those that may not have been previously found/covered. It is recommended that confirmation in the field, including, but not limited to, use of a magnetometer survey/s be a requirement of the contractor/s to ensure that any lines in the area are identified and will not be impacted. No dredging over any pipeline rights-of-ways can be permitted. The conveyance pipeline will need to be floated over pipelines that may potentially be impacted by same. Verification of pipelines, their depths and draft of the equipment to be used will be essential. The assumption resulting from current investigations does not include oil and gas operations that might commence in the future.
- C. The construction contractor will also need to contact Louisiana One Call at (800) 272-3020 at least five (5) business days prior to construction.

- D. Any damage to utilities that is caused by the Contractor within the Project Site shall be repaired at the expense of the Contractor. This includes but is not limited to telephone lines, power lines, fiber optic lines, waterlines, etc.

SP-8 THREATENED AND ENDANGERED SPECIES

The Environmental Assessment for this project identifies Pallid Sturgeon, Brown Pelicans, Bald Eagles, and West Indian Manatees as threatened and endangered species which have the potential to exist within the boundaries of the Project Site. The Contractor shall review and comply with the restrictions listed below regarding construction activities.

- 8.1 West Indian Manatee – The following precautions will be implemented from May to October, when manatees have the greatest potential for entering the project area:

- 8.1.1 All on-site project personnel are responsible for observing water-related activities for the presence of manatee(s).

- 8.1.2 All personnel associated with the project shall be instructed about the possible presence of manatees and the need to avoid collisions with and injury to manatees. Any sighting of, collision with, or injury to a manatee shall be immediately reported to the Engineer.

The following special operating conditions shall be implemented upon the sighting of a manatee within 100 yards of the active work zone:

- 9.1.2.1 No operation of moving equipment within 50 feet of a manatee;

- 9.1.2.2 All vessels shall operate at no wake/idle speeds within 100 yards of the work area; and

- 9.1.2.3 Siltation barriers, if used, shall be re-secured and monitored.

SP-9 WORK PLAN SUPPLEMENTAL

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

- 9.1 Dredge Data Sheet as specified in SP-17;
- 9.2 Layout and construction schedule for internal training dikes and/or containment dikes, earthen terraces, and trenasses;
- 9.3 Layout and construction schedule for sediment pipeline; and
- 9.4 Layout and construction schedule for discharge and dewatering of marsh creation areas.
- 9.5 Borrow area cuts sequence as specified in TS-14.4.

SP-10 FAILURE TO COMPLETE ON TIME

For each Day the Work remains incomplete beyond the Contract Time, as specified in SP-5, or Extension of Contract Time, as specified in GP-44, the sum of five thousand dollars (\$5,000) 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.

SP-11 PROTECTION OF WORK

The construction area may be subject to flows of water during construction. It will be the responsibility of the Contractor to protect his Work and Equipment from damages due to waves, increases in Gulf of Mexico and/or project area water levels, ground water, and local rain water. The Owner shall not be held liable or responsible for delays or damages to the Contractor's Work or Equipment resulting from inflows of tidal, surface, or ground water or other conditions.

SP-12 PROJECT SCHEDULING

Within fourteen (14) calendar Days after the Notice to Proceed, the Contractor shall submit to the Engineer for review and Acceptance an updated Progress Schedule indicating the starting and completion dates of the various stages of the Work and a preliminary schedule of values of the Work.

Bi-weekly Progress Meetings will be held at which time changes in the schedule will be discussed, as specified in Sections GP-9 and GP-13 of the General Provisions.

SP-13 SAFETY REQUIREMENTS

13.1 Contractor Responsibility for Safety: The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. The Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:

13.1.1 State and Federal personnel, Resident Project Representative, the public, all employees and Subcontractors involved in the Work, and all other persons who may be affected thereby;

13.1.2 All Work and all Materials or Equipment to be incorporated therein, whether in storage on or off the project site; and,

13.1.3 Other property at the site or adjacent thereto, including trees, shrubs, natural vegetation, walks, Structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

13.2 Compliance with Safety Laws: The Contractor shall comply with all applicable laws, ordinances, rules, regulations, and orders of any public body having jurisdiction over the safety of persons or property or to protect them from damage, injury or loss; and shall erect and maintain all necessary safeguards for such safety and protection; and shall have at the work site at all times a dedicated safety and flag person. The Contractor shall notify owners of adjacent property and utilities when prosecution of the Work may affect them. All damage, injury, or loss to any property caused, directly or indirectly, in whole or in part, by the Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, shall be remedied by the Contractor. The Contractor's duties and responsibilities for the safety and protection of the Work shall continue until such time as all Work is completed and the Owner has notified the Contractor that the Work is complete.

13.3 Familiarity with Safety Standards: The Contractor shall review the accident prevention clause of the Contract, the Corps of Engineers Manual, General Safety Requirements, EM 385-1-1, dated November 2003 (or most recent version), and all changes and amendments thereto, and the latest Occupational Safety and Health Agency (OSHA) standards, to assure himself that he has full knowledge of the personal protective equipment that must be provided workmen and that he is

familiar with the safety standards applicable to the prevention of accidents during the construction of this project and shall comply with all applicable provisions.

13.4 Submittals: When requested, submit to the Owner in accordance with the General Provisions Submittals section. Submittals are for the record or approval, as indicated.

13.5 Diving Plan: The Contractor shall submit to the Engineer at least fourteen (14) Days prior to the Pre-Construction Conference, as part of their health and safety plan (GP-12), a diving plan if diving is included as a part of the planned operations. The intent of this requirement is to assure safe diving, particularly when emergencies, marine maintenance, or underwater problems occur which require diving. Additionally, the Contractor is to determine that placement of spuds, anchors, pipes, etc. will not impact existing submerged pipelines, a procedure that may require diving. All diving shall be conducted in accordance with the requirements of the most recent versions of the following documents:

13.5.1 U.S. Navy Diving Manual, Volume I and II (NAVSEA 0994-LP-001-9010 and NAVSEA 0094-LP-001-9020).

13.5.2 U.S. Army Corps of Engineers' Safety and Health Requirements Manual, EM 385-1-1, Section 30.

13.5.3 U.S. Army Corps of Engineers, Jacksonville District Regulation CESAJR 385-1-1, Appendix P, "Contract Diving Operations".

13.5.4 29 CFR, Part 1910, Subpart T, OSHA Regulations.

The Diving Plan is to include all items specified in paragraph 30.A.13 of EM 385-1-1. This plan shall contain information specific to the diving operations to be performed. Submission of the plan does not constitute an endorsement on the part of the Owner or Engineer that the Contractor's diving procedures are safe. The plan is intended to provide a method by which the Contractor demonstrates an awareness of diving standards.

13.6 Accident Prevention Plan: The Contractor is required to submit an Accident Prevention Plan as part of the Work Plan to the Engineer at least fourteen (14) Days prior to the Pre-Construction Conference. The accident prevention plan must be in accordance with all Federal safety standards as specified in EM 385-1-1, dated November 2003, entitled "Safety & Health Requirements Manual." Submission of the plan does not constitute an endorsement on the part of the Owner or Engineer of the Contractor's Accident Prevention Plan. The plan is intended to provide a method by which the Contractor demonstrates an awareness of Federal safety standards.

13.7 Hazard Communication: The Contractor shall comply with the requirements of OSHA 1910.1200, the Hazard Communication Standard. General requirements are as follows:

13.7.1 Provide a written program describing the implementation method of the previously referenced standard. This shall be provided to the Engineer at least fourteen (14) Days prior to the Pre-Construction Conference.

13.7.2 Ensure that the Contractor's personnel are informed about health and physical hazards associated with Materials to be used.

13.7.3 Ensure that a hazardous material inventory is available to the Owner and Engineer upon request.

13.7.4 Ensure proper labeling of hazardous material containers.

13.7.5 Ensure availability of a Material Safety Data Sheet on site.

13.8 Oil and Hazardous Material Spills and Containment: The Contractor shall ensure that all hazardous material spills are immediately reported to the proper authorities and to the Resident Project Representative, Engineer, and Owner. All hazardous material spills shall be immediately cleaned up in accordance with the U.S. Army Corps of Engineers' Safety and Health Requirements Manual, EM 385-1-1. In accordance with EM 381-1-1, the Contractor shall use suitable methods such as dikes or curbs to prevent the spread of hazardous materials from above ground storage tanks and piping in case of leakage.

13.9 Confined Space Entry: The Contractor shall submit a confined space entry plan as part of their written proposal for accident prevention. The confined space entry plan shall be submitted to the Engineer at least fourteen (14) Days prior to the Pre-Construction Conference.

Confined space is any space having limited openings for entry and exit, not intended for continuous occupancy, and unfavorable natural ventilation which could contain or produce dangerous concentrations of airborne contaminants or asphyxiates. Confined spaces may include but are not limited to storage tanks, holds of vessels, manholes, process vessels, bins, boilers, ventilation or exhaust ducts, sewers, underground utility vaults, tunnels, pipelines, trenches, vats, and open top spaces more than 4 feet in depth such as pits, tubs, vaults and vessels, or any other place with limited ventilation.

Prior to entering a confined space, the work environment shall be tested by a competent person using properly calibrated approved Equipment to determine the extent of potential hazards. If the atmosphere cannot be determined by testing, an immediately Dangerous to Life and Health situation shall be assumed. The evaluation shall consider the potential for evolution of toxic substances as well as oxygen content. Testing for toxic substances shall be performed prior to each entry and on a continuous or frequent (as stipulated in the Confined Space Entry Procedure) basis while personnel are working in confined spaces.

13.10 Activity Hazard Analysis: The Contractor is required, as part of its written plan for quality control, to submit an Activity Hazard Analysis to the Engineer at least fourteen (14) Days prior to the Pre-Construction Conference. The Activity Hazard Analysis is outlined in U.S. Army Corps of Engineers' Safety and Health Requirements Manual, EM 385-1-1, Section 01.A., Figure 1-1.

13.11 Safety Person Requirement: The Contractor shall employ at the Project Site a permanent Safety and Occupational Health person (Safety Officer) to manage the Contractor's accident prevention program. The Safety Officer shall be on duty during any Work of a complex nature including, but not limited to, the relocation of utilities; Work on or around Structures; Work on or around existing fill area dikes; fill placement in the fill area; or when blasting or other potentially hazardous activities are occurring. The principal Safety Officer shall report to and work directly for the Contractor's superintendent or the corporate safety office. The Safety Officer shall have the authority to take immediate steps to correct unsafe or unhealthful conditions. The presence of the Safety Officer will not abrogate safety responsibilities of other personnel.

13.12 Qualifications for Safety Officer:

13.12.1 Shall have a degree in a technical or scientific field or safety in a four-year, or longer, program from an accredited school; or

13.12.2 Shall have at least one (1) year of experience in safety and occupational health work.

13.12.3 Fourteen (14) Days prior to the Pre-Construction Conference, the Contractor shall submit

to the Engineer, for approval, the name and qualifications of the proposed Safety Officer(s) and a functional description of duties as part of the Health and Safety Plan. The Safety Officer may be assigned additional duties by the Contractor as long as those additional duties do not preclude or prevent completion of the Safety Officer duties.

- 13.13 Record Keeping: The Contractor shall maintain all required OSHA records. Records of safety performance shall be available at the Project Site for inspection upon request of the Owner.
- 13.14 Discovery of Unknown Potentially Hazardous Conditions and Materials/Substances: In the event conditions, materials, or substances are encountered during the course of the Work that cause the Contractor to reasonably suspect the presence of asbestos, polychlorinated biphenyl (PCB), or other hazardous materials, the Contractor shall cease all work in the affected area immediately and notify the Owner, Engineer, and Resident Project Representative. The affected area will be cordoned off and signage placed in order to prevent access by any personnel. The Contractor shall not proceed with further work of any kind in the affected area until instructions are received from the Owner. Upon identification of the material or substance and receipt of written instructions from the Owner, the Contractor may proceed only in accordance with the instructions of the Owner and the applicable code or regulation pertaining to the specific material identified.

SP-14 TRAINING OF CONTRACTOR PERSONNEL IN POLLUTION CONTROL AND ENVIRONMENTAL PROTECTION

The Contractor shall train all Subcontractors and personnel in all phases of environmental protection. Personnel and Subcontractors will be familiar with permit requirements and with the necessity of protection of all habitats. The training shall include methods of detecting and avoiding pollution, familiarization with pollution standards, both statutory and Contractual, and installation and care of facilities to insure adequate and continuous environmental pollution control. Quality Control and supervisory personnel shall be thoroughly trained in the proper use of monitoring devices and abatement equipment and shall be thoroughly knowledgeable of Federal, State, and Local laws, regulations, and permits as listed in the Environmental Protection Plan submitted by the Contractor. Quality Control personnel will be identified in the Quality Control Plan submitted in accordance with the General Conditions.

SP-15 COMMENCEMENT, EXECUTION, AND COMPLETION

The Contractor will be required to commence Work at the site under the Contract within thirty (30) calendar Days of the effective date of the Notice to Proceed. He shall conduct Work in such a manner and with sufficient materials, equipment, and labor as is considered necessary to ensure its completion within the time limit specified.

SP-16 TRANSPORTATION

The Contractor shall provide a safe and reasonable means of transportation around the Project Site for the Resident Project Representative and Engineer for the duration of the Work. The Contractor shall transport the Resident Project Representative and Engineer around the project site fill area as requested within a reasonable timeframe. The schedule and pickup location shall be arranged by the Engineer/Resident Project Representative and the Contractor prior to mobilization. Periodic transport to and from the dredge will be requested but will be scheduled one day in advance.

The Contractor shall provide a boat and land transportation for the exclusive use of the Engineer and/or Resident Project Representative to tour the Project Site during the Work.

The boat shall have the following features:

- 16.1 An enclosed cabin space;
- 16.2 Capable of maintaining 25 knots (29 mph);
- 16.3 Six (6) passenger capacity;
- 16.4 Coast Guard certified;
- 16.5 Operable marine radio;
- 16.6 All safety equipment required by the Coast Guard for the size and type of that boat;
- 16.7 Draft of two feet (2') or less/

The Contractor shall supply the fuel and maintain the boat and land transportation resources. All mechanical malfunctions shall be repaired within twelve (12) hours.

In the event that the Contractor refuses, neglects, or delays compliance with the requirements of this provision, the Owner may obtain and use other necessary transportation at the expense of the Contractor. The costs associated with providing transportation shall be included in the lump sum price for Bid Item No. 1, "Mobilization and Demobilization".

SP-17 DREDGE DATA SHEET

The Contractor shall complete the dredge data sheet located in front of the Specifications for each dredge that is proposed to be used to perform the Work and include it in the Work Plan. Submittal of a dredge data sheet shall constitute a certification that the described Equipment is available to, and under control of, the Contractor. The Dredge Data Sheet is not mandatory and is for informational purposes only. The data is pertinent to the evaluation of the proposed dredges and their ability to perform the Work. The Bidder may only omit data or information that is considered to be proprietary.

SP-18 OFFICE FOR ENGINEER AND RESIDENT PROJECT REPRESENTATIVE

The Contractor shall provide a separate office at the fill site, acceptable to the Owner and Engineer, for the Engineer and Resident Project Representative. The office shall be separate from the Contractor's office, work, and storage areas. The office shall be for the sole use of the Engineer and Resident Project Representative, suitably sized, and provided with lighting, heat, and air conditioning. The office furnishings shall include a work table, drafting table, stool, and two (2) chairs. Adequate lighting and electrical services shall be provided to operate office equipment supplied by the Owner. Internet access within the office shall be provided by the Contractor.

In the event that the Contractor refuses, neglects, or delays compliance with the requirements of this provision, the Owner may obtain and use other offices 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. 1, "Mobilization and Demobilization".

SP-19 ACCOMMODATION FOR THE RESIDENT PROJECT REPRESENTATIVE

If the Contractor provides on-site boarding facilities (i.e. a quarters barge) immediately adjacent to the project site, then boarding facilities shall be provided for the resident project representative. Quarters, sanitary facilities, and meals, which are acceptable to the Owner, shall be included for the resident project representative. The quarters and sanitary facilities shall be separate from the Contractor's quarters, office, work, storage, and common areas. If on-site accommodations are not provided, the Contractor shall only be responsible for providing transportation to and from the work area for the resident project representative. The cost for providing and furnishing these facilities shall be included in the Contract lump sum price for Bid Item No. 1, "Mobilization and Demobilization".

SP-20 CONSTRUCTION OFFICE

The Contractor shall maintain a construction office at or near the Project Site. The Contractor shall staff the office between 8:00 am and 5:00 pm, seven (7) Days per week.

SP-21 CONTRACTOR INFORMATION

Prior to Bid opening date, the Contractor shall send all questions and requests for clarification or interpretation of the Bid Documents in writing to the attention of Renee McKee of the Coastal Protection and Restoration Authority. The address and contact information is as follows:

Coastal Protection and Restoration Authority (CPRA)
450 Laurel Street, Suite 1501
Baton Rouge, LA 70801
Attn. : Renee McKee
Phone: 225-342-0811
Fax: 225-342-4674
Email : cpra.bidding@la.gov

After execution of the Contract Between Owner and Contractor, the successful Contractor shall contact the Engineers concerning bid documentation or questions. The addresses and contact information for the Engineers are listed as follows:

CPRA Project Engineer
Kodi Guillory, P.E.
P.O. Box 4407
Baton Rouge, Louisiana 70804-4027

Phone: 225-342-5175
Fax: 225-342-3733
E-mail: Kodi.Guillory@la.gov

CPRA Construction Manager
Stan Aucoin
635 Cajundome Blvd.
Suite 203A
Lafayette, Louisiana 70506
Phone: 337-482-0681
Fax: 337-482-0687
E-mail: Stanley.Aucoin@la.gov

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-22 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.

22.1 Minimum Scope and Limits of Insurance

22.1.1 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.

22.1.2 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:

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

22.1.3 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.

22.1.4 Excess Umbrella

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

22.1.5 *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.

22.1.6 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.

22.2 Other Insurance Provisions

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

22.2.1 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.

22.2.2 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.

22.2.3 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.

22.2.4 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.

22.2.5 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

Name of Owner

Owner Address

City, State, Zip

Attn: Project # _____

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.

22.2.6 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.

22.2.7 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.

22.2.8 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.

22.3 Performance and Payment Bond

Recordation of Contract and Bond [38:2241A(2)]

The Contractor shall record within thirty (30) days the Contract Between Owner and Contractor and Performance and Payment Bond with the Clerk of Court in the Parish(s) in which the Work is to be performed. The Contractor shall obtain a Certificate of Recordation from the Clerk of Court and forward this Certificate immediately to the Coastal Protection and Restoration Authority contact person listed in the Advertisement for Bids. No requests for payment will be processed until receipt of the Certificate of Recordation.

SP-23 EMPLOYEE WHISTLEBLOWER PROTECTION

This Contract and employees working on this Contract will be subject to the whistleblower rights and remedies in the pilot program on Contractor employee whistleblower protections established at 41 U.S.C. 4712 by Section 828 of the National Defense Authorization Act for Fiscal Year 2013 (Pub. L. 112-239) and Federal Acquisition Regulation (F.A.R.) 3.908.

The Contractor shall inform its employees in writing, in the predominant language of the workforce, of employee whistleblower rights and protections under 41 U.S.C. 4712, as described in section 3.908 of the F.A.R.

The Contractor shall insert the substance of this clause, including this paragraph, in all subcontracts over the simplified acquisition threshold.

End of PART II SPECIAL PROVISIONS

PART III TECHNICAL SPECIFICATIONS

TS-1 MOBILIZATION AND DEMOBILIZATION

- 1.1 Description: Mobilization consists of preparatory work and operations, including those necessary for movement of personnel, equipment, supplies, and incidentals to the Project Site, constructing pipeline, and any other work necessary to access the Project Site for the duration of the project; the establishment of offices, buildings, and other facilities necessary for the Work on the project; the cost of Bonds and any required insurance; and other pre-construction expenses necessary for the start of the Work, excluding the cost of construction Materials.
- 1.2 Arbitrary Mobilization by Contractor: The Owner will pay for mobilization and demobilization only once. Should the Contractor demobilize prior to completing the project, such mobilization and subsequent remobilization shall be at no cost to the Owner.
- 1.3 Ratio of Mobilization and Demobilization Effort: Fifty percent (50%) of the lump sum price will be paid to the Contractor after commencement of dredging and the placement of at least 5,000 cubic yards of material within the marsh fill template in twenty-four (24) hours, or less, time. Ten percent (10%) of the lump sum price will be paid to the Contractor after commencement of excavation and construction of at least 500 feet of primary dike or earthen terrace. The remaining forty percent (40%) will be paid in the final payment for the Work under this Contract upon the removal of the temporary sediment pipeline.
- 1.4 Justification of Mobilization Costs: In the event that the Engineer considers the amount in this item does not bear a reasonable relation to the cost of the Work in this Contract, the Engineer may require the Contractor to produce cost data to justify this portion of the Bid. Failure to justify such price to the satisfaction of the Engineer will result in payment of actual mobilization costs, as determined by the Engineer at the completion of mobilization, and actual demobilization costs, as determined by the Engineer at the completion of demobilization, and payment of the remainder of this item in the final payment under this Contract. The determination of the Engineer is not subject to appeal.
- 1.5 Payment: All costs connected with mobilization and demobilization of the entire Contractor's plant, Equipment, personnel, and those of his Subcontractors and such other costs as may be denoted in the Contract Documents shall be paid for at the Contract lump sum price for Bid Item No. 1, "Mobilization and Demobilization". Payment shall constitute full compensation for moving personnel, equipment, supplies, and incidentals to and from the job site and establishing offices, buildings, and other facilities for work, obtaining bonds, insurance, permit application fees, and any other associated expenses. Mobilization shall include all appropriate costs associated with constructing all features listed in the Specifications and/or shown in the Plans.

TS-2 PRE-CONSTRUCTION SURVEYS

- 2.1 Pre-Construction Marsh Survey: The Contractor shall conduct a pre-construction survey and submit it to the Engineer for use in the calculation of marsh fill volumes. The survey shall be used to verify the alignment of the various project features, determine fill volumes, quantities, and make modifications or adjustments as deemed necessary by Engineer. Drawings of the plan views, cross sections, and calculations of project quantities of materials shall be developed from this survey by the Contractor and submitted to the Engineer for review. All bathymetric surveys must be corrected for tidal fluctuations and wave action to the referenced datum. The Contractor shall not commence construction of the marsh fill until all cross-sections, based upon the Contractor's marsh fill area pre-construction survey, have been incorporated into the Plans for the project and accepted by the Engineer, unless permission to proceed is provided in writing by the Engineer. A minimum of 14

working Days will be required to update the project Plans upon receipt of the pre-construction survey data.

- 2.1.1 Survey Requirements: All profile surveys shall be conducted using either differential leveling techniques or GPS with RTK (real time kinetic) correction. If differential leveling techniques are used, the Contractor shall close all level loops and the closure shall be less than four hundredths of a foot (0.04'). All onshore points shall be within five feet (+/- 5') horizontally of the established profile line. All offshore points shall be within twenty feet (+/- 20') horizontally of the established profile line. Both the pre-construction and as-built surveys shall extend at least two hundred feet (200') outward of the outside toe of the primary dikes. A six inch (6") diameter metal plate shall be attached to the bottom of the survey rod to prevent the rod from sinking into the bottom when a survey rod is used to conduct marsh surveys. It may be feasible to survey the marsh pre-construction profiles with a fathometer. If the Contractor elects to survey with a fathometer, verification of its accuracy in shallow water shall be accomplished with rod and level or RTK GPS points every three hundred feet (300') along each profile. Submission of the fathometer record may be required to verify quality data was collected.
- 2.1.2 Profile Line Azimuths: Profile line surveys shall be conducted along the azimuth shown in the Plans. The survey baseline on each profile line is Range 0+00. Data points collected west of the baseline shall be reported as a positive offset while data points east of the baseline shall have a negative offset (profiles viewed looking south). A sufficient number of points shall be taken along each line to ensure adequate description of topographic features, such as the primary and secondary dikes, slope breaks, dike crests, and intersections of the fill with the existing grade or bottom, and containment dikes, with a maximum elevation difference of one foot (1') between adjacent points. Data points shall be taken at a spacing of not more than fifty feet (50'). The product shall be a continuous line representing the entire fill template of the marsh.
- 2.1.3 Grade Stakes: Any and all grade stakes used in the project area shall be composed of cane poles or metal conduit pipe to facilitate recovery of the stakes. The Contractor shall remove all grade stakes from each completed section immediately after the section has been completed. The Contractor will not be eligible for payment until the Contractor certifies that all grade stakes have been removed. Sections of the marsh upon which the search for, and removal of, grade stakes is complete shall be documented in the Daily Progress Report. Any grade stakes left in the fill area will be the sole responsibility and liability of the Contractor. Any injuries to people that may occur because grade stakes were left in the fill area by the Contractor will be the responsibility and the liability of the Contractor. If the Contractor fails to remove grade stakes in a timely manner following completion of the work, the Owner may have the stakes removed and deduct the cost from the Contractor's final payment. Stakes should be embedded sufficiently to be stable through the fill process and to be vertically stable and not subject to settlement. These stakes shall have the minimum and maximum tolerance elevation delineated in non-identical colors. A reference elevation shall be recorded on the top of each stake to enable verification that the stake has not settled during construction. Each stake shall clearly indicate the target marsh elevation of +2.5 feet NAVD88. The Contractor shall maintain a log of the grade stakes documenting the placement and removal of each grade stake. The grade stakes shall be marked with the number, Station, and Range to facilitate logging.
- 2.2 Magnetometer Survey: Prior to any excavation, the Contractor shall call Louisiana One Call at 1-800-272-3020 to locate any utility lines in the area. The Contractor shall then perform a magnetometer survey of the excavation areas, conveyance corridor, submerged pipeline corridor, and Gulf of Mexico borrow area. The survey shall be conducted using a Geometrics G-882 magnetometer or equivalent. A minimum of two (2) magnetometer survey lines shall be run along the length of the primary and secondary dike excavation areas. The Contractor shall perform, at a minimum, three

(3) magnetometer survey lines within the conveyance corridor, perpendicular to the LA 27/82 crossing, and one (1) line along the proposed alignment of the LA 27/82 crossing. The Contractor shall perform a magnetometer survey within any borrow area prior to excavating. Survey lines shall be spaced sufficiently to adequately detect pipelines, utilities, or obstructions within the conveyance corridor, excavation areas, or borrow area. The Contractor shall submit the proposed survey alignment with the Work Plan along with a listing and description of the equipment to be used in the Work Plan for approval by the Engineer prior to conducting surveys. The Contractor shall submit the results and interpretation of the magnetometer survey at least three (3) Days prior to any excavation. This does not relieve the Contractor of responsibilities set forth in GP-25

All pipelines located within one hundred fifty feet (150') of the earthen containment dike alignments, marsh fill areas, borrow area(s), and dredge pipeline corridor shall be probed for depth and their locations marked prior to excavation, dredging, and installation of the sediment pipeline, for the duration of construction activities.

2.3 Gulf of Mexico Borrow Area

2.3.1 Survey: The Contractor shall perform pre-construction and post-construction (pay) bathymetric surveys of the borrow area to determine pay quantities for hydraulic placement of fill. The surveys may be either single-beam or multi-beam bathymetry. For single-beam, the bathymetric survey lines shall be no more than 100 feet apart with sufficient tie lines to verify the survey lines (survey lines shall be oriented north-south and east-west). The survey lines shall extend a minimum of 100 feet outside of the edge of the area to be surveyed. The multi-beam survey shall have 100% coverage with sufficient tie lines to verify the data. A bathymetric plot and an electronic copy of the bathymetric survey shall be furnished to the Engineer in a format provided in Appendix III (preferably format #3). Bar check results, the survey scroll or BIN file, and verification of real-time tide corrections shall also be furnished to the Engineer. Bathymetric surveys not tide corrected in real-time will not be accepted. The bathymetric survey shall be performed using a Model 449 Innerspace depth sound recorder or equivalent using a single beam at 209 KHz. Hydrographic surveys shall be performed in accordance with EM 1110-2-1003, dated 30 November 2013.

2.3.2 Tide Correction: All vertical measurements shall be tide corrected and reported in NAVD88; predicted tides will not be accepted. The Contractor shall use measured tides for all hydrographic surveying tidal corrections. Tidal measurements shall be made within 3 miles of the area to be surveyed along the open Gulf of Mexico coast and not within a navigation channel (such as Calcasieu Pass) unless a tide study conducted by the Contractor and accepted by the Engineer supports the use of tide gages in the navigation channels or in the bay. Tides shall be corrected in real-time using a telemetry based system. Data will only be accepted when the signal is present allowing for real-time tidal corrections.

2.4 Earthen Terrace Field

2.4.1 Survey: The terrace field (TF) profiles shown on the plans shall be surveyed prior to construction to verify to alignment of the project features and make modifications or adjustments as deemed necessary by the Engineer. All profile surveys shall be conducted using either differential leveling techniques or GPS with RTK (real time kinetic) correction. If differential leveling techniques are used, the Contractor shall close all level loops and the closure shall be less than four hundredths of a foot (0.04'). All points shall be within five feet (+/- 5') horizontally of the established profile line. A six inch (6") diameter metal plate shall be attached to the bottom of the survey rod to prevent the rod from sinking into the bottom when a survey rod is used to conduct preconstruction surveys. It may be feasible to survey the TF pre-construction profiles with a fathometer. If the Contractor elects

to survey with a fathometer, verification of its accuracy in shallow water shall be accomplished with rod and level or RTK GPS points every three hundred feet (300') along each profile. Submission of the fathometer record may be required to verify quality data was collected. A sufficient number of points shall be taken along each line to ensure adequate description of topographic features, such as slope breaks, earthen terrace crests, and intersections of the fill with the existing grade or bottom, and borrow sources, with a maximum elevation difference of one foot (1') between adjacent points. Data points shall be taken at a spacing of not more than twenty-five feet (25). The product shall be a continuous line representing the earthen terrace fill template.

- 2.4.2 Grade Stakes: The earthen terrace layout shall be, at a minimum, staked out at points of inflection of each earthen terrace as shown in the Plans and at the corners of the top of cut for each borrow area. All grade stakes used in the terrace field area shall be composed of cane poles.
- 2.5 LA 27/82 Crossing: The LA 27/82 crossing shall be surveyed prior to construction. Profile lines shall be surveyed parallel to the conveyance corridor alignment. Profiles shall include a survey line along the conveyance corridor alignment centerline and three (3) survey lines spaced at twenty-five foot (25') intervals from, and to each side of, the conveyance corridor alignment. Survey lines shall extend 100' seaward of the LA 27/82 seaward edge of pavement and 100' landward of the landward edge of pavement. Two lines shall also be surveyed perpendicular to the proposed casing pipe, 25' to each side of LA 27/82, one seaward and one landward of LA 27/82.
- 2.6 Survey Documentation: All survey work shall be documented with copies supplied to the Engineer. The as-built surveys may be conducted in the presence of the Engineer or their representative, at the option of the Engineer. The Contractor shall provide three (3) working Days advance notice to the Engineer prior to conducting surveys. The Contractor shall submit survey field notes to the Engineer upon completion of each survey to expedite review of payment requests. All field notes, survey and volume computations, and the records used by the Contractor to compute the Contractor's estimate of payment fill quantity shall be furnished to the Engineer with the Application for Progress Payment and Final Application for Payment.
- 2.7 Deliverables to the Engineer: Deliverables to the Engineer shall include hard copy form and electronic format of the survey in one of the ASCII formats appearing in Appendix III (preferably format #3). No other formats are acceptable. Additional information to be provided to the Engineer shall include any corrections and field notes.
- 2.8 Survey Field Notes Submittal: The Contractor shall submit survey field notes to the Engineer upon completion of each survey to expedite review of payment requests. All field notes, survey and volume computations, and the records used by the Contractor to compute the payment fill quantity shall be furnished to the Engineer with the Application for Progress Payment and Final Application for Payment.
- 2.9 Survey Discrepancy: If there is a discrepancy between surveys conducted by the Contractor and the Engineer, the respective surveyors will attempt to resolve the survey discrepancy. If an agreement cannot be reached, the Engineer's survey will be used as the basis for payment.
- 2.10 Payment: The pre-construction survey shall consist of hydrographic, topographic, and magnetometer surveying of the marsh fill areas, earthen terrace field, LA 27/82 crossing, submerged pipeline corridor, and borrow areas according to the Specifications and Plans. All costs connected with the pre-construction survey will be paid for at the Contract lump sum price for Pre-Construction Survey (Bid Item No. 2), which payment shall also include all other items of overhead, profit, labor, material, and any other costs incidental to performing the Work.

- 2.11 Surveyor: All surveys shall be certified by a surveyor or professional engineer registered in the State of Louisiana. The licensed professional will be responsible for all survey Work. The licensed professional is not obligated to perform the field work but shall perform sufficient oversight to exhibit responsible charge. The professional engineer or land surveyor must be a primary employee of a firm that is registered by the Louisiana Professional Engineering and Land Surveying board to perform survey work.
- 2.12 Payment Request: The Contractor may apply for payment for the pre-construction survey once the completed survey has been submitted to the Engineer in a survey format provided in Appendix III. Thirty percent (30%) of the lump sum cost will be paid following Submittal and Acceptance of the marsh pre-construction survey, thirty percent (30%) of the lump sum cost will be paid following Submittal and Acceptance of the earthen terrace field pre-construction survey, and forty percent (40%) of the lump sum cost will be paid following Submittal and Acceptance of the borrow area pre-construction survey.

TS-3 POST-CONSTRUCTION, PROCESS, CHECK, AND AS-BUILT SURVEYS

- 3.1 The Contractor shall perform post-construction, process, check, and as-built surveys and submit data in accordance with the same requirements of the pre-construction surveys. Post-construction, process, check, and as-built surveys shall maintain the same layouts as the pre-construction surveys unless otherwise directed in these Specifications or by the Engineer.
- 3.1.1 Marsh: The as-built survey is the final survey of the entire marsh creation area used for documentation purposes and shall cover the entire marsh creation area. The Contractor shall perform the as-built survey no earlier than thirty (30) Days following completion of marsh fill placement within a fill section. The Contractor may perform the as-built survey in a similar manner as to the pre-construction survey. However, it is anticipated that the constructed marsh may be in a semi-liquid state and conventional surveying may be difficult. The Contractor must propose their marsh as-built survey method at least 14 Days prior to the Pre-Construction Conference and demonstrate that it will provide acceptable results before the Engineer approves this surveying method.
- The Contractor shall collect check profiles in the marsh fill areas as required by the Engineer to document permit compliance and adherence to the contract documents. Check surveys will not be used to estimate fill volumes for payment. The Contractor shall collect check profiles to document the construction of the primary and secondary containment dike fill sources. Two parallel profiles along the length of the each fill source shall be collected after construction of containment and prior to marsh fill.
- 3.1.2 Gulf of Mexico Borrow Area: The Contractor shall perform pre-construction, post-construction (pay), and as-built bathymetric surveys of the borrow area to determine pay quantities for hydraulic placement of fill. The post-construction survey is defined as the survey for pay and does not have to cover the entire borrow area. The as-built survey is the final survey of the entire borrow area used for documentation purposes and shall cover the entire borrow area. The as-built survey must be multibeam and shall have 100% coverage with sufficient tie lines to verify the data. The Contractor shall delineate the area to be surveyed for pay; all sections of the borrow area may be surveyed once to determine pay volumes for hydraulic placement of fill. A final as-built borrow area survey shall be conducted and the data submitted prior to payment for as-built surveys.
- 3.1.3 LA 27/82 Crossing: The LA 27/82 crossing shall be surveyed subsequent to casing pipe installation, as well as after sediment pipeline removal, pit backfilling, and site restoration to document the as-built location of the permanent casing pipe.

3.1.4 Earthen Terrace Field: Process surveys shall include profiles along the centerline of each earthen terrace fill area and borrow area as well as perpendicular profiles of each earthen terrace fill area and adjacent borrow area at the crest ends and at least every fifty (50') feet along the earthen terrace centerline. The profiles along each centerline shall extend at least twenty-five feet (25') beyond the toe of fill on each end of each earthen terrace. The perpendicular profiles shall extend at least twenty-five feet (25') beyond the earthen terrace toe of fill or borrow area toe in each direction. This survey shall be used for acceptance and payment of the earthen terraces and to make modifications or adjustments as deemed necessary by the Engineer. The process surveys shall include survey points at a minimum of every twenty-five feet (25') and at points of inflection or grade change. Points of inflection include the crown, toe of fill, and the borrow area top and bottom of cut.

The Contractor shall submit a compilation of all process surveys that have been accepted by the Engineer, and this will be considered the as-built survey. Final payment will not be received until the as-built survey has been accepted by the Engineer.

Trenasses: As-built surveys to document the construction of the trenasses shall be collected prior to marsh fill. One profile along the length of each trenasse shall be surveyed as well as perpendicular profiles every three hundred feet (300') along the length of each trenasse.

- 3.2 Surveyor: All surveys shall be certified by a surveyor or professional engineer registered in the State of Louisiana. The licensed professional will be responsible for all survey Work. The licensed professional is not obligated to perform the field work but shall perform sufficient oversight to exhibit responsible charge. The professional engineer or land surveyor must be a primary employee of a firm that is registered to perform survey work by the Louisiana Professional Engineer and Land Surveying board.
- 3.3 Payment: The as-built survey shall consist of hydrographic and topographic surveying of the marsh fill areas, earthen terrace field, trenasses, LA 27/82 crossing, and borrow areas according to the Specifications and Plans. All costs connected with the as-built survey will be paid for at the Contract lump sum price for As-Built Survey (Bid Item No. 3), which payment shall also include all other items of overhead, profit, labor, material, and any other costs incidental to performing the Work.
- 3.4 Payment Request: The Contractor may apply for payment for the as-built survey once the completed surveys of the marsh fill area and borrow area have been submitted to the Engineer in a survey format provided in Appendix III. Forty percent (40%) of the lump sum cost will be paid following Submittal and Acceptance of the borrow area survey, thirty percent (30%) of the lump sum cost will be paid following Submittal and Acceptance of the earthen terrace field surveys, and thirty percent (30%) of the lump sum cost will be paid following Submittal and Acceptance of the marsh fill area as-built surveys.

TS-4 HYDRAULIC DREDGING – MARSH CREATION

- 4.1 General: Costs associated with the project, including costs associated with, but not limited to, layout, surveying and reporting, water quality monitoring, debris removal, excavating, transporting, overflow weir devices, tertiary dike construction, tertiary containment leveling, site restoration and repairs, hydraulic marsh fill placement, and other Materials and Work shall be included in the Contract unit price per cubic yard for Hydraulic Dredging – Marsh Creation on the Bid Form (Bid Item No. 4), which payment shall also include all other items of overhead, profit, labor, material, and any other costs incidental to performing the Work.

- 4.2 Fill Placement Requirements: All marsh fill excavated from the offshore borrow area shall be transported to and hydraulically deposited on the marsh within the lines and grades shown in the Plans, unless otherwise provided for herein or directed by the Engineer. The topography of the fill area is subject to change and the elevations in the marsh at the time the Work is done may vary from the elevations shown in the Plans. The Contractor is to place the hydraulic fill in the fill areas in such a manner as to establish a uniform marsh platform between adjacent check profile lines. Sections located between check profiles will not be underfilled, as defined in the Contract Documents. The Contractor shall maintain and protect the fill and primary containment dike in a satisfactory condition at all times until final completion and Acceptance of the Work.
- 4.3 Right to Vary the Filled Area: The Owner reserves the right to vary the width or grade of the marsh from the lines and grades shown in the Plans or observed at the Project Site in order to establish a uniform fill area between adjacent check profile lines or for the entire length of the project, as shown in the Plans for the project. The hydraulic fill cross-sections shown in the Plans are for the purpose of estimating the amount of hydraulic fill needed and will be used by the Engineer in making any change in the lines and grades. Quantities are estimates based on surveys conducted in August 2012, September 2012, and March 2015. Where the quantity of Work with respect to any item is covered by a unit price, such quantities are estimated quantities to be used when comparing bids and the right is reserved by the owner to increase/decrease such quantities as may be necessary to complete the Work and remain within funding limits. In the event of material overruns/underruns by less than twenty-five percent (25%), the bid unit costs will be used to determine payment to the Contractor. If the actual quantity of the unit-priced item varies more than twenty-five percent (25%) above or below the estimated quantity, an equitable adjustment in the contract price shall be made upon demand of either party.
- 4.4 Control of Fill: The Contractor shall retain placed fill within the fill template until Acceptance of the check section. The Contractor shall construct primary and secondary containment dikes along the lines shown in the Plans. The Contractor may construct tertiary dikes at their discretion at other locations within the marsh platform to control the fill. These tertiary dikes must be degraded prior to final acceptance of the project. Tertiary dikes and spreader and pocket pipe can be used as necessary to prevent gullying and erosion of the fill, to retain the hydraulic fill in the marsh within the limits of the hydraulic fill template cross-section, and to control water turbidity. Tertiary dikes may be constructed to direct the pipeline discharge longitudinally to build the marsh platform to the design grade of +2.5 feet NAVD88. Tertiary dikes may be used but will be at no cost to the Owner.
- 4.5 Construction Elevations: The Plans and Contract Documents for the project delineate a construction marsh elevation of +2.5 feet NAVD88. The marsh fill area will be inspected after a minimum of thirty (30) Days subsequent to material placement to evaluate initial settling, completeness, elevation, and width. If the inspected area has undergone settlement in excess of the allowable tolerances, the Engineer may require the Contractor to place additional material prior to Acceptance.
- 4.6 Layout for Hydraulic Fill Placement:
- 4.6.1 Profile Lines: The Contractor may use any control deemed necessary for the layout of Work. The Contractor may establish any profile cross-sections deemed necessary for the layout of Work. The profile lines and azimuths to be surveyed are shown in the Plans.
- 4.6.2 Contractor Acceptance of Survey Control: No physical monumentation of the check profile lines currently exist in the project area. The Contractor is required to establish survey control for each check profile line sufficient for the construction of the project. The Contractor shall immediately contact the Engineer if any discrepancies are discovered in any of the information presented concerning all survey control. If the Engineer is not contacted by the Contractor it is understood that the Contractor agrees with all information presented in the Plans related to survey control information.

- 4.6.3 Surveyor: All surveys shall be certified by a surveyor or professional engineer registered in the State of Louisiana. The licensed professional will be responsible for all survey work. The licensed professional is not obligated to perform the field work but shall perform sufficient oversight to exhibit responsible charge. The professional engineer or land surveyor must be a primary employee of a firm that is registered to perform survey work by the Louisiana Professional Engineering and Land Surveying board.
- 4.6.4 Work Layout: Utilizing control data provided by the Engineer and verified by the Contractor, the Contractor shall complete the layout of the Work and shall be responsible for all measurements that may be required for the execution of the layout of the Work, subject to such modifications as the Engineer may require to meet changed conditions or as a result of necessary modifications to the Contract Work. The Contractor shall furnish, at their own expense, such stakes, templates, platforms, Equipment, tools, Material, and all labor as may be required in laying out any part of the Work from the survey monuments, control data, and elevations provided by the Engineer and verified by the Contractor, the cost of which is included in the unit cost for marsh creation. It shall be the responsibility of the Contractor to maintain and preserve all stakes and other marks unless and until they are no longer needed to construct the project. All temporary marking stakes (including grade stakes) placed by the Contractor in the marsh must be completely removed upon completion of the project.
- 4.6.5 Site Layout Prior to Construction: Prior to the initiation of heavy construction, excavation, dredging, or disposal activities within 500 feet of the previously listed activity, the Contractor shall survey and layout the following items: the project baseline, centerlines and extents of the containment dikes, and the centerlines of trenasses. The layout shall be surveyed and staked adequately to depict the limits and location of the Work. Layout stakes shall include grade information (i.e., fill heights, vertical tolerance) for the containment dikes. The Contractor shall maintain stakes and grades for the duration of the construction Contract to the Engineer's satisfaction. The Contractor shall also coordinate with utilities, landowners, and leaseholders as required by this Contract to ensure identification, location, and marking of all public and private infrastructure that may exist at the Project Site.
- 4.6.6 Survey Monumentation: Permanent markers or survey monuments will not be disturbed, damaged, or destroyed by the Contractor. Disturbed, damaged, or destroyed survey monuments will be replaced by the Owner, at their discretion, and the expense of replacement will be deducted from any amounts due, or to become due, to the Contractor.
- 4.6.7 Survey Datum: The horizontal datum for the baseline provided in the Plans is in feet referenced to the Louisiana South State Plane Coordinate System (NAD, 1983). The vertical datum for the elevations provided in the Plans is in feet referenced to the North American Vertical Datum of 1988 using the 2009 Geoid (NAVD of 1988, Geoid 2009).
- 4.7 Removal of All Debris from the Fill Area: Prior to placement of fill, the Contractor shall remove all trash, and other non-natural items, as directed by the Engineer, from the marsh fill areas. All materials removed shall be disposed of in an appropriate and legal manner and at the expense of the Contractor. No separate payment for removal and disposal of these materials shall be made. All costs shall be incorporated into the unit costs for marsh creation.
- 4.8 Dredge Location Control
- 4.8.1 Continuous Electronic Positioning on the Dredge: The Contractor is required to have in continuous operation on the dredge electronic positioning equipment that will accurately and continuously compute and plot the position of the dredge. A geographic positioning system (GPS), Differential Global Positioning System (DGPS), or equivalent, shall be used

to maintain precise positioning of the dredge. Whenever dredging operations are underway, the location of the dredge shall be continuously monitored and its position within the borrow area shall be recorded in the Louisiana South State Plane Coordinate System NAD 1983 (Lambert Conformal Conic) at intervals not to exceed thirty (30) seconds. The Contractor shall be running a dredge location and management program, DREDGEPACK or equivalent. The Owner and Engineer shall have unrestricted access to the bridge GPS and depth recording units to enable onboard real time review at any time during construction. Plotters shall also continuously record, at intervals not to exceed thirty (30) seconds, the X, Y, Z (with respect to NAVD88) position of the dredge's excavator. Such fixes, and the accompanying plots, shall be furnished to the Engineer daily in an electronic format as part of the Daily Progress Report. Daily Progress Reports will be provided to the Engineer the next day, as discussed in Section GP-10 of the General Provisions. All vertical measurements shall be tide stage corrected and reported in NAVD88; predicted tides will not be accepted. The dredge operator should have visual controls that depict the location and depth of the dredge's excavation device within the specified borrow area. The electronic positioning equipment shall be calibrated, maintained, and operated so that the maximum error for the fixes recorded do not exceed tolerances in the horizontal position (± 3 feet) or vertical position (± 0.1 foot). The location of the master antenna on the dredge and the distance and direction from the master antenna to the dredge's excavation device shall be reported in the Daily Progress Reports. Mobilization, progress, and/or final payment to the Contractor will be withheld until all of the required information is provided to the Engineer.

- 4.8.2 Tides: The Contractor shall use measured tides for all hydrographic surveying and tide corrections of the cutterhead or drag arms (predicted tides are not acceptable). Measured tides shall be along the open Gulf of Mexico coast and not within a navigation channel (such as Calcasieu Ship Channel) or bay unless a tide study conducted by the Contractor and accepted by the Engineer supports the use of tide gages in the navigation channels or in a bay. A standalone tide gauge located in the Gulf shall be lit and follow USCG regulations for markings, lighting and notification to the public.
- 4.9 Payment Surveys: Payment will be based on the result of the comparison of the Marsh Fill Borrow Area pre-construction and post-construction surveys. The Engineer will verify the pay quantities provided by the Contractor based on the pre-construction and post-construction surveys conducted by the Contractor and accepted by the Engineer. The Engineer, at its discretion, may verify the post-construction survey results of the Contractor. The Engineer's survey will be used for payment purposes if, in the Engineer's opinion, a significant difference is found between the Contractor's as-built survey and the Engineer's survey.
- 4.10 Acceptance Notification: The notification of rejection or acceptance of fill placement will be based on written notification provided by the Engineer to the Contractor after the Engineer has reviewed the submitted survey data. Check surveys may be reviewed to ensure fill tolerances are being met prior to approving payment request. After the survey data has been received by the Engineer, the Engineer will have four (4) working days to review the data and prepare a written response indicating whether the fill has been accepted or rejected, and the reason for rejection, if applicable.
- 4.11 Computation of Payment Volumes: The volume of material eligible for pay shall be the volumetric difference between the pre-construction and post-construction surveys of the Marsh Fill Borrow Area less over dredging in the borrow area, overfill in the placement area, and misplaced material volumes. The borrow area shall be surveyed according to the specifications outlined in sections TS-2.3 and TS-3.1.2. The volume shall be calculated by comparing the surfaces of the pre-construction and post-construction surveys within the boundary of an area denoted by the Contractor that has been dredged and requested for payment. The volume calculation shall be performed by creating surfaces in Surfer, or approved equivalent software, using grid spacing of 50 feet or less with the grid extending no more than 100 feet beyond the area of dredging. Surfaces shall be created using both north-south and east-west survey lines. The Kriging method shall be used to create the grid

surface using an anisotropic value of 1 (i.e. equal weighting in all directions). Should check surveys show that the marsh fill upper tolerance elevation has been exceeded, this fill volume exceeding the upper tolerance elevation will be deducted from the requested payment cut volume. The Contractor shall provide their calculations of volumes along with their invoice to the Engineer. Payment recommendations will be based on computations made by the Engineer of volumes dredged from the borrow area.

- 4.12 Fill Tolerances: The vertical tolerance is 0.5 feet above the template elevation for the marsh. The required marsh fill template is +2.5 feet NAVD88. Hydraulic fill placement must at least meet the template. The Contractor shall fill any deficient segment to meet the template everywhere within the fill area.
- 4.13 Payment Requests: The Contractor may request payment for hydraulic marsh fill placement on a monthly basis, based on measurements of the Marsh Fill Borrow Area. The Contractor shall submit to the Engineer for review, on a monthly basis, an Application for Progress Payment filled out and signed by the Contractor covering the Work completed as required by the Contract Documents and accompanied by such supporting documentation as is required by the Contract Documents and also as the Engineer may reasonably require, which includes the results of any surveys and calculations.
- 4.14 Infilling of the Borrow Area: It is recognized that infilling of the borrow area may occur during construction. The Contractor is not required to resurvey areas of the borrow area that have been previously surveyed for pay, except for the final as-built survey, which will not be used as a basis for payment unless requested by the Contractor and approved by the Engineer. The Contractor shall bear all risks associated with infilling of the borrow area prior to surveying of that section of the borrow area for payment.
- 4.15 Payment: Costs associated with the project, including costs associated with, but not limited to, layout, surveying and reporting, water quality monitoring, excavating, transporting fill, and marsh construction shall be included in the Contract unit price per cubic yard of Hydraulic Dredging – Marsh Creation (Bid Item No. 4), which payment shall also include all other items of overhead, profit, labor, material, and any other costs incidental to performing the Work.

TS-5 PRIMARY CONTAINMENT DIKE CONSTRUCTION

- 5.1 General: The boundaries of the primary containment dikes appear in the Plans. Fill material to construct the primary containment dikes may be excavated from within the borrow sources shown in the Plans. The primary containment dikes shall be erected as shown in the Plans to prevent discharge of turbid water into adjacent water bodies and interior marsh. The Contractor is required to provide continual maintenance of the primary containment dikes so that they function as intended during the construction period for which they are needed.
- 5.2 Excavation of Fill Sources: The Contractor may excavate the fill sources shown in the Plans to construct the primary containment dikes. The Contractor may excavate the fill sources as necessary but within the limits shown within the Plans to provide fill to construct the primary containment dikes. The Contractor may transport fill excavated from one part of the fill source and use it to construct the primary containment dikes elsewhere in the project footprint. However, it is estimated that there is sufficient fill within the fill sources to allow construction of the primary containment dikes without the transport of fill material within the project area.
- 5.3 Dimensions: The primary containment dikes shall be constructed to a minimum elevation of +4.0 feet NAVD88 with an upper tolerance of +0.5 feet. The primary containment dikes shall have a minimum crest width of five (5) feet. Side slopes shall be 1(V):4(H), and a minimum offset between the primary dike toe and the primary dike fill source shall be twenty (20) feet. The Contractor is required to build and maintain the primary containment dikes until completion of the project. Data regarding existing geotechnical site conditions are provided in Appendix IV. The Contractor must

provide a plan for primary containment dike construction including a representative drawing of dike dimensions at least fourteen (14) Days prior to the Pre-Construction Conference.

- 5.4 Rehandling: For multiple Work areas, the excavation of material and placement of the material within the limits of temporary sidecast disposal areas may require double handling of the material. Accordingly, the cost of double handling of the material shall be included in the bid. Double handling shall be at no additional cost to the Owner and shall not be a basis of claim for additional costs or time.
- 5.5 Containment Dike Degradation: Earthen containment dikes must be the same elevation as the marsh creation platform upon completion of the project. Degradation of earthen containment dikes shall be required upon completion of the project to achieve consistent marsh elevations, unless otherwise directed by the Engineer. Spoil from dike degradation shall be used to fill any low lying areas over the containment dike borrow areas. After spreading to marsh elevation, remaining spoil shall be placed in adjacent canals or adjacent open water. All costs associated with the degradation of the containment dikes should be included in Bid Item No. 5 "Earthen Containment Dikes".
- 5.6 Payment: Costs associated with the project, including costs associated with, but not limited to, layout, magnetometer surveys, surveying and reporting, water quality monitoring, excavating, transporting, refilling of fill source, construction, and maintenance of primary containment dikes shall be included in the Contract unit price per linear foot of Primary Containment Dike (Bid Item No. 5), which payment shall also include all other items of overhead, profit, labor, material, and any other costs incidental to performing the Work. Any tertiary dikes constructed by the Contractor will be at no cost to the Owner.
- 5.7 Payment Request: The Contractor shall survey the centerlines of the primary containment dikes along the lines shown in the Plans as a basis for payment. Data points shall be taken at a spacing of not more than fifty feet (50'). Check surveys perpendicular to the centerline of the primary containment dikes at four hundred foot (400') spacing are required for reference but will not be used as a basis for payment. Perpendicular profiles shall extend fifty feet (50') inward of the inner limit of the primary dike fill source and fifty feet (50') outward of the outer limit of the primary containment dike footprint. Seventy-five percent (75%) of the Contract linear footage will be paid to the Contractor for primary containment dike constructed on a monthly basis. The remaining twenty-five percent (25%) will be paid to the Contractor when the marsh fill area contained by the section of primary dike has been accepted. However, all required maintenance of the primary containment dikes shall be performed by the Contractor at no cost to the Owner.

TS-6 SECONDARY POND CONTAINMENT CONSTRUCTION

- 6.1 General: The boundaries of the secondary containment dikes appear in the Plans. Fill material to construct the secondary containment dikes may be excavated from within the borrow sources shown in the Plans. The secondary containment dikes shall be erected as shown in the Plans to divert the flow of marsh fill material out of proposed pond footprints. Ponds will be contained by the existing marsh shoreline where possible and by low containment dikes where the perimeter traverses an open water area. Some overtopping of the secondary containment is anticipated as this will facilitate more natural pond habitat formation. When discharging hydraulically dredged material near secondary containment dikes, the Contractor shall pump in a manner to avoid damage to the dike (i.e. diffusers, etc.). If damage to the secondary dikes occurs due to directly pumping marsh fill material nearby, the Contractor shall move or redirect the discharge as directed by the Engineer. The Contractor shall propose hydraulic fill methodology to minimize damage to the secondary containment dikes near the ponds in the containment dike construction plan at least fourteen (14) Days prior to the Pre-Construction Conference.

- 6.2 Excavation of Fill Sources: The Contractor may excavate the fill sources shown in the Plans to construct the secondary containment dikes. The Contractor may excavate the fill sources as necessary but within the limits shown within the Plans to provide fill to construct the secondary containment dikes. The Contractor may transport fill excavated from one part of the fill source and use it to construct the secondary containment dikes elsewhere in the project footprint. However, it is estimated that there is sufficient fill within the fill sources to allow construction of the secondary containment dikes without the transport of fill material within the project area.
- 6.3 Dimensions: The secondary containment dikes shall be constructed to an elevation of +2.5 feet NAVD88 with an upper tolerance of +0.5 foot. The secondary containment dikes shall have a minimum crest width of five (5) feet. Other dike dimensions including side slope and base width are at the discretion of the Contractor provided the structure is substantial enough to redirect discharge of fill material. The Contractor is required to build and maintain the secondary containment dikes until completion of the project at the discretion of the Owner and Engineer. Data regarding existing geotechnical site conditions are provided in Appendix IV. The Contractor must provide a plan for secondary containment dike construction including a representative drawing of dike dimensions at least fourteen (14) Days prior to the Pre-Construction Conference.
- 6.4 Payment: Costs associated with the project, including costs associated with, but not limited to, layout, surveying and reporting, excavating, transporting, construction, and maintenance of secondary pond containment dikes shall be included in the Contract unit price per linear foot of Secondary Pond Containment (Bid Item No. 6), which payment shall also include all other items of overhead, profit, labor, material, and any other costs incidental to performing the Work. Any tertiary dikes constructed by the Contractor will be at no cost to the Owner.
- 6.5 Payment Request: The Contractor shall survey the centerlines of the secondary pond containment dikes along the lines shown in the Plans as a basis for payment. Seventy-five percent (75%) of the Contract linear footage will be paid to the Contractor for secondary pond containment constructed on a monthly basis. The remaining twenty-five percent (25%) will be paid to the Contractor when the marsh pay section adjacent to the section of secondary pond containment has been accepted. However, all required maintenance of the secondary pond containment shall be performed by the Contractor at no cost to the Owner.

TS-7 TRENASSE CONSTRUCTION

- 7.1 General: The boundaries of the trenasses appear in the Plans. Trenasses shall be excavated as shown in the Plans, and spoil material shall be spread out in the adjacent marsh and/or open water areas. Placement of the dredged material shall be at least 15 feet away from the outer toe of the trenasse but is not defined by the construction template. At the time of trenasse payment surveys, no adjacent spoil shall be above elevation +1.5' NAVD88. Trenasses shall be excavated prior to the pumping of marsh fill and will be filled with hydraulically placed marsh fill material. It is expected that the differential settlement between the excavated areas and neighboring marsh elevation will become sufficient to form a small trenasse. The contractor may be required to track the length of the trenasses after the marsh creation areas are filled with marsh fill material prior to demobilization to facilitate trenasse formation.
- 7.2 Dimensions: The trenasses shall be excavated to a minimum elevation of -2.5' NAVD88 and shall have a minimum top width of 10'. The Contractor must provide a plan for trenasse construction including a representative drawing of trenasse dimensions at least fourteen (14) Days prior to the Pre-Construction Conference.
- 7.3 Payment: Costs associated with the project, including costs associated with, but not limited to, layout, surveying and reporting, excavating, material transport, and construction of the trenasses shall be included in the Contract unit price per linear foot of Trenasses (Bid Item No. 7), which payment shall also include all other items of overhead, profit, labor, material, and any other costs incidental

to performing the Work.

- 7.4 Payment Request: The Contractor shall survey the centerlines of the trenasses along the lines shown in the Plans as a basis for payment prior to placement of marsh fill. Perpendicular profiles every three hundred feet (300') along the length of each trenasse shall be surveyed to ensure spoil material has been spread evenly in the marsh fill areas. One hundred percent (100%) of the Contract linear footage will be paid to the Contractor for trenasses constructed on a monthly basis.

TS-8 EARTHEN TERRACE CONSTRUCTION

- 8.1 General: Earthen terraces shall be constructed using in-situ fill material to the lines, grades, and elevations specified in the Plans and these Specifications or as directed by the Engineer. The earthen terraces shall be maintained by the Contractor until the entire terrace field has been completed and accepted for payment in accordance with the Plans and these Specifications.
- 8.2 Fill Material: The material utilized for the construction of the earthen terraces shall consist of uniform in-situ material in the fill sources delineated on the Plans. Examples of unsuitable material include but are not limited to tree trunks, other large vegetative debris, stone, and trash. If unsuitable material is found within the designated borrow areas, the material shall be disposed of at an appropriate offsite location. If any material is questionable, the Contractor shall submit a Request for Interpretation to the Engineer.
- 8.3 Dimensions: The earthen terraces shall be constructed to a minimum elevation of +3.5 feet NAVD88 with a vertical tolerance of +1.0 foot. The earthen terraces shall have a minimum crest width of fifteen feet (15'). Material placed above the maximum vertical tolerance elevation of +4.5' NAVD88 may be required to be removed. Earthen terrace side slopes shall be constructed at 1(V):5(H) to the extent possible. Fill sources are delineated adjacent to earthen terrace alignments with an offset of fifteen feet (15'). The maximum excavation elevation within each borrow area is -10.4' NAVD88. Data regarding existing geotechnical site conditions are provided in Appendix IV.
- 8.4 Payment: Costs associated with the project, including costs associated with, but not limited to, layout, surveying and reporting, water quality monitoring, excavating, transporting, construction, and maintenance of the earthen terraces shall be included in the Contract unit price per linear foot of Earthen Terrace (Bid Item No. 8), which payment shall also include all other items of overhead, profit, labor, material, and any other costs incidental to performing the Work.
- 8.5 Payment Request: Process surveys may be conducted no sooner than fourteen (14) days after construction of each earthen terrace. The Contractor shall survey the centerlines of the earthen terraces along the lines shown in the Plans as a basis for payment. Three cross sections shall be surveyed at 150' intervals along each earthen terrace to verify construction tolerances. One hundred percent (100%) of the Contract linear footage will be paid to the Contractor for earthen terraces constructed on a monthly basis.

TS-9 SETTLEMENT PLATES

- 9.1 Scope: This Work consists of furnishing and assembling the materials needed to construct and install settlement plates in accordance with these Specifications and the project Plans or as directed by the Engineer. It should be noted that the settlement plates are intended for CPRA's long term monitoring of the project area.
- 9.2 Materials: Settlement plates shall be fabricated with a four foot by four foot by one-quarter inch (4'x4'x 1/4") steel plate with a three inch (3") diameter galvanized riser pipe connected to the center of the plate with a three-sixteenth inch (3/16") continuous filet weld. The pipe shall be of sufficient length to facilitate the placement in the areas as shown in the Plans, extending a minimum of five feet (5') and a maximum of eight feet (8') above finished grade. The top of the pipe shall be closed

with a galvanized cap prior to installation and immediately after adding extension sections. A bolt shall be placed in the riser pipe three feet (3') above the as-built grade. The bolt shall be hot dipped galvanized as shall the associated nuts and washers.

- 9.3 Zinc Coating: After fabrication, the settlement plate shall be hot dipped galvanized. Zinc coating shall be applied in a manner and thickness quality conforming to ASTM A 123. In all cases where zinc coating is destroyed by cutting or installation of the survey bolt, the affected areas shall be regalvanized with a suitable low-melting zinc base alloy, similar to the recommendations of the American Hot-Dip Galvanizers Association, to the thickness and quality specified for the original zinc coating. Coatings less than two (2) ounces shall be regalvanized by a repair compound.
- 9.4 Installation: The settlement plates shall be installed at the locations as shown in the Plans prior to fill placement (marsh and dike) in the immediate vicinity. For settlement plates located where excavation is necessary, the plate should be installed after excavation and prior to the fill placement in the immediate vicinity. The top of the pipe shall be between five feet (5') and eight feet (8') above the as-built surface. The pipe shall be at an angle of no more than 10.5° from normal. The Contractor shall exercise care when placing fill material in the vicinity of the settlement plates. Any damaged settlement plates shall be replaced by the Contractor at no expense to the Owner. Damaged settlement plates are defined as plates that would not accurately locate the primary dike centerline, sand dune centerline, and marsh locations as determined by the Engineer. Leveling of the plate bed shall be accomplished by removing the minimum amount of earth or debris necessary to produce an even foundation and in such manner that the density of the sediment under the plate will remain at the same density as the undisturbed adjacent ground. Leveling of the plate bed by the addition of fill will not be permitted.
- 9.5 Surveys: The Contractor shall survey the grade, bolt elevation, and top of pipe of the settlement plates immediately after placement, three (3) Days after placement, and every seven (7) Days until Final Acceptance of the project. Settlement plates shall also be surveyed any time they are altered or impacted. Elevations shall be recorded and reported to the nearest tenth of a foot (0.1') NAVD88. The Contractor shall provide the data to the Engineer in a survey format provided in Appendix III, along with a time stamp.
- 9.6 Payment: This Work consists of furnishing and assembling the materials needed to construct, lay-out, install, and survey settlement plates in accordance with these Specifications and the project Plans or as directed by the Engineer. All costs connected with the settlement plates will be paid for at the Contract unit price per each Settlement Plate (Bid Item No. 9), which payment shall also include all other items of overhead, profit, labor, material, and any other costs incidental to performing the Work. The Contractor may request payment for the installation of settlement plates on a monthly basis.

TS-10 CONVEYANCE CORRIDOR

The conveyance corridor is defined as the Work Area from the Gulf of Mexico borrow area to the marsh fill areas. This Work consists of furnishing and assembling the materials needed to construct, install, and survey the sediment pipeline in accordance with these Specifications and the project Plans or as directed by the Engineer. All costs connected with the sediment pipeline will be included in the Contract unit price for Mobilization and Demobilization (Bid Item No. 1), which payment shall also include all other items of overhead, profit, labor, material, and any other costs incidental to performing the work.

- 10.1 Conveyance Corridor Construction Limits: All construction equipment must be located within the conveyance corridor construction limits shown in the Plans. The construction limits of the proposed conveyance corridor shall be no greater than one hundred (100) feet in width on land, except where the submerged pipeline corridor comes ashore, and four hundred (400) feet offshore as shown in the Plans. All Work must take place within the conveyance corridor construction limits. All equipment

staging areas shall be described in the Work Plan and approved by the Engineer prior to construction and mobilization. Excess Plant and Materials shall not be stored within the conveyance corridor limits. It shall be the Contractor's responsibility to coordinate and secure appropriate staging areas and facilities. Staging is permitted on the Gulf beach within the conveyance corridor limits shown on the Plans. If it is necessary to remove existing sand fencing to facilitate access, sand fencing shall be returned to pre-construction conditions at the Contractor's expense prior to demobilization to the satisfaction of the Owner and individual controlling agencies where applicable. The oil field road shown in the Plans is available to facilitate access to the marsh fill areas. This road shall be accessible to landowners and infrastructure operators during construction. The conveyance corridor (including the oil field road) shall be returned to pre-construction conditions at the Contractor's expense prior to demobilization to the satisfaction of the Owner and individual controlling agencies where applicable. Photographs documenting the pre-construction condition of the oil field road shown in the Plans shall be provided by the Contractor to provide a baseline for restoration of damages.

- 10.2 Equipment and Construction Access: Access to the borrow area is only available through use of a boat through Federal and State authorized water bottoms. The submerged line shall be placed in the submerged pipeline corridor. The Contractor may be required to cross existing submerged oil and gas infrastructure located at or near the ocean floor. If a pipeline is used to transport material, the pipeline seaward of the beach landing shall be submerged except at the dredge, booster pumps (if required), and at oil and gas infrastructure crossings. In these instances, the pipeline shall be floated unless written permission has been obtained from the pipeline owner to place the submerged pipeline on the ocean floor. A copy of this permission shall be provided to the Owner. If the sediment pipeline is not floated across existing infrastructure, the Contractor shall use appropriate methods to place the temporary sediment pipeline across existing infrastructure (i.e. bridging, matting, etc.) and shall provide a detailed description of proposed construction methods in the Work Plan for approval by the Engineer. The Contractor shall coordinate with all infrastructure owners and obtain approval to cross existing infrastructure using such methods from the owner or leaseholder.

The Conveyance Corridor shown in the Plans may be used during construction to temporarily transport construction equipment, materials, and labor to the fill areas and shall meet the landowner requirements specified in SP-7. The sediment pipeline used to transport sediment to the fill areas shall be placed within the conveyance corridor construction limits shown in the Plans. The Contractor's equipment access route and sediment pipeline location within the conveyance corridor shall be submitted in the Work Plan for approval prior to mobilization. The Contractor may use the oil field road for marsh buggy access. The Contractor shall stay within the project area with the marsh buggy and at no time shall the Contractor traverse across existing vegetation that is outside the project area.

Specific to the conveyance corridor, the Contractor is prohibited from travel across marsh vegetation outside the designated construction limits. Additional information regarding repair of areas damaged from the land-based equipment can be found in TS-10.4.

There shall be no excavations by the Contractor allowed within fifty (50) feet of any oil or gas pipeline. Written approval from the pipeline/utility owner defining any allowances and/or restrictions placed on the Contractor by the pipeline/utility owner must be submitted to the Owner and Engineer seventy-two (72) hours prior to any excavation within the fifty (50) foot pipeline buffer.

- 10.3 Vehicular Crossings (not LA 27/82): Vehicular sediment pipeline crossings shall be constructed as needed and shall be sufficient to accommodate vehicle traffic during construction including maintenance and inspection. Any vehicular sediment pipeline crossing shall be constructed using earthen fill material as a base; either crushed aggregate, recycled crushed concrete, or recycled asphalt pavement as the road surface; and all other materials necessary. Road surface aggregate shall conform to the Louisiana Standard Specifications for Roads and Bridges, 2006 edition, Standard Specification 1003.04. The Contractor shall provide proper drainage of any impounded areas created during

the construction of vehicular sediment pipeline crossings for the duration of the Project. If drainage becomes a problem, the Contractor shall make modifications to improve the drainage such that water does not pond. The Contractor's typical crossing plans shall be submitted in the Work Plan prior to mobilization.

- 10.4 Restoration of Marsh Damages: The Contractor will be responsible for the restoration of any damages caused by unpermitted, unapproved, and/or careless operation during construction. This covers, but is not limited to the conveyance corridor or any other routes used for access. Restoration may include the placement of dredged sediment and/or vegetation to pre-construction elevations and/or conditions within the areas of damage at the expense of the Contractor and will be performed at the discretion and direction of the Owner and Engineer.
- 10.5 Restoration of Beach Damages: The Contractor will be responsible for the restoration of any damages caused by unpermitted, unapproved, and/or careless operation during construction. Restoration may include the placement of sand and/or vegetative plantings to pre-construction elevations and/or conditions within the areas of damage at the expense of the Contractor and will be performed at the discretion and direction of the Owner and Engineer.
- 10.6 Alternate Conveyance Corridor Alignment: The conveyance corridor has been identified in the Plans. Deviations from or relocation of these corridors are subject to review and approval by the Owner, Engineer, and State and Federal regulatory agencies. Should the Contractor request a deviation or relocation of the conveyance corridor, it shall be the responsibility of the Contractor to apply for and obtain the required Permit modifications from the Louisiana Department of Natural Resources, Office of Coastal Management and the USACE in addition to approvals from the applicable property owners, oyster lease holders, and/or utility operators. The Contractor shall provide the approved permit modifications and approvals to the Owner and Engineer prior to excavation and installation of the sediment pipeline and/or booster pumps and/or any Work done within the proposed alternate conveyance corridor construction limits.
- 10.7 LA 27/82 Crossing: The Contractor shall furnish all materials, labor, and equipment to install one permanent concrete casing pipe underneath LA 27/82 via open-cut methods as described in TS-12. This task includes the relocation of a 10" nominal PVC main waterline along LA 27/82 to facilitate the installation of the permanent casing pipe as described in TS-11. Any alternate sediment pipeline placement methods shall be included in the Work Plan for approval by the Engineer. The highway crossing location within the conveyance corridor is shown in the Plans. The Contractor shall notify Louisiana Department of Transportation and Development (DOTD) representatives prior to construction and after work is complete. Contact information for these representatives is as follows:

Roger Moses
LA DOTD District 07 Lake Charles
337-437-9130

The Contractor shall perform a survey to locate, probe, identify, and mark any utilities within the conveyance corridor limits in the vicinity of the proposed excavation and alignments for operations. If existing utility infrastructure is damaged by the Contractor during construction, the lines shall be repaired immediately to pre-construction conditions by the Contractor at no cost to the Owner.

Permanent casing pipe markers are to be installed on each side of the highway as shown on the Plans to mark the crossing location. Permanent casing pipe markers shall be made and installed in accordance with Louisiana Standard Specifications for Roads and Bridges, 2006 edition, Standard Specification 729, and as shown on the Plans prior to demobilization. Prior to demobilization, casing pipe shall be capped, construction pits shall be backfilled, and the conveyance corridor shall be restored to pre-construction conditions.

- 10.8 Casing Pipe Caps: After the marsh fill has been accepted and the sediment pipeline has been removed from the casing pipe, each end of the casing pipe shall be capped. Caps shall be constructed in accordance with the Plans. Caps shall be attached to the casing pipe and shall not be water tight. The Contractor shall provide the Owner and Engineer notice of the completion of installation of the caps 72 hours prior to backfilling of the construction pits to provide for inspection. The Contractor shall have a licensed Professional Engineer in the State of Louisiana submit written certification to the Owner and Engineer that the sediment pipeline was removed without damage to the casing pipe.
- 10.9 Payment for Casing Pipe Caps: Steel casing pipe caps shall be included in Bid Item No. 24 “Casing Pipe Caps” and shall include all materials, labor, tools, equipment, and incidentals required to install the casing pipe caps. This Work consists of furnishing and assembling the materials needed to construct and install steel casing pipe caps in accordance with these Specifications and the project Plans or as directed by the Engineer. All costs connected with the casing pipe caps will be paid for at the Contract unit price per each Casing Pipe Cap (Bid Item No. 24), which payment shall also include all other items of overhead, profit, labor, material, and any other costs incidental to performing the Work. One hundred percent (100%) of the price of the bid item will be paid to the Contractor after caps are installed in accordance with these Specifications or as directed by the Engineer.
- 10.10 Overhead Utilities Compliance: Construction activities may take place near power and distribution lines and precautions shall be taken to avoid impeding regular operations. It is understood and agreed that the wires supported by structures on the right of way are conductors of, and at all times have in them, high voltage electricity. No person, or object in contact with a person, may touch or be near to said wires or other fixtures on said structures, because to do so or to permit such would be dangerous to the life of the party so doing, as well as anyone else in the area where such occurred. The Contractor agrees to inform each and every individual of such facts before such party enters upon any part of the easement area shown on Plans during the time such work is being prepared, done or completed, or any equipment moved to, upon or from said property and the energy company shall be indemnified by the Contractor from any injury or death resulting there from. The area within the right of way is to be used only for the purposes relative to the project and disclosed to the energy company, and no buildings or components of buildings are to be located or protruding into the right-of-way. Any Work performed in this area must be done in accordance with all National Electric Safety Code (NESC) requirements concerning clearances from energized facilities, grounding of any installations and any other applicable code requirements. All OSHA regulations must be met and maintained during the construction, operation, and maintenance of all facilities within the right-of-way. It is also agreed and understood that Contractor will at all times indemnify and hold harmless the energy company from and against any and all claims, demands, causes of action, judgments, liabilities, and expense of every nature, including attorney’s fees, by reason of personal injury, death (including but not limited to injuries and death to employees of the energy company and Contractor’s employees) or damage to property, (including environmental) which arises out of, results from, or is in any manner related to, directly or indirectly, any operations or acts hereunder, or to the exercise of the Contractor’s rights hereunder, or to the Contractor’s presence upon or use of the energy company’s premises above referred to, or to the use or existence of the Contractor’s facilities on such premises. The indemnity provisions of this paragraph shall not apply if any such injury, death, damage, liability claim or cause of action is caused by the sole negligence of the energy company, its employees, agents, or representatives. All equipment used on the property shall have a maximum height not to exceed NESC clearances allowed, or shall be provided with guard chains limiting moveable parts of the equipment to that maximum height. No fencing, tents, jack-up lighting, or light poles of any kind are permitted inside the right-of-way at any time. The energy company will have full access and use of the right-of-way at all times for any work projects or maintenance and shall not be responsible for any damage to the proposed sediment pipeline crossing the right of way. The energy company must approve any additional improvements to the right-of-way area. Upon termination of the use of the Right-of-Way, the Contractor shall restore the property to pre-construction conditions following construction.

- 10.11 Measurement and Payment: All costs incurred by the Contractor for the placement, maintenance, and removal of the sediment pipeline within the conveyance corridor shown in the Plans shall be included in Bid Item No. 1, "Mobilization and Demobilization".

TS-11 WATERLINE RELOCATION

- 11.1 Scope: This work consists of furnishing and assembling all of the materials needed to construct, layout, and install a 6" diameter ductile iron temporary bypass line and then remove a section of the existing 10" nominal diameter polyvinyl chloride (PVC) waterline adjacent to LA 27/82 and replacing the section with a 12" nominal diameter high density polyethylene (HDPE) pipe along approximately 54' of length near the proposed casing pipe installation as shown on the Plans. Service shall be maintained during the temporary bypass installation through the use of tapping sleeves. The Contractor shall name the Cameron Parish Waterworks District No. 10 as an additional insured on any required insurance policies. In the event that any functional appurtenances located on the waterline become damaged, altered, or destroyed as a result of relocation activities or any activity within the relocation area during the project conducted by CPRA, its Contractor, or other designee or representative, then the Contractor shall repair or replace same in like manner, and to equal condition, function, service, and utility that existed prior to commencement of the relocation activities. Specified join restraints are located in Appendix XVI.

- 11.2 Construction Sequence: The Contractor must notify CPRA at least 72 hours prior to initiating the waterline relocation. Waterline relocation consists of the process detailed in TS-11 and shown in the Plans. The Contractor shall first install tapping sleeves and valves, joint restraints on all pipe and fittings, flushing and testing risers, chlorination points, and a temporary bypass (6" ductile iron) pipe. The temporary bypass pipe shall be chlorinated per TS-11.9. Water in the bypass line shall be sampled and submitted to a Department of Health and Hospitals (DHH)-approved laboratory for testing. Upon written notice from the Engineer notifying the Contractor that the sample has been approved, the Contractor shall place the temporary bypass line in service with only personnel from Cameron Parish Waterworks District No. 10 operating the tapping valves.

Afterwards, the two (2) 10" line stop fittings shall be installed with plugs to temporarily stop flow in the existing 10" PVC waterline so that it can be removed from service and the new 12" PE waterline installed in the same trench, but at the depth as indicated on the Plans. The new 12" PE waterline shall be chlorinated per TS-11.9. Water from the new HDPE section shall be sampled and submitted to a DHH-approved laboratory for testing. Upon written notice from the Engineer notifying the Contractor that the sample has been approved, service shall be transferred to the newly relocated line and the 6" bypass line shall be removed up to the 6" bypass valve (the tapping valve and sleeve installed on each end of the existing 10" PVC waterline shall remain in place).

- 11.3 References:

- 11.3.1 AWWA C104 Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water
- 11.3.2 AWWA C105 Polyethylene Encasement for Ductile-Iron Pipe Systems
- 11.3.3 AWWA C111 Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
- 11.3.4 AWWA C150 Thickness Design of Ductile-Iron Pipe
- 11.3.5 AWWA C151 Ductile-Iron Pipe for Water or Other Liquids
- 11.3.6 AWWA C651 Disinfecting Water Mains

- 11.3.7 AWWA C605 Underground Installation of PVC Pressure Pipe and Fittings for Water
- 11.3.8 AWWA C900 Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 In. through 12 In. (100 mm Through 300 mm), for Water Transmission and Distribution)
- 11.3.9 AWWA C906 Polyethylene (PE) Pressure Pipe and Fittings, 4 In. through 63 In. for Water Transmission and Distribution

11.4 Materials:

- 11.4.1 Ductile Iron Push-On Pipe Joint Pipe: Ductile iron water pipe shall be designed in accordance with AWWA C150, and have push-on joints. All pipe joints shall be restrained with manufactured restraints as specified herein.

Pipe shall be manufactured in accordance with AWWA C151, latest revision, except the minimum nominal wall thickness shall be as shown on the following table:

<u>Size</u>	<u>Pressure Class</u>	<u>Thickness Class</u>
6"	350	50

Pipe shall be standard cement lined and seal coated on the inside with a bituminous coat in accordance with AWWA C104, latest revision. The exterior of the pipe shall be coated with an asphaltic coating approximately 1 mm thick in accordance with AWWA C151, latest revision. Ductile iron pipe shall be as manufactured by American Cast Iron Pipe Company, Clow Corporation, U.S. Pipe and Foundry Company, or approved equal.

- 11.4.2 High Density Polyethylene Pipe (HDPE Pipe): Pipe shall be manufactured in accordance with AWWA C906 and be SDR 11, PE 4710 High Density, Ductile Iron Pipe Size (DIPS) with Cell Classification 345434C, in accordance with ASTM D3350. HDPE pipe shall be manufactured by Performance Pipe, Poly Pipe, JM Eagle, or approved equal.
- 11.4.3 PVC Push-On Joint Pipe: Pipe shall be manufactured in accordance with AWWA C900 and be DR 18 with push-on joints. Pipe shall be blue in color. All pipe joints shall be restrained with manufactured restraints as specified herein. PVC pipe shall be manufactured by Certainteed, JM Eagle, NAPCO, or approved equal.
- 11.4.4 Fittings for PVC, Ductile Iron, and Polyethylene Pipe: All fittings shall be ductile iron manufactured in accordance with AWWA C153 and have mechanical joints. The rated working pressure shall be 350 psi. Sufficient quantities of gaskets, glands, bolts, and nuts shall be furnished to provide for each fitting. Bolts and nuts shall be stainless steel. All fittings shall be asphalt coated outside and cement lined and seal coated inside in accordance with AWWA C104. All fittings shall be restrained with manufactured restraints as specified herein. Fittings shall be manufactured by American, Tyler Union, U.S. Pipe, or approved equal.
- 11.4.5 Transition Fitting for PE Pipe: The transition from PE pipe to PVC pipe (or ductile iron mechanical joint fittings) shall be made with the use of a mechanical joint adapter and kit (aka "Harvey Adapter"). The "Harvey Adapter" shall have a pre-positioned stainless steel stiffener and shall offer full axial restraint. Transition fittings shall be manufactured by Performance Pipe or approved equal.
- 11.4.6 Tapping Saddles for C900 PVC Pipe (For Chlorination, Flushing and Sampling): Utilize NSF 61 certified bronze body saddle with controlled OD and outlet tapped for AWWA IPT. Provide full support around the circumference of the pipe. Provide bearing area of

sufficient width along the axis of the pipe (minimum 2-inch width for taps up to 1 inch diameter). Gaskets shall be EPDM or nitrile o-ring in recessed groove. Tapping saddles shall be Mueller model H-13000 series or approved equal.

- 11.4.7 Tapping Sleeves for C900 PVC Pipe: Tapping sleeves shall be mechanical joint sleeves.

Sleeves shall be stainless steel and have an outlet flange with the dimensions of Class 150 flange. Bolts and nuts shall be Type 304SS. Sleeves shall be capable of withstanding a 200 psi working pressure. Tapping sleeves shall be Romac Sleeve Number STS420 or approved equal.

- 11.4.8 Tapping Valves: Tapping valves shall meet the requirements of Resilient Seat Gate Valves, except that units shall be flange by mechanical joint ends. Valves shall be compatible with tapping sleeves as specified above and specifically designed for pressure connection operations.

- 11.4.9 Service Ball Valve (For Chlorination, Flushing and Sampling): Service ball valves shall be full port ball valves, made of brass, cast and machined in accordance with specifications in AWWA C800, AWWA C901, and compliant with NSF-61. Service ball valves shall be Mueller model 300 or approved equal.

- 11.4.10 Resilient Seat Gate Valves: Gate valves shall be resilient seat gate valves manufactured to meet or exceed the requirements of AWWA C509 / C515, latest revision, and in accordance with these specifications. Valves shall have an unobstructed waterway equal to or greater than the full nominal diameter of the valve. Valves shall have a minimum pressure rating of 250 psig.

Gate valves shall be installed as indicated on the Plans. The valve body, bonnet, and bonnet cover shall be ductile iron ASTM A536. All ferrous surfaces inside and outside shall have a fusion-bonded epoxy coating in accordance with AWWA C550. A two-inch wrench nut shall be provided for operating the valve. All valves are to be tested in strict accordance with AWWA C515.

All valves shall open left or counter clockwise. The valves shall be non-rising stems with the stem made of cast, forged, or rolled bronze as specified in AWWA C509. Two stem seals shall be provided and shall be of the o-ring type. The stem nut must be independent of the gate. The resilient sealing mechanism shall provide zero leakage at test and normal working pressure when installed with the line flow from either direction. Resilient seat gate valves shall be Series 2360 produced by Mueller Inc. or approved equal.

- 11.4.11 Valve Boxes: Valve boxes for permanent valves shall be two-piece cast iron with suitable heavy bonnets and shall extend to such elevation at the finished grade surface. The barrel shall be screw type only, having 5-1/4-inch shaft. The upper section shall have a flange at the bottom having sufficient bearing area to prevent settling. Covers shall have "WATER" cast into the top for all water mains. Valve collars shall be 24" x 24" round or square and poured in place with 3000 psi concrete or made out of a fiberglass re-enforced concrete polymer material. Valve boxes shall be Series 6850 produced by Tyler Union or approved equal.

- 11.4.12 Line Stop Fitting: Line stopping fittings installed on the existing 10" PVC waterline shall be manufactured in accordance with AWWA C223. They shall be constructed of ASTM A36 carbon steel with outlet seal gasket and threaded plug. They shall be coated with epoxy coating in accordance with AWWA C213. The blind flange shall be ANSI 150, constructed of ASTM A36 carbon steel, and be epoxy coated. The nuts and bolts shall be Type 304SS. The line stopping fittings shall be JCM 440 Type 2 manufactured by JCM

Industries, Inc. or approved equal.

- 11.4.13 Joint Restraints: All joints for pipe and fittings shall be restrained with the following products or approved equal:

EBAA Iron 1100 MEGALUG: Shall be installed with all DI MJ fittings that are installed. The typical follower gland furnished with DI MJ fittings will be replaced with this joint restraint.

EBAA Iron 1600 Split Serrated Restraint Harness: Shall be installed at the push-on joints of all PVC pipe installed. Additionally, this restraint shall be installed on the pipe joints of the existing PVC pipe. The Plans specify that at least the first two pipe joints on the existing waterline immediately upstream and downstream of the newly relocated waterline be restrained.

EBAA Iron 1700 MEGALUG Harness: Shall be installed at the push-on joints of all DI pipe installed.

- 11.4.14 Polyethylene Encasement: All permanent underground ductile iron pipe, fittings (includes tapping sleeves and line stop fittings), and valves shall be wrapped in a tube type polyethylene encasement in accordance with AWWA C105, Method A. Polyethylene encasement shall be either linear low-density polyethylene (LLDPE) with a minimum thickness of 8 mils or high density, cross laminated polyethylene (HDCLPE) film with a minimum thickness of 4 mils.

- 11.4.15 Tracer Wire: All underground PVC and PE pipe shall be installed with No. 10 AWG stranded copper tracer wire.

- 11.5 Trench and Backfill: Backfill materials shall be identical to the material specified for the proposed casing pipe or the sediment pipeline.

- 11.6 Submittals: The Contractor shall submit a proposed construction plan for the waterline relocation, for approval by the Engineer at least 14 days prior to the pre-construction conference. A layout drawing and narrative description of the 6" ductile iron bypass and new 12" HDPE pipeline section and associated valves and fittings installation shall be included in the Work Plan for approval by the Engineer. The Contractor shall submit manufacturer's certifications, cut sheets, brochures, and technical data that the materials proposed for use on the project meet these specifications and the applicable referenced standards (ANSI/AWWA, ASTM, NSF). Submittals shall be forwarded to the Engineer for approval. Submittals of materials not meeting the specifications will be rejected and will require re-submittal and approval before use on the project.

- 11.7 Installation: Waterline relocation shall conform to the Plans, these Specifications, and Louisiana Administrative Code (LAC) Title regulations where applicable, as detailed in Appendix VIII and Appendix XV respectively. The Contractor shall give sufficient notice to the interested utility of his intention to remove or disturb any other pipe or conduit and shall abide by their regulations governing such work. Less than 48 hour notice for approved disconnection to customers shall be the responsibility of the Contractor. Water service to customers shall be maintained without interruption.

The Contractor shall perform a survey to locate, probe, identify, and mark any utilities within the vicinity of the proposed excavation and alignments for waterline relocation operations. The Contractor shall be responsible for the protection of existing utilities and restoration of existing conditions in accordance with GP-22 and GP-25. It is the responsibility of the Contractor to obtain any additional permits required to complete the work. The Contractor shall conform to the requirements stated in GP-26. No excavation shall take place within five (5) feet of the adjacent fiber optic line.

The waterline relocation shall be performed by methods that will not interfere with or endanger the roadway surface or activity thereon. The Contractor shall be responsible for all settlement resulting from operations and shall repair and restore the damage at no cost to the Owner. Trenches shall be excavated and trench boxes shall be installed to prevent failure and loss of roadway or embankment material. The waterline relocation trench shall have dimensions of approximately 81' by 4' maximum as shown on the Plans.

The Contractor shall excavate access pits as shown in the Plans and furnish all equipment necessary for pumping water accumulated in the trenches. Trenches and other excavations shall be kept clear of water while pipe is being installed. No pipe or appurtenances shall be laid in water. Temporary sheeting along the length of the relocation trench may be necessary to protect the existing roadway pavement. The Contractor shall maintain the existing roadway pavement along the length of the relocation trench throughout construction.

The Contractor shall temporarily bypass the waterline using a tapping sleeve and valve connection as shown in the Plans. The line shall be fully restrained through the use of manufactured restraints as specified herein. The inside of the tapping sleeve and valve, the outside of the main and the tapping machine shall be cleaned and swabbed or sprayed with one percent liquid chlorine solution prior to beginning installation for the water system pressure connections and must comply with the AWWA C-651-99 or most current version. The Contractor shall use stainless steel tapping sleeves as detailed in the Plans. The method of installation requires, but is not limited to, the following: installation of gate valves and temporary 6" diameter nominal restrained ductile iron bypass waterline, chlorination of the temporary bypass line in accordance with LAC Title 51, Part XII (see TS-11.9 for chlorination requirements), and sampling and testing of temporary bypass line by an independent, State-approved laboratory to confirm water is safe for use prior to diverting service through the temporary bypass line. Service shall be transferred to the temporary bypass line upon written approval by the Engineer and the valves operated by District personnel only.

The Contractor shall connect the HDPE pipe section to the existing water main by fusing sections and installing mechanical joints as shown in the Plans. The relocated section shall be located at least 3' below the proposed casing pipe location as shown in the Plans. The interior of the pipe shall be thoroughly cleaned before lowering into the trench, and pipe shall be kept free of foreign matter during laying operations. When work is not in progress, the ends of the pipe and fittings shall be sealed so foreign material cannot enter pipe.

Manufactured joint restraints shall be provided at all fittings where a change of direction occurs or as specified by the Engineer for all pipe three inches (3") in diameter or greater.

The Contractor shall not operate any valves that will allow water to flow or stop the flow of water. These valves will be operated by the Cameron Parish Waterworks personnel only.

The Contractor shall perform backfill operations as soon as practicable. The Contractor shall leave only the minimum length of trench open as necessary for construction. Re-excavation of the trench for replacement of pipe, tapping, testing, or disinfecting shall be done by the Contractor at no additional cost to the Owner. The Owner reserves the right to order any trench or trenches backfilled at any time after installation of pipe if the particular trench remaining open constitutes a public nuisance.

Upon completion of the installation of the waterline relocation, trench shall be backfilled with the same backfill material specified for the proposed casing pipe for the sediment pipeline, and disturbed areas shall be seeded or protected from erosion. Items of work not mentioned specifically herein shall be performed in compliance with the current revision of AWWA C605, "Standard for Underground Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water." The area shall be restored to pre-construction conditions.

After installation of the relocated section is complete, the Contractor shall flush, pressure test, and chlorinate the relocated pipeline per TS-11.9 and perform water sampling and testing of the relocated section by an independent, State-approved laboratory to confirm water is safe for use. Service shall be transferred to the relocated pipeline upon written approval by the Engineer.

- 11.8 Flushing and Hydrostatic Testing of Water Main: All water mains shall be flushed before testing and sampling of the water system. Provide properly sized riser pipes for flushing when hydrant outlets are not convenient. The duration of the flushing shall be determined in the field by the Engineer. The size of the flushing outlet shall be one 6" riser.

The Contractor shall furnish all materials, equipment, and labor to satisfactorily test the pipe at no cost to the Owner. The Contractor shall supply water for testing purposes if unable to use existing system water. The allowable leakage for push-on or mechanical joint ductile iron pipe per inch of diameter, per mile, per twenty-four (24) hour day, when tested at one hundred fifty (150) pounds per square inch pressure, shall not be more than twenty-three point three (23.3) gallons, based on nominal lengths of eighteen (18) or twenty (20) feet.

- 11.9 Disinfection and Chlorination Requirements: Pumps, pipes, wells, tanks, and other parts of new systems or temporary systems shall be thoroughly disinfected by the use of chlorine or chlorine compounds before being placed in use per LAC Title 51, Part XII. The rate of application of chlorine shall be in such proportion to the rate of water entering the pipe or other appurtenances that the chlorine dose applied to the water shall be at least 50 mg/l. Chlorinated water shall be retained long enough to destroy non-spore-forming bacteria. The period shall be at least three hours and preferably longer, as may be directed. After the chlorine treated water has been retained for the required time, the chlorine residual at pipe extremities and at other representative points shall be at least 5 mg/l. If the residual is less than 5 mg/l, the disinfection procedure shall be repeated until a 5 mg/l residual is obtained, as required above. For additional details on the chlorination requirements of the DHH, see Appendix XV.

- 11.10 Sampling Requirements: Samples shall be taken from the temporary bypass waterline and the relocated water main to ensure that the quality of water is safe for consumption. The Contractor shall coordinate water sampling. Water samples shall be delivered to a laboratory approved by both the Engineer and the Louisiana DHH for testing, or the sample may be delivered to a designated DHH drop-off location, as determined by the Engineer. Only after testing confirms that the water is safe for consumption may service be diverted to the temporary bypass waterline or the relocated water main. Upon restoring service to the newly located water main, the temporary bypass line may be removed.

- 11.11 Traffic Control: Traffic Control shall be in accordance with DOTD specifications and TS-12.5 of these specifications.

- 11.12 Site Restoration: The Contractor shall be responsible for restoring the project site to pre-construction conditions including the removal of any debris, restoration of pre-project grade, and seeding in accordance with GP-22, GP-25, TS-23, and TS-11.5.

- 11.13 Measurement and Payment: All costs incurred by the Contractor for the installation of the temporary waterline bypass as shown in the Plans shall be included in Bid Item No. 10 "Temporary Waterline Bypass". All costs incurred by the Contractor for the installation of the relocated waterline as shown in the Plans shall be included in Bid Item No. 11 "Waterline Relocation".

- 11.14 Temporary Waterline Bypass Payment: This work includes furnishing and assembling the materials needed to construct, layout, and install a temporary bypass line per the Plans and these Specifications or as directed by the Engineer to maintain service during the relocation work. All costs connected with the waterline relocation will be paid to the Contractor at the Contract unit price for Temporary Waterline Bypass (Bid Item No. 10), which payment shall also include all other items

of overhead, profit, labor, material, and any other costs incidental to performing the Work. Fifty percent (50%) of the price of the bid item will be paid to the Contractor after temporary bypass is installed and service is restored via the bypass. Fifty percent (50%) of the price of the bid item will be paid to the Contractor upon removal of the temporary bypass.

- 11.15 Waterline Relocation Payment: This Work consists of furnishing and assembling the materials needed to construct, layout, and install a relocated waterline parallel to LA 27/82 to facilitate placement of the permanent casing pipe in the location shown in the Plans and in accordance with these Specifications or as directed by the Engineer. All costs connected with the waterline relocation will be paid to the Contractor at the Contract unit price for Waterline Relocation (Bid Item No. 11), which payment shall also include all other items of overhead, profit, labor, material, and any other costs incidental to performing the Work. One hundred percent (100%) of the price of the bid item will be paid to the Contractor after relocated waterline is installed and service is restored to the relocated PE section.

TS-12 LOUISIANA HIGHWAY 27/82 CROSSING

- 12.1 Scope: Work consists of furnishing and assembling the materials needed to construct, layout, install, and survey one permanent concrete casing pipe via open-cut methods underneath LA 27/82 in accordance with these Plans and the Louisiana Standard Specifications for Roads and Bridges, 2006 edition, including Supplemental Specifications (hereinafter referred to as DOTD Specifications) or as directed by the Engineer.
- 12.2 Control of Work: Control of work shall be in accordance with these Plans and DOTD Specification Section 105.
- 12.3 Materials: The casing pipe shall be made of reinforced concrete drain pipe, in accordance with DOTD Specification Section 701, Culverts and Storm Drains. See Appendix VIII for DOTD Specifications. The casing pipe shall have a minimum inside diameter of 42" and a minimum wall thickness of 4.5".

Class II Base Course, Superpave Asphaltic Concrete Mixtures, Flowable Fill, and Bedding Material shall conform to DOTD Specification Sections 302, 502, 710, and 726, respectively. See Appendix VIII for DOTD Specifications.

Permanent pipeline markers shall be placed on each side of the highway as shown on the Plans to mark the crossing locations. Markers shall be placed prior to demobilization. The pipeline marker signs shall be made in accordance with DOTD Specification Section 729. See Appendix VIII for DOTD Specifications. A proposed drawing of the permanent markers shall be included in the Work Plan for approval by the Engineer.

- 12.4 Installation: Casing pipe installation shall conform to the Plans and DOTD Specification Section 701, as detailed in Appendix VIII of these Specifications.

The Contractor shall perform a survey to locate, probe, identify, and mark any utilities within the conveyance corridor limits in the vicinity of the proposed excavation and alignments for casing pipe installation operations and shall submit a proposed construction plan for open-cut installation of the permanent casing pipe in the Work Plan for approval by the Engineer.

If existing utility infrastructure is damaged by the Contractor during construction, the utilities shall be repaired immediately to pre-construction conditions by the Contractor at no cost to the Owner.

Sediment pipeline installation shall be performed in a way that will not interfere with or endanger the roadway surface and activity thereon, and minimize subsidence of the surface and utilities above and in the vicinity of the operations. The Contractor shall be responsible for all settlement resulting

from operations and shall repair and restore damaged road surfaces or utilities to pre-construction conditions at no cost to the Owner. Trenches shall be excavated, and trench boxes shall be installed to prevent failure and loss of roadway base materials.

Pavement saw-cutting, excavation, backfilling, and pavement patch shall conform to the Plans and DOTD Specifications. The Contractor shall submit a shop drawing of the proposed pavement patch for DOTD approval prior to the Pre-construction conference. Excavation and Embankment shall conform to DOTD Specification Section 203. Backfill shall consist of embankment material, flowable fill, and bedding material as shown in the plans and shall conform to DOTD Specification Sections 203, 710, and 726, respectively. Pavement patch shall conform to DOTD Specification Section 510, Asphaltic Concrete Pavement Patching, Widening, and Joint Repair. See Appendix VIII for DOTD Specifications.

Upon completion of the installation of the sediment pipeline, disturbed areas shall be seeded or protected from erosion. The area shall be restored to pre-construction conditions.

DOTD may require materials inspections and/or sampling prior to installation. This may include but is not limited to asphalt mix, embankment, concrete pipe, and flowable fill. Shop drawings shall be provided for DOTD approval prior to the Pre-Construction conference. Certificates of inspection shall be submitted prior to material installation.

12.5 Traffic Control: One lane shall remain open at all times during casing pipe installation. The westbound lane shall be widened using 5' of crushed aggregate conforming to DOTD Specification Sub-section 1003.04(a) to provide minimum 12' travel lane width during installation of the casing pipe across the eastbound lane. Geotextile fabric shall be placed beneath the crushed aggregate conforming to DOTD Specification Section 1019. A triton barrier or approved equivalent shall be installed along the limit of excavation, as shown on the Plans, to separate vehicular traffic from the open-cut. Steady burning lights shall be installed on top of barriers to provide sufficient lighting at night. Traffic control shall be conducted per the Plans. Crossing construction sequencing shall conform with TS-12.6.

12.6 LA 27/82 Crossing Construction Sequence: The sediment pipeline casing pipe to be installed underneath LA 27/82 shall be installed in phases. All construction aspects of this installation shall conform to DOTD Specifications and TS-12 of these specifications.

12.6.1 Phase 1: Phase 1 consists of the closure of the eastbound lane of LA 27/82 and installation of one section of casing pipe as shown on the Plans. The westbound lane shall be widened using 5' of crushed aggregate to facilitate passing traffic during restricted lane width. The Contractor shall clear the existing grade of vegetation and topsoil prior to widening, place geotextile fabric and crushed aggregate, and maintain the temporarily widened section so that it is suitable to facilitate travel throughout the installation. Temporary traffic control (TTC) shall be installed throughout the duration of the work. The eastbound section of casing pipe shall be installed via open highway cut as shown on the Plans. Trenches shall be excavated, and trench boxes shall be installed to prevent failure and loss of roadway base materials. The concrete casing pipe shall be installed, followed by a pavement patch conforming to requirements described in TS-12.4.

12.6.1.1 The dimensions of the open highway cut and trench excavation shall be in accordance with the Plans.

12.6.1.2 All temporary traffic control devices including flaggers, triton barriers, and temporary signage shall be in accordance with DOTD TTC-04 as shown on the Plans. Flagging operations shall continue 24 hours per day until two-way travel is reinstated in Phase 3. Flaggers shall have radio communication capabilities during flagging operations.

- 12.6.1.3 All temporary traffic control devices shall be used in accordance with DOTD Specification Section 713 and the MUTCD and shall meet the NCHRP Report 350 or MASH requirements for Test Level 3 devices as shown on the Plans.
 - 12.6.1.4 Portable light plants shall be installed and operational overnight for the duration of the roadway crossing construction at the locations shown on the Plans, including two flagger stations.
 - 12.6.1.5 Channelizing devices shall be installed at the locations shown in the Plans and shall be lit at night in accordance with DOTD TTC-00(c).
- 12.6.2 Phase 2: Phase 2 consists of the closure of the westbound lane of LA 27/82 and encompasses the following work: temporary traffic control installation, open highway cut of the westbound lane, trench excavation, placement of the concrete casing pipe, backfilling of the trench, and asphalt pavement patching.
- 12.6.2.1 The dimensions of the open highway cut and trench excavation shall be in accordance with the Plans.
 - 12.6.2.2 All temporary traffic control devices including flaggers, triton barriers, and temporary signage shall be in accordance with DOTD TTC-04 as shown on the Plans. Triton barriers used to shield the temporary dredge pipeline shall be installed with a minimum flare rate of 14:1 in accordance to the AASHTO Roadside Design Guide, Table 5.9. Flagging operations shall continue 24 hours per day until two-way travel is reinstated in Phase 3. Flaggers shall have radio communication capabilities during flagging operations.
 - 12.6.2.3 All temporary traffic control devices shall be used in accordance with DOTD Specification Section 713 and the MUTCD and shall meet the NCHRP Report 350 or MASH requirements for Test Level 3 devices as shown on the Plans.
 - 12.6.2.4 Portable light plants shall be installed and operational overnight for the duration of the roadway crossing construction at the locations shown on the Plans, including two flagger stations.
 - 12.6.2.5 Channelizing devices shall be installed at the locations shown in the Plans and shall be lit at night in accordance with DOTD TTC-00 (c).
- 12.6.3 Sediment Pipeline Installation and Dredging Operation Phase (Phase 3): Temporary traffic control devices shall be installed and maintained as shown on the Plans until after the marsh fill areas have been accepted, the temporary sediment pipeline removed, and the access pits backfilled.

Following installation, the temporary sediment pipeline will be located within the Clear Zone. Tri-ton barriers shall be used to shield formidable obstacles from pipeline and equipment within the Clear Zone as shown on the Plans and in accordance with the Roadside Design Guide (AASHTO 4th Edition, 2011). Triton barriers used to shield the temporary dredge pipeline shall be installed with a minimum flare rate of 14:1 in accordance to the AASHTO Roadside Design Guide, Table 5.9, as shown in the Plans. Sufficient signage identifying the work area shall be installed and remain throughout the duration of the project. The contractor shall be liable for any damage to pipeline and/or equipment by formidable obstacles and shall immediately repair any damage to the sediment pipeline caused

by such.

- 12.6.3.1 All temporary traffic control devices including flaggers, triton barriers, and temporary signage shall be in accordance with DOTD TTC-04 as shown on the Plans.
- 12.6.3.2 All temporary traffic control (TTC) devices shall be used in accordance with DOTD Specifications and the MUTCD and shall meet the NCHRP Report 350 or MASH requirements for Test Level 3 devices as shown on the Plans.
- 12.6.3.3 The Contractor may widen the existing turnout located at the intersection of the oil field road and Highway 27/82 as necessary to facilitate access to the project area. The Contractor shall submit a proposed widening plan for the turnout of the oil field road in the Work Plan for approval by the Engineer at least 14 days prior to the pre-construction conference.
- 12.7 Maintenance of Traffic: Traffic shall be maintained by the Contractor in accordance with DOTD Specification 104.03. All lane closures shall be authorized by the Engineer, and unless otherwise authorized, lane closures will only be allowed while work is being performed. The Contractor shall provide the Engineer a five (5) calendar day notice prior to any lane closure. A late lane opening rental will be charged to the Contractor for any lane closure that extends beyond the allowed closure times. The maximum allowed closure time for the open roadway cut shall be fourteen (14) days. The rental rate for late lane openings shall be assessed at a rate of two hundred and fifty (250) dollars per hour beginning fourteen (14) calendar days after the first lane closure for the open highway cut. The rental rate shall also apply to any unauthorized lane closures by the Contractor. Any rental monies for late lane openings or unauthorized lane closures shall be deducted from payments due to the Contractor in accordance with DOTD specification 104.03.
- 12.8 Nighttime Operations: Nighttime construction operations shall conform to DOTD Specification Subsection 105.20. Nighttime operations are defined as work performed after sunset and before sunrise. The contractor shall submit a lighting plan to the Engineer for approval 30 days prior to the start of night time operations.
- 12.9 Pavement Markings: Plastic pavement markings and raised pavement markers shall be restored over the newly placed pavement patch to pre-project layout in accordance with DOTD Specification Sections 731 and 732, provided in Appendix VIII.
- 12.10 Truck Advisory: The Contractor shall submit notice of work at least two (2) weeks prior to casing pipe installation to the oversized truck permit section of DOTD headquarters in Baton Rouge to facilitate the issuance of a truck advisory.
- 12.11 Construction Window: As this work requires restricting access on a state Hurricane Evacuation Route, the installation shall be done outside of the peak of the Atlantic/Gulf hurricane season, or August 1st to October 20th. Should a tropical system enter the Gulf during operations, both lanes shall be reopened as soon as practicable.
- 12.12 Casing Pipe Capping and Site Restoration: After the marsh fill has been accepted and the sediment pipeline has been removed from the casing pipe, each end of the casing pipe shall be capped as described in TS-10.7. The Contractor shall provide the Owner and Engineer notice of the completion of installation of the caps 72 hours prior to backfilling of the construction pits to provide for inspection.
- 12.13 Payment: This Work consists of furnishing and assembling the materials needed to construct, lay-out, and install a permanent casing pipe to facilitate temporary placement of the sediment pipeline

in the location shown in the Plans, in accordance with these Specifications. All costs connected with the highway crossing will be paid to the Contractor at the Contract unit price for Traffic Control (Bid Item No. 12), Highway Crossing Mobilization (Bid Item No. 13), Highway Embankment (Bid Item No. 14), Highway Excavation (Bid Item No. 15), Geotextile Fabric (Bid Item No. 16), Pavement Patching (Bid Item No. 17), Bedding Material (Bid Item No. 18), Concrete Drain Pipe (Bid Item No. 19), Flowable Fill (Bid Item No. 20), Plastic Pavement Markings (Solid Line) (Bid Item No. 21), Plastic Pavement Markings (Broken Line) (Bid Item No. 22), and Raised Pavement Markers (Bid Item No. 23) which payment shall also include all other items of overhead, profit, labor, material, and any other costs incidental to performing the Work. Payment for widening the westbound lane using crushed aggregate shall be included in the Contract unit price for Traffic Control (Bid Item No. 12).

- 12.14 **Measurement:** Highway Embankment (Bid Item No. 14) shall be measured based on the area of the open highway cut. For highway embankment material placed within the limits of the roadway, a depth of 1 foot shall be used to determine the payment quantity in cubic yards of embankment material. For areas outside of the limits of the roadway, including the waterline relocation embankment, the area and depth of fill shall be measured for payment in cubic yards. Highway Excavation (Bid Item No. 15) shall be measured by the area of the cut and depth of cut. Payment shall be by the cubic yard. Geotextile Fabric (Bid Item No. 16) shall be measured for payment by the area of the open highway cut, within the limits of the roadway, in square yards. Pavement Patching 12” Thick (Bid Item No. 17) shall be measured based on the area of the open highway cut, within the limits of the roadway. Payment shall be by the square yard. Haul Truck tickets shall be used to confirm the quantity of asphalt patching placed onsite. Bedding Material (Bid Item No. 18) shall be measured based on the area of the open highway cut, within the limits of the roadway. A depth of 6 inches shall be used to determine volume in cubic yards for payment. Concrete Drain Pipe (Bid Item No. 19) shall be measured for payment by linear foot of concrete pipe installed. Flowable Fill (Bid Item No. 20) shall be measured for payment based on the cross sectional area (excluding the volume of the casing pipe) of the open highway cut multiplied by the depth of cut (cubic yard) within the limits of the roadway. Haul tickets shall be used to confirm the quantity of flowable fill placed onsite. Plastic Pavement Markings (Bid Items No. 21 and 22) shall be measured based on linear foot of striping replaced within the open highway cut and within the vicinity of the highway cut. Raised Pavement Markers (Bid Item No. 22) shall be paid per each pavement marker replaced. All quantities shall be measured by the Contractor and verified by the Engineer prior to payment.
- 12.15 **Payment Request:** Seventy-five percent (75%) of the price of each of these bid items (Bid Items 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, and 23) will be paid to the Contractor after permanent casing pipe is installed to facilitate placement of the temporary sediment pipeline at the location of the crossing shown in the Plans in accordance with these Specifications or as directed by the Engineer. Twenty-five percent (25%) of the price of each of these bid items will be paid to the Contractor upon removal of the temporary sediment pipeline from the casing pipe and the installation of the casing pipe caps, completion of pavement patch, removal of crushed aggregate and geotextile fabric adjacent to the westbound lane shoulder, and backfilling of access pits.

TS-13 BORROW AREA AND SEDIMENT PIPELINE BUOYS AND MARKERS

- 13.1 **Borrow Area Buoys:** No lighting is required for the marking of the perimeter of the borrow area. The dredge, anchor buoys, and floating dredge lines in the area must be marked in accordance with U.S. Coast Guard (USCG) Navigation Rules.
- 13.2 **Sediment Pipeline:** All sediment pipeline markers must meet USCG regulations. The Contractor shall obtain a temporary Permit from the USCG for all buoys or markers to be placed in the water prior to installation. The Permit application shall state the position, color, and the dates to be installed and removed for all sediment pipeline markers and be submitted to the USCG. Sediment pipeline markers and lights shall not be colored or placed in a manner that they will obstruct or be

confused with navigation aids. Copies of application and Permit shall be submitted to the Owner and Engineer seven (7) days prior to commencement of dredging operations. Signal lights, signage, and markings shall be utilized to designate the pertinent Work Areas including, but not limited to, the conveyance corridors and sediment pipelines and shall be displayed and operated in accordance with the regulations of the USCG.

- 13.2.1 Submerged Sediment Pipeline Markers: Any submerged sediment pipeline not covered by at least 20 feet of water must be marked with yellow buoys displaying a yellow 2.5 second flashing light. The lights must have a one mile nominal range and should be spaced according to USCG regulations. The lighted buoys shall be maintained by the Contractor in the proper location, floating, upright, and with functioning lights throughout the duration of the project. Electronic positioning shall be employed to set the buoys and to check the positional integrity of the buoys on a daily basis. The results of these checks shall be reported in the Daily Progress Report. The Contractor shall submit a Private Aids to Navigation Application for the required aids to navigation, as discussed in Section SP-6 Deliverables. Latitude and longitude coordinates for every mile of the submerged pipeline shall be submitted to the Engineer and U.S. Coast Guard so that it can be charted. All submerged sediment pipelines installed within channels shall be marked with fluorescent orange buoys and signs stating "DANGER SUBMERGED PIPELINE" in accordance with the USCG regulations. "DANGER SUBMERGED PIPELINE" signs shall also be placed at the beginning and end of all submerged sediment pipelines and at all abrupt changes of direction. Unless otherwise specified by the USCG, submerged sediment pipelines are considered to require special marks and shall have USCG approved flashing yellow all-around lights.
- 13.2.2 Floating Sediment Pipeline Markers: Should any portion of the sediment pipeline not rest on the mudline, it will be considered a floating sediment pipeline and shall be required to be made visible on the water's surface and clearly marked. In no case shall the sediment pipeline be allowed to fluctuate between the surface and the bottom or lie partly submerged. Lights shall be installed on the floating sediment pipeline as required by the USCG. The lights shall be supported either by buoys or by temporary piling. Where the sediment pipeline does not cross a navigable channel, flashing yellow all-around lights shall be spaced and installed in accordance with the USCG regulations.
- 13.2.3 Temporary Pipeline Markers: Temporary pipeline markers shall be placed and maintained during construction on each side of the LA 27/82 crossing. The markers shall be in line with the sediment pipeline crossing indicating owner, size, number of lines, contents, and the address for contacting the owner. The temporary pipeline markers shall be made in accordance with Louisiana Standard Specifications for Roads and Bridges, 2006 edition, Standard Specification 1015.04 (b) for sign panels and Standards Specification 1015.02 (a) (2) & (3) for posts, and as shown in the Plans. The Contractor shall submit a proposed design with material and details in the Work Plan for approval.
- 13.2.4 Installation: The sediment pipeline markers shall be lighted for twenty-four (24) hour operation. The Contractor shall notify the USCG in accordance with subparagraph "Notice of Intent to Dredge" as specified in SP-6.3.1. The notification shall contain maps and descriptions of lighted sediment pipeline markers for inclusion in the Notice to Mariners.
- 13.2.5 Operation and Maintenance: The Contractor shall operate and maintain all the sediment pipeline markers. Sediment pipeline markers shall be checked daily for any that may be missing, damaged, incorrectly positioned, or have inoperable lighting. Missing, damaged, or inoperable markers shall be replaced within twenty-four (24) hours. Should markers leave positioned locations, the Contractor shall relocate immediately. If any of the buoys are not maintained in the proper location, the Contractor shall cease dredging until the buoys are maintained, replaced, or repositioned. Failure to maintain buoys will result in a withholding of retainage from payments to the Contractor until the buoys meet permit,

Coast Guard, and Contract Document requirements and are satisfactory to the Engineer.

- 13.2.6 Removal: The Contractor shall remove all sediment pipeline markers, piles, chains, anchors, etc. from the Work Area upon completion of this Project.

TS-14 EXCAVATION

- 14.1 Character of Material Within the Borrow Area: The descriptions of the material are based on remote site investigations and site-specific core borings. The material descriptions are provided in the appendices of this section and only describe the materials obtained from those investigations. The Contractor is solely responsible for any interpretation or conclusions drawn there from. Based on limited information provided by the core borings, the materials found within the borrow area consist of very soft to medium soft clay.
- 14.2 Potential Differing Borrow Area Characteristics: The characteristics of the materials in the borrow areas may be as generally indicated by the sediment boring logs and grain size distribution curves contained in Appendix IV. The material found in each of the borrow area sediment core borings (vibracores) is indicative only of the material at that discrete location. The Contractor should be aware that it is possible for material of differing characteristics to be present in the borrow area, including material differing from that contained in the vibracores.
- 14.3 Borrow Area Excavation Limitations: All excavation shall be performed within the horizontal and vertical limits of the borrow areas shown in the Plans. The permits have a three-foot allowable disturbance depth specified for all cut depths in the borrow area. The equipment may not extend beneath this disturbance depth. The material located below the indicated dredge depth may not be suitable for placement. Compliance with permit conditions will be based on the excavated as-built survey. The Contractor is responsible for ensuring that placing equipment up to three feet below the permitted depth does not result in permit violations based upon the as-built survey bathymetry being below the permitted depth. The Contractor will be required to certify in each Daily Progress Report that the excavation has occurred within the limits of the Plans. The Contractor shall submit to the Engineer any check surveys performed in the borrow areas to verify that the final bathymetry is not below the permitted depth, though these surveys will not be considered to be the as-built survey. If excavation occurs outside of the permitted borrow area or below the depth as shown in the Plans, the Contractor will pay any and all permit fines for the permit violation. If the Contractor does not pay any costs, fines, or other expenses related to dredging outside the borrow area limits and/or for permit violations, the Engineer will withhold retainage from payments due to the Contractor from the Owner, or they may be recovered from the Contractor's Bond to cover all costs, fines, or expenses related to excavating outside borrow area limits and/or deeper than allowed within the borrow area. The Engineer may deduct quantities of material dredged outside of and/or below the allowable dredge depths from pay quantities based on the as-built borrow area survey.
- 14.4 Borrow Area Cut Sequence: Borrow area contours and the location of the borrow area are shown in the Plans. The Contractor shall dredge each section of the borrow area as completely as practical prior to dredging other sub-sections of the borrow area. Excavation of sediment from the borrow area shall be in accordance with these Specifications and in conformity to the lines, grades, and elevations shown in the Plans or as directed by the Owner and Engineer. The borrow area does not have a side slope though natural sloughing of material will not be considered a permit violation.

The Contractor shall supply to the Engineer weekly updates to the proposed borrow area cut sequence supplied in the Work Plan as specified in SP-9.5. These updates shall show previous excavations within the borrow area since beginning construction in addition to any planned excavations for the next seven (7) days.

For dredge vessels wherein the Code of Federal Regulations (CFR) does not require a USCG licensed U.S. Merchant Marine Officer for operations, qualified person(s) shall be required to stand

watch and monitor the required marine radio channels for vessel-to-vessel communications for passing as well as the operational safety of the dredge, Plant, and supporting vessels during mobilization, construction, and demobilization.

- 14.5 Uniform Excavation: To the greatest extent practicable, all excavation shall be performed in a uniform and continuous manner so as to avoid creating multiple holes, valleys, or ridges within the borrow area. The borrow area shall be dredged to maximize the removal of suitable material from each sub-area of the borrow area.
- 14.6 Acceptable and Unacceptable Materials: The Contractor will NOT be paid for any material placed in the fill areas that comes from a source other than the authorized borrow area. Unacceptable material includes hard clays, debris, and rocks or rubble larger than 1.9 mm in diameter. If the Engineer has reason to believe that the material being placed in the fill areas does not meet the above standards, the Engineer may require the Contractor to collect samples under the Engineer's direction and supervision and at the Contractor's expense. The sieve analysis will be conducted by an independent, pre-approved Laboratory.
- 14.7 Encountering Unacceptable Material in the Borrow Area: Unacceptable material shall not be placed in the fill areas. The Contractor shall continuously monitor the fill material for unacceptable materials in the fill being placed. If unacceptable materials are encountered during dredging, the Contractor shall immediately cease operation and relocate to another portion of the borrow area to eliminate the unacceptable materials. The Contractor shall immediately notify the Engineer verbally and report the encounter with the unacceptable materials in the Daily Progress Report, providing location in State Plane Coordinates of the area of the unacceptable materials. Unacceptable materials that are excavated and placed in the fill areas may be required to be removed from the fill areas by the Contractor, at the Contractor's own cost. If the Contractor fails to remove the unacceptable materials to the satisfaction of the Engineer, such materials may be removed by the Owner and the cost of such removal may be deducted from any money due, or to become due, to the Contractor or may be recovered under their Bond. The Engineer has the authority to determine if the quality of the material being placed in the fill areas is acceptable. If the Engineer makes a specific determination that material being placed is unacceptable, the Contractor will adjust their construction operation to avoid this material. This does not relieve the Contractor of responsibility for all placed material, including unacceptable material, rock, rubble, and debris.
- 14.8 Preservation of Historical, Archeological, and Cultural Resources: A cultural resource study has been conducted within the borrow area. Those areas with magnetic anomalies that have been judged to possibly be of historical, archeological, or cultural value have been excluded from the borrow area. If during construction activities the Contractor observes items that may have historical, cultural, or archeological value, the Contractor shall immediately cease all activities that may result in the destruction of these resources and shall prevent their employees and Subcontractors from trespassing on, removing, or otherwise damaging such resources. Such observations shall be reported immediately to the Engineer, Owner, and Resident Project Representative so that the appropriate authorities may be notified and a determination made as to their significance and what, if any, special disposition of the finds should be made. The Contractor shall report any observed unauthorized removal or destruction of such resources by any person to the Engineer and appropriate State of Louisiana authorities. The Contractor will relocate the dredge to another area within the borrow area and resume construction of the project, and not return to the site in question until State authorities have rendered judgment concerning the artifacts of interest.
- 14.9 Preservation of Existing Natural Resources: Equipment operators shall be instructed by the Contractor with regards to avoiding damage to the submerged lands and existing vegetation outside the fill areas as marked in the Plans during all phases of the Work.

- 14.10 Dredge Mobilization/Demobilization Notification: The Contractor shall notify the Engineer at least three (3) Days in advance of the date the dredge and other Equipment will be mobilized and demobilized to and from the project area.

TS-15 TRANSPORT OF EXCAVATED MATERIALS

- 15.1 Hydraulic Placement of Fill: All marsh fill shall be placed hydraulically. The method of transport and hydraulic placement will be at the discretion of the Contractor. However, methods and Equipment will have to comply with all permit, production, environmental, and Contractual requirements.
- 15.2 Pipeline Transport of Fill: If a pipeline is used to transport material from the Gulf borrow area, the pipeline seaward of the beach landing shall be submerged except at the dredge, booster pumps (if required), and at oil and gas infrastructure crossings (if required) unless otherwise specified in the Plans. In these instances, the pipeline shall be floated. A description of sediment pipeline placement shall be included in the Work Plan.

A submerged pipeline corridor is specified on the Plans to facilitate dredging of the Gulf borrow area during placement of marsh fill. Regardless, it is the Contractor's responsibility to obtain all easements, right of ways, and permits required along with conducting any field investigations necessary.

The Contractor may be required to cross existing submerged oil and gas infrastructure located at or near the ocean floor. If a pipeline is used to transport material, the pipeline seaward of the beach landing shall be submerged except at the dredge, booster pumps (if required), and at oil and gas infrastructure crossings. In these instances, the pipeline shall be floated unless written permission has been obtained from the pipeline owner to place the submerged pipeline on the ocean floor. A copy of this permission shall be provided to the Owner. If the sediment pipeline is not floated across existing infrastructure, the Contractor shall use appropriate methods to place the temporary sediment pipeline across existing infrastructure (i.e. bridging, matting, etc.) and shall provide a detailed description of proposed construction methods in the Work Plan for approval by the Engineer. The Contractor shall coordinate with all infrastructure owners and obtain approval to cross existing infrastructure using such methods from the owner or leaseholder.

Conveyance and transport corridors have been identified in the Plans. Deviations from or relocation of these corridors are subject to review and approval by the State and Federal regulatory agencies. Should the Contractor request a deviation or relocation of these corridors, it shall be the responsibility of the Contractor to apply for and obtain the required Permit modifications from the Louisiana Department of Natural Resources, Office of Coastal Management and the U.S. Army Corps of Engineers in addition to approvals from the applicable property owners, oyster lease holders, and/or utility operators. The Contractor shall provide the approved permit modifications and approvals to the Owner and Engineer prior to installing the sediment pipeline and/or booster pumps.

No use of spud-type anchors or driving of piles shall be allowed within fifty (50) feet of pipelines. No anchoring shall be allowed outside of the approved Work Area unless approved by the Owner. If pilings are used for anchorage, the pilings shall be well marked and removed in their entirety upon completion of the Contractor's operations. If piles cannot be removed completely, they must be removed to ten (10) feet below the existing mudline.

Any damages to private or public property resulting from the Contractor's operations shall be repaired by the Contractor at his expense. Costs incurred by the Contractor for compliance with this section should be included in the mobilization and demobilization cost in the Bid Price for each applicable section.

Pipeline Corridor Survey: The pipeline corridor shall be surveyed weekly to determine alignment, stability, and integrity issues with the sediment pipeline and if there are any leaks in the submerged

line. The weekly check survey shall consist of two (2) lines running the length of the submerged pipeline. If a leak, or elevated area, is detected, the area in the immediate vicinity of the mound shall be surveyed at a grid spacing of no more than 50 feet (survey lines shall be orientated north-south and east-west). The survey lines shall extend a minimum of 100 feet from the edge of the mound. The results of the gridded survey will be used to calculate the volume of material contained in the mound, which will be deducted from the cut volume for payment purposes. The surveys shall be repeatable and compared to prior surveys for any alignment, stability, and integrity issues. Initial underwater inspection survey shall be conducted following sediment pipeline installation and prior to utilization of the sediment pipeline for the transport of dredged sediments. Plots depicting the comparisons of successive inspection surveys to the initial inspection survey shall be submitted to the Owner and Engineer within seven (7) days of the most recent survey. The Contractor shall submit a survey plan for submerged sediment pipeline inspection in the Work Plan for approval by the Owner and Engineer. The presence of any such issues or deviations shall be required to be documented, locations plotted, and reported immediately.

A bathymetric plot and an electronic copy of the pipeline corridor survey shall be furnished to the Engineer in a format provided in Appendix III (preferably format #3). Bar check results, the survey scroll or BIN file, and verification of real-time tide corrections shall also be furnished to the Engineer. Bathymetric surveys not tide corrected in real-time will not be accepted. The bathymetric survey shall be performed using a Model 449 Innerspace depth sound recorder or equivalent using a single beam at 209 KHz. Hydrographic surveys shall be performed in accordance with EM 1110-2-1003, dated January 2002. A final as-built pipeline corridor survey shall be conducted and the data submitted prior to payment for as-built surveys.

- 15.3 Pipeline Leaks: The Contractor shall maintain a tight discharge pipeline at all times. The joints shall be so constructed as to preclude spillage and leakage. Leaks shall be promptly repaired. The Contractor will transport the Engineer to the leak repair site for visual inspection, if so requested by the Engineer. Failure to repair leaks or change the method of operation that is resulting in leakage and wastes marsh compatible material or exceeds turbidity and water quality standards during transport to the discharge site will result in a requirement to suspend dredging operations and require immediate repair or change of operation to prevent leakage as a prerequisite to the resumption of dredging.
- 15.4 Submerged Line Approvals: Should the Contractor choose to use an alternate submerged line from the borrow area to the placement area, the Contractor shall obtain all easements, rights of way, and permits required. The Contractor is required to conduct any field investigations or surveys necessary to establish the pipeline corridor.

TS-16 WATER DISCHARGE AREA AND OPEN WATER DISCHARGE

- 16.1 Turbidity Control: The Contractor is required to discharge water from the marsh fill area into the interior marsh to avoid impoundment of water. Predetermined dewatering locations have been identified as shown in the Plans. Any dewatering locations that deviate from that shown on the Plans may be proposed by the Contractor, in writing, for approval by the Engineer. The Contractor must provide a Turbidity Control Plan detailing means and methods for any discharge of water outside the project footprint, including, if applicable, a description of any water control structures proposed for use. Turbidity curtains shall be used at all outflow areas around water control structures. The plan must contain methods to limit turbidity and sedimentation in open water. Additional dewatering areas may be proposed by the Contractor and shall be included in the Turbidity Control Plan. The Turbidity Control Plan shall be submitted to the Engineer in the Work Plan.

In the event that the Engineer, Resident Project Representative, or the Owner observes signs of the discharge of turbid waters which form noticeable plumes outside the limits of the Work, the Owner

may, at its sole discretion, require that the Contractor immediately initiate twice daily turbidity sampling with reports submitted to the Engineer. No additional compensation shall be paid to the Contractor for this work.

- 16.2 Water Control Structures: The Contractor may use any number or design of water control structures for water discharge provided the structure is of sufficient size to discharge an appropriate volume of water. Approved dewatering locations are shown in the Plans; the Contractor may propose additional dewatering locations for approval by the Engineer. Each dewatering area is 250 feet long, measured along the primary dike, and centered on the coordinates provided in the Plans. The rate of discharge must be manually controllable with the ability to completely shut off discharge through the structure. The Turbidity Control Plan should also describe the method and timing of removal of any proposed water control structures.

TS-17 MISPLACED MATERIALS

The Contractor shall not deposit dredged material within navigation channels or on the existing shores, beaches, or existing open water areas or marshes, except within the fill areas shown in the Plans, without approval of the Engineer. If any material is deposited other than in places designated or approved, the Contractor may be required to remove such misplaced material and redeposit it where directed by the Engineer at the Contractor's expense. This will include materials in the borrow area, as discussed in Section TS-14 of the Technical Specifications. The Contractor is responsible with all costs associated with placement of material outside of the fill area shown in the Plans.

TS-18 WORK WITHIN THE VICINITY OF EXISTING PIPELINES

Oil and gas infrastructure are present in the project area. Project construction requires work in the immediate vicinity of oil and gas pipelines. The Contractor is required to independently locate infrastructure. Under the terms of this Contract, the Contractor shall not excavate within 50 feet of any active and/or abandoned pipeline without written permission from the oil and gas infrastructure owners. At the Contractor's discretion, equipment may float over the pipelines if the Contractor deems that there is sufficient water depth and clearance as to not disturb the lines.

TS-19 VESSEL-SHORE TRANSFERS

For shore-to-vessel and vessel-to-shore transfers of personnel and supplies, the Contractor may utilize any commercial, public, or private facility for shallow draft vessels. It is the responsibility of the Contractor to obtain the required permission from the facility owner and to pay any costs associated with the use of the sites. The Contractor shall be responsible for any damages caused by the use of any site for landing and transfers and shall maintain navigation through all navigable waterways and boat ramps. The Contractor shall use any landing site, transfer area, or staging area at their own risk. For informational purposes, the Contractor will be required to inform the Engineer of the site that the Contractor will be using for vessel transfers.

TS-20 WORK AREA AND TEMPORARY FENCING

The construction and borrow area limits available to the Contractor for accomplishing the Work are shown in the Plans. The Contractor shall accomplish the Work in such a manner so as to minimize disruption to boat traffic. The Contractor will be required to exclude the public, for safety purposes, from the Work areas in the immediate vicinity of the hydraulic fill placement, grading and transporting operations, or any other area that may be dangerous to the public. The storage areas shall be kept neat, orderly, and in a safe manner. Temporary fencing and cautionary signage shall be used by the Contractor, if necessary, to exclude the public from Work and storage areas.

TS-21 CONSTRUCTION ACCESS

The Contractor shall limit construction access to the fill area to the locations shown in the Plans or as approved by the Engineer. No dredging for access is permitted. The access features (ramps, roads, etc.) must be restored to the pre-construction condition upon project completion at the cost of the Contractor, except as noted in the Plans. The Contractor shall exercise caution when accessing and driving in the project area with vehicles or Equipment. In the event that damage is caused by the Contractor outside the authorized dredge and fill areas, the Contractor shall restore all damage to inlet jetties, roads, vegetation, or any other structure or natural feature to pre-construction conditions or better. The Contractor will not receive final payment until all damage is restored to the satisfaction of the Owner and Engineer.

TS-22 MISPLACED MATERIAL, PLANT MACHINERY, EQUIPMENT, OR APPLIANCE

Should the Contractor, during the progress of the Work, lose, discard, throw overboard, sink, or misplace any material, plant, machinery, equipment, or appliance, which in the opinion of the Engineer should be removed, the Contractor shall recover and remove the same with the utmost dispatch. The Contractor shall give immediate notice, with description and location of such material, plant, machinery, equipment, or appliance, to the Engineer. Should the Engineer discover such material, plant, machinery, equipment, or appliance, the Engineer may locate through electronic means or buoy the material, plant, machinery, equipment, or appliance, and may notify the Contractor of its location. Removal of the material, plant, machinery, equipment, or appliance shall be the responsibility of the Contractor and cost of the removal will be paid for by the Contractor. Should the Contractor refuse, neglect, or delay compliance with the above requirements, such material, plant, machinery, equipment, or appliance may be removed by the Owner, and the cost of such removal may be deducted from any money due or to become due to the Contractor or may be recovered under the Contractor's Bond. The liability of the Contractor for the removal of a vessel wrecked or sunk without fault or negligence shall be limited to that provided in Sections 15, 19, and 20 of the River and Harbor Act of March 3, 1899 (33-U.S.C. 410 et.seq.), or most recent version, if any.

TS-23 FINAL CLEAN-UP

Final clean-up shall include the removal of the Contractor's plant and all Equipment or Materials either for disposal or reuse. The Contractor shall remove all non-perishable debris, trash, and garbage from the site of Work prior to Final Acceptance. Plant and/or Equipment or Materials to be disposed of shall only be disposed of in a manner and at locations approved by the Engineer. Unless otherwise approved in writing by the Engineer, the Contractor is not permitted to abandon pipelines, cables, pipeline supports, pontoons, or other Equipment or Materials in the disposal area, pipeline access areas, water areas, underwater in the Gulf of Mexico, the interior marsh, or in any harbors, passes, bayous, lakes, or inlets, or other areas adjacent to the Work site. Any stakes or other markers placed by the Contractor must be removed as a part of the final clean-up. All stakes, including grade stakes, placed during the fill operation shall be completely removed and shall not be left buried in the fill.

End of PART III TECHNICAL SPECIFICATIONS

PART IV ENVIRONMENTAL PROTECTION PROVISIONS

EP-1. SCOPE

The Environmental Protection of the Contract Documents address Contractor responsibilities for the prevention of pollution and other environmental damage as the result of construction operations under the Contract Documents, including those measures set forth in the Technical Specifications. For the purpose of this Specification, pollution and other environmental damage are defined as the presence of chemical, physical, or biological elements or agents that adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to man; degrade the utility of the environment for aesthetic, cultural, and/or historical purposes; or unnecessarily damage/destroy environmental resources. The control of pollution and damage requires consideration of air, water, land, and the marine environment and includes management of construction activities, visual aesthetics, noise, solid waste, radiant energy, and radioactive materials, as well as other pollutants. The Contractor shall fulfill these Environmental Protection Provisions at the Contractor's expense.

EP-2. QUALITY CONTROL

The Contractor shall establish and maintain quality control for environmental protection for all items set forth herein. The Contractor shall record in the Daily Progress Report any problems in complying with laws, regulations, and ordinances, as well as project permits, and corrective action taken.

EP-3. PERMITS

The Contractor shall comply with all requirements under the terms and conditions set out in all permits applicable to the Work. The Owner has received the appropriate permits and approvals from the Louisiana Department of Natural Resources (LDNR), the U.S. Army Corps of Engineers (USACE), the Louisiana Department of Environmental Quality (DEQ), the Louisiana Department of Wildlife and Fisheries (LDWF), the Louisiana Department of Transportation and Development (DOTD), and the Louisiana Department of Health and Hospitals (DHH). These permits are included in the Appendices and are part of the Contract Documents. Specifically, the Contractor will familiarize themselves with general and specific conditions contained in the LDNR Coastal Use permit, the USACE 404 permit, and the Louisiana DEQ permit. Any other licenses, easements, or approvals required, including, but not limited to, those which may be required by Cameron Parish, or the Owner, shall be secured and paid for by the Contractor.

EP-4. SUBCONTRACTORS

Assurance of compliance with all sections of the Contract by Subcontractors shall be the responsibility of the Contractor, including compliance with all environmental and permit requirements.

EP-5. NOTIFICATION

The Engineer will notify the Contractor of any known noncompliance with the aforementioned Federal, State, or Local laws or regulations, permits, and other elements of the Contractor's environmental protection plan. Nevertheless, it remains the sole responsibility of the Contractor to comply with all applicable Federal, State, or Local Laws and Regulations, permits, and all elements of the Environmental Protection Plan (EPP). If there is known non-compliance, the Engineer will determine what action will be taken and such response will be transmitted to the Contractor by the Engineer, which may include stopping construction of the project

until the Contractor complies with the EPP. It will also be the Contractor's responsibility that all Subcontractors shall comply with all applicable laws, regulations, permit requirements, and all elements of the EPP.

EP-6. PROTECTION OF ENVIRONMENTAL RESOURCES

The environmental resources within the project boundaries and those affected outside the limits of permanent Work under this Contract shall be protected during the entire period of this Contract. To meet this requirement, the Contractor shall confine all activities to areas defined by the Plans and Specifications. The Contractor shall, at all times, maintain adequate stakes or other markers required to delineate and layout work areas, access areas and corridors, protected land or environmental resources, no entrance areas, and sensitive areas to ensure the protection of resources. The disturbance of lands and waters that are outside the limits of construction as marked in the Plans is prohibited, except as found necessary and approved by the Engineer. The Contractor shall conduct his work in such manner as to prevent the entry of fuels, oils, bituminous materials, chemicals, sewage, or other harmful materials into streams, lakes, marshlands, bays, or the Gulf of Mexico. The Contractor shall also conduct his work in such manner as to prevent the placement of any fill material and the discharge of project-related discharges of turbid effluent and runoff into streams, lakes, marshlands, bays, or the Gulf of Mexico. All waterways shall be cleared as soon as practicable of false work, stakes, piling, debris, or other obstructions placed during construction operations and not a part of the finished Work. Details regarding environmental protection shall be as stated in the following subparagraphs.

- 6.1 Protection of Land Resources: Prior to the beginning of any construction, and at the request of the Contractor, the Owner and Engineer shall identify land resources (if any) to be preserved within the Contractor's Work area. Unless indicated in the Plans or directed by the Owner, the Contractor shall not remove, cut, deface, injure, or destroy land resources including sand dune, marsh or berm vegetation, trees, shrubs, vines, grasses, topsoil, and landforms without direct written permission from the Engineer. No ropes, cables, or guys shall be fastened or attached to any trees for anchorage unless specifically authorized by the Engineer. Where such special emergency use is allowed, the Contractor shall provide effective protection for land and vegetation resources at all times as defined in the following paragraphs. The Contractor will be responsible for the replacement of any damaged or destroyed vegetation outside the fill area and the restoration of any water bottoms and land forms to the satisfaction of the Engineer. Failure to replace damaged or destroyed vegetation or failure to restore damaged water bottoms and land forms outside the fill area by the Contractor may result in replacement by the Owner; the cost of replacement will be deducted from monies due to the Contractor or from monies that will be due to the Contractor by the Owner.
- 6.2 Work Area Limits: Isolated areas (if any) within the Work area that are to be saved and protected shall be identified by the Engineer and marked or fenced by the Contractor. All survey monuments and markers shall be protected before construction operations commence. Where construction operations are to be conducted during darkness, the markers shall be made visible by lighting. The Contractor shall convey to all Subcontractors and personnel the purpose of marking and/or protection for all necessary objects.
- 6.3 Retardation and Control of Runoff: Runoff from the construction site shall be controlled by the Contractor by the construction, maintenance, and operation of primary and secondary retention dikes, temporary water control structures or spill boxes, routing of effluent and discharge through fill and water discharge areas, use of turbidity control measures such as silt curtains, and active management of all effluent, discharge, and runoff. Dikes will be constructed as shown in the Plans and described in the Technical Specifications and maintained in continuous repair to allow settling of fine materials from dredging, or as required by permit documents.
- 6.4 Disposal of Solid Wastes: Solid wastes (including cleared debris) and rubbish resulting from the Contractor's activities shall be picked up daily and placed in containers. These containers shall be removed from the project area and emptied on a regular schedule. The Contractor shall empty containers when three-quarters full and will avoid overflow conditions. The Contractor shall not

burn any rubbish at the Project Site. Disposal of rubbish shall be at an approved off-site location and in a manner that complies with State and Local Laws and Regulations. The Contractor shall be solely responsible for all costs associated with the collection, removal, and disposal of rubbish. All handling and disposal shall be conducted to prevent contamination. No steel, cables, wire, pipe, drums or any other solid waste or debris shall be permitted to be disposed overboard into the waters of the Gulf of Mexico or any other water body. Disposal of solid wastes or debris in the Gulf of Mexico is a violation of State and Federal laws. If such debris is found, the debris shall be removed by the Contractor at his own cost, or the Owner shall remove the debris and the cost of removal will be deducted from monies due, or will become due, to the Contractor from the Owner.

- 6.5 Disposal of Chemical Waste: Chemical waste shall be stored in corrosion resistant containers, removed from the work area, and disposed of in accordance with Federal, State, and Local regulations. The Contractor shall perform all maintenance of Equipment, including, but not limited to, refueling, filter changes, and replacement of hydraulic lines in a manner so as not to contaminate soils, ground or surface waters, or any other natural resources.
- 6.6 Disposal of Discarded Materials: Discarded materials other than those which can be included in the solid waste category will be handled by the Contractor as directed by the Engineer.
- 6.7 Use of Equipment: Outside the fill areas as marked in the Plans, any wheeled or tracked vehicle used on the Project Site is prohibited in and adjacent to existing vegetated wetlands, bay shorelines, gulf shorelines, or any other sensitive areas, unless authorized by the Engineer. Any damage to wetland vegetation or change in the existing elevation (e.g., ruts, tracks, inappropriate excavation) of greater than six inches (6") in wetland areas, bay bottom, flats, etc., occurring on the site or adjacent property, as a result of construction operations, shall be repaired by the Contractor, at no additional expense to the Owner. Marsh buggy use on existing vegetated areas and wetlands outside of the fill areas is strictly prohibited.
- 6.8 Siltation / Turbidity Control: The Contractor shall conduct Work in a manner that will not cause damaging siltation or pollution of any water bodies. All applicable Federal and State regulations of agencies and statutes relating to the prevention and abatement of pollution shall be complied with in the performance of the Contract.
- 6.9 Protection of Water, Fish, and Wildlife Resources: The Contractor shall keep construction activities under continued surveillance, management, and control to minimize interference with, disturbance to, and damage of water, fish, and wildlife resources. Species that require specific consideration, as well as measures for their protection, will be addressed in the Contractor's EPP prior to the beginning of project construction.
- 6.10 Protection of Commercial Fisheries: The Contractor shall note that bays, water bottoms, creeks, and ponds in the vicinity of the project may include numerous publicly and privately-issued leases for the cultivation and harvest of commercial fishery resources. The Contractor shall conduct all aspects of its operations to avoid any and all impacts to such leases.
- 6.11 Water Discharge: Water overflow from marsh construction activities may be discharged into the interior open water. The dewatering locations are shown in the Plans, but the number of discharges is at the discretion of the Contractor. The Contractor must provide a Turbidity Control Plan detailing means and methods for any discharge of water outside the project footprint. The plan must contain methods to limit turbidity and sedimentation in open water. Turbidity curtains may be required at all outflow areas at the discretion of the Engineer. The Turbidity Control Plan must be submitted to the Owner fourteen (14) Days prior to the Pre-Construction Conference.
- 6.11.1 The Contractor may use any number or design of water control structures for water discharge provided the structure is of sufficient size to discharge an appropriate volume of water. The rate of discharge must be manually controllable with the ability to completely shut off discharge through the structure.

- 6.11.2 In the event that the Owner or Engineer observes signs of the discharge of turbid waters which form noticeable plumes outside the limits of work, the Owner may, at its sole discretion, require that the Contractor immediately initiate twice daily turbidity sampling with reports submitted to the Owner. No additional compensation will be paid to the Contractor for this work.
- 6.12 Protection of Air Resources: The Contractor shall keep construction activities under surveillance, management, and control to minimize pollution of air resources. All activities, Equipment, processes, and Work operated or performed by the Contractor in accomplishing the specified construction shall be in strict accordance with the applicable air pollution standards of the State of Louisiana and all Federal emission and performance laws and standards.
- 6.13 Dispensing of Fuel: Secondary containment, which is capable of holding at a minimum 110% of the tank contents, must be provided by the Contractor for each fuel storage tank. Fuel dispensers shall have a four foot by four foot (4'x4'), 16-gauge metal pan with borders banded up and welded at corners right below the bibb. Edges of the pans shall be eight inches (8") minimum in depth to ascertain that no contamination of the ground takes place. Pans shall be cleaned by an approved method immediately after every dispensing of fuel and wastes disposed of offsite in an approved area. Should any spilling of fuel occur, the Contractor shall immediately contain the spill and contact the Owner and the appropriate local authorities. The Contractor will be solely responsible for any fines, penalties, or other legal activities related to fuel spills.
- 6.14 Temporary Sanitary Facility: The Contractor shall furnish and maintain chemical toilets for use by its employees, Subcontractors, Engineer, Resident Project Representative, and the Owner on the Project Site. Chemical toilets shall be cleaned on a regular basis to ensure that odor does not become a nuisance. The Contractor shall be responsible to coordinate, maintain, and monitor a cleaning schedule that is appropriate for the number of Contractor personnel on site.
- 6.15 Storage of Lubricants: All lubricants and other potential liquid pollutants shall be stored in sealed, non-corrosive containers. Individual containers shall be stored in metal pans with borders banded up and welded at the corners right below the bibb. Pans shall be deep enough to prevent contamination of the ground. Pans shall be kept clean of all spillage or leakage.

EP-7. POST CONSTRUCTION CLEAN-UP

The Contractor shall clean-up any area used for construction as stated in General Provisions.

EP-8. RESTORATION OF LANDSCAPE DAMAGE

The Contractor shall restore all landscape features, land resources, water resources, and fish and wildlife resources damaged or destroyed during construction operations outside the limits of the approved Work areas. Such restoration shall be in accordance with a plan submitted for approval by the Engineer. This Work will be accomplished at the Contractor's expense. Final payment to the Contractor shall not occur until the Engineer is satisfied with the Contractor's effort to restore landscape or any other damage caused by the Contractor or his Subcontractors.

EP-9. MAINTENANCE OF POLLUTION CONTROL FACILITIES

The Contractor shall maintain constructed facilities and portable pollution control devices for the duration of the Contract or for that length of time construction activities create the particular pollutant.

EP-10. FUEL OIL TRANSFER OPERATIONS

In accordance with the U.S. Coast Guard regulations (33 CFR 156.120, or as revised or updated), couplings used in fuel oil transfer operations on any vessel with a capacity of two hundred fifty (250) or more barrels of oil (or fuel) shall be either a bolted or full-threaded connection; or a quick-connect coupling approved by the Commandant; or an automatic back-pressure shutoff nozzle used to fuel the vessel. An executed fuel oil transfer (Declaration) form signed by the tanker man shall be completed for each refueling operation. The U.S. Coast Guard shall also be notified prior to any refueling.

EP-11. SUBMITTALS

- 12.1 Environmental Protection Plan (EPP): At least fourteen (14) Days prior to the Pre-Construction Conference, the Contractor shall submit in writing an Environmental Protection Plan to the Engineer. Acceptance of the Contractor's plan will not relieve the Contractor of his responsibility for adequate and continuing control of pollutants and other environmental protection measures. The EPP shall include, but not be limited to, the following:
- 12.1.1 Methods for protection of features and habitats to be preserved within authorized Work areas. The Contractor shall prepare a listing of methods to protect resources needing protection, i.e. all vegetation, trees, shrubs, vines, grasses and ground cover, landscape features, air and water quality, fish and wildlife, soil, historical, archeological and cultural resources, and environmental resources.
 - 12.1.2 Procedures to be implemented by the Contractor to assure compliance with the environmental protection requirements outlined in Section EP-6 of the Environmental Protection Provisions and to comply with the applicable permits, laws, and regulations. The Contractor shall address each element of Environmental Protection described in Section EP-6 of the Environmental Protection Provisions. The Contractor shall also provide written assurance that immediate corrective action will be taken to correct pollution of the environment due to accident, natural causes, or failure to follow the procedures set out in accordance with the EPP.
 - 12.1.3 Procedures to be implemented by the Contractor to assure compliance with protection of water, fish and wildlife resources requirements of Section EP-6 of the Environmental Protection Provisions and to comply with the applicable permits, Laws and Regulations. The Contractor shall address each element of Protection of Water, Fish and Wildlife described in Section EP-6 of the Environmental Protection Provisions. The Contractor shall also provide written assurance that immediate corrective action will be taken to correct pollution of the environment due to accident, natural causes, or failure to follow the procedures set out in accordance with the EPP.
 - 12.1.4 A list of Federal, State, and Local laws, regulations, and permits concerning environmental protection, pollution control, and abatement that are applicable to the Contractor's proposed operations and the requirements imposed by those laws, regulations, and permits.
 - 12.1.5 Drawings showing locations of any proposed temporary excavations or embankments for haul roads, material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials.
 - 12.1.6 Environmental monitoring plans for the jobsite, including land, water, air, and noise monitoring.
 - 12.1.7 Turbidity Control Plan which describes measures to be taken by the Contractor to avoid the discharge of turbid, silt-laden, water from the project area sufficient to ensure that water bodies, wildlife, and fisheries resources, including commercial fisheries resources,

will not be damaged. The Contractor must provide a Turbidity Control Plan detailing means and methods for controlling any discharge of water outside the project footprint. The plan must contain methods to limit turbidity and sedimentation in open water. Turbidity curtains shall be used at all outflow areas.

12.1.9 Oil spill contingency plan.

12.1.10 A protection plan for threatened and/or endangered species within the project area.

12.1.11 Work area plan showing the proposed activity in each portion of the area and identifying the areas of limited use or nonuse. The plan should include measures for marking the limits of use areas.

12.1.12 The location of the solid waste disposal area.

12.1.13 A statement as to the person who will be responsible for implementation of the EPP. The Contractor personnel responsible shall report directly to the Contractor's top management and shall have the authority to act for the Contractor in all environmental protection matters.

12.1.14 A statement acknowledging that the Contractor is responsible for environmental protection, including all of the Contractor's personnel and Subcontractors.

12.1.15 The EPP will be dated and signed by an individual of top management in charge of the construction.

EP-12. NOISE CONTROL

The Contractor shall comply with all Federal, State, and Local sound control and noise level ordinances, regulations, and laws that apply to the Project Site. All hauling and excavating Equipment, including dredges, used on this Work shall be equipped with satisfactory mufflers or other noise abatement devices. Booster pumps used on this Work shall be equipped with either or both satisfactory mufflers and other sound abatement devices to reduce engine noise. The Engineer may request the Contractor to construct a sound barrier landward of booster pumps in order to reflect noise offshore.

End of PART IV ENVIRONMENTAL PROTECTION PROVISIONS

APPENDIX I SUPPLEMENTAL INFORMATION

DREDGE DATA SHEET AND EQUIPMENT SCHEDULE

NOTE: The Contractor shall complete the following data sheets for the Equipment proposed to perform the Work under this Contract. Separate *Dredge Data Sheets* for each dredge are required if the Contractor plans to utilize multiple dredges. The dredge data sheet Submittal shall constitute a certification that the described Equipment is available to, and under control of, the Contractor.

The Dredge Data Sheet is not mandatory. The Dredge Data Sheet is for informational purposes only and will not be used as a basis for award. The information submitted is pertinent to the evaluation of the proposed dredges and their capability to perform the Work as required and as agreed to by the Bidder through the submittal of a proposal. The Bidder may only omit data or information that he considers proprietary.

OYSTER BAYOU MARSH RESTORATION PROJECT (CS-59)

ATTACHMENT A1 - EQUIPMENT SCHEDULE

EQUIPMENT CATEGORY: _____

Type	Capacity	Manufacturer	Age & Condition	Location

EQUIPMENT CATEGORY: _____

Type	Capacity	Manufacturer	Age & Condition	Location

EQUIPMENT CATEGORY: _____

Type	Capacity	Manufacturer	Age & Condition	Location

NOTE: The Plant and Equipment Schedule is Mandatory. The Plant and Equipment Schedule is for information purposes only and will not be used as a basis for award. The information submitted is pertinent to the evaluation of the proposed dredges and their capability to perform the Work as required and as agreed to by the Bidder through the submittal of a Proposal. The Bidder may only omit information that he/she considers proprietary. Provide separate table for each category of equipment including mechanical dredging, excavating, material handling, pile driving, barges, loading, grading, earthworks, trucking, etc. Specify production rate of equipment. Use separate line for each major item. Use additional pages if necessary. Hydraulic cutterhead and hopper dredge equipment shall be listed on the Dredge Data Sheets.

ATTACHMENT A2 - DREDGE INFORMATION:

Owned: _____ Leased: _____ Leased From: _____

Dredge name: _____

Minimum width of channel in which dredge can successfully operate and make a 180 degree turn:

Maximum draft of dredge: _____

Loaded freeboard: _____

Minimum depth in which the dredge can successfully operate: _____

Depth range to which dredge will dig:

Maximum: _____ Minimum: _____

Length and beam of dredge hull: _____

Inside diameter of pump discharge: _____

Inside diameter of pump suction inlet: _____

Suction lift (Elevation of main dredge pump relative to the water surface level): _____

Diameter of pump impeller eye: _____

Outside diameter of pump impeller: _____

Brake horsepower and corresponding engine RPMs (during dredging operations) applied to pump impeller at rated drive of the prime mover, during dredging operations: _____

Pump engine(s) horsepower and corresponding RPM: _____

Completion date of each dredge pump engine re-build: _____

Expected production rate for this project:

Marsh Fill _____ cubic yards/day

IF A CUTTERHEAD DREDGE IS USED:

Maximum effective dredge swing, in degrees: _____

Length of dredge spuds: _____

Length of dredge ladder: _____

Cutterhead type and diameter: _____

Brake horsepower applied to cutterhead during dredging operations: _____

IF A HOPPER DREDGE IS USED:

Length of drag arms: _____

Sailing speed (unloaded): _____

Sailing speed (loaded): _____

Drafted of dredge (unloaded): _____

Drafted of dredge (loaded): _____

Drag arm head type: _____

Brake horsepower applied to drag arm head during dredging operations: _____

Will a booster pump be required to complete this work? If yes, please specify horsepower.

Type(s) of production rate monitoring equipment on-board the dredge (measuring cy/hr of material dredged): _____

THE DREDGE MAY BE INSPECTED AT (List current location of equipment):

DREDGE OWNER INFORMATION:

Firm name: _____

Point of contact: _____

Title: _____

Business address:

Street: _____

City: _____

Parish/County: _____

State: _____ Zip+4: _____

Telephone no.: _____ Facsimile no.: _____

APPENDIX II DAILY PROGRESS REPORT

DAILY PROGRESS REPORT

Date: _____ Report No. _____
Report is due by 12:00 P.M. (Noon) of the following day

PROJECT: Oyster Bayou Marsh Restoration Project (CS-59)

WEATHER:

(Clear) (P. Cloudy)

(Cloudy) (Rain)

TEMPERATURE:

Min. _____

Max. _____

Wind Speed: _____ mph **Direction** _____

Wave Height:

Borrow Site _____ feet

Fill Area _____ feet

Direction _____

Borrow Site being dredged: _____

Location of discharge(s): Station _____ Range _____

Station _____ Range _____

Contractor/Subcontractor and area of responsibility:

1. **Work Performed Today:** (Indicate location and description of work performed. Provide marsh fill advance over last twenty-four (24) hours. Attach dredge position printouts and plot to this report.)

2. **Results of Surveillance:** (Include satisfactory work completed or deficiencies with action to be taken.)

3. **Buoy Check:** Were submerged pipeline buoys checked today (Yes/No)? _____
Did buoys require resetting (Yes/No)? _____

4. Water Quality Monitoring: Was water quality monitoring conducted today in compliance with project permit requirements of the Louisiana Department of Natural Resources Permit No. _____ and water quality protection laws, and the results provided to the Engineer (Yes/No)? _____

5. Verbal Instructions Received: (List any instructions given by the Owner or Engineer, construction deficiencies, retesting required, etc., with action to be taken.)

6. Remarks: (Cover delays and any conflicts in Plans, Specifications, or instructions.)

7. Safety Inspection: (Report violations noted; corrective instructions given; and corrective actions taken.)

8. Equipment Data: (Indicate items of construction equipment other than hand tools at job site and whether or not used and if operable.)

9. Dredge Status: (Is the dredge working, not operating due to weather/sea state, or is it under repair?)

10. Avoidance of Overdredging: Do you certify that the dredge has excavated within the limits of the borrow areas, as shown in the Plans (Yes/No)? _____. Also, do you certify that the borrow area has not been excavated below the limit as shown in the Plans (Yes/No)? _____

11. Progress Summary:

	This Day	To Date
Worked Hours		
Downtime Hours (Explain Below)		
Length of Discharge Advance (Ft.)		
Volume Pumped (Estimated c.y.)		
Volume Pay (c.y. accepted sections only)		
Volume % Completed		

Explanation of Downtime:

Contractor's Verification: The above report is complete and correct and equipment used and work performed during this reporting period are in compliance with the contract drawings and specifications except as noted above.

Contractor's Approved Authorized Representative

Note: This form must include continuous plots of dredge locations and depths.

APPENDIX III SURVEY DATA FORMATS

SURVEY DATA FORMATS

Format 1:

**Louisiana Department of Natural Resources
Strategic Online Natural Resources Information System
SONRIS 2000**

Coastal Restoration Division

(See <http://www.savelawetlands.org/site/Descriptors.pdf>)

This format is an ASCII comma-delimited format. The arrangement of the columns is as follows:

Project Number: Alphanumeric value assigned to a project by LDNR used for identification purposes.

Station Number: Alphanumeric value assigned to a station by LDNR used for identification purposes. For survey data, the station is actually the center of the area where surveying occurs.

Group: A classification given to a group of stations that share a common characteristic. For this project, the Group name is the name of the profile line.

Status: Generally describes whether data were collected in the Pre- or Post-construction period.

Date (mm/dd/yyyy): Date the data were collected.

Time (hh:mm:ss): Time the data were collected.

Point Number: Identification number assigned to data point by survey team. In many cases data are collected at points along transects and a station might consist of several transects.

Easting utm83 (m): Horizontal coordinate.

Northing utm83 (m): Horizontal coordinate.

Elevation NAVD88 (m): Elevation relative to North American Vertical Datum of 1988.

Example:

```
BA38-1,38-1, SG1,Post-cons.,06/01/2004,13:00,01,829997.02,3241533.14,-0.91
BA38-1,38-1, SG1,Post-cons.,06/01/2004,13:00,02,829991.87,3241512.72,-1.13
BA38-1,38-1, SG1,Post-cons.,06/01/2004,13:00,03,829991.52,3241511.46,-1.07
BA38-1,38-1, SG1,Post-cons.,06/01/2004,13:00,04,829988.26,3241498.42,-2.23
BA38-1,38-1, SG1,Post-cons.,06/01/2004,13:00,05,829985.45,3241487.40,-2.74
BA38-1,38-1, SG1,Post-cons.,06/01/2004,13:00,06,829985.16,3241486.17,-3.60
BA38-1,38-1, SG1,Post-cons.,06/01/2004,13:00,07,829985.02,3241485.56,-3.63
BA38-1,38-1, SG1,Post-cons.,06/01/2004,13:00,08,829982.27,3241474.66,-3.90
BA38-1,38-1, SG1,Post-cons.,06/01/2004,13:00,09,829982.18,3241474.51,-3.90
BA38-1,38-1, SG1,Post-cons.,06/01/2004,13:00,10,829980.30,3241467.10,-4.24
BA38-1,38-1, SG1,Post-cons.,06/01/2004,13:00,11,829979.81,3241465.17,-4.30
BA38-1,38-1, SG1,Post-cons.,06/01/2004,13:00,12,829978.51,3241459.81,-4.24
BA38-1,38-1, SG1,Post-cons.,06/01/2004,13:00,13,829976.63,3241452.34,-4.63
BA38-1,38-1, SG1,Post-cons.,06/01/2004,13:00,14,829976.34,3241451.27,-4.57
BA38-1,38-1, SG1,Post-cons.,06/01/2004,13:00,15,829974.89,3241445.75,-4.72
```

Format 2:

**U.S. Army Corps of Engineers
Beach Morphology Analysis Program - Free Format**

This format is an ASCII format listing the profile line name, the number of points on each profile, and the distance and elevation values:

<Profile Name #1	Easting of Origin	Northing of Origin,	Azimuth of Origin	Date>
<Number of Points>				
<Distance Value #1>	<Elevation Value #1>			
<Distance Value #2>	<Elevation Value #2>			
<Distance Value #3>	<Elevation Value #3>			
(etc.)				
<Profile Name #2	Easting of Origin	Northing of Origin,	Azimuth of Origin	Date>
<Number of Points>				
<Distance Value #1>	<Elevation Value #1>			
<Distance Value #2>	<Elevation Value #2>			
<Distance Value #3>	<Elevation Value #3>			
(etc.)				

All of the above values are to be reported in State Plane NAD83 / NAVD88 feet. Meters or UTM coordinates are not acceptable. Distance values may be calculated according to the following formula:

$$\text{Distance Value} = \begin{aligned} &[(\text{Easting of Point}) - (\text{Easting of Origin})] \cdot \sin(\text{Azimuth of Origin}) + \\ &[(\text{Northing of Point}) - (\text{Northing of Origin})] \cdot \cos(\text{Azimuth of Origin}) \end{aligned}$$

Example:

```
SG01 3831677.3 278768.2 195.0 06-01-2004
6
-154.2 -1.1
-133.7 3.0
197.4 3.0
332.4 6.0
542.4 6.0
938.4 -2.8
SG02_P11 3832115.0 278650.1 195.0 06-01-2004
5
-553.1 3.0
113.9 3.0
248.9 6.0
458.9 6.0
936.5 -4.6
SG03 3832553.5 278531.7 195.0 06-01-2004
6
-454.4 1.5
-447.0 3.0
54.6 3.0
189.6 6.0
399.6 6.0
873.6 -4.5
```

Format 3:

X, Y, Z, Profile Line Comma Delimited format

This format is an ASCII comma-delimited format. The arrangement of the columns is as follows

Easting (State Plane NAD83, feet)

Northing (State Plane NAD83, feet)

Elevation (Elevation relative to North American Vertical Datum of 1988 in feet)

Profile Line Name

Example:

3832117.8,	280412.5,	-3.0,	SG1
3832100.0,	280345.8,	-3.7,	SG1
3832098.8,	280341.7,	-3.5,	SG1
3832087.5,	280299.1,	-7.3,	SG1
3832077.8,	280263.1,	-9.0,	SG1
3832076.8,	280259.1,	-11.8,	SG1
3832076.3,	280257.1,	-11.9,	SG1
3832066.8,	280221.5,	-12.8,	SG1
3832066.5,	280221.0,	-12.8,	SG1
3832060.0,	280196.8,	-13.9,	SG1
3832058.3,	280190.5,	-14.1,	SG1
3832053.8,	280173.0,	-13.9,	SG1
3832047.3,	280148.6,	-15.2,	SG1
3832046.3,	280145.1,	-15.0,	SG1
3832041.3,	280127.1,	-15.5,	SG1

APPENDIX IV GEOTECHNICAL REPORTS

PROVIDED ELECTRONICALLY at the following link:

<ftp://ftp.coastal.la.gov/CS-59%20Oyster%20Bayou%20Marsh%20Creation/Construction%20Documents/>

APPENDIX V USACE PROJECT PERMIT



DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, NEW ORLEANS DISTRICT
P.O. BOX 60267
NEW ORLEANS, LOUISIANA 70160-0267

REPLY TO
ATTENTION OF
Operations Division
Western Evaluation Section

AUG 03 2015

RECEIVED
2015 AUG 10 P 1:46
CPRA

SUBJECT: MVN-2012-01709-WPP

Coastal Protection and Restoration Authority
450 Laurel Street, Suite 1200
Baton Rouge, Louisiana 70801

Dear Gentlemen:

The proposed work, to dredge and fill for implementing the Oyster Bayou Marsh Restoration Project (CS-59), in Cameron Parish, Louisiana, as shown on the attached drawings, is authorized under **Category II** of the **Programmatic General Permit** provided that all conditions of the permit are met.

The following special conditions are made part of this authorization:

1. This permit does not authorize the conversion of wetlands to uplands, or impacts to existing aquatic resources.
2. Many local governing bodies have instituted laws and/or ordinances in order to regulate dredge and/or fill activities in floodplains to assure maintenance of floodwater storage capacity and avoid disruption of drainage patterns that may affect surrounding properties. Your project involves dredging and/or placement of fill; therefore, you must contact the local municipal and/or parish governing body regarding potential impacts to floodplains and compliance of your authorized activities with local floodplain ordinances, regulations or permits.
3. If the authorized project, or future maintenance work, involves the use of floating construction equipment (barge mounted cranes, barge mounted pile driving equipment, floating dredge equipment, dredge discharge pipelines, etc.) in the waterway, you are advised to notify the Eighth Coast Guard District so that a Notice to Mariners, if required, may be prepared. Notification with a copy of your permit approval and drawings should be mailed to the Commander (dpw), Eighth Coast Guard District, Hale Boggs Federal Building, 500 Poydras Street, Room 1230, New Orleans, Louisiana 70130, about 1 month before you plan to start work. Telephone inquiries can be directed to the Eighth Coast Guard District, Waterways Management at (504) 671-2107.

4. If the authorized project requires any additional work not expressly permitted herein, the permittee must obtain an amendment to this authorization prior to commencement of work.
5. That structures will not be placed across any state-owned water bottoms without approval of the Louisiana Office of Administration, State Lands Office. The permittee will be responsible for contacting the State Lands Office to ascertain if the structure will be placed over state-owned water bottoms.
6. The (attached) Standard Manatee Conditions for In-Water Activities are hereby made a part of this authorization.
7. Equipment access shall be through open water and limited to within the marsh creation areas and pipeline and equipment corridors shown on the permit drawings.

However, prior to commencing work on your project, you must obtain approvals from state and local agencies as required by law and by terms of this permit. These approvals include, but are not limited to, a permit, consistency determination or determination of "no direct or significant impact (NDSI) on coastal waters" from the Louisiana Department of Natural Resources, Office of Coastal Management and a water quality certification from the Louisiana Department of Environmental Quality.

This approval to perform work is valid for 5 years from the date of this letter.

Permittee is aware that this office may reevaluate its decision on this permit at any time the circumstances warrant.

Should you have any further questions concerning this matter, please contact Johnny Duplantis of this office at (504) 862-2548.

Sincerely,

Darrell S. Barbara

for: Martin S. Mayer
Chief, Regulatory Branch

Enclosures

STANDARD MANATEE CONDITIONS FOR IN-WATER ACTIVITIES

During in-water work in areas that potentially support manatees, all personnel associated with the project shall be instructed and made aware of the potential presence of manatees, manatee speed zones, and the need to avoid collisions with, and injury to, manatee. All personnel shall be advised that there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act of 1972 and the Endangered Species Act of 1973. Additionally, personnel shall be instructed not to attempt to feed or otherwise interact with the animal.

All on-site personnel are responsible for observing water-related activities for the presence of manatee(s). To minimize potential impacts to manatees in areas of their potential presence, the permittee shall insure the following are adhered to:

- All work, equipment, and vessel operation shall cease if a manatee is spotted within a 50-foot radius (buffer zone) of the active work area. Once the manatee has left the buffer zone on its own accord (manatees must not be herded or harassed into leaving), or after 30 minutes have passed without additional sightings of manatee(s) in the buffer zone, in-water work can resume under careful observation for manatee(s).
- If a manatee(s) is sighted in or near the project area, all vessels associated with the project shall operate at "no wake/idle" speeds within the construction area and at all times while in waters where the draft of the vessel provides less than a four-foot clearance from the bottom. Vessels shall follow routes of deep water whenever possible.
- If used, siltation or turbidity barriers shall be properly secured, made of material in which manatees cannot become entangled, and be monitored to avoid manatee entrapment or impeding their movement.
- Temporary signs concerning manatees shall be posted prior to and during all in-water project activities and removed upon completion. Each vessel involved in construction activities shall display at the vessel control station or in a prominent location, visible to all employees operating the vessel, a temporary sign at least 8½" X 11" reading language similar to the following: "CAUTION BOATERS: MANATEE AREA/ IDLE SPEED IS REQUIRED IN CONSTRUCTION AREA AND WHERE THERE IS LESS THAN FOUR FOOT BOTTOM CLEARANCE WHEN MANATEE IS PRESENT". A second temporary sign measuring 8½" X 11" shall be posted at a location prominently visible to all personnel engaged in water-related activities and shall read language similar to the following: "CAUTION: MANATEE AREA/ EQUIPMENT MUST BE SHUTDOWN IMMEDIATELY IF A MANATEE COMES WITHIN 50 FEET OF OPERATION".
- Collisions with, injury to, or sightings of manatees shall be immediately reported to the US Fish and Wildlife Service's, Louisiana Ecological Services Office (337/291-3100) and the Louisiana Department of Wildlife and Fisheries, Natural Heritage Program (225/765-2821). Please provide the nature of the call (i.e., report of an incident, manatee sighting, etc.); time of incident/sighting; and the approximate location, including the latitude and longitude coordinates, if possible.

1. Activities authorized under this general permit shall not be used for piecemeal work and shall be applied to single and complete projects. All components of a single and complete project shall be treated together as constituting one single and complete project. All planned phases of multi-phased projects shall be treated together as constituting one single and complete project. This general permit shall not be used for any activity that is part of an overall project for which an individual permit is required.
2. No activity is authorized under this general permit which may adversely affect significant cultural resources listed or eligible for listing in the National Register of Historic Places until the requirements for Section 106 of the National Historic Preservation Act are met. Upon discovery of the presence of previously unknown historic and/or prehistoric cultural resources, all work must cease and the permittee must notify the State Historic Preservation Office and the Corps of Engineers. The authorization is suspended until it is determined whether or not the activity will have an adverse effect on cultural resources. The authorization may be reactivated or modified through specific conditions if necessary, if it is determined that the activity will have no adverse effect on cultural resources. The CEMVN-PGP authorization will be revoked if it is determined that cultural resources would be adversely affected, and an individual permit may be necessary.
3. The Chitimacha Tribe of Louisiana has stated that the project area is part of the aboriginal Chitimacha homelands. If during the course of work at the site, prehistoric and/or historic aboriginal cultural materials are discovered, the permittee will contact the Chitimacha Tribe of Louisiana at P.O. Box 661, Charenton, LA 70523, and CEMVN. CEMVN will initiate the required Federal, State, and Tribal coordination to determine the significance of the cultural materials and the need, if applicable, for additional cultural resource investigations.
4. There shall be no unreasonable interference with navigation by the existence or use of the activity authorized herein. The permittee will, at his or her expense, install and maintain any safety lights, signals, and signs prescribed by the United States Coast Guard, through regulations or otherwise, on authorized facilities or on equipment used in performing work under the authorization.
5. No activity may substantially disrupt the movement of those species of aquatic life indigenous to the waterbody, including those species which normally migrate through the area, unless the activity's primary purpose is to block or impound water.
6. If the proposed activity involves the installation of aerial transmission lines, submerged cable, or submerged pipelines across navigable waters of the United States the following is applicable:

The National Ocean Service (NOS) has been notified of this authorization. You must notify NOS and this office in writing, at least two weeks before you begin work and upon completion of the activity authorized by this permit. Your notification of completion must include a drawing which certifies the location and configuration of the completed activity (a certified permit drawing

may be used). Notification to NOS will be sent to the following address: National Ocean Service, Office of Coast Survey, N/CS261, 1315 East West Highway, Silver Springs, Maryland 20910-3282.

7. For pipelines under an anchorage or a designated fairway in the Gulf of Mexico the following is applicable:

The National Ocean Service has been notified of this authorization. You must notify NOS and this office in writing, at least two weeks before you begin work and upon completion of the activity authorized by this permit. Within 30 days of completion of the pipeline, 'as built' drawings certified by a professional engineer registered in Louisiana or by a registered surveyor shall be furnished to this office, the Commander (dpw), Eighth Coast Guard District, Hale Boggs Federal Building, 500 Poydras Street, Room 1230, New Orleans, Louisiana 70130, and to the Director, National Ocean Service, Office of Coast Survey, N/CS261, 1315 East West Highway, Silver Springs, Maryland 20910-3282. The plans must include the location, configuration and actual burial depth of the completed pipeline project.

8. If the proposed project, or future maintenance work, involves the use of floating construction equipment (barge mounted cranes, barge mounted pile driving equipment, floating dredge equipment, dredge discharge pipelines, etc.) in a federally maintained waterway, you are advised to notify the Eighth Coast Guard District so that a Notice to Mariners, if required, may be prepared. Notification with a copy of your permit approval and drawings should be mailed to the Commander (dpw), Eighth Coast Guard District, Hale Boggs Federal Building, 500 Poydras Street, Room 1230, New Orleans, Louisiana 70130, about 1 month before you plan to start work. Telephone inquiries can be directed to (504) 671-2112.

9. All activities authorized herein shall, if they involve, during their construction or operation, any discharge of pollutants into waters of the United States, be at all times consistent with applicable water quality standards, effluent limitations and standards of performance, prohibitions, pretreatment standards and management practices established pursuant to the Clean Water Act (PL 92-500: 86 Stat 816), or pursuant to applicable state and local laws.

10. Substantive changes to the Louisiana Coastal Resources Program may require immediate suspension and revocation of this permit in accordance with 33 CFR 325.7.

11. Irrespective of whether a project meets the other conditions of this permit, the Corps of Engineers retains discretionary authority to require an individual Department of the Army permit when circumstances of the proposal warrant this requirement.

12. Any individual authorization granted under this permit may be modified, suspended, or revoked in whole or in part if the Secretary of the Army or his authorized representative determines that there has been a violation of any of the terms or conditions of this permit or that such action would otherwise be in the public interest.

13. The Corps of Engineers may suspend, modify, or revoke this general permit if it is found in

the public interest to do so.

14. Activities proposed for authorization under the PGP must comply with all other necessary federal, state, and/or local permits, licenses, or approvals. Failure to do so would result in a violation of the terms and conditions of CEMVN-PGP.

15. The permittee shall permit the District Commander or his authorized representative(s) or designee(s) to make periodic inspections of the project site(s) and disposal site(s) if different from the project site(s) at any time deemed necessary in order to assure that the activity being performed under authority of this permit is in accordance with the terms and conditions prescribed herein.

16. This general permit does not convey any property rights, either in real estate or material, or any exclusive privileges; and it does not authorize any injury to property or invasion of rights or any infringement of federal, state, or local laws or regulations nor does it obviate the requirements to obtain state or local assent required by law for the activity authorized herein.

17. In issuing authorizations under this permit, the federal government will rely upon information and data supplied by the applicant. If, subsequent to the issuance of an authorization, such information and data prove to be false, incomplete, or inaccurate, the authorization may be modified, suspended, or revoked, in whole or in part.

18. For activities resulting in sewage generation at the project site, such sewage shall be processed through a municipal sewage treatment system or, in areas where tie-in to a municipal system is not practical, the on-site sewerage system must be approved by the local parish sanitarian before construction.

19. Any modification, suspension, or revocation of CEMVN-PGP, or any individual authorization granted under this permit, will not be the basis for any claim for damages against the United States.

20. Additional conditions deemed necessary to protect the public interest may be added to the general permit by the District Commander at any time. If additional conditions are added, the public will be advised by public notice. Individual authorizations under CEMVN-PGP may include special conditions deemed necessary to ensure minimal impact and compliance with CEMVN-PGP.

21. CEMVN-PGP is subject to periodic formal review by CEMVN and OCM in coordination with the Environmental Protection Agency, US Fish and Wildlife Service, the National Marine Fisheries Service, and the Louisiana Department of Wildlife and Fisheries. Comments from reviewing agencies will be considered in determination as to whether modifications to the general permit are needed. Should the District Commander make a determination not to incorporate a change proposed by a reviewing agency, after normal negotiations between the respective agencies, the District Commander will explain in writing to the reviewing agency the

basis and rationale for his decision.

22. CEMVN retains discretion to review CEMVN-PGP, its terms, conditions, and processing procedures, and decide whether to modify, reissue, or revoke the permit. If CEMVN-PGP is not modified or reissued within 5 years of its effective date, it automatically expires and becomes null and void.

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

24. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party as described in Special Condition 26 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

25. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and State coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

26. If you sell the property associated with this permit, you must provide this office with a copy of the permit and a letter noting your agreement to transfer the permit to the new owner and the new owners agreement to accept the permit and abide by all conditions of the permit. This letter must be signed by both parties.

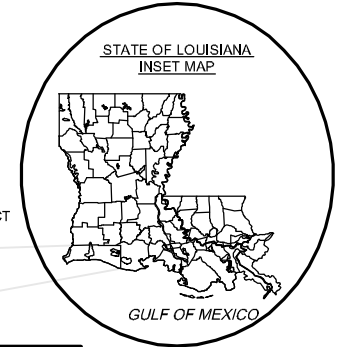
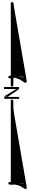
27. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit.

28. Many local governing bodies have instituted laws and/or ordinances in order to regulate dredge and/or fill activities in floodplains to assure maintenance of floodwater storage capacity and avoid disruption of drainage patterns that may affect surrounding properties. Your project involves dredging and/or placement of fill; therefore, you must contact the local municipal and/or parish governing body regarding potential impacts to floodplains and compliance of your proposed activities with local floodplain ordinances, regulations or permits.

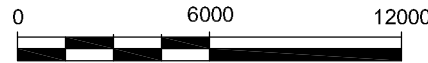
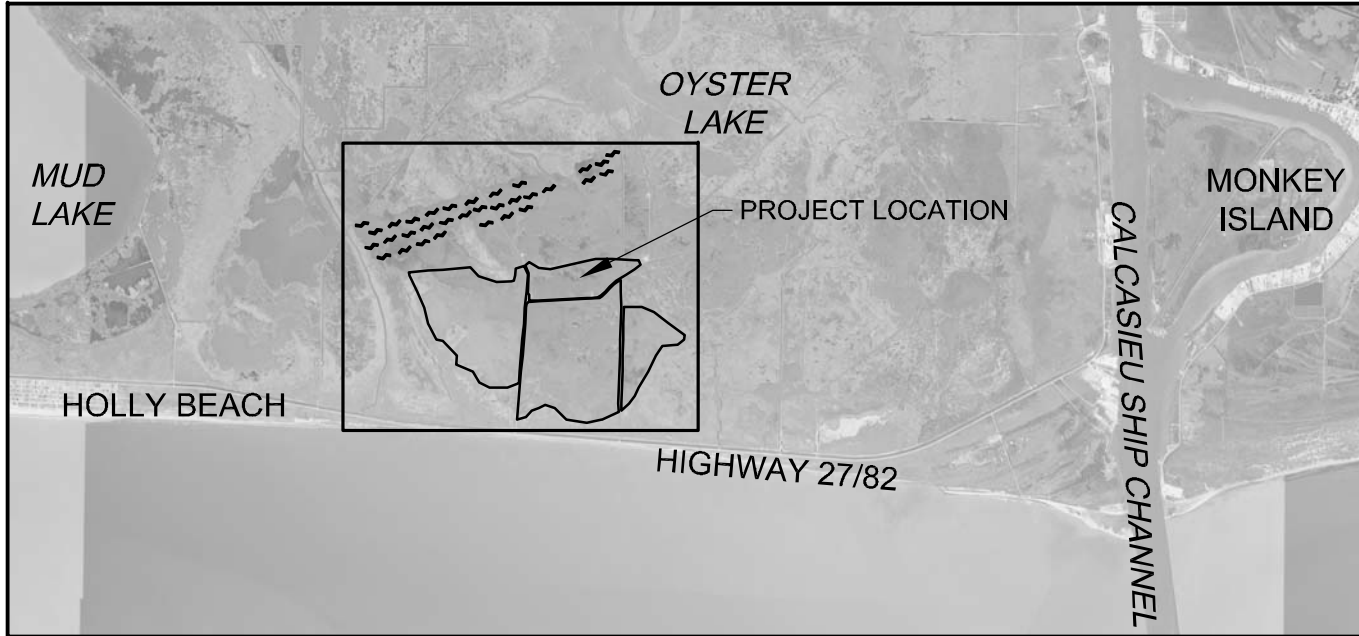
29. In issuing authorizations under this permit, the federal government does not assume any liability for: damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes; damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest; damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit, and; design or construction deficiencies associated with the permitted work.

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

**OYSTER BAYOU MARSH
RESTORATION PROJECT
CS-59 CAMERON PARISH**



NOT TO SCALE



GRAPHIC SCALE IN FT



CB&I COASTAL PLANNING & ENGINEERING, INC.

2481 N.W. BOCA RATON BOULEVARD
BOCA RATON, FLORIDA 33431

PH. (561) 391-8102
FAX (561) 391-9116

www.CoastalPlanning.net

C.O.A. FL. #4028
C.O.A. LA. #2531

APPLICATION BY:
COASTAL PROTECTION AND RESTORATION AUTHORITY
450 LAUREL ST., SUITE 1500
BATON ROUGE, LOUISIANA 70801
PH: (225) 342-2799
FAX: (225) 342-8801

**COASTAL PROTECTION & RESTORATION
AUTHORITY**

450 LAUREL STREET
BATON ROUGE, LOUISIANA 70801

OYSTER BAYOU MARSH
RESTORATION PROJECT

TITLE SHEET

STATE PROJECT NUMBER: CS-59

DATE: 9/19/14

DRAWN BY: G KRYSZYNAK

DESIGNED BY: W THOMPSON

APPROVED BY: G THOMSON

SHEET 1 OF 52

INDEX TO SHEETS

<u>SHEET NO.</u>	<u>DESCRIPTION</u>
1	TITLE SHEET
2	SHEET INDEX
3-5	GENERAL NOTES
6-10	ALIGNMENT TABLES
11-14	EARTHEN TERRACE COORDINATE LOCATIONS
15	PROJECT OVERVIEW
16	PLAN VIEW
17	MARSH CREATION SURVEY PROFILE LOCATIONS
18	EARTHEN TERRACE PLAN VIEW
19-34	MARSH RESTORATION CONSTRUCTION PROFILES
35-41	TERRACE FIELD CONSTRUCTION PROFILES
42	BORROW AREA PLAN VIEW
43	BORROW AREA CROSS SECTION A-A'
44	BORROW AREA CROSS SECTION B-B'
45	TYPICAL EARTHEN TERRACE PLAN VIEW
46	TYPICAL EARTHEN TERRACE CROSS SECTION
47	PLANTING LAYOUT AND DETAIL
48-49	CONSTRUCTION DETAILS
50	HIGHWAY 27/82 CROSSING PLAN VIEW
51	HIGHWAY CROSSING 27/82 CROSSING DETAIL
52	TEMPORARY PIPELINE MARKER AND CASING PIPE CAP/MARKER DETAIL

CB&I COASTAL PLANNING & ENGINEERING, INC.

2481 N.W. BOCA RATON BOULEVARD
BOCA RATON, FLORIDA 33431

PH. (561) 391-8102
FAX (561) 391-9116

www.CoastalPlanning.net

C.O.A. FL. #4028
C.O.A. LA. #2531

APPLICATION BY: COASTAL PROTECTION AND RESTORATION AUTHORITY 450 LAUREL ST., SUITE 1500 BATON ROUGE, LOUISIANA 70801 PH: (225) 342-2799 FAX: (225) 342-8801	COASTAL PROTECTION & RESTORATION AUTHORITY 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801	OYSTER BAYOU MARSH RESTORATION PROJECT STATE PROJECT NUMBER: CS-59	SHEET INDEX DATE: 9/19/14
DRAWN BY: G KRYSZTYNIAK	DESIGNED BY: W THOMPSON	APPROVED BY: G THOMSON	SHEET 2 OF 52

GENERAL NOTES

1. ALL ELEVATIONS ARE GIVEN IN THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD '88) U.S. SURVEY FEET (FEET), GEOID 2009. ALL HORIZONTAL COORDINATES ARE GIVEN IN THE NORTH AMERICAN DATUM OF 1983 (NAD '83, LOUISIANA STATE PLANE SOUTH ZONE) U.S. SURVEY FEET (FEET).
2. THE MARSH FILL BORROW AREA CONTAINS APPROXIMATELY 6,688,000 CY OF MATERIAL. IT IS ESTIMATED THAT 3,607,425 CY WILL NEED TO BE DREDGED TO CONSTRUCT THE 2,205,000 CY MARSH TEMPLATE AND BACKFILL THE FILL SOURCE FOR THE PRIMARY CONTAINMENT DIKE. THE BORROW AREA EXCEEDS THE CONSTRUCTION TEMPLATE VOLUME AND CPRA REQUESTS TO PERMIT THIS ENTIRE AREA TO ALLOW THE CONTRACTOR FLEXIBILITY IN CONSTRUCTION METHODOLOGY, TO ALLOW BUFFER FOR ANY UNEXPECTED ANOMOLIES THAT MAY BE ENCOUNTERED, TO ALLOW FOR INCONSISTENCIES IN THE QUALITY OF THE MATERIAL, FOR LIMITATIONS OF THE CONTRACTOR'S EQUIPMENT, ETC.
3. CPRA WILL PROVIDE AS-BUILT EXCAVATION AND PLACEMENT VOLUMES UPON THE COMPLETETION OF CONSTRUCTION.
4. PLANS AND BID DOCUMENTS ARE COMPLEMENATRY; WHAT IS REQUIRED IN ONE IS AS BINDING AS IF REQUIRED BY ALL. CLARIFICATIONS AND INTERPRETATIONS OF, OR NOTIFICATIONS OF MINOR VARIATIONS AND DEVIATIONS IN THE CONTRACT DOCUMENTS WILL BE ISSUED BY THE ENGINEER.
5. ELEVATIONS SHOWN ON THE PLANS ARE BASED ON SURVEYS PERFORMED IN AUGUST AND SEPTEMBER OF 2012. THE SURVEYS WERE CONDUCTED BY LONNIE G. HARPER AND ASSOCIATES, INC. FOR CPRA.
6. MEAN HIGH WATER (MHW) AND MEAN LOW WATER (MLW) ARE BASED ON THE TIDE STATION AT CALCASIEU PASS, LOUISIANA. ELEVATION ARE REFERENCED TO NAVD '88, US FEET.
7. THE CONTRACTOR SHALL PERFORM A MAGNETOMETER SURVEY IN ALL AREAS OF EXCAVATION AND OTHER WORK THAT MAY POTENTIALLY DAMAGE OR INTERFERE WITH EXISTING INFRASTRUCTURE, PRIOR TO ANY WORK. LOCATION OF INFRASTRUCTURE (PIPELINES, WELL HEADS, ETC.) ARE PROVIDED IN THE CONTRACT DOCUMENTS FOR INFORMATIONAL PURPOSES ONLY
8. AVOIDING IMPACTS TO EXISTING VEGETATION: FOR PROTECTION OF EXISTING VEGETATION, ACCESS TO OR MOVEMENT ACROSS THE MARSH OUTSIDE OF THE DEFINED PROJECT AREA SHALL GENERALLY BE PROHIBITED WITHIN VEGETATED AREAS FOR ALL PERSONNEL AND EQUIPMENT. VEGETATED AREAS SHALL NOT BE USED FOR EQUIPMENT, PERSONNEL OR MATERIAL ACCESS OR STORAGE. THE DREDGED FILL SHALL BE DISCHARGED WITHIN THE CONTAINED AREAS IN A MANNER THAT WILL MINIMIZE OVERFLOW OF THE DREDGED MATERIAL FROM THE BOUNDS OF ITS PLACEMENT AREA.

CB&I COASTAL PLANNING & ENGINEERING, INC.

2481 N.W. BOCA RATON BOULEVARD
BOCA RATON, FLORIDA 33431

PH: (561) 391-8102
FAX (561) 391-9116

www.CoastalPlanning.net

C.O.A. FL. #4028
C.O.A. LA. #2531

APPLICATION BY:
COASTAL PROTECTION AND RESTORATION AUTHORITY
450 LAUREL ST., SUITE 1500
BATON ROUGE, LOUISIANA 70801
PH: (225) 342-2799
FAX: (225) 342-8801

**COASTAL PROTECTION & RESTORATION
AUTHORITY**

450 LAUREL STREET
BATON ROUGE, LOUISIANA 70801

OYSTER BAYOU MARSH
RESTORATION PROJECT

GENERAL NOTES

STATE PROJECT NUMBER: CS-59

DATE: 9/19/14

DRAWN BY: G KRYSZYNIAK

DESIGNED BY: W THOMPSON

APPROVED BY: G THOMSON

SHEET 3 OF 52

SUMMARY OF ESTIMATED BID QUANTITIES

ITEM	DESCRIPTION	UNIT	ESTIMATED QUANTITY
1	MOBILIZATION AND DEMOBILIZATION	LUMP SUM	1
2	PRE-CONSTRUCTION SURVEYS	LUMP SUM	1
3	AS-BUILT SURVEYS	LUMP SUM	1
4	MARSH FILL	CUBIC YARD	3,307,600
5	PRIMARY CONTAINMENT DIKE	LINEAR FEET	45,000
6	TERRACES	LINEAR FEET	17,550
7	SETTLEMENT PLATES	EACH	7
8	TRENASSES	LINEAR FEET	9,490
9	POND CONTAINMENT	LINEAR FEET	2,540
10	TRAFFIC CONTROL	LUMP SUM	1
11	HIGHWAY CROSSING MOBILIZATION	LUMP SUM	1
12	HIGHWAY EMBANKMENT (DOTD 203-03-00100)	CUBIC YARD	65
13	HIGHWAY EXCAVATION (DOTD 203-01-00100)	CUBIC YARD	100
14	GEOTEXTILE FABRIC (DOTD 203-08-00100)	SQUARE YARD	270
15	CLASS II BASE COURSE (302-01-00100)	SQUARE YARD	25
16	PAVEMENT PATCHING (DOTD 510-01-00100)	SQUARE YARD	25
17	BEDDING MATERIAL (DOTD 726-01-00100)	CUBIC YARD	5
18	CONCRETE DRAIN PIPE (51" O.D. REINFORCED CONCRETE PIPE) (DOTD 701-01-N)	LINEAR FEET	40
19	CONCRETE PIPE CAP	EACH	2

CB&I COASTAL PLANNING & ENGINEERING, INC.

2481 N.W. BOCA RATON BOULEVARD
BOCA RATON, FLORIDA 33431

PH: (561) 391-8102
FAX: (561) 391-9116

www.CoastalPlanning.net

C.O.A. FL. #4028
C.O.A. LA. #2531

APPLICATION BY: COASTAL PROTECTION AND RESTORATION AUTHORITY 450 LAUREL ST., SUITE 1500 BATON ROUGE, LOUISIANA 70801 PH: (225) 342-2799 FAX: (225) 342-8801	COASTAL PROTECTION & RESTORATION AUTHORITY 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801	OYSTER BAYOU MARSH RESTORATION PROJECT	GENERAL NOTES
		STATE PROJECT NUMBER: CS-59	DATE: 9/19/14
DRAWN BY: G KRYSZYNIAK	DESIGNED BY: W THOMPSON	APPROVED BY: G THOMSON	SHEET 4 OF 52

PROPOSED MARSH DEWATERING LOCATIONS

LABEL	EASTING	NORTHING
MARSH CREATION AREA 1		
DL-1	2619945.3 2620074.4	471986.9 472195.9
DL-2	2623207.0 2623455.7	472293.5 472371.8
MARSH CREATION AREA 2		
DL-3	2624783.8 2625027.5	472399.0 472454.3
DL-4	2626393.3 2626642.9	472584.5 472570.7
MARSH CREATION AREA 3		
DL-5	2624008.1 2624257.9	471275.9 471286.4
DL-6	2626566.9 2626562.2	470404.8 470154.9
MARSH CREATION AREA 4		
DL-7	2627275.7 2627506.3	471029.1 470932.5

- NOTE:
- COORDINATES ARE IN STATE PLANE, NAD 1983, LOUISIANA SOUTH ZONE, U.S. SURVEY FEET.
 - SEE TS-18 OF THE CONSTRUCTION SPECIFICATIONS

SETTLEMENT PLATE LOCATIONS

	EASTING	NORTHING	LOCATION
MARSH CREATION AREA 1			
SP-1	2620912.8	472256.6	DIKE
SP-2	2622191.6	470095.6	MARSH
MARSH CREATION AREA 2			
SP-3	2624668.4	471595.2	MARSH
MARSH CREATION AREA 3			
SP-4	2624235.5	470595.1	MARSH
SP-5	2624807.3	469095.4	MARSH
MARSH CREATION AREA 4			
SP-6	2627298.5	470595.8	MARSH
SP-7	2627318.8	469096.3	DIKE

NOTE: COORDINATES ARE IN STATE PLANE, NAD 1983, LOUISIANA SOUTH ZONE, U.S. SURVEY FEET

TIDAL DATUMS AT OYSTER BAYOU, LOUISIANA

TIDAL DATUM	ELEVATION
MEAN HIGH WATER (MHW)	1.34
MEAN LOW WATER (MLW)	0.65

SOURCE: CPRA NOAA STATION 8768094 NOTE: ELEVATIONS ARE REFERENCED TO NAVD 1988, U.S. SURVEY FEET, GEOID 2009.

BASELINE

BEND POINT	EASTING	NORTHING
P.O.B	2625411.4	466992.2
P.O.E	2625411.4	474781.6

NOTE: COORDINATES ARE IN STATE PLANE, NAD 1983, LOUISIANA SOUTH ZONE, U.S. SURVEY FEET

BENCHMARK CONTROL POINT

MONUMENT	LATITUDE	LONGITUDE	ELEVATION
CS-20-SM-03	2625833.2	486444.9	4.15

NOTE: MONUMENT IS LOCATED NEAR THE INTERSECTION OF STEP CANAL AND MUD BAYOU AND NOT WITHIN THE PROJECT AREA SHOWN IN THE PLANS. COORDINATES ARE IN STATE PLANE, NAD 1983, LOUISIANA SOUTH ZONE, U.S. SURVEY FEET. ELEVATIONS ARE REFERENCED TO NAVD 1988, U.S. SURVEY FEET, GEOID 1999.

CB&I COASTAL PLANNING & ENGINEERING, INC.

2481 N.W. BOCA RATON BOULEVARD
BOCA RATON, FLORIDA 33431

PH: (561) 391-8102
FAX (561) 391-9116

www.CoastalPlanning.net

C.O.A. FL. #4028
C.O.A. LA. #2531

APPLICATION BY:
COASTAL PROTECTION AND RESTORATION AUTHORITY
450 LAUREL ST., SUITE 1500
BATON ROUGE, LOUISIANA 70801
PH: (225) 342-2799
FAX: (225) 342-8801

COASTAL PROTECTION & RESTORATION AUTHORITY

450 LAUREL STREET
BATON ROUGE, LOUISIANA 70801

OYSTER BAYOU MARSH RESTORATION PROJECT

GENERAL NOTES

STATE PROJECT NUMBER: CS-59

DATE: 9/19/14

DRAWN BY: G KRYSZYNAK

DESIGNED BY: W THOMPSON

APPROVED BY: G THOMSON

SHEET 5 OF 52

PRIMARY DIKE CENTERLINE INFLECTION POINTS

EASTING	NORTHING
MARSH CREATION AREA 1	
2619868.1	472181.0
2621768.8	472318.6
2622031.4	472052.9
2622597.3	471873.8
2623047.5	471891.5
2623157.6	471920.5
2623207.0	472293.5
2623455.7	472371.8
2623559.9	472128.9
2623560.2	472094.9
2623520.8	471594.9
2623469.7	471094.9
2623432.9	470594.9
2623379.3	470094.9
2623346.9	469594.9
2623302.0	469094.9
2623270.6	468745.1
2622926.9	468594.9
2622386.1	468594.9
2622073.2	468764.4
2621863.9	469094.9
2621359.9	469317.9
2621370.7	469595.3
2620911.4	470054.8
2620716.2	470094.6
2620470.6	470594.9
2620343.9	471094.9
2619897.0	472094.9

EASTING	NORTHING
MARSH CREATION AREA 2	
2623497.8	472395.5
2623617.3	472492.8
2623911.4	472314.6
2624270.7	472280.1
2625411.4	472541.5
2625691.4	472594.9
2626203.4	472594.9
2627029.3	472550.8
2627084.8	472430.1
2626911.4	472299.5
2626609.5	472094.9
2626329.2	471928.7
2626122.2	471759.3
2625977.8	471594.9
2625837.1	471466.4
2625778.8	471435.3
2625742.5	471413.1
2625672.0	471410.4
2625660.0	471509.9
2625546.4	471496.3
2625541.4	471400.6
2625411.4	471390.9
2623911.4	471316.9
2623617.8	471314.6
2623625.9	471501.4
2623584.2	471531.4
2623571.5	471594.9
2623607.6	472094.9
2623613.6	472174.8

CB&I COASTAL PLANNING & ENGINEERING, INC.

2481 N.W. BOCA RATON BOULEVARD
BOCA RATON, FLORIDA 33431

PH: (561) 391-8102
FAX (561) 391-9116

www.CoastalPlanning.net

C.O.A. FL. #4028
C.O.A. LA. #2531

NOTE: COORDINATES ARE IN STATE PLANE, NAD 1983,
LOUISIANA SOUTH ZONE, U.S. SURVEY FEET.

APPLICATION BY: COASTAL PROTECTION AND RESTORATION AUTHORITY 450 LAUREL ST., SUITE 1500 BATON ROUGE, LOUISIANA 70801 PH: (225) 342-2799 FAX: (225) 342-8801	COASTAL PROTECTION & RESTORATION AUTHORITY 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801	OYSTER BAYOU MARSH RESTORATION PROJECT	ALIGNMENT TABLES
		STATE PROJECT NUMBER: CS-59	DATE: 9/19/14
DRAWN BY: G KRYSZYNAK	DESIGNED BY: W THOMPSON	APPROVED BY: G THOMSON	SHEET 6 OF 52

PRIMARY DIKE CENTERLINE INFLECTION POINTS

EASTING	NORTHING
MARSH CREATION AREA 3	
2623541.1	471206.7
2623592.9	471250.1
2623663.0	471261.0
2623911.4	471271.8
2625411.4	471347.0
2625814.4	471367.7
2625867.3	471391.6
2626050.6	471594.9
2626254.8	471792.5
2626390.1	471895.0
2626463.4	471936.0
2626467.9	471594.9
2626462.1	471094.9
2626453.1	470594.9
2626440.4	470094.9
2626427.8	469594.9
2626415.1	469094.9
2626402.4	468594.9
2626386.4	468094.9
2626386.4	467841.8
2625881.6	467594.7
2625411.4	467503.3
2624783.1	467594.9
2624412.3	467953.1
2624115.2	468066.8
2623911.4	467960.4
2623680.1	467889.1
2623510.2	467672.7

EASTING	NORTHING
MARSH CREATION AREA 3	
2623242.4	467596.0
2623281.6	468094.9
2623322.9	468594.9
2623364.3	469094.9
2623418.9	469594.9
2623457.7	470094.9
2623499.6	470594.9
2623532.5	471094.9
MARSH CREATION AREA 4	
2626579.8	471094.9
2627118.6	471094.9
2627506.3	470932.5
2627940.4	470594.9
2628446.0	470224.0
2628427.9	470094.9
2628245.5	469936.9
2627765.5	469890.1
2627559.3	469594.9
2627318.2	469094.9
2627027.1	468594.9
2626905.0	468333.6
2626730.5	468094.9
2626506.8	467889.0
2626506.7	468094.9
2626521.2	468594.9
2626536.6	469094.9
2626551.9	469594.9
2626561.1	470094.9
2626570.4	470594.9

CB&I COASTAL PLANNING & ENGINEERING, INC.

2481 N.W. BOCA RATON BOULEVARD
BOCA RATON, FLORIDA 33431

PH: (561) 391-8102
FAX (561) 391-9116

www.CoastalPlanning.net

C.O.A. FL. #4028
C.O.A. LA. #2531

NOTE: COORDINATES ARE IN STATE PLANE, NAD 1983,
LOUISIANA SOUTH ZONE, U.S. SURVEY FEET.

APPLICATION BY: COASTAL PROTECTION AND RESTORATION AUTHORITY 450 LAUREL ST., SUITE 1500 BATON ROUGE, LOUISIANA 70801 PH: (225) 342-2799 FAX: (225) 342-8801	COASTAL PROTECTION & RESTORATION AUTHORITY 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801	OYSTER BAYOU MARSH RESTORATION PROJECT	ALIGNMENT TABLES
		STATE PROJECT NUMBER: CS-59	DATE: 9/19/14
DRAWN BY: G KRYSZYNAK	DESIGNED BY: W THOMPSON	APPROVED BY: G THOMSON	SHEET 7 OF 52

TRENASSE INFLECTION POINTS

EASTING	NORTHING
MARSH CREATION AREA 1	
2621341.9	472233.4
2621202.9	472025.0
2621176.7	471889.3
2621264.9	471769.3
2621624.6	471695.8
2621745.5	471597.2
2621722.0	471496.7
2621713.6	471237.4
2622032.1	471211.6
2622125.1	471169.0
2622125.1	471046.5
2622094.0	471019.8
2622027.2	470704.3
2622053.2	470626.4
2622465.7	470240.1
2622791.4	470240.1
2623237.5	470461.4
2623346.1	470700.9
2623303.8	470834.5
2623105.6	470919.4
2623006.0	471146.8
2623137.6	471342.1
2623354.1	471416.6
2623448.1	471415.7

NORTHING	NORTHING
MARSH CREATION AREA 2	
2623677.3	471531.1
2623845.9	471586.8
2623983.4	471554.9
2624065.3	471432.8
2624088.9	471379.8
2624341.4	472240.9
2624346.3	472197.5
2624311.9	472172.9
2624108.0	472136.1
2624056.4	471902.8
2624095.7	471627.8
2624100.6	471401.8
2624104.8	471380.6
MARSH CREATION AREA 3	
2624135.4	471227.1
2624135.0	471227.5
2624464.2	470896.0
2624532.9	470449.1
2624223.4	469638.7
2624223.4	469324.4
2624459.8	468885.5
2624883.8	468668.6
2625216.3	468817.1

CB&I COASTAL PLANNING & ENGINEERING, INC.

2481 N.W. BOCA RATON BOULEVARD
BOCA RATON, FLORIDA 33431

PH: (561) 391-8102
FAX (561) 391-9116

www.CoastalPlanning.net

C.O.A. FL. #4028
C.O.A. LA. #2531

NOTE: COORDINATES ARE IN STATE PLANE, NAD 1983,
LOUISIANA SOUTH ZONE, U.S. SURVEY FEET.

APPLICATION BY: COASTAL PROTECTION AND RESTORATION AUTHORITY 450 LAUREL ST., SUITE 1500 BATON ROUGE, LOUISIANA 70801 PH: (225) 342-2799 FAX: (225) 342-8801	COASTAL PROTECTION & RESTORATION AUTHORITY 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801	OYSTER BAYOU MARSH RESTORATION PROJECT STATE PROJECT NUMBER: CS-59	ALIGNMENT TABLES DATE: 9/19/14
DRAWN BY: G KRYSZYNAK	DESIGNED BY: W THOMPSON	APPROVED BY: G THOMSON	SHEET 8 OF 52

POND INFLECTION POINTS

	NORTHING	EASTING
MARSH CREATION AREA 1		
SECONDARY POND	2621039.3	471527.1
DIKE	2621104.9	471221.5
MARSH EDGE	2621382.9	471342.6
CONTAINMENT	2621478.2	471281.1
SECONDARY POND	2621601.3	471072.7
DIKE	2621756.2	471338.6
MARSH EDGE	2621752.2	471406.1
CONTAINMENT	2621774.1	471487.4
	2621684.7	471503.3
	2621551.7	471503.3
	2621363.0	471596.5
	2621271.7	471552.9
	2621261.7	471515.2
	2621178.3	471493.4
	2621150.5	471521.1

	NORTHING	EASTING
MARSH EDGE	2622763.0	470506.0
CONTAINMENT	2623081.9	470506.0
	2623139.3	470445.5
	2623183.9	470461.4
	2623327.4	470461.4
	2623356.1	470340.3
	2623406.0	470335.1
	2623394.7	470226.5
	2623314.6	470251.1
SECONDARY POND	2623268.6	470043.9
DIKE	2622995.8	470008.9
MARSH EDGE	2622941.5	470165.1
CONTAINMENT	2622788.5	470241.5
	2622788.5	470359.4
	2622890.5	470349.9
	2622896.9	470439.1

	NORTHING	EASTING
MARSH CREATION AREA 3		
SECONDARY POND	2625235.6	469378.9
DIKE	2625288.7	469401.4
	2625387.0	469381.8
	2625496.9	469258.9
	2625542.5	469149.4
	2625527.7	469018.2
	2625528.8	468918.7
	2625462.0	468841.7
	2625378.3	468799.9
	2625318.1	468782.0
	2625229.1	468822.9
	2625206.5	468876.0
	2625205.1	468919.7
	2625217.4	468981.2
	2625210.5	469036.2
	2625143.6	469123.7
	2625130.3	469198.0
	2625149.5	469268.3

CB&I COASTAL PLANNING & ENGINEERING, INC.

2481 N.W. BOCA RATON BOULEVARD
BOCA RATON, FLORIDA 33431

PH. (561) 391-8102
FAX (561) 391-9116

www.CoastalPlanning.net

C.O.A. FL. #4028
C.O.A. LA. #2531

NOTE: COORDINATES ARE IN STATE PLANE, NAD 1983,
LOUISIANA SOUTH ZONE, U.S. SURVEY FEET.
SECONDARY POND DIKE COORDINATES PROVIDED
MARK LOCATIONS OF CENTERLINE

APPLICATION BY: COASTAL PROTECTION AND RESTORATION AUTHORITY 450 LAUREL ST., SUITE 1500 BATON ROUGE, LOUISIANA 70801 PH: (225) 342-2799 FAX: (225) 342-8801	COASTAL PROTECTION & RESTORATION AUTHORITY 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801	OYSTER BAYOU MARSH RESTORATION PROJECT	ALIGNMENT TABLES
		STATE PROJECT NUMBER: CS-59	DATE: 9/19/14
DRAWN BY: G KRYSZYNIAK	DESIGNED BY: W THOMPSON	APPROVED BY: G THOMSON	SHEET 9 OF 52

MARSH CHECK PROFILES

BASLINE STATION	EASTING	NORTHING	AZIMUTH	PERPENDICUAR DISTANCE TO NEXT STATION (FT)
85+00	2625411.4	467594.9	270	500
80+00	2625411.4	468094.9	270	500
75+00	2625411.4	468594.9	270	500
70+00	2625411.4	469094.9	270	500
65+00	2625411.4	469594.9	270	500
60+00	2625411.4	470094.9	270	500
55+00	2625411.4	470594.9	270	500
50+00	2625411.4	471094.9	270	500
45+00	2625411.4	471594.9	270	500
40+00	2625411.4	472094.9	270	500
35+00	2625411.4	472594.9	270	500

NOTE: COORDINATES ARE IN STATE PLANE, NAD 1983, LOUISIANA SOUTH ZONE, U.S. SURVEY FEET.

CB&I COASTAL PLANNING & ENGINEERING, INC.

2481 N.W. BOCA RATON BOULEVARD
BOCA RATON, FLORIDA 33431

PH: (561) 391-8102
FAX (561) 391-9116

www.CoastalPlanning.net

C.O.A. FL. #4028
C.O.A. LA. #2531

APPLICATION BY:
COASTAL PROTECTION AND RESTORATION AUTHORITY
450 LAUREL ST., SUITE 1500
BATON ROUGE, LOUISIANA 70801
PH: (225) 342-2799
FAX: (225) 342-8801

**COASTAL PROTECTION & RESTORATION
AUTHORITY**

450 LAUREL STREET
BATON ROUGE, LOUISIANA 70801

OYSTER BAYOU MARSH
RESTORATION PROJECT

ALIGNMENT TABLES

STATE PROJECT NUMBER: CS-59

DATE: 9/19/14

DRAWN BY: G KRYSYNYIAK

DESIGNED BY: W THOMPSON

APPROVED BY: G THOMSON

SHEET 10 OF 52

TERRACE CROWN INFLECTION POINTS

TERRACE	EASTING	NORTHING
T1	2618220.0	473658.1
	2618359.1	473634.4
	2618454.8	473749.9
	2618570.0	473730.3
	2618567.5	473715.5
	2618460.8	473733.7
	2618365.1	473618.2
	2618217.4	473643.3
T2	2618374.6	473383.4
	2618513.7	473359.7
	2618609.5	473475.2
	2618724.7	473455.6
	2618722.2	473440.8
	2618615.5	473458.9
	2618519.8	473343.4
	2618372.1	473368.6
T3	2618981.8	473582.6
	2619057.5	473671.7
	2619205.0	473644.7
	2619296.4	473752.3
	2619307.8	473742.6
	2619210.9	473628.4
	2619063.3	473655.3
	2618993.2	473572.9
T4	2619568.5	473800.0
	2619707.6	473776.4
	2619803.3	473891.8
	2619918.6	473872.2
	2619916.1	473857.5
	2619809.4	473875.6
	2619713.6	473760.1
	2619566.0	473785.2

TERRACE CROWN INFLECTION POINTS

TERRACE	EASTING	NORTHING	
T5	2618763.0	473240.5	
	2618902.1	473216.8	
	2618997.8	473332.3	
	2619113.0	473312.7	
	2619110.5	473297.9	
	2619003.8	473316.1	
	2618908.1	473200.6	
	2618760.4	473225.7	
	T6	2619342.9	473408.2
		2619418.5	473497.3
2619566.1		473470.3	
2619657.5		473577.9	
2619668.9		473568.2	
2619571.9		473454.0	
2619424.4		473481.0	
2619354.3		473398.5	
T7		2619923.6	473625.7
		2620062.7	473602.0
	2620158.5	473717.5	
	2620273.7	473697.9	
	2620271.2	473683.1	
	2620164.5	473701.3	
	2620068.8	473585.8	
	2619921.1	473610.9	
	T8	2620458.1	473911.5
		2620533.7	474000.5
2620681.3		473973.6	
2620772.7		474081.2	
2620784.1		474071.4	
2620687.1		473957.3	
2620539.6		473984.2	
2620469.5		473901.7	

TERRACE CROWN INFLECTION POINTS

TERRACE	EASTING	NORTHING	
T9	2620962.2	474193.3	
	2621101.3	474169.7	
	2621197.0	474285.2	
	2621312.2	474265.6	
	2621309.7	474250.8	
	2621203.0	474268.9	
	2621107.3	474153.4	
	2620959.6	474178.6	
	T10	2621650.4	474323.1
		2621726.0	474412.2
2621873.6		474385.2	
2621964.9		474492.8	
2621976.4		474483.1	
2621879.4		474368.9	
2621731.8		474395.8	
2621661.8		474313.4	
T11		2622378.9	474617.4
		2622454.5	474706.4
	2622602.1	474679.5	
	2622693.5	474787.1	
	2622704.9	474777.3	
	2622607.9	474663.2	
	2622460.4	474690.1	
	2622390.3	474607.7	
	T12	2622996.4	474869.2
		2623135.6	474845.5
2623231.3		474961.0	
2623346.5		474941.4	
2623344.0		474926.6	
2623237.3		474944.8	
2623141.6		474829.3	
2622993.9		474854.4	

CB&I COASTAL PLANNING & ENGINEERING, INC.

2481 N.W. BOCA RATON BOULEVARD
BOCA RATON, FLORIDA 33431
www.CoastalPlanning.net
PH: (561) 391-8102
FAX (561) 391-9116
C.O.A. FL. #4028
C.O.A. LA. #2531

TERRACES ARE LABELED STARTING AT THE NORTHWESTERN MOST POINT AND MOVING CLOCKWISE AROUND THE TERRACE CROWN.

NOTE: COORDINATES ARE IN STATE PLANE, NAD 1983, LOUISIANA SOUTH ZONE, U.S. SURVEY FEET

APPLICATION BY:
COASTAL PROTECTION AND RESTORATION AUTHORITY
450 LAUREL ST., SUITE 1500
BATON ROUGE, LOUISIANA 70801
PH: (225) 342-2799
FAX: (225) 342-8801

COASTAL PROTECTION & RESTORATION AUTHORITY
450 LAUREL STREET
BATON ROUGE, LOUISIANA 70801

OYSTER BAYOU MARSH RESTORATION PROJECT

EARTHEN TERRACE COORDINATE LOCATIONS

STATE PROJECT NUMBER: CS-59

DATE: 9/19/14

DRAWN BY: G KRYSZYNAK

DESIGNED BY: W THOMPSON

APPROVED BY: G THOMSON

SHEET 11 OF 52

TERRACE CROWN INFLECTION POINTS

TERRACE	EASTING	NORTHING
T13	2618609.1	472875.3
	2618748.3	472851.6
	2618844.0	472967.1
	2618959.2	472947.5
	2618956.7	472932.7
	2618850.0	472950.8
	2618754.3	472835.4
	2618606.6	472860.5
T14	2619189.0	473043.0
	2619264.7	473132.0
	2619412.3	473105.1
	2619503.6	473212.6
	2619515.1	473202.9
	2619418.1	473088.8
	2619270.5	473115.7
	2619200.5	473033.2
T15	2619769.8	473260.5
	2619908.9	473236.8
	2620004.6	473352.3
	2620119.9	473332.7
	2620117.4	473317.9
	2620010.7	473336.0
	2619914.9	473220.5
	2619767.3	473245.7
T16	2620344.3	473433.3
	2620420.0	473522.4
	2620567.5	473495.4
	2620658.9	473603.0
	2620670.3	473593.3
	2620573.4	473479.1
	2620425.8	473506.1
	2620355.8	473423.6

TERRACE CROWN INFLECTION POINTS

TERRACE	EASTING	NORTHING
T17	2620851.6	473748.3
	2620990.7	473724.6
	2621086.5	473840.1
	2621201.7	473820.5
	2621199.2	473805.7
	2621092.5	473823.9
	2620996.8	473708.4
	2620849.1	473733.5
T18	2621393.0	473947.7
	2621468.6	474036.7
	2621616.2	474009.8
	2621707.6	474117.3
	2621719.0	474107.6
	2621622.0	473993.5
	2621474.5	474020.4
	2621404.4	473937.9
T19	2621872.6	474111.7
	2622011.7	474088.0
	2622107.5	474203.5
	2622222.7	474183.9
	2622220.2	474169.1
	2622113.5	474187.3
	2622017.8	474071.8
	2621870.1	474096.9
T20	2622588.1	474473.3
	2622727.3	474449.7
	2622823.0	474565.2
	2622938.2	474545.6
	2622935.7	474530.8
	2622829.0	474548.9
	2622733.3	474433.4
	2622585.6	474458.6

TERRACE CROWN INFLECTION POINTS

TERRACE	EASTING	NORTHING
T21	2623225.9	474658.7
	2623301.5	474747.7
	2623449.1	474720.8
	2623540.5	474828.3
	2623551.9	474818.6
	2623454.9	474704.5
	2623307.4	474731.4
	2623237.3	474648.9
T22	2623713.8	474869.8
	2623852.9	474846.2
	2623948.6	474961.7
	2624063.9	474942.1
	2624061.3	474927.3
	2623954.7	474945.4
	2623858.9	474829.9
	2623711.3	474855.0
T23	2618903.8	472651.7
	2619042.9	472628.1
	2619138.6	472743.6
	2619253.8	472724.0
	2619251.3	472709.2
	2619144.6	472727.3
	2619048.9	472611.8
	2618901.2	472636.9
T24	2619561.8	472808.2
	2619637.4	472897.3
	2619785.0	472870.3
	2619876.4	472977.9
	2619887.8	472968.2
	2619790.8	472854.0
	2619643.3	472880.9
	2619573.2	472798.5

CB&I COASTAL PLANNING & ENGINEERING, INC.
 2481 N.W. BOCA RATON BOULEVARD
 BOCA RATON, FLORIDA 33431
 www.CoastalPlanning.net
 PH: (561) 391-8102
 FAX (561) 391-9116
 C.O.A. FL. #4028
 C.O.A. LA. #2531

TERRACES ARE LABELED STARTING AT THE NORTHWESTERN MOST POINT AND MOVING CLOCKWISE AROUND THE TERRACE CROWN.

NOTE: COORDINATES ARE IN STATE PLANE, NAD 1983, LOUISIANA SOUTH ZONE, U.S. SURVEY FEET

APPLICATION BY: COASTAL PROTECTION AND RESTORATION AUTHORITY 450 LAUREL ST., SUITE 1500 BATON ROUGE, LOUISIANA 70801 PH: (225) 342-2799 FAX: (225) 342-8801	COASTAL PROTECTION & RESTORATION AUTHORITY 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801	OYSTER BAYOU MARSH RESTORATION PROJECT	EARTHEN TERRACE COORDINATE LOCATIONS
		STATE PROJECT NUMBER: CS-59	DATE: 9/19/14
DRAWN BY: G KRYSZYNAK	DESIGNED BY: W THOMPSON	APPROVED BY: G THOMSON	SHEET 12 OF 52

TERRACE CROWN INFLECTION POINTS

TERRACE	EASTING	NORTHING
T25	2620129.1	473084.9
	2620268.2	473061.2
	2620363.9	473176.7
	2620479.1	473157.1
	2620476.6	473142.3
	2620369.9	473160.4
	2620274.2	473045.0
	2620126.6	473070.1
T26	2620732.6	473243.1
	2620808.3	473332.1
	2620955.8	473305.2
	2621047.2	473412.8
	2621058.6	473403.1
	2620961.6	473288.9
	2620814.1	473315.8
	2620744.0	473233.4
T27	2621835.2	473793.5
	2621974.3	473769.8
	2622070.0	473885.3
	2622185.2	473865.7
	2622182.7	473850.9
	2622076.0	473869.1
	2621980.3	473753.6
	2621832.6	473778.7
T28	2622496.8	474135.7
	2622635.9	474112.0
	2622731.7	474227.5
	2622846.9	474207.9
	2622844.4	474193.1
	2622737.7	474211.3
	2622642.0	474095.8
	2622494.3	474120.9

TERRACE CROWN INFLECTION POINTS

TERRACE	EASTING	NORTHING
T29	2623044.4	474295.6
	2623120.1	474384.7
	2623267.7	474357.8
	2623359.0	474465.3
	2623370.5	474455.6
	2623273.5	474341.4
	2623125.9	474368.4
	2623055.9	474285.9
	2623529.3	474471.2
	2623668.4	474447.5
T30	2623764.1	474563.0
	2623879.3	474543.4
	2623876.8	474528.6
	2623770.1	474546.8
	2623674.4	474431.3
	2623526.8	474456.4
	2624094.5	474651.1
	2624170.2	474740.2
	2624317.8	474713.3
	2624409.1	474820.8
T31	2624420.6	474811.1
	2624323.6	474696.9
	2624176.0	474723.9
	2624106.0	474641.4
	2622172.2	473669.8
	2622311.4	473646.2
	2622407.1	473761.7
	2622522.3	473742.1
	2622519.8	473727.3
	2622413.1	473745.4
T32	2622317.4	473629.9
	2622169.7	473655.1

TERRACE CROWN INFLECTION POINTS

TERRACE	EASTING	NORTHING
T33	2622815.9	473894.9
	2622891.6	473984.0
	2623039.1	473957.0
	2623130.5	474064.6
	2623141.9	474054.9
	2623044.9	473940.7
	2622897.4	473967.7
	2622827.3	473885.2
	2623335.6	474151.3
	2623474.7	474127.6
T34	2623570.5	474243.1
	2623685.7	474223.5
	2623683.2	474208.7
	2623576.5	474226.9
	2623480.8	474111.4
	2623333.1	474136.5
	2625201.8	475336.7
	2625277.4	475425.7
	2625425.0	475398.8
	2625516.3	475506.4
T35	2625527.8	475496.6
	2625430.8	475382.5
	2625283.2	475409.4
	2625213.2	475326.9
	2625773.6	475525.1
	2625912.7	475501.5
	2626008.5	475617.0
	2626123.7	475597.4
	2626121.2	475582.6
	2626014.5	475600.7
T36	2625918.8	475485.2
	2625771.1	475510.4

CB&I COASTAL PLANNING & ENGINEERING, INC.
 2481 N.W. BOCA RATON BOULEVARD
 BOCA RATON, FLORIDA 33431
 www.CoastalPlanning.net
 PH: (561) 391-8102
 FAX (561) 391-9116
 C.O.A. FL. #4028
 C.O.A. LA. #2531

TERRACES ARE LABELED STARTING AT THE NORTHWESTERN MOST POINT AND MOVING CLOCKWISE AROUND THE TERRACE CROWN.

NOTE: COORDINATES ARE IN STATE PLANE, NAD 1983, LOUISIANA SOUTH ZONE, U.S. SURVEY FEET

APPLICATION BY: COASTAL PROTECTION AND RESTORATION AUTHORITY 450 LAUREL ST., SUITE 1500 BATON ROUGE, LOUISIANA 70801 PH: (225) 342-2799 FAX: (225) 342-8801	COASTAL PROTECTION & RESTORATION AUTHORITY 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801	OYSTER BAYOU MARSH RESTORATION PROJECT	EARTHEN TERRACE COORDINATE LOCATIONS
		STATE PROJECT NUMBER: CS-59	DATE: 9/19/14
DRAWN BY: G KRYSZYNAK	DESIGNED BY: W THOMPSON	APPROVED BY: G THOMSON	SHEET 13 OF 52

TERRACE CROWN INFLECTION POINTS

TERRACE	EASTING	NORTHING
T37	2626047.5	475864.9
	2626186.7	475841.2
	2626282.4	475956.7
	2626397.6	475937.1
	2626395.1	475922.3
	2626288.4	475940.5
	2626192.7	475825.0
	2626045.0	475850.1
T38	2625478.8	475125.7
	2625554.5	475214.8
	2625702.0	475187.8
	2625793.4	475295.4
	2625804.8	475285.7
	2625707.8	475171.5
	2625560.3	475198.5
	2625490.2	475116.0
T39	2626086.8	475281.8
	2626226.0	475258.1
	2626321.7	475373.6
	2626436.9	475354.0
	2626434.4	475339.2
	2626327.7	475357.4
	2626232.0	475241.9
	2626084.3	475267.0

CB&I COASTAL PLANNING & ENGINEERING, INC.

2481 N.W. BOCA RATON BOULEVARD
BOCA RATON, FLORIDA 33431

PH: (561) 391-8102
FAX (561) 391-9116

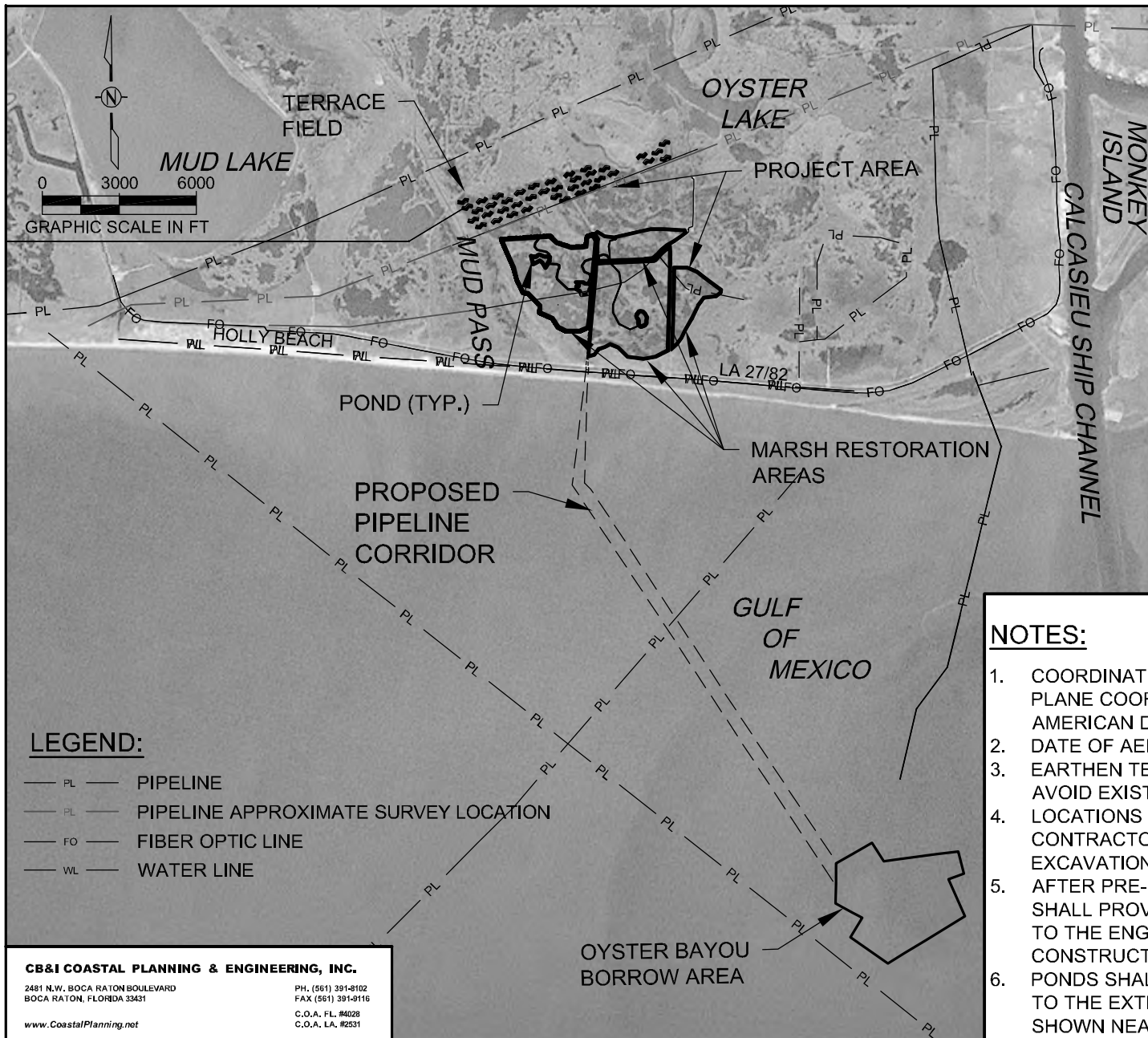
www.CoastalPlanning.net

C.O.A. FL. #4028
C.O.A. LA. #2531

TERRACES ARE LABELED STARTING AT THE
NORTHWESTERN MOST POINT AND MOVING
CLOCKWISE AROUND THE TERRACE CROWN.

NOTE: COORDINATES ARE IN STATE PLANE, NAD 1983,
LOUISIANA SOUTH ZONE, U.S. SURVEY FEET

APPLICATION BY: COASTAL PROTECTION AND RESTORATION AUTHORITY 450 LAUREL ST., SUITE 1500 BATON ROUGE, LOUISIANA 70801 PH: (225) 342-2799 FAX: (225) 342-8801	COASTAL PROTECTION & RESTORATION AUTHORITY 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801	OYSTER BAYOU MARSH RESTORATION PROJECT	EARTHEN TERRACE COORDINATE LOCATIONS
		STATE PROJECT NUMBER: CS-59	DATE: 9/19/14
DRAWN BY: G KRYSYNYIAK	DESIGNED BY: W THOMPSON	APPROVED BY: G THOMSON	SHEET 14 OF 52



OYSTER BAYOU PROJECT

FILL VOLUMES

MARSH FILL VOLUME = 2.405 MCY
 PRIMARY DIKE VOLUME = 133,000 CY
 TERRACES VOLUME = 98,150 CY

MARSH FILL AREA = 592 ACRES
 CONTAINMENT DIKE AREA = 33 ACRES
 TERRACES AREA = 23 ACRES
 FILL SOURCE FOR
 CONTAINMENT DIKES = 39 ACRES

**OYSTER BAYOU DELINEATED
 BORROW AREA VOLUMES**

GULF BORROW AREA VOLUME =
 6.69 MCY; 359 ACRES

OYSTER BAYOU EXCAVATION VOLUMES

MARSH FILL EXCAVATION
 VOLUME = 3.607 MCY
 CONTAINMENT DIKE EXCAVATION
 VOLUME = 207,150 CY
 TRENASSE EXCAVATION VOLUME = 12,650 CY
 TERRACE EXCAVATION VOLUME = 147,225 CY

NOTES:

1. COORDINATES ARE IN FEET BASED ON LOUISIANA STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, NORTH AMERICAN DATUM OF 1983 (NAD83).
2. DATE OF AERIAL IMAGERY: 2013.
3. EARTHEN TERRACES SHALL BE CONSTRUCTED TO AVOID EXISTING VEGETATED WETLANDS.
4. LOCATIONS OF PIPELINES ARE APPROXIMATE. CONTRACTOR SHALL VERIFY EXACT LOCATION PRIOR TO EXCAVATION.
5. AFTER PRE-CONSTRUCTION SURVEY, THE CONTRACTOR SHALL PROVIDE A REVISED EARTHEN TERRACE LAYOUT TO THE ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION.
6. PONDS SHALL BE CONTAINED BY NATURAL FEATURES TO THE EXTENT POSSIBLE. CONTAINMENT IS NOT SHOWN NEAR MARSH TO BE USED AS CONTAINMENT.

LEGEND:

- PL — PIPELINE
- PL — PIPELINE APPROXIMATE SURVEY LOCATION
- FO — FIBER OPTIC LINE
- WL — WATER LINE

CB&I COASTAL PLANNING & ENGINEERING, INC.

2481 N.W. BOCA RATON BOULEVARD
 BOCA RATON, FLORIDA 33431

PH: (561) 391-8102
 FAX (561) 391-9116

C.O.A. FL. #4028
 C.O.A. LA. #2531

www.CoastalPlanning.net

APPLICATION BY:

COASTAL PROTECTION AND RESTORATION AUTHORITY
 450 LAUREL ST., SUITE 1500
 BATON ROUGE, LOUISIANA 70801
 PH: (225) 342-2799
 FAX: (225) 342-8801

**COASTAL PROTECTION & RESTORATION
 AUTHORITY**

450 LAUREL STREET
 BATON ROUGE, LOUISIANA 70801

OYSTER BAYOU MARSH
 RESTORATION PROJECT

PROJECT OVERVIEW

STATE PROJECT NUMBER: CS-59

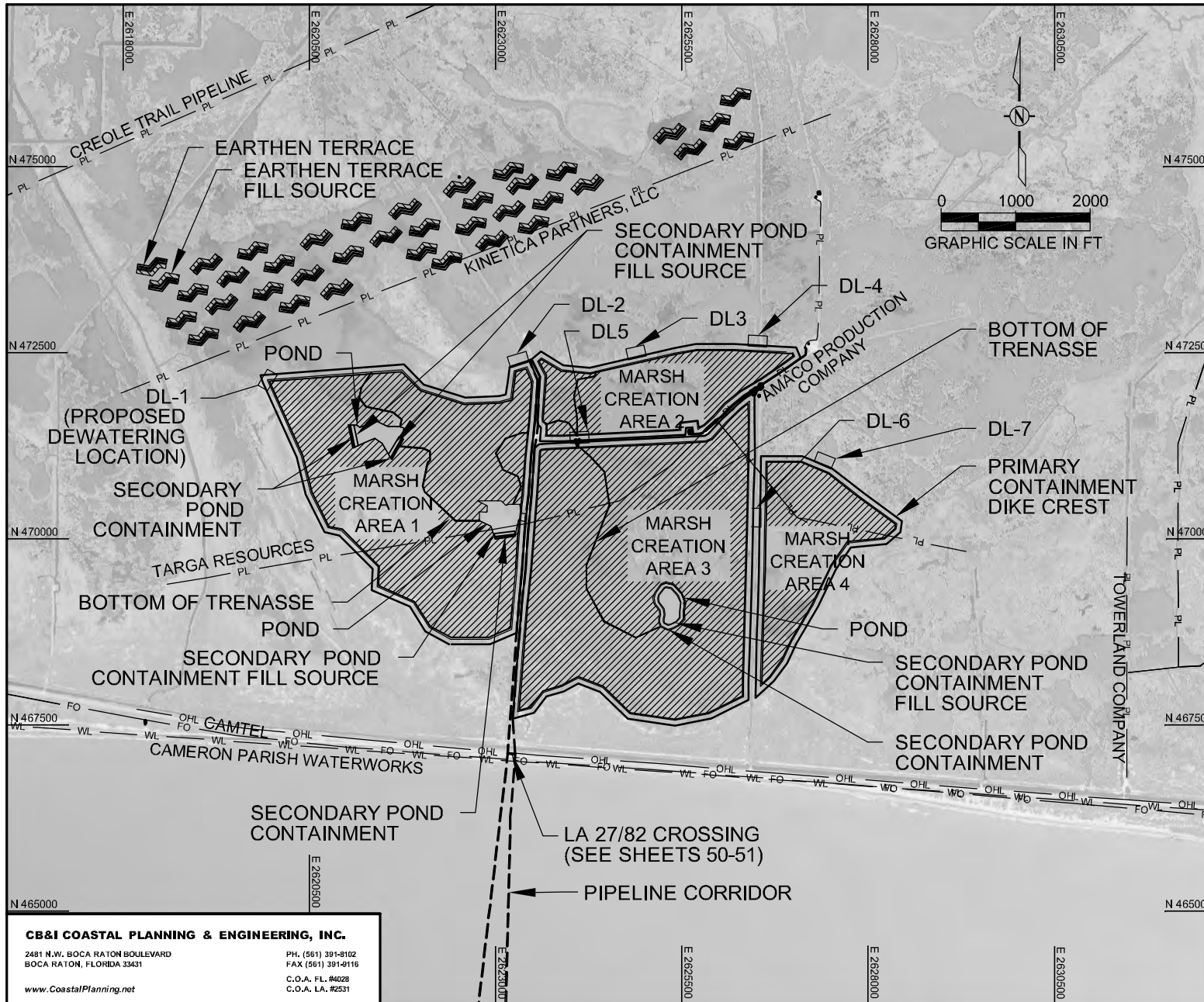
DATE: 9/19/14

DRAWN BY: G KRYSZYNIK




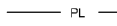
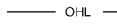


DESIGNED BY: W THOMPSON

APPROVED BY: G THOMSON

SHEET 15 OF 52



LEGEND:

-  MARSH FILL AREA
-  EARTHEN TERRACE
-  TERRACE FILL SOURCE
-  PIPELINE
-  OVERHEAD ELECTRIC LINE
-  FIBER OPTIC LINE
-  WATER LINE

NOTES:

1. COORDINATES ARE IN FEET BASED ON LOUISIANA STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, NORTH AMERICAN DATUM OF 1983 (NAD83).
2. DATE OF AERIAL IMAGERY: 2013.
3. EARTHEN TERRACES SHALL BE CONSTRUCTED TO AVOID EXISTING VEGETATED WETLANDS.
4. LOCATIONS OF PIPELINES ARE APPROXIMATE. CONTRACTOR SHALL VERIFY EXACT LOCATION PRIOR TO EXCAVATION.
5. AFTER PRE-CONSTRUCTION SURVEY, THE CONTRACTOR SHALL PROVIDE A REVISED EARTHEN TERRACE LAYOUT TO THE ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION.
6. PONDS SHALL BE CONTAINED BY NATURAL FEATURES TO THE EXTENT POSSIBLE. CONTAINMENT IS NOT SHOWN NEAR MARSH TO BE USED AS CONTAINMENT.

CB&I COASTAL PLANNING & ENGINEERING, INC.
 2481 N.W. BOCA RATON BOULEVARD
 BOCA RATON, FLORIDA 33431
 PH: (561) 391-8102
 FAX (561) 391-8116
 C.O.A. FL. #4028
 C.O.A. LA. #2531
 www.CoastalPlanning.net

APPLICATION BY:
 COASTAL PROTECTION AND RESTORATION AUTHORITY
 450 LAUREL ST., SUITE 1500
 BATON ROUGE, LOUISIANA 70801
 PH: (225) 342-2799
 FAX: (225) 342-8801

COASTAL PROTECTION & RESTORATION AUTHORITY
 450 LAUREL STREET
 BATON ROUGE, LOUISIANA 70801

OYSTER BAYOU MARSH RESTORATION PROJECT
 STATE PROJECT NUMBER: CS-59

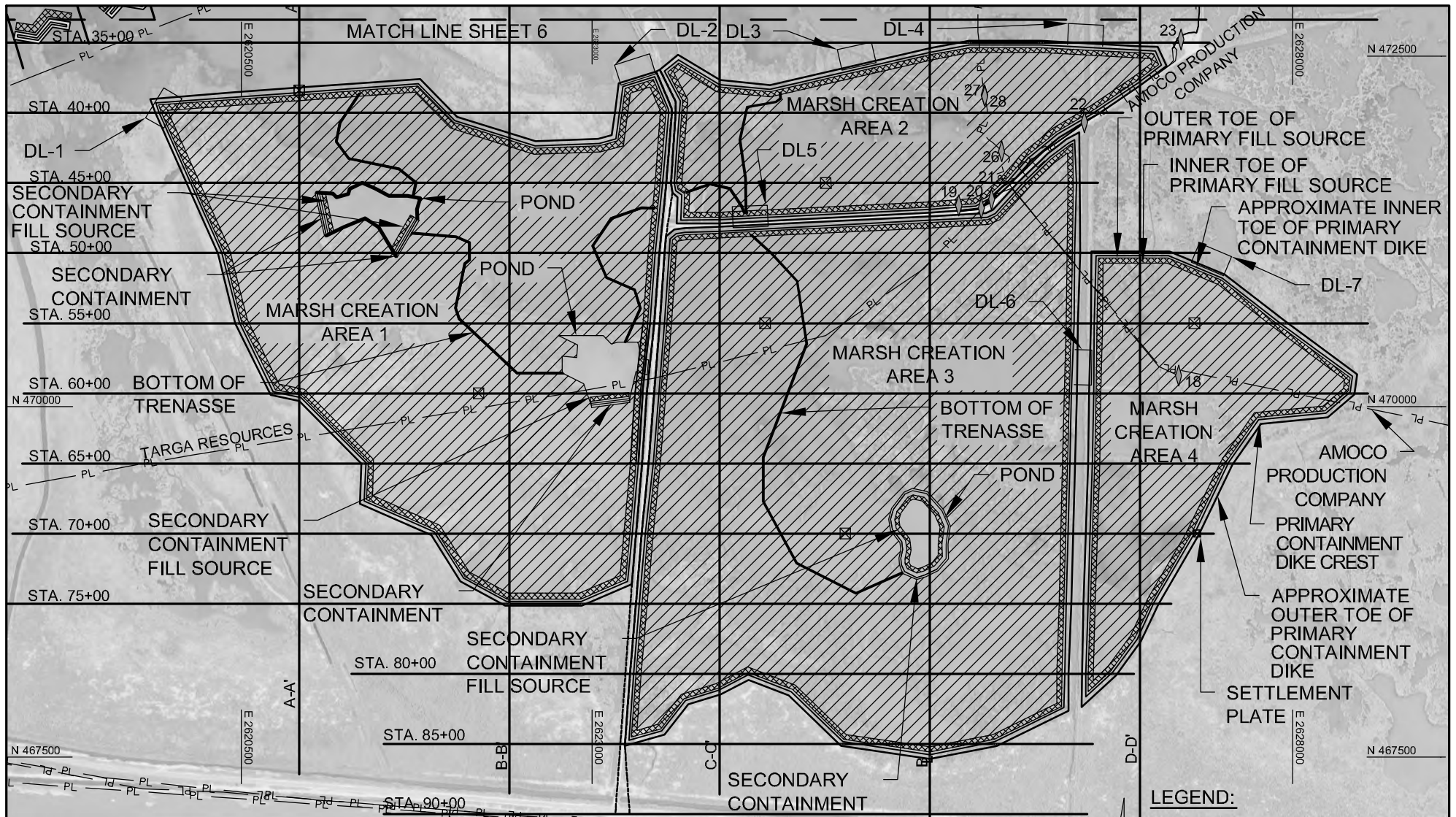
PLAN VIEW
 DATE: 9/19/14

DRAWN BY: G KRSTYNIK

DESIGNED BY: W THOMPSON

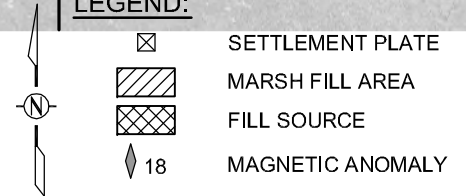
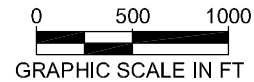
APPROVED BY: G THOMSON

SHEET 16 OF 52



NOTES:

- COORDINATES ARE IN FEET BASED ON LOUISIANA STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, NORTH AMERICAN DATUM OF 1983 (NAD83).
- DATE OF AERIAL IMAGERY: 2013.



CB&I COASTAL PLANNING & ENGINEERING, INC.
 2481 N.W. BOCA RATON BOULEVARD
 BOCA RATON, FLORIDA 33431
 PH: (561) 391-8102
 FAX (561) 391-8116
 C.O.A. FL. #4028
 C.O.A. LA. #2531
 www.CoastalPlanning.net

APPLICATION BY:
 COASTAL PROTECTION AND RESTORATION AUTHORITY
 450 LAUREL ST., SUITE 1500
 BATON ROUGE, LOUISIANA 70801
 PH: (225) 342-2799
 FAX: (225) 342-5801

COASTAL PROTECTION & RESTORATION AUTHORITY
 450 LAUREL STREET
 BATON ROUGE, LOUISIANA 70801

OYSTER BAYOU MARSH RESTORATION PROJECT

MARSH CREATION SURVEY PROFILE LOCATIONS

STATE PROJECT NUMBER: CS-59

DATE: 9/19/14





DRAWN BY: G KRSTYNYIAK

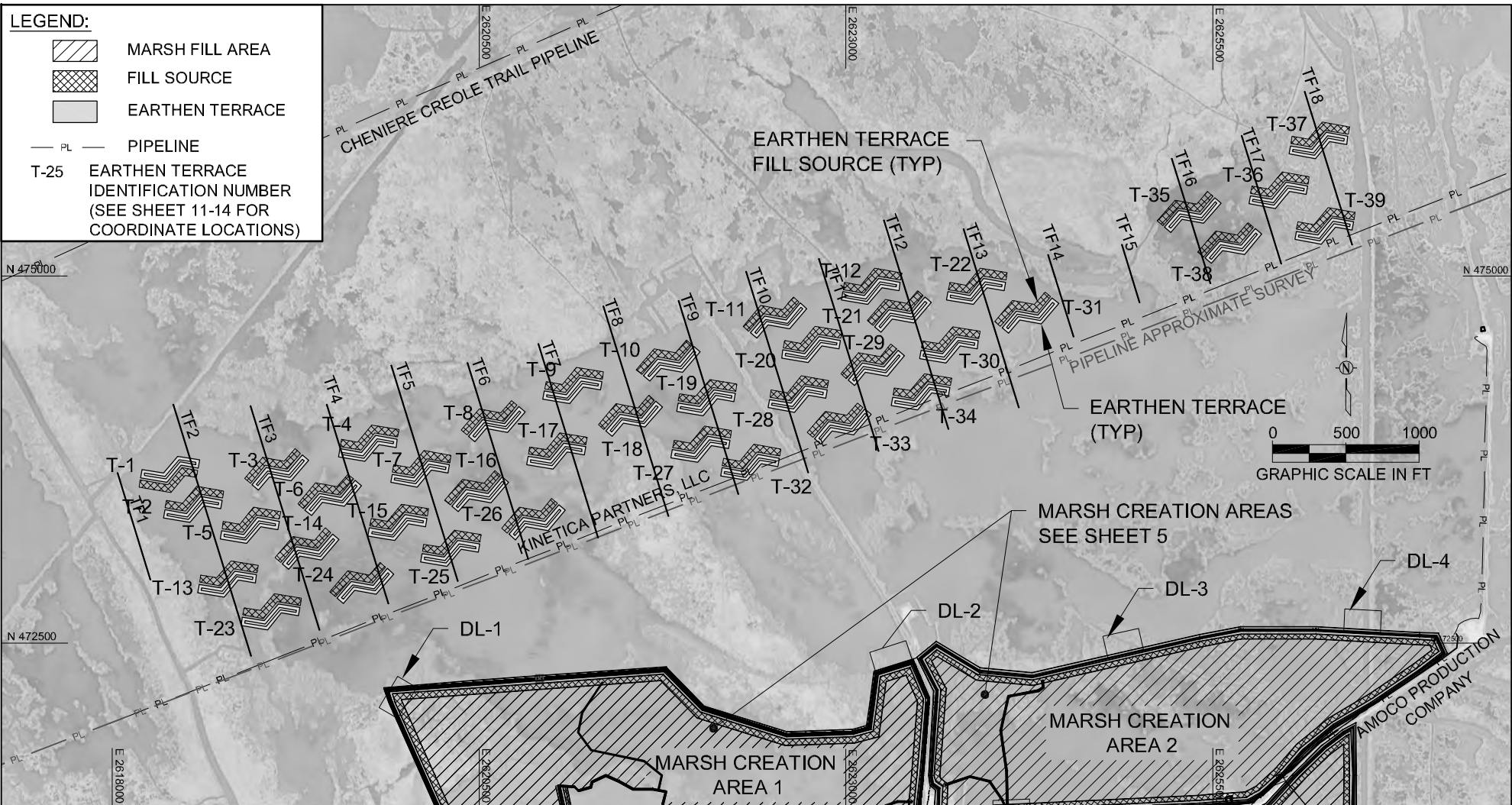
DESIGNED BY: W THOMPSON

APPROVED BY: G THOMSON

SHEET 17 OF 52

LEGEND:

-  MARSH FILL AREA
-  FILL SOURCE
-  EARTHEN TERRACE
-  PIPELINE
- T-25 EARTHEN TERRACE IDENTIFICATION NUMBER (SEE SHEET 11-14 FOR COORDINATE LOCATIONS)

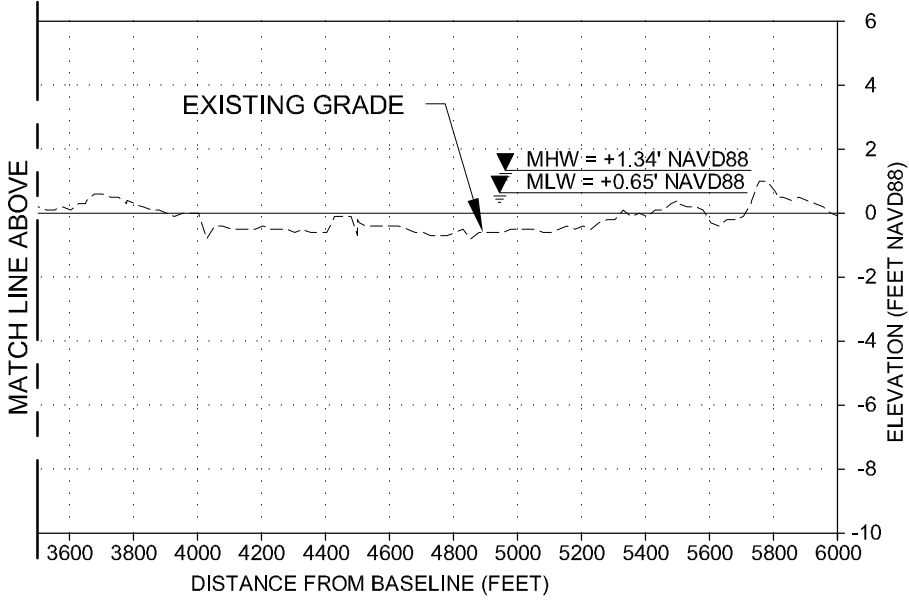
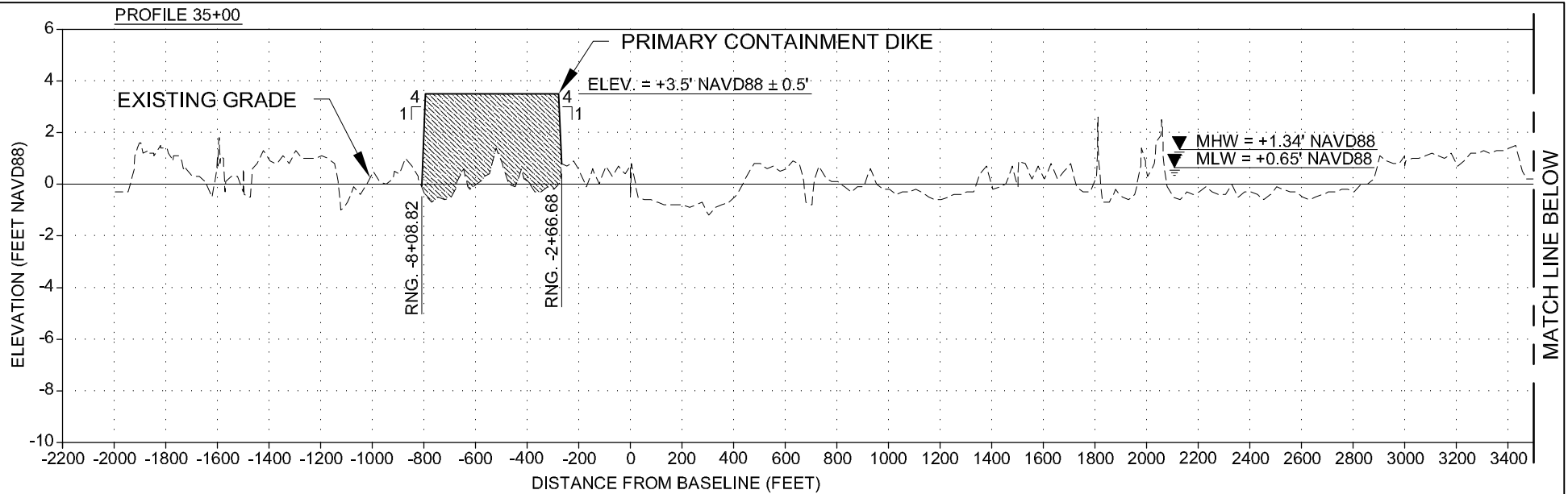


NOTES:

1. COORDINATES ARE IN FEET BASED ON LOUISIANA STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, NORTH AMERICAN DATUM OF 1983 (NAD83).
2. DATE OF AERIAL IMAGERY: 2013.
3. EARTHEN TERRACES SHALL BE CONSTRUCTED TO AVOID EXISTING VEGETATED WETLANDS.
4. LOCATIONS OF PIPELINES ARE APPROXIMATE. CONTRACTOR SHALL VERIFY EXACT LOCATION PRIOR TO EXCAVATION.
5. AFTER PRE-CONSTRUCTION SURVEY, THE CONTRACTOR SHALL PROVIDE A REVISED EARTHEN TERRACE LAYOUT TO THE ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION.

CB&I COASTAL PLANNING & ENGINEERING, INC.
 2481 N.W. BOCA RATON BOULEVARD
 BOCA RATON, FLORIDA 33431
 www.CoastalPlanning.net
 PH. (561) 391-8102
 FAX (561) 391-8116
 C.O.A. FL. #4028
 C.O.A. LA. #2531

APPLICATION BY: COASTAL PROTECTION AND RESTORATION AUTHORITY 450 LAUREL ST., SUITE 1500 BATON ROUGE, LOUISIANA 70801 PH: (225) 342-2799 FAX: (225) 342-8801	COASTAL PROTECTION & RESTORATION AUTHORITY 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801	OYSTER BAYOU MARSH RESTORATION PROJECT	EARTHEN TERRACE PLAN VIEW
		STATE PROJECT NUMBER: CS-59	DATE: 9/19/14
DRAWN BY: G KRYSZTYNIAK	DESIGNED BY: W THOMPSON	APPROVED BY: G THOMSON	SHEET 18 OF 52

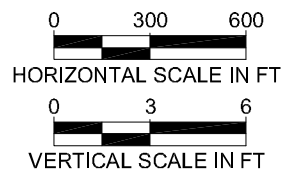


NOTES:

1. ELEVATIONS SHOWN HEREON ARE IN FEET BASED ON NAVD 1988.
2. LAYOUT ALL FILL AREAS BY CROSS SECTIONS.
3. POSITIVE RANGES ARE WEST OF BASELINE. NEGATIVE RANGES ARE EAST OF BASELINE.

LEGEND:

CONTAINMENT DIKE



CB&I COASTAL PLANNING & ENGINEERING, INC.
 2481 N.W. BOCA RATON BOULEVARD
 BOCA RATON, FLORIDA 33431
 PH. (561) 391-8102
 FAX (561) 391-9116
 www.CoastalPlanning.net
 C.O.A. FL. #4028
 C.O.A. LA. #2531

APPLICATION BY:
 COASTAL PROTECTION AND RESTORATION AUTHORITY
 450 LAUREL ST., SUITE 1500
 BATON ROUGE, LOUISIANA 70801
 PH: (225) 342-2799
 FAX: (225) 342-8801

COASTAL PROTECTION & RESTORATION AUTHORITY
 450 LAUREL STREET
 BATON ROUGE, LOUISIANA 70801

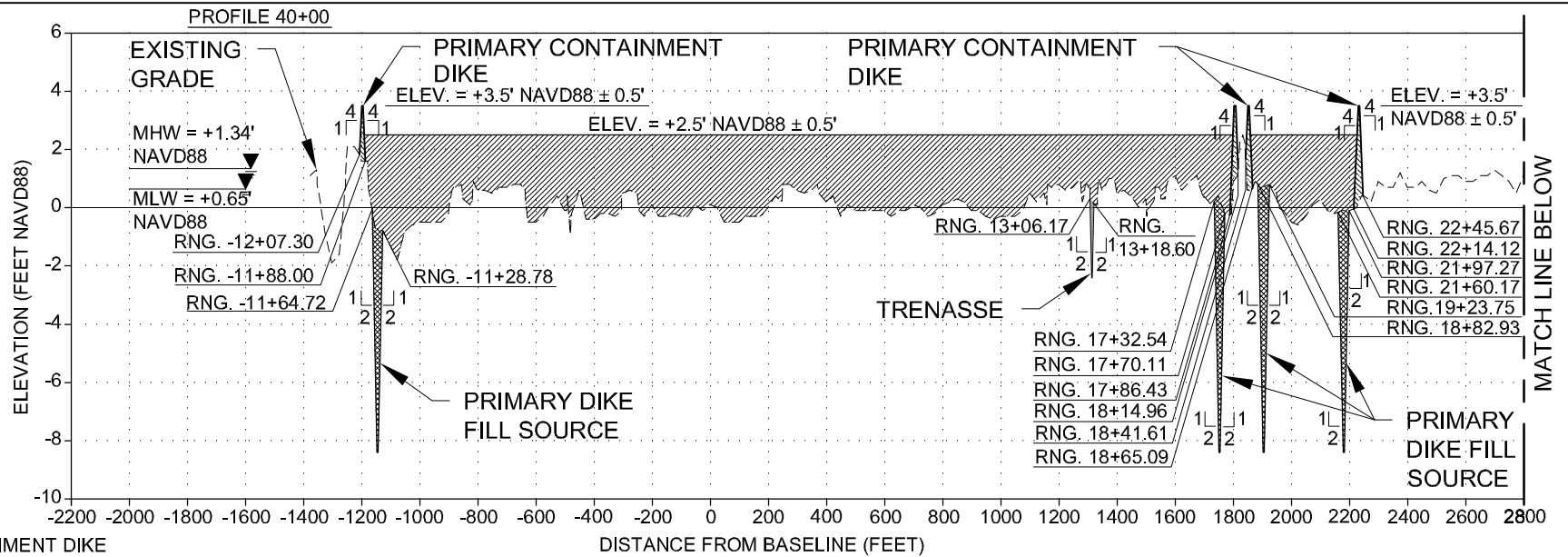
DESIGNED BY: W THOMPSON
 APPROVED BY: G THOMSON

OYSTER BAYOU MARSH RESTORATION PROJECT

STATE PROJECT NUMBER: CS-59

MARSH RESTORATION CONSTRUCTION PROFILES

DATE: 9/19/14
 SHEET 19 OF 52

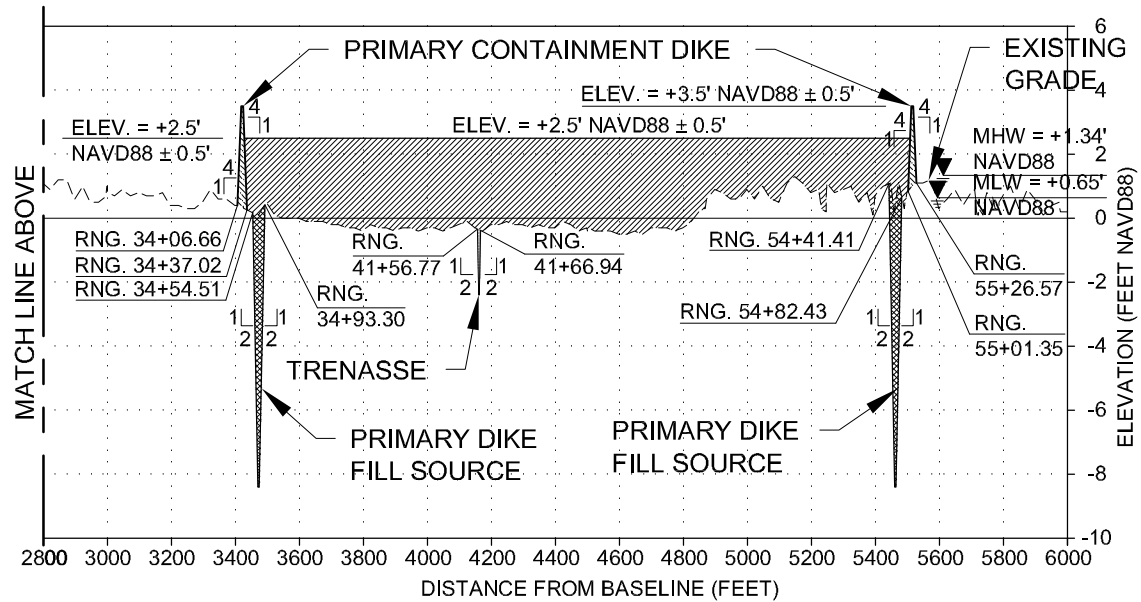
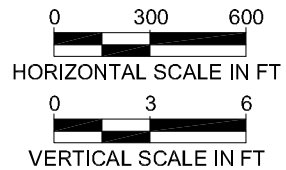


LEGEND:

- CONTAINMENT DIKE
- MARSH FILL
- FILL SOURCE
- TRENASSE

NOTES:

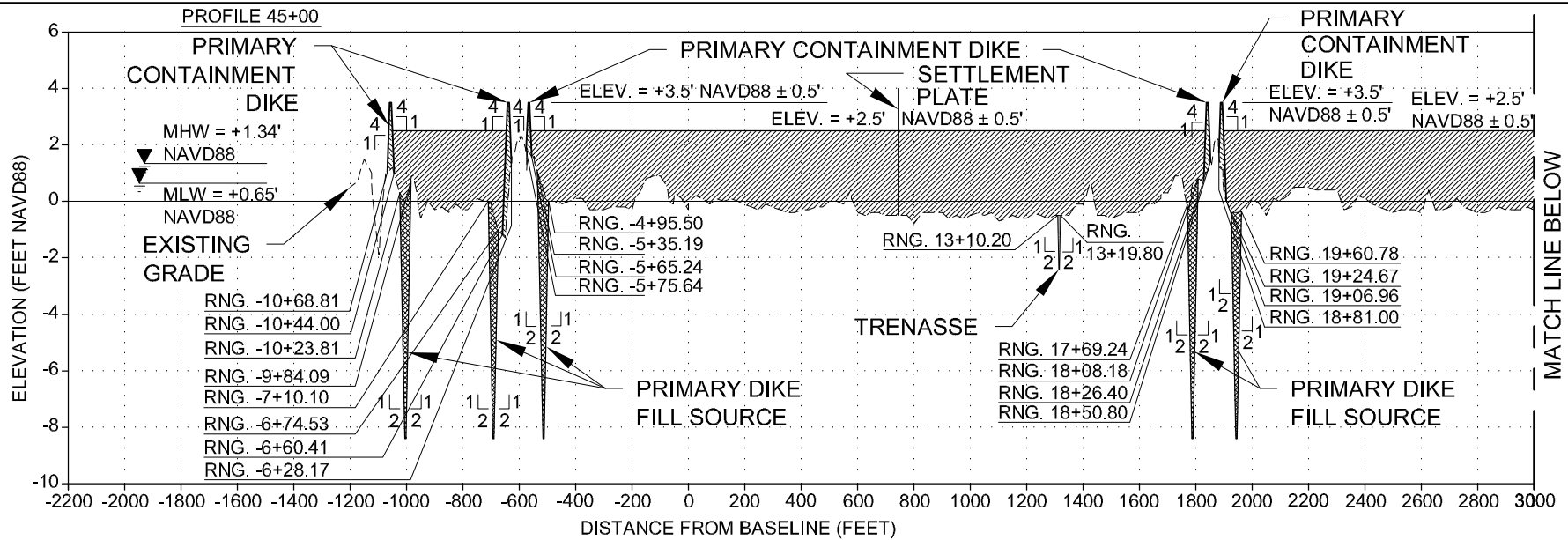
1. ELEVATIONS SHOWN HEREON ARE IN FEET BASED ON NAVD 1988.
2. LAYOUT ALL FILL AREAS BY CROSS SECTIONS.
3. POSITIVE RANGES ARE WEST OF BASELINE. NEGATIVE RANGES ARE EAST OF BASELINE.



CB&I COASTAL PLANNING & ENGINEERING, INC.
 2481 N.W. BOCA RATON BOULEVARD
 BOCA RATON, FLORIDA 33431
 www.CoastalPlanning.net

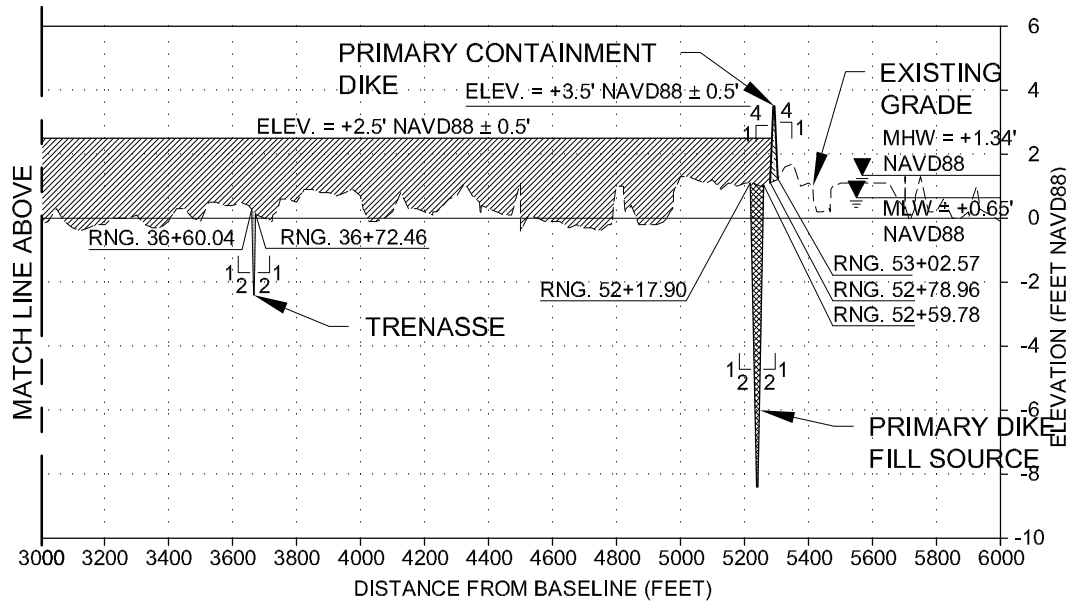
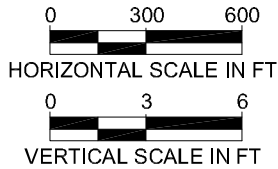
PH. (561) 391-8102
 FAX (561) 391-9116
 C.O.A. FL. #4028
 C.O.A. LA. #2531

APPLICATION BY: COASTAL PROTECTION AND RESTORATION AUTHORITY 450 LAUREL ST., SUITE 1500 BATON ROUGE, LOUISIANA 70801 PH: (225) 342-2799 FAX: (225) 342-8801	COASTAL PROTECTION & RESTORATION AUTHORITY 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801	OYSTER BAYOU MARSH RESTORATION PROJECT	MARSH RESTORATION CONSTRUCTION PROFILES
		STATE PROJECT NUMBER: CS-59	DATE: 9/19/14
DRAWN BY: G KRYSZTYNIAK	DESIGNED BY: W THOMPSON	APPROVED BY: G THOMSON	SHEET 20 OF 52



LEGEND:

- CONTAINMENT DIKE
- MARSH FILL
- FILL SOURCE
- TRENASSE



NOTES:

1. ELEVATIONS SHOWN HEREON ARE IN FEET BASED ON NAVD 1988.
2. LAYOUT ALL FILL AREAS BY CROSS SECTIONS.
3. POSITIVE RANGES ARE WEST OF BASELINE. NEGATIVE RANGES ARE EAST OF BASELINE.

CB&I COASTAL PLANNING & ENGINEERING, INC.

2481 N.W. BOCA RATON BOULEVARD
 BOCA RATON, FLORIDA 33431
 PH. (561) 391-8102
 FAX (561) 391-9116
 C.O.A. FL. #4028
 C.O.A. LA. #2531
 www.CoastalPlanning.net

APPLICATION BY:
 COASTAL PROTECTION AND RESTORATION AUTHORITY
 450 LAUREL ST., SUITE 1500
 BATON ROUGE, LOUISIANA 70801
 PH: (225) 342-2799
 FAX: (225) 342-8801

COASTAL PROTECTION & RESTORATION AUTHORITY
 450 LAUREL STREET
 BATON ROUGE, LOUISIANA 70801

OYSTER BAYOU MARSH RESTORATION PROJECT

MARSH RESTORATION CONSTRUCTION PROFILES

STATE PROJECT NUMBER: CS-59

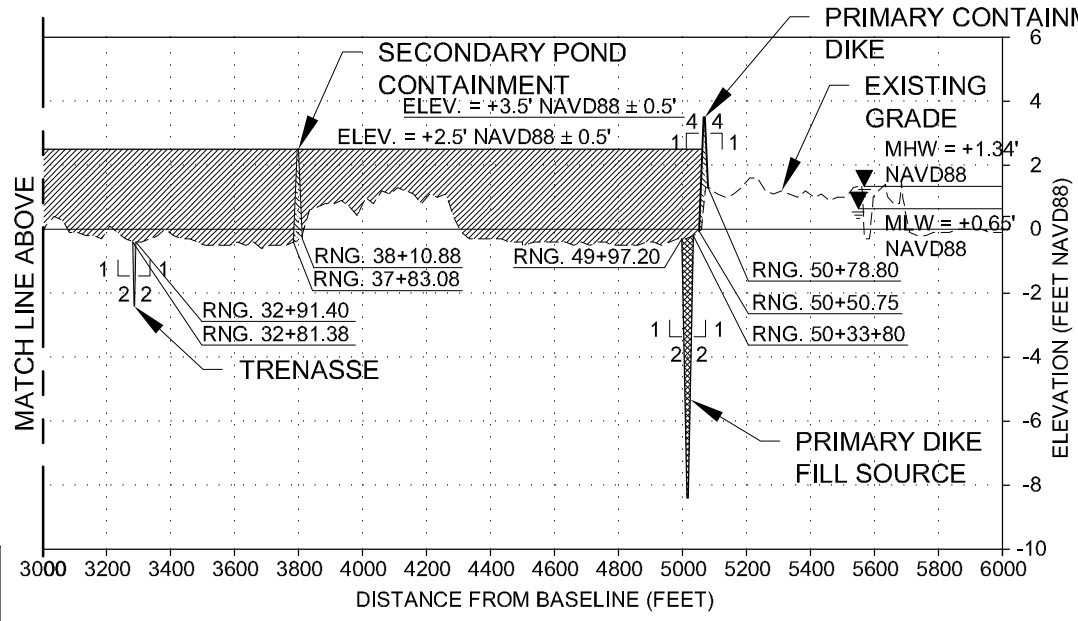
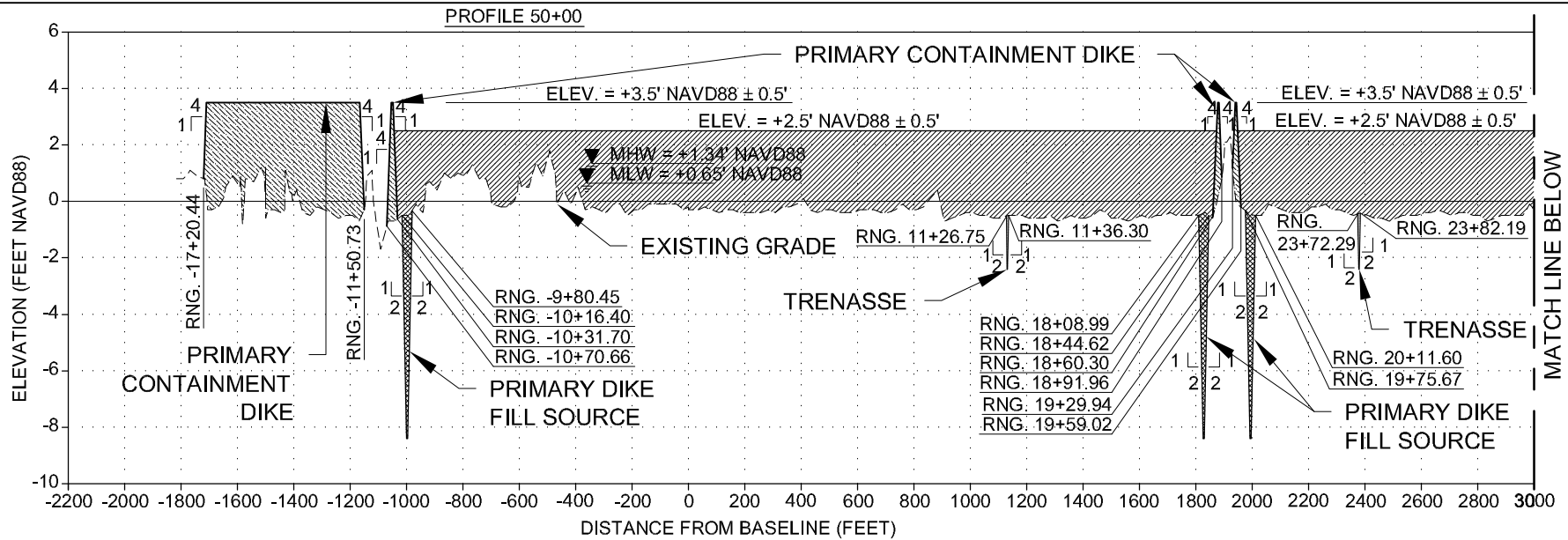
DATE: 9/19/14

DRAWN BY: G KRYSZTYNIAK

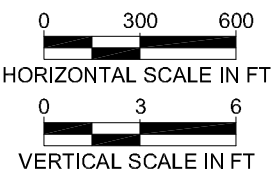
DESIGNED BY: W THOMPSON

APPROVED BY: G THOMSON

SHEET 21 OF 52



- LEGEND:**
- CONTAINMENT DIKE
 - MARSH FILL
 - FILL SOURCE
 - TRENASSE



- NOTES:**
1. ELEVATIONS SHOWN HEREON ARE IN FEET BASED ON NAVD 1988.
 2. LAYOUT ALL FILL AREAS BY CROSS SECTIONS.
 3. POSITIVE RANGES ARE WEST OF BASELINE. NEGATIVE RANGES ARE EAST OF BASELINE.

CB&I COASTAL PLANNING & ENGINEERING, INC.
 2481 N.W. BOCA RATON BOULEVARD
 BOCA RATON, FLORIDA 33431
 PH: (561) 391-8102
 FAX (561) 391-9116
 www.CoastalPlanning.net
 C.O.A. FL. #4028
 C.O.A. LA. #2531

APPLICATION BY:
 COASTAL PROTECTION AND RESTORATION AUTHORITY
 450 LAUREL ST., SUITE 1500
 BATON ROUGE, LOUISIANA 70801
 PH: (225) 342-2799
 FAX: (225) 342-8801

COASTAL PROTECTION & RESTORATION AUTHORITY
 450 LAUREL STREET
 BATON ROUGE, LOUISIANA 70801

DESIGNED BY: W THOMPSON

APPROVED BY: G THOMSON

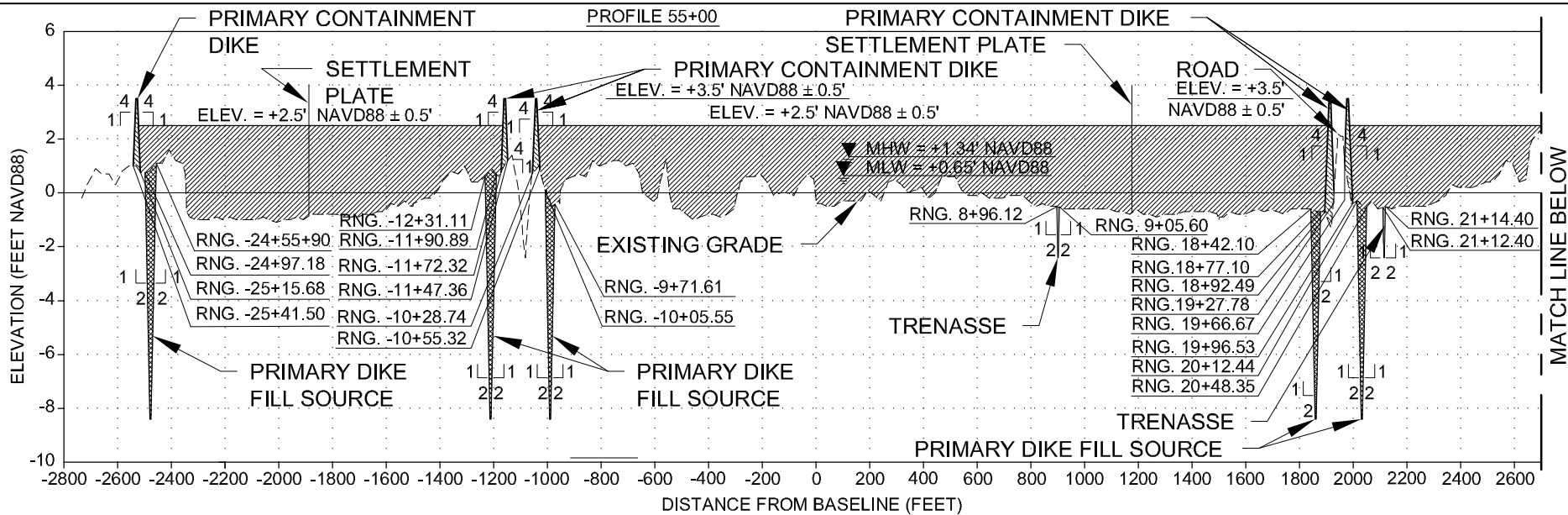
OYSTER BAYOU MARSH RESTORATION PROJECT

STATE PROJECT NUMBER: CS-59

MARSH RESTORATION CONSTRUCTION PROFILES

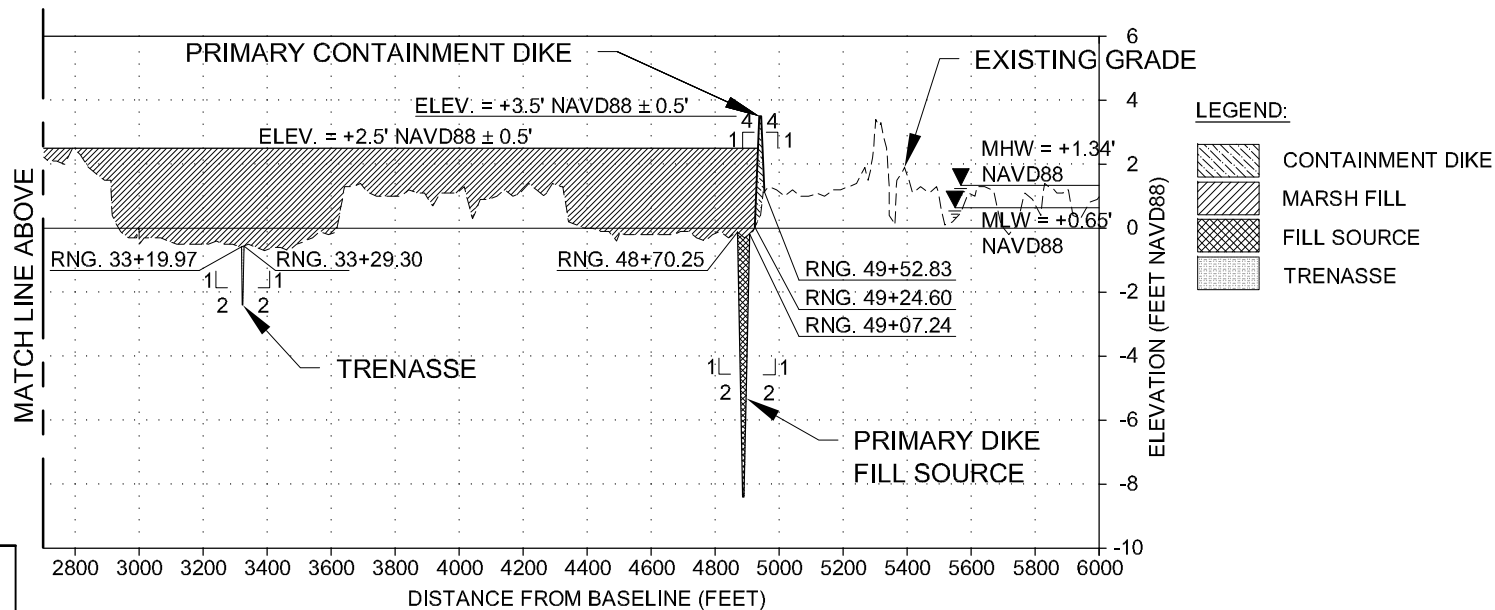
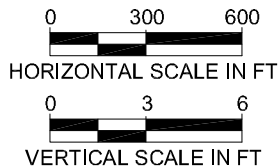
DATE: 9/19/14

SHEET 22 OF 52



NOTES:

- ELEVATIONS SHOWN HEREON ARE IN FEET BASED ON NAVD 1988.
- LAYOUT ALL FILL AREAS BY CROSS SECTIONS.
- POSITIVE RANGES ARE WEST OF BASELINE. NEGATIVE RANGES ARE EAST OF BASELINE.



LEGEND:

- CONTAINMENT DIKE
- MARSH FILL
- FILL SOURCE
- TRENASSE

CB&I COASTAL PLANNING & ENGINEERING, INC.

2481 N.W. BOCA RATON BOULEVARD
 BOCA RATON, FLORIDA 33431
 PH. (561) 391-8102
 FAX (561) 391-9116
 www.CoastalPlanning.net
 C.O.A. FL. #4028
 C.O.A. LA. #2531

APPLICATION BY:
 COASTAL PROTECTION AND RESTORATION AUTHORITY
 450 LAUREL ST., SUITE 1500
 BATON ROUGE, LOUISIANA 70801
 PH: (225) 342-2799
 FAX: (225) 342-8801

COASTAL PROTECTION & RESTORATION AUTHORITY
 450 LAUREL STREET
 BATON ROUGE, LOUISIANA 70801

OYSTER BAYOU MARSH RESTORATION PROJECT

MARSH RESTORATION CONSTRUCTION PROFILES

DRAWN BY: G KRYSZYNAK

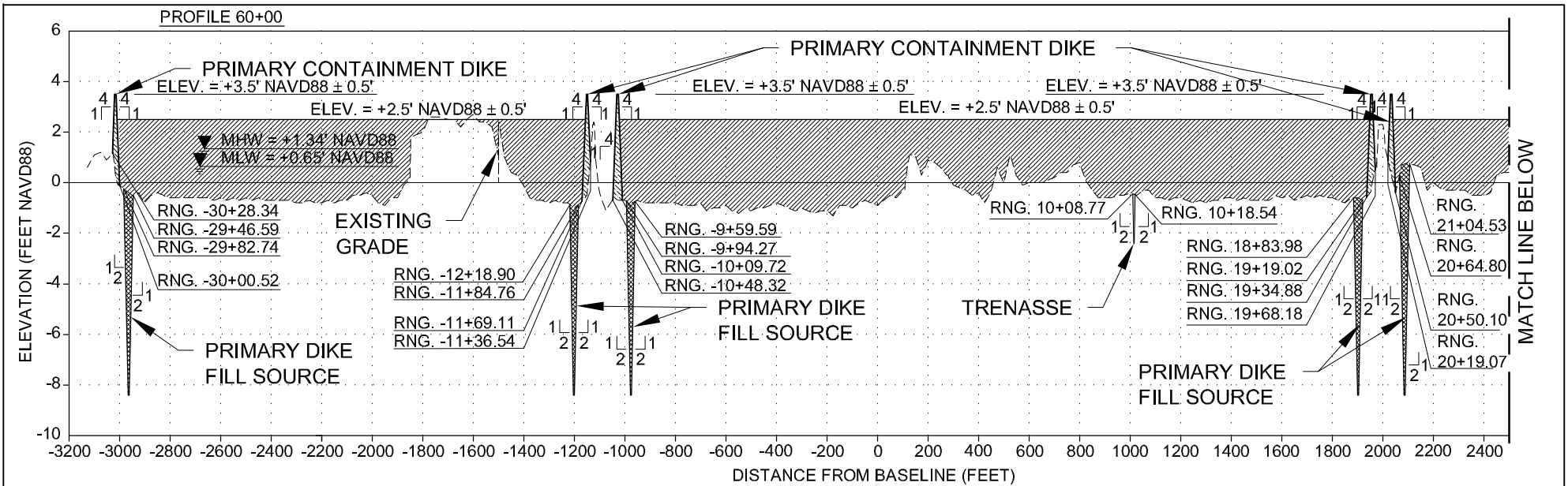
DESIGNED BY: W THOMPSON

APPROVED BY: G THOMSON

STATE PROJECT NUMBER: CS-59

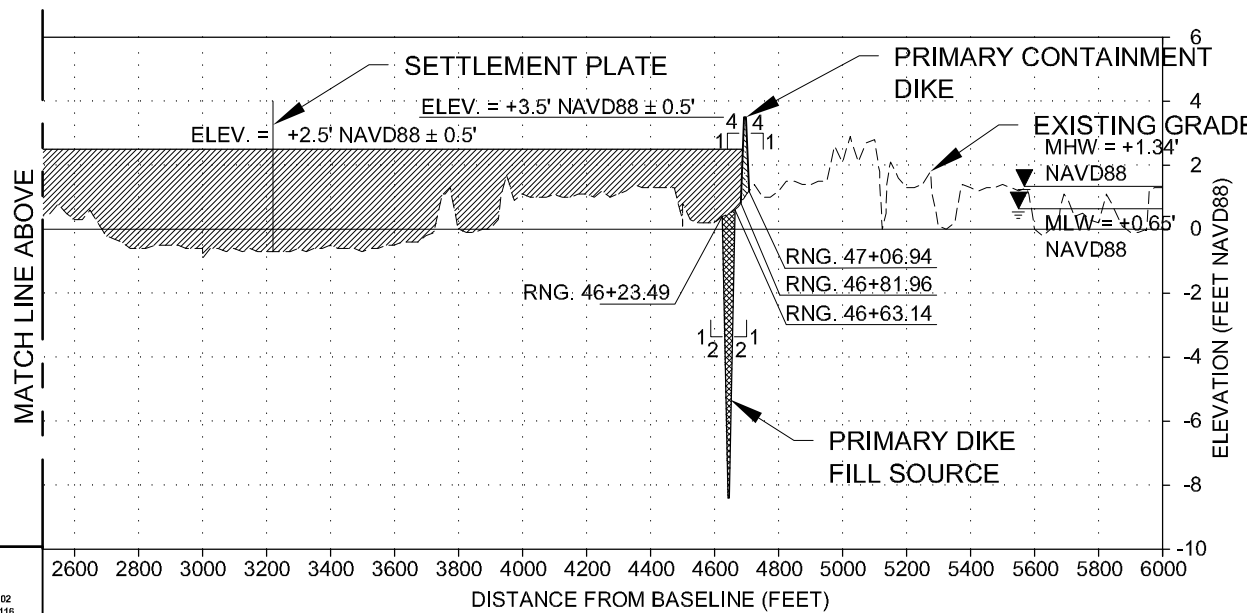
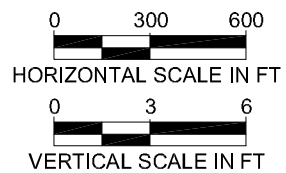
DATE: 9/19/14

SHEET 23 OF 52



NOTES:

1. ELEVATIONS SHOWN HEREON ARE IN FEET BASED ON NAVD 1988.
2. LAYOUT ALL FILL AREAS BY CROSS SECTIONS.
3. POSITIVE RANGES ARE WEST OF BASELINE. NEGATIVE RANGES ARE EAST OF BASELINE.



LEGEND:

- CONTAINMENT DIKE
- MARSH FILL
- FILL SOURCE
- TRENASSE

CB&I COASTAL PLANNING & ENGINEERING, INC.
 2481 N.W. BOCA RATON BOULEVARD
 BOCA RATON, FLORIDA 33431
 www.CoastalPlanning.net
 PH. (561) 391-8102
 FAX (561) 391-9116
 C.O.A. FL. #4028
 C.O.A. LA. #2531

APPLICATION BY:
 COASTAL PROTECTION AND RESTORATION AUTHORITY
 450 LAUREL ST., SUITE 1500
 BATON ROUGE, LOUISIANA 70801
 PH: (225) 342-2799
 FAX: (225) 342-8801

COASTAL PROTECTION & RESTORATION AUTHORITY
 450 LAUREL STREET
 BATON ROUGE, LOUISIANA 70801

DESIGNED BY: W THOMPSON
 APPROVED BY: G THOMSON

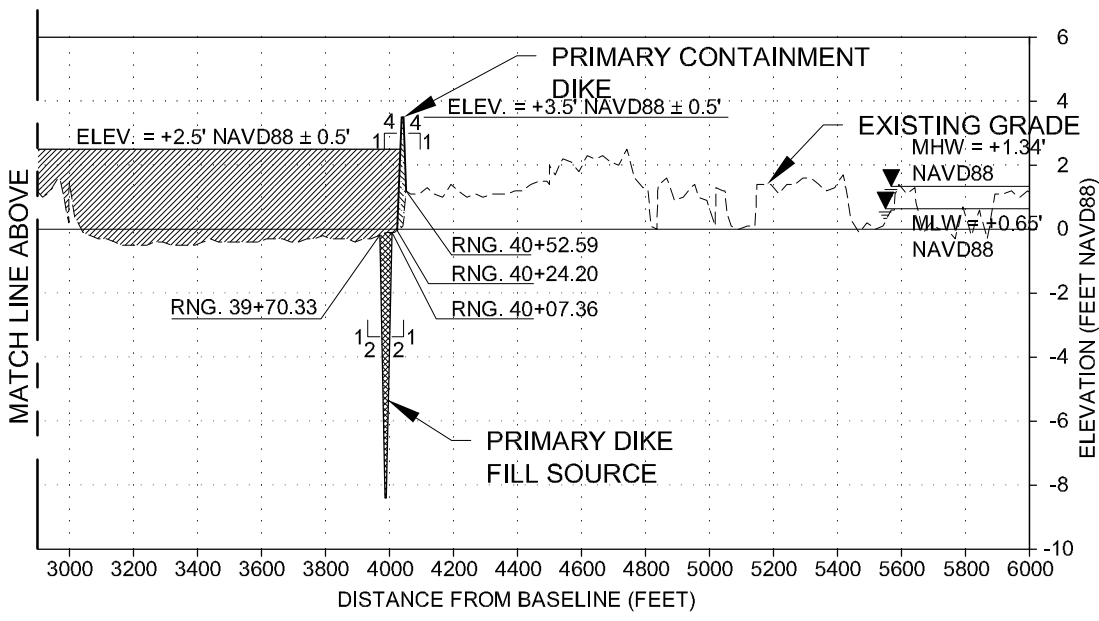
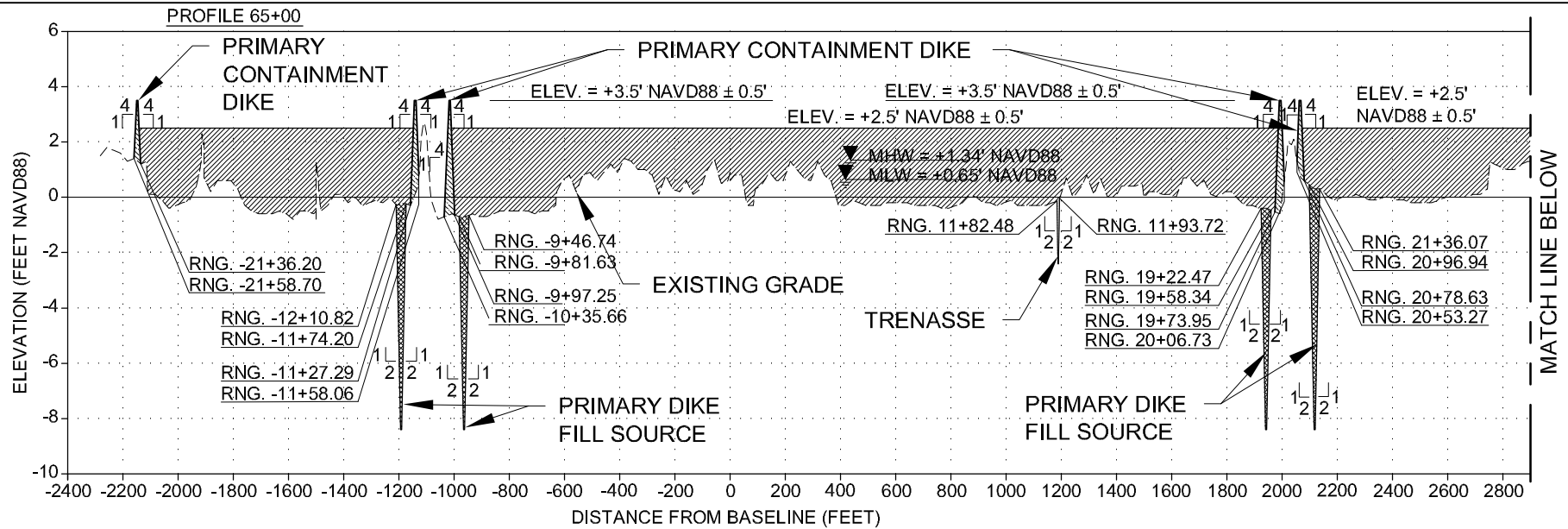
OYSTER BAYOU MARSH RESTORATION PROJECT

STATE PROJECT NUMBER: CS-59

MARSH RESTORATION CONSTRUCTION PROFILES

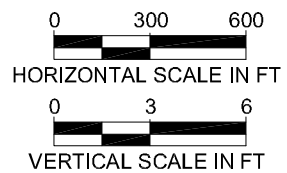
DATE: 9/19/14

SHEET 24 OF 52



- LEGEND:**
- CONTAINMENT DIKE
 - MARSH FILL
 - FILL SOURCE
 - TRENASSE

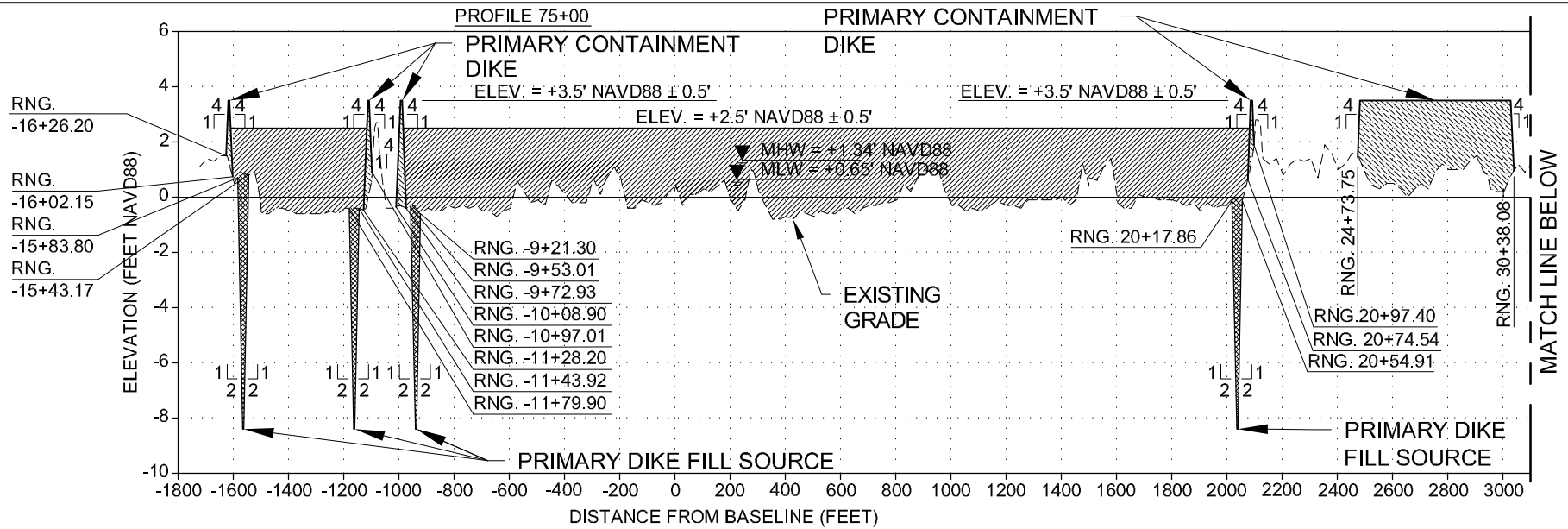
- NOTES:**
1. ELEVATIONS SHOWN HEREON ARE IN FEET BASED ON NAVD 1988.
 2. LAYOUT ALL FILL AREAS BY CROSS SECTIONS.
 3. POSITIVE RANGES ARE WEST OF BASELINE. NEGATIVE RANGES ARE EAST OF BASELINE.



CB&I COASTAL PLANNING & ENGINEERING, INC.
 2481 N.W. BOCA RATON BOULEVARD
 BOCA RATON, FLORIDA 33431
 www.CoastalPlanning.net

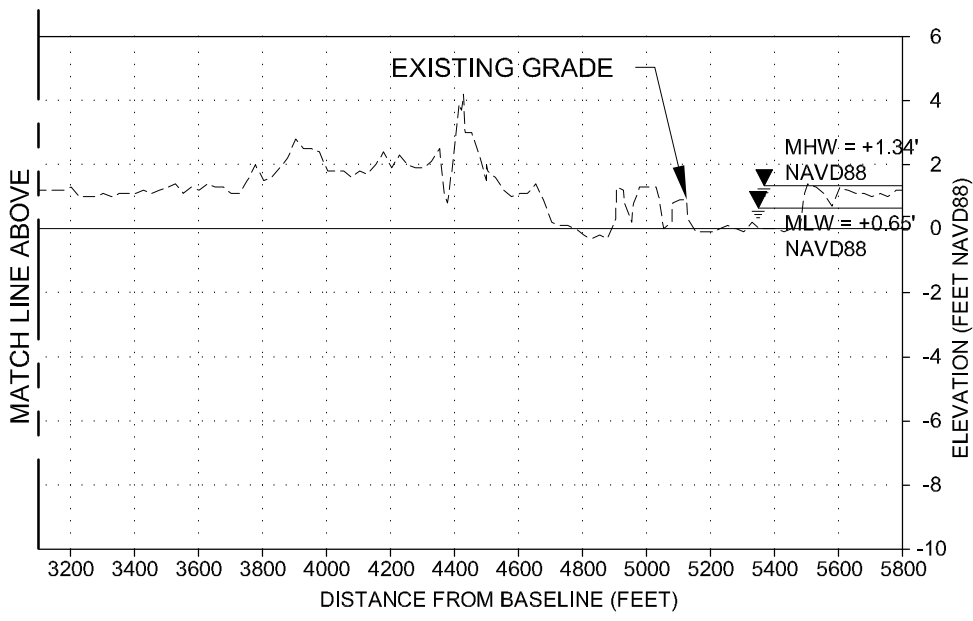
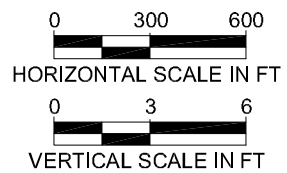
PH. (561) 391-8102
 FAX (561) 391-9116
 C.O.A. FL. #4028
 C.O.A. LA. #2531

APPLICATION BY: COASTAL PROTECTION AND RESTORATION AUTHORITY 450 LAUREL ST., SUITE 1500 BATON ROUGE, LOUISIANA 70801 PH: (225) 342-2799 FAX: (225) 342-8801	COASTAL PROTECTION & RESTORATION AUTHORITY 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801	OYSTER BAYOU MARSH RESTORATION PROJECT	MARSH RESTORATION CONSTRUCTION PROFILES
		STATE PROJECT NUMBER: CS-59	DATE: 9/19/14
DRAWN BY: G KRYSZTYNIAK	DESIGNED BY: W THOMPSON	APPROVED BY: G THOMSON	SHEET 25 OF 52



NOTES:

1. ELEVATIONS SHOWN HEREON ARE IN FEET BASED ON NAVD 1988.
2. LAYOUT ALL FILL AREAS BY CROSS SECTIONS.
3. POSITIVE RANGES ARE WEST OF BASELINE. NEGATIVE RANGES ARE EAST OF BASELINE.



LEGEND:

- CONTAINMENT DIKE
- MARSH FILL
- FILL SOURCE

CB&I COASTAL PLANNING & ENGINEERING, INC.
 2481 N.W. BOCA RATON BOULEVARD
 BOCA RATON, FLORIDA 33431
 www.CoastalPlanning.net
 PH. (561) 391-8102
 FAX (561) 391-8116
 C.O.A. FL. #4028
 C.O.A. LA. #2531

APPLICATION BY:
 COASTAL PROTECTION AND RESTORATION AUTHORITY
 450 LAUREL ST., SUITE 1500
 BATON ROUGE, LOUISIANA 70801
 PH: (225) 342-2799
 FAX: (225) 342-8801

COASTAL PROTECTION & RESTORATION AUTHORITY
 450 LAUREL STREET
 BATON ROUGE, LOUISIANA 70801

OYSTER BAYOU MARSH RESTORATION PROJECT
 STATE PROJECT NUMBER: CS-59

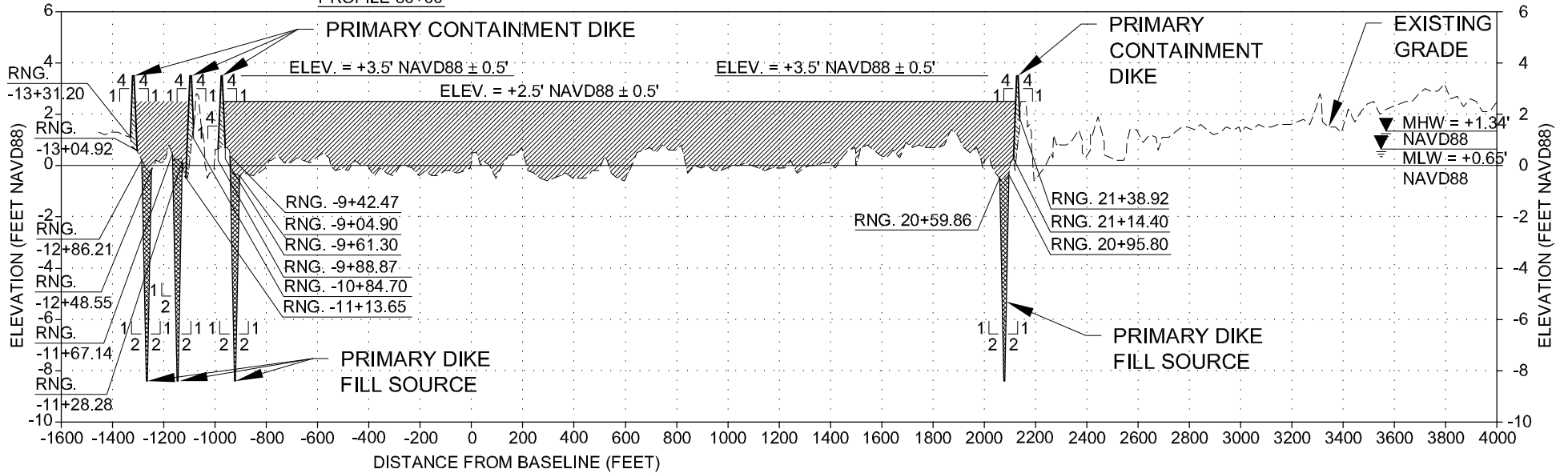
MARSH RESTORATION CONSTRUCTION PROFILES
 DATE: 9/19/14
 SHEET 27 OF 52

DRAWN BY: G KRYSZYNAK

DESIGNED BY: W THOMPSON

APPROVED BY: G THOMSON

PROFILE 80+00

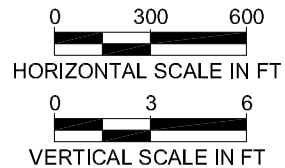


NOTES:

1. ELEVATIONS SHOWN HEREON ARE IN FEET BASED ON NAVD 1988.
2. LAYOUT ALL FILL AREAS BY CROSS SECTIONS.
3. POSITIVE RANGES ARE WEST OF BASELINE. NEGATIVE RANGES ARE EAST OF BASELINE.

LEGEND:

-  CONTAINMENT DIKE
-  MARSH FILL
-  FILL SOURCE



CB&I COASTAL PLANNING & ENGINEERING, INC.

2481 N.W. BOCA RATON BOULEVARD
BOCA RATON, FLORIDA 33431

PH. (561) 391-8102
FAX (561) 391-8116

www.CoastalPlanning.net

C.O.A. FL. #4028
C.O.A. LA. #2531

APPLICATION BY:
COASTAL PROTECTION AND RESTORATION AUTHORITY
450 LAUREL ST., SUITE 1500
BATON ROUGE, LOUISIANA 70801
PH: (225) 342-2799
FAX: (225) 342-8801

COASTAL PROTECTION & RESTORATION
AUTHORITY
450 LAUREL STREET
BATON ROUGE, LOUISIANA 70801

OYSTER BAYOU MARSH
RESTORATION PROJECT

MARSH RESTORATION
CONSTRUCTION PROFILES

STATE PROJECT NUMBER: CS-59

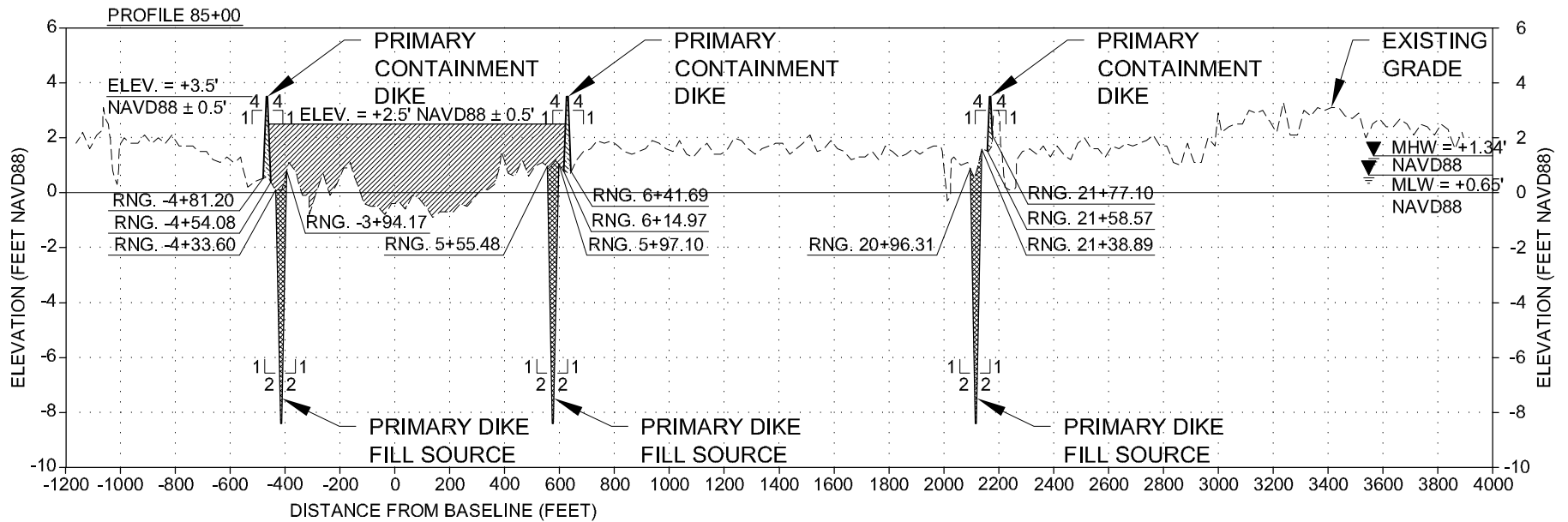
DATE: 9/19/14

DRAWN BY: G KRYSYNIK

DESIGNED BY: W THOMPSON

APPROVED BY: G THOMSON

SHEET 28 OF 52

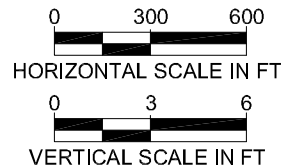


NOTES:

1. ELEVATIONS SHOWN HEREON ARE IN FEET BASED ON NAVD 1988.
2. LAYOUT ALL FILL AREAS BY CROSS SECTIONS.
3. POSITIVE RANGES ARE WEST OF BASELINE. NEGATIVE RANGES ARE EAST OF BASELINE.

LEGEND:

-  CONTAINMENT DIKE
-  MARSH FILL
-  FILL SOURCE



CB&I COASTAL PLANNING & ENGINEERING, INC.

2481 N.W. BOCA RATON BOULEVARD
BOCA RATON, FLORIDA 33431

PH. (561) 391-8102
FAX (561) 391-8116

www.CoastalPlanning.net

C.O.A. FL. #4028
C.O.A. LA. #2531

APPLICATION BY:
COASTAL PROTECTION AND RESTORATION AUTHORITY
450 LAUREL ST., SUITE 1500
BATON ROUGE, LOUISIANA 70801
PH: (225) 342-2799
FAX: (225) 342-8801

COASTAL PROTECTION & RESTORATION
AUTHORITY
450 LAUREL STREET
BATON ROUGE, LOUISIANA 70801

OYSTER BAYOU MARSH
RESTORATION PROJECT

MARSH RESTORATION
CONSTRUCTION PROFILES

STATE PROJECT NUMBER: CS-59

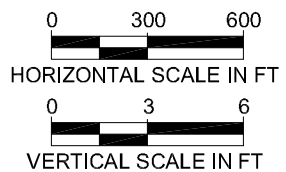
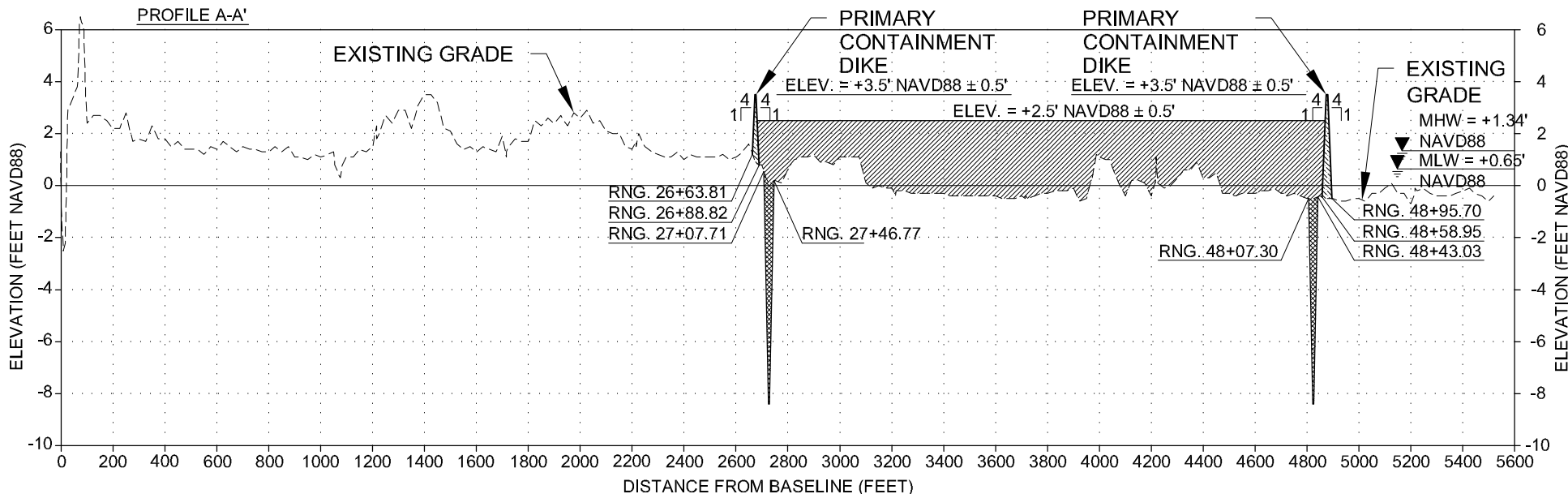
DATE: 9/19/14

DRAWN BY: G KRYSZTYNIAK

DESIGNED BY: W THOMPSON

APPROVED BY: G THOMSON

SHEET 29 OF 52



NOTES:

- ELEVATIONS SHOWN HEREON ARE IN FEET BASED ON NAVD 1988.
- LAYOUT ALL FILL AREAS BY CROSS SECTIONS.
- DISTANCES ARE ALONG SECTION LINE.

LEGEND:

- CONTAINMENT DIKE
- MARSH FILL
- FILL SOURCE

CB&I COASTAL PLANNING & ENGINEERING, INC.
 2481 N.W. BOCA RATON BOULEVARD
 BOCA RATON, FLORIDA 33431
 www.CoastalPlanning.net
 PH. (561) 391-8102
 FAX (561) 391-9116
 C.O.A. FL. #4028
 C.O.A. LA. #2531

APPLICATION BY:
 COASTAL PROTECTION AND RESTORATION AUTHORITY
 450 LAUREL ST., SUITE 1500
 BATON ROUGE, LOUISIANA 70801
 PH: (225) 342-2799
 FAX: (225) 342-8801

COASTAL PROTECTION & RESTORATION AUTHORITY
 450 LAUREL STREET
 BATON ROUGE, LOUISIANA 70801

DESIGNED BY: W THOMPSON
 APPROVED BY: G THOMSON

OYSTER BAYOU MARSH RESTORATION PROJECT

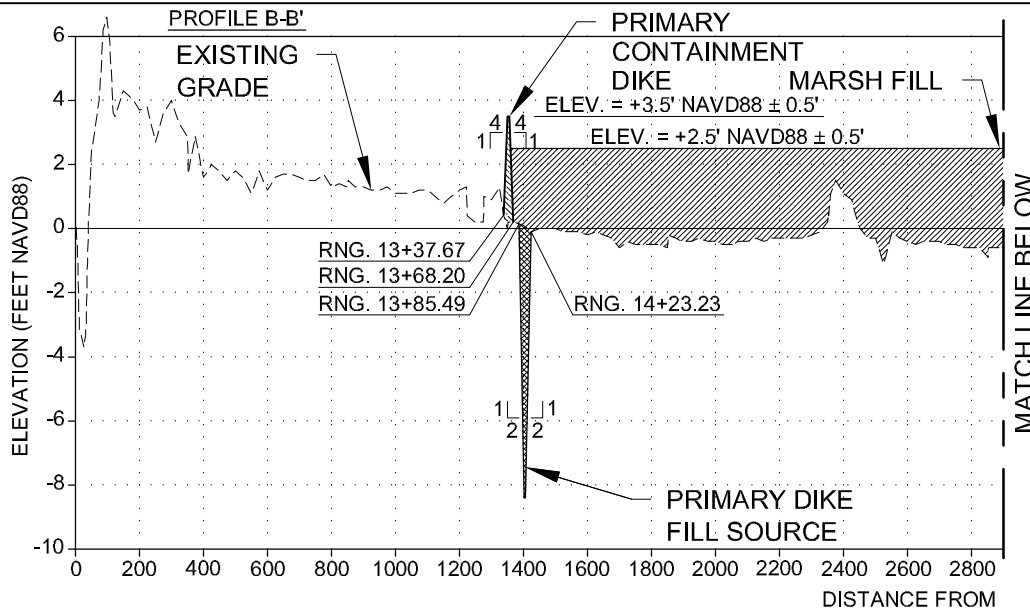
STATE PROJECT NUMBER: CS-59

MARSH RESTORATION CONSTRUCTION PROFILES

DATE: 9/19/14

DRAWN BY: G KRYSZYNAK

SHEET 30 OF 52

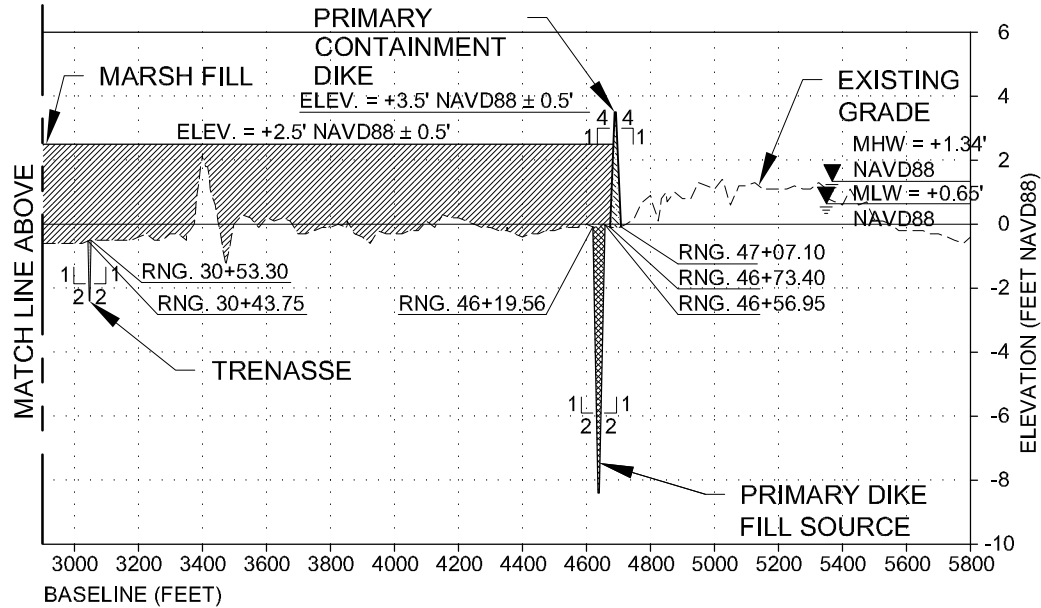
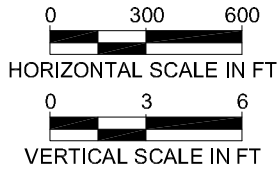


LEGEND:

- CONTAINMENT DIKE
- MARSH FILL
- FILL SOURCE
- TRENASSE

NOTES:

1. ELEVATIONS SHOWN HEREON ARE IN FEET BASED ON NAVD 1988.
2. LAYOUT ALL FILL AREAS BY CROSS SECTIONS.
3. DISTANCES ARE ALONG SECTION LINE.



CB&I COASTAL PLANNING & ENGINEERING, INC.

2481 N.W. BOCA RATON BOULEVARD
BOCA RATON, FLORIDA 33431
www.CoastalPlanning.net
PH. (561) 391-8102
FAX (561) 391-8116
C.O.A. FL. #4028
C.O.A. LA. #2531

APPLICATION BY:
COASTAL PROTECTION AND RESTORATION AUTHORITY
450 LAUREL ST., SUITE 1500
BATON ROUGE, LOUISIANA 70801
PH: (225) 342-2799
FAX: (225) 342-8801

COASTAL PROTECTION & RESTORATION AUTHORITY
450 LAUREL STREET
BATON ROUGE, LOUISIANA 70801

OYSTER BAYOU MARSH RESTORATION PROJECT

MARSH RESTORATION CONSTRUCTION PROFILES

STATE PROJECT NUMBER: CS-59

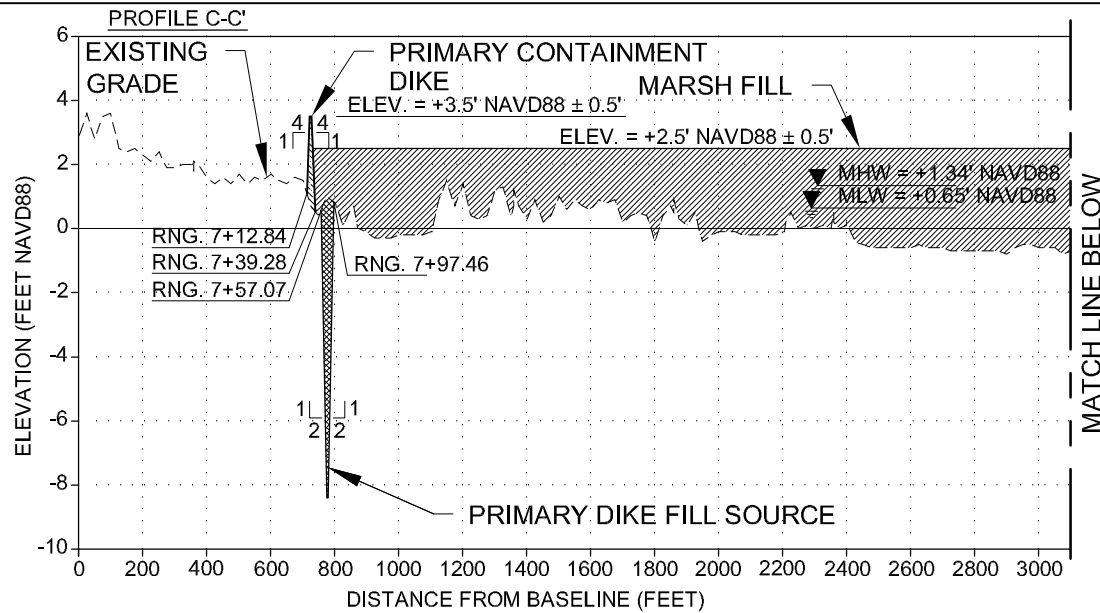
DATE: 9/19/14

DRAWN BY: G KRYSZTYNIAK

DESIGNED BY: W THOMPSON

APPROVED BY: G THOMSON

SHEET 31 OF 52

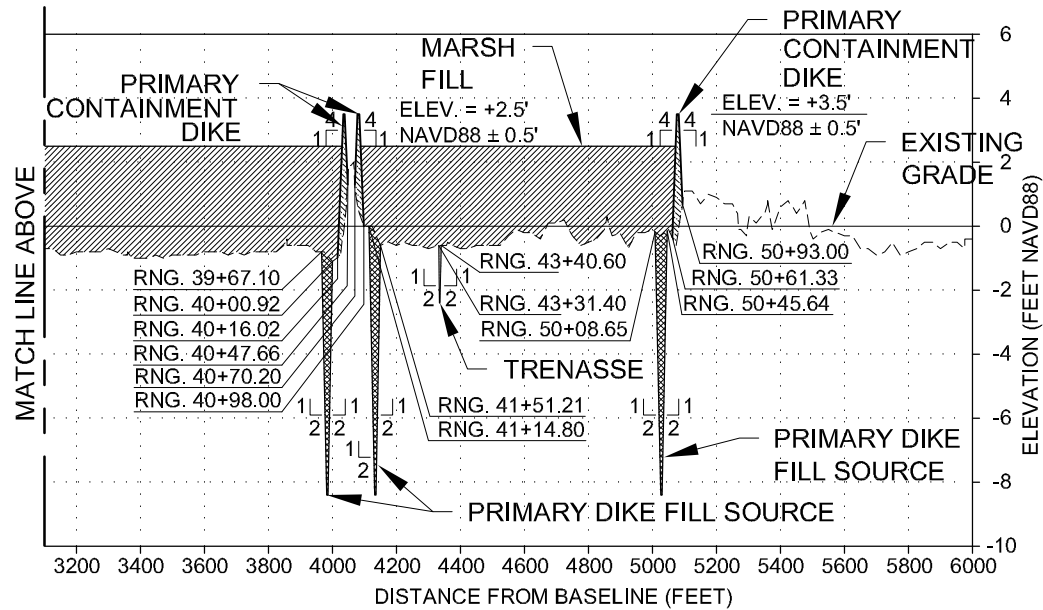
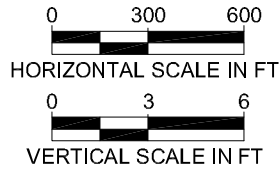


LEGEND:

- CONTAINMENT DIKE
- MARSH FILL
- FILL SOURCE
- TRENASSE

NOTES:

1. ELEVATIONS SHOWN HEREON ARE IN FEET BASED ON NAVD 1988.
2. LAYOUT ALL FILL AREAS BY CROSS SECTIONS.
3. DISTANCES ARE ALONG SECTION LINE.

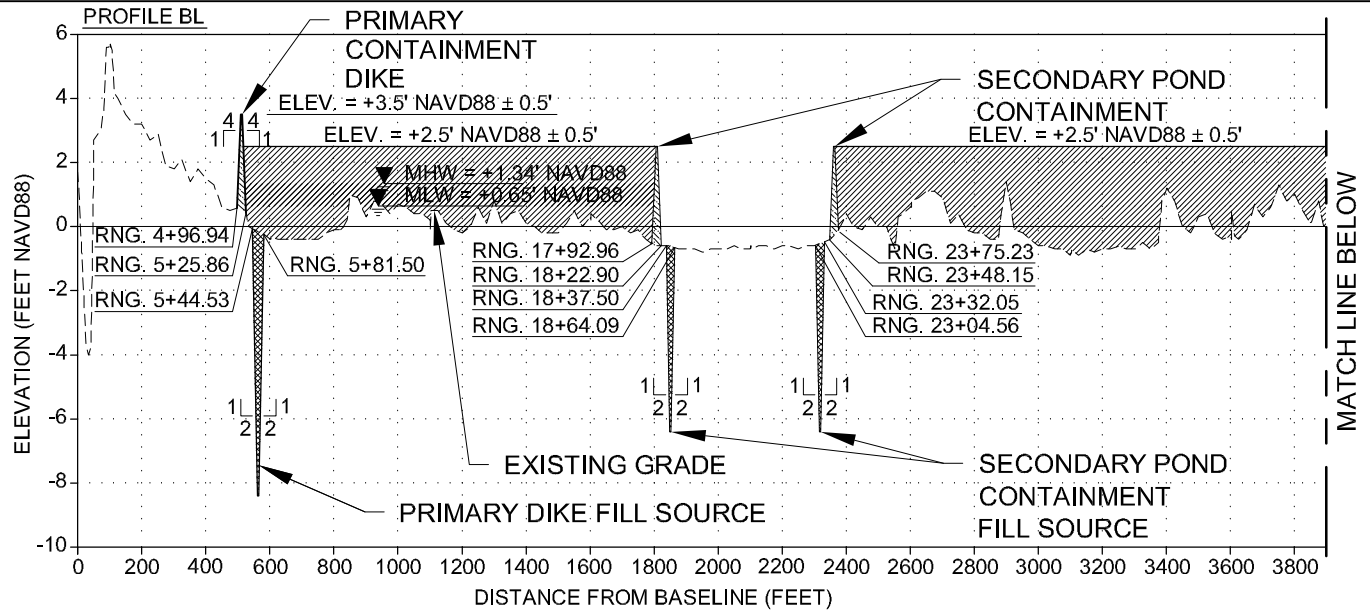


CB&I COASTAL PLANNING & ENGINEERING, INC.

2481 N.W. BOCA RATON BOULEVARD
BOCA RATON, FLORIDA 33431
www.CoastalPlanning.net

PH. (561) 391-8102
FAX (561) 391-8116
C.O.A. FL. #4028
C.O.A. LA. #2531

APPLICATION BY: COASTAL PROTECTION AND RESTORATION AUTHORITY 450 LAUREL ST., SUITE 1500 BATON ROUGE, LOUISIANA 70801 PH: (225) 342-2799 FAX: (225) 342-8801	COASTAL PROTECTION & RESTORATION AUTHORITY 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801	40 RESTORATION PROJECT	MARSH RESTORATION CONSTRUCTION PROFILES
		STATE PROJECT NUMBER: CS-59	DATE: 9/19/14
DRAWN BY: G KRYSZYNAK	DESIGNED BY: W THOMPSON	APPROVED BY: G THOMSON	SHEET 32 OF 52

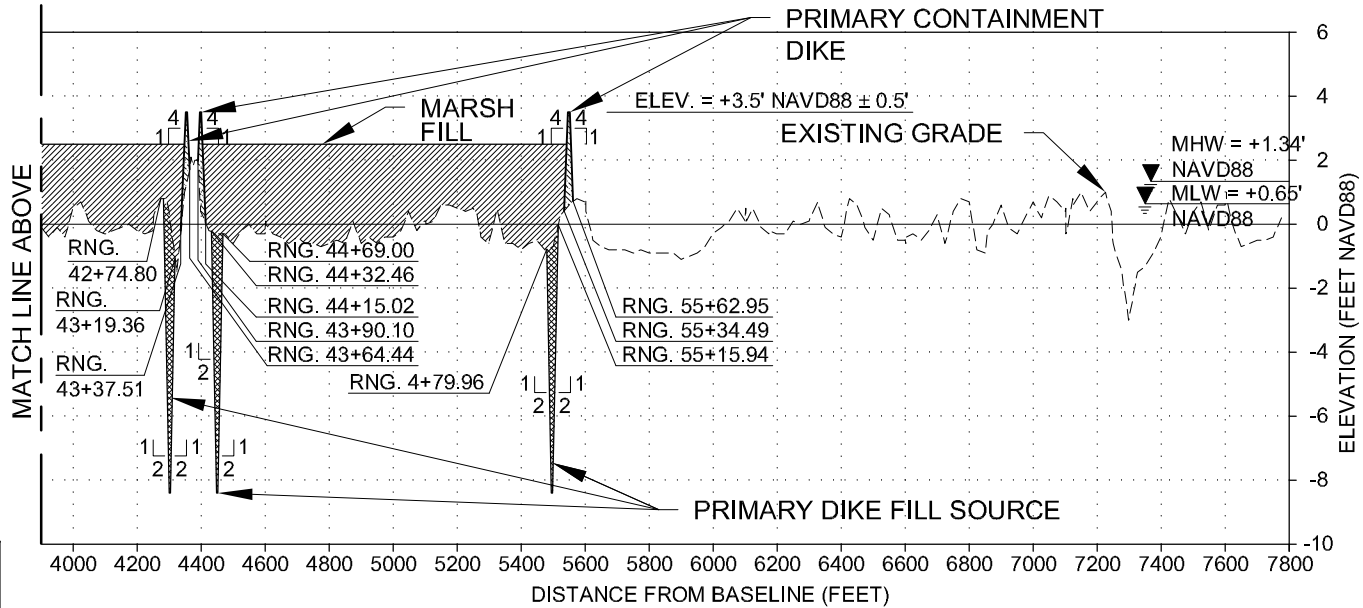
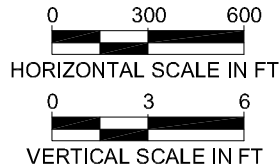


LEGEND:

- CONTAINMENT DIKE
- MARSH FILL
- FILL SOURCE
- TRENASSE

NOTES:

1. ELEVATIONS SHOWN HEREON ARE IN FEET BASED ON NAVD 1988.
2. LAYOUT ALL FILL AREAS BY CROSS SECTIONS.
3. DISTANCES ARE ALONG SECTION LINE.

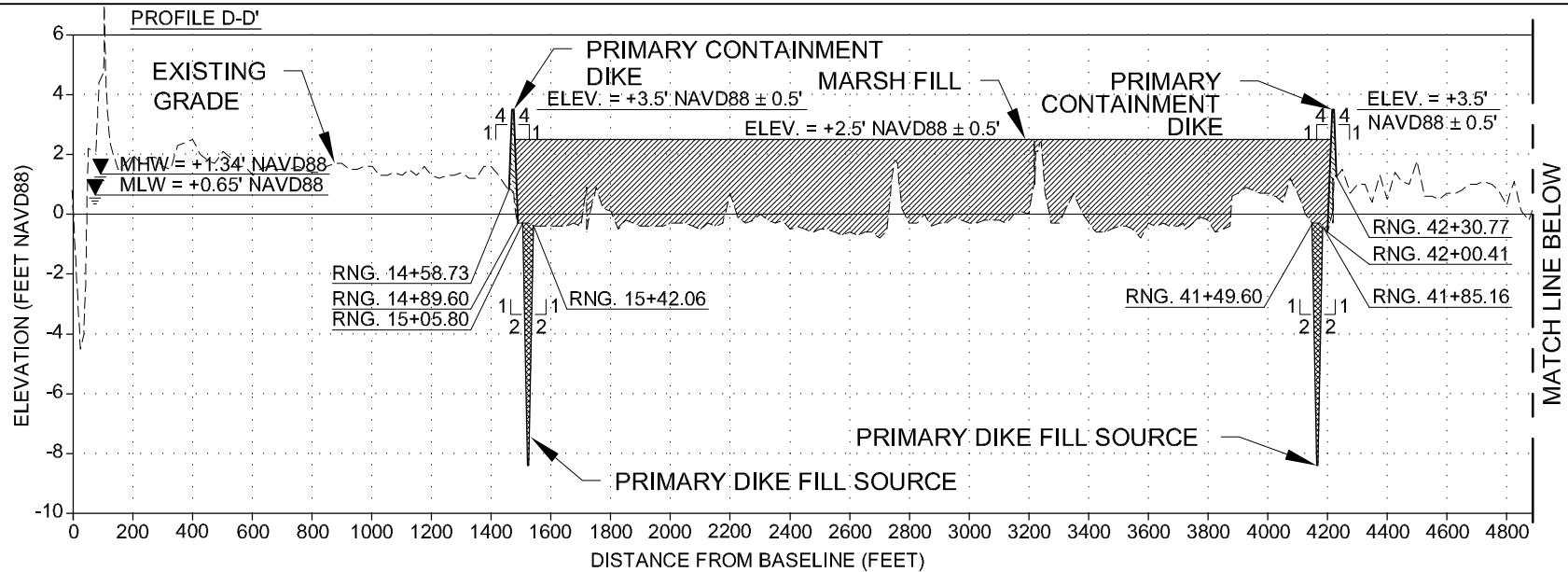


CB&I COASTAL PLANNING & ENGINEERING, INC.

2481 N.W. BOCA RATON BOULEVARD
BOCA RATON, FLORIDA 33431
www.CoastalPlanning.net

PH. (561) 391-8102
FAX (561) 391-8116
C.O.A. FL. #4028
C.O.A. LA. #2531

APPLICATION BY: COASTAL PROTECTION AND RESTORATION AUTHORITY 450 LAUREL ST., SUITE 1500 BATON ROUGE, LOUISIANA 70801 PH: (225) 342-2799 FAX: (225) 342-8801	COASTAL PROTECTION & RESTORATION AUTHORITY 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801	OYSTER BAYOU MARSH RESTORATION PROJECT	MARSH RESTORATION CONSTRUCTION PROFILES
		STATE PROJECT NUMBER: CS-59	DATE: 9/19/14
DRAWN BY: G KRYSZTYNIAK	DESIGNED BY: W THOMPSON	APPROVED BY: G THOMSON	SHEET 33 OF 52

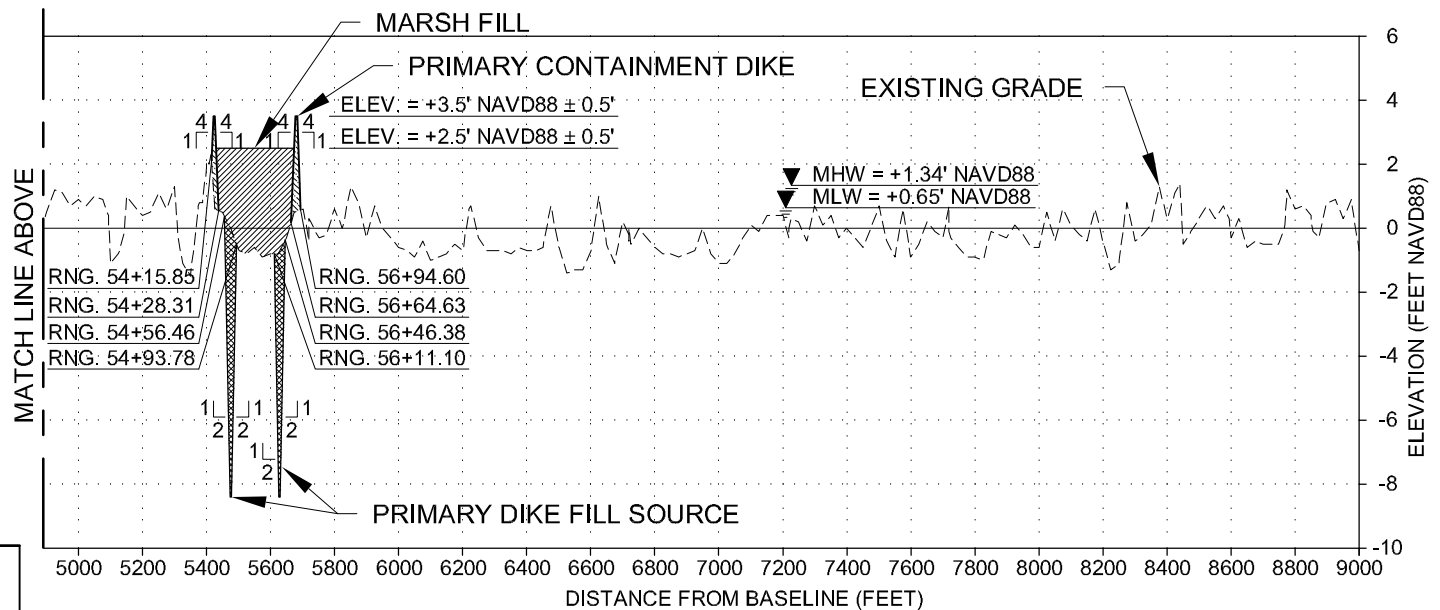
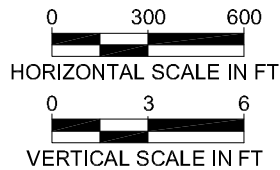


LEGEND:

- CONTAINMENT DIKE
- MARSH FILL
- FILL SOURCE

NOTES:

1. ELEVATIONS SHOWN HEREON ARE IN FEET BASED ON NAVD 1988.
2. LAYOUT ALL FILL AREAS BY CROSS SECTIONS.
3. DISTANCES ARE ALONG SECTION LINE.



CB&I COASTAL PLANNING & ENGINEERING, INC.

2481 N.W. BOCA RATON BOULEVARD
BOCA RATON, FLORIDA 33431
www.CoastalPlanning.net

PH. (561) 391-8102
FAX (561) 391-9116
C.O.A. FL. #4028
C.O.A. LA. #2531

APPLICATION BY:
COASTAL PROTECTION AND RESTORATION AUTHORITY
450 LAUREL ST., SUITE 1500
BATON ROUGE, LOUISIANA 70801
PH: (225) 342-2799
FAX: (225) 342-8801

COASTAL PROTECTION & RESTORATION AUTHORITY
450 LAUREL STREET
BATON ROUGE, LOUISIANA 70801

OYSTER BAYOU MARSH RESTORATION PROJECT

MARSH RESTORATION CONSTRUCTION PROFILES

STATE PROJECT NUMBER: CS-59

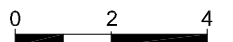
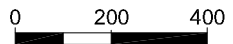
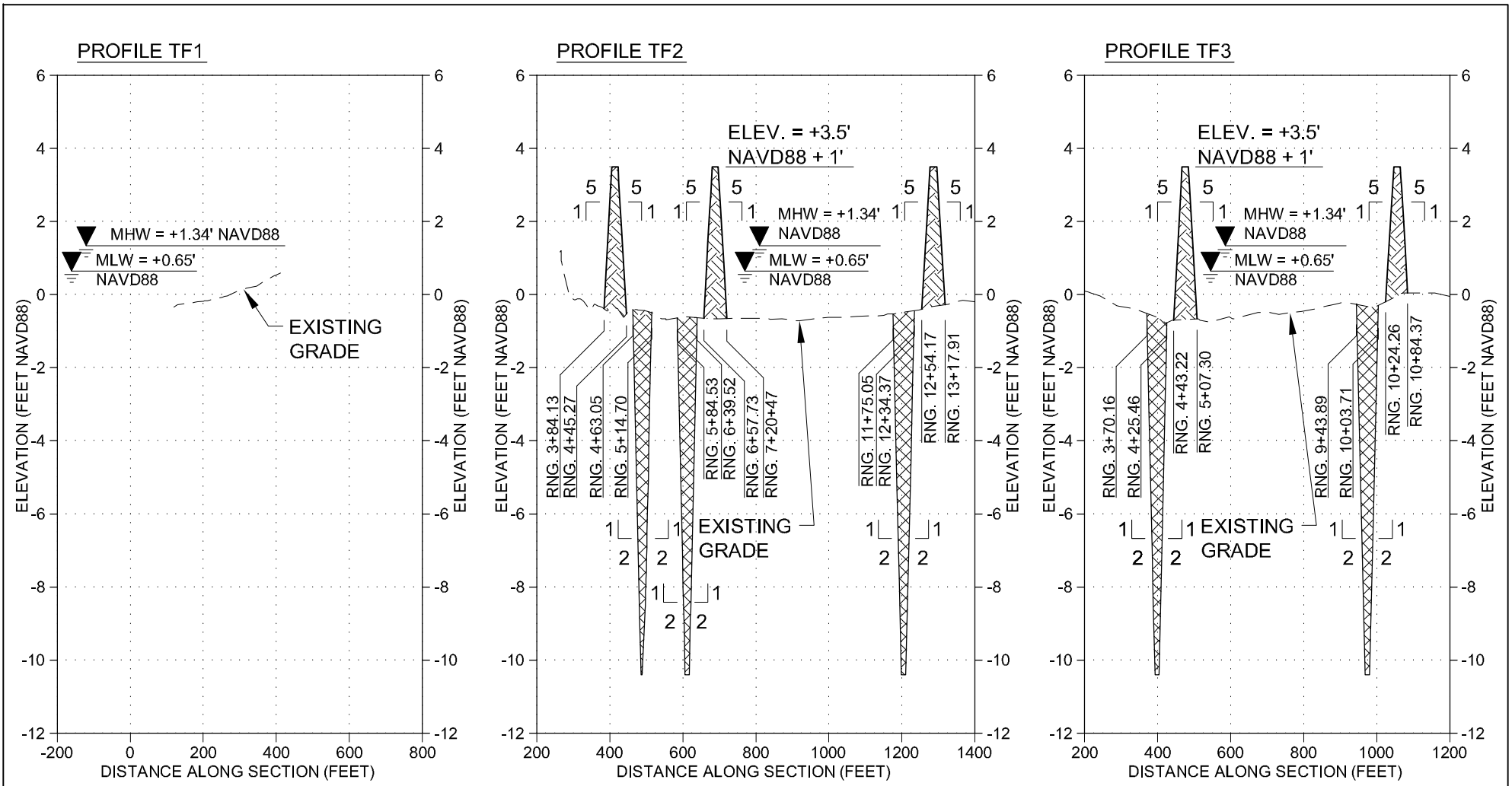
DATE: 9/19/14

DRAWN BY: G KRYSZTYNIAK

DESIGNED BY: W THOMPSON

APPROVED BY: G THOMSON

SHEET 34 OF 52



NOTES:

1. ELEVATIONS SHOWN HEREON ARE IN FEET BASED ON NAVD 1988.
2. LAYOUT ALL FILL AREAS BY ALIGNMENT TABLE ON SHEET 6-10.
3. DISTANCES ARE ALONG SECTION LINE.

LEGEND:

- EARTEN TERRACE ELEV. +3.5'
- EARTHEN TERRACE BORROW AREA ELEV. -10.4' (MAX)

CB&I COASTAL PLANNING & ENGINEERING, INC.
 2481 N.W. BOCA RATON BOULEVARD
 BOCA RATON, FLORIDA 33431
 www.CoastalPlanning.net
 PH. (561) 391-8102
 FAX (561) 391-8116
 C.O.A. FL. #4028
 C.O.A. LA. #2531

APPLICATION BY:
 COASTAL PROTECTION AND RESTORATION AUTHORITY
 450 LAUREL ST., SUITE 1500
 BATON ROUGE, LOUISIANA 70801
 PH: (225) 342-2799
 FAX: (225) 342-8801

COASTAL PROTECTION & RESTORATION AUTHORITY
 450 LAUREL STREET
 BATON ROUGE, LOUISIANA 70801

DESIGNED BY: W THOMPSON
 APPROVED BY: G THOMSON

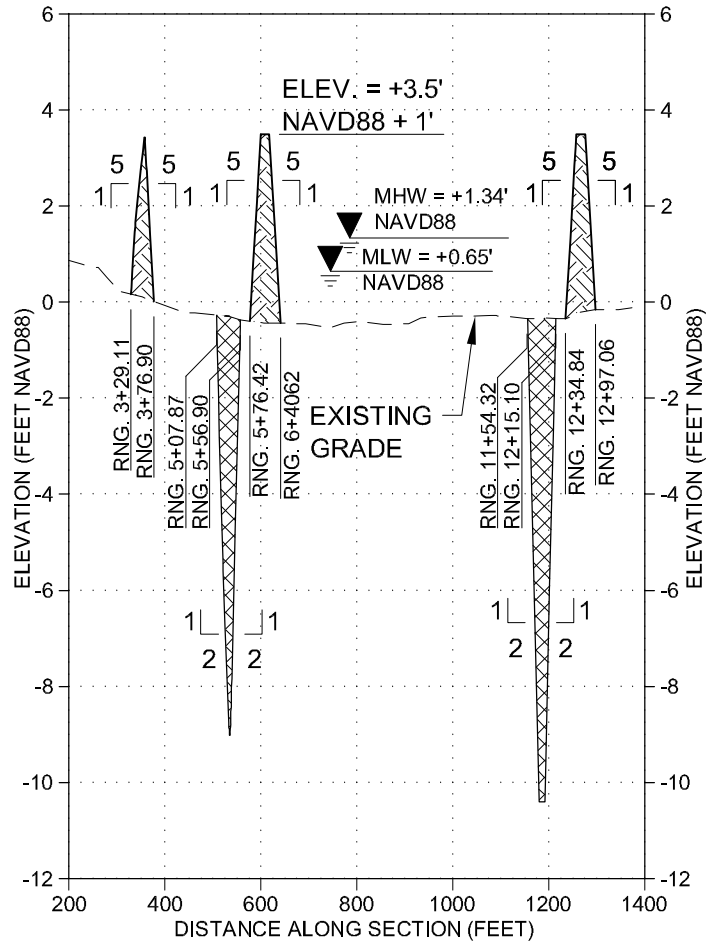
OYSTER BAYOU MARSH RESTORATION PROJECT

STATE PROJECT NUMBER: CS-59

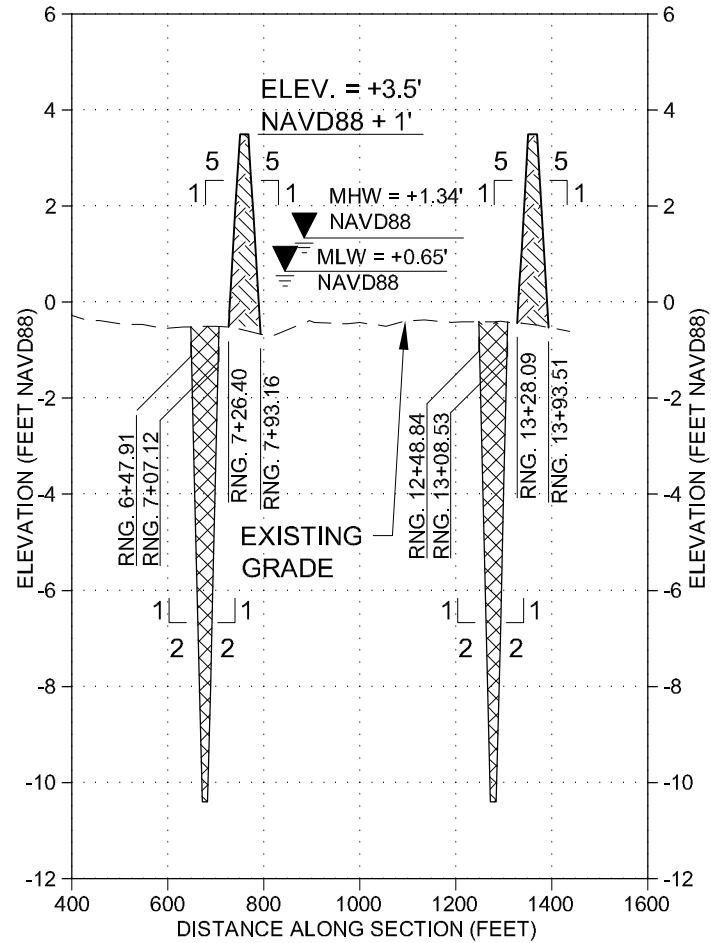
TERRACE FIELD CONSTRUCTION PROFILES

DATE: 9/19/14

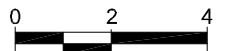
PROFILE TF4



PROFILE TF5



HORIZONTAL SCALE IN FT



VERTICAL SCALE IN FT

NOTES:

1. ELEVATIONS SHOWN HEREON ARE IN FEET BASED ON NAVD 1988.
2. LAYOUT ALL FILL AREAS BY ALIGNMENT TABLE ON SHEET 6-10.
3. DISTANCES ARE ALONG SECTION LINE.

LEGEND:

- EARTEN TERRACE ELEV. +3.5'
- EARTEN TERRACE BORROW AREA ELEV. -10.4' (MAX)

CB&I COASTAL PLANNING & ENGINEERING, INC.
 2481 N.W. BOCA RATON BOULEVARD
 BOCA RATON, FLORIDA 33431
 www.CoastalPlanning.net
 PH. (561) 391-8102
 FAX (561) 391-8116
 C.O.A. FL. #4028
 C.O.A. LA. #2531

APPLICATION BY:
 COASTAL PROTECTION AND RESTORATION AUTHORITY
 450 LAUREL ST., SUITE 1500
 BATON ROUGE, LOUISIANA 70801
 PH: (225) 342-2799
 FAX: (225) 342-8801

COASTAL PROTECTION & RESTORATION AUTHORITY
 450 LAUREL STREET
 BATON ROUGE, LOUISIANA 70801

OYSTER BAYOU MARSH RESTORATION PROJECT
 STATE PROJECT NUMBER: CS-59

TERRACE FIELD CONSTRUCTION PROFILES
 DATE: 9/19/14

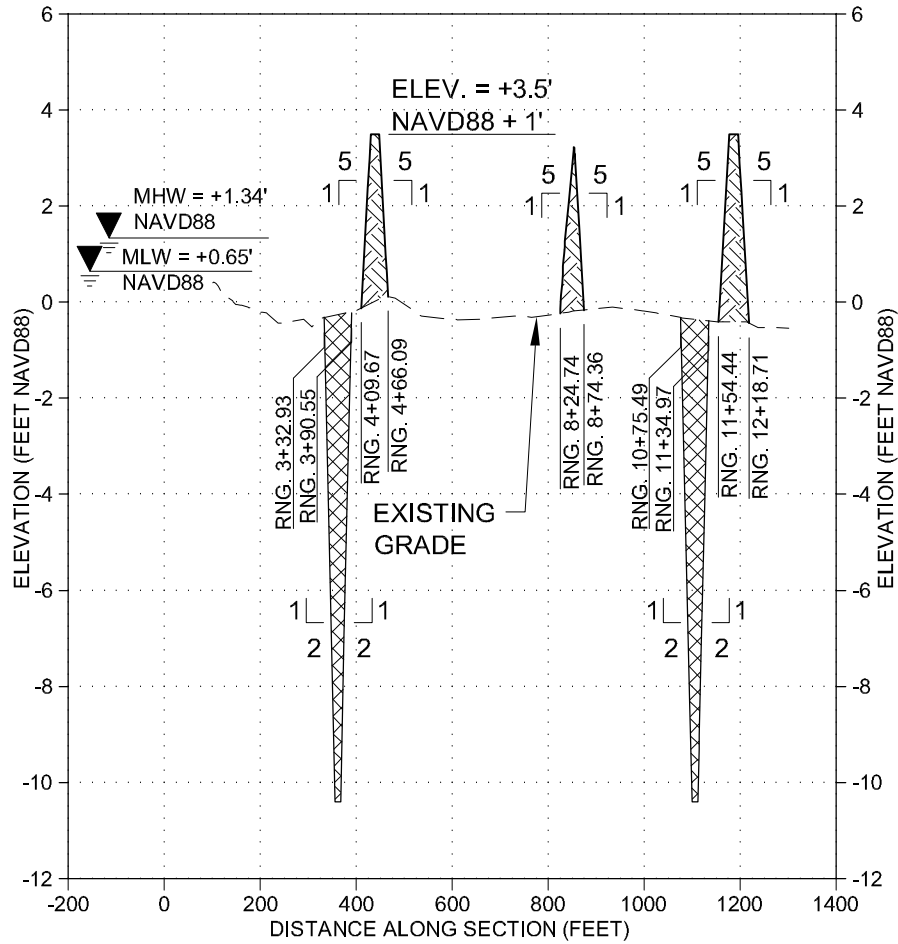
DRAWN BY: G KRYSZYNAK

DESIGNED BY: W THOMPSON

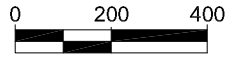
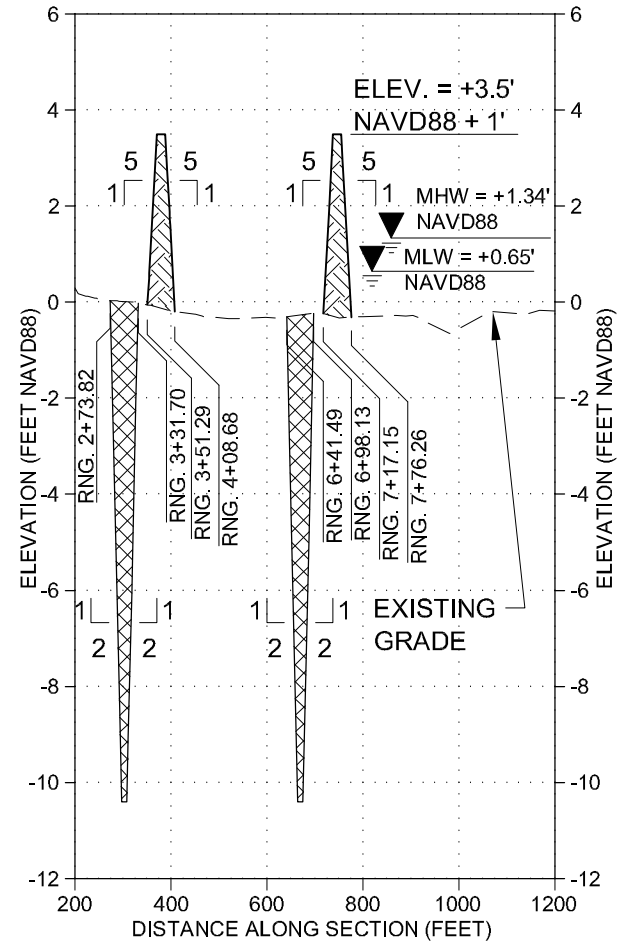
APPROVED BY: G THOMSON

SHEET 36 OF 52

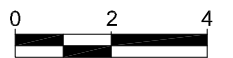
PROFILE TF6



PROFILE TF7



HORIZONTAL SCALE IN FT



VERTICAL SCALE IN FT

NOTES:

1. ELEVATIONS SHOWN HEREON ARE IN FEET BASED ON NAVD 1988.
2. LAYOUT ALL FILL AREAS BY ALIGNMENT TABLE ON SHEET 6-10.
3. DISTANCES ARE ALONG SECTION LINE.

LEGEND:

- EARTEN TERRACE ELEV. +3.5'
- EARTEN TERRACE BORROW AREA ELEV. -10.4' (MAX)

CB&I COASTAL PLANNING & ENGINEERING, INC.
 2481 N.W. BOCA RATON BOULEVARD
 BOCA RATON, FLORIDA 33431
 www.CoastalPlanning.net
 PH. (561) 391-8102
 FAX (561) 391-9116
 C.O.A. FL. #4028
 C.O.A. LA. #2531

APPLICATION BY:
 COASTAL PROTECTION AND RESTORATION AUTHORITY
 450 LAUREL ST., SUITE 1500
 BATON ROUGE, LOUISIANA 70801
 PH: (225) 342-2799
 FAX: (225) 342-8801

COASTAL PROTECTION & RESTORATION AUTHORITY
 450 LAUREL STREET
 BATON ROUGE, LOUISIANA 70801

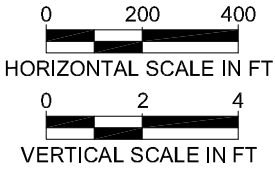
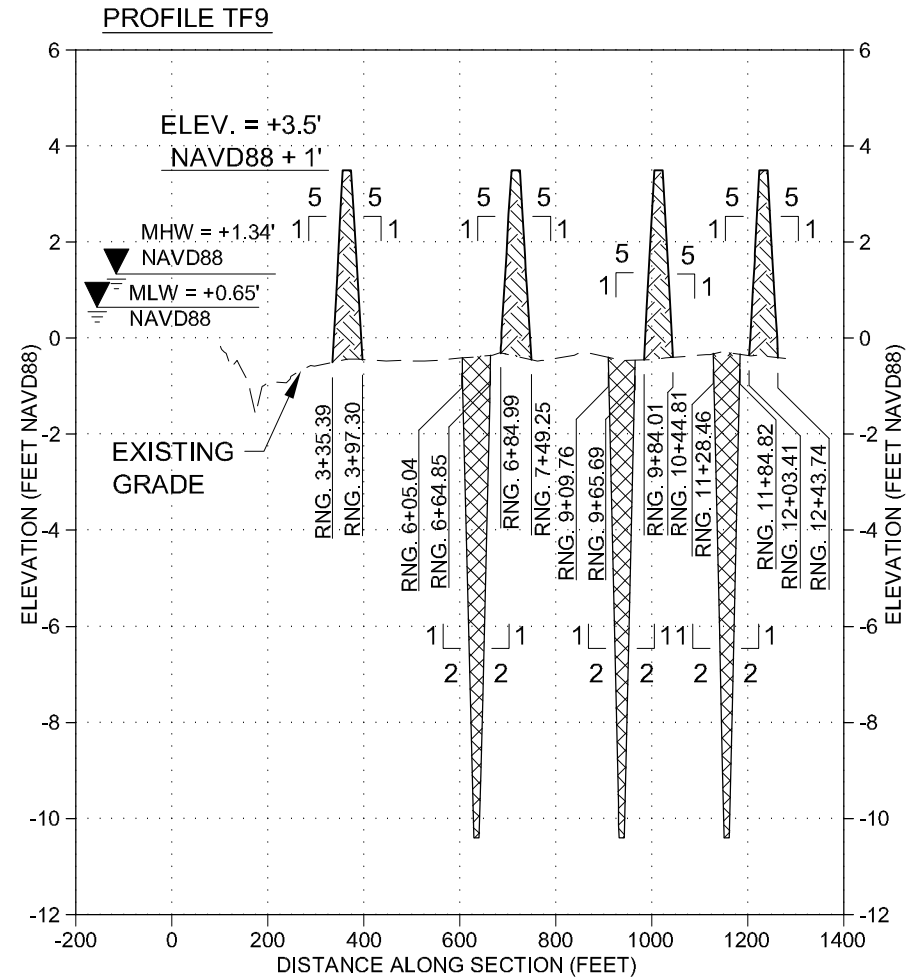
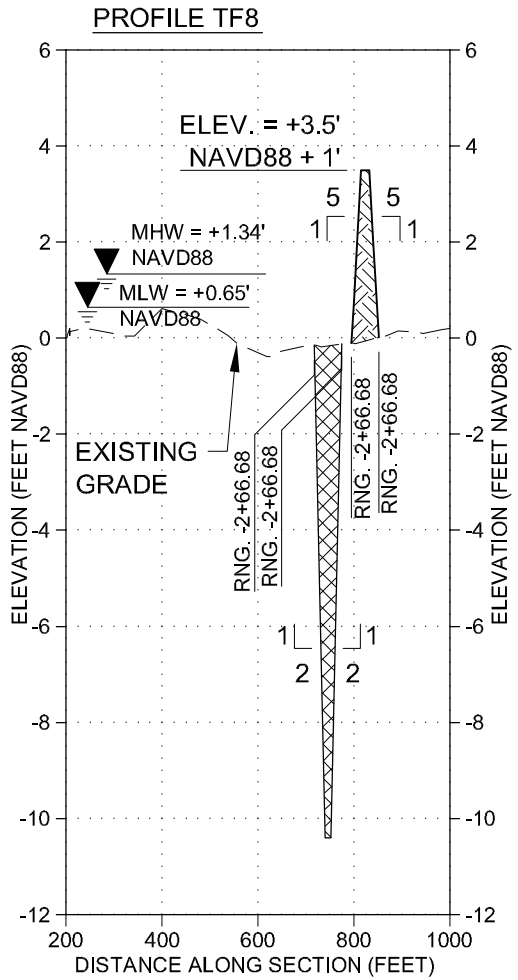
DESIGNED BY: W THOMPSON APPROVED BY: G THOMSON

OYSTER BAYOU MARSH RESTORATION PROJECT

STATE PROJECT NUMBER: CS-59

TERRACE FIELD CONSTRUCTION PROFILES

DATE: 9/19/14
 SHEET 37 OF 52



NOTES:

1. ELEVATIONS SHOWN HEREON ARE IN FEET BASED ON NAVD 1988.
2. LAYOUT ALL FILL AREAS BY ALIGNMENT TABLE ON SHEET 6-10.
3. DISTANCES ARE ALONG SECTION LINE.

LEGEND:

- EARTEN TERRACE ELEV. +3.5'
- EARTHEN TERRACE BORROW AREA ELEV. -10.4' (MAX)

CB&I COASTAL PLANNING & ENGINEERING, INC.
 2481 N.W. BOCA RATON BOULEVARD
 BOCA RATON, FLORIDA 33431
 www.CoastalPlanning.net
 PH. (561) 391-8102
 FAX (561) 391-9116
 C.O.A. FL. #4028
 C.O.A. LA. #2531

APPLICATION BY:
 COASTAL PROTECTION AND RESTORATION AUTHORITY
 450 LAUREL ST., SUITE 1500
 BATON ROUGE, LOUISIANA 70801
 PH: (225) 342-2799
 FAX: (225) 342-8801

COASTAL PROTECTION & RESTORATION AUTHORITY
 450 LAUREL STREET
 BATON ROUGE, LOUISIANA 70801

OYSTER BAYOU MARSH RESTORATION PROJECT

STATE PROJECT NUMBER: CS-59

TERRACE FIELD CONSTRUCTION PROFILES

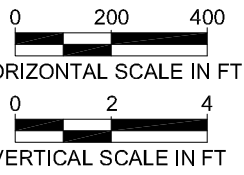
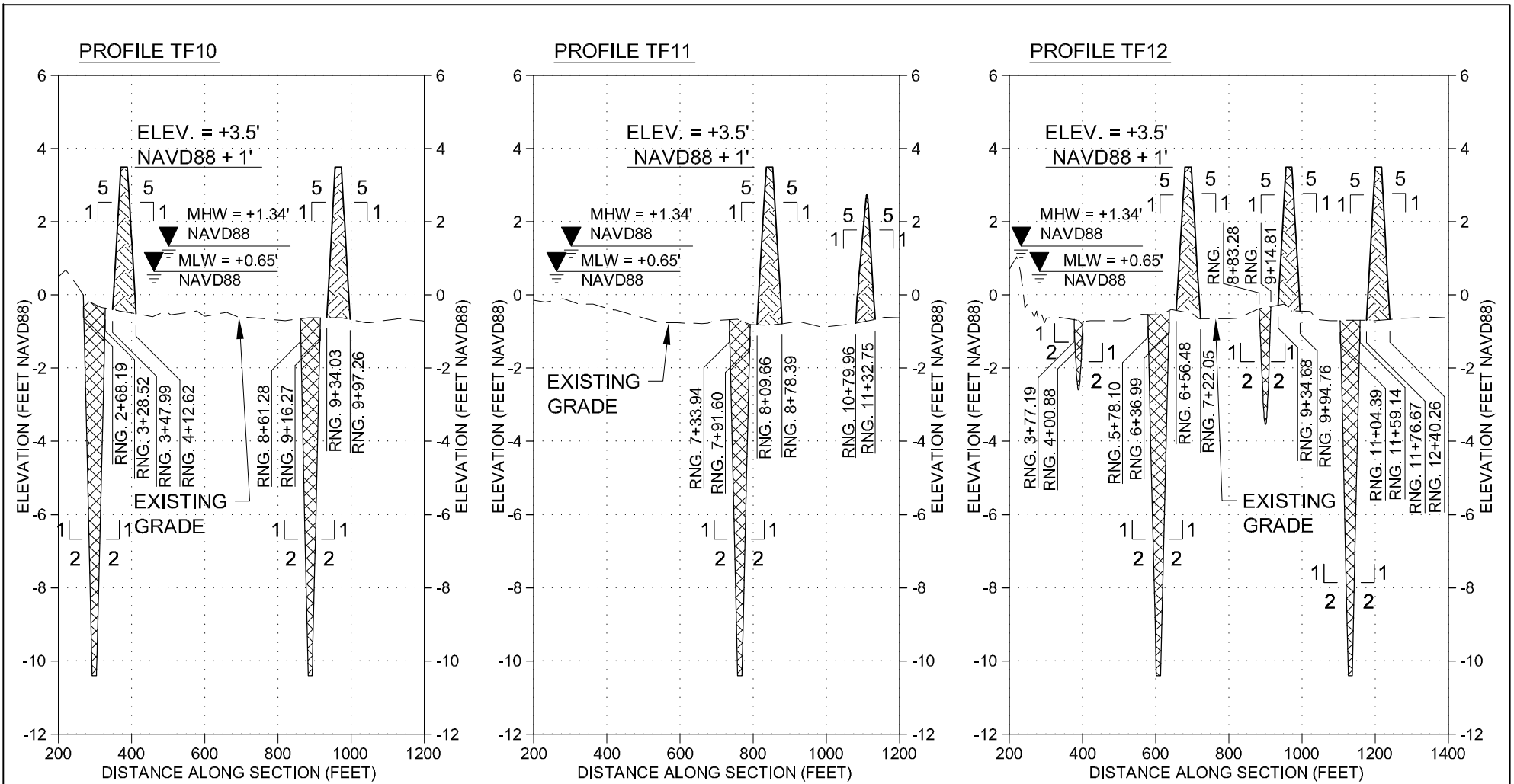
DATE: 9/19/14

DRAWN BY: G KRYSZYNAK

DESIGNED BY: W THOMPSON

APPROVED BY: G THOMSON

SHEET 38 OF 52



NOTES:

1. ELEVATIONS SHOWN HEREON ARE IN FEET BASED ON NAVD 1988.
2. LAYOUT ALL FILL AREAS BY ALIGNMENT TABLE ON SHEET 6-10.
3. DISTANCES ARE ALONG SECTION LINE.

LEGEND:

- EARTHEN TERRACE ELEV. +3.5'
- EARTHEN TERRACE BORROW AREA ELEV. -10.4' (MAX)

CB&I COASTAL PLANNING & ENGINEERING, INC.
 2481 N.W. BOCA RATON BOULEVARD
 BOCA RATON, FLORIDA 33431
 www.CoastalPlanning.net
 PH. (561) 391-8102
 FAX (561) 391-9116
 C.O.A. FL. #4028
 C.O.A. LA. #2531

APPLICATION BY:
 COASTAL PROTECTION AND RESTORATION AUTHORITY
 450 LAUREL ST., SUITE 1500
 BATON ROUGE, LOUISIANA 70801
 PH: (225) 342-2799
 FAX: (225) 342-8801

COASTAL PROTECTION & RESTORATION AUTHORITY
 450 LAUREL STREET
 BATON ROUGE, LOUISIANA 70801

OYSTER BAYOU MARSH
 RESTORATION PROJECT

STATE PROJECT NUMBER: CS-59

TERRACE FIELD
 CONSTRUCTION PROFILES

DATE: 9/19/14

DRAWN BY: G KRYSZTYNIAK

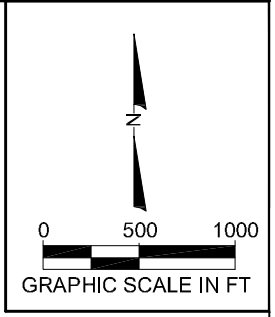
DESIGNED BY: W THOMPSON

APPROVED BY: G THOMSON

SHEET 39 OF 52

LEGEND:

- 16 BATHYMETRIC CONTOUR
- ◇ GEOENGINEERS 2013 VIBRACORES
- (-28.0') MAXIMUM AFTER DREDGE (AD) ELEVATION
- ▨ TAR 2013 CULTURAL RESOURCE BUFFERS (NO WORK ZONE)
- ⊕ TAR 2013 MAGNETIC ANOMALIES
- △ CB&I 2013 SIDESCAN SONAR CONTACTS
- ① BORROW AREA COORDINATE LOCATIONS
- PIPELINES



GULF OF MEXICO

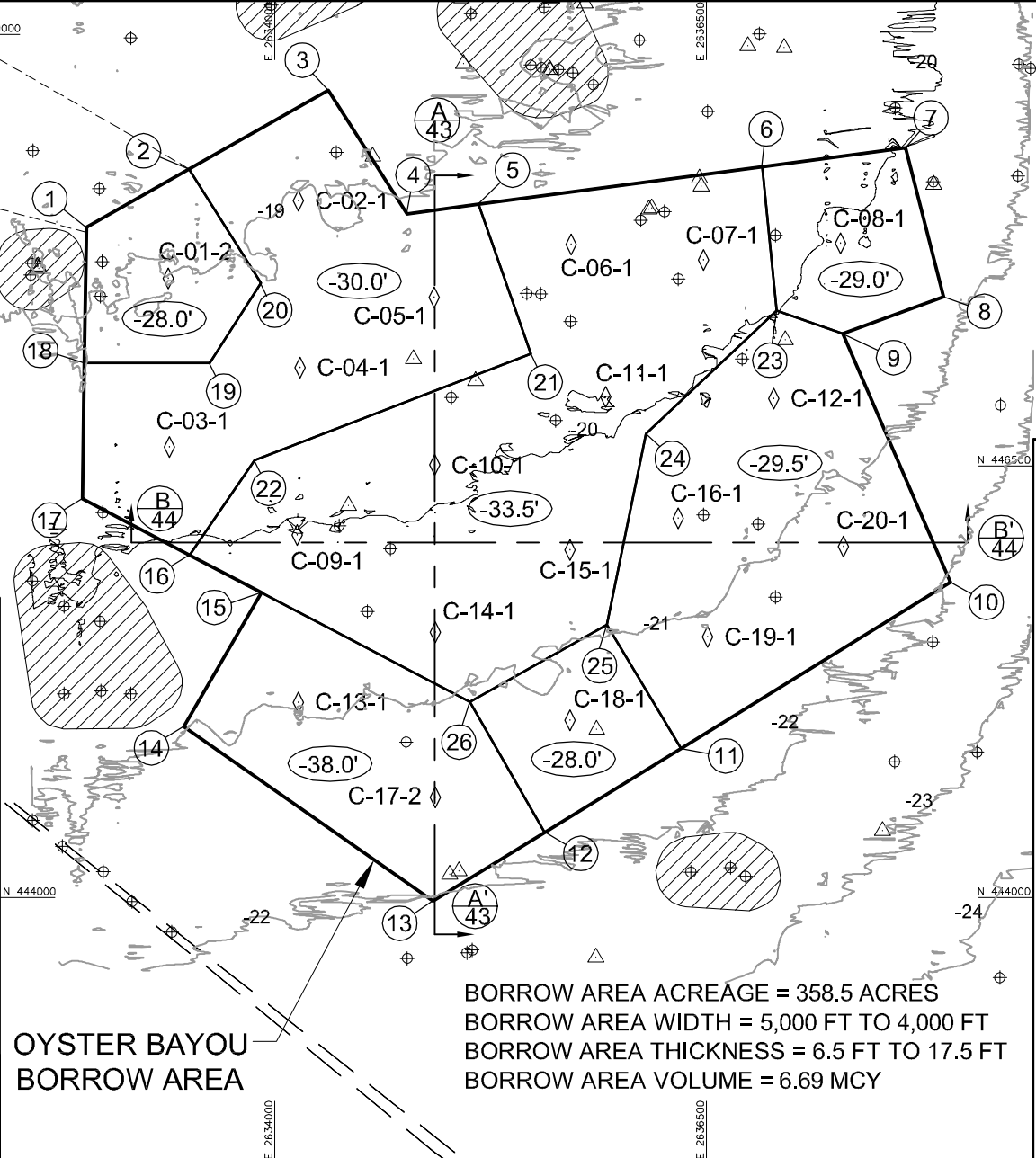
SUBMERGED PIPELINE CORRIDOR

- NOTES:**
1. COORDINATES AND CONTOURS SHOWN HEREON ARE BASED ON LOUISIANA STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, NAD 1983.
 2. ELEVATIONS SHOWN HEREON ARE IN FEET BASED ON NAVD88, GEIOD 2009.
 3. DATE OF BATHYMETRIC SURVEY IS MARCH 2013 AND CONDUCTED BY CB&I COASTAL PLANNING & ENGINEERING, INC. (CB&I).
 4. THE MAXIMUM AFTER DREDGE (AD) ELEVATIONS SHOWN HEREON ARE THE MAXIMUM DEPTHS ALLOWED WITHIN THE BORROW AREA PER THE PERMITS AND BASED ON THE AD SURVEY.
 5. THE CONTRACTOR MAY DISTURB UP TO 3 FEET BENEATH THE MAX AD ELEVATION WITH THEIR EQUIPMENT.

CB&I COASTAL PLANNING & ENGINEERING, INC.
 2481 N.W. BOCA RATON BOULEVARD
 BOCA RATON, FLORIDA 33431
 www.CoastalPlanning.net

PH. (561) 391-8102
 FAX (561) 391-9116
 C.O.A. FL. #4028
 C.O.A. LA. #2531

APPLICATION BY:
 COASTAL PROTECTION AND RESTORATION AUTHORITY
 450 LAUREL ST., SUITE 1500
 BATON ROUGE, LOUISIANA 70801
 PH: (225) 342-2799
 FAX: (225) 342-8801



OYSTER BAYOU BORROW AREA

BORROW AREA ACREAGE = 358.5 ACRES
 BORROW AREA WIDTH = 5,000 FT TO 4,000 FT
 BORROW AREA THICKNESS = 6.5 FT TO 17.5 FT
 BORROW AREA VOLUME = 6.69 MCY

OYSTER BAYOU BORROW AREA COORDINATE LOCATIONS

Pt. No.	EASTING	NORTHING
1	2632908.1	447884.1
2	2633503.6	448220.9
3	2634310.7	448677.2
4	2634765.4	447959.7
5	2635179.1	448015.0
6	2636822.2	448233.0
7	2637653.7	448343.4
8	2637874.7	447477.9
9	2637289.9	447266.4
10	2637913.6	445825.1
11	2636353.2	444863.9
12	2635563.6	444377.5
13	2634916.3	443978.7
14	2633472.9	444988.9
15	2633922.6	445766.3
16	2633506.0	445984.1
17	2632884.9	446308.8
18	2632896.5	447097.2
19	2633621.9	447097.2
20	2633917.8	447558.5
21	2635483.4	447148.8
22	2633882.1	446533.7
23	2636906.8	447398.2
24	2636150.9	446687.5
25	2635923.5	445578.4
26	2635130.3	445134.9

COASTAL PROTECTION & RESTORATION AUTHORITY
 450 LAUREL STREET
 BATON ROUGE, LOUISIANA 70801

OYSTER BAYOU MARSH RESTORATION PROJECT

STATE PROJECT NUMBER: CS-59

BORROW AREA PLAN VIEW

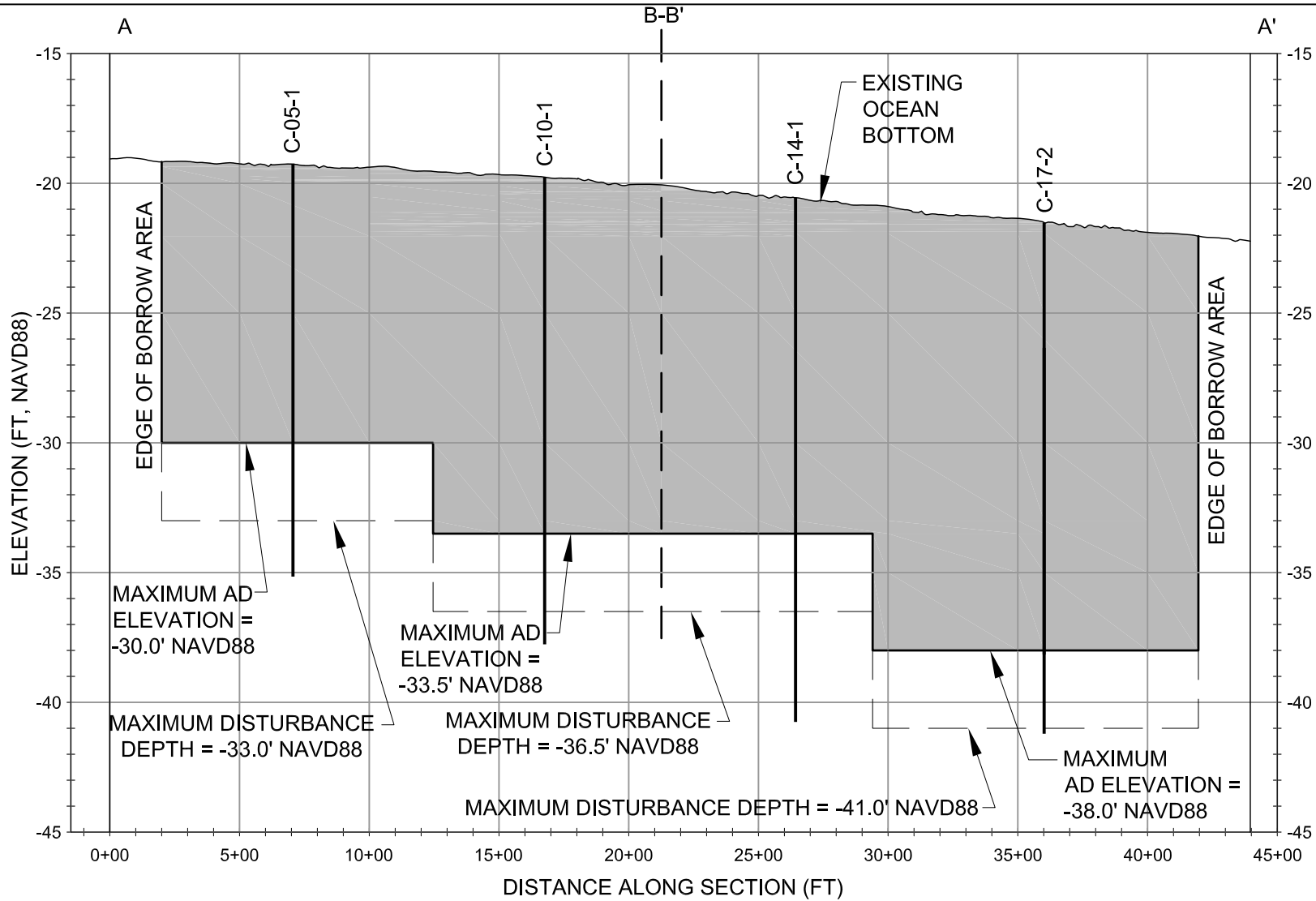
DATE: 9/19/14

DRAWN BY: G KRYSYNYIAK

DESIGNED BY: W THOMPSON

APPROVED BY: G THOMSON

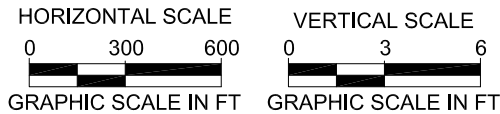
SHEET 42 OF 52



NOTES:

1. SEE SHEET 42 FOR LOCATION OF CROSS SECTION LINE.
2. ELEVATIONS SHOWN HEREON ARE IN FEET BASED ON NAVD88, GEOID 2009.
3. DATE OF BATHYMETRIC SURVEY IS MARCH 2013 AND CONDUCTED BY CB&I COASTAL PLANNING & ENGINEERING, INC. (CB&I).
4. THE MAXIMUM AFTER DREDGE (AD) ELEVATIONS SHOWN HEREON ARE THE MAXIMUM DEPTHS ALLOWED WITHIN THE BORROW AREA PER THE PERMITS AND BASED ON THE AD SURVEY.
5. THE CONTRACTOR MAY DISTURB UP TO 3 FEET BENEATH THE MAX AD ELEVATION WITH THEIR EQUIPMENT.
6. CORES MAY NOT FALL DIRECTLY ON CROSS SECTION LINE, BUT ARE LOCATED SUFFICIENTLY CLOSE TO REPRESENT SIMILAR MATERIAL.
7. WIDTH OF LAYERS IS REPRESENTATIVE ONLY. ACTUAL MATERIAL MAY VARY.

CB&I COASTAL PLANNING & ENGINEERING, INC.
 2481 N.W. BOCA RATON BOULEVARD
 BOCA RATON, FLORIDA 33431
 www.CoastalPlanning.net
 PH. (561) 391-8102
 FAX (561) 391-9116
 C.O.A. FL. #4028
 C.O.A. LA. #2531



APPLICATION BY:
 COASTAL PROTECTION AND RESTORATION AUTHORITY
 450 LAUREL ST., SUITE 1500
 BATON ROUGE, LOUISIANA 70801
 PH: (225) 342-2799
 FAX: (225) 342-8801

COASTAL PROTECTION & RESTORATION AUTHORITY
 450 LAUREL STREET
 BATON ROUGE, LOUISIANA 70801

OYSTER BAYOU MARSH
 RESTORATION PROJECT

BORROW AREA
 CROSS SECTION A-A'

STATE PROJECT NUMBER: CS-59

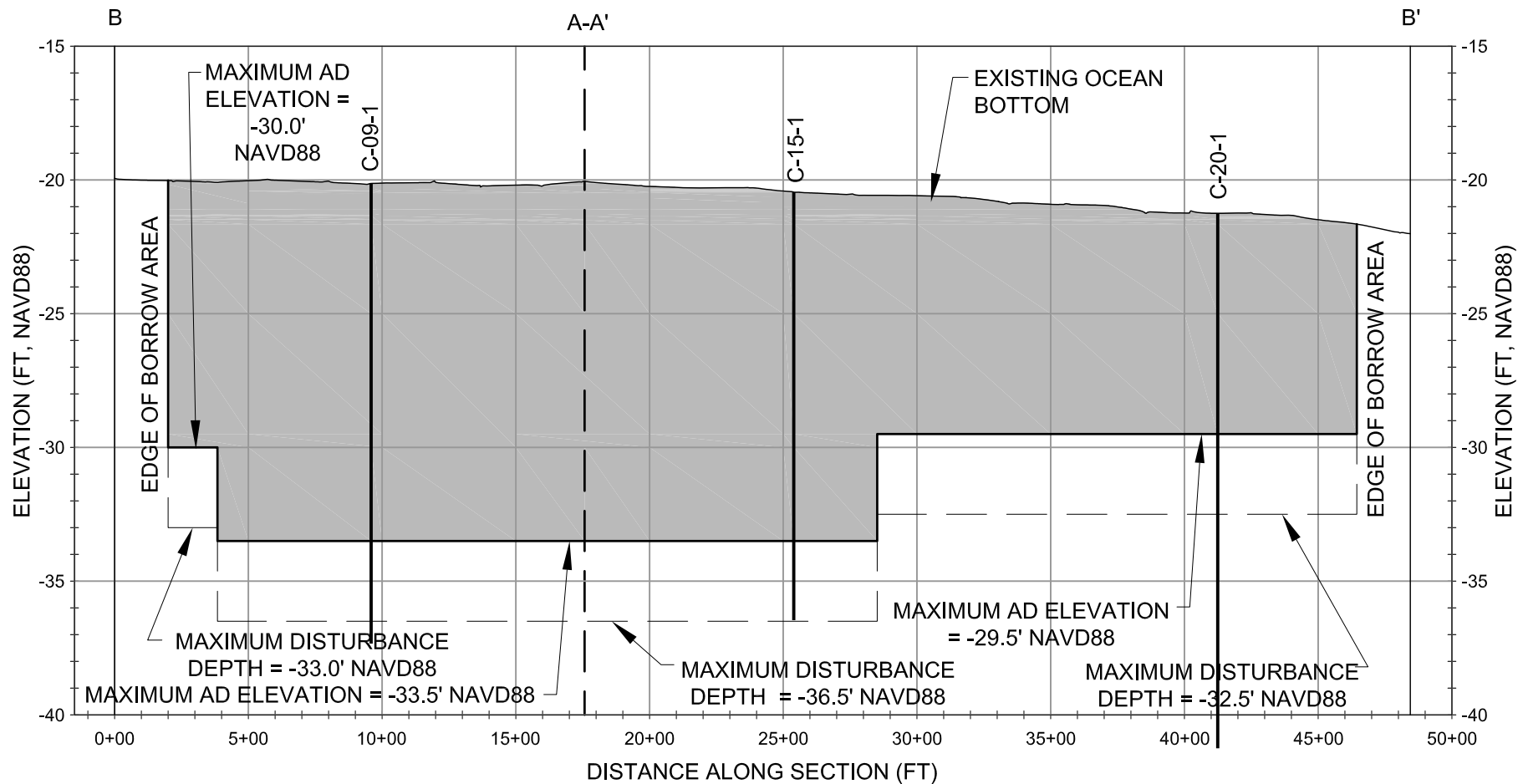
DATE: 9/19/14

DRAWN BY: G KRYSZYNAK

DESIGNED BY: W THOMPSON

APPROVED BY: G THOMSON

SHEET 43 OF 52

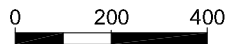
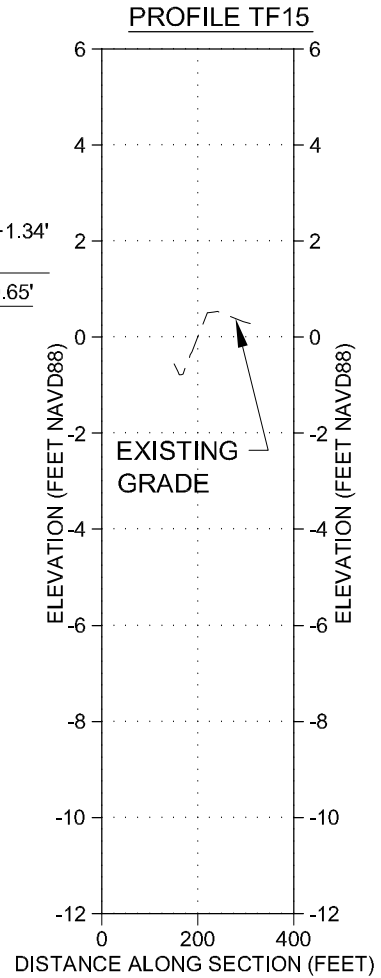
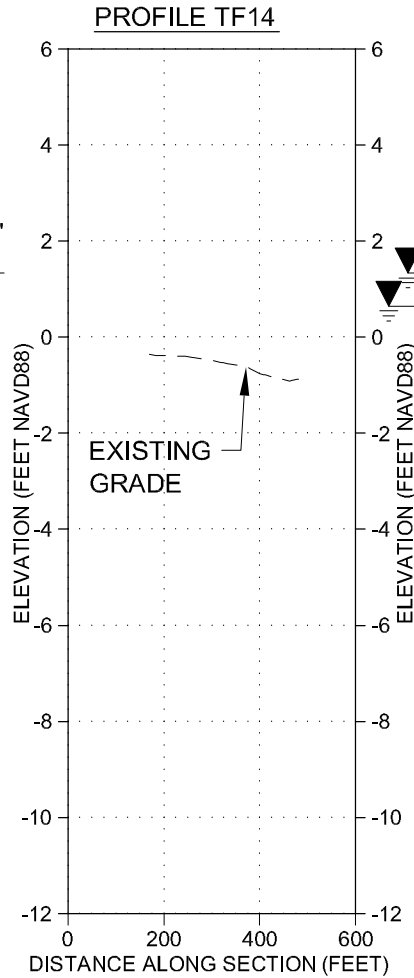
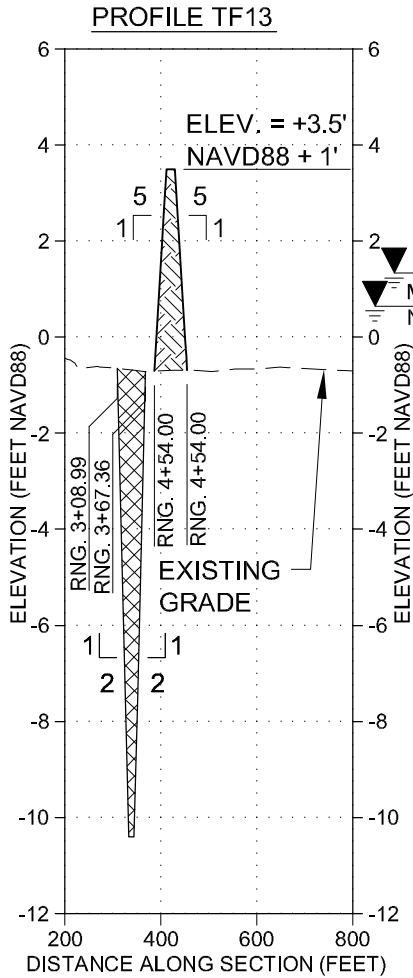


NOTES:

1. SEE SHEET 42 FOR LOCATION OF CROSS SECTION LINE.
2. ELEVATIONS SHOWN HEREON ARE IN FEET BASED ON NAVD88, GEOID 2009.
3. DATE OF BATHYMETRIC SURVEY IS MARCH 2013 AND CONDUCTED BY CB&I COASTAL PLANNING & ENGINEERING, INC. (CB&I).
4. THE MAXIMUM AFTER DREDGE (AD) ELEVATIONS SHOWN HEREON ARE THE MAXIMUM DEPTHS ALLOWED WITHIN THE BORROW AREA PER THE PERMITS AND BASED ON THE AD SURVEY.
5. THE CONTRACTOR MAY DISTURB UP TO 3 FEET BENEATH THE MAX AD ELEVATION WITH THEIR EQUIPMENT.
6. CORES MAY NOT FALL DIRECTLY ON CROSS SECTION LINE, BUT ARE LOCATED SUFFICIENTLY CLOSE TO REPRESENT SIMILAR MATERIAL.
7. WIDTH OF LAYERS IS REPRESENTATIVE ONLY. ACTUAL MATERIAL MAY VARY.

CB&I COASTAL PLANNING & ENGINEERING, INC.
 2481 N.W. BOCA RATON BOULEVARD
 BOCA RATON, FLORIDA 33431
 www.CoastalPlanning.net
 PH. (561) 391-8102
 FAX (561) 391-9116
 C.O.A. FL. #4028
 C.O.A. LA. #2531

APPLICATION BY: COASTAL PROTECTION AND RESTORATION AUTHORITY 450 LAUREL ST., SUITE 1500 BATON ROUGE, LOUISIANA 70801 PH: (225) 342-2799 FAX: (225) 342-8801	COASTAL PROTECTION & RESTORATION AUTHORITY 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801	OYSTER BAYOU MARSH RESTORATION PROJECT	BORROW AREA CROSS SECTION B-B'
		STATE PROJECT NUMBER: CS-59	DATE: 9/19/14
DRAWN BY: G KRYSYNYIAK	DESIGNED BY: W THOMPSON	APPROVED BY: G THOMSON	SHEET 44 OF 52



HORIZONTAL SCALE IN FT



VERTICAL SCALE IN FT

NOTES:

1. ELEVATIONS SHOWN HEREON ARE IN FEET BASED ON NAVD 1988.
2. LAYOUT ALL FILL AREAS BY ALIGNMENT TABLE ON SHEET 6-10.
3. DISTANCES ARE ALONG SECTION LINE.

LEGEND:

- EARTEN TERRACE ELEV. +3.5'
- EARTHEN TERRACE BORROW AREA ELEV. -10.4' (MAX)

CB&I COASTAL PLANNING & ENGINEERING, INC.
 2481 N.W. BOCA RATON BOULEVARD
 BOCA RATON, FLORIDA 33431
 www.CoastalPlanning.net
 PH. (561) 391-8102
 FAX (561) 391-9116
 C.O.A. FL. #4028
 C.O.A. LA. #2531

APPLICATION BY:
 COASTAL PROTECTION AND RESTORATION AUTHORITY
 450 LAUREL ST., SUITE 1500
 BATON ROUGE, LOUISIANA 70801
 PH: (225) 342-2799
 FAX: (225) 342-8801

**COASTAL PROTECTION & RESTORATION
 AUTHORITY**
 450 LAUREL STREET
 BATON ROUGE, LOUISIANA 70801

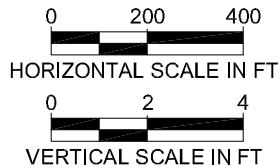
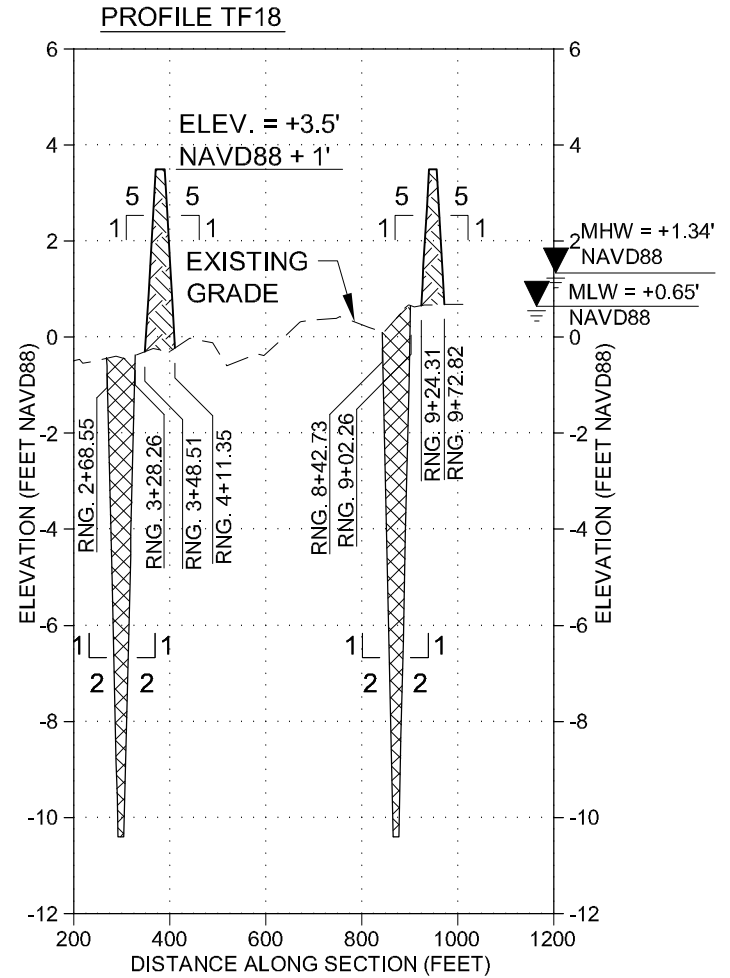
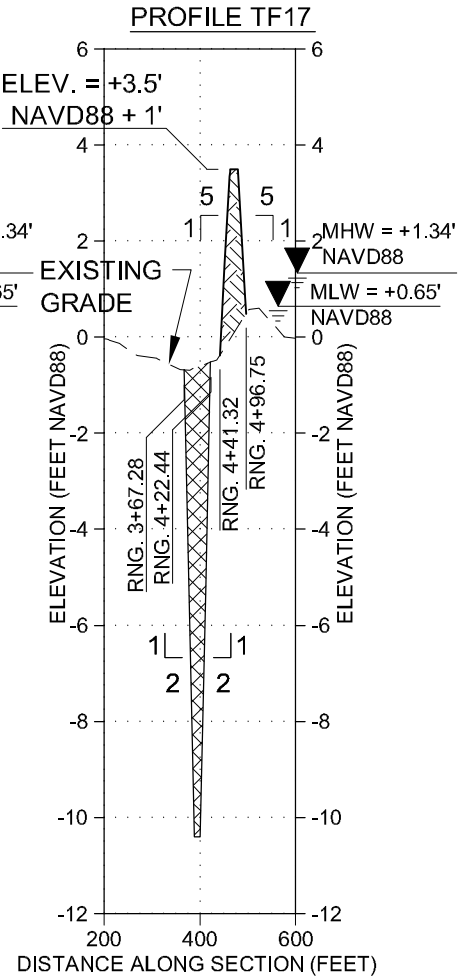
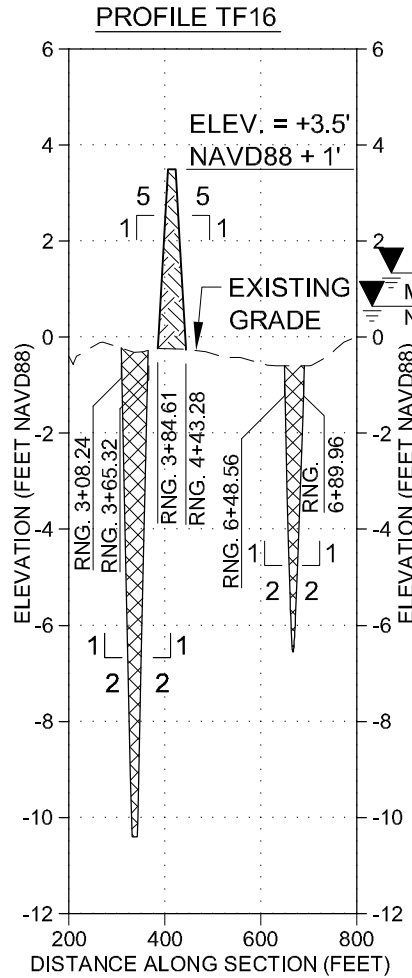
DESIGNED BY: W THOMPSON APPROVED BY: G THOMSON

OYSTER BAYOU MARSH
 RESTORATION PROJECT

STATE PROJECT NUMBER: CS-59

TERRACE FIELD
 CONSTRUCTION PROFILES

DATE: 9/19/14
 SHEET 40 OF 52



NOTES:

1. ELEVATIONS SHOWN HEREON ARE IN FEET BASED ON NAVD 1988.
2. LAYOUT ALL FILL AREAS BY ALIGNMENT TABLE ON SHEET 6-10.
3. DISTANCES ARE ALONG SECTION LINE.

LEGEND:

- EARTEN TERRACE ELEV. +3.5'
- EARTHEN TERRACE BORROW AREA ELEV. -10.4' (MAX)

CB&I COASTAL PLANNING & ENGINEERING, INC.

2481 N.W. BOCA RATON BOULEVARD
BOCA RATON, FLORIDA 33431

PH. (561) 391-8102
FAX (561) 391-9116

C.O.A. FL. #4028
C.O.A. LA. #2531

www.CoastalPlanning.net

APPLICATION BY:
COASTAL PROTECTION AND RESTORATION AUTHORITY
450 LAUREL ST., SUITE 1500
BATON ROUGE, LOUISIANA 70801
PH: (225) 342-2799
FAX: (225) 342-8801

COASTAL PROTECTION & RESTORATION
AUTHORITY
450 LAUREL STREET
BATON ROUGE, LOUISIANA 70801

OYSTER BAYOU MARSH
RESTORATION PROJECT

TERRACE FIELD
CONSTRUCTION PROFILES

STATE PROJECT NUMBER: CS-59

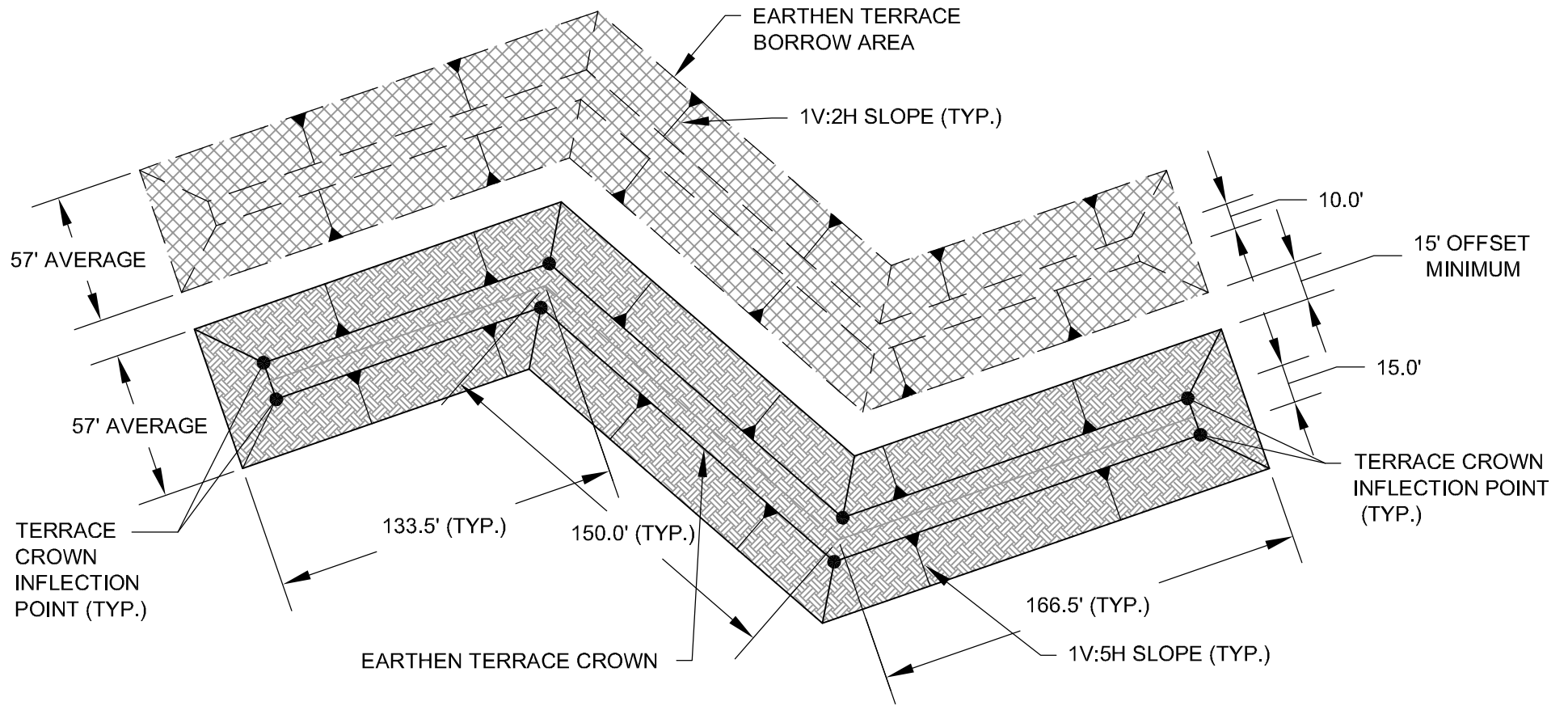
DATE: 9/19/14

DRAWN BY: G KRYSZYNAK

DESIGNED BY: W THOMPSON

APPROVED BY: G THOMSON

SHEET 41 OF 52





TYPICAL EARTHEN TERRACE DETAIL

PLAN VIEW

NOTES:

SEE SHEET 6-10 FOR TERRACE CROWN INFLECTION POINTS.

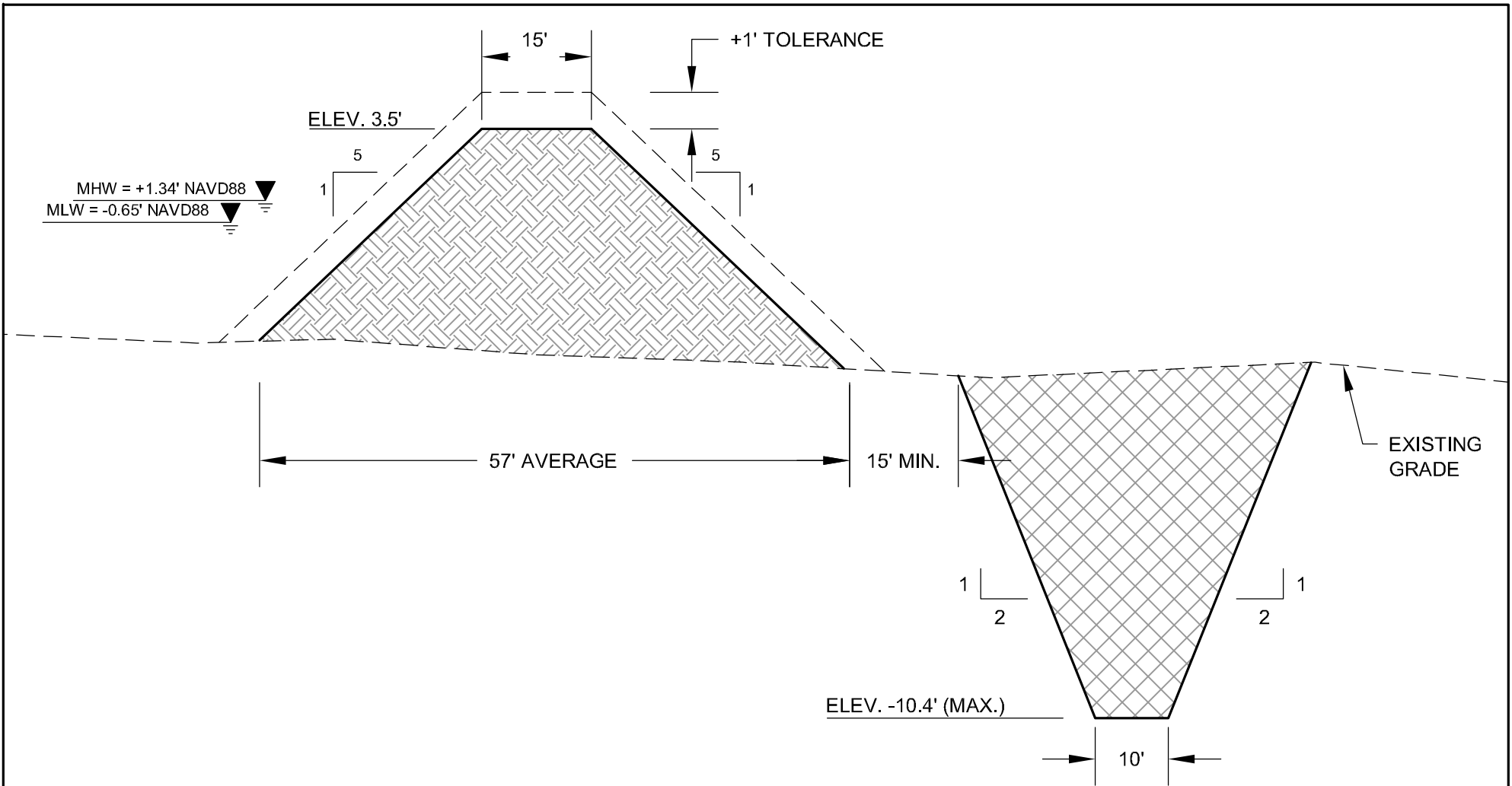
LEGEND:

-  EARTHEN TERRACE
-  EARTHEN TERRACE BORROW AREA



CB&I COASTAL PLANNING & ENGINEERING, INC.
 2481 N.W. BOCA RATON BOULEVARD
 BOCA RATON, FLORIDA 33431
 www.CoastalPlanning.net
 PH. (561) 391-8102
 FAX (561) 391-8116
 C.O.A. FL. #4028
 C.O.A. LA. #2531

APPLICATION BY: COASTAL PROTECTION AND RESTORATION AUTHORITY 450 LAUREL ST., SUITE 1500 BATON ROUGE, LOUISIANA 70801 PH: (225) 342-2799 FAX: (225) 342-8801	COASTAL PROTECTION & RESTORATION AUTHORITY 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801	OYSTER BAYOU MARSH RESTORATION PROJECT STATE PROJECT NUMBER: CS-59	TYPICAL EARTHEN TERRACE PLAN VIEW DATE: 9/19/14
DRAWN BY: G KRYSZTYNIAK	DESIGNED BY: W THOMPSON	APPROVED BY: G THOMSON	SHEET 45 OF 52





NOTES:

ELEVATIONS SHOWN HEREON ARE IN FEET BASED ON NAVD 1988.

TYPICAL EARTHEN TERRACE CROSS SECTION

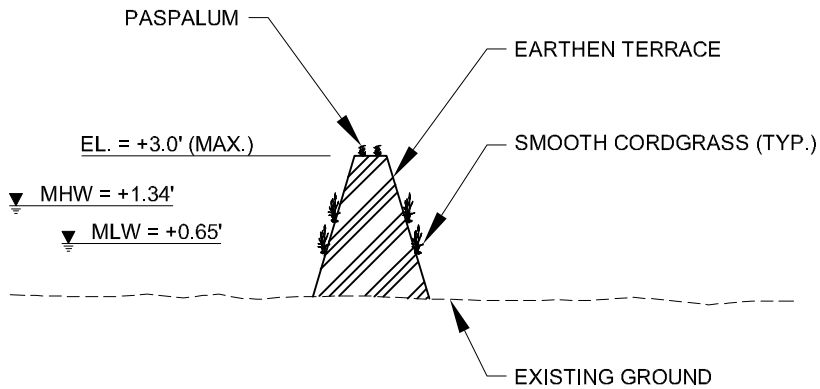
LEGEND:

-  EARTHEN TERRACE
-  EARTHEN TERRACE BORROW AREA



CB&I COASTAL PLANNING & ENGINEERING, INC.
 2481 N.W. BOCA RATON BOULEVARD
 BOCA RATON, FLORIDA 33431
 www.CoastalPlanning.net
 PH. (561) 391-8102
 FAX (561) 391-9116
 C.O.A. FL. #4028
 C.O.A. LA. #2531

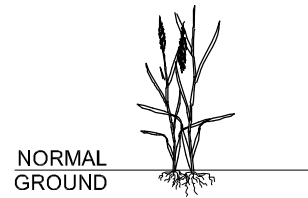
APPLICATION BY: COASTAL PROTECTION AND RESTORATION AUTHORITY 450 LAUREL ST., SUITE 1500 BATON ROUGE, LOUISIANA 70801 PH: (225) 342-2799 FAX: (225) 342-8801	COASTAL PROTECTION & RESTORATION AUTHORITY 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801	OYSTER BAYOU MARSH RESTORATION PROJECT STATE PROJECT NUMBER: CS-59	TYPICAL EARTHEN TERRACE CROSS SECTION DATE: 9/19/14
DRAWN BY: G KRYSZTYNIAK	DESIGNED BY: W THOMPSON	APPROVED BY: G THOMSON	SHEET 46 OF 52



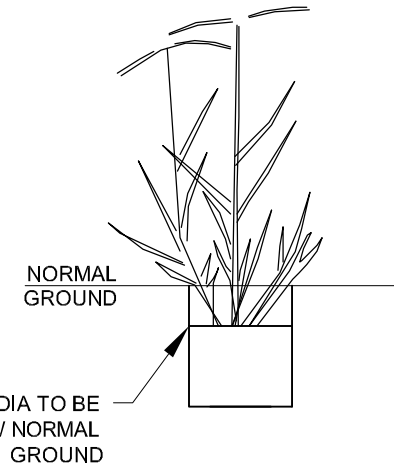
TYPICAL TERRACE PLANTING SECTION
NOT TO SCALE

NOTES:

1. EXACT LOCATION OF THE PLANTS SHALL BE DETERMINED ON SITE BY CPRA DURING PRE-CONSTRUCTION LAYOUT.
2. NO EQUIPMENT MAY ALTER THE EXISTING CONDITIONS OF THE NEWLY CREATED TERRACE OR DISTURB EXISTING VEGETATION.
3. THE SMOOTH CORDGRASS SHALL BE PLANTED ON THREE FOOT CENTERS IN ROWS AS SHOWN ON THE PLANS.
4. THE PASPALUM SHALL BE PLANTED ON FIVE FOOT CENTERS IN ROWS AS SHOWN ON THE PLANS.



**TYPICAL PLANTING
SMOOTH CORDGRASS PLUG**
NOT TO SCALE



**TYPICAL PLANTING
SEASHORE PASPALUM
4" CONTAINER**
NOT TO SCALE

CB&I COASTAL PLANNING & ENGINEERING, INC.

2481 N.W. BOCA RATON BOULEVARD
BOCA RATON, FLORIDA 33431

PH. (561) 391-8102
FAX (561) 391-9116

www.CoastalPlanning.net

C.O.A. FL. #4028
C.O.A. LA. #2531

APPLICATION BY:
COASTAL PROTECTION AND RESTORATION AUTHORITY
450 LAUREL ST., SUITE 1500
BATON ROUGE, LOUISIANA 70801
PH: (225) 342-2799
FAX: (225) 342-8801

**COASTAL PROTECTION & RESTORATION
AUTHORITY**
450 LAUREL STREET
BATON ROUGE, LOUISIANA 70801

OYSTER BAYOU MARSH
RESTORATION PROJECT

PLANTING LAYOUT AND DETAIL

STATE PROJECT NUMBER: CS-59

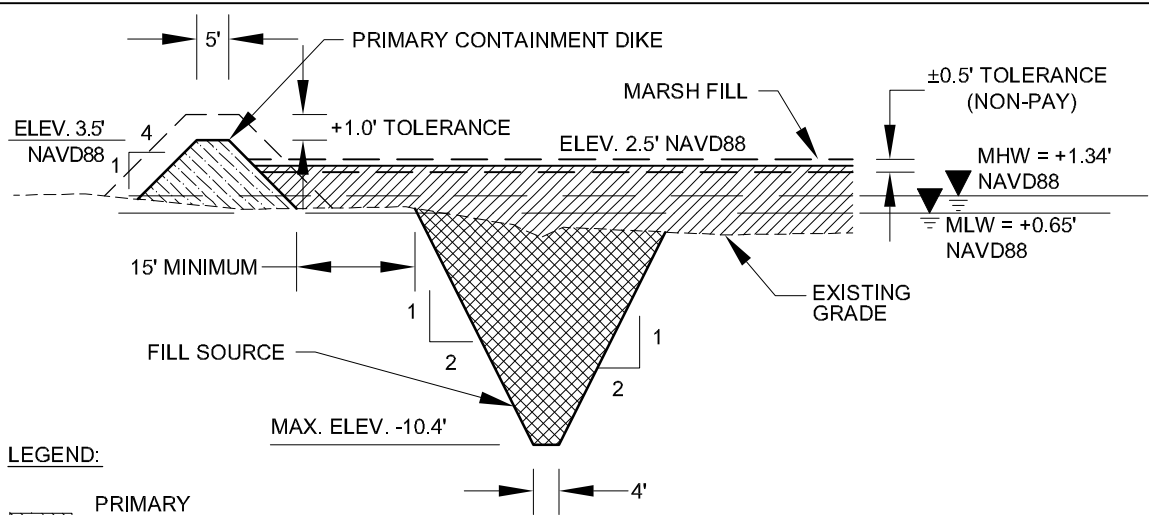
DATE: 9/19/14

DRAWN BY: G KRYSYNYIAK

DESIGNED BY: W THOMPSON

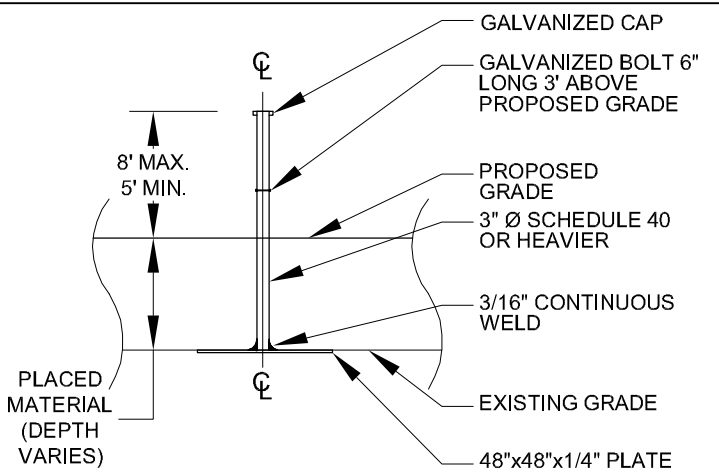
APPROVED BY: G THOMSON

SHEET 47 OF 52

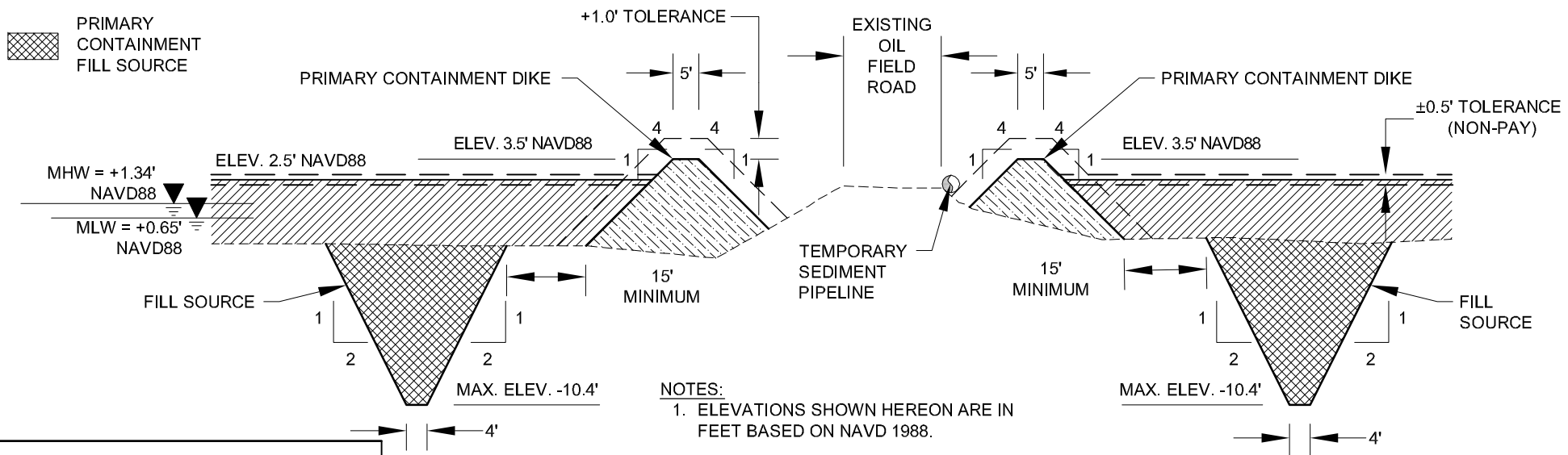


TYPICAL PRIMARY CONTAINMENT DIKE SECTION
NOT TO SCALE

- LEGEND:**
- PRIMARY CONTAINMENT DIKE FILL
 - MARSH FILL
 - PRIMARY CONTAINMENT FILL SOURCE



SETTLEMENT PLATE DETAIL
NOT TO SCALE

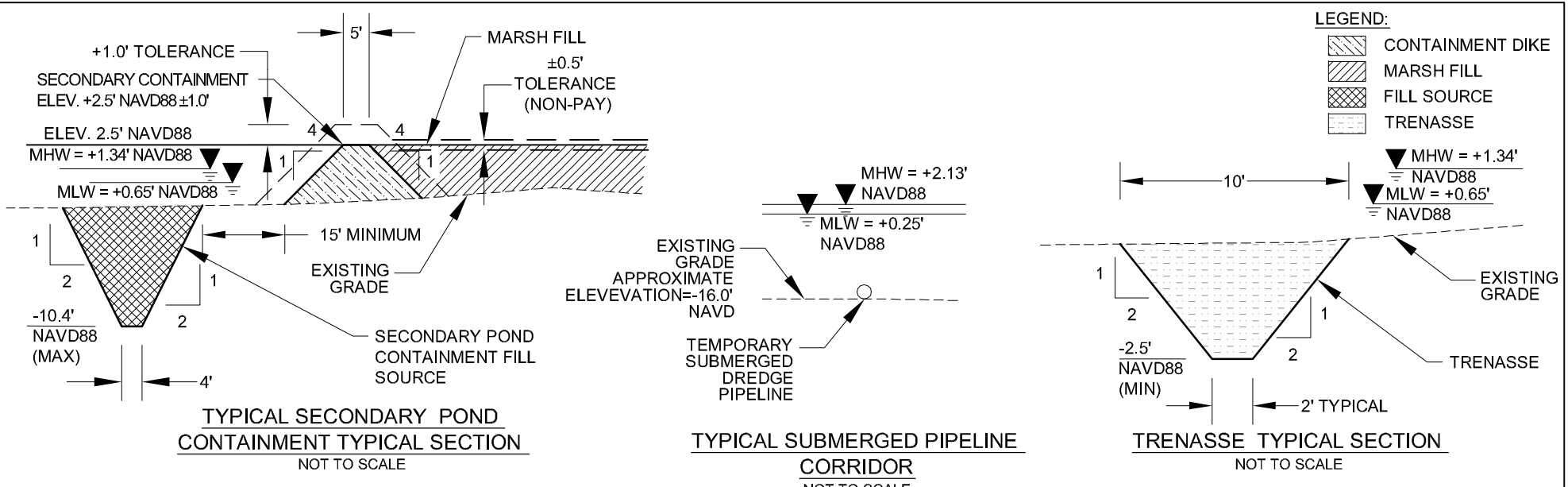


TYPICAL PRIMARY CONTAINMENT DIKE PARALLEL TO EXISTING OIL FIELD ROAD (STA. 55+00)
NOT TO SCALE

NOTES:
1. ELEVATIONS SHOWN HEREON ARE IN FEET BASED ON NAVD 1988.

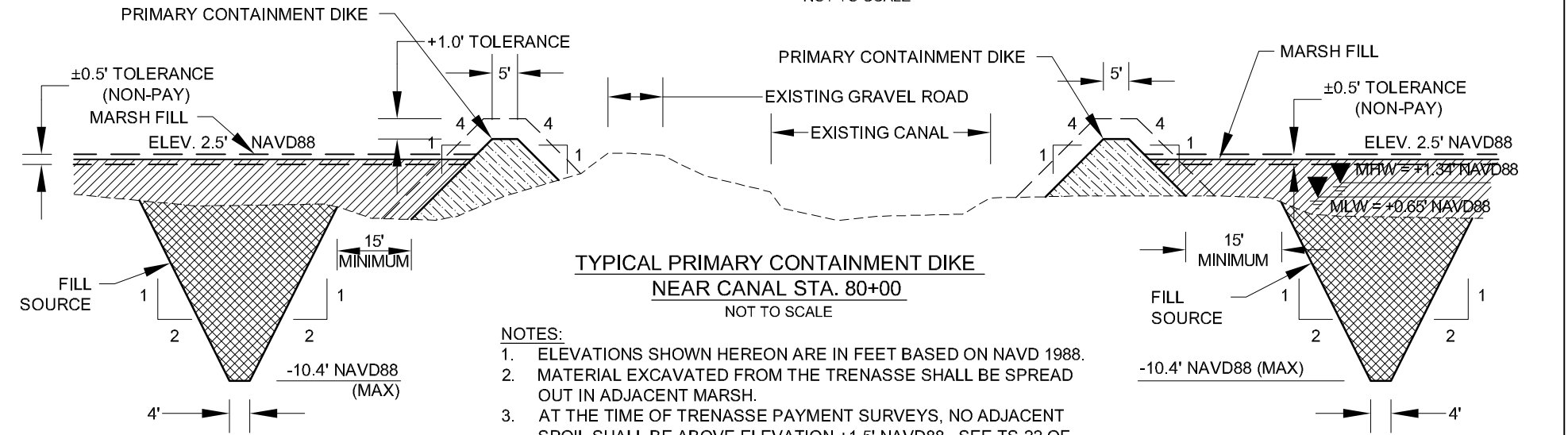
CB&I COASTAL PLANNING & ENGINEERING, INC.
2481 N.W. BOCA RATON BOULEVARD
BOCA RATON, FLORIDA 33431
www.CoastalPlanning.net
PH. (561) 391-8102
FAX (561) 391-9116
C.O.A. FL. #4028
C.O.A. LA. #2531

APPLICATION BY: COASTAL PROTECTION AND RESTORATION AUTHORITY 450 LAUREL ST., SUITE 1500 BATON ROUGE, LOUISIANA 70801 PH: (225) 342-2799 FAX: (225) 342-8801	COASTAL PROTECTION & RESTORATION AUTHORITY 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801	OYSTER BAYOU MARSH RESTORATION PROJECT	CONSTRUCTION DETAILS
		STATE PROJECT NUMBER: CS-59	DATE: 9/19/14
DRAWN BY: G KRYSZYNAK	DESIGNED BY: W THOMPSON	APPROVED BY: G THOMSON	SHEET 48 OF 52



LEGEND:

- CONTAINMENT DIKE
- MARSH FILL
- FILL SOURCE
- TRENASSE



- NOTES:**
1. ELEVATIONS SHOWN HEREON ARE IN FEET BASED ON NAVD 1988.
 2. MATERIAL EXCAVATED FROM THE TRENASSE SHALL BE SPREAD OUT IN ADJACENT MARSH.
 3. AT THE TIME OF TRENASSE PAYMENT SURVEYS, NO ADJACENT SPOIL SHALL BE ABOVE ELEVATION +1.5' NAVD88. SEE TS-22 OF THE CONSTRUCTION SPECIFICATIONS.
 4. MHW AND MLW FOR THE GULF, REFERENCE CALCASIEU PASS TIDE GAUGE No. 8768094, NAVD 88 GEOID 2009, WHICH APPLIES FOR TYPICAL SUBMERGED PIPELINE CORRIDOR DETAIL.

CB&I COASTAL PLANNING & ENGINEERING, INC.
 2481 N.W. BOCA RATON BOULEVARD
 BOCA RATON, FLORIDA 33431
 www.CoastalPlanning.net

PH. (561) 391-8102
 FAX (561) 391-9116
 C.O.A. FL. #4028
 C.O.A. LA. #2531

APPLICATION BY:
 COASTAL PROTECTION AND RESTORATION AUTHORITY
 450 LAUREL ST., SUITE 1500
 BATON ROUGE, LOUISIANA 70801
 PH: (225) 342-2799
 FAX: (225) 342-8801

DRAWN BY: G KRYSZYNAK

COASTAL PROTECTION & RESTORATION AUTHORITY
 450 LAUREL STREET
 BATON ROUGE, LOUISIANA 70801

DESIGNED BY: W THOMPSON

APPROVED BY: G THOMSON

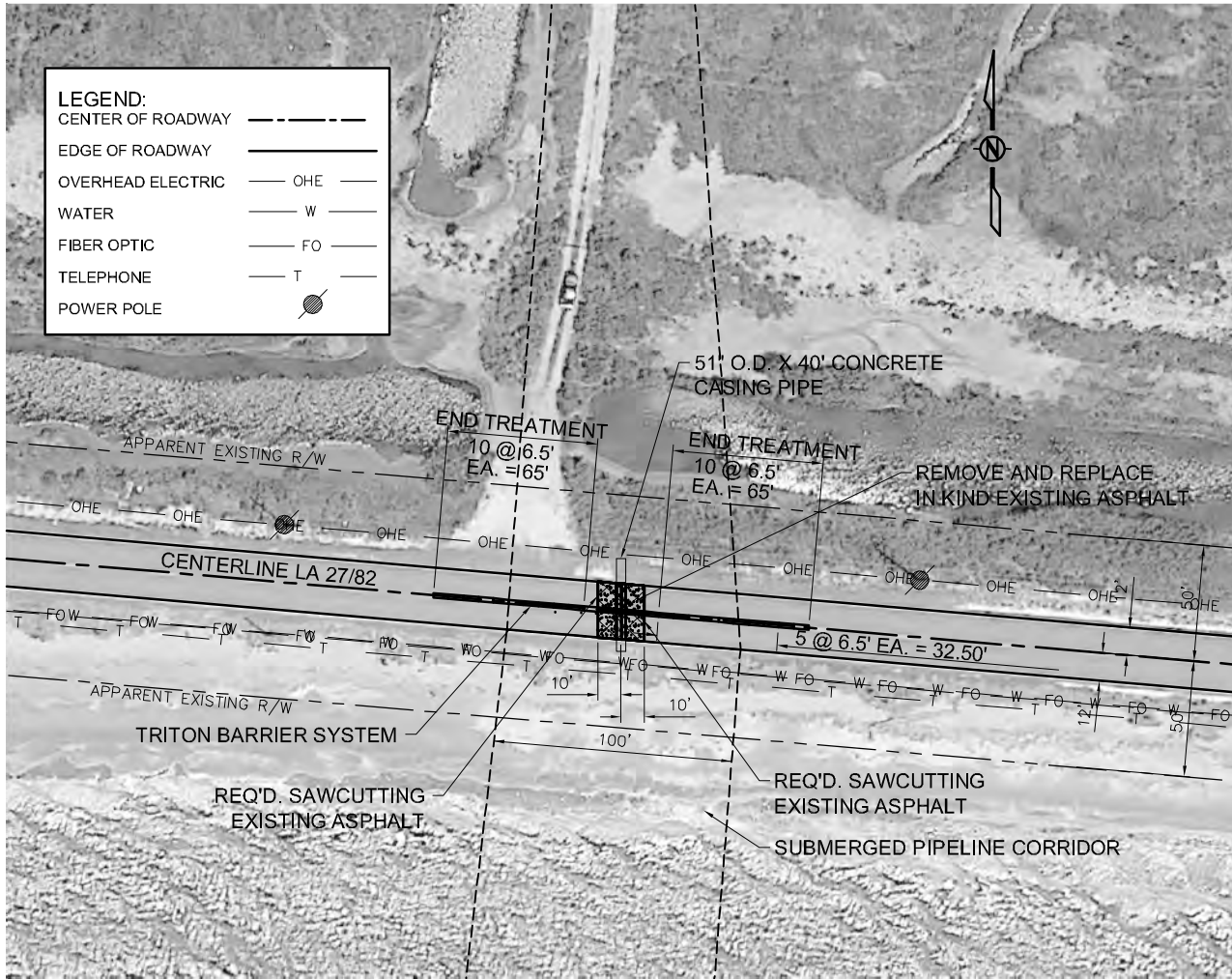
OYSTER BAYOU MARSH RESTORATION PROJECT

STATE PROJECT NUMBER: CS-59

CONSTRUCTION DETAILS

DATE: 9/19/14

SHEET 49 OF 52



NOTES:

1. EXISTING ELEVATIONS, STRUCTURES AND FEATURES SHOWN TAKEN FROM LONNIE G. HARPER AND ASSOCIATES TOPOGRAPHIC SURVEY CONDUCTED IN 2012.
2. ADDITIONAL UTILITIES AND/OR PIPELINES NOT SHOWN COULD BE PRESENT IN THE VICINITY OF THE CONVEYANCE CORRIDOR CROSSING LA 27/82.
3. PIPELINE INFORMATION SHOWN ON THE PLANS IS APPROXIMATE. THE CONTRACTOR SHALL VERIFY EXACT LOCATIONS PRIOR TO BEGINNING CONSTRUCTION PER THE SPECIFICATIONS. THE CONTRACTOR SHALL VERIFY EXISTING UTILITIES, STRUCTURES, AND OTHER EXISTING FEATURES PRIOR TO CONSTRUCTION AND COORDINATE CONSTRUCTION ACTIVITIES WITH THE RESPECTIVE OWNERS FOR THE DURATION OF CONSTRUCTION. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES THAT MAY BE ATTRIBUTED TO FAILURE TO ACCURATELY LOCATE AND PRESERVE EXISTING UTILITIES, STRUCTURES, AND OTHER FEATURES.
4. SEE SHEET 52 FOR CONCRETE PIPE DETAIL.
5. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER AND ENGINEER OF ANY PIPELINE(S) PREVIOUSLY UNIDENTIFIED SO THAT THE OWNER MAY ISSUE A NOTICE(S) OF CONSTRUCTION PRIOR TO WORK. THE CONTRACTOR SHALL ALSO NOTIFY LOUISIANA ONE CALL AT 1-800-272-3020 REGARDING THE PREVIOUSLY UNIDENTIFIED PIPELINE(S) PRIOR TO WORK.
6. ALL PIPELINES AND UTILITIES LOCATED WITHIN 150' OF THE CONVEYANCE CORRIDOR AND FILL AREAS SHALL BE PROBED AND THEIR LOCATIONS MARKED FOR THE DURATION OF CONSTRUCTION ACTIVITIES PER THE SPECIFICATIONS.
7. MATERIALS EXCAVATED FROM THE OPEN HIGHWAY CUT WILL BE TRANSPORTED OFF-SITE.



GRAPHIC SCALE
(IN FEET)
1 INCH = 80 FEET

CB&I COASTAL PLANNING & ENGINEERING, INC.
2481 N.W. BOCA RATON BOULEVARD
BOCA RATON, FLORIDA 33431
www.CoastalPlanning.net
PH. (561) 391-8102
FAX (561) 391-9116
C.O.A. FL. #4028
C.O.A. LA. #2531

APPLICATION BY:
COASTAL PROTECTION AND RESTORATION AUTHORITY
450 LAUREL ST., SUITE 1500
BATON ROUGE, LOUISIANA 70801
PH: (225) 342-2799
FAX: (225) 342-8801

COASTAL PROTECTION & RESTORATION AUTHORITY
450 LAUREL STREET
BATON ROUGE, LOUISIANA 70801

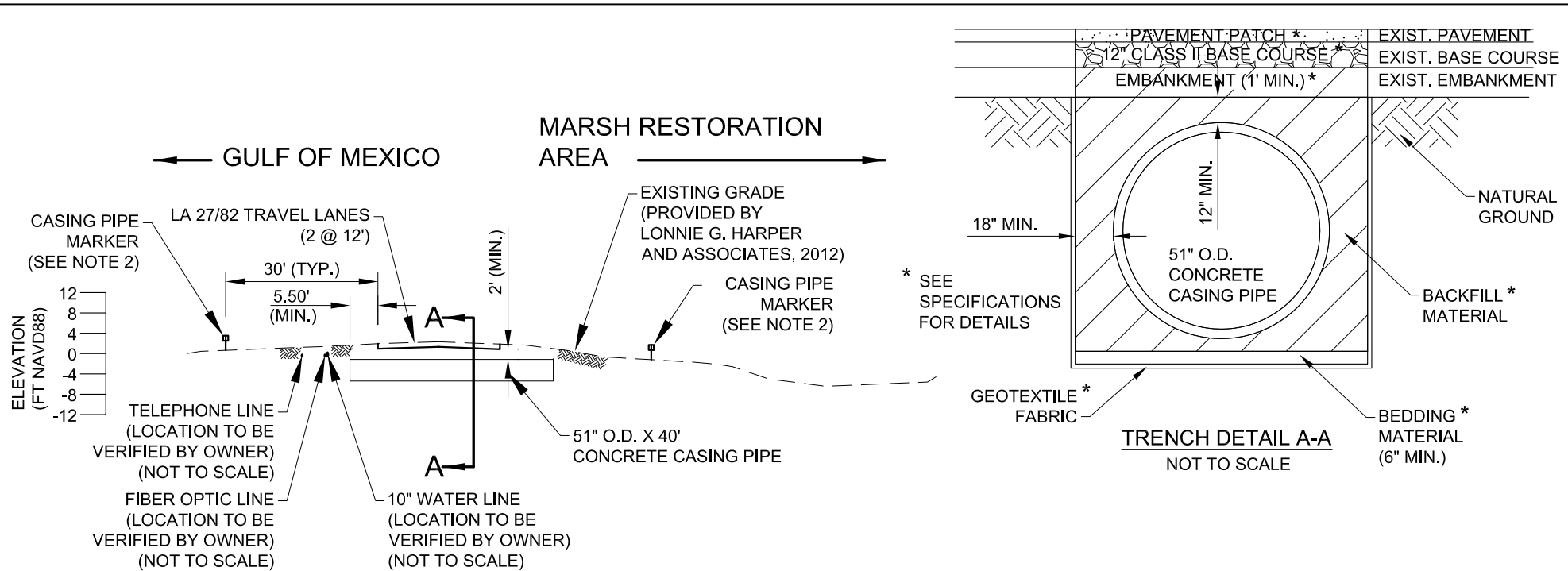
DESIGNED BY: W THOMPSON
APPROVED BY: G THOMSON

OYSTER BAYOU MARSH RESTORATION PROJECT

STATE PROJECT NUMBER: CS-59

LA 27/82 CROSSING PLAN VIEW

DATE: 9/19/14
SHEET 50 OF 52



LA 27/82 CROSSING DETAIL

1" = 30' VERTICAL
1" = 30' HORIZONTAL



GRAPHIC SCALE

(IN FEET)

1 INCH = 30 FEET

NOTES:

1. SEE TS-25 OF THE CONSTRUCTION SPECIFICATIONS FOR INFORMATION REGARDING SEDIMENT PIPELINE HIGHWAY CROSSING REQUIREMENTS.
2. SEE SHEET 52 FOR CASING PIPE MARKER CONSTRUCTION DETAILS.
3. ADDITIONAL UTILITIES AND/OR PIPELINES NOT SHOWN COULD BE PRESENT IN THE VICINITY OF THE CONVEYANCE CORRIDOR CROSSING OF LA 27/82.
4. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL VERIFY EXISTING FEATURES. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES THAT MAY BE ATTRIBUTED TO FAILURE TO ACCURATELY LOCATE AND PRESERVE EXISTING UTILITIES, STRUCTURES, AND OTHER FEATURES.
5. EXISTING ELEVATIONS SHOWN WERE TAKEN FROM LONNIE G. HARPER AND ASSOCIATES TOPOGRAPHIC SURVEY CONDUCTED IN 2012.
6. SEE SPECIFICATION SECTION 203 FOR EXCAVATION, EMBANKMENT, AND GEOTEXTILE FABRIC. SEE SPECIFICATION SECTION 302 FOR CLASS II BASE COURSE. SEE SPECIFICATION SECTIONS 502 AND 510 FOR ASPHALTIC CONCRETE PATCHING. SEE SPECIFICATION SECTION 701 FOR CONCRETE CASING PIPE. SEE SPECIFICATION SECTION 726 FOR BEDDING MATERIAL. THESE SPECIFICATIONS ARE FROM LOUISIANA STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE 2006 EDITION FROM THE LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT.
7. MATERIALS EXCAVATED FROM THE OPEN HIGHWAY CUT WILL BE TRANSPORTED OFF-SITE.

CB&I COASTAL PLANNING & ENGINEERING, INC.

2481 N.W. BOCA RATON BOULEVARD
BOCA RATON, FLORIDA 33431

PH. (561) 391-8102
FAX (561) 391-9116

www.CoastalPlanning.net

C.O.A. FL. #4028
C.O.A. LA. #2531

APPLICATION BY:
COASTAL PROTECTION AND RESTORATION AUTHORITY
450 LAUREL ST., SUITE 1500
BATON ROUGE, LOUISIANA 70801
PH: (225) 342-2799
FAX: (225) 342-8801

COASTAL PROTECTION & RESTORATION
AUTHORITY
450 LAUREL STREET
BATON ROUGE, LOUISIANA 70801

OYSTER BAYOU MARSH
RESTORATION PROJECT

LA 27/82
CROSSING DETAIL

STATE PROJECT NUMBER: CS-59

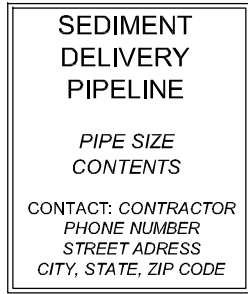
DATE: 9/19/14

DRAWN BY: G KRYSZYNAK

DESIGNED BY: W THOMPSON

APPROVED BY: G THOMSON

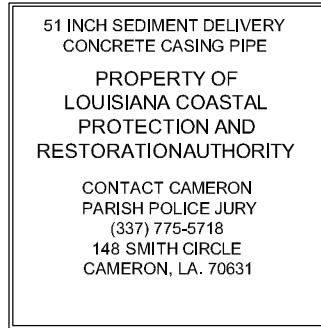
SHEET 51 OF 52



TEMPORARY PIPELINE MARKER DETAIL
(NOT TO SCALE)

TEMPORARY PIPELINE MARKER NOTES:

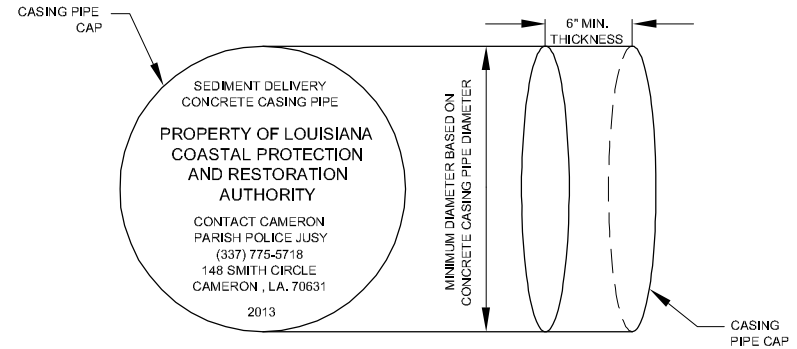
1. MARKERS SHALL BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH LADOTD 2006 STANDARD SPECIFICATION 729.
2. PROPOSED DRAWING SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL IN THE WORK PLAN PRIOR TO CONSTRUCTION.
3. MARKERS SHALL BE PLACED PRIOR TO SEDIMENT PIPELINE INSTALLATION AND REMOVED FOLLOWING SEDIMENT PIPELINE REMOVAL.
4. SEE THE SPECIFICATIONS FOR TEMPORARY PIPELINE MARKER DETAILS.



CASING PIPE MARKER DETAIL
(NOT TO SCALE)

CASING PIPE MARKER NOTES:

1. CASING PIPE MARKERS SHALL BE INSTALLED IN ACCORDANCE WITH LADOTD 2006 STANDARD SPECIFICATION 729.
2. PROPOSED DRAWING SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL IN THE WORK PLAN PRIOR TO CONSTRUCTION.
3. MARKERS SHALL BE REPLACED SUBSEQUENT TO BACKFILLING THE PIT AND PRIOR TO DEMOBILIZATION.
4. SEE THE SPECIFICATIONS FOR CASING PIPE MARKER DETAILS.



CASING PIPE CAP DETAIL
(NOT TO SCALE)

CASING PIPE CAP NOTES:

1. CAPS SHALL BE INSTALLED IN ACCORDANCE WITH THE SPECIFICATIONS. CAPS SHALL BE WELDED TO CASING PIPE AND CAPS SHALL BE WATER TIGHT.
2. SEE THE SPECIFICATIONS FOR CASING CAP DETAILS.

CB&I COASTAL PLANNING & ENGINEERING, INC.

2481 N.W. BOCA RATON BOULEVARD
BOCA RATON, FLORIDA 33431

PH. (561) 391-8102
FAX (561) 391-9116

www.CoastalPlanning.net

C.O.A. FL. #4028
C.O.A. LA. #2531

APPLICATION BY:
COASTAL PROTECTION AND RESTORATION AUTHORITY
450 LAUREL ST., SUITE 1500
BATON ROUGE, LOUISIANA 70801
PH: (225) 342-2799
FAX: (225) 342-8801

COASTAL PROTECTION & RESTORATION AUTHORITY
450 LAUREL STREET
BATON ROUGE, LOUISIANA 70801

OYSTER BAYOU MARSH RESTORATION PROJECT

TEMPORARY PIPELINE MARKER AND CASING PIPE CAP/MARKER DETAIL

STATE PROJECT NUMBER: CS-59

DATE: 9/19/14

DRAWN BY: G KRYSZYNAK

DESIGNED BY: W THOMPSON

APPROVED BY: G THOMSON

SHEET 52 OF 52

APPENDIX VI LDNR COASTAL USE PERMIT



**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.: P20150158

C.O.E. No.: MVN- 2012- 01709- WPP

NAME: **COASTAL PROTECTION AND RESTORATION AUTHORITY**
c/o COASTAL PROTECTION AND RESTORATION AUTHORITY
P.O. BOX 44027, CAPITAL STATION
BATON ROUGE, LA 70804
Attn: Sydney Dobson

LOCATION: **Cameron Parish, LA**
Oyster Bayou Marsh Restoration (CS-59) @ Lat. 29° 46' 38.00"N, Long. -93° 24' 14.00"W; Section 4-17
T14S R10W; Holly Beach

DESCRIPTION: Proposed construction of ±458 acres of saline marsh and ±17,550 linear feet of earthen terraces for the CPRA Project: Oyster Bayou Marsh Restoration (CS-59). Approx. 3,974,700 cy. of native material will be excavated and approx. 2,654,100 cy. of the excavated material (1.5:1 ratio) will be placed on-site for construction of marsh, containment dikes, and terraces. Approx. 211 cy. of native material will be removed at the LA 27/82 crossing during discharge pipe installation. Approx. 168 cy. of crushed stone/gravel and 37 cy. of top soil will be required to re-construct the LA/82 upon the completion of the discharge pipeline installation.

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 mailing the enclosed green initiation card on the date of initiation of the coastal use.
10. Unless specified elsewhere in this permit, this permit authorizes the initiation of the coastal use described under "Coastal Use Description" for two years from the date of the signature of the Secretary or his designee. If the coastal use is not initiated within this two 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. This permit does not convey any property rights, mineral rights, or exclusive privileges; nor does it authorize injury to property.
 - b. Benefits to offset impacts are based on the proposed creation of marsh achieving 80% vegetative coverage and



fisheries access re-established by year 3 of the project life, and shall be determined after the third full growing season (March 1 to November 1) following the completion of permitted activities. This assessment shall include both primary impacts and secondary impacts which may result from the permitted activities.

Permittee shall notify OCM of the date of completion of permitted activities within 5 working days of completion.

Should the permitted project not provide the anticipated benefits, OCM may determine 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.

- c. 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.

- d. Louisiana Natural Heritage Program

The piping plover (*Charadrius melodus*) may occur within one mile of the project area. This species is federally listed as threatened with its critical habitat designated along the Louisiana coast. Piping plovers winter in Louisiana feeding at intertidal beaches, mudflats, and sand flats with sparse emergent vegetation. Primary threats to this species are destruction and degradation of winter habitat, habitat alteration through shoreline erosion, woody species encroachment of lake shorelines and riverbanks, and human disturbance of foraging birds. For more information on piping plover critical habitat, visit the U.S. Fish and Wildlife website: <http://endangered.fws.gov>.

No other impacts to rare, threatened or endangered species or critical habitats are anticipated from the proposed project. No state or federal parks, wildlife refuges, wildlife management areas or scenic rivers are known at the specified site or within ¼ mile of the proposed project.

The Louisiana Natural Heritage Program (LNHP) reports summarize the existing information known at the time of the request regarding the location in question. LNHP reports should not be considered final statements on the biological elements or areas being considered, nor should they be substituted for on-site surveys required for environmental assessments. If at any time LNHP tracked species are encountered within the project area, please contact our biologist at 225-765-2643.

- 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. That 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 receive the equivalent of secondary treatment (30 mg/l BOD5) with disinfection prior to discharge into any of the streams or adjacent waters of the area 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. 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 the Department of Health and Hospitals for purpose of review and approval prior to any utilization of such provisions.

- i. Structures must be marked/lighted in accordance with U. S. Coast Guard regulations.
- j. 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.
- k. Permittee is subject to all applicable state laws related to damages which are demonstrated to have been caused by this action.
- l. 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.
- m. 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.
- n. 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. 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 43:1.723.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. 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 43:1.723(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.

- o. 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.: P20150158
C.O.E. No.: MVN-2012-01709-WPP



By accepting this permit the applicant agrees to its terms and conditions.
I affix my signature and issue this permit this 10th day of June, 2015.

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) [P20150158](#) [Final Plats](#) [05/20/2015](#)

cc: Martin Mayer, COE w/attachments
Dave Butler, LDWF w/attachments
Lynn Hohensee, WCalcP w/attachments
Ernest Broussard, WCamPC w/attachments
Channing Hayden, Jr., PortLC w/attachments
Clair Hebert, Other w/attachments
Stephen Broussard, LED w/attachments
Jessica Diez, OCM w/attachments
Kaili Mills, OCM/FI w/attachments
Cameron Parish w/attachments

COASTAL PROTECTION AND RESTORATION AUTHORITY w/attachments

APPENDIX VII DOTD PERMIT

Three (3) copies of the drawings must accompany this permit application.

When applicable, the following supplement is also required and shall become a part of this permit: Railroad Supplement

Permit Number 153267

CONTROL 031 SECTION 01

ENTERED IN COMPUTER FILE

DJ 1/22/16
INITIAL AND DATE

STATE OF LOUISIANA
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
PROJECT PERMIT

(Required by State Law) Rev 5/13

A copy of this permit shall be available at the site where and when work is performed.

Whereas Coastal Protection and Restoration Authority
(Print or type name of applicant)

hereinafter termed applicant, requests a permit for the use and occupancy of the right-of-way of State Highway No. 27/82

in Cameron Parish, located as follows:

from: _____ Lat: 29.768204 Long: 93.406308

to: _____ Lat: 29.768104 Long: 93.406308
(in Decimal Degrees, e.g. Lat:-30.459, Long: -91.178)

for the installation, operation and maintenance of the following described project (use additional sheets as necessary):

A permanent concrete casing pipe and temporary steel sediment pipeline to be installed across LA 27/82 to facilitate marsh creation using Gulf sediment. (See attachments.)

Estimated number of times this facility will be accessed each year after construction has been completed, including meter readings: 1

By signing this permit, applicant/permittee hereby acknowledges receiving a copy of the permit, the general conditions and standards, and the Standards for Installation of Facilities on State Highways, and agrees to comply with all provisions contained therein and all applicable laws, rules and regulations.

DOTD USE ONLY:

Permit is subject to the following conditions (use additional sheets as necessary):

[Empty box for conditions]

RECOMMENDED FOR APPROVAL
(Check box if review required)

[Signature] 7-16-15
District Permit Specialist / Date

[Signature]
District Area Engineer / Date

District Water Resources Engineer / Date

[Signature]
District Administrator (or Designee) / Date
Print Name TODD J. LANDRY

Applicant must notify District Permit Specialist at phone number: 337-437-9130 prior to beginning work and after work is completed.
Final inspection and approval by: _____

Issue Date: 1-21-2016

Installation to be completed by: 7-21-2016
(Date)

Permit must be signed by the owner or lessee of the property. Contractor may NOT acquire permit

Vida Carver 7/14/15
(Agency Representative Signature) (Date)

Vida Carver
(Name of Person Signing Permit) (Printed or Typed)

Project Manager
(Title)

450 Laurel St., Suite 1200
(Street or P.O. Box)

Baton Rouge LA 70801
(City or Town) (State) (Zip Code)

225-342-2799
(Telephone Number)

Vida.Carver@la.gov
(E-mail Address)

DOTD APPROVAL: [Signature] 1-4-16

Headquarters Right-of-Way Permit Engineer / Date or District Administrator (or Designee) / Date

Print Name Beyong Lim

The following general conditions and standards shall apply:

FIRST: That, the rights and privileges granted herein shall be nonexclusive and shall not be construed to be any broader than those expressly set out in Acts of the Legislature of the State of Louisiana, regardless of the language used in this permit and that any facilities placed on the highway right-of-way shall be placed in accordance with existing laws and the standards of the Department.

SECOND: That, all facilities thereto, after having been erected, shall at all times be subject to inspection and the right is reserved to require such changes, additions, repairs, relocations and removal as may at anytime be considered necessary to permit the relocation, reconstruction, widening and maintaining of the highway and to provide proper and safe protection to life and property on or adjacent to the highway, or in the interest of safety to traffic on the highway and that the cost of making such changes, additions, repairs and relocations shall be borne by the applicant, and that all of the cost of the work to be accomplished under this permit shall be borne by the permittee who agrees to hold the Department harmless therefor.

THIRD: That, the proposed facilities or their operation or their maintenance shall not unreasonably interfere with the facilities or the operation or maintenance of the facilities of other persons, firms or corporations previously issued permits of use and occupancy, and the proposed facilities shall not be dangerous to persons or property using or occupying the highway or using facilities constructed under previously granted permits of use and occupancy; and that the Department's records of prior permits are available, it being the duty of the applicant to determine the existence and location of all facilities within the highway right-of-way.

FOURTH: That, installations within the highway right-of-way shall be in accordance with applicable provisions contained in the following: AASHTO Guide for Accommodating Utilities within Highway Right of Way, Code of Federal Regulations 23 (CFR 23), National Electrical Safety Code C2, and the 1996 Federal Telecommunications Act. Those facilities not included in the above mentioned documents shall be in accordance with accepted practice. Where standards of the Department exceed those of the above cited codes, the standards of the Department shall apply, The Department reserves the right to modify its policies as may be required if conditions warrant.

FIFTH: That, data relative to the proposed location, relocation and design of fixtures or appurtenances as may be required by the Department shall be furnished to the Department by the applicant free of cost, and that the permit applicant shall make any and all changes or additions necessary to make the proposed facilities thereto satisfactory to the Department.

SIXTH: That, cutting and trimming of trees, shrubs, etc., shall be in accordance with the Department's EDMS IV.2.1.6 and Vegetation Manual, as revised.

SEVENTH: That, the applicant agrees to defend, indemnify, and hold harmless the Department and its duly appointed agents and employees from and against any and all claims, suits, liabilities, losses, damages, costs or expenses, including attorneys' fees sustained by reason of the exercise of this permit, whether or not the same may have been caused by the negligence of the Department, its agents or employees, provided, however, that the provisions of this last clause (whether or not the same may have been caused by the negligence of the Department, its agents or employees) shall not apply to any personal injury or property damage caused by the sole negligence of the Department, its agents or employees, unless such sole negligence shall consist or shall have consisted entirely and only of negligence in the granting of a permit or permits.

EIGHTH: That, the applicant is the owner of the facility for which a permit requested, and is responsible for maintenance of such: and any permit granted by the Department is granted only insofar as the Department had the power and right to grant the same.

NINTH: That, any permit granted by the Department is subject to revocation at any time.

TENTH: That, signing for warning and protection of traffic in instances where workmen, equipment or materials are in close proximity to the roadway surfacing, shall be in accordance with requirements contained in the Department's Manual on Uniform Traffic Control Devices. No vehicles, equipment and/or materials shall operate from, or be parked, stored or stock piled on any highway, median, or in an area extending from the outer edge of the shoulder of the highway on one side to the outer edge of the shoulder of the highway on the opposite side or in the median of any divided highway.

ELEVENTH: That, all provisions and standards contained herein relative to the installation of utilities shall apply to future operation, service and maintenance of utilities.

TWELFTH: That, drainage in highway side and cross ditches must be maintained at all times. The entire highway right-of-way affected by work under a permit must be restored to as good a condition as existed prior to beginning work to the complete satisfaction of the Departments R/W Permit Engineer.

THIRTEENTH: Any non-metallic or non-conductive underground facility must be installed with a non-corrosive metallic wire or tape placed directly over and on the center of the facility for its entire length within highway right-of-way. Wire or tape must be connected to all facilities.

FOURTEENTH: Prior to performing any excavations, the applicant is required to call Louisiana One Call. If installing any underground facilities such as cable or conduits, the applicant must be a member of Louisiana One Call. In addition, the applicant must contact DOTD at 1-800-259-4929 or DOTD-FiberLocates@la.gov at least 24 hours prior to performing any excavation on DOTD Right-of-way (either for installation or maintenance).

STANDARDS FOR INSTALLATION OF FACILITIES ON STATE HIGHWAYS**GENERAL**

- (1) All materials and workmanship shall conform to the requirements of the applicable industry code and to Department specifications.
- (2) All safety precautions for the protection of the traveling public must be observed. Undue delay to traffic will not be tolerated.
- (3) All excavations within the limits of the right-of-way shall be backfilled and tamped in six inch layers to the density of the adjacent undisturbed soil. Where sod is removed or destroyed, it shall be replaced within one week. Where existing spoil material is, at the discretion of the Department, unsuitable for backfill, select material shall be furnished in lieu thereof and the existing material disposed of by approved methods.
- (4) Any clearing and grubbing which may be required by the applicant shall be represented by a plan covering any such actions as well as erosion control measures which may be required to vegetate the area under such clearing and grubbing. The applicant is authorized to retain all cleared timber. The applicant shall follow-up with an erosion control, seeding plan approved by DOTD.
- (5) Access to the lines shall be first from the land side, second from the interchange (longitudinally) and third from the highway (to be approved in each instance).
- (6) Repairs under the roadway will not be allowed if such repairs necessitate open cutting the highway. If a problem occurs with a line crossing, the utility company must install a new crossing. The utility company must bear 100% of the cost.
- (7) The DOTD District Permit Office shall be contacted and notified and shall give approval whenever the cable must be accessed, including routine maintenance. For routine maintenance, three (3) days notice shall be given. In emergency situations, as much notice as possible must be given.
- (8) Repeater boxes shall be placed as far outside of the right-of-way as possible, unless where otherwise approved by the Department, and in an area that will allow easy access for maintenance.
- (9) Parallel installations shall be located on a uniform alignment to the right-of-way line and within six (6) inches of the approved alignment.

STATE OF LOUISIANA
 DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
UTILITY PERMIT SUPPLEMENT
 Rev 3/13
PIPE DATA SHEET

Highway No. 27/82
 Owner of Proposed Facility DOTD

Data	Carrier Pipe	Casing (If Used)
Contents to be handled	Sediment	Sediment Pipe
Pipe Material	Steel	Concrete
Specification & Grade of Pipe	TBD	TBD
Outside Diameter (inches)	30"	51"
Dimension Ratio (DR) for Non-Metallic Pipe	N/A	N/A
Nominal Pipe Size (NPS) (inches)	30"	N/A
Wall Thickness (inches)	TBD	4.5"
Specified Minimum Yield Strength (SMYS) (PSI)	TBD	TBD
Hydrostatic Design Basis (HDB) (PSI) for Non-Metallic Carrier Pipe	TBD	TBD
*Maximum Allowable Operating Pressure (MAOP) (PSI)	TBD	TBD
Surge Pressure Allowance (PSI) for Pipe Carrying Liquid	TBD	TBD
Class Location	TBD	TBD
Type of Joint (welded, mechanical, etc.)	TBD	TBD
Method of Installation (bore, open cut, horizontal directional drilling, etc.)	Open Cut	Open Cut
Location (crossing or parallel) and Crossing Angle if crossing	Crossing, 90	Crossing, 90
Minimum Depth beneath roadway surface (feet)	2	2
Minimum Depth beneath ditches or drainage structures (feet)	N/A	N/A
Pipe Vertical Deflection by Spangler Equation (inches)	N/A	N/A
Coating Material	N/A	N/A
Cathodic Protection	N/A	N/A

*This is not design pressure. MAOP is the highest pressure a pipeline may be operated under DOTD regulations.

This proposed installation is in compliance with Department Standards.

 (Signature of Owner, required)

 (Date)

Headquarters (original)

pc: District

pc: Permittee
 Page 1 of 1

Permit Number 153267

CONTROL _____ SECTION _____

STATE OF LOUISIANA
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
UTILITY PERMIT SUPPLEMENT
Rev 3/13
PIPE DATA SHEET

Highway No. 27/82

Owner of Proposed Facility DOTD

Data	Carrier Pipe	Casing (If Used)
Contents to be handled	Water	
Pipe Material	HDPE	
Specification & Grade of Pipe	ANSI A21.5	
Outside Diameter (inches)	11.75	
Dimension Ratio (DR) for Non-Metallic Pipe	DR-11	
Nominal Pipe Size (NPS) (inches)	12"	
Wall Thickness(inches)	1.826	
Specified Minimum Yield Strength (SMYS) (PSI)	350 PSI	
Hydrostatic Design Basis (HDB) (PSI) for Non-Metallic Carrier Pipe	TBD	
*Maximum Allowable Operating Pressure (MAOP) (PSI)	TBD	
Surge Pressure Allowance (PSI) for Pipe Carrying Liquid	TBD	
Class Location	TBD	
Type of Joint (welded, mechanical, etc.)	Butt Fusion, Mech	
Method of Installation (bore, open cut, horizontal directional drilling, etc.)	Open Cut	
Location (crossing or parallel) and Crossing Angle if crossing	Parallel	
Minimum Depth beneath roadway surface (feet)	N/A	
Minimum Depth beneath ditches or drainage structures (feet)	N/A	
Pipe Vertical Deflection by Spangler Equation (inches)	N/A	
Coating Material	Asphaltic	
Cathodic Protection	N/A	

*This is not design pressure. MAOP is the highest pressure a pipeline may be operated under DOTD regulations.

This proposed installation is in compliance with Department Standards.

(Signature of Owner, required)

(Date)

Headquarters (original)

pc: District

pc: Permittee
Page 1 of 1

1 5 3 2 6 7

STATE PROJECT:
 ROUTE: LA 27 / LA 82
 PROJECT NAME: HOLLY BEACH
 PARISH: CAMERON

ROADWAY AND SHOULDER BORING LAB TEST DATA

CSLM: 5.617 @ 8' LT CL

SAMPLE	DEPTH	MATERIAL	SOIL GROUP	CLASSIFICATION	LL/PI	PH	ORGANIC	GRADATION
	0" - 9½"	ACP						
S-1	9½" - 20½"	SSC						***16,32,25
S-2	20½" - 26"	SAND SHELL	A-2-4 (00)	SHLY SDY LM	NP	7.8	1.0	**0,0,0,8,11,15,48,8,10
S-3	BELOW	SOIL	A-2-4 (00)	SDY LM	NP	8.1	1.0	*0,0,4,73,11,12

NOTE: *(+4,+10,+40,+200,%SILT,%CLAY)
 ** (+1,+3/4,+1/2,+4,+10,+40,+200,%SILT,%CLAY)
 ***(+10,+40,+200)

153267

SHEET NUMBER 1 of 1	PARISH	CAMERON	DESIGNED	CHECKED
	FEDERAL PROJECT		DETAILED	CHECKED
	STATE PROJECT		DATE	SHEET
			10-20-15	1 OF 1
LA 27	ABBREVIATIONS FOR SOIL BORINGS			
NO	DATE	REVISION DESCRIPTION	BY	

ABBREVIATIONS FOR SOIL BORINGS

HMAC - HOT MIX ASPHALTIC CONCRETE
 ACP - ASPHALTIC CONCRETE PAVEMENT
 PCC - PORTLAND CEMENT CONCRETE
 SS - SAND SHELL
 SCG - SAND CLAY GRAVEL
 SSC - STABILIZED SOIL CEMENT
 SC - SOIL CEMENT
 RAP - RECYCLED ASPHALTIC CONCRETE PAVEMENT

STF - STIFF
 LT - LIGHT
 SFT - SOFT
 MED - MEDIUM
 STY - SILTY
 SDY - SANDY
 SHLY - SHELLY
 GRAY - GRAVELLY
 SD - SAND
 LM - LOAM
 CL - CLAY
 GR - GRAY
 BR - BROWN
 RD - RED
 YL - YELLOW
 DK - DARK



REFERRED TO

Bobby Jindal, Governor
Sherri H. LeBas, P.E., Secretary

- _____ REFERRED FOR ACTION
- _____ ANSWER FOR MY SIGNATURE
- _____ FOR FILE
- _____ FOR YOUR INFORMATION
- _____ FOR SIGNATURE
- _____ RETURN TO ME
- _____ PLEASE SEE ME
- _____ PLEASE TELEPHONE ME
- _____ FOR APPROVAL
- _____ PLEASE ADVISE ME

IN REPLY REFER TO
 FILE NO.

BY _____ DATE _____
 BY _____ DATE _____
 BY _____ DATE _____

Memorandum

153267

To: Janice P. Williams, P.E.
 Chief Engineer

From: Beyond Lim, P.E. *BS*
 HQ R/W Permit Engineer

Subject: Design Exception/Waiver Request in Project Permit Submitted by Sasol
 Coastal Protection and Restoration Authority (CPRA) for LA 27/82, Control
 Section 031-01, Cameron Parish

Date: December 21st 2015

We are respectfully requesting your approval for the above captioned design exception and waiver requested by CPRA regarding placement of the permanent concrete casing pipe (51" OD) crossing LA 27/82 using open cut methods and phasing construction keeping on lane open at all times in order to facilitate the temporary placement of a sediment pipeline.

This project aims to allow marsh fill material to be dredged from an offshore borrow area located in the Gulf of Mexico and pumped hydraulically via pipeline to the marsh fill area north of LA 27/82. The permanent concrete pipe will be capped after use and left in place for future coastal restoration projects. District 07 and HQ have performed their review since last August including a meeting with CPRA at HQ DOTD regarding the plans as well as the design exception and waiver request.

The CPRA's design exception/waiver request explains why the project permit requires the exception/waiver above. We agree that safety is not impacted by allowing the design exception/waiver. Based on the information provided, it is recommended this design exception/waiver be approved. Please note that we have attached the design exception and waiver form with District 07's ADA and HQ Road Design Administrator's signatures for recommendation of approval, maps, copy of project permit application package, and final plans for your review. Should you require additional information, please contact me.

BSL
 ATTACHMENT

Samuel Adams 12/22/15
 RECOMMENDED FOR APPROVAL / DATE

RECOMMENDED FOR APPROVAL / DATE

Samuel Adams 1-4-16
 APPROVED / DATE



General Information

Type of Request: Design Exception
 Design Waiver

Route and Design Classification:

Rural	<input checked="" type="checkbox"/>	Local	<input type="checkbox"/>	1	<input type="checkbox"/>
Suburban	<input type="checkbox"/>	Collector	<input checked="" type="checkbox"/>	2	<input type="checkbox"/>
Urban	<input type="checkbox"/>	Arterial	<input type="checkbox"/>	3	<input checked="" type="checkbox"/>
Freeway	<input type="checkbox"/>			4	<input type="checkbox"/>

Traffic:	Posted Speed: 55 mph	Current ADT: 780
	Design Speed: 60 mph	Design ADT: 780
		D: 54.92 %
		K: 11.58 %
		T: 32.55 %

Other traffic considerations: As LA 27/82 is a hurricane evacuation route, this work will be specified to take place outside of the peak of hurricane season (August to mid-October). If a storm enters or forms within the Gulf, both lanes of LA27/82 will be reopened to facilitate evacuations.

Work Classification

<u>Work Type</u>	<u>System</u>	<u>FHWA Involvement</u>
<input checked="" type="checkbox"/> New / Reconstruction	<input checked="" type="checkbox"/> NHS	<input checked="" type="checkbox"/> Full Oversight
<input checked="" type="checkbox"/> Major Rehabilitation	<input checked="" type="checkbox"/> Non NHS	<input type="checkbox"/> Delegated
<input checked="" type="checkbox"/> Structural Improvement		<input checked="" type="checkbox"/> None
<input checked="" type="checkbox"/> Spot Replacement		
<input checked="" type="checkbox"/> Minor Rehabilitation		
<input checked="" type="checkbox"/> Preventive Maintenance		

Applicable Design Guideline: Choose an item.



Provide supporting documentation/exhibits for the request. (Exhibits may include typical sections, geometric details, correspondence from other sections, agencies, etc.)

1. Design Exception/Design Waiver for the following element(s) of work. Mark all requested.

Controlling Criteria

Design Speed *	<input type="checkbox"/>	Clear Zone	<input type="checkbox"/>
Lane Width *	<input type="checkbox"/>	Cross Slope *	<input type="checkbox"/>
Super elevation *	<input type="checkbox"/>	Guardrail	<input type="checkbox"/>
Shoulder Width *	<input type="checkbox"/>	Vertical Clearance *	<input type="checkbox"/>
Vertical Alignment *	<input type="checkbox"/>	Bridge Width *	<input type="checkbox"/>
Horizontal Alignment *	<input type="checkbox"/>	Structural Capacity *	<input type="checkbox"/>
Stopping Sight Distance *	<input type="checkbox"/>	Horizontal Clearance	<input type="checkbox"/>
Grade *	<input type="checkbox"/>	Hydraulic Design Storm	<input type="checkbox"/>
Median Width	<input type="checkbox"/>		
Lateral Offset to Obstruction * (FHWA criteria only)	<input type="checkbox"/>		

* FHWA Controlling Design Criteria. An exception from FHWA is required. Note that FHWA only requires that the minimum values cited in the *Green Book* be met.

Other

Explain: This project involves work being performed to the existing pavement on LA 27/82. A concrete pipe will be installed underneath LA 27/82 using open cut methods and phased construction, keeping one lane open at all times. Existing conditions will be restored upon completion of construction.

2. *Provide a synopsis of the scope of the project, the situation you are encountering and the problem you are attempting to mitigate.*

The Oyster Bayou Marsh Restoration project is located in Cameron Parish, Louisiana between Mud Lake and the Calcasieu River, north of Louisiana Highway 27/82 (LA27/82). The project area is located approximately 3 miles east of the community of Holly Beach. Approximately 605 acres of marsh and 17,550 linear feet of earthen terraces are proposed.

The work includes installing a 51" O.D. permanent, concrete casing pipe underneath LA 27/82 to facilitate the temporary placement of a sediment pipeline. Marsh fill material will be dredged from an offshore borrow area located in the Gulf of Mexico and pumped hydraulically via pipeline to the marsh fill areas north of LA 27/82. The permanent casing pipe will be plugged after use and left in place for future coastal restoration projects.

It is proposed to place the permanent concrete casing pipe using open cut methods and phased construction keeping one lane open at all times. Flaggers and substantial lighting will be utilized to maintain safe operations. Following the installation of the concrete casing pipe, a temporary sediment pipeline will be placed within the casing pipe. The temporary sediment pipeline will be in place for a maximum of 200 days. During this time, the temporary sediment pipeline will be placed above ground within apparent DOTD Right of Way on

either side of the concrete casing pipe. In order to protect the temporary pipeline that is located within the clear zone, and to shield the obstacle from the traveling public, temporary Triton barriers will be installed. The Triton barrier system will remain in place for the entire duration that the temporary sediment pipeline is located within the apparent DOTD ROW. Upon completion of the Oyster Bayou Marsh Restoration Project, the temporary sediment pipeline will be removed and the concrete casing pipe will be loosely plugged (so as to allow for minimal water flow to prevent stress on the pipe) and buried using embankment material. The highway and embankment will be returned to pre-project conditions. The casing pipe installation is anticipated to take approximately one week and will occur outside of peak hurricane season. If a storm enters or develops within the Gulf of Mexico, both lanes will be reopened to traffic as soon as practicable.

The open cut method of casing pipe installation is proposed to mitigate several problems within the project area. Geotechnical boring logs at the proposed crossing indicate that jack and bore or microtunneling installation methods would not be feasible based on existing soil conditions. In addition, a subsurface fiber optic line is located on the south side of the highway. Installation via these two methods would not be possible without disturbing the fiber optic line. The proposed casing pipe installation design requires 36" of cover from the top of the pavement surface to the top of the concrete casing pipe. This depth of cover is required to allow sufficient space to install the temporary sediment pipeline without disrupting the fiber optic line south of the roadway. After the marsh creation project is complete, the permanent concrete casing pipe will be plugged, but not sealed. This will prevent stress on the pipe, allowing minimal water flow through the pipe due to potential groundwater. Both sides of the casing pipe will be buried following construction and will no longer be located within the clear zone. Therefore, the design of the concrete casing pipe has been conducted in accordance with LAC Title 70 Section 515, LADOTD Specification section 701, and the DOTD Hydraulics Manual. The temporary sediment pipeline will be located within the clear zone during the marsh creation project as indicated above. The temporary dredge pipeline will be shielded from traffic using triton barriers. The triton barriers will be installed at a flare rate of 14:1 as specified by the AASHTO Roadside Design Guide, Table 5.9. Following project completion, the temporary pipeline and triton barriers will be removed and no objects will remain within the clear zone.

3. *Describe the proposed design exception/waiver. Provide the proposed and standard values of the design exception/waiver element, citing DOTD, AASHTO, or other criteria.*

This design waiver is to install a pipe under the existing LA 27/82 using open-cut methods, with one lane open to traffic during the installation period, anticipated to take one week.

4. *Discuss the project's compatibility with adjacent roadway sections.*

The existing typical section will be maintained, and the road will be returned to its pre-construction condition.

5. *Discuss alternatives to the exception that were considered.*

Jack and bore and microtunneling installation methods were considered. Upon evaluation of geotechnical boring logs at the proposed crossing, it is advised to use open-cut methods.

6. *Provide a safety review of the project and as it relates to the proposed design exception/waiver. All Design Exceptions must have a Safety Review and Crash Analysis.*

The proposed exception/waiver involves using open cut methods that will necessitate closing one lane of traffic at a time. Triton barriers will be used to shield traffic from the open cut construction operations in accordance with DOTD TTC-00 (A,B,C,D), TTC-02, and TTC-04. Spacing of traffic control devices, signs, and channelizing devices are in accordance with these traffic control sheets and the Manual on Uniform Traffic Control Devices 2009 Edition (MUTCD). Flaggers with two-way radio communications will be employed 24/7 during construction operations that require lane closures. Light plants will be operational at night at both flagging locations and the project site to ensure nighttime visibility. Following the open cut and casing pipe installation, triton barriers will be utilized to shield traffic from the temporary dredge pipeline located within the clear zone. The triton barriers will be installed at a flare rate of 14:1 as specified by the AASHTO Roadside Design Guide, Table 5.9. Following the marsh creation project, the temporary dredge pipeline will be removed, and the casing pipe will be plugged and buried on both ends. Hence, following project completion, the casing pipe will be buried and not located within the clear zone. The road will be returned to its preconstruction state. Therefore the current safety level of the road will be maintained.

7. *Discuss the cost of the project (construction and right of way) and the cost differential between proposed design and a design that would meet guidelines.*

Existing geotechnical conditions prohibit installation of the casing pipe via jack and bore and microtunneling methods. Due to sandy conditions as well as proximity to the Gulf of Mexico, jack and bore and microtunneling methods are not advised by our consulting geotechnical engineer. The proposed method of casing pipe installation via open cut would mitigate these issues, and allow the casing pipe to be installed without potentially disrupting the adjacent fiber optic line.

8. *Discuss impacts other than costs of bringing the features up to standard (such as impacts to other design features, the natural and built environment, historical features, construction issues, social concerns, reduction of design life, etc.)*

Not Applicable

9. *Discuss proposed mitigation to address design exception feature, if applicable. Some possible countermeasures may include advisory signs, lighting, guardrail, signing, rumble strips, future work to address design exception, incremental improvement, etc.
See link: [FHWA - Mitigation Strategies for Design Exceptions](#)*

One lane will remain open to traffic at all times during pipe installation. Flaggers will be used 24/7. A triton barrier system will be installed between the two lanes when trenches are open. DOTD standard sheets TTC-00 (A, B, C, D), TTC-02, and TTC-04 will be

153267

Design Exception/Design Waiver Request



utilized. Triton barriers will be used to shield the temporary sediment pipeline and open trench locations north and south of the highway during the restoration project. Upon project completion, the roadway will be restored to pre-construction conditions.

Required Signatures

Prepared By: <i>Vida Carver</i>	Title: Project Manager	Date: 12/10/15
------------------------------------	---------------------------	-------------------

For District Projects:

Approved By ADA of Engineering: <i>[Signature]</i>	Date: 12/10/2015
---	---------------------

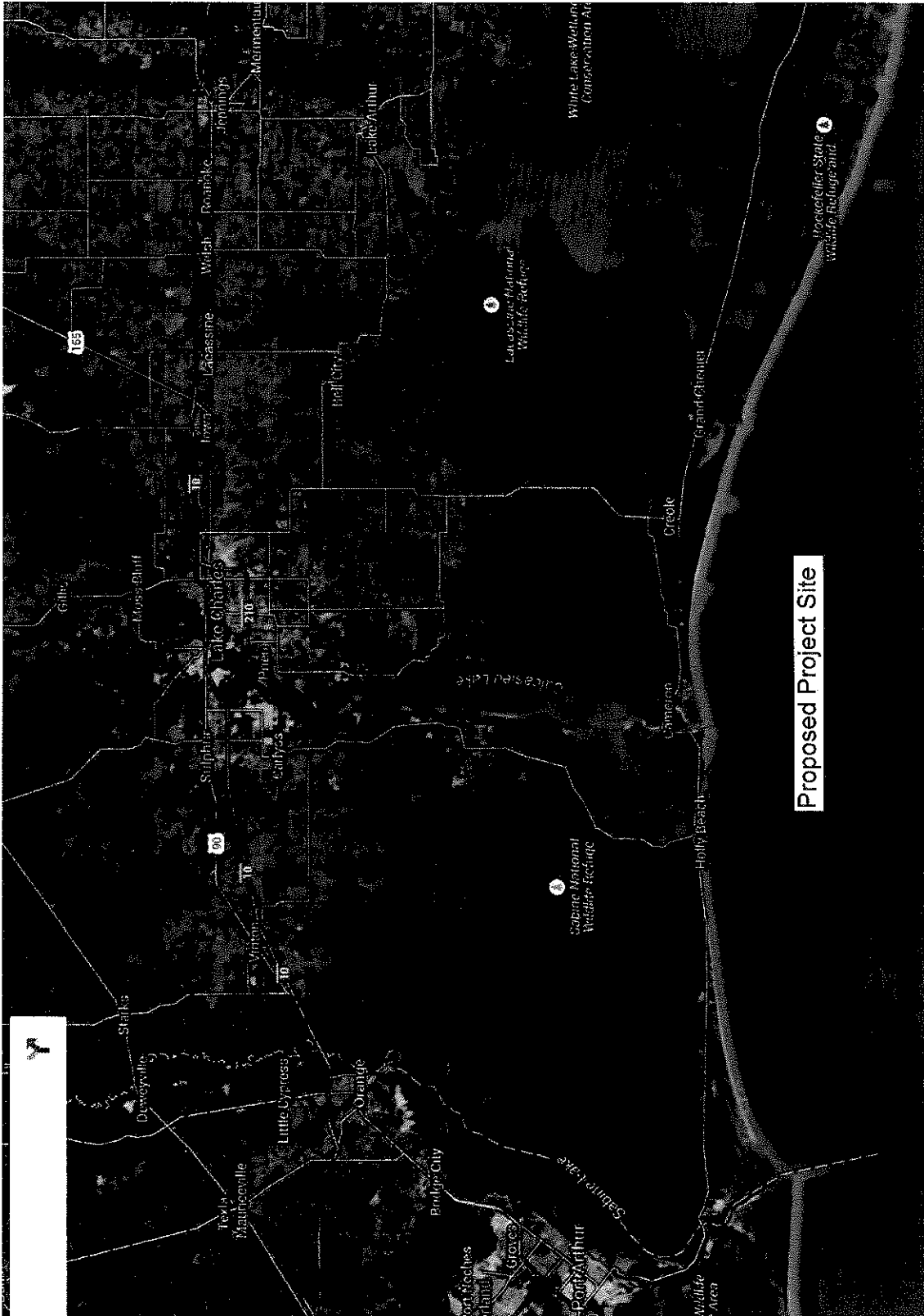
For LPA Projects:

Approved By (LPA Official):	Title:	Date:
-----------------------------	--------	-------

Requested by (DOTD PM):	Reviewed By (DOTD Section Head): <i>Simone Ardois</i>		
Signature:	Date:	Signature: <i>Simone Ardois</i>	Date: 12/22/15
Approved by Chief Engineer:	Approved by FHWA (Oversight Projects):		
Signature: <i>Tance P Williams 1-416</i>	Date:	Signature:	Date:

N 4

153267

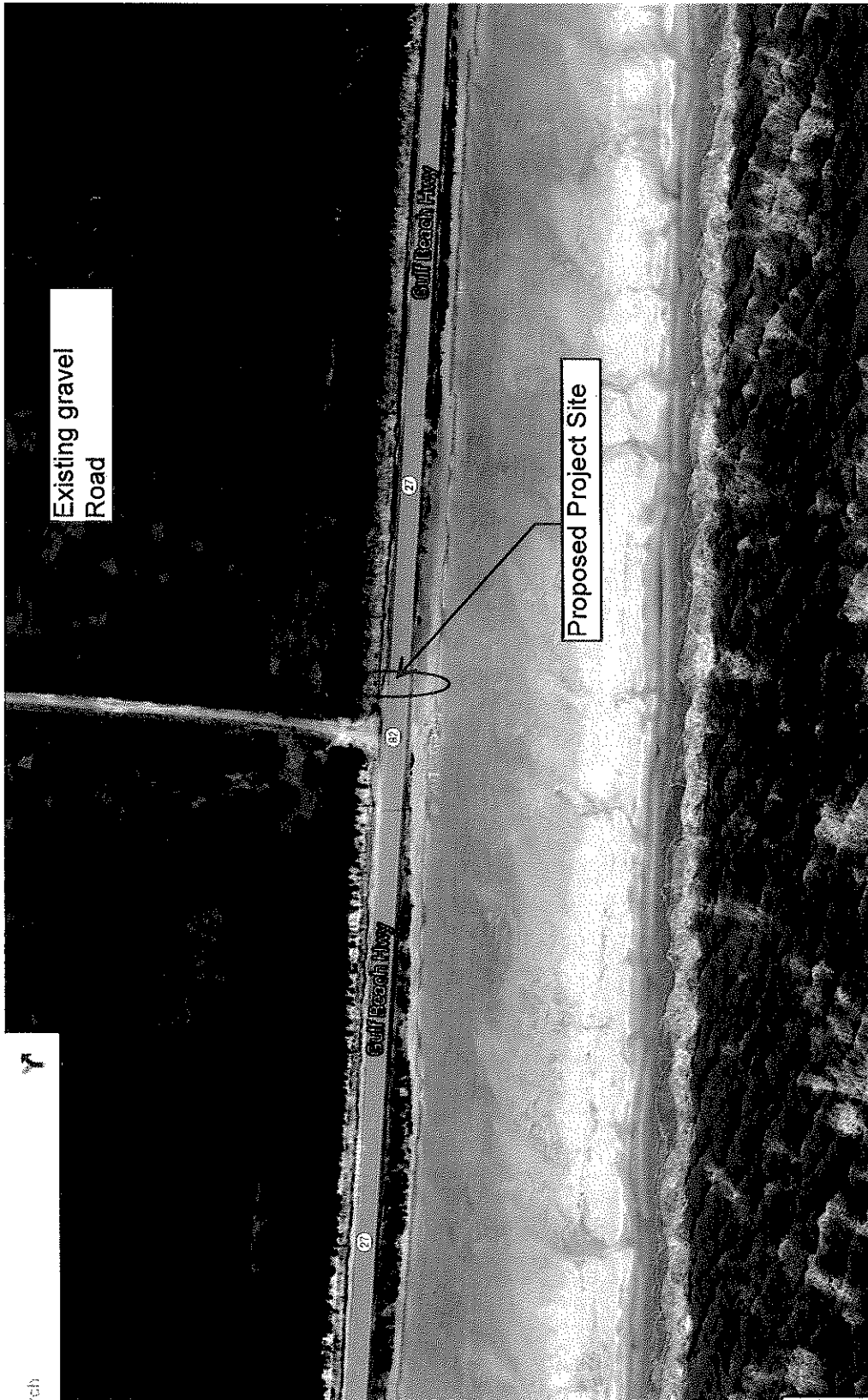


N 4

153267



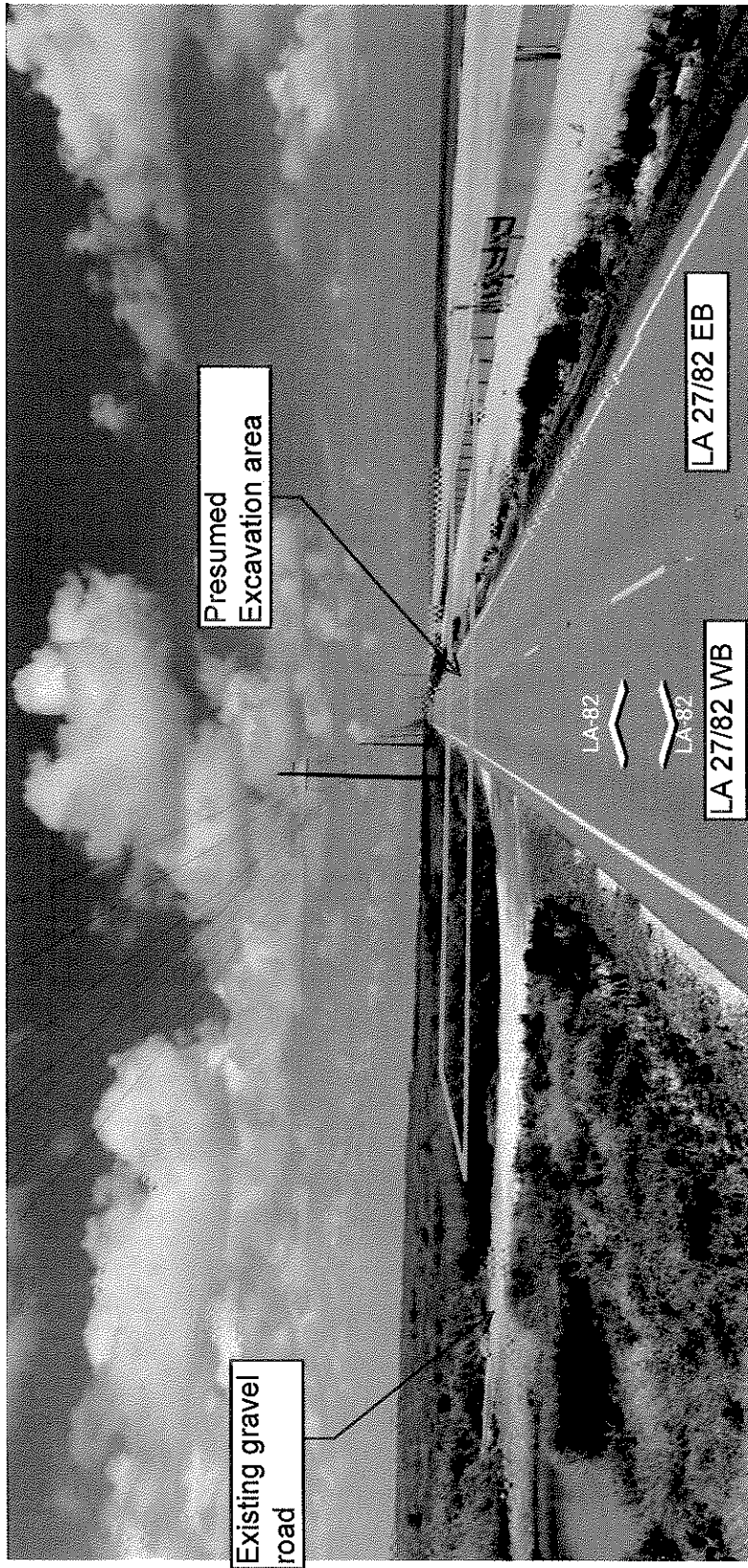
Proposed Project Site



Y

(ch)





Beyong Lim

From: Vida Carver
Sent: Wednesday, December 16, 2015 2:36 PM
To: Beyong Lim
Cc: Pat Landry (DOTD); Roger Moses; Simone Ardoin; Darrell Deville; Dawnyale Young; David S. Smith (DOTD - Section 24)
Subject: RE: CPRA's Proejct Permit Reqeust with Design Waiver regarding Open-Cut Installation for 51" Concrete Pipe under LA 27/82 at Cameron Parish
Attachments: Oyster Bayou DE Waiver signature 12.16.15.pdf

Beyong,

As requested, I have attached a signed DE Waiver form. CPRA has no objections to the 3 conditions mentioned below. We will be sure to invite Pat Landry and the District 07 Permit Project Manager to our preconstruction conference.

Thank you,



Vida S. Carver, P.E.
Project Management

Coastal Protection and Restoration Authority
 225.342.2799 (office)
Vida.Carver@la.gov

From: Beyong Lim
Sent: Wednesday, December 16, 2015 11:30 AM
To: Vida Carver
Cc: Pat Landry (DOTD); Roger Moses; Simone Ardoin; Darrell Deville; Dawnyale Young; David S. Smith (DOTD - Section 24)
Subject: FW: CPRA's Proejct Permit Reqeust with Design Waiver regarding Open-Cut Installation for 51" Concrete Pipe under LA 27/82 at Cameron Parish

Please see our District 07 ADA (Mr. Pat Landry) email below.
 As you see his email, there were two issues as following:

1. signature required from you (or your engineer) in page 6 of Design Exception (DE) Waiver form attached.
2. conditions are required below:
 - *A preconstruction conference is required.*
 - *A Permit Project Manager will be assigned by District 07 to inspect and coordinate the work performed with other activities in the area.*
 - *All concrete cross drain pipe shall be plugged and backfilled over the ends to the satisfaction of District 07.*

Regarding the 1st issue above, please email me a scanned copy of the page 6 of DE waiver form with your signature. Regarding the 2nd issue, it may work for us if you indicate by emailing me that you agree with the three conditions required.

As those two issues are resolved, I will request a final approval from DOTD Chief Engineer with HQ Road Design Administrator to complete this permit process.

Thanks,

1 5 3 2 6 7

Beyong Lim, P.E.
ROW Permits Engineer in LA DOTD

1201 Capitol Access Road, S-627
Baton Rouge, LA 70804-9245
Office: 225.379.1927, Fax: 225.379.1351
Beyong.Lim@LA.GOV

From: Vida Carver
Sent: Wednesday, December 16, 2015 11:08 AM
To: Beyong Lim
Subject: RE: CPRA's Proejct Permit Reqeust with Design Waiver regarding Open-Cut Installation for 51" Concrete Pipe under LA 27/82 at Cameron Parish

Beyong,

Do you have an update on this permit request?

Thank you,



Vida S. Carver, P.E.
Project Management

Coastal Protection and Restoration Authority
225.342.2799 (office)
Vida.Carver@la.gov

From: Pat Landry (DOTD)
Sent: Tuesday, December 15, 2015 4:43 PM
To: Beyong Lim; David S. Smith (DOTD - Section 24)
Cc: Roger Moses; Dawnyale Young; Simone Ardoin; Darrell Deville
Subject: RE: CPRA's Proejct Permit Reqeust with Design Waiver regarding Open-Cut Installation for 51" Concrete Pipe under LA 27/82 at Cameron Parish

Beyong,

The DE/DW Request has not been signed by the preparer. Have the "Prepared By" signature obtained and sent to me so that I may sign the document.

The district has no concerns with the concrete cross drain pipe plugging. The concrete cross drain will be plugged to District 07's satisfaction.

The following conditions are required:

- A preconstruction conference is required.
- A Permit Project Manager will be assigned by District 07 to inspect and coordinate the work performed with other activities in the area.

- All concrete cross drain pipe shall be plugged and backfilled over the ends to the satisfaction of District 07.

1 5 3 2 6 7

Thanks,



LADOTD Patrick J. Landry, PE, PLS
District 07 ADA-Engineering
Office (337) 437-9103 / 1-800-752-6706 / 07-103
Fax (337) 437-9260 / 07-260 Cell (337) 794-5711

From: Beyong Lim

Sent: Wednesday, December 09, 2015 2:14 PM

To: David S. Smith (DOTD - Section 24); Pat Landry (DOTD)

Cc: Roger Moses; Dawnyale Young; Simone Ardoin

Subject: FW: CPRA's Proejct Permit Reqeust with Design Waiver regarding Open-Cut Installation for 51" Concrete Pipe under LA 27/82 at Cameron Parish

David,

Thanks for your response below.

I will check with District 07 regarding the "Minimal" drainage issue.

Best,

Pat,

As you see David's email below, he has no further comments regarding CPRA's responses and the revised Design Exception (DE) attached except concerning the "minimal" drainage (please see the yellow highlight below).

Based on his suggestion, I would like to ensure that your District is not concerned with this issue. Please advise.

Also, please sign in page 6 of the DE attached and email me the scanned copy of this signature page if you have no further issue.

Once I get your signature, I will request an approval from Chief engineer including Simone regarding this Design Exception request.

Thanks,

Beyong Lim, P.E.

ROW Permits Engineer in LA DOTD

1201 Capitol Access Road, S-627

Baton Rouge, LA 70804-9245

Office: 225.379.1927, Fax: 225.379.1351

Beyong.Lim@LA.GOV

From: David S. Smith (DOTD - Section 24)

Sent: Wednesday, December 09, 2015 1:08 PM

To: Beyong Lim

Subject: RE: CPRA's Proejct Permit Reqeust with Design Waiver regarding Open-Cut Installation for 51" Concrete Pipe under LA 27/82 at Cameron Parish

I have no further comments on the DE form.

Beyong Lim

From: David S. Smith (DOTD - Section 24)
Sent: Wednesday, December 09, 2015 1:08 PM
To: Beyong Lim
Subject: RE: CPRA's Proejct Permit Reqeust with Design Waiver regarding Open-Cut Installation for 51" Concrete Pipe under LA 27/82 at Cameron Parish

I have no further comments on the DE form.

Concerning the "minimal" drainage that will be allowed through the pipe post-construction, I do not see how this will not eventually generate a void at the pipe end(s) after they are buried. I suggest that you make sure that the District is not concerned with this issue.

Thanks,
David

From: Beyong Lim
Sent: Wednesday, December 09, 2015 9:00 AM
To: David S. Smith (DOTD - Section 24)
Subject: FW: CPRA's Proejct Permit Reqeust with Design Waiver regarding Open-Cut Installation for 51" Concrete Pipe under LA 27/82 at Cameron Parish

Good morning David,

As you see Vida's email below, CPRS seemed to provide their responses regarding your comments (Please note that your comments can be shown in the very bottom of the chain of this email).

Please review these response and advise if they addressed correctly your comments.

Thanks,

Beyong Lim, P.E.
ROW Permits Engineer in LA DOTD

1201 Capitol Access Road, S-627
Baton Rouge, LA 70804-9245
Office: 225.379.1927, Fax: 225.379.1351
Beyong.Lim@LA.GOV

From: Vida Carver
Sent: Wednesday, December 09, 2015 8:45 AM
To: Beyong Lim
Cc: David S. Smith (DOTD - Section 24); Pat Landry (DOTD); Mark Chenevert; Simone Ardoin; Mitra Hashemieh; Roger Moses; Dawnyale Young; Kodi Guillory; 'whitney.thompson@cbi.com'; 'Paul, Christopher (christopher.paul@cbi.com)'; 'John D. Foret - NOAA/NMFS/SEFSC/EHCFC (john.foret@noaa.gov)'
Subject: RE: CPRA's Proejct Permit Reqeust with Design Waiver regarding Open-Cut Installation for 51" Concrete Pipe under LA 27/82 at Cameron Parish

Hi Beyong,

I have attached the responses to the latest comments and the final version of the design waiver. Please let me know if you need any more information.

1 5 3 2 6 7

Thank you,



Vida S. Carver, P.E.
Project Management

Coastal Protection and Restoration Authority
225.342.2799 (office)
Vida.Carver@la.gov

From: Beyong Lim
Sent: Monday, November 23, 2015 10:11 AM
To: Vida Carver
Cc: David S. Smith (DOTD - Section 24); Pat Landry (DOTD); Mark Chenevert; Simone Ardoin; Mitra Hashemieh; Roger Moses; Dawnyale Young; Kodi Guillory; 'whitney.thompson@cbl.com'; 'Paul, Christopher (christopher.paul@cbl.com)'
Subject: FW: CPRA's Proejct Permit Reqeust with Design Waiver regarding Open-Cut Installation for 51" Concrete Pipe under LA 27/82 at Cameron Parish

Vida,

Mr. David Smith (HQ Assistant Road Design Administrator) provided his comments below regarding the above captioned permit request (in particular, the design exception/waiver request).

Please provide your responses to his comments.

Thanks,

Beyong Lim, P.E.
ROW Permits Engineer in LA DOTD

1201 Capitol Access Road, S-627
Baton Rouge, LA 70804-9245
Office: 225.379.1927, Fax: 225.379.1351
Beyong.Lim@LA.GOV

From: David S. Smith (DOTD - Section 24)
Sent: Monday, November 23, 2015 9:37 AM
To: Beyong Lim
Cc: Simone Ardoin; Mark Chenevert
Subject: RE: CPRA's Proejct Permit Reqeust with Design Waiver regarding Open-Cut Installation for 51" Concrete Pipe under LA 27/82 at Cameron Parish

Beyong,

Below are a few suggestions for the proposed Design Exception/Design Waiver Request Form prepared by CPRA and/or their consultant CB&I:

Page 1

- Include the correct Control Section(s) for the route(s) as well as the specific location (log mile).
- The Description of Work should state that this is a permit project and that CPRA is the project owner.
- Normally, pipes are "plugged" and catch basins are "capped". For the purposes of this project, I suggest that the term "plugged" be used throughout.

- It is stated that the permanent concrete casing pipe will be capped and buried at the conclusion of the project. It is also stated that a minimal amount of water will be allowed to flow through the pipe once the project is completed. These two statements seem to conflict. If the intent is to plug and bury the pipe, then this should be clearly stated. If water will be allowed through the pipe once construction is completed, then the pipe ends will be exposed (within the clear zone) and a design exception will be required to allow this condition OR the permanent concrete casing pipe must be extended to the clear zone.

Page 2

- The Route and Design Classification for this roadway is Rural Collector 3.
- Include ADT and D,K,T under the Traffic Section. This information can be provided by the Planning Section.
- Under the Work Classification section, the System should be non-NHS.
- Select the applicable design exception/waiver criteria (if applicable) (see comment concerning clear zone above).

Page 4

- Item 6 requires some level of a safety analysis. The proposed exception/waiver is to use open cut methods, which will necessitate closing lanes of traffic and providing flagging operations. This section should be used to discuss safety concerns and mitigation associated with this type of work.
- Item 7 should include the cost difference between the proposed open cut method and other methods, such as jack/bore. Since jack/bore method is not practical as detailed in the geotechnical investigation, other methods (such as on-site diversion) should be discussed, with the various costs compared (construction servitude costs, utility relocation costs, construction costs, wetland permitting, constructability in marshy area, etc.). Is it possible that the jack/bore may work but is cost prohibitive due to location of adjacent utilities and/or soil conditions? If so, then this should be clearly stated with costs identified. This section should make it clear that open cut is really the only practical method of construction.

I am available if you have any other questions.

Thanks,

David

379-1348



DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, NEW ORLEANS DISTRICT
P.O. BOX 60267
NEW ORLEANS, LOUISIANA 70160-0267

153267
RECEIVED

2015 AUG 10 P 1:46

CPRA

REPLY TO
ATTENTION OF

Operations Division
Western Evaluation Section

AUG 03 2015

SUBJECT: MVN-2012-01709-WPP

Coastal Protection and Restoration Authority
450 Laurel Street, Suite 1200
Baton Rouge, Louisiana 70801

Dear Gentlemen:

The proposed work, to dredge and fill for implementing the Oyster Bayou Marsh Restoration Project (CS-59), in Cameron Parish, Louisiana, as shown on the attached drawings, is authorized under **Category II** of the **Programmatic General Permit** provided that all conditions of the permit are met.

The following special conditions are made part of this authorization:

1. This permit does not authorize the conversion of wetlands to uplands, or impacts to existing aquatic resources.
2. Many local governing bodies have instituted laws and/or ordinances in order to regulate dredge and/or fill activities in floodplains to assure maintenance of floodwater storage capacity and avoid disruption of drainage patterns that may affect surrounding properties. Your project involves dredging and/or placement of fill; therefore, you must contact the local municipal and/or parish governing body regarding potential impacts to floodplains and compliance of your authorized activities with local floodplain ordinances, regulations or permits.
3. If the authorized project, or future maintenance work, involves the use of floating construction equipment (barge mounted cranes, barge mounted pile driving equipment, floating dredge equipment, dredge discharge pipelines, etc.) in the waterway, you are advised to notify the Eighth Coast Guard District so that a Notice to Mariners, if required, may be prepared. Notification with a copy of your permit approval and drawings should be mailed to the Commander (dpw), Eighth Coast Guard District, Hale Boggs Federal Building, 500 Poydras Street, Room 1230, New Orleans, Louisiana 70130, about 1 month before you plan to start work. Telephone inquiries can be directed to the Eighth Coast Guard District, Waterways Management at (504) 671-2107.

4. If the authorized project requires any additional work not expressly permitted herein, the permittee must obtain an amendment to this authorization prior to commencement of work.
5. That structures will not be placed across any state-owned water bottoms without approval of the Louisiana Office of Administration, State Lands Office. The permittee will be responsible for contacting the State Lands Office to ascertain if the structure will be placed over state-owned water bottoms.
6. The (attached) Standard Manatee Conditions for In-Water Activities are hereby made a part of this authorization.
7. Equipment access shall be through open water and limited to within the marsh creation areas and pipeline and equipment corridors shown on the permit drawings.

However, prior to commencing work on your project, you must obtain approvals from state and local agencies as required by law and by terms of this permit. These approvals include, but are not limited to, a permit, consistency determination or determination of "no direct or significant impact (NDSI) on coastal waters" from the Louisiana Department of Natural Resources, Office of Coastal Management and a water quality certification from the Louisiana Department of Environmental Quality.

This approval to perform work is valid for 5 years from the date of this letter.

Permittee is aware that this office may reevaluate its decision on this permit at any time the circumstances warrant.

Should you have any further questions concerning this matter, please contact Johnny Duplantis of this office at (504) 862-2548.

Sincerely,

Darrell S. Barbara

for Martin S. Mayer
Chief, Regulatory Branch

Enclosures

STANDARD MANATEE CONDITIONS FOR IN-WATER ACTIVITIES

During in-water work in areas that potentially support manatees, all personnel associated with the project shall be instructed and made aware of the potential presence of manatees, manatee speed zones, and the need to avoid collisions with, and injury to, manatee. All personnel shall be advised that there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act of 1972 and the Endangered Species Act of 1973. Additionally, personnel shall be instructed not to attempt to feed or otherwise interact with the animal.

All on-site personnel are responsible for observing water-related activities for the presence of manatee(s). To minimize potential impacts to manatees in areas of their potential presence, the permittee shall insure the following are adhered to:

- All work, equipment, and vessel operation shall cease if a manatee is spotted within a 50-foot radius (buffer zone) of the active work area. Once the manatee has left the buffer zone on its own accord (manatees must not be herded or harassed into leaving), or after 30 minutes have passed without additional sightings of manatee(s) in the buffer zone, in-water work can resume under careful observation for manatee(s).
- If a manatee(s) is sighted in or near the project area, all vessels associated with the project shall operate at "no wake/idle" speeds within the construction area and at all times while in waters where the draft of the vessel provides less than a four-foot clearance from the bottom. Vessels shall follow routes of deep water whenever possible.
- If used, siltation or turbidity barriers shall be properly secured, made of material in which manatees cannot become entangled, and be monitored to avoid manatee entrapment or impeding their movement.
- Temporary signs concerning manatees shall be posted prior to and during all in-water project activities and removed upon completion. Each vessel involved in construction activities shall display at the vessel control station or in a prominent location, visible to all employees operating the vessel, a temporary sign at least 8½" X 11" reading language similar to the following: "CAUTION BOATERS: MANATEE AREA/ IDLE SPEED IS REQUIRED IN CONSTRUCTION AREA AND WHERE THERE IS LESS THAN FOUR FOOT BOTTOM CLEARANCE WHEN MANATEE IS PRESENT". A second temporary sign measuring 8½" X 11" shall be posted at a location prominently visible to all personnel engaged in water-related activities and shall read language similar to the following: "CAUTION: MANATEE AREA/ EQUIPMENT MUST BE SHUTDOWN IMMEDIATELY IF A MANATEE COMES WITHIN 50 FEET OF OPERATION".
- Collisions with, injury to, or sightings of manatees shall be immediately reported to the US Fish and Wildlife Service's, Louisiana Ecological Services Office (337/291-3100) and the Louisiana Department of Wildlife and Fisheries, Natural Heritage Program (225/765-2821). Please provide the nature of the call (i.e., report of an incident, manatee sighting, etc.); time of incident/sighting; and the approximate location, including the latitude and longitude coordinates, if possible.

CEMVN-PGP

SPECIAL CONDITIONS

16 May 2013

1. Activities authorized under this general permit shall not be used for piecemeal work and shall be applied to single and complete projects. All components of a single and complete project shall be treated together as constituting one single and complete project. All planned phases of multi-phased projects shall be treated together as constituting one single and complete project. This general permit shall not be used for any activity that is part of an overall project for which an individual permit is required.
2. No activity is authorized under this general permit which may adversely affect significant cultural resources listed or eligible for listing in the National Register of Historic Places until the requirements for Section 106 of the National Historic Preservation Act are met. Upon discovery of the presence of previously unknown historic and/or prehistoric cultural resources, all work must cease and the permittee must notify the State Historic Preservation Office and the Corps of Engineers. The authorization is suspended until it is determined whether or not the activity will have an adverse effect on cultural resources. The authorization may be reactivated or modified through specific conditions if necessary, if it is determined that the activity will have no adverse effect on cultural resources. The CEMVN-PGP authorization will be revoked if it is determined that cultural resources would be adversely affected, and an individual permit may be necessary.
3. The Chitimacha Tribe of Louisiana has stated that the project area is part of the aboriginal Chitimacha homelands. If during the course of work at the site, prehistoric and/or historic aboriginal cultural materials are discovered, the permittee will contact the Chitimacha Tribe of Louisiana at P.O. Box 661, Charenton, LA 70523, and CEMVN. CEMVN will initiate the required Federal, State, and Tribal coordination to determine the significance of the cultural materials and the need, if applicable, for additional cultural resource investigations.
4. There shall be no unreasonable interference with navigation by the existence or use of the activity authorized herein. The permittee will, at his or her expense, install and maintain any safety lights, signals, and signs prescribed by the United States Coast Guard, through regulations or otherwise, on authorized facilities or on equipment used in performing work under the authorization.
5. No activity may substantially disrupt the movement of those species of aquatic life indigenous to the waterbody, including those species which normally migrate through the area, unless the activity's primary purpose is to block or impound water.
6. If the proposed activity involves the installation of aerial transmission lines, submerged cable, or submerged pipelines across navigable waters of the United States the following is applicable:

The National Ocean Service (NOS) has been notified of this authorization. You must notify NOS and this office in writing, at least two weeks before you begin work and upon completion of the activity authorized by this permit. Your notification of completion must include a drawing which certifies the location and configuration of the completed activity (a certified permit drawing

may be used). Notification to NOS will be sent to the following address: National Ocean Service, Office of Coast Survey, N/CS261, 1315 East West Highway, Silver Springs, Maryland 20910-3282.

7. For pipelines under an anchorage or a designated fairway in the Gulf of Mexico the following is applicable:

The National Ocean Service has been notified of this authorization. You must notify NOS and this office in writing, at least two weeks before you begin work and upon completion of the activity authorized by this permit. Within 30 days of completion of the pipeline, 'as built' drawings certified by a professional engineer registered in Louisiana or by a registered surveyor shall be furnished to this office, the Commander (dpw), Eighth Coast Guard District, Hale Boggs Federal Building, 500 Poydras Street, Room 1230, New Orleans, Louisiana 70130, and to the Director, National Ocean Service, Office of Coast Survey, N/CS261, 1315 East West Highway, Silver Springs, Maryland 20910-3282. The plans must include the location, configuration and actual burial depth of the completed pipeline project.

8. If the proposed project, or future maintenance work, involves the use of floating construction equipment (barge mounted cranes, barge mounted pile driving equipment, floating dredge equipment, dredge discharge pipelines, etc.) in a federally maintained waterway, you are advised to notify the Eighth Coast Guard District so that a Notice to Mariners, if required, may be prepared. Notification with a copy of your permit approval and drawings should be mailed to the Commander (dpw), Eighth Coast Guard District, Hale Boggs Federal Building, 500 Poydras Street, Room 1230, New Orleans, Louisiana 70130, about 1 month before you plan to start work. Telephone inquiries can be directed to (504) 671-2112.

9. All activities authorized herein shall, if they involve, during their construction or operation, any discharge of pollutants into waters of the United States, be at all times consistent with applicable water quality standards, effluent limitations and standards of performance, prohibitions, pretreatment standards and management practices established pursuant to the Clean Water Act (PL 92-500: 86 Stat 816), or pursuant to applicable state and local laws.

10. Substantive changes to the Louisiana Coastal Resources Program may require immediate suspension and revocation of this permit in accordance with 33 CFR 325.7.

11. Irrespective of whether a project meets the other conditions of this permit, the Corps of Engineers retains discretionary authority to require an individual Department of the Army permit when circumstances of the proposal warrant this requirement.

12. Any individual authorization granted under this permit may be modified, suspended, or revoked in whole or in part if the Secretary of the Army or his authorized representative determines that there has been a violation of any of the terms or conditions of this permit or that such action would otherwise be in the public interest.

13. The Corps of Engineers may suspend, modify, or revoke this general permit if it is found in

the public interest to do so.

14. Activities proposed for authorization under the PGP must comply with all other necessary federal, state, and/or local permits, licenses, or approvals. Failure to do so would result in a violation of the terms and conditions of CEMVN-PGP.

15. The permittee shall permit the District Commander or his authorized representative(s) or designee(s) to make periodic inspections of the project site(s) and disposal site(s) if different from the project site(s) at any time deemed necessary in order to assure that the activity being performed under authority of this permit is in accordance with the terms and conditions prescribed herein.

16. This general permit does not convey any property rights, either in real estate or material, or any exclusive privileges; and it does not authorize any injury to property or invasion of rights or any infringement of federal, state, or local laws or regulations nor does it obviate the requirements to obtain state or local assent required by law for the activity authorized herein.

17. In issuing authorizations under this permit, the federal government will rely upon information and data supplied by the applicant. If, subsequent to the issuance of an authorization, such information and data prove to be false, incomplete, or inaccurate, the authorization may be modified, suspended, or revoked, in whole or in part.

18. For activities resulting in sewage generation at the project site, such sewage shall be processed through a municipal sewage treatment system or, in areas where tie-in to a municipal system is not practical, the on-site sewerage system must be approved by the local parish sanitarian before construction.

19. Any modification, suspension, or revocation of CEMVN-PGP, or any individual authorization granted under this permit, will not be the basis for any claim for damages against the United States.

20. Additional conditions deemed necessary to protect the public interest may be added to the general permit by the District Commander at any time. If additional conditions are added, the public will be advised by public notice. Individual authorizations under CEMVN-PGP may include special conditions deemed necessary to ensure minimal impact and compliance with CEMVN-PGP.

21. CEMVN-PGP is subject to periodic formal review by CEMVN and OCM in coordination with the Environmental Protection Agency, US Fish and Wildlife Service, the National Marine Fisheries Service, and the Louisiana Department of Wildlife and Fisheries. Comments from reviewing agencies will be considered in determination as to whether modifications to the general permit are needed. Should the District Commander make a determination not to incorporate a change proposed by a reviewing agency, after normal negotiations between the respective agencies, the District Commander will explain in writing to the reviewing agency the

basis and rationale for his decision.

22. CEMVN retains discretion to review CEMVN-PGP, its terms, conditions, and processing procedures, and decide whether to modify, reissue, or revoke the permit. If CEMVN-PGP is not modified or reissued within 5 years of its effective date, it automatically expires and becomes null and void.

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

24. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party as described in Special Condition 26 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

25. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and State coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

26. If you sell the property associated with this permit, you must provide this office with a copy of the permit and a letter noting your agreement to transfer the permit to the new owner and the new owners agreement to accept the permit and abide by all conditions of the permit. This letter must be signed by both parties.

27. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit.

28. Many local governing bodies have instituted laws and/or ordinances in order to regulate dredge and/or fill activities in floodplains to assure maintenance of floodwater storage capacity and avoid disruption of drainage patterns that may affect surrounding properties. Your project involves dredging and/or placement of fill; therefore, you must contact the local municipal and/or parish governing body regarding potential impacts to floodplains and compliance of your proposed activities with local floodplain ordinances, regulations or permits.

29. In issuing authorizations under this permit, the federal government does not assume any liability for: damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes; damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest; damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit, and; design or construction deficiencies associated with the permitted work.



1 5 3 2 6 7

Bobby Jindal
GOVERNOR

Kathy H. Kliebert
SECRETARY

State of Louisiana
Department of Health and Hospitals
Office of Public Health

October 8, 2015

Attn: CB&I
Ms. Whitney C. Thompson, P.E.
4171 Essen Lane
Baton Rouge, LA 70809

Coastal Protection and Restoration Authority
Ms. Vida Carver, P.E.
P.O. Box 44027
Baton Rouge, LA 70804

Cameron Parish Waterworks Dist. 10
Mr. Mark Young
6246 Gulf Beach Hwy
Johnson Bayou, LA 70631

Re: Cameron Parish Waterworks Dist. 10, PWS ID# LA 1023005
- Oyster Bayou Marsh Restoration Project (CS-59) (Proposed Waterline Relocation at LA Highway 27/82), lower approximately 60' section of 10" water line by 3'
Cameron Parish
P-15-05-023-007

Dear Applicant:

Plans and specifications of the above named project have been reviewed and found to be in substantial conformity with applicable provisions of the Sanitary Code.

This permit refers to the sanitary features of the design only, and is not to be taken as an approval of structural details, except insofar as they may affect sanitation.

This permit is given with the stipulation that the distribution system and its improvements, will be owned, operated, and maintained by Cameron Parish Waterworks Dist. 10, (PWS1023005), 6246 Gulf Beach Hwy, Johnson Bayou, LA 70631.

The plans and specifications are being sent to the Cameron Parish Health Unit.

Re: Cameron Parish Waterworks Dist. 10, PWS ID# LA 1023005
- Oyster Bayou Marsh Restoration Project (CS-59) (Proposed Waterline Relocation at LA Highway 27/82), lower approximately 60' section of 10" water line by 3'
Cameron Parish
P-15-05-023-007
Page 2

This permit is automatically canceled if construction of the project has not been started within two (2) years after the date of this letter.

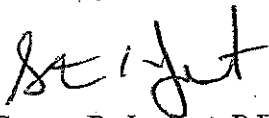
After construction is completed, the responsible party for the design of the project shall submit a Confirmation Letter to this office certifying that the project was constructed in accordance with the plans and specifications approved by this office. As of February 1, 2007 this Confirmation Letter shall be required prior to occupancy.

If construction commences before a permit is granted, a Notice of Violation will be issued for the project. A letter of "no objection" will not be issued on any pre-constructed project unless the project fully complies with the requirements of the Sanitary Code.

In the event that it is determined at some point in the future that a design error escaped our detection during our review of these plans and specifications, that oversight shall not relieve you, the applicant, of the responsibility for complete compliance with the applicable requirements of the Louisiana Administrative Code [particularly, LAC 51 (Public Health Sanitary Code) and LAC 48 (Public Health – General), specifically including correcting the violations inadvertently overlooked.

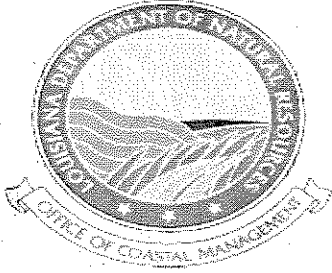
At the direction of the State Health Officer,

Sincerely,



Steven R. Joubert, P.E.
Region V Engineering

cc: Jennifer Kihlken, P.E., District III Engineer
Dane Thibodeaux, Region V Sanitarian Director
Ryan King, Cameron Parish Sanitarian Manager



DEPARTMENT OF NATURAL RESOURCES
OFFICE OF COASTAL MANAGEMENT

P.O. BOX 44487
BATON ROUGE, LOUISIANA 70804-4487
(225)342-7591
1-800-267-4019

1 5 3 2 6 7

COASTAL USE PERMIT/CONSISTENCY DETERMINATION

C.U.P. No.: P20150158

C.O.E. No.: MVN-2012-01709-WPP

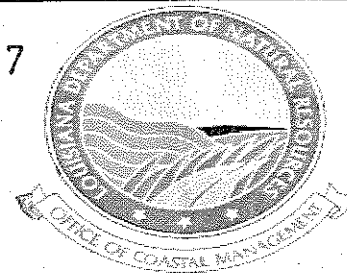
NAME: COASTAL PROTECTION AND RESTORATION AUTHORITY
c/o COASTAL PROTECTION AND RESTORATION AUTHORITY
P.O. BOX 44027, CAPITAL STATION
BATON ROUGE, LA 70804
Attn: Sydney Dobson

LOCATION: Cameron Parish, LA
Oyster Bayou Marsh Restoration (CS-59) @ Lat. 29° 46' 38.00"N, Long. -93° 24' 14.00"W; Section 4-17
T14S R10W; Holly Beach

DESCRIPTION: Proposed construction of ±458 acres of saline marsh and ±17,550 linear feet of earthen terraces for the CPRA Project: Oyster Bayou Marsh Restoration (CS-59). Approx. 3,974,700 cy. of native material will be excavated and approx. 2,654,100 cy. of the excavated material (1.5:1 ratio) will be placed on-site for construction of marsh, containment dikes, and terraces. Approx. 211 cy. of native material will be removed at the LA 27/82 crossing during discharge pipe installation. Approx. 168 cy. of crushed stone/gravel and 37 cy. of top soil will be required to re-construct the LA/82 upon the completion of the discharge pipeline installation.

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 mailing the enclosed green initiation card on the date of initiation of the coastal use.
10. Unless specified elsewhere in this permit, this permit authorizes the initiation of the coastal use described under "Coastal Use Description" for two years from the date of the signature of the Secretary or his designee. If the coastal use is not initiated within this two 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. This permit does not convey any property rights, mineral rights, or exclusive privileges; nor does it authorize injury to property.
 - b. Benefits to offset impacts are based on the proposed creation of marsh achieving 80% vegetative coverage and



fisheries access re-established by year 3 of the project life, and shall be determined after the third full growing season (March 1 to November 1) following the completion of permitted activities. This assessment shall include both primary impacts and secondary impacts which may result from the permitted activities.

Permittee shall notify OCM of the date of completion of permitted activities within 5 working days of completion.

Should the permitted project not provide the anticipated benefits, OCM may determine 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.

- c. 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.

- d. Louisiana Natural Heritage Program

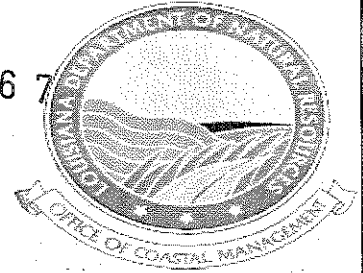
The piping plover (*Charadrius melodus*) may occur within one mile of the project area. This species is federally listed as threatened with its critical habitat designated along the Louisiana coast. Piping plovers winter in Louisiana feeding at intertidal beaches, mudflats, and sand flats with sparse emergent vegetation. Primary threats to this species are destruction and degradation of winter habitat, habitat alteration through shoreline erosion, woody species encroachment of lake shorelines and riverbanks, and human disturbance of foraging birds. For more information on piping plover critical habitat, visit the U.S. Fish and Wildlife website: <http://endangered.fws.gov>.

No other impacts to rare, threatened or endangered species or critical habitats are anticipated from the proposed project. No state or federal parks, wildlife refuges, wildlife management areas or scenic rivers are known at the specified site or within ¼ mile of the proposed project.

The Louisiana Natural Heritage Program (LNHP) reports summarize the existing information known at the time of the request regarding the location in question. LNHP reports should not be considered final statements on the biological elements or areas being considered, nor should they be substituted for on-site surveys required for environmental assessments. If at any time LNHP tracked species are encountered within the project area, please contact our biologist at 225-765-2643.

- 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. That 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 receive the equivalent of secondary treatment (30 mg/l BOD5) with disinfection prior to discharge into any of the streams or adjacent waters of the area or,

153267



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. 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 the Department of Health and Hospitals for purpose of review and approval prior to any utilization of such provisions.

- i. Structures must be marked/lighted in accordance with U. S. Coast Guard regulations.
- j. 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.
- k. Permittee is subject to all applicable state laws related to damages which are demonstrated to have been caused by this action.
- l. 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.
- m. 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.
- n. 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. 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 43:1.723.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.

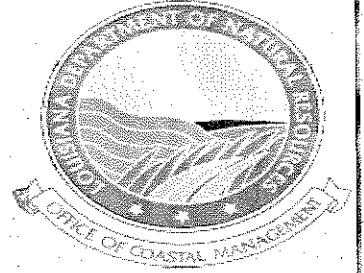
The expiration date of this permit is five (5) years from the date of the signature of the Secretary or his designee. If the Coastal Use is not completed within this five (5) year period, an extension may be granted pursuant to the requirements contained in the Rules and Procedures for Coastal Use Permits (LAC 43:1.723(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.
- o. 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.: P20150158
C.O.E. No.: MVN-2012-01709-WPP

153267



By accepting this permit the applicant agrees to its terms and conditions.
I affix my signature and issue this permit this 10th day of June, 2015.

THE DEPARTMENT OF NATURAL RESOURCES

A handwritten signature in cursive script that reads "Karl L. Morgan".

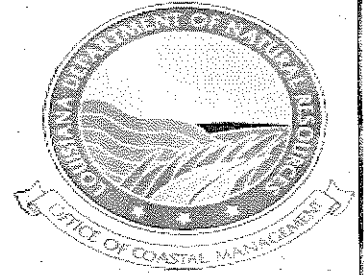
Karl L. Morgan, Administrator
Office of Coastal Management

This agreement becomes binding when signed by Administrator of
the Office of Coastal Management Permits/Mitigation Division, Department of Natural Resources.

Attachments

Page: 5 of 5
C.U.P. No.: P20150158
C.O.E. No.: MVN-2012-01709-WPP

153267



Final Plats:

1) P20150158 Final Plats 05/20/2015

cc: Martin Mayer, COE w/attachments
Dave Butler, LDWF w/attachments
Lynn Hohensee, WCalcP w/attachments
Ernest Broussard, WCamPC w/attachments
Channing Hayden, Jr., PortLC w/attachments
Clair Hebert, Other w/attachments
Stephen Broussard, LED w/attachments
Jessica Diez, OCM w/attachments
Kaili Mills, OCM/FI w/attachments
Cameron Parish w/attachments

COASTAL PROTECTION AND RESTORATION AUTHORITY w/attachments

RECEIVED

MAY 04 2015 153267

POLICE JURY

PARISH OF CAMERON

P.O. BOX 1280

CAMERON, LOUISIANA 70631

(337) 775-5718

(337) 775-5587 Fax

www.parishofcameron.net

DISTRICT 1
CURTIS FOUNTAIN

DISTRICT 2
ANTHONY HICKS

DISTRICT 3
KIRK QUINN

DISTRICT 4
TERRY BEARD

DISTRICT 5
KIRK BURLEIGH

DISTRICT 6
JOE DUPONT

DISTRICT 7
DARRYL FAROUH

KIRK QUINN
PRESIDENT

CURTIS FOUNTAIN
VICE PRESIDENT

RYAN BOURRIAGUE
ADMINISTRATOR

DARRELL WILLIAMS
SECRETARY-TREASURER

April 30, 2015

Coastal Protection and Restoration Authority (CPRA)

Attn: Sydney Dobson

450 Laurel St. Suite 1200

Baton Rouge, LA 70801

CUP: P20150158

Holly Beach, Section 4-17, T15-S T14S, R10W, (proposed Oyster Bayou Marsh Restoration (CS-59); Approximately 605 acres of marsh habitat will be restored and 17,550 linear feet of earthen terraces to be constructed), Cameron Parish, Louisiana.

Dear Ms. Dobson:

This letter is to advise you that the Cameron Parish Police Jury has no objections to the above captioned permit. You may proceed with the work detailed in your permit application as long as drainage is not compromised to complete the project. Please be advised that work cannot commence until all Federal and State permits have been obtained.

We request that a copy of your permit application and letter of no objection from the Police Jury be maintained on the job site at all times. Enclosed you will find a copy of the Cameron Parish Permit Procedures for future reference.

Sincerely,

Kara Bonsall, Coastal Zone Administrator
CAMERON PARISH POLICE JURY

Enclosure (1)

CAMERON PARISH POLICE JURY
P.O. BOX 1280 – 148 Smith Circle, CAMERON, LA 70631
Ph. (337) 775-5718 Fax (337) 775-5535

PERMIT PROCEDURES

The applicant for this permit shall make every effort to employ as many local persons as is reasonably possible for the construction of the project or work for which this permit is requested or given and shall further do all that is reasonably possible to encourage applicant's contractors and subcontractors to hire as many local employees and residents of Cameron Parish in their operations as is feasible.

When submitting a drilling permit to the Cameron Parish Police Jury, the location of the permit should be found by section, township and range. The location should be pictured on a clearly readable map. It should also indicate the type of drilling to be conducted, in e.g.; oil or gas.

A designated road route must be established to any well locations. If the applicant is using a parish road to get to the location a guarantee deposit or bond will be required and the amount will be set by the Parish Road Superintendent and pictures or a video will be made of the road condition prior to work commencing on the location to determine if any road damage occurs.

Seismic permits should include land owners permission, a copy of the program and every line you will shoot along with the line number, line length and a complete sketch of the program on a readable map stating the section, township and range. Include the type of charge to be used, depth of charge and the approximate time work will be completed. If shooting in the lakes or gulf, you must only use airguns or 160' of drilling charges. A lead boat must be present when shooting in the lakes with your company name. Applicants must be careful not to damage oyster beds. If applicants are doing work on land, the work must be done while hunting season is closed. Applicants must stay one mile away from public water wells and towers.

Contact Kara Bonsall for dates and times of the monthly scheduled Police Jury meetings. The Police Jury meetings are held at the West Annex Building located at 148 Smith Circle, Cameron, Louisiana. The permits will be put on the agenda and acted upon at the monthly scheduled meeting. The permits are sent to the various gravity drainage districts for their approval. Letters of no objection will be sent out after the meeting.

If you have any questions you may contact Kara Bonsall Coastal Zone Administrator or Myles Hebert @ (337) 775-5718. His email address is mh_cppj@camtel.net. Her email address is kb_cppj@camtel.net.

FEES:

COASTAL ZONE PERMITS: DREDGING, FILLING, GRADING, PAVING, EXCAVATIONS, BULKHEADS, TRENASSES, MITIGATION, ETC. \$30.00

DRILLING & PIPELINE:	DAMAGING	\$500.00	INLAND
	NON-DAMAGING	\$250.00	OFFSHORE

SEISMIC PERMITS:	PER LINE	\$25.00
	PERFORMANCE OR SURETY BOND	\$150,000

Meeting Minutes
October 19, 2015
10:00 am
DOTD HQ

CPRA meeting with DOTD to discuss "CPRA's Permit Request with Design Waiver regarding Open-Cut Installation for a temporary 30" dredge pipeline with 51" Concrete Casing Pipe within ROW of LA 27/82 at Cameron Parish"

Discussion:

Discussion regarding the pipeline extending from right-of-way to right-of-way

A fiber optic line prevents CPRA from burying the pipeline from right-of-way to right-of-way.

A waiver is needed for the temporary line to exist above ground within the right-of-way.

Barriers

Take into account deflection of the Triton barriers. Guardrails, concrete barriers, or other solutions may be better alternatives.

Updated Drawings

CPRA to submit updated drawings

CPRA to provide a drawing showing the temporary pipeline within the permanent line

Clearance of pipe and roadway

The minimal clearance should not be a concern if you consider the drain as a cross-drain. Maintain 9" from the bottom of base fill to top of pipe. This needs to be explained in the design waiver.



STATE OF LOUISIANA
 DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
 P.O. Box 94245
 Baton Rouge, Louisiana 70804-9245



Meeting Sign-in

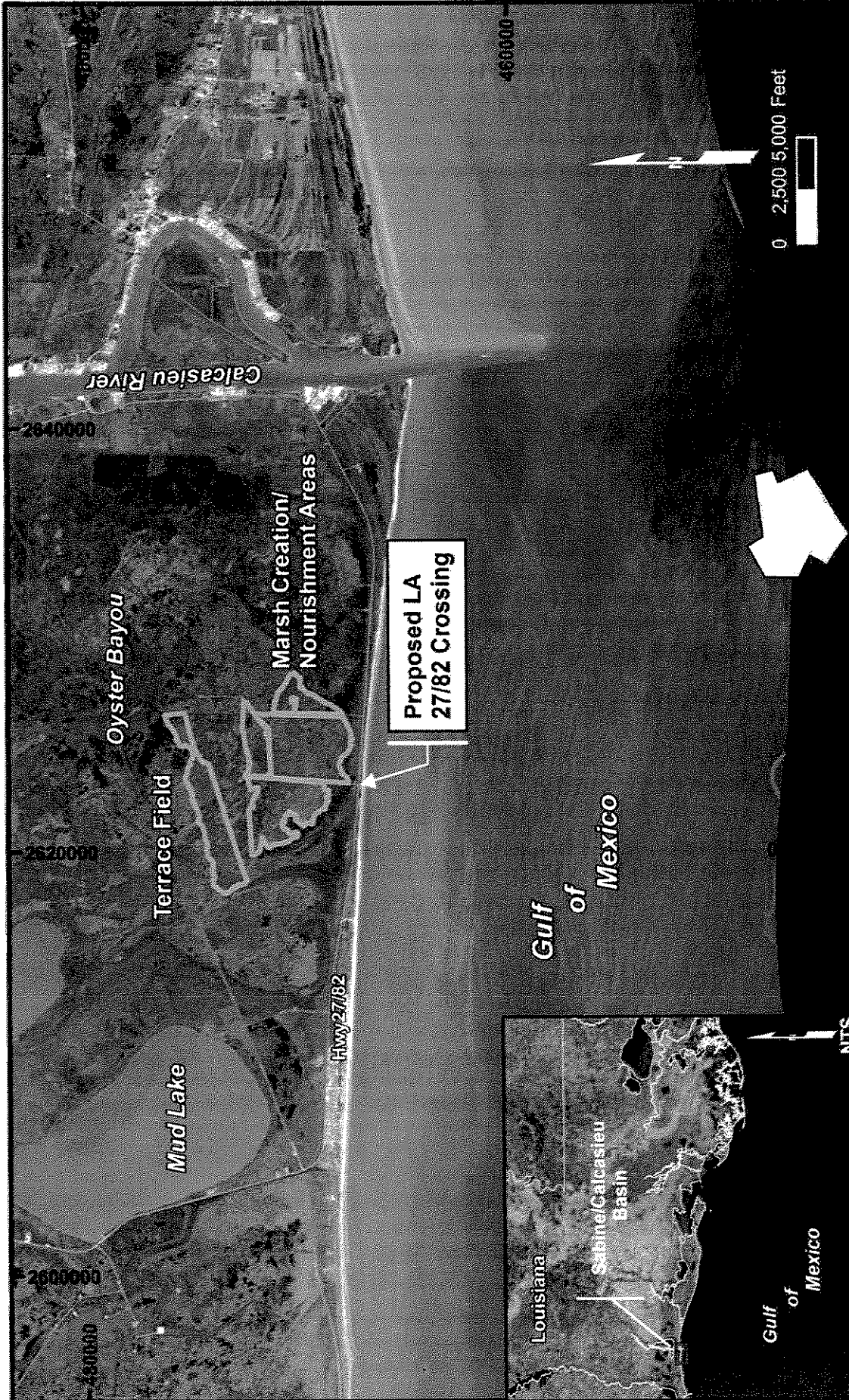
Subject of Meeting: CPRA's Permit Request with Design Waiver regarding Open-Cut Installation for a temporary 30" dredge pipeline with 51" Concrete Casing Pipe within ROW of LA 27/82 at Cameron Parish

Date: 10: 00 AM, Oct. 19, 2015

Name	Agency-Dept-Co	Phone No.	e-mail address
Beyong Lim	HA DOTD	225-379-1927	Beyong.Lim@La.Gov
pat Landry	OT DOTD	774 -337-437-9103	pat.landry@La.Gov (telephone)
VIDA CARVER	CPRA PM	342-2799	vida.carver@la.gov
MARK CHANDLER	HO DOTD	225-379-1591	mark.chandler@la.gov
Kodi Guillory	CPRA - Engineering	800-342-6175	kodi.guillory@la.gov
David S. Smith	DOTD - Road Design	(225)379-1348	david.s.smith@la.gov
Simone Ardoin	DOTD/RD.DES	379-1951	simone.ardoin@la.gov
PAT LANDRY	DIST 07 (cell phone)		
Chris Paul	CB F	(225)472-9926	christopher.paul@cbi.com
Whitney Thompson	CBI	225-932-2568	whitney.thompson@cbi.com
Mitra Hashemeh	HO DOTD	225-379-1482	mitra.hashemeh@la.gov

1 5 3 2 6 7



ATTACHMENT A



Notes:

1. Coordinates are in feet based on the Louisiana State Plane Coordinate System, South, North American Datum of 1983 (NAD 83).
2. 2011 background imagery is from Microsoft.

Legend:

-  Oyster Bayou Restoration Project
-  Oyster Bayou Borrow Area

Coastal Planning & Engineering, Inc.
 A CB&I Company
 2481 N. W. Boca Raton Blvd.
 Boca Raton, FL 33431
 Ph. (561) 391-8102
 Fax (561) 391 9116



Title:

Project Overview
Oyster Bayou Marsh Restoration Project CS-59
 Cameron Parish, Louisiana

ATTACHMENT B



CB&I Coastal Planning & Engineering, Inc.
 4171 Essen Ln.
 Baton Rouge, LA
 70809
 Tel: +1 225 932 2568
 www.CBI.com

October 29, 2015

Roger Moses
 Louisiana Department of Transportation and Development
 District 07
 P.O. Box 1430
 Lake Charles, LA 70602

**Subject: Oyster Bayou Marsh Restoration Project (CS-59)
 LA Highway 27/82 Crossing Permit Application Revisions**

Dear Roger:

CPRA met with DOTD at the Baton Rouge headquarters on October 19, 2015 to discuss revisions to the Oyster Bayou permit request. Below is a summary of revisions made to the permit application.

1. Design Deflection / Flare Rate of Triton Barriers – The Triton barriers used to shield the temporary dredge pipeline while dredging is underway were redesigned to have a flare rate of 14:1. The 14:1 flare rate is recommended by the 2011 AASHTO Roadside Design Guide (Table 5.9) for semi-rigid barriers with a design speed of 60 MPH. Since the current posted speed of Highway 27/82 is less than the design speed, this flare rate should be adequate to protect the traveling public from the temporary dredge pipeline located within the clear zone. Permit drawings Sheets 3 and 4 were revised to reflect these changes.
2. Create Section and Plan View Showing Temporary Pipeline – The proposed marsh restoration design includes placing the temporary dredge pipeline at grade within the apparent DOTD Right of Way. Sheets 1 and 4 have been revised to show a plan view of where the temporary sediment pipeline will be located at grade, within apparent DOTD Right of Way. Sheet 5 has been revised to show a section view of where the temporary dredge pipeline will be placed at grade. Language has been added to the design exception/waiver request explaining why the crossing does not extend from apparent ROW to apparent ROW.
3. Depth of Cover of Permanent Concrete Casing Pipe – The permanent concrete casing pipe was designed with 36" of cover from the top of the pavement surface to the top of the concrete pipe. This depth of cover is required to allow sufficient space to install the temporary sediment pipeline without disrupting the fiber optic line south of the roadway. Following the completion of the marsh creation project, this permanent concrete casing pipe will act as a cross drain, allowing a small amount of water to flow through. The design of the concrete casing pipe has been conducted in accordance with LAC Title 70 Section 515, LA DOTD Specification Section 701, and the DOTD Hydraulics Manual. The design exception/waiver request has been modified to reflect the design criteria used to determine depth of cover. This depth of cover is shown in the permit drawings.
4. Asphalt Pavement Patch – The asphalt pavement patch was revised to show a 12" pavement patch or match existing. Class II Base course was removed from the design drawings as it is assumed that the asphalt patch will be used to match the existing layers of base course and asphalt wearing course. The pavement patch detail on Sheet 1 has been revised. The depth of the asphalt patch on Sheets 5, 6, and 7 has also been revised.



1 5 3 2 6 7

5. Maintenance of Traffic Recommendation – A maintenance of traffic section has been added to the specifications as well as to permit drawing sheets 2, 3, and 4. In accordance with DOTD Specification Section 104.03 and Table 104-1, an unauthorized lane closure or late lane opening rental rate of \$250/hour has been included in the construction specifications as Highway 27/82 has an ADT of less than 10,000 vehicles per day.

6. Update Project Scope Within the Design Waiver – Language has been added to the design waiver/exception request form to more adequately define the scope of the project, and to define project specific situations that this design will mitigate.

Please review the attached permit application and design waiver/exception request revisions and contact me should you have any questions. Thank you.

Sincerely,

A handwritten signature in black ink that reads 'Whitney Thompson'.

Whitney C. Thompson, P.E.
Program Manager
CB&I Coastal Planning & Engineering, Inc.

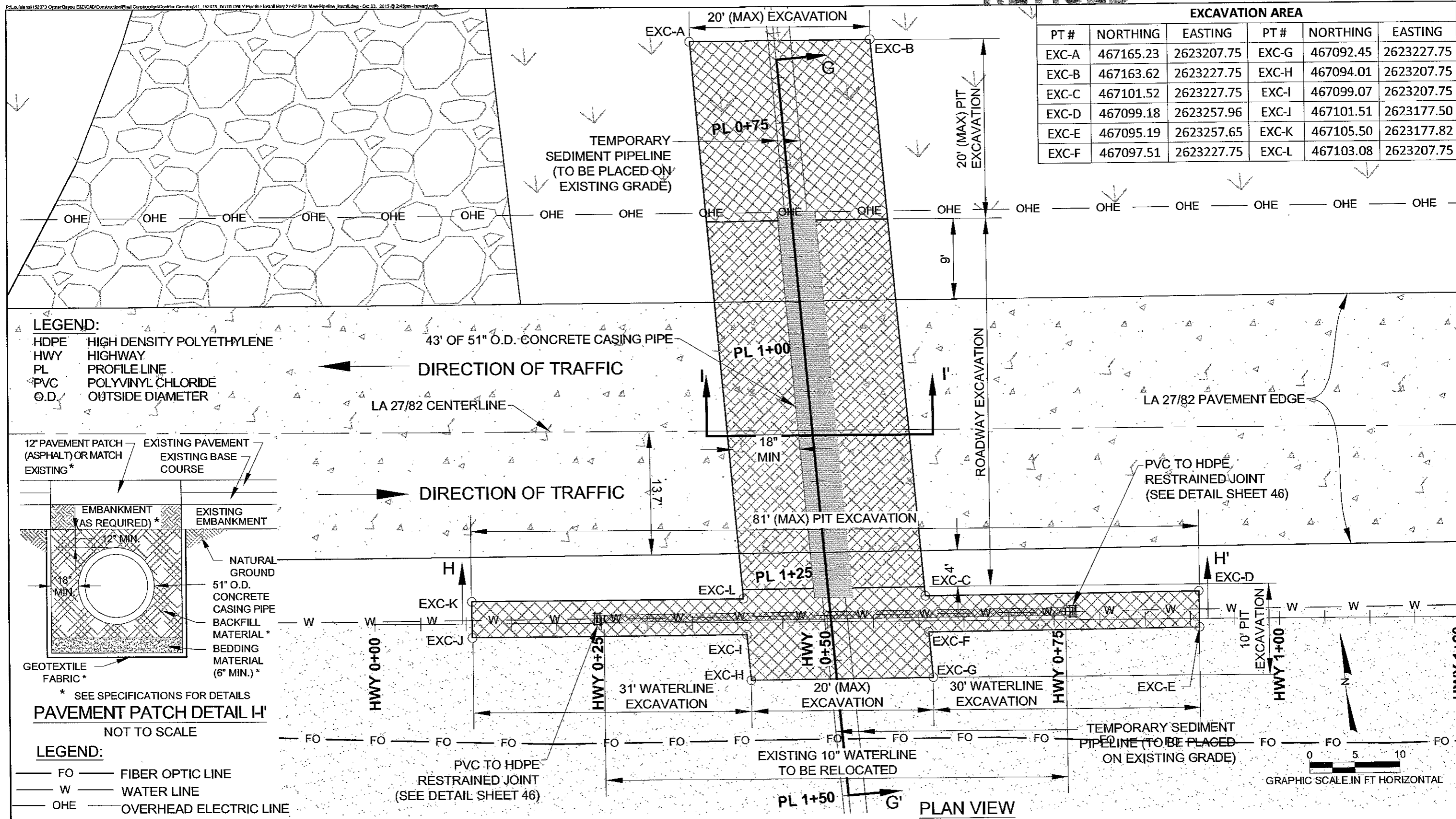
cc: Beyond Lim, P.E., DOTD
Todd Landry, P.E., DOTD
Vida Carver, P.E., CPRA
Kodi Collins, P.E., CPRA
Christopher Paul, E.I., CB&I

REVISED

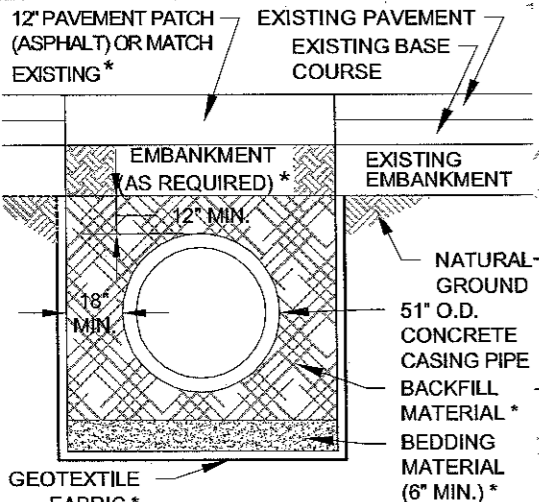
153267

Pl:\out\152173 Oyster Bayou EMD\CD\Construction\Final\Construction\Drawings\152173_D01D-ONLY\Profile\Detail\LA 27/82 Plan View\Profile_Install.dwg - Oct 23, 2015 @ 2:43pm - hmwj/rsb

EXCAVATION AREA					
PT #	NORTHING	EASTING	PT #	NORTHING	EASTING
EXC-A	467165.23	2623207.75	EXC-G	467092.45	2623227.75
EXC-B	467163.62	2623227.75	EXC-H	467094.01	2623207.75
EXC-C	467101.52	2623227.75	EXC-I	467099.07	2623207.75
EXC-D	467099.18	2623257.96	EXC-J	467101.51	2623177.50
EXC-E	467095.19	2623257.65	EXC-K	467105.50	2623177.82
EXC-F	467097.51	2623227.75	EXC-L	467103.08	2623207.75



LEGEND:
 HDPE HIGH DENSITY POLYETHYLENE
 HWY HIGHWAY
 PL PROFILE LINE
 PVC POLYVINYL CHLORIDE
 O.D. OUTSIDE DIAMETER



* SEE SPECIFICATIONS FOR DETAILS
PAVEMENT PATCH DETAIL H'
 NOT TO SCALE

LEGEND:
 FO FIBER OPTIC LINE
 W WATER LINE
 OHE OVERHEAD ELECTRIC LINE
 ROADWAY EXCAVATION
 ACCESS PIT EXCAVATION
 EXISTING HIGHWAY
 SAND
 GRAVEL ROAD
 MARSH

REV.	DATE	DESCRIPTION	BY

CB&I COASTAL PLANNING & ENGINEERING, INC.
 2481 N.W. BOCA RATON BOULEVARD
 BOCA RATON, FLORIDA 33431
 PH. (561) 391-8102
 FAX (561) 391-9116
 C.O.A. FL. #4028
 C.O.A. LA. #2531
 www.CBI.COM

COASTAL PROTECTION AND RESTORATION AUTHORITY
 450 LAUREL STREET
 BATON ROUGE, LOUISIANA 70801
 DRAWN BY: GK
 DESIGNED BY: WT

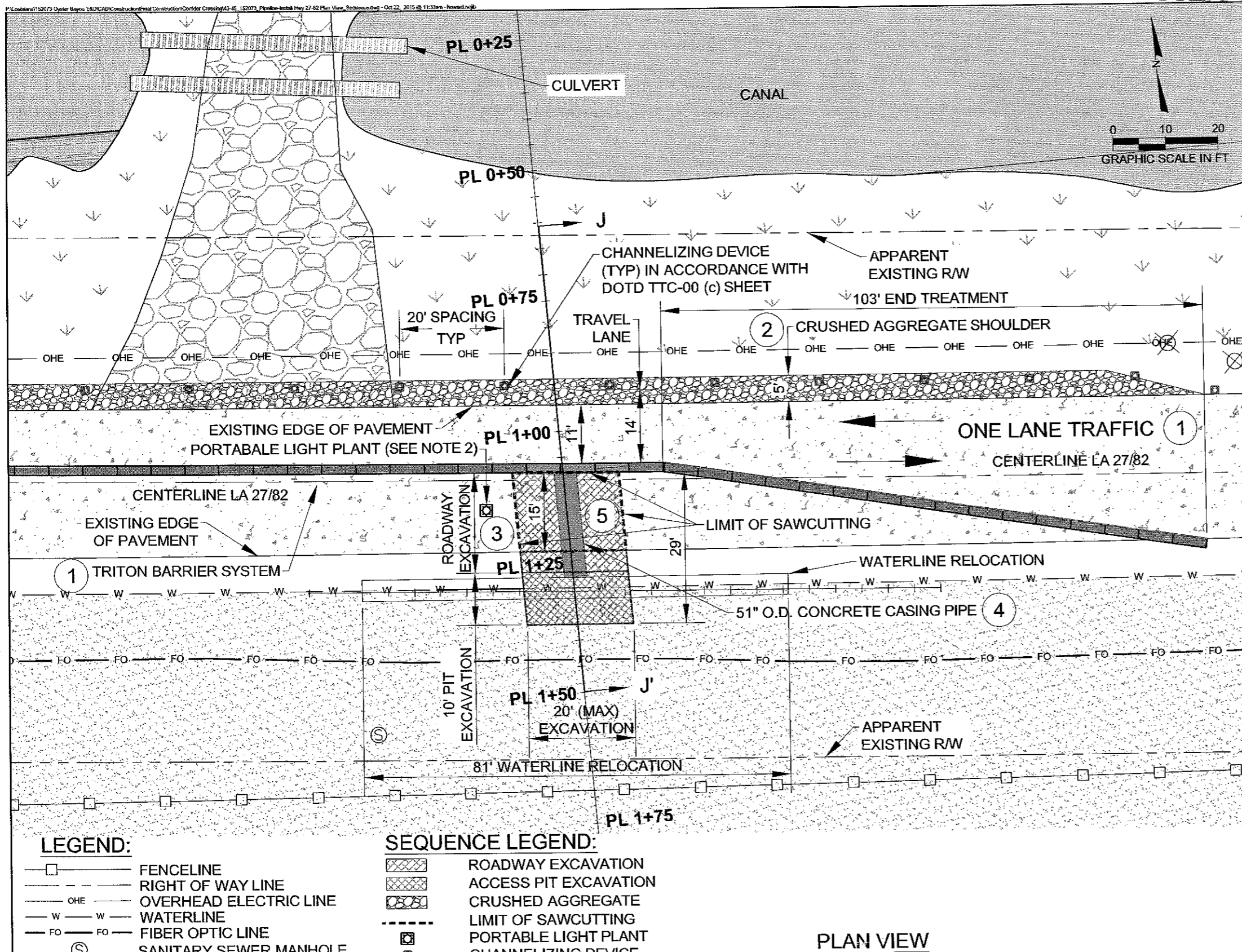
OYSTER BAYOU MARSH RESTORATION PROJECT
 STATE PROJECT NUMBER: CS-59
 FEDERAL PROJECT NUMBER: CS-59
 APPROVED BY: GT

LA 27/82 CROSSING PLAN VIEW AND PAVEMENT PATCH DETAIL
 DATE: 06/02/15
 SHEET 1 OF 14

REVISED

153267

P:\Louisiana\152073 Oyster Bayou ERODCAD\Construction\Final Construction\Corridor Crossing\45-45_152073_PlanView\Sequence.dwg - Oct 22, 2015 @ 11:33am - Neward.nlg



PHASE 1 (CASING PIPE INSTALLATION):

- 1 PLACEMENT OF TEMPORARY TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH DOTD TTC-04 PLAN SHEET 55 AND INCLUDE:
 - TRITON BARRIERS
 - FLAGGERS
 - TEMPORARY SIGNAGE
 - PORTABLE LIGHT PLANTS
- 2 PLACEMENT OF 5' OF CRUSHED AGGREGATE AND GEOTEXTILE FABRIC ON THE WESTBOUND SHOULDER
- 3 BRACED TRENCH EXCAVATION MAINTAINING A 12' (MIN) TRAVEL LANE WIDTH
- 4 PLACEMENT OF CASING PIPE
- 5 BACKFILL EXCAVATED TRENCH AND PLACE ASPHALT PAVEMENT PATCHING. SEE "CROSSING DETAIL" ON SHEET 41 OF CONSTRUCTION DRAWINGS FOR TRENCH DETAIL. SEE TS-27 OF THE SPECIFICATIONS FOR PAVEMENT PATCH DETAILS.

NOTES:

1. ALL TEMPORARY TRAFFIC CONTROL (TTC) DEVICES SHALL BE USED IN ACCORDANCE WITH THE "LOUISIANA STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES", 2006 EDITION, AND THE MUTCD, 2009 EDITION, AND SHALL MEET THE NCHRP REPORT 350 OR MASH REQUIREMENTS FOR TEST LEVEL 3 DEVICES. (SEE SHEETS 50-55)
2. DURING PHASE 1 OF PERMANENT CASING PIPE INSTALLATION, FLAGGERS SHALL BE USED (24/7). PORTABLE LIGHT PLANTS SHALL BE INSTALLED AT EACH FLAGGER STATION, AND IF NIGHT OPERATIONS ARE CONDUCTED, PORTABLE LIGHT PLANT SHALL BE USED AT THE WORK SITE.
3. ALL NIGHTTIME OPERATIONS SHALL BE CONDUCTED IN ACCORDANCE WITH SECTION 105.20 OF "LOUISIANA STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES", 2006 EDITION.
4. SEE SECTION J-J' ON SHEET 48 FOR PHASE 1 CROSS SECTION VIEW.
5. SEE TS-27 FOR TRAFFIC MAINTENANCE REQUIREMENTS.

LEGEND (ABBREVIATIONS):

DOTD	DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT (LOUISIANA)
MUTCD	MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES
NCHRP	NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM
R/W	RIGHT OF WAY
O.D.	OUTSIDE DIAMETER
TTC	TEMPORARY TRAFFIC CONTROL
TYP	TYPICAL
24/7	24 HOURS, 7 DAYS

LEGEND:

	FENCELINE
	RIGHT OF WAY LINE
	OVERHEAD ELECTRIC LINE
	WATERLINE
	FIBER OPTIC LINE
	SANITARY SEWER MANHOLE
	POWER POLE
	EXISTING HIGHWAY
	SAND
	GRAVEL ROAD
	MARSH

SEQUENCE LEGEND:

	ROADWAY EXCAVATION
	ACCESS PIT EXCAVATION
	CRUSHED AGGREGATE
	LIMIT OF SAWCUTTING
	PORTABLE LIGHT PLANT
	CHANNELIZING DEVICE

PLAN VIEW

REV.	DATE	DESCRIPTION	BY

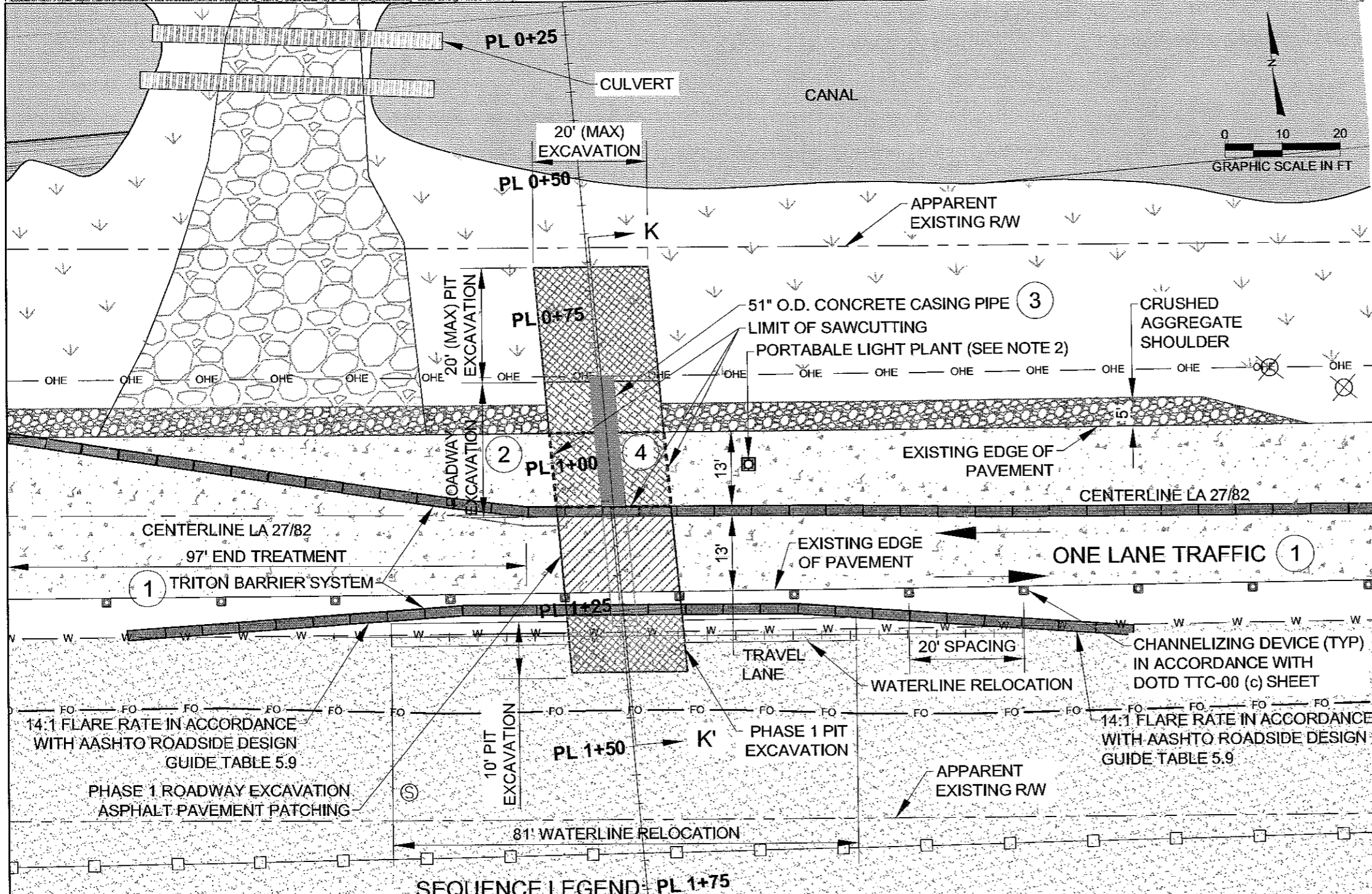
CB&I COASTAL PLANNING & ENGINEERING, INC.
 2481 N.W. BOCA RATON BOULEVARD
 BOCA RATON, FLORIDA 33431
 PH. (561) 391-8102
 FAX (561) 391-9116
 C.O.A. FL. #4028
 C.O.A. LA. #2531
 www.CBI.COM

COASTAL PROTECTION AND RESTORATION AUTHORITY
 450 LAUREL STREET
 BATON ROUGE, LOUISIANA 70801
 DRAWN BY: GK
 DESIGNED BY: WT

OYSTER BAYOU MARSH RESTORATION PROJECT		LA 27/82 PHASE 1 PLAN VIEW CASING PIPE INSTALLATION SEQUENCE OF CONSTRUCTION
STATE PROJECT NUMBER: CS-59		DATE: 06/02/15
FEDERAL PROJECT NUMBER: CS-59		SHEET 2 OF 14
APPROVED BY: GT		

REVISED

P:\Moukhalil\152073 Oyster Bayou ERO/CAD/Construction/Final Construction/Conduit Crossing\15-45-152073_Pipeline-install 11y 27-82 Plan View_Sequences.dwg - Oct 22, 2015 @ 11:33am - howard.npb



PHASE 2 (CASING PIPE INSTALLATION):

1. PLACEMENT OF TEMPORARY TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH DOTD TTC-04 PLAN SHEET 55 AND INCLUDE:
 - TRITON BARRIERS
 - FLAGGERS
 - TEMPORARY SIGNAGE
 - PORTABLE LIGHT PLANTS
2. TRENCH EXCAVATION MAINTAINING A 12' (MIN) TRAVEL LANE WIDTH
3. PLACEMENT OF CASING PIPE
4. BACKFILL EXCAVATED TRENCH AND PLACE ASPHALT PAVEMENT PATCHING. SEE "CROSSING DETAIL" ON SHEET 41 OF CONSTRUCTION DRAWINGS FOR TRENCH DETAIL. SEE TS-27 OF THE SPECIFICATIONS FOR PAVEMENT PATCH DETAILS

NOTES:

1. ALL TEMPORARY TRAFFIC CONTROL (TTC) DEVICES SHALL BE USED IN ACCORDANCE WITH THE "LOUISIANA STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES", 2006 EDITION, AND THE MUTCD, 2009 EDITION, AND SHALL MEET THE NCHRP REPORT 350 OR MASH REQUIREMENTS FOR TEST LEVEL 3 DEVICES. (SEE SHEETS 50-55)
2. DURING PHASE 1 AND PHASE 2 OF PERMANENT CASING PIPE INSTALLATION, FLAGGERS SHALL BE USED (24/7). PORTABLE LIGHT PLANTS SHALL BE INSTALLED AT EACH FLAGGER STATION, AND IF NIGHT OPERATIONS ARE CONDUCTED, PORTABLE LIGHT PLANT SHALL BE USED AT THE WORK SITE.
3. ALL NIGHTTIME OPERATIONS SHALL BE CONDUCTED IN ACCORDANCE WITH SECTION 105.20 OF "LOUISIANA STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES", 2006 EDITION.
4. SEE SECTION K-K' ON SHEET 49 FOR PHASE 2 CROSS SECTION VIEW.
5. SEE TS-27 FOR TRAFFIC MAINTENANCE REQUIREMENTS.

LEGEND (ABBREVIATIONS):

DOTD	DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT (LOUISIANA)
MUTCD	MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES
NCHRP	NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM
RW	RIGHT OF WAY
O.D.	OUTSIDE DIAMETER
TTC	TEMPORARY TRAFFIC CONTROL
TYP	TYPICAL
24/7	24 HOURS, 7 DAYS

LEGEND:

	FENCELINE
	RIGHT OF WAY LINE
	OVERHEAD ELECTRIC LINE
	WATERLINE
	FIBER OPTIC LINE
	SANITARY SEWER MANHOLE
	POWER POLE
	EXISTING HIGHWAY
	SAND
	GRAVEL ROAD
	MARSH

SEQUENCE LEGEND: PL 1+75

	ROADWAY EXCAVATION
	ACCESS PIT EXCAVATION
	PAVEMENT PATCH
	CRUSHED AGGREGATE
	LIMIT OF SAWCUTTING
	PORTABLE LIGHT PLANT
	CHANNELIZING DEVICE

PLAN VIEW

REV.	DATE	DESCRIPTION	BY

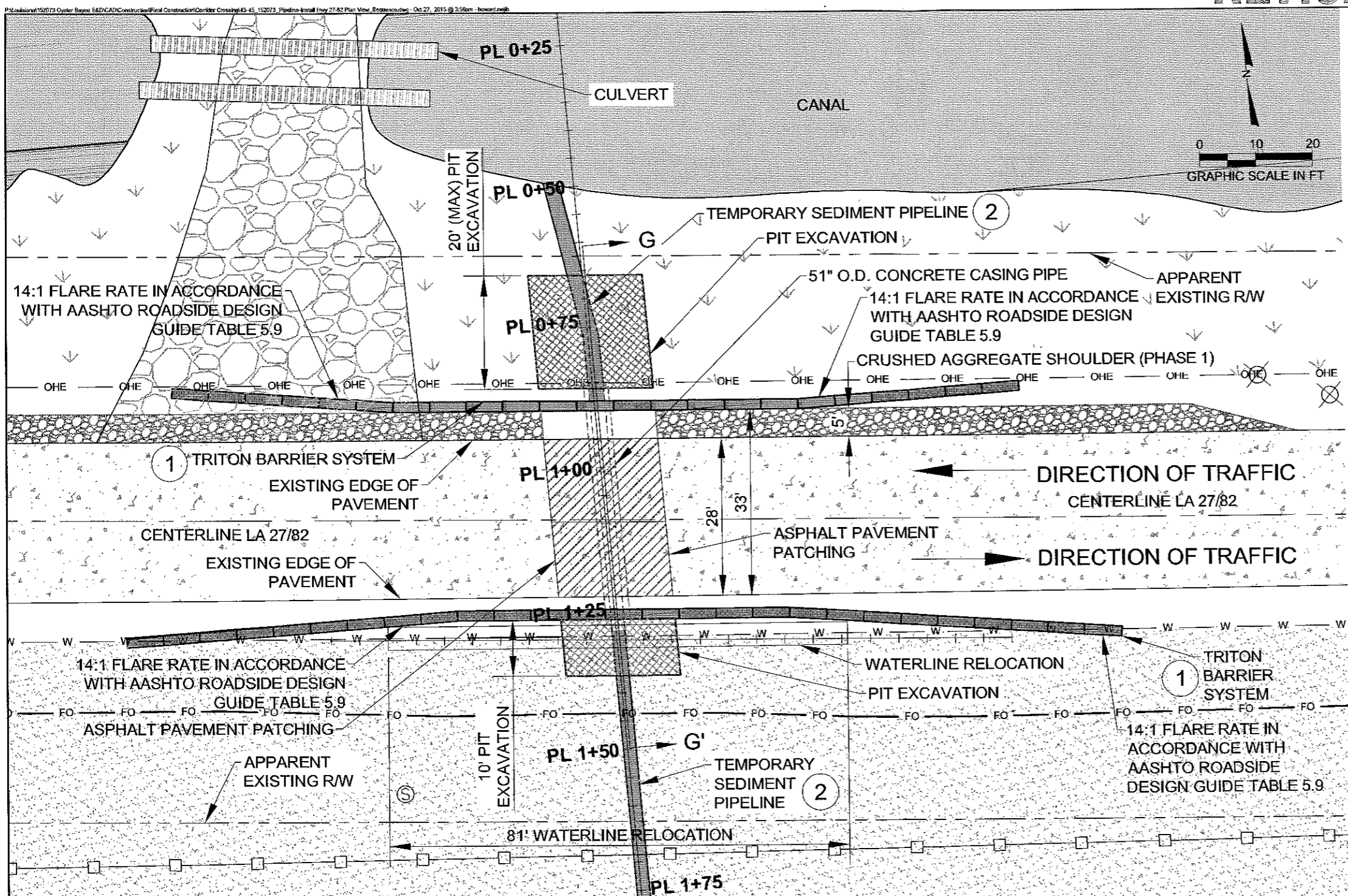
CB&I COASTAL PLANNING & ENGINEERING, INC.
 2481 N.W. BOCA RATON BOULEVARD
 BOCA RATON, FLORIDA 33431
 PH. (561) 391-8102
 FAX (561) 391-9116
 C.O.A. FL. #4028
 C.O.A. LA. #2531
 www.CBI.COM

COASTAL PROTECTION AND RESTORATION AUTHORITY
 450 LAUREL STREET
 BATON ROUGE, LOUISIANA 70801
 DRAWN BY: GK
 DESIGNED BY: WT

OYSTER BAYOU MARSH RESTORATION PROJECT		LA 27/82 PHASE 2 PLAN VIEW CASING PIPE INSTALLATION SEQUENCE OF CONSTRUCTION
STATE PROJECT NUMBER: CS-59		DATE: 06/02/15
FEDERAL PROJECT NUMBER: CS-59		APPROVED BY: GT
APPROVED BY: GT		SHEET 3 OF 14

REVISED

153267



PHASE 3 (DREDGING OPERATIONS):

- 1 PLACEMENT OF TEMPORARY TRAFFIC CONTROL DEVICES SHALL BE INSTALLED AND MAINTAINED AS SHOWN ON THE PLANS UNTIL THE MARSH FILL AREAS HAVE BEEN ACCEPTED, THE TEMPORARY SEDIMENT PIPELINE HAS BEEN REMOVED, AND THE ACCESS PITS HAVE BEEN BACKFILLED. TEMPORARY TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH DOTD TTC-04 PLAN SHEET 55 AND INCLUDE:
 - TRITON BARRIERS
 - TEMPORARY SIGNAGE
- 2 FOLLOWING INSTALLATION, THE TEMPORARY SEDIMENT PIPELINE WILL BE LOCATED WITHIN THE CLEAR ZONE.

- NOTES:**
1. ALL TEMPORARY TRAFFIC CONTROL (TTC) DEVICES SHALL BE USED IN ACCORDANCE WITH THE "LOUISIANA STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES", 2006 EDITION, AND THE MUTCD, 2009 EDITION, AND SHALL MEET THE NCHRP REPORT 350 OR MASH REQUIREMENTS FOR TEST LEVEL 3 DEVICES. (SEE SHEETS 50-55)
 2. TRITON BARRIERS SHALL BE USED TO SHIELD FORMIDABLE OBSTACLES FROM PIPELINE AND EQUIPMENT WITHIN THE CLEAR ZONE AS SHOWN IN THE PLANS AND IN ACCORDANCE WITH THE "ROADSIDE DESIGN GUIDE" (AASHTO 4th EDITION, 2011) AND TS-27 OF THE SPECIFICATIONS.
 3. SUFFICIENT SIGNAGE IDENTIFYING THE WORK AREA SHALL BE INSTALLED AND REMAIN THROUGHOUT THE DURATION OF THE PROJECT.
 4. THE CONTACTOR SHALL BE LIABLE FOR ANY DAMAGE TO PIPELINE AND/OR EQUIPMENT BY FORMIDABLE OBSTACLES AND SHALL IMMEDIATELY REPAIR ANY DAMAGE TO THE SEDIMENT PIPELINE CAUSED BY SUCH.
 5. SEE SECTION A-A' ON SHEET 46 FOR PHASE 3 CROSS SECTION VIEW.
 6. FOLLOWING PLACEMENT OF PAVEMENT PATCH, THERMOPLASTIC PAVEMENT MARKINGS SHALL CONFORM TO THE "LOUISIANA STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES", 2006 EDITION, SECTION 732.
 7. SEE TS-27 FOR TRAFFIC MAINTENANCE REQUIREMENTS.
 8. CONTRACTOR MAY WIDEN TURNOUT AT OIL FIELD ROAD AND HIGHWAY 27/82 AS NECESSARY TO FACILITATE ACCESS TO THE PROJECT AREA. SEE TS-XX FOR DETAILS.

LEGEND (ABBREVIATIONS):

AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
DOTD	DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT (LOUISIANA)
MUTCD	MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES
NCHRP	NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM
R/W	RIGHT OF WAY
O.D.	OUTSIDE DIAMETER
TTC	TEMPORARY TRAFFIC CONTROL

LEGEND:

	FENCELINE
	RIGHT OF WAY LINE
	OVERHEAD ELECTRIC LINE
	WATERLINE
	FIBER OPTIC LINE
	SANITARY SEWER MANHOLE
	POWER POLE
	EXISTING HIGHWAY
	SAND
	GRAVEL ROAD
	MARSH

SEQUENCE LEGEND:

	ACCESS PIT EXCAVATION
	PAVEMENT PATCH
	CRUSHED AGGREGATE

PLAN VIEW

REV.	DATE	DESCRIPTION	BY

CB&I COASTAL PLANNING & ENGINEERING, INC.
 2461 N.W. BOCA RATON BOULEVARD
 BOCA RATON, FLORIDA 33431
 PH. (561) 391-3102
 FAX (561) 391-9116
 C.O.A. FL. #4028
 C.O.A. LA. #2531
 www.CBI.COM

COASTAL PROTECTION AND RESTORATION AUTHORITY
 450 LAUREL STREET
 BATON ROUGE, LOUISIANA 70801
 DRAWN BY: GK
 DESIGNED BY: WT

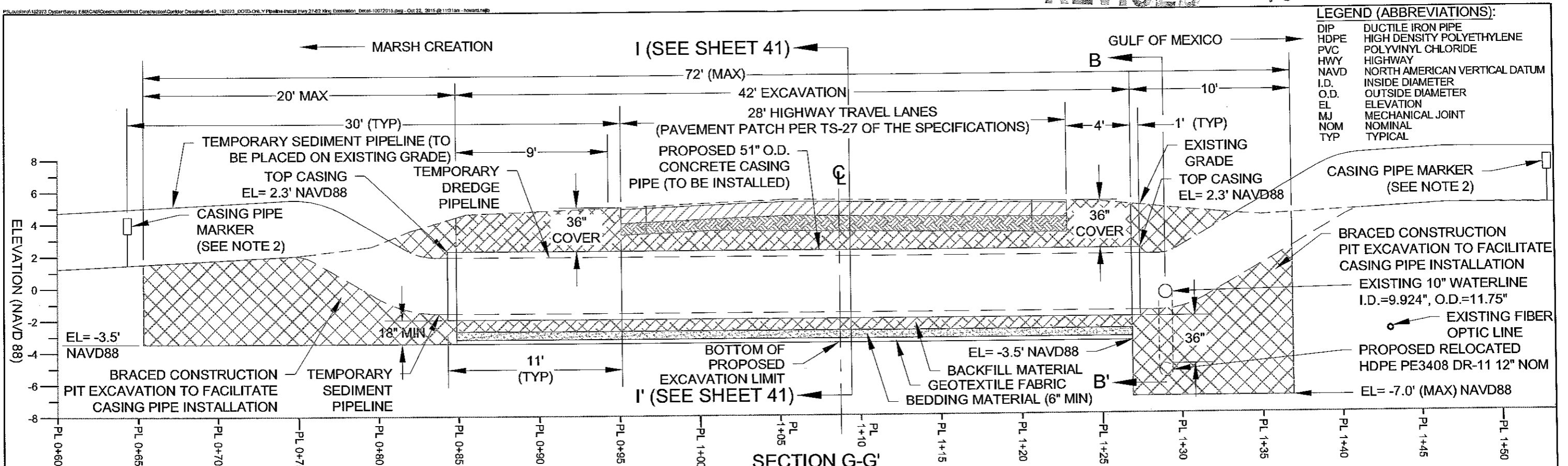
OYSTER BAYOU MARSH RESTORATION PROJECT
 STATE PROJECT NUMBER: CS-59
 FEDERAL PROJECT NUMBER: CS-59
 APPROVED BY: GT

LA 27/82
 PHASE 3 PLAN VIEW
 DREDGING OPERATIONS:
 SEQUENCE OF CONSTRUCTION
 DATE: 06/02/15
 SHEET 4 OF 14

REVISED

153267

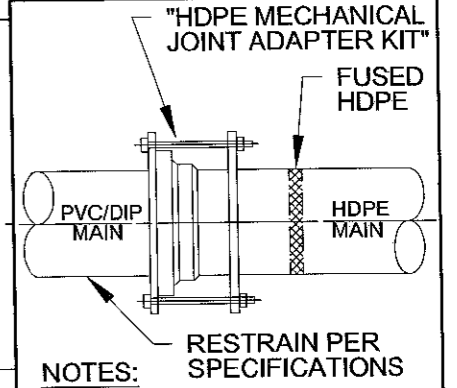
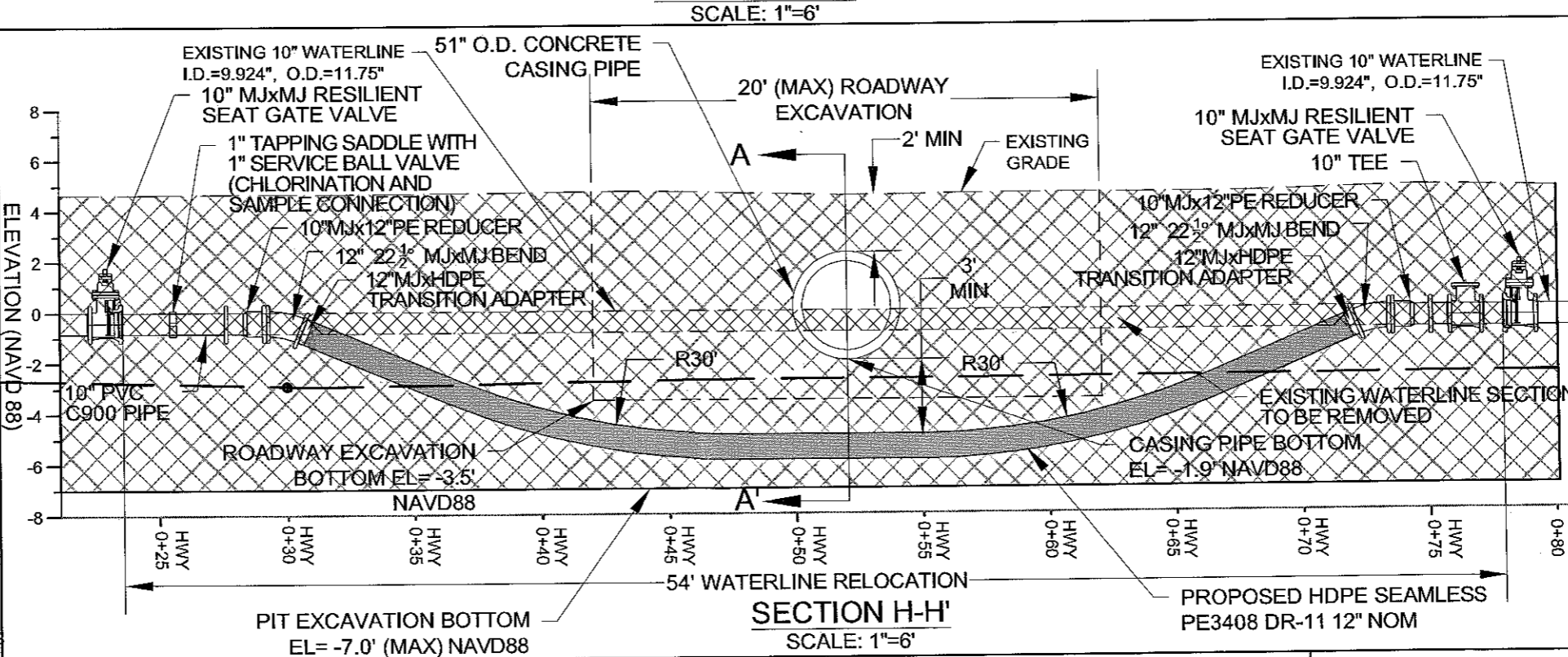
PLouisiana122973 OysterBayou F80CADConstructionFinalConstructionDetail.dwg - Oct 22, 2015 @ 11:01am - hward.rhp



LEGEND (ABBREVIATIONS):

DIP	DUCTILE IRON PIPE
HDPE	HIGH DENSITY POLYETHYLENE
PVC	POLYVINYL CHLORIDE
HWY	HIGHWAY
NAVD	NORTH AMERICAN VERTICAL DATUM
I.D.	INSIDE DIAMETER
O.D.	OUTSIDE DIAMETER
EL	ELEVATION
MJ	MECHANICAL JOINT
NOM	NOMINAL
TYP	TYPICAL

- NOTES:**
- SEE TS-27 OF THE CONSTRUCTION SPECIFICATIONS FOR INFORMATION REGARDING SEDIMENT PIPELINE HIGHWAY CROSSING REQUIREMENTS.
 - SEE SHEET 56 FOR CASING PIPE MARKER CONSTRUCTION DETAILS.
 - EXISTING UTILITIES AND/OR PIPELINES NOT SHOWN COULD BE PRESENT IN THE VICINITY OF THE CONVEYANCE CORRIDOR CROSSING OF LA 27/82.
 - PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL VERIFY EXISTING UTILITIES, STRUCTURES AND OTHER EXISTING FEATURES. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES THAT MAY BE ATTRIBUTED TO FAILURE TO ACCURATELY LOCATE AND PRESERVE EXISTING UTILITIES, STRUCTURES, AND OTHER FEATURES.
 - EXISTING ELEVATIONS, UTILITIES, STRUCTURES, AND FEATURES, AS SHOWN, WERE TAKEN FROM LONNIE G. HARPER AND ASSOCIATES TOPOGRAPHIC AND MAGNETOMETER SURVEY, DATED MARCH 2015.
 - ONE LANE SHALL REMAIN OPEN AT ALL TIMES DURING CASING PIPE INSTALLATION. THE WEST BOUND LANE SHALL BE WIDENED USING CRUSHED AGGREGATE CONFORMING TO THE LOUISIANA STANDARD SPECIFICATIONS FOR ROAD AND BRIDGES, 2006 EDITION, STANDARD SPECIFICATION 1003.04 (a). A TRITON BARRIER OR APPROVED EQUIVALENT SHALL BE INSTALLED ALONG THE CENTERLINE OF LA 27/82 TO SEPARATE VEHICULAR TRAFFIC FROM THE OPEN-CUT. TRAFFIC CONTROL SHALL BE CONDUCTED PER PLAN SHEETS 43-45, 48-49, AND 50-55.
 - SEE SPECIFICATIONS SECTION 203 FOR EXCAVATION, EMBANKMENT, AND GEOTEXTILE FABRIC. SEE SECTION 302 FOR CLASS II BASE COURSE. SEE SPECIFICATION SECTIONS 502 AND 510 FOR ASPHALTIC CONCRETE PATCHING. SEE SPECIFICATION SECTION 701 FOR CONCRETE CASING PIPE. SEE SPECIFICATION SECTION 726 FOR BEDDING MATERIAL. THESE SPECIFICATIONS ARE FROM "LOUISIANA STANDARD SPECIFICATIONS FOR ROAD AND BRIDGES", 2006 EDITION FROM THE LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT (DOTD) SPECIFICATIONS LOCATED IN APPENDIX VIII.
 - ALL JOINTS SHALL BE RESTRAINED.



PVC TO HDPE RESTRAINED JOINT DETAIL
NOT TO SCALE

REV.	DATE	DESCRIPTION	BY

CB&I COASTAL PLANNING & ENGINEERING, INC.
2481 N.W. BOCA RATON BOULEVARD
BOCA RATON, FLORIDA 33431
PH. (561) 391-8102
FAX (561) 391-9116
C.O.A. FL #4028
C.O.A. LA #2531
www.CoastalPlanning.net

COASTAL PROTECTION AND RESTORATION AUTHORITY
450 LAUREL STREET
BATON ROUGE, LOUISIANA 70801
DRAWN BY: GK
DESIGNED BY: WT

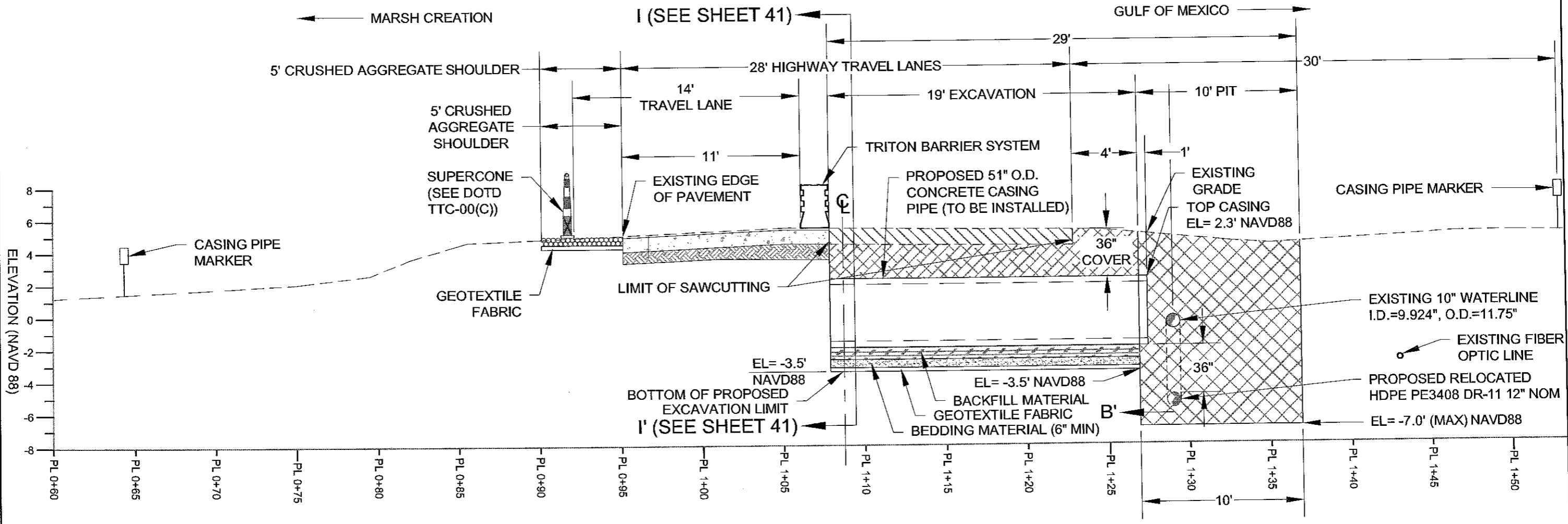
OYSTER BAYOU MARSH RESTORATION PROJECT
STATE PROJECT NUMBER: CS-59
FEDERAL PROJECT NUMBER: CS-59
APPROVED BY: GT

LA 27/82 CROSSING OPEN CUT EXCAVATION SECTIONS G-G' AND H-H'
DATE: 06/02/15
SHEET 5 OF 14

REVISED

153267

PRELIMINARY
 THIS DOCUMENT IS NOT TO BE USED FOR
 CONSTRUCTION, BIDDING, RESOLUTION,
 CONVEYANCE, SALES OR AS THE BASIS FOR
 THE ISSUANCE OF A PERMIT
 WENTLEY THOMPSON
 L.A. LICENSE NO. 34825



SECTION J-J'
 SCALE: 1"=6'

LEGEND (MATERIAL)

	EXISTING PAVEMENT
	CRUSHED AGGREGATE
	PAVEMENT PATCH
	BEDDING MATERIAL
	BACKFILL MATERIAL
	ACCESS PIT EXCAVATION
	ROADWAY EXCAVATION
	EXISTING GRADE

LEGEND (ABBREVIATIONS):

DOTD	DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT (LOUISIANA)
EL	ELEVATION
HDPE	HIGH DENSITY POLYETHYLENE
HWY	HIGHWAY
NAVD	NORTH AMERICAN VERTICAL DATUM
NOM	NOMINAL
PL	PROFILE LINE
I.D.	INSIDE DIAMETER
O.D.	OUTSIDE DIAMETER

REV.	DATE	DESCRIPTION	BY

CB&I COASTAL PLANNING & ENGINEERING, INC.
 2481 N.W. BOCA RATON BOULEVARD
 BOCA RATON, FLORIDA 33431
 PH. (561) 391-8102
 FAX (561) 391-8116
 C.O.A. FL #4028
 C.O.A. LA #2531
 www.CoastalPlanning.net

COASTAL PROTECTION AND RESTORATION AUTHORITY
 450 LAUREL STREET
 BATON ROUGE, LOUISIANA 70801
 DRAWN BY: GK
 DESIGNED BY: WT

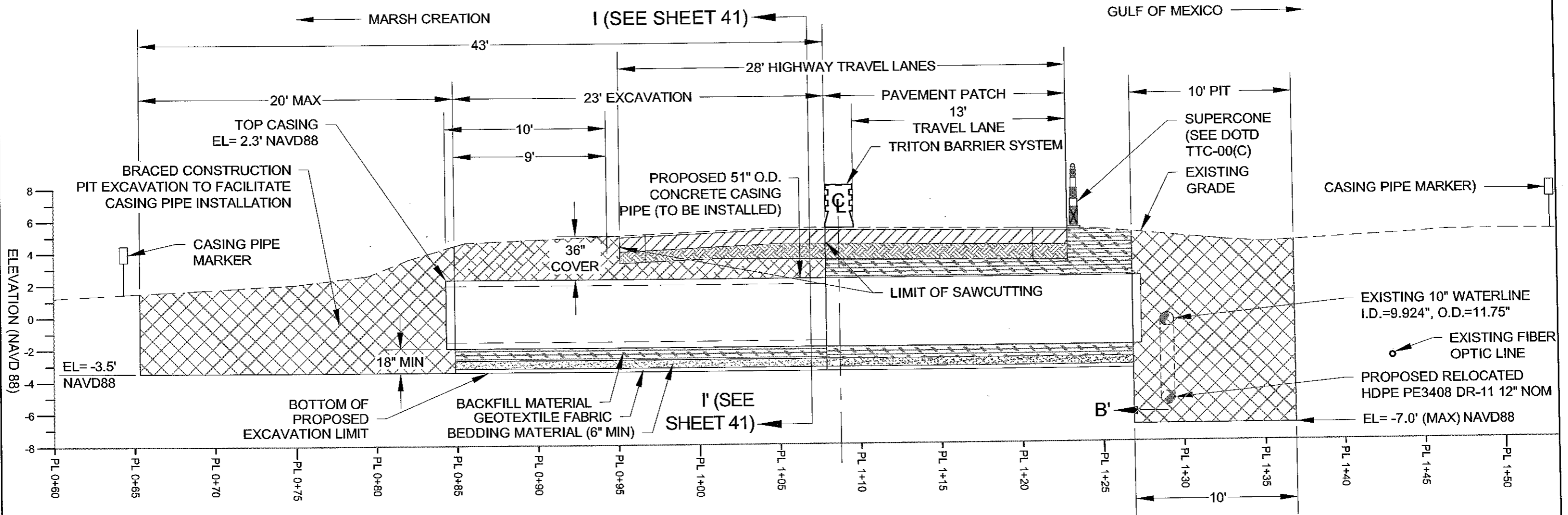
OYSTER BAYOU MARSH RESTORATION PROJECT
 STATE PROJECT NUMBER: CS-59
 FEDERAL PROJECT NUMBER: CS-59
 APPROVED BY: GT

LA 27/82 CROSSING PHASE 1 SECTION J-J' CASING PIPE INSTALLATION
 DATE: 06/02/15
 SHEET 6 OF 14

REVISED

153267

PRELIMINARY
 THIS DOCUMENT IS NOT TO BE USED FOR
 CONSTRUCTION, BIDDING, RECORDATION,
 CONVEYANCE, SALES OR AS THE BASIS FOR
 THE ISSUANCE OF A PERMIT
 WHITNEY THOMPSON
 LA LICENSE NO. 34825



SECTION K-K'
 SCALE: 1"=6'

LEGEND (MATERIAL)

	EXISTING PAVEMENT
	PAVEMENT PATCH
	BEDDING MATERIAL
	BACKFILL MATERIAL
	ACCESS PIT EXCAVATION
	ROADWAY EXCAVATION
	EXISTING GRADE

LEGEND (ABBREVIATIONS):

DOTD	DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT (LOUISIANA)
EL	ELEVATION
HDPE	HIGH DENSITY POLYETHYLENE
HWY	HIGHWAY
NAVD	NORTH AMERICAN VERTICAL DATUM
NOM	NOMINAL
PL	PROFILE LINE
I.D.	INSIDE DIAMETER
O.D.	OUTSIDE DIAMETER

REV.	DATE	DESCRIPTION	BY

CB&I COASTAL PLANNING & ENGINEERING, INC.
 2481 N.W. BOCA RATON BOULEVARD
 BOCA RATON, FLORIDA 33431
 PH. (561) 391-8102
 FAX (561) 391-9116
 C.O.A. FL. #4028
 C.O.A. LA. #2531
 www.CoastalPlanning.net

COASTAL PROTECTION AND RESTORATION AUTHORITY
 450 LAUREL STREET
 BATON ROUGE, LOUISIANA 70801
 DRAWN BY: GK
 DESIGNED BY: WT

OYSTER BAYOU MARSH RESTORATION PROJECT
 STATE PROJECT NUMBER: CS-59
 FEDERAL PROJECT NUMBER: CS-59
 APPROVED BY: GT

LA 27/82 CROSSING PHASE 2 SECTION K-K' CASING PIPE INSTALLATION
 DATE: 06/02/15
 SHEET 7 OF 14

REVISED

153267

SEDIMENT DELIVERY PIPELINE

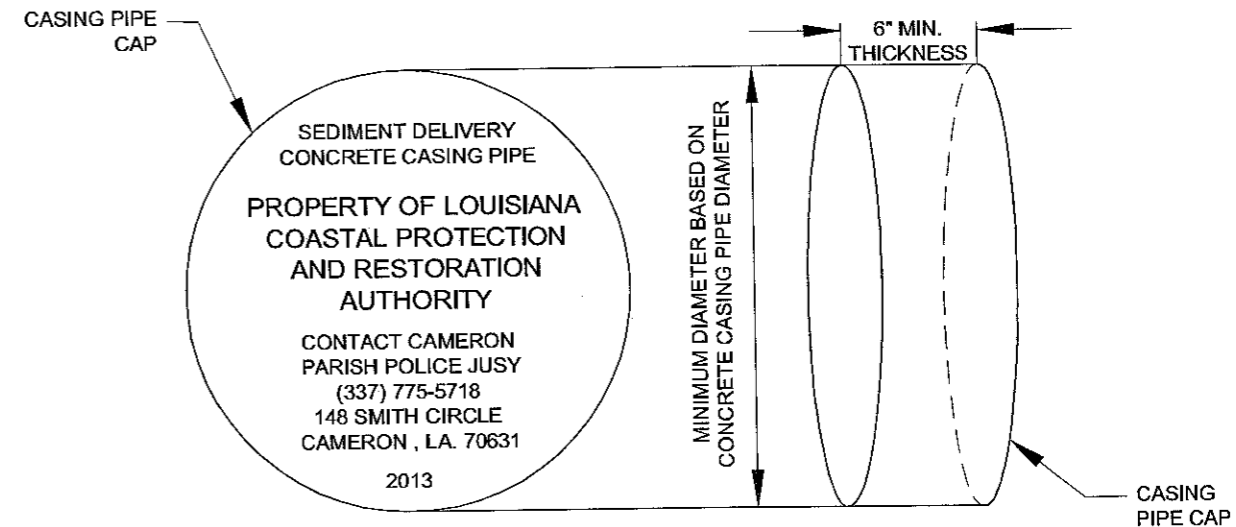
PIPE SIZE
CONTENTS

CONTACT: CONTRACTOR
PHONE NUMBER
STREET ADDRESS
CITY, STATE, ZIP CODE

51 INCH SEDIMENT DELIVERY
CONCRETE CASING PIPE

PROPERTY OF
LOUISIANA COASTAL
PROTECTION AND
RESTORATION AUTHORITY

CONTACT CAMERON
PARISH POLICE JURY
(337) 775-5718
148 SMITH CIRCLE
CAMERON, LA. 70631



CASING PIPE CAP DETAIL
(NOT TO SCALE)

CASING PIPE CAP NOTES:

1. CAPS SHALL BE INSTALLED IN ACCORDANCE WITH THE SPECIFICATIONS.
2. SEE TS-27 FOR CASING PIPE CAP DETAILS.

TEMPORARY PIPELINE MARKER DETAIL
(NOT TO SCALE)

TEMPORARY PIPELINE MARKER NOTES:

1. MARKERS SHALL BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH LADOTD 2006 STANDARD SPECIFICATION 729.
2. PROPOSED DRAWING SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL IN THE WORK PLAN PRIOR TO CONSTRUCTION.
3. MARKERS SHALL BE PLACED PRIOR TO SEDIMENT PIPELINE INSTALLATION AND REMOVED FOLLOWING SEDIMENT PIPELINE REMOVAL.
4. SEE TS-27 FOR TEMPORARY PIPELINE MARKER DETAILS.

CASING PIPE MARKER DETAIL
(NOT TO SCALE)

CASING PIPE MARKER NOTES:

1. CASING PIPE MARKERS SHALL BE INSTALLED IN ACCORDANCE WITH LADOTD 2006 STANDARD SPECIFICATION 729.
2. PROPOSED DRAWING SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL IN THE WORK PLAN PRIOR TO CONSTRUCTION.
3. MARKERS SHALL BE REPLACED SUBSEQUENT TO BACKFILLING THE PIT AND PRIOR TO DEMOBILIZATION.
4. SEE TS-27 FOR CASING PIPE MARKER DETAILS.

REV.	DATE	DESCRIPTION	BY

CB&I COASTAL PLANNING & ENGINEERING, INC.
2481 N.W. BOCA RATON BOULEVARD
BOCA RATON, FLORIDA 33431

PH. (561) 391-8102
FAX (561) 391-8116

C.O.A. FL. #4028
C.O.A. LA. #2531
www.CBI.COM

COASTAL PROTECTION AND RESTORATION AUTHORITY
450 LAUREL STREET
BATON ROUGE, LOUISIANA 70801

DRAWN BY: GK DESIGNED BY: WT

OYSTER BAYOU MARSH RESTORATION PROJECT

STATE PROJECT NUMBER: CS-59

FEDERAL PROJECT NUMBER: CS-59

APPROVED BY: GT

TEMPORARY PIPELINE MARKER AND CASING PIPE CAP / MARKER DETAIL

DATE: 4/8/15

SHEET 14 OF 14

GENERAL PROVISIONS

- All temporary traffic control (TTC) devices used shall be in accordance with the Louisiana Standard Specifications for Roads and Bridges, the MUTCD, and shall meet the NCHRP Report 350 or MASH requirements for Test Level 3 devices where applicable.
- Materials used for TTC shall be in accordance with the Louisiana Standard Specifications for Roads and Bridges and, when applicable, the LADOTD QPL.
- No TTC shall be erected without the approval of the Engineer and until work is about to begin, unless they are covered.
- No lane closures, lane shifts, diversions, or detours shall occur without the approval of the Engineer.
- Responsibility is hereby placed upon the contractor for the installation, maintenance, and operation of all TTC devices called for in these plans or required by the Engineer for the protection of the traveling public as well as all LADOTD and construction personnel.
- The contractor shall also be responsible for the maintenance of all permanent signs, pavement markings, and traffic signals left in place as essential to the safe movement and guidance of traffic within the project limits unless noted in the plans.
- The DTOE shall serve as a technical advisor to the Engineer for all traffic control matters.
- The Chief Construction Engineer or his appointed designee shall approve all signs and situations not addressed in the plans based on the recommendations of the Project Engineer and the DTOE. All changes shall be noted in all project traffic control diaries.
- The Chief Construction Engineer or his appointed designee shall approve all design speeds of diversions or shifts if it differs from design plans, based on the recommendations of the Project Engineer and the DTOE.
- All temporary traffic control plans shall comply with the Transportation Management Plan.
- Any additional signs shown in the MUTCD and required by the Engineer shall be installed under Item 713-01-00100.
- Neither work activity nor storage of equipment, vehicles, TMAs, or materials shall occur within the buffer space.
- When a work area has been established on one side of the roadway only, there shall be no conflicting operations or parking on the opposite shoulder within 500 feet of the work area.
- A lighting plan shall be submitted to the Engineer 30 days prior to night work for approval. (See section 105.20 of the Louisiana Standard Specifications for Roads and Bridges.)
- Parking of vehicles or unattended equipment, or storage of materials, within the clear zone shall not be permitted unless protected by guard rail or barriers. If the clear zone is not defined on the plan sheets, the Engineer shall verify.
- Immediately upon removal of existing guard rail, the contractor shall install and maintain an NCHRP Report 350 or MASH approved device to protect the blunt end of the bridge or column until new guard rail is installed. After removal of the existing guard rail, new guard rail should be installed within seven (7) days. On non-NHS routes with shoulders less than 8 feet wide: If an NCHRP 350 Report Test Level 3 or MASH device is required but the field conditions of the roadway cannot support a Test Level 3 device, then a Test Level 2 device can be substituted in its place upon approval by the Engineer.
- All costs associated with crash devices are to be included in item 713-01-00100.
- Sight distance should be considered when placing traffic control devices.
- On all mainline Interstate, a minimum of 1.5 feet of paved shoulder on the left and right side shall be maintained at all times.
- On Interstates, a minimum of 11 foot lanes shall be maintained. On all other roadways, a 10 foot minimum travel lane should be maintained where practical.

- TTC Standards are not drawn to scale.
- The contractor shall develop an internal traffic control plan approved by the Engineer prior to each phase.
- Truck restrictions such as (but not limited to) restricting lanes, oversize loads or times of travel, may be required for narrow lanes or other field conditions.

PAVEMENT MARKINGS (see QPL)

- All pavement markings within the limits of the project that are in conflict with the project signing or the required traffic movements shall be removed from the pavement by blast cleaning or grinding. (Existing striping shall not be painted over with black paint or covered with tape.)
- If special pavement markings are needed, they shall be reflectorized, removable, and accompanied by the proper signage.
- Temporary Raised Pavement Markers may be added to supplement temporary striping in areas of transition, in tapers, in diversions, and in other areas of need as shown in the plans or as directed by the Engineer.
- Materials and placement of temporary pavement markings shall conform to Section 713 of the Louisiana Standard Specifications for Roads and Bridges. If no pay item exists for temporary markings they shall be installed under item 713-01-00100.
- Temporary markings installed in the permanent configuration shall comply with LADOTD pavement marking standard plans, MUTCD, and/or the permanent striping plans.

PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS)

- PCMS shall be used on all Interstate Highways and on all other roadways (where space is available) with an ADT greater than 20,000.
- When used in advance of a lane closure or a lane shift, the PCMS should be placed on the right hand side of the road a minimum distance of 2 miles in advance of the taper for interstates and to be determined by the Engineer on other highways.
- For interstates and other major highways, if vehicles are queuing beyond the 2 mile PCMS, an additional PCMS should be placed on the right hand side of the road approximately 5 miles in advance of the taper or at the end of the queue, whichever is greater.
- PCMS messages shall conform to FDSDM V 2.1.10 or shall be approved by the DTOE. Messages shall be no more than 7 lines and 2 screens.
- PCMS should be placed as far from the traveled lane as possible. They shall be shielded by guard rail or barriers. If this is not possible they shall be delineated with one drum at each corner.
- If the PCMS has to be placed on the shoulder then the contractor shall install a shoulder closure.
- When the PCMS is not displaying a work zone appropriate message pertaining to the ongoing construction project it shall be shielded by guard rail or barriers, or removed from the clear zone.

ABBREVIATIONS

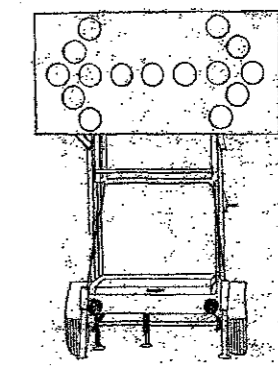
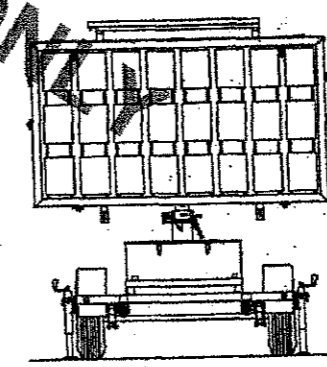
- AASHTO American Association of State Highway and Transportation Officials
- ADT Average Daily Traffic
- AGCI Associated General Contractors of America
- ANSI American National Standards Institute
- ATSSA American Traffic Safety Services Association
- B.O.P. Beginning of Project
- DTOE District Traffic Operations Engineer
- E.O.P. End of Project
- LADOTD Louisiana Department of Transportation and Development
- MASH AASHTO Manual for Assessing Safety Hardware
- MUTCD Manual on Uniform Traffic Control Devices
- NCHRP National Cooperative Highway Research Program
- NHS National Highway System
- PCMS Portable Changeable Message Sign
- QPL Qualified Products List
- TMA Truck Mounted Attenuator
- TMC Traffic Management Center
- TTC Temporary Traffic Control
- TTC Standards .. Temporary Traffic Control Standard Plans

SPEED LIMITS

- The Engineer may approve a 10 mph drop in the speed limit for posted speeds of 45 mph or greater and for any construction, maintenance, or utility operation that requires one or more of the following:
 - (A) The condition of the traveled way is degraded due to milled surfaces or uneven travel lane lines greater than 1.5 inches.
 - (B) Work is in progress in the immediate vicinity of the travel way requiring lane closures or lane width reductions less than 11 feet.
 - (C) Workers present on the shoulder within 2 feet of the edge of the traveled way without barrier protection.
- The reduced speed zone shall only apply to those portions of the project limits affected. The Engineer may allow SPEED LIMIT WHEN FLASHING signs to supplement reduced speed zones.
- If the speed limit is reduced, speed limit signs shall be placed:
 - (A) beyond major intersections;
 - (B) at one mile intervals in rural areas;
 - (C) at half mile intervals in urban areas.
- At the end of the reduced speed zone, a speed limit sign displaying the original speed limit prior to construction shall be installed.
- For all other speed limit reductions not listed above the Project Engineer and the DTOE shall recommend the speed reduction to the Chief Construction Engineer or his appointed designee for approval.
- If the speed limit is reduced more than 10 mph, placement of the signs shall be re-evaluated according to the MUTCD.

FLASHING ARROW BOARDS

- All Flashing Arrow Boards shall be 4 feet by 8 feet and Type C.
- Flashing Arrow Boards should be placed on the shoulder. When there is no shoulder or median area, the arrow board shall be placed within the closed lane behind the channelizing devices and as close to the beginning of the taper as practical.
- Flashing arrow boards shall be delineated with retroreflective TTC devices.
- At no time shall the arrow board encroach in the traveled way. When Flashing Arrow Board signs are not being used, they shall be shielded by guard rail or barriers, or removed.
- Arrow boards shall only be used for lane reduction tapers and shall not be used for lane shifts.



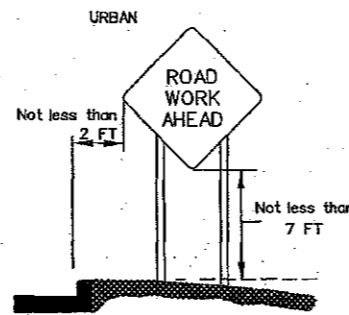
ALL TTC STANDARDS SHOW MINIMUM CONSTRUCTION SIGNING.
 ALL SITUATIONS SHALL BE REVIEWED AND/OR DESIGNED BY THE ENGINEER.
 CONTRACTORS ARE RESPONSIBLE FOR COMPLYING WITH ALL TTC STANDARDS.

FOR INFORMATIONAL PURPOSES ONLY

SHEET NUMBER	8								
DESIGNED BY	COLVIN	CHECKED BY	ALLAIN	DATE	02/15/2013	REVISION DESCRIPTION		DATE	3-12-13
APPROVED BY		CHEF ENGINEER							
TEMPORARY TRAFFIC CONTROL GENERAL NOTES SHEET									
TTC-00 (A)									
TRAFFIC ENGINEERING									

SIGNS

- All signs used for temporary traffic control shall follow the plans, the LADOTD TTC Standards, and the MUTCD.
- Signs shown in the TTC illustrations are typical and may vary with each specific condition.
- One Type B High Intensity light shall be used to supplement the first sign (or pair of signs) that gives warning about a lane closure during nighttime operations (see QPL).
- Mesh rollup signs shall not be allowed on any project.
- Contractor shall use caution not to damage existing signs which remain in place. Any LADOTD signs damaged by work operations shall be replaced by the contractor under item 713-01-00100.
- All signs (permanent and temporary) shall be removed or completely covered with a strong, lightweight, opaque material when no longer applicable. (Burlap is not an acceptable material to cover signs).
- At no time shall signs warning against a particular operation be left in place once the operation has been completed or when the condition has been removed.
- Warning signs used for temporary traffic controls shall meet the following guidelines unless otherwise noted in the plans:
 - (A) size shall be 48 inches by 48 inches.
 - (B) see the Louisiana Standard Specifications for Roads and Bridges and the QPL for sheeting information.
 - (C) lateral distance of signs shall be a minimum of 6 feet from the edge of shoulder or edge of pavement if no shoulder exists, and 2 feet from the back of curb in urban areas (see diagram).
- When portable sign frames are not in use they shall be moved to an area inaccessible to traffic and not visible to the driver.
- Left side mounted signs will not be required for roadways with a center left turn lane and for undivided roadways.
- Vinyl rollup signs may be used if work zone is in place for 12 hours or less, there are no more than 2 lanes in each direction and if signs meet all size, color, retroreflectivity, and NCHRP 350 Report or MASH requirements.
- All signs shall be visible to the drivers (i.e. no obstructions such as on street parking or other traffic control devices shall block the sign).
- On divided highways, signs shall be placed on the right and the left as shown on the TTC standards.
- 1 foot portable sign stands may be used if the work zone is in place for 12 hours or less, the preconstruction posted speed is less than 45 mph and there are no more than 2 lanes in each direction.
- Sign posts:
 - Signs measuring 10 square feet or less shall be mounted on 1 rigid post
 - Signs over 10 square feet shall be mounted on 2 rigid posts
 - Signs over 20 square feet shall be mounted on at least 3 rigid posts
- Rigid sign supports shall be driven to a minimum depth of 3 feet. (If splicing is required, see Allowable Lap Splice U-channel post.)
- For sign height, see the Rural and Urban diagrams:

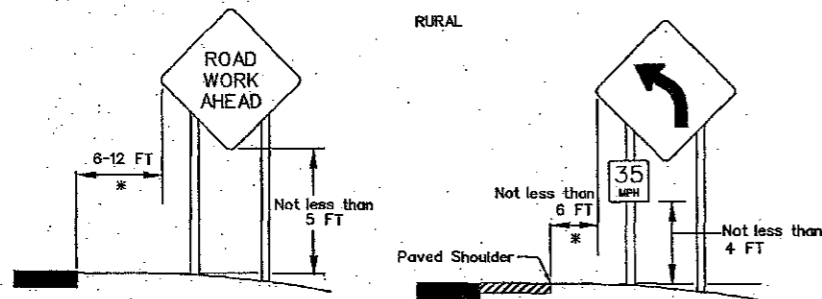


LANE CLOSURES

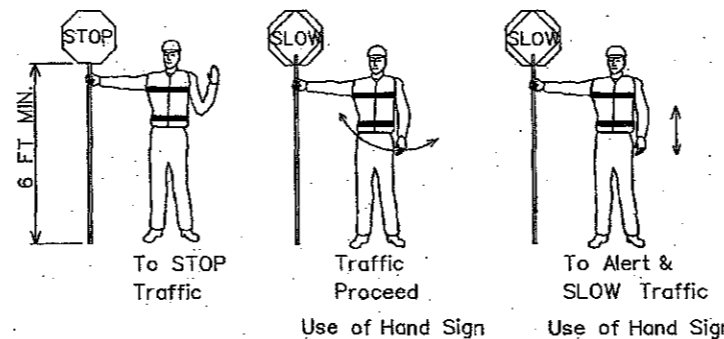
- All proposed lane, road, or shoulder closures shall be reviewed by the DTOE and approved by the Engineer.
- Two lane, two-way highways shall have a maximum work area of two miles; all other roadways shall have a four mile maximum work area.
- A queue analysis shall be performed prior to approval of lane closures on all interstates according to EDSM VI.1.1.4.
- Closure plans and times shall be turned in to the Engineer for review according to the following:
 - (A) 5 working days minimum if traffic control plan has been approved or is contained in the plans.
 - (B) 7 working days minimum and a traffic control plan must be submitted for lane closures not addressed in the plans.
- Weekly updates to the DTOE, Project Engineer, the LADOTD TMC operator, and the regional TMC operator (if applicable) will be required for all ongoing lane closures to update closure status.
- Daily updates to the DTOE, Project Engineer, and TMC operator (if applicable) will be required for all projects where active closures are in place.

FLAGGERS

- All flaggers shall be qualified.
- The contractor shall be responsible for training and ensuring that all flaggers are qualified to perform flagging duties.
- A Qualified Flagger is one that has completed courses such as those offered by ATSSA, AGC, or other courses approved by the LADOTD Work Zone Task Force. The contractor shall be responsible for getting the flagger course approved.
- When utilized, a flagger shall use a minimum 18 inch octagonal shape sign on a minimum 6 foot stop/slow paddle and wear ANSI Class 2 Lime Green vest during day time operations and ANSI Class 3 Lime Green ensemble during night operations.
- In all flagging operations, the flagger must be visible from the flagger advance warning sign.
- Flaggers shall not be used on the Interstate.



* If lateral distance is not practical, the sign may be placed no less than 2 feet.



REFERENCES

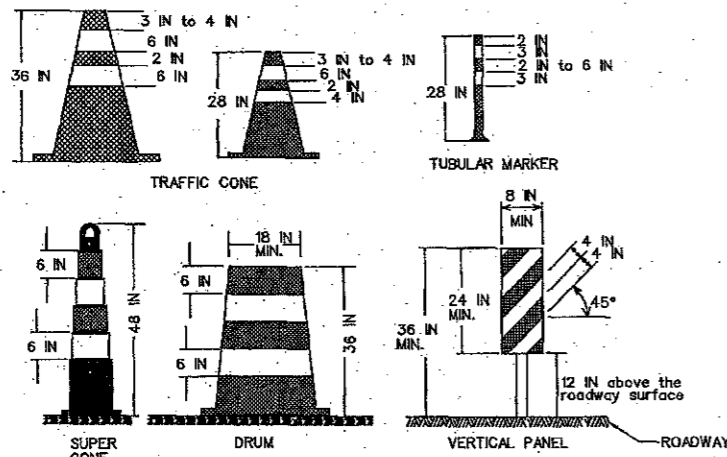
- The contractor shall be responsible for understanding all rules and requirements in the current edition of the following documents:
 - 1) Louisiana Standard Specifications for Roads and Bridges. <http://www.dotd.la.gov/highways/specifications/>
 - 2) Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD). <http://mutcd.fhwa.dot.gov/>
 - 3) LADOTD Qualified Products List (QPL) Manual. <http://www.dotd.la.gov/highways/construction/lab/qpl/tableofcontents.shtml>
 - 4) LADOTD Engineering Directives and Standards Manual (EDSM) VI.1.1.4 - Queue Analysis for Interstate Lane Closures. <http://webmail.dotd.la.gov/ppmemos.nsf>
 - 5) National Cooperative Highway Research Program (NCHRP) Report 350: "Guidelines for Work Zones Traffic Control Devices". http://onlinepubs.trb.org/Onlinepubs/nchrp/nchrp_rpt_350-a.pdf
 - 6) NCHRP Report 475: "A Procedure for Assessing and Planning Nighttime Highway Construction and Maintenance". http://onlinepubs.trb.org/Onlinepubs/nchrp/nchrp_rpt_475.pdf
 - 7) NCHRP Report 476: "Guidelines for Design and Operation of Nighttime Traffic Control for Highway Maintenance". http://onlinepubs.trb.org/Onlinepubs/nchrp/nchrp_rpt_476.pdf
 - 8) NCHRP Report 498: "Illumination Guidelines for Nighttime Highway Work". http://onlinepubs.trb.org/Onlinepubs/nchrp/nchrp_rpt_498.pdf
 - 9) American Association of State Highway and Transportation Officials (AASHTO) Roadside Design Guide.
 - 10) American Traffic Safety Services Association (ATSSA) Quality Guidelines for Work Zone Traffic Control Devices and Features.
 - 11) U.S. Department of Transportation Federal Highway Administration Traffic Control Handbook for Mobile Operations at Night. <http://www.dot.state.il.us/blr/1023.pdf>
 - 12) LADOTD Engineering Directives and Standards Manual (EDSM) VI.2.1.10 - PCMS Approved Construction Message Policy. <http://webmail.dotd.la.gov/ppmemos.nsf>

ALL TTC STANDARDS SHOW MINIMUM CONSTRUCTION SIGNING. ALL SITUATIONS SHALL BE REVIEWED AND/OR DESIGNED BY THE ENGINEER. CONTRACTORS ARE RESPONSIBLE FOR COMPLYING WITH ALL TTC STANDARDS.

SHEET NUMBER		9	
DESIGNED BY	J. COLVIN	CHECKED BY	P. ALLAIN
DATE	02/13/2013	DATE	02/13/2013
REVISION DESCRIPTION		BY	
DATE		DATE	3-11-13
APPROVED BY		CHIEF ENGINEER	
TEMPORARY TRAFFIC CONTROL GENERAL NOTES SHEET			
TTC-00 (B)			
TRAFFIC ENGINEERING			

CHANNELIZING DEVICES

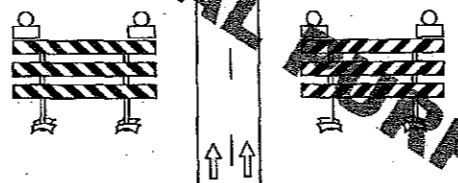
- The following devices may be used as channelizing devices: Tubular Markers, Vertical Panels, Cones, Drums, and Super Cones.
- 28 inch traffic cones are not allowed on:
 - Interstates
 - Highways with speeds greater than 40 mph.
- During nighttime operations 28 inch and 36 inch cones are not allowed.
- Retroreflective material pattern used on super cones shall match that used on drums.
- Tangent Areas:**
 - Standard Spacing:** See Standard Device Spacing and Buffer Space table.
 - Daylight Operations:** Drums and super cones are spaced at standard spacing. All other devices are at 1/2 standard spacing.
 - Nighttime Operations:** Drums and supercones at standard spacing are the only devices allowed.
- Taper Areas:**
 - Standard Spacing:** See Standard Device Spacing and Buffer Space table.
 - Daylight Operations:** Drums are spaced at standard spacing. All other devices are 1/2 standard spacing.
 - Nighttime Operations:** Drums (at standard spacing) are the only devices allowed.
- Type C steady burn lights shall be used on all channelizing devices in the taper as well as the first two devices in the tangent at night, (see the QPL).
- Typical channelizing device lateral placement (do not include when it is used as a divider for opposing directions of traffic) shall be 2 feet off the lane line in the closed lane or shoulder.
- Devices may be adjusted laterally to accommodate ongoing work in the immediate vicinity but must be returned to the closed lane after the work activity has moved.
- Channelizing devices on the lane line shall be of the same type.
- Channelizing devices in each taper shall be of the same type.



ALL TTC STANDARDS SHOW MINIMUM CONSTRUCTION SIGNING.
ALL SITUATIONS SHALL BE REVIEWED AND/OR DESIGNED BY THE ENGINEER.
CONTRACTORS ARE RESPONSIBLE FOR COMPLYING WITH ALL TTC STANDARDS.

TYPE III BARRICADES

- Only Type III barricades shall be used.
- All barricades shall use Type 3 High Intensity Sheeting on both sides of the barricade.
- All barricades shall be a minimum of 8 feet in length and must meet NCHRP Report 350 or MASH requirements.
- When used for overnight closures, two Type B High Intensity lights shall supplement all barricades that are placed in a closed lane or that extend across a highway. Two Type A Low Intensity lights may be used in urban areas if approved by the Engineer (see QPL).
- When signs and lights are to be mounted to a barricade, they must meet NCHRP Report 350 or MASH requirements.
- A truck with a TMA may be substituted for a barricade when workers are present.
- Barricades shall be placed:
 - at the beginning of a closed lane or shoulder and at 1,000 foot intervals where no active work is ongoing and the lane must remain closed. A minimum of 2 barricades shall be placed if the lane or shoulder closure is less than 2,000 feet. (One barricade shall be placed at the beginning of the lane closure after the buffer space and one shall be placed in the middle of the lane closure.)
 - before each or group of unfilled holes or holes filled with temporary material.
 - before uncured concrete.
 - in a closed lane on each side of every intersection and crossover. Do not block sight distance.
 - in front of piles of material (dirt, aggregate, broken concrete), culverts, and equipment which is near the work zone.



TTC for DROP-OFFS

NON-INTERSTATE		
Average Drop-off	> 45 MPH	≤ 45 MPH
≤ 3 IN	Low Shoulder Sign (Optional)	Low Shoulder Sign (Optional)
> 3 IN	Shoulder Drop Off Sign & Edge Lines or Shoulder Drop Off Sign & Channelizing Device	Shoulder Drop Off Sign
> 6 IN	No Shoulder Sign, Edge Lines & Vertical Panel	No Shoulder Sign & Channelizing Device
≤ 10 IN		
> 10 IN	Concrete Barrier & Edge Lines	No Shoulder Sign & Vertical Panel

INTERSTATE		
Average Drop-off	≤ 2 IN	> 2 IN
	Low Shoulder Sign (Optional)	Shoulder Drop Off Sign & Edge Lines or Shoulder Drop Off Sign & Channelizing Device
		Shoulder Drop Off Sign, Concrete Barrier & Edge Lines

- If a portable concrete barrier will be required then the deflection shall be considered in the design.
- For Interstate ramps, refer to non-interstate drop offs.

STANDARD DEVICE SPACING AND BUFFER SPACE

SPEED LIMIT (prior to construction) MPH	MERGING TAPER LENGTH (L) Lane Width (FT)				STANDARD DEVICE SPACING IN FEET		BUFFER SPACE FT
	9	10	11	12	Along Taper	Along Tangent	
25	94	105	115	125	20	40	155
30	135	150	165	180	40	80	200
35	184	205	225	245	40	80	250
40	240	267	294	320	40	80	305
45	405	450	495	540	40	80	360
50	450	500	550	600	40	80	425
55	495	550	605	660	40	80	495
60	540	600	660	720	40	80	570
65	585	650	715	780	40	80	645
70	630	700	770	840	40	80	730

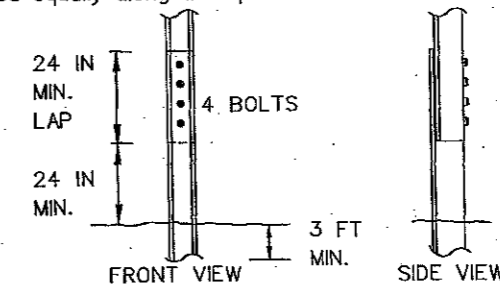
SPEED LIMIT (prior to construction) MPH	SHIFTING TAPER LENGTH (1/2)L Lane Width (FT)				STANDARD DEVICE SPACING IN FEET		BUFFER SPACE FT
	9	10	11	12	Along Taper	Along Tangent	
25	47	53	58	63	20	40	155
30	68	75	83	90	40	80	200
35	92	103	113	123	40	80	250
40	120	134	147	160	40	80	305
45	203	225	248	270	40	80	360
50	225	250	275	300	40	80	425
55	248	275	303	330	40	80	495
60	270	300	330	360	40	80	570
65	293	325	358	390	40	80	645
70	315	350	385	420	40	80	730

SPEED LIMIT (prior to construction) MPH	SHOULDER TAPER LENGTH (1/3)L Lane Width (FT)				STANDARD DEVICE SPACING IN FEET		BUFFER SPACE FT
	9	10	11	12	Along Taper	Along Tangent	
25	32	35	39	42	20	40	155
30	45	50	55	60	40	80	200
35	62	69	75	82	40	80	250
40	80	89	98	107	40	80	305
45	135	150	165	180	40	80	360
50	150	167	184	200	40	80	425
55	165	184	202	220	40	80	495
60	180	200	220	240	40	80	570
65	195	217	239	260	40	80	645
70	210	234	257	280	40	80	730

- All termination and flagger tapers are 100 feet per lane. (MIN. 6 channelizing devices per lane equally spaced 20 feet apart.)
- See TTC Standards for flagger taper.
- See MUTCD for taper formulas.

ALLOWABLE LAP SPLICE FOR U-CHANNEL POST

- U-Channel posts may be spliced where long lengths are required. The upper section shall overlap the lower section by at least 24 inches. The bottom edge of the upper section of the splice shall be a minimum of 24 inches above the ground. The spliced sections shall be secured with at least four 5/16 inch diameter hex bolts spaced equally along the splice.



SHEET NUMBER 10

DESIGNED BY: COLVIN, P. ALLAIN
 CHECKED BY: M. DOROGINE
 DATE: 02/13/2013

REVISION DESCRIPTION: [Blank]

DATE: 3-12-13

APPROVED BY: [Signature]

TRAFFIC ENGINEERING

SHEET NUMBER 11

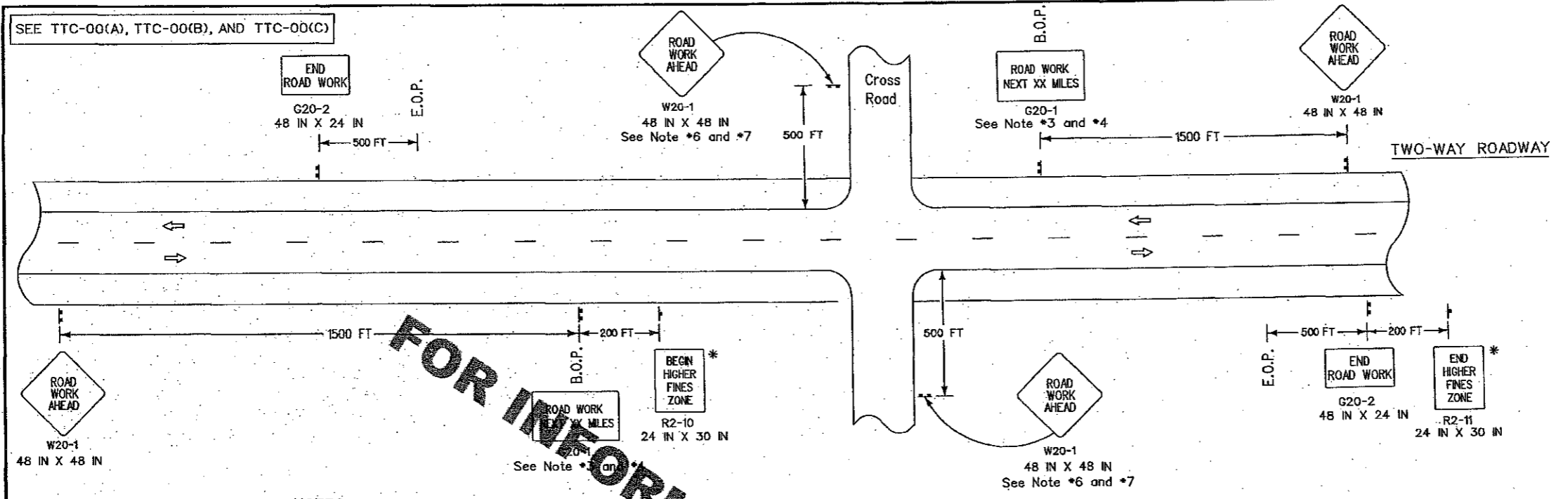
DESIGNED BY COLVIN, COLVIN & ALLAIN
 CHECKED BY J. D. OROGONE
 DRAWN BY J. D. OROGONE
 DATE 02/13/2013

PARISH PROJECT STATE PROJECT

DATE 3-11-13

APPROVED BY [Signature]
 CHIEF ENGINEER

TRAFFIC ENGINEERING

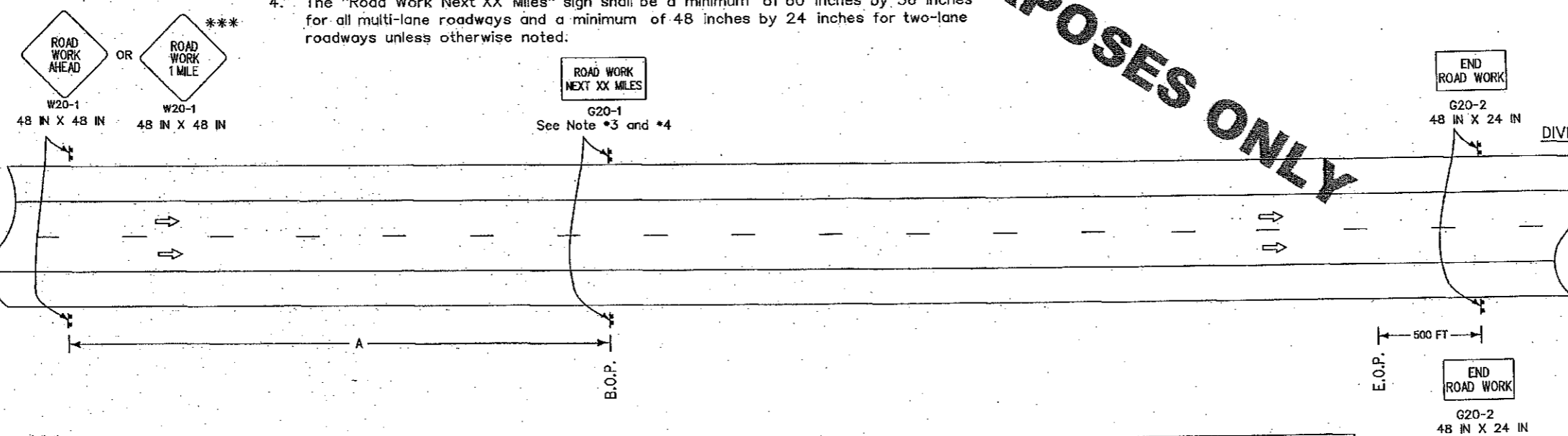


* For divided roadways with speeds \geq 50 mph use larger sign, 36 IN X 48 IN.

NOTES
 This sheet shall be used with the Temporary Traffic Control General Notes Sheets TTC-00(A), TTC-00(B), TTC-00(C), and other Temporary Traffic Control Sheets as appropriate.

LEGEND
 [Symbol] Traffic Sign
 [Symbol] Direction of Travel

- This layout represents the minimum traffic controls required for placement of "Road Work Next XX Miles" and "End Road Work" signs.
- This layout does not replace other TTC Standard Sheets, but is intended as a supplement to the required signing.
- The "Road Work Next XX Miles" sign shall be required on all projects. The distance on the "Road Work Next XX Miles" sign shall be stated to the nearest whole mile. This sign shall be placed at the Beginning of Project (B.O.P.) limits.
- The "Road Work Next XX Miles" sign shall be a minimum of 60 inches by 36 inches for all multi-lane roadways and a minimum of 48 inches by 24 inches for two-lane roadways unless otherwise noted.
- The "End Road Work" sign shall be placed 500 feet past the End of Project (E.O.P.) limits.
- If "Road Work Ahead" sign is used on a cross road to warn of road work on another route, then "End Road Work" sign is not required.
- When projects are separated by less than 1 mile, they shall be signed as one project; this may require coordination.



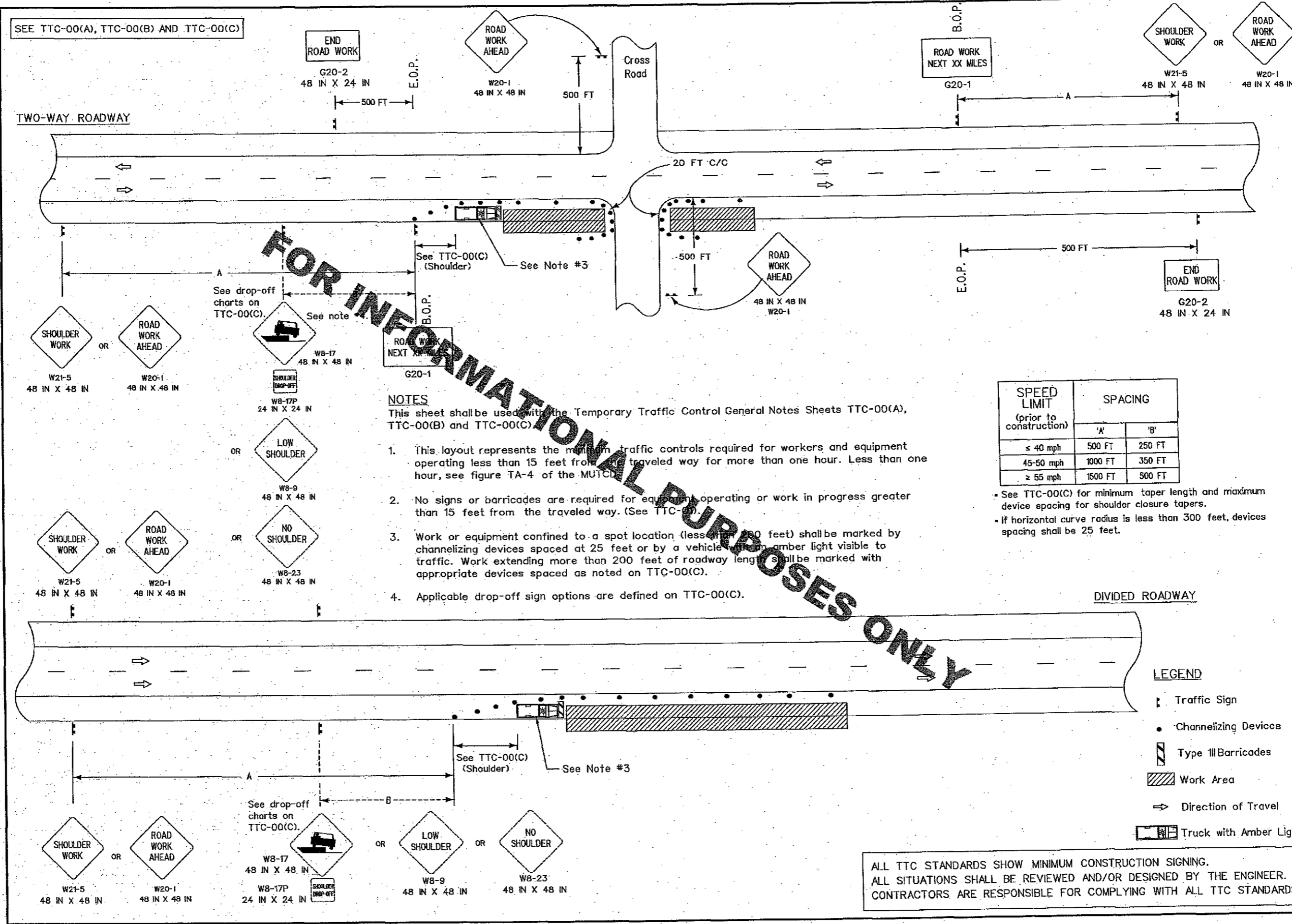
*** Speed limit > 45 mph use "Road Work 1 Mile"
 Speed limit \leq 45 mph use "Road Work Ahead"

ALL TTC STANDARDS SHOW MINIMUM CONSTRUCTION SIGNING.
 ALL SITUATIONS SHALL BE REVIEWED AND/OR DESIGNED BY THE ENGINEER.
 CONTRACTORS ARE RESPONSIBLE FOR COMPLYING WITH ALL TTC STANDARDS.

SPEED LIMIT (prior to construction)	SPACING 'A'
\leq 40 mph	1500 FT
45 mph	2640 FT
> 45 mph	5280 FT

• Sign spacing to be adjusted for Horizontal and Vertical curves.
 • For work outside of the traveled way, see TTC-01 and TTC-02.

FOR INFORMATIONAL PURPOSES ONLY



NOTES
 This sheet shall be used with the Temporary Traffic Control General Notes Sheets TTC-00(A), TTC-00(B) and TTC-00(C).

1. This layout represents the minimum traffic controls required for workers and equipment operating less than 15 feet from the traveled way for more than one hour. Less than one hour, see figure TA-4 of the MUTCD.
2. No signs or barricades are required for equipment operating or work in progress greater than 15 feet from the traveled way. (See TTC-00(C)).
3. Work or equipment confined to a spot location (less than 200 feet) shall be marked by channelizing devices spaced at 25 feet or by a vehicle with an amber light visible to traffic. Work extending more than 200 feet of roadway length shall be marked with appropriate devices spaced as noted on TTC-00(C).
4. Applicable drop-off sign options are defined on TTC-00(C).

SPEED LIMIT (prior to construction)	SPACING	
	'A'	'B'
≤ 40 mph	500 FT	250 FT
45-50 mph	1000 FT	350 FT
≥ 55 mph	1500 FT	500 FT

- See TTC-00(C) for minimum taper length and maximum device spacing for shoulder closure tapers.
- If horizontal curve radius is less than 300 feet, devices spacing shall be 25 feet.

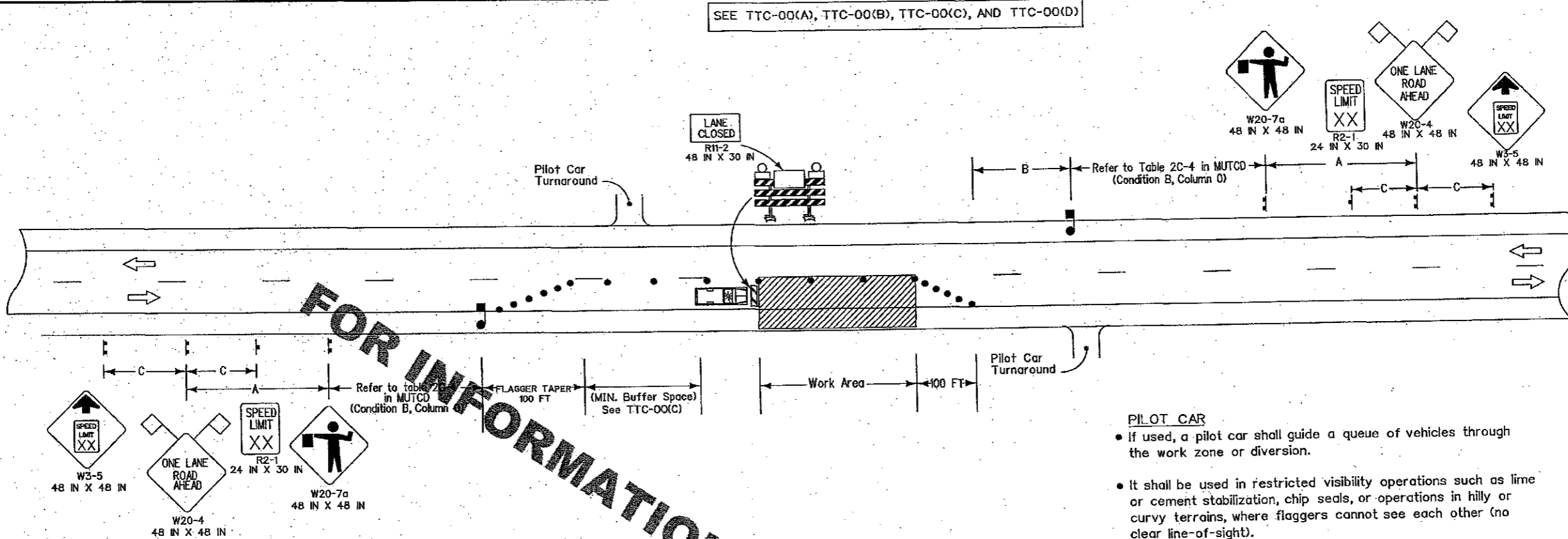
LEGEND

- ▬ Traffic Sign
- Channelizing Devices
- ▨ Type III Barricades
- ▩ Work Area
- ⇒ Direction of Travel
- ☐ Truck with Amber Light

ALL TTC STANDARDS SHOW MINIMUM CONSTRUCTION SIGNING.
 ALL SITUATIONS SHALL BE REVIEWED AND/OR DESIGNED BY THE ENGINEER.
 CONTRACTORS ARE RESPONSIBLE FOR COMPLYING WITH ALL TTC STANDARDS.

SHEET NUMBER	12
DESIGNED BY	J. COLVIN
CHECKED BY	P. ALLAIN
DATE	02/13/2013
PROJECT	
REVISION DESCRIPTION	
DATE	2-13-13
APPROVED BY	
TITLE	ENGINEER
TEMPORARY TRAFFIC CONTROL LAYOUT FOR WORK LESS THAN 15 FEET FROM THE TRAVELED WAY	
TTC-02	
TRAFFIC ENGINEERING	

SEE TTC-00(A), TTC-00(B), TTC-00(C), AND TTC-00(D)



NOTES

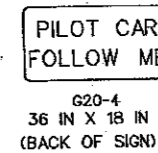
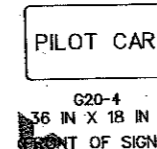
This sheet shall be used with the Temporary Traffic Control General Notes Sheets TTC-00(A), TTC-00(B), TTC-00(C) and TTC-00(D).

1. This layout represents the minimum traffic controls required for lane closures on two-lane roads with two-way traffic greater than 1600 feet from an intersection. For this type of closure either a flagger or a pilot car will be required. For advance signing see TTC-00(D).
2. To prevent vehicles from entering the work area against the flow of traffic, an additional flagger shall be stationed at each intersection, major driveway, railroad crossing, or crossing within the work area.
3. For projects in rural areas the distance between flaggers shall not exceed:
 - (A) 2.5 miles for ADT < 2,500
 - (B) 2.0 miles for 2,500 < ADT < 5,000
 - (C) 1.5 miles for ADT > 5,000
4. The flagger station shall be near the beginning of the taper and shall have adequate sight distance to be visible to oncoming traffic. If sight distance cannot be achieved, the distance between flaggers may be extended for a short duration.
5. Visual or radio contact shall be required between flaggers at all times. The flagger shall be visible from the flagger sign.

6. If a pilot car is required, then the contractor is not required to have channelizing devices in the taper section.
7. If work zone is less than 1600 feet from an intersection see TTC-03.

PILOT CAR

- If used, a pilot car shall guide a queue of vehicles through the work zone or diversion.
- It shall be used in restricted visibility operations such as lime or cement stabilization, chip seals, or operations in hilly or curvy terrains, where flaggers cannot see each other (no clear line-of-sight).
- The operation of the pilot vehicle shall be coordinated with flagging operations or other controls at each end of the one-lane section and all major driveways and street intersections.
- The pilot car sign should be mounted 7 feet above roadway in a position visible to oncoming and following traffic.
- The pilot car shall have an amber beacon light.
- The sign mounted on the vehicle shall be two-sided.



SPEED LIMIT (prior to construction)	SPACING		
	'A'	'B'	'C'
≤ 40 mph	500 FT	250 FT	N/A
45-50 mph	1000 FT	360 FT	500 FT
≥ 55 mph	1500 FT	495 FT	800 FT

Sign spacing to be adjusted for Horizontal and Vertical curves.

ALL TTC STANDARDS SHOW MINIMUM CONSTRUCTION SIGNING.
ALL SITUATIONS SHALL BE REVIEWED AND/OR DESIGNED BY THE ENGINEER.
CONTRACTORS ARE RESPONSIBLE FOR COMPLYING WITH ALL TTC STANDARDS.

LEGEND

- Traffic Sign
- Flagger
- Channelizing Devices
- Type III Barricades
- Work Area
- Type B Light
- Direction of Travel
- Truck with Amber Light

SHEET NUMBER	13
DESIGNED BY	J. COLVIN
CHECKED BY	P. ALLAIN
DATE	02/13/2013
PROJECT	TEMPORARY TRAFFIC CONTROL LAYOUT FOR LANE CLOSURES ON TWO LANE ROADS WITH TWO-WAY TRAFFIC (FLAGGING OPERATIONS)
REVISION DESCRIPTION	
DATE	7/1/13
APPROVED BY	
DATE	
PROJECT	TTC-04
TRAFFIC ENGINEERING	

153267

ATTACHMENT C

TS-25 LOUISIANA HIGHWAY 27/82 CROSSING

- 25.1 Scope: This Work consists of furnishing and assembling the materials needed to construct, layout, install, and survey one permanent concrete casing pipe via open-cut methods underneath LA 27/82 in accordance with these Plans and the Louisiana Standard Specifications for Roads and Bridges, 2006 edition, including Supplemental Specifications (hereinafter referred to as DOTD Specifications) or as directed by the Engineer.
- 25.2 Control of Work: Control of work shall be in accordance with these Plans and DOTD Specification Section 105.
- 25.3 Materials: The casing pipe shall be made of reinforced concrete drain pipe, in accordance with DOTD Specification Section 701, Culverts and Storm Drains. See Appendix VIII for DOTD Specifications. The casing pipe shall have a minimum inside diameter of 42" and a minimum wall thickness of 4.5".

Class II Base Course, Superpave Asphaltic Concrete Mixtures, Flowable Fill, and Bedding Material shall conform to DOTD Specification Sections 302, 502, 710, and 726, respectively. See Appendix VIII for DOTD Specifications.

Permanent pipeline markers shall be placed on each side of the highway as shown on the Plans to mark the crossing locations. Markers shall be placed prior to demobilization. The pipeline marker signs shall be made in accordance with DOTD Specification Section 729. See Appendix VIII for DOTD Specifications. A proposed drawing of the permanent markers shall be included in the Work Plan for approval by the Engineer.

- 25.4 Installation: Casing pipe installation shall conform to the Plans and DOTD Specification Section 701, as detailed in Appendix VIII of these Specifications.

The Contractor shall perform a survey to locate, probe, identify, and mark any utilities within the conveyance corridor limits in the vicinity of the proposed excavation and alignments for casing pipe installation operations and shall submit a proposed construction plan for open-cut installation of the permanent casing pipe in the Work Plan for approval by the Engineer.

If existing utility infrastructure is damaged by the Contractor during construction, the utilities shall be repaired immediately to pre-construction conditions by the Contractor at no cost to the Owner.

Sediment pipeline installation shall be performed in a way that will not interfere with or endanger the roadway surface and activity thereon, and minimize subsidence of the surface and utilities above and in the vicinity of the operations. The Contractor shall be responsible for all settlement resulting from operations and shall repair and restore damaged road surfaces or utilities to pre-construction conditions at no cost to the Owner. Trenches shall be excavated, and trench boxes shall be installed to prevent failure and loss of roadway base materials.

Pavement saw-cutting, excavation, backfilling, and pavement patch shall conform to the Plans and DOTD Specifications. Excavation and Embankment shall conform to DOTD Specification Section 203. Backfill shall consist of embankment material, flowable fill, and bedding material as shown in the plans and shall conform to DOTD Specification Sections 203, 710, and 726, respectively. Pavement patch shall conform to DOTD Specification Section 510, Asphaltic Concrete Pavement Patching, Widening, and Joint Repair. See Appendix VIII for DOTD Specifications.

Upon completion of the installation of the sediment pipeline, disturbed areas shall be seeded or protected from erosion. The area shall be restored to pre-construction conditions.

DOTD may require materials inspections and/or sampling prior to installation. This may include but is not limited to asphalt mix, embankment, concrete pipe, and flowable fill. Shop drawings shall be provided for DOTD approval prior to the Pre-Construction conference. Certificates of inspection shall be submitted prior to material installation.

- 25.5 Traffic Control: One lane shall remain open at all times during casing pipe installation. The westbound lane shall be widened using 5' of crushed aggregate conforming to DOTD Specification Subsection 1003.04(a) to provide minimum 12' travel lane width during installation of the casing pipe across the eastbound lane. Geotextile fabric shall be placed beneath the crushed aggregate conforming to DOTD Specification Section 1019. A triton barrier or approved equivalent shall be installed along the limit of excavation, as shown on the Plans, to separate vehicular traffic from the open-cut. Steady burning lights shall be installed on top of barriers to provide sufficient lighting at night. Traffic control shall be conducted per the Plans. Crossing construction sequencing shall conform with TS-26.
- 25.6 Nighttime Operations: Nighttime construction operations shall conform to DOTD Specification Subsection 105.20. Nighttime operations are defined as work performed after sunset and before sunrise. The contractor shall submit a lighting plan to the Engineer for approval 30 days prior to the start of night time operations.
- 25.7 Pavement Markings: Plastic pavement markings and raised pavement markers shall be restored over the newly placed pavement patch to pre-project layout in accordance with DOTD Specification Sections 731 and 732, provided in Appendix VIII.
- 25.8 Truck Advisory: The Contractor shall submit notice of work at least two (2) weeks prior to casing pipe installation to the oversized truck permit section of DOTD headquarters in Baton Rouge to facilitate the issuance of a truck advisory.
- 25.9 Construction Window: As this work requires restricting access on a state Hurricane Evacuation Route, the installation shall be done outside of the peak of the Atlantic/Gulf hurricane season, or August to October 20th. Should a tropical system enter the Gulf during operations, both lanes shall be reopened as soon as practicable.
- 25.10 Casing Pipe Capping and Site Restoration: After the marsh fill has been accepted and the sediment pipeline has been removed from the casing pipe, each end of the casing pipe shall be capped. Caps shall be placed on each end of the casing pipe, shall not be water-tight, and shall be able to be removed to facilitate the placement of a temporary sediment pipeline for possible future projects. The Contractor shall provide the Owner and Engineer notice of the completion of installation of the caps 72 hours prior to backfilling of the construction pits to provide for inspection.
- 25.11 Casing Pipe Caps: Caps shall be constructed in accordance with the Plans. Casing pipe caps shall be included in Bid Item No. 14 "Concrete Pipe Caps" and shall include all materials, labor, tools, equipment, and incidentals required to install the casing pipe caps.

TS-26 ROADWAY CROSSING CONSTRUCTION SEQUENCE

The sediment pipeline casing pipe to be installed underneath LA 27/82 shall be installed in phases. All construction aspects of this installation shall conform to DOTD Specifications and TS-25 of these specifications.

- 26.1 Phase 1: Phase 1 consists of the closure of the eastbound lane of LA 27/82 and installation of one section of casing pipe as shown on the Plans. The westbound lane shall be widened using 5' of crushed aggregate to facilitate passing traffic during restricted lane width. The Contractor shall clear the existing grade of vegetation and topsoil prior to widening, place geotextile fabric and

crushed aggregate, and maintain the temporarily widened section so that it is suitable to facilitate travel throughout the installation. Temporary traffic control (TTC) shall be installed throughout the duration of the work. The eastbound section of casing pipe shall be installed via open highway cut as shown on the Plans. Trenches shall be excavated, and trench boxes shall be installed to prevent failure and loss of roadway base materials. The concrete casing pipe shall be installed, followed by a pavement patch conforming to requirements described in TS-25.4.

- 26.1.1 The dimensions of the open highway cut and trench excavation shall be in accordance with the Plans.
 - 26.1.2 All temporary traffic control devices including flaggers, triton barriers, and temporary signage shall be in accordance with DOTD TTC-04 as shown on the Plans. Flagging operations shall continue 24 hours per day until two-way travel is reinstated in Phase 3. Flaggers shall have radio communication capabilities during flagging operations.
 - 26.1.3 All temporary traffic control devices shall be used in accordance with DOTD Specification Section 713 and the MUTCD and shall meet the NCHRP Report 350 or MASH requirements for Test Level 3 devices as shown on the Plans.
 - 26.1.4 Portable light plants shall be installed and operational overnight for the duration of the roadway crossing construction at the locations shown on the Plans, including two flagger stations.
 - 26.1.5 48 inch Supercones shall be installed at the locations shown in the Plans and shall be lit at night in accordance with DOTD TTC-00(c).
- 26.2 Phase 2: Phase 2 consists of the closure of the westbound lane of LA 27/82 and encompasses the following work: temporary traffic control installation, open highway cut of the westbound lane, trench excavation, placement of the concrete casing pipe, backfilling of the trench, and asphalt pavement patching.
- 26.2.1 The dimensions of the open highway cut and trench excavation shall be in accordance with the Plans.
 - 26.2.2 All temporary traffic control devices including flaggers, triton barriers, and temporary signage shall be in accordance with DOTD TTC-04 as shown on the Plans. Flagging operations shall continue 24 hours per day until two-way travel is reinstated in Phase 3. Flaggers shall have radio communication capabilities during flagging operations.
 - 26.2.3 All temporary traffic control devices shall be used in accordance with DOTD Specification Section 713 and the MUTCD and shall meet the NCHRP Report 350 or MASH requirements for Test Level 3 devices as shown on the Plans.
 - 26.2.4 Portable light plants shall be installed and operational overnight for the duration of the roadway crossing construction at the locations shown on the Plans, including two flagger stations.
 - 26.2.5 48 inch Supercones shall be installed at the locations shown in the Plans and shall be lit at night in accordance with DOTD TTC-00 (c).
- 26.3 Sediment Pipeline Installation and Dredging Operation Phase (Phase 3): Temporary traffic control devices shall be installed and maintained as shown on the Plans until after the marsh fill areas have been accepted, the temporary sediment pipeline removed, and the access pits backfilled.

Following installation, the temporary sediment pipeline will be located within the Clear Zone. Triton barriers shall be used to shield formidable obstacles from pipeline and equipment within the Clear Zone as shown on the Plans and in accordance with the Roadside Design Guide (AASHTO 4th Edition, 2011). Sufficient signage identifying the work area shall be installed and remain throughout the duration of the project. The contractor shall be liable for any damage to pipeline and/or equipment by formidable obstacles and shall immediately repair any damage to the sediment pipeline caused by such.

- 26.3.1 All temporary traffic control devices including flaggers, triton barriers, and temporary signage shall be in accordance with DOTD TTC-04 as shown on the Plans.
- 26.3.2 All temporary traffic control (TTC) devices shall be used in accordance with DOTD Specifications and the MUTCD and shall meet the NCHRP Report 350 or MASH requirements for Test Level 3 devices as shown on the Plans.

APPENDIX VIII DOTD STANDARD SPECIFICATIONS

Section 105 Control of Work

105.01 AUTHORITY OF THE ENGINEER. The engineer, acting directly or through duly authorized representatives in accordance with Subsection 105.09, will decide all questions which arise as to quality and acceptability of materials furnished and work performed, rate of progress of the work, interpretation of plans and specifications, and acceptable fulfillment of the contract by the contractor.

The engineer will have the authority to suspend the work wholly or in part due to failure of the contractor to correct conditions unsafe for workmen or the general public; for failure to carry out provisions of the contract; for failure to carry out orders; for such periods as deemed necessary due to unsuitable weather; for conditions considered unsuitable for prosecution of the work; or for other conditions or reasons deemed to be in the public interest.

Orders to suspend the work will be in writing and will include the reasons for the suspension. The order to resume work will also be in writing.

The approval or acceptance by the engineer of submissions by the contractor will be subject to satisfactory installation and performance. Such approval shall not relieve the contractor of responsibility under the contract for successful completion of the work or responsibility for compliance with the terms and conditions of the contract.

The Chief Engineer has the authority to suspend the work if, at any time, the required policies of insurance become unsatisfactory to the Department, as to form or substance, or if a company that has issued any policies becomes unsatisfactory to the Department.

105.02 PLANS AND WORKING DRAWINGS. The contractor will be supplied a maximum of five sets of plans without charge. Additional copies will be furnished upon request at the appropriate charge for reproduction services. Reduced (half-sized) plans will be furnished unless full-sized plans are requested. Plans will show lines, grades, typical cross sections, location and details of structures, and a summary of pay items. Only general features will be shown for steel bridges. The contractor shall keep one set of plans available at the work site at all times.

Standard plans required for the work, but included only by reference, will be furnished free of charge to the contractor upon request.

Working drawings, unless included in the plans, shall be furnished by the

105.02

contractor and shall consist of detailed plans required to adequately control the work. They shall include stress sheets, shop drawings, erection plans, falsework plans, form drawings, cofferdam plans, bending diagrams for reinforcing steel, proposed location of construction joints or other supplementary plans or data required of the contractor. Working drawings will be approved by the engineer and such approval will not relieve the contractor of responsibility under the contract for successful completion of the work or responsibility for details shown on the working drawings to conform to the contract.

Type and size of drawings furnished shall conform to Subsection 801.03.

105.03 CONFORMITY WITH PLANS AND SPECIFICATIONS. All work and materials shall conform to the lines, grades, cross sections, dimensions and material requirements of the contract.

When the engineer finds the materials furnished, work performed, or the finished product not in compliance with the contract but that reasonably acceptable work has been produced, the engineer will determine to what extent the work will be accepted and remain in place. If accepted, the engineer will document the basis of acceptance by change order and/or special agreement. The change order and/or special agreement will contain appropriate documentation for an adjustment in the contract price for the work or materials as necessary to support the engineer's determination. Reduced pay schedules will be used when such schedules are a part of the project specifications.

If the engineer finds the materials, work performed, or the finished product not in compliance with the contract and have resulted in an unsatisfactory or unacceptable product, the work or materials shall be removed and replaced or otherwise corrected by the contractor to the satisfaction of the engineer at no direct pay.

If due to the contractor's negligence or selected method of operation in performing the work, the engineer deems it necessary to make changes, the contractor will be liable for the additional design cost to the Department. The amount of such design cost will be the salary cost of design personnel plus 110 percent. The amount thus determined will be deducted from payments for the work.

105.04 COORDINATION AND PRECEDENCE OF CONTRACT DOCUMENTS. These specifications, the supplemental specifications, the plans, special provisions and supplementary documents are essential parts of the contract. A requirement occurring in one is as binding as though

occurring in all. They are intended to be complementary and to describe and provide for a complete work.

In case of discrepancy, the following order of precedence will apply:

- 1) Special Provisions
- 2) Plans
- 3) Supplemental Specifications
- 4) Standard Specifications
- 5) Standard Plans

Calculated dimensions will govern over scaled dimensions.

The contractor shall take no advantage of any error or omission in the plans or project specifications. If the contractor discovers such an error or omission, he shall immediately notify the engineer. The engineer will then make such corrections and interpretations as deemed necessary to fulfill the intent of the plans and project specifications.

105.05 COOPERATION BY CONTRACTOR. The contractor shall keep one complete set of plans and other contract documents available at the work site.

The contractor shall give the work the constant attention necessary to facilitate the progress thereof, and shall cooperate with the engineer, inspectors and other contractors.

The contractor shall have on the work site at all times, as the contractor's agent, a competent representative capable of reading and understanding the plans and project specifications and experienced in the type of work being performed, who shall receive and execute directions from the engineer. At the preconstruction conference or upon request, the contractor shall furnish the engineer written notice of the name and home telephone number of the representative. The representative shall have authority to execute orders or directions of the engineer without delay and to promptly supply such materials, equipment, tools, labor and incidentals as required. The representative shall be furnished regardless of the amount of work sublet.

The contractor shall furnish the engineer written notice of the names of persons authorized to sign for him in matters pertaining to change orders, force account or extra work, contract time charges and other documents. No work shall commence on the project until the contractor has complied with this requirement. Such written notice shall also be furnished when a person so designated is removed and replaced.

105.06 COOPERATION WITH UTILITIES. The Department will notify all known utility companies, pipeline owners or other parties affected by the

105.06

work and endeavor to have the necessary adjustments of public or private utility fixtures, pipelines and other appurtenances within or adjacent to the limits of construction made as soon as possible.

Upon award of the contract, utility companies affected will be advised by the Department of the name and address of the contractor, approximate date work will begin and other pertinent information.

Except as hereinafter provided, and regardless of whether the utility is shown on the plans or referred to in the project specifications, all water lines, gas lines, wire lines, fiber optic cables, telephone lines, cable television lines, service connections, water and gas valve boxes, light standards, cableways, signals and other utility appurtenances within construction limits which prevent completion of the contractor's work will be relocated or adjusted by the owners at no expense to the contractor. The contract will indicate utility items to be relocated, adjusted or constructed by the contractor.

Where a utility crosses or otherwise occupies an area within construction limits of the project and the utility will not have the Department's required clearance when the work is completed, it shall be the Department's responsibility to arrange for necessary relocation to the required clearance. When the required clearance will exist when the work is completed, but relocation is considered necessary by the contractor for construction purposes, the contractor shall make arrangements with the owner for any relocation or adjustment necessary to the operations at no direct pay. In such cases, upon completion of the work and prior to final acceptance, the final location of the utility will be acceptable to the Department. Nothing herein shall be interpreted to mean that the Department waives its rights to control entrance onto, or location on, its right-of-way of any utility or appurtenance.

It is agreed that the contractor has considered in the bid all permanent and temporary utility appurtenances in their present or proposed relocated positions and that no additional compensation will be allowed for delays, inconvenience or damage sustained due to interference from the said utility appurtenances or the operation of moving them.

When the engineer determines that the contractor is experiencing significant delays in the controlling items of work because of delays by others in removing, relocating or adjusting utility appurtenances, contract time extensions will be considered for such delays in accordance with Subsection 108.07.

On the date stipulated in the Notice to Proceed, the contractor shall begin work in connection with fencing, clearing, grubbing, removal of structures and obstructions, and relocation and demolishing of other structures, and shall prosecute such work to completion to avoid delays in removal or adjustment

of utilities. The contractor shall cooperate with the utility companies to avoid delays in completion of work due to nonremoval or nonadjustment of utilities.

When the contractor's work involves excavating or underground demolition activity, the contractor is required to reach Louisiana One Call, prior to starting any work, by calling (225) 275-3700 or toll-free 1-800-272-3020, or by fax (225) 272-1967 in order to comply with the Louisiana Underground Utilities and Facilities Damage Prevention Law.

105.07 COOPERATION BETWEEN CONTRACTORS. The Department reserves the right to contract for and perform additional work on or near the work covered by the contract.

When separate contracts are let within, adjoining, or adjacent to the limits of the project, each contractor shall conduct the work not to hinder the progress of work by other contractors and shall cooperate with each other as directed.

The contractor shall arrange the work and shall place and dispose of materials being used not to interfere with the operation of other contractors within, adjoining, or adjacent to the limits of the project. The contractor shall acceptably join the work with that of other contractors and shall perform the work in proper sequence to that of the others and without causing disruption or delay to the schedule of project completion.

The contractor shall assume all liability, financial or otherwise, in connection with the contract and shall hold the Department harmless and indemnify the Department from all damages or claims that may arise because of inconvenience, delay, or loss experienced by the contractor or caused to other contractors due to the presence and operations of other contractors working within, adjoining or adjacent to the limits of the projects.

105.08 CONSTRUCTION STAKES, LINES AND GRADES. Unless otherwise provided for in the contract, the engineer will set construction stakes establishing lines and continuous profile grade in road work, and centerline and bench marks for bridge work, culvert work, protective and accessory structures and appurtenances as deemed necessary, and will furnish the contractor all necessary information relating to lines, slopes and grades. These stakes and marks shall constitute the field control by and in accordance with which the contractor shall establish other necessary controls and perform the work.

The contractor shall be responsible for preservation of all stakes and marks established by the engineer. When any construction stakes or marks have been carelessly or willfully destroyed or disturbed by the contractor, the cost

105.08

of replacing same will be charged to the contractor and will be deducted from payments for the work.

105.09 AUTHORITY AND DUTIES OF PROJECT ENGINEER. As the direct representative of the Chief Engineer, the Project Engineer has immediate charge of the Department's engineering details of the construction project. The Project Engineer is responsible for administration of the contract. The Project Engineer shall have authority to give directions pertaining to the work and for consideration of the public, to reject defective materials and equipment, and to suspend work in accordance with Subsection 105.01.

Except as permitted and instructed by the Chief Engineer, the Project Engineer is not authorized to alter or waive provisions of the contract, alter quantities, order extra and force account work, or accept any portion of the project. In no case will the Project Engineer perform any duties for or act as the representative of the contractor.

When the work is being done by force account, the contractor shall have the responsibility to supervise the work and provide a product meeting the requirements of the contract. The Project Engineer, however, shall have the authority to require the contractor to revise operations, including but not limited to, sequence and location of work; number, category and caliber of workers; number and type of equipment; and hours of work.

105.10 DUTIES OF THE INSPECTOR. Inspectors representing the Department are authorized to inspect all work. Such inspection extends to any part of the work and to preparation, fabrication or manufacture of materials to be used. The inspector is not authorized to alter or waive contract provisions. The inspector is not authorized to issue instructions contrary to the contract; however, the inspector will have authority to reject work or materials until any question can be referred to and decided by the engineer. In no case will the inspector perform any duties for, or act as the representative of the contractor.

105.11 INSPECTION OF WORK. All materials and each part or detail of the work shall be subject to inspection by the engineer. The engineer shall be allowed safe and convenient access to all parts of the work and shall be furnished with such information and assistance by the contractor as required to make a complete inspection. Such inspection will not relieve the contractor from the obligation to furnish acceptable materials or to perform all work in accordance with the contract.

If ordered by the engineer, the contractor, at any time before acceptance of the work, shall remove or uncover such portions of the finished work as

directed. After examination, the contractor shall restore said portions of the work to the standard required by the project specifications. Should the work thus exposed prove acceptable, the uncovering or removing, and the replacing of the covering or making good of the parts removed will be paid for as extra work; but, should the work so exposed prove unacceptable, the uncovering or removing, and the replacing of the covering or making good of the parts removed, will be at no direct pay.

Work done or materials used without supervision or inspection by an authorized Department representative, when the Department is not provided adequate notice or opportunity to provide inspection, may be ordered uncovered for examination and recovered, or removed and replaced, all at the contractor's expense.

When a unit of government or political subdivision or other public or private entity is to pay a portion of the cost of the work covered by the contract, its representatives shall have the right to inspect the work. Such inspection shall not make any unit of government, political subdivision or corporation a party to the contract and shall not interfere with the rights of either party thereunder.

105.12 INSPECTOR'S STAMP FOR SHIPMENT.

(a) Approval for Shipment: When materials requiring shop or plant inspection are ready for shipment, the Department's inspector shall affix the stamp of the Department. Each shipment piece, keg, box or bound pallet shall be marked by the inspector by direct stamping.

Application of the inspector's stamp implies that at the time of stamping it was the opinion of the inspector that the product was fabricated or manufactured from accepted materials by approved processes and painted, if required, in accordance with the contract. Application of the inspector's stamp for shipment does not imply that the products will not be rejected by the Department if subsequently found to be defective.

(b) Rejection: The inspector will reject material and workmanship that do not conform to the contract.

Stamping of products by Department representatives shall not preclude further testing and inspection by the Department.

Defective materials and workmanship, whenever discovered, will be rejected and shall be repaired or replaced at no direct pay. All repair procedures shall be approved.

(c) Shipment of Material Not Stamped: Materials and fabricated items subjected to shop inspection will not be accepted at the project site if they do not bear the inspector's stamp for shipment. If the products are not

105.12

stamped because they were not offered for shop inspection, or were shipped after rejection at the shop, the products shall be returned to the shop for inspection and correction as necessary.

In lieu of this requirement, the Department may allow inspection to be performed at the project site at the contractor's expense.

105.13 REMOVAL OF UNACCEPTABLE AND UNAUTHORIZED WORK. Work not conforming to the contract will be considered unacceptable, unless otherwise determined acceptable under the provisions in Subsection 105.03.

Unacceptable work found to exist prior to final acceptance of the work shall be removed and acceptably replaced.

No work shall be done without lines and grades having been given by the engineer, except that work which is specified as construction layout. No payment will be made for work done contrary to instructions of the engineer, work done beyond lines shown on the plans or as given, or extra work done without authority. Work so done may be ordered removed or replaced at the contractor's expense.

Upon failure of the contractor to comply with any order of the engineer made under the provisions of this Subsection, the engineer will have authority to cause unacceptable work to be remedied or removed and replaced and unauthorized work to be removed and to deduct the costs from payments for the work.

105.14 LOAD RESTRICTIONS. The contractor, subcontractors or suppliers shall observe legal load restrictions when hauling equipment or materials on public roads beyond project limits. A special permit does not decrease the contractor's liability for damage.

Except for specified equipment contractor shall obtain the engineer's written permission to exceed legal load limits within the project limits. Operating equipment or hauling loads that may damage structures, roadway, or any construction is prohibited.

105.15 MAINTENANCE DURING CONSTRUCTION. The contractor shall satisfactorily maintain the entire area within the right-of-way limits of the project, from the effective date of the Notice to Proceed until the date of final acceptance. This maintenance responsibility includes, but is not necessarily limited to, maintaining drainage, periodic mowing and removing of debris and remains, to the satisfaction of the engineer, as well as such striping, patching and shoulder maintenance which will provide safe and

convenient conditions at all times for the public. The contractor shall continuously and effectively satisfy his maintenance responsibilities with such equipment and forces as may be necessary to maintain a safe and satisfactory condition for the duration of the project.

The contractor shall maintain the roadway in a satisfactory condition to allow traffic to safely travel through the work zone at the posted speed limit.

Adjacent and parallel roadways within the project limits, not affected by construction shall not be the maintenance responsibility of the contractor.

105.16 FAILURE TO MAINTAIN ROADWAY OR STRUCTURE. If the contractor fails to comply with Subsections 104.03 and 105.15, the engineer will immediately notify the contractor in writing of such noncompliance. If the contractor fails to remedy the condition within 24 hours after receipt of the written notice, the Department will have the option to immediately remedy the condition with its own in-house forces or by another contractor, and the cost thereof will be deducted from payments for the work.

When the condition requires more immediate remedy due to hazard to life, health and property, the engineer will immediately remedy the condition as above and the costs thereof will be deducted from payments for the work.

105.17 ACCEPTANCE.

(a) Partial Acceptance: When the contractor satisfactorily completes a portion of the project that can be used advantageously for traffic or other use, the contractor may request the engineer to make final inspection of that portion. When the engineer finds upon inspection that the portion has been completed in compliance with the contract, the engineer may accept that portion as being completed and the contractor will be relieved of further responsibility for that portion and from further liability to the public.

Partial acceptance of a project will not be made until the portion being accepted has been completed in its entirety, including all safety devices, signs and striping. When partial acceptance is made, the terms of acceptance, including the responsibilities of all parties and any allowance of additional contract time, shall be set forth in a change order, mutually agreed to by the engineer and the contractor. Such partial acceptance shall not void or alter any terms of the contract, except as set forth in the change order.

(b) Final Acceptance: Upon notice from the contractor of presumptive completion of the entire project, the engineer will make an inspection. When the work provided for in the contract is found satisfactorily completed, that inspection will constitute the final inspection. The engineer will make final acceptance and notify the contractor in writing of this acceptance as of the

105.17

date of final inspection.

When the inspection discloses any work as being unsatisfactory, the engineer will give the contractor instructions for correction of same. The contractor shall immediately comply with such instructions. Upon correction of the work, another inspection will be made which will constitute final inspection provided the work has been satisfactorily completed. In such event, the engineer will notify the contractor in writing of this acceptance as of the date of final inspection.

105.18 CLAIMS FOR ADDITIONAL COMPENSATION. If the contractor deems additional compensation is due for work, material, delays, inefficiencies, disruptions or other additional costs/or expenses not covered in the contract or not ordered as extra work, the contractor shall notify the engineer in writing of his intention to make a claim for such additional compensation before beginning the work on which the claim is based or immediately upon encountering the conditions or effects which the contractor claims entitle him to additional compensation. Notification of claims shall conform to the requirements of EDSM III.1.1.28. If such notification is not given or the engineer is not afforded proper facilities by the contractor for keeping account of actual costs incurred by the contractor, the contractor hereby agrees and shall be deemed to waive any claim for such additional compensation. Such notice by the contractor and the fact that the engineer has kept account of the costs as aforesaid shall not be construed as proving or substantiating the validity of any claim. If the claim, after consideration by the Chief Engineer, or judicial determination, is found to be just, payment will be made as specified in Subsection 109.04 by force account or negotiated price. Nothing in this subsection shall be construed as establishing any claim contrary to Subsection 104.02.

105.19 VALUE ENGINEERING PROPOSALS. This provision is to share with the contractor only the cost savings generated on this contract as a result of a Value Engineering (VE) Proposal(s) offered by the contractor and approved by the Department. Any time savings resulting from a VE Proposal will be considered at the completion of the project as an incentive to the contractor, provided the contract contains an incentive clause for early completion of the work and the contractor has not met the incentive limit in the contract. A time only reduction will not be considered as a VE Proposal. The purpose is to encourage the use of the contractor's ingenuity and experience in arriving at alternative construction methods, which will reduce the overall construction cost. After award of the contract, the successful

bidder will be permitted to submit to the engineer, written VE Proposals, for modifying the plans, specifications, or other requirements of the contract for the purpose of reducing the total cost of construction. The VE Proposal shall not impair, in any manner, the essential functions and characteristics of the project, including but not limited to safety, service life, reliability, economy of operation, ease of maintenance, desired appearance, traffic flow during construction, or necessary standardized features.

The VE Proposal shall be specifically identified by the contractor as a cost reduction proposal. VE Proposals will be considered by the Department in the same manner as change orders.

The contractor has the option of submitting a conceptual VE Proposal to the Department for review prior to making formal submission. However, the contractor may submit the formal VE Proposal directly.

The conceptual VE Proposal shall provide the following minimum information:

- (a)** A description of the proposal.
- (b)** A listing of work items affected by the proposed change, including any change in contract time and/or traffic maintenance.
- (c)** An initial estimate of the net cost savings which the change is expected to generate, including elimination of any planned work.

The contractor may proceed to the formal VE Proposal upon the Department's approval of the conceptual VE Proposal. The Department is not obligated to approve the contractor's formal VE Proposal, even if the conceptual VE Proposal is initially considered acceptable.

As a minimum, the following information shall be submitted by the contractor with the formal VE Proposal.

- (a)** A statement that the proposal is submitted as a VE Proposal.
- (b)** A description of the difference between the existing contract requirements and the proposed change(s), and the comparative advantages and disadvantages of each, including effects on service life, economy of operations, ease of maintenance, desired appearance, necessary standardized features, reliability, traffic flow during construction, safety, and contract time.
- (c)** Any or all of the following submittals as required by the engineer showing proposed revisions relative to the original contract features and requirements: Plans, sketches, engineering calculations, specifications or stamped plans bearing the signature and seal of a professional engineer licensed to practice in the State of Louisiana.

- (d)** Detailed estimates of the cost to the Department for performing the work under the existing contract and under the VE Proposal, including a listing of contract items affected by the proposal, and quantity variations

105.19

attributable thereto with the related costs.

(e) An assessment of any effects that adoption of the VE Proposal could have on other costs to the Department, including future maintenance and operation.

(f) A statement of the latest time or date that any agreement adopting the VE Proposal must be executed in order to obtain the maximum cost reduction during the remainder of the contract and the reasoning for this time schedule. This date must allow the Department time for review and processing of a change order. Should the Department find insufficient time is available for review and processing, it may reject the VE Proposal on such basis. If the Department fails to respond to the VE Proposal by the date or time specified, the contractor shall consider the proposal rejected and shall have no claim against the Department.

(g) A statement of the effect that adoption of the VE Proposal will have on the time for completion of the contract.

(h) A description of any previous use or testing of the final VE Proposal on another Department project or elsewhere and the conditions and results therewith. If the final VE Proposal was previously submitted on another Department project, indicate the date, the project, and the action taken by the Department.

The provisions of this subsection shall not be construed to require the Department to consider any VE Proposal which may be submitted. The Department reserves the right to reject any and all VE Proposals. The bidder is cautioned not to base any bid prices on the anticipated approval of a VE Proposal and to recognize that the proposal may be rejected. In the event of rejection, the contractor will be required to complete the contract at the contract bid prices. Proposed changes in basic configuration and design of a bridge, hydraulic capacity of drainage facilities, typical roadway section, type or minimum thickness of pavements, or changes in grade or alignment which do not meet the geometric standards of the project as conceived, will not be considered as acceptable VE Proposals. Typically, changes in materials for roadway sections will also not be considered as acceptable VE proposals. Plan errors which are identified by the contractor and result in a cost reduction will not qualify as a VE proposal. If the Department is already considering certain revisions to the contract or has approved certain changes in the contract for general use, which are subsequently incorporated in a VE Proposal, the Department will reject the contractor's proposal and may proceed without obligation to the contractor. The Department will not be liable to the contractor for failure to act upon or accept any VE Proposal nor for any delays to the work attributable to any such proposal. The contractor

may withdraw, in whole or in part, any VE Proposal not accepted by the Department within the period specified in the proposal. The decision of the Department as to the acceptance or rejection of VE Proposals shall be final and shall not be subject to the provisions of Subsection 105.19.

The contractor will be notified in writing of the Department's decision to accept or reject each VE Proposal submitted under these provisions. If a VE Proposal is accepted, the necessary contract modifications will be implemented by execution of a change order, which will provide for equitable price adjustments giving the contractor and the Department equal shares in the resulting net savings. Until a VE Proposal is affected by such contract modification, the contractor shall perform the work in accordance with the terms of the existing contract.

The net cost savings to be shared shall be determined as the difference in costs between the original contract costs for the involved work items and the actual final costs to the Department occurring as a result of the proposed change. Only those work items directly affected by the change order will be considered in making the final determination of net cost savings. Subsequent change orders affecting the modified work items but not related to the VE Proposal, will be excluded from such determination. In reviewing the VE Proposal, the Department reserves the right to reject the proposal if, in its judgment, the proposed net cost savings do not represent a reasonable measure of the value of the work to be performed or deleted.

All costs incurred by the contractor in developing the VE Proposal shall be borne by the contractor. The change order implementing the necessary contract modifications shall include a pay item for and a lump sum estimate of the approximate net cost savings anticipated as a result of the VE Proposal, and a proportionate amount thereof shall be included in partial payment estimates as the work on the modified contract items is performed. The contractor's 50 percent share of the net cost savings shall constitute full compensation for implementing all changes pursuant to the agreement. Any time savings for early completion of the project resulting from the VE Proposal will be considered upon completion of the project as an incentive to the contractor provided the contract contains an incentive clause for early completion of the work and the contractor has not met the incentive limit in the contract.

The Department reserves the right to include in the agreement any conditions it deems appropriate for consideration, approval, and implementation of the VE Proposal. The Department also reserves the right to require the contractor to share in the Department's costs of investigating a VE Proposal submitted by the contractor as a condition of considering such

105.19

proposal. The Department will have the option to perform the investigation in-house or by consultants. When such a condition is imposed, the contractor shall indicate his acceptance in writing, and such acceptance shall constitute full authority for the Department to deduct amounts payable to the Department from any monies due or that may become due to the contractor under the contract.

The Department reserves the right to adopt a VE Proposal for general use when it determines that said proposal is suitable for application to other contracts. When an accepted VE Proposal is adopted for general use, only the contractor who first submitted such proposal will be eligible for compensation pursuant to this subsection, and in that case, only as to those contracts awarded to him prior to submission of the accepted proposal. VE Proposals identical or similar to previously submitted proposals will be eligible for consideration and compensation under these provisions if the identical or similar previously submitted proposals were not adopted for general application to other Department contracts. Subject to the provisions contained herein, the State or any other public agency shall have the right to use all or any part of any submitted VE Proposal without obligation or compensation of any kind to the contractor.

Any changed conditions arising as a result of the acceptance of a VE Proposal will not be considered as the basis for any claim for additional compensation.

105.20 NIGHTTIME CONSTRUCTION OPERATIONS.

(a) Description: This work consists of furnishing, installing, operating, maintaining, moving, and removing portable light towers and equipment-mounted fixtures for nighttime construction operations. Nighttime construction operations are defined as work performed after sunset and before sunrise.

(b) Equipment Requirements : Materials and equipment shall be in good operating condition and in compliance with applicable OSHA, NEC, and NEMA codes.

The contractor shall furnish, to the engineer, two light meters capable of measuring the level of illuminance. These light meters will be used by the engineer to check the adequacy of illumination throughout the nighttime construction operations. The light meters will become the property of the contractor after final acceptance.

Suitable brackets and hardware shall be provided to mount lighting fixtures on equipment and machinery. Mountings shall be designed so that light fixtures can be positioned as necessary to reduce glare and provide the

required illumination. Mounting brackets and fixtures shall not interfere with the equipment operator or any overhead structures and shall be securely connected to the fixtures to insure minimum vibration.

Equipment-mounted systems shall be attached to construction equipment to provide Level II and Level III illuminance. Equipment mounted lighting shall be designed and positioned to be operated independently of general illumination.

Portable systems may consist of ground-mounted, trailer-mounted, or equipment mounted light towers. Portable light towers shall be sturdy and free-standing without the aid of guy wires or bracing. Towers shall be capable of being moved as necessary to keep pace with the construction operation. Extreme caution shall be used when moving portable light towers in the vicinity of overhead utilities. Portable lighting systems shall be positioned to minimize the risk of being impacted by traffic on the roadway or by construction equipment.

Conventional vehicle headlights shall not be permitted as the sole means of illumination while working. All motorized vehicles shall be equipped with conventional vehicle headlights to permit safe movement in non-illuminated areas. Use of strobe lights on vehicles and equipment is prohibited. Use of flashing lights shall be kept to a minimum to prevent motorist distraction. Flashing lights shall not be used behind barrier protection systems.

Switches shall be provided to adequately control the various lights. All wiring shall be weatherproof and installed according to local, state, federal, and OSHA requirements. Ground fault circuit interrupters shall be provided for electrical outlets used for electrical tools and extension cords. The contractor shall provide sufficient fuel, spare lamps, generators and qualified personnel to ensure that all required lights operate continuously during nighttime construction operations. In the event of any failure of the lighting system, the construction operation shall be discontinued until the required level of illumination is restored. In residential areas, generator systems shall be selected to comply with local noise ordinances. A supply of emergency flares shall be maintained by the contractor for use in the event of emergency or unanticipated situations.

(c) Illumination Requirements: All operations that are performed during nighttime hours shall be properly illuminated to allow for the safe performance and inspection of the work.

Work area is defined as a minimum of 50 feet (15 m) ahead and behind the employee, where work is to be performed. A minimum of 5 foot-candles (54 lux) shall be maintained throughout the work area during nighttime construction operations, and during the setup and removal of lane or roadway

105.20

closures.

Lighting shall be adequate to meet the required level of illuminance and uniformity over the work area as follows:

(1) Level I (5 foot-candles, 54 lux): This level of illuminance shall be provided for all work areas of general construction operations, such as excavation and embankment; cleaning and sweeping; landscaping; planting and seeding. Stockpiles shall also be illuminated to Level I to enhance safety and improve work efficiency.

(2) Level II (10 foot-candles, 108 lux): This level of illuminance is required for areas on or around construction equipment such as that used for drainage installations, striping, base course construction, milling, asphalt paving operations, and concrete placement and removal. This level is necessary for safe operation of equipment and for obtaining an acceptable level of accuracy.

(3) Level III (20 foot-candles, 215 lux): This level of illuminance is required for tasks requiring a higher level of visual performance or for tasks with a higher level of difficulty. Such tasks include, pavement or structural crack filling, joint repair, joint cleaning, joint sealing, pavement patching and repairs, saw-cutting, installation of signal equipment or other electrical/mechanical equipment, and other tasks involving fine details or intricate parts and equipment.

(d) Glare Control: All lighting provided under this item shall be designed, installed, and operated to avoid glare interference with roadway traffic or discomfort for residences adjoining the roadway. The contractor shall locate, aim, and adjust the lights to provide the required level of illuminance and uniformity in the work area without the creation of objectionable glare. The engineer shall determine when glare exceeds acceptable levels, either for traffic or adjoining residences. The contractor shall provide shields, visors, or louvers on luminaries as necessary to reduce objectionable levels of glare.

At a minimum, the following requirements shall be met to avoid objectionable glare to oncoming traffic:

(1) Tower-mounted luminaries shall generally be aimed either parallel or perpendicular to the roadway.

(2) All luminaries shall be aimed such that the center of the beam axis is no greater than 60 degrees from the vertical.

(3) Luminous intensity of any luminary shall not exceed 20,000 candelas at an angle of 72 degrees from the vertical.

(e) Operational Requirements: Thirty days prior to the start of night time operations, the contractor shall submit a lighting plan to the

engineer for approval. The contractor shall select appropriate lighting systems and design a lighting plan to achieve the required illuminance levels.

The lighting plan shall include location of lights necessary for every aspect of work; description of light equipment to be used; description of power source; attachment and mounting details for lights to be attached to equipment; technical details pertaining to the lighting fixtures; details on hoods, louvers, shields, or other glare control methods; and lighting calculations confirming that the illumination requirements will be met by the layout plan.

Lighting inspection will include (1) light meter measurements to determine illumination levels, (2) subjective observation of the lighting setup to evaluate glare potential for drivers and workers, and (3) a physical check of the lighting equipment to ensure that it complies with the specification requirements included in the contractor's lighting plan.

Prior to the first night of operation, the engineer will check the adequacy of the installed lighting using a light meter. A summary of these measurements will be noted in the inspection records to provide a basis for comparing subsequent measurements. If the required illuminance levels are not met, the contractor shall make the necessary adjustments before any work proceeds.

Operational checks shall be made when construction phasing changes and lighting plan changes are required to accommodate different phases of construction. Periodic checks will be made throughout the duration of nighttime operations. If the required illuminance levels are not met, the contractor shall make the necessary adjustments to the lighting plan before work continues.

During construction operations, in the event of any failure of the lighting system, the operations shall be discontinued until the required level of illumination is restored.

Section 203

Excavation and Embankment

203.01 DESCRIPTION. This work consists of excavation, disposal, placement and compaction of materials for which provisions have not been made under other sections of these specifications. This work shall include excavation and embankment construction for roadways and other structures, excavation for ditches and channels, and other grading operations necessary for the work in accordance with these specifications and in conformity with the lines, grades, thicknesses and typical sections shown on the plans or established. When contaminated soils or underground tanks are encountered, handling shall be in accordance with Section 202.

Disposal of material shall be in accordance with Subsection 202.02.

The plans may include data regarding the boring and classification of existing materials. The Department does not guarantee that individual samples are representative of the entire project, and bidders are required to study, make interpretations and additional investigations, as necessary, at no direct pay.

The contractor shall comply with Subsection 107.09 for work in, over or adjacent to navigable waters and wetlands, and shall comply with Subsection 107.27 when cultural artifacts, historical sites or archaeological sites are encountered.

Quality assurance requirements shall be as specified in the latest edition of the Department's publication entitled "Application of Quality Assurance Specifications for Embankment and Base Course."

Excavated material may be used in accordance with Subsection 203.06.

Erosion control shall be in accordance with Section 204.

203.02 GENERAL EXCAVATION. General excavation consists of the excavation of materials, as required by the plans, except drainage excavation and structural excavation. General excavation also includes unsuitable material in accordance with Subsection 203.04.

203.03 DRAINAGE EXCAVATION. Drainage excavation includes the excavation for drainage beyond the limits of the roadway section. Drainage excavation also includes inlet and outlet ditches to structures or roadways; changes in or deepening of channels of streams, berm ditches,

203.03

ditches parallel or adjacent to the roadway beyond the limits of the roadway section; and material excavated from areas under bridges.

203.04 UNSUITABLE MATERIAL. Unsuitable materials are soils containing significant amounts of debris or organic matter including stumps, roots, logs, and humus, or other materials which will decay or produce subsidence, including highly saturated soils, which the engineer determines are not satisfactory for use in the embankment or other construction purposes. Unsuitable materials shall be removed and disposed of as general excavation. Unsuitable materials determined to be environmentally sensitive shall be removed and disposed of in accordance with Subsection 202.05.

203.05 BORROW. Borrow is defined as soils required for construction of embankments or other portions of the work in excess of soils obtained from excavation. Borrow shall be obtained from an approved source and shall be used in accordance with Subsection 203.06. The contractor shall make arrangements for obtaining borrow at no direct pay.

Securing of an exclusive option by a contractor on borrow areas or materials for the work will be considered a violation of Louisiana law and will be a basis for rejection of bids or such other action the Department deems advisable.

The contractor shall notify the engineer in writing a minimum of 30 calendar days in advance of borrow operations so that samples may be taken and soil tests completed prior to beginning borrow operations.

Prior to requesting the borrow pit to be bored, the contractor shall furnish the Department a written agreement with the property owner to allow the Department access to the property. The written agreement shall also state that the contractor has agreed to purchase the borrow material from the property owner for this particular site if the material meets contract specifications. A separate agreement shall be obtained from each property owner through which access will be necessary.

Sites from which material has been removed shall, upon completion of the work, be left in an acceptable condition.

Unless otherwise authorized in writing, borrow pits, gravel pits and quarry sites shall be located at least 300 feet (90 m) from the right-of-way.

When sources of borrow are located adjacent to a stream or river listed on the National System of Wild and Scenic Rivers or the Louisiana Natural and Scenic Rivers System, borrow pits, and any stockpiled materials shall be located at least 300 feet (90 m) from the natural stream or river bank.

The borrow pit and access shall be cleared to allow access for DOTD boring equipment. The borrow area shall be surveyed with a base line staked. Both the engineer and laboratory shall be furnished with a location plat and borrow pit plat. The contractor will not be permitted to begin borrow operations until materials are approved for use.

Sampling of soils from open excavations made by the contractor in lieu of borings will be allowed provided the open excavations display and allow sampling of each soil strata and the excavation is at no cost to the Department.

203.06 SOIL USAGE. The laboratory will test and classify soil in accordance with DOTD TR 423 from samples taken in the original location or from designated stockpiles. Soil shall be classified and approved prior to its being placed in embankments or other final positions on the project. Blending in the pit by approved methods to adjust percent silt or sand will be permitted. Soils which do not meet Liquid Limit or PI requirements shall not be blended to reduce Liquid Limit or PI. Soils may be treated with lime to reduce PI in accordance with Subsection 203.06(e).

Soil properties will be determined by the test methods shown in Table 203-1.

**Table 203-1
Soil Properties**

Property	Test Method
Plasticity Index (PI)	DOTD TR 428
Liquid Limit (LL)	DOTD TR 428
% Organic	DOTD TR 413
% Silt	DOTD TR 407
pH	DOTD TR 430

(a) Usable Soils: Usable soils shall have a maximum PI of 25 and a maximum organic content of 5 percent. Soils with a silt content of 50 percent or greater and also a PI of 10 or less will not be allowed.

(b) Selected Soils: Selected soils are natural soils with a maximum PI of 20, maximum Liquid Limit of 35, and a maximum organic content of 5 percent. Soils with a silt content of 50 percent or greater and also a PI of 10 or less will not be allowed. Soils to be used for in-place cement stabilization shall be in accordance with Subsection 302.02(a).

(c) Nonplastic Embankment: Nonplastic embankment shall be as specified in Subsection 203.09.

203.06

(d) Headers: Headers are that portion of the embankment within 500 feet (150 m) of a bridge end. Headers shall be constructed for their full height with usable soils having a minimum PI of 11, a maximum PI of 25, and a maximum silt content of 65 percent. No lime treatment to the soil to meet the PI requirements will be permitted. Headers shall be compacted to 98 percent of maximum dry density in accordance with Subsection 203.07.

(e) Embankments other than Headers:

(1) Embankments shall be constructed with usable soils, except soil with a PI greater than 25 and less than 35 will be permitted when treated with a minimum of 6 percent lime, by volume, provided the organic content and silt requirements given in Heading (a) are met. If the contractor uses lime treatment, it will be at no direct pay. Lime treatment shall be Type E Treatment conforming to Section 304.

(2) The contractor may request in writing that usable soils for temporary detour roads have a PI not to exceed 45 and a maximum silt content of 75 percent provided:

a. This material will be removed and not become part of the permanent embankment.

b. The contractor agrees to take responsibility for any additional maintenance required.

(f) Plastic Soil for Slopes:

(1) Embankment Material: The outside layer of embankment (fill sections) will consist of a plastic soil blanket in accordance with Subsection 203.10. Sampling in the pit may be allowed if an identifiable strata can be isolated. Otherwise, sampling will be from dedicated stockpiles.

(2) Cut Slopes, PI Less than 10: When soils having a PI less than 10 exists on cut slopes, the contractor shall undercut 12 inches (300 mm) and place a plastic soil blanket conforming to Subsection 203.10.

(3) Cut Slopes, PI 10 or Greater: When soils having a PI of 10 or greater but with a pH less than 5.5, or greater than 8.5, exist on cut slopes, the contractor shall undercut and place a plastic soil blanket complying with Subsection 203.10. In lieu of furnishing a plastic soil blanket, the soil may be modified in place so that the pH of the soil complies with the requirements of Subsection 203.10, at the option of the engineer and concurrence of the contractor. In such case payment will be in accordance with existing items or Subsection 109.04, as applicable, not to exceed the cost of undercut and replacement.

(g) Usable Soils for Slope Adjustments and Shoulder Widening: When the thickness of embankment material used for slope adjustment is less than 12 inches (300 mm), a plastic soil complying with Subsection 203.10 will be required. If the thickness is greater than 12 inches (300 mm), the contractor will be allowed to substitute plastic soil for usable soil, provided the widening is not directly below a paved shoulder.

203.07 GENERAL REQUIREMENTS. Excavation and embankment construction consists of constructing roadway embankments, including preparation of areas on which they are to be placed; constructing drainage excavation; backslope construction; constructing dikes, when required; placing and compacting approved material in areas where unusable material has been removed; placing and compacting embankment material in holes, pits and other depressions; and placing and compacting embankment materials for backfilling structures. Prior to beginning excavation, grading or embankment operations in an area, all necessary clearing and grubbing in that area shall have been completed. Prior to any embankment operations in an area, all corresponding roadside ditches shall be cut to facilitate drainage in that area. Embankment materials shall not be placed or spread on portland cement concrete or asphaltic concrete pavements. Pavement surfaces, edges and joints shall not be damaged during embankment operations.

Final excavation and embankment slope lines shall be uniform in appearance. Measurements shall be made as necessary to assure that the elevations at the top, bottom, and intermediate breaks in the slope are such that a minimum acceptable slope is achieved. The slopes shall be straight without valleys or humps, as determined by visual inspection. If an apparent discrepancy is discovered upon visual inspection, measurements shall be taken a minimum of every 10 feet (3.0 m) measured along the slope between theoretical break points in the embankment. When these measurements reveal slope variances by more than 0.03 ft/ft (0.03 m/m), too steep, or 0.15 ft/ft (0.15 m/m), too flat, the slopes shall be reworked by the contractor until these criteria have been met. The top of embankment shall not vary from the established grade by more than ± 0.1 foot (0.030 m).

Embankment material shall be in accordance with Subsection 203.06 and shall be placed in uniform layers not exceeding 12 inches (300 mm) of uncompacted thickness. Each layer shall be placed for the full width of embankment, blended as necessary to obtain a uniform material, brought to a uniform moisture content, and compacted by approved methods to a minimum of 95.0 percent of maximum dry density before the next layer is

203.07

placed. Maximum dry density will be determined in accordance with DOTD TR 415 or TR 418 and percent in-place density in accordance with DOTD TR 401. The density of the embankment shall be such that the density of the type of base course being constructed as given in Table 301-1 shall be met. The moisture content at the time of compaction, tested in accordance with DOTD TR 403, shall be within a range of ± 2.0 percent of optimum moisture established in accordance with DOTD TR 415 or TR 418 or the lifts shall be reprocessed and recompacted until these requirements are met. Operations shall be conducted to prevent lamination between lifts. Laminations between lifts shall be corrected prior to placing additional lifts. Surfaces of excavated areas and embankments shall be smooth and uniform. Material outside construction limits shall not be disturbed.

Excavated material shall become the property of the contractor. Soils from excavation areas may be used when approved in embankments or other finished sections. Surplus or unusable excavated material shall be disposed of by the contractor in accordance with Subsection 202.02 or as provided in this Subsection.

Drainage excavation and rough grading shall be performed simultaneously, unless otherwise directed or permitted. Roots, stumps or other vegetative obstructions in sides and bottom of ditches and channel changes shall be cut to conform to required cross section and grade. Excavated material shall be placed sufficient to protect the integrity of the slope but in no case closer than 3 feet (1.0 m) from the edge of ditch.

When obliteration of old roadways is required, it shall include grading operations necessary to satisfactorily incorporate the old roadway into the new roadway and surroundings in order to provide a pleasing appearance and to allow drainage.

When preparing surface layers on which the embankment or base is to be placed, the engineer will require the contractor to attempt all normal earthwork construction methods before undercutting or modifying the soil with additives. Such construction methods may include, but are not limited to, the following and will be at no direct pay:

(a) Draining and drying of the surface until the material is within the limits of optimum moisture before compaction is attempted.

(b) Using lighter construction equipment for manipulating, disking, drying and compacting the material.

(c) Dumping successive loads of material in a uniformly distributed layer of a thickness necessary to support equipment while placing subsequent layers.

(d) Rerouting heavy construction equipment around the area until the embankment can support the equipment without damage to foundation soils.

Unstable materials shall be removed by undercutting, unless otherwise directed, and backfilled to required section with usable soils as directed.

When undercutting is required, the contractor shall conduct the operations in such manner that the engineer can make necessary measurements before backfill is placed.

When excavation and embankment construction results in surface soils having a PI less than 10 or pH less than 5.5 or greater than 8.5, the contractor shall place a plastic soil blanket complying with Subsection 203.10.

The contractor shall be responsible for the stability of embankments until final acceptance. Construction activities, which may lead to subsequent embankment damage will not be permitted.

When embankments are constructed on a surface sloping more than 6:1 from the horizontal, the slope of the ground on which the embankment is to be placed shall be cut into steps, as directed, before fill is placed.

When a new roadway is to be constructed on an existing roadbed, and the surface of the existing roadbed is within 2 feet (0.6 m) of finished subgrade, the existing roadbed shall be scarified full width to a depth of not less than 9 inches (230 mm) and recompact in accordance with this subsection.

When an embankment is to be constructed to a height of less than 5 feet (1.5 m), heavy sod and objectionable vegetation shall be removed from the area on which the embankment is to be placed. The area shall be scarified to a depth of approximately 9 inches (230 mm). This area shall be recompact to at least 95.0 percent of maximum dry density. Maximum dry density will be determined in accordance with DOTD TR 415 or TR 418 and percent in-place density in accordance with DOTD TR 401. When height of fill is 5 feet (1.5 m) or more, removal of sod will not be required but the area on which embankment is to be placed shall be disked to the satisfaction of the engineer and recompact before construction of embankment.

When embankment material is to be deposited only on one side of abutments, wing walls, piers, or culvert head walls, the area immediately adjacent to the structure shall not be compacted to the extent that it will cause excessive pressure against the structure. Fill adjacent to the end bent of a bridge shall not be placed higher than the top of the substructure until the superstructure is in place. When the embankment is to be deposited on

203.07

both sides of a concrete wall or similar structure, operations shall be conducted so that the embankment is always at approximately the same elevation on both sides of the structure. Backfilling of structures shall be performed in accordance with Section 802.

When embankments are constructed in lakes, streams, swamps or other unstable areas and unstable material cannot be removed or the area drained, the requirement for placing material in layers as outlined above may be waived. When this requirement is waived, the embankment shall be placed by end dump or other approved methods to an elevation where normal construction methods can begin. Embankments placed above this elevation shall be constructed in layers as specified above. When a wave of unsuitable material is forced up in front of the end dumping operation, it shall become the property of the contractor and be removed as necessary, and will not be allowed to be trapped and be incorporated in the embankment except as part of plastic soil for slopes.

203.08 CUT AREA PREPARATION. The top 12 inches (300 mm) shall be scarified and compacted to such density that the compaction requirements of the type base course being constructed given in Table 301-1 shall be met. Construction, compaction, and testing requirements shall be in accordance with Subsection 203.07.

When unstable soils are encountered, the engineer will determine the limits to be undercut. The contractor shall excavate to a stable foundation or to the depth required by the engineer and backfill to existing grade. Undercut shall be constructed and tested in accordance with Subsection 203.07.

When a stable foundation cannot be reached, the embankment materials shall be "bridged-in" and the remaining embankment constructed in accordance with Subsection 203.07 to existing grade.

203.09 NONPLASTIC EMBANKMENT.

(a) Materials: Nonplastic embankment material shall comply with Subsection 1003.09 or the following, unless otherwise specified on the plans.

(b) General Requirements: Unsuitable material defined in Subsection 203.04 shall not be entrapped in the embankment. The contractor shall remove any such material at no direct pay.

Surcharge materials shall remain on the embankment for at least the specified number of days after approval of the increment. Damage to embankment increments due to the contractor's operations shall be

satisfactorily repaired by the contractor at no direct pay. The contractor will be permitted to remove excess surcharge materials after the surcharge period. Verification cross sections of the final embankment will be taken after removal of the surcharge. The Department will assume liability for subsidence after these cross sections are taken. After all embankment increments have been surcharged, excess surcharge material shall be satisfactorily disposed of in accordance with Section 202.02 at no direct pay.

Except for shell or stone embankments, the contractor shall furnish and place a plastic soil blanket complying with Subsection 203.10.

(c) Nonplastic Embankment Construction: Nonplastic embankments shall be constructed by mechanical methods.

Unless otherwise shown on the plans, material shall be placed in lifts not exceeding 15 inches (375 mm) uncompacted thickness after establishing a working table as directed. Each lift shall be compacted and tested in accordance with Subsection 203.07.

(d) Blended Calcium Sulfate Embankment Construction: Water shall be added or other suitable means shall be taken to prevent dust resulting from the transporting and placing of dry material. Blended embankment material shall be placed in lifts not exceeding 12 inches (300 mm) in thickness (loose) after establishing a working table as directed. Each lift shall be compacted to at least 95 percent of maximum dry density prior to placement of subsequent lifts. The maximum density shall be determined in accordance with DOTD TR 418 modified to include a drying temperature not to exceed 140°F (60°C). Field density testing shall be in accordance with Subsection 203.07 except that moisture content determinations for density corrections shall be determined by oven drying the material at 140°F (60°C) for a minimum of 24 hours. A forced draft type oven capable of maintaining this temperature shall be provided by the contractor. The contractor shall furnish and place a plastic soil blanket complying with Subsection 203.10.

Blended calcium sulfate shall not be placed within 10 feet (3.0 m) of metal drainage structures. The contractor will be allowed to substitute natural stone, flowable fill under Section 710, or other material in Subsection 1003.08 as approved by the Department.

203.10 PLASTIC SOIL BLANKET. Plastic soil blanket shall consist of soils having a minimum PI of 11, maximum PI of 35, a maximum silt content of 65 percent, and a pH not less than 5.5 or greater than 8.5, and a minimum organic content of 3 percent. The contractor will be allowed to

203.10

blend organic materials to achieve the minimum 3 percent organic content. The plastic soil blanket shall support a satisfactory stand of grass in accordance with Sections 714 or 717. The minimum thickness of the soil blanket will be 12 inches (300 mm). Areas requiring a plastic soil blanket shall be approved prior to placement of the plastic soil blanket. After materials are placed and spread, lumps, stones, roots and other foreign matter shall be removed from the area. Soil blanket material shall be spread and rolled in a manner that leaves a uniform surface. Any remaining ridges or grooves, including cleat tracks from the dozer, will be parallel to the roadway during the period of time between placement and seeding.

Plastic soil blanket shall be placed in a timely manner to prevent erosion.

203.11 GEOTEXTILE FABRICS.

(a) General: This work consists of furnishing and placing geotextile fabric in accordance with these specifications and in conformance with the details shown on the plans.

(b) Materials: The geotextile fabric shall comply with Section 1019.

(c) Construction Requirements: Rolls of geotextile fabric shall be kept covered and protected from ultraviolet degradation at all times until use. Geotextile fabric that has been installed shall be covered with embankment within 7 calendar days. When ultraviolet damage occurs, the geotextile fabric shall be removed and replaced. The geotextile fabric shall be placed at the locations shown on the plans or as directed. Adjacent rolls of geotextile fabric will be overlapped or sewn. When rolls are overlapped, the overlap shall be a minimum of 18 inches (450 mm), or as specified in the plans, including the ends of the rolls. The top layer of the geotextile fabric shall be parallel with adjacent rolls and in the direction of embankment placement. When rolls are sewn, the contractor shall join adjacent rolls by sewing with polyester or kevlar thread. Field sewing shall employ the "J" seam or "Butterfly" seam with the two pieces of geotextile fabric mated together, turned in order to sew through 4 layers of fabric and sewn with 2 rows of Type 401, two-thread chain stitch. Factory seams other than specified may be submitted to the Materials and Testing Section for approval. Where the ground is covered with water or soil is saturated, sewing of the geotextile fabric will be required.

The geotextile fabric shall be placed as smooth as possible with no wrinkles or folds, except in curved road sections. For curved road sections, the geotextile fabric shall be folded to accommodate the curve. The fold

shall be in the direction of construction and pinned or stapled. Ruts that occur during construction shall be filled and compacted prior to placement of geotextile fabric.

Damaged geotextile fabric shall be either removed and replaced with new geotextile fabric or covered with a second layer of geotextile fabric extending 2 feet (0.6 m) in each direction from the damaged area.

203.12 QUALITY CONTROL. The contractor shall locate, select, and place material conforming to specification requirements. The contractor shall control his processes, including performing tests and making adjustments as necessary, to result in a uniform quality product meeting all the requirements of the plans and specifications. Tests for in-place moisture content shall be performed by the contractor in accordance with DOTD TR 403, at a frequency that will ensure that the material is within the tolerances of optimum moisture. Tests for in-place density shall be performed by the contractor in accordance with DOTD TR 401 at a frequency that will ensure that the compactive effort is producing a uniform product that conforms to specification requirements. The contractor shall control placement and finishing to ensure conformance with the lines, grades, thickness, and typical cross-sections shown on the plans or established.

Sections will be inspected prior to acceptance testing. Obviously deficient areas shall be corrected prior to acceptance testing.

203.13 ACCEPTANCE. The Department will perform inspection, sampling, and testing for acceptance. Any area that is deficient will require correction whether identified by inspection or testing.

The embankment (with surcharge, if required) will be approved in increments of 1,000 feet (300 m), except terminal increments which may be less than 1,000 feet (300 m).

Maximum density for earthwork will be determined in accordance with DOTD TR 415 or DOTD TR 418; in-place density will be determined in accordance with DOTD TR 401.

203.14 MEASUREMENT.

(a) General: Unless otherwise specified, borrow material in accordance with 203.05 and plastic soil for slopes in accordance with 203.06(f) will be considered incidental to the embankment and will not be measured separately, but will be measured as embankment.

203.14

Measurement of undercut will be from subgrade or original ground, whichever is lower.

No measurement will be made for excavation for culverts or culvert headwalls.

When the grade line of a pipe or box culvert is raised or lowered more than 2 feet (0.6 m) from the grade line shown on the plans or is relocated to a site requiring an equivalent change in excavation, payment will be increased or decreased accordingly at the rate of three times the contract unit price for General Excavation (or Embankment if General Excavation is not a contract pay item). The volume to be used in the increase or decrease will be a rectangular solid the length of the pipe or box culvert, the outside width of the pipe or box culvert plus 3 feet (1.0 m), and the average change in invert elevation minus 2 feet (0.6 m).

(b) General Excavation, Embankment and Nonplastic Embankment:

The measurement of quantities will be computed by the average end area method and will be that area bound by (1) the original ground line established by location (plan) cross sections (if accurate) or new original cross sections obtained by the contractor, and (2) the final theoretical pay line as shown on the plans, or established by the engineer, adjusted for field changes.

After clearing and grubbing operations, the contractor will take original cross sections for the entire length of the project. All original cross sections shall be taken in the presence of a designated DOTD employee. Cross sections shall be taken at sufficient intervals to accurately determine earthwork quantities, not to exceed 100 linear feet (30 lin m). The cross sections shall be taken in accordance with DOTD procedures, and results must be furnished to the Department in a format satisfactory to the engineer. The Department reserves the right to take additional cross sections as needed to verify the contractor's cross sections. In the event the cross sections do not verify, the contractor will investigate and reconcile any differences.

The original cross sections will be used to determine the accuracy of the location cross sections by using random sections not farther apart than 1000 linear feet (300 lin m) and centerline elevations at intervals of 100 linear feet (30 lin m). The location cross sections will be considered to be usable if the average of the differentials do not exceed ± 0.3 foot (± 0.1 m). For significant portions of the project with obvious errors between location and original cross sections, the contractor's original field cross sections will

be used, and will not be part of the verification process. In all cases where location sections are unavailable, new originals are to be taken and used.

The final theoretical pay line shall be derived from the profile grade, typical section and ditch grades shown in the plans, along with approved plan changes and other field changes made by the engineer. No increase in quantities will be authorized for overbuilding unless directed by the engineer.

Pay lines for surcharged embankments will be the theoretical surcharge lines shown on the plans. No measurement will be made for removing and disposing of excess surcharge materials.

When payment is made for embankment in its final position, no additional quantity will be measured due to settlement, compaction, erosion or other cause.

Excavation and embankment for crossovers, turnouts, driveway approaches or other minor installations will not be included in the measurement.

A depth and width tolerance of ± 1.5 feet (± 0.5 m) will be allowed for excavation of unsuitable material. Overdepth and overwidth will be waived at no direct pay; however, no measurement for payment will be made for additional embankment material required to backfill areas beyond theoretical unsuitable material lines.

Measurement will be made by one or more of the following methods:

(1) Plan Quantity: The quantities of excavation and embankment will be those shown in the plans, provided the project is constructed essentially to the theoretical pay line.

When the plans have been revised or when disagreement exists between the contractor and the engineer as to the accuracy of the plan quantities for the entire project, or any substantial portion thereof, either party may require that quantities be revised. The party requesting the revision will be responsible for isolating and detailing the error in an easily understood format which may include cross sections, sketches, and computations. The revision will be verified and agreed to by the other party.

No payment will be made to the contractor to recompute new plan quantities.

(2) Final Field Cross Sections: When payment lines are not shown on the plans and cannot be established, in lieu of final theoretical pay lines, final field cross sections will be used to determine pay quantities for excavation and embankment.

(c) Drainage Excavation: After completion of excavation operations at each individual location, measurement will be made in

203.14

accordance with Subsections 203.14(b)(1) or 203.14(b)(2). Elevations for underwater excavation will be determined in accordance with DOTD TR 426.

(d) Excavation and Embankment:

(1) Linear Measurement: When excavation or embankment is to be measured on a linear basis, the length will be measured along the centerline or the baseline used in the plans and includes performing the excavation, embankment and grading work necessary for construction of the project. It is the contractor's responsibility to determine quantities of earthwork necessary to complete this item.

(2) Lump Sum Measurement: When excavation and embankment is to be measured by the lump sum, this item includes performing the excavation, embankment, and grading work necessary for construction of the project. It is the contractor's responsibility to determine the correct quantities of earthwork required to complete this item. No adjustment in contract price will be made.

(e) Borrow (Vehicular Measurement): The material will be measured by the cubic yard (cu m) in approved hauling vehicles at the point of delivery in accordance with Subsection 109.01.

(f) Geotextile Fabric: Geotextile fabric will be measured by the square yard (sq m) of covered area in place.

203.15 PAYMENT. Payment for the accepted quantities will be made at the contract unit prices which includes furnishing the equipment, labor and materials necessary to complete the items.

Payment for roadway obliteration will be made under appropriate roadway removal and excavation items. Existing asphaltic pavement, 5 inches (125 mm) thick or less, will be paid for as general excavation. Removal of asphaltic pavement greater than 5 inches (125 mm) thick will be paid for under Section 202. Blading and shaping to drain will be considered incidental and will not be measured for pay. Excavation, other than blading and shaping, generally over 1 foot (0.3 m) in depth over a substantial area, will be paid as general excavation for the full depth of cut.

Payment for undercut will be as general excavation, and payment for required backfill will be made as embankment. In cases when undercut operations are separate from normal earthwork and separate records can be kept, undercut may be paid in accordance with Subsection 109.04 when requested by the contractor in advance, or if the project engineer has sufficient records, without an advance request.

T203.15T

Plastic soil blanket will be included in the pay volume for the embankment.

No direct payment will be made for acquisition of borrow materials outside the right-of-way; acquisition of right-of-way and constructing haul roads; stockpiling and rehandling of materials; precautionary measures to protect private property and utilities; or furnishing necessary water and watering equipment.

Excavation for plastic soil blanket in cut sections, when required, will be made as general excavation and payment for the required plastic soil blanket will be made as embankment.

Payment will be made under:

Item No.	Pay Item	Pay Unit
203-01	General Excavation	Cubic Yard (Cu m)
203-02	Drainage Excavation	Cubic Yard (Cu m)
203-03	Embankment	Cubic Yard (Cu m)
203-04	Nonplastic Embankment	Cubic Yard (Cu m)
203-05	Excavation and Embankment	Lump Sum
203-06	Excavation and Embankment	Linear Foot (Lin m)
203-07	Borrow (Vehicular Measurement)	Cubic Yard (Cu m)
203-08	Geotextile Fabric	Square Yard (Sq m)

Section 302

Class II Base Course

302.01 DESCRIPTION. This work consists of furnishing and placing Class II roadway and shoulder base course on a prepared surface in accordance with these specifications, in conformity with the lines, grades, thickness, and typical sections shown on the plans or established. The contractor shall control the selection, placement, mixing and compaction of materials so that the completed base course is uniform and conforms to plan dimensions and other acceptance requirements.

Quality assurance requirements shall be as specified in the latest edition of the Department's publication entitled "Application of Quality Assurance Specifications for Embankment and Base Course."

When not specified, any of the following types may be used.

- (1) Soil Cement
- (2) Cement Treated Sand-Clay-Gravel
- (3) Stone or Crushed Slag
- (4) Asphaltic Concrete Base Course on Embankment Layer
- (5) Recycled Portland Cement Concrete

Unless approved in writing, the same base course material shall be used throughout the project.

With approval, concrete complying with Section 901 or asphaltic concrete base course complying with Section 502 may be used in lieu of the specified Class II Base Course material in areas inaccessible to mixing and compacting, in turnouts and crossovers, and in other isolated or irregular areas. Concrete shall be placed, consolidated, finished and cured as directed in accordance with Section 706.

In order to meet air quality standards, the contractor may be required to use central plant mixing of cement treated mixtures in dust sensitive areas at no direct pay. The contractor may use other types of Class II Base Course in dust sensitive areas at no direct pay. The Department will identify the dust sensitive areas in the plans.

302.02 MATERIALS. Materials shall comply with the following Sections or Subsections and requirements.

Geotextile Fabric	203.11 & 1019
Asphaltic Concrete	502
Portland Cement Concrete	901
Portland Cement	1001.01
Portland-Pozzolan Cement	1001.02
Asphalt Materials	1002
Sand-Clay-Gravel	1003.01 & 1003.03(a)
Stone	1003.01 & 1003.03(b)
Recycled Portland Cement Concrete	1003.01 & 1003.03(c)
Crushed Slag	1003.01 & 1003.03(d)
Water	1018.01

(a) Soils for Soil Cement: Soils for soil cement base course shall consist of materials that will stabilize with cement in accordance with DOTD TR 432. Such materials are those soils classified as A-1-a, A-1-b, A-2-4, A-2-6, A-4 and A-6 in accordance with DOTD TR 423. Soil with a Liquid Limit greater than 35, a Plasticity Index (PI) greater than 15, or an organic content greater than 2 percent shall not be used. Liquid Limit and Plasticity Index will be determined in accordance with DOTD TR 428. Organic content will be determined in accordance with DOTD TR 413. Soil with over 79 percent sand or 60 percent silt when tested in accordance with DOTD TR 407 shall not be used. Soils may be blended to adjust the percentages of sand or silt to meet specification requirements; however, in-place blending will not be allowed. The District Laboratory Engineer will approve materials prior to blending and the final product. Soils that do not meet Liquid Limit or PI requirements shall not be blended or treated to reduce Liquid Limit or PI. Topsoil shall not be used. The contractor shall obtain the material to be stabilized from outside right-of-way limits except as provided in Subsection 106.02(c).

(b) Portland Cement: Portland cement shall be Type I or II. The quantity of cement used shall be supported by Certificate of Delivery.

(c) Portland-Pozzolan Cement: The cement shall be Type IP. The quantity of cement used shall be supported by Certificate of Delivery.

(d) Asphaltic Concrete Base Course: The material requirements for asphaltic concrete base course shall be as described in Section 502. The top half of the base thickness shall be asphaltic concrete and the remaining thickness shall be the same type and construction as the top layer of embankment.

302.03

302.03 EQUIPMENT. Equipment shall be subject to approval prior to use. When in-place mixing is used, the equipment shall conform to Subsection 303.03. When central mixing is used, the equipment shall conform to Subsection 301.03(a). Compaction equipment shall conform to Subsection 301.03(a)(5).

302.04 GENERAL CONSTRUCTION REQUIREMENTS. Base course material shall be placed on a subgrade prepared in accordance with Sections 203, 304, 305 or 306 as specified. Asphaltic concrete base course shall be constructed in accordance with Section 502.

If an aggregate base course is to be placed on untreated or lime-treated soils, a Class D geotextile separator fabric will be required.

302.05 MIXING.

(a) Soil Cement: Soil shall be combined with cement and water by in-place mixing or in a central plant and shaped on the subgrade. When in-place mixing is done, the cement shall be spread and mixed prior to any additional water being added.

A minimum of 70 percent of the pulverized soil, as determined by DOTD TR 431, shall pass the No. 4 (4.75 mm) sieve after mixing. The optimum moisture of the mixture will be determined in accordance with DOTD TR 415 or TR 418. The percentage of moisture in the mixture, by dry weight, shall not vary from the optimum moisture by more than ± 2.0 percent at the time of compaction when tested in accordance with DOTD TR 403.

(1) In-Place Mixing: After placement of soil and prior to mixing with cement, the soil shall be shaped to required section and compacted to at least 93.0 percent of maximum dry density at the required grade. Samples to determine optimum moisture, percent cement, and maximum dry density will be taken by the project engineer. Maximum dry density will be determined in accordance with DOTD TR 415 or TR 418 and in place density will be determined in accordance with DOTD TR 401.

The percentage of cement will be determined in accordance with DOTD TR 432 prior to mixing, from materials sampled in-place on the project. Water needed to bring the moisture content of the mixture within the tolerance shall be added and uniformly mixed with the materials. During the mixing process, water shall be added only through the spray bar of the in-place mixer which is adjusted to provide uniform coverage across the completed width of the roadway for the full depth of the base. Wet streaks or spots will not be allowed. Depending on the type of cement and soil to

be used, normal testing time to determine required cement content may require 21 calendar days.

The method of cement distribution shall be such that the amount of cement used can be readily determined. The spread rate of cement shall be determined in accordance with DOTD TR 436.

When the moisture content is not within ± 2.0 percent of optimum, operations shall be discontinued and will not be allowed to resume until the contractor demonstrates that moisture content is controlled within this tolerance. No more than one transport shall be placed and pulverized until moisture content is within ± 2.0 percent of optimum.

(2) Central Plant Mixing: Mixing in a central mix plant shall conform to Section 301. When central plant mixing is used, a reduction of 1.0 percent in the volume of cement required will be permitted.

(b) Cement Treated Sand-Clay-Gravel: Sand-clay-gravel shall be combined with cement and water by in-place mixing or in a central plant and shaped on the subgrade.

Optimum moisture of the mixture will be determined in accordance with DOTD TR 415 or TR 418. The percentage of moisture in the mixture, by dry weight, shall not vary from optimum moisture by more than ± 2.0 percent at the time of compaction when tested in accordance with DOTD TR 403.

(1) In-Place Mixing: In-place mixing shall conform to Heading (a)(1) except that the percentage of Types I or IB portland cement required will be 6 percent by volume. The cement content for Types II or I-P cement will be determined in accordance with DOTD TR 432.

When the moisture content is not within ± 2.0 percent of optimum, operations will be discontinued and will not be allowed to resume until the contractor demonstrates that moisture content is controlled within this tolerance. No more than one cement transport shall be placed and pulverized until moisture content is within ± 2.0 percent of optimum.

(2) Central Plant Mixing: Central plant mixing shall conform to Section 301 except that a reduction of 0.5 percent in the required volume of cement will be permitted.

(c) Stone, Crushed Slag, and Recycled Portland Cement Concrete: Stone, crushed slag, and recycled portland cement concrete base courses shall not segregate during construction. Water added to facilitate compaction shall not cause moisture damage to the subgrade layer.

302.06

302.06 TRANSPORTING AND PLACING ON SUBGRADE.

Transportation and spreading methods shall not damage the subgrade. The contractor shall place and spread sufficient base course material to obtain required width and compacted thickness within the tolerances set forth in Subsection 302.12. Subgrade material shall not contaminate the base course. Any contamination will require retesting and correction of deficiencies. Base course material shall not be placed, spread or mixed on portland cement concrete or asphaltic concrete pavements. Base course construction operations shall not damage adjacent pavement surfaces, edges and joints.

302.07 COMPACTING AND FINISHING.

(a) General: The finished base course shall have a smooth, uniform, closely knit surface, free from ridges, waves, laminations or loose material. The surface shall be thoroughly rolled and finished to grade. The cross-slope shall not vary by more than ± 0.003 ft/ft (± 3 mm/m). Density requirement shall be in accordance with Subsection 302.12.

(b) Soil Cement and Cement Treated Sand-Clay-Gravel: When central plant mixing is used, these materials shall be compacted and finished in accordance with Subsection 301.10, except that the automatic grade machine will not be required. When in-place mixing is used, these materials shall be compacted and finished in accordance with Subsection 303.06.

Compaction and finishing operations shall be completed within 3 hours after initial placement of cement on base course materials. Upon expiration of the 3-hour period after initial placement, only tight blading of the base course surface will be allowed. Bladed material shall not be drifted along the base, but shall be wasted. Stabilized material shall be utilized in the base course except for that small amount necessary for tight blading. Excessive blading to achieve plan depth will not be allowed. The contractor shall complete operations, including tight blading, before beginning the next day's operations. The finished base course shall have a smooth, uniform, closely knit surface, free from ridges, waves, laminations, or loose materials. No cement shall be spread within 2 hours of sunset, unless otherwise approved by the project engineer.

(c) Stone and Recycled Portland Cement Concrete: These materials shall be compacted using an approved sheepsfoot-type roller and finish-rolled with an approved pneumatic tire roller or a smooth steel wheel roller. The surface shall be kept uniformly moist during compaction and final finishing.

(d) Asphaltic Concrete: Asphaltic concrete shall be compacted and finished in accordance with Section 502. The soil layer shall be compacted and finished in accordance with the top layer of embankment.

302.08 QUALITY CONTROL OF ROADWAY OPERATIONS. The contractor shall control the selection, placement, compaction, cement spread, mixing, moisture content, density, thickness, width, surface finish, cross-slope and grade to produce a completed base course that is uniform and conforms to plan dimensions and other acceptance requirements as provided herein. The contractor shall control his operations to prevent contamination, segregation, soft spots, wet spots, laminations and other deficiencies. The contractor shall be responsible for taking tests necessary to adequately control the work.

302.09 PROTECTION AND CURING.

(a) Soil Cement and Cement Treated Sand-Clay-Gravel: Upon completion of intermediate finishing, the base course shall immediately be protected against drying by applying an asphalt curing membrane in accordance with Section 506. Asphalt curing membrane shall be placed on the same day as treatment. Complete coverage of curing membrane shall be maintained from initial application until the placement of the next course. When traffic, including construction equipment, is allowed on the base course, at least the first lift of surfacing shall be placed within 30 calendar days unless otherwise directed.

(b) Stone, Recycled Portland Cement Concrete, and Soil Layer Under Asphaltic Concrete: The base course shall be covered with asphalt prime coat in accordance with Section 505 as soon as practical to avoid water infiltration due to rainfall. Complete coverage of asphalt prime coat shall be maintained from initial application until the placement of the next course.

302.10 MAINTENANCE OF BASE COURSE. The contractor shall protect the base course from damage from public traffic or the contractor's operations, and shall satisfactorily maintain the base course including the asphalt curing membrane or prime coat. Damaged base course shall be repaired by the contractor at no direct pay. When patching of the base course is required, in addition to removing damaged or unsound base course, the contractor shall remove a sufficient width and depth of base course to ensure satisfactory placement of patching material. The engineer will approve the type of patching material before use. Patching or other

302.10

base course repair shall restore a uniform surface, shall conform to the requirements of the material being used, and shall be completed before paving operations begin. Failures detected during paving may be patched as detected.

When maintenance of traffic is not required, neither public traffic nor construction traffic shall be allowed on the completed base course during the 72-hour curing period. When maintenance of traffic is required, both public traffic and construction traffic shall be routed off the completed base course onto shoulders or other suitable areas during the 72-hour curing period, when conditions permit.

When traffic is permitted to use the completed base course subsequent to the 72-hour curing period and prior to construction of the surface course, the base shall be further protected by additional applications of asphalt curing membrane or prime coat as directed in accordance with Subsection 301.12 at no direct pay.

Prior to surface course construction, the contractor shall correct deficiencies, clean the base course surface, repair any damages caused by traffic, and apply and maintain additional asphalt curing membrane or prime coat as directed at no direct pay.

Any weak spots that develop shall be satisfactorily corrected and the base kept free from deficiencies and true to grade and cross section at no direct pay.

When the surfacing is asphaltic concrete the first lift of surfacing shall be placed within 30 calendar days.

302.11 WEATHER LIMITATIONS. Construction of base course will not be permitted when the subgrade or stockpiles are frozen, when raining, or, in the case of cement treated bases, when the ambient air temperature is below 35°F (2°C), or the temperature forecasted by the U.S. Weather Service is to be 25°F (-3°C) or less within the 24 hour period following placement.

302.12 ACCEPTANCE REQUIREMENTS. Soils and aggregates will be sampled for acceptance by the Department in accordance with the Materials Sampling Manual.

For central plant mixing, the cement content will be determined in accordance with Subsection 301.16. For in-place mixing, the cement content will be determined in accordance with Subsection 302.05.

The moisture content of the soil cement or cement treated mixtures will be tested for conformance to optimum moisture content in accordance with DOTD TR 403.

The pulverization of the soil cement or cement treated mixtures will be tested in accordance with DOTD TR 431 and shall be at least 70 percent passing the No. 4 (4.75 mm) sieve.

Base course, except asphaltic concrete, will be checked for determining acceptance in increments of 1,000 linear feet (300 lin m) per roadway or 2,000 linear feet (600 lin m) per shoulder constructed separately. Asphaltic concrete will be accepted in accordance with Section 502.

(a) Density Requirements: Upon completion of compaction operations, base course density, except asphaltic concrete, will be determined in accordance with DOTD TR 401. The density requirements for asphaltic concrete base course will be determined in accordance with Section 502.

The density requirements for Class II Base Course materials shall be in accordance with Table 302-1 as follows.

**Table 302-1
Class II Base Course Density**

Base Course Type	Maximum Density Test Method	Percent of Maximum Density (Min.)
Soil Cement	DOTD TR 418	95.0
Cement Treated Sand-Clay-Gravel	DOTD TR 418	95.0
Stone, Crushed Slag, Recycled Portland Cement Concrete	DOTD TR 418	95.0
Treated Layer under Asphaltic Concrete	DOTD TR 418	95.0
Soil Layer Under Asphaltic Concrete	DOTD TR 418	95.0

(1) Soil Cement, Cement Treated Sand-Clay-Gravel, and Treated Layer Under Asphaltic Concrete: When the density test value for the section is below 95.0 percent, a payment adjustment will be applied in accordance with Table 302-2 as follows.

**Table 302-2
Density Acceptance and Payment Schedule**

Density Test Value	Percent of Contract Unit Price
95.0 & Above	100
94.0 to 94.9	90
93.0 to 93.9	75
Below 93.0	50 or Remove ¹

¹At the option of the Department after investigation.

(2) Stone, Crushed Slag, Recycled Portland Cement Concrete, and Soil Layer under Asphaltic Concrete Base Course: When any test value is less than the required density, compaction shall continue until the specified density is obtained.

(b) Thickness Requirements: The thickness of the completed base course will be determined in accordance with DOTD TR 602.

The completed base course shall not vary from plan thickness in excess of the tolerances in Table 302-3 below. Base course thickness deficiencies in excess of these tolerances shall be corrected as specified herein at no direct pay.

**Table 302-3
Base Course Thickness Tolerance**

(All Bases Except Asphaltic Concrete) Underthickness, Inches (mm)	(Stabilized & Treated Bases) Overthickness, Inches (mm)
3/4 (20)	1 1/2 (40)

Any failing area will be isolated for purposes of correction.

Asphaltic concrete base thickness will be determined in accordance with Section 502.

When central plant mixing is used, overthickness may be waived at no direct pay.

(1) Soil Cement, Cement Treated Sand-Clay-Gravel, and Treated Layer Under Asphaltic Concrete: When no grade adjustments are permitted, underthickness deficiencies in excess of tolerance shall be corrected by removing and replacing the full depth of base course in deficient areas with one of the following materials:

- a. The same type of base course.
- b. Asphaltic concrete complying with Section 502.
- c. Concrete complying with Section 901.

When grade adjustments are permitted, the contractor shall have the option of correcting thickness deficiencies by furnishing and placing a supplemental layer of asphaltic concrete complying with Section 502 for the full width of base course in lieu of removing and replacing deficient base course. When approved, corrections may be made by restabilizing the existing material in accordance with this section. Thickness of the supplemental layer of asphaltic concrete shall be in accordance with Table 302-4 as follows.

**Table 302-4
Supplemental Asphaltic Concrete Layer Thickness**

Underthickness, Inches (mm)	In-Place Mixing Overthickness, Inches (mm)	Minimum Thickness of Supplemental Asphaltic Concrete, Inches (mm) ¹
1 to 1 1/4 (30 to 35)	1 3/4 to 2 (45 to 50)	1 1/4 (35) ⁻
1 1/2 to 1 3/4 (40 to 45)	2 1/4 to 2 1/2 (60 to 65)	1 1/2 (40)
2 to 2 1/2 (50 to 65)	2 3/4 to 3 (70 to 80)	2 (50)
Over 2 1/2 (Over 65)	Over 3 (Over 80)	Remove and Replace ²

¹ May be included in the subsequent lift

² At the option of the Department after investigation.

When reconstruction is the method of correction, the above tolerances shall apply.

(2) Stone, Crushed Slag, and Recycled Portland Cement Concrete: When grade adjustments are allowed, underthickness in excess of 3/4 inch (20 mm) shall be corrected to plan thickness by furnishing, placing, reworking, shaping, and compacting additional base course material as required. When no grade adjustments are allowed the material shall be removed and replaced at no direct pay.

(3) Asphaltic Concrete Base Course: When no grade adjustments are allowed, underthickness in excess of the tolerances given in Subsection 502.12 shall be corrected to plan thickness by removing and replacing the full depth of base course. When grade adjustments are allowed, underthickness in excess of the tolerances given in Subsection 502.12 shall be corrected to plan thickness by placing and compacting a 1 1/4 inch (35 mm) thick minimum supplemental layer of asphaltic concrete complying with Section 502 at no direct pay.

(c) Width Requirements: The width of the completed base course will be determined in accordance with DOTD TR 602. Roadway base course width shall not vary from plan width in excess of +6 inches (+150 mm). Shoulder base course width shall not vary from plan width in excess

302.12

of +3 inches (+75 mm). No tolerances are provided for underwidths of shoulder or roadway bases. When the base course for both roadway and shoulders are constructed at the same time, the 6-inch (150 mm) tolerance will be applied. Base course width deficiencies in excess of the above tolerances shall be corrected as follows at the contractor's expense:

(1) Soil Cement, Cement Treated Sand-Clay-Gravel, and Asphaltic Concrete Base Course:

a. Overwidth: Overwidths of asphaltic concrete and treated base courses mixed in a central plant may be waived at no additional cost to the Department. When no grade adjustments are allowed, the full depth and width of base course in areas having overwidths in excess of the foregoing tolerances shall be removed and replaced to the plan width with one of the following materials:

1. The same type of base course.
2. Asphaltic concrete complying with Section 502.
3. Concrete complying with Section 901.

In lieu of removing and replacing the overwidth areas of base course, at the Department's option, any base course less than 12 inches (300 mm) overwidth will be allowed to remain in place at an adjusted payment of 90 percent of the contract unit price for the complete section. Overwidth in excess of 12 inches (300 mm) shall be removed and replaced as indicated above. When approved, corrections may be made by restabilizing the existing material in accordance with this subsection.

When grade adjustments are permitted, the contractor shall correct base course width deficiencies by removing and replacing as specified above, or by furnishing and placing a 1 1/4 inch (35 mm) thick supplemental layer of asphaltic concrete complying with Section 502 on the 1,000-foot (300 m) section for the full width of the base course.

b. Underwidth: Underwidths of base course in excess of the foregoing tolerances shall be corrected to plan width and thickness by furnishing and placing additional materials; however, the width of widening materials shall be not less than 12 inches (300 mm). When approved, corrections may be made by restabilizing the existing material in accordance with this section. Materials for widening deficient base course shall be either asphaltic concrete complying with Section 502 or concrete complying with Section 901, at the option of the contractor.

(2) Sand-Clay-Gravel, Stone, Crushed Slag, and Recycled Portland Cement Concrete: Overwidths will be waived at no additional cost to the Department. Underwidths in excess of the foregoing tolerances shall be corrected to plan widths by furnishing, placing, reworking, shaping, and compacting additional base course material as required.

(d) Grade and Cross-slope: The finished grade shall be within $\pm 1/2$ inch (± 15 mm) of the established grade. The cross-slope shall not vary by more than ± 0.003 ft/ft (± 3 mm/m).

(e) Correction of Deficiencies: The contractor shall correct deficiencies in surface finish, cross-slope, grade, contamination, segregation, soft spots, wet spots, laminations and other deficiencies at no direct pay. Deficiencies shall be corrected by removing and replacing or as directed.

302.13 MEASUREMENT. The quantities of base course for payment will be the design volumes or areas specified in the plans and adjustments thereto. Design quantities are based on the horizontal dimensions and compacted thickness of the completed base course shown on the plans. Design quantities will be adjusted if the engineer makes changes to adjust to field conditions, if plan errors are proven, or if design changes are necessary.

Geotextile fabric used beneath the base course will not be measured for payment.

302.14 PAYMENT. Payment for base course will be made at the contract unit price, adjusted as specified in Subsection 302.12 and the following provisions, which includes furnishing and placing required base course materials, portland cement, portland-pozzolan cement, water, asphaltic curing membrane and prime coat.

Any payment adjustment in asphaltic concrete shall be in accordance with Section 502 and shall apply to the cubic yard (cu m) total quantity of base course when payment is by cubic yard (cu m). For other materials, when payment adjustments are made for more than one deficiency, they shall be cumulative.

Payment for geotextile fabric will be included in the contract unit price for base course.

302.14

Payment will be made under:

Item No.	Pay Item	Pay Unit
302-01	Class II Base Course	Cubic Yard (Cu m)
302-02	Class II Base Course ____in(mm)Thick	Square Yard (Sq m)

Section 502

Superpave Asphaltic Concrete Mixtures

502.01 DESCRIPTION.

(a) General: These specifications are applicable to Superpave asphaltic concrete wearing, binder and base course mixtures of the plant mix type.

This work consists of furnishing and constructing one or more courses of asphaltic concrete mixture applied hot in conformance with these specifications and in conformity with the lines, grades, thicknesses and typical sections shown on the plans or established. The mixture shall consist of aggregates and asphalt with additives combined in proportions which meet the requirements of this section. Equipment and processes shall conform to Section 503.

(b) Quality Assurance: Quality assurance requirements and design procedures shall be as specified herein elsewhere and in the latest edition of the Department's publication entitled "Application of Quality Assurance Specifications for Asphaltic Concrete Mixtures" which is hereby made a part of this contract by reference.

It is the intent of these specifications that the mixtures produced and placed meet the requirements for 100 percent payment. Work shall meet the requirements of this section and be subject to acceptance by the Department.

The contractor shall be responsible for and shall exercise quality control over materials and their assembly, design, processing, production, hauling, laydown and associated equipment. Quality control is defined as the constant monitoring of equipment, materials and processes to ensure that mixtures produced and placed are uniform, within control limits, and meet specification requirements. When these specifications are not being met and satisfactory control adjustments are not being made, operations shall be discontinued until proper adjustments and uniform operations are established. Control shall be accomplished by a program independent of the Department's testing and shall ensure that the requirements of the job mix are being achieved and that necessary adjustments provide the specified results.

The quality of mixtures will be evaluated during two phases, mixture produced at the plant, and mixture hauled, placed and compacted. Quality of both phases will be evaluated continuously as stated herein elsewhere.

502.01

Plant quality control testing shall be conducted continuously throughout production independent of delivery points. Project site quality control testing shall be conducted on each project for the mix placed on that project.

When the plant is in operation, the contractor shall have a Certified Asphaltic Concrete Plant Technician at the plant or jobsite who is capable of designing asphaltic concrete mixes, conducting any test or analysis necessary to put the plant into operation and producing a mixture meeting specifications. Daily plant operations shall not begin unless the Certified Asphaltic Concrete Plant Technician is at the plant. The Asphaltic Concrete Plant Technician certification will be awarded by the Department upon satisfactory completion of the Department's requirements.

(c) Mixture Substitutions: Changes in design level will not be allowed on the roadway. Substitutions will be allowed for mixes without requiring a change order as follows. Wearing course [0.75 inch (19 mm)] may be substituted for binder course but not substituted for base course. Binder course [1 inch (25 mm)] may be substituted for base course. Wearing Course, 0.5 inch (12.5 mm) may be substituted for Incidental Paving, Level A. Shoulders may be any mixture type shown in Table 502-5 regardless of design level.

When any substitution is made, all specification requirements for the mixture used shall apply with the following exceptions. When wearing course is substituted for binder course, RAP will be allowed in accordance with binder course requirements in Table 502-5. The lift thickness placed shall be as specified in Subsection 502.08 and Table 502-5 for the mix type used.

502.02 MATERIALS. All materials must be sampled in accordance with the Materials Sampling Manual and shall be tested in accordance with the test procedures in Table 502-1. The contractor shall keep accurate records, including proof of deliveries of materials for use in asphaltic concrete mixtures. Copies of these records shall be furnished to the engineer upon request. Materials shall comply with the following Subsections:

Asphalt	1002
Silicone and Anti-Strip Additives	1002.02
Aggregates	1003.01 & 1003.06
Reclaimed Asphaltic Pavement (RAP)	1003.01 & 1003.06
Hydrated Lime	1018.03(a)
Mix Release Agent	1018.25

**Table 502-1
Test Procedures for Superpave Asphalt Concrete**

Description	Test Method
Specific Gravity and Density of Compressed Asphaltic Mixtures	DOTD TR 304
Theoretical Maximum Specific Gravity, G_{mm}	DOTD TR 327
Asphalt Cement Content, P_b	DOTD TR 323
Mechanical Analysis of Extracted Aggregate	DOTD TR 309
Moisture Content of Loose HMA	DOTD TR 319
Degree of Particle Coating (plant requirement)	DOTD TR 328
Moisture Sensitivity (Lottman) (Tensile Strength Ratio)	DOTD TR 322
Bulk Specific Gravity and Absorption	AASHTO T 84, T 85
Coarse Aggregate Angularity, % Crushed (Double Faced)	DOTD TR 306
Fine Aggregate Angularity	DOTD TR 121
Flat and Elongated Particles	ASTM D 4791
Sand Equivalent	DOTD TR 120
Mixture Conditioning (Aging) of HMA Mixtures	AASHTO R 30
Superpave Volumetric Mix Design	AASHTO M 323
Preparing Gyrotory Samples	AASHTO T 312
Asphalt Cement Draindown	ASTM D 6390
Longitudinal Profile Using Automated Profilers	DOTD TR 644
Thickness and Width of Base and Subbase	DOTD TR 602

(a) Asphalt Cement: The asphalt cement grades used shall be as specified in Table 502-2 using the design traffic load levels shown on the plans.

If the asphalt cement does not comply with the requirements of Section 1002, mix production shall cease until proper asphalt material is supplied.

**Table 502-2
Superpave Asphalt Cement Usage**

Current Traffic Load Level	Mixture Type	Grade of Asphalt Cement
Level 1	Wearing Course	PG 70-22m
	Binder Course	PG 70-22m
	Base Course	PG 64-22
Level 2	Wearing Course	PG 76-22m
	Binder Course	PG 76-22m
Level A	Incidental Paving	PG 70-22m

502.02

Base course mixtures containing 20 to 30 percent RAP shall use PG 58-28 asphalt cement.

When mixtures are used for bike paths, curbs, detour roads, driveways, guardrail widening, islands, joint repair, leveling, parking lots, patching, or widening, PG 64-22 asphalt cement may be used in lieu of the modified asphalts. Unless otherwise noted on the plans, PG 64-22 asphalt cement may also be used on shoulders in lieu of the modified asphalts.

PG 76-22m asphalt cement may be substituted for PG 70-22m or PG 64-22 asphalt cements at no increase in price. PG 70-22m asphalt cement may be substituted for PG 64-22 at no increase in price. When average daily traffic (ADT) is less than 2500, PG 70-22m Alternate asphalt cement may be substituted for PG 70-22m asphalt cement for Level 1 and Level A mixes at no increase in price.

(b) Additives:

(1) Silicone: Silicone additives, when needed, shall be dispersed into the asphalt cement by methods and in concentrations given in QPL 22.

(2) Anti-Strip (AS): An anti-strip additive shall be added at the minimum rate of 0.5 percent by weight (mass) of asphalt cement and thoroughly mixed in-line with the asphalt cement at the plant. Additional anti-strip shall be added up to 1.2 percent by weight (mass) of asphalt in accordance with Subsection 502.03.

When the amount of anti-strip additive is not in accordance with the approved job mix formula, production shall be discontinued until satisfactory adjustments are made.

(3) Hydrated Lime: Hydrated lime additive may be incorporated into all asphaltic concrete mixtures at the rate specified in the approved job mix formula. The minimum rate shall not be less than 1.5 percent by weight (mass) of the total mixture. Hydrated lime additive shall be added to and thoroughly mixed with aggregates in conformance with Subsection 503.05(c). Hydrated lime may be added as a mineral filler in accordance with Heading (c)(3).

(c) Aggregates: Aggregates shall meet the requirements of Table 502-5 and Section 1003.

(1) Friction Ratings: Friction ratings for aggregates shall be determined in accordance with Subsection 1003.06. The friction ratings and allowable usage of aggregates shall be as shown in Table 502-3. Friction rating requirements shall apply only to the final lift of the travel lane wearing course. Bike paths, curbs, driveways, guardrail widening, islands, joint repair, leveling, parking lots, patching, shoulders, widening and incidental paving uses, and roadway binder and base courses may use

any combination of Friction Rating I, II, III, and IV aggregates, in combination with the allowable RAP percentages.

**Table 502-3
Aggregate Friction Rating**

Friction Rating	Allowable Usage
I	All mixtures
II	All mixtures
III	All mixtures, except travel lane wearing courses with plan ADT greater than 7000 ¹
IV	All mixtures, except travel lane wearing courses ²

(2) Reclaimed Asphaltic Pavement (RAP): Reclaimed asphaltic pavement shall be stockpiled separate from other materials at the plant and will be subject to approval prior to use. Such stockpiles shall be uniform and free of soil, debris, foreign matter and other contaminants. Reclaimed materials that cannot be broken down during mixing or that adversely affect paving operations shall be screened or crushed to pass a 2 inch (50 mm) sieve prior to use.

(3) Mineral Filler: Mineral filler complying with the requirements of Subsection 1003.06(a)(6) may be used in all mixtures.

(4) Natural Sand: Natural sand shall meet the requirements of Table 502-5 and Subsection 1003.06(a)(3).

502.03 DESIGN OF ASPHALTIC MIXTURES, JOB MIX FORMULA (JMF). The contractor shall design the mixtures for optimum asphalt content and comply with requirements of the Superpave Mix Design for the level of mixture in Table 502-5 in accordance with AASHTO M 323. The job mix formula shall include the recommended formula, extracted gradation, and supporting design data. The recommended formula shall be submitted for approval to the District Laboratory Engineer on a properly completed Superpave Asphaltic Concrete Job Mix Formula form with all supporting design data. No mixture shall be produced until the proposed job mix formula has been approved.

The contractor's proposed job mix formula shall indicate a single anti-strip additive rate which is 0.1 percent greater than the percentage which will yield a minimum Tensile Strength Ratio (TSR) of 80 percent up to a

502.03

maximum of 1.2 percent anti-strip additive when tested in accordance with DOTD TR 322.

The job mix formula shall indicate a single rate of hydrated lime additive, when used. The job mix formula rate of hydrated lime additive shall not be less than 1.5 percent by weight (mass) of total mixture.

The job mix formula shall indicate the optimum mixing temperature. The job mix formula limits for mix temperature will be $\pm 25^{\circ}\text{F}$ ($\pm 14^{\circ}\text{C}$) from the optimum mixing temperature.

The job mix formula is to be inside the control points as detailed in Table 502-4. Blending of aggregates, i.e., gravel and stone, will be allowed provided the final composite mixture and final product meets or exceeds all specifications requirements.

The plant shall be operated to produce, on a continuing basis, a mixture uniformly conforming to the approved job mix formula. When this is not the case, the contractor shall make satisfactory adjustments or cease operations. The District Laboratory Engineer may permit the contractor to submit a new Asphaltic Concrete Job Mix Formula form for approval. The contractor shall submit a new job mix formula whenever a plant begins initial operations for the Department in a specific location or whenever a plant experiences a change in materials or source of materials. A new job mix formula will also be required whenever there are significant changes in equipment, such as the introduction of a new crusher, drum mixer, burner, etc.

When reclaimed asphaltic pavement (RAP) is used in a roadway mix, the quantity of RAP shall be designated in the job mix formula and meet the requirements of Table 502-5. The engineer may require the contractor to reduce the percentage of RAP to meet acceptance requirements.

When the contractor changes a source of RAP, the new mix design shall be submitted, validated and approved if the type of aggregate changes (e.g. gravel to limestone) or the source change causes a change in acceptance tolerances. If the contractor determines that the source change will not cause a change in acceptance tolerances, the contractor may elect to integrate the new RAP source into the existing approved mix design provided the contractor submits a revised job mix formula cover sheet which shows the new source of RAP and other changes. A new validation will not be required. If subsequent acceptance tests indicate that the mix is out of tolerance, a new design will be required and appropriate payment adjustments will apply.

502.04 JOB MIX FORMULA VALIDATION. The first day's production or a maximum of 2000 tons (2000 Mg) of mix shall be used to validate a new JMF. The contractor and the Department, using the stratified random sampling approach, shall jointly take five (5) samples, one per validation subplot, during the validation lot. The contractor may elect to exclude test results representing the first 250 tons (250 Mg) from the validation analysis in order to make slight adjustments to the mix. The remaining validation lot, up to 1750 tons (1750 Mg), shall be divided into five (5) equal validation sublots and tested for validation analysis. If excluded from validation, the 250 tons (250 Mg) will be paid in accordance with Table 502-9.

Minimum testing shall include one theoretical maximum specific gravity (G_{mm}), one gyratory specimen compacted to N_{design} , one gyratory specimen compacted to N_{max} , and one oven extraction. As approved by the district laboratory engineer, the contractor and the Department shall jointly analyze the test results for the following parameters:

- (1) Extracted Gradation
- (2) Percent Extracted Asphalt Cement
- (3) Percent Crushed Aggregate, (from cold feed blends)
- (4) Theoretical Maximum Specific Gravity (G_{mm}) (aged for one hour)

The following parameters apply to samples aged for one hour in an oven at gyratory compaction temperature and compacted to N_{design} .

- (5) Bulk Specific Gravity (G_{mb}) at N_{design}
- (6) Percent G_{mm} at $N_{initial}$
- (7) Percent Air Voids, VMA and VFA

The following parameters apply to samples aged for one hour in an oven at gyratory compaction temperature and compacted to N_{max}

- (8) Bulk Specific Gravity (G_{mb}) at N_{max} measured and estimated
- (9) Percent G_{mm} at N_{max} and Corrected percent G_{mm} at N_{design}
- (10) Slope of the Gyratory Compaction Curve

The mean, standard deviation, Quality Index and percent within limits (PWL) of the test results shall be calculated in accordance with Subsection 502.13, Quality Level Analysis. The test data will be used to validate the JMF.

A JMF is considered validated if the following parameters are 90 percent within limits of the JMF and meet the specifications requirements.

502.04

(1) Extracted Gradations for the No. 8 and No. 200 (2.36 mm and 75 μm) sieves

(2) Theoretical Maximum Specific Gravity (G_{mm})

(3) Percent G_{mm} at N_{initial}

(4) Percent Air Voids at N_{design}

Additionally, the average of all validation tests for the other parameters shall be within the specifications limits.

Should the JMF validate on all but one parameter, the contractor may make adjustments and repeat the validation testing using the next day's production or a maximum of 2000 tons (2000 Mg). Should the JMF fail to validate on more than one parameter, the JMF will be considered non-valid, and the contractor will be required to submit a new JMF for approval. Upon validation of the JMF, the validation averages will be used for JMF target values. Payment for validation lots will be in accordance with acceptance pay parameters, except that five cores shall be obtained to determine density pay. After validating the JMF for mix properties, the contractor, witnessed by the Department, shall sample the next day's production and perform validation testing at the plant for DOTD TR 322 and AASHTO T 312 specimens. When the validation results are less than 80 percent, no further production for that job mix formula or any proposed job mix formula substituted for that mix type will be accepted on any DOTD project having DOTD TR 322 requirements until a passing plant-produced Tensile Strength Ratio (TSR) value is verified by the Department. A previously validated and approved JMF may be produced in lieu of the disapproved JMF.

Validation is not required for mixture designs used solely for bike paths, crossovers, curbs, driveways, guardrail widening, islands, joint repair, leveling, parking lots, patching, shoulders, turnouts, widening, and miscellaneous handwork, but the mixture must meet specifications requirements.

502.05 PLANT QUALITY CONTROL. For quality control purposes, the contractor shall obtain a minimum of two (2) samples of mixture from each subplot using a stratified random sampling approach. Test results for theoretical maximum specific gravity (G_{mm}) and measured bulk specific gravity (G_{mb}) at N_{max} and percent G_{mm} at N_{initial} , on samples of each subplot shall be reported. Control charts may be requested by the engineer if mixture problems develop. Quality control gyratory samples may be aged or unaged at the contractor's option, but the method chosen shall be used consistently throughout the project. If aged samples are used, report the

measured G_{mb} at N_{max} . If unaged samples are used, report the estimated G_{mb} at N_{max} . One loose mix sample shall be taken from each subplot after placement of the mix in the truck. The mix shall be tested by the contractor at the plant for aggregate gradation, asphalt content and percent crushed aggregate. The mix shall be tested in accordance with DOTD TR 309, TR 323 and TR 306. The lot average and standard deviation shall be determined for aggregate gradation and asphalt content. The percent within limits (PWL) shall be determined on the Nos. 8 and 200 (2.36 mm and 75 μ m) sieves and for G_{mm} . Corrective action shall be taken if these parameters fall below 90 PWL. For each lot, the contractor shall report all quality control data to the DOTD Certified Plant Technician. The full range of gradation mix tolerances will be allowed even if they fall outside the control points. The District Laboratory Engineer may require re-validation of the mix when the average of the Quality Control data indicates non-compliance with the specified limits or tolerances.

The moisture content of the final mixture shall be minimized and uniformly controlled to ensure that placement and density requirements are met. The percent moisture in loose mix shall be reported once per lot and shall not exceed 0.3 percent by weight (mass) when tested in accordance with DOTD TR 319.

502.06 PLANT ACCEPTANCE. All Department inspection procedures, including sampling and testing, form the basis for acceptance of the asphaltic concrete. Sampling and testing shall be accomplished following a stratified sampling plan in accordance with the Materials Sampling Manual and specified test procedures. Times and locations shall be established by the engineer.

The Department will take samples or perform tests as outlined in these specifications, to ensure that the asphaltic concrete conforms to Department standards, which include job mix limits, typical sections, material properties, and surface deviations. Plant acceptance tests will be performed for VFA and air voids in the specimen compacted to N_{design} to determine the acceptability of the asphaltic concrete at the plant unless directed otherwise by the engineer. If the average VFA for 5 samples is outside the specifications limits, satisfactory adjustments must be made or production shall be discontinued. The plant acceptance tests for air voids shall be subject to payment adjustments and sampling and testing in accordance with the requirements specified herein.

Testing for percent air voids will be conducted by the Department. Test results of mixture specimens compacted to N_{design} shall comply with Table

502.06

502-5 when tested in accordance with AASHTO T 312 and DOTD TR 304. One sample will be taken from each of five (5) sublots. The data will be used to determine if the lot is outside acceptance limits shown in Table 502-5. If the lot is outside the acceptance limits, an adjustment in unit price for the lot will be made in accordance with Tables 502-7 or 502-9.

Acceptance testing for air voids will be conducted on the total lot quantity.

502.07 ROADWAY OPERATIONS.

(a) Weather Limitations: Asphaltic concrete mixtures shall not be applied on a wet surface or when the ambient temperature is below 50°F (10°C) for wearing courses and 40°F (5°C) for base and binder courses, except that material in transit, or a maximum of 50 tons (45 Mg) in a surge bin or silo used as a surge bin at the time plant operation is discontinued may be placed; however, mixture placed shall perform satisfactorily and meet specification requirements. Inclement weather will be sufficient reason to terminate or not begin production.

When base course materials are placed in plan thicknesses of 2 3/4 inches (70 mm) or greater, these temperature limitations shall not apply provided all other specification requirements are met. When a wearing course is substituted for a binder course mixture the temperature limitation for binder course shall apply.

(b) Surface Preparation: The surface to be covered shall be approved prior to placing mixtures. The contractor shall maintain the surface until it is covered.

(1) Cleaning: The surface to be covered shall be swept clean of dust, dirt, caked clay, caked material, vegetation, and loose material by revolving brooms or other mechanical sweepers supplemented with hand equipment as directed. When mixtures are to be placed on portland cement concrete pavement or overlaid portland cement concrete, the contractor shall remove excess joint filler from the surface by an approved burning method. The contractor shall remove any existing raised pavement markers prior to asphaltic concrete overlay operations.

When brooming does not adequately clean the surface, the contractor shall wash the surface with water in addition to brooming to clean the surface.

When liquid asphalt is exposed to traffic for more than 1 calendar day, becomes contaminated, or degrades due to inclement weather, the liquid asphalt shall be reapplied at the initial recommended rate at no direct pay.

(2) Applying Liquid Asphalt Materials:

a. Existing Pavement Surfaces: Before constructing each course, an approved asphalt tack coat shall be applied in accordance with Section 504. The contractor shall protect the tack coat and spot patch as required.

b. Raw Aggregate Base Course and Raw Embankment Surfaces: The contractor shall apply an approved asphalt prime coat to unprimed surfaces, or protect in-place prime coat and spot patch as required with asphalt prime coat, in accordance with Section 505.

c. Cement and Lime Stabilized or Treated Embankment and Base Course Surfaces: The contractor shall apply an approved asphalt curing membrane when none is in place, or protect the in-place curing membrane and spot patch, as required, with asphalt material in accordance with Section 506.

d. Other Surfaces: Contact surfaces of curbs, gutters, manholes, edges of longitudinal and transverse joints, and other structures shall be covered with a uniform coating of an approved asphalt tack coat complying with Section 504 before placing asphaltic mixtures.

(c) Joint Construction:

(1) Longitudinal Joints: Longitudinal joints shall be constructed by setting the screed to allow approximately 25 percent fluff and also overlapping the paver approximately 2 inches (50 mm) onto the adjacent pass. Prior to rolling, the overlapped mix shall be pushed back to the uncompacted side, without scattering loose material over the uncompacted mat, to form a vertical edge above the joint. The vertical edge shall then be compacted by rolling to form a smooth, sealed joint. Longitudinal joints in one layer shall offset those in the layer below by a minimum of 3 inches (75 mm); however, the joint in the top layer shall be offset 3 inches (75 mm) to 6 inches (150 mm) from the centerline of pavement when the roadway comprises two lanes of width, or offset 3 inches (75 mm) to 6 inches (150 mm) from lane lines when the roadway is more than two lanes. The narrow strip shall be constructed first.

Where adjacent paving strips are to be placed, the longitudinal edge joint of the existing strip shall be tacked.

(2) Transverse Joints: Transverse joints shall be butt joints formed by cutting back on the previously placed mixture to expose the full depth of the lift. An approved 10 foot (3.0 m) static straightedge shall be used to identify the location at which the previously placed mixture is to be cut back to maintain no greater than a 1/8 inch (3 mm) deviation in grade. The cut face of the previously placed mat shall be lightly tacked before fresh material is placed. The screed shall rest on shims that are

502.07

approximately 25 percent of plan thickness placed on the compacted mat. Transverse joints shall be formed by an adequate crew. Transverse joints shall be checked by the engineer for surface tolerance using a stringline extended from a point 10 feet (3 m) before the joint to a point approximately 40 feet (12 m) beyond the joint. Any deviation in grade from the stringline in excess of 3/16 inch (5 mm) for roadway wearing courses and 1/4 inch (6 mm) for other courses shall be immediately corrected prior to the paving operation continuing beyond 100 feet (30 m) of the transverse joint. Additionally, the transverse joint shall meet the surface tolerance requirements of Table 502-4. The contractor shall make necessary corrections to the joint before continuing placement operations.

Transverse joints in succeeding lifts shall be offset at least 3 feet (1.0 m).

502.08 HAULING, PAVING AND FINISHING. Mixtures shall be transported from the plant and delivered to the paver at a temperature no cooler than 25°F (14°C) below the lower limit of the approved job mix formula. The temperature of the mix going through the paver shall not be cooler than 250°F (120°C).

No loads shall be sent out so late in the day that completion of spreading and compaction of the mixture cannot be completed during daylight, unless artificial lighting has been approved.

When segregation occurs, haul trucks shall be loaded with a minimum of three drops of mix, the last of which shall be in the middle.

Each course of asphaltic mixture shall be placed in accordance with the specified lift thickness. When no lift thickness is specified, or when substitute mixtures are utilized as specified in Subsection 502.01(c), mixtures shall be placed in accordance with Table 502-5

With the engineer's approval, motor patrols may be used to fill isolated depressions in the initial layer, provided this construction does not result in unsatisfactory subsequent lifts.

(a) Coordination of Production: The contractor shall coordinate and manage plant production, transportation of mix and placement operations to achieve a high quality pavement and shall have sufficient hauling vehicles to ensure continuous plant and roadway operations. The engineer will order a halt to operations when sufficient hauling vehicles are not available.

On final wearing course construction under traffic with pavement layers of 2 inches (50 mm) compacted thickness or less, the contractor will be permitted to pave one travel lane for a full day. The contractor shall pave

the adjacent travel lane the next work day. When the adjacent travel lane is not paved the next calendar day and the longitudinal joint is exposed to traffic for more than 3 calendar days, and it has been determined that the subsequent roadway edge is not true to line and grade as previously constructed, the entire length of exposed longitudinal joint shall be cut back to plan thickness to a vertical edge and heavily tacked. When pavement layers are greater than 2 inches (50 mm) compacted thickness, the contractor shall place approximately 1/2 of each day's production in one lane and the remainder in the adjacent lane.

Pavement shall be protected from traffic until it has sufficiently hardened to the extent the surface is not damaged.

(b) Paving Operations: When placing the final two lifts of asphaltic concrete on the roadway travel lanes, a material transfer vehicle (MTV), as described in Subsection 503.15, will be required to deliver mixtures from the hauling equipment to the paving equipment, and to prevent segregation of the asphaltic concrete hot mix. The MTV is required regardless of ADT. All mixtures shall flow through the paver hopper. Mixtures dropped in front of the paver shall be either lifted into the hopper or rejected and cast aside. Delivery of material to the paver shall be at a uniform rate and in an amount within the capacity of paving and compacting equipment. The paver speed and number of trucks shall be adjusted to have one truck waiting in addition to the one at the paver in order to maintain continuous paving operations. The height of material in front of the screed shall remain uniform.

During mixture transfer, the paver shall not be jarred or moved out of alignment. The level of mix in the paver hopper shall not drop so low as to expose the hopper feed slats.

Pavers shall be designed and operated to place mixtures to required line, grade and surface tolerance without resorting to hand finishing.

Longitudinal joints and edges shall be constructed along lines established. Stringlines or other forms of longitudinal control shall be placed by the contractor for the paver to follow. The paver shall be positioned and operated to closely follow the established line. Irregularities in alignment shall be corrected by trimming or filling directly behind the paver.

After each load of material has been placed, the texture of the unrolled surface shall be checked to determine its uniformity. The adjustment of screed, tamping bars, feed screws, hopper feed, etc., shall be checked frequently and adjusted as required to assure uniform spreading of the mix to proper line and grade and adequate compaction. When segregation of

502.08

materials or other deficiencies occur, paving operations shall be suspended until the cause is determined and corrected.

Surface irregularities shall be corrected directly behind the paver. Excess material forming high spots shall be removed. Indented areas shall be filled and finished smooth. Hand placement in accordance with Heading (c) for surface repair will be permitted. Material shall not be cast over the surface.

When a screed control device malfunctions during binder or wearing course operations, paving operations shall be immediately discontinued and shall not be resumed until the screed malfunction has been remedied. Material in transit may be placed. Material placed shall perform satisfactorily and meet specification requirements. Any cost overrun resulting from placing material without the automatic screed control device shall be borne by the contractor.

When paving and finishing operations are interrupted so that the mixture remaining in trucks, paver, paver hopper or on the pavement cools to such extent that it cannot be placed, finished or compacted to the same degree of smoothness and with the same texture and density as the uncooled mixture, the cooled mixture shall be removed and replaced at no direct pay.

When additional mix is required to increase superelevation in curves, the use of automatic slope control will be optional with the contractor.

The traveling reference plane method of construction will be required for airport runways unless designated otherwise on the plans. Unless the erected stringline is required or directed, the 30-foot (minimum) traveling reference plane method of construction shall be used for roadway travel lanes. The following requirements shall apply for mechanical pavers:

(1) Traveling Reference Plane: The traveling reference plane method shall be approved before use. After the initial paving strip of each lift is finished and compacted, adjacent paving strips shall be placed to the grade of the initial paving strip using the traveling reference plane or shoe device to control grade and a slope control device to control cross slope.

On multilane pavements, the initial paving strip and the sequence of lane construction will be subject to approval.

When both outside edges of the paving strip being placed are flush with previously placed material, the slope control device shall not be used. A grade sensor is required for each side of the paver.

In superelevated curves, the cross slope shall be changed from that specified for tangents to that specified for superelevation in gradual increments while the paver is in motion so a smooth transition in grade is

obtained. This change in cross slope shall be accomplished within the transition distance specified.

This is the minimum acceptable method and the contractor must meet or exceed current surface tolerance specifications.

(2) Erected Stringline: The erected stringline method shall be used as directed by the engineer. This method may be used on the first lift of asphalt when the underlying new or reconstructed bases do not have grade control requirements. Pavers for roadway travel lanes shall be equipped with automatic screed and slope control devices when used with an erected stringline.

An erected stringline shall consist of a piano wire or approved equal stretched between stakes set at no greater than 25 foot (7.5 m) intervals tensioned between supports so that there is less than 1/8 inch (3 mm) variance between supports when the sensor is in place. The stringline elevation will be verified by the Department using standard surveying practices.

If required, the initial paving strip of the first lift shall be constructed using an erected stringline referenced to established grade. When permitted, mixtures required to level isolated depressions may be placed without automatic screed control. Subsequent lifts may be constructed by use of the traveling reference plane, provided surface and grade tolerances are met on the previous lift.

Only one grade sensor and the slope control device are necessary for roadways with a normal crown on tangent alignment. Superelevated curves will require the use of two grade sensors and two erected stringlines to obtain proper grade and slope; however, when the automatic screed control device is equipped with a dial or other device which can be conveniently used to change the cross slope in small increments, superelevated curves may be constructed using this device and one erected stringline.

After the initial paving strip of the first lift is finished and compacted, adjacent paving strips shall be laid using an approved traveling reference plane.

(3) Without Automatic Screed Control: When permitted, pavers without automatic screed control may be used for pavement patching, pavement widening, paved drives and turnouts.

(c) Hand Placement: When the use of mechanical finishing equipment is not practical, the mix may be placed and finished by hand to the satisfaction of the engineer. No casting will be allowed including casting the mixture from the truck to the grade. During paving operations

502.08

material shall be thoroughly loosened and uniformly distributed. Material that has formed into lumps and does not break down readily will be rejected. The surface shall be checked before rolling and irregularities corrected.

502.09 COMPACTION.

(a) General: After placement, mixtures shall be uniformly compacted, by rolling while still hot, to at least the density specified in Table 502-4. If continuous roller operation is discontinued, rollers shall be removed to cooler areas of the mat, where they will not leave surface indentations. The use of steel wheel rollers which result in excessive crushing of aggregate will not be permitted.

The rolling pattern established by the contractor shall be conducted by experienced operators in consistent sequences and by uniform methods that will obtain specified density and smoothness. Individual roller passes shall uniformly overlap preceding passes to ensure complete coverage of the paving area. The speed and operation of rollers shall not displace, tear or crack the mat. Nonvibrating steel wheel rollers shall be operated with drive wheels toward the paver. Any operations causing displacement, tearing or cracking of the mat shall be immediately corrected.

Equipment which leaves tracks or indented areas which cannot be corrected in normal operations or fails to produce a satisfactory surface shall not be used. Operation of equipment resulting in accumulation of material and subsequent shedding of accumulated material into the mixture or onto the mat will not be permitted.

To prevent adhesion of mixture, wheels of steel wheel rollers shall be kept properly moistened, but excess water will not be permitted.

Pneumatic tire rollers shall be operated so that tires will retain adequate heat to prevent mix from adhering to tires. The pneumatic tire roller shall be operated at a contact pressure which will result in a uniform, tightly knit surface. The pneumatic tire roller shall be kept approximately 6 inches (150 mm) from unsupported edges of the paving strip; however, when an adjacent paving strip is down, the roller shall overlap the adjacent paving strip approximately 6 inches (150 mm).

Vibratory rollers may be used provided they do not impair the stability of the pavement structure or underlying layers. Vibratory rollers shall not be used on the first lift of asphaltic concrete placed over the asphalt treated drainage blanket. When mix is placed on newly constructed cement or lime stabilized or treated layers, vibratory rollers shall not be used for at least 7 days after such stabilization or treatment.

It is the responsibility of the contractor to determine the number, size, and type of rollers to sufficiently compact the mixture to the specified density and surface smoothness. The rolling equipment shall be capable of maintaining the pace of the paver and shall conform to Subsection 503.17.

The surface of mixtures after compaction shall be smooth and true to cross slope and grade within the tolerances specified. Mixtures that become loose, broken, contaminated or otherwise defective shall be removed and replaced with fresh hot mixture compacted to conform with the surrounding mixture.

Excessive rippling of the mat surface will not be accepted. Ripples are small bumps in the pavement surface which usually appear in groups in a frequent and regular manner. There shall be no more than 12 ripples or peaks in any 100-foot (30 m) section. Rippling indicates a problem with the paving operation or mix that requires immediate corrective action by the contractor; otherwise operations shall cease. Unacceptable areas shall be corrected at no direct pay. A profilograph trace may be required to define these areas.

(b) Rolling: After rolling, newly finished pavements shall have a uniform, tightly knit surface free of cracks, tears, roller marks or other deficiencies. Deficiencies shall be corrected at no direct pay and the contractor shall adjust operations to correct the problem. This may require the contractor to adjust the mix or furnish additional or different equipment.

(c) Hand Compaction: Along forms, curbs, headers, walls and at other places inaccessible to rollers, mixture shall be uniformly compacted to the satisfaction of the engineer with approved hand tampers or mechanical tampers, conforming to Subsection 503.18.

502.10 ROADWAY QUALITY CONTROL.

(a) Density: The contractor shall constantly monitor equipment, materials, and processes to ensure that density requirements are met.

(b) Surface Tolerance: The contractor shall constantly monitor equipment, materials, and processes to ensure that surface tolerance requirements are met. The contractor shall test the pavement during the first work day following placement, but in no case any later than 7 calendar days.

Surface tolerance testing will be required on wearing and binder courses for roadway travel lanes. It will be required on the wearing course only for shoulders, parking areas and airport runways and taxiways. For surface

502.10

tolerance purposes, the wearing course is defined as the final lift placed. The binder course is defined as the last lift placed prior to the final lift.

Other lifts on which additional asphaltic concrete is to be placed shall be finished so that succeeding courses will meet the requirements of this subsection. Base courses on which portland cement concrete pavement is to be placed shall be finished so that the portland cement concrete pavement will meet the requirements of Section 601.

(1) Equipment: The contractor shall furnish an approved 10 foot (3.0 m) metal static straightedge for quality control and acceptance testing for transverse, cross slope and grade

The contractor shall also furnish a DOTD certified inertial profiler, for quality control and acceptance, to measure both wheelpaths simultaneously with laser or infrared height sensing equipment. Inertial profilers shall be capable of testing the finished surface in the longitudinal direction for conformance to the surface tolerance requirements listed in this subsection. Longitudinal surface profile shall be measured in inches per mile (mm per km) in accordance with DOTD TR 644 and reported as the International Roughness Index (IRI).

The Department will evaluate and verify the accuracy of the inertial profiler annually using static and dynamic tests in accordance with DOTD TR 644. Approved profilers will have a DOTD decal indicating the date of profiler verification and profiler system parameter settings. These settings shall be verified by the inspector before the first day of binder course paving and randomly thereafter.

For each project, a Department representative will observe the daily set up procedure and pre-operation tests, which shall be performed by the contractor in accordance with the manufacturer's procedures and DOTD TR 644. A copy of the manufacturer's setup procedure, pre-operation procedures, and operating procedure for measuring surface tolerance shall be available at all times during measurement.

(2) Transverse, Cross Slope and Grade:

a. Transverse: The contractor shall monitor and test the roadway for conformance to the requirements of Table 502-4. For turnouts, crossovers, detour roads, parking areas, and roadway or shoulder sections less than 500 feet (150 m) in length, the wearing course shall be tested and the surface deviations shall not exceed 1/2 inch (15 mm). Areas with surface deviations in excess of specification limits shall be isolated and corrected by the contractor in accordance with Heading (4). The contractor shall control the transverse surface finish.

b. Cross Slope: When the plans require the section to be constructed to a specified cross slope, the contractor shall take measurements at selected locations, using a stringline, slope board or other comparable method. The contractor shall control the cross slope so that the values shown in Table 502-4 are not exceeded for each lane constructed. The contractor shall make corrections in accordance with Heading (4) of this subsection.

c. Grade: When the plans require the pavement to be constructed to a grade, the contractor shall perform tests for conformance at selected locations, using a stringline or other comparable method. The contractor shall control grade variations so that the tolerances shown in Table 502-4 are not exceeded. Grade tolerances shall apply to only one longitudinal line, such as the centerline or outside edge of pavement. The contractor shall make corrections in accordance with Heading (4) of this subsection.

(3) Longitudinal: The contractor shall report an average IRI number in inches per mile (mm per km) and shall measure and report the average IRI value for each wheelpath on every 0.05-mile (0.08 km) segment of highway. Isolated rough areas will not be allowed. Any 0.05-mile (0.08 km) individual wheelpath segment measurement of the binder and wearing courses shall meet the requirements of Table 502-8B. The contractor shall make corrections in accordance with Heading (4) of this subsection.

(4) Correction of Deficient Areas: The contractor shall correct areas not meeting Table 502-8B requirements for individual wheelpath measurements in a 0.05-mile (0.08 km) segment.

a. Deficiencies in Wearing Course: The contractor shall correct deficiencies in the final wearing course by diamond grinding and applying a light tack coat, removing and replacing, or furnishing and placing a supplemental layer of wearing course mixture at least 1 1/2 inches (40 mm) compacted thickness for the full width of the roadway meeting specification requirements at no direct pay. If the supplemental layer does not meet specification requirements to the satisfaction of the engineer, the contractor shall remove and replace or correct it by other methods approved by the engineer.

b. Deficiencies in Binder Courses: The contractor shall correct deficiencies in binder course, transverse, cross slope, and grade measurements to meet specification requirements at no direct pay. Corrections shall be made before subsequent courses are constructed.

502.10

c. Deficiencies in Shoulder Transverse, Cross Slope and Grade: The contractor shall correct deficiencies in these areas by grinding at the project engineer's direction.

502.11 ROADWAY ACCEPTANCE. Acceptance testing for pavement density, surface tolerance and dimensional tolerances will be conducted on that portion of the lot placed on each contract.

Hot mix exhibiting deficiencies before placement such as segregation, contamination, lumps, nonuniform coating, excessive temperature variations or other deficiencies, apparent on visual inspection, shall not be placed.

Hot mix exhibiting deficiencies, such as segregation, contamination, alignment deviations, variations in surface texture and appearance or other deficiencies, apparent on visual inspection, will not be accepted and shall be satisfactorily corrected and/or replaced at no direct pay. Poor construction practices such as handwork, improper truck exchanges, improper joint construction, or other deficiencies, apparent on visual inspection, will not be accepted.

(a) Density: Acceptance testing for pavement density will be conducted by the Department. Three pavement samples for each mix use shall be obtained from each subplot within 24 hours after placement. When this falls on a day the contractor is not working, sampling shall be done within 3 calendar days. Sampling shall be performed using the random number tables shown in DOTD S605. If there are different mix uses within the same subplot, i.e. shoulder and roadway, then an additional core may be taken to ensure that there is at least one core per mix use. The density requirement for each lot will be as shown in Table 502-4 determined in accordance with DOTD TR 304. Payment will be made in accordance with Table 502-7B using the total number of cores for the lot in accordance with Subsection 502.13. Payment for small quantity lots will be made in accordance with Table 502-9.

When the sampling location determined by random sampling falls within areas that are to be replaced or within 1 foot (0.3 m) of the unsupported pavement edge, another random sampling location will be used.

Samples shall be cores approximately 4 inches (100 mm) or 6 inches (150 mm) in diameter taken by an approved core drill. The contractor shall furnish samples cut from the completed work. The removed pavement shall be replaced with hot or cold mixture and refinished during the work day coring is performed. No additional compensation will be allowed for

furnishing test samples and replacing the areas with new pavement. Samples shall be taken by the contractor in the presence of the engineer's representative from areas selected by the Department in accordance with this subsection. Cores less than 1 3/8 inches (35 mm) thick shall not be used as pavement samples for payment determination.

Cores shall be transported to the plant in approved transport containers. Transportation containers will be sealed, signed, and dated by the inspector using an approved method. The individually wrapped core will also be sealed, signed, and dated by the inspector using an approved method. Any evidence of tampering with the core wrappings, sticker, or of opening the container or friction top can will result in the cores being rejected. Additional pavement samples will be required.

(b) Surface Tolerance: The contractor shall measure the top two lifts of the roadway travel lanes. Final acceptance will be based on the last measurement taken on the final wearing course of the travel lanes. Measurement of the center two lanes will be required for airports. The contractor shall test the pavement during the first work day following placement, but in no case any later than 7 calendar days.

(1) Equipment: For longitudinal surface tolerance testing, equipment and daily set-up and pre-operation procedures shall be in accordance with Subsection 502.10(b)(1). For transverse, cross slope and grade testing, the contractor shall furnish a 10-foot metal static straightedge for Department use.

(2) Transverse, Cross Slope and Grade: The Department will test the surface of the binder and wearing courses at selected locations for conformance to the surface tolerance requirements of Subsection 502.10(b)(2) and Table 502-4, which shall not be exceeded. The contractor shall make corrections as directed in accordance with Subsection 502.10(b)(4).

(3) Longitudinal Surface Tolerance:

a. Acceptance: The contractor shall report an average IRI number in inches per mile (mm per km) and shall measure and report the average IRI value for each wheelpath on every 0.05-mile (0.08 km) segment of highway. The IRI values for the inside and outside wheelpaths shall be averaged and reported as the segment average and the mean of each segment average shall be reported as the subplot average. The individual wheelpath IRI values shall conform to the requirements of Table 502-8B. The average subplot values shall conform to the requirements listed in Tables 502-8A. A DOTD inspector will be present for the final test run

502.11

and will immediately receive a copy of the IRI results via USB flash drive. The contractor shall provide the engineer a copy of the IRI report. Acceptance of each subplot will be in accordance with Tables 502-8A and 502-8B, based on the IRI profile report. The Department may elect to perform and utilize independent ride quality test results for acceptance at any time.

b. Exceptions and Exclusions:

1. Excluded Areas: The Department will review the profile report obtained for each binder and wearing course on a subplot basis. In special cases or extenuating circumstances, the engineer may isolate or exclude sections of the profile. These special cases or extenuating circumstances may be curb and gutter sections that require the adjustment of cross-slope in order to maintain adequate drainage, manholes, catch basins, valve and junction boxes, street intersections, or other structures located in the roadway which cause abrupt deviations in the profile. This specification exclusion will not be used to simply isolate sections of road that are in poor condition when the project is let.

2. Secondary Areas: Ramps less than 1500 feet (460 m), tapers, shoulders and medians, or sections of pavement surfaces as directed by the engineer such as 300 feet (90 m) from bridge ends, will not be included in the ride quality index for payment purposes, but shall have a maximum IRI average of 110 or less in a subplot.

502.12 DIMENSIONAL REQUIREMENTS. Mixtures that are specified for payment on a cubic yard (cu m) or square yard (sq m) basis shall conform to the following dimensional requirements. Overthickness and overwidth will be accepted at no direct pay.

(a) Thickness: Thickness of mixtures will be determined in accordance with DOTD TR 602. Underthickness shall not exceed 1/4 inch (6 mm).

When grade adjustments are permitted for all mixtures except the final wearing course, areas with underthickness in excess of 1/4 inch (6 mm) shall be corrected to plan thickness at no direct pay by furnishing and placing additional mixture in accordance with Subsection 502.10(b)(4)b. For the final wearing course, areas with underthickness in excess of 1/4 inch (6 mm) shall be corrected to plan thickness at no direct pay by furnishing and placing a supplemental layer of wearing course mixture meeting specification requirements in accordance with Subsection 502.10(b)(4)a over the entire area for the full width of the roadway when grade adjustments are permitted.

When grade adjustments do not permit, the deficient underthickness area shall be removed and replaced at no direct pay.

(b) Width: The width of completed courses will be determined in accordance with DOTD TR 602. Underwidths shall be corrected by furnishing and placing additional mixture to a minimum width of 1 foot (0.3 m) and plan thickness at no direct pay.

502.13 QUALITY LEVEL ANALYSIS. The Quality Level Analysis is a statistical quality control/quality acceptance (QC/QA) method for validating Job Mix Formulas (JMF), contractors quality control, project acceptance and payment for all Superpave asphaltic concrete.

The mean (\bar{X}) is the average of a set of numbers. To determine the mean add the numbers (X_i) in the set and divide by the number of numbers (n) in the set.

$$\text{Mean} = \bar{X} = \frac{X_1 + X_2 + X_3 + \dots + X_n}{n} = \frac{\sum_{i=1}^n X_i}{n}$$

The standard deviation of a set of numbers measures the spread of the numbers in the set or the deviation from the mean. Calculate the standard deviation according to the following formula:

$$\begin{aligned} \text{Standard Deviation} = s &= \sqrt{\frac{(X_1 - \bar{X})^2 + (X_2 - \bar{X})^2 + \dots + (X_i - \bar{X})^2}{n - 1}} \\ &= \sqrt{\frac{\sum_{i=1}^n (X_i - \bar{X})^2}{n - 1}} \end{aligned}$$

A Quality Index is calculated using both the upper and lower specification limits (if applicable). The Quality Index calculated using the upper or higher specification limit is called the Upper Quality Index (Q_U). The Quality Index calculated using the lower specification limit is called the Lower Quality Index (Q_L).

502.13

To determine each Quality Index, the specification limits are added or subtracted from the mean of the test results and the result is divided by the standard deviation as shown below.

$$\text{UpperQualityIndex} = Q_U = \frac{USL - \bar{X}}{s} \quad \text{LowerQualityIndex} = Q_L = \frac{\bar{X} - LSL}{s}$$

Where: USL = upper specification limit
LSL = lower specification limit

Table 502-6 is used to convert the Quality Index into the PWL value. A PWL is calculated for each Quality Index (upper and lower) and combined for a total PWL calculated in accordance with the formula:

$$PWL = PWL_L + PWL_U - 100$$

where: PWL_L = lower percent within limits
 PWL_U = upper percent within limits

In using Table 502-6, the appropriate columns corresponding to the number of test results must be used.

If a specification requirement does not have both an upper and lower limit only one Quality Index and PWL, upper or lower as appropriate, is calculated and the other PWL is equal to 100 in the total PWL calculation.

502.14 LOT SIZES. A lot is a segment of continuous production of asphaltic concrete mixture from the same job mix formula produced for the Department at an individual plant. A standard lot size is 5,000 tons (5000 Mg). A standard subplot size is 1,000 tons (1000 Mg). Additional adjustments may be made to the standard lot or subplot size as specified in this subsection. The final subplot, at the end of a project lot, may be increased up to 150 percent to accommodate hauling unit capacity.

With good historical performance, and when agreed upon by the engineer and contractor, the lot size may be increased up to 10,000 tons, with corresponding subplot size up to 2000 tons (2000 Mg). Twenty-four hour per day plant production usually necessitates such an increase.

The engineer or contractor may decrease the size of an individual lot for any of the following conditions:

- (1) The interval between continuous production exceeds 7 calendar days.
- (2) A new job mix formula is accepted.
- (3) The final lot is less than 5,000 tons (5000 Mg).
- (4) The total project quantity is less than 5000 tons (5000 Mg).
- (5) A payment adjustment will be applied to the portion of the lot already produced, provided adjustments have been made to bring the asphaltic concrete into compliance with specifications.

For lots with 3000 tons or greater, PWL calculations will be required in accordance with Table 502-6 and Table 502-7.

Lots with less than 3000 tons (3000 Mg) of mix are paid as Small Quantity Lots. Only standard 1000 ton (1000 Mg) sublots will be allowed when determining pay for Small Quantity Lots. Each 1000 ton (1000 Mg) subplot, or less, as applicable, will be paid individually in accordance with Table 502-9.

Any mixtures used for bike paths, crossovers, curbs, driveways, guardrail widening, islands, joint repair, leveling, parking lots, shoulders, turnouts, patching, widening, and miscellaneous handwork will be paid as a Small Quantity Lot, and separately in 1000 ton sublots, or portions thereof, in accordance with this subsection and Table 502-9.

Pavement density and surface tolerance requirements will not be applied for short irregular sections, such as curbs, driveways, guardrail widening, islands, joint repair, leveling, and turnouts; however, hot mix shall be placed to provide a neat, uniform appearance and shall be compacted by satisfactory methods.

For projects, or separate locations within a project, requiring less than 250 tons (250 Mg), the job mix formula, materials, and plant and paving operations shall be satisfactory to the engineer. Sampling and testing requirements may be modified by the engineer and the payment adjustment for deviations waived.

502.15 MEASUREMENT. Asphalt tack coat, prime coat or curing membrane will not be measured for payment.

(a) Weight Measurement: Asphaltic concrete will be measured by the ton of 2,000 pounds (megagrams) from printed weights as provided in Section 503. Stamped printer tickets will be issued for each truckload of material delivered. Material lost, wasted, rejected or applied contrary to specifications will not be measured for payment.

Estimated quantities of asphaltic concrete shown on the plans are based on 110 lb/sq yd/inch (2.35 kg/sq m/mm) thickness. The measured quantity

502.15

of asphaltic mixtures will be multiplied by the following adjustment factor to obtain the pay quantity.

Theoretical Maximum Specific Gravity, (G_{mm}) (DOTD TR 327)	Adjustment Factor
2.340 - 2.360	1.02
2.361 - 2.399	1.01
2.400 - 2.540	1.00
2.541 - 2.570	0.99
2.571 - 2.590	0.98

The adjustment factor for mixtures with theoretical maximum specific gravities less than 2.340 or more than 2.590 will be determined by the following formulas:

Theoretical maximum specific gravity less than 2.340:

$$F = \frac{2.400}{S}$$

Theoretical maximum specific gravity more than 2.590:

$$F = \frac{2.540}{S}$$

where,

F = quantity adjustment factor

S = theoretical maximum specific gravity of mixture from approved job mix formula

(b) Volume or Area Measurement: The quantities for payment will be the design quantities specified in the plans and adjustments thereto. Design quantities will be adjusted when the engineer makes changes to adjust to field conditions or when design changes are necessary. Design quantities are based on the horizontal dimensions and compacted thickness of the completed course shown on the plans.

(c) Surface Tolerance Incentive Measurement: At the completion of construction of the wearing course travel lanes, the contractor, in the presence of a DOTD representative, shall measure a continuous profile from the start station to the end station of the construction project for the purpose of determining qualification for

incentive pay under Subsection 502.16(e). Bridges and 300 feet (90 m) on each end of the bridge will be excluded from measurements for surface tolerance incentive pay.

502.16 PAYMENT.

(a) General: Payment for asphaltic concrete will include furnishing all required materials, producing the mixtures, preparing the surfaces on which the mixtures are placed, hauling the mixtures to the work site, and placing and compacting the mixtures.

Payment for asphaltic concrete will be made at the contract unit price on a lot basis as defined in Subsection 502.14. When the mix does not meet requirements in the areas listed in this subsection, the Payment Adjustment Schedule shown in Tables 502-7, 502-8 or 502-9 will be applied. Production of mix that is not eligible for 100 percent payment will not be allowed on a continuous basis. When test results demonstrate that payment adjustments are necessary, satisfactory adjustments shall be made, or production shall be discontinued.

(b) Wearing Course Mixes: For wearing course travel lanes, adjustments in contract price for plant and roadway deficiencies or incentives will be based on the average of the percent payments for plant air voids, roadway density, and surface tolerance. For all other wearing course applications, payment adjustment will be based on the average of the percent payments for plant air voids and roadway density.

(c) Base, Binder and Shoulder Mixes: For base and binder courses for travel lanes and all shoulder mixes, adjustments in contract price for plant and roadway deficiencies or incentives will be based on the average of the percent payments for plant air voids and roadway density.

Final adjustments in unit price will be as described in Tables 502-7 and 502-9.

(d) Erected Stringline: When the use of an erected stringline is not specified, but directed by the engineer, an additional payment of \$500 per contract plus \$0.25 per linear foot (\$0.75 per lin m) will be made for mixtures placed by the erected stringline method. When the use of an erected stringline is specified, no additional payment will be made.

(e) Longitudinal Surface Tolerance Incentive Pay: For Category A projects and in accordance with Table 502-8A, a surface tolerance incentive payment equal to 5 percent of the contract unit price for the theoretical travel lane quantity of the wearing course item will be paid if the contractor achieves a project average IRI of 45 or less as measured at the completion of the project. No lot of wearing course on the project shall

502.16

be less than 100 percent for surface tolerance. Only Category A projects are eligible for incentive pay. Any grinding except within 300 feet (90 m) of a bridge end will cause the roadway to be ineligible for surface tolerance incentive pay.

Payment will be made under:

Item No.	Pay Item	Pay Unit
502-01	Superpave Asphaltic Concrete	Ton (Mg)
502-02	Superpave Asphaltic Concrete	Cubic Yard (Cu m)
502-03	Superpave Asphaltic Concrete, (in (mm) Thick)	Square Yard (Sq m)

**Table 502-4
Superpave Requirements**

A. REQUIREMENTS FOR EXTRACTED ASPHALT CEMENT AND AGGREGATE GRADATION					
U.S. (Metric) Sieve % Passing	1/2 inch (12.5 mm) Nominal	3/4 inch (19 mm) Nominal	1 inch (25 mm) Nominal	1.5 inch (37.5 mm) Nominal	Mix Tolerance ¹
2 inch (50 mm)	---	---	---	100	±4
1 1/2 inch (37.5 mm)	---	---	100	90-100	±4
1 inch (25 mm)	---	100	90-100	89 Max.	±4
3/4 inch (19 mm)	100	90-100	89 Max	---	±4
1/2 inch (12.5 mm)	90-100	89 Max	---	---	±4
3/8 inch (9.5 mm)	89 Max.	---	---	---	±4
No. 4 (4.75 mm)	---	---	---	---	±4
No. 8 (2.36 mm)	34-58	29-49	23-45	19-41	±3
No. 16 (1.18 mm)	---	---	---	---	±2
No. 30 (600 µm)	---	---	---	---	±2
No. 50 (300 µm)	---	---	---	---	±2
No. 100 (150 µm)	---	---	---	---	±2
No. 200 (75 µm)	4.0-10.0	3.0-8.0	2.0-7.0	1.0-6.0	±0.7
Extracted Asphalt, %	---	---	---	---	±0.2
Mix Temperature	---	---	---	---	±25°F (±14°C)
B. PAVEMENT REQUIREMENTS					
Density, Min. % of Theoretical Maximum Specific Gravity, DOTD TR 327					
Travel Lane Wearing, Binder and Base Courses	92.0				
Shoulders, Bike Paths, and Parking Lots	89.0				
Patching, Widening and Crossovers	91.0				
Surface Tolerance Variation, inches (mm) ²					
Roadway Travel Lane Wearing Courses				Transverse ³	Cross Slope ³
Binder Courses				1/8 (3)	3/8 (10)
Shoulder Wearing Course				1/4 (6)	1/2 (15)
				3/16 (5)	3/4 (20)
					Grade ⁴
					1/2 (15)
					1/2 (15)
					3/4 (20)

¹Job Mix Formula based on validated mix design.

²For longitudinal surface tolerance requirements, see Subsection 502.10(d).

³Based on 10 feet (3.0 mm).

⁴Applicable only when grade is specified.

**Table 502-5
Superpave General Criteria**

Nominal Max., Size Agg.	0.5 inch (12.5 mm)		0.75 inch (19 mm)		1.0 inch (25 mm)		1.5 inch (37.5 mm)			
	Incidental Paving ¹	Wearing Course		Wearing Course	Binder Course		Binder Course	Base Course	Base Course	
Level ²	A	1	2	2	1	2	1	2	1	1
Asphalt Binder	Table 502-2									
Friction Rating ²	Table 502-3									
Coarse Agg. Angularity, + No. 4 (4.75 mm)	55	75	95	95	75	95	75	95	75	75
Fine Agg. Angularity, Min. % - No. 4 (4.75 mm)	40	40	45	45	40	45	40	45	40	40
Flat and Elongated Particles, % Max. (5:1) + No. 4 (4.75 mm)	10									
Sand Equivalent, Min. % (Fine Agg.), - No. 4 (4.75 mm)	40	40	45	45	40	45	40	45	40	40
Natural Sand Max. % of New Agg.	N/A	15	15	15	15	15	15	15	15	25
RAP, Max. % of Mix ³	20	15	15	15	20	20	20	20	30	30
	Compacted Mix Volumetrics ⁴									
VMA, Min. %	13	13	13	12	12	12	11	11	11	10
Air Voids, % ⁵	2.5-4.5									
VFA, % ⁵	68-78									
N _{initial} 90% max. ⁶ (Gyrations)	7	7	8	8	7	8	7	8	7	7
N _{design} 96.5±1 % (Gyrations)	75	75	100	100	75	100	75	100	75	75
N _{max} 98 % max. (Gyrations)	115	115	160	160	115	160	115	160	115	115
Moisture Sensitivity, TSR Min.	80									
Dust/Effective Asphalt Ratio, %	0.6 – 1.6									
Lift Thickness, inch (mm)	2.0- (50-)	1.5-2.0 (45-50)		2.0-3.0 (50-75)		2.5-4.0 (65-100)		2.5+ (65+)	4.0+ (100+)	

¹May be used for airports, bike paths, crossovers, curbs, driveways, guardrail widening, islands, joint repair, leveling, parking lots, shoulders, turnouts, and other incidental items approved by the engineer. (May also be used for mixtures specified as Marshall Type 3.)

²Mixtures designated as Level 1F and 2F shall meet the requirements for Level 1 and 2, respectively. Additionally, Level 1F and 2F shall meet the friction rating requirements in Table 502-3 for travel lane wearing courses with ADT > 7000.

³Maximum 20 % Rap will be allowed in all shoulder wearing course mixtures. RAP will not be allowed for airports.

⁴Air voids, VMA, VFA, % G_{mm} @ N_{initial}, and % G_{mm} @ N_{design} are determined on samples compacted to N_{design}. The parameter of % G_{mm} @ N_{max} is determined on a sample compacted to N_{max}.

⁵Air voids design target is 3.5%, VFA target is 73%.

⁶For Level 1 mixtures, N_{initial} shall be 91.0 % max. For Level A mixes, N_{initial} shall be 92.0 % max.

Table 502-6
Quality Index Values for Estimating Percent Within Limits

PWL	n = 3	n = 4	n = 5 - 6	n = 7 - 9	n = 10 - 12	n = 13 - 15
99	1.16	1.47	1.68	1.89	2.04	2.14
98	1.15	1.44	1.61	1.77	1.86	1.93
97	1.15	1.41	1.55	1.67	1.74	1.80
96	1.15	1.38	1.49	1.59	1.64	1.69
95	1.14	1.35	1.45	1.52	1.56	1.59
94	1.13	1.32	1.40	1.46	1.49	1.51
93	1.12	1.29	1.36	1.40	1.43	1.44
92	1.11	1.26	1.31	1.35	1.37	1.38
91	1.10	1.23	1.27	1.30	1.32	1.32
90	1.09	1.20	1.23	1.25	1.26	1.27
89	1.08	1.17	1.20	1.21	1.21	1.22
88	1.07	1.14	1.16	1.17	1.17	1.17
87	1.06	1.11	1.12	1.12	1.13	1.13
86	1.05	1.08	1.08	1.08	1.08	1.08
85	1.03	1.05	1.05	1.05	1.04	1.04
84	1.02	1.02	1.02	1.01	1.00	1.00
83	1.00	0.99	0.98	0.97	0.96	0.96
82	0.98	0.96	0.95	0.94	0.93	0.92
81	0.96	0.93	0.92	0.90	0.89	0.89
80	0.94	0.90	0.88	0.87	0.85	0.85
79	0.92	0.87	0.85	0.83	0.82	0.82
78	0.89	0.84	0.82	0.80	0.79	0.78
77	0.87	0.81	0.79	0.77	0.76	0.75
76	0.84	0.78	0.76	0.74	0.72	0.72
75	0.82	0.75	0.73	0.71	0.69	0.69
74	0.79	0.72	0.70	0.67	0.66	0.66
73	0.77	0.69	0.67	0.64	0.63	0.62
72	0.74	0.66	0.64	0.61	0.60	0.59
71	0.71	0.63	0.60	0.58	0.57	0.56
70	0.68	0.60	0.58	0.55	0.54	0.54
69	0.65	0.57	0.55	0.53	0.51	0.51
68	0.62	0.54	0.52	0.50	0.48	0.48
67	0.59	0.51	0.49	0.47	0.46	0.45
66	0.56	0.48	0.46	0.44	0.43	0.42
65	0.53	0.45	0.43	0.41	0.40	0.40
64	0.49	0.42	0.40	0.38	0.37	0.37
63	0.46	0.39	0.37	0.35	0.35	0.34
62	0.43	0.36	0.34	0.33	0.32	0.31
61	0.39	0.33	0.31	0.30	0.30	0.29
60	0.36	0.30	0.28	0.27	0.26	0.26
59	0.32	0.27	0.25	0.24	0.24	0.23
58	0.29	0.24	0.23	0.21	0.21	0.21
57	0.25	0.21	0.20	0.19	0.18	0.18
56	0.22	0.18	0.17	0.16	0.16	0.15
55	0.18	0.15	0.14	0.13	0.13	0.13
54	0.14	0.12	0.11	0.11	0.10	0.10
53	0.11	0.09	0.08	0.08	0.08	0.08
52	0.07	0.06	0.06	0.05	0.05	0.05
51	0.03	0.03	0.03	0.03	0.03	0.03
50	0.00	0.00	0.00	0.00	0.00	0.00

Note 1: For negative values of Q_U or Q_L . PWL_U or PWL_L is equal to 100 minus the tabular PWL_U or PWL_L .

Note 2: If the value of Q_U or Q_L does not correspond exactly to a value in the table, use the next higher value.

**Table 502-7
Payment Adjustments for Superpave**

Payment adjustments will be based on specification limits.

A) PLANT ACCEPTANCE

Air Voids: The percent within limits (PWL) will be calculated for air voids for each lot and reported to the nearest whole number. Payment for plant acceptance will be in accordance with Table 502-7A.

**Table 502-7A
Payment Adjustment Schedule for Plant Acceptance**

Air Voids PWL	Percent Payment
100	103
88-99	100
71-87	98
51-70	90
21-50	80
≤20	50 or Remove ¹

¹At the option of the Department after investigation.

B) ROADWAY DENSITY

The percent within limits (PWL) will be calculated for pavement density for each lot and reported to the nearest whole number. Payment for roadway density will be in accordance with Table 502-7B.

**Table 502-7B
Payment Adjustment Schedule for Roadway Density**

Roadway Density PWL	Percent Payment
98-100	105
89-97	100
79-88	98
61-78	90
31-60	80
≤30	50 or Remove ¹

¹At the option of the Department after investigation.

C) SURFACE TOLERANCE (Final Wearing Course Travel Lanes Only)

Payment adjustments for surface tolerance for the final wearing course travel lanes will be based on the International Roughness Index (IRI) in accordance with Table 502-8A and Subsections 502.15 and 502.16. Percent payments will be determined for each subplot and averaged to determine payment for the lot.

TOTAL PAYMENT

The percent payment for the wearing course travel lanes will be the average of the percent payments for plant acceptance, roadway density, and surface tolerance for each lot. Incentive payment for surface tolerance will be in accordance with Subsection 502.16(e) and paid separately.

The percent payment for all other mix types will be the average percent payments for plant acceptance and roadway density for each lot.

All calculations for percent payment will be rounded to the nearest one (1) percent.

**Table 502-8A
Payment Adjustment Schedules for Longitudinal
Surface Tolerance, Maximum International Roughness Index,
inches per mile (mm per km)**

Percent of Contract Unit Price (by Sublot) ¹	103% ²	100%	90%	80%	50% or Remove ³
Category A All Interstates, Multi-Lift New Construction and Overlays of More than two Lifts	<55 (<870)	<65 (<1030)	65-75 (1030-1180)	NA	>75 (>1180)
Category B One or Two Lift Overlays Over Cold Planed Surfaces, and Two-Lift Overlays Over Existing Surfaces ⁴	<65 (<1030)	<75 (<1180)	75-89 (1180-1400)	NA	>89 (>1400)
Category C Single-Lift Overlays Over Existing Surfaces ⁴	<75 (<1180)	<85 (<1340)	85-95 (1340-1500)	>95-110 (>1500-1740)	>110 (>1740)
Longitudinal Surface Tolerance Incentive Pay, Final Completion, Average of All Travel Lanes ⁵	≤45 (≤710)				

¹Or portion of sublot placed on the project.

²Maximum payment for sublots with exception areas, exclusions or grinding is 100 percent, unless the excluded area is a bridge end.

³At the option of the engineer.

⁴ Existing surfaces include reconstructed bases without profile grade control.

⁵Only Category A projects are eligible for incentive. However, any grinding except within 300 feet (90 m) of a bridge end will cause the roadway to be ineligible for surface tolerance incentive pay.

**Table 502-8B
Individual Wheelpath Deficient Area Limits
Maximum International Roughness Index, inches per mile (mm per km)**

Any 0.05 Mile (0.08 km) Segment	Wearing Course	Binder Course
Category A	89 (1400)	130 (2050)
Category B	99 (1560)	150 (2370)
Category C	110 (1740)	N/A

**Table 502-9
Payment Adjustment Schedule for Small Quantities of Superpave¹**

Parameter ²	Percent of Contract Unit Price/Sublot		
	100	95	50 or Remove ³
% Air Voids	2.5-4.5	1.5-2.4 or 4.6-5.5	<1.5 or >5.5
Average Roadway Density, % G _{mm}	≥ Lower limit	-0.1 to -0.9 below lower limit	-1.0 below Lower limit

¹See Subsection 502.14.

²For plant acceptance, use one sample for percent air voids to determine pay. For roadway acceptance, use the average of three cores to determine density and pay. Determine surface tolerance in accordance with Table 502-8A. The total percent payment for small quantities of Superpave mixtures will be the average of the percent payments for plant acceptance (air voids), roadway acceptance (density) and surface tolerance.

³At the option of the engineer.

Section 510

Asphaltic Concrete Pavement Patching, Widening and Joint Repair

510.01 DESCRIPTION. This work consists of patching, widening and joint repair of existing asphaltic concrete pavements in accordance with these specifications and in conformity with the lines, grades and typical sections shown on the plans or as directed. Asphaltic concrete shall be used for patching, widening, and joint repair.

510.02 MATERIALS. Asphaltic concrete for patching and widening may be any type mixtures listed in Section 502, except that 1/2 inch (12.5 mm) nominal maximum size mixtures shall not be used. Asphaltic concrete for joint repair shall be Superpave Asphaltic Concrete (Level A) complying with Section 502. Asphalt tack coat shall comply with Section 504.

510.03 EQUIPMENT. Equipment furnished shall meet the specification requirements for the types of material used.

510.04 GENERAL CONSTRUCTION REQUIREMENTS. The contractor shall remove existing surfacing and base materials and perform all required excavation for patching and widening. When through traffic is maintained, the contractor shall complete the replacement of pavement, place the widening material, or fill and compact open areas or trenches at the end of each day's operations.

Excavation and compaction of the subgrade shall be in accordance with the plans or as directed. The subgrade shall be compacted uniformly.

Existing surfacing and excess excavation shall be disposed of beyond the right-of-way in accordance with Section 202.

For joint repair, contact surfaces of existing pavement shall be cleaned and a thin, uniform asphalt tack coat applied prior to placing asphaltic mixture in the joint.

Patching and widening with asphaltic concrete shall conform to Section 502, except that priming of the subgrade will not be required. Contact surfaces of pavement shall be cleaned and a uniform coat of asphalt tack coat applied before placement of asphaltic concrete. Patches shall not be overlaid for a minimum of 5 calendar days.

Spreading, finishing and compaction of asphaltic concrete shall leave the surface smooth and level with, or slightly above, the edge of existing pavement. To provide lateral support, the contractor will be permitted to construct temporary berms of excavated material against the outside edge of widening strips prior to rolling.

510.05 MEASUREMENT.

(a) Patching: Patching of pavement will be measured by the square yard (sq m) of existing pavement designated to be removed and replaced. Removal of existing surfacing and base course, tack coat, and required excavation will not be measured for payment.

(b) Widening: The quantities of widening for payment will be the design areas as specified on the plans and adjustments thereto. Design quantities will be adjusted if the engineer makes changes to adjust to field conditions, if plan errors are proven, or if design changes are made. Design quantities are based on the horizontal dimensions shown on the plans. Required excavation, removal of existing pavement and base course, asphaltic tack coat and disposal of removed material will not be measured for payment. No measurement for payment will be made for widening placed outside the dimensions shown on the plans or established by the engineer.

(c) Joint Repair: Joint repair will be measured by the ton (Mg) of asphaltic concrete used to fill the joint. Measurement will be made in accordance with Subsection 502.15.

510.06 PAYMENT.

(a) Patching: Payment for pavement patching will be made at the contract unit prices per square yard (sq m), subject to the following provisions:

Payment adjustments for deficiencies in asphaltic concrete and asphalt materials will be applied to 1/2 the contract unit price for pavement patching.

When the engineer orders additional thickness of patching in excess of plan thickness, payment for the additional thickness will be made as follows. The value per inch (mm) thickness will be determined by dividing the contract unit price per square yard (sq m) by the plan thickness. Thickness of patches will be measured from the surface that exists at the time of patching. Payment for the additional thickness will be made at 50 percent of the value per inch (mm) thus determined.

510.06

When the engineer approves of an underthickness of patching less than plan thickness, a deduction in payment will be made. This deduction per inch (mm) of underthickness will be made at 50 percent of the value per inch (mm). The value per inch (mm) will be calculated by dividing the contract unit price per square yard (sq m) by the plan thickness.

Any patching that develops or is required between the time of initial patching operations and the placement of the first lift of asphaltic concrete will be paid for at the contract unit price. Any patching required due to base failure after placement of the first lift of asphaltic concrete will be paid for at twice the contract unit price.

Asphaltic concrete will be subject to the payment adjustment provisions of Section 502.

(b) Widening: Payment for pavement widening will be made at the contract unit prices per square yard (sq m). Overwidths will be accepted at no additional pay. Underwidth shall be corrected by furnishing and placing additional asphaltic concrete to a minimum width of 1 foot (0.3 m) and plan thickness at no direct pay.

(c) Joint Repair: Payment for pavement joint repair will be made at the contract unit price per ton (Mg), subject to the following provisions:

Asphaltic concrete for joint repair will be subject to the payment adjustment provisions of Section 502 except for surface tolerance and density; however, payment adjustments will be applied to 1/3 the contract unit price for joint repair. The Materials and Testing Section will provide the payment adjustment percentage for properties of asphalt material.

Payment will be made under:

Item No.	Pay Item	Pay Unit
510-01	Pavement Patching	Square Yard (Sq m)
510-02	Pavement Widening	Square Yard (Sq m)
510-03	Pavement Joint Repair	Ton (Mg)

Section 701 Culverts and Storm Drains

701.01 DESCRIPTION. This work consists of furnishing, installing, and cleaning pipe, pipe arch, storm drains and sewers, also referred to as culverts or conduit, in accordance with these specifications and in conformity with lines and grades shown on the plans or established.

701.02 MATERIALS. Materials shall comply with the following Sections and Subsections:

Usable Soil	203.06(a)
Selected Soil	203.06(b)
Plastic Soil Blanket	203.10
Flowable Fill	710
Mortar	702.02
Portland Cement Concrete	901
Stone	1003.03(b)
Recycled Portland Cement Concrete	1003.03(c)
Granular Material	1003.07
Bedding Material	1003.08
Concrete Sewer Pipe	1006.02
Reinforced Concrete Pipe	1006.03
Reinforced Concrete Pipe Arch	1006.04
Gasket Materials	1006.06
Plastic Pipe	1006.07
Split Plastic Coupling Bands	1006.07(d)(4)
Plastic Yard Drain Pipe	1006.09
Bituminous Coated Corrugated Steel Pipe and Pipe Arch	1007.02
Structural Plate for Pipe, Pipe Arch and Arch	1007.04
Corrugated Aluminum Pipe and Pipe Arch	1007.05
Coupling Bands	1007.09
Reinforcing Steel	1009
Geotextile Fabric	1019

701.02

(a) Side Drain Pipe or Side Drain Pipe Arch: When the item for Side Drain Pipe or Side Drain Pipe Arch is included in the contract, the contractor has the option of furnishing reinforced concrete pipe or reinforced concrete pipe arch, corrugated metal pipe or corrugated metal pipe arch, or plastic pipe, unless otherwise specified.

(b) Cross Drain Pipe or Cross Drain Pipe Arch: When the item for Cross Drain Pipe or Cross Drain Pipe Arch is included in the contract, the contractor has the option of furnishing reinforced concrete pipe or reinforced concrete pipe arch, corrugated metal pipe or corrugated metal pipe arch, or plastic pipe, unless otherwise specified.

(c) Storm Drain Pipe or Storm Drain Pipe Arch: When the item for Storm Drain Pipe or Storm Drain Pipe Arch is included in the contract, the contractor has the option of furnishing reinforced concrete pipe or reinforced concrete pipe arch, or plastic pipe, unless otherwise specified.

(d) Yard Drain Pipe: When the item for Yard Drain Pipe is included in the contract, the contractor has the option of furnishing concrete sewer pipe, plastic yard drain pipe or plastic pipe in accordance with Section 1006 unless otherwise specified.

(e) Material Type Abbreviations:

(1) Reinforced Concrete Pipe:

RCP	Reinforced Concrete Pipe
RCPA	Reinforced Concrete Pipe Arch

(2) Corrugated Metal Pipe:

CAP	Corrugated Aluminum Pipe
CAPA	Corrugated Aluminum Pipe Arch
CMP	Corrugated Metal Pipe
CMPA	Corrugated Metal Pipe Arch
CSP	Corrugated Steel Pipe
CSPA	Corrugated Steel Pipe Arch
BCCSP	Bituminous Coated Corrugated Steel Pipe
BCCSPA	Bituminous Coated Corrugated Steel Pipe Arch

(3) Plastic Pipe:

PP	Plastic Pipe
PVCP	Polyvinyl Chloride Pipe
RPVCP	Ribbed Polyvinyl Chloride Pipe
CPEPDW	Corrugated Polyethylene Pipe Double Wall

(f) Joint Type Abbreviations:

T1	Type 1 Joint
T2	Type 2 Joint
T3	Type 3 Joint

(g) Quality Assurance for Pipe: Manufacturing plants will be periodically inspected for compliance with specified manufacturing methods, and material samples will be randomly obtained for laboratory testing for verification of manufacturing lots. Materials approved at the manufacturing plant will be subject to visual acceptance inspections at the jobsite or point of delivery.

701.03 EXCAVATION. The bottom of the trench shall be excavated to a minimum width of 18 inches (450 mm) on each side for all pipe. Surplus material or excavated material that does not conform to the requirements of Subsection 203.06(a) shall be satisfactorily disposed of in accordance with Subsection 202.02.

701.04 FORMING PIPE BED. When rock is encountered, it shall be removed below grade and replaced with material complying with Subsection 203.06. This replacement material shall be compacted to at least the density of the surrounding soil. The compacted earth cushion shall have a thickness under the pipe of at least 1/2 inch per foot (40 mm/m) of fill height over the top of the pipe with a minimum thickness of 8 inches (200 mm).

When pipe is not laid in a trench, a uniformly firm bed shall be made as specified for the bottom of a trench.

When bedding material is specified, additional excavation shall be performed below established grade and bedding material placed.

When a suitable foundation cannot be obtained, unstable soil below established grade shall be removed and replaced with granular material or bedding material constructed in accordance with Section 726. When stone or recycled portland cement concrete is used as backfill, unstable soil below established grade shall be removed and replaced with bedding material constructed in accordance with Section 726.

701.05 LAYING PIPE. Pipe laying shall begin at the downstream end of the line. The pipe shall be in contact with the foundation throughout its length. Bell or groove ends of pipe and outside circumferential laps of riveted metal pipe shall be placed facing upstream. Riveted seam metal pipe shall be placed with longitudinal laps at sides. Pipes in each continuous line shall have the same wall thickness. Metal pipes provided with lifting lugs shall be handled only by these lugs.

After pipe has been laid and before backfill is placed, the engineer will inspect the pipe for alignment, grade, integrity of joints, and coating damage.

701.06

701.06 JOINING PIPE.

(a) Joint Usage:

(1) Type 1 (T1) joints shall be used for side drains under drives and similar installations.

(2) Type 2 (T2) joints shall be used for cross drains under roadways, including turnouts.

(3) Type 3 (T3) joints shall be used for closed storm drain systems, flumes and siphons.

(b) Concrete Pipe: Concrete pipe may be either bell and spigot, or tongue and groove. The method of joining pipe sections shall be such that ends are fully entered and inner surfaces are flush and even.

An approved mechanical pipe puller shall be used for joining pipes over 36 inches (900 mm) in diameter. For pipe 36 inches (900 mm) or less in diameter, any approved method for joining pipe may be used which does not damage the pipe.

Joints shall comply with Subsection 1006.05, and shall be sealed with gasket material installed in accordance with the manufacturer's recommendations.

Types 2 and 3 joints shall be wrapped with geotextile fabric for a minimum of 12 inches (300 mm) on each side of joint for pipe 36 inches (900 mm) or less in diameter and a minimum of 18 inches (450 mm) on each side of the joint for pipe greater than 36 inches (900 mm) in diameter. Ends of the fabric shall be lapped at least 10 inches (250 mm). The edges and ends of fabric shall be suitably secured for the entire circumference of the pipe.

(c) Metal Pipe: Metal pipe shall be firmly joined by coupling bands. Bands shall be centered over the joint.

For Type 1 joints, approved gasket material shall be placed in one corrugation recess on each side of the joint at the coupling band and on each band connection in such manner to prevent leakage.

When Type 2 or 3 joints are specified, joining of metal pipe sections shall conform to the following provisions:

(1) General: Band joints shall be sealed with gasket material. Gasket material shall be placed in accordance with the plan details. The joint shall be wrapped with geotextile fabric for a minimum of 12 inches (300 mm) on each side of the connecting band for pipe diameters 36 inches (900 mm) or less and a minimum of 18 inches (450 mm) on each side of the connecting band for pipe diameters greater than 36 inches (900 mm). Ends of fabric shall be lapped at least 10 inches (250 mm). The edges and ends of fabric shall be suitably secured for the entire circumference of the pipe.

(2) Circular Section: Connecting bands shall be of an approved design and shall be installed in accordance with plan details.

(3) Arch Section: Connecting bands shall be a minimum of 12 inches (300 mm) wide for pipe arch less than 36 inches (900 mm) round equivalent diameter, and a minimum of 21 inches (525 mm) wide for 36 inches (900 mm) round equivalent diameter pipe arch and greater. Bands shall be connected at the ends by approved angle or strap connections. Connecting bands used for 36 inches (900 mm) round equivalent diameter pipe arch and above shall be 2-piece bands.

(d) Plastic Pipe: Joints for plastic pipe shall be either bell and spigot or split coupling bands.

Types 2 and 3 joints shall be wrapped with geotextile fabric for a minimum of 12 inches (300 mm) on each side of the joint for pipes 36 inches (900 mm) or less in diameter and for a minimum of 18 inches (450 mm) on each side of the joint for pipes greater than 36 inches (900 mm) in diameter. The ends of the fabric shall be lapped at least 10 inches (250 mm). The edges and ends of the fabric shall be suitably secured for the entire circumference of the pipe.

(1) Bell and Spigot Type Joint System: The method of joining pipe sections shall be such that ends are fully entered and inner surfaces are reasonably flush and even.

An approved mechanical pipe puller shall be used for joining pipes over 36 inches (900 mm) in diameter. For pipe 36 inches (900 mm) or less in diameter, any approved method for joining pipe may be used which does not damage the pipe.

Joints shall be approved and shall be sealed with a gasket system utilizing gasket material complying with Subsection 1006.06(a).

(2) Split Coupling Type Joint System: Split coupling bands shall comply with all dimensional and material requirements of Subsection 1006.07. The bands shall be centered over the joint. The split coupling band shall be secured to the pipe with a minimum of five stainless steel or other approved corrosion resistant bands.

Joints shall be approved and shall be sealed with gasket material. Gasket material shall be placed in the first two corrugation recesses on each side of the pipe connections. Gasket material shall also be placed on each band connection to prevent leakage. When flexible plastic gasket material is used it shall be a minimum of 1/2 inch (13 mm) in size. The bands shall be tightened to create overlap of the band and shall adequately compress the gasket material.

(e) Connections: Approved connections shall be used when joining new pipes to existing pipes. When concrete collars are required in order to

701.06

extend the ends of existing pipes that have been damaged or to join different types or sizes of pipes, the concrete collars shall be constructed in accordance with plan details, the applicable requirements of Section 901, and as directed.

701.07 RELAYING PIPE. If specified or directed, existing pipes shall be removed and suitable sections relaid as specified for new pipes.

701.08 BACKFILLING.

(a) General: Prior to backfilling, pipes found to be damaged or out of alignment or grade shall be removed and reinstalled, or replaced.

Type A backfill material shall be stone, recycled portland cement concrete, or flowable fill.

Type B backfill material shall be stone, recycled portland cement concrete, flowable fill, selected soils, or granular material.

When Type A backfill material is used, geotextile fabric shall be placed in accordance with plan details prior to placing backfill material. Care shall be taken to prevent damage to geotextile fabric during placement of backfill material.

Adjacent rolls of fabric shall be overlapped or sewn. When rolls are overlapped, the overlap shall be a minimum of 18 inches (450 mm), including the ends of the rolls. The top layer of the fabric shall be parallel with adjacent rolls and in the direction of backfill materials placement. When rolls are sewn, the contractor shall join adjacent rolls by sewing with polyester, or Kevlar thread. Field sewing shall employ the "J" seam or "Butterfly" seam with the two pieces of geotextile fabric mated together, turned in order to sew through 4 layers of fabric and sewn with 2 rows of Type 401, two-threaded locking chain stitch. Factory seams other than specified shall be submitted to the Materials and Testing Section for approval.

Damaged fabric shall be either removed and replaced with new fabric or covered with a second layer of fabric extending 2 feet (0.6 m) in each direction from the damaged area.

(b) Backfill Applications:

(1) Paved Areas: Cross drains and side drains in paved areas subject to traffic loads such as roadway travel lanes, shoulders, and turnouts shall be backfilled with Type A material. Type B backfill material shall be used in all other paved areas including driveways, detour roads and similar installations. Selected soils will not be allowed as backfill material. Placement and compaction shall be as specified in Heading (c) below.

(2) Nonpaved Areas: Pipe backfill material, except for plastic pipe, shall be Type B backfill material placed by approved methods and compacted

to the density of surrounding soil. Plastic pipe shall be backfilled with granular material or Type A backfill Material.

(c) Placement and Compaction: When corrugated metal pipe is used, the backfill material shall be tested and shall have a resistivity greater than 1500 ohm-cm and a pH greater than 5 when tested in accordance with DOTD TR 429 and DOTD TR 430 respectively.

If the top of pipe is even with or below the top of the trench, backfill material shall be brought up evenly on both sides of pipe for its full length to an elevation of 12 inches (300 mm) above the top of pipe [or to subgrade if less than 12 inches (300 mm)] or to natural ground elevation, whichever is greater.

When the top of the pipe is above the top of the trench, backfill material shall be brought up evenly on both sides of pipe for its full length to 12 inches (300 mm) above the top of pipe or to subgrade if less than 12 inches (300 mm). Material in the trench and above the top of the trench for a distance on each side of the pipe equal to the horizontal outside diameter for corrugated metal or plastic pipe and 18 inches (450 mm) for concrete pipe, and to 12 inches (300 mm) above the top of pipe or to subgrade if less than 12 inches (300 mm) shall be backfill material.

The embankment shall be constructed to a minimum of 24 inches (600 mm) over the pipe before heavy construction equipment is allowed to cross the installation. Where practical, installations with less than 24 inches (600 mm) of cover over the top of the pipe shall be constructed after heavy hauling is completed over the pipe location. After completion of hauling operations, the contractor shall remove excess cover material. Pipe damaged by hauling and backfilling operations shall be removed and reinstalled, or replaced, at no direct pay.

(1) Backfill Methods:

a. General: Compaction by flooding will not be allowed.

b. Selected Soils: Backfill shall be placed at or near optimum moisture content determined in accordance with DOTD TR 415 or TR 418 in layers not exceeding 8 inches (200 mm) compacted thickness. Backfill material shall be thoroughly compacted under the haunches of the pipe. Each layer shall be compacted by approved methods to at least 95 percent of maximum dry density prior to placement of a subsequent layer.

c. Granular Material: Backfill shall be placed at or near optimum moisture content determined in accordance with DOTD TR 415 or TR 418. Backfill material shall be thoroughly compacted under the haunches of the pipe and then compacted in layers not exceeding 12 inches (300 mm) compacted thickness. Each layer shall be compacted by approved methods to

701.08

at least 95 percent of maximum dry density prior to placement of a subsequent layer. Exposed slopes at the pipe ends shall be covered by at least 12 inches (300 mm) compacted thickness of plastic soil blanket.

d. Flowable Fill: Flowable fill shall be in accordance with Section 710.

e. Stone or Recycled Portland Cement Concrete: Backfill shall be placed at or near optimum moisture content determined in accordance with DOTD TR 415 or TR 418. Backfill material shall be thoroughly compacted under the pipe haunches and then compacted in layers not exceeding 8 inches (200 mm) compacted thickness. With approval of the engineer, layer thickness may be increased to 12 inches (300 mm) with verification of satisfactory installation and performance. Each layer shall be compacted by approved methods to at least 95 percent of maximum dry density prior to placement of a subsequent layer. The contractor shall control placement operations so as not to damage protective coatings on metal pipes. The contractor shall repair damaged coatings at no additional pay.

(2) Density Requirements: Maximum dry density will be determined in accordance with DOTD TR 415 or TR 418 and in-place density determined in accordance with DOTD TR 401.

701.09 INSPECTION OF PIPES. After completion of embankment and prior to roadway surfacing, the engineer shall inspect pipes for proper alignment and integrity of joints. Any misaligned pipe or defective joints shall be corrected by the contractor at no direct pay.

(a) Plastic Pipe: Installed plastic pipe shall be tested to ensure that vertical deflections do not exceed 5.0 percent. Maximum allowable deflections shall be governed by the mandrel requirements stated herein.

Deflection tests shall be performed no sooner than 30 calendar days after installation and compaction of backfill. The pipe shall be cleaned and inspected for offsets and obstructions prior to testing.

For pipe 36 inches (900 mm) and less in diameter, a mandrel shall be pulled through the pipe by hand to ensure that maximum allowable deflections have not been exceeded. The mandrel shall be approved by the engineer prior to use. Use of an unapproved mandrel or a mandrel altered or modified after approval will invalidate the test. If the mandrel fails to pass, the pipe is overdeflected.

Unless otherwise permitted, overdeflected pipe shall be uncovered and, if not damaged, reinstalled. Damaged pipe shall not be reinstalled, but shall be removed and replaced with new pipe. Any pipe subjected to any method or

process other than removal, which attempts, even successfully, to reduce or cure any overdeflection, shall be removed and replaced with new pipe.

The mandrel shall be a rigid, nonadjustable, odd-numbered legged (minimum 9 legs) mandrel having a length not less than its nominal diameter or 24 inches (600 mm), whichever is less. The minimum diameter at any point shall be 5.0 percent less than the base inside diameter of the pipe being tested. The mandrel shall be fabricated of steel, aluminum or other approved material fitted with pulling rings at each end. The nominal pipe size and outside diameter of the mandrel shall be stamped or engraved on some segment other than a runner. A suitable carrying case shall be furnished.

For pipe larger than 36 inches (900 mm) in diameter, deflection shall be determined by a method approved by the engineer. If a mandrel is selected, the minimum diameter, length, and other requirements shall conform to the above requirements.

Mandrel testing shall be conducted by the contractor in the presence of the engineer. Mandrel testing shall be at no direct pay.

(b) Metal Pipe: If the inside diameter of metal pipe or rise dimension of metal pipe arch deflects more than 5.0 percent from original dimensions, they shall be removed and reinstalled, unless they do not rebound or are damaged. Pipe or pipe arch which are damaged or do not rebound shall be removed and replaced at no direct pay. Measurement of deflection will be made by the engineer away from rerolled ends.

701.10 CLEANING PIPES.

(a) Existing Pipes: Pipes designated to be cleaned shall be cleaned of soil, debris and other materials to the invert of the pipe. Designated pipes shall be cleaned by approved methods that will not damage the pipes. Any damage caused by the contractor's operations shall be satisfactorily repaired at no direct pay.

Removed soil, debris and other materials shall be disposed of in accordance with Subsection 202.02 or as otherwise approved in writing.

(b) Contractor Installed Pipes: Prior to final acceptance, pipes shall be cleaned of all debris and soil to the invert of the pipe at no direct pay.

Removed soil, debris and other materials shall be disposed of in accordance with Subsection 202.02 or as otherwise approved in writing.

701.11 STUBBING AND PLUGGING PIPES. When it is required that pipes be plugged, such plugs shall be constructed of Class R concrete complying with Section 901. Thickness of plug and method of construction shall be as directed.

701.11

When new pipes are to be stubbed into new or existing pipes or other structures, the connection shall be made with approved mortar complying with Subsection 702.02.

701.12 MEASUREMENT. Pipe, both new and relaid, will be measured in linear feet (lin m) as follows unless stated otherwise.

(a) Pipe not confined by fixed structures will be measured by the number of joints at the nominal length of each joint.

(b) Pipe confined by fixed structures will be measured along the pipe between the termini of pipe in structure walls.

(c) Pipe confined by a fixed structure on one end and unconfined at the other end will be measured along the pipe from the terminus of pipe in the structure wall to the unconfined end of pipe.

(d) Fabricating of pipe tees, elbows and other fittings will be measured per each fitting. The length of pipe in such fittings will be included in the pay length measurement of pipes of which they form a part.

(e) Excavation required for installation of pipes will not be measured for payment, except as otherwise specified in Subsection 203.14.

(f) Furnishing and placing backfill material for pipes will not be measured for payment. Backfill material needed to complete backfill above natural ground and around pipes that extend above natural ground will be measured and payment will be made under applicable earthwork items. When specified, flowable fill will be measured and paid for in accordance with Section 710.

(g) Plugging and stubbing of pipes will not be measured for payment.

(h) Cleaning existing pipes will be measured by the length of pipe cleaned and accepted.

(i) Concrete collars will be measured per each.

701.13 PAYMENT.

(a) Payment for pipe will be made at the contract unit price per linear foot (lin m) of the types and sizes specified.

When plastic pipe is specified on the plans or elected to be used by the contractor, payment will be made at the contract unit price per linear foot (lin m) of the types and sizes specified in accordance with the payment schedule of Table 701-1.

Table 701-1
Payment Schedule for Plastic Pipe

Percent Payment	Stage of Completeness
75	After placement and backfill has been completed
25	After the pipe has met vertical deflection requirements in accordance with Subsection 701.09(a)

(b) Payment for fabricating pipe tees, elbows and other fittings will be made at the contract unit price per each fitting.

(c) When unstable conditions are encountered, the additional excavation will not be measured for payment; however, the additional materials furnished and placed for the pipe foundation will be measured and paid for as follows:

(1) Granular Materials: Payment will be made under the embankment item. The net section volume of the materials will be multiplied by 3 to determine the pay volume. When the contract does not include a pay item for embankment, payment will be made in accordance with Subsection 104.02.

(2) Bedding Material: Measurement and payment will be made in accordance with Section 726. When the contract does not include a pay item for bedding material, payment will be made in accordance with Subsection 104.02.

(d) Payment for cleaning existing pipes will be made at the contract unit price per linear foot (lin m).

(e) Payment for concrete collars will be made at the contract unit price per each.

701.13

Payment will be made under:

Item No.	Pay Item	Pay Unit
701-01	Cross Drain Pipe (Size & Type)	Linear Foot (Lin m)
701-02	Cross Drain Pipe Arch (Size & Type)	Linear Foot (Lin m)
701-03	Storm Drain Pipe (Size & Type)	Linear Foot (Lin m)
701-04	Storm Drain Pipe Arch (Size & Type)	Linear Foot (Lin m)
701-05	Side Drain Pipe (Size)	Linear Foot (Lin m)
701-06	Side Drain Pipe Arch (Size)	Linear Foot (Lin m)
701-07	Yard Drain Pipe (Size)	Linear Foot (Lin m)
701-08	Relaying Pipe	Linear Foot (Lin m)
701-09	Fabricating Pipe Fittings	Each
701-10	Reinforced Concrete Pipe (Extension)	Linear Foot (Lin m)
701-11	Reinforced Concrete Pipe Arch (Extension)	Linear Foot (Lin m)
701-12	Corrugated Metal Pipe (Extension)	Linear Foot (Lin m)
701-13	Corrugated Metal Pipe Arch (Extension)	Linear Foot (Lin m)
701-14	Cleaning Existing Pipes	Linear Foot (Lin m)
701-15	Concrete Collar	Each
701-16	Plastic Pipe (Extension)	Linear Foot (Lin m)

Section 710 Flowable Fill

710.01 DESCRIPTION. This work consists of furnishing, placing, and consolidating a controlled low strength flowable fill as an alternative to compacted soil. Applications for this material include, but are not limited to, general backfilling of drainage structures, entrenchments across pavements, encasements, beddings, void filling and other uses as shown on the plans or as approved by the engineer. The flowable fill shall be a cementitious mixture of portland cement, fly ash (depending on application and mix design), fine aggregate, water, entrained air, and appropriate admixtures for the particular application.

710.02 MATERIALS. Materials shall comply with the following Sections and Subsections.

Portland Cement	1001.01
Fine Aggregate	1003.02
Admixtures	1011.02
Water	1018.01
Fly Ash	1018.15

Flowable fill shall be designed and proportioned in accordance with Table 710-1. Trial batching will be required for excavatable and non-excavatable mixes to ensure appropriate job mix consistency and adherence to Table 710-1 properties.

**Table 710-1
Flowable Fill Mix Design¹**

Material	Excavatable	Non-Excavatable
Portland Cement	75-100 lb/cu yd (45-60 kg/cu m)	75-150 lb/cu yd (45-90 kg/cu m)
Fly Ash	0-150 lb/cu yd (0-90 kg/cu m)	150-600 lb/cu yd (90-355 kg/cu m)
Water ²	-	-
Air ³	10-35%	5-20%
Concrete Sand	Proportioned to yield 1 cu yd (1 cu m)	Proportioned to yield 1 cu yd (1 cu m)
Unit Weight (wet) ³	90-110 lb/cu ft (1440-1760 kg/cu m)	100-125 lb/cu ft (1600-2000 kg/cu m)
28-Day Compressive Strength ³	Maximum 100 psi (0.7 MPa)	Minimum 125 psi (0.9 MPa)

¹Mix designs shall yield 1.0 cubic yard (1.0 cu m) absolute volume.

²Mix designs shall produce a consistency that will result in a flowable self-leveling product at the time of placement and conform to the requirements of Subsection 710.02.

³The requirements for percent air, compressive strength and unit weight are for laboratory designs only and are not intended for jobsite acceptance requirements.

710.03 CONSTRUCTION REQUIREMENTS. Before placement, temporary enddams or soil berms shall be provided as directed by the engineer to confine the flowable fill. Flowable fill shall be placed to the lines and grades shown on the plans or as directed. Where flotation or misalignment may occur due to hydrostatic pressure, the contractor shall assure correct alignment and placement of the encased structure by using straps, soil anchors, or other approved means of restraint. Flowable fill shall be protected from freezing for 36 hours after placement. Flowable fill shall be placed by chute, pumping or other methods approved by the engineer. Due to flowable fill's liquid condition, hydrostatic pressure on adjacent structures shall be taken into account on deep fills where multiple lifts may be required. While in a liquid state, flowable fill in deep excavations is in a quick condition and shall be protected until hardening occurs. Flowable fill will not require field sampling or testing other than the approved trial batch mix design, unless otherwise directed by the project engineer.

710.04 MEASUREMENT. Flowable fill will be measured by the cubic yard (cu m) by batch tickets as adjusted by the project engineer.

710.05

710.05 PAYMENT. Payment for flowable fill will be made at the contract unit price per cubic yard (cu m).

Payment will be made under:

Item No.	Pay Item	Pay Unit
710-01	Flowable Fill	Cubic Yard (Cu m)

Section 713

Temporary Traffic Control

713.01 DESCRIPTION. This work consists of furnishing, installing, maintaining, and removing temporary construction barricades, precast concrete barriers, lights, signals, pavement markings and signs; providing flaggers; and complying with all other requirements regarding the protection of the work, workers and safety of the public. Unless otherwise noted in the plans or special provisions this work also includes traffic control management in compliance with the contract documents and the Manual on Uniform Traffic Control Devices (MUTCD), including the installation, inspection, maintenance, and removal of all traffic control devices on the project. Signs, barricades, barriers, channelizing devices, pavement markings, etc., shall comply with plan details, the MUTCD and these specifications.

Signs, barricades, barriers, channelizing devices, pavement markings and arrangements thereof, as shown on the plans, are minimum requirements. Appropriate signs for special conditions shall be furnished and installed as directed. Requirements for proper signs, barricades, barriers, channelizing devices, or other safety precautions promulgated by the contractor's insurers are not negated by these specifications. These specifications shall not be construed to relieve the contractor of responsibilities for the safety of the public, for liability in connection therewith, or compliance with State and local laws or ordinances.

The contractor shall assign one or more authorized Traffic Control Supervisors (TCS) to provide traffic control management for the project. If more than one TCS is assigned, then a weekly schedule identifying who will be in charge of providing traffic control management on a daily basis shall be submitted to the engineer. The TCS shall have a set of all contract documents relating to traffic control or traffic staging and a current copy of the MUTCD and a current copy of Louisiana Work Zone Traffic Control Details readily available at all times.

If the contractor utilizes a subcontractor to provide traffic control management, the subcontractor's TCS shall meet all the requirements set forth herein.

The contractor may assign one or more Traffic Control Technicians (TCT) to assist the TCS in inspection and maintenance of Traffic Control Devices.

713.02

713.02 MATERIALS. Materials for temporary signs, barricades, barriers and related devices shall comply with the following Sections and Subsections:

Portland Cement Concrete	901
Reinforcing Steel	1009
Backing Material	1015.04(b)
Reflective Sheeting	1015.05
Temporary Pavement Markings	1015.08
Raised Pavement Markers & Adhesive	1015.09
Thermoplastic Pavement Markings	1015.10
Traffic Paint	1015.12
Barricade Warning Lights	1018.12

(a) Temporary Pavement Markings: Temporary pavement markings shall be a minimum of 4 inches (100 mm) wide.

(b) Reflective Sheeting: Reflective sheeting requirements for temporary signs, barricades, channelizing devices, drums and cones shall comply with the following:

(1) Temporary Signs and Barricades: On the mainline of freeways and expressways, the initial advanced warning construction sign shall be fabricated using ASTM D 4956 Type X (Fluorescent Orange) reflective sheeting. Reflective sheeting for all other temporary signs and barricades shall comply with the requirements of ASTM D 4956, Type III.

(2) Vertical Panels: Reflective sheeting for vertical panels used to channelize or divide traffic shall meet the requirements of ASTM D 4956, Type III.

(3) Drums: Reflective sheeting for drums shall be a minimum of 6 inches (150 mm) wide and shall meet the requirements of ASTM D 4956, Type III, and the Supplementary Requirement S2 for Reboundable Sheeting as specified in Subsection 1015.05.

(4) Cone Collars: Reflective sheeting for traffic cone collars shall meet the requirements of ASTM D 4956, Type VI.

713.03 FABRICATION. Fabrication of temporary signs, barricades and related devices shall conform to Subsection 729.04. Fabrication of precast concrete barriers shall conform to Section 805.

713.04 TEMPORARY SIGNS AND BARRICADES.

(a) General: Temporary signs, barricades and related devices will be required when the contractor's work is in progress on portions of the work covered by the Notice to Proceed or when operations are suspended. During such times that temporary signs, barricades and related devices are not in place, appropriate existing regulatory signs shall be maintained by the contractor.

Construction work shall not begin until signs, barricades and other traffic control devices have been erected and approved.

When signs to be furnished and erected by the contractor are in place and approved, the contractor's Traffic Control Supervisor (TCS) shall remove or cover any standard signs that are in conflict with temporary signs.

When placing signs, the contractor shall coordinate with the engineer in removing Departmental signs, so that appropriate signs are in place at all times.

Signing shall remain in place and be maintained by the contractor, supplemented by additional signs as required, throughout the period of work.

When previously used signs are to be erected on a project, the engineer will inspect and approve these signs before erection. The engineer will require any sign with reduced reflectivity or excessive color fading to be removed from the work zone. In case of a dispute over a rejected used sign, the Department at its discretion, may take such measurements or review reflectivity and color data obtained by the contractor to determine if the sign meets minimum standards for new materials. Signs that do not meet the minimum standards for new materials shall be replaced by the contractor at no direct pay.

Rejected signs will be marked "NOT FOR USE ON STATE PROJECTS" on the back of the sign.

Signs placed by the contractor shall be removed according to the Traffic Control Plan. It will be the responsibility of the Department to see that all permanent highway signs are in place upon completion and acceptance of the project.

On projects where the surface course is constructed with asphaltic concrete or portland cement concrete, permanent striping and raised pavement markers (when required) shall be completed prior to removal of barricades.

Signs, barricades and related devices furnished and placed by the contractor shall, upon removal, remain the contractor's property.

(b) Advance Warning Area: When specified, advance warning arrow panels for temporary traffic control shall be provided at locations shown on the plans or as directed. Panels shall be one of the specified types

713.04

complying with the Department's MUTCD. If no type is specified, Type C panels shall be furnished.

(c) Construction Zone: In areas of the construction zone all traffic control devices used shall be in accordance with Temporary Traffic Control Standard Detail TC-00.

713.05 TEMPORARY PRECAST CONCRETE BARRIERS. Barrier units will be furnished by the contractor unless specified otherwise. Each barrier unit shall be 15-feet (4.6 m) in length.

When the barrier units are furnished by the Department the units will be furnished at no cost to the contractor. The contractor shall load the barrier units at the location specified, deliver the units to the construction site and place them as required.

The contractor shall relocate barrier units as required during construction.

Connecting pins and plastic reflectors shall be furnished by the contractor at no additional cost to the Department. Reflectors shall have 7.0 square inches (4,500 sq mm) minimum reflective area, and be installed a maximum of 15 feet (4.6 m) apart (each side) in accordance with the manufacturer's recommendations. Damaged pins or reflectors shall be replaced as directed by the engineer.

After completion of the work, barrier units shall become the property of the Department and shall be removed and transported by the contractor to the location specified and unloaded as directed. All costs of loading, transporting and unloading the barrier units shall be included in the price bid on this item.

Barrier units damaged shall be satisfactorily repaired or replaced at no direct pay.

713.06 PAVEMENT MARKINGS. Color, width and type of temporary pavement markings shall be in accordance with Table 713-1 and the MUTCD. Temporary pavement markings shall be in place at the end of each day's operation.

Temporary striping tape shall be applied by approved methods to the satisfaction of the engineer. Thermoplastic Pavement Markings shall be applied in accordance with Subsection 732.03. Painted Traffic Striping shall be applied in accordance with Section 737.

**Table 713-1
Temporary Pavement Markings^{1,2}**

		Two-lane Highways	Undivided Multilane Highways	Divided Multilane Highways
S H O R T T E R M	ADT<1500; or ADT>1500 and time<3 days	Lane lines 4-foot (1.2 m) tape on 40-foot (12 m) centers; with "Do Not Pass" and "Pass With Care" signs as required		
	ADT>1500; Time>3 days and<2 weeks	Lane lines 4-foot (1.2 m) tape on 40-foot (12 m) centers with no passing zone markings		
	All ADT's with time <2 weeks		Lane lines 4-foot (1.2 m) tape on 40-foot (12 m) centers; double yellow centerline	Lane lines 4-foot (1.2 m) tape on 40-foot (12 m) centers
	All ADT's with time >2 weeks	Standard lane lines, no-passing zone markings, legends and symbols and when pavement width is 22 feet (6.7 m) or greater, edge lines	Standard lane lines, centerlines, edge lines, and legends and symbols	Standard lane lines, centerlines, edge lines, and legends and symbols.

¹No-passing zones shall be delineated as indicated whenever a project is open to traffic.

²On all Asphaltic Surface Treatments that are open to traffic and used as a final wearing course or as an interlayer, temporary pavement markings (tabs) on 20-foot (6 m) centers shall be used, in lieu of the 4-foot (1.2 m) tape, on 40-foot (12 m) centers.

(a) Short-term Pavement Markings: Short-term pavement markings will be required on any pavement surface under traffic.

Centerlines on two-lane highways and lane lines on multilane highways shall be temporary striping tape a minimum of 4 feet (1.2 m) long on a maximum of 40-foot (12 m) centers. When short-term pavement markings require no-passing zone markings or double yellow centerlines on undivided multilane highways, they shall be any of the temporary pavement markings listed in Subsection 713.02.

Removal of short-term pavement markings will only be required on the final surface.

(b) Long-term Pavement Markings: Long-term pavement markings will be required on any surface which is not covered by an additional surface

713.06

in 2 weeks or less. Long-term pavement markings shall include, but are not limited to, standard lane and centerline markings (i.e., 10-foot (3 m) stripes on a maximum of 40-foot (12 m) centers), edgelines, no passing zone markings on 2-lane highways, stop bars, and legend and symbol markings as shown on the permanent pavement marking details. Layout work for exact location of markings will only be required on the final surface.

These markings shall consist of any of the pavement markings listed in Subsection 713.02.

Long-term markings do not include the installation of raised pavement markings.

(c) Final Surface: On the final surface (portland cement concrete pavement or asphaltic concrete pavement), temporary markings shall be placed with sufficient accuracy to avoid conflict with permanent striping where possible. Temporary pavement markings on the final surface shall be any of the pavement markings listed in Subsection 713.02.

Placing permanent markings over traffic paint will be acceptable on final surfaces provided the temporary markings have been placed in the final configuration (proper final layout) and the painted lines are not flaking or showing signs of deterioration.

The removal of temporary pavement markings, if required, shall be in accordance with the requirements for the type of permanent marking being used. There shall be no objectionable staining of pavement surface as a result of the removal procedure.

(d) Temporary Reflectorized Raised Pavement Markings: When required, temporary reflectorized raised pavement markings shall be installed in accordance with Section 731.

(e) Pavement Markings for Asphaltic Surface Treatment: The type of markings shall be in accordance with Table 713-1. Short-term temporary pavement markings shall be in place at the end of each day's operation. Long-term temporary pavement markings shall be in place as soon as practical after expiration of the 4 day maintenance period following the asphaltic surface treatment operation. On the final wearing course, permanent markings shall be placed two weeks following completion of the long-term temporary pavement markings.

When used on the final wearing course, painted traffic striping shall be in accordance with Section 737.

Centerlines on two-lane highways and lane lines on multilane highways shall be temporary raised markers in accordance with Subsection 1015.08(c).

"No-passing zone" markings shall be any of the temporary pavement markings listed in Subsection 713.02.

The temporary raised pavement markers shall be installed in accordance with the manufacturers' recommendations or as directed by the engineer. The temporary raised markers shall be flexible reflective tabs placed at 20-foot (6 m) intervals on the centerline of the roadway. The markers shall be installed so that the reflective faces of the markers are perpendicular to a line parallel to the roadway centerline.

If directed by the engineer, the temporary raised pavement markers shall be removed after permanent striping has been accomplished. Damage to the pavement surface shall be repaired at no direct pay.

713.07 PORTABLE WORK ZONE TRAFFIC CONTROL DEVICES.

All Category I, II, and III portable work zone traffic control devices, as described below, shall be crashworthy as determined by evaluations through the National Cooperative Highway Research Program (NCHRP) 350 for Test Level 3 (TL-3).

(a) Category I Devices: Category I devices are low-mass, single-piece traffic cones, tubular markers, single-piece drums and flexible delineators and are, by definition, considered crashworthy devices meeting NCHRP Report 350 TL-3 criteria. Drum and light combinations with Type A or C warning lights and fastener hardware consisting of vandal resistant 1/2 inch (13 mm) diameter cadmium plated steel bolts and nuts used with 1 1/2 inch (38 mm) diameter by 3/4 inch (19 mm) cup washers are included as Category I devices. In lieu of testing for crashworthiness, acceptance of Category I devices for compliance with NCHRP 350 will be allowed based on self-certification by the supplier. The supplier shall certify that the product is crashworthy in accordance with the evaluation criteria of NCHRP 350. This certification may be a one-page affidavit signed by the supplier, with supporting documentation kept on file to be furnished if requested.

(b) Category II Devices: Category II devices include other low mass traffic control devices such as portable barricades either with or without lights and or signs, portable sign stands, portable vertical panel assemblies, and drums with lights not meeting the drum and light combination requirements for Category I. Individual crash testing is required for Category II devices. FHWA letters of approval shall serve as verification that these devices comply with the crash testing requirements of NCHRP Report 350 TL-3. The contractor shall provide the engineer a listing of all the Category II devices to be used on the project prior to installation including a reference to the FHWA Work Zone letter number for each device. The contractor shall also certify that each device has been crash tested and meets the NCHRP 350 requirements.

713.07

(c) Category III Devices: Category III devices include massive devices such as concrete barriers, water filled barriers and portable attenuators. Individual crash testing is required for Category III devices. FHWA letters of approval shall serve as verification that these devices comply with the crash testing requirements of NCHRP Report 350 TL-3. The contractor shall provide the engineer a listing of all the Category III devices to be used on the project prior to installation including a reference to the FHWA Work Zone letter number for each device. The contractor shall also certify that each device has been crash tested and meets the NCHRP 350 requirements.

713.08 TRAFFIC CONTROL MANAGEMENT.

(a) Authorization: Prior to commencing work requiring traffic control management, the contractor shall submit to the engineer proof of the Traffic Control Supervisor's (TCS) and Traffic Control Technician's (TCT) current authorizations.

The Department will accept the TCS authorization of other approved agencies or firms only if all of the following minimum TCS requirements are met:

(1) Successful completion of a work zone traffic control supervisor course approved by the Department.

(2) Passing a written examination on the work zone traffic control supervisor course.

(3) A minimum of one year full-time field experience, verified by the agency or firm, in work zone traffic control. This experience may be verified by the Department at its discretion.

The Department will accept the TCT authorization of other approved agencies or firms only if all of the following minimum requirements are met.

(1) Successful completion of a work zone traffic control technician course approved by the Department.

(2) Passing a written examination on the work zone traffic control technician course.

(b) Traffic Control Supervisor (TCS) Duties: The TCS's responsibility shall be traffic control management, and the TCS shall be available to the engineer to address traffic control management issues as needed. The following is a listing of the TCS's primary duties:

(1) The TCS shall personally provide traffic control management and supervision services at the project site. The TCS may have other assigned duties, but shall be readily available at all times to perform TCS duties as required in the contract. A minimum of one TCT shall be required on site

during working hours.

(2) The TCS shall be responsible for observing and evaluating both the day and night time performance of all traffic control devices installed on the project, in accordance with the Traffic Control Plan (TCP), to ensure that the devices are performing effectively as planned for both safety and traffic operations. This shall be done upon the initial installation of the devices and when any modifications and/or changes are made, in addition to the inspection of traffic control required in Heading (e).

(3) The TCS shall be responsible for revisions requested by the contractor to the traffic control plan established in the contract and shall submit the new traffic control plan in accordance with Heading (c).

(4) The TCS shall be responsible for the training of flagging personnel. This training will ensure that all flagging done on the project is in compliance with the MUTCD Part VI and Louisiana Work Zone Traffic Control Details.

(5) The TCS shall coordinate all traffic control operations for the duration of the contract, including those of subcontractors, utility companies, and suppliers, to ensure that all traffic control is in place and fully operational prior to the commencement of any work. The Department recognizes that the contractor does not have direct control over the traffic control operations of the utility companies. The coordination provided by the TCS when dealing with utility companies is specifically for the purpose of coordinating concurrent utility traffic control with any other construction traffic control to avoid conflicts.

(6) The TCS shall coordinate, in writing, all project activities with the appropriate law enforcement, fire control agencies, and other appropriate public agencies as determined at the pre-construction conference by the engineer. The TCS shall also invite the above agencies to the pre-construction conference.

(7) The TCS shall prepare and submit statements concerning road closures, delays, and other project activities to the news media on a weekly basis or more often as needed. News releases shall be submitted to the engineer for review and approval prior to the contractor's submittal to the news media.

(8) The TCS shall be responsible for notifying the engineer, or designee, immediately of all vehicular accidents and/or incidents related to the project traffic control. The time and date of notification shall be documented in the traffic control diary. The TCS shall also monitor and document queues that occur as necessary.

(9) The TCS assigned to the project shall attend the pre-construction

713.08

conference and all project meetings.

(10) The TCS shall be responsible for the maintenance, cleanliness, replacement and removal of traffic control devices of the existing traffic control plan during working and non-working hours.

(c) Traffic Control Plan Revisions: Requests for revision in the traffic control plan must be made in writing to the engineer a minimum of 14 calendar days in advance of the needed revision. If the requested revision falls within the scope of the existing contract drawings, the engineer may approve the revision. If the engineer determines that the requested revision is outside the scope of the contract drawings, the contractor will be required to submit a change order. The change order drawings shall conform to the following:

(1) Letter size original contract drawings --The change order drawings shall be submitted on high quality white 8 1/2 x 11 inch letter size paper. The drawings may be hand drafted or computer drafted and arranged in landscape format on the page. The text and drawings must be legible after reproduction on standard reproduction equipment. Left, bottom and right hand margins shall be at least 1/2 inch and the top margin shall be 1 inch.

(2) Full size original contract drawings -- The change order drawings shall be submitted on high-quality, 4-mil, double-matte film using a plotting or reproduction process that fuses the graphics to ensure durability. Repeated handling and friction due to stacking of plans shall not smear, flake or rub off the graphics. Improper plotter settings and plotter wear may cause inconsistent durability of the drawings. The contractor shall test samples of the submitted drawings for durability. Advance samples of matte films may be submitted for approval; however, the contract plans will be tested separately. Failures will result in rejection of the submittal. Drawing sizes shall be in accordance with Subsection 801.03(a).

Lettering on change order drawings shall be of adequate size to facilitate a 50 percent reduction of plans. Additions or changes shall be made with a permanent type of waterproof ink made for this purpose. If revised cross sections are required, the cross-sections shall be plotted on standard plate cross-section sheets. The ground line, centerline elevation, and station numbers, as a minimum, shall be drawn in ink; the remaining information may be in pencil.

Regardless of size, all change order drawings and documents required shall be identified with the DOTD project title and project number. All plans and calculations shall be signed and sealed by a professional civil engineer currently registered to practice in Louisiana.

All plans submitted by the contractor shall conform to these specifications

and standards. The DOTD Chief Engineer may reject any plans not conforming to these standards.

Revisions to the TCP that are determined to be outside the scope of the original contract drawings must be approved by the DOTD District Traffic Engineering Division prior to implementation of the requested revision. In some cases on high traffic routes or high priority projects, the revisions must be approved by the HQ Traffic Operations Engineer.

(d) Traffic Control Diary: The TCS shall maintain a project traffic control diary in a bound book. The contractor shall obtain a sufficient number of the diaries from the Louisiana Associated General Contractors (LAGC). The TCS shall keep the traffic control diary current on a daily basis, and shall sign each daily entry. Entries shall be made in ink in a standard format furnished by the engineer, and there shall be no erasures or white-outs. Incorrect entries shall be struck out and then replaced with the correct entry. Photographs and videotapes may be used to supplement the written text.

The traffic control diary shall be available at all times for inspection by the engineer; and the diary shall be reviewed with the engineer on a weekly basis and a copy submitted to the engineer on a monthly basis. Failure to submit the monthly copy of the diary to the engineer shall result in the withholding of the next partial payment until the past due copies of the diary are submitted. The traffic control diary shall become the property of the Department at the completion of the project.

(e) Inspection of Traffic Control: The TCS shall be responsible for the inspection of all traffic control devices every calendar day that traffic control devices are in use. This inspection may be delegated to the TCT. The "Quality Guidelines for Work Zone Traffic Control Devices" standard by the American Traffic Safety Services Association (ATSSA) shall be used to evaluate the condition of the traffic control devices to determine if acceptable for use. The TCS shall provide for the immediate repair, cleaning, or replacement of any traffic control devices not functioning as required to ensure the safety of the motorist and construction personnel and/or not meeting the ATSSA standard.

Inspection of the traffic control devices shall be conducted by the TCS at the beginning and end of each workday, and as scheduled or directed by the engineer during the workday. The traffic control devices shall be inspected by the TCS on weekends, holidays, or other non-work days at least once per day. Traffic control devices shall be inspected by the TCS at least once a week during nighttime periods and the same night after any modifications or changes have been made in the traffic control devices.

(f) Failure to Comply: The engineer may suspend all or part of the

713.08

contractor's operation(s) for failure to comply with the approved "Traffic Control Plan" or failure to correct unsafe traffic conditions within a reasonable period of time after such notification is given to the contractor in writing.

In the event that the contractor does not take appropriate action to bring the deficient traffic control into compliance with the approved traffic control plan or to correct the unsafe traffic conditions, the Department may proceed with the corrective action using its own forces, and such costs will be deducted from payments owed to the contractor.

If the contractor's operations are suspended, the normal assessment of contract time will not cease for the period required to correct these unsafe conditions and traffic control deficiencies. The contractor shall not be relieved of the responsibility to provide traffic control safety to the traveling public when a project is under full or partial project suspension. When a project is under suspension due to the contractor's failure to comply with this section, or when the contract is under stipulated damages, the contractor shall continue to provide traffic control management and no additional measurement or payment will be made. If suspensions or partial suspensions are requested by the contractor, the additional traffic control management costs will be at the contractor's expense.

(g) Engineer Modifications: The provisions included in the plans and specifications for handling and controlling traffic during construction may be changed by the engineer, with the approval of the DOTD District Traffic Operations Engineer, due to actual field conditions encountered. Such changes will be made by written instruction to the contractor and shall be considered an amendment to the plans and specifications as of the date of change.

713.09 MEASUREMENT.

(a) Temporary Signs and Barricades: When the contract does not include a pay item for "Temporary Signs and Barricades," the providing of temporary construction signs, barricades and related devices will not be measured for payment. When a pay item for "Temporary Signs and Barricades" is included in the contract, the furnishing, erecting, maintaining and subsequent removing of temporary construction signs, barricades and related devices will be measured on a lump sum basis.

Advance warning arrow panels will not be measured for separate payment, but will be included in the contract lump sum price for Temporary Signs and Barricades.

(b) Temporary Pavement Markings: When the contract does not include an item for "Temporary Pavement Markings," provision of these markings will not be measured for payment.

When the contract includes an item for "Temporary Pavement Markings", these markings acceptably furnished, placed, maintained and subsequently removed will be measured by the linear foot (lin m), or by the mile (km) as specified.

When measurement is made by the linear foot (lin m) of striping, measurement will be made for the material placed. Gaps will be excluded.

When measurement is made by the mile (km) of single strip per roadway per application, no deduction will be made for the standard design gaps in broken line striping; however, deductions will be made for the length of other gaps or omitted sections.

Temporary pavement legends and symbols will be measured per each legend or symbol.

Temporary reflectorized raised pavement markers will be measured by counting the number of markers furnished, placed and accepted. Removal of raised pavement markers will not be measured for payment.

(c) Temporary Precast Concrete Barriers: When the contract does not include a pay item for Temporary Precast Concrete Barriers, the provision of these barriers will not be measured for payment. When the contract includes a pay item for Temporary Precast Concrete Barriers, the barriers will be measured per each unit installed, which includes construction, delivery, placement and removal from the job site one time. Further movements of barriers for subsequent construction phases will be measured per movement of each barrier.

(d) Traffic Control Management: Traffic control management will not be measured for payment.

713.10 PAYMENT. Payment for temporary construction signs, barricades and related devices will be at the contract lump sum price in accordance with the payment schedule of Table 713-2.

713.10

**Table 713-2
Payment Schedule
Temporary Signs, Barricades and Related Devices**

Percent of Total Contract Amount Earned	Allowable Percent of Lump Sum Price for Temporary Signs and Barricades
Initial Erection	40
25	60
50	80
75	95
100	100

Payment for temporary pavement markings will be made at the respective contract unit prices. Payment for temporary precast concrete barriers will be made at the contract unit price per each. The concrete in temporary precast barriers furnished by the contractor will be identified by lots and shall be subject to pay adjustments in accordance with Table 901-5 and Note 1 therein. Size, sampling, and testing of each concrete lot shall be in accordance with the Materials Sampling Manual.

Payment for movement of temporary concrete barriers will be made per movement of each barrier.

Payment will be made under:

Item No.	Pay Item	Pay Unit
713-01	Temporary Signs and Barricades	Lump Sum
713-02	Temporary Pavement Markings (__inch (__mm) Width)	Linear Foot (Lin m)
713-03	Temporary Pavement Markings (Broken Line)(__inch (__mm) Width) (__foot (__m) Length)	Mile (km)
713-04	Temporary Pavement Markings (Solid Line) (__inch (__mm) Width)	Mile (km)
713-05	Temporary Pavement Legends and Symbols (Type)	Each
713-06	Temporary Reflectorized Raised Pavement Markers	Each
713-07	Temporary Precast Concrete Barrier (Contractor Furnished)	Each
713-08	Temporary Precast Concrete Barrier (Department Furnished)	Each
713-09	Temporary Portable Barrier (Type)	Each
713-10	Temporary Precast Concrete Barrier Movement	Each

Section 720

Erosion Control Systems

720.01 DESCRIPTION. This work consists of furnishing and placing erosion control systems in accordance with plan requirements for use as soil retention blankets on slopes or as flexible channel liners in ditches.

720.02 MATERIALS.

(a) General: Erosion control systems shall comply with Subsection 1018.23. The manufacturer's installation plan and hardware (staples, stakes, etc.) are considered part of the system and shall be the same as that used during the evaluation for source approval.

The type of erosion control system to be used shall be shown on the plans. The contractor shall have the option of substituting a higher grade system for a lower grade system within the same application (slope protection or flexible channel liners) at no additional cost to the Department.

(b) Acceptance: Pretested lots of erosion control systems shall be accepted based on a Certificate of Delivery showing DOTD Lot Numbers and laboratory numbers representing the pretested material, including hardware. Erosion control systems that are not accompanied by a Certificate of Delivery shall be sampled in accordance with DOTD S 613 at the rate of 1/200 rolls for rolled type materials (or mats) or 1/200 bags for mulch systems per manufacturer's lot. The sample size shall consist of not less than 3 square yards (sq m) of rolled (or mat) material or one 50 lb (20 kg) bag of mulch. Installation hardware, additives such as tackifiers, and any other component of the system not covered above shall be sampled at the rate of one item/type/size or one quart (L) per manufacturer's lot in accordance with DOTD S601. All samples shall be submitted to the Materials and Testing Section. A copy of the approved installation plan shall accompany each shipment to the project.

(c) Packaging: Materials shall be packaged in such a way as to maintain the quality of the product throughout handling. Each package shall be identified with the manufacturer's name, product name, and manufacturer's lot number. Each package that is represented by a Certificate of Delivery shall also be identified by the DOTD Lot Number corresponding to that shown on the Certificate of Delivery.

720.03 EQUIPMENT. Equipment necessary to satisfactorily perform the

work shall be furnished and maintained by the contractor. Equipment for hydraulically applying fiber mulch shall be equipped to eject the thoroughly wet mulch material at a uniform rate equal to the manufacturer's recommendations or as designated by the plans to provide the mulch coverage specified.

720.04 CONSTRUCTION REQUIREMENTS. Erosion control systems shall be installed in accordance with the approved installation plan, no later than 48 hours after completion of seeding or sodding operations. All staples shall be installed flush to the ground and shall penetrate all layers of overlapped or adjacent rows.

(a) Slope Protection: Slopes shall be constructed to the required grade, fertilized, and seeded prior to application of erosion control systems. At the time of coverage, the area to be covered shall be free of ruts, clods, stones, roots or other foreign matter that will prevent close contact of the blanket with the soil. Rolled products or mats with netting only on one side are to be placed with the netting exposed and the fibers in contact with the soil.

(b) Flexible Channel Liners: Channels shall be prepared in accordance with Heading (a). Flexible channel liners shall be placed beginning at the downstream end.

720.05 MAINTENANCE. The contractor shall maintain the areas on which erosion control systems have been placed until final acceptance of the project. This shall consist of the repair of damage by erosion, wind, fire or other cause. Such areas are to be repaired to reestablish the condition that existed prior to placing the erosion control systems and may include fertilizing, seeding, mulching or sodding as required at no direct pay.

720.06 MEASUREMENT. Erosion control systems, including hardware, will be measured by the square yard (sq m) of surface area covered.

720.07 PAYMENT. Payment for erosion control systems will be made at the contract unit price and includes all materials, labor, equipment and other incidentals necessary to complete the work. Required burial of ends and edges, overlaps and hardware will not be measured for payment.

Payment will be made under:

Item No.	Pay Item	Pay Unit
720-01	Erosion Control System (Type)	Square Yard (Sq m)

Section 726 Bedding Material

726.01 DESCRIPTION. This work consists of furnishing and placing aggregate bedding material on geotextile fabric for drainage structures.

726.02 MATERIALS. Materials shall comply with the following Subsections:

Plastic Soil Blanket	203.10
Bedding Material	1003.01 & 1003.08
Geotextile Fabric	1019.01

Bedding materials shall be properly proportioned and mixed prior to being placed in the foundation.

726.03 PLACEMENT OF BEDDING. Geotextile fabric shall be placed in accordance with plan details prior to placing bedding material. Care shall be taken to prevent damage to geotextile fabric during placement of bedding material. Materials shall be placed, shaped and uniformly compacted to the satisfaction of the engineer.

Adjacent rolls of fabric will be overlapped or sewn. When rolls are overlapped, the overlap shall be a minimum of 18 inches (450 mm) , including the ends of the rolls. The top layer of the fabric shall be parallel with adjacent rolls and in the direction of bedding materials placement. When rolls are sewn, the contractor shall join adjacent rolls by sewing with polyester, or kevlar thread. Field sewing shall employ the "J" seam or "Butterfly" seam with the two pieces of geotextile fabric mated together, turned in order to sew through 4 layers of fabric and sewn with 2 rows of Type 401, two-threaded locking chain stitch. Factory seams other than specified may be submitted to the Materials and Testing Section for approval. When the ground is covered with water or supersaturated soil, sewing of the fabric will be required.

Damaged fabric shall be either removed and replaced with new fabric or covered with a second layer of fabric extending 2 feet (0.6 m) in each direction from the damaged area.

Excavation below the established grade of the structure for placement of bedding material shall be used or disposed of in accordance with Section 203.

A plastic soil blanket in accordance with Subsection 203.10 shall be placed

at structure ends when bedding material is exposed.

726.04 MEASUREMENT. Bedding material, including plastic soil material, completed and accepted, will be measured by the cubic yard (cu m) (net section). The length and width will be measured horizontally to the theoretical points established by the plans for bedding material. The depth will be as shown on the plans or established by the engineer.

Geotextile fabric will not be measured for payment.

Necessary excavation and disposal of excess excavated materials will not be measured for payment.

726.05 PAYMENT. Payment for bedding material will be made at the contract unit price under:

Item No.	Pay Item	Pay Unit
726-01	Bedding Material	Cubic Yard (Cu m)

Section 729 Traffic Signs and Devices

729.01 DESCRIPTION. This work consists of furnishing and installing traffic signs, dead end road installations, markers and delineators, with accessories, posts and overhead spans of specified materials, sizes, shapes, weights and designs.

In general, the work and materials shall comply with the MUTCD as modified by these specifications or as shown on the plans.

Signs shall be fabricated in an approved plant.

The term "legend" shall mean border strip, letters, numerals and symbols which convey the message on signs.

729.02 MATERIALS. Materials shall be new stock conforming to the following:

(a) Sign and Marker Sheeting: Sheeting material for sign panels, delineators, barricades and other markers shall comply with Section 1015. All permanent signs shall meet the requirements of ASTM D 4956, Type III, except as follows:

Reflective sheeting for the permanent signs of Table 729-1 shall meet the requirements of ASTM D 4956, Type IX.

**Table 729-1
Permanent Signs for Use With Type IX Reflective Sheeting**

Sign	MUTCD Number
Stop	R1-1
Yield	R1-2
4-Way	R1-3
All Way	R1-4
Do Not Enter	R5-1
Wrong Way	R5-1a
Chevrons	W1-8
No Passing Zone Pennants	W14-3
Type 3 Object Marker	OM-3 (Right & Left)
Type 2 Object Marker	-----
Guardrail End Decals	-----

(b) Ferrous Metal: Ferrous metals shall comply with Subsection

1015.02(a). Reinforcing steel shall comply with Section 1009. Ferrous metal, except reinforcing steel, shall be galvanized in accordance with Section 811.

(c) Aluminum: Aluminum alloys for structural members shall comply with Subsection 1015.02(b). Aluminum sign panels shall comply with Subsection 1015.04(a).

(d) Fittings: Structural bolts, nuts, washers and miscellaneous hardware shall comply with Subsection 1015.02.

(e) Guard Rail: Guard rail materials for dead end road installations shall comply with Section 1010.

(f) Timber: Treated piling and timber for barricades in dead end road installations shall comply with Section 1014.

(g) Concrete: Concrete shall be Class M complying with Section 901.

(h) Flexible Sign Posts: Flexible posts for small signs, markers and delineators shall comply with Subsection 1015.03.

(i) Silk Screen Paste: Silk screen paste shall be as recommended by the sheeting manufacturer.

(j) U-Channel Posts: U-channel posts shall comply with Subsection 1015.02(a)(3).

729.03 GENERAL REQUIREMENTS.

(a) Sign Face Fabrication: Signs of Types A, B, D and E, overhead signs and sign face overlay panels shall be fabricated in accordance with the MUTCD, the "Standard Highway Signs" booklet, and the signing detail sheets of the plans.

The contractor shall furnish shop drawings of sign faces for Types D and E, overhead signs and sign overlay panels and for any non-standard sign faces of Types A and B not provided by the Department. Approval of shop drawings shall be obtained before sign face fabrication is begun.

(b) Sign Mountings Fabrication: The contractor shall have the option of furnishing either steel or aluminum sign supports for both post mountings and overhead mountings and either rigid steel or flexible posts for small signs, markers and delineators. Before beginning work, the contractor shall notify the engineer in writing of signing materials he proposes to furnish. The same signing materials shall be used throughout the project.

Fabrication of sign mountings shall conform to Section 807. The contractor shall furnish fabrication and erection drawings of all sign mountings in accordance with Subsection 801.03 with the exception of standard roadside installations. Fabrication and erection drawings will be approved only after approval of sign face shop drawings. Neither fabrication of sign mountings nor construction of sign footings will be allowed before

729.03

drawings are approved and distributed.

An approved damper is required for each aluminum truss. Dampers shall be installed during truss fabrication and shall remain in place.

Structure mounted delineator and milepost assemblies shall be installed in accordance with plan details.

Welding shall comply with Section 815.

(c) Material Sampling and Certification: Material sampling and certification for sign faces, sign mountings and U-channel posts shall be in accordance with the Materials Sampling Manual.

729.04 FABRICATION OF SIGN PANELS AND MARKERS.

(a) General: The completed product shall have a surface free of cracks, blisters, blemishes, and wrinkles.

Metal fabrication including shearing, cutting and punching of holes shall be completed prior to surface treatment of metal and application of sheeting. Metal panels shall be cut to size and shape and shall be free of buckles, warps, dents, cockles, burrs and defects resulting from fabrication. Surface of sign panels shall be flat.

Splice plates joining sign panels shall not extend behind horizontal sills. Flat aluminum panels shall be a nominal 0.080 inch (2 mm) thick. Extruded aluminum panels shall be 12 inches (300 mm) wide and have a nominal face thickness of 0.125 inches (3 mm).

(b) Surface Treatment: Surface treatment shall be as specified herein or in accordance with approved recommendations of the reflective sheeting manufacturer.

(1) Degreasing:

a. Vapor Degreasing: Panels shall be immersed in a saturated vapor of organic solvent. Trademark printing shall be removed with lacquer thinner or a controlled alkaline cleaning system.

b. Alkaline Degreasing: Panels shall be immersed in a tank containing alkaline solutions, controlled and titrated to the solution manufacturer's specifications. Immersion time shall depend upon amount of contaminants present and thickness of metal.

(2) Etching:

a. Acid Etch: The panels shall be etched in a 6 to 8 percent phosphoric acid solution at 100°F (38°C). The panels shall then be rinsed thoroughly with running cold water followed by hot water tank rinse.

b. Alkaline Etch: Etch precleaned aluminum surface in an alkaline etching material controlled by titration, using time, temperature and concentration specified by solution manufacturer. Rinse thoroughly. Remove

smut with an acidic, chromium compound solution specified by solution manufacturer and thoroughly rinse.

(3) Drying Panels: Panels shall be dried with a forced hot air drier. Panels shall be handled with clean canvas gloves or by other approved methods between cleaning and etching operations and sheeting application. Cleaned panels shall be protected from grease, oil or other contaminants prior to application of reflective sheeting.

(c) Sheeting Application: Application of reflective sheeting shall be in accordance with the approved written recommendations of the sheeting manufacturer. Sheeting shall be applied to sign faces in an orientation that will result in optimum retroreflectance, or as directed by the engineer.

Reflective sheeting shall be applied with no horizontal splices. Reflective sheeting applied directly to extruded panels shall have no more than two vertical splices per sign, with no more than one vertical splice per individual panel. When splices are used in this manner, only those that occur during, and as a part of, the manufacturing process will be allowed. Fabricated splices will not be allowed.

ASTM D 4956 Type IX reflective sheeting shall be applied with an orientation determined by the engineer to obtain the optimum entrance angle performance. Fabricated vertical splices in ASTM D 4956 Type IX reflective sheeting will be allowed only when the horizontal dimension of the sign face or attached shield is in excess of the maximum manufactured width of the sheeting. Fabricated vertical splices in ASTM D 4956 Type IX reflective sheeting will also be allowed when the specified orientation will create excessive sheeting waste.

Sign faces comprised of two or more pieces of reflective sheeting shall be carefully matched for color at the time of sign fabrication to provide uniform appearance and brilliance, both day and night. Alternate, successive width sections of either sheeting or panels shall be reversed and consecutive to ensure that corresponding edges of reflective sheeting lay adjacent on the finished sign. Reflective sheeting splices and sign edges shall be sealed in accordance with the manufacturer's recommendations. Legend shall be of the shape, size, dimension, and stroke specified in the MUTCD and sign face shop drawings.

Legend shall be applied by one of the following methods:

(1) Direct Applied: Legend shall be an adhesive coated reflective sheeting as specified in Subsection 1015.05. Legend shall be applied in such manner as to provide a wrinkle-free surface.

(2) Demountable: Legend shall be an adhesive coated reflective sheeting as specified in Subsection 1015.05, permanently adhered to a 0.032-

729.04

inch (0.8 mm) thick flat aluminum backing, except that route marker shields shall be 0.080-inch (2.0 mm) thick aluminum. Aluminum shall be treated in accordance with Heading (b). Legend shall be attached to sign face in such manner as to provide a smooth, flat surface. Sign fabrication rivets that prohibit such application shall be removed and replaced through legend, or legend may be raised by approved spacers. Legend shall show clean cut, uniform width of stroke and have essentially a plane surface.

(3) Screened: Legend shall be applied to sign faces by an approved screening process in accordance with the reflective sheeting manufacturer's recommendations. Screen pastes shall be compatible with reflective sheeting and shall not reduce reflectivity of sheeting less than the values shown in Subsection 1015.05(c). Completed screen surface shall be uniform in color, have sharp edges, be free of bubbles and blemishes, streaks or livered areas, and show good workmanship.

(4) Overlay Film: Legend shall be applied to the sign faces by an approved transparent electronic cuttable overlay film that is compatible with the reflective sheeting to which it is applied. Application shall be in accordance with the recommendations of the manufacturer(s) of both the film and the reflective sheeting. Areas covered by film shall have sharp edges, be free of bubbles and blemishes and show good workmanship. This material shall be in accordance with Subsection 1015.07(c). Direct or reversed application will be permitted.

(d) Screening Process: Screening of sign faces shall be in accordance with Subsection 1015.07(b). Screening shall be by direct or reverse silk screen methods accomplished in the manner specified by the sheeting manufacturer. Screening on sheeting may be accomplished either before or after application of sheeting to panels.

(e) Packaging: Before being packed, signs shall be allowed to stand for at least 12 hours after completion of screening. Signs shall be slipsheeted and packed in such manner as to ensure their arrival at their destination in an undamaged condition. Packaged signs shall not be permitted to become wet during storage or shipment.

729.05 CONSTRUCTION REQUIREMENTS. When removal of existing signs is required, the contractor's sign removal operations shall be coordinated as directed with new sign construction to provide for adequate signing to be in place at all times.

(a) Sign Location: Sign support locations will be as shown on the plans or as directed. Sign locations, after initial staking by the contractor, must be approved by the engineer. Sign locations which are obviously

improper because of topography, existing appurtenances or other conflicting conditions will be adjusted to the closest desirable location. The contractor shall then determine elevations for post length determinations at the established sign support location. The contractor shall be responsible for orientation, elevation, offset and leveling of signs.

(b) Sign Positioning:

(1) Overhead Signs: Signs shall be constructed so that the top edge of the sign face is tilted towards oncoming traffic 3 degrees (approximately 1:20) from vertical and at right angles to the road, unless otherwise directed.

(2) Road Edge Signs: Road edge signs shall be constructed with sign faces vertical. Sign faces located less than 30 feet (9 m) from the edge of travel lane shall be placed at a 93 degree angle from the center of the travel lane. Sign faces located 30 feet (9 m) or more from the edge of the travel lane shall be placed at an 87 degree angle from the center of the travel lane. Where the lanes divide or are on curves or grades, sign faces shall be oriented to be most effective both day and night and avoid specular reflection.

(3) Delineator, Object Marker and Milepost Assemblies: These assemblies shall be placed at least 24 inches (600 mm) beyond the outer edge of roadway shoulder, 24 inches (600 mm) beyond the face of curb, or in the line of guard rail.

(4) Vertical and Horizontal Clearances: Vertical and horizontal clearances shall be in accordance with the MUTCD and/or shall be as shown on the plans.

(c) Sign Overlay Panels: When specified, existing signs shall be completely overlaid with new sign panels placed over the existing sign face. No partially overlaid signs shall be allowed to remain exposed overnight. Only one overlay shall be placed on a sign. When an overlay is to be placed on an existing overlaid sign, the previous overlay shall be removed prior to placement of the new overlay. Overlay panels shall conform to Section 729.04. Raised legends shall be removed from the existing sign face prior to placing the overlay panel. The size of the overlay panel shall not exceed the size of existing sign panel by more than 3 inches (75 mm) on any side. Overlay panels shall be attached to the existing sign with rivets complying with Subsection 1015.02. Rivets shall be placed on 12-inch (300 mm) centers (maximum) along the perimeter of panel and at panel splices, and on 24-inch (600 mm) centers (maximum) both vertically and horizontally in interior portions of each panel. Rivets shall be centered horizontally on panels less than 24-inch (600 mm) wide. A 4 by 4-inch (100 mm by 100 mm) shim with a nominal 0.080-inch (2.0 mm) thick aluminum plate shall be placed between existing panel and overlay panel at interior rivet locations. Shims cut from

729.05

salvaged sign panels may be used. The existing sign panels shall be kept reasonably flat during installation of the overlay panels. Splice arrangement for overlay panels shall conform to the requirements for traffic sign blanks.

(d) Excavation and Backfill: The contractor shall perform excavation for sign installation to levels and dimensions shown on the plans, or as directed. Excavation and backfill shall be performed in accordance with Section 802.

(e) Footings: Foundation piles, concrete, reinforcing steel and anchor bolt assemblies shall comply with Sections 804, 805, 806 and 807.

Posts for ground mounted delineator, object marker and milepost assemblies may be driven; no footings will be required.

(f) Bolt Tensioning: Slip plates for breakaway sign posts shall be assembled in the shop with high strength bolts tightened at a minimum bolt tension in accordance with Subsection 807.21. After field installation, high strength bolts in the breakaway base connection shall be tightened to the specified minimum bolt tension. The bolt tension in both the slip plate connection and the breakaway base connection will be checked by the engineer. Bolt tensioning shall be corrected as required.

(g) Cleaning and Clearing: Prior to erection, sign faces shall be cleaned to allow adequate visibility of the sign. Any clearing or tree trimming required to provide for full sign visibility shall be in accordance with the plans or as directed. Trimming of trees of significant local interest shall be performed by a licensed arborist.

(h) U-Channel Posts: U-channel posts for ground mounted small signs, markers and delineators shall be driven vertically to a minimum depth of 3 feet (1 m) below natural ground using a suitable protective driving cap.

U-channel posts may be spliced where long lengths are required. The upper section shall overlap the lower section by at least 24 inches (600 mm). The bottom edge of the upper section of the splice shall be a minimum of 24 inches (600 mm) above the ground. The spliced sections shall be secured with at least four 5/16 inch (8 mm) diameter hex head bolts spaced equally along the splice.

Splicing of U-channel posts will not be allowed when break-away footings are required.

729.06 DEAD END ROAD INSTALLATIONS. Dead end road installations shall be of the specified type and located as shown on the plans. Timber barricade type installations shall be constructed in accordance with Section 812 and the following requirements. Timber piling shall be set in full depth holes and backfilled as directed or driven to required depth. Steel posts

for other type installations shall be driven with a suitable protective cap. Piles and posts shall be vertical. Guard rail shall be constructed in accordance with Section 704.

729.07 ACCEPTANCE OF SIGNS. After the installation of signs is complete, the engineer or an authorized representative shall perform a daytime and nighttime inspection of the signs, sign faces, mounts, installations, hardware and matters relating to the requirements of this section.

After this inspection the engineer and the Department's Sign Inspection Team shall inspect for color match and for conformance to applicable plans, standards and project specifications.

Color match, uniformity and spacing of legend, specular glare, and sign type and design will be inspected for conformance to plans and specifications. When specular reflection is apparent on any sign, its positioning shall be adjusted by the contractor to eliminate this condition. Signs shall be clean at the time of inspection. Reflective sheeting shall be free of cuts, scratches, breaks or other defects which might allow moisture to infiltrate and damage reflective cells. Nonstandard or otherwise unacceptable signs and traffic control devices shall be replaced or repaired as directed. The contractor will be required to correct damage that is discovered at the time of the sign inspection. When the damage was obviously caused by vandalism, the contractor will be paid for corrective work in accordance with Subsection 109.04.

In lieu of removing and replacing new sign faces that have been rejected, sign overlay panels complying with Subsection 729.05(c) may be used to correct the deficiencies at no direct pay.

729.08 MEASUREMENT.

(a) Sign Faces and Overlay Panels: Quantities for payment will be the design areas in square feet (sq m) of sign faces as specified on the plans and adjustments thereto. Design quantities will be adjusted if the engineer makes changes to adjust to field conditions, if plan errors are proven, or if design changes are made. Material used in blanks and backing incidental to the sign face will not be measured for payment. In determining the area of sign faces, no deductions are made for corner radii or mounting holes. The area of octagonal signs and Interstate shields is computed as the area of its smallest rectangle or square. The area of triangular signs is computed as the area of the triangle.

(b) Post Mountings: Post sign mountings, including breakaway supports, will be measured per each post.

729.08

(c) Overhead Mountings: Overhead sign mountings will be measured per each structure.

(d) Delineator, Object Marker and Milepost Assemblies: Delineator, object marker and milepost assemblies will be measured per each assembly.

(e) Dead End Road Installations: Dead end road installations will be measured per each installation.

(f) Footings: Concrete footings for overhead sign mountings will be measured per each footing. Footings and aprons for post sign mountings will not be measured for payment.

(g) U-Channel Posts: U-channel posts will be measured per each unit installed when not part of an assembly.

(h) Clearing or Tree Trimming: Any clearing or tree trimming required by this section which is not provided for elsewhere in the contract will be included in the contract unit price for signs.

729.09 PAYMENT.

(a) Sign Faces and Overlay Panels: Payment for sign faces and overlay panels will be made at the contract unit price per square foot (sq m), which includes furnishing, fabricating and constructing the signs and furnishing necessary attaching devices.

(b) Post Mountings: Payment for post sign mountings will be made at the contract unit price per each, which includes furnishing, fabricating and constructing the support complete, ready for affixing signs, and includes required excavation, concrete and reinforcement for footings and aprons, and the sign mounting. Payment for sign layout will be made in accordance with Section 740.

(c) Overhead Mountings: Payment for overhead sign mountings, including bridge fascia mountings, will be made at the contract unit price per each, which includes furnishing, fabricating and erecting the structure complete, ready for affixing signs, and the sign mounting.

(d) Delineator, Object Marker and Milepost Assemblies: Payment for delineator, object marker and milepost assemblies will be made at the contract unit prices per each, which includes posts.

(e) Dead End Road Installations: Payment for dead end road installations will be made at the contract unit price per each, which includes piling, posts, barricades, sign materials, reflectors, and any required guard rail.

(f) Footings: Payment for footings for overhead sign mountings will be made at the contract unit price per each, which includes excavation, piling, concrete, reinforcing steel, anchor bolt assemblies and backfill. The concrete

in footings will be identified by lots and shall be subject to pay adjustments in accordance with Table 901-6 and Note 1 therein. Size, sampling, and testing of each concrete lot shall be in accordance with the Materials Sampling Manual.

(g) U-Channel Posts: Payment for U-channel posts will be made at the contract unit price per each which shall include all labor, equipment, tools, materials, and incidentals necessary to complete the work, including splicing of posts, and when required removing and remounting of existing signs, and mounting of new signs.

Payment will be made under:

729.09

Item No.	Pay Item	Pay Unit
729-01	Sign (Type A)	Square Foot (Sq m)
729-02	Sign (Type B)	Square Foot (Sq m)
729-03	Sign (Type C)	Square Foot (Sq m)
729-04	Sign (Type D)	Square Foot (Sq m)
729-05	Sign (Type E)	Square Foot (Sq m)
729-06	Sign (Overhead Mounted)	Square Foot (Sq m)
729-07	Sign (Overlay Panel)	Square Foot (Sq m)
729-08	Mounting (_____ Size Post)	Each
729-09	Mounting (Overhead Truss) (Ground Mounted)	Each
729-10	Mounting (Overhead Truss) (Structure Mounted)	Each
729-11	Mounting (Overhead Cantilever) (Ground Mounted)	Each
729-12	Mounting (Overhead Cantilever) (Structure Mounted)	Each
729-13	Mounting (Bridge Fascia Mounted)	Each
729-14	Delineator Assembly (Ground Mounted)	Each
729-15	Delineator Assembly (Structure Mounted)	Each
729-16	Object Marker Assembly	Each
729-17	Milepost Assembly (Ground Mounted)	Each
729-18	Milepost Assembly (Structure Mounted)	Each
729-19	Dead End Road Installations (Type)	Each
729-20	Footings for Overhead Mounting (Type)	Each
729-21	U-Channel Post	Each

Section 1003 Aggregates

1003.01 GENERAL. Aggregates shall be environmentally acceptable for the intended use and shall be from an approved source. For a source to be approved, each sample shall comply with the requirements specified below and in the appropriate subsection. In addition to the test methods given in each subsection, the following methods shall be used in testing aggregates.

Property	Test Method
Deleterious Materials	DOTD TR 119
Unit Weight	AASHTO T 19
Specific Gravity & Absorption of Fine Aggregate	AASHTO T 84
Specific Gravity and Absorption of Coarse Aggregate	AASHTO T 85
Polish Value	AASHTO T 278 and T 279
Amount of Material Finer than the No. 200 Sieve (75 μ m)	DOTD TR 112
Sieve Analysis (Gradation)	DOTD TR 113
Liquid Limit and Plasticity Index	DOTD TR 428

(a) Source Approval:

(1) The soundness loss of recycled portland cement concrete and aggregates listed in QPL 2 shall not exceed 15 percent when subjected to 5 cycles of the magnesium sulfate soundness test in accordance with AASHTO T 104. For recycled portland cement concrete produced from stockpiles that contain raw material that can be verified as portland cement concrete obtained exclusively from DOTD pavements or structures, the soundness testing requirement may be waived by the Materials Engineer Administrator.

(2) Coarse aggregate listed in QPL 2, and recycled portland cement concrete, except lightweight aggregate, shall show an abrasion loss of not more than 40 percent when tested in accordance with AASHTO T 96.

Lightweight aggregate shall be expanded clay or expanded shale and shall show an abrasion loss of not more than 40 percent when tested in accordance with DOTD TR 111.

Section 731

Raised Pavement Markers

731.01 DESCRIPTION. This work consists of furnishing and placing raised pavement markers in accordance with plan details.

The contractor will be responsible for field layout and alignment of raised pavement markers. Existing pavement striping shall generally be used as a guide in determining raised marker locations. The Department will make every effort to replace obliterated striping prior to installation of raised pavement markers; however, if no striping exists at the time of raised marker installation, the contractor shall determine raised pavement marker locations in accordance with plan details or as directed.

731.02 MATERIALS.

(a) Markers: Markers shall comply with Subsection 1015.09. The same product shall be used throughout the project. Markers shall be the specified class, type, color, size and shape.

(b) Adhesive: Markers shall be placed with bituminous adhesive on asphaltic surfaces and epoxy adhesive on portland cement concrete surfaces.

(1) Epoxy Adhesive: Epoxy adhesive shall be Type V epoxy resin system complying with Subsection 1017.02. Epoxy components shall be mixed in equal parts by volume. Adhesive shall be mechanically mixed and dispensed, unless hand methods are permitted.

(2) Bituminous Adhesive: Bituminous Adhesive shall comply with Subsection 1015.09(c)(2).

731.03 CONSTRUCTION REQUIREMENTS.

(a) Weather Limitations: Markers shall not be applied when there is moisture on the surface.

(1) Epoxy Adhesive: When a normal set adhesive is used, application of markers will not be permitted at ambient air temperatures less than 50°F (10°C). When a rapid set adhesive is used, application of markers will be permitted at ambient air temperatures between 35°F (2°C) and 50°F (10°C), provided adhesive is adequately heated to obtain proper viscosity for mixing and application, and provided adhesive is identified as a rapid set type on container labels and Certificates of Delivery.

(2) Bituminous Adhesive: Markers shall be applied when the ambient air temperature is 50°F (10°C) or greater.

(b) Cleaning of Surfaces: Surfaces on which markers are to be applied shall be cleaned of all materials that may reduce the bond of adhesive. Surfaces shall be cleaned by blast cleaning or other approved methods which do not damage the surface; however, blast cleaning equipment shall be provided with positive cutoff controls. Surfaces shall be maintained in a clean dry condition until placement of markers.

(c) Application of Markers: Surfaces on which markers are to be placed shall be blown dry immediately prior to marker placement. Markers shall be applied to surfaces with adhesive in accordance with the manufacturer's recommendations.

(1) Epoxy Adhesive: Mixed adhesive shall have a uniformly grey color with no streaks of either black or white on the surface or within mixed adhesive. Voids in a cured undisturbed sample approximately 1/16 inch (2 mm) thick from the extrusion nozzle shall not exceed 4 percent by volume. Machine mixer and applicator shall be capable of accurately and uniformly proportioning the two components in a 1 to 1 ratio within 5 percent by volume of each component (i.e., within 47.5 to 52.5 percent for each component). Periodic checks of proportioning equipment shall be made to determine the actual ratio of components. This shall be done by placing containers in front of the mixing chamber and measuring the actual volume of each component. Equipment shall be arranged so it is possible to bypass the mixer to perform these periodic checks. Temperature of adhesive shall be maintained between 70°F (21°C) and 110°F (43°C) before mixing. The temperature shall be adjusted to prevent excessive flow of epoxy from the marker when installed. The area of the epoxy adhesive bed shall be equal to the bottom area of marker. Adhesive shall be applied in sufficient quantity to cause excess adhesive to be forced out around the perimeter of the marker. Voids in markers with an open grid pattern on bottom shall be filled with adhesive immediately prior to placement.

(2) Bituminous Adhesive: The adhesive shall be heated and melted in either thermostatically controlled double boiler type units utilizing heat transfer oil or thermostatically controlled electric heating pots. The melter/applicator unit shall be suited for both melting and pumping application through heated applicator hoses. The adhesive shall be heated to between 375°F and 425°F (190°C and 220°C) and applied directly to the pavement surface from the melter/applicator by either pumping or pouring. The area of the bituminous adhesive bed shall be a minimum of 6 inches (150 mm) in diameter. Markers shall be applied to the adhesive within 10 seconds. The marker shall be placed in the adhesive bed by applying downward pressure until the marker is firmly seated. Adhesive on exposed surfaces of

731.03

markers shall be immediately removed with soft rags moistened with mineral spirits or kerosene. Markers shall be protected against impact until the adhesive has hardened. The adhesive may be reheated and reused; however, the pot life at application temperatures shall not be exceeded.

731.04 MEASUREMENT. Raised pavement markers will be measured by counting the number of markers furnished, placed, and accepted.

731.05 PAYMENT. Payment for field layout and alignment of raised pavement markers will be in accordance with Section 740. Payment for raised pavement markers will be made at the contract unit prices per each under:

Item No.	Pay Item	Pay Unit
731-01	Nonreflectorized Raised Pavement Markers	Each
731-02	Reflectorized Raised Pavement Markers	Each

Section 732

Plastic Pavement Markings

732.01 DESCRIPTION. This work consists of furnishing and placing reflective pavement markings of hot applied thermoplastic or preformed (cold or hot applied) plastic at the locations shown on the plans or as directed. This work shall be in compliance with the MUTCD, plan details and these specifications. Plastic pavement markings include stripes, gore markings, lines, legends and symbols.

732.02 MATERIALS.

(a) Thermoplastic Markings: Thermoplastic marking material shall be a plastic compound reflectorized by internal and external application of glass beads, complying with Subsections 1015.10 and 1015.13. Width and color of markings shall be as specified.

Thermoplastic material shall be delivered in containers of sufficient strength to permit normal handling during shipment and transportation without loss of material. Approved heat-degradable containers that can be placed in heating kettles along with the plastic material will be permitted. Each container shall be clearly marked to indicate color of material, process batch number, name of manufacturer and date of manufacture.

(b) Preformed Plastic Markings: Preformed plastic markings shall comply with Subsection 1015.11.

(c) Surface Primer: A single component surface primer or two component epoxy primer sealer shall be provided by the contractor for the appropriate application in accordance with Subsection 732.03(e). The primer shall form a continuous film that dries rapidly and adheres to the pavement. The primer material shall not discolor or cause any noticeable change in the appearance of the pavement outside of the finished pavement marking. A sample of the primer shall be submitted with the recommended method of application to the engineer and to the manufacturer of the thermoplastic marking material. Written approval shall be obtained from the engineer and the manufacturer before applying the primer.

(d) Glass Beads: Glass beads used for drop-on application to molten plastic shall be shipped in moisture resistant sacks (containers). The sacks shall be strong enough to permit handling without damage. Sacks shall be sufficiently water-resistant so that beads will not become wet or caked in transit.

732.02

Glass beads for standard (flat) thermoplastic markings shall be in accordance with Subsection 1015.13.

732.03 CONSTRUCTION REQUIREMENTS FOR PLASTIC PAVEMENT MARKING MATERIAL.

(a) Equipment for Standard (Flat) Thermoplastic Marking Material: The application equipment shall consist of an extrusion die or a ribbon gun that simultaneously deposits and shapes lines at a thickness of 90 mils (2.3 mm) or greater on the pavement surface. Finished markings shall be continuous and uniform in shape, and have clear and sharp dimensions. Applicators shall be capable of producing various widths of traffic markings. Applicators shall produce sharply defined lines and provide means for cleanly cutting off stripe ends and applying broken lines. The ribbon extrusion die or shaping die shall not be more than 2 inches (50 mm) above the roadway surface during application. A spray application will only be allowed when applying 40 mil (1.0 mm) thermoplastic.

The application equipment shall provide continuous mixing and agitation of material. Thermoplastic conveying equipment components located between the main material reservoir and discharge mechanism shall be free from material accumulation and clogging. Parts of application equipment in contact with the material shall be easily accessible for cleaning and maintaining. Mixing and conveying equipment shall maintain material at the application temperature.

Glass beads shall be applied to the molten surface of completed stripes by either a single drop or a double drop application depending on the thickness of the thermoplastic striping as shown in Table 1015-13. The first (large) bead drop shall be applied by a gravity bead dispenser attached to the striping machine in such a manner that beads are dispensed simultaneously with the thermoplastic material at a controlled rate of flow on installed lines. The second (small) bead drop shall be applied immediately after the first bead drop by a gravity bead dispenser attached to the striping machine.

Applicators and kettles shall be equipped and arranged to comply with requirements of the National Board of Fire Underwriters. Applicators shall be maneuverable to the extent that straight lines can be followed and normal curves can be made in a true arc. Applicator equipment shall consist of a motorized mobile unit capable of installing traffic stripes either left or right of the applying unit so that only one lane of traffic will be occupied during installation.

(b) Weather Limitations: Application of markings will not be permitted when there is excessive pavement moisture or when the surface

temperature or ambient temperature is below 50°F (10°C). The pavement shall be considered excessively moist when it is visibly wet or when a 1 square foot (0.1 sq m) piece of polyethylene film condenses moisture after being placed on the pavement surface for 15 minutes.

(c) Cleaning of Surfaces: Surfaces on which markings are to be applied shall be cleaned of materials that may reduce adhesion of the thermoplastic marking materials to the pavement. Cleaning shall be done by blast cleaning or grinding. Surfaces shall be kept clean until placement of markings.

(d) Removal of Existing Markings: Existing thermoplastic markings that are not flaking or peeling will not require removal prior to placement of 40 mil (1.0 mm) thick thermoplastic. Existing thermoplastic markings, regardless of condition, shall be removed prior to placement of 90 mil (2.3 mm) thick or greater thermoplastic except on asphalt pavements.

When thermoplastic markings replace existing painted markings, the existing painted markings will not require removal prior to applying new thermoplastic markings, provided the existing painted markings are not flaking or peeling.

When preformed plastic markings (tape) replace any existing markings, the existing markings shall be removed prior to applying the preformed plastic markings.

Removal of markings shall be accomplished by methods that will not damage the pavement or bridge deck. Removal shall be to such extent that 75 percent of the pavement surface or bridge deck under the markings is exposed.

After the markings are removed, compressed air or a power blower shall be used to blow clean the pavement surface of residue and debris resulting from the removal. At the end of each day's operations the engineer may direct that temporary pavement markings complying with Section 713 be used in areas where existing markings have been removed and new markings not placed. Temporary pavement markings shall be satisfactorily removed prior to resuming thermoplastic marking operations.

All markings made in error or not conforming to the traffic operation in use shall be removed by either an abrasion or burning process to the satisfaction of the engineer. Markings shall not be obliterated by painting with asphalt binder or other material.

(e) Application of Surface Primer: A single component surface primer will be required prior to placement of preformed plastic markings over an existing painted stripe, over old bleached asphalt, on portland cement concrete surfaces, or all surfaces when ambient temperatures are below 70°F (20°C) unless otherwise directed by the engineer. A two component epoxy

732.03

primer sealer will be required prior to placement of thermoplastic materials on portland cement concrete surfaces or all surfaces when ambient temperatures are below 70°F (20°C) unless otherwise directed by the engineer.

(f) Application of Markings: Material shall be installed in specified widths from 4 inches to 24 inches (100 mm to 600 mm). Finished lines shall have well defined edges and be free of waviness. Measurements shall be taken as an average through any 36-inch (900 mm) section of line. Longitudinal lines shall be offset approximately 2 inches (50 mm) from longitudinal joints. A tolerance of +1/2 inch and -1/8 inch (+13 mm and -3 mm) from the specified width will be allowed, provided the variation is gradual. Segments shall square off at each end without mist or drip. Transverse variations from the control device up to 1 inch (25 mm) will be allowed provided the variation does not increase or decrease at the rate of more than 1/2 inch in 25 feet (15 mm in 10.0 m). Lines not meeting these tolerances shall be removed and replaced at no direct pay.

(1) Thermoplastic Markings: Thickness of material, not including drop-on beads, shall be not less than 90 mils (2.3 mm) for lane lines, edge lines and gore markings and not less than 125 mils (3.2 mm) for crosswalks, stop lines, and word and symbol markings.

Thermoplastic material at 90 mil (2.3 mm) thickness or greater shall be applied by extrusion at 390°F to 450°F (200°C to 230°C). Thermoplastic material at 40 mil (1.0 mm) thickness shall be applied by spray at 410°F to 450°F (210°C to 230°C). Immediately after application of the markings, glass beads for a single drop application shall be applied at a minimum rate of 230 pounds per mile (65 kg/km) for a 4-inch (100 mm) solid line stripe. Glass beads for a double drop application shall be applied at a minimum rate of 211 pounds per mile (60 kg/km) for each drop on a 4-inch (100 mm) solid line. Material shall not scorch or discolor when kept at this temperature range for 4 hours.

(2) Preformed Plastic Markings: Plastic tape shall be applied by removing release paper and applying adequate pressure to ensure proper adhesion. Other preformed heat-applied material shall be applied in accordance with the manufacturers' recommendation. Material not adhering properly shall be satisfactorily corrected at no direct pay.

(g) Field Testing of Roadway Markings: The Department will field test the pavement markings in accordance with Subsections 1015.10 and 1015.11 and Table 732-1. Failure to meet these requirements will require the contractor to replace the portion of the material shown to be out of specifications as directed by the engineer.

(h) Corrective Work: Any line found to be defective shall be restriped

or replaced as directed by the engineer. The corrective work shall also be subject to these requirements. The contractor shall replace the pavement marking material at no cost to the Department.

(i) Guarantee: The contractor shall provide the Department with a guarantee stating that if the pavement marking fails to comply with the stated performance requirements, the contractor shall take the remedial action required. Replacement striping shall carry the unexpired guarantee of the striping it replaces.

732.04 MEASUREMENT.

(a) Plastic Pavement Striping: Plastic striping will be measured by the linear foot (lin m) or mile (km), as specified. When a bid item is not included for gore markings, the Department will measure the quantity by converting the actual length and width of line installed to an equivalent length of the normal width line on that section of roadway.

(1) Linear Foot (Lin m): Measurement will be made by the linear foot (lin m) of striping, exclusive of gaps.

(2) Mile (km): Measurement will be made by the mile (km) of single stripe. No deduction will be made for standard 30-foot (9 m) design gaps in broken-line striping; however, deductions will be made for the length of other gaps or omitted sections.

(b) Plastic Pavement Legends and Symbols: Plastic legends and symbols will be measured per each legend or symbol. Symbols shall include all letters, lines, bars or markings necessary to convey the message at each location.

(c) Removal of Existing Markings: Removal of existing pavement markings for undivided highways will be measured by the linear mile (km) of full roadway width including shoulders. For divided highways, the full roadway width including shoulders and ramps will be measured separately for each direction of travel. Removal of pavement markings will include removal of lane lines, edge lines, gore markings, legends, symbols, and raised pavement markers.

732.05 PAYMENT. Payment for the completed and accepted quantities of plastic pavement markings and removal of existing markings will be made at the contract unit prices under:

732.05

Payment will be made under:

Item No.	Pay Item	Pay Unit
732-01	Plastic Pavement Striping (__inch (__mm) Width)	Linear Foot (Lin m)
732-02	Plastic Pavement Striping (Solid Line) (__inch (__mm) Width)	Mile (km)
732-03	Plastic Pavement Striping (Broken Line) (__inch (__mm) Width)	Mile (km)
732-04	Plastic Pavement Legends and Symbols (Type)	Each
732-05	Removal of Existing Markings	Mile (km)

**Table 732-1
Field Testing of Plastic Pavement Markings**

Length of Roadway	Number of Random Test Segments	Length of Test Segments
Less than 1 mile (1.5 km)	3 segments per line type	250 feet (75 m)
1 mile (1.5 km) to 9 miles (14.5 km)	3 segments per line type	1000 feet (300 m)
Greater than 9 miles (15 km)	1 segment per every 3 miles (4.8 km) per line type	1000 feet (300 m)
<p><u>Measurements</u></p> <ol style="list-style-type: none"> 1. Test segments will be selected randomly by the engineer unless night reviews or other knowledge supersedes a random selection process. 2. Each line type will be measured separately. 3. Measurements will be taken on dry, clean roadways. 4. Data will be collected in direction of traffic flow. 5. A minimum of 10 readings will be taken in each test segment line type. 6. On broken lines (skip striping), no more than two readings will be taken per stripe, with readings 20 inches (0.5 m) from ends of marking. 7. For solid lines, the test segment will be divided into ten locations of 100 feet (30 m) each; readings will be spaced a minimum of 25 feet (7.5 m) and a maximum of 150 feet (45 m) apart. 8. The Department may take additional readings or test segments. 9. Acceptance will be based on the average of the readings for each test segment for each line type. 10. Failure of the average reading for any segment to meet the specified minimum values will require replacement. 11. Limits of replacement will be determined by the engineer. 		

1003.01

(3) Recycled portland cement concrete shall be from dedicated stockpiles produced by an approved concrete crushing operation. The District Laboratory Engineer will inspect and evaluate crushing operations before production of material intended for DOTD projects begins. After being crushed, recycled portland cement concrete shall be reasonably free of asphaltic concrete overlay material, reinforcing steel, joint material, and other debris, but may contain a minimal amount of other base course materials resulting from normal construction methods. Stockpiles produced from raw material verified as portland cement concrete obtained exclusively from DOTD pavements or structures shall be kept separate from other stockpiles. After processing, recycled portland cement concrete shall comply with the requirements specified in the appropriate subsections. Once a stockpile has been sampled for approval, no other material shall be added without prior approval.

(4) Reclaimed asphaltic pavement shall be cold planed in accordance with Section 509 or crushed. Reclaimed asphaltic pavement shall be approved either at the time of removal from the roadway or in stockpiles. Stockpiled materials shall be uniform and reasonably free of lightweight aggregate, debris, soil, and other foreign matter.

(5) Aggregates for use in portland cement concrete will be tested for alkali reactivity properties in accordance with ASTM C 289. Carbonate rocks for use in portland cement concrete will also be subjected to X-Ray diffraction analysis to determine the presence of potentially reactive components. Aggregates categorized as innocuous by both procedures will not be restricted. Aggregates categorized as potentially deleterious by either of these procedures may be used with combinations of cement and Class F fly ash meeting the requirements of Section 1001 and Subsection 1018.15, respectively. Aggregates categorized as potentially deleterious by either of these procedures will not be allowed with combinations of cement and Class C fly ash. The restriction regarding the use of Class C fly ash will be noted in QPL 2, and will remain in effect until aggregates from the source have been subjected to additional testing and evaluation, and they have been determined by the Materials Engineer Administrator to be innocuous with respect to alkali reactivity. This evaluation shall include one or more of the following procedures as directed by the Materials Engineer Administrator: ASTM C227, ASTM C295, ASTM C586, ASTM C1105, and ASTM C1260. The performance history of the aggregate type, and the source in particular, will be considered in determining the source's potential for detrimental expansion and the procedures used in the evaluation.

(6) Fine aggregate for portland cement concrete that produces a color darker than the Organic Color No. 3 when tested in accordance with AASHTO T 21, will be subjected to the mortar strength test in accordance with AASHTO T 71. The minimum compressive strength shall be at least 95 percent of the referenced mortar compressive strength.

(b) Acceptance Testing: Acceptance of aggregates shall be based on compliance with the requirements shown in the following subsections provided the aggregates consistently comply with the requirements for source approval in Heading (a).

1003.02 AGGREGATES FOR PORTLAND CEMENT CONCRETE AND MORTAR. All aggregates for use in portland cement concrete shall comply with the requirements of Subsection 1003.01. Aggregates for use in Types B and D pavement concrete shall also conform to the requirements of Subsection 1003.02(c).

(a) Fine Aggregate: Sand shall be a natural silica sand from a source listed in QPL 2. The percentages of deleterious materials shall not exceed the following values:

Property	Percent, Max.
Coal and Lignite	0.25
Clay Lumps	0.05
Clay Lumps and Friable Particles	3.00

Fine aggregate for all portland cement concrete except Types B and D pavements shall conform to the following gradations:

1003.02

Concrete Sand

<u>U.S. Sieve</u>	<u>Metric Sieve</u>	<u>Percent Passing</u>
3/8 inch	9.5 mm	100
No. 4	4.75 mm	95-100
No. 16	1.18 mm	45-90
No. 50	300 μm	7-30
No. 100	150 μm	0-7
No. 200	75 μm	0-3

Mortar Sand

<u>U.S. Sieve</u>	<u>Metric Sieve</u>	<u>Percent Passing</u>
No. 4	4.75 mm	100
No. 8	2.36 mm	95-100
No. 100	150 μm	0-25
No. 200	75 μm	0-10

(b) Coarse Aggregate: Coarse aggregates used in portland cement concrete for bridge decks shall have a Friction Rating of I, II, or III as defined in Subsection 1003.06(a). The maximum amounts by weight (mass) of deleterious materials for coarse aggregate shall be as follows:

<u>Property</u>	<u>Percent, Max.</u>
Clay Lumps	0.05
Total Clay Lumps and Friable Particles	3.0
Iron Ore	2.0 ¹
Coal and Lignite	1.0 ¹
Flat and Elongated Particles (5:1) ASTM D 4791	15.0
Wood (Wet)	0.05
Total Clay Lumps and Friable Particles, Iron Ore, Coal and Lignite, and Wood	5.0

¹Aggregate used in railings shall be free from coal, lignite and iron ore.

(1) Uncrushed Coarse Aggregate: Uncrushed coarse aggregate for all portland cement concrete except Types B and D pavements shall comply with Table 1003-1.

**Table 1003-1
Portland Cement Concrete Aggregates**

Percent Passing						
U.S. Sieve	Metric Sieve	Grade A (Size 57)	Grade B (Size 467)	Grade D (Size 357)	Grade F ---	Grade P (Size 67)
2 1/2 inch	63 mm	---	---	100	---	---
2 inch	50 mm	---	100	90-100	---	---
1 1/2 inch	37.5 mm	100	85-100	---	---	---
1 inch	25.0 mm	90-100	---	35-70	---	100
3/4 inch	19.0 mm	---	35-70	---	100	80-100
1/2 inch	12.5 mm	25-60	---	10-30	90-100	---
3/8 inch	9.5 mm	---	10-30	---	---	20-55
No. 4	4.75 mm	0-10	0-5	0-5	15-60	0-10
No. 8	2.36 mm	0-5	---	---	0-15	0-5
No. 16	1.18 mm	---	---	---	0-5	---
No. 200	75 µm	0-1	0-1	0-1	0-1	0-1

(2) Crushed Coarse Aggregate: Crushed coarse aggregate for all portland cement concrete except Types B and D pavements shall comply with the uncrushed coarse aggregate gradations except that when the material finer than the No. 200 (75 µm) sieve consists of the dust fraction from crushing, essentially free of clay, this percentage shall be 0-2 percent. When the total material passing the No. 200 (75 µm) sieve from the coarse and fine aggregates does not exceed 5 percent, the percent passing the No. 200 (75 µm) sieve from the crushed coarse aggregate may be increased to 3 percent.

(3) Lightweight Coarse Aggregate: Lightweight coarse aggregates shall conform to the following gradation for Grade Y (Size No. 7) aggregate:

<u>U.S. Sieve</u>	<u>Metric Sieve</u>	<u>Percent Passing</u>
3/4 inch	19.0 mm	100
1/2 inch	12.5 mm	90-100
3/8 inch	9.5 mm	40-80
No. 4	4.75 mm	0-15
No. 8	2.36 mm	0-5

The unit weight (mass) (AASHTO T 19) of lightweight coarse aggregate shall not exceed 55 pounds per cubic foot (880 kg/cu m), dry

1003.02

loose measurement. If the unit weight (mass) of any shipment of lightweight coarse aggregate differs by more than 10 percent from that of the sample submitted for acceptance tests, the shipment may be rejected.

(c) Aggregates for Types B and D Pavements: For the combined aggregates for the proposed portland cement concrete pavement mix, the percent retained based on the dry weight (mass) of the total aggregates shall meet the requirements of Table 1003-1A for the type of pavement specified in the plans. Additionally, the sum of the percents retained on any two adjacent sieves so designated in the table shall be at least 13 percent of the total combined aggregates. The maximum amounts by weight (mass) of deleterious materials for the total aggregate shall be the same as shown in Subsection 1003.02(b).

**Table 1003-1A
Aggregates for Types B and D Pavements**

U.S. Sieve	Metric Sieve	Percent Retained of Total Combined Aggregates	
		Pavement Type	
		Type B	Type D
2 1/2 inch	63 mm	0	0
2 inch	50 mm	0	0-20
1 1/2 inch	37.5 mm	0-20	0-20
1 inch	25.0 mm	0-20	5-20
3/4 inch	19.0 mm	5-20	5-20
1/2 inch	12.5 mm	5-20	5-20
3/8 inch	9.5 mm	5-20	5-20
No. 4	4.75 mm	5-20	5-20
No. 8	2.36 mm	5-20	5-20
No. 16	1.18 mm	5-20	5-20
No. 30	600 µm	5-20	5-20
No. 50	300 µm	0-20	0-20
No. 100	150 µm	0-20	0-20
No. 200	75 µm	0-5	0-5

Note: For the sieves in the shaded areas, the sum of any two adjacent sieves shall be a minimum of 13 percent of the total combined aggregates.

Each type of aggregate to be used in the proposed mixture shall be sampled and tested individually. The percent of total combined aggregates retained shall be determined mathematically based on the proportions of the combined aggregate blend. All gradation calculations shall be based on percent of dry weight (mass).

1003.03 BASE COURSE AGGREGATES. Aggregates for base course shall comply with the requirements of Subsection 1003.01.

(a) Sand-Clay-Gravel: This aggregate shall be composed of a uniform mixture of sand, clay, and siliceous gravel, stone or recycled portland cement concrete.

The mixture, as determined by visual inspection, shall be reasonably free from foreign matter. The mixture shall comply with the following gradation:

<u>U.S. Sieve</u>	<u>Metric Sieve</u>	<u>(Cement Treated or Stabilized) Percent Passing</u>
1 1/2 inch	37.5 mm	95-100
No. 4	4.75 mm	40-65
No. 40	425 µm	20-50
No. 200	75 µm	10-25

Material passing the No. 40 (425 µm) sieve shall comply with the following requirements:

	<u>Cement Treated or Stabilized</u>
Liquid Limit (Max.)	35
Plasticity Index (Max.)	12

Stone and recycled portland cement concrete in the mixture shall comply with Subsection 1003.01.

(b) Stone: This material shall consist of 100 percent stone and shall comply with the following gradation:

<u>U.S. Sieve</u>	<u>Metric Sieve</u>	<u>Percent Passing</u>
1 1/2 inch	37.5 mm	100
1 inch	25.0 mm	90-100
3/4 inch	19.0 mm	70-100
No. 4	4.75 mm	35-65
No. 40	425 µm	12-32
No. 200	75 µm	5-12

1003.03

To facilitate meeting these gradation requirements, a calcium carbonate additive approved by the Materials and Testing Section may be added to the stone. The additive shall be thoroughly blended with the stone by approved methods prior to placement on the project. When tested according to DOTD TR 428, the fraction passing the No. 40 (425 µm) sieve, including any additive, shall have a liquid limit no greater than 25, and a plasticity index of no greater than 4.

(c) Recycled Portland Cement Concrete: Recycled portland cement concrete shall be crushed portland cement concrete. After being crushed, recycled portland cement concrete may contain a minimal amount of other base course materials resulting from normal construction methods and shall conform to the following gradation.

<u>U.S. Sieve</u>	<u>Metric Sieve</u>	<u>Percent Passing</u>
1 1/2 inch	37.5 mm	100
1 inch	25.0 mm	90-100
3/4 inch	19.0 mm	70-100
No. 4	4.75 mm	35-65
No. 40	425 µm	12-32
No. 200	75 µm	0-8

The fraction of recycled portland cement concrete passing the No. 40 (425 µm) sieve shall be non-plastic.

(d) Crushed Slag: The material shall be 100 percent slag and shall comply with the gradation requirements of Heading (b).

1003.04 AGGREGATES FOR SURFACE COURSE. Aggregates for surface course shall comply with the requirements of Subsection 1003.01.

(a) Stone: This material shall consist of 100 percent stone and shall comply with the following gradations:

<u>U.S. Sieve</u>	<u>Metric Sieve</u>	<u>Percent Passing</u>
1 1/2 inch	37.5 mm	100
3/4 inch	19.0 mm	50-100
No. 4	4.75 mm	35-65
No. 40	425 µm	10-32
No. 200	75 µm	3-15

The fraction of stone passing the No. 40 (425 μm) sieve shall comply with the following requirements.

Liquid Limit (Max.)	25
Plasticity Index (Max.)	4

(b) Sand-Clay-Gravel: This material shall be a mixture of sand, clay, and siliceous gravel, stone or recycled portland cement concrete. The mixture shall be reasonably free from foreign matter as determined by visual inspection.

The mixture, prior to treatment shall comply with the following gradation:

<u>U.S. Sieve</u>	<u>Metric Sieve</u>	<u>Percent Passing</u>
1 1/2 inch	37.5 mm	95-100
No. 4	4.75 mm	40-65
No. 40	425 μm	---
No. 200	75 μm	10-25

The fraction passing the No. 40 (425 μm) sieve shall comply with the following requirements:

	<u>Lime Treated</u>
Liquid Limit (Max.)	40
Plasticity Index	4-15

Stone and recycled portland cement concrete in the mixture shall comply with Subsection 1003.01.

(c) Recycled Portland Cement Concrete: Recycled portland cement concrete shall be crushed portland cement concrete and will be permitted in combination with other approved stone for surface courses. After being crushed the recycled portland cement concrete or a combination of stone and recycled portland cement concrete shall comply with the following gradation.

1003.04

<u>U.S. Sieve</u>	<u>Metric Sieve</u>	<u>Percent Passing</u>
1 1/2 inch	37.5 mm	100
3/4 inch	19.0 mm	50-100
No. 4	4.75 mm	35-65
No. 40	425 µm	10-32
No. 200	75 µm	3-15

(d) Reclaimed Asphaltic Pavement (RAP): Reclaimed asphaltic pavement material shall comply with Subsection 1003.01 and the following gradation:

<u>U.S. Sieve</u>	<u>Metric Sieve</u>	<u>Percent Passing</u>
2 1/2 inch	63 mm	100
No. 4	4.75 mm	35-75

(e) Crushed Slag: This material shall be 100 percent crushed slag and shall comply with the gradation requirements of Heading (a). The fraction of crushed slag passing the No. 40 (425 µm) sieve shall be non-plastic.

1003.05 AGGREGATES FOR ASPHALTIC SURFACE TREATMENT.

Aggregates for asphaltic surface treatment shall comply with Subsection 1003.01 and shall be either crushed gravel, crushed stone, crushed slag or lightweight aggregate and shall be assigned a Friction Rating in accordance with Subsection 1003.06(a). Aggregates shall comply with the gradation requirements in Table 1003-2.

Crushed gravel Size 1 and Size 2 shall have 60 percent minimum crushed retained on the No. 4 (4.75 mm) sieve. Crushed gravel Size 3 shall have 75 percent crushed retained on the No. 4 (4.75 mm) sieve. The percent crushed shall be determined in accordance with DOTD TR 306.

The maximum amounts of deleterious materials shall be as follows:

Property	Percent, Max.
Clay Lumps	0.05
Total Clay Lumps and Friable Particles	3.0
Iron Ore	2.0
Glassy Particles in Slag	10.0
Flat and Elongated Particles (5:1)(ASTM D 4791)	10.0
Coal and Lignite	1.0
Wood (Wet)	0.05
Total Clay Lumps and Friable Particles, Iron Ore, Coal and Lignite, and Wood	5.0

**Table 1003-2
Asphaltic Surface Treatment Aggregates Percent Passing**

U. S. Sieve	Metric Sieve	Size 1		Size 2	Size 3
		Slag or Stone Aggregate (Size No. 5)	Crushed Gravel ² or Lightweight Aggregate	All Aggregate (Size No. 7)	All Aggregate (Size No. 8)
1 1/2 inch	37.5 mm	100	100	---	---
1 inch	25.0 mm	90-100	95-100	---	---
3/4 inch	19.0 mm	20-55	60-90	100	---
1/2 inch	12.5 mm	0-10	---	90-100	100
3/8 inch	9.5 mm	0-5	0-15	40- 80	85-100
No. 4	4.75 mm	---	0-5	0-15	10-40
No. 8	2.36 mm	---	---	0-5	0-10
No. 16	1.18 μm	---	---	---	0-5
No. 200	75 μm ¹	0-1	0-1	0-1	0-1

¹The percentage passing the No. 200 (75 μm) sieve shall be 0 - 2 percent for crushed aggregates when the materials finer than the No. 200 (75 μm) sieve consist of dust fraction from crushing and handling, essentially free of clay.

²Uncrushed gravel may be used for Size 1 aggregate if more than one application of Asphaltic Surface Treatment is required.

1003.06 AGGREGATES FOR ASPHALTIC MIXTURES.

(a) Asphaltic Concrete: Aggregates shall comply with the requirements of Subsection 1003.01 except that reclaimed asphaltic pavement and recycled portland cement concrete are not required to be from sources listed on QPL 2 but shall be from approved sources. Coarse aggregates shall be defined as all material retained on or above the No. 4 (4.75 mm) sieve. Fine aggregate shall be defined as all material passing the No. 4 (4.75 mm) sieve.

1003.06

(1) Gravel, Stone, and Crushed Slag: These aggregates shall comply with Subsection 1003.05 for deleterious substances and shall be assigned a Friction Rating as shown in Table 1003-3 and indicated in QPL 2.

**Table 1003-3
Aggregate Friction Rating**

Friction Rating	Description
I	Aggregates that have a Polish Value of greater than 37 or demonstrate the ability to retain acceptable friction numbers for the life of the pavement.
II	Aggregates that have a Polish Value of 35 to 37 or demonstrate the ability to retain acceptable friction numbers for the life of the pavement.
III	Aggregates that have a Polish Value of 30 to 34 or demonstrate the ability to retain acceptable friction numbers for the life of the pavement.
IV	Aggregates with a Polish Value of 20 to 29.

(2) Fine Aggregate: Fine aggregates shall comply with the requirements of asphaltic mixtures. Aggregates shall also comply with the specification requirements for angularity and sand equivalent as shown in Section 502, Table 502-5.

a. Fine Aggregate Angularity: Fine aggregate angularity (FAA) shall be determined in accordance with DOTD TR 121. The fine aggregate angularity of the composite mixture shall be determined by calculating the weighted average based on aggregate proportions passing the No. 4 (4.75 mm) sieve and the individual FAA values reported on the job mix formula. When individual aggregate sources do not have sufficient quantities of any of the required sieve sizes, a composite sample shall be tested for the proposed blend.

b. Sand Equivalent: Sand equivalent shall be determined in accordance with DOTD TR120. The sand equivalent requirements shall apply to individual natural sand sources only and do not apply to manufactured fines and fines produced from crushing operations.

(3) Natural Sand: Natural sand shall be coarse sand or a combination of coarse sand and fine sand which is used in the asphaltic concrete mixture. Natural sand shall consist of clean, hard, durable,

siliceous grains graded from coarse to fine and shall be reasonably free from vegetative matter or other deleterious materials.

The sand shall be nonplastic and no clay balls or clay lumps shall be incorporated into the asphaltic mixture. The gradation shall have a maximum of 25 percent passing the No. 200 (75 μm) sieve. Clay lumps shall not exceed 1.00 percent by weight (mass) when sampled from the stockpile and tested in accordance with DOTD TR 119.

The sand equivalent of the portion of the natural sand in the mixture passing the No. 4 (4.75 mm) sieve shall be as shown in Section 502, Table 502-5 when tested in accordance with DOTD TR120.

(4) Recycled Portland Cement Concrete: Recycled portland cement concrete source shall meet the requirements of Subsection 1003.02(b)(2). The maximum amount of deleterious materials shall comply with Subsection 1003.05.

Recycled portland cement concrete may be used only when specified in the plans or by special provisions.

(5) Reclaimed Asphaltic Pavement (RAP): Reclaimed asphaltic pavement shall comply with Subsection 1003.01.

(6) Mineral Filler: Mineral filler shall be an approved product listed on QPL 10 and shall consist of limestone dust, pulverized hydrated lime, portland cement, or cement stack dust. Mineral dust collected in bag houses or by other dust collectors at asphaltic concrete plants is not classified as mineral filler. Cement stack dust shall consist of material collected from waste rotary kiln gases discharged through a collector of a cement plant. Mineral filler shall comply with the following gradation:

<u>U.S. Sieve</u>	<u>Metric Sieve</u>	<u>Percent Passing</u>
No. 30	600 μm	100
No. 80	180 μm	95-100
No. 200	75 μm	70-100
No. 270	53 μm	60-100

Mixtures of aggregate, filler and asphalt, in proportions to meet the requirements of mixes being used, shall have an index of retained Marshall Stability (DOTD TR 313) of at least 85 percent, and a maximum of 1.0 percent volumetric swell (DOTD TR 313).

(7) Expanded Clay Coarse Aggregate: Expanded clay coarse aggregate shall consist of angular fragments of uniform density free from

1003.06

an excess of foreign matter. These aggregates shall comply with Subsection 1003.05 for deleterious materials.

(b) Stone Matrix Asphalt (SMA): All aggregate sources shall be approved and listed on QPL 2. Aggregates shall be composed of clean and durable crushed stone. The combined aggregates shall be in accordance with the design gradation requirements in Table 508-1.

(1) Coarse Aggregate: Fifty percent (50%) of the coarse aggregate shall meet Class I friction requirements and the remainder shall meet Class I, II, or III friction requirements. Alternately, 100 percent of the coarse aggregate shall meet Class II friction requirements. At a 3 to 1 ratio in accordance with ASTM D 4791, the flat and elongated particle limit shall be 25 percent maximum by weight (mass). In addition, at a 5 to 1 ratio, the flat and elongated particle limit shall be 5 percent maximum.

(2) Fine Aggregate: Fine aggregate shall consist of 100 percent crushed manufactured sand. The Fine Aggregate Angularity, FAA, of each source shall be measured and the calculated fine aggregate blend shall be 45 percent minimum when tested in accordance with DOTD TR 121 (mineral filler excluded).

1003.07 GRANULAR MATERIAL. Granular material shall be non-plastic and siliceous material, and shall comply with Subsection 1003.01 and the following gradation:

<u>U.S. Sieve</u>	<u>Metric Sieve</u>	<u>Percent Passing</u>
1/2 inch	12.5 mm	100
No. 10	2.00 mm	75-100
No. 200	75 μ m	0-10

1003.08 BEDDING MATERIAL. Bedding materials shall consist of stone, recycled portland cement concrete, or a mixture of either recycled portland cement concrete, gravel, crushed slag, or stone with granular material complying with Subsection 1003.01.

(a) Stone or Recycled Portland Cement Concrete: Stone or recycled portland cement concrete shall comply with Subsection 1003.04.

(b) Sand-Aggregate: The sand-aggregate material shall be a natural or artificial mixture of sand and gravel, crushed slag, recycled portland cement concrete, or other approved aggregate listed in this subsection. Material passing the No. 40 (425 μ m) sieve shall be nonplastic. The

mixture shall be free of foreign matter as determined by visual inspection and shall comply with the following gradation prior to placement.

<u>U.S. Sieve</u>	<u>Metric Sieve</u>	<u>Percent Passing</u>
1 1/2 inch	37.5 mm	95-100
No. 4	4.75 mm	30-50
No. 10	2.00 mm	20-45
No. 200	75 μ m	0-10

(c) Mixtures: Recycled portland cement concrete, gravel, stone, or crushed slag shall be mixed with 35 \pm 5 percent granular material by volume. The mixture shall be verified by proof of material deliveries.

(1) Gravel: Gravel shall comply with the following gradation.

<u>U.S. Sieve</u>	<u>Metric Sieve</u>	<u>Percent Passing</u>
1 1/2 inch	37.5 mm	95-100
No. 4	4.75 mm	0-15
No. 200	75 μ m	0-2

(2) Recycled Portland Cement Concrete, Crushed Slag, or Stone: Recycled portland cement concrete, crushed slag or stone shall conform to the following gradation:

<u>U.S. Sieve</u>	<u>Metric Sieve</u>	<u>Percent Passing</u>
1 1/2 inch	37.5 mm	95-100
3/4 inch	19.0 mm	40-85
No. 4	4.75 mm	0-15

(3) Granular Material: Granular Material shall comply with Subsection 1003.07.

1003.09 NONPLASTIC EMBANKMENT. Nonplastic embankment materials shall be an approved sand, stone, or blended calcium sulfate. The maximum organic content shall be 4.0 percent.

(a) Sand: Sand embankment shall consist of nonplastic material with at least 75 percent passing the No. 4 (4.75 mm) sieve and containing not more than 15 percent passing the No. 200 (75 μ m) sieve when tested in accordance with DOTD TR 112 and DOTD TR 113.

1003.09

(b) Stone: Stone shall be coarse stone listed on QPL 2 with a dry rodded unit weight (mass) of no greater than 95 pounds per cubic foot (1520 kg/cu m) when tested in accordance with AASHTO T19. Stone shall comply with the following gradation:

<u>U.S. Sieve</u>	<u>Metric Sieve</u>	<u>Percent Passing</u>
2 inch	50 mm	100
1 1/2 inch	37.5 mm	85 - 100
3/4 inch	19.0 mm	35 - 88
No. 4	4.75 mm	0 - 10

(c) Blended Calcium Sulfate: Blended calcium sulfate embankment material shall consist of calcium sulfate, from a source approved by the Materials and Testing Section, blended with an approved aggregate. The source shall have a quality control program approved by the Materials and Testing Section. The source shall have been given environmental clearance by the Department of Environmental Quality for the intended use, and written evidence of such environmental clearance shall be on file at the Materials and Testing Section. DOTD monitoring for compliance with environmental regulations will be limited to the pH testing listed below. The blended material shall be non-plastic and reasonably free from organic and foreign matter. The pH shall be a minimum of 5.0 when tested in accordance with DOTD TR 430. Should the source of the aggregate that is blended with the calcium sulfate change, re-evaluation will be required. The blended embankment material shall consist of 25 to 75 percent passing the No. 4 (4.75 mm) sieve when tested in accordance with DOTD TR 113 modified to include a drying temperature not to exceed 140°F (60°C).

1003.10 AGGREGATE FOR SUBGRADE LAYER. Aggregate for subgrade layers shall consist of either stone, crushed slag, recycled portland cement concrete, or blended calcium sulfate complying with Subsection 1003.01 and the following.

(a) Stone, Crushed Slag, or Recycled Portland Cement Concrete: Stone, crushed slag, or recycled portland cement concrete shall comply with Subsection 1003.03.

(b) Blended Calcium Sulfate: Blended calcium sulfate shall comply with Subsection 1003.09 except that when tested in accordance with DOTD TR 113, modified to include a maximum drying temperature

of 140°F (60°C), blended calcium sulfate shall comply with the following gradation.

<u>U.S. Sieve</u>	<u>Metric Sieve</u>	<u>Percent Passing</u>
1 inch	25.0 mm	90-100
3/4 inch	19.0 mm	70-100
No. 4	4.75 mm	25-75
No. 200	75 µm	0-25

Section 1019

Geotextile Fabric and Geocomposite Systems

1019.01 GEOTEXTILE FABRIC.

(a) General Requirements: The geotextile fabric shall be composed of at least 85 percent by weight (mass) of polyolefins, polyesters, or polyamides. The geotextile fabric shall be resistant to chemical attack, rot and mildew and shall have no tears or defects which adversely alter its physical properties. When required, the geotextile fabric shall contain stabilizers and/or inhibitors added to the base material to make filaments resistant to deterioration due to ultraviolet and heat exposure. Edges of geotextile fabric shall be finished to prevent the outer yarn from pulling away from the fabric. Fibers of other composition may be woven into the geotextile fabric for reinforcing purposes. Durability of these fibers shall be equivalent to that of the geotextile fabric.

Geotextile fabric rolls shall be furnished with an opaque, waterproof wrapping for protection against moisture and extended ultraviolet exposure prior to placement. Each roll shall be labeled or tagged with the manufacturer's name, date of manufacture, batch number, name of product.

Unless otherwise specified on the plans or in the project specifications, the geotextile fabric shall be an approved product in QPL 61.

(b) Detailed Requirements: The geotextile fabric shall comply with the requirements in Table 1019-1 and shall be utilized as follows unless otherwise specified:

	<u>Use</u>	<u>Classes</u>
(1)	Drainage:	
	Underdrains	A, B, C or D
	Pipe and Precast Manhole Joints	A, B, C or D
	Weep Holes	A, B, C or D
	Bedding Fabric	B, C, or D
	Approach Slabs	B, C, or D
	Fabric for Geocomposite Drainage Systems ¹	B, C, or D
(2)	Stabilization:	
	Bulkheads	C or D
	Flexible Revetments	C or D

1019.01

Rip Rap	D
Railroad Crossings	D
Base Course	D
Subgrade Layer	D
Soil Stabilization	C, D, or S
(3) Paving Fabric ² :	B or C (modified)
(4) Silt Fencing:	
Wire Supported	F
Self Supported	G

¹Refer to Subsection 1019.02 for additional requirements.

²Refer to Subsection 1019.03 for additional requirements.

**Table 1019-1
Geotextile Fabrics**

Property	Test Method	Requirements Classes						
		A	B	C	D	S	F	G
AOS, Metric Sieve, μm , Max.	ASTM D 4751	300	300	300	212	600	850	850
Grab Tensile, N, Min.	ASTM D 4632	330	400	580	800	800	400	400
% Elongation @ Failure, Min.	ASTM D 4632	---	---	50	50	---	---	---
% Elongation @ 200 N, Max.	ASTM D 4632	---	---	---	---	---	---	50
Burst Strength, N, Min.	ASTM D 3787	440	620	930	1290	1390	---	---
Puncture, N, Min.	ASTM D 4833	110	130	180	330	330	---	---
Trapezoid Tear Strength, N, Min.	ASTM D 4533	110	130	180	220	220	---	---
Permittivity, Sec.^{-1} , Min.	ASTM D 4491	1.0	1.0	1.0	1.0	0.2	0.01	0.01
Grab Tensile Strength Retained after weathering 150 h, UVA lamps, %, Min	ASTM D 4632 ASTM G 154	70	70	70	70	70	---	---
Grab Tensile Strength Retained after weathering 500 h, UVA lamps, %, Min	ASTM D 4632 ASTM G 154	---	---	---	---	---	70	70

1019.02 GEOCOMPOSITE DRAINAGE SYSTEMS. The geocomposite fabric drain shall consist of a nonwoven geotextile fabric and a core as specified below with the geotextile completely enveloping the core. Fittings shall be as recommended by the manufacturer. The geotextile fabric shall be sufficiently secured to the core to prevent separation of the geotextile fabric and intrusion of the backfill material during installation. The geocomposite drainage system shall be an approved product listed in QPL 62.

(a) Geotextile Fabric: The fabric shall meet the requirements for Class B, C, or D geotextile fabric of Subsection 1019.01 with the following modifications:

1019.02

<u>Property</u>	<u>Test Method</u>	<u>Requirements</u>
Elongation, %, Min.	ASTM D 4632	20
Sewn Seam Strength (Fabric to Fabric), kN/m width, Min.	ASTM D 4437	2600

(b) Cores for Wall Drains (Single Sided): The core shall be a flexible, solid-backed, rectangular design made of a polyolefin material not sensitive to moisture. The geocomposite design shall allow drainage of water from one side only. The core shall consist of supports having a minimum height of 5/16 inch (8 mm) upon which the fabric shall be securely fastened. The cross section open area of the core which will allow the passage of water shall be a minimum of 40 percent.

The core shall meet the following requirements:

<u>Property</u>	<u>Test Method</u>	<u>Requirements</u>
Compressive Strength, kPa @ 20% Max. deflection, Min.	ASTM D 1621	380

1019.03 PAVING FABRIC. In addition to the specifications for Class B or C geotextile fabric of Subsection 1019.01, the paving fabric shall also comply with the following requirements:

<u>Property</u>	<u>Test Method</u>	<u>Requirements</u>
Asphalt Retention, L/sq m	AASHTO M 288	0.9
Change in Area at 135°C, %, Max.	AASHTO M 288	15.0

APPENDIX IX

PREVAILING WAGE DETERMINATION SCHEDULE

Second cook.....	\$ 7.25	
Marsh Buggy Dragline, Oiler.....	\$ 7.25	
Marsh Buggy Dragline, Operator...	\$ 7.25	
Self-Propelled Hopper Dredge, Drag Tender.....	\$ 9.70	3.45+a

FOOTNOTE: Fourteen paid vacation days and eight paid holidays: New Year's Day, Good Friday, Memorial Day, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day & Christmas Day provided the employee has one year of service.

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

=====

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)).

In the listing above, the "SU" designation means that rates listed under the identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

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.

=====

END OF GENERAL DECISION

APPENDIX X FIELD ADJUSTMENT REPORT

APPENDIX XI REQUEST FOR INTERPRETATION

APPENDIX XII LAND RIGHTS APPENDIX

AGREEMENT PROVIDED ELECTRONICALLY at the following link:

<ftp://ftp.coastal.la.gov/CS-59%20Oyster%20Bayou%20Marsh%20Creation/Construction%20Documents/>

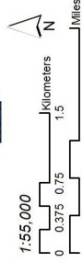
Exhibit A

Oyster Bayou Marsh Creation & Terracing Project CS-0059, Cameron Parish, LA

	Marsh Creation Area
	Terrace Field
	Pipeline Corridor
	Borrow Area
	Roads
	Township/Range
	Section Lines

Owner	Apache Louisiana Minerals Inc. et al
	Ardoin Limited Partnership
	C.F. Henry Properties, LLC
	Devall Enterprises Inc.
	Mathilde Stream et al
	Norma Jean Rogers Blake, et al
	Raymond Rice, Jr. & John C. Allaire
	Tower Land Company Inc.
	Westlands Corp.
	Westlands Corp. et al
	State of Louisiana

All project features are graphical representations only, are subject to change, and may not reflect true location or dimension



Source: Coastal Protection and Restoration Authority
 Imagery: 2013 MAP DOQG
 Map Date: October 23, 2014
 /2015040011



LANDOWNERS:

Tract 1:

WESTLANDS CORPORATION
Attn: W.W. Rucks, III
110 Oil Center Drive
Lafayette, LA 70503

KELLY ANN LITTLE NORRIS
6805 Boyance Road
New Iberia LA 70560

KARLYN LITTLE MYERS
6619 Boyance Road
New Iberia, LA 70560

JOHN KIRBY LITTLE
812 Hickory Hill Court
Orlando, FL 32828

J. LAWTON COMPANY, L.L.C.
Attn: Jack E. Lawton, Jr.
1409 Kirkman Street
Lake Charles, LA 70601

CAROLYN RUSH BUNCH
408 Kelly Plantation Drive, Unit 910
Destin, FL 32541

ELIZABETH TAYLOR RUSH'S CHILDREN AND GRANDCHILDREN TRUST
Attn: Carolyn Rush Bunch, Trustee
2999 Bay Villa Court
Miramar Beach, FL 32550

CAROLYN RUSH BUNCH SPENDTHRIFT TRUST
Attn: Wayne P. Bunch, Trustee
408 Kelly Plantation Drive, Unit 910
Destin, FL 32541

KATHRYN B. HOUSE
1513 Alvin Street
Lake Charles, LA 70601

KERRY ARTHUR HOUSE
P.O. Box 12261
Lake Charles, LA 70601

MARION COFFIN BROOKE WORTH
15 Underhill Road
Locust Valley, NY 11560

MKS PROPERTIES, L.L.C.
Attn: Harold H. Stream, III
2417 Shell Beach Drive
Lake Charles, LA 70601

TOWER LAND COMPANY L.L.C.
Attn: William T. Drost
641 Prien Lake Road
Lake Charles, LA 70601

ARLEEN EVELYN GOODE
3448 Lake Street
Lake Charles, LA 70605

MARK D. GOODE
903 Village Court
Lake Charles, LA 70605

SHARON L. THOMAS
3448 Lake Street
Lake Charles, LA 70605

DEBRA K. DOTY
3448 Lake Street
Lake Charles, LA 70605

DOROTHY SWANSON BROOKE
1 Pierrepont Street, Apt. 7-A
Brooklyn, NY 11201-3302

MARGARET RUCKS LABORDE
109 N. Lemans
Lafayette, LA 70503

CLIFFE E. LABORDE, III
128 Nickerson Parkway
Lafayette, LA 70501

W.W. RUCKS, III
P.O. Box 51524
Lafayette, LA 70505

GEORGE W. STOKES
P.O. Box 51546
Lafayette, LA 70505

LYNETTE STOKES CLARKE
P.O. Box 64
Bunkie, LA 71322

LINDA LOUISE WEST
2795 West Highway 90
Sulphur, LA 70663

MARION LANE WEST
12515 Stoney Creek Drive
Pearland, TX 77584

CRAIG E. VINCENT
1090 Russell Lane
Hackberry, LA 70645

CHARLENE VINCENT EBERSOLE
7434 Hwy 1133
Sulphur, LA 70665

SHANNA VINCENT GILBERT
212 Frasier
Lake Charles, LA 70605

LILLIAN LOUISE GOODE KENT
464 Stillmeadow Drive
Richardson, TX 75081

JANET J. JEANES
P.O. Box 2007
Brenham, TX 77834

Tract 2:

THE ARDOIN LIMITED PARTNERSHIP
Attn: Jan Louise Fontenot
4400 W. Prien Lake Road
Lake Charles, LA 70605

APPENDIX XIII SURVEY MONUMENTS

**VICINITY MAP**

Scale: 1" = 2000'

Reproduced from USC&GS "HOLLY BEACH" Quadrangle

Station Name: CS20-SM-03

Monument Location: From the drawbridge in Hackberry, La., proceed south on State Highway 27 for 15.9 miles to a limestone field road on left. Turn left on the field road and proceed easterly for approximately 2.5 miles to a limestone field road, thence north on the limestone field road to a boat launch at Step Canal. Thence proceed in Step Canal, by boat, easterly for approximately 1.7 miles and southerly for 1 mile to a flood control structure at the Mud Bayou crossing and the monument on the left. The monument is located south of the flood control structure.

Monument Description: NGS Style Floating Sleeve Monument; datum point set on 9/16" stainless steel rods driven 64 feet to refusal, set in sand filled 6" PVC pipe with access cover and set in concrete 12 inches above ground.

Stamping: "MUD BAYOU"

Date: February 2002

Monument Established By: John Chance Land Surveys, Inc.

For: Louisiana Department of Natural Resources, CRD

Adjusted NAD 83 (1992) Geodetic Position

Lat. 29° 49' 17.016104" N
Long. 93° 23' 56.574856" W

Adjusted NAD 1983 Datum LSZ (1702) Ft

N= 486,444.90
E= 2,625,833.15

Adjusted NAVD88 Height

Elevation = 4.15 feet / 1.264m

Ellipsoid Height = -25.543m

Geoid99 Height = -26.806m



Adjusted Position Established by John Chance Land Surveys, Inc. for Louisiana Department of Natural Resources, CRD

**APPENDIX XIV U.S. COAST GUARD NOTICE OF INTENT TO DREDGE
INFORMATION REQUIREMENTS**



**8TH COAST GUARD DISTRICT MARINE INFORMATION SECTION OF
THE AIDS TO NAVIGATION BRANCH. (504) 671-2327**

FAX: (504) 671-2137

E-MAIL: d8marineinfo@uscg.mil

SECTOR OFFICES:

MOBILE: (251) 441-5999

NEW ORLEANS: (504) 365-2200

GLAVESTON: (713) 678-9055

CORPUS CHRISTI: (361) 939-6393

UPPER MISSISSIPPI: (314) 269-2610

LOWER MISSISSIPPI: (866) 777-2784

OHIO VALLEY: (502) 779-5422

TIME LINE: PROVIDE THE REQUESTED INFORMATION IDEALLY 7 TO 10 DAYS PRIOR TO THE ACTIVITY.

INFORMATION REQUESTED:

ANY DREDGING OR OTHER OPERATIONAL ACTIVITY THAT IMPACTS THE SAFE NAVIGATION ON FEDERAL WATERWAYS.

1. DATES (INCLUSIVE) OF OPERATION.
2. HOURS OF OPERATION (24 HOURS/DAYLIGHT HOURS ONLY).
3. NAMES OF THE INVOLVED VESSEL(S).
4. WORKING AND STANDBY FREQUENCIES.
5. SPECIFIC LOCATION (MILE MARKER/BANK).
6. ANY SPECIFIC INSTRUCTIONS OR CONCERNS THAT WOULD BE PERTINENT TO THE MARINER.

NOTE: WE CAN ONLY PROVIDE INFORMATION. WE CANNOT DIRECT THE MOVEMENTS OF VESSELS. WE URGE THE MARINER TO ADHERE TO THE REQUESTED ACTIONS.

ACTION: THE COAST GUARD WILL ISSUE A BROADCAST NOTICE TO MARINERS AND/OR INCLUDE THE INFORMATION INTO THE APPROPRIATE LOCAL NOTICE TO MARINERS.

IF THE SITUATION DICTATES (LAST MINUTE CHANGES OR NOTIFICATION), A CALL TO MY OFFICE AND THE BROADCAST NOTICE TO MARINERS CAN BE ISSUED/CHANGED/MODIFIED.

APPENDIX XV LOUISIANA ADMINISTRATIVE CODE – TITLE 51

PROVIDED ELECTRONICALLY at the following link:

<ftp://ftp.coastal.la.gov/CS-59%20Oyster%20Bayou%20Marsh%20Creation/Construction%20Documents/>

APPENDIX XVI WATERLINE RELOCATION DETAILS



MECHANICAL JOINT RESTRAINT



MEGALUG®

1100 MEGALUG®

MEGALUG® Mechanical Joint Restraint

The Series 1100 MEGALUG® Mechanical Joint Restraints effectively and economically restrain mechanical joints above or below ground, for practically any application including valves, hydrants, and pipe. It can also be used on steel pipe and cast iron pipe when joining to mechanical appurtenances, see product brochure for more details on these pipes.

Available in sizes 3 inch through 48 inch.



INSTALLED VIEW



PRODUCT VIEW

- PRODUCT BROCHURE
- SAMPLE SPECIFICATION
- CAD FILE
- PRODUCT VIDEO
- INSTALLATION VIDEO
- PIPE & DOZER VIDEO
- RELATED DOCUMENTS



- COLLECT AS PACKAGE
- TECHNICAL PAPERS





MECHANICAL JOINT RESTRAINT

MEGALUG®



INSTALLED VIEW PRODUCT VIEW

1100 MEGALUG®

MEGALUG® Mechanical Joint Restraint

The Series 1100 MEGALUG® Mechanical Joint Restraints effectively and economically restrain mechanical joints above or below ground, for practically any application including valves, hydrants, and pipe. It can also be used on steel pipe and cast iron pipe when joining to mechanical appurtenances, see product brochure for more details on these pipes.

Available in sizes 3 inch through 48 inch.

- [PRODUCT BROCHURE](#)
- [SAMPLE SPECIFICATION](#)
- [CAD FILE](#)
- [PRODUCT VIDEO](#)
- [INSTALLATION VIDEO](#)
- [PIPE & DOZER VIDEO](#)
- [RELATED DOCUMENTS](#)

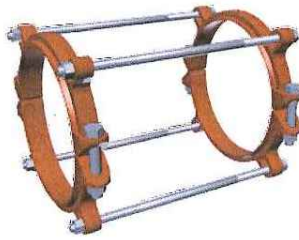
- [COLLECT AS PACKAGE](#)
- [TECHNICAL PAPERS](#)



PUSH ON PIPE JOINTS



1600 Split Serrated Restraint Harness



INSTALLED VIEW



PRODUCT VIEW

Restraint Harness for AWWA C900 PVC Pipe Joints

The Series 1600 is a split serrated restraint harness for restraining C900 PVC Pipe Joints. It's comprised of one split serrated restraint ring that goes on the plain end or spigot end and a split non-serrated ring that goes on behind the bell. They are fastened into a harness by an array of thrust rods.

Available in sizes 4 inch through 12 inch.

PRODUCT BROCHURE

SAMPLE SPECIFICATION

CAD FILE

INSTALLATION VIDEO

RELATED DOCUMENTS



COLLECT AS PACKAGE



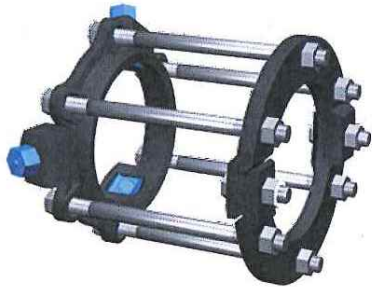
TECHNICAL PAPERS



PUSH ON PIPE JOINTS



MEGALUG®



INSTALLED VIEW

PRODUCT VIEW

1700 MEGALUG® Harness

Restraint Harness for Ductile Iron Push On Pipe

The Restraint Harness consists of one Series 1100 MEGALUG Restraint and one split bell back up ring.

Available in sizes 4 inch through 48 inch.

[PRODUCT BROCHURE](#)

[SAMPLE SPECIFICATION](#)

[INSTALLATION VIDEO](#)

[RELATED DOCUMENTS](#)



[COLLECT AS PACKAGE](#)



[TECHNICAL PAPERS](#)

APPENDIX XVII DHH PERMIT

Bobby Jindal
GOVERNOR



Kathy H. Kliebert
SECRETARY

State of Louisiana
Department of Health and Hospitals
Office of Public Health

October 8, 2015

Attn: CB&I
Ms. Whitney C. Thompson, P.E.
4171 Essen Lane
Baton Rouge, LA 70809

Coastal Protection and Restoration Authority
Ms. Vida Carver, P.E.
P.O. Box 44027
Baton Rouge, LA 70804

Cameron Parish Waterworks Dist. 10
Mr. Mark Young
6246 Gulf Beach Hwy
Johnson Bayou, LA 70631

Re: Cameron Parish Waterworks Dist. 10, PWS ID# LA 1023005
- Oyster Bayou Marsh Restoration Project (CS-59) *(Proposed Waterline Relocation at LA Highway 27/82), lower approximately 60' section of 10" water line by 3'*
Cameron Parish
P-15-05-023-007

Dear Applicant:

Plans and specifications of the above named project have been reviewed and found to be in substantial conformity with applicable provisions of the Sanitary Code.

This permit refers to the sanitary features of the design only, and is not to be taken as an approval of structural details, except insofar as they may affect sanitation.

This permit is given with the stipulation that the distribution system and its improvements, will be owned, operated, and maintained by Cameron Parish Waterworks Dist. 10, (PWS1023005), 6246 Gulf Beach Hwy, Johnson Bayou, LA 70631.

The plans and specifications are being sent to the Cameron Parish Health Unit.

Re: Cameron Parish Waterworks Dist. 10, PWS ID# LA 1023005
- Oyster Bayou Marsh Restoration Project (CS-59) (Proposed Waterline Relocation at LA Highway 27/82), lower approximately 60' section of 10" water line by 3'
Cameron Parish
P-15-05-023-007
Page 2

This permit is automatically canceled if construction of the project has not been started within two (2) years after the date of this letter.

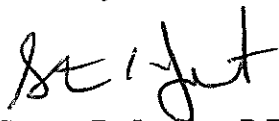
After construction is completed, the responsible party for the design of the project shall submit a Confirmation Letter to this office certifying that the project was constructed in accordance with the plans and specifications approved by this office. As of February 1, 2007 this Confirmation Letter shall be required prior to occupancy.

If construction commences before a permit is granted, a Notice of Violation will be issued for the project. A letter of "no objection" will not be issued on any pre-constructed project unless the project fully complies with the requirements of the Sanitary Code.

In the event that it is determined at some point in the future that a design error escaped our detection during our review of these plans and specifications, that oversight shall not relieve you, the applicant, of the responsibility for complete compliance with the applicable requirements of the Louisiana Administrative Code [particularly, LAC 51 (Public Health Sanitary Code) and LAC 48 (Public Health – General), specifically including correcting the violations inadvertently overlooked.

At the direction of the State Health Officer,

Sincerely,



Steven R. Joubert, P.E.
Region V Engineering

cc: Jennifer Kihlken, P.E., District III Engineer
Dane Thibodeaux, Region V Sanitarian Director
Ryan King, Cameron Parish Sanitarian Manager

APPENDIX XVIII LDWF PERMIT



LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES

FILL MATERIAL LICENSE

LICENSE NO: WLF201624



In consideration of a royalty paid to the Department by the applicant, this license for the removal of fill material from water bottoms of the State of Louisiana is issued to:

*Licensee Name and Address: CPRA/Vida Carver
P.O. Box 44027
Baton Rouge, LA 70804*

License Site Location: South of Oyster Lake, Lat. 29°46'38", Long. 93°24'14", Cameron Parish

Project Description: Dredge 2,654,100 cubic yards of fill material and/or fill sand to create ~605 acres of saline marsh & 17,550ft. of earthen terraces for the CS-0059 Oyster Bayou Marsh Creation & Terracing Project

The rights and privileges shall begin on the 15th day of February 2016 and expires on the 31st day of December 2016. In the event that licensee reach the amount applied for prior the December 31st, 2016 the license will expire at that time.

The use of the fill material authorized for removal by this license is subject to the following restrictions:

- 1. The Department of Wildlife and Fisheries shall be notified prior to removal of the material and again be notified upon completion of the project.*
- 2. All provisions of the Fill Material License shall be adhered to.*
- 3. This Certificate shall be posted in a conspicuous place at the project site during the activities authorized.*

Jimmy L. Anthony, Assistant Secretary